

MASTER

N-75-24094

NASA SP-7043 (03)

ENERGY, A CONTINUING BIBLIOGRAPHY WITH
INDEXES

National Aeronautics and Space Administration
Washington, D. C.

February 1975

RECEIVED BY TIC DEC 29 1975

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.



NASA SP-70-13 (03)

ENERGY

A CONTINUING BIBLIOGRAPHY
WITH INDEXES

FEBRUARY 1975

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA. 22151

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

84

ACCESSION NUMBER RANGES

Accession numbers in this issue fall within the following ranges:

IAA (A-10000 Series) A 74-28536—A 74-38030

STAR (N-10000 Series) N 74-21630—N 74-29366

Previous publications announced in this series/subject category include:


Energy: A Special Bibliography NASA SP-7042
(Coverage Jan. 1, 1968 through Dec. 31, 1973)

Energy: A Continuing Bibliography NASA SP-7043(01)
(Coverage Jan. 1, 1974 through Mar. 31, 1974)

Energy: A Continuing Bibliography NASA SP-7043(02)
(Coverage Apr. 1, 1974 through Jun. 30, 1974)

This bibliography was prepared by the NASA Scientific and Technical Information Facility, operated for the National Aeronautics and Space Administration by Informatics Information Systems Company.

12

1. Report No. NASA SP-7043 (03)		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle ENERGY A Continuing Bibliography (Issue 03)				5. Report Date February 1975	
				6. Performing Organization Code	
7. Author(s)				8. Performing Organization Report No.	
9. Performing Organization Name and Address National Aeronautics and Space Administration Washington, DC 20546				10. Work Unit No.	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address				13. Type of Report and Period Covered	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract  This bibliography lists 322 reports, articles, and other documents introduced into the NASA scientific and technical information system from July 1, 1974 through September 30, 1974.					
PRICES SUBJECT TO CHANGE					
17. Key Words (Suggested by Author(s)) Bibliographies Energy Conversion Energy Policy Solar Energy			18. Distribution Statement Unclassified - Unlimited		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified			

* For sale by the National Technical Information Service, Springfield, Virginia 22151

ENERGY

A Continuing Bibliography

With Indexes

ISSUE 03

44
A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced from July 1 through September 30, 1974 in:

- *Scientific and Technical Aerospace Reports (STAR)*
- *International Aerospace Abstracts (IAA)*



Scientific and Technical Information Office
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
FEBRUARY 1975
Washington, D.C.

INTRODUCTION

This issue of *Energy: A Continuing Bibliography with Indexes* (NASA SP-7043(03)) lists 322 reports, journal articles, and other documents announced between July 1, 1974 and September 30, 1974 in *Scientific and Technical Aerospace Reports (STAR)*, or in *International Aerospace Abstracts (IAA)*. The first issue of this continuing bibliography was published in May 1974 and succeeding issues are published quarterly.

The coverage includes regional, national and international energy systems; research and development on fuels and other sources of energy; energy conversion, transport, transmission, distribution and storage, with special emphasis on use of hydrogen and of solar energy. Also included are methods of locating or using new energy resources. Of special interest is energy for heating, lighting, for powering aircraft, surface vehicles, or other machinery.

Each entry in the bibliography consists of a standard bibliographic citation accompanied in most cases by an abstract. The listing of the entries is arranged in two major sections, *IAA Entries* and *STAR Entries* in that order. The citation, and abstracts when available, are reproduced exactly as they appeared originally in *IAA* or *STAR* including the original accession numbers from the respective announcement journals. This procedure, which saves time and money accounts for the slight variation in citation appearances.

Five indexes-subject, personal author, corporate source, contract number, and report number are included. The indexes are of the cumulating type throughout the year, with the fourth quarterly publication containing abstracts for the fourth quarter and index references for the four quarterly publications.

AVAILABILITY OF CITED PUBLICATIONS

IAA ENTRIES (A74-10000 series)

All publications abstracted in this Section are available from the Technical Information Service, American Institute of Aeronautics and Astronautics, Inc. (AIAA), as follows: Paper copies are available at \$5.00 per document up to a maximum of 20 pages. The charge for each additional page is 25 cents. Microfiche⁽¹⁾ are available at the rate of \$1.50 per microfiche for documents identified by the # symbol following the accession number. A number of publications, because of their special characteristics, are available only for reference in the AIAA Technical Information Service Library. Minimum airmail postage to foreign countries is \$1.00. Please refer to the accession number, e.g. A74-10763, when requesting publications.

STAR ENTRIES (N74-10000 Series)

One or more sources from which a document announced in *STAR* is available to the public is ordinarily given on the last line of the citation. The most commonly indicated sources and their acronyms or abbreviations are listed below. If the publication is available from a source other than those listed, the publisher and his address will be displayed on the availability line or in combination with the corporate source line.

Avail: NTIS. Sold by the National Technical Information Service to U.S. customers at the price shown in the citation following the letters HC (hard, paper, or facsimile copy). Customers outside the U.S. should add \$2.50 per copy for handling and postage charges to the price shown. (Prices shown in earlier *STAR* volumes, 1962-1974, have been superseded but may be calculated from the number of pages shown in the citation. The price schedule by page count was given in the last *STAR* issue of 1974 or may be obtained from NTIS.)

Microfiche¹ is available at a standard price of \$2.25 (plus \$1.50 for non-U.S. customers) regardless of age for those accessions followed by a "#" symbol. Accession numbers followed by a "+" sign are not available as microfiche because of size or reproducibility.

Initially distributed microfiche under the NTIS SRIM (Selected Research in Microfiche) is available at greatly reduced unit prices. For this service and for information concerning subscription to NASA printed reports, consult the NTIS Subscription Unit.

NOTE ON ORDERING DOCUMENTS: When ordering NASA publications (those followed by the "*" symbol), use the N accession number.

NASA patent applications (only the specifications are offered) should be ordered by the US-Patent-Appl-SN number.

Non-NASA publications (no asterisk) should be ordered by the AD, PB, or other report number shown on the last line of the citation, not by the N accession number. It is also advisable to cite the title and other bibliographic identification.

Avail: SOD (or GPO). Sold by the Superintendent of Documents, U.S. Government Printing Office, in hard copy. The current price and order number are given following the availability line. (NTIS will fill microfiche requests, at the standard \$2.25 price, for those documents identified by a # symbol.)

(1) A microfiche is a transparent sheet of film 106 by 148 mm in size containing as many as 80 to 96 pages of information reduced to micro images (Not to exceed 28:1 reduction).

- Avail: NASA Public Document Rooms. Documents so indicated may be examined at or purchased from the National Aeronautics and Space Administration, Public Documents Room (Room 126), 600 Independence Ave., S.W., Washington, D.C. 20546, or public document rooms located at each of the NASA research centers, the NASA Space Technology Laboratories, and the NASA Pasadena Office at the Jet Propulsion Laboratory.
- Avail: ERDA Depository Libraries. Organizations in U.S. cities and abroad that maintain collections of Energy Research and Development Administration reports, usually in microfiche form, are listed in *Nuclear Science Abstracts*. Services available from the ERDA and its depositories are described in a booklet, *Science Information Available from the Energy Research and Development Administration* (TID-4550), which may be obtained without charge from the ERDA Technical Information Center.
- Avail: Univ. Microfilms. Documents so indicated are dissertations selected from *Dissertation Abstracts* and are sold by University Microfilms as xerographic copy (HC) at \$10.00 each and microfilm at \$4.00 each regardless of the length of the manuscript. Handling and shipping charges are additional. All requests should cite the author and the Order Number as they appear in the citation.
- Avail: USGS. Originals of many reports from the U.S. Geological Survey, which may contain color illustrations, or otherwise may not have the quality of illustrations preserved in the microfiche or facsimile reproduction, may be examined by the public at the libraries of the USGS field offices whose addresses are listed in this Introduction. The libraries may be queried concerning the availability of specific documents and the possible utilization of local copying services, such as color reproduction).
- Avail: HMSO. Publications of Her Majesty's Stationery Office are sold in the U.S. by Pendragon House, Inc. (PHI), Redwood City, California. The U.S. price (including a service and mailing charge) is given, or a conversion table may be obtained from PHI.
- Avail: BLL (formerly NLL): British Library Lending Division, Boston Spa, Wetherby, Yorkshire, England. Photocopies available from this organization at the price shown. (If none is given, inquiry should be addressed to the BLL.)
- Avail: ZLDI. Sold by the Zentralstelle für Luftfahrtokumentation und -Information, Munich, Federal Republic of Germany, at the price shown in deutschmarks (DM).
- Avail: Issuing Activity, or Corporate Author, or no indication of availability. Inquiries as to the availability of these documents should be addressed to the organization shown in the citation as the corporate author of the document.
- Avail: U.S. Patent Office. Sold by Commissioner of Patents, U.S. Patent Office, at the standard price of 50 cents each, postage free
- Other availabilities: If the publication is available from a source other than the above, the publisher and his address will be displayed entirely on the availability line or in combination with the corporate author line.



ADDRESSES OF ORGANIZATIONS

American Institute of Aeronautics
and Astronautics
Technical Information Service
750 Third Ave.
New York, N.Y. 10017

British Library Lending Division,
Boston Spa, Wetherby, Yorkshire,
England

Commissioner of Patents
U.S. Patent Office
Washington, D.C. 20231

Energy Research and Development
Administration
Technical Information Center
P.O. Box 62
Oak Ridge, Tennessee 37830

ESRO/ELDO Space Documentation Service
European Space Research Organization
114, av. Charles de Gaulle
92-Neuilly-sur-Seine, France

Her Majesty's Stationery Office
P.O. Box 569, S.E. 1
London, England

NASA Scientific and Technical Information
Facility
P.O. Box 33
College Park, Maryland 20740

National Aeronautics and Space
Administration
Scientific and Technical Information
Office (KSI)
Washington, D.C. 20546

National Technical Information Service
Springfield, Virginia 22161

Pendragon House, Inc.
899 Broadway Avenue
Redwood City, California 94063

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

University Microfilms
A Xerox Company
300 North Zeeb Road
Ann Arbor, Michigan 48106

University Microfilms, Ltd.
Tylers Green
London, England

U.S. Geological Survey
1033 General Services Administration Bldg.
Washington, D.C. 20242

U.S. Geological Survey
601 E. Cedar Avenue
Flagstaff, Arizona 86002

U.S. Geological Survey
345 Middlefield Road
Menlo Park, California 94025

U.S. Geological Survey
Bldg. 25, Denver Federal Center
Denver, Colorado 80225

Zentralstelle für Luftfahrt-doku-
mentation und -Information
8 München 86
Postfach 880
Federal Republic of Germany

GENERAL AVAILABILITY

All publications abstracted in this bibliography are available to the public through the sources as indicated in the *STAR Entries* and *IAA Entries* sections. It is suggested that the bibliography user contact his own library or other local libraries prior to ordering any publication inasmuch as many of the documents have been widely distributed by the issuing agencies, especially NASA. A listing of public collections of NASA documents is included on the inside back cover.

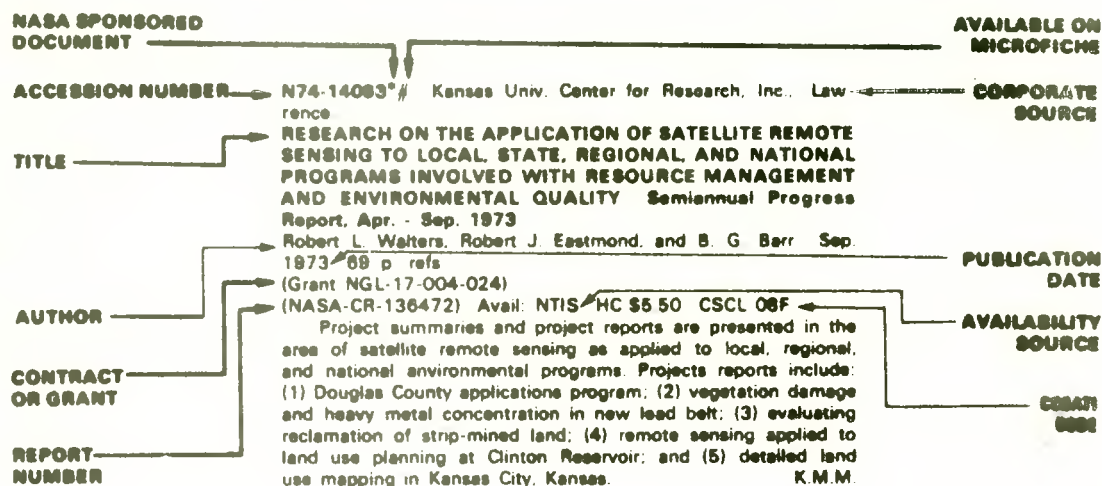
SUBSCRIPTION AVAILABILITY

This publication is available on subscription from the National Technical Information Service (NTIS). The annual subscription rate for the monthly supplement is \$15.00. All questions relating to subscriptions should be referred to the NTIS.

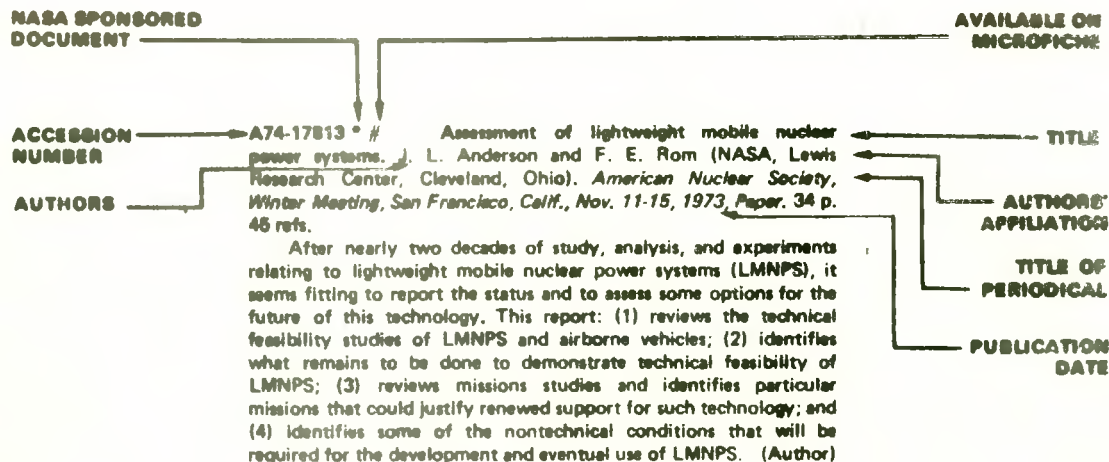
TABLE OF CONTENTS

	Page
IAA Entries	83
STAR Entries	99
SUBJECT INDEX	A-1
PERSONAL AUTHOR INDEX	B-1
CORPORATE SOURCE INDEX	C-1
CONTRACT NUMBER INDEX	D-1
REPORT/ACCESSION NUMBER INDEX	E-1

TYPICAL CITATION AND ABSTRACT FROM STAR



TYPICAL CITATION AND ABSTRACT FROM IAA



A Listing of Energy Bibliographies Contained In This Publication:

1. NSF-RANN Energy Abstracts: A Monthly Abstract Journal of
Energy Research, Volume 1, No. 11, November 1973
N74-27537 p0114



IAA ENTRIES

A74-28746 Fuel system requirements for small gas turbine engines. R. G. Moore (Bendix Corp., Energy Controls Div., South Bend, Ind.). *Society of Automotive Engineers, Business Aircraft Meeting, Wichita, Kan., Apr. 2-5, 1974, Paper 740381*. 9 p. Members, \$1.25; nonmembers, \$2.00.

Fundamental engine configurations and general fuel control functional requirements for 250-1000 hp engines are discussed. A basic fuel control system and functional options developed to meet specific requirements of several engine models are described. Design details of several example options are presented to illustrate the degree of complexity required to obtain desired functions. (Author)

A74-28747 Fuel system requirements for light aircraft turbocharged reciprocating engines. J. M. Kirwin and E. A. Hasse (Bendix Corp., Energy Controls Div., South Bend, Ind.). *Society of Automotive Engineers, Business Aircraft Meeting, Wichita, Kan., Apr. 2-5, 1974, Paper 740382*. 12 p. Members, \$1.25; nonmembers, \$2.00.

A74-28943 Stabilization of ionization instability in an MHD generator. S. Hatori and S. Shioda (Tokyo Institute of Technology, Tokyo, Japan). *Physical Society of Japan, Journal*, vol. 36, Mar. 1974, p. 920.

The reduction of ionization instability through full ionization of seed material is considered. In particular, the steady relation between the magnetic field and the spatially averaged electron temperature under actual MHD-generator operating conditions is discussed.

M.V.E.

A74-28957 # Electron nonequilibrium in open-cycle MHD generators. G. S. Argyropoulos, S. T. Demetriades, E. D. Does (STD Research Corp., Arcadia, Calif.), and D. A. Oliver (MIT, Cambridge, Mass.). *AIAA Journal*, vol. 12, May 1974, p. 669-671. 9 refs. NSF Grant No. C-727; Contract No. F44620-73-C-0001.

Localized regions close to the electrode walls of open-cycle MHD generators have high enough current density so that the free electrons are not in thermal equilibrium with the rest of the gas, even when the working fluid is such an effective absorber of electron energy as CO₂ or coal combustion products. The overall electrical performance of open-cycle MHD generators depends critically on the presence and behavior of such thin nonequilibrium regions adjacent to the electrodes. These effects are demonstrated and analyzed by means of previously developed numerical modeling techniques.

(Author)

A74-29415 # Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /FAC/ (Ekspresnyi gruppovoi analiz priamogonnykh neflianykh fraktsii metodom registratsionnoi zhidkostno-adsorbtsionnoi khromatografii /ZhAZh/). Iu. I. Chumakov, S. K. Lopatenko, and G. I. Shchipachev (Kievskii Institut Inzhenerov, Grazhdanskoi Aviatsii, Kiev, Ukrainian SSR). *Khimiia i Tekhnologiya Topliv i Masel*, no. 4, 1974, p. 61-63. 9 refs. In Russian.

A74-29445 Heat pipes. L. L. Vasil'ev and S. V. Konev. (Translation of Teploperedaiushchie Trubki, Minsk, Izdatel'stvo Nauka i Tekhnika, 1972.) *Heat Transfer - Soviet Research*, vol. 8, Jan.-Feb. 1974, p. 1-19. 115 refs.

Discussion of the development of heat pipes and vapor chambers utilizing liquids of small heat conductivity and low boiling temperature as the heat carriers. The process of energy and mass transfer in heat pipes, as treated by a number of heat pipe specialists, is reviewed, distinguishing between high-temperature or 'isothermal' heat pipes and medium- and low-temperature range heat pipes. The influence of the boundary conditions inside the condensation zone on the heat flux, temperature field, and thermal resistance of low-temperature heat pipes and vapor chambers is considered for both one- and two-dimensional models. The determination of the capillary head, permeability, and porosity of capillary-porous bodies by a method based on recording both the concentration field of the liquid and the rate of its absorption into the porous body against the force of gravity is described. The problem of cooling and maintaining constant temperatures of semiconductor devices by means of heat pipes and vapor chambers is discussed. Finally, studies of cryogenic and coaxial heat pipes and of regulated heat pipes and vapor chambers are reviewed.

A.B.K.

A74-29452 # The case for hydrogen-fueled transport aircraft. G. D. Brewer (Lockheed-California Co., Burbank, Calif.). *Astronautics and Aeronautics*, vol. 12, May 1974, p. 40-51. 15 refs.

Hydrogen is shown to offer significant advantages as an energy medium in a society which can no longer depend on the availability of petroleum and natural gas. For the near term requirements, liquid hydrogen can be manufactured from coal and lignite. In the longer term, power from nuclear power plants or solar collectors can generate large quantities of hydrogen by electrolysis or by thermochemical splitting of water. Introduction of hydrogen into the economy via the air-transportation industry offers many advantages: (1) significant improvements in performance for both subsonic and supersonic aircraft; (2) competitiveness, when needed, with the cost of fuel currently used; and (3) deployment by an aerospace industry experienced in handling liquid hydrogen and capable of quickly developing the necessary technologies. From the aviation example, hydrogen technology will more readily make the transition to industrial and domestic uses.

M.V.E.

A74-29453 # Future availability of liquid hydrogen. W. J. D. Escher (Escher Technology Associates, St. Johns, Mich.). *Astronautics and Aeronautics*, vol. 12, May 1974, p. 55-59. 7 refs.

U.S. hydrogen production has been based mainly on natural gas and, to a far less extent on hydrocarbon fluids and coal. For fueling future commercial aircraft, LH₂ (liquid hydrogen) will likely be

produced from relatively abundant coal (and water). A cost estimate for liquid hydrogen 'at the airport' in 1985 would be \$2.50 per million Btu (\$0.13/lb). As coal becomes scarcer, and hence more expensive, producing LH₂ from water-splitting processes, using nuclear and solar energy (and possible geothermal) will eventually become cost-competitive. Just when depends on success in extracting, transporting, and processing coal into hydrogen, as well as advancements in energy-conversion systems operating on non-fossil sources (nuclear, solar). F.R.L.

A74-29572 **Future of the light turbine helicopter.** T. R. Stuelpnagel (Hughes Helicopters, Culver City, Calif.). *Vertiflite*, vol. 20, Mar.-Apr. 1974, p. 6-9.

It is predicted that in the 1980s the light-turbine helicopter (LTH) will be capable to compete economically with a half-ton truck. The use of the LTH accounts currently for 65% of all helicopter flight hours. This figure is expected to increase to 80% by the middle of the next decade. Trends towards a lowering of operating costs are discussed, giving attention to fuel consumption, maintenance, insurance, and depreciation. G.R.

A74-29603 **Lasers blast a shortcut to the ultimate energy solution.** L. Lessing. *Fortune*, vol. 89, May 1974, p. 221-223 (4 ff.).

The problems inherent in developing a thermonuclear fusion process suitable for solving mankind's energy crisis by means of the containment method can possibly be avoided by a new approach in which lasers are used to heat tiny pellets of deuterium and tritium to temperatures at which fusion takes place. Techniques are being considered to hit the pellet simultaneously on all sides by laser beams. The vaporization of the pellet's surface would set off an implosion in the interior of the pellet. The resulting compression of the pellet core would make it possible to achieve fusion with 100,000 times less laser energy than that required according to previous estimates. Progress in the further development of this very promising process appears to be impeded by the secrecy in which much of the work on controlled laser fusion is being conducted and by inadequate financing. G.R.

A74-29823 **Reliability of low-cost CdS/Cu₂S solar cells.** M. M. Sayed (Hewlett Packard Co., Palo Alto, Calif.) and L. D. Partain (Delaware, University, Newark, Del.). *Electronics Letters*, vol. 10, May 2, 1974, p. 163, 164. 10 refs. NSF-supported research.

Accelerated life tests show that CdS/Cu₂S solar cell lifetimes increase with lower temperature, cyclic light, and a nitrogen-gas ambience. A normal Arrhenius type of temperature dependence was found. Extrapolated lifetime of cells kept below 50°C in nitrogen gas with earth deployment exceeded twenty years. The probable decay mechanisms are thermal diffusion, formation of recombination centers, and voltage-induced decomposition. (Author)

A74-29949 **Power sources (Les sources de puissance).** W. Palz (Centre National d'Etudes Spatiales, Paris, France). *La Recherche Spatiale*, vol. 13, Mar.-Apr. 1974, p. 13-16. In French.

General descriptions are given for the various solar cell generators developed at CNES for applications satellites. The merits and drawbacks of rigid and foldable arrays are discussed. Both silicon cells and cadmium sulfide cells have been developed. The latter are more supple and economic, but their power output is considerably less. The Soviet satellite SRET-1, launched in 1972, carried 80 CdS thin film cells realized by CNES, each about 4 sq cm, interconnected in integrated fashion. In 240 days of orbit, 20% degradation was noted, but the degradation was restricted to the outside coating and did not affect the semiconductor layers themselves. P.T.H.

A74-30101 * # **Clean fuels from biomass.** Y. Y. Hsu (NASA, Lewis Research Center, Cleveland, Ohio). *Southeastern Seminar on Thermal Science*, 10th, New Orleans, La., Apr. 11, 12, 1974, Paper. 22 p. 19 refs.

The potential of growing crops as a source of fuels is examined, and it is shown that enough arable land is available in the U.S. so

that, even with a modest rate of crop yield, the nation could be supplied by fuel crops. The technologies for fuel conversion are available; however, some R&D efforts are needed for scaling up design. Fuel crop economics are discussed and shown to be nonprohibitive. M.V.E.

A74-30105 * # **Solar energy to meet the nation's energy needs.** F. E. Rom and R. L. Thomas (NASA, Lewis Research Center, Cleveland, Ohio). *National Forum on Energy Facts for Concerned Citizens*, Boise, Idaho, Apr. 26, 27, 1973, Paper. 25 p. 14 refs.

Discussion of the possibilities afforded by solar energy as one of the alternative energy sources capable to take the place of the dwindling oil and gas reserves. Solar energy, being a nondepleting clean source of energy, is shown to be capable of providing energy in all the forms in which it is used today. Steps taken toward providing innovative solutions that are economically competitive with other systems are briefly reviewed. M.V.E.

A74-30335 * **Electrohydrodynamic heat pipe experiments.** T. B. Jones and M. P. Perry (Colorado State University, Fort Collins, Colo.). *Journal of Applied Physics*, vol. 45, May 1974, p. 2129-2132. Grant No. NGR-06-002-127.

Experiments with two electrohydrodynamic heat pipes are reported. Both devices employ an electromechanical flow structure for axial liquid flow and a capillary wicking structure for (1) collection of condensed liquid at the cooled end and (2) distribution of this liquid at the heated end. One device has circumferential grooving for the capillary structure and the other has feltmetal wicking. The experiments successfully demonstrate the electrohydrodynamic heat pipe concept. Compatibility of the two circumferential wick structures with an axial electromechanical flow structure is also demonstrated. A significant mismatch of the capillary groove and electrohydrodynamic pumping capabilities results in severe hydrodynamic burn-cut limiting in the first heat pipe. Both devices have very poor over-all thermal conductances of the order of 1-2 W/deg C, reflecting the generally poor heat-transfer properties of the dielectric working fluids required in electrohydrodynamic heat pipes. (Author)

A74-30529 **Fuel cells with the fuel dissolved in the electrolyte.** I. Onaca, M. Mavrodin-Tarabic, and I. Solacolu (Academia Romana, Centrul de Cercetari de Chimie Fizica, Bucharest, Rumania). (*Studii si Cercetari de Chimie*, vol. 21, no. 7, 1973, p. 761-771.) *International Chemical Engineering*, vol. 14, Apr. 1974, p. 347-353. 48 refs. Translation.

A fuel cell using a fuel dissolved in the electrolyte is a system which achieves the conversion of chemical into electrical energy as a result of the fuel oxidation reaction. These types of fuel cells use, for their cathodes, gas electrodes with a three-phase interface, for their anodes two-phase interface porous electrodes and, as the electrolyte, concentrated solutions of an acid or a base in water. The use of alkaline electrolytes with good electrochemical performance is limited in the case of carbon-containing fuels by the phenomenon of carbonation; this makes it necessary to provide the installation with an electrolyte-decarbonation device. The performance of chemical current sources having their fuel dissolved in the electrolyte depends on the judicious selection of the system: fuel-oxidant-electrolyte-electrodes (structure and catalyst), and operating conditions (pressure and temperature). F.R.L.

A74-31213 **Fusion reactor design problems.** A. H. Speno and A. Belozero (International Atomic Energy Agency, Vienna, Austria). *Nuclear Fusion*, vol. 14, Apr. 1974, p. 281-283.

The reference design studies presented by a number of participants in the International Atomic Energy Agency (IAEA) workshop provided a framework for identifying what was felt to be several of the most crucial reaction problem areas and for setting up panels to look into these questions in greater depth. The studies investigated impurities, first-wall protection, bulk radiation damage, start-up, repair and accessibility, tritium, fusion and the environment, and fission-fusion hybrid systems. F.R.L.

A74-31288 # Theoretical performance of ammonia, hydrogen, and blowdown rocket jets. R. E. W. Jansson and I. Edwards (Southampton, University, Southampton, England). (*British Interplanetary Society, Symposium on Rocket Propulsion and Space Transportation, University College, London, England, Apr. 18, 19, 1972*) *British Interplanetary Society, Journal*, vol. 27, June 1974, p. 433-442. 8 refs.

The theoretical performance of H₂, NH₃, CO₂ and CH₄ rocket jets, deduced from realistic models of the nozzle flow, are discussed, and the importance of dissociation of the propellant in the heater and vibrational relaxation in the nozzle are shown. Using the theoretical data to generate engineering design parameters, it is demonstrated that the geometry of the nozzle, as well as the stagnation conditions, can be used as a variable to trade off power losses, hence power system mass, against propellant mass for a given mission total impulse. (Author)

A74-31446 Energy self-sufficiency - An economic evaluation. M. A. Adelman, H. D. Jacoby, P. L. Joskow, P. W. MacAvoy, D. C. White, M. B. Zimmerman (MIT, Cambridge, Mass.), and H. P. Meissner. *Technology Review*, vol. 76, May 1974, p. 22-58. Research sponsored by the Massachusetts Institute of Technology.

On the assumption that the U.S. meets all its energy demands from internal sources by 1980, forecasts are made of the prices at which supply and demand will be in equilibrium. The results indicate that prices in the range from \$10.00 to \$12.00 per barrel (oil-equivalent) will be necessary to bring forth enough additional supplies of fossil fuels to satisfy demands in domestic energy markets by that time. The development of special price policies is recommended for the synthetic industry. Security can be provided against import disruption by the introduction of radically new import policies. One important element would be an import storage program. G.R.

A74-31450 * Thermochemical water decomposition processes. R. E. Chao (University of Puerto Rico, Mayaguez, P.R.). *I & EC - Industrial and Engineering Chemistry, Product Research and Development*, vol. 13, June 1974, p. 94-101. 124 refs. NASA-supported research.

Thermochemical processes which lead to the production of hydrogen and oxygen from water without the consumption of any other material have a number of advantages when compared to other processes such as water electrolysis. It is possible to operate a sequence of chemical steps with net work requirements equal to zero at temperatures well below the temperature required for water dissociation in a single step. Various types of procedures are discussed, giving attention to halide processes, reverse Deacon processes, iron oxide and carbon oxide processes, and metal and alkali metal processes. Economical questions are also considered. G.R.

A74-31574 Fusion power by laser implosion. J. L. Emmett, J. Nuckolls, and L. Wood (California, University, Livermore, Calif.). *Scientific American*, vol. 230, June 1974, p. 24-37.

Computer calculations conducted in the early 1960s showed that efficient generation of fusion energy could be achieved if lasers were used to implode thermonuclear fuel to 10,000 times its normal liquid density. A multibeam laser facility, scheduled for completion in 1977, is designed to prove the feasibility of initiating thermonuclear microexplosions by implosion of pellets of hydrogen isotopes to ultrahigh densities. A neodymium-glass laser system, although adequate for feasibility studies, will not serve for a practical fusion reactor. A search for a new laser medium is, therefore, being conducted. Additional technological problems which have to be solved for the operation of a laser-fusion power plant are also considered. G.R.

A74-32600 Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels. R. K. Agnihotri, J. R. Narang, K. C. Metha, and A. N. Nandy (Defence Research Laboratory, Kanpur,

India). *Wear*, vol. 28, June 1974, p. 392-394. 5 refs.

Using the ball and cylinder technique developed by Agnihotri et al. (1971), it is shown that mere blending of hydrotreated jet engine fuel with conventionally refined fuels does not by itself restore the lubricity lost caused by the hydrotreatment process. The degree of hydrotreatment and the type of crude oil the fuel originates from are important and require due consideration. M.V.E.

A74-32887 Innovation and space flight (Innovation und Raumfahrt). H. Gellnitz (Messerschmitt-Bölkow-Blöhm GmbH, Munich, West Germany). *Flug Revue/Flugwelt International*, June 1974, p. 31-34, 43, 44. In German.

The technological challenges of space flight have led to a multitude of new solutions which are now being utilized in other areas. The fields which benefit from new technological developments of space programs include electronics, data processing, process control, medicine, biology, materials science, machine design, and chemical propulsion systems. Specific new developments considered include the use of new metallic and nonmetallic materials, the design of large solar panels, ultrasonic test procedures, and advances in cryogenic technology including its application in surgery. G.R.

A74-32908 Effects of radiation on the violet solar cell. R. A. Arndt (COMSAT Physics Laboratory, Clarksburg, Md.). *COMSAT Technical Review*, vol. 4, Spring 1974, p. 41-52. 6 refs.

The violet solar cell, which generates nearly 5 mW per sq cm more power than solar cells employed in present commercial communications satellites, hereafter referred to as satellite cells, has been irradiated with 1-MeV electrons to a fluence of 10 to the 16th power per sq cm and with 2- and 4-MeV protons to a fluence of 10 to the 13th power per sq cm. An electron fluence of about 10 to the 15th power per sq cm or a proton fluence of 2 times 10 to the 10th power per sq cm is required to reduce the power output of the violet cell to that of the satellite cell at beginning of life. The violet cell produces more power after low neutron fluences than a fully recovered Li-doped cell and only a few percent less power after high neutron fluences. (Author)

A74-33071 Detecting and monitoring oil slicks with aerial photos. K. N. Vitz (Eastman Kodak Co., Rochester, N.Y.). *Photogrammetric Engineering*, vol. 40, June 1974, p. 697-700. 44 refs.

Quantitative results of tests conducted to determine the feasibility of using aerial photographic techniques for the detection and monitoring of oil slicks are presented. Three petroleum products were selected as being typical of oil pollution: gasoline, Diesel fuel, and spent automotive lubricating oil. Slicks of these products on water from the Genesee River were then photographed in several spectral regions. Significant detection capability was found in the ultraviolet and blue regions of the spectrum, less in the near-infrared, and almost none in the green and red. P.T.H.

A74-33082 # Investigation of the economic efficiency of surplus tanking of aircraft fuel (Untersuchung über die ökonomische Effektivität der Vorratsbetankung von Flugtreibstoffen). B. Schler (Gesellschaft für internationalen Flugverkehr mbH, Berlin, East Germany). *Technisch-ökonomische Informationen der zivilen Luftfahrt*, vol. 10, no. 2, 1974, p. 75-80. In German.

The effectiveness of the practice of tanking beyond the required amount in countries where the fuel prices are low is analyzed, using the IL-62 airliner as an example. The takeoff, horizontal flight (at constant altitude), and landing stages are examined separately, assuming normal atmospheric conditions and absence of wind in each stage. It is shown that economic efficiency depends primarily on the fuel price difference at home and abroad, on the distance flown, on the amount of surplus fuel, and on the flight altitude and velocity. The need for studying many other factors (including the problem of maximum landing weight) is demonstrated. V.P.

A74-33086 # Dolphin airship with undulatory-flow propulsion - Dynamic lift (Dolphinluftschiff mit Wellentrieb - Dynamischer

Auftrieb). W. Schmidt (Gesellschaft für internationalen Flugverkehr mbH, Berlin, East Germany). *Technisch-ökonomische Informationen der zivilen Luftfahrt*, vol. 10, no. 2, 1974, p. 104-106. In German.

Queck and Schmidt (1970) have described a novel revolutionary concept of a droplet-shaped helium-filled airship developed on the basis of the dolphin principle. As the dolphin, the airship moves in a self-generated undulatory flow. Safe and comfortable in flight, it combines the maneuverability of a helicopter with the speed of a turboprop aircraft. An aerodynamic study is described, showing that the aerodynamic lift of the airship is roughly equal to that of a wing of the same (droplet) planform, and is 20 times that of a Zeppelin airship of equal volume. The capability of the airship to transport large loads over large distances at low cost is established. The possibility that the dolphin principle may lead to a revival of airship navigation is suggested. V.P.

A74-33106 # Nonlinear stability of magnetohydrodynamic generators. D. A. Oliver (MIT, Cambridge, Mass.) and S. Jardin (Princeton University, Princeton, N.J.). *American Institute of Aeronautics and Astronautics, Fluid and Plasma Dynamics Conference, 7th, Palo Alto, Calif., June 17-19, 1974, Paper 74-507*. 11 p. 10 refs. Members, \$1.50; nonmembers, \$2.00. NSF Grant No. GK-38130.

A nonlinear time domain theory for the stability of magnetohydrodynamic (MHD) generators is proposed. The method is capable of treating MHD generator response with flows in the subsonic, transonic, and supersonic flow regimes and with moving shock waves present in the duct. This theory is compared with linear theory predictions of the growth of convectively unstable finite amplitude fluctuations in MHD generators. It is shown that nonlinear, finite amplitude fluctuations grow much faster than infinitesimal fluctuations, and that generators which are globally stable to small amplitude fluctuations may be unstable if those fluctuations are of finite amplitude. (Author)

A74-33299 An analysis of the national transportation policy. S. D. Browne (MIT, Cambridge, Mass.). (*Annual Air Law Symposium, 8th, Dallas, Tex., Mar. 14, 1974*.) *Journal of Air Law and Commerce*, vol. 40, Winter 1974, p. 75-79.

The present work advocates greater central control of national transportation policy making, and states that Congress must address the problem of an all-mode transportation department with power to allocate resources between the modes. It is also pointed out that recent data concerning the fuel efficiency of various modes of transportation are out of line. It is argued that these data, obtained by dividing total passenger miles by total fuel, reflected badly on air transportation without taking into consideration actual trip distances, infrastructure costs, and time considerations. P.T.H.

A74-33564 Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator. V. A. Kirillin, A. E. Sheindlin, E. M. Shelkov, E. V. Shishkov, S. A. Pashkov, and V. M. Latyshev (Akademiia Nauk SSSR, Nauchno-Issledovatel'skii Institut Vysokikh Temperatur, Moscow, USSR). (*Teplotfizika Vysokikh Temperatur*, vol. 11, Sept.-Oct. 1973, p. 1088-1091.) *High Temperature*, vol. 11, no. 5, May 1974, p. 968-969. 8 refs. Translation.

A74-33565 Investigation of heat exchange in an MHD generator channel. V. V. Kirillov and V. D. Semenov (Akademiia Nauk SSSR, Nauchno-Issledovatel'skii Institut Vysokikh Temperatur, Moscow, USSR). (*Teplotfizika Vysokikh Temperatur*, vol. 11, Sept.-Oct. 1973, p. 1092-1100.) *High Temperature*, vol. 11, no. 5, May 1974, p. 970-977. 13 refs. Translation.

A theoretical treatment of heat transfer and frictional drag, applicable to the conditions in the channel of an open-cycle MHDG, is presented. A calculation is made of the drag resistance and heat transfer for the turbulent flow along a flat wall of partially dissociated natural gas combustion products. The calculation is conducted for external Reynolds numbers from 100,000 to 10,000,000, a ratio of wall temperature to external temperature ranging from 0.133 to 1, and an external temperature range of 2,400 to 3,000 K. The degree of dissociation of the combustion products is

fairly high in the temperature range indicated; at external temperature of 3,000 K, the dissociation energy comprises 46% of the enthalpy of the gas. The effect of various factors on the heat exchange under given conditions is shown. The data obtained is compared with the results of calculations by other methods. The results of an experimental study of heat exchange in large open-cycle MHD installations are cited. A comparison of the theoretical data with the experimental results is given. (Author)

A74-33611 # Minimum time and minimum fuel flight path sensitivity. M. A. Nichols (USAF, Arizona State University, Tempe, Ariz.) and J. K. Hedrick (Arizona State University, Tempe, Ariz.). *Journal of Aircraft*, vol. 11, June 1974, p. 320-325. 13 refs.

The sensitivity of minimum-time and minimum-fuel flight paths to variations in aircraft parameters in different atmospheric conditions was investigated using the energy state approximation. Numerical results are presented for a typical supersonic aircraft in Standard-Day, Hot-Day, and Cold-Day atmospheres. This paper shows how flight time and fuel consumption are affected by changes in thrust, weight, drag coefficients, and specific fuel consumption in each of three different atmospheric conditions. For each variation, the effect on performance (flight time or fuel consumption) is determined for the nominal paths. Then for each variation, the flight path is adjusted to be either time optimal or fuel optimal. (Author)

A74-33671 Vertical multijunction solar-cell one-dimensional analysis. A. Gover and P. Stella (Heliotek, Sylmar, Calif.). *IEEE Transactions on Electron Devices*, vol. ED-21, June 1974, p. 361-366. 7 refs. Contract No. F33615-72-C-1310.

The vertical multijunction solar cell is a photovoltaic device which may allow conversion efficiencies higher than conventional planar devices. A one-dimensional model of the device is presented here which allows a simple and straightforward analysis of device performance to be conducted. The analysis covers the derivation of device short-circuit current, saturation current, open-circuit voltage, and maximum power as a function of illumination spectra, device geometry, and device material properties. (Author)

A74-33982 Hydrogen production by reforming processes - The alternatives and economics. W. Hartley (Davy Powergas, Ltd., London, England). In: *Cryotech '73: The production and use of industrial gases; Proceedings of the Conference, Brighton, England, November 13-15, 1973*. Guildford, Surrey, England, IPC Science and Technology Press, Ltd., 1974, p. 54-60.

The paper discusses the alternative process routes available to produce H₂ or H₂/CO mixtures from hydrocarbons using catalytic steam reforming or partial oxidation processes. The advantages, limitations and applications of each scheme are discussed. Typical investment and raw material/utility requirements are included for each process route. The investment data is based on costs for June 1973. (Author)

A74-33983 Process design considerations in cryogenic hydrogen recovery plants. M. Ruhemann and K. Tischer (Petrocarbon Developments, Ltd., Manchester, England). In: *Cryotech '73: The production and use of industrial gases; Proceedings of the Conference, Brighton, England, November 13-15, 1973*.

Guildford, Surrey, England, IPC Science and Technology Press, Ltd., 1974, p. 61-66; Discussion, p. 66.

The paper discusses the characteristic process features of plants which recover hydrogen of moderate purity from gas mixtures available at elevated pressures and in which no mechanical work is performed. The concept of 'efficiency' in this type of plant is explained and it is shown that the efficiency determines the maximum pressure at which tail-gases (i.e., the evaporated condensates) can be extracted. In most cases this pressure is limited, not by considerations of heat balance, but by the mixing entropy of the feed components. The significance is discussed of the injection of hydrogen into the evaporating condensates to lower the temperatures

to which the feed can be cooled and hence to raise the purity of the hydrogen product, and it is shown that the use of refluxing exchangers can improve the efficiency of the recovery process.

(Author)

A74-33894 PSA hydrogen plants - How well have they performed. G. H. Kathe and H. A. Stewart (Union Carbide Europe, S.A., Geneva, Switzerland). In: *Cryotech '73: The production and use of industrial gases; Proceedings of the Conference, Brighton, England, November 13-18, 1973*. Surrey, England, IPC Science and Technology Press, Ltd., 1974, p. 78-84; Discussion, p. 84.

Description of the design, operation, and applications of multiple-vessel adsorption systems used for recovery and purification of hydrogen gas by the pressure-swing principle. Performance histories of particular equipment are provided in applications involving purification of hydrogen in gas flows where the initial hydrogen content varies from 35% to 99.5%. Final purity can vary from 99 to 99.9999%, depending on need, and yield is satisfactory with tail gases being recycled, sent to fuel, or flared. Improvements in electrical components used for process control functions are highlighted. T.M.

A74-34050 Symposium on Engineering Problems of Fusion Research, 5th, Princeton University, Princeton, N.J., November 5-8, 1973, Proceedings. Symposium sponsored by Princeton University, AEC, IEEE, and ANS. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, 703 p. \$25.

Topics discussed include the effect of helium on fusion reactor materials, fusion reactor heat transfer systems, reactor fuel handling, the power balance in fusion reactors, laser-controlled thermonuclear research, Tokamak reactor design, theta-pinch power plant development, blanket-coupled MHD, lithium-cooled reactor blankets, reactor blankets containing thorium, the injection of neutral beams into thermonuclear reactors, capacitive energy storage for theta-pinch compression, confining-field coil loading and stresses for a large-torus reactor, toroidal field coils and high-power injection heaters for the Ormak system, and topics concerning energy storage, mechanical design and data handling, magnet design, electron beams and lasers for high-temperature plasma diagnostics and high-voltage technology. A.B.K.

A74-34083 A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors. W. L. Barr, R. J. Burtleigh, W. L. Dexter, R. W. Moir, and R. R. Smith (California, University, Livermore, Calif.). *IEEE Transactions on Plasma Science*, vol. PS-2, June 1974, p. 71-92. 23 refs. AEC-sponsored research.

The considered scheme for the direct energy converter was first described by Moir and Barr (1973). According to this approach the beam from the reactor is expanded two-dimensionally in a conical magnetic expander. Energy selection is accomplished through the angular dependence of ion transmission through a system of ribbon grids resembling a Venetian blind. Some of the practical aspects of this concept are examined, giving attention to some of the problems involved and some possible solutions. A cost estimate for the energy converter is also presented. G.R.

A74-34095 # Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaidzhan SSR (ispytaniye fotoelektricheskikh generatorov v usloviyakh Apsheronskogo polostrova Az SSR). M. Ia. Bakirov, E. K. Guseinov, and N. P. Aliev (Akademiya Nauk Azerbaidzhanskoi SSR, Institut Fiziki, Baku, Azerbaidzhan SSR). *Gellotekhnika*, no. 2, 1974, p. 3-6. 8 refs. In Russian.

The diurnal output of a solar array was monitored during the months of August through December, 1972, on the Apsheron Peninsula. The array consisted of silicon solar cells, and was rated to

produce 5 to 6 watts of power under conditions of 800 watts per sq m of solar radiation. The diurnal variation in output was studied on the basis of a classification of days into clear, partly clear, or overcast days. P.T.H.

A74-34097 # Study of the effect of increased humidity on the mirror coatings of solar energy concentrators (izucheniye vliyaniya svyazannoy vlazhnosti na zerkal'nye pokrytiya kontsentratorov solnechnoy energii). U. Kh. Gaziev, M. M. Koltun, and V. S. Trukhov (Akademiya Nauk Uzbekskoi SSR, Fiziko-Tekhnicheskii Institut, Tashkent, Uzbek SSR; Vsesoiuznyi Nauchno-Issledovatel'skii Institut Inzhnikov Tekh. Kishinev, Moldavian SSR). *Gellotekhnika*, no. 2, 1974, p. 36-37. In Russian.

A74-34098 # Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells (Vliyeniye posledovatel'nogo soprotivleniya na effektivnost' provedeniya i optimal'nuyu tolshinu legirovannogo sloia kremniyevykh fotopreobrazovatelei). V. P. Matveev, E. S. Makarov, M. M. Koltun, and I. P. Gavrilova (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Inzhnikov Tekh. Kishinev, Moldavian SSR). *Gellotekhnika*, no. 2, 1974, p. 43-50. 7 refs. In Russian.

A74-34191 Developments in laser technology-II; Annual Technical Meeting, 17th, Seminar-in-Depth, San Diego, Calif., August 27-29, 1973, Proceedings. Seminar sponsored by the Society of Photo-optical Instrumentation Engineers. Edited by R. F. Wuerker (TRW Systems Group, Redondo Beach, Calif.). Redondo Beach, Calif., Society of Photo-optical Instrumentation Engineers (SPIE Proceedings, Volume 41), 1974. 205 p. Members, \$18.; nonmembers, \$28.

Recently developed laser systems and theoretical analysis of laser operation are described for a wide variety of laser types and applications. Some of the topics covered include: theory and experiment in laser driven fusion, scaling relations pertaining to a double discharge CO₂ TEA laser, laser internal aerodynamics and beam quality, experiments with nuclear-pumped gas lasers, biomedical applications of a holographic system for automatic surface mapping, computer holograms, holographic techniques in the study of marine plankton, integrated optics, and the use of He-Ne lasers in construction and building industry. P.T.H.

A74-34192 Theory and experiment in laser driven fusion. K. A. Brueckner (KMS Fusion, Inc.). In: *Developments in laser technology-II; Annual Technical Meeting, 17th, Seminar-in-Depth, San Diego, Calif., August 27-29, 1973, Proceedings*. Redondo Beach, Calif., Society of Photo-optical Instrumentation Engineers, 1974, p. 5-12.

Configuration and physics requirements are discussed for fusion energy to be equal to laser energy in controlled fusion systems using a laser beam to initiate the fusion of a highly compressed deuterium-tritium (DT) pellet. Results of two-dimensional computer simulation of the stability of the pellet implosion are presented. A neodymium-glass laser system is described which has been used in tests measuring target reflectivity and electron temperature when pulses up to 300 joules with 3 nanosecond duration are delivered on plane CD₂ and CH₂ targets. Results of these preliminary experiments are discussed. P.T.H.

A74-34367 Photovoltaic Specialists Conference, 10th, Stanford University, Palo Alto, Calif., November 13-16, 1973, Conference Record. Conference sponsored by the Institute of Electrical and Electronics Engineers. New York, Institute of Electrical and Electronics Engineers, Inc., 1974. 424 p. Members, \$18.75; nonmembers, \$26.

Various types of photovoltaic solar cells are discussed, and the functioning of their individual elements, including the advantages of different junction and semiconductor features, is examined. Methods of measuring the efficiency and testing the reliability of solar cell

arrays are presented along with suggestions for improving the performance of such cells by incorporating new principles of design and fabrication. The terrestrial applications of solar cells are considered in connection with ongoing developments in space technology, and the effects of radiation and environment are investigated.

J.K.K.

A74-34368 Principles of photovoltaic solar energy conversion. J. J. Loferski (Brown University, Providence, R.I.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 1-4.

The present work sets forth the main principles of operation of semiconductor photovoltaic cells. Four basic photovoltaic effect parameters discussed are the short circuit current; the open circuit voltage; the current for matched load, i.e. current under maximum power transfer conditions and the corresponding voltage. Maximum efficiency attainable in a photovoltaic cell is discussed. The efficiency is a strong function of temperature; it decreases as temperature increases. This must always be taken into account, especially if the cells are to be used with concentrators. P.T.H.

A74-34369 Potential improvements in efficiency and cost of solar cells. M. Wolf (Pennsylvania, University, Philadelphia, Pa.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 5-14, 16 refs.

Several areas for potential improvement in silicon solar cells are identified. An improvement of 17% in collection efficiency is available through elimination of the high surface recombination velocity in combination with a reduction of the thickness of the diffused layer. While at present, silicon of a base resistivity of 2 to 10 ohm-cm is commonly used, yielding open circuit voltages in the range 0.55 to 0.59 V, use of a base resistivity of 0.01 ohm-cm could potentially yield an open circuit voltage of 0.79 V. Present costs of silicon solar arrays are compared with cost goals for large-scale terrestrial applications. Proof of commercial feasibility may be achievable within 5 years with a copper sulfide/cadmium sulfide system, but should require, with expenditures of significant efforts, approximately 10 years for the silicon system. P.T.H.

A74-34370 * Solar and laser energy conversion with Schottky barrier solar cells. R. J. Stim and Y.-C. M. Yeh (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 15-24, 24 refs. Contract No. NAS7-100.

Photovoltaic devices have been fabricated for solar and short-wavelength laser energy conversion using the thin metal film-semiconductor (Schottky barrier) approach. Studies of the metal film optical characteristics and the voltage outputs were emphasized. Air mass zero efficiencies of 8 to 9% in GaAs and laser conversion efficiencies of 26% at 4880 Å in GaAs(0.6)P(0.4) are presently measured, with projected efficiencies of 15 and 45%, respectively. The techniques, if applied successfully to semiconductor thin films, could have an impact in solar energy terrestrial application. (Author)

A74-34373 The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells. H. J. Hovel (IBM Research Laboratory, San Jose, Calif.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 34-39, 8 refs.

The Sah-Noyce-Shockley theory of depletion region recombination-generation currents is described along with the modification

by Choo for asymmetrical junctions. Computer calculations show that these currents do not seriously affect the efficiency of Si solar cells for reasonably high lifetimes, but lower the efficiency of GaAs devices by 1 to 1.5% even in the best of cases. Reasons for discrepancies between theory and experiment are discussed. (Author)

A74-34376 Comparison of vertical multi-junction and conventional solar cell performance. T. B. S. Chedda and M. Wolf (Pennsylvania, University, Philadelphia, Pa.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 82-87.

A theoretical study has been carried out to compare the potentially achievable performance of vertical multi-junction solar cells with that of the conventional solar cell for the case of the silicon n/p junction structure of 10-ohm-cm base resistivity under air mass zero conditions. The results confirm the prior suspicion, that the performance of the vertical junction cell in unconcentrated sunlight at beginning of life is only marginally superior to that of the conventional solar cell, but that it can withstand, if properly designed, a two to three times greater fluence of nuclear particle radiation (1-MeV electrons) before reaching equal end-of-life power output. (Author)

A74-34383 GaAs solar cells with AlAs windows. D. Heber and K. Bogus (Telefunken AG, Heilbronn, West Germany). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 100-102, 5 refs. Research supported by the Gesellschaft für Weltraumforschung.

The conversion efficiency of GaAs solar cells is increased by using appropriate window materials. In an attempt to make the window material as transparent as possible, pure AlAs layers have been grown on GaAs by liquid phase epitaxy. AlAs has its indirect gap at 2.15 eV and its direct gap at 2.9 eV, which gives a reduction of absorption losses in the window by more than 20% compared to Ga(1-x)Al(x)As windows. An evaluation of quantum efficiency and solar cell I-V characteristic measurements leads to a conversion efficiency of 13.5% under air mass zero conditions. (Author)

A74-34387 * High voltage solar cell power generating system. E. Levy, Jr., R. W. Opljorden (Hughes Aircraft Co., El Segundo, Calif.), and A. C. Hoffman (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 123-131, Contract No. NAS3-15428.

A laboratory solar power system regulated by on-panel switches has been delivered for operating high power (3 kW), high voltage (15,000 volt) loads (communication tubes, ion thrusters). The modular system consists of 26 solar arrays, each with an integral light source and cooling system. A typical array contains 2,580 series-connected cells. Each light source consists of twenty 500-watt tungsten iodide lamps providing plus or minus 5 percent uniformity at one solar constant. An array temperature of less than 40 C is achieved using an infrared filter, a water-cooled plate, a vacuum hold-down system, and air flushing. (Author)

A74-34389 Qualification testing of laboratory produced violet solar cells. D. J. Curtin and R. W. Cool (COMSAT Laboratories, Clarkburg, Md.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 139-152, 7 refs. Research supported by the Communications Satellite Corp.

Tests run on bare violet solar cells fabricated early in the program showed a 4.1% degradation in maximum power after 1000 hours of humidity as well as tape peel, thermal shock, and thermal soak tests. Normal solderless solar cells showed degradations from

13.6 to 22.1%, while cells with titanium-palladium-silver contacts showed degradations of 1.0% or less under humidity testing only. Covered violet solar cells showed no degradation. After a fluence of 3 times 10 to the 14th power 1-MeV-electrons/sq cm, covered violet solar cells fabricated early in the program produced over 20% more power than conventional, Intelsat IV type cells. Temperature coefficients were also measured. Covered violet solar cells can be welded by parallel gap resistance welding without electrical degradation. A violet solar cell module fabricated in this way has survived 200 thermal shock cycles to -196 C without electrical degradation.

(Author)

A74-34384 * Optimum design of antireflection coating for silicon solar cells. E. Y. Wang, F. T. S. Yu, V. L. Simms (Wayne State University, Detroit, Mich.), H. W. Brandhorst, Jr., and J. D. Broder (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 166-173. 15 refs.

Based on classical electromagnetic theory, reflectivity calculations for various single and double optical coating systems for silicon solar cells are presented. From calculations and considerations of solar spectral response of the solar cells, the number and thickness of coating materials needed to obtain efficient solar cells can be predicted. Some experimental results on single layer coated cells are also presented for comparison with calculations, and agreement is good. By means of microwave transmission line analogy, the design of the multilayer coating can be simplified by using Chebyshev polynomials.

(Author)

A74-34386 Vitreous oxide antireflection films in high-efficiency solar cells. A. G. Revesz (COMSAT Laboratories, Clarksburg, Md.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 180, 181. 7 refs. Research sponsored by the Communications Research Corp.

New antireflection Ta₂O₅ and Nb₂O₅ films have been developed for the violet solar cells. These films are prepared in such a manner that the oxide is in the vitreous state, i.e., it is noncrystalline but has a high degree of short range order. As a result, these films do not absorb in the blue and violet range of the spectrum and the junction properties do not deteriorate (i.e., the fill factor is high).

(Author)

A74-34398 * The multiple junction edge illuminated solar cell. B. L. Sater, H. W. Brandhorst, Jr., T. J. Riley, and R. E. Hart, Jr. (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 188-193. 9 refs.

The multiple junction edge illuminated solar cell (M-J Cell) was devised for high voltage, low current applications. Devices to be flight-tested in early 1974 with 96 series-connected PNN+ junctions in a 2 cm x 2.3 cm size deliver 36 volts at 1 millampere. Test data of M-J Cells fabricated with resistivities of 10, 50, 100, 200, 450, and 1000 ohm-cm silicon are presented and problem areas are discussed. An additional potential application of the M-J Cell lies in utilization of its high-intensity performance that has been demonstrated at levels in excess of 100 AMO suns.

(Author)

A74-34401 Improved performance from thin silicon solar cells. P. A. Hes and D. K. Zemmrich (Globe-Union, Inc., El Monte, Calif.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 200-206. 17 refs.

Several methods used to increase solar cell output have been applied successfully to thin cells. The experimental results show that

for AMO illumination, maximum power values exceeding 70 mW can be obtained for 4-sq cm cells down to thicknesses approaching 2 mils. The specific power obtained has exceeded 0.5 kW/lb. The methods described should be applicable to thin cells made from different forms of silicon available in the future.

(Author)

A74-34404 The NSF/RANN Photovoltaic Energy Conversion Program. H. R. Blieden (National Science Foundation, Div. of Advanced Energy Research and Technology, Washington, D.C.) and F. H. Morse. In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 219-226.

The general and specific objectives of the NSF/RANN Photovoltaic Energy Conversion Program are presented within the framework of the NSF/RANN Solar Energy Program. The program plan to achieve these objectives is described and the major milestones are identified. A brief summary of those photovoltaic projects currently under NSF/RANN support is included.

(Author)

A74-34405 * Terrestrial applications of solar cell powered systems. W. C. Moore, J. W. Ravin (Textron Electronics, Inc., Heliotek Div., Sylmar, Calif.), R. M. Masters, and A. F. Forestieri (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 227-233.

A study was initiated to search out, list, and evaluate terrestrial applications of solar cells and design systems for those applications that show the most promise for becoming practical and accepted by users within the next five years. From a list of over 65 potential applications, ten were selected for further study. The study culminated in detailed engineering designs of systems for the two most attractive applications.

(Author)

A74-34406 * The NASA-Lewis terrestrial photovoltaics program. D. T. Bernatowicz (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 234-238. 5 refs.

Those parts of the present NASA-Lewis research and technology effort on solar cells and arrays having relevance to terrestrial uses are outlined. These include raising cell efficiency, developing the FEP-covered module concept, and exploring low-cost cell concepts. Solar cell-battery power systems for remote weather stations have been built to demonstrate the capabilities of solar cells for terrestrial applications.

(Author)

A74-34412 Layout and technology of the CTS solar array blanket. R. Buhs (Telefunken AG, Hamburg, West Germany). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 296-306.

Description of a flexible solar cell blanket for the Canadian Communication Technology Satellite. The main components of the blanket are 200-micron-thick solar cells, 100-micron-thick cover slides, silver mesh interconnectors, substrate of 65-micron-thick reinforced Kapton, and flexible wires for power transfer. The most significant processes are automatic welding, bonding in vacuum, and a special technique for interconnecting subunits of the solar cell blanket.

(Author)

A74-34416 Evaluation of ohmic losses in solar cells and array. J. Roger (Société Anonyme des Télécommunications, Paris, France). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record.

New York, Institute of Electrical and Electronics

Engineers, Inc., 1974, p. 345-352.

Methods for measuring the resistance of intercell and inter-module couplings, for optimizing solar cell gridlines and for evaluating wiring losses in a solar cell array are discussed. Curves are plotted to show the efficiency of an ideal solar cell as a function of open circuit voltage and short circuit current density. Plots are also included for various performance characteristics and specifications of solar cells and arrays. V.Z.

A74-34421 * The drift field model applied to the lithium-containing silicon solar cell. M. P. Godlewski, C. R. Barona, and H. W. Brandhorst, Jr. (NASA, Lewis Research Center, Cleveland, Ohio). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973, Conference Record. New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 378-383. 14 refs.

The drift field model used by Wolf (1963) to calculate the short-circuit current was extended to permit calculations of the open-circuit voltage and the maximum power under conditions of illumination of either tungsten (2800 C) source or air mass zero sunlight. Voltages were calculated using an expression for the drift field diode saturation current. The model, applied to the oxygen-rich (C-13 group) lithium solar cells, was used to calculate the pre- and post-electron bombardment trends of the open-circuit voltage, maximum power, and short-circuit current for lithium gradients in the range from 10 to the 18th power to 10 to the 19th power Li/cm to the 4th power. Diffusion length degradation and carrier removal effects were sufficient to predict the cell performance up to 3×10 to the 14th electrons per sq cm. Beyond this fluence it was necessary to include drift field removal effects. (Author)

A74-34620 Nuclear fission as a general source of energy. L. R. Shepherd (Organization for Economic Cooperation and Development, Winfrith, Dorset, England). *Nature*, vol. 249, June 21, 1974, p. 717-720.

Attention is given to ways through which the heat generated by nuclear fission in reactors could be more fully utilized to meet overall energy requirements rather than merely producing electricity for distribution through utility grids. Procedures and technical requirements are discussed for (1) the direct use of waste heat in the thermodynamic cycles involved in generating electricity (low-temperature processes), (2) the direct utilization of the heat output of reactors in chemical industrial processes supplemented by electricity production (high-temperature processes), and (3) direct or indirect application of nuclear heat supply to produce synthetic liquid or gaseous fuels (high-temperature processes or methods involving intermediate electrical power generation). T.M.

A74-34621 Prospects for hydrogen as an energy resource. J. K. Dawson (Atomic Energy Research Establishment, Harwell, Berks., England). *Nature*, vol. 249, June 21, 1974, p. 724-726.

Large-scale production of hydrogen from water is evaluated as a future source of fuel for transport and the reduction of iron ore. Potential markets for hydrogen fuel are estimated on the basis of expected fuel production costs and demands at the end of the century. Cost and feasibility analyses are included for two processes whereby nuclear energy is used in decomposition of water either through direct thermochemical decomposition or by electrolysis involving intermediate conversion to electric power. T.M.

A74-34771 Solid state batteries. C. C. Liang (P. R. Mallory and Co., Inc., Burlington, Mass.). In: Applied solid state science: Advances in materials and device research. Volume 4. New York, Academic Press, Inc., 1974, p. 95-135. 111 refs.

A number of limitations present in batteries with aqueous solution electrolytes are not found in solid state battery systems in which both electrodes and electrolytes are in the solid state. In

recent years considerable progress has been made in the development of practical solid state batteries as energy sources. The general aspects of the conduction mechanisms of solid crystalline compounds are discussed, taking into account the ionic transport mechanisms of various highly conductive solid electrolytes. G.R.

A74-34864 # Energy management display. D. C. Soderstrom, R. C. McLane (Honeywell, Inc., Minneapolis, Minn.), and W. M. Branch (U.S. Navy, Naval Air Test Center, Patuxent River, Md.). In: Flight testing today - 1973; Proceedings of the Fourth National Symposium, Las Vegas, Nev., August 21-23, 1973. California, Md., Society of Flight Test Engineers, 1973. 5 p. Contract No. N00014-72-C-0194.

A research program in the field of energy management (efficient use of an aircraft's energy resources), aimed at developing a display suitable for exploring the areas of performance calibration, energy maneuverability, throttle-setting aids, efficient establishment of steady-state flight conditions, and similar flight research areas is described. The program led to the development of an energy/energy rate meter, whose theory of operations and applications is described. The results of flight tests conducted to evaluate the accuracy and utility of this relatively simple display concept are examined. V.P.

A74-34978 Flight/propulsion control integration aspects of energy management. M. J. Wendl, G. G. Gross, J. L. Porter, and V. R. Pruitt (McDonnell Aircraft Co., St. Louis, Mo.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740480*. 17 p. Members, \$1.40; nonmembers, \$2.25. Contracts No. F33615-71-C-1144; No. F33615-73-C-3130; No. F33615-72-C-1163.

Analytical studies indicate substantial aircraft performance benefits can result from proper application of energy management principles, and that conceptual approaches involving close coupling of aerodynamic, propulsion, and control technical elements are required to achieve these benefits. Analytic tools used in these studies include a modified Rutowski technique for simultaneously optimizing throttle position and flight path. Pilot-in-the-loop simulation results are presented and the use of advanced pilot displays utilizing energy management techniques are described. (Author)

A74-34985 Application of hydrogen to commercial transports. D. L. Kelly (Lockheed-California Co., Burbank, Calif.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740451*. 8 p. Members, \$1.40; nonmembers, \$2.25.

A design analysis of the conversion of an in-production wide-bodied transport to hydrogen fuel is presented. Comparisons are drawn between storage of hydrogen in the fuselage and storage in wing-external tanks. Required structural modifications are defined and costed, and a preferred configuration is selected on the basis of direct operating cost. It is shown that a conversion of a jet fueled wide-bodied transport to hydrogen fuel is technically and economically feasible, provided that it is preceded by a long-life tankage and insulation development. The preferred configuration has the hydrogen stored in pylon-mounted tanks above the wings. Flyaway cost of the hydrogen fueled conversion is 8 percent greater than that of the baseline jet fueled transport. M.V.E.

A74-34989 Performance versus cost tradeoffs - Initial look at alternatives. G. P. Sallee (American Airlines, Inc., New York, N.Y.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740494*. 6 p. Members, \$1.40; nonmembers, \$2.25.

Review of some of the engine alternatives suggested to reduce the impact of rising fuel prices. It is concluded, based on an analysis which considered the depreciation of investment, the cost of capital, insurance and maintenance expenses, as well as fuel savings, that in order of priority, it is necessary to investigate the optimum way to improve current inservice engine performance at minimum increase in maintenance cost and to investigate the possibility of improving

current engines by means of modification within current dimensions to improve components. Only after these are investigated and fuel prices have substantially increased, will retrofit of new engines on old aircraft be worthy of consideration. (Author)

A74-34980 An approach to aeroengine tradeoff factors. T. D. Sills (Rolls-Royce /1971/, Ltd., Derby, England). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740493*. 7 p. Members, \$1.40; nonmembers, \$2.25.

Engine tradeoff factors are discussed in a general manner. Some of the problems of their interpretation and their limitations in use, particularly when presented by the aircraft constructor or operator to the aeroengine manufacturer, are shown. The discussion is restricted to the performance and economic aspects of civil transport aircraft. Illustrative examples are given. (Author)

A74-34983 Amphibian STOL and its facilities. R. G. Smathers, Jr. (Lockheed-Georgia Co., Marietta, Ga.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740488*. 15 p. 15 refs. Members, \$1.40; nonmembers, \$2.25.

The short-haul transportation problem, worldwide, is characterized by congestion both on the ground and in the air. Solutions in the form of ground transportation are expensive in terms of land utilization, high development costs, their adverse effect on the environment and ecology, and are 20-30 years in the future. STOL offers a solution, but the high cost of land for downtown STOLports has precluded implementation. The STOL amphibian provides a solution which uses existing waterways situated downtown in every major city. It will relieve ground congestion and alleviate saturated airports. Studies show that such a system meets the ten basic requirements established by the National Environmental Policy Act of 1969 and that it contributes significantly to a reduction in the energy consumed in travel to and from the airports. (Author)

A74-35000 U.S. government airport capacity planning. C. L. Blake (FAA, Washington, D.C.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740474*. 8 p. Members, \$1.40; nonmembers, \$2.25.

In order to formulate policy for the orderly development and use of the nation's navigable air space, federal agencies such as the FAA and the Department of Transportation have launched several programs to determine aviation requirements for the next 10 years. This paper outlines their conclusions concerning airborne activities such as flow control, approach and departure control, wake vortex problems, and operating procedures as well as airport capacity and ground operations. The impact of the FAA's Research and Development Program and the implications of the current fuel shortage and economic situation are also discussed. (Author)

A74-35001 Disposal of waste oils at military air bases. M. Lieberman, A. Beerbower (Esso Research and Engineering Co., Linden, N.J.), and R. H. Kroop (USAF, Washington, D.C.). *Society of Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740472*. 7 p. Members, \$1.40; nonmembers, \$2.25.

The disposal of waste lubricants and fuels at U.S. Air Force and Navy facilities is discussed. The waste products covered include: synthetic turbine oil, aviation piston engine oil, hydraulic fluids, and contaminated JP-4 and JP-5. Technical feasibility and the economics of various disposal alternatives, including use as a fuel, re-refining, and recycling, as well as entrepreneurial outlets are presented. Waste lubricants and fuels handling, classification, and storage are also discussed in connection with the disposal problem. (Author)

A74-35008 Advanced controls for commercial transport aircraft. H. A. Shomber (Boeing Commercial Airplane Co., Renton, Wash.) and R. B. Hollaway (Boeing Co., Wichita, Kan.). *Society of*

Automotive Engineers, Air Transportation Meeting, Dallas, Tex., Apr. 30-May 2, 1974, Paper 740453. 14 p. 27 refs. Members, \$1.40; nonmembers, \$2.25.

Advanced control concepts, e.g., CCV and ACT, hold considerable promise of more efficient operation for commercial transports. These potential improvements, greatest for new designs that include the control concepts from their outset, yield reductions in airplane weight and/or drag with associated impact on fuel requirements, operating costs, etc. Limited improvement is also available for existing airplanes that meet certain control system requirements. This paper discusses the potential impact of advanced controls on commercial transports as performance improvements or fuel savings, and the improvement sensitivity to the design mission and configuration. The commercial application of these advanced concepts must follow right demonstration of the flight-critical aspects, and careful determination of the reliability (safety and dispatch), certification, and economic aspects. Finally, research and demonstration activities necessary for the commercial application of these advanced control concepts are recommended. (Author)

A74-35276 Effect of plasma injection on cold wall type MHD generator. T. Kajikawa, T. Kashiwara, and O. Nomura (Ministry of International Trade and Industries, Electrotechnical Laboratory, Tokyo, Japan). *Japanese Journal of Applied Physics*, vol. 13, May 1974, p. 870-874. 16 refs.

Difficulties concerning large electrode losses have to be overcome in connection with the development of a cold wall type MHD generator for practical applications. An investigation regarding the use of a plasma injection method was conducted to explore possibilities concerning the improvement of the MHD generating characteristics. The experimental results obtained show that an employment of the plasma injection method is feasible in the case of the small-scale cold wall type MHD generator considered. G.R.

A74-35287 International Cryogenic Engineering Conference, 5th, Kyoto, Japan, May 7-10, 1974, Preprints. Volumes 1 & 2. Conference sponsored by the Cryogenic Association of Japan. Tokyo, H. Nagano, University of Tokyo, 1974. Vol. 1, 216 p.; vol. 2, 358 p.

Recent theoretical and experimental studies of superconductivity, its technology and applications, are presented in a number of papers. Some of the topics covered include superconducting levitated transport systems, superconducting power transmission, macroscopic derivation of maximum Josephson tunneling current density, ac losses of a superconducting wire in a longitudinal magnetic field, a high speed superconducting generator, superconducting magnet and fusion reactor, development of high voltage cryoresistive cable, a millikelvin dilution refrigerator with plastic exchangers, and indications for the future of superconducting technology.

P.T.H.

A74-35288 # The use of superconductivity in the USA transportation program. R. H. Borcherts (Ford Motor Co., Dearborn, Mich.). In: *International Cryogenic Engineering Conference, 5th, Kyoto, Japan, May 7-10, 1974, Preprints. Volume 1*.

Tokyo, H. Nagano, University of Tokyo, 1974, p. B1-1 to B1-7. 18 refs. Research supported by the U.S. Department of Transportation.

The present paper summarizes the results of programs investigating the feasibility of high-speed ground transportation based on the concept of utilizing superconducting magnets to support a moving vehicle above a roadbed of discrete passive loops or coils. These studies have provided detailed mathematical formulation and experimental verification of the forces on a rectangular coil operated at an arbitrary height and velocity above a continuous conducting sheet as well as over an L-shaped guide-way. Important conclusions and recommendations reached are described. No serious problem has yet arisen which would eliminate either one of the magnetic suspension schemes (attraction or repulsion) from consideration. P.T.H.

A74-35289 # Superconducting magnetic energy storage. H. L. Laquer (California, University, Los Alamos, N. Mex.). In: International Cryogenic Engineering Conference, 5th, Kyoto, Japan, May 7-10, 1974, Preprints. Volume 1. Tokyo, H. Nagano, University of Tokyo, 1974, p. C6-1 to C6-5. 7 refs. AEC-sponsored research.

The present work reviews the two forms (potential or kinetic) of secondary energy storage, and then discusses in general terms the elements of an inductive magnetic energy storage system. Four regions of application of superconductive magnetic storage are indicated: (1) microsecond power delivery into resistive loads such as flash lamps and lasers; (2) millisecond power delivery into inductive loads such as plasma compression coils for theta-pinch controlled thermonuclear reactors; (3) second delivery to limit short term energy drain from a utility system; and (4) kilosecond delivery into an electric utility system with the objective of load levelling or peakshaving. The problem of losses in superconducting coils is briefly discussed. P.T.H.

A74-35495 Fuel state - Expensive. P. Massfield. *Flight International*, vol. 105, June 27, 1974, p. 835-838.

There are real possibilities in the use of liquid hydrogen, although many problems remain, not least those of ground handling. Moreover, production of liquid hydrogen at present requires fossil fuels as the energy source. The whole purpose of using liquid hydrogen can be served only by the development of manufacturing cycles based on the use of nuclear, geothermal, tidal, solar, or hydroelectric power. To convert a petroleum-operated air-transport economy to a liquid-hydrogen operated air-transport economy would be vastly expensive. One other attractive nonfossil fuel would appear to be ethanol, which can be produced by solar energy from fermented cereal grain. It is not anticipated that oil supplies will run short in this century, and coal is even more plentiful. F.R.L.

A74-35953 # Theoretical and experimental investigation of two-component heat pipes. H. J. Brommer (Stuttgart, Universität, Stuttgart, West Germany). *American Institute of Aeronautics and Astronautics and American Society of Mechanical Engineers, Thermophysics and Heat Transfer Conference, Boston, Mass., July 15-17, 1974, AIAA Paper 74-720*. 9 p. 12 refs. Members, \$1.00; nonmembers, \$2.00.

The temperature and concentration distributions within two-component heat pipes and the extent of separation of components were theoretically investigated. Experiments carried out with water/methanol heat pipes of the six-artery type confirmed the theoretical results that only a partial separation of the components will occur.

Performance measurements also demonstrated that water/methanol heat pipes can be operated at high power levels (over 300 watts could be obtained with heat pipes 500 mm long and 13.5 mm in diameter). Two-component heat pipes have a superior cold start up behavior as compared to respective one-component heat pipes, but their axial temperature drop during nominal operation conditions is considerably higher. (Author)

A74-35954 # Performance tests of gravity-assist heat pipes with screen-wick structures. J. E. Kemme, J. E. Deverall, E. S. Keddy, J. R. Phillips, and W. A. Ranken (California, University, Los Alamos, N. Mex.). *American Institute of Aeronautics and Astronautics and American Society of Mechanical Engineers, Thermophysics and Heat Transfer Conference, Boston, Mass., July 15-17, 1974, AIAA Paper 74-723*. 8 p. Members, \$1.00; nonmembers, \$2.00. AEC-sponsored research.

A series of performance-limit tests were made at several operating temperatures with sodium heat pipes containing simple wicks comprised of layers of woven-wire screen. After each pipe was tested horizontally, vertical tests were conducted in a gravity-assist

mode with the evaporator down. Higher heat-transfer limits were achieved in the vertical tests, but good agreement between measured and calculated limits was not always obtained. Wick imperfections, in the form of spaces between screen layers and other large openings, were beneficial during horizontal operation because they provided low-impedance flow paths for liquid return. During vertical operation, however, the openings filled with vapor and sometimes produced superheat limitations which seriously reduced heat transfer. (Author)

A74-36046 Superconductivity - Large-scale applications. R. A. Hein (U.S. Navy, Naval Research Laboratory, Washington, D.C.). *Science*, vol. 185, July 19, 1974, p. 211-222. 49 refs.

As a result of a number of advances including the commercial development of high-current, high-field superconducting materials, superconductivity offers a solution to some of the pressing technological needs of our society. The development of superconducting solenoids is discussed along with applications of superconducting magnets in high-energy physics, the use of superconductivity in electric power transmission, and advances in the field of rotating electrical machinery due to the employment of superconducting components. Other applications of superconductivity considered are related to energy storage and transfer or involve the use of superconducting magnets in very fast trains. G.R.

A74-36137 # Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/ (*Eksploatatsionnye i avarijnye poteri nefteproduktov i bor'ba s nimi* /2nd revised and enlarged edition/). N. D. Ivanov. Leningrad, Izdatel'stvo Nedra, 1973. 160 p. 41 refs. In Russian.

This book discusses petroleum product losses during storage, transportation, delivery and handling as such losses take place according to experience in concerned Soviet industries. Vaporization, leakage, spillage, oxidation, and accidental losses are covered, pointing out their significant level in the Soviet Union. Indicated as measures for control and prevention of losses are the reduction of the gas-filled space in storage tanks, the use of tanks with floating covers, the reduction of storage temperature fluctuation, the use of high pressure containers, and improved pumping system designs. V.Z.

A74-36226 * Utilization of space technology for terrestrial solar power applications. R. K. Yasui (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, Calif.) and R. E. Patterson (TRW Systems Group, Redondo Beach, Calif.). In: Photovoltaic Specialists Conference, 10th, Palo Alto, Calif., November 13-15, 1973. Conference Record. Conference sponsored by the Institute of Electrical and Electronics Engineers, New York, Institute of Electrical and Electronics Engineers, Inc., 1974, p. 239-253. 10 refs. Contract No. NAS7-100.

A description is given of the evolution of photovoltaic power systems designed and built for terrestrial applications, giving attention to problem areas which are currently impeding the further development of such systems. The rooftop testing of surplus solar panels is considered along with solar powered seismic observatories, solar powered portable radio sets, and design considerations identified from past experience. Present activities discussed are related to a solar powered on-shore beacon flasher system, a solar powered buoy, and a solar powered beacon flasher buoy. G.R.

A74-36232 Thermal control range associated with heat pipe cycling. H. B. McKee (McDonnell Douglas Astronautics Co., Huntington Beach, Calif.). In: Heat Transfer and Fluid Mechanics Institute, 24th, Corvallis, Ore., June 12-14, 1974, Proceedings. Stanford, Calif., Stanford University Press, 1974, p. 57-72. 5 refs.

The effect of dynamic cycling on variable conductance heat pipes temperature control is examined. Cycling of the heat pipe condenser environment or heat pipe evaporator heat input levels can

lead to concentration changes in the gas reservoir with a consequent change in the thermal control range. An analytical model is formulated and results of calculations presented which show the extent of these effects and their implication on gas reservoir charging. Calculations are also compared with experimental data obtained for gas controlled ammonia heat pipes under a simulated space environment. Test data was generated with the heat pipe operating with xenon and with helium control gases. (Author)

A74-36284 # A new solar selective surface. C. M. Horwitz (Sydney, University, Sydney, Australia). *Optics Communications*, vol. 11, June 1974, p. 210-212. 8 refs.

A new waveguide method of providing a selective surface for solar energy applications is described. Some measurements of a vacuum-deposited mesh are given, and elementary theory indicates that ratios of solar absorptance to thermal emittance of 30:1 should be possible at temperatures of about 200 C. (Author)

A74-36316 A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974. Convention sponsored by the Royal Aeronautical Society. London, Royal Aeronautical Society, 1974. 282 p. \$14.35.

Papers on air transport resources are given, covering nuclear contribution to future energy supplies, alternative energy sources, metallic and other material resources, noise reduction goals, effects of fuel and materials shortages on aircraft development and operation, future propulsion technology for ground transport, and economic resources utilization in aviation. The pricing policies of oil producing nations, hydrogen energy systems, man as a precious resource, and the quality of life vs aeronautics are also dealt with.

V.Z.

A74-36319 # The development of aircraft as influenced by the shortage of materials and fuel. H. A. Goldsmith (British Aircraft Corp., Ltd., Filton, Bristol, England). In: A review of precious resources and their effect on air transport, Proceedings of the Spring Convention, London, England, May 15, 16, 1974. London, Royal Aeronautical Society, 1974. 17 p.

The broad implications of possible shortages and high prices of basic materials in the aviation industry are discussed, covering aluminum, titanium, iron, nickel, composites, and fuel. High prices of any of these materials are viewed as possible but the real near term shortage of any significance is believed to be only that of fuel. Some alternative fuels are considered, with hydrogen produced from water using energy derived from non-fossil power sources as an obvious candidate.

V.Z.

A74-36320 # Future propulsion techniques for ground transport. A. H. Wickens (British Railways, London, England). In: A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974. London, Royal Aeronautical Society, 1974. 21 p.

Energy-related technical aspects of ground transport such as bus, car, electric train, Advanced Passenger Trains and aircraft are considered with attention to propulsion techniques of the future in the context of rising energy costs. Power requirement minimization, efficiency comparisons, aerodynamic, wheel and suspension drag, non-contacting suspensions, and operation in evacuated tubes are the subjects of the discussion. System design features relevant to energy consumption, heat engine characteristics, hybrid power systems, alternative fuels, electrification, energy storage technology, and flywheels are also covered. The need for firm but flexible long range policies in electrification, light-weight battery development and fuel

alternation is stressed, with combinations of innovation and conservation, and nuclear power as a long-range objective. V.Z.

A74-36321 # The economic utilisation of resources through aviation. I. Chichester-Miles (Hawker Siddeley Aviation, Ltd., Hatfield, Herts., England). In: A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974. London, Royal Aeronautical Society, 1974. 74 p.

Civil aviation is assessed as a social utility producing a desirable and useful service with a minimum demand on resources such as manpower, time, land and fuel. It is indicated that a progressive improvement of aircraft technology, with the present level of airline administration and operations efficiency and present constraints on airport access and locations, can only partially benefit the productivity of the air transport system as a whole. Even so, technical improvements in conventional subsonic aircraft should consolidate the position of aviation as the most efficient user of manpower over distances down to 600 km or even less. It is also anticipated that the attraction of aviation in terms of efficient land utilization will steadily increase with the growing volume of air traffic.

V.Z.

A74-36322 # Precious resources and air transport - An airline view. R. H. Whitby (British Airways Board, London, England). In: A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974. London, Royal Aeronautical Society, 1974. 11 p.

Recent fuel price increases and possible further increases are discussed in the context of their effects on airline operation planning at present and in immediate and more remote future. The fuel position of air transport vs other transport competitors is analyzed with the conclusion that aviation is not a major user of existing oil fuels and that there will be hardly a short supply of kerosene type products at practical prices for aviation within the next 60 years.

V.Z.

A74-36327 # Air transport in Europe - Commercial trends and prospects. J. J. Scarlett (British Airways, European Div., Ruislip, Middx., England). In: Symposium on Air Transport in Europe, London, England, January 16, 1974, Proceedings. London, Royal Aeronautical Society, 1974. 12 p.

The present work indicates in general terms some of the main factors which would have to be taken into consideration in order to obtain a picture of the air travel industry in Europe over the next decade or so. It is pointed out that because of the increase in fuel prices, the fuel content of the operating costs of a charter airline might rise from 20/25% to one-third or more of the total cost of operation, which could dramatically change the trend over the past decade towards very low-fare travel within Europe. Other topics discussed include traffic growth and financial prospects.

P.T.H.

A74-36331 * The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy Utilization, Washington, D.C., April 30, 1974. Symposium sponsored by the Institute of Environmental Sciences and NASA. Edited by M. P. Thekaekara (NASA, Goddard Space Flight Center, Greenbelt, Md.). Mount Prospect, Ill., Institute of Environmental Sciences, 1974. 104 p.

Papers on the state of the art and future prospects of solar energy utilization in the United States are included. Research and technologies for heating and cooling of buildings, solar thermal energy conversion, photovoltaic conversion, biomass production and conversion, wind energy conversion and ocean thermal energy conversion are covered. The increasing funding of the National Solar Energy Program is noted.

V.Z.

A74-36332 * # Solar energy research and utilization. W. R. Cherry (NASA, Goddard Space Flight Center, Greenbelt, Md.). In: The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy Utilization, Washington, D.C., April 30, 1974. Mount Prospect, Ill., Institute of Environmental Sciences, 1974, p. 1-20. 23 refs.

The role of solar energy is visualized in the heating and cooling of buildings, in the production of renewable gaseous, liquid and solid fuels, and in the production of electric power over the next 45 years. Potential impacts of solar energy on various energy markets, and estimated costs of such solar energy systems are discussed. Some typical solar energy utilization processes are described in detail. It is expected that at least 20% of the U.S. total energy requirements by 2020 will be delivered from solar energy. V.Z.

A74-36333 * # Data on incident solar energy. M. P. Thekarekare (NASA, Goddard Space Flight Center, Greenbelt, Md.). In: The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy Utilization, Washington, D.C., April 30, 1974. Mount Prospect, Ill., Institute of Environmental Sciences, 1974, p. 21-49. 44 refs.

Instrumentation for solar irradiance monitoring, and radiation scales are discussed in a survey of incident solar energy data. The absolute accuracy and intrinsic reliability of the values of the solar constant and zero air mass solar spectrum proposed by the Institute of Environmental Sciences as an ASTM standard are evaluated. Extraterrestrial observations are used for deriving solar irradiance data at ground level for widely varying atmospheric parameters, with special reference to air pollution. The effects of diffuse sky radiance and those of varying slopes of the solar energy collecting surface are examined. Average values of solar energy available at different locations in the United States are included. V.Z.

A74-36334 # The solar power options. P. E. Glaser (Arthur D. Little, Inc., Cambridge, Mass.). In: The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy Utilization, Washington, D.C., April 30, 1974. Mount Prospect, Ill., Institute of Environmental Sciences, 1974, p. 75-87. 5 refs.

Solar power potential is discussed vs future needs, with particular attention to large-scale solar energy conversion to power by using wind, ocean thermal gradients, solar-powered heat engines, and photovoltaic energy conversion on earth and in space. The past development and the state of the art of this technology are reviewed with a projection into the future. Cost projections are given on the basis of available data. The prospects of solar energy applications are believed to be bright but slow, with significant advances over the next few decades. V.Z.

A74-36335 # Growing federal support for solar energy applications. L. O. Herwig (National Science Foundation, Washington, D.C.). In: The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy Utilization, Washington, D.C., April 30, 1974. Mount Prospect, Ill., Institute of Environmental Sciences, 1974, p. 93-103.

The general objectives of the Federal Solar Energy Program are described as ones intended to provide the research and technology for economic terrestrial solar energy applications with the implementation of practical systems for commercial uses within the framework of national energy planning. The Program covers the following specific solar energy applications and technologies: heating and cooling of buildings, solar thermal energy conversion, photovoltaic conversion, biomass production and conversion, wind energy conversion, and ocean thermal energy conversion. It is believed that solar

energy applications such as heating and cooling of buildings, wind energy conversion and biomass production and conversion will have impact on U.S. energy requirements by the early 1980's. V.Z.

A74-36411 Thermochemical hydrogen generation. R. H. Wentorf, Jr. and R. E. Hanneman (GE Research and Development Center, Schenectady, N.Y.). *Science*, vol. 185, July 28, 1974, p. 311-319. 20 refs.

Cost estimates for hydrogen production indicate that electrolysis will probably not be generally competitive in this century with the better projected thermochemical approaches for large-scale uses. Continuing changes in fossil fuel prices will tend to make open-cycle processes less competitive than closed-cycle thermochemical processes in the long term. Particular attention is given to some tested, new closed-cycle thermochemical processes for hydrogen generation. Criteria for process selection are discussed and operational details for three processes are considered. G.R.

A74-36606 The impact of advanced turboshaft engine technology on T700-powered helicopter systems. L. B. Veno (General Electric Co., Aircraft Engine Group, Lynn, Mass.). *American Helicopter Society, Annual National V/STOL Forum*, 30th, Washington, D.C., May 7-9, 1974, Preprint 871. 8 p. 5 refs. Members, \$1.50; nonmembers, \$2.00.

The General Electric T700-GE-700 turboshaft engine currently under development by the U.S. Army for UTTAS (Utility Tactical Transport Aircraft System) and AAH (Advanced Attack Helicopter) represents a new generation of advanced technology engines in the 1500 horsepower class. How such an engine will provide notable improvements in performance, operation, and economy for this new generation of VTOL vehicles is described. A combination of the UTTAS and AAH helicopters illustrates these improvements. The T700 is a simple engine when compared to preceding turboshaft engines which manufacturers have produced in this horsepower class. Only five axial compressor stages and one centrifugal stage are necessary to achieve a pressure ratio higher than today's generation of engines. F.R.L.

A74-36941 The good and bad usages of air transport (Des bons et des mauvais usages du transport aérien). M. Wolkowitsch (Aix-Marseille, Université, Marseille, France). *Revue Générale de l'Air et de l'Espace*, vol. 37, no. 1, 1974, p. 7-17. In French.

The present work advocates that, especially in view of the fuel crisis and rising prices in air transport, plans for expanding air services to remoter regions and for short-haul purposes be reconsidered. Rather, it would be best to continue improving the quality of air service for those routes where its advantages over other means of transport are undeniable, and to restrain the proliferation of air service where its existence is not absolutely necessary and where the development or improvement of rail transportation, for example, would be more sane and economical. P.T.H.

A74-37604 Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, University of Tennessee Space Institute, Tullahoma, Tenn., April 8-10, 1974. Symposium sponsored by the University of Tennessee Space Institute. Edited by Y. C. L. Wu (University of Tennessee Space Institute, Tullahoma, Tenn.). University, J. Fox, University of Mississippi, 1974. 363 p. \$15.

The sessions dealt with combustion gas generators, systems and optimization, plasma flows, properties, and diagnostics, liquid metal generators, and nonequilibrium generators and MHD lasers. Among the subjects discussed are performance and Hall field limitation studies in the Stanford M-8 MHD generator, a two-dimensional dynamic programming method for the optimization of DCW MHD

generators, electron vibrational energy transfer under MHD combustion generator conditions, the time-dependent magnetohydrodynamic generator, and laser Doppler velocimetry in MHD boundary layers. A study was made of a bi-phase DC MHD generator using a new motion system, and the effects of the development of boundary layers in a Faraday MHD generator were examined. Closed cycle MHD power generation experiments in the NASA Lewis facility are described.

F.R.L.

A74-37606 # Performance and Hall field limitation studies in the Stanford M-8 MHD generator. J. K. Koester and W. Unkal (Stanford University, Stanford, Calif.). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. 1.6.1-1.6.6. 7 refs. Contract No. F33615-72-C-1088.

Experiments using a supersonic, hot-wall, variable-configuration generator are being performed to determine its flow and electrical characteristics. Effects at large Hall voltages (greater than 40 volts per pair) over various insulator gaps, are studied by impulsively loading the electrode circuits and recording, with fast instrumentation, the time response of the electrical parameters. A simple analysis of a filament breakdown indicates a strong dependence of breakdown voltage on the insulator gap. Experimental Hall voltages of 120 volts per pair, with a breakdown power of 1500 watts have been maintained over an insulator gap of 0.9 cm, with no signs of breakdown or abnormal behavior. (Author)

A74-37608 # Design and modeling of the gas flow system for a compact 10 MW MHD generator system. O. K. Sonju, J. Teno, R. Kessler, and D. Meader (Avco Everett Research Laboratory, Inc., Everett, Mass.). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. 1.7.1-1.7.6. USAF-ARPA-sponsored research.

The Viking II design program for a proposed 10 MW compact lightweight MHD generator is described. The program aims to demonstrate the feasibility of creating a burst-power transportable power supply suitable for military and industrial uses. Some of the unique features of the blower, channel, and diffuser are pointed out and the design of the gas flow train is described. The complete unit will have an overall weight of four to five thousand pounds, and the preliminary studies of prototype models indicate that this figure is well within reach. J.K.K.

A74-37607 # A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators. K. Y. Chang, W. C. Jackson, and Y. C. L. Wu (University of Tennessee Space Institute, Tullahoma, Tenn.). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. III.1.1-III.1.7. 9 refs. Contract No. F44620-69-C-0031. Project THEMIS.

The method of dynamic programming is used to optimize both of the generator cross-sectional areas and magnetic field distribution that will yield maximum enthalpy extraction. There is no restriction on the form of penalty function to be optimized, nor the forms of the constraints. An example is given to optimize a 45 degree diagonal conducting wall generator. (Author)

A74-37608 # Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits. V. A. Bitiurlin, B. M. Burakhanov, S. A. Medin, and V. M. Ponomarev (Akademiia Nauk USSR, Nauchno-Issledovatel'skii Institut Vysokikh Temperatur, Moscow, USSR). In: Engineering aspects of magnetohydrodynamics;

Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. III.2.1-III.2.6. 5 refs.

The stationary two-dimensional distribution of the electric field and the current density in a MHD channel is calculated. It is assumed that the distributions of the hydrodynamic parameters, the conductivity, and the Hall parameter are determined by a quasi-one-dimensional flow calculation that includes boundary layers on the walls of the channel. The effect of load commutation on the generator parameters and the field and current distributions is studied for the simple case of a generator with two Faraday electrodes and two Hall electrodes. The analysis shows that maximum power is delivered when longitudinal currents are blocked by the application of a considerable Hall potential and sufficient asymmetrical Faraday potentials to the electrodes. J.K.K.

A74-37609 # The effect of magnetic field upon the output performance of segmented-open type MHD generator. Y. Ozawa and N. Kayukawa (Hokkaido University, Sapporo, Japan). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. III.3.1-III.3.5. 8 refs.

Variational calculations are demonstrated for maximizing the conversion efficiency of a segmented-electrode open-type MHD generator. The optimal equation solutions presented show the ideal MHD generator performance under real operating conditions. M.V.E.

A74-37610 # Optimization of open cycle power plant MHD generator. A. E. Sheindlin, B. Ia. Shumiatskii, V. I. Kovbasiuk, P. P. Ivanov, and G. M. Koriagina (Akademiia Nauk SSSR, Nauchno-Issledovatel'skii Institut Vysokikh Temperatur, Moscow, USSR). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. III.4.1-III.4.5.

Mathematical models of an MHD power plant and of an MHD generator are discussed using a quasi-one-dimensional approach. The use of this approach is shown to make possible the choice of flow control parameters leading to optimal MHD power plant and generator cost efficiency. M.V.E.

A74-37611 # NASA Lewis H2-O2 MHD program. J. M. Smith, L. D. Nichols, and G. R. Seikel (NASA, Lewis Research Center, Cleveland, Ohio). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. III.7.1-III.7.5. 5 refs.

Performance and power costs of H2-O2 combustion powered steam-MHD central power systems are estimated. Hydrogen gas is assumed to be transmitted by pipe from a remote coal gasifier into the city and converted to electricity in a steam MHD plant having an integral gaseous oxygen plant. These steam MHD systems appear to offer an attractive alternative to both in-city clean fueled conventional steam power plants and to remote coal fired power plants with underground electric transmission into the city. Status and plans are outlined for an experimental evaluation of H2-O2 combustion-driven MHD power generators at NASA Lewis Research Center. (Author)

A74-37612 # Electron vibrational energy transfer under MHD combustion generator conditions. C. D. Hawley and M. Mitchner (Stanford University, Stanford, Calif.). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. V.1.1-V.1.5. 13 refs. Contract No. F44620-73-C-0048.

Analysis of the energy transfer rate between an electron gas and the vibrational modes of diatomic gases. Detailed numerical predic-

tions obtained for molecular nitrogen and carbon dioxide are presented. These results indicate that the energy transfer rate is strongly dependent upon the electron velocity distribution function.

M.V.E.

A74-37613 # MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators. S. J. Schneider and J. F. Louis (MIT, Cambridge, Mass.). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. V.2.1-V.2.10. 6 refs. U.S. Department of the Interior Contract No. 14-32-0001-1209.

Separate analytical studies of the development of velocity and thermal wakes induced by inlet vanes are described, and the influence of these wakes on the performance of MHD generators is evaluated. The results indicate that: (1) a velocity defect, when passing through an MHD generator, will be greater than its value for non-MHD flow due to the retarding Lorentz forces and will increase as the interaction parameter or the Lorentz forces increase; and (2) a thermal defect, when passing through an MHD generator, causes large changes in the conductivity of the fluid, but the defect decreases as the interaction parameter increases. No attempt has been made to combine the viscous and thermal wake solutions.

M.V.E.

A74-37615 # The time dependent magnetohydrodynamic generator. D. A. Oliver (MIT, Cambridge, Mass.). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. V.5.1-V.5.9. 11 refs. Research supported by the U.S. Department of the Interior; NSF Grant No. GK-38130.

A general theory of unsteady magnetohydrodynamic channel flows is presented. A computational approach for solving the nonlinear fluid and Maxwell equations is developed. Illustrations of the theory and calculational techniques are given for generator load change transients and for the behavior of the generator with finite amplitude magnetoacoustic fluctuations.

(Author)

A74-37616 # Wall roughness and area variation effects in high subsonic MHD generator channels. E. D. Doss and G. S. Argyropoulos (STD Research Corp., Arcadia, Calif.). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. V.6.1-V.6.4. 9 refs. U.S. Department of the Interior Contract No. 14-32-0001-1211; NSF Grant No. C-727; Contract No. F44620-73-C-0001.

Using computer simulation techniques, the influence of wall roughness perturbation effects and of area variation on the performance of high subsonic MHD generator channels is analyzed. Previous methods of accounting for these effects in the design of MHD channels are reviewed in the light of the results obtained.

M.V.E.

A74-37618 # Study of a bi-phase D.C. M.H.D. generator using a new motion system. A. Charon, R. Lagoutte, and J. Robert (Paris, Laboratoire de Génie Electrique, Fortenay-aux-Roses, Hauts-de-Seine, France). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. VI.1.1-VI.1.5.

This paper reports the description and the calculation of a bi-phase D.C. M.H.D. generator. The author's purpose was to imagine a system in which thermic exchanges do not affect the efficiency. The study is limited to a small power unit (30 KW). The thermodynamic cycle, the flow process and the conversion in the nozzle have been taken into account to evaluate the output power and the efficiency. The calculation assumptions lead to a bit optimistic results.

(Author)

A74-37619 # The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators. W. E. Amend, R. L. Cole, and J. C. Cutting (Argonne National Laboratory, Argonne, Ill.). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. VI.2.1-VI.2.7. 6 refs. AEC-sponsored research.

Experiments were performed and supporting analytical effort was continued on a constant area, two-phase liquid-metal and inert gas MHD generator. Experiments were carried out under conditions similar to those utilized in the previous tests on a diverging channel generator so that detailed comparisons could be made. Generator efficiency data obtained in the constant area channel are similar to measurements made with diverging channel. Results indicate a maximum generator efficiency of 50% at high magnetic fields and low mixture quality and a decreasing efficiency with increasing quality. The open-circuit load factor varied from 0.95 at zero quality to 0.80 at a mixture quality of 0.01. Comparison of the straight channel data with data obtained in the diverging channel generator indicated significant differences in the current, and hence pressure distribution patterns in the generator.

(Author)

A74-37620 # Boundary layer control in two-phase liquid-metal MHD generators. J. C. Cutting, R. L. Cole, W. E. Amend, and M. Patrick (Argonne National Laboratory, Argonne, Ill.). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. VI.3.1-VI.3.4. AEC-sponsored research.

Measured boundary-layer control results on a two-phase liquid-metal MHD generator with sidewall gas injection show that gas injection is effective in displacing the liquid boundary layer from the insulated wall. Removal or displacement of the conducting boundary layer results in as much as a 70% increase in generator performance. Excellent agreement between theory and experiment is observed. Measured open-circuit voltages increased by as much as 25% over previous results obtained without gas injection.

M.V.E.

A74-37621 # Effects of the development of boundary layers on a Faraday MHD generator. S. Shioda, H. Yamamoto (Tokyo Institute of Technology, Tokyo, Japan), and I. Yamashita (Mechanical Engineering Laboratory, Tokyo, Japan). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. VII.2.1-VII.2.5.

Analysis of the results of an experimental investigation of flow-condition effects on the operation of a shock-tube driven MHD generator. The current flows from the upstream edge of the anode to the downstream edge of the cathode. The anode voltage drop is larger than the cathode voltage drop. This asymmetry is caused by the finite rate of ionization, and the entailed nonuniformities in conjunction with the ionization instability reduce the power output significantly.

M.V.E.

A74-37622 # Ionisation, recombination and voltage drop measurements in a closed cycle MPD generator. I. R. McNab (International Research and Development Co., Ltd., Newcastle-upon-Tyne, England), J. S. Dolby, and M. G. Haines (Imperial College of Science and Technology, London, England). In: *Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974.*

University, J. Fox, University of Mississippi, 1974, p. VII.3.1-VII.3.6. 10 refs.

Review of the results of ionization, recombination, and voltage drop measurements made in a section of a closed loop MPD generator facility. The measurements were performed in a segmented electrode alumina duct at gas temperatures up to 1700 K, 1 atm pressure, and with a 600 m/sec flow of cesium seeded helium. Measurements made with applied magnetic fields alone showed that the generator performance was less than ideal, probably because of

end loop shorting and electrode voltage drops. Yet, in spite of these and some other disappointing features in the performance of the closed loop facility, a useful amount of information was obtained on the behavior of nonequilibrium plasmas in small test sections. M.V.E.

A74-37823 # Results of the Eindhoven MHD shocktunnel experiment. J. W. M. A. Houben, A. Veefkind, L. H. T. Rietjens (Eindhoven, Technische Hogeschool, Eindhoven, Netherlands), and J. H. Blom. In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. VII.4.1-VII.4.7. 10 refs.

Results of the Eindhoven shocktunnel experiment are presented. The experiments are performed with an enthalpy input of 3.8 Mw and a magnetic induction up to 3 T. In comparison with earlier experiments the MHD channel was recently changed by extracting the potential probes. Loss mechanisms as inlet relaxation phenomena, voltage drops and short circuiting between adjacent electrodes are analyzed in detail. At a magnetic induction of 2.57 T a power of 100 kw has been extracted from a channel volume of 3 litres. Comparison of experimental results and results obtained from computational integration of the conservation equations shows a good agreement. (Author)

A74-37824 # Electrode studies and recent results of nonequilibrium MHD generator experiments. B. Zauderer, E. Tate, and C. H. Marston (General Electric Co., King of Prussia, Pa.). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. VII.5.1-VII.5.4. 6 refs. Navy-supported research.

Experimental studies of comparative performance of 3 basic low temperature electrode designs were done in a Mach 5 MHD flow. Protruding wire electrodes parallel to the B field direction were distinctly superior to flush electrodes and to wires protruding in the E-field direction. The high Mach number channel is especially suited to the study of strong electromagnetic interaction in nonequilibrium generators. Preliminary results are reported. (Author)

A74-37825 * # Closed cycle MHD power generation experiments in the NASA Lewis facility. R. J. Sovie and L. D. Nichols (NASA, Lewis Research Center, Cleveland, Ohio). In: Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, Tullahoma, Tenn., April 8-10, 1974. University, J. Fox, University of Mississippi, 1974, p. VII.6.1-VII.6.6. 10 refs.

Discussion of the performance improvements achieved through some modifications made in the closed cycle MHD facility. These modifications include a redesign of the MHD duct interior, addition of mixing bars, increased electrical isolation, and experimentation with various cesium seed vaporization and injection techniques. Uniform Faraday and Hall voltage profiles were obtained, and the Faraday open circuit voltage varied from 90 to 100% of the ideal uBh. M.V.E.

A74-37791 # A two-temperature, gas-particle suspension in MHD power generation. D. J. Helfrich and W. A. Gustafson (Purdue University, West Lafayette, Ind.). (American Society of Mechanical Engineers, Paper 73-Pwr-C, 1973.) ASME, Transactions, Series A Journal of Engineering for Power, vol. 96, July 1974, p. 267-273. 24 refs. NSF-supported research.

A feasibility study has been made of the use of a two-temperature, gas-particle suspension as the conducting medium in MHD generators. Large gas-particle temperature differences following nozzle expansions have been calculated, and the power generated by the use of these suspensions in MHD generator ducts has been

investigated. Although relatively low gas temperatures have been considered, high electrical conductivities can be achieved by means of thermionic emission of electrons from high-temperature particles. It is shown that total output power increases as gas temperature is decreased by means of continued nozzle expansion. Output power is also increased through the use of relatively large particles. (Author)

A74-37821 * # Jet transport energy management for minimum fuel consumption and noise impact in the terminal area. J. S. Bull and J. D. Foster (NASA, Ames Research Center, Moffett Field, Calif.). American Institute of Aeronautics and Astronautics, Mechanics and Control of Flight Conference, Anaheim, Calif., Aug. 5-9, 1974, Paper 74-811. 11 p. 6 refs. Members, \$1.50; nonmembers, \$2.00.

Significant reductions in both noise and fuel consumption can be gained through careful tailoring of approach flightpath and airspeed profile, and the point at which the landing gear and flaps are lowered. For example, the noise problem has been successfully attacked in recent years with development of the 'two-segment' approach, which brings the aircraft in at a steeper angle initially, thereby achieving noise reduction through lower thrust settings and higher altitudes. A further reduction in noise and a significant reduction in fuel consumption can be achieved with the 'decelerating approach' concept. In this case, the approach is initiated at high airspeed and in a drag configuration that allows for low thrust. The landing flaps are then lowered at the appropriate time so that the airspeed slowly decelerates to $V_{sub r}$ at touchdown. The decelerating approach concept can be applied to constant glideslope flightpaths or segmented flightpaths such as the two-segment approach. F.R.L.

A74-37822 # Sensitivity of suboptimal fixed-range flight paths. J. K. Hedrick (Arizona State University, Tempe, Ariz.) and M. A. Nichols (Arizona State University, Tempe, Ariz.; USAF, Weapons Laboratory, Kirtland AFB, N. Mex.). American Institute of Aeronautics and Astronautics, Mechanics and Control of Flight Conference, Anaheim, Calif., Aug. 5-9, 1974, Paper 74-813. 8 p. 11 refs. Members, \$1.50; nonmembers, \$2.00.

The sensitivity of fuel consumption to variations in aircraft and atmospheric parameters is investigated using aerodynamic data for a F-4 type aircraft and atmospheric data as specified by MIL STD-210A. The flight paths considered contain a full throttle 'Rutowski' energy climb arc, a classical minimum fuel cruise arc, and a maximum range glide arc. Aircraft parameters considered were maximum available thrust, induced and zero-lift drag coefficients, aircraft weight, and specific fuel consumption; atmospheric parameters considered were temperature and density variations. The results show that fuel consumption is sensitive to variations in the drag coefficients, aircraft weight, and specific fuel consumption. However, compensating by flying trajectories adjusted to be fuel optimal for each variation does not appreciably improve the fuel penalty. (Author)

STAR ENTRIES

N74-21665# Honeywell, Inc., Minneapolis, Minn. Systems and Research Center.

F-14 OPTIMUM FLIGHT MODES, VOLUME 1 Final Report, 1 Jul. 1972 - 30 Sep. 1973

D. C. Sederstrom and K. L. Curtner. Oct. 1973. 121 p. refs. (Contract N00014-72-C-0405; NR Proj. 213-098) (AD-775248) Avail. NTIS CSCL 01/3

An F-14 optimum flight modes study is described. The overall objective of the project was to define an energy management demonstration system which could use the F-14A with its existing computer systems as a flight test vehicle. The work included development of a computer program to determine performance and generate trajectories for various energy management modes. An energy management demonstration system is presented, the computational algorithm is described, and potential performance benefits resulting from the use of an energy management system are discussed. Author (GRA)

N74-21675 California Inst. of Tech., Pasadena. Environmental Quality Lab.

PROJECT SAGE PHASE 1 REPORT: SOLAR ASSISTED GAS ENERGY WATER HEATING FEASIBILITY FOR APPLICATION IN NEW APARTMENTS

Edgar S. Davis. Jun. 1973. 47 p. refs. Sponsored in part by Southern Calif. Gas Co. (Grant NSF GI-29728)

(EOL-Memo-11) Copyright. Avail. Issuing Activity

The feasibility of developing a commercial product for solar water heating in apartment buildings in Southern California is investigated. A definition of a baseline system is given, specifying plumbing configuration, materials, components, and collector design concept. An estimation of system cost and performance is also included along with the identification of component design, enabling solar water heating to become commercially viable. Author

N74-21676# Bureau of Mines, Morgantown, W Va.

OIL SHALE: A CLEAN ENERGY SOURCE

Sidney Katell, Reid Stone, and Paul Wellman. [1974]. 27 p. Presented at the 18th Ann. Meeting of the Am. Assoc. of Cost Engr., Los Angeles, 30 Jun. - 3 Jul. 1974. Avail. NTIS HC \$4.50

Shale oil needs to be developed to take its place among the usable reserves of energy supplies in the future. Environmental concerns are broad and encompass industrial and surrounding socio-economic area. Industrial activities and responsibilities of the potential developer are presented. Author

N74-21677*# Scientific Translation Service, Santa Barbara, Calif.

WIND POWER TURBOGENERATOR FOR HIGH ALTITUDE WIND UTILIZATION

H. Honnef. Washington. NASA. Apr. 1974. 12 p. Transl. into ENGLISH from German patent no. 885284(3 Aug. 1953). 4 p. (Contract NASw-2483)

(NASA-TT-F-15455) Avail. NTIS HC \$4.00 CSCL 10A

A windpowered electrical generator is reported that consists of two counter-rotating wheels, one being the armature and the other being the field. Means of compensating for varying wind speed are described. Author

N74-21678*# Kanner (Leo) Associates, Redwood City, Calif. **THE PRESENT STATE OF PLANNING AND ERECTION OF LARGE EXPERIMENTAL WIND-POWER STATIONS**

V. R. Sektorov. Washington. NASA. Apr. 1974. 15 p. Transl. into ENGLISH from Elektrichestvo (Moscow), no. 2, 1933 p. 9-13

(Contract NASw-2481)

(NASA-TT-F-15512) Avail. NTIS HC \$4.00 CSCL 10A

An investigation into the use of wind-power stations, which are planned for the second 5-Year Plan is discussed. The size of stations planned is 5000 kW, and they are to be built in areas of the country where there is a sufficient annual wind speed to justify economic use. The Balaklava experimental station was investigated and results show that it was economical, but new research must be done to improve overall performance. Author

N74-21679*# Kanner (Leo) Associates, Redwood City, Calif. **STUDIES OF THE UTILIZATION OF WIND ENERGY: THE USE OF ac GENERATOR/MERCURY-VAPOR INVERTER SETS CONNECTED TO ac NETWORKS**

Antonino Asta. Washington. NASA. Apr. 1974. 14 p. refs. Transl. into ENGLISH from Ric. Sci. (Rome), no. 1-2, Jan. - Feb. 1950. p. 53-59

(Contract NASw-2481)

(NASA-TT-F-15514) Avail. NTIS HC \$4.00 CSCL 10C

Different types of electrical generators are reviewed that can be used with wind energy. A set is described that is comprised of a generator supplied by a suitable type of excitation and a mercury-vapor inverter capable of incorporation in a three-phase network with constant voltage and frequency, provided with reservoirs, by a fixed-pitch air motor without a speed regulator. Experimental results obtained with such a set are reported. Author

N74-21680*# Kanner (Leo) Associates, Redwood City, Calif. **REPORT ON RESULTS ACHIEVED WITH SEAS EXPERIMENTAL MILL**

J. Juul. Washington. NASA. Apr. 1974. 15 p. Transl. into ENGLISH from Elektroteknikeren (Copenhagen) p. 5-12

(Contract NASw-2481)

(NASA-TT-F-15515) Avail. NTIS HC \$4.00 CSCL 10A

The SEAS experimental windmill was built in order to attempt operation of a three-phase alternating current generator with a wind turbine as drive power in conjunction with existing ac installations. Testing in natural wind was carried out on the wing shapes that have proved in windtunnel tests to be the most feasible. Investigations were made on how much power can be achieved per unit area within the periphery of the wingtips (= wingspread area). Annual production that can be achieved per unit of wingspread area was determined. The following requirements were worked out experimentally: (1) the most favorable wingtip velocity, regulation arrangement of the wing; (2) the necessary automatic apparatus. Finally, the maximum effect of the wind turbine's axle in the wind direction was measured. Author

N74-21681*# Kanner (Leo) Associates, Redwood City, Calif. **THIS IS HOW YOU CAN HEAT YOUR HOME WITH A LITTLE WINDMILL**

Washington. NASA. Apr. 1974. 13 p. refs. Transl. into ENGLISH from Nv Teknik (Sweden), no. 3, Jan. 1974. p. 8-5

(Contract NASw-2481)

(NASA-TT-F-15518) Avail. NTIS HC \$4.00 CSCL 10A

For many years, small windmills with generators and storage batteries have been available for supplying electricity to remote locations, but storage batteries are so expensive, that this type of electrical supply is normally unrealistic. A better way of utilizing wind power in a smaller installation is to let the electrical current take care of home heating via a heat accumulator, which has low maintenance cost and simple electrical equipment. One

such installation is described in this article, and figures on its economic feasibility are provided. Author

N74-21682* Kanner (Leo) Associates, Redwood City, Calif.
WIND ELECTRIC POWER STATION

Hermann Konner Washington NASA Apr. 1974 14 p Transl. into ENGLISH from German Patent no. 871580(23 Mar. 1953) (Contract NASw-2481)

(NASA-TT-F-15522) Avail: NTIS HC \$4.00 CSCL 10A

A wind power station is described in which the structure on which the rotors are mounted may tilt as wind speed changes so that the rotors leave the vertical plane to anticipate increased wind speeds. The power station may have pulse generators located in front of the turbine rotors on extensions of the turbine shaft or on separated booms under the turbine; winches to tilt the turbine platform, normally locked by means of a brake, which is released when a predetermined wind thrust is reached; flexible tension members to transmit the thrust of the wind to the nontilting portion of the structure; provisions to change the direction of the winches as wind speed changes; an auxiliary vane to control an electrically driven propeller to rotate the power plant into the wind; and auxiliary generators to be used when wind speeds are too low for normal synchronous operation. Author

N74-21683# Committee on Science and Astronautics (U. S. House).

SOLAR HEATING AND COOLING DEMONSTRATION ACT

Washington GPO 1974 510 p refs Hearings on H.R. 10952 et al. before Comm. on Sci. and Astronaut., 93rd Congr., 1st Sess., No. 24, 13-15 Nov. 1973

(GPO-27-370) Avail: Subcomm. on Energy

The feasibility of using solar energy for the heating and cooling of buildings is discussed and the development of solar heating technology to meet performance criteria is projected. G G.

N74-21684# Commission of the European Communities, Brussels (Belgium).

MEDIUM-TERM PROSPECTS AND GUIDELINES IN THE COMMUNITY GAS SECTOR

1972 91 p

Avail: NTIS HC \$7.75

A summary of the main government measures affecting the operation of the gas industry in various European nations is presented. The gas supply, consumption, transport, distribution, and storage are discussed along with the capital investments, prices, and the structure of gas enterprises in the community. F.O.S.

N74-21685* Heliotek, Sylmar, Calif.

STUDY TERRESTRIAL APPLICATIONS OF SOLAR CELL POWERED SYSTEMS Final Report

Jerry W. Ravin Sep. 1973 134 p

(Contract NAS3-16828)

(NASA-CR-134512) Avail: NTIS HC \$9.75 CSCL 10A

Terrestrial applications of solar cells and design systems are considered for those applications that show the most promise for becoming practical and accepted by users within the next five years. The study includes the definition, categorization, evaluation and screening of the most attractive potential terrestrial applications for solar cells. Potential markets are initially grouped and categorized in a general sense and are weighted in priority by their business volume, present and future. From a categorized list including marine, transportation, security, communication, meteorological and others, 66 potential solar cell applications have been cataloged. A methodology was formulated to include the criteria for evaluation and screening. The evaluation process covers all parts and components of the complete system required for each application and gives consideration to all factors, such as engineering, economic, production, marketing and other factors that may have an influence on the acceptance of the system. Author

N74-21686# Michigan Public Service Commission.

CONSERVATION AND EFFICIENT USE OF ENERGY: A STATE REGULATOR'S VIEW

William R. Ralla 10 Jul. 1973 15 p refs

Avail: NTIS HC \$4.00

Alternatives available for the conservation and efficient use of energy are discussed. Energy shortages and problems are analyzed, and the steps for alleviating the shortages are outlined. Energy policies of the Wisconsin Public Service Commission are discussed along with state and national conservation measures. It is concluded that government decision makers must recognize their responsibility to the public to go beyond the umpire role, and take strong, affirmative action to reduce energy consumption and promote efficient use. F.O.S.

N74-21687# Wisconsin Univ., Madison.

ELECTRICITY GROWTH: ECONOMIC INCENTIVES AND ENVIRONMENTAL QUALITY

Charles J. Cicchetti Jan. 1973 47 p refs

Avail: NTIS HC \$5.50

The consumption of electricity continues to double in the United States at intervals equal to about 10 years. Some of the institutional reasons why these exponential rates continue are examined with special emphasis on economic incentives and the regulatory climate under which privately owned electric utilities operate. The public utility pricing question is considered from the economists' point of view. The findings of various econometric analysis of the demand for electricity are reviewed and the question of rate of return and utility growth is considered. Some environmental policy options and important new research directions are also discussed. Author

N74-21688# Los Alamos Scientific Lab., N.Mex.

GEO THERMAL ENERGY

M. C. Smith 1973 9 p

(Contract W-7405-eng-36)

(LA-UR-73-1316) Avail: NTIS HC \$3.00

Dry hot rock in the earth's crust represents the largest and most broadly distributed reservoir of usable energy accessible to man. The engineering equipment and methods required to extract and use this energy appear to exist and are now being investigated actively as LASL. At least for deep systems in relatively impermeable rock, not close to active faults, the extraction of energy from dry geothermal reservoirs should involve no significant environmental hazards. The principal environmental effects of such energy systems will be those associated with the surface facilities that use the geothermal heat: these will be visual, in land use, and in the thermal-pollution potential of low-temperature power plants. The energy extraction system itself should be clean, safe, unobtrusive, and economical. Author (NSA)

N74-21690# Los Alamos Scientific Lab., N.Mex.

POTENTIAL FOR THE PRODUCTION OF POWER FROM GEO THERMAL RESOURCES

M. C. Smith 1973 18 p

(Contract W-7405-eng-36)

(LA-UR 73-928) Avail: NTIS HC \$3.00

The nature and magnitude of the hot, dry rock geothermal energy resource are such that within the next 10 to 15 years it could begin to contribute significantly to the solution of some of our nation's most urgent energy, pollution, and balance-of-payments problems. A program to investigate and develop this resource was undertaken by the Atomic Energy Commission at Los Alamos Scientific Laboratory, and initial results from that program are described. It appears that the equipment and techniques required to make this vast energy reservoir useful already exist, and that a convincing demonstration of its usefulness is possible within less than five years. Author (NSA)

N74-21691# Los Alamos Scientific Lab., N.Mex.

POTENTIAL FOR HOT-DRY-ROCK GEO THERMAL ENERGY IN THE WESTERN UNITED STATES

D. W. Brown 25 Jul. 1973 22 p refs

(Contract W-7405-eng 36)

(LA-UR-73-1075) Avail: NTIS HC \$3.25

The U.S. Geological Survey has identified 1.8 million acres (2800 square miles) of western lands as having a significant potential for geothermal development. The LASL for the past 2 years has been actively investigating the potential for and problems associated with extracting geothermal energy from the much more numerous regions of the western United States containing hot, but essentially dry, rock at moderate depths. A recent survey reveals that about 7% of the 13-state area comprising the Western Heat Flow Province--about 95,000 square miles--is underlain, at a depth of 5 km (16,400 ft), by hot rock at temperature levels above 290 C. In the Los Alamos concept, a man-made geothermal reservoir would be formed by first drilling into suitably hot rock, and then creating a very large surface area for heat transfer using conventional hydraulic fracturing techniques developed by the oil industry. Author (NSA)

N74-21696# Energy Research Corp., Bethel, Conn.
HIGH VOLTAGE FUEL CELL ASSEMBLY Final Report, May 1972 - Jun. 1973

Ralph N. Camp and Bernard S. Baker. Jan. 1974. 44 p.
(Contract DAAK02-72-C-0458; DA Proj. 1T6-62706-A-012)
(AD-774820; ERC-1455F) Avail: NTIS CSCL 10/2

The concept of a high voltage, planar fuel cell element was investigated. Experimental units composed of 2, 4 and 20 single, series connected cells were built and tested for periods of greater than 100 hrs. at temperatures of 130C. Phosphoric acid contained in organic fibre matrices was the electrolyte. A design based on the performance of these units is contained in the report. Twenty-cell units were able to produce 70mA/sq cm at 12 volts. Author (GRA)

N74-21697# Massachusetts Inst of Tech., Cambridge. Energy Lab.
IMPACTS OF NEW ENERGY TECHNOLOGY, USING GENERALIZED INPUT-OUTPUT ANALYSIS Final Report
James E. Just. Feb. 1973. 302 p. refs.
(Grant NSF GI-32874)
(PB-226139/4GA; MIT-EL-73-1) Avail: NTIS HC\$7.00 CSCL 21D

Comparative economic and environmental impacts of high and low BTU coal gasification and the gas turbine topping cycle during the 1980-85 time period were forecast. The forecast used a projected 1980 input-output table that was augmented by detailed air pollution coefficients and water, steel, and energy usage coefficients. Direct and indirect impacts of both investment in and operation of the new technologies were examined. Data was obtained from basic engineering studies of these processes and converted to input-output technical and capital coefficients. Alternative high, medium, and low energy growth futures for 1985 were projected both with and without the new technologies. Results indicate the high sensitivity of total capital investment and certain capital goods industries to the rate of energy use growth. Aggravation of the situation may result from the introduction of high BTU coal gasification. Several economic mechanisms that will help to hold total capital investment within its historical boundaries as a percentage of GNP are also examined. Possible applications, refinements, and extensions are included. GRA

N74-21698# Energy Research Corp., Bethel, Conn.
ELECTROLYTE FOR HYDROCARBON AIR FUEL CELLS
Interim Technical Report, May - Nov. 1973
Ralph N. Camp and Bernard S. Baker. Feb. 1974. 29 p. refs.
(Contract DAAK02-73-C-0084; DA Proj. 1T0-61102-A-34A)
(AD-774832; ERC-2597S; ITR-2) Avail: NTIS CSCL 10/2

The electrochemical properties tetrafluoroethanesulfonic acid which had been shown to be superior to phosphoric acid as an electrolyte for direct propane oxidizing fuel cells were explored further. Platinum electrodes immersed in both tetrafluoroethanesulfonic acid and phosphoric acid saturated with propane were subjected to linear cyclic voltage sweeps and the resultant currents plotted as a function of potential. Peaks corresponding to the absorption and oxidation of propane were found to lie at more reversible potentials in tetrafluoroethanesulfonic acid. Author (GRA)

N74-21771# California Inst of Tech., Pasadena. Environmental Quality Lab.

CONTROL OF GASOLINE VAPOR LOSSES FROM STATION AND VEHICLE FILLING

Kenneth Heitner. May 1973. 15 p. refs.

(Grant NSF GI 29726)

(EQL-Memo-5) Avail: NTIS HC \$4.00

Control technologies and hardware are being developed for gasoline vapor losses. Several alternative methods have been evolved to solve the problem. The cost of these control systems is considerably less than new vehicle controls already required by law and can be absorbed with a very slight increase in the price of gasoline. In air basins where additional reductions of hydrocarbon emissions are required to achieve state and Federal ambient air quality standards for oxidant, gasoline (and other organic) vapor losses can be controlled through regulations similar to the San Diego Rule 63. A-555

N74-21921 Centre d'Etudes et Recherches de la Compagnie Electro-Mecanique, Le Bourget (France). Lab. de Cryotechnique.

DEVELOPMENT OF A MULTIPOLAR INDUCTOR UTILIZING THE POSSIBILITIES OF HOLLOW SUPERCONDUCTORS WITH SUPERCRITICAL HELIUM CIRCULATION Final Report [RECHERCHES EN VUE DE LA REALISATION D'UN INDUCTEUR MULTIPOLAIRE UTILISANT LES POSSIBILITES DES SUPRACONDUCTEURS CREUX A CIRCULATION D'HELIUM SUPERCRITIQUE COMPTE RENDU DE FIN DE CONTRAT]

J. P. Bordenave and A. Malandain. May 1972. 48 p. refs. In FRENCH

(Contract DGRST-70-7-2503)

Avail: Issuing Activity

A study for hermetic seals of use in alternators with rotating superconductor excitation and fixed cryostat is presented. Rotating seals using ferromagnetic liquids were investigated and discarded due to unacceptable losses. Sliding seals in graphite/ceramic were used in single seal and double seal versions and some conclusions are drawn. Rotating seals using liquid He were investigated and a test rig prepared. The possibility of having liquid helium in the rotating shaft was considered and the means used to limit the temperature at rotor tip are discussed. Problems associated with helium supercriticality are detailed. The implementation of a thermal shunt between hub and rotor tip is considered. ESRO

N74-22014*# Bendix Corp., Ann Arbor, Mich. Aerospace Systems Div.

AUTOMATED STRIP-MINE AND RECLAMATION MAPPING FROM ERTS Special Report

Robert H. Rogers, Principal Investigator, Larry E. Heed (Ohio State Univ.), and Wayne A. Pettyjohn. Apr. 1974. 15 p. Original contains imagery. Original photography may be purchased from the EROS DATA Center, 10th and Dakota Avenue, Sioux Falls, S. D. 57198. ERTS

(Contract NAS5-21762)

(E74-10490; NASA-CR-136891) Avail: NTIS HC \$4.00 CSCL 08I

The author has identified the following significant results. Computer processing techniques were applied to ERTS-1 computer-compatible tape (CCT) data acquired in August 1972 on the Ohio Power Company's coal mining operation in Muskingum County, Ohio. Processing results succeeded in automatically classifying, with an accuracy greater than 90%, (1) stripped earth and major sources of erosion; (2) partially reclaimed areas and minor sources of erosion; (3) water with sedimentation; (4) water without sedimentation; and (5) vegetation. Computer-generated tables listing the area in acres and square kilometers were produced for each target category. Processing results also included geometrically corrected map overlays, one for each target category, drawn on a transparent material by a pen under computer control. Each target category is assigned a distinctive color on the overlay to facilitate interpretation. The overlays, drawn at a scale of 1:250,000 when placed over an AMS map of the same area,

immediately provided map locations for each target. These mapping products were generated at a tenth of the cost of conventional mapping techniques.

N74-22074# Tetra Tech, Inc., Arlington, Va.
ULTRA-DEEP DRILLING FOR GEOTHERMALS Final Report

Samuel O. Patterson, Bruno E. Sabes, and Anthony Kooharian
 Dec. 1973 144 p refs
 (Contract N0d-8925; ARPA Order 2419)
 (AD-774108; TEFRA-A-74-339-005) Avail NTIS CSCL 08/9

Geothermal energy offers significant promise as a source of clean, widely available power. The first stage of its availability involves near surface sources; the second, abnormal thermal gradients; and the third stage, deep wells. This report assesses the potential and limitations of rotary drilling for deep geothermal systems. The assessment found that hot, dry rock geothermal energy produced from wells in the 35-40,000-ft range offers good potential to provide clean energy, a self-contained or independent energy source, no resupply for special problem maintenance systems, and the promise of economic competitiveness up to 100 Mw. Author: (GRA)

N74-22091# Woods Hole Oceanographic Institution, Mass.
REVIEW OF THE RESULTS FROM THE EASTERN ATLANTIC CONTINENTAL MARGIN PROGRAM OF THE INTERNATIONAL DECADE OF OCEAN EXPLORATION

K. O. Emery Oct 1973 34 p refs
 (Grant NSF GX-28193)
 (PB-226580/9GA; WHOI-Ref-73-75; WHOI-Contrib-3218)
 Avail. NTIS HC \$3.00 CSCL 08C

A large geophysical and geological study of the Eastern Atlantic Continental Margin is reported. Excellent results were obtained aboard ship with a computerized system of gravity, magnetics, and seismic reflection and refraction. Although not designed primarily for economic exploration, the cruises did map large sediment-filled basins and belts of salt diapiric structures, some of which were previously unreported and none of which were completely mapped. In addition, small pagoda structures discovered on the deep ocean floor may have some promise as sources for gas. Lastly, areas of coastal upwelling, large river discharge, and open ocean divergence were outlined as areas being exploited for fish, and they include at least one that appears to be little exploited at present. (Modified author abstract) GRA

N74-22292# Massachusetts Inst of Tech Cambridge
 Operations Research Center

OPTIMAL CONTROL OF SULFUR DIOXIDE EMISSIONS AT POWER STATIONS MODELS AND A CASE STUDY

Nitin R Patel Sep 1973 128 p refs
 (Contract DAHC04-73-C-0032)
 (AD-775392; AROD-9239-10-M, TR 82) Avail. NTIS CSCL 04/2

The principal concern of this thesis is to analyze emission control strategies which depend upon meteorological conditions. A meteorological model is developed to relate source emissions with average concentration of a pollutant in a region under different meteorological conditions. The problem of determining optimal dynamic controls for SO₂ emissions at fossil-fueled power stations is treated by constructing a linear programming model. This model is extended to encompass seasonal control of sources which are not amenable to more frequent controls. Another extension is constructed to analyze the effects of errors in meteorological forecasts. The various models are applied to the Metropolitan Boston Air Pollution Control District. The impact of dynamic emission controls on new site selection for fossil-fueled power stations is examined. A stochastic linear programming formulation is developed and an algorithm is designed to solve the stochastic linear programming problem. (Modified author abstract) GRA

N74-22312*# Kanner (Leo) Associates, Redwood City, Calif.
STUDIES OF HEAT RESISTANT MATERIALS FOR HIGH-TEMPERATURE GAS REACTOR

Shozo Sekino Washington NASA May 1974 30 p Transl. into ENGLISH of "Koon Gasu Ro Yo Tainetsu Zairyo No Kento", Nippon Steel Corp. Tech. Res. Inst., Yawata, Japan, report, 18 Oct 1973 21 p
 (Contract NASw-2481)
 (NASA-TT-F-15576) Avail NTIS HC \$4.50 CSCL 18J

As one of the countermeasures against the energy crisis, hope is entertained for the development of nuclear energy. MHD power generation may be of assistance from the standpoint of improved energy efficiency; high-temperature gas reactors are noted for their high efficiency. The GGA Company has developed a large-scale commercial high-temperature gas reactor whose prospects for the future are good. A preliminary requirement for using high-temperature gas economically and safely is the development of heat-resistant materials. Data are summarized concerning the suitability for this purpose of the existing alloys, including the alloys which are currently being mentioned as candidates. Data on corrosion resistance, creep resistance, thermal fatigue resistance, structural stability, weldability and machinability are reported. Author

N74-22372# Air Force Systems Command, Wright-Patterson AFB Ohio Foreign Technology Div

PASSAGE OF CURRENT THROUGH BOUNDARY LAYERS

V Yu Baranov, D D Malyuta, and F R Ulinich 1 Feb 1974 24 p refs Transl. into ENGLISH from Teplofiz Vysokikh Temperatur, Akad. Nauk SSSR (Moscow), v. 11, no. 3, May/Jun 1973 p 457-467
 (AD 775138; FTD HT 23-698-74) Avail NTIS CSCL 20/9

The drop in potential near an electrode in the presence of a cold boundary layer is studied theoretically and experimentally. The effect of a microarc on the gas-dynamic parameters in the channel of a MHD generator is analyzed. GRA

N74-22504*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio

FEASIBILITY OF SPACE DISPOSAL OF RADIOACTIVE NUCLEAR WASTE 2: TECHNICAL SUMMARY

Washington May 1974 130 p refs
 (NASA-TM-X-2912; E 7676) Avail NTIS HC \$4.75 CSCL 22A

The feasibility of transporting radioactive waste produced in the process of generating electricity in nuclear powerplants into space for ultimate disposal was investigated at the request of the AEC as a NASA in-house effort. The investigation is part of a broad AEC study of methods for long-term storage or disposal of radioactive waste. The results of the study indicate that transporting specific radioactive wastes, particularly the actinides with very long half-lives, into space using the space shuttle/tug as the launch system, appears feasible from the engineering and safety viewpoints. The space transportation costs for ejecting the actinides out of the solar system would represent less than a 5-percent increase in the average consumer's electric bill. Author

N74-22569*# Dynatherm Corp., Cockeysville, Md.

HEAT PIPE DESIGN HANDBOOK, PART 1

E A Skrabek Aug. 1972 331 p refs
 (Contract NAS9-11827)
 (NASA-CR-134284; DTM-72-3-Pt-1; DRL-2-Pt-1) Avail. NTIS HC \$19.75 CSCL 20M

The development and characteristics of heat pipes are examined. The subjects discussed are: (1) principles of operation, (2) heat pipe theory, (3) pressure gradient effects, (4) variable conductance, (5) design procedure, and (6) performance limit evaluation. Author

N74-22581 California Inst of Tech., Pasadena, Environmental Quality Lab

ELASTICITY OF DEMAND FOR GASOLINE IN THE SOUTH

COAST AIR BASIN

Alan M. Schneider 1973 18 p refs
(Grant NSF GI-29726)

(EQL-Memo-10) Copyright Avail Issuing Activity

An analysis of California gasoline sales was made, using Box and Jenkins' linear time series methods, in an attempt to detect the change due to a 17% change in price. There was no detectable change within the 2% noise limit of the method. Thus, either the elasticity is less than 2 parts in 17, and/or the tools must be further refined to detect it. Author

N74-22590* Georgia Inst of Tech., Atlanta. School of Nuclear Engineering.
COMPARATIVE EVALUATION OF SOLAR, FISSION, FUSION, AND FOSSIL ENERGY RESOURCES, PART 3 Final Report

J. D. Clement and W. A. Reupke 20 Mar 1974 61 p refs
(Grant NGR-11-002-166)

(NASA-CR-138117) Avail: NTIS HC \$625 CSCL 10B

The role of nuclear fission reactors in becoming an important power source in the world is discussed. The supply of fissile nuclear fuel will be severely depleted by the year 2000. With breeder reactors the world supply of uranium could last thousands of years. However, breeder reactors have problems of a large radioactive inventory and an accident potential which could present an unacceptable hazard. Although breeder reactors afford a possible solution to the energy shortage, their ultimate role will depend on demonstrated safety and acceptable risks and environmental effects. Fusion power would also be a long range, essentially permanent, solution to the world's energy problem. Fusion appears to compare favorably with breeders in safety and environmental effects. Research comparing a controlled fusion reactor with the breeder reactor in solving our long range energy needs is discussed. Author

N74-22592* California Inst of Tech. Pasadena. Environmental Quality Lab

TRENDS OF ENERGY USE IN CALIFORNIA AND THE SOUTH COAST AIR BASIN

Paul K. Mazaika May 1973 58 p refs
(Grant NSF GI 29726)

(EQL-Memo-6) Avail: NTIS HC \$6 00

A time history is presented of the major sources of energy described for 1969 in List's report, 'Energy Use in California'. As the data are compiled differently in these two reports, a comparison and interpretation is shown for 1969. The major difference is that his data are only for fuel used to provide energy within the state boundaries, while this report includes consumption for uses other than energy (LPG for chemical feedstock), and fuel used outside the state that was sold in the state (oil for ocean vessels). Natural gas delivered, gasoline, and LPG burned show good agreement. California's total electricity production agrees well. For the South Coast air basin, natural gas use agrees well between the two reports, while both gasoline use and electricity use are about 7% greater in the present work. Author

N74-22595* RAND Corp., Santa Monica, Calif.
ENERGY ALTERNATIVES FOR CALIFORNIA: THE CURRENT CRISIS. 2: CONSERVATION OF ENERGY

Ronald D. Doctor Dec 1973 34 p refs
(P-5156) Avail: NTIS HC \$4.75

Methods for enacting energy conservation in California are discussed. Estimates are made of potential energy savings in the industrial, commercial, residential, and transportation sectors. It is recommended that the state government assume a more active role in allocating resources with particular attention to geographic and socioeconomic factors. S.K.W.

N74-22596* RAND Corp., Santa Monica, Calif.
ENERGY ALTERNATIVES FOR CALIFORNIA: THE CURRENT CRISIS. 3: ALLOCATION OF SCARCE SUPPLIES

Richard H. Ball Dec 1973 21 p refs
(P-5157) Avail: NTIS HC \$4.25

Projected allocations of scarce energy supplies for California are discussed. The state economy was divided into residential, commercial, industrial, and transportation sectors. Energy supplies discussed are petroleum, electricity, natural gas, coal, and wood. Energy demand profiles are projected based on figures for demand in 1973. The role of government in allocating energy resources is discussed. S.K.W.

N74-22598* RAND Corp., Santa Monica, Calif.
THE POLICY EFFECTS ANALYSIS METHOD: A SYSTEM DYNAMICS SIMULATION STUDY OF THE DEFENSE FUEL SUPPLY SYSTEM

James D. Steele Nov 1973 18 p refs Presented at Conf. of the Operations Res. Soc. of Am., San Diego, Calif., 12-14 Nov. 1973

(P-5129) Avail: NTIS HC \$4 00

A computerized simulation of military procurement policy for jet fuels and aviation gasoline is presented. The analysis is used to evaluate the effects of procurement policy on military operations. The effect of international and domestic energy policies on procurement is also discussed. S.K.W.

N74-22600* Committee on Science and Astronautics (U. S. House)

RESEARCH ON GROUND PROPULSION SYSTEMS

Washington GPO 1974 139 p ref Hearings on H.R. 10392 before Comm. on Sci. and Astronaut., 93rd Congr., 2d Sess., No. 26, 4-6 Feb 1974

Avail: Subcomm. on Space Sci. and Appl.

Congressional hearings on a bill providing for more efficient ground propulsion systems are presented. Performance, efficiency, and environmental quality factors for propulsion systems are outlined. Plans for hydrogen engines are emphasized. S.K.W.

N74-22602* Little (Arthur D.), Inc., Cambridge, Mass.
SOLAR HEATED AND COOLED OFFICE BUILDING FOR THE MASSACHUSETTS AUDUBON SOCIETY: INITIAL PLANNING AND DESIGN Final Report

Jun. 1973 58 p refs Prepared jointly with Cambridge Seven Assoc. Sponsored by Mass. Audubon Soc.
(C-75457) Avail: NTIS HC \$6 00

A solar space conditioned office building is planned. The initial planning study consists of establishment of design criteria, preliminary engineering and architectural studies, planning for the design and construction phase, and estimation of design and construction costs and schedules. Author

N74-22603* Georgia Inst of Tech., Atlanta. Schools of Mechanical and Nuclear Engineering
COMPARATIVE EVALUATION OF SOLAR, FISSION, FUSION, AND FOSSIL ENERGY RESOURCES. PART 1: ENERGY FROM FOSSIL FUELS Final Report

J. R. Williams [1974] 51 p refs
(Grant NGR-11-002-166)

(NASA-CR-138188) Avail: NTIS HC \$5.75

The conversion of fossil fired power plants now burning oil or gas to burn coal is discussed along with the relaxation of air quality standards and the development of coal gasification processes to insure a continued supply of gas from coal. The location of oil fields, refining areas, natural gas fields, and pipelines in the U.S. is shown. The technologies of modern fossil-fuel boilers and gas turbines are defined along with the new technologies of fluid-bed boilers and MHD generators. K.M.M.

N74-22604* Georgia Inst of Tech., Atlanta. Schools of Mechanical and Nuclear Engineering

COMPARATIVE EVALUATION OF SOLAR, FISSION, FUSION, AND FOSSIL ENERGY RESOURCES. PART 5: CONCLUSIONS AND RECOMMENDATIONS Final Report

J. R. Williams [1974] 9 p refs

(Grant NGH-11-002-166)

(NASA-CR-138183) Avail. NTIS HC \$4.00 CSCL 10B

Air pollution resulting from the use of fossil fuels is discussed. Phenomena relating to the emission of CO₂ such as the greenhouse effect and multiplier effect are explored. Particulate release is also discussed. The following recommendations are made for the elimination of fossil fuel combustion products in the United States: development of nuclear breeder reactors, use of solar energy systems, exploration of energy alternatives such as geothermal and fusion, and the substitution of coal for gas and oil use. S.K.W.

N74-22610# Interior Dept., Washington, D.C.

UNITED STATES ENERGY FACT SHEETS, 1971

Feb. 1973 144 p

Avail. NTIS HC \$10.25

Basic aspects of the nation's fuel-energy situation are outlined. Information for the individual states as well as regions is presented. Data from many different publications are consolidated with emphasis on basic facts and patterns about our fuel-energy picture from state and regional viewpoints. Energy Fact Sheet is a series of tables for the individual states. The tables summarizing the data for the various regions and the nation provide broad-scale comparisons. Several illustrations are included to portray some salient facts. The location of fuel reserves are shown on several maps. Author

N74-22615# Los Alamos Scientific Lab., N.Mex.

ENERGY AND ENVIRONMENT: SYSTEM AND PERSPECTIVES

D. A. Freiwald Nov 1973 13 p refs

(Contract W-7405-eng-38)

(LA-5447-MS) Avail. NTIS HC \$4.00

The concept of energy and environment is discussed from various perspectives, including space and time, energy systems development and natural resources, limits to growth, influence systems, the total environment, alternate schemes, and a communications structure. Brief discussions are presented as to how these subjects interrelate, and what types of programs might meaningfully ameliorate energy problems on a long-time scale. Author (NSA)

N74-22622# Air Force Academy, Colo.

PROJECT POL (PETROLEUM, OIL, AND LUBRICANTS): OPTIMIZING PROCUREMENT OF AVIATION FUELS OR DEFENSE SUPPLY AGENCY Final Report

Larry M. Austin and William W. Hogan Jan 1974 93 p refs (AD-775063; USAFA-TR-74-2) Avail. NTIS CSCL 15/5

Defense Department requirements for aviation fuels are met with purchases made in the usual competitive bidding environment. This large-scale contract bidding and selection problem is modeled as a mixed integer linear program with a special structure. The solution of this large optimization problem is approached via an algorithm employing decomposition and implicit enumeration techniques which exploit the special structure of the underlying formulation. Computational results are discussed, and a FORTRAN computer program which implements the basic algorithm (POLKA) is exhibited. Author (IGRA)

N74-22703# Techtran Corp., Glen Burnie, Md.

THE MEASUREMENT OF LARGE WIND ENERGY GENERATORS

C. Martini Washington NASA May 1974 16 p Transl into ENGLISH from Elektrotech. Maschinenbau (Austria), v. 57, no. 7/8, 17 Feb. 1939 p 83-89

(Contract NASw-2485)

(NASA TT-F-15433) Avail. NTIS HC \$4.00 CSCL 10A

The weight comparison of energy generators according to the Honnell System is represented in curves wherein the weight is plotted as a function of three variables: the number of poles, air induction, and diameter. Author

N74-22704# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

WORKSHOP PROCEEDINGS. PHOTOVOLTAIC CONVERSION OF SOLAR ENERGY FOR TERRESTRIAL APPLICATIONS. VOLUME 1: WORKING GROUP AND PANEL REPORTS

1973 117 p Proc. held at Cherry Hill, N. J., 23-25 Oct. 1973 2 Vol.

(Contract NAS7-100, Grant NSF AG-485)

(NASA-CR 138209, NSF-RA-N-74-013-Vol-1)

JPL-SP43-3-Vol-1) Avail. NTIS HC \$9.00 CSCL 10A

Technological aspects of solar energy conversion by photovoltaic cells are considered. The advantage of the single crystal silicon solar cell approach is developed through comparisons with polycrystalline silicon, cadmium sulfide/copper sulfide thin film cells, and other materials and devices. G.G.

N74-22705# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena

WORKSHOP PROCEEDINGS. PHOTOVOLTAIC CONVERSION OF SOLAR ENERGY FOR TERRESTRIAL APPLICATIONS. VOLUME 2: INVITED PAPERS

1973 294 p refs Proc. held at Cherry Hill, N. J., 23-25 Oct. 1973 Sponsored by NASA 2 Vol.

(Grant NSF AG-485)

(NASA-CR 138193, NSF-RA-N-74-013-Vol-2)

JPL-SP43 3-Vol-2) Avail. NTIS HC \$17.75 CSCL 10A

A photovoltaic device development plan is reported that considers technological as well as economical aspects of single crystal silicon, polycrystal silicon, cadmium sulfide/copper sulfide thin films as well as other materials and devices for solar cell energy conversion systems. G.G.

N74-22706# Kanner (Leo) Associates, Redwood City, Calif.
STATISTICAL SUMMARY AND EVALUATION OF VENTO-ELECTRIC POWER STATION OUTPUT (PART 2 OF 2)

D. R. Stein Washington NASA Jun. 1974 16 p refs Transl. into ENGLISH from Elektrizitaetswirtschaft (Frankfurt am Main), v. 50, no. 11 Nov. 1951 p 325-329

(Contract NASw 2481)

(NASA-TT-F-15652) Avail. NTIS HC \$4.00 CSCL 10A

Data obtained from the operation of windmills in Denmark were used to study the performance of several sizes and designs. Tabulated information shows: (1) how performance is affected by wind velocity patterns, particularly mean velocities, by rotor diameter, and by how the output is used; (2) what fraction of available wind is utilized; (3) how regularly or irregularly output varies with time; (4) what peak values occur; (5) the duration of lulls; and (6) how utilization time depends upon the power level used as a reference. Author

N74-22709# Techtran Corp., Glen Burnie, Md.

MEETING FUTURE PEAK ELECTRICAL ENERGY DEMANDS BY MEANS OF ELECTROCHEMICAL STORAGE SYSTEMS

Klaus D. Beccu Washington NASA May 1974 12 p refs Transl. into ENGLISH from Chem.-Ingr.-Tech., v. 48, no. 3, 1974 p 95-99 Presented at the Session of GDCh Specialist Group Appl. Electrochem., Ludwigshafen am Rhein, West Germany, 4-5 Oct. 1973

(Contract NASw 2485)

(NASA-TT-F-15634) Avail. NTIS HC \$4.00 CSCL 10C

The electrical energy crisis is considered in terms of storage equipment. Various types are compared in terms of costs, efficiency, maintenance, and raw material reserves. It is concluded that more study and research is needed before adequate energy storage systems can cover peak load periods. Author

N74-22954# Colorado School of Mines, Golden, Dept. of Geology

GEOLOGIC INFORMATION FROM SATELLITE IMAGES

Keenan Lee, Daniel H. Knapper, Principal Investigators, and Don L. Sawatzky 27 Mar. 1974 39 p refs Presented at the 3d

Ann. Remote Sensing of Earth Resources Conf., Tullahoma, Tenn., 26 Mar. 1974. Original contains imagery. Original photography may be purchased from the EROS Data Center, 10th and Dakota Avenue, Sioux Falls, S. D. 57198. ERTS and EREP (Contracts NAS9-13394; NAS5-21778; Grant NGL-06-001-015) (E74-10507; NASA-CR-138230; Rept-74-3) Avail: NTIS HC \$5.00 CSCL 08G

The author has identified the following significant results. Extracting geologic information from ERTS and Skylab/EREP images is best done by a geologist trained in photointerpretation. The information is at a regional scale, and three basic types are available: rock and soil, geologic structures, and landforms. Discrimination between alluvium and sedimentary or crystalline bedrock, and between units in thick sedimentary sequences is best, primarily because of topographic expression and vegetation differences. Discrimination between crystalline rock types is poor. Folds and fractures are the best displayed geologic features. They are recognizable by topographic expression, drainage patterns, and rock or vegetation tonal patterns. Landforms are easily discriminated by their familiar shapes and patterns. It is possible to optimize the scale, format, spectral bands, conditions of acquisition, and sensor systems for best geologic interpretation. Several examples demonstrate the applicability of satellite images to tectonic analysis and petroleum and mineral exploration.

N74-22955*# Colorado School of Mines, Golden. Dept. of Geology.

APPLICABILITY OF REMOTE SENSOR DATA TO GEOLOGIC ANALYSIS OF THE BONANZA TEST SITE COLORADO Semiannual Progress Report, 1 Oct. 1973 - 31 Mar. 1974. Daniel H. Knapper, Keenan Lee, Principal Investigators, R. W. Butler, J. C. Fisher, and D. Huntley. May 1974. 30 p. refs. ERTS

(Grant NGL-06-001-015)

(E74-10608; NASA-CR-138231; Rept-74-1) Avail: NTIS HC \$4.50 CSCL 08G

There are no author-identified significant results in this report.

N74-23072# United Nations Development Program.

CARBONIZATION AND HYDROGENATION OF COAL

1973. 148 p. refs.

(ID/86) Avail: NTIS MF \$1.45; United Nations, Sales Section, New York or Geneva HC \$3.00, Sales No.: E.72.II.B.26

Coal treatment processes are described in relation to their economic and utilitarian viability in developing countries. Carbonization, hydrogenation, and the Fischer-Tropsch gasification processes for making oils, chemicals, and gas from coal are described along with plant layouts. The processes are compared on the basis of product properties and uses, and the internal and external economic factors associated with production. Capital investment manpower, coal reserves, and market considerations are discussed, and the developing countries for which coal treatment industries might be suited are listed.

A.A.D.

N74-23190# Bureau of Mines, Bartlesville, Okla.

OXYGENATES IN AUTOMOTIVE EXHAUSTS. EFFECT OF AN OXIDATION CATALYST

D. E. Seizinger and B. Dimitriadis. Dec. 1973. 26 p. refs.

(PB-2270971/3; BM-RI-7837) Avail: NTIS HC \$3.25 CSCL 13B

Analytical methods for oxygenates in exhaust gases were studied, and emission of these compounds from automotive engines were measured. It was shown that an estimate of the oxygenate yield from gasoline used in a noncatalytic system can be synthesized from data obtained with simple fuels. Such

synthesized data were used for comparison of noncatalytic with catalytic systems. It is concluded that the compositional character and class distribution of oxygenates in exhaust from catalytic systems may differ significantly from the composition and distribution for oxygenates not subjected to catalytic conversion. (Modified author abstract)

GRA

N74-23327# Institut Franco-Allemand de Recherches, St. Louis (France).

APPLICATION OF PHASE TRANSITIONS TO THE ELECTRO-MECHANICAL ENERGY CONVERSION [APPLICATION DES TRANSITIONS DE PHASE A LA CONVERSION MECANO-ELECTRIQUE DE L'ENERGIE]

F. Bauer and Y. Fatieau (Lab. de Ferroelectricite, Lyon) 28 Sep. 1973. 9 p. refs. In FRENCH

(ISL-CO-2/73) Avail: NTIS HC \$4.00

The adiabatic depolarization of ferroelectric ceramics is discussed for direct energy release. The basic principles of the method are reviewed and theoretical calculations show that charge release should be performed in an extremely short time. Metastable materials are best adapted in view of the transition F/AF high mobility. A low electric conductivity at high pressure (25 kbar) and high remanent polarization are shown to be essential. Applications as high impulse current generators for electric detonators are outlined.

ESRO

N74-23337# Bureau of Mines, Amarillo, Tex. Branch of Helium Resources.

ANALYSES OF NATURAL GASES, 1972

L. E. Cardwell and L. F. Benton. Nov. 1973. 109 p. refs.

(PB-225977/8; BM-IC-8807) Avail: NTIS MF \$1.45; SOD HC \$1.25 CSCL 21D

This publication contains routine analyses and related source data for 299 natural gas samples from 22 states and three foreign countries. All samples were collected during Calendar Year 1972 as a part of a continuous survey of the free world for occurrences of helium.

GRA

N74-23481*# Georgia Inst. of Tech., Atlanta. School of Nuclear Engineering.

COMPARATIVE EVALUATION OF SOLAR, FISSION, FUSION, AND FOSSIL ENERGY RESOURCES. PART 2: POWER FROM NUCLEAR FISSION Final Report

J. D. Clement [1973]. 82 p. refs.

(Grant NGR-11-002-1C5)

(NASA-CR-138397; E-26-606-Pt-2) Avail: NTIS HC \$7.25 CSCL 21D

Different types of nuclear fission reactors and fissionable materials are compared. Special emphasis is placed upon the environmental impact of such reactors. Graphs and charts comparing reactor facilities in the U. S. are presented.

S.K.W.

N74-23487# Committee on Government Operations (U. S. Senate).

STAFF STUDY OF THE OVERSIGHT AND EFFICIENCY OF EXECUTIVE AGENCIES WITH RESPECT TO THE PETROLEUM INDUSTRY, ESPECIALLY AS IT RELATES TO RECENT FUEL SHORTAGES

Washington. GPO. 8 Nov. 1973. 115 p. refs. Prepared for the Permanent Subcomm. on Investigations, 93d Congr., 1st Sess., 8 Nov. 1973.

(GPO-23-764) Avail: SOD \$1.00

Policies of the Federal government are discussed as they relate to managing the oil import program, providing adequate

supplies of crude oil for processing by refineries, overseeing operations and domestic refineries needed to meet demand, and maintaining a climate for the necessary expansion of domestic refinery capacity required to meet demand for gasoline and distillate fuel oil. A compilation of relevant facts accumulated from various sources is presented to serve as background for public hearings on oversight of the executive branch with respect to the petroleum industry, especially as it relates to recent fuel shortages. Author

N74-23510# North Atlantic Treaty Organization, Brussels (Belgium). Scientific Affairs Div.
TECHNOLOGY OF EFFICIENT ENERGY UTILIZATION
 Eugene G. Kovach, ed. Oct. 1973 77 p Conf. held at Les Arcs, France. 8-12 Oct. 1973
 Avail: NTIS HC \$7.00

The proceedings of a conference on the efficient utilization of energy are presented. The contributions which science and technology could make to maintaining current processes at lower energy cost were investigated. Attention was centered on the end uses of energy, without consideration of its original source, its transmission, or even its form. The roles played by major social, political, or economic decisions were considered. The contributions to be expected from research and development activities toward efficient energy utilization were emphasized. Author

N74-23511# Committee on Interior and Insular Affairs (U. S. Senate).
PRESIDENTIAL ENERGY STATEMENTS
 Washington GPO 1973 112 p refs Presented to Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 1973 (GPO-24-933) Avail: SOD HC \$1.05

Presidential energy statements relating to national energy policy are presented. Topics include energy requirements and the resources available to meet them. Research and development relating to energy production is discussed. S.K.W.

N74-25615# Georgia Inst of Tech., Atlanta. School of Mechanical Engineering
COMPARISON AND EVALUATION OF POWER PLANT OPTIONS FOR GEOSYNCHRONOUS POWER STATIONS. PART 1. SYNCHRONOUS SOLAR POWER Final Report
 J. R. Williams [1973] 47 p refs
 (Grant NGR-11-002-181)
 (NASA-CR-138493) Avail: NTIS HC \$5.50 CSCL 10A

The present state-of-the-art is described for the development of solar power generators in far out synchronous orbit for power generation. Concepts of geosynchronous solar power satellites are discussed including photovoltaic arrays for power satellites, solar thermal power satellites, and power transmission to earth. F.O.S.

N74-25616# Arizona Univ., Tucson. Optical Sciences Center.
CHEMICAL VAPOR DEPOSITION RESEARCH FOR FABRICATION OF SOLAR ENERGY CONVERTORS Annual Progress Report, 1 Jan. - 31 Dec. 1973
 B. O. Seraphin 31 Jan. 1974 83 p refs
 (Grant NSF-GI-36731X)
 (NSF/RANN/SE/GI-36731X/PR/73/3) Avail: NTIS HC \$7.25

A research on selective solar energy converter that can be used to transform solar radiation into high temperature heat. This heat can be transferred and applied in a steam turbogenerator unit to produce electricity. The selective solar energy converter is basically a two-layered construction in which the top layer is a semiconductor material such as silicon, having high absorption for solar radiation and high transparency for blackbody radiation from the heated unit. The bottom layer is a metal film having high reflectance. Author

N74-25617# Scientific Translation Service, Santa Barbara, Calif.
WIND GENERATING STATIONS UNDER JOINT OPERATIONAL CONDITIONS

A. Kroms Washington NASA Jun. 1974 32 p refs Transl. into ENGLISH from A. Bull. Schweiz. Elektrotech. Ver. (Zurich), v. 45, 1954 p. 135-144

(Contract NASw-2483)

(NASA-TT-F-15637) Avail: NTIS HC \$4.75 CSCL 10A

The following topics are discussed: wind power generators in combined operation; fundamentals of wind power as energy source and of its characteristics; structural features of generators; the feasibility of combined wind power and hydraulic power station; and the economic outlook for wind power. A bibliography is included. Author

N74-25618# Scientific Translation Service, Santa Barbara, Calif.
STATISTICAL SUMMARY AND EVALUATION ON ELECTRIC POWER GENERATION FROM WIND POWER STATIONS

Dimitri R. Stein Washington NASA 6 Jun. 1974 23 p refs Transl. into ENGLISH from Elektrizitätswirtschaft (Frankfurt am Main), v. 50, no. 10, 11 Oct. 1951 p. 279-285

(Contract NASw-2483)

(NASA-TT-F-15651) Avail: NTIS HC \$4.25 CSCL 10A

The technical developments and utilization of wind powered generating systems are discussed. A table of data is presented to show the energy production of Danish wind powered generation stations from 1941 to 1944. A statistical evaluation of the energy production by wind powered generators is provided. The characteristics of the power generation stations and the method for transmitting the power are described. Author

N74-25619# National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md.
A COMPUTER PROGRAM TO DETERMINE GEOMETRIC PARAMETERS FOR THE AFM SOLAR ARRAYS

Edward M. Gaddy Apr. 1974 72 p ref
 (NASA-TM-X-70656 X-711-74-121) Avail: NTIS HC \$6.75 CSCL 10A

A computer program has been written to aid in the design of the A.E.M.-1 solar array and to determine the power that will finally be available from the array. The program will plot the array output as a function of the satellite's position in a given orbit and will calculate the average output over the orbit. Author

N74-25620# Committee on Aeronautical and Space Sciences (U. S. Senate)

SOLAR HEATING AND COOLING

Washington GPO 1974 277 p refs Hearing on S. 2658 and H.R. 11864 before Comm. on Aeron. and Space Sci., 93d Congr., 2d Sess., 25 Feb. 1974

(GPO-29-939) Avail: Comm. on Aeron. and Space Sci.

A Congressional hearing was conducted to investigate the use of solar energy to help alleviate the energy shortage. The bill under consideration would direct NASA in cooperation with other Federal agencies, to develop a commercial demonstration of the technology of solar heating and for the technology of combined solar heating and cooling. Testimony is provided by several scientists and technologists concerning the methods of using solar energy. Examples of solar energy conversion systems are provided. A cost analysis of the project was made. P.N.F.

N74-25621# National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md.

SOLAR ENERGY RESEARCH AND UTILIZATION

William R. Cherry May 1974 23 p refs
 (NASA TM X-70660 X-704-74-139) Avail: NTIS HC \$4.25 CSCL 10A

The role is described that solar energy will play in the heating and cooling of buildings, the production of renewable gaseous, liquid and solid fuels, and the production of electric power over the next 45 years. Potential impacts on the various energy markets and estimated costs of such systems are discussed along with illustrations of some of the processes to accomplish the goals. The conclusions of the NSF/NASA Solar Energy Panel (1972) are given along with the estimated costs to accomplish

the 15 year recommended program and also the recent and near future budget appropriations and recommendations are included. Author

N74-26623# Army Foreign Science and Technology Center, Charlottesville, Va

HETEROGENEOUS SOLAR CONVERTERS BASED ON POLYCRYSTALLINE CADMIUM SULFIDE AND SELENIDE
V. N. Komashchenko, A. I. Marchenko, and G. A. Fedorus 6 Nov. 1973 11 p refs Transl into ENGLISH from Poluprov. Tekh. Mikroelektron Akad. Nauk Ukr SSR, Respub. Mezhdvedom. Sb (Moscow), no. 4, p 112-121

(AD-776551, FSTC-HT-23-1083-72) Avail. NTIS CSCL 10/2

Data are presented on the development and investigation of photoconverters based on pressed sintered tablets of CdS and CdSe, as well as some more detailed data on photoconverters based on CdSe films. Author

N74-26625# Air Force Systems Command, Wright-Patterson AFB, Ohio, Foreign Technology Div

PROSPECTS AND SCIENTIFIC PROBLEMS OF THE APPLICATION OF METHODS OF DIRECT ELECTRICAL POWER ACQUISITION FROM CHEMICAL FUELS

N. S. Lidorenko and G. F. Muchnik 21 Mar. 1974 29 p refs Transl. into ENGLISH from Izv. Akad. Nauk SSSR, Energ. i Transp (Moscow), no. 2, 1973 p 15-27

(AD-776734, FTD-MT-24-2-74) Avail. NTIS CSCL 10/2

The fundamental prospects for the use of electrochemical generators, which convert the chemical energy of fuel into electrical energy are examined. The optimal areas of their application in comparison with other energy sources are determined. Comparisons are conducted for a series of criteria, including technical-economical. A survey is given of the fundamental problems (theoretical, experimental, technical) which appear in the process of creating ECG. GRA

N74-26239# Bonner and Moore Associates, Inc., Houston, Tex

PROJECTED AVAILABILITY OF MOTOR GASOLINE AND DISTILLATE FUELS, 1975 - 1985 Final Report

15 Jan. 1974 108 p

(Contract DAAD05-73-C-0558, DA Proj 1T6-62611 A-106) (AD 775859, RGH-042) Avail. NTIS CSCL 21/4

The project involved the preparation of forecasts for raw materials availability and product demands for the U.S. refining industry through 1985 and the construction of a mathematical model of the industry. The major objective was to conduct an economic projection of the availability and compositional trends for automotive gasolines and distillate fuels during the next decade. Four major product demand forecasts (scenarios) were prepared and used to examine the industry. Additionally, the availabilities of jet and diesel fuels were examined in 1985 under two alternate premises. Author (GRA)

N74-26243# Naval Civil Engineering Lab., Port Hueneme, Calif.

SUBSTITUTION OF JP-5 AVIATION FUEL FOR DF-2 DIESEL UNDER FIELD CONDITIONS

John S. Williams Feb 1974 10 p refs

(AD-777047, NCEL-TN-1333) Avail. NTIS CSCL 21/4

The report covers the work done to determine whether JP-5 aviation turbine fuel is a suitable substitute for DF-2 diesel fuel in the heavy equipment of the Naval Construction Force wodon such equipment is deployed on a large construction project. (Modified author abstract) GRA

N74-26244 California Inst of Tech., Pasadena, Environmental Quality Lab.

COST AND PERFORMANCE OF AUTOMOTIVE EMISSION CONTROL TECHNOLOGIES

Glen R. Cass Dec. 1973 32 p refs

(Grant NSF GI-29726)

(EQL-Memo-7) Copyright. Avail. Issuing Activity

The near-term commercial feasibility of a wide range of automotive emission control technologies was investigated. Manufacturability and costs associated with each emission control technology are considered. Principle control techniques are listed along with fuel economy, price, maintenance cost, and emissions data for subcompact vehicles identified by the model year, in which they were marketed. These engine-vehicle combinations are then compared on the basis of estimated annual cost to the consumer above a 1970 baseline figure. Data indicate that cost alone will not govern the adoption of one emission control technology over another, either by consumers or manufacturers. Additional incentives are discussed. A.A.D.

N74-26253# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio

STATE OF TECHNOLOGY ON HYDROGEN FUELED GAS TURBINE ENGINES

Jack B. Eger May 1974 13 p refs

(NASA-TM-X-71561, E-7990) Avail. NTIS HC \$3.00 CSCL 21E

A series of investigations was conducted episodically from the 1950's to the early 1970's to investigate the feasibility and potential problem areas in the use of hydrogen fuel for gas turbine engines. A brief summary and bibliography are presented of the research that has been conducted by NASA, its predecessor NACA, and by industry under U. S. Air Force sponsorship. Although development efforts would be required to provide hydrogen fueled gas turbine engines for aircraft, past research has shown that hydrogen fueled engines are feasible, and except for flight weight liquid hydrogen pumps, there are no problem areas relating to engines requiring significant research. Author

N74-26255# Avco-Everett Research Lab., Everett, Mass

DISK GEOMETRY MHD GENERATOR FOR HIGH VOLTAGE HIGH POWER AIRCRAFT REQUIREMENTS Final Technical Report, Jul. 1971 - Dec. 1973

James E. Klepeis and Jean F. Louis Feb 1974 111 p refs (Contract F33615-71-C-1905, AF Proj. 3145)

(AD-775749, AFAPL-TR-74-6) Avail. NTIS CSCL 21/3

The disk represents a magnetohydrodynamic (MHD) channel geometry in which either a simple outward radial flow occurs, or there is a combination of radial flow with swirl. Distinguishing features and major advantages of the disk are electrodeless walls, and the simplicity of channel and magnet design. For airborne applications of the MHD generator, the goal is to achieve high power density and high power per unit weight. For certain electrical loads, a high voltage output is also desirable. The disk is uniquely suited to airborne applications because the radial symmetry peculiar to the geometry, and its capability to operate at very high electric fields, makes the disk a compact, high-voltage power supply. Described in the report is an experimental program concerned with the investigation and demonstration of the high-interaction performance of a large-scale disk generator driven by a large diameter (61.0 cm) shock tube. (Modified author abstract) GRA

N74-26400# Air Force Systems Command, Wright Patterson AFB, Ohio, Foreign Technology Div

CERTAIN PECULIARITIES OF COMBUSTION OF BAL- LASTED GASES AND STABILIZATION OF A FLAME

V. A. Bolin, O. N. Ermolaev, and S. N. Shorn 6 Mar 1974

10 p refs Transl into ENGLISH from Teoriya i Prakt. Szhiganiya Gaza (USSR), v. 5, 1972 p 68-72

(AD-776731, FTD-HT-23-872-74) Avail. NTIS CSCL 21/2

The problems involved in burning low calorie exhaust gases (industrial by-products) are discussed. Particular attention is given to the problem of the stability of combustion of gases whose heat of combustion does not exceed 300 kcal/cu m. Flame stabilization in this process is also discussed. K.M.M.

N74-26405# Committee on Aeronautical and Space Sciences (U. S. Senate)

NASA AUTHORIZATION FOR FISCAL YEAR 1978, PART 3

Washington GPO 1974 338 p Hearings on S. 2955 before Comm. on Aeron. and Space Sci., 93d Congr., 2d Sess., 2 and 4 Apr. 1974

(GPO-31-919) Avail: Comm. on Aeron. and Space Sci.

A congressional hearing to authorize appropriations for NASA programs was conducted. Comprehensive testimony was provided on the space sciences program with additional statements on Skylab solar physics, the Large Space Telescope, and Spacelab payloads. Statements on tracking and data acquisition and energy research and development were also heard. A special report by representatives of the aircraft industry cited NASA's role in aeronautical research and technology and the importance of continuing studies, particularly in noise reduction. Finally, and analysis of FY 1975 NASA budget figures is presented with attention to future programs and costs

A.A.D.

N74-26409# National Bureau of Standards, Washington, D.C. THE ENERGY COMPLEX: TARGET FOR TODAY'S TECHNOLOGY

Richard W. Roberts, Sep. 1973 12 p refs Presented at 3d Urban Technol. Conf., Boston, 26 Sep. 1973
Avail: NTIS HC \$4.00

Per capita energy consumption, national energy expenditure, and future energy demands are cited as preface to a summary of national energy research and development efforts. National energy habits are discussed along with pertinent conservation measures. Energy source research is outlined and the building design technologies reported which make more efficient use of energy presently available

A.A.D.

N74-26411# Committee on Public Works (U. S. Senate). THE ADMINISTRATION'S PROPOSAL FOR RELAXATION OF AIR POLLUTION STANDARDS

Washington GPO 1973 132 p refs Hearing before Comm. on Public Works, 93d Congr., 1st Sess., 18 Sep. 1973
(GPO-22-629) Avail: Subcomm. on Air and Water Pollution.

A Congressional hearing was conducted to assess the possible impact of relaxing air pollution standards in order to assist in reducing the severity of the energy crisis. Principal emphasis was placed on the adverse effects of permitting sulfur oxide emission standards to be lowered. A forecast of the availability of energy resources was made to show the need for importing energy supplies against the availability of energy sources from foreign countries. Various processes for reducing the sulfur content of fuels are explained. The types of alternate fuel sources which may be available are analyzed

P.N.F.

N74-26412# Committee on Public Works (U. S. Senate). THE IMPACT OF AUTO EMISSION STANDARDS Report of the Staff of the Subcommittee on Air and Water Pollution

Washington GPO Oct. 1973 155 p refs Presented to the Comm. on Public Works, 93d Congr., 1st Sess., Oct. 1973
(GPO-21-548) Avail: Subcomm. on Air and Water Pollution

Progress is reported in a Congressional hearing on compliance with the Clean Air Act of 1970. Automobile emission control levels and test procedures are reviewed and the following issues are discussed: (1) quality assurance; (2) emission control and energy conservation; (3) the emission control technologies of catalyst systems and alternative engine designs; (4) leadtime; (5) the nitrogen oxide measurement problem; and (6) fuel additives. The role of the automotive industry in implementation of standards is emphasized

A.A.D.

N74-26435*# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio PRELIMINARY PERFORMANCE APPRAISAL OF NAVY V/STOL TRANSPORT AND SEARCH-TYPE AIRPLANES

USING HYDROGEN FUEL

W. C. Strack May 1974 33 p refs
(NASA-TM-X-71550; E 7982) Avail: NTIS HC \$3.25 CSCI 01C

First-cut estimates are given of the performance advantages of liquid-hydrogen-fueled, ejector wing, V/STOL aircraft designed for shipboard delivery and search-type missions. Results indicate that the use of LH2 could reduce gross weights 30 percent, empty weights 15 percent, and energy consumption 10 percent for a fixed payload and mission. If gross weight is fixed, the delivery range could be increased about 60 percent or the hover time during a search mission doubled. No analysis or discussion of the economic and operational disadvantages is presented.

Author

N74-26496# Lincoln Lab., Mass. Inst. of Tech., Lexington. CALCULATION AND COMPARISON OF THE ECONOMY OF ELECTROCHEMICAL FUEL CELLS

Franz A. Pohl, Harald Bohm et al May 1973 21 p refs Translated into ENGLISH from Wiss. Ber. AEG-Telefunken (West Germany), v. 45, 1972 p 141-146
(NTC-74-11868; Rept-73-146) Avail: NTIS HC \$4.25; National Translation Center, John Crerar Library, Chicago, Ill. 60618

The characteristics and operating principles of electrochemical fuel cells are discussed. The economy of typical fuel cells is calculated and the economy of different low temperature fuel cells is compared. It was determined that the tungsten carbide/carbon fuel cell is more economical than the other low temperature fuel cells investigated. Mathematical models are developed to show the manner in which the comparisons were conducted.

Author

N74-26503# Arizona Univ., Tucson. Optical Sciences Center. RESEARCH APPLIED TO SOLAR-THERMAL POWER SYSTEMS Semiannual Progress Report, 1 Jan. - 30 Jun. 1973

B. O. Seraphin 10 Apr. 1973 57 p refs
(Grant NSF GI-36731X)
Avail: NTIS HC \$6.00

Research on a new approach to a selective solar energy converter that can be used to transform solar radiation into high temperature heat was conducted. This heat can be transferred and applied in a steam turbine-generator unit to produce electricity. The selective solar energy converter is basically a two-layered construction in which the top layer is a semiconductor material, such as silicon, having high absorption for solar radiation and high transparency for black body radiation from the heated unit. The bottom layer is a metal film having high reflectance.

Author

N74-26504*# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala. THE DEVELOPMENT OF A SOLAR-POWERED RESIDENTIAL HEATING AND COOLING SYSTEM

10 May 1974 80 p
(NASA-TM-X-70089; M-TU-74-3) Avail: NTIS HC \$7.00 CSCI 10A

Efforts to demonstrate the engineering feasibility of utilizing solar power for residential heating and cooling are described. These efforts were concentrated on the analysis, design, and test of a full-scale demonstration system which is currently under construction at the National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Alabama. The basic solar heating and cooling system under development utilizes a flat plate solar energy collector, a large water tank for thermal energy storage, heat exchangers for space heating and water heating, and an absorption cycle air conditioner for space cooling.

Author

N74-26606# Committee on Interior and Insular Affairs (U. S. Senate). GEOTHERMAL RESOURCES, PART 1 The Potential for the Production of Power from Geothermal Resources

Washington GPO 1973 294 p refs Hearing before Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 13 Jun. 1973

(GPO-21-438) Avail: Subcomm. on Water and Power Resources

The potential for the production of electricity and heat energy from geothermal sources is projected and requirements for Federal programs in exploration, research, and development of geothermal resources are considered. G.G.

N74-26506# Committee on Interior and Insular Affairs (U. S. Senate).

GEOTHERMAL RESOURCES, PART 2 The Potential for the Production of Power from Geothermal Resources

Washington GPO 1974 484 p refs Hearing before Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 10 Aug. 1973 (Idaho Falls, Idaho) and 11 Aug. 1973 (Klamath Falls, Oreg.)

(GPO-26-473) Avail: Subcomm. on Water and Power Resources

The progress of technology in the development of geothermal resources is considered for solving the particular energy problems of the Pacific Northwest. G.G.

N74-26508# National Aeronautics and Space Administration. Lewis Research Center, Cleveland, Ohio.

STATUS OF FEP ENCAPSULATED SOLAR CELL MODULES USED IN TERRESTRIAL APPLICATIONS

A. F. Ratajczak and A. F. Forestieri 1974 7 p refs Proposed for presentation at 9th Intersoc. Energy Conversion Eng. Conf., San Francisco, 26-30 Aug. 1974

(NASA-TM-X-71564; E-7998) Avail: NTIS HC \$3.00 CSCL 10A

The Lewis Research Center has been engaged in transferring the FEP encapsulated solar cell technology developed for the space program to terrestrial applications. FEP encapsulated solar cell modules and arrays were designed and built expressly for terrestrial applications. Solar cell power systems were installed at three different land sites, while individual modules are undergoing marine environment tests. Four additional power systems are being completed for installation during the summer of 1974. These tests have revealed some minor problems which have been corrected. The results confirm the inherent utility of FEP encapsulated terrestrial solar cell systems. Author

N74-26509# Colorado State Univ., Fort Collins. Solar Energy Applications Lab.

SOLAR THERMAL ELECTRIC POWER SYSTEMS Progress Report, 1 May - 30 Jun. 1973

Jul. 1973 78 p refs Prepared in cooperation with Westinghouse Elec. Corp., Boulder, Colo.

(Grant NSF GI-37815)

Avail: NTIS HC \$7.00 CSCL 10A

A research project in the generation of electric power from solar energy was conducted. The objective of the research was an appraisal of methods for converting solar energy to electricity and a determination of promising methods for future development. The subjects discussed are (1) the characteristics of solar collectors, (2) heat storage, (3) systems optimization methods, (4) cost estimation, and (5) ranking alternatives for solar energy supply to utilities. The materials used in solar collectors are identified and typical solar collector configurations are examined. Author

N74-26510# Committee on Science and Astronautics (U. S. House).

ENERGY FROM GEOTHERMAL RESOURCES

Washington GPO May 1974 96 p refs Presented to Comm. on Sci. and Astronaut., 93d Congr., 2d Sess., 10 May 1974 Prepared by Library of Congr.

(GPO-32-309) Avail: Subcomm. on Energy

The technology for utilizing dry steam deposits for electric power is reasonably well advanced, but these deposits are uncommon in nature. Exploitation of these deposits will provide valuable additions to local power supplies. The unit power cost

of dry steam is well under that of fossil and nuclear fuels and dry steam has less adverse environmental impact. Using the steam will likewise conserve conventional fuels, which may then be used elsewhere or for other purposes. Wet steam and hot water electric power plants are more expensive than the dry steam plants, but such deposits are much more common. The technology is, again, reasonably, but not totally, developed. Corrosion remains a major problem. As with the case of dry steam deposits, in areas containing wet steam and hot water resources, conventional fuels can be saved and the environment protected by the construction of geothermal power plants and by using the remaining hot water for such secondary purposes as space heating, the extraction of minerals, and as a source of potable water. Author

N74-26512# Linguistic Systems, Inc., Cambridge, Mass. **OPERATING CONDITIONS AND TYPES OF WIND-POWER ELECTRIC SUBSTATIONS FOR RURAL AREAS**

V. R. Sektorov Washington NASA May 1974 17 p refs Transl. into ENGLISH from Elektrichestvo (Moscow), no. 10, Oct. 1949 4 p

(Contract NASw-2482)

(NASA-TT-F-15517) Avail: NTIS HC \$4.00 CSCL 10A

The efficiency of regimes of work of wind motor electric generating sets, working in a system jointly with other power stations, with constant and variable speed of rotation of the windmill, is compared. A method is given for evaluating the possible percentage of participation of wind driven installations in the power supply of rural regions, based on the future power balances of the regions and the technical conditions for the operation of wind driven installations. Author

N74-26514# California Univ., Livermore. Lawrence Livermore Lab.

ANALYSIS OF THE WINDS OF SITE 300 AS A SOURCE OF POWER

P. B. Archibald 23 Oct. 1973 17 p refs

(Contract W-7405-eng-48)

(UCRL-51469) Avail: NTIS HC \$4.00

Site 300 is a strategically located area lying east of the Lawrence Livermore Laboratory at Livermore, California. The prevalent wind is from the west, its driving force is the pressure gradient between the hot interior valley and the cool marine air of the Pacific Ocean. Wind measurements indicate that this is a good site for electrical power generation. Author (NSA)

N74-26516# Sandia Labs., Albuquerque, N. Mex.

TRANSCRIPT OF TALK ON SOLAR ENERGY

R. P. Stromberg Dec. 1973 16 p Presented to Environ. Comm. of the Western Systems Coordinating Council at a Meeting hosted by the Public Service Co. of New Mexico, Albuquerque, 24-25 Sep. 1973

(Contract AT(29-1)-789)

(SLA-73-1025) Avail: NTIS HC \$3.00

A transcript of a solar energy talk is reported that emphasizes the potential for a solar community. Author (NSA)

N74-26518# Michigan Univ., Ann Arbor. Dept. of Materials and Metallurgical Engineering.

PRELIMINARY REPORTS, MEMORANDA AND TECHNICAL NOTES OF THE MATERIALS RESEARCH COUNCIL SUMMER CONFERENCE. VOLUME 2: PROCEEDINGS OF THE DISCUSSION GROUP ON SOLAR ENERGY CONVERSION

Edward E. Huckle Jul. 1973 296 p refs Conf. held at La Jolla, Calif., Jul. 1973

(Contract DAH15-71-C-0253; ARPA Order 2341)

(AD-777737) Avail: NTIS CSCL 10/2

Discusses applications of solar energy, concentration and collection of solar energy, photovoltaic conversion, ocean thermal gradients, energy storage, and fuel cells. GRA

N74-26519# Carnegie Mellon Univ., Pittsburgh, Pa
SOLAR SEA POWER Semiannual Progress Report, 1 Nov. 1973 - 31 Jan. 1974

Clarence Zener, Abraham Lavi, Robert Rothfus, Francis McMichael, and Chin Chang Wu 25 Jan. 1974 113 p refs
(Grant NSF GI-39114)

(PB-228068/3; NSF-RANN/SE/GI-3911/PR-74-2, NSF-RA/N-74-003) Avail: NTIS HC \$4.50 CSCL 10B

A conceptual design is developed which in no way depends upon ocean currents, and in which all physical processes are well understood. Contamination of the input water to the boiler by the output water is avoided by taking advantage of the naturally occurring density stratification, at least for plants which do not exceed 700,000 kilowatts. High density power generation without moisture and the consequent power expenditure in its removal, is obtained by falling film evaporation on vertical tubes. Appreciable pressure drop in the large banks of vertical tubes in the evaporator and condenser is avoided by proper manifolding. The optimization scheme is shown to be capable of handling 30 variables and 20 constraints within a compilation and running computer time less than a minute. GRA

N74-26520# Carnegie Mellon Univ., Pittsburgh, Pa
SOLAR SEA POWER Quarterly Progress Report, 1 Jun. 30 Sep. 1973

Clarence Zener, Abraham Lavi, and Ching Chang Wu 11 Oct. 1973 140 p refs

(Grant NSF GI-39114)
(PB-228069/1; NSF-RA/N-73-063; NSF-Rann/SE/GI-39114/PR-73-1, QPR-1) Avail: NTIS

HC \$4.75 CSCL 10B

The first quarterly report analyzes the physical principles involved in the most critical components of a Solar Sea Power Plant. These critical components are considered to be the boiler, condenser, turbine, cold water pipe (approximately 2,000 ft long, approximately 60 ft diameter). The following conclusions have been obtained. Boiler. Because of the slow rise of bubbles in fluids, and because of the low power available for separating moisture from vapor, film evaporation is preferred to pool boiling. Condenser. The heat transfer in condensers may be greatly improved by an optimally designed, contoured surface. Turbine. The available temperature drop of 10C for the heat engine is sufficient to drive a single stage turbine with 50% reaction in stator and in rotor, and with maximum gas velocities of 740 ft/sec. Cold Water Pipe. Elastic instability, the mode of failure most difficult to guard against, may be controlled by two concentric 1/8 in pipes spaced 2 in. apart, with an appropriate filler. GRA

N74-26521# Carnegie Mellon Univ., Pittsburgh, Pa
PROCEEDINGS, SOLAR SEA POWER POWER PLANT CONFERENCE AND WORKSHOP Final Report

Abraham Lavi Jun 1973 288 p refs Conf held Pittsburgh, 27-28 Jun. 1973

(Grant NSF GI-39115)
(PB 228066/7; NSF-RA/N 73-064) Avail: NTIS HC \$6.75 CSCL 10B

On June 27 and 28, 1973 a national conference was convened for discussions on ocean thermal energy conversion. Its objectives were to afford an opportunity for information exchange, identification of key problems, and for discussions of how to implement the sea solar power plant technology. Summaries of the working groups' outputs are presented for the following topics: power plant siting, economic and political problems; environmental considerations; low temperature gradient heat transfer, turbines and fluids, plant anchoring; and cold water pipe design. GRA

N74-26522# Delaware Univ., Newark. Inst. of Energy Conversion
EFFECT OF SHADING ON CdS/Cu(x)S SOLAR CELLS AND OPTIMAL SOLAR ARRAY DESIGN

Mohamed Sayed and Larry Partain 13 Jun 1973 55 p refs
(Grant NSF GI-34872)

(PB-227900/8; NSF-RANN/SE/GI-34872-73-4) Avail: NTIS HC \$3.75 CSCL 10B

The effects of shading on solar arrays in general has been analyzed using the specific I-V characteristics of a CdS/Cu(x)S solar cell. The major differences in the amount of power lost with various array configurations subjected to identical shading conditions has been determined. The conditions under which localized heating or 'hot spots' occur has been treated and the criteria for their avoidance has been precisely defined. The effects of protective diodes in reducing power loss and in preventing hot spots has been included. General design rules to assist in obtaining optimal solar structures have been formulated and presented. Author (GRA)

N74-26523# Massachusetts Univ., Amherst
RESEARCH APPLIED TO OCEAN SITED POWER PLANTS Annual Progress Report, 1 Jan. - 31 Dec. 1973

J. Hilbert Anderson 25 Jan. 1974 69 p refs
(Grant NSF GI-34979)

(PB 228067/5; NSF-RA/N-74-002) Avail: NTIS HC \$3.75 CSCL 10B

One total system configuration for a 400 mWe ocean thermal power plant has been conceptualized. Enough work has been accomplished to show that concept could be replicated in a broad swatch in the Gulf Stream along the U.S. southeast coast. Subsystems have been reduced to diagrams and major components have been sized. A complete math model of the total heat engine cycle has been created and parametric studies are now possible with reasonable computer time expenditures. One 1100 mWe submerged nuclear power plant has been arranged and balanced. GRA

N74-26641# National Materials Advisory Board, Washington, D.C.

A SEMI-DELPHI EXERCISE ON SUBSTITUTE CATALYSTS FOR PLATINUM IN AUTOMOBILE EMISSION CONTROL DEVICES AND PETROLEUM REFINING Final Report
Mar 1974 53 p

(Contract GS-00-DS-(P)-94008)
(NMAB-314) Avail: NTIS HC \$5.75

A determination of the potential of base metal catalysts as substitutes for platinum and other related noble metal catalysts for automobile emission devices and petroleum refining is presented. Possible scenarios, after the introduction of the first generation of emission control devices containing platinum, are discussed along with suggested areas for research in base metal and platinum catalysts. Factors that could affect the requirements for automobile exhaust catalysts also were developed. Author

N74-26774# Joint Publications Research Service, Arlington, Va.

THE PROSPECTS FOR MHD POWER PLANTS IN POWER ENGINEERING

V. A. Kirillin, L. A. Melentyev, and A. Ye. Sheyndlin 31 May 1974 19 p Transl into ENGLISH of "O Perspektivakh MGD Elektrostantsiy v Energetike" Moscow, 1974 p 1-21
(JPRS-62139) Avail: NTIS HC \$4.00

A brief review is presented of the basic results of the first phase of development of the U-25 installation. Author

N74-26775# Joint Publications Research Service, Arlington, Va.

EXPERIENCE FROM THE FIRST STAGE OF DEVELOPMENT OF THE U-25 INSTALLATION

A. Ye. Sheyndlin, A. V. Nedospasov, S. A. Pashkov, D. S. Pinkhasik, S. I. Pishchikov, V. S. Sidorov, G. P. Telegin, Ye. M. Shelkov, and V. Ye. Shumyatskiy 31 May 1974 21 p Transl into ENGLISH of "Opyt Pervogo Etapa Osvoyeniya Ustanovki U-25" Moscow, 1973
(JPRS-62129) Avail: NTIS HC \$4.25

A description is given of the U-25 installation which is an experimental combined power plant with an open-cycle MHD generator. Author

N74-26873# American Gas Association, Arlington, Va.
ACTION IN THE ATLANTIC: A VITAL STEP FOR OUR NATION'S ENERGY AND ENVIRONMENTAL NEEDS
[1974] 18 p

(G-70172-100M8.73-408) Avail. NTIS HC \$4.00

The offshore exploration of the Atlantic Continental Shelf is discussed in terms of the increasing energy demands. Gas and oil reserves, petroleum geology, and undersea drilling are briefly described. F.O.S.

N74-27088# Environmental Protection Agency, Research Triangle Park, N.C. Air Pollution Technical Information Center.
AIR POLLUTION FROM MOTOR VEHICLES Final Report
[1973] 201 p refs Transl. into ENGLISH of Swed. Min. of Commun. Report, 1971
(APTIC-41654) Avail. NTIS HC \$13.25

A summary of five years of developmental work on motor vehicle exhaust gases is presented. Based on the acquired experience, suggestions are presented for strengthening the Swedish regulations concerning vehicle exhaust gases, etc., and for the direction of the continued work in the field of motor vehicle exhaust gases. Author

N74-27089# Environmental Protection Agency, Research Triangle Park, N.C. Air Pollution Technical Information Center.
AIR POLLUTION FROM MOTOR VEHICLES, APPENDICES Appendix to Final Report
[1973] 93 p refs Transl. into ENGLISH of Swed. Min. of Commun. Report, 1971
(APTIC-41655-App) Avail. NTIS HC \$7.75

N74-27162# Environmental Protection Agency, Research Triangle Park, N.C. Office of Air Quality Planning and Standards.
COMPILATION OF AIR POLLUTANT EMISSION FACTORS, SUPPLEMENT 1, SECOND EDITION
Jul. 1973 29 p
(PB-228708/4) Avail. NTIS HC \$4.50 CSCL 13B

Data are revised on atmospheric emission concerning the storage, transportation, and marketing of petroleum products. Author

N74-27247# Naval Intelligence Support Center, Washington, D.C. Translation Div.
INDUCTION MAGNETOHYDRODYNAMIC MHD GENERATOR WITH A CAVITY-TYPE NUCLEAR REACTOR
V. A. Dmitrievskii and L. A. Zaklyazminskii Dec. 1973 14 p refs Transl. into ENGLISH from Teplofiz. Vys Temp (USSR), v. 9, no 2, Mar./Apr. 1971 p 405-412
(AD-777444; NISC-Trans-3489) Avail. NTIS CSCL 10/2

A design for an induction magnetohydrodynamic generator (MHD) with a cavity-type nuclear reactor is discussed. GRA

N74-27280# AiResearch Mfg Co., Phoenix, Ariz.
ADAPTABILITY OF THE CLOSED BRAYTON GAS TURBINE TO UTILITY POWER PLANTS Engineering Report
28 Dec. 1973 42 p
(Rept-73-310448) Avail. NTIS HC \$5.25 CSCL 21E

The utilization of fossil fuels in the closed Brayton cycle engine as applied to large scale utility power plants is described in terms of ecological advantages, operating efficiency, capabilities, and practicality. A plant layout and diagrams of the gas turbine equipment are shown. Heat source concepts, nuclear systems,

and heat sink concepts are discussed. Computer analysis programs for the closed Brayton cycle and contractor information are included. AAC

N74-27383# Hermann Oberth-Gesellschaft, Gesellschaft zur Foerderung der Erforschung und Erschliessung des Weltraums e. V., Hannover (West Germany)
INDUSTRIAL EVOLUTION AND REVOLUTION IN THE CISLUNAR SPACE, 1980 - 2010 [INDUSTRIELLE EVOLUTION UND REVOLUTION IM GEOLUNAREN RAUM 1980-2010]

Kraft A. Ehrlicke (North American Rockwell, Downey, Calif.) 1973 52 p refs In GERMAN Presented at the 21st Aeronautics Meeting of the Hermann-Oberth Ges., Garmisch-Partenkirchen, West Ger., Sep. 1972
(Astronaut-FB-32; SD-72-SA-0173) Avail. NTIS HC \$5.75

The industrial evolution and revolution in geolunar space after 1900 is discussed. Topics include industrial ecology of the open world, growth by extraterrestrial industrialization, and space industry. Energy supply from space, notably electricity generation in space, energy supply by solar rays (the Solette concept), electricity generation on earth, and worldwide distribution through relay stations in space, is dealt with. ESRO

N74-27438# Committee on Public Works (U. S. Senate).
NONDEGRADATION POLICY OF THE CLEAR AIR ACT
Washington GPO 1973 421 p refs Hearing before Comm. on Public Works, 93d Congr., 1st Sess., 24 Jul. 1973
(GPO-20-928) Avail. Subcomm. on Air and Water Pollution

A Congressional hearing was conducted to discuss the possible effects of proposed legislation to relax the standards imposed by the clean air act. The provisions of various items of legislation to maintain prescribed cleanliness of water and air are analyzed. Statements from specific witnesses concerning their reaction to proposed changes in the legislation constitute the principal parts of the report. Statements are included concerning energy conversion techniques, effects of fuel consumption, and industrial pollution problems. Author

N74-27442# Committee on Government Operations (U. S. House).
ENERGY REORGANIZATION ACT OF 1973
Washington GPO 1973 427 p Hearings on H.R. 1510 before Comm. on Govt. Operations, 93d Congr., 1st Sess., 27-29 Nov. 1973
(GPO-25-108) Avail. Subcomm. on Legislation and Military Operations

Congressional hearings were conducted to reorganize and consolidate certain functions of the Federal Government in a new energy research and development administration and in a nuclear energy commission in order to promote more efficient management of such functions. The organization and functions of the organization are explained. Testimony is provided by selected witnesses to show the current level of effort in energy management and the expected benefits to be derived from the new organization. Author

N74-27443# Committee on Government Operations (U. S. House).
FEDERAL ENERGY ADMINISTRATION
Washington GPO 1973 307 p Hearings on H.R. 11793 before Comm. on Govt. Operations, 93d Congr., 1st Sess., 10-11 Dec. 1973
(GPO-26-725) Avail. Subcomm. on Legislation and Military Operations

Congressional legislation to reorganize and consolidate certain functions of the Federal Government in a new Federal Energy Administration is proposed. The organization and functions of the various offices are explained. Testimony from recognized experts in the energy field is reported to show the extent of the problem and their reactions to the government proposal. Author

N74-27444# Committee on Interstate and Foreign Commerce (U. S. House).

ENERGY EMERGENCY ACT

Washington GPO 1973 541 p Hearings on H.R. 11031, H.R. 11450, H.R. 11202, H.R. 11505, and H.R. 11509 before Comm. on Interstate and Foreign Com., 93d Congr., 1st Sess., 14, 15, 27, and 28 Nov. 1973

(GPO-26-038) Avail: Comm. on Interstate and Foreign Com.

Congressional hearings on an emergency energy act to give the President extraordinary powers to cope with the energy crisis are presented. The bill provides the President and State and local governments the power to develop contingency plans for reducing petroleum consumption, and assuring the continuation of vital public services in the event of emergency fuel shortages or severe dislocations in the nation's fuel distribution system, and for other purposes. Mandatory Federal actions to be taken to alleviate fuel shortages are described. Testimony of selected witnesses is reported to show the expected advantages of such action. Author

N74-27446# RAND Corp., Santa Monica, Calif.

THE PRICE ELASTICITY OF RESIDENTIAL ENERGY USE

Kent P. Anderson Feb. 1974 21 p refs

(P-5180) Avail: NTIS HC \$4.25

The long-run price elasticity estimates obtained in several recent studies of residential gas and electricity demands are discussed. The nature of responses to price and, in particular, to the role of inter-fuel substitution compared with the role of alterations in usage rates or the size, efficiency, and features of new and renovated equipment are examined. The own- and cross-price elasticities obtained in these studies imply that large equal percentage increases in the prices of all types of energy sources would eventually lead either to marked increases in energy conservation or to a shift from utility gas and electricity to other sources of energy. Latter interpretation is intuitively implausible for price increases that would apply to all types of energy. But the alternative interpretation -- that there is a quantitatively significant link between energy price and the degree of energy conservation -- is not well supported by casual observation. Author

N74-27447# RAND Corp., Santa Monica, Calif.

ENERGY ALTERNATIVES FOR CALIFORNIA: THE CURRENT CRISIS. 4: REGULATORY ASPECTS OF ENERGY POLICY

William R. Harris Jan 1974 19 p refs

(P-5158) Avail: NTIS HC \$4.00

A study on energy alternatives for the State of California was conducted. The study contains the following considerations: (1) sources and uses of energy for California, (2) conservation of energy, (3) planning for fuel shortages and other energy emergencies, and (4) Federal-State interactions on energy policy. Emphasis is placed on short range solutions to immediate problems resulting from Arab oil export policies and the resultant impact on the availability of required sources of power in California. Author

N74-27448# Committee on Interior and Insular Affairs (U. S. Senate).

NUCLEAR STIMULATION OF NATURAL GAS

Washington GPO 1973 894 p refs Hearing before Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 11 May 1973

(GPO-96-678) Avail: Subcomm. on Public Lands

A Congressional hearing was conducted on Project Rio Blanco, Colorado, to determine the uses versus the hazards of stimulating the production of natural gas from tight-rock formations by the use of nuclear devices. Fission product activity whereby the detonation of a 30-kiloton nuclear bomb triggers the transformation of chimney gas deposits into usable energy is explained. The effects to the environment of the resulting radioactivity is discussed along with the following matters: (1) the purposes of the test; (2) the costs of the test, both economic and environmental; (3) reasonable alternatives to nuclear stimulation; (4) whether Project Rio Blanco should proceed; (5) consumer acceptance, and (6) the future of the technology. A.A.D.

N74-27450# Committee on Interior and Insular Affairs (U. S. Senate).

COAL POLICY ISSUES. PART 2: APPENDIX 3: ADDITIONAL STATEMENTS RECEIVED FOR THE RECORD

Washington GPO 1973 569 p refs Hearings before Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 1973

(GPO-20-788) Avail: Comm. on Interior and Insular Affairs

The reliability and adequacy of bulk power supplies in the U.S. was discussed in a Congressional hearing to determine present and future energy needs towards the formulation of a national energy policy. The coal industry is discussed in terms of: (1) extraction, including mine safety; (2) transportation, including reestablishment and reequipping of the railroads; (3) combustion, including new technologies and reequipping of the railroads; (3) combustion, including new technologies for the more efficient use of coal; (4) conversion of coal to low-sulphur gases, liquids, or solids; and (5) ecological considerations, including mine drainage and refuse treatment, power plant particulate emission from coal combustion, and strip mine reclamation. Present coal-fired generating capacity is reported according to figures presented by utility companies from different sections of the country, and general trends in energy consumption and coal utilization are observed for nine regions of the National Electric Reliability Council. A.A.D.

N74-27454# Committee on Government Operations (U. S. House).

DRAFT OF PROPOSED LEGISLATION TO PROMOTE MORE EFFECTIVE MANAGEMENT OF CERTAIN RELATED FUNCTIONS OF THE EXECUTIVE BRANCH

Communication from the President of the United States Washington GPO 1973 83 p refs Presented to Comm. on Govt. Operations, 93d Congr., 1st Sess., 29 Jun. 1973

(H-Doc-93-119; GPO-83-011) Avail: US Capitol, House Document Room

Congressional action to draft a proposed legislation to promote more effective management of certain related functions of the Executive Branch was conducted. The proposal involves reorganizing and consolidating those functions in a new department of energy and natural resources. Also considered in a new energy research and development administration. The interrelated operations of the energy administration with other governmental functions are examined. Author

N74-27455# Committee on Public Works (U. S. House).

ENERGY EMERGENCY ACT From Committee of Conference

Harley O. Staggers Washington GPO 7 Feb. 1974 103 p refs Report to accompany S. 2589 presented by Comm. on Public Works at the 93d Congr., 2d Sess., 7 Feb. 1974

(H-Rept-93-793) Avail: US Capitol, House Document Room

Congressional action with respect to an Energy Emergency Act is presented. The establishment and functions of the Federal Energy Emergency Administration are defined. Energy conservation plans which can be implemented in a short time are proposed. Some of the provisions of the bill include the following: (1) coal conversion and allocation, (2) Federal actions to increase available domestic petroleum supplies, (3) prohibition on inequitable prices, (4) protection of franchised dealers, (5) antitrust procedures, and (6) administrative procedure and judicial review. Author

N74-27468# Select Committee on Small Business (U. S. House). PHASE 4 OIL REGULATIONS AND PETROLEUM MARKETING PROBLEMS

Washington GPO 1973 584 p refs Hearings before Select Comm. on Small Business, 93d Congr., 1st Sess., 18 Sep. and 23-24 Oct. 1973

(GPO-24-574) Avail: Subcomm. on Activities of Regulatory Agencies

A Congressional hearing was conducted to examine the petroleum products marketing problems of small businesses. The government regulations and procedures for controlling petroleum supplies are examined. The cost control actions are analyzed to determine their impact on the petroleum distributors. Statistical

analyses of the petroleum industry are included in the form of tables and graphs to show the supply and demand aspects of the problem. Author

N74-27524# Interior Dept., Washington, D.C. Office of Coal Technology.

CLEAN ENERGY FROM COAL TECHNOLOGY

1973 43 p

Avail: SOD HC \$0.75

The potential use of coal as the primary fossil fuel to meet future energy requirements is discussed. The abundance of coal and conversion of coal to other fuels are described with emphasis on gasification. F.O.S.

N74-27525# Committee on Government Operations (U. S. House).

CONSERVATION AND EFFICIENT USE OF ENERGY. PART 2

Washington GPO 1973 350 p refs Hearings before Comm. on Govt. Operations and Comm. on Sci. and Astronaut., 93d Congr., 1st Sess., 10 Jul. 1973 Prepared in cooperation with Comm. on Sci. and Astronautics 4 Vol. (GPO-24-290) Avail: Subcomm. on Conservation and Natural Resources

The problem of growing demands for energy spurred on by an expanded economy and coupled to shrinking supplies is considered. Stringent environmental standards prevent wider use of the most plentiful fossil fuel resources. The formulation of a national policy for energy conservation and efficient use of energy is investigated. G.G.

N74-27526# Committee on Government Operations (U. S. House).

CONSERVATION AND EFFICIENT USE OF ENERGY. PART 3

Washington GPO 1973 698 p refs Hearings before Comm. on Govt. Operations and Comm. on Sci. and Astronaut., 93d Congr., 1st Sess., 11 Jul. 1973 Prepared in cooperation with Comm. on Sci. and Astronaut. 4 Vol. (GPO-24-682) Avail: Subcomm. on Conservation and Natural Resources

The overall aspects of the energy production-transmission-consumption system are considered and related environmental issues are stressed. An energy conservation policy is advocated that combines the efforts of government, industry, and private citizens. G.G.

N74-27527# Committee on Government Operations (U. S. House).

CONSERVATION AND EFFICIENT USE OF ENERGY. PART 4

Washington GPO 1973 454 p refs Hearings before Comm. on Govt. Operations and Comm. on Sci. and Astronaut., 93d Congr., 1st Sess., 12 Jul. 1973 Prepared in cooperation with Comm. on Sci. and Astronaut. 4 Vol. (GPO-25-654) Avail: Subcomm. on Conservation and Natural Resources

Various energy conversion and supply processes are outlined and the need for a national energy policy is emphasized in the face of increased energy demands. G.G.

N74-27528# Kentucky Univ. Lexington. Inst. for Mining and Minerals Research.

A KENTUCKY COAL UTILIZATION RESEARCH PROGRAM. PROJECT 3: LOW BTU GAS AND SOLID DESULFURIZED FUEL Annual Report, 1 Jul. 1972 - 30 Jun. 1973

Nov. 1973 132 p refs

Avail: NTIS HC \$9.75

Processes to produce a solid desulfurized fuel at the lowest cost per Btu and per KWhr were evaluated. It became apparent that the price of energy from the so-called environmentally clean

fuels will continue to rise and that most processes will become economical before the technology has been fully demonstrated in a so-called commercial or demonstration plant. Evaluation of producer gas processes showed that the fixed bed atmosphere gas producer has the lowest fuel cost of presently available processes. A computer program has been developed to assist us in the analysis of a fixed bed gasifier and prediction of its performance. The available data on the sulfur content in Kentucky coals and their associated reserves have been assembled. A short evaluation of the various coal cleaning procedures was completed and a more extensive program on coal washing, coal blending and evaluation of a sulfur leaching process was initiated. Author

N74-27530# Kentucky Univ. Lexington. Inst. for Mining and Minerals Research.

A KENTUCKY COAL UTILIZATION RESEARCH PROGRAM. PROJECT 4: MEASUREMENT OF INHIBITION ISOTHERMS FOR KENTUCKY COAL Annual Report, 1 Jul. 1972 - 30 Jun. 1973

Oct. 1973 41 p refs

Avail: NTIS HC \$5.25

Brushed and sieved coal was fluidized in 10 gram batches in a 22 mm ID quartz reactor up to a temperature of 870 C. The release of H₂S during heatup under nitrogen and at the run temperature under the same gas (pyrolysis), hydrogen, or hydrogen-hydrogen sulfide mixtures was followed by gas chromatography. The residue or char was analyzed for pyritic, organic, sulfide, sulfate, and total sulfur. Inhibition isotherms, equilibria between sulfur in the char and gaseous hydrogen sulfide, were measured at 600 and 870 C. At the lower temperature the isotherm was found to be independent of the hydrogen sulfide concentration in the gas stream and the char sulfur content remained constant at 2.6%. In addition to the inhibition isotherms, sulfur-form transformation diagrams were constructed for coal treated with nitrogen, hydrogen, and hydrogen-hydrogen sulfide mixtures. Pyritic sulfur, which comprised 40% of the sulfur in the original coal, was completely converted to ferrous sulfide at 600 C in hydrogen and 740 C in nitrogen. At 870 C the sulfur content of the char produced under hydrogen was 1.1%. Author

N74-27531# Kentucky Univ. Lexington. Inst. for Mining and Minerals Research.

A KENTUCKY COAL UTILIZATION RESEARCH PROGRAM: SUMMARY OF FIRST YEAR PROGRESS AND ACCOMPLISHMENTS

Oct. 1973 9 p

Avail: NTIS HC \$4.00

The cost controlling processing stages in the liquefaction of coal are considered. These stages include the hydrogen supply, the separation of ash solids from coal oil, and catalysis for the solvation-hydrogenation approach to coal liquefaction, and reactor design and char utilization for the pyrolysis approach. Innovation research in these areas has the potential to provide a substantial improvement in the economics of large scale coal liquefaction. Author

N74-27532# Commission of the European Communities, Brussels (Belgium).

PROBLEMS, RESOURCES AND NECESSARY PROGRESS IN COMMUNITY ENERGY POLICY 1976 - 1985 [1974] 54 p refs

Avail: NTIS HC \$5.75

Demand prospects and future supply situations for principle sources of primary energy are considered in this descriptive synthesis of the essential problems of energy policy which will be encountered between now and 1985. Available policy options are identified and their individual consequences are evaluated. Author

N74-27533# Commission of the European Communities, Brussels (Belgium).

PROSPECTS OF PRIMARY ENERGY DEMAND IN THE COMMUNITY (1975 - 1980 - 1986)

[1974] 121 p refs
 Avail NTIS HC \$9.25

Trends in the energy demand during the years 1960 to 1970 are analyzed and used to project future energy requirements up to 1985. The effects of various economic parameters on this trend analysis are considered in deriving long term consumption aspects
 G G

N74-27536# Sydney Univ. (Australia). Dept of Mechanical Engineering

ENERGY RESOURCES AND USAGE

D W George Feb 1973 23 p refs Presented at Maximum Utilization of Ind Energy Conf., Sydney, 21 Feb. 1973 (ER 2; Conf-730223-1) Avail. AEC Depository Libraries HC \$3.25

The overall picture shows that Australia faces no foreseeable energy problems. Such an assumption ignores many technological and environmental problems associated with the inefficient or thoughtless use of, invaluable energy resources. Issues such as Lake Pedder, the Clutha controversy, and the forthcoming public inquiry into environmental aspects of the proposed Moomba-Sydney natural gas pipeline give an indication of the pattern of the future, and an informed public interest in such matters should be welcomed by all concerned. National planning and coordination are correlated with technological advances for the optimum decisions to be made involving energy
 NSA

N74-27537# Oak Ridge National Lab., Tenn.

NSF-RANN ENERGY ABSTRACTS. A MONTHLY ABSTRACT JOURNAL OF ENERGY RESEARCH, VOLUME 1, NO. 11, NOVEMBER 1973

M P Guthrie Nov 1973 25 p refs Sponsored in part by NSF
 (Contract W 7405 eng 26)

(ORNL FIS 73-52(Vol 1)(No 11)) Avail NTIS HC \$3.25

The bibliography contains 91 abstracts on energy sources, electric power (generation, supply and demand, transmission, environmental effects, and use), and energy (production, consumption, supply and demand, and policy). The research publications cited are technical journal articles, popular or semi technical magazine articles, topical reports, progress reports, symposium papers and proceedings, monographs, and books published within the past two years
 NSA

N74-27543# Stanford Research Inst., Menlo Park, Calif.

POLLUTION-FREE ELECTROCHEMICAL POWER GENERATION FROM LOW GRADE COAL

D F McMillen, R D Weaver, and M Anbar Aug 1973 50 p refs

(Grant NSF G1-34027)

(PB 228006/3 NSF RA/N 73 0108) Avail. NTIS HC \$3.25 CSCL 07D

Results are described of a study, exploring the feasibility of a nonpolluting, combined chemical-electrochemical system for generating electrical power. The process entails the use of coal to reduce lead oxide to a lead in a molten carbonate medium. The lead contained in the molten carbonate is then used in a metal air electrochemical cell to generate electrical power. To date it has been demonstrated that Reduction of lead oxide by solid petroleum coke in a molten sodium-lithium-potassium carbonate eutectic is a two-step process whose overall rate is generally limited by the rate of reaction of solid carbon with CO₂. The rate of this latter reaction, in turn, is directly proportional to the external surface area of the coke. (Modified author abstract)
 GRA

N74 27592# Bureau of Mines, Laramie, Wyo. Energy Research Center

RETORTING INDEXES FOR OIL-SHALE PYROLYSES FROM ETHYLENE-ETHANE RATIOS OF PRODUCT GASES

I. A. Jacobson, Jr., A. W. Decora, and G. L. Cook 1974 25 p refs Sponsored in part by Wyo. Univ.

(BM-RI-7921) Avail NTIS HC \$4.25 CSCL 10A

In a closely controlled laboratory retorting system for oil shale, a relationship was developed between the temperature in the retort and the weight ratio of ethylene to ethane in the gases produced. Reciprocal temperature was shown to be directly proportional to the log (ethylene/ethane). From this relationship, a number, called retorting index, was developed. The retorting index has the dimension of temperature, but its magnitude depends on both temperature and residence time for the reactants in the heated zone in the oil shale retort. The slopes of the lines relating reciprocal temperature and the logarithm of the ethylene-ethane ratios are nearly constant for each of the retorting processes for which data were presented. The retorting index should be a valuable tool to control the operation of oil shale retorts, either aboveground or in situ. If an optimum operating condition can be established, the maintenance of the optimum or the departure from it should be easily monitored by use of the index. Author

N74-27610# R and D Associates, Santa Monica, Calif.

ARPA WORKSHOP ON NEEDS OF THE DEPARTMENT OF DEFENSE FOR CATALYSIS, VOLUME 2

Leona M. Libby, Joe W. Hightower (Rice Univ.), and Willard F. Libby (Calif. Univ., Los Angeles) Nov. 1973 441 p refs Prog. Held at Santa Monica, Calif., 5-6 Nov. 1973

(Contract DAHC15-73-C-0312)

(AD-777734, RDA-TR 3501-002 Vol-2) Avail. NTIS CSCL 07/1

Volume II contains the proceedings of the workshop on Needs of the Department of Defense for Catalysis, consisting of talks given by 26 research scientists in industry and the universities, and discussions following the talks. Topics include fuel refinement, processing, and conversion, exhaust gas control, catalysis theory and kinetics, and fuel cells
 GRA

N74-27611# Scientific Research Instruments Corp., Baltimore, Md.

GASIFICATION OF FOSSIL FUELS UNDER OXIDATIVE, REDUCTIVE, AND PYROLYTIC CONDITIONS. Final Report

A. L. Yergey, F. W. Lampe, M. L. Vestal, E. J. Gilbert, and G. J. Ferguson Dec 1973 184 p refs

(Contract EPA 68-02-0206)

(PB-228668/0, SRIC-72EPA-650/2-73-042) Avail. NTIS HC \$12.25 CSCL 07A

Kinetic reaction data are described, produced in a nonisothermal kinetics laboratory while gasifying selected types of coal under oxidative, reductive, and pyrolytic conditions. Types of coal cover the range, including lignite and anthracite. Evolution of thermal decomposition products under study conditions were investigated at different fuel heating rates and gasification pressures. Gaseous product evolution rates, as the function of temperature, were graphed for different coals, exposed to indicated gasification regimes. The evolution of such gaseous species as H₂O, CO, CO₂, O₂, SO₂, NO, H₂, CH₄, H₂S, and C₂H₂ was followed up in conjunction with 13 different coal gasification reactions
 GRA

N74-27719# National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio.

LOW-COST, AIR MASS 2 SOLAR SIMULATOR

Kenneth Yass and Henry B. Curtis Washington Jun 1974 26 p refs

(NASA-TM-X-3059; E-7885) Avail. NTIS HC \$3.25 CSCL 14B

A low cost air mass 2 solar simulator for testing flat-plate solar collectors was developed and operated at Lewis. Total cost was less than \$10,800/sq m (\$1000/sq ft). It consists of an array of 143 tungsten-halogen 300-watt lamps, each having integral dichroic coated reflectors. A second array of 143 respective hexagonal-shaped plastic Fresnel lenses are located approximately 1 focal length from the lamps. The simulator will

produce a uniform collimated beam covering an area of 1.2 by 1.2m(4 by 4 ft). Design features, construction details, and component costs are given, as well as measured results on a 12-lamp prototype Author

N74-27820# Massachusetts Inst. of Tech., Cambridge
SECOND ANNUAL SEA GRANT LECTURE AND SYMPOSIUM

18 Oct. 1973 46 p refs Symp. held at Cambridge, Mass. (MITSG-74-7) Avail. NTIS HC \$5.50

The use of the ocean as a world energy source is discussed. Special attention was given to offshore oil. Heat disposal in ocean waters was also discussed

N74-27827 Westinghouse Electric Corp., Pittsburgh, Pa.
WORLD ENERGY AND THE OCEANS
 William E. Shoupp *In* MIT Second Ann. Sea Grant Lecture and Symp. 18 Oct. 1973 10 p

Energy sources and means by which they are converted to usable energy forms are outlined. Special attention was given to means and programs by which these sources are utilized. Data cover (1) location, evaluation, and utilization of known reserves, (2) removal of nonessential constraints that limit construction and operation of atomic power plants, (3) increased technical capability in substituting electric power for more than current uses, and (4) location of large electric power generating stations near the ocean where coolants for the system are provided by the ocean. The alternate energy sources of coal gasification and ethanol are discussed. E.H.W.

N74-27828 Massachusetts Inst. of Tech., Cambridge
KEY ISSUES IN OFFSHORE OIL
 John W. Devanney, III *In* its Second Ann. Sea Grant Lecture and Symp. 18 Oct. 1973 14 p

The Georges Bank analyses of offshore oil, oil quality, and environmental damage caused by oil spillage are presented. Data cover biological effect of oil, particularly toxicity, spill statistics, hydrocarbon plumes emanating from oil water separator discharges and refinery wastewater outfalls, and fish and larval kill possible from a spill. Economic factors associated with offshore and nearshore oil are discussed. E.H.W.

N74-27918# Pennsylvania State Univ., University Park Dept. of Mineral Engineering
EVALUATION OF MINE ELECTRICAL SYSTEMS WITH RESPECT TO SAFETY, TECHNOLOGY, ECONOMICS, AND LEGAL CONSIDERATIONS. VOLUME 1: TEXT, TABLES AND ANALYSES Final Report
 Robert Stefanko, Lloyd A. Morley, and Atmesh K. Sinha 18 Jul 1973 60 p refs
 (Grant DI-BM-GO-1011729)
 (PB 225476/1, BM-OFR-70(1)-73) Avail. NTIS HC \$5.25 HC also available from NTIS \$11.00/set of 2 reports as PB-225475-SET CSCL 081

The aim of the research was to develop instruments and techniques and then make measurements of suitable power parameters, ground fault currents and ground resistance beds. With such information available, it was possible to develop a meaningful simulator which would permit investigating electrical systems and components on paper without costly trial and error procedures. In the third year, a cable splice testing program was added to the project. While there were the usual delays attendant in such original research, these objectives were achieved. Evaluation of several mine electrical systems and components are presented. GRA

N74-28006* Scientific Translation Service, Santa Barbara, Calif.
STUDY OF THE POSSIBILITY OF USING SOLAR RADIANT ENERGY FOR WELDING AND BRAZING METALS
 V. S. Dvernyakov, I. N. Frantsevich, V. V. Pasichnyy, N. A. Shiganov, Yu. I. Korunov, and I. Ye. Kasich-Pilipenko *In* its Space Studies in the Ukraine, No. 1 (NASA-TT-F-15535) Jun. 1974 p 9-18 refs. Transl. into ENGLISH from the book "Kosmicheskaya Issledovaniya Ukraine, Vypusk 1, Kosmicheskoye Materialovedeniye i Tekhnologiya" Kiev, Naukova Dumka, 1973 p 9-14

CSCL 13H

N74-28020# Bureau of Mines, Grand Forks, N. Dak. Energy Research Lab
TECHNOLOGY AND USE OF LIGNITE
 Wayne R. Kube, comp. and James L. Elder, comp. 1972 145 p refs. Presented at Bur. of Mines-Univ. of North Dakota Symp., Bismack, N. Dak., 12-13 May 1971 (BM-IC-8543) Avail. SOD HC \$1.50 as C 128 27 8543
 Utilization and technology of Western coal and lignites for power production is considered

N74-28021 Bureau of Mines, Jackson, Miss.
A PROGRESS REPORT ON COAL MINE HEALTH AND SAFETY
 Henry P. Wheeler, Jr. *In* its Technol. and Use of Lignite 1972 p 12-14

Progress in implementation of the Federal Coal Mine Health and Safety Act of 1969 is presented. Three major approaches are being followed: inspection and enforcement, research and development, and education and training. In the first year in excess of 3,000 coal mine inspections were conducted and over 52,000 notices of violation of standards and 2,800 withdrawal orders were issued. To fully implement the 40,000 inspections that will be required each year, sufficient personnel have been hired but their training will not be completed for a few months. Although physical conditions in underground mines have been improved, the fatality rate has not. Lack of improvement may be caused by new inexperienced workers, opening of new mines, less adequate supervision, and loss of experienced foremen who are training as mine inspectors. Author

N74-28022 Peabody Coal Co., St. Louis, Mo.
PIPELINE TRANSPORT OF LIQUID COAL
 Jack J. Ellis and Pete Bacchetti *In* Bur. of Mines Technol. and Use of Lignite 1972 p 15-31

The 273-mile coal pipeline from Black Mesa, Ariz., to the Mohave generating station at Davis Dam, Nev., is described. Five million tons of coal are to be transported each year. Strip mined coal is reduced in size to minus one-eighth in and made into a 50-percent water slurry. Water is obtained from five wells, each over 3,500 ft deep. Four pumping stations are required to move the slurry through the 18 in. pipeline. At the generating station, the slurry is dewatered, using centrifuges, to 25-percent moisture and fed to the pulverizers. Effluent from the centrifuges is clarified; the clear water is used in plant operations and the concentrated slurry returned to the centrifuge. No water is discharged as the excess is solar evaporated from holding ponds. Author

N74-28023 Bureau of Mines, Pittsburgh, Pa. Energy Research Center
LIQUEFACTION OF LIGNITE WITH CARBON MONOXIDE AND WATER
 Herbert R. Appell, Irving Wender, and Ronald D. Miller *In* its Technol. and Use of Lignite 1972 p 32-39 refs

Lignite was treated with carbon monoxide and steam with the objective of preparing a low sulfur, heavy fuel oil. At temperatures of 380 to 400 C and pressures of 3,000 to 5,000 psig, conversions of about 90 percent of lignite and oil yields near 75 percent have been obtained. These conversions were obtained using freshly pulverized lignite, a solvent, and pressures above 4,000 psig. Under these conditions, the

liquefaction of lignite required only 15 minutes at 380 to 400 C, exclusive of heating and cooling periods. Alkaline compounds which are present in lignite are good catalysts for the liquefaction reaction. In order to obtain high yields at pressures near 3,000 psig, it was necessary to increase the reaction time to about 2 hr and use larger quantities of a solvent fortified with a heterocyclic nitrogen base. At these conditions, mixtures of hydrogen and carbon monoxide worked almost as well as carbon monoxide.

Author

**N74-28024 Minnesota Power and Light Co., Duluth
USE OF WESTERN COAL AND AIR WATER QUALITY
CONTROL BY MINNESOTA POWER AND LIGHT COM-
PANY**

E. F. McGuire and W. F. Arndt (Abe W. Mathews Eng. Co., Hibbing, Minn.) *In Bur of Mines Technol. and Use of Lignite* 1972 p 40-48

Conversion of thermal generating stations to use of sub-bituminous coal is discussed. The major conversion requirement is for installation of increased pulverizer capacity. In some cases modification of the superheater section, addition of burners, and use of oil for peak load are required. Unloading and handling facilities are described. In order to meet the requirements set by pollution control, it is planned to install wet scrubbers. A spray chamber, low gas velocity scrubber was selected after a preliminary testing program. Indications are such a unit will have a high collection efficiency for particulates and allow control of effluents to meet water quality standards. Required modification to existing thermal units are given.

Author

**N74-28026 Environmental Protection Agency, Research Triangle
Park, N.C. Development Engineering Branch
NITROGEN OXIDES, SULFUR OXIDES, AND PARTICULATE
CONTROL TECHNOLOGY FOR FOSSIL FUEL COMBUS-
TION**

R. E. Harrington *In Bur of Mines Technol. and Use of Lignite* 1972 p 56-69 refs

Five methods for reduction of SO₂ in air are classified as first generation processes and are discussed in some detail. These are: (1) Use of low-sulfur fuel, (2) dry limestone injection, (3) lime/limestone scrubbing, (4) magnesium scrubbing, and (5) catalytic oxidation. Limitation of first generation processes require development of improved second generation processes. Reduction in NO_x emissions is at present limited to methods that lower flame temperatures. Particulate control in the utility industry has generally been by electrostatic precipitation with only moderate success. To achieve sufficiently high removal efficiency, the size and subsequent cost of the precipitator increases rapidly. Fabric filters may prove to be satisfactory substitutes. The application of wet scrubbers for control of both particulate and SO₂ needs additional development.

Author

**N74-28027 Montana Power Co., Butte
LOW GAS TEMPERATURE SOLUTION TO HIGH RESISTIV-
ITY ASH PROBLEMS**

D. T. Berube *In Bur of Mines Technol. and Use of Lignite* 1972 p 70-82 ref

Efforts to improve the performance of an installed electrostatic precipitator by lowering the temperature of flue gas are presented. Fly ash from the low sulfur subbituminous coal has a high electrical resistivity and the precipitator efficiency was about 85 percent compared to the design efficiency of 97 percent. Laboratory and in situ measurements of ash resistivity indicated a reduction in resistivity at lower gas temperature. Gas temperature was lowered by air dumping and increasing the area of the economizer. In addition a mixing baffle was installed at the air heater outlet and two transformer rectifier sets were installed on the precipitator.

Author

**N74-28028 Joy Mfg. Co., Los Angeles, Calif. Western
Precipitation Div
COLLECTING FLY ASH FROM WESTERN LOW SULFUR
COALS**

James L. Ma *In Bur of Mines Technol. and Use of Lignite* 1972 p 83-97 refs

Two types of wet scrubbers were tested on a flue gas stream from a utility boiler. One was a flooded variable throat venturi unit and the other a direct impingement type. Both were effective in removing fly ash with the variable throat unit slightly more efficient. Either can be considered as a practical alternate to the electrostatic precipitator. Efficiency increases with pressure drop through the unit. Both liquid recirculation and bleed-off rates effect efficiency to a lesser extent. A flowsheet of a proposed unit for a full size power plant is presented.

Author

**N74-28029 Joy Mfg. Co., Los Angeles, Calif.
PILOT STUDY OF ELECTROSTATIC PRECIPITATION FOR
REMOVING FLY ASH AT BASIN ELECTRIC'S LELAND OLDS
STATION**

Kent E. Janssen (Basin Elec. Power Coop., Stanton, N. Dak.) and Floyd W. Redman *In Bur of Mines Technol. and Use of Lignite* 1972 p 98-104 ref

A pilot scale electrostatic precipitator was used to remove fly ash from a side stream of flue gas originating from an operating power plant. The electrical generating station burns low sulfur pulverized lignite. Under test conditions, 99-percent removal of fly ash was achieved, indicating suitability of this method for practical and effective removal of high resistivity lignite fly ash from boiler exit gases. The power input has a significant effect on precipitator performance with a marked decrease in efficiency below 80 percent of maximum power. Within the range tested, face velocity of gases was not a factor. Rappers were operated at high impact intensity and relatively high frequency to obtain adequate cleaning.

Author

**N74-28030 American Petroleum Inst., New York.
FUTURE ENERGY SUPPLY: APPROACHES AND OP-
TIONS**

Wilson M. Laird *In Bur of Mines Technol. and Use of Lignite* 1972 p 105-111

Domestic gas and oil deliverability should reach a peak about 1974. Use of coal will be severely restricted by air quality standards. At present the only method to fill the energy gap is by increased imports of foreign oil. If no action is taken, the nation will be dependent for a major share of its energy supply upon sources over which there can be little control. If such dependence is the result of a conscious, studied policy decision with full understanding of the consequences, the situation may be acceptable. A national energy policy should be formulated with a clear understanding of all facets including environmental considerations. An organization for formulating and articulating the policy is necessary. A strong team effort of government and industry is important to integrate and activate a national energy policy.

Author

**N74-28031 Minnkota Power Cooperative, Inc., Grand Forks,
N. Dak.
LIGNITE AND THE CYCLONE BURNER IN A NEW 235-mw
GENERATING STATION**

Lloyd Hillier and B. W. Rudiger (Sanderson and Porter, New York) *In Bur of Mines Technol. and Use of Lignite* 1972 p 112-126

Major operational systems are described with the most significant departure from the conventional lignite-fired boiler the use of cyclone burners. The cyclone burners have performed well and only minimal startup difficulties were encountered. No fireside tube fouling has been experienced. Peak power production has reached 274 mw and was limited by the capacity of the boiler feedwater pump. Use of 1/4- by 0-in crushed lignite rather than pulverized lignite has eliminated pulverization problems. Some drying of lignite during crushing was necessary to maintain temperature levels in the cyclone sufficiently high to melt the lignite ash. Lignite was mined at an adjacent strip pit, trucked to the station and crushed. A mechanized lignite handling system conveyed the lignite to plant silos or storage. Cooling water was available from a nearby lake.

Author

N74-28032 Minnkota Power Cooperative, Inc., Grand Forks, N. Dak.

DETAILED CONSTRUCTION AND EQUIPMENT COSTS FOR THE 235- MW MILTON R. YOUNG GENERATING STATION

Kenneth S. Vig / In Bur of Mines Technol and Use of Lignite 1972 p 127-145

A total of \$38,710,211 was required for equipment and construction of the 235 mw lignite fired, cyclone burner unit. This total included all items such as land, structures, roads, a dam to impound cooling water, mechanical and electrical equipment, lignite handling facilities, transformer and switchboard, engineering, overhead, interest, and inventory as well as the generating unit. Arranged in categories, costs are given in sufficient detail, including the year incurred, so that more accurate estimates can be made in planning new units. Author

N74-28035* National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio.

DESIGN AND EVALUATION OF EXPERIMENTAL CERAMIC AUTOMOBILE THERMAL REACTORS

Phillip L. Stone and Charles P. Blankenship Washington Jul 1974 28 p refs

(NASA-TN-D-7706, E-7175) Avail: NTIS HC \$3.25 CSCL 11B

The results obtained in an exploratory evaluation of ceramics for automobile thermal reactors are summarized. Candidate ceramic materials were evaluated in several reactor designs by using both engine-dynamometer and vehicle road tests. Silicon carbide contained in a corrugated-metal support structure exhibited the best performance, lasting 1100 hr in engine-dynamometer tests and more than 38,600 km (24,000 miles) in vehicle road tests. Although reactors containing glass ceramic components did not perform as well as those containing silicon carbide, the glass-ceramics still offer good potential for reactor use with improved reactor designs. Author

N74-28106* National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, Md

A POWER CONDITIONING SYSTEM FOR RADIOISOTOPE THERMOELECTRIC GENERATOR ENERGY SOURCES

Joseph A. Gillis Jun 1974 27 p ref

(NASA-TM-X-70678, X-711-74-164) Avail: NTIS HC \$4.50 CSCL 18E

The use of radioisotope thermoelectric generators (RTG) as the primary source of energy in unmanned spacecraft is discussed. RTG output control, power conditioning system requirements, the electrical design, and circuit performance are also discussed. F.O.S.

N74-28108* Los Alamos Scientific Lab., N Mex

NUCLEAR HEAT AND HYDROGEN IN FUTURE ENERGY UTILIZATION

L. A. Booth and J. D. Balcomb Nov 1973 28 p

(Contract W-7405-eng-36)

(LA-5456-MS) Avail: NTIS HC \$4.00

Future demand for the world's supply of carbon-based fuels will eventually deplete this supply to the point at which their use becomes economically infeasible. Hydrogen, which is virtually inexhaustible in the form of water, could be substituted for natural gas and petroleum-based fuels for industrial and residential heating and for transportation. Nuclear energy, either fusion or fission, would be the primary energy source. Thermal energy from the nuclear heat source would be converted to electric energy in a conventional heat engine cycle. Hydrogen could be produced from water by a cyclic thermochemical process. Gaseous hydrogen for industrial and residential heat would be transported in a high-pressure pipeline system. Liquid hydrogen or hydrogen stored in metal hydrides could be used for transportation fuels. Author (NSA)

N74-28138* Oak Ridge National Lab., Tenn Cryoelectrics Section

CRYOGENIC POWER TRANSMISSION TECHNOLOGY: CRYOGENIC DIELECTRICS Quarterly Report, 1 Jul. - 30 Sep.

1973

Jan 1974 16 p refs

(Contract W-7405-eng-26)

(ORNL-TM-4433) Avail: NTIS HC \$3.00

The investigation of the dielectric properties of fluids and solids for use in superconducting systems is reported. The objectives of the project are identified to be the determination of scaling laws applicable to various models of superconducting cables and other cryogenic apparatus. Studies include the investigation of: (1) ac and dc breakdown and prebreakdown phenomena in liquid helium, and in a variety of solids in liquid helium; (2) the influence of electrode surfaces and impurities; (3) the influence of pressure and temperature on the dielectric properties of liquid helium; (4) the behavior at large gaps; (5) breakdown and surface flashover of bulk and laminated solids. Impulse measurements are also planned. Author (NSA)

N74-28168* Joint Publications Research Service, Arlington, Va

ON THE APPROACHES TO MHD-POWER GENERATION

7 Jun 1974 24 p refs Transl. into ENGLISH from Nauka

Zhizn (Moscow), no. 4, Apr. 1974 p 14-23

(JPRS-62196) Avail: NTIS HC \$4.25

A round table discussion on magnetohydrodynamic generation of electric power is reported. Author

N74-28206* Brookhaven National Lab., Upton, N.Y. Dept. of Applied Science

SURVEY OF LARGE-SCALE APPLICATIONS OF SUPERCONDUCTIVITY Informal Report

J. R. Powell 1973 167 p refs Presented at Conf. on Advan. Study Inst. on Large Scale Appl. of Superconductivity and Magnetism, Entreves, Italy, 5 - 14 Sep. 1973 Sponsored by AEC

(BNL-18376, Conf-730970) Avail: NTIS HC \$10.50

A survey is made of potential future large-scale uses of superconductivity, including fusion, MHD, magnetic energy storage, power transmission, high-speed ground transport, and magnetic separation. The superconducting technological requirements for each application are examined with regard to present and projected capabilities. The requirements of the nonsuperconducting system components in each application are also examined, together with an investigation of how advances in superconducting technology can ease demands on the nonsuperconducting components. Economic and social factors relating to each application are also discussed. An assessment of the likelihood of success for each application is made. (89 references)

Author (NSA)

N74-28230* American Airlines, Inc., New York.

ECONOMIC EFFECTS OF PROPULSION SYSTEM TECHNOLOGY ON EXISTING AND FUTURE TRANSPORT AIRCRAFT

G. Philip Sallee Jul 1974 345 p

(Contract NAS3-17326)

(NASA-CR-134645) Avail: NTIS HC \$7.50 CSCL 21A

The results of an airline study of the economic effects of propulsion system technology on current and future transport aircraft are presented. This report represents the results of a detailed study of propulsion system operating economics. The study has four major parts: (1) a detailed analysis of current propulsion system maintenance with respect to the material and labor costs encountered versus years in service and the design characteristics of the major elements of the propulsion system, of the B707, B727, and B747; (2) an analysis of the economic impact of a future representative 1979 propulsion system is presented with emphasis on depreciation of investment, fuel costs and maintenance costs developed on the basis of the analysis of the historical trends observed; (3) recommendations concerning improved methods of forecasting the maintenance cost of future propulsion systems are presented. A detailed method based on the summation of the projected labor and material repair costs for each major engine module and its installation along with a shorter form suitable for quick, less detailed analysis are presented.

N74-28388

and (4) recommendations concerning areas where additional technology is needed to improve the economics of future commercial propulsion systems are presented along with the suggested economic benefits available from such advanced technology efforts Author

N74-28388* Kanner (Leo) Associates, Redwood City, Calif
REDUCTION OF DIESEL ENGINE EXHAUST NOISE IN THE PETROLEUM MINING INDUSTRY
Tatiana Marinov In its The 4th Natl Conf on Acoustics, Vol. 1A (NASA-TT F-15375) Jun 1974 p 156-162 refs Transl into ENGLISH from A 4-A Conferinta Nationala de Acustica Vol. 1A, Combateres Zgomotului Si Vibratiilor, Bucharest, 29-31 May 1973 p 205-211
CSCL 21A

N74-28439# Kentucky Univ., Lexington Dept of Economics
THE WESTERN KENTUCKY COAL INDUSTRY: AN ECONOMIC ANALYSIS
Curtis E Harvey May 1973 99 p refs Revised
(UKY TR76-73-IMMR1) Avail NTIS HC \$8.00

An economic analysis and investigation into the structure of the Western Kentucky coal industry are provided. Employment and the relative size of the coal industry are discussed along with estimated remaining coal reserves in the state. Demand and supply factors and the regional structure of the markets for coal mined in the eastern interior basin are considered. Mining operations, costs of production, transportation, and the price of coal are reported and the prospects for economic change in the Kentucky coal industry considered AAD

N74-28440# Committee on Foreign Affairs (U. S. House)
THE ENERGY CRISIS: IMPACT OF CANADIAN POLICIES
Washington GPO 1974 132 p Hearings before Comm on Foreign Affairs, 93d Congr., 1st Sess., 14-15 Nov 1973
(GPO 27-709) Avail Subcomm on Inter-American Affairs

The hearings are reported concerning the impact on the U.S. of the Canadian actions to restrict the export of oil. The immediate effects on the border States are discussed with emphasis on the impending shortage of heating fuels. The Canadian-American energy relationship is also discussed. FOS

N74-28441# Committee on Agriculture (U. S. House)
AGRICULTURE AND THE FUEL CRISIS
Washington GPO 1974 140 p refs Hearings before Comm. on Agr., 93d Congr., 1st Sess., 14 Nov and 4 and 14 Dec 1973
(GPO 27-899) Avail Comm on Agr.

A Congressional hearing concerning the impact of the fuel shortage on farming operations was conducted. The manner in which fuel is allocated according to Federal legislation was analyzed. The need for changes in the legislation was discussed and many examples of the inequities created by the current restrictions were explained. Testimony of specified witnesses from the agricultural community and the oil industry is submitted. The economic aspects of the fuel shortage on various phases of domestic and foreign relations are examined PNF

N74-28445# Committee on Public Works (U. S. Senate)
COMPLIANCE WITH TITLE 2 (AUTO EMISSION STANDARDS) OF THE CLEAN AIR ACT
Washington GPO 1973 960 p refs Hearings before Comm on Public Works, 93d Congr., 1st Sess., 5-6 Nov 1973
(GPO 25 424) Avail Comm on Public Works

The acceptability of emission control technologies slated by the auto and fuel industries to meet the 1975 deadlines of the Clean Air Act was the subject of a Congressional hearing. Questions regarding the ramifications of national application of catalytic converters are discussed and the costs, both public and private, of antipollution technologies are outlined. Fuel economy factors as they relate to emission control efforts, are

reported. Results of tests on pollution control configurations and fuels are presented along with their performance comparisons. Air quality indexes are presented and recommendations are made throughout on how best to accomplish compliance with the Clean Air Act at minimum cost and maximum efficiency AAD

N74-28449# Committee on Banking, Housing and Urban Affairs (U. S. Senate)

RETAIL PRICING OF PETROLEUM PRODUCTS

Washington GPO 1973 99 p Hearings on S 2415, S. 2400, and S 2453 before Comm on Banking, Housing and Urban Affairs, 93d Congr., 1st Sess., 9 Oct. 1973
(GPO-23-614) Avail Comm on Banking, Housing and Urban Affairs

A Congressional hearing was conducted to consider the retail pricing of petroleum products. The specific purposes of the hearing were (1) to amend the Economic Stabilization Act of 1970 to permit the passthrough of certain cost increases, (2) to amend the Economic Stabilization Act of 1970 to adjust ceiling prices applicable to certain petroleum products and to permit retailers to pass through the increased costs, and (3) to amend the Economic Stabilization Act with regard to the authority conferred by Section 203 with respect to petroleum products. The findings of the committee are based on the testimony of selected witnesses with experience in the petroleum market. PNF

N74-28450# Committee on Armed Services (U. S. Senate)
NAVAL PETROLEUM RESERVE NUMBERED 1, ELK HILLS, CALIFORNIA

Washington GPO 1973 114 p refs Hearing on S.J. Res. 176 before Comm on Armed Services, 93d Congr., 1st Sess., 10-11 Dec 1973
(GPO-25 650) Avail Subcomm on Natl Stockpile and Naval Petrol Reserve

A Congressional hearing was conducted to consider a resolution which would authorize production of petroleum from the Elk Hills Naval Petroleum Reserve for national defense purposes and to provide for further exploration of the reserve. The nature of the petroleum shortage in the U.S. is examined. The capacity of the petroleum reserve to alleviate the situation is evaluated. Restrictions on the exploitation of the reserves are defined. The findings of the committee are based mainly on the testimony of selected witnesses who are knowledgeable of the crude oil situation PNF

N74-28452# Joint Economic Committee (U. S. Congress)
ECONOMIC IMPACT OF PETROLEUM SHORTAGES
Washington GPO 1974 197 p refs Hearings before Joint Econ Comm., 93d Congr., 1st Sess., 11-13 Dec 1973
(GPO 27 213) Avail SOD HC \$1.50

Both the short run and long run implications of the energy crisis are discussed in a Congressional hearing conducted to gather information towards the formulation of an effective energy policy. The Arab oil embargo is analyzed for its effect on real growth forecasts and rising inflation. A summary of the oil shortages in the U.S. petrochemical industry includes tabulation of production decline in the manufacture of organic chemicals, plastic resins, synthetic fibers and rubber, and related industries. Administration projection of near term petroleum shortfall are reported and proposed remedies include reduction in jet aircraft flights, reduction in residential heating, reduction in business, government, and industry power use, expansion of rail and bus transit systems, conversion of power plants to coal, and a gasoline tax. The impact of the fuel shortage on Canada is presented for comparison AAD

N74-28453# Committee on Finance (U. S. Senate)
PROFITABILITY OF DOMESTIC ENERGY COMPANY OPERATIONS

Washington GPO 1974 222 p refs Hearings before Comm. on Finance, 93d Congr., 2d Sess., 13-14 Feb 1974
(GPO-28 572) Avail Comm on Finance

A Congressional hearing was conducted to present testimony relating to the problem for excess or windfall profits in the oil industry. Tax legislation proposals are emphasized. Information is presented by private firms and by petroleum trade associations, and the topics include the following: (1) percent of U.S. production by medium and small companies; (2) petroleum exploration and development expenditures; (3) profitability ratios; (4) sources of U.S. sales of petroleum products and foreign investments; (5) imports of crude oil and refined products; (6) gasoline and residual fuel consumption; (7) return on petroleum shareholders equity; and (8) earning growth and return calculations. Recommendations are made for the formulation of tax and price policies as well as effective government/industry roles in the management of the energy market. AAD

N74-28463# Bureau of Mines, Washington, D.C. Div. of Fossil Fuels.

SALES OF FUEL OIL AND KEROSENE IN 1972

10 Oct 1973 14 p

Avail: NTIS HC \$4.00

Domestic sales of distillate fuel oils, residual fuel oils, and kerosene in thousands of barrels are presented and compared to sales volume in 1971. Data are arranged by fuel type, intended uses, and state and year in which the transactions were made. AAD

N74-28464# Bureau of Mines, Washington, D.C. Div. of Fossil Fuels

WORLD NATURAL GAS: 1972

29 Apr. 1974 10 p

Avail: NTIS HC \$4.00

Both gross and marketed production volumes in million cubic feet are presented for all countries engaged in the natural gas industry. World trade volumes in billion cubic feet are also shown by year and importing country. A brief account of natural gas trends in domestic production and international trade is included. AAD

N74-28465# Atomic Energy Commission, Washington, D.C. **NATION'S ENERGY FUTURE Report to the President of the United States**

Dixy Lee Ray 1 Dec 1973 182 p

(WASH-1281) Avail: NTIS MF \$1.45. SOD HC \$1.95

This report, developed under the general guidance of the Energy Policy Office, is in response to the directive of the President on June 29, 1973, to the Chairman of the Atomic Energy Commission to review Federal and private energy R and D and to recommend an integrated program for the Nation. The report recommends: (1) a national energy R and D program; (2) a five-year, \$10 billion Federal energy R and D program; and (3) the FY 1975 Federal budget for energy R and D. The recommended program, based on what is now known, is both necessary and sufficient to maximize energy R and D's contribution to the Nation's energy goals; even so, 1985 is the earliest date by which self-sufficiency can reasonably be expected. By 1980, the recommended program can reduce oil imports to half those currently projected; other extraordinary measures will be required to displace the other half. NSA

N74-28534 Massachusetts Univ., Amherst **A PLANNING METHODOLOGY FOR THE ANALYSIS AND DESIGN OF WIND-POWER SYSTEMS** Ph.D. Thesis

Ismael Gerardo Dambolena 1974 156 p

Avail: Univ. Microfilms Order No 74-15005

A computer model is developed which evaluates the economics of offshore wind-power systems and simulates the behavior of alternate designs. Wind-powered generators either satisfy consumer demand directly or produce hydrogen by the electrolysis of water. The hydrogen can later be transformed back into electricity by fuel cells. Using the characteristics of the system components as input parameters, the model simulates system performance over time using historical or computer-

generated wind-speed and demand data. Various statistics associated with the energy produced and costs are used to evaluate and compare alternative systems. Dissert. Abstr.

N74-28536*# Arkla Industries, Inc., Evansville, Ind. Engineering Dept.

DESIGN, EVALUATION AND RECOMMENDATION EFFORT RELATING TO THE MODIFICATION OF A RESIDENTIAL 3-TON ABSORPTION CYCLE COOLING UNIT FOR OPERATION WITH SOLAR ENERGY

Richard H. Merrick and Philip P. Anderson Nov. 1973 23 p (Contract NAS8-25996)

(NASA-CR-120277) Avail: NTIS HC \$4.25 CSCL 10A

The possible use of solar energy powered absorption units to provide cooling and heating of residential buildings is studied. Both the ammonia-water and the water-lithium bromide cycles are considered. It is shown that the air cooled ammonia water unit does not meet the criteria for COP and pump power on the cooling cycle and the heat obtained from it acting as a heat pump is at too low a temperature. If the ammonia machine is water cooled it will meet the design criteria for cooling but can not supply the heating needs. The water cooled lithium bromide unit meets the specified performance for cooling with appreciably lower generator temperatures and without a mechanical solution pump. It is recommended that in the demonstration project a direct expansion lithium bromide unit be used for cooling and an auxiliary duct coil using the solar heated water be employed for heating. Author

N74-28537*# Denver Research Inst., Colo. Industrial Economics Div.

APPLICATIONS OF AEROSPACE TECHNOLOGY IN THE ELECTRIC POWER INDUSTRY

Aug 1973 116 p refs

(Contract NASw-2362)

(NASA-CR-138947) Avail: NTIS HC \$9.00 CSCL 10B

An overview of the electric power industry, selected NASA contributions to progress in the industry, linkages affecting the transfer and diffusion of technology, and, finally, a perspective on technology transfer issues are presented. Author

N74-28538# Mitre Corp., McLean, Va.

PROPOSED PROGRAM AND BUDGET FOR PHOTOVOLTAIC SYSTEMS

Frank R. Eldridge Feb 1974 147 p

(Contract NSF C-831, Proj. 2950)

(MTR-6613, NSF/RA/N-73-111) Avail: NTIS HC \$10.50

A study of the NSF 5-year Solar Energy Research Program is presented. The goals, suggested approach, funding, phasing, basis for funding estimates and task priorities are described, that would be conducted during the course of the proposed program for photovoltaic systems. This proposed program was designed to demonstrate, by basic and applied research and proof-of-concept experiments, the technical feasibility, economic viability, environmental impact, sociological desirability, institutional constraints, and potential utilization of photovoltaic systems that would derive replenishable energy from the sun to help satisfy future U.S. energy needs. Author

N74-28539# Washington State Univ., Pullman Dept. of Physics

TRANSPORTATION AND ENERGY CONSERVATION IN THE PACIFIC NORTHWEST

J. Thomas Dickinson Feb. 1974 33 p refs Prepared in cooperation with Idaho Univ. and Oregon State Univ.

(Contract E-3002)

Avail: NTIS HC \$4.75

A study was conducted to determine the energy requirements for transportation in the Pacific Northwest region. It was determined that transportation uses 30 percent of all energy consumed in the region. A table of data is developed for the states of Washington, Oregon, and Idaho to show the amounts of energy used by automobile, truck, bus, airlines, and rail.

transportation. Comparisons of the energy consumed in the region are made with the nationwide energy consumption. Methods for reducing the fuel consumption are proposed. Author

N74-28540# MITRE Corp., Washington, D.C.
DISSEMINATION AND UTILIZATION OF SOLAR ENERGY RESEARCH RESULTS

Dec. 1973 67 p refs
 (Contract NSF C-831; Proj. 2950)
 (MTR-6544; NSF/RA/N-73-3) Avail: NTIS HC \$6.50

Recommendations have been made for establishing groups within or reporting to, the NSF Solar Energy Program Office, and initiating activities for the dissemination and utilization of solar energy research results. The primary recommendations include establishing an Advisory Commission and an information office reporting to the Program Director, and constructing visitor centers on the sites of each Proof of Concept Experiment. Training courses and public education would be conducted at each center following successful operation of the POCE system.

Author

N74-28541# MITRE Corp., Washington, D.C.
SOLAR ENERGY, PROOF OF CONCEPT EXPERIMENTS

Dec. 1973 104 p refs
 (Contract NSF C-831; Proj. 2950)
 (MTR-6537; NSF/RA/N-73-3) Avail: NTIS HC \$8.25

Critical experiments are described which are intended to prove the technical feasibility and socio-economic desirability of specific applications or techniques for the widespread utilization of solar energy. These experiments fall within the following areas: heating and cooling of buildings, process heat, solar-thermal-electric, photovoltaic, ocean thermal, wind energy, organic materials, and common applications. The specific concept which the experiment is intended to prove, and a rationale for the experiment are given. Each experiment is described in terms of the system to be constructed, its pacing and high-risk items, the intended users, desired interfaces with other systems and users, and estimated costs for the experiment. Each experiment is described and costs estimated for two levels of funding: a moderate risk, minimum program, and a low-risk accelerated program.

Author

N74-28542# MITRE Corp., Washington, D.C.
SYSTEMS ANALYSIS OF SOLAR ENERGY PROGRAMS. APPENDIX: RESEARCH TASKS

Dec. 1973 142 p refs
 (Contract NSF C-831; Proj. 2950)
 (MTR-6513-App; NSF/RA/N-73-3-App) Avail: NTIS HC \$10.25 CSCL 10A

Research programs involving the application of solar energy systems are discussed. The subjects considered are: (1) heating and cooling of buildings, (2) solar-thermal energy systems, (3) ocean-thermal gradient systems, (4) photovoltaic energy systems, (5) wind energy sources, (6) utilization of organic material, and (7) common applications.

Author

N74-28543# Scientific Translation Service, Santa Barbara, Calif.
COST EFFECTIVENESS OF TUNGSTEN CARBIDE-CARBON FUEL CELLS

Heinz Carl, Herold Bohm, and Franz A. Poh. Washington. NASA. Jul 1974 31 p refs. Transl. into ENGLISH from Wiss. Ber. AEG-Telefunken (West Germany), v. 46, no. 3-4, 1973 p. 109-116.

(Contract NASw-2483)
 (NASA-TT-F-15748) Avail: NTIS HC \$4.75 CSCL 10A

It is shown that the WC/C fuel cell offers an excellent alternative to conventional power sources for many applications. Three demonstration examples are presented for illustration: (1) electric trucks for industrial warehouse and plant applications; (2) fork lift trucks; and (3) power supply for radio link stations.

Author

N74-28544# North Carolina State Univ., Raleigh. Semiconductor Device Lab.

A THEORETICAL ANALYSIS OF THE CURRENT-VOLTAGE CHARACTERISTICS OF SOLAR CELLS Annual Report

J. R. Hauser and P. M. Dunbar. Jun. 1974 172 p refs
 (Grant NGR-34-002-195)
 (NASA-CR-138828) Avail: NTIS HC \$11.75 CSCL 10A

The current-voltage characteristics and efficiencies of solar cells are discussed. For one solar cell structure detailed curves are presented which include carrier densities, current densities, potential, and quasi-Fermi levels at different voltage levels both with and without optically generated carriers (AMO conditions). In addition some results are presented concerning the influence of various parameter variations such as lifetime, cell thickness, and high-low junction width on solar cell performance. Author

N74-28545# Bureau of Mines, Washington, D.C. Div. of Fossil Fuels

COAL: BITUMINOUS AND LIGNITE IN 1972

15 Nov 1973 78 p
 Avail: NTIS HC \$7.00

A survey of bituminous coal and lignite production in the United States is presented. The factors considered in the survey are: (1) increased production, (2) increased costs, (3) foreign and domestic distribution, (4) fuel consumption. Tables of data are developed to present the economic factors involved in coal production, transportation, and availability.

Author

N74-28546# Battelle Northwest, Richland, Wash.
STUDY OF HANFORD CAPABILITY FOR SOLAR ENERGY RESEARCH AND DEVELOPMENT

K. Drummheller. Nov 1973 55 p refs
 (Contract AT(45-1)-1830)

(BNWL-1801) Avail: NTIS HC \$5.45

The Hanford site provides unique capability for solar energy research and development. The basic attributes include large available land areas, consistent sunshine during much of the year (although not comparable to Arizona and the southwest U.S.), extreme temperatures for test purposes (-27 to 115 F); cooling water availability; ecology approximating ecology in some other solar areas, R and D facilities applicable to most solar technology, equipment immediately useful for solar energy programs, technology background in most areas of solar energy; experience with large energy systems, and background in systems analysis. From the solar energy production standpoint, the energy that falls on the 600 square miles at the Hanford site would produce 100,000 megawatts if 33 1/3% efficiency can be achieved.

NSA

N74-28547# California Univ., Livermore. Lawrence Livermore Lab.

ECONOMICS OF THERMODYNAMIC SOLAR POWER SYSTEMS. PART 2: THE TURBINE TRADE-OFF

L. F. Wouters. 19 Sep 1973 7 p
 (Contract W-7405-ENG-48)

(UCID-16386-Pt-2) Avail: NTIS HC \$3.00

It has been indicated that a more expensive, higher efficiency thermodynamic subsystem could result in a less-expensive, more cost-effective solar power system, overall. It is interesting to see how severe a trade-off this really is. A primitive two-component system model consisting of (1) the collector and (2) the turbine was constructed. Of course there are lots of other pieces between and around these items, but these two are the ones to which most cost leverages can be associated, in some way. A given collector design is assumed, having a defined specific efficiency and unit area cost. The turbine efficiency is varied parametrically from a reference value, and an allowable cost trade-off as a ratio to reference turbine price is obtained. No attempt is made to relate a particular cost change to a particular design change. The maximum that can be afforded for any and all changes is established.

Author (NSA)

N74-28553# Engelhard Minerals and Chemicals Corp., Newark, N.J. Systems Dept.

LOW WATTAGE HYDROGEN: AIR FUEL CELLS Final Report, 21 Jun. 1972 - 31 Mar. 1974

O. J. Adhart 1974 49 p

(Contract DAAK02-72-C-0474)

(AD-778550; USAMERDC-21583) Avail: NTIS CSCL 10/1

Low wattage fuel cells based on the matrix type phosphoric acid cell are discussed. Nominal ratings of 5-watts or less are considered. Bottled hydrogen or metal hydrides are used as fuel. Two approaches are taken. One relying on a conventional bipolar cell design with water removal by the air stream. In an alternate approach, metal hydrides are integrated with the fuel cell into a device resembling a primary battery. Hydrogen is generated by reaction of the hydride fuel with the fuel cell product water. Power sources based on the phosphoric acid cell exhibit favorable life characteristics and power densities comparable to or exceeding low rate primary batteries. Author (GRA)

N74-28551# Applied Dynamics Research Corp., Huntsville, Ala. **DYNAMIC MODELING AND ANALYSIS OF LIQUID-METAL MAGNETOHYDRODYNAMIC POWER SYSTEMS** Annual Report, 15 Nov. 1972 - 28 Feb. 1974

Chun Hsu and Ho-Tien Shu Mar. 1974 150 p refs

(Contract N00014-73-C-0195; NR Proj. 274-164)

(AD-778757; NTI/T1065A) Avail: NTIS CSCL 10/2

A comprehensive survey of the current development status of all MHD power cycles was made to assess the relative merit of the various cycles for naval applications. Dynamic System model was formulated to analyze the system performance. First, detailed component model was formulated and component designs were performed to determine the geometric configuration of each component. Next, a method based on variational 27 principle and the steady-state system solutions was developed to determine the component node models. A manageable dynamic system model and a simplified linear system model were then formulated. Finally, system stability analysis on the linear node model was performed to examine the local system stability. Author (GRA)

N74-28552# Bureau of Mines, Laramie, Wyo. Laramie Energy Research Center.

THERMAL DEGRADATION OF GREEN RIVER KEROGEN AT 150 TO 350 C

J. J. Cummins, F. G. Doolittle, and W. E. Robinson 1974 21 p refs

(BM-RI-7924) Avail: NTIS HC \$4.25

The Bureau of Mines heated at 150 to 350 C for 0.5 to 360 days Green River oil shale that had been previously extracted by benzene to provide information on in situ processing conditions, to determine the effect of low-temperature heating on the unconverted kerogen, and to determine the composition of benzene-soluble thermal products. In general, it was concluded that significant increases in the degradation of kerogen to oil occurred between the temperature range of 250 to 350 C; that the composition of the soluble products depends upon the temperature at which they are formed; and that the n-alkanes are pyrolytically degraded from the kerogen structure. In particular, the 250 C heating temperature is beneficial to the formation of branched plus cyclic alkanes. Also, the heated and unconverted oil shale kerogen and the soluble thermal products become more aromatic as the temperature increases from 150 to 350 C. Author

N74-28564# National Center for Energy Management and Power, Philadelphia, Pa.

THERMOCHEMISTRY OF SALT HYDRATES

Geoffrey Belton and Fouad Ajami May 1973 98 p refs

(Grant NSF GI-27876)

(PB-227966/9; NSF-RA/N-73-079)

NSF-RANN/SE/GI-27976/TR-73-4) Avail: NTIS HC \$4.00

CSCL 07D

A description is given of research performed on materials suitable for thermal energy storage (TES) as applied to solar heating and air conditioning of buildings. Criteria for candidate materials are developed, and the various classes of materials that undergo a phase transformation at the required temperatures are briefly reviewed. Most of the data concentrates on one class of materials: inorganic salt hydrates. An extensive literature survey on phase diagrams and thermodynamic properties of salt hydrates was carried out. The kinetics of nucleation of the solid from the melt are considered from the theoretical point of view. It is found that salt hydrates are half-way between the good glass formers and the non-glass formers as a result, it is suggested that the use of outside agents, such as a small weak superionic field, may prevent supercooling. (Modified author abstract) GRA

N74-28816# Wolf Research and Development Corp., Pocomoke City, Md.

APPLICABILITY OF SKYLAB REMOTE SENSING FOR DETECTION AND MONITORING OF SURFACE MINING ACTIVITIES Quarterly Progress Report, 1 Apr. - 30 Jun. 1974

R. L. Brooks, Principal Investigator and J. D. Pennewell Jul. 1974 4 p EREP

(Contract NAS9-13310)

(E74-10572; NASA CR-138647, QPR-5) Avail: NTIS HC \$4.00 CSCL 081

There are no author-identified significant results in this report.

N74-28897# Geological Survey, Washington, D.C.

THE WORLDWIDE SEARCH FOR PETROLEUM OFFSHORE Status Report, 1947 - 1972

Henry L. Berryhill, Jr. 1974 30 p refs

(USGS-CIRC-694) Avail: NTIS

At the end of 1972, offshore petroleum exploration was in progress on the submerged continental margins of 80 countries. Some 780 oil and gas fields had been discovered. Estimated worldwide volume of oil discovered offshore as of January 1, 1973, is 172.8 billion barrels of oil, or about 26 percent of the world total and 168.4 trillion cu ft of natural gas. Present reserves of oil are 135.5 billion barrels, of which 70 percent is in the Persian Gulf. Some 90 percent of the oil discovered offshore has been found in 60 giant fields having reserves of 500 million or more barrels each. Author

N74-28911# Bureau of Mines, Laramie, Wyo. Energy Research Center.

PROPERTIES OF UTAH TAR SANDS: THREEMILE CANYON AREA, P. R. SPRING DEPOSIT

Leland C. Marchant, L. A. Johnson, and C. Q. Cupps 1974 17 p refs

(BM-RI-7923) Avail: NTIS HC \$4.00

Detailed analyses of four cores from the Threemile Canyon area in the P. R. Spring tar sand deposit in Utah are reported. Average properties of the oil zone in the Threemile Canyon area as determined from these cores are as follows: Oil saturation, 67.4 pct of pore volume; porosity, 29.2 pct; permeability before oil extraction, 133 millidarcies, and permeability after oil extraction, 2.855 millidarcies. Average net thickness of the oil zone is 23.8 ft and average depth to the top of the oil zone is 189 ft. Author

N74-28919# Bureau of Mines, Pittsburgh, Pa. Pittsburgh Mining and Safety Research Center

GEOLOGIC STRUCTURE ANALYSIS USING RADAR IMAGERY OF THE COAL MINING AREA OF BUCHANAN COUNTY, VA.

C. H. Elder, P. W. Jeran, and D. A. Keck Jan. 1974 35 p refs

(PB-228689/6, BM-RI-7869) Avail: NTIS HC \$3.25 CSCL 081

An analysis of the geologic structure of an area of Buchanan

County, Va. was made by the Bureau of Mines using imagery from an airborne AN/APO 97 side-looking radar system to evaluate that mapping technique for delineating structural features which may cause mining problems. Side-looking radar (SLAR) was found to be a useful remote sensing tool for geologic structural analysis. Fault and joint systems identified by lineaments and linear patterns in the imagery were verified by surface and in-mine observations. SLAR imagery accurately delineated structural features that are known to affect gas migration and accumulation and that weakened the rock forming the immediate roof to mine workings, causing mining problems. (Modified author abstract)

GRA

N74-28990* National Aeronautics and Space Administration, Lewis Research Center, Cleveland, Ohio.

EVALUATION OF ALLOYS AND COATINGS FOR USE IN AUTOMOBILE THERMAL REACTORS

Charles P. Blankenship and Robert E. Oldrieve. Washington, Jul. 1974. 52 p. refs.

(NASA-TN-D-7699, E 7856) Avail. NTIS HC \$3.75 CSCL 11F

Several candidate alloys and coatings were evaluated for use in automobile thermal reactors. Full-size reactors of the candidate materials were evaluated in cyclic engine dynamometer tests with a peak temperature of 1040 C (1900 F). Two developmental ferritic-iron alloys, GE-1541 and NASA-18T, exhibited the best overall performance by lasting at least 60 percent of the life of test engine. Four of the alloys evaluated warrant consideration for reactor use. They are GE-1541, Armco 18 SR, NASA-18T, and Inconel 601. None of the commercial coating substrate combinations evaluated warrant consideration for reactor use.

Author

N74-29015# Kentucky Univ., Lexington. Inst. for Mining and Minerals Research.

A KENTUCKY COAL UTILIZATION RESEARCH PROGRAM. PROJECT 5: CAKING CHARACTERISTICS OF KENTUCKY COAL. Annual Report, 1 Jul. 1972 - 30 Jun. 1973

Jul. 1974. 53 p. refs. Reprinted

Avail. NTIS HC \$5.75

The caking characteristics of Kentucky coal were evaluated and suggestions were made for the solution to the problem in gasification processes. Prevailing in process caking treatment methods penalties in the form of increased costs, reduced efficiency, or complications in operation. Two caking methods, simultaneous caking and transportation of coal from mine to gasification plant via a coal-water slurry pipeline and using a dilute alkaline solution, were evaluated.

E.H.W.

N74-29207# Air Force Systems Command, Wright-Patterson AFB, Ohio. Foreign Technology Div.

FUEL FOR SUPERSONIC PASSENGER AIRCRAFT

I. P. Blagovidov, I. E. Bespolov, V. M. Vul, K. V. Minkner, V. V. Malyshev, A. A. Tupolev, Ye. R. Tereshchenko, M. D. Khayin, and V. V. Yakolevskiy. 17 Apr. 1974. 16 p. Transl. into ENGLISH of the publ. "Neftyanye Topliva Dlya Dvigateli Vnutrennego Sgoraniya i Gazovyykh Turbin" USSR, 1971 p. 3-13

(AD 778801; FTD HT 23 701 74) Avail. NTIS CSCL 21/4

The feasibility of obtaining a base fuel for supersonic airliners has been examined and the problems of improving the antiwear, anticorrosive, deicing, antistatic and other properties connected with operating conditions have not been touched upon. For these purposes it is possible to use special additives, as well as to saturate fuel with nitrogen.

Author (GRA)

N74-29332# Stuttgart Univ. (West Germany). Inst. fuer Kernenergetik

FEASIBILITY STUDY AND DEVELOPMENT OF A CONSTANT TEMPERATURE HEAT PIPE SYSTEM. PHASE 2: EXPERIMENTAL DESIGN. Final Report

M. Hage. Oct. 1973. 123 p.

(Contract ESTEC-1703/72-SK)

(ESRO-CR(P)-430) Avail. NTIS HC \$9.25

Results of preliminary tests carried out with alternative heat pipe designs, the selection of the prototype design, its analysis, manufacture, and extended theoretical and experimental investigations are presented. According to preliminary tests the modular artery heat pipe concept was chosen for the prototype. Measurements showed that the artery heat pipe suffered a performance degradation by a factor of about 3 when noncondensable gas was present in the heat pipe. Therefore the experimental program was modified and power steps between 20 and 100 watts were applied to the heat pipe instead of power steps between 40 and 200 watts. The agreement between theoretical predictions and experimental results was good for the steady-state as well as the transient behavior. The mechanical analysis of the system indicated that it should be able to withstand launch conditions.

Author (ESRO)

N74-29339* National Aeronautics and Space Administration, Washington, D.C.

SPACESHIP EARTH: A LOOK AHEAD TO A BETTER LIFE

James C. Fletcher. 1973. 29 p. Statement before Senate Comm. on Aeron. and Space Sci., 6 Mar. 1973

(NASA-TM-X-70139) Avail. NASA Office of Public Affairs, Washington, D.C. 20546 CSCL 03C

The text of a prepared statement given before Congress is presented which describes NASA's long range objectives. Emphasis is on the impact and proposed benefits of various space and aeronautical programs which are slated for operational status within the next 10 to 15 years. The programs discussed include improvements or developments in the following: (1) airport congestion; (2) short-haul aircraft capabilities; (3) air cargo systems; (4) hydrogen-fueled aircraft; (5) space shuttle capabilities; (6) space communications; (7) transportation; (8) preventive medicine, rapid diagnostics, and emergency medical care; (9) water and land resources management; (10) air and water pollution control; (11) global weather and disaster alert networks; and (12) space and lunar exploration.

A.A.D.

N74-29342# Library of Congress, Washington, D.C. Environmental Policy Div.

THE IMPACT OF ENERGY SHORTAGES ON US ENVIRONMENTAL STANDARDS

31 Jan. 1974. 54 p. refs.

(TP-450-USB, Rept. 74-78EP) Avail. NTIS HC \$5.75

The desirability of environmental controls regarding the production and use of various fuels is discussed along with the present imbalance in energy supply and demand. Petroleum, natural gas, coal, and nuclear energy are discussed in terms of their availability and consumption rates. The conflict between air quality goals and current emission levels from automobiles and power plants are reviewed, and the environmental trade-offs of nuclear power generation, identified as thermal pollution, air pollution, water pollution, radioactive waste, and the accidental release of radioactive materials, are discussed in terms of their environmental costs. Other topics covered include the problems of power plant siting, and the environmental and economic impacts of development of the Outer Continental Shelf, and surface mining of coal and oil shale in the western United States.

A.A.D.

N74-29343# Library of Congress, Washington, D.C. Environmental Policy Div.

SOME SIMPLE CALCULATIONS TO SUGGEST THE EFFECTS OF SIX NATIONAL POLICIES UPON USE AND SUPPLY OF ENERGY

Warren H. Donnelly. 11 Mar. 1974. 18 p. ref.

(TP-360; Rept. 74-13-EP) Avail. NTIS HC \$4.00

Policy options for total national energy use and supply from domestic and imported sources are considered. Estimated balances for the years 1970, 1975, 1980, and 1985 for domestic and imported energy supplies are presented to illustrate the use that can be made of single energy models, and to test the major

implications of any policies that may be proposed. Synthetic fuel production is considered in the analysis of a policy based on energy independence. Best and worst energy supply situations are also calculated as an additional aid in policy decision making. A.A.D.

gateways for motor common carriers of property, routes, and services in interstate commerce is presented, along with a paper on family household moving. Proposed amendments to the bill are also considered. For Vol. 1, see N74-16662. A.A.D.

N74-29344# Committee on Public Works (U. S. House).
GASOLINE, DIESEL, AND HEATING OIL SHORTAGES
Washington: GPO, 1973. 797 p. refs. Hearings before Comm. on Public Works, 93d Congr., 1st Sess., 24-26 and 31 Jul. and 1 Aug. 1973.
(GPO-24-116) Avail: Subcomm. on Energy

Statistical information and predictions of the future needs and availability of gasoline, diesel, and heating oil energy in the U.S. were presented before a Congressional hearing. Energy consumption is discussed according to industrial uses, transportation, electric power, household, and miscellaneous needs, and the percentages of coal, petroleum, and natural gas involved in that consumption are presented. Statistics are shown for expected increases in demand for each form of energy, and refinery and power plant capacities are commented upon. Estimated reserves of fossil fuels in the U.S., and expected future supply in terms of the law of exponential growth are discussed. An FTC report on its investigation of the petroleum industry is also presented. A.A.D.

N74-29346# Committee on Public Works (U. S. House).
TO CONSERVE ENERGY ON THE NATIONAL SYSTEM OF INTERSTATE AND DEFENSE HIGHWAYS
Washington: GPO, 1973. 97 p. refs. Hearing on H.R. 11372 on Comm. on Public Works, 93d Congr., 1st Sess., 27 Nov. 1973.
(GPO-25-702) Avail: Subcomm. on Energy

A Congressional hearing was conducted to investigate means of conserving energy on the interstate and defense highway systems. The legislation was concerned with establishing a maximum speed limit on any highway on the United States, territories, and possessions. The Secretary of Transportation was given authority to impose the lower speed limits after consulting with the Governor of the jurisdiction involved. Author

N74-29347# Committee on Public Works (U. S. House).
ARCHITECTURAL GUIDELINES TO PROMOTE EFFICIENT ENERGY USE
Washington: GPO, 1973. 38 p. Hearing on H.R. 11714 before Comm. on Public Works, 93d Congr., 1st Sess., 11 Dec. 1973.
(GPO-28-428) Avail: Comm. on Public Works

A Congressional hearing was conducted to provide for the development of improved design lighting, insulation, and architectural standards to promote efficient energy use in residential, commercial, and industrial buildings. The administrator of the General Services Administration in cooperation with the Secretary of Defense, the Secretary of Housing and Urban Development, and the National Bureau of Standards is authorized to carry out the provisions of the legislation. Testimony regarding the need for such action and the benefits to be derived was provided by selected witnesses. Author

N74-29362# Committee on Interior and Insular Affairs (U. S. Senate).
ENERGY EMERGENCY LEGISLATION, PART 2
Washington: GPO, 1973. 403 p. refs. Executive Markup Session and Appendix on S. 2589 before Comm. on Interior and Insular Affairs, 93d Congr., 1st Sess., 9 and 12 Nov. 1973.
(GPO-24-848) Avail: SOD HC \$2.65

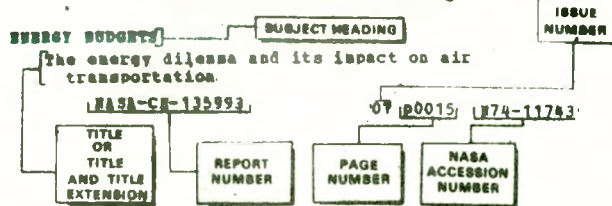
Committee prints of a bill to declare by Congressional action a national energy emergency are presented. Statements of findings and purpose are included with the prints which outline the energy shortages and disruptions of energy supplies which initiated the action. A discussion of the issues follows and includes information on the distillate fuel oil situation during the winter of 1973 and 1974, environmental properties of an alternate high sulphur fuel oil, highway transportation fuel conservation measures, and speed limit authority. The text of a petition for the elimination of gateways for motor common carriers of property, routes, and

SUBJECT INDEX

ENERGY / A Continuing Bibliography (Issue 03)

FEBRUARY 1975

Typical Subject Index Listing



The subject heading is a key to the subject content of the document. The title or title and title extension provides the user with a brief description of the subject matter. The report number helps to indicate the type of document cited (eg. NASA report, translation, NASA contractor report). The issue page and accession numbers are located beneath and to the right of the title eg. 01 p0015 N74-11743. Under any subject heading the accession numbers are arranged in sequence with the IAA accession numbers appearing first.

A

ABSTRACTS

NSF-RANN energy abstracts: A monthly abstract journal of energy research, volume 1, no. 11, November 1973
[ORNL-RES-73-52-VOL-1-NO-11] 03 p0114 N74-27537

AC GENERATORS

Vought variable speed drive --- for windpowered generator 02 p0057 N74-16779
Development of a multipolar inductor utilizing the possibilities of hollow superconductors with supercritical helium circulation --- noting hermetic seal/rotating shaft problems 03 p0101 N74-21921

ACCELERATED LIFE TESTS

Reliability of low-cost CdS/Cu2S solar cells 03 p0084 A74-29823

ACCELEROMETERS

Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973 --- reports on reynolds number effects, energy in transportation, and wave buoy accelerometer [DRE/NAE-1973(3)] 01 p0023 N74-13673

ACCIDENT PREVENTION

Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/ --- Russian book 03 p0092 A74-36137

ACTUATORS

Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems 02 p0041 A74-27136

ADSORPTION

Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /FAC/ 03 p0083 A74-29415

AERIAL PHOTOGRAPHY

Detecting and monitoring oil slicks with aerial photos 03 p0085 A74-33071
Strip-mined watershed hydrologic data acquisition study --- remote infrared aerial photography [PB-223558/8GA] 01 p0025 N74-14105

AERODYNAMIC CHARACTERISTICS

Wind-powered machines --- design, aerodynamic characteristics, and economics [NASA-TT-F-15149] 02 p0045 N74-15742

An introduction to the Princecon sailing windmill 02 p0056 N74-16769
The effect of aerodynamic parameters on power output of windmills 02 p0056 N74-16773

AERODYNAMIC CONFIGURATIONS

Refan program. Phase 1: Summary report [NASA-TN-X-71456] 01 p0009 N74-10043

AERONAUTICAL ENGINEERING

Does research in the field of aeronautics have a future --- emphasis on aircraft design refinements and cost reduction 02 p0041 A74-25723
Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973 --- reports on reynolds number effects, energy in transportation, and wave buoy accelerometer [DRE/NAE-1973(3)] 01 p0023 N74-13673

AEROSPACE ENGINEERING

Utilization of space technology for terrestrial solar power applications 03 p0092 A74-36226

AEROSPACE SCIENCES

Industrial use of aerospace technology 01 p0002 A74-12905

AEROSPACE VEHICLES

Section 4: Propulsion and energy 01 p0026 N74-14671

AFRICA

Review of the results from the Eastern Atlantic Continental Margin Program of the International Decade of Ocean Exploration --- geophysical prospecting and fishing areas [PB-225036/3GA] 02 p0065 N74-18073

AFTERBURNING

The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines 02 p0079 N74-26444

AGREEMENTS

Compact to conserve oil and gas 02 p0053 N74-16668

AGRICULTURE

Utilization of wind power in agriculture in the USSR [NASA-TT-F-15345] 02 p0046 N74-15752
Using the energy of the wind for electrification [NASA-TT-F-15307] 02 p0060 N74-16801
Agriculture and the fuel crisis --- Congressional hearing on fuel crisis problems [GPO-27-899] 03 p0118 N74-28441

AIR CURRENTS

Exploitation of wind energy --- windmill feasibility in industrial applications [NASA-TT-F-15309] 02 p0055 N74-16756

AIR POLLUTION

Conversion of fuel nitrogen to NOx in a compact combustor [ASME PAPER 73-WA/GT-2] 01 p0002 A74-13253
Aviation fuels and lubricants 01 p0006 A74-18180
The jet engine design that can drastically reduce oxides of nitrogen [AIAA PAPER 74-160] 01 p0006 A74-18797
Modelling of combustors - The effects of ambient conditions upon performance 02 p0040 A74-25217

The association of automotive fuel composition with exhaust reactivity [PB-222609/0] 01 p0010 N74-10129

Catalytic combustion of carbon monoxide in gasoline engine exhaust using manganese catalysts [AD-760395] 01 p0011 N74-10874

AIR PURIFICATION

SUBJECT INDEX

Energy demand and its effect on the environment
[P-5048] 01 p0017 W74-11790

Substitute catalysts for platinum in automobile
emission control devices and petroleum refining
[PB-222167/9] 01 p0018 W74-11941

Present air pollution situation in Kawasaki city
and future countermeasures
[KS-27] 01 p0018 W74-12321

Effect of water injection on nitric oxide
emissions of a gas turbine combustor burning
natural gas fuel
[NASA-TM-X-2959] 01 p0025 W74-14651

EPA pollution regulations and fuel shortages: The
impact on mass transit
01 p0027 W74-14690

Aldehyde and reactive organic emissions from motor
vehicles. Part 1: Advanced automotive control
systems vehicles
[PB-224251/9GA] 02 p0050 W74-16332

Aldehyde and reactive organic emissions from motor
vehicles. Part 2: Characterization of
emissions from 1970 through 1973 model vehicles
[PB-224252/7GA] 02 p0050 W74-16333

Assessment of SO2 control alternatives and
implementation patterns for the electric utility
industry
[PB-224119/8GA] 02 p0050 W74-16339

Proceedings, Coal Combustion Seminar --- with
emphasis on control of air pollutant emissions
[PB-224210/5GA] 02 p0051 W74-16627

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975-1976 Federal automobile
emission standards for hydrocarbons and oxides
of nitrogen
[PB-224863/1GA] 02 p0065 W74-18287

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Automotive spark ignition engine emission
control systems to meet the requirements of the
1970 clean air amendments
[PB-224862/3GA] 02 p0065 W74-18288

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975 Federal automobile emission
standard for carbon monoxide, National Academy
of Sciences
[PB-224861/5GA] 02 p0065 W74-18289

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards
[PB-224858/1GA] 02 p0066 W74-18291

NAS report on technological feasibility of
1975-1976 motor vehicle emissions standards.
Manufacturability and costs to proposed
low-emission automotive engine systems
[PB-224864/9GA] 02 p0066 W74-18292

Compilation of air pollutant emission factors
(second edition)
[PB-223996/0GA] 02 p0066 W74-18300

NAS report on technological feasibility of
1975-1976 motor vehicle emissions standards.
Feasibility of meeting the 1975-1976 exhaust
emission standards in actual use
[PB-224865/6GA] 02 p0066 W74-18303

A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 W74-18304

Atmospheric emissions from the petroleum refining
industry
[PB-225040/5GA] 02 p0066 W74-18305

Potential pollutants in fossil fuels
[PB-225039/7GA] 02 p0066 W74-18313

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. An
evaluation of alternative power sources for
low-emission automobiles, National Academy of
Sciences
[PB-224859/9GA] 02 p0067 W74-18406

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Evaluation of catalyst as automotive exhaust
treatment devices, National Academy of Sciences
[PB-224860/7GA] 02 p0067 W74-18407

Air pollution aspects of emission sources:
Petroleum refineries; a bibliography with
abstracts
[AP-110] 02 p0073 W74-19228

Determination of optimal air pollution control
strategies
02 p0073 W74-19229

Report by the Committee on Motor Vehicle Emissions
02 p0073 W74-19240

A study of mandatory engine maintenance for
reducing vehicle exhaust emissions. Volume 7:
A user's manual and guide to the economic
effectiveness computer program
[PB-225161/9GA] 02 p0073 W74-19268

A study of mandatory engine maintenance for
reducing vehicle exhaust emissions. Volume 8:
Experimental characterization of vehicle
emissions and maintenance states
[PB-225026/4GA] 02 p0074 W74-19269

Jet engine exhaust emissions of high altitude
commercial aircraft projected to 1990
[NASA-TM-X-3007] 02 p0079 W74-20591

Transportation controls under the Clean Air Act
--- Congressional investigation of effects of
clean air policy on transportation
[GPO-20-345] 02 p0082 W74-21625

Optimal control of sulfur dioxide emissions at
power stations: Models and a case study
[AD-775392] 03 p0102 W74-22292

The administration's proposal for relaxation of
air pollution standards --- Congressional
hearing on proposals for reducing clean air
standard and effects of sulfur oxides in fuels
[GPO-22-629] 03 p0108 W74-26411

The impact of auto emission standards
[GPO-21-548] 03 p0108 W74-26412

Compilation of air pollutant emission factors,
supplement 1, second edition --- concerning
transportation, storage, and marketing of
petroleum products
[PB-228708/4] 03 p0111 W74-27162

Nondegradation policy of the Clean Air Act ---
Congressional hearing to determine impact of
degradation in cleanliness standards of air and
water
[GPO-20-928] 03 p0111 W74-27438

Compliance with Title 2 (auto emission standards)
of the Clean Air Act
[GPO-25-424] 03 p0118 W74-28445

AIR PURIFICATION

Combustion of the gases methane, LP gas and
ammonia in a mixing reactor --- air pollution
control device
[FOA-1-C-1442-H3] 01 p0022 W74-12824

AIR TO AIR REFUELING

Experimental reel response system for high
performance simplified aerial refueling store
--- operational test of hose reel assembly and
control system
[AD-771389] 02 p0064 W74-17799

AIR TRAFFIC CONTROL

Power conditioning system for FAA Air Route
Traffic Control Centers
01 p0004 W74-14133

The fuel crisis and the controller --- turbojet
aircraft descent trajectories for fuel
consumption reduction
02 p0034 W74-19726

U.S. government airport capacity planning
[SAE PAPER 740474] 03 p0091 W74-35000

Power conditioning system for FAA air route
traffic control centers
01 p0019 W74-12636

AIR TRANSPORTATION

Energy problems in air transportation --- options
for demand reduction, efficiency increase and
fuel alternatives
02 p0033 W74-19479

Airports evolution and qualification
02 p0033 W74-19481

The implications for air transportation of energy
shortage
02 p0033 W74-19486

Fuel state - Expensive
03 p0092 W74-35496

A review of precious resources and their effect on
air transport; Proceedings of the Spring
Convention, London, England, May 15, 16, 1974
03 p0093 W74-36316

Precious resources and air transport - An airline
view --- fuel price increase effects
03 p0093 W74-36322

- Air transport in Europe - Commercial trends and prospects
03 p0093 A74-36327
- The good and bad usages of air transport
03 p0094 A74-36941
- The energy dilemma and its impact on air transportation
[NASA-CR-135993] 01 p0015 M74-11743
- The air transportation/energy system
01 p0016 M74-11745
- Energy conservation and air transportation
01 p0016 M74-11746
- Conclusions and recommendations --- for problems in energy situation, air transportation, and hydrogen fuel
01 p0016 M74-11748
- Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses
[P-5046] 01 p0017 M74-11791
- Where are we headed in air transport? --- trends for future aircraft design
01 p0020 M74-12669
- Air mobility fuel cell study --- desulfurization of JP-4 fuel
[AD-766757] 01 p0022 M74-12742
- Economics of air transport --- direct and indirect costs
[NASA-TT-P-15249] 01 p0026 M74-14682
- AIRCRAFT ENGINE**
Fluid power for aircraft: Modern hydraulic technology /2nd edition/
02 p0036 A74-23376
- AIRCRAFT CONFIGURATIONS**
Dolphin airship with undulatory-flow propulsion - Dynamic lift
03 p0085 A74-33096
- AIRCRAFT CONTROL**
Aircraft symmetric flight optimization --- gradient techniques for supersonic aircraft control
02 p0036 A74-23091
- Flight/propulsion control integration aspects of energy management
[SAE PAPER 740480] 03 p0090 A74-34978
- Advanced controls for commercial transport aircraft --- USAF Control Configured Vehicles and NASA Active Control Technology programs
[SAE PAPER 740453] 03 p0091 A74-35008
- AIRCRAFT DESIGN**
The technology and economics of commercial airplane design. I
01 p0001 A74-10144
- Airline airplanes for the eighties - A response --- emphasizing system efficiency and fuel savings
02 p0036 A74-23464
- Does research in the field of aeronautics have a future --- emphasis on aircraft design refinements and cost reduction
02 p0041 A74-25723
- Where are we headed in air transport? --- trends for future aircraft design
01 p0020 M74-12669
- Aeronautical fuel conservation possibilities for advanced subsonic transports --- application of aeronautical technology for drag and weight reduction
[NASA-TN-X-71927] 02 p0080 M74-20654
- AIRCRAFT ENGINES**
High energy radiography - A new technique in the development of efficiency and integrity in aero gas-turbine engines
02 p0035 A74-21316
- The environment and the gas turbine
02 p0035 A74-21874
- Astafan - A new concept from Turbomeca --- constant speed ducted turbofan engine
02 p0037 A74-24697
- A model of convex programming for turbojet main parameter selection optimization
[ASME PAPER 74-GT-79] 02 p0042 A74-27466
- Engine sensory requirements for energy management
02 p0043 A74-28311
- Fuel system requirements for light aircraft turbocharged reciprocating engines
[SAE PAPER 740382] 03 p0083 A74-28747
- Performance versus cost tradeoffs - Initial look at alternatives --- for aircraft engine fuel cost minimization
[SAE PAPER 740494] 03 p0090 A74-34989
- An approach to aeroengine tradeoff factors
[SAE PAPER 740493] 03 p0091 A74-34990
- Refan program. Phase 1: Summary report
[NASA-TN-X-71456] 01 p0009 M74-10043
- Aviation gas turbine engines (selected portions)
[AD-756810] 01 p0011 M74-10751
- By-pass engines --- characteristics of USSR aircraft engines for jet aircraft
[AD-772723] 02 p0074 M74-19413
- Engine cycle selection for commercial STOL aircraft --- effect of aircraft requirements and operational characteristics on engine parameters
02 p0079 M74-20408
- Problem of the application of turbofan engines in air transport. Methods of increase in efficiency of turbofan engine with high bypass ratios
[AD-773292] 02 p0079 M74-20453
- AIRCRAFT EQUIPMENT**
Disk geometry BHD generator for high voltage high power aircraft requirements
[AD-775749] 03 p0107 M74-26255
- AIRCRAFT FUEL SYSTEMS**
Investigation of the economic efficiency of surplus tanking of aircraft fuel
03 p0085 A74-33092
- Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985
- Aircraft fuel system tests with gelled fuel-flowmeter calibration, fuel boost pump and jettison tests
[FAA-WA-73-43] 01 p0017 M74-11828
- AIRCRAFT FUELS**
The hydrogen fuel economy and aircraft propulsion
[AIAA PAPER 73-1319] 01 p0006 A74-17905
- Aviation fuels and lubricants
01 p0006 A74-18180
- Hydrogen - Make-sense fuel for an American supersonic transport
[AIAA PAPER 74-163] 02 p0033 A74-19353
- Energy problems in air transportation --- options for demand reduction, efficiency increase and fuel alternatives
02 p0033 A74-19479
- The implications for air transportation of energy shortage
02 p0033 A74-19486
- The case for hydrogen-fueled transport aircraft
03 p0083 A74-29452
- Disposal of waste oils at military air bases
[SAE PAPER 740472] 03 p0091 A74-35001
- Fuel state - Expensive
03 p0092 A74-35496
- The development of aircraft as influenced by the shortage of materials and fuel
03 p0093 A74-36319
- Sensitivity of suboptimal fixed-range flight paths --- aircraft fuel consumption dependence on atmospheric parameters
[AIAA PAPER 74-813] 03 p0097 A74-37822
- Aviation turbine fuels, 1972
01 p0014 M74-11592
- Aircraft fuel system tests with gelled fuel-flowmeter calibration, fuel boost pump and jettison tests
[FAA-WA-73-43] 01 p0017 M74-11828
- Prospects for liquid hydrogen fueled commercial aircraft
[PR-37] 02 p0080 M74-20647
- Project POL (Petroleum, Oil, and Lubricants): Optimizing procurement of aviation fuels or defense supply agency
[AD-775053] 03 p0104 M74-22622
- AIRCRAFT HYDRAULIC SYSTEMS**
Fluid power for aircraft: Modern hydraulic technology /2nd edition/
02 p0036 A74-23376
- AIRCRAFT INDUSTRY**
The implications for air transportation of energy shortage
02 p0033 A74-19486
- A review of precious resources and their effect on air transport: Proceedings of the Spring Convention, London, England, May 15, 16, 1974
03 p0093 A74-36316

AIRCRAFT INSTRUMENTS

The development of aircraft as influenced by the shortage of materials and fuel 03 p0093 A74-36319

The economic utilization of resources through aviation --- manhours, land and fuel 03 p0093 A74-36321

Aviation needs and public concerns --- civil aviation growth in Europe and environmental control 01 p0027 A74-14749

AIRCRAFT INSTRUMENTS
Energy management display 03 p0090 A74-34844

AIRCRAFT MAINTENANCE
Fluid power for aircraft: Modern hydraulic technology /2nd edition/ 02 p0036 A74-23376

AIRCRAFT NOISE
Refan program. Phase 1: Summary report [NASA-TN-X-71456] 01 p0009 A74-10043
Aviation needs and public concerns --- discussing noise, fuel and airport problems 02 p0062 A74-17685

AIRCRAFT PERFORMANCE
The case for hydrogen fueled transport aircraft [AIAA PAPER 73-1323] 01 p0002 A74-11315
Performance and noise aspects of supersonic transport 01 p0003 A74-13798
Engine sensory requirements for energy management 02 p0043 A74-28311
Minimum time and minimum fuel flight path sensitivity 03 p0086 A74-33811
Energy management display 03 p0090 A74-34844
Advanced controls for commercial transport aircraft --- USAF Control Configured Vehicles and NASA Active Control Technology programs [SAE PAPER 740453] 03 p0091 A74-35008
Engine cycle selection for commercial STOL aircraft --- effect of aircraft requirements and operational characteristics on engine parameters 02 p0079 A74-20408
Aeronautical fuel conservation possibilities for advanced subsonic transports --- application of aeronautical technology for drag and weight reduction [NASA-TN-X-71927] 02 p0080 A74-20654
P-14 optimum flight modes, volume 1 [AD-775246] 03 p0099 A74-21665
Preliminary performance appraisal of Navy V/STOL transport and search-type airplanes using hydrogen fuel [NASA-TN-X-71550] 03 p0108 A74-26435

AIRLINE OPERATIONS
The technology and economics of commercial airplane design. I 01 p0001 A74-10144
The fuel crisis and the controller --- turbojet aircraft descent trajectories for fuel consumption reduction 02 p0034 A74-19726
The airship can meet the energy challenge 02 p0034 A74-20166
Airline airplanes for the eighties - A response --- emphasizing system efficiency and fuel savings 02 p0036 A74-23464
Precious resources and air transport - An airline view --- fuel price increase effects 03 p0093 A74-36322
Air transport in Europe - Commercial trends and prospects 03 p0093 A74-36327
The potential for energy conservation in commercial air transport [R-1360-NSF] 02 p0070 A74-18606

AIRPORT PLANNING
Airports evolution and qualification 02 p0033 A74-19481
Aaphibian STOL and its facilities [SAE PAPER 740488] 03 p0091 A74-34993
U.S. government airport capacity planning [SAE PAPER 740474] 03 p0091 A74-35000
Aviation needs and public concerns --- discussing noise, fuel and airport problems 02 p0062 A74-17685

SUBJECT INDEX

AIRSHIPS
The airship can meet the energy challenge 02 p0034 A74-20166
The Dolphin airship with undulating propulsion system - A new form of the evaluation factor 02 p0035 A74-22272
Onboard energy sources and propulsion systems for balloons [ONRBA, TP NO. 1311] 02 p0037 A74-24313
Dolphin airship with undulatory-flow propulsion - Dynamic lift 03 p0085 A74-33096

ALABAMA
Investigations using data in Alabama from BRTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments [E74-10124] 01 p0023 A74-13051

ALASKA
Surface wind characteristics of some Aleutian Islands --- for selection of windpowered machine sites 02 p0056 A74-16766
BRTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of BRTS-1 imagery in structural reconnaissance for minerals and petroleum [E74-10345] 02 p0082 A74-20948

ALDEHYDES
Aldehyde and reactive organic emissions from motor vehicles. Part 1: Advanced autoactive control systems vehicles [PB-224251/9GA] 02 p0050 A74-16332
Aldehyde and reactive organic emissions from motor vehicles. Part 2: Characterization of emissions from 1970 through 1973 model vehicles [PB-224252/7GA] 02 p0050 A74-16333

ALTERNATING CURRENT
On the theory of alternating-current electrofluiddynamic converters 01 p0007 A74-18988

ALUMINUM
A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel [NASA-CASE-NFS-22562-1] 02 p0076 A74-19700

ALUMINUM COATINGS
Study of the effect of increased humidity on the mirror coatings of solar energy concentrators 03 p0087 A74-34097

ARMONIA
Design, evaluation and reconnection effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy [NASA-CR-120277] 03 p0119 A74-28536

ARPHIBIAN AIRCRAFT
Aaphibian STOL and its facilities [SAE PAPER 740488] 03 p0091 A74-34993

ANALOG SIMULATION
Solar generator simulation for satellite projects --- analog models of volt-ampere characteristics 02 p0041 A74-26324

ANTENNAS
Antenna towers as wind tower generation plants [NASA-TT-P-15304] 02 p0047 A74-15763

ANTIREFLECTION COATINGS
Vitreous oxide antireflection films in high-efficiency solar cells 01 p0004 A74-14250
Optical coatings for semiconductor photovoltaic converters and solar energy concentrators 02 p0039 A74-24924
Optimum design of antireflection coating for silicon solar cells 03 p0089 A74-34394
Vitreous oxide antireflection films in high-efficiency solar cells 03 p0089 A74-34396

ANTISUBMARINE WARFARE
Helicopter applications at sea 02 p0034 A74-19690

APPROPRIATIONS
NASA authorization for fiscal year 1975, part 3 [GPO-31-919] 03 p0107 A74-26405

APSIDES
Effect of the sun, the moon and solar radiation pressure on a near-equatorial synchronous satellite 01 p0003 A74-13559

- ARC HEATING**
Heating of a substance by an arc plasma
01 p0001 A74-10463
- ARGON PLASMA**
Characteristics of a nonequilibrium MHD generator
01 p0005 A74-17439
Loss mechanisms in an MHD generator --- Book on
argon plasma nonequilibrium Faraday generator
efficiency
02 p0033 A74-19455
- ARMED FORCES (UNITED STATES)**
Project POL (Petroleum, Oil, and Lubricants):
Optimizing procurement of aviation fuels or
defense supply agency
[AD-775053] 03 p0104 A74-22622
- ARTIFICIAL SATELLITES**
A computer program to determine geoelectric
parameters for the AFM solar arrays
[NASA-TN-X-70656] 03 p0106 A74-25619
- ASBESTOS**
Low gas temperature solution to high resistivity
ash problems --- flue gas temperature effect on
efficiency of electrostatic precipitator
03 p0116 A74-28027
Collecting fly ash from western low sulfur coals
--- by using scrubbers in flue gas stream
03 p0116 A74-28028
Pilot study of electrostatic precipitation for
removing fly ash at Basin Electric's Leland Olds
Station
03 p0116 A74-28029
- ATLANTIC OCEAN**
Review of the results from the Eastern Atlantic
Continental Margin Program of the International
Decade of Ocean Exploration --- geophysical
prospecting and fishing areas
[PB-225036/3GA] 02 p0065 A74-18073
Review of the results from the eastern Atlantic
continental margin program of the international
decade of ocean exploration
[PB-226580/9GA] 03 p0102 A74-22091
Action in the Atlantic: A vital step for our
nation's energy and environmental needs
[G-70172-10088.73-408] 03 p0111 A74-26873
- ATMOSPHERIC DIFFUSION**
A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 A74-18304
- ATMOSPHERIC MODELS**
A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 A74-18304
- ATMOSPHERIC THERMODYNAMICS**
Exploitation of wind energy --- windmill
feasibility in industrial applications
[NASA-TT-P-15309] 02 p0055 A74-16756
- ATTITUDE CONTROL**
Photosensitive elements for solar sensors
01 p0005 A74-17296
- AUSTRALIA**
Electricity: The conversion industry
[NP-19837] 02 p0072 A74-18730
Energy resources and usage --- production planning
in Australia
[ER-2] 03 p0114 A74-27536
- AUTOMOBILE ENGINES**
The association of automotive fuel composition
with exhaust reactivity
[PB-222609/0] 01 p0010 A74-10129
Vapor generator feed pump for Rankine cycle
automotive propulsion system (Chandler Evans)
[PB-222849/2] 01 p0011 A74-10747
Aldehyde and reactive organic emissions from motor
vehicles. Part 1: Advanced automotive control
systems vehicles
[PB-224251/9GA] 02 p0050 A74-16332
Aldehyde and reactive organic emissions from motor
vehicles. Part 2: Characterization of
emissions from 1970 through 1973 model vehicles
[PB-224252/7GA] 02 p0050 A74-16333
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975-1976 Federal automobile
emission standards for hydrocarbons and oxides
of nitrogen
[PB-224863/1GA] 02 p0065 A74-18287
- NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Automotive spark ignition engine emission
control systems to meet the requirements of the
1970 clean air amendments
[PB-224862/3GA] 02 p0065 A74-18288
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975 Federal automobile emission
standard for carbon monoxide, National Academy
of Sciences
[PB-224861/5GA] 02 p0065 A74-18289
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards
[PB-224858/1GA] 02 p0066 A74-18291
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Manufacturability and costs to proposed
low-emission automotive engine systems
[PB-224864/9GA] 02 p0066 A74-18292
Characterization of particulates and other
non-regulated emissions from mobile sources and
the effects of exhaust emissions control devices
on these emissions
[PB-224243/6GA] 02 p0066 A74-18294
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Feasibility of meeting the 1975-1976 exhaust
emission standards in actual use
[PB-224865/6GA] 02 p0066 A74-18303
A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 A74-18304
NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. An
evaluation of alternative power sources for
low-emission automobiles, National Academy of
Sciences
[PB-224859/9GA] 02 p0067 A74-18406
Low NOx emission combustor development for
automobile gas turbine engines
[PB-225133/8GA] 02 p0067 A74-18410
Report by the Committee on Motor Vehicle Emissions
02 p0073 A74-19240
- A study of mandatory engine maintenance for
reducing vehicle exhaust emissions. Volume 7:
A user's manual and guide to the economic
effectiveness computer program
[PB-225161/9GA] 02 p0073 A74-19268
A study of mandatory engine maintenance for
reducing vehicle exhaust emissions. Volume 8:
Experimental characterization of vehicle
emissions and maintenance states
[PB-225026/4GA] 02 p0074 A74-19269
Oxygenates in automotive exhausts. Effect of an
oxidation catalyst
[PB-227097/3] 03 p0105 A74-23190
Cost and performance of automotive emission
control technologies
[EQL-HEHO-7] 03 p0107 A74-26244
The impact of auto emission standards
[GPO-21-548] 03 p0108 A74-26412
A semi-Delphi exercise on substitute catalysts for
platinum in automobile emission control devices
and petroleum refining
[NAB-314] 03 p0110 A74-26641
Air pollution from motor vehicles
[APTIC-41654] 03 p0111 A74-27068
Air pollution from motor vehicles, appendices
[APTIC-41655-APP] 03 p0111 A74-27089
Design and evaluation of experimental ceramic
automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 A74-28035
Compliance with Title 2 (auto emission standards)
of the Clean Air Act
[GPO-25-424] 03 p0118 A74-28445
Evaluation of alloys and coatings for use in
automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 A74-28990
- AUTOMOBILE FUELS**
Natural gas as an automotive fuel, an experimental
study
[BN-MI-7806] 01 p0011 A74-10715
Performance of Army engines with leaded and
unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 A74-17523

AUTOMOBILES

- Future propulsion techniques for ground transport
03 p0093 A74-36320
- Electric vehicle battery research and development
[NASA-TN-X-71471] 01 p0012 A74-10946
- Substitute catalysts for platinum in automobile
emission control devices and petroleum refining
[PB-222167/9] 01 p0018 A74-11941
- Exploratory development of a glass ceramic
automobile thermal reactor --- anti-pollution
devices
[NASA-CN-134513] 01 p0019 A74-12447
- Wind power demonstration and siting problems ---
for recharging electrically driven automobiles
02 p0056 A74-16765
- Determining the effects of gasoline price on use
of metals in automobile manufacture
[RM-RI-7871] 02 p0062 A74-17666
- NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Evaluation of catalyst as automotive exhaust
treatment devices, National Academy of Sciences
[PB-224860/7GA] 02 p0067 A74-18407
- Transportation controls under the Clean Air Act
--- Congressional investigation of effects of
clean air policy on transportation
[GPO-20-345] 02 p0082 A74-21625
- Control of gasoline vapor losses from station and
vehicle filling --- economics of vapor recovery
systems
[EOL-MEMO-5] 03 p0101 A74-21771
- AUXILIARY POWER SOURCES**
Investigation of chemical APU application for
small ground power sources
[AD-765724] 01 p0009 A74-10082
- Air mobility fuel cell study --- desulfurization
of JP-4 fuel
[AD-766757] 01 p0022 A74-12742
- AVAILABILITY**
Projected availability of motor gasoline and
distillate fuels, 1975 - 1985
[AD-775859] 03 p0107 A74-26239
- AXIAL FLOW**
Electrohydrodynamic heat pipe experiments
03 p0084 A74-30335

B

- BALLOON FLIGHT**
Study of fuel cell system for powered balloon ---
reusable powerplants
[AD-766253] 01 p0009 A74-10083
- BALLOON SOUNDING**
The use of the pressurized balloon for detecting
energy resources
02 p0033 A74-19473
- Solar generators for sounding balloons
02 p0040 A74-24940
- BALLOONS**
Solid state hydrogen gas generator --- rocket
deployed balloons inflation
[AIAA PAPER 73-1232] 01 p0001 A74-11257
- BEARINGS**
Bearings for power station plant. A selective
bibliography, 1960 - September 1973
[CE-EIE-28B.1] 02 p0073 A74-19113
- BEDS (PROCESS ENGINEERING)**
Monocaking coal gasified in a stirred-bed producer
[BM-TPB-77] 02 p0073 A74-19117
- BIBLIOGRAPHIES**
Energy: Compiled bibliography and tables of world
resources, consumption, and wastes
[LFP-63/73] 01 p0010 A74-10391
- Energy R and D inventory data base. Bibliography,
1973
01 p0017 A74-11849
- Selected list of Bureau of Mines publications on
petroleum and natural gas, 1961-1970
[BM-IC-8544] 01 p0032 A74-15691
- A bibliography of non-technical literature on energy
02 p0051 A74-16641
- A bibliography of Congressional publications on
energy from the 89th Congress to 1 July 1971
02 p0051 A74-16642
- Econometric models: Their application to the
economic and energy sectors
[CE-EIE-220] 02 p0062 A74-17660

- NSF-RANN energy abstracts: A monthly abstract
journal of energy research
[ORNL-EIS-73-52-VOL-1-NO-9] 02 p0062 A74-17680
- Energy conversion --- bibliography
[AD-771750] 02 p0071 A74-18638
- Bearings for power station plant. A selective
bibliography, 1960 - September 1973
[CE-EIE-28B.1] 02 p0073 A74-19113
- Air pollution aspects of emission sources:
Petroleum refineries; a bibliography with
abstracts
[AP-110] 02 p0073 A74-19228
- Energy research and development: A selected
reading list
[ORNL-EIS-73-65] 02 p0080 A74-20627
- Energy sources - Citations from the early DDC
collections
[AD-773325] 02 p0081 A74-20705
- NSF-RANN energy abstracts: A monthly abstract
journal of energy research, volume 1, no. 11,
November 1973
[ORNL-EIS-73-52-VOL-1-NO-11] 03 p0114 A74-27537
- BIOELECTRICITY**
Solar energy by photosynthesis --- technological
conversion systems modeled on photosynthesis
02 p0042 A74-27322
- BIOLOGICAL EFFECTS**
Key issues in offshore oil
03 p0115 A74-27828
- BIOSYNTHESIS**
Clean fuels from biomass --- feasibility of
converting plant systems to fuels
[NASA-TN-X-71538] 02 p0077 A74-19706
- BITUMENS**
Bitumen-bearing rocks --- as potential energy
sources
01 p0028 A74-15226
- Technology and use of lignite --- conference on
coal utilization utilization for power plants
[BM-IC-8543] 03 p0115 A74-28020
- BLADES**
Observations on modern wind-electric power plants
--- in Italy during post-war reconstruction
[NASA-TT-F-15357] 02 p0045 A74-15745
- BOILERS**
Energy recovery from waste: Solid waste as
supplementary fuel in power plant boilers
[SW-36D.II] 02 p0076 A74-19699
- BOLIVIA**
Petroleum exploration subprogram: Geological
interpretation of proportional imagery from
ERTS-A satellite
[E74-10213] 01 p0028 A74-15020
- Oil exploration subprogram geological
interpretation of images provided by the ERTS-A
satellite --- Bolivia
[NASA-TT-F-15265] 01 p0028 A74-15070
- BOUNDARY LAYER CONTROL**
On the theory of alternating-current
electrofluiddynamic converters
01 p0007 A74-18988
- Boundary layer control in two-phase liquid-metal
MHD generators
03 p0096 A74-37620
- BOUNDARY LAYER FLOW**
Effects of the development of boundary layers on a
Faraday MHD generator
03 p0096 A74-37621
- Design considerations for the airframe-integrated
scramjet
[NASA-TN-X-2895] 01 p0019 A74-12448
- BOUNDARY LAYERS**
Passage of current through boundary layers --- and
gas dynamic parameters of a magnetohydrodynamic
generator
[AD-775138] 03 p0102 A74-22372
- BOUNDARY LUBRICATION**
Aviation turbine fuel and its lubricating
qualities. II
02 p0035 A74-22271
- BOUNDARY VALUE PROBLEMS**
Optimization of open cycle power plant MHD generator
03 p0095 A74-37610
- BRAYTON CYCLE**
Adaptability of the closed Brayton gas turbine to
utility power plants
[REPT-7J-310448] 03 p0111 A74-27280

BREEDER REACTORS

- Nuclear eclectic power --- selective assessment of plant and reactor types 02 p0041 A74-27320
- Comparative evaluation of solar, fission, fusion, and fossil energy resources, part 3 [NASA-CN-138117] 03 p0103 A74-22590

BENCHMETS

- Design, evaluation and recommendation effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy [NASA-CN-120277] 03 p0119 A74-28536

BUCKETS

- Bucket rotor wind-driven generator 02 p0057 A74-16776

BUDGETING

- NASA authorization for fiscal year 1975, part 3 [SPO-31-919] 03 p0107 A74-26405

BUILDINGS

- Wind power systems for individual applications --- electric power supplies for homes 02 p0058 A74-16788
- Technical options for energy conservation in buildings [NBS-TN-789] 02 p0071 A74-18724
- Solar Heating and Cooling Demonstration Act [GPO-27-370] 03 p0100 A74-21683
- Solar heated and cooled office building for the Massachusetts Audubon Society: Initial planning and design [C-75457] 03 p0103 A74-22602
- The development of a solar-powered residential heating and cooling system [NASA-TN-X-70089] 03 p0108 A74-26504
- Transcript of talk on solar energy --- for community development [SLA-73-1025] 03 p0109 A74-26515

BOOYS

- A wind plant to power sea signals [NASA-TT-F-15356] 02 p0060 A74-16803

C

CADMIUM SULFIDES

- Results and future prospects on photovoltaic power development in France 02 p0037 A74-24904
- New technology for CdS-Cu₂S solar cells of high reliability 02 p0038 A74-24910
- The present potential of CdS solar cells as a future contender for photovoltaic space and terrestrial power applications 02 p0038 A74-24911
- Partial results concerning CdS solar cells 02 p0038 A74-24914
- Terrestrial utilization of CdS-Cu₂S solar photocells in the south of France 02 p0038 A74-24915
- On inhomogeneities of thin film solar cells 02 p0039 A74-24918
- Current prospects for solar cells 02 p0040 A74-24943
- Photoelectric converters based on various CdS heterojunctions 02 p0042 A74-27752
- Heterogeneous solar converters based on polycrystalline cadmium sulfide and selenide [AD-776551] 03 p0107 A74-25623
- Effect of shading on CdS/Cu₂S solar cells and optimal solar array design [PB-227900/8] 03 p0110 A74-26522

CALCULUS OF VARIATIONS

- The effect of magnetic field upon the output performance of segmented-open type HED generator 03 p0095 A74-37609

CALIBRATING

- Current delivered by the solar array of the D2A-Tourneval satellite 02 p0039 A74-24928

CALIFORNIA

- A methodology for projecting the electrical energy demand of the manufacturing sector in California [R-991-NSF/CSRA] 02 p0053 A74-16673
- Fuel from organic matter: Possibilities for the state of California [P-5107] 02 p0054 A74-16674

- A methodology for projecting the electrical energy demand of the commercial sector in California [R-1106-NSF/CSRA] 02 p0054 A74-16679
- Meeting California's energy requirements, 1975-2000 02 p0076 A74-19629
- Final environmental statement for the geothermal leasing program. Volume 2: Leasing of geothermal resources in three California areas 02 p0078 A74-19975
- Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system [P-5146] 02 p0080 A74-20621
- Coping with the fuel shortage: A guide for Los Angeles residents [P-5154] 02 p0080 A74-20622
- Elasticity of demand for gasoline in the south coast air basin [BQL-MEMO-10] 03 p0102 A74-22581
- Trends of energy use in California and the south coast air basin [BQL-MEMO-6] 03 p0103 A74-22592
- Energy alternatives for California: The current crisis. 2: Conservation of energy [P-5156] 03 p0103 A74-22595
- Energy alternatives for California: The current crisis. 3: Allocation of scarce supplies [P-5157] 03 p0103 A74-22596

CANADA

- ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum [E74-10345] 02 p0082 A74-20948
- The energy crisis: Impact of Canadian policies [GPO-27-709] 03 p0118 A74-28440

CAPILLARY FLOW

- Heat pipes --- using low thermoconductive and boiling point working fluids 03 p0083 A74-29445
- Electrohydrodynamic heat pipe experiments 03 p0084 A74-30335

CARBON

- Cost effectiveness of tungsten carbide-carbon fuel cells [NASA-TT-F-15748] 03 p0120 A74-28543

CARBON DIOXIDE

- Physical behaviour of some bio-waste gases in an ion engine [AIAA PAPER 73-1113] 01 p0001 A74-10691

CARBON MONOXIDE

- Oxidation of carbon monoxide in diluted combustion products at engine idling conditions 02 p0041 A74-25221
- Hydrogen production by reforming processes - The alternatives and economics 03 p0086 A74-33992
- Catalytic combustion of carbon monoxide in gasoline engine exhaust using manganese catalysts [AD-760395] 01 p0011 A74-10874
- Liquefaction of lignite with carbon monoxide and water --- temperature and pressure effects 03 p0115 A74-28023

CARBONIZATION

- Carbonization and hydrogenation of coal --- application to developing economies [ID/86] 03 p0105 A74-23072

CARGO AIRCRAFT

- The airship can meet the energy challenge 02 p0034 A74-20166

CATALYSIS

- ARPA Workshop on Needs of the Department of Defense for Catalysis, Volume 2 [AD-777734] 03 p0114 A74-27610

CATALYSTS

- Catalytic combustion of carbon monoxide in gasoline engine exhaust using manganese catalysts [AD-760395] 01 p0011 A74-10874
- Substitute catalysts for platinum in automobile emission control devices and petroleum refining [PB-222167/9] 01 p0018 A74-11941
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. Evaluation of catalyst as automotive exhaust treatment devices, National Academy of Sciences [PB-224860/76A] 02 p0067 A74-18407
- The 1.5-kW fuel cell powerplant catalyst investigation [AD-774274] 02 p0081 A74-20710

CATALYTIC ACTIVITY

SUBJECT INDEX

Oxygenates in automotive exhausts. Effect of an oxidation catalyst
[PB-227097/3] 03 p0105 N74-23190

A semi-Delphi exercise on substitute catalysts for platinum in automobile emission control devices and petroleum refining
[NAB-314] 03 p0110 N74-26641

CATALYTIC ACTIVITY
The refining of turbine fuels by modern hydrotreating
[AIAA PAPER 74-162] 01 p0006 A74-18798

Hydrogen production by reforming processes - The alternatives and economics 03 p0086 A74-33992

CENTRIFUGAL FORCE
Purification of fuel oils by centrifugal force 02 p0034 A74-20216

CERAMICS
Exploratory development of a glass ceramic automobile thermal reactor --- anti-pollution devices
[NASA-CR-134513] 01 p0019 N74-12447

Application of phase transitions to the electrochemical energy conversion --- in ferroelectric ceramics
[ISL-CO-2/73] 03 p0105 N74-23327

Design and evaluation of experimental ceramic automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 N74-28035

CESIUM DIODES
Thermionic energy conversion. Volume I - Processes and devices --- Book 01 p0004 A74-14327

CESIUM VAPOR
Electric power generation system directly from laser power
[NASA-CASE-WPO-13308-1] 02 p0077 N74-19702

CHANNEL FLOW
Qualitative analysis of the efficiency of MHD energy conversion 01 p0003 A74-13944

Investigation of heat exchange in an MHD generator channel 03 p0086 A74-33565

Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits 03 p0095 A74-37608

The time dependent magnetohydrodynamic generator 03 p0096 A74-37615

Wall roughness and area variation effects in high subsonic MHD generator channels 03 p0096 A74-37616

The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37619

CHARGED PARTICLES
A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors 03 p0087 A74-34093

CHEMICAL ANALYSIS
Aviation turbine fuels, 1972 01 p0014 N74-11592

CHEMICAL PROPERTIES
Performance of Army engines with leaded and unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 N74-17523

CHEMICAL REACTION CONTROL
PSA hydrogen plants - How well have they performed --- Pressure Swing Adsorption production method 03 p0087 A74-33994

CHEMICAL REACTIONS
Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels 02 p0036 A74-23221

Hydrogen production by reforming processes - The alternatives and economics 03 p0086 A74-33992

CHROMATOGRAPHY
Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /FAC/ 03 p0083 A74-29415

CIRCUIT BREAKERS

Description of the energy source project delivering 1 megajoule in 1 microsecond --- noting high efficiency magnetic energy transfer by mutually coupled inductances and fast response electromechanical circuit breakers
[LF-3] 02 p0061 N74-17454

CISLUNAR SPACE

Industrial evolution and revolution in the cislunar space, 1980 - 2010
[ASTRONAUT-PB-32] 03 p0111 N74-27353

CIVIL AVIATION

Airports evolution and qualification 02 p0033 A74-19481

Helicopter applications at sea 02 p0034 A74-19690

New frontiers of civil aeronautics 02 p0041 A74-25352

The economic utilisation of resources through aviation --- manhours, land and fuel 03 p0093 A74-36321

Aviation needs and public concerns --- civil aviation growth in Europe and environmental control 01 p0027 N74-14749

Aviation needs and public concerns --- discussing noise, fuel and airport problems 02 p0062 N74-17685

CLEAN ENERGY

Clean fuels from biomass --- cellulose fermentation to methane 03 p0084 A74-30101

Mechanisms for achieving cleaner power, prices, regulations --- energy policy 02 p0069 N74-18596

CLIMATOLOGY

Direct energy conversion by means of solar cells 02 p0040 A74-24937

CLOSED CYCLES

Thermochemical hydrogen generation --- closed cycle processes selection 03 p0094 A74-36411

Ionisation, recombination and voltage drop measurements in a closed cycle MHD generator 03 p0096 A74-37622

Closed cycle MHD power generation experiments in the NASA Lewis facility 03 p0097 A74-37625

COAL

Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry --- Indiana
[E74-10083] 01 p0014 N74-11195

Directional properties of coal and their utilization in underground gasification experiments
[BH-TPR-73] 01 p0018 N74-12159

Coal 01 p0028 N74-15230

Factors affecting the use of coal in present and future energy makers --- background paper for Congressional investigation of earth resources and energy policies 01 p0031 N74-15684

Analyses of tars, char, gases, and water found in effluents from the synthane process
[BH-TPR-76] 02 p0049 N74-15808

Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry --- Indiana
[E74-10238] 02 p0049 N74-16007

An economic evaluation of MHD-steam powerplants employing coal gasification
[BH-EL-7796] 02 p0051 N74-16620

Proceedings, Coal Combustion Seminar --- with emphasis on control of air pollutant emissions
[PB-224210/56A] 02 p0051 N74-16627

Balancing the demand and supply of coal 02 p0052 N74-16658

Kinetics of coal gasification in a low pressure, low residence time, entrained flow reactor 02 p0061 N74-17190

Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10336] 02 p0065 N74-18012

- Fracture of coal and oil shale for in situ processing or remote removal: A proposal support document
[SLA-73-946] 02 p0073 N74-19047
- Noncaking coal gasified in a stirred-bed producer
[BM-TPH-77] 02 p0073 N74-19117
- Energy program, 1972
[BM-IC-8612] 02 p0080 N74-20619
- Automated strip-mine and reclamation sapping from ERTS
[E74-10490] 03 p0101 N74-22014
- Carbonization and hydrogenation of coal --- application to developing economies
[ID/86] 03 p0105 N74-23072
- Coal policy issues. Part 2: Appendix 3: Additional statements received for the record
[GPO-20-768] 03 p0112 N74-27450
- Clean energy from coal technology 03 p0113 N74-27524
- Pollution-free electrochemical power generation from low grade coal
[PB-228006/3] 03 p0114 N74-27543
- Technology and use of lignite --- conference on coal utilization utilization for power plants
[BM-IC-8543] 03 p0115 N74-28020
- A progress report on coal mine health and safety 03 p0115 N74-28021
- Use of western coal and air water quality control by Minnesota Power and Light Company
03 p0116 N74-28024
- Low gas temperature solution to high resistivity ash problems --- flue gas temperature effect on efficiency of electrostatic precipitator
03 p0116 N74-28027
- Collecting fly ash from western low sulfur coals --- by using scrubbers in flue gas stream
03 p0116 N74-28028
- Pilot study of electrostatic precipitation for removing fly ash at Basin Electric's Leland Olds Station
03 p0116 N74-28029
- Lignite and the cyclone burner in a new 235-mw generating station
03 p0116 N74-28031
- Detailed construction and equipment costs for the 235- mw Milton R. Young Generating Station
03 p0117 N74-28032
- The Western Kentucky Coal Industry: An economic analysis
[UKY-TR76-73-1NMR1] 03 p0118 N74-28439
- Coal: Bituminous and lignite in 1972
03 p0120 N74-28545
- Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va.
[PB-228689/6] 03 p0121 N74-28919
- COAL GASIFICATION**
- Noncaking coal gasified in a stirred-bed producer
[BM-TPH-77] 02 p0073 N74-19117
- Impacts of new energy technology, using generalized input-output analysis --- coal gasification
[PB-226139/4GA] 03 p0101 N74-21697
- A Kentucky coal utilization research program. Project 3: Low BTU gas and solid desulfurized fuel --- low cost production methods
03 p0113 N74-27529
- A Kentucky coal utilization research program. Project 5: Caking characteristics of Kentucky coal
03 p0122 N74-29015
- COAL LIQUEFACTION**
- A Kentucky coal utilization research program. Project 4: Measurement of inhibition isotherms for Kentucky coal --- considering organic sulfur and pyritic sulfur removal
03 p0113 N74-27530
- A Kentucky coal utilization research program: Summary of first year progress and accomplishments --- cost controlling processing stages in coal liquefaction
03 p0113 N74-27531
- Pipeline transport of liquid coal
03 p0115 N74-28022
- Liquefaction of lignite with carbon monoxide and water --- temperature and pressure effects
03 p0115 N74-28023
- COEFFICIENT OF FRICTION**
- Investigation of heat exchange in an MHD generator channel
03 p0086 A74-33565
- COLORADO**
- ERTS-1 imagery use in reconnaissance prospecting: Evaluation of the commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum --- interpretation of Colorado region
[E74-10007] 01 p0013 N74-11148
- ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
[E74-10345] 02 p0082 N74-20948
- Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography
[E74-10508] 03 p0105 N74-22955
- COMBUSTION CHAMBERS**
- Modelling of combustors - The effects of ambient conditions upon performance
02 p0040 A74-25217
- Combustion of the gases methane, LP gas and ammonia in a mixing reactor --- air pollution control device
[FOA-1-C-1442-M3] 01 p0022 N74-12824
- Low NOx emission combustor development for automobile gas turbine engines
[PB-225133/8GA] 02 p0067 N74-18414
- The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines
02 p0079 N74-20444
- COMBUSTION EFFICIENCY**
- The hydrogen fuel economy and aircraft propulsion
[AIAA PAPER 73-1319] 01 p0006 A74-17905
- Modelling of combustors - The effects of ambient conditions upon performance
02 p0040 A74-25217
- Low energy gas utilization in combustion gas turbine
01 p0029 N74-15447
- Aeronautical fuel conservation possibilities for advanced subsonic transports --- application of aeronautical technology for drag and weight reduction
[NASA-TN-X-71927] 02 p0080 N74-20654
- Lignite and the cyclone burner in a new 235-mw generating station
03 p0116 N74-28031
- Detailed construction and equipment costs for the 235- mw Milton R. Young Generating Station
03 p0117 N74-28032
- COMBUSTION PRODUCTS**
- Conversion of fuel nitrogen to NOx in a compact combustor
[ASME PAPER 73-WA/GT-2] 01 p0002 A74-13293
- Oxidation of carbon monoxide in diluted combustion products at engine idling conditions
02 p0041 A74-25221
- Proceedings, Coal Combustion Seminar --- with emphasis on control of air pollutant emissions
[PB-224210/5GA] 02 p0051 N74-16627
- Compilation of air pollutant emission factors (second edition)
[PB-223996/0GA] 02 p0066 N74-18530
- Use of western coal and air water quality control by Minnesota Power and Light Company
03 p0116 N74-28024
- Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion
03 p0116 N74-28026
- CONSUMPTION**
- Sales of fuel oil and kerosine in 1972
03 p0119 N74-28463
- COMMERCIAL AIRCRAFT**
- The technology and economics of commercial airplane design. I
01 p0001 A74-10144
- Airports evolution and qualification
02 p0033 A74-19491
- Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985

- Advanced controls for commercial transport aircraft
--- USAF Control Configured Vehicles and NASA
Active Control Technology programs
[SAB PAPER 740453] 03 p0091 A74-35008
- Engine cycle selection for commercial STOL aircraft
--- effect of aircraft requirements and
operational characteristics on engine parameters
02 p0079 W74-20408
- Jet engine exhaust emissions of high altitude
commercial aircraft projected to 1990
[NASA-TN-X-3007] 02 p0079 W74-20591
- Prospects for liquid hydrogen fueled commercial
aircraft
[PR-37] 02 p0080 W74-20647
- Economic effects of propulsion system technology
on existing and future transport aircraft
[NASA-CR-134645] 03 p0117 W74-26230
- COMMUNICATION SATELLITES**
The solar generator of the telecommunication
satellite Symphonie
02 p0039 A74-24933
- Power sources --- solar arrays for CNES
applications satellites
03 p0084 A74-29949
- COMMUNICATIONS TECHNOLOGY SATELLITE**
Layout and technology of the CTS solar array blanket
--- Communications Technology Satellite
03 p0089 A74-34412
- COMPUTATION**
Possibility of computing thermoelectric
batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 W74-10084
- COMPOSITE MATERIALS**
Matrices for H3PO4 fuel cells
[AD-766312] 01 p0010 W74-10086
- Superflywheel energy storage system --- for
windpowered machines
02 p0058 W74-16783
- COMPRESSED AIR**
Energy storage by compressed air --- using
windpowered pumps
02 p0058 W74-16785
- COMPUTER GRAPHICS**
Automated strip-mine and reclamation mapping from
ERTS
[E74-10490] 03 p0101 W74-22014
- COMPUTER PROGRAMMING**
Calculations on a solar energy system --- for
electric power and heat generation in buildings
[LBI-1773] 01 p0023 W74-13538
- COMPUTER PROGRAMS**
Manergy: An energy management model of the United
States for the prediction of energy demand,
resource consumption, environmental effects, the
assessment of new technology, and energy
resource alternatives
01 p0026 W74-14665
- Computer program for thermodynamic analysis of
open cycle multishaft power system with multiple
reheat and intercool
[NASA-TN-D-7589] 02 p0071 W74-18727
- COMPUTERIZED DESIGN**
A two-dimensional dynamic programming method for
the optimization of diagonal conducting wall
magnetohydrodynamic generators
03 p0095 A74-37607
- Trends in the mechanization of the coal industry
and guarantee of patent-ability of designs that
are competitive on the world technological level
--- computerized data retrieval system for
development of hydraulic equipment
01 p0016 W74-11759
- COMPUTERIZED SIMULATION**
Wall roughness and area variation effects in high
subsonic MHD generator channels
03 p0096 A74-37616
- Computer simulation of world dynamics and
implications for policy decisions --- social
issues in energy policies
02 p0068 W74-18585
- Remarks --- computerized simulation of energy
demands and financial management
02 p0068 W74-18589
- A study of mandatory engine maintenance for
reducing vehicle exhaust emissions. Volume 7:
A user's manual and guide to the economic
effectiveness computer program
[PB-225161/9GA] 02 p0073 W74-19268
- The policy effects analysis method: A system
dynamics simulation study of the defense fuel
supply system
[P-5129] 03 p0103 W74-22598
- CONCENTRATORS**
Theoretical performance of cylindrical parabolic
solar concentrators
01 p0001 A74-10026
- CONDUCTIVE HEAT TRANSFER**
Thermal control range associated with heat pipe
cycling
03 p0092 A74-36232
- CONFERENCES**
Cryogenic Engineering Conference, University of
Colorado, Boulder, Colo., August 9-11, 1972,
Proceedings
01 p0003 A74-14043
- The second fifteen years in space; Proceedings of
the Eleventh Goddard Memorial Symposium,
Washington, D.C., March 8, 9, 1973
01 p0004 A74-14463
- Photovoltaic power and its applications in space
and on earth; International Congress on the Sun
in the Service of Man, Paris, France, July 2-6,
1973, Proceedings
02 p0037 A74-24901
- Nuclear Science Symposium, 20th, and Nuclear Power
Systems Symposium, 5th, San Francisco, Calif.,
November 14-16, 1973, Proceedings
02 p0041 A74-25901
- Symposium on Engineering Problems of Fusion
Research, 5th, Princeton University, Princeton,
N.J., November 5-9, 1973, Proceedings
03 p0087 A74-34050
- Developments in laser technology-II; Annual
Technical Meeting, 17th, Seminar-in-Depth, San
Diego, Calif., August 27-29, 1973, Proceedings
03 p0087 A74-34191
- Photovoltaic Specialists Conference, 10th,
Stanford University, Palo Alto, Calif., November
13-15, 1973, Conference Record
03 p0087 A74-34367
- International Cryogenic Engineering Conference,
5th, Kyoto, Japan, May 7-10, 1974, Preprints.
Volumes 1 & 2
03 p0091 A74-35287
- A review of precious resources and their effect on
air transport; Proceedings of the Spring
Convention, London, England, May 15, 16, 1974
03 p0093 A74-36316
- The energy crisis and energy from the sun;
Proceedings of the Symposium on Solar Energy
Utilization, Washington, D.C., April 30, 1974
03 p0093 A74-36331
- Engineering aspects of magnetohydrodynamics;
Proceedings of the Fourteenth Symposium,
University of Tennessee Space Institute,
Tullahoma, Tenn., April 8-10, 1974
03 p0094 A74-37604
- TERRASTAR: Terrestrial application of solar
technology and research**
[NASA-CR-129012] 01 p0020 W74-12674
- Compendium of university forums of the National
Commission on Materials Policy, May - June 1972.
A background document. NCMP forum on
Technological Innovation in the Production and
Utilization of Materials at Pennsylvania State
University, on 19-21 June 1972
[PB-223679/2GA] 01 p0025 W74-14251
- Compendium of University forums of the National
Commission on Materials Policy, May - June 1972.
A background document: University Forum on
National Materials Policy, Massachusetts
Institute of Technology on 30 May - 2 June 1972
[PB-223678/4GA] 01 p0029 W74-15290
- Proceedings, Coal Combustion Seminar --- with
emphasis on control of air pollutant emissions
[PB-224210/5GA] 02 p0051 W74-16627
- Balancing supply and demand for energy in the
United States --- conferences
02 p0051 W74-16651
- Symposium on Energy, Resources and the
Environment. Volume 1: Session on
International Issues
[W72-69-VOL-1-REV-2] 02 p0068 W74-18582

- Symposium on Energy, Resources and the Environment. Session on Ethics and Environmental Aspects of the Demand for and Use of Energy, volume 2 --- socioeconomic aspects of energy resource development [N72-69-VOL-2-REV-1] 02 p0068 N74-18591
- Symposium on Energy, Resources and the Environment. Volume 3: Session on Options for the Future and their Resources, Economic, and Environmental Effects [N72-69-VOL-3-REV-1] 02 p0069 N74-18598
- Proceedings: Energy Resource Conference (2nd) [PB-224750/OGA] 02 p0071 N74-18634
- Background material for the Energy Policy Workshop, 11-12 January 1973 --- conferences [N73-12] 02 p0082 N74-21619
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion [AD-777737] 03 p0109 N74-26518
- AEPA Workshop on Needs of the Department of Defense for Catalysis, Volume 2 [AD-777734] 03 p0114 N74-27610
- Technology and use of lignite --- conference on coal utilization utilization for power plants [BM-1C-8543] 03 p0115 N74-28020
- CONGRESS**
- Energy research and development and space technology 01 p0012 N74-10892
- Solar energy for the terrestrial generation of electricity 01 p0012 N74-10896
- Solar-energy for heating and cooling 01 p0016 N74-11787
- Energy research and development: An overview of our national effort 01 p0016 N74-11788
- University energy research centers 01 p0019 N74-12668
- Energy facts 01 p0020 N74-12672
- The Federal Government and energy: R and D historical background 01 p0021 N74-12687
- An inventory of energy research, volume 1 01 p0021 N74-12688
- An inventory of energy research, volume 2 01 p0021 N74-12689
- Short term energy shortages 01 p0021 N74-12690
- Energy research and development and space technology 01 p0022 N74-12691
- EPA pollution regulations and fuel shortage: The impact on mass transit 01 p0027 N74-14690
- Energy crisis and small business --- Federal Trade Commission report on investigation of petroleum industry 01 p0027 N74-14691
- Energy research and development, 2 01 p0027 N74-14692
- National Fuels and Energy Conservation Act of 1973 [S-REPT-93-526] 01 p0027 N74-14693
- Legislative authority of Federal agencies with respect to fuels and energy: A staff analysis 01 p0031 N74-15686
- The President's energy message and S. 1570 01 p0031 N74-15687
- Summary of the energy conservation and development recommendations contained in the final report of the National Commission on Materials Policy, June 1973: A background paper 01 p0031 N74-15688
- Energy conservation, part 1 01 p0031 N74-15690
- A bibliography of non-technical literature on energy 02 p0051 N74-16641
- A bibliography of Congressional publications on energy from the 89th Congress to 1 July 1971 02 p0051 N74-16642
- Energy emergency legislation, part 1 02 p0052 N74-16662
- Fuel shortages, part 1 02 p0053 N74-16664
- Fuel shortages, part 2 02 p0053 N74-16665
- The evolution and dynamics of national goals in the United States 02 p0053 N74-16666
- A review of energy issues and the 91st Congress 02 p0053 N74-16667
- Compact to conserve oil and gas 02 p0053 N74-16668
- Federal Energy Organization: A staff analysis 02 p0053 N74-16669
- Geothermal energy resources and research 02 p0053 N74-16670
- Geothermal energy 02 p0054 N74-16684
- A review of energy policy activities of the 92d Congress 02 p0062 N74-17669
- Energy-related research and development 02 p0070 N74-18605
- Energy conservation and S. 2176, part 2 02 p0070 N74-18622
- H.R. 11864: Solar Heating and Cooling Demonstration Act of 1974. Background and legislative history 02 p0075 N74-19604
- Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area [B-REPT-92-1313] 02 p0075 N74-19605
- Atomic Energy Commission 1 December 1973 report on energy research and development 02 p0075 N74-19606
- Council on Energy Policy 02 p0075 N74-19617
- The gasoline shortage: A national perspective 02 p0075 N74-19618
- National energy policy for meeting US energy requirements 02 p0079 N74-20613
- NASA authorization for fiscal year 1975, part 1 --- Congressional hearings on funding of NASA programs 02 p0082 N74-21605
- Conservation of energy 02 p0082 N74-21620
- The gasoline and fuel oil shortage --- congressional hearing to determine causes and corrective actions for fuel shortage problem [GPO-99-740] 02 p0082 N74-21624
- Transportation controls under the Clean Air Act --- Congressional investigation of effects of clean air policy on transportation [GPO-20-345] 02 p0082 N74-21625
- Solar Heating and Cooling Demonstration Act [GPO-27-370] 03 p0100 N74-21683
- Research on ground propulsion systems 03 p0103 N74-22600
- Presidential energy statements [GPO-24-936] 03 p0106 N74-23511
- Solar heating and cooling --- Congressional hearing on technology for utilization of solar energy for heating and cooling buildings [GPO-29-939] 03 p0106 N74-25620
- NASA authorization for fiscal year 1975, part 3 [GPO-31-919] 03 p0107 N74-26405
- The administration's proposal for relaxation of air pollution standards --- Congressional hearing on proposals for reducing clean air standard and effects of sulfur oxides in fuels [GPO-22-629] 03 p0108 N74-26411
- The impact of auto emission standards [GPO-21-548] 03 p0108 N74-26412
- Nondegradation policy of the Clean Air Act --- Congressional hearing to determine impact of degradation in cleanliness standards of air and water [GPO-20-928] 03 p0111 N74-27438
- Energy Reorganization Act of 1973 [GPO-25-108] 03 p0111 N74-27442
- Federal Energy Administration [GPO-26-725] 03 p0111 N74-27443
- Energy Emergency Act [GPO-26-038] 03 p0112 N74-27444
- Nuclear stimulation of natural gas [GPO-96-678] 03 p0112 N74-27448
- Coal policy issues. Part 2: Appendix 3: Additional statements received for the record [GPO-20-768] 03 p0112 N74-27450

- Draft of proposed legislation to promote more effective management of certain related functions of the Executive Branch
[H-DOC-93-119] 03 p0112 N74-27454
- Energy Emergency Act
[H-REFR-93-793] 03 p0112 N74-27455
- Phase 4 oil regulations and petroleum marketing problems
[GPO-24-574] 03 p0112 N74-27465
- The energy crisis: Impact of Canadian policies
[GPO-27-709] 03 p0118 N74-28440
- Agriculture and the fuel crisis --- Congressional hearing on fuel crisis problems
[GPO-27-899] 03 p0118 N74-28441
- Compliance with Title 2 (auto emission standards) of the Clean Air Act
[GPO-25-424] 03 p0118 N74-28445
- Retail pricing of petroleum products --- Congressional hearing on pricing policy of petroleum products
[GPO-23-614] 03 p0118 N74-28449
- Naval Petroleum Reserve Numbered 1, Elk Hills, California --- Congressional hearings on exploitation of petroleum reserve source
[GPO-25-650] 03 p0118 N74-28450
- Economic impact of petroleum shortages
[GPO-27-213] 03 p0118 N74-28452
- Profitability of domestic energy company operations
[GPO-28-572] 03 p0118 N74-28453
- Spaceship earth: A look ahead to a better life
[NASA-TN-X-70139] 03 p0122 N74-29339
- Gasoline, diesel, and heating oil shortages
[GPO-24-116] 03 p0123 N74-29344
- To conserve energy on the national system of interstate and defense highways --- Congressional legislation for controlling maximum speed limit on highways
[GPO-25-702] 03 p0123 N74-29346
- Architectural guidelines to promote efficient energy use --- congressional hearing for energy policy legislation
[GPO-28-428] 03 p0123 N74-29347
- Energy emergency legislation, part 2
[GPO-24-846] 03 p0123 N74-29352
- CCSSEBATION**
- National energy policy
01 p0021 N74-12681
- Federal energy conservation --- Federal policy on conservation and reduction of energy requirements
01 p0026 N74-14687
- Compact to conserve oil and gas
02 p0053 N74-16668
- Energy conservation in public and commercial buildings
[P-5093] 02 p0054 N74-16677
- Energy conservation strategies
[PB-224493/7GA] 02 p0064 N74-17800
- Conservation of energy
02 p0082 N74-21620
- Energy alternatives for California: The current crisis. 2: Conservation of energy
[P-5156] 03 p0103 N74-22595
- Conservation and efficient use of energy, part 2
[GPO-24-290] 03 p0113 N74-27525
- Conservation and efficient use of energy, part 3
[GPO-24-682] 03 p0113 N74-27526
- Conservation and efficient use of energy, part 4
[GPO-25-654] 03 p0113 N74-27527
- CONSTRAINTS**
- Man versus his institutions --- goals of rational energy policy
02 p0070 N74-18603
- CONSTRUCTION MATERIALS**
- The development of aircraft as influenced by the shortage of materials and fuel
03 p0093 N74-36319
- CONSUMPTION**
- Energy: Compiled bibliography and tables of world resources, consumption, and wastes
[LRP-63/73] 01 p0010 N74-10391
- CONTAMINANTS**
- Analyses of tars, char, gases, and water found in effluents from the synthane process
[BN-TFM-76] 02 p0049 N74-15808
- CONTINENTAL SHELVES**
- Review of the results from the Eastern Atlantic Continental Margin Program of the International Decade of Ocean Exploration --- geophysical prospecting and fishing areas
[PB-225036/3GA] 02 p0065 N74-18073
- Review of the results from the eastern Atlantic continental margin program of the international decade of ocean exploration
[PB-226580/9GA] 03 p0102 N74-22091
- Action in the Atlantic: A vital step for our nation's energy and environmental needs
[G-70172-100N8.73-408] 03 p0111 N74-26873
- CONTROL CONFIGURED VEHICLES**
- Advanced controls for commercial transport aircraft --- USAF Control Configured Vehicles and NASA Active Control Technology programs
[SAE PAPER 740453] 03 p0091 A74-35008
- CONTROL EQUIPMENT**
- Substitute catalysts for platinum in automobile emission control devices and petroleum refining
[PB-222167/9] 01 p0018 N74-11941
- Present air pollution situation in Kawasaki city and future countermeasures
[KS-27] 01 p0018 N74-12321
- Characterization of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions
[PB-224243/6GA] 02 p0066 N74-18294
- NAS report on technological feasibility of 1975-1976 motor vehicle emissions standards. Feasibility of meeting the 1975-1976 exhaust emission standards in actual use
[PB-224865/6GA] 02 p0066 N74-18303
- Control of gasoline vapor losses from station and vehicle filling --- economics of vapor recovery systems
[EQL-MEMO-5] 03 p0101 N74-21771
- CONTROLLED FUSION**
- Nuclear eclectic power --- selective assessment of plant and reactor types
02 p0041 A74-27320
- Symposium on Engineering Problems of Fusion Research, 5th, Princeton University, Princeton, N.J., November 5-9, 1973, Proceedings
03 p0087 A74-34050
- A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors
03 p0087 A74-34093
- Theory and experiment in laser driven fusion
03 p0087 A74-34192
- CONVECTIVE HEAT TRANSFER**
- H2-O2 combustion powered steam-MHD central power systems
02 p0042 A74-27775
- CONVENTIONS**
- Compact to conserve oil and gas
02 p0053 N74-16668
- COOLING**
- A novel method of cooling semiconductor devices for power electronics
[BMPT-PBT-02] 01 p0015 N74-11739
- Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22
[PB-223536/4GA] 01 p0025 N74-14499
- COOLING SYSTEMS**
- Computer program for thermodynamic analysis of open cycle multishaft power system with multiple reheat and intercool
[NASA-TN-D-7589] 02 p0071 N74-18727
- Solar Heating and Cooling Demonstration Act
[GPO-27-370] 03 p0100 N74-21683
- The development of a solar-powered residential heating and cooling system
[NASA-TN-X-70089] 03 p0108 N74-26504
- COPPER SULFIDES**
- New technology for CdS-Cu2S solar cells of high reliability
02 p0038 A74-24910
- Terrestrial utilization of CdS-Cu2S solar photocells in the south of France
02 p0038 A74-24915
- On inhomogeneities of thin film solar cells
02 p0039 A74-24918
- Current prospects for solar cells
02 p0040 A74-24943

SUBJECT INDEX

CRUDE OIL

Effect of shading on CdS/Cu(X)S solar cells and optimal solar array design [PB-227900/8] 03 p0110 N74-26522

COST ANALYSIS

An approach to aeroengine tradeoff factors [SAE PAPER 740493] 03 p0091 A74-34990

The development of aircraft as influenced by the shortage of materials and fuel 03 p0093 A74-36319

Precious resources and air transport - An airline view --- fuel price increase effects 03 p0093 A74-36322

The energy situation --- emphasizing various energy sources, costs, and environmental effects 01 p0016 N74-11744

Energy in transportation --- energy costs of passenger and cargo transportation 01 p0023 N74-13675

Economics of air transport --- direct and indirect costs [NASA-TT-P-15249] 01 p0026 N74-14682

A comment on towers for windmills --- structural and economic criteria 02 p0059 N74-16795

Some extemporaneous comments on our experiences with towers for wind generators 02 p0059 N74-16796

The economy and practicality of large scale wind generation stations (conclusion) [NASA-TT-P-15348] 02 p0060 N74-16802

General aviation cost impact study. Volume 1: Executive summary [AD-771603] 02 p0062 N74-17779

General aviation cost impact study. Volume 2: Research methodology [AD-771606] 02 p0062 N74-17780

General aviation cost impact study. Volume 3: Planning guide [AD-771759] 02 p0062 N74-17781

Energy conservation strategies [PB-224493/70A] 02 p0064 N74-17800

A simplified life-cycle cost comparison of various engines for small helicopter use [NASA-TM-X-71517] 02 p0074 N74-19405

Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area [H-REP1-92-1313] 02 p0075 N74-19605

Impacts of new energy technology, using generalized input-output analysis --- coal gasification [PB-226139/4GA] 03 p0101 N74-21697

Detailed construction and equipment costs for the 235- MW Milton R. Young Generating Station 03 p0117 N74-28032

Retail pricing of petroleum products --- Congressional hearing on pricing policy of petroleum products [GPO-23-614] 03 p0118 N74-28449

COST EFFECTIVENESS

Purification of fuel oils by centrifugal force 02 p0034 A74-20216

Cost efficiency of tungsten carbide-carbon fuel cells 02 p0036 A74-24054

Investigation of the economic efficiency of surplus tanking of aircraft fuel 03 p0085 A74-33092

Performance versus cost tradeoffs - Initial look at alternatives --- for aircraft engine fuel cost minimization [SAE PAPER 740494] 03 p0090 A74-34989

The large scale wind driven electrical generating station --- efficiency and economic factors [NASA-TT-P-15313] 02 p0046 N74-15750

Batteries for storage of wind-generated energy 02 p0058 N74-16784

Energy storage by compressed air --- using windpowered pumps 02 p0058 N74-16785

Economic considerations of utilizing small wind generators 02 p0058 N74-16789

Introductory remarks --- international cooperation in energy sources development 02 p0068 N74-18583

Environmental issues and institutional arrangements --- economic and environmental aspects of energy policy 02 p0069 N74-18595

Magnetic suspension and guidance of high speed vehicles --- feasibility and cost effectiveness [CTS-2] 02 p0072 N74-18892

Status of wind-energy conversion [NASA-TM-X-71523] 02 p0077 N74-19705

Clean fuels from biomass --- feasibility of converting plant systems to fuels [NASA-TM-X-71538] 02 p0077 N74-19706

A Kentucky coal utilization research program. Project 3: Low BTU gas and solid desulfurized fuel --- low cost production methods 03 p0113 N74-27529

A Kentucky coal utilization research program: Summary of first year progress and accomplishments --- cost controlling processing stages in coal liquefaction 03 p0113 N74-27531

Cost effectiveness of tungsten carbide-carbon fuel cells [NASA-TT-P-15748] 03 p0120 N74-28543

COST ESTIMATES

Fuel state - Expensive 03 p0092 A74-35496

NASA Lewis H2-O2 MHD program 03 p0095 A74-37611

Environmental issues, an overview --- of energy source exploitation 02 p0069 N74-18597

Cost and performance of automotive emission control technologies [EOL-HEMO-7] 03 p0107 N74-26244

COST REDUCTION

Airline airplanes for the eighties - A response --- emphasizing system efficiency and fuel savings 02 p0036 A74-23464

Low-cost silicon solar cells for terrestrial applications 02 p0038 A74-24909

The present potential of CdS solar cells as a future contender for photovoltaic space and terrestrial power applications 02 p0038 A74-24911

Does research in the field of aeronautics have a future --- emphasis on aircraft design refinements and cost reduction 02 p0041 A74-25723

Reliability of low-cost CdS/Cu2S solar cells 03 p0084 A74-29823

Potential improvements in efficiency and cost of solar cells 03 p0088 A74-34369

The NSF/RANN Photovoltaic Energy Conversion Program 03 p0089 A74-34404

COSTS

Determining the effects of gasoline price on use of metals in automobile manufacture [BM-RI-7871] 02 p0062 N74-17666

COVERINGS

The use of FEP Teflon in solar cell cover technology [NASA-TM-X-71485] 01 p0012 N74-10944

CRUDE OIL

Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /PAC/ 03 p0083 A74-29415

Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/ --- Russian book 03 p0092 A74-36137

Commercial petroleum products, properties and applications --- USSR petroleum industry handbook [AD-754703] 01 p0010 N74-10128

Substitute catalysts for platinum in automobile emission control devices and petroleum refining [PB-222167/9] 01 p0018 N74-11541

Second iteration analysis of a fossil fuel-fired gas turbine-potassium-steam combined cycle [ORNL-NSF-EP-39] 01 p0019 N74-12577

Energy crisis and small business --- Federal Trade Commission report on investigation of petroleum industry 01 p0027 N74-14691

Oil and gas 01 p0029 N74-15259

- Oil shale 01 p0029 N74-15260
- Selected list of Bureau of Mines publications on petroleum and natural gas, 1961-1970 [BH-IC-8534] 01 p0032 N74-15691
- Long run cost trends: Persian Gulf and United States 02 p0052 N74-16655
- Balancing the demand and supply of oil 02 p0052 N74-16656
- United States petroleum situation through 1980 [AD-761576] 02 p0054 N74-16691
- Petroleum: A prediction made in 1950 [P-5135] 02 p0065 N74-18194
- Atmospheric emissions from the petroleum refining industry [PB-225040/5GA] 02 p0066 N74-18305
- Energy statistics: A supplement to the summary of national transportation statistics --- time series analysis of transported crude oils [PB-225331/8GA] 02 p0070 N74-18633
- Air pollution aspects of emission sources: Petroleum refineries; a bibliography with abstracts [AP-110] 02 p0073 N74-19228
- Energy program, 1972 [BH-IC-8612] 02 p0080 N74-20619
- Combustion and heat recovery of Air Force waste petroleum oils and lubricants [AD-774561] 02 p0082 N74-21391
- Staff study of the oversight and efficiency of executive agencies with respect to the petroleum industry, especially as it relates to recent fuel shortages [GPO-23-764] 03 p0105 N74-23487
- Projected availability of motor gasoline and distillate fuels, 1975 - 1985 [AD-775859] 03 p0107 N74-26239
- Compilation of air pollutant emission factors, supplement 1, second edition --- concerning transportation, storage, and marketing of petroleum products [PB-228708/4] 03 p0111 N74-27162
- Phase 4 oil regulations and petroleum marketing problems [GPO-24-574] 03 p0112 N74-27465
- Key issues in offshore oil 03 p0115 N74-27828
- Retail pricing of petroleum products --- Congressional hearing on pricing policy of petroleum products [GPO-23-614] 03 p0118 N74-28449
- Naval Petroleum Reserve Numbered 1, Elk Hills, California --- Congressional hearings on exploitation of petroleum reserve source [GPO-25-640] 03 p0118 N74-28450
- Economic impact of petroleum shortages [GPO-27-11] 03 p0118 N74-28452
- The worldwide search for petroleum offshore [USGS-CIRC-694] 03 p0121 N74-28897
- CRYOGENIC EQUIPMENT**
- Cryogenic instrumentation at and above liquid hydrogen temperature - Present and future 01 p0003 N74-14057
- CRYOGENIC FLUID STORAGE**
- Storage and transportation of synthetic fuels. A report to the synthetic fuels panel [ORNL-TN-4307] 01 p0030 N74-15448
- CRYOGENIC FLUIDS**
- PSA hydrogen plants - How well have they performed --- Pressure Swing Adsorption production method 03 p0087 N74-33994
- Prospects for hydrogen as a fuel for transportation systems and for electrical power generation [ORNL-TN-4105] 01 p0030 N74-15449
- CRYOGENIC MACHINES**
- Heat operated cryogenic electrical generator --- using liquid helium conversion [NASA-CASE-NPO-13303-1] 02 p0077 N74-19701
- CRYOGENICS**
- Cryogenic Engineering Conference, University of Colorado, Boulder, Colo., August 9-11, 1972, Proceedings 01 p0003 N74-14043
- Process design considerations in cryogenic hydrogen recovery plants 03 p0086 N74-33993
- International Cryogenic Engineering Conference, 5th, Kyoto, Japan, May 7-10, 1974, Preprints. Volumes 1 & 2 03 p0091 N74-35287
- Cryogenic power transmission technology: Cryogenic dielectrics [ORNL-TN-4433] 03 p0117 N74-28138
- CURRENT CONVERTERS (AC TO DC)**
- Wind-powered asynchronous AC/DC/AC converter system --- for electric power supply regulation 02 p0057 N74-16777
- An electrical generator with a variable speed input: Constant frequency output 02 p0057 N74-16778
- CURRENT DENSITY**
- Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits 03 p0095 N74-37608
- CYCLOC HYDROCARBONS**
- Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /FAC/ 03 p0083 N74-29815
- CYLINDRICAL SHELLS**
- Solar concentrators of a novel design --- reflecting wall light channel structure [EPI-74-21] 02 p0078 N74-19711
- D**
- D-2 SATELLITES**
- Current delivered by the solar array of the D2A-Tournesol satellite 02 p0039 N74-24928
- DATA ACQUISITION**
- Strip-mined watershed hydrologic data acquisition study --- remote infrared aerial photography [PB-223558/8GA] 01 p0025 N74-14105
- DATA PROCESSING**
- Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments [E74-10124] 01 p0023 N74-13051
- DATA TRANSMISSION**
- Translations on Eastern Europe Scientific Affairs, no. 383 --- Romanian research on fuel conservation with thermoenergetic equipment and digital processing and transmission of information [JPRS-61101] 02 p0062 N74-17661
- DECOMPOSITION**
- Thermochemical water decomposition processes 03 p0085 N74-31450
- DECONTAMINATION**
- Purification of fuel oils by centrifugal force 02 p0034 N74-20216
- DEMAND (ECONOMICS)**
- Energy problems in air transportation --- options for demand reduction, efficiency increase and fuel alternatives 02 p0033 N74-19479
- Balancing supply and demand for energy in the United States --- conferences 02 p0051 N74-16651
- Future United States population, economic growth, and energy demands 02 p0051 N74-16652
- Government, policies, national objectives, and the energy industries 02 p0051 N74-16653
- Capital requirements of the energy industries 02 p0052 N74-16654
- Long run cost trends: Persian Gulf and United States 02 p0052 N74-16655
- Balancing the demand and supply of oil 02 p0052 N74-16656
- Balancing the supply and demand for natural gas 02 p0052 N74-16657
- Balancing the demand and supply of coal 02 p0052 N74-16658
- Energy in general --- technology for meeting world energy demand 02 p0068 N74-18587
- Remarks --- capital requirements to meet energy shortages 02 p0068 N74-18590
- Energy demand in Japan, 1975 to 1985 02 p0069 N74-18600

- Man versus his institutions --- goals of rational energy policy 02 p0070 N74-18603
- Electricity growth: economic incentives and environmental quality --- consumption and pricing of electricity in United States of America 03 p0100 N74-21687
- Elasticity of demand for gasoline in the south coast air basin [EQL-MEMO-10] 03 p0102 N74-22581
- Conservation and efficient use of energy, part 2 [GPO-24-290] 03 p0113 N74-27525
- Conservation and efficient use of energy, part 4 [GPO-25-654] 03 p0113 N74-27527
- Problems, resources and necessary progress in Community energy policy 1975 - 1985 03 p0113 N74-27532
- Prospects of primary energy demand in the community (1975 - 1980 - 1985) --- long term trend analysis for Europe 03 p0113 N74-27533
- On the approaches to MHD-power generation [JPRS-62196] 03 p0117 N74-28168
- Retail pricing of petroleum products --- Congressional hearing on pricing policy of petroleum products [GPO-23-614] 03 p0118 N74-28449
- DENMARK**
- The importance of and progress in the utilization of wind power in Denmark [NASA-TT-F-15333] 02 p0047 N74-15758
- Statistical summary and evaluation of ventoelectric power station output (part 2 of 2) [NASA-TT-F-15652] 03 p0104 N74-22708
- DESCENT TRAJECTORIES**
- The fuel crisis and the controller --- turbojet aircraft descent trajectories for fuel consumption reduction 02 p0034 A74-19726
- DESULFURIZING**
- Air mobility fuel cell study --- desulfurization of JP-4 fuel [AD-766757] 01 p0022 N74-12742
- Hydrogen generator --- for hydrocarbon fueled fuel cells [AD-767402] 01 p0024 N74-13766
- A Kentucky coal utilization research program. Project 3: Low BTU gas and solid desulfurized fuel --- low cost production methods 03 p0113 N74-27529
- A Kentucky coal utilization research program. Project 4: Measurement of inhibition isotherms for Kentucky coal --- considering organic sulfur and pyritic sulfur removal 03 p0113 N74-27530
- DIATOMIC GASES**
- Electron vibrational energy transfer under MHD combustion generator conditions 03 p0095 A74-37612
- DIELECTRICS**
- Cryogenic power transmission technology: Cryogenic dielectrics [CRNL-TN-4433] 03 p0117 N74-28138
- DIESEL ENGINES**
- Thermal-oxidative stability of automotive diesel fuels [AD-758146] 02 p0049 N74-15817
- Multifuel diesel engines [AD-771198/90A] 02 p0074 N74-19408
- Reduction of diesel engine exhaust noise in the petroleum mining industry --- by resonator type diffuser 03 p0118 N74-28388
- DIESEL FUELS**
- Projected availability of motor gasoline and distillate fuels; 1975 - 1985 [AD-775859] 03 p0107 N74-26239
- Substitution of JP-5 aviation fuel for DF-2 diesel under field conditions 03 p0107 N74-26243
- Gasoline, diesel, and heating oil shortages [GPO-24-116] 03 p0123 N74-29344
- DIFFUSERS**
- Advantages of the diffuser-augmented wind turbine 02 p0057 N74-16775
- DIGITAL DATA**
- Translations on Eastern Europe Scientific Affairs, no. 383 --- Romanian research on fuel conservation with thermoenergetic equipment and digital processing and transmission of information [JPRS-61101] 02 p0062 N74-17661
- DILUTION**
- Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels 03 p0085 A74-32600
- DIOXIDES**
- Assessment of SO2 control alternatives and implementation patterns for the electric utility industry [PB-224119/8GA] 02 p0050 N74-16339
- DIRECT CURRENT**
- Study of a bi-phase D.C. M.H.D. generator using a new motion system 03 p0096 A74-37618
- Prospects and scientific problems of the application of methods of the application of methods of direct electrical power acquisition from chemical fuels [AD-776734] 03 p0107 N74-25625
- DIRECT POWER GENERATORS**
- A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors 03 p0087 A74-34093
- The synchronous EPD device 01 p0024 N74-13759
- MHD for power generation: The view of a chosen few [AD-760342] 01 p0025 N74-14408
- Application of phase transitions to the electromechanical energy conversion --- in ferroelectric ceramics [ISL-CO-2/73] 03 p0105 N74-23327
- DISPLAY DEVICES**
- Energy management display 03 p0090 A74-34844
- DISTILLATION**
- Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues [DFVLR-SONDDE-301] 01 p0006 A74-18925
- DOWN-CONVERTERS**
- An electrical generator with a variable speed input: Constant frequency output 02 p0057 N74-16778
- DRILLING**
- Ultra-deep drilling for geothermals [AD-774108] 03 p0102 N74-22074
- Reduction of diesel engine exhaust noise in the petroleum mining industry --- by resonator type diffuser 03 p0118 N74-28388
- DRY FRICTION**
- Effect of dry friction on the response to a symmetric harmonic signal of an energy converter producing mechanical energy 02 p0034 A74-20067
- DUCTED FANS**
- Astafan - A new concept from Turbomeca --- constant speed ducted turbofan engine 02 p0037 A74-24697
- DYNAMIC CONTROL**
- Optimization of open cycle power plant MHD generator 03 p0095 A74-37610
- DYNAMIC MODELS**
- Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TRAC rotor) [AD-771037] 02 p0061 N74-17764
- Dynamic modeling and analysis of liquid-metal magnetohydrodynamic power systems [AD-778757] 03 p0121 N74-28551
- DYNAMIC PROGRAMMING**
- A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators 03 p0095 A74-37607
- E**
- EARTH ENVIRONMENT**
- Industrial evolution and revolution in the cislunar space, 1980 - 2010 [ASTRONAUT-FB-32] 03 p0111 N74-27353

EARTH RESOURCES

SUBJECT INDEX

EARTH RESOURCES

Quantification of the luminescence intensity of natural materials 01 p0005 A74-14892

The use of the pressurized balloon for detecting energy resources 02 p0033 A74-19473

A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974 03 p0093 A74-36316

Precious resources and air transport - An airline view --- fuel price increase effects 03 p0093 A74-36322

Energy: Compiled bibliography and tables of world resources, consumption, and wastes [LRP-63/73] 01 p0010 A74-10391

The Federal Government and energy: R and D historical background 01 p0021 A74-12687

Some interfaces in resource utilization --- power source from earth crust heat [LA-UR-73-570] 01 p0022 A74-12696

Compendium of university forums of the National Commission on Materials Policy, May - June 1972. A background document. NCMF forum on Technological Innovation in the Production and Utilization of Materials at Pennsylvania State University, on 19-21 June 1972 [PB-223679/2GA] 01 p0025 A74-14251

Review of world energy supplies --- reserves and resources of fossil and fissile fuels [IGU/A-1-73] 01 p0026 A74-14666

Nuclear fuels: Uranium 01 p0028 A74-15257

Nuclear fuels: Thorium 01 p0029 A74-15258

Oil and gas 01 p0029 A74-15259

Oil shale 01 p0029 A74-15260

Peat 01 p0029 A74-15261

Compendium of University forums of the National Commission on Materials Policy, May - June 1972. A background document: University Forum on National Materials Policy, Massachusetts Institute of Technology on 30 May - 2 June 1972 [PB-223678/4GA] 01 p0029 A74-15290

Factors affecting the use of coal in present and future energy makers --- background paper for Congressional investigation of earth resources and energy policies 01 p0031 A74-15684

The effect of fuel availability on future R and D programs in power generation 01 p0031 A74-15689

Selected list of Bureau of Mines publications on petroleum and natural gas, 1961-1970 [BM-IC-8534] 01 p0032 A74-15691

Outlook for energy in the United States to 1985 01 p0032 A74-15697

Residential energy use: An econometric analysis [R-1297-WSP] 01 p0032 A74-15698

Long run cost trends: Persian Gulf and United States 02 p0052 A74-16655

Balancing the supply and demand for natural gas 02 p0052 A74-16657

Balancing the demand and supply of other energy forms 02 p0052 A74-16660

Environmental protection and long run supply of crude oil in the United States 02 p0052 A74-16661

Fuel shortages, part 1 02 p0053 A74-16664

Fuel shortages, part 2 02 p0053 A74-16665

Compact to conserve oil and gas 02 p0053 A74-16668

Geothermal energy resources and research 02 p0053 A74-16670

Natural gas supply in the decade of the seventies 02 p0074 A74-19586

Natural gas availability: Present and future 02 p0075 A74-19587

Meeting California's energy requirements, 1975-2000 02 p0076 A74-19629

ECONOMIC ANALYSIS

Nuclear eclectic power --- selective assessment of plant and reactor types 02 p0041 A74-27320

Energy self-sufficiency - An economic evaluation 03 p0085 A74-31446

Energy research and development: An overview of our national effort 01 p0016 A74-11788

Mathematical methods of optimal planning development and use of energy systems [JPBS-60546] 01 p0022 A74-12693

Wind utilization in remote regions: An economic study --- for comparison with diesel engines 02 p0058 A74-16790

The Oregon State University wind studies --- economic feasibility of windpowered generators 02 p0059 A74-16792

Economic basis for energy and resource use --- energy policy considering social impact 02 p0068 A74-18586

Elasticity of demand for gasoline in the south coast air basin [EQL-MEMU-10] 03 p0102 A74-22581

The Western Kentucky Coal Industry: An economic analysis [UKY-TR76-73-188B1] 03 p0110 A74-28439

ECONOMIC DEVELOPMENT

Context of the session these, international issues 02 p0068 A74-18584

Remarks --- capital requirements to meet energy shortages 02 p0068 A74-18590

Symposium on Energy, Resources and the Environment. Session on Ethics and Environmental Aspects of the Demand for and Use of Energy, volume 2 --- socioeconomic aspects of energy resource development [M72-69-VOL-2-REV-1] 02 p0068 A74-18591

National energy policies --- for development of low cost energy 02 p0069 A74-18592

Symposium on Energy, Resources and the Environment. Volume 3: Session on Options for the Future and their Resources, Economic, and Environmental Effects [M72-69-VOL-3-REV-1] 02 p0069 A74-18598

Carbonization and hydrogenation of coal --- application to developing economies [ID/86] 03 p0105 A74-23072

ECONOMIC FACTORS

The technology and economics of commercial airplane design. I 01 p0001 A74-10144

The case for hydrogen fueled transport aircraft [AIAA PAPER 73-1323] 01 p0002 A74-11315

The implications for air transportation of energy shortage 02 p0033 A74-19486

New frontiers of civil aeronautics 02 p0041 A74-25352

Geothermal electricity production 02 p0042 A74-27321

Prospects for hydrogen as an energy resource 03 p0090 A74-34621

Air transport in Europe - Commercial trends and prospects 03 p0093 A74-36327

The good and bad usages of air transport 03 p0094 A74-36941

The evolution and dynamics of national goals in the United States 02 p0053 A74-16666

Mechanisms for achieving cleaner power, prices, regulations --- energy policy 02 p0069 A74-18596

Energy options --- technological developments for new energy sources 02 p0070 A74-18604

The price elasticity of residential energy use [P-5180] 03 p0112 A74-27446

Phase 4 oil regulations and petroleum marketing problems [GPO-24-574] 03 p0112 A74-27465

Economic effects of propulsion system technology on existing and future transport aircraft [NASA-CR-134645] 03 p0117 A74-28230

- Agriculture and the fuel crisis --- Congressional hearing on fuel crisis problems [GPO-27-899] 03 p0118 N74-28441
- Economic impact of petroleum shortages [GPO-27-213] 03 p0118 N74-28452
- Profitability of domestic energy company operations [GPO-28-572] 03 p0118 N74-28453
- ECONOMICS**
- Hydrogen production by reforming processes - The alternatives and economics 03 p0086 A74-33992
- Energy consumption and gross national product in the United States: An examination of a recent change in the relationship 01 p0030 N74-15681
- Wind-powered machines --- design, aerodynamic characteristics, and economics [NASA-TT-P-15149] 02 p0045 N74-15742
- Econometric models: Their application to the economic and energy sectors [CE-BIB-220] 02 p0062 N74-17660
- Economics of thermodynamic solar power systems. Part 2: The turbine trade-off [UCID-16386-PT-2] 03 p0120 N74-28547
- EFFICIENCY**
- Review of the windpower activities at the Brace Research Institute 02 p0058 N74-16787
- EFFLUENTS**
- Analyses of tars, char, gases, and water found in effluents from the synthane process [BN-TFR-76] 02 p0049 N74-15808
- ELECTRIC BATTERIES**
- Possibilities of the thin solar battery applications for the terrestrial use units 02 p0038 A74-24912
- Solid state batteries 03 p0090 A74-34771
- Electric vehicle battery research and development [NASA-TN-1-71471] 01 p0012 N74-10946
- Si-Al Schottky barrier nuclear battery --- for medical applications [TID-26342] 01 p0017 N74-11851
- ELECTRIC CONDUCTORS**
- Present state of the art in conductive coating technology 01 p0006 A74-17654
- Possibility of constructing thermoelectric batteries with the aid of mercury amalgam [AD-756068] 01 p0010 N74-10084
- Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-766588] 01 p0013 N74-10952
- ELECTRIC CURRENT**
- Current delivered by the solar array of the D2A-Tournefort satellite 02 p0039 A74-24928
- The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells 03 p0088 A74-34373
- Measures for slowing growth in electricity consumption [P-5017] 02 p0054 N74-16676
- Passage of current through boundary layers --- and gas dynamic parameters of a magnetohydrodynamic generator [AD-775138] 03 p0102 N74-22372
- ELECTRIC DISCHARGES**
- Dependence of efficiency and specific characteristics of fuel cells on discharge conditions [AD-773264] 02 p0081 N74-20704
- ELECTRIC ENERGY STORAGE**
- Chemical storage of hydrogen in Ni/H₂ cells 01 p0004 A74-14248
- Energy storage using high pressure electrolysis and methods for reconversion --- in automobile fuel synthesis 02 p0057 N74-16780
- Batteries for storage of wind-generated energy 02 p0058 N74-16784
- Description of the energy source project delivering 1 megajoule in 1 microsecond --- noting high efficiency magnetic energy transfer by mutually coupled inductances and fast response electromechanical circuit breakers [LP-3] 02 p0061 N74-17454
- ELECTRIC EQUIPMENT**
- This is how you can heat your hose with a little windmill [NASA-TT-P-15518] 03 p0099 N74-21681
- Wind electric power station [NASA-TT-P-15522] 03 p0100 N74-21682
- Evaluation of nine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses [PB-225476/1] 03 p0115 N74-27918
- ELECTRIC FIELDS**
- Performance and Hall field limitation studies in the Stanford N-8 MHD generator 03 p0095 A74-37605
- Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits 03 p0095 A74-37608
- ELECTRIC GENERATORS**
- High voltage solar cell power generating system for regulated solar array development [AIAA PAPER 73-1105] 01 p0002 A74-12242
- Potential improvements in efficiency and cost of solar cells 03 p0088 A74-34369
- Wind energy: Its value and the choice of site for exploitation [NASA-TT-P-15311] 02 p0045 N74-15734
- The economy and practicality of large scale wind generation stations (conclusion) [NASA-TT-P-15348] 02 p0060 N74-16802
- Advanced electrical power generation and distribution concepts for military facilities [AD-765476] 02 p0061 N74-16819
- The dc generators for utilizing wind power [NASA-TT-P-15351] 02 p0063 N74-17789
- Solar energy systems --- for generating electricity and producing hydrogen fuels [N73-26] 02 p0064 N74-17795
- Heat operated cryogenic electrical generator --- using liquid helium conversion [NASA-CASE-MPO-13303-1] 02 p0077 N74-19701
- Electric power generation system directly from laser power [NASA-CASE-MPO-13308-1] 02 p0077 N74-19702
- State-of-the-art and prospects of magnetoelectric machines for self-contained electrical supply systems and controllable electrical drivers [AD-773893] 02 p0081 N74-20703
- Energy sources - Citations from the early DDC collections [AD-773325] 02 p0081 N74-20705
- Studies of the utilization of wind energy: The use of dc generator/mercury-vapor inverter sets connected to ac networks [NASA-TT-P-15514] 03 p0099 N74-21679
- Statistical summary and evaluation of ventoelectric power station output (part 2 of 2) [NASA-TT-P-15652] 03 p0104 N74-22708
- Solar thermal electric power systems 03 p0109 N74-26509
- Solar sea power --- conceptual design [PB-228068/3] 03 p0110 N74-26519
- Pollution-free electrochemical power generation from low grade coal [PB-228006/3] 03 p0114 N74-27543
- ELECTRIC NETWORKS**
- Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems 01 p0009 N74-10074
- Utilization of wind power with Ward-Leonard type circuit in inverted operation [NASA-TT-P-15352] 02 p0046 N74-15751
- ELECTRIC POTENTIAL**
- Present state of the art in conductive coating technology 01 p0006 A74-17654
- Performance and Hall field limitation studies in the Stanford N-8 MHD generator 03 p0095 A74-37605
- Ionisation, recombination and voltage drop measurements in a closed cycle MHD generator 03 p0096 A74-37622
- ELECTRIC POWER**
- Direct energy conversion by means of solar cells 02 p0040 A74-24937

ELECTRIC POWER PLANTS

SUBJECT INDEX

- Trapping of solar energy at Basako with the aid of a silicon solar cell panel 02 p0041 A74-25481
- Effects of radiation on the violet solar cell 03 p0085 A74-32908
- Study of a bi-phase D.C. M.H.D. generator using a new motion system 03 p0096 A74-37618
- Solar power generation and distribution 01 p0021 W74-12680
- Energy and the environment: Electric power [PB-223326/OGA] 01 p0028 W74-14791
- Prospects for hydrogen as a fuel for transportation systems and for electrical power generation [ONEL-TN-4305] 01 p0030 W74-15449
- Residential energy use: An econometric analysis [R-1297-WSP] 01 p0032 W74-15698
- Newark windmill power generation plant [NASA-TT-F-15306] 02 p0043 W74-15740
- Economy and practical applications of large wind-driven power plants, part 1 [NASA-TT-F-15308] 02 p0045 W74-15741
- Modeling of electric power demand growth [PB-224045/5GA] 02 p0054 W74-16690
- Optimal electrical energy growth strategies in an era of environmental concern 02 p0080 W74-20697
- ELECTRIC POWER PLANTS**
- Regional and global energy transfer via passive power relay satellites 01 p0005 A74-16116
- Terrestrial utilization of CdS-Cu₂S solar photocells in the south of France 02 p0038 A74-24915
- Status of wind-energy conversion 02 p0042 A74-27772
- H2-O2 combustion powered steam-MHD central power systems 02 p0042 A74-27775
- Closed cycle MHD for central station power with fossil or nuclear fuels [AD-766500] 01 p0012 W74-10949
- Development of geothermal reservoirs from over-pressured areas beneath the Gulf coastal plain of Texas. A feasibility study of power production from overpressured reservoirs [AD-766855] 01 p0018 W74-12183
- Liquid metal magnetohydrodynamics (LMHMD) technology transfer feasibility study. Volume 1: Summary [NASA-CR-136197] 01 p0023 W74-13466
- Liquid metal magnetohydrodynamics (LMHMD) technology transfer feasibility study. Volume 2: Appendixes [NASA-CR-136198] 01 p0023 W74-13467
- High powered electrical power generation by wind motors [NASA-TT-F-15303] 02 p0045 W74-15739
- Wind power plants in Russia [NASA-TT-F-15331] 02 p0045 W74-15743
- Observations on modern wind-electric power plants --- in Italy during post-war reconstruction [NASA-TT-F-15357] 02 p0045 W74-15745
- Importance and progress of wind power utilization in Denmark [NASA-TT-F-15353] 02 p0045 W74-15746
- Method of calculation of annual overall efficiency of modern wind-power plants [NASA-TT-F-15310] 02 p0046 W74-15748
- Problems in the electrical equipment of wind power plants [NASA-TT-F-15312] 02 p0046 W74-15749
- The large scale wind driven electrical generating station --- efficiency and economic factors [NASA-TT-F-15313] 02 p0046 W74-15750
- Progress in the utilization of wind power [NASA-TT-F-15346] 02 p0046 W74-15753
- Importance and progress of wind power utilization in Denmark [NASA-TT-F-15349] 02 p0046 W74-15754
- Medium-capacity air motor pilot plant with hydraulic energy accumulation by pumping [NASA-TT-F-15299] 02 p0046 W74-15755
- Prospects for the utilization of wind energy in Czechoslovakia [NASA-TT-F-15305] 02 p0048 W74-15766
- New wind power station --- used during fuel shortage in World War 2 [NASA-TT-F-15332] 02 p0048 W74-15767
- Small wind-electrical installations for export [NASA-TT-F-15350] 02 p0048 W74-15770
- Soviet geothermal electric power engineering, report 2 [AD-754947] 02 p0048 W74-15776
- Long range trends in the character of electric power systems 02 p0049 W74-15908
- Assessment of SO2 control alternatives and implementation patterns for the electric utility industry [PB-224119/8GA] 02 p0050 W74-16339
- Experimental research on model MHD generator U-02 (Stage 2), Scientific and Technical Report 17/73 [JPRS-60972] 02 p0050 W74-16424
- Introduction to Voigt's wind power plant --- energy conversion efficiency 02 p0055 W74-16762
- Experience with Jacobs wind-driven electric generating plant, 1931 - 1937 02 p0058 W74-16786
- Economic considerations of utilizing small wind generators 02 p0058 W74-16789
- NASA Lewis H2-O2 MHD program [NASA-TN-X-71520] 02 p0076 W74-19697
- High wind power plants --- design and performance evaluation [NASA-TT-F-15444] 02 p0077 W74-19709
- Statistical summary and evaluation of ventoelectric power station output (part 2 of 2) [NASA-TT-F-15632] 03 p0104 W74-22708
- Prospects and scientific problems of the application of methods of the application of methods of direct electrical power acquisition from chemical fuels [AD-776734] 03 p0107 W74-25625
- Analysis of the winds of site 300 as a source of power [ONEL-51469] 03 p0109 W74-26514
- Solar sea power --- boiler components including boiler, condenser, turbine, cold water pipe [PB-228069/1] 03 p0110 W74-26520
- Proceedings, Solar Sea Power Plant Conference and Workshop [PB-228066/7] 03 p0110 W74-26521
- The prospects for MHD power plants in power engineering [JPRS-62139] 03 p0110 W74-26774
- Experience from the first stage of development of the U-25 installation [JPRS-62129] 03 p0110 W74-26775
- Adaptability of the closed Brayton gas turbine to utility power plants [REPT-73-310448] 03 p0111 W74-27280
- Technology and use of lignite --- conference on coal utilization utilization for power plants [BM-IC-8543] 03 p0115 W74-28020
- Pilot study of electrostatic precipitation for removing fly ash at Basin Electric's Leland Olds Station 03 p0116 W74-28029
- Lignite and the cyclone burner in a new 235-aw generating station 03 p0116 W74-28031
- Detailed construction and equipment costs for the 235- aw Milton R. Young Generating Station 03 p0117 W74-28032
- Applications of aerospace technology in the electric power industry [NASA-CR-138947] 03 p0119 W74-28537
- ELECTRIC POWER SUPPLIES**
- Spacecraft electrical power --- solar cells and storage batteries 01 p0002 A74-12201
- Thermoelectric generators --- radio relay station power supply application 01 p0002 A74-13448
- Power conditioning system for FAA Air Route Traffic Control Centers 01 p0004 A74-14133

- Power sources 4: Research and development in non-mechanical electrical power sources; Proceedings of the Eighth International Symposium, Brighton, Sussex, England, September 24-26, 1972 02 p0034 A74-20627
- Design of high-temperature solid-electrolyte fuel-cell batteries for maximum power output per unit volume 02 p0036 A74-22355
- Cost efficiency of tungsten carbide-carbon fuel cells 02 p0036 A74-24054
- Results and future prospects on photovoltaic power development in France 02 p0037 A74-24904
- Low-cost silicon solar cells for terrestrial applications 02 p0038 A74-24909
- Solar generators for sounding balloons 02 p0040 A74-24940
- Spaceborne sources of electric power --- Russian book 02 p0040 A74-24986
- High voltage solar cell power generating system 03 p0088 A74-34387
- Magnetohydrodynamic method of obtaining electrical energy (collected articles) 01 p0011 A74-10681
- [AD-765933] 01 p0012 A74-10946
- Electric vehicle battery research and development [NASA-TN-X-71471] 01 p0012 A74-10946
- A novel method of cooling semiconductor devices for power electronics 01 p0015 A74-11739
- Development of design criteria, cost estimates, and schedules for an MHD high performance demonstration experiment [AD-766232] 01 p0017 A74-11852
- Alternative energy sources: A research challenge [CONF-730560-1] 01 p0024 A74-14097
- Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Honnet-Gross wind turbine [NASA-TT-F-15302] 02 p0047 A74-15762
- Wind energy conversion systems [NASA-TN-X-69786] 02 p0055 A74-16757
- Wind power demonstration and siting problems --- for recharging electrically driven automobiles 02 p0056 A74-16765
- An introduction to the Princeton sailing windmill 02 p0056 A74-16769
- Wind-powered asynchronous AC/DC/AC converter system --- for electric power supply regulation 02 p0057 A74-16777
- An electrical generator with a variable speed input: Constant frequency output 02 p0057 A74-16778
- Use of hydrogen and hydrogen-rich components as a means of storing and transporting energy 02 p0057 A74-16781
- Wind power systems for individual applications --- electric power supplies for homes 02 p0058 A74-16788
- Wind utilization in remote regions: An economic study --- for comparison with diesel engines 02 p0058 A74-16790
- French wind generator systems --- as auxiliary power sources for electrical networks 02 p0059 A74-16793
- NSF presentation --- summary on energy conversion research program 02 p0059 A74-16798
- Using the energy of the wind for electrification [NASA-TT-F-15307] 02 p0060 A74-16801
- Advanced electrical power generation and distribution concepts for military facilities [AD-765476] 02 p0061 A74-16819
- Electricity: The conversion industry [WP-19837] 02 p0072 A74-16730
- Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area [N-BEPT-92-1313] 02 p0075 A74-19605
- Studies of the utilization of wind energy: The use of dc generator/mercury-vapor inverter sets connected to ac networks [NASA-TT-F-15514] 03 p0099 A74-21679
- Study terrestrial applications of solar cell powered systems [NASA-CR-134512] 03 p0100 A74-21685
- Electricity growth: Economic incentives and environmental quality --- consumption and pricing of electricity in United States of America 03 p0100 A74-21687
- Meeting future peak electrical energy demands by means of electrochemical storage systems [NASA-TT-F-15634] 03 p0104 A74-22705
- Disk geometry MHD generator for high voltage high power aircraft requirements [AD-775749] 03 p0107 A74-26255
- Research applied to solar-thermal power systems 03 p0108 A74-26503
- Geothermal resources, part 1 --- policy for geothermal resources development [GPO-21-438] 03 p0108 A74-26505
- Geothermal resources, part 2 --- technology utilization in geothermal development of Pacific Northwest [GPO-26-473] 03 p0109 A74-26506
- Energy from geothermal resources [GPO-32-309] 03 p0109 A74-26510
- Operating conditions and types of wind-power electric substations for rural areas [NASA-TT-F-15517] 03 p0109 A74-26512
- On the approaches to MHD-power generation [JPRS-62196] 03 p0117 A74-28168
- A planning methodology for the analysis and design of wind-power systems 03 p0119 A74-28534
- A theoretical analysis of the current-voltage characteristics of solar cells [NASA-CR-138828] 03 p0120 A74-28544
- ELECTRIC POWER TRANSMISSION**
- Power source quality --- consequence and cures of source deficiencies in quality of ac electric power service 01 p0019 A74-12635
- ELECTRICAL ENGINEERING**
- Description of the energy source project delivering 1 megajoule in 1 microsecond --- noting high efficiency magnetic energy transfer by mutually coupled inductances and fast response electromechanical circuit breakers [LP-3] 02 p0061 A74-17454
- ELECTRICAL FAULTS**
- Performance and Hall field limitation studies in the Stanford M-8 MHD generator 03 p0095 A74-37605
- ELECTRICAL PROPERTIES**
- Thermoelectric generators --- radio relay station power supply application 01 p0002 A74-13448
- Nonlinear stability of magnetohydrodynamic generators [AIAA PAPER 74-507] 03 p0086 A74-33106
- Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems 01 p0009 A74-10074
- A theoretical analysis of the current-voltage characteristics of solar cells [NASA-CR-138828] 03 p0120 A74-28544
- ELECTRICAL RESISTANCE**
- Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells 03 p0087 A74-34099
- ELECTRICAL RESISTIVITY**
- KIVA-I MHD generator modifications and tests [AD-770063] 02 p0060 A74-16815
- ELECTRICITY**
- Solar ponds extended [UCID-16317] 01 p0023 A74-13537
- Electric energy requirements for environmental protection [CONF-730205-4] 01 p0027 A74-14695
- ELECTRIFICATION**
- Lines of development of rural wind power plants [NASA-TT-F-15513] 02 p0081 A74-20701
- ELECTRO-OPTICS**
- Investigation of silicon photoelectric cells as precision photodetectors --- electro-optical properties of silicon solar cells [NRC-TT-1686] 01 p0010 A74-10199

ELECTROCHEMICAL CELLS

- Chemical storage of hydrogen in Ni/H₂ cells
01 p0004 A74-14248
- Sealed, rechargeable nickel-zinc cells
02 p0035 A74-20630
- Nickel-zinc cells with non-sintered electrodes
02 p0035 A74-20631
- The dc generators for utilizing wind power
[NASA-TT-F-15351] 02 p0063 A74-17789
- Meeting future peak electrical energy demands by means of electrochemical storage systems
[NASA-TT-F-15634] 03 p0104 A74-22709
- Calculation and comparison of the economy of electrochemical fuel cells
[NTC-74-11868] 03 p0108 A74-26496
- ELECTROCHEMICAL OXIDATION**
Fuel cells with the fuel dissolved in the electrolyte
03 p0084 A74-30529
- ELECTROCHEMISTRY**
Pollution-free electrochemical power generation from low grade coal
[PB-228006/3] 03 p0114 A74-27543
- ELECTROCONDUCTIVITY**
Solid state batteries
03 p0090 A74-34771
- ELECTRODES**
Nickel-zinc cells with non-sintered electrodes
02 p0035 A74-20631
- Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 A74-21698
- ELECTROHYDRODYNAMICS**
On the theory of alternating-current electrofluiddynamic converters
01 p0007 A74-18988
- Electrohydrodynamic heat pipe experiments
03 p0084 A74-30335
- The synchronous EPD device
01 p0024 A74-13759
- ELECTROLYTES**
Fuel cells with the fuel dissolved in the electrolyte
03 p0084 A74-30529
- Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems
01 p0009 A74-10074
- Electrolyte for hydrocarbon air fuel cells
[AD-766313] 01 p0010 A74-10085
- Properties of solid polymer electrolyte fluorocarbon film --- used in hydrogen/oxygen fuel cells
[NASA-TN-D-7482] 01 p0011 A74-10547
- Research on electrochemical energy conversion systems --- electrolytes for hydrocarbon-air fuel cells
[AD-766329] 01 p0013 A74-10951
- Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 A74-21698
- ELECTROLYTIC CELLS**
Design of high-temperature solid-electrolyte fuel-cell batteries for maximum power output per unit volume
02 p0036 A74-22355
- Status and applicability of solid polymer electrolyte technology to electrolytic hydrogen and oxygen production
02 p0058 A74-16782
- High energy sealed nickel-zinc batteries
[AD-772944] 02 p0072 A74-18737
- ELECTROMAGNETIC INTERACTIONS**
Electrode studies and recent results of nonequilibrium MHD generator experiments
03 p0097 A74-37624
- ELECTROMECHANICAL DEVICES**
Effect of dry friction on the response to a symmetric harmonic signal of an energy converter producing mechanical energy
02 p0034 A74-20067
- Description of the energy source project delivering 1 megajoule in 1 microsecond --- noting high efficiency magnetic energy transfer by mutually coupled inductances and fast response electromechanical circuit breakers
[LP-3] 02 p0061 A74-17454
- ELECTROMOTIVE FORCES**
Principles of photovoltaic solar energy conversion
03 p0088 A74-34368

ELECTRON EMISSION

- Recent developments in the field of thermionic power conversion and its possible effects on power supply systems in space and on earth
[DGLR PAPER 73-092] 01 p0005 A74-17195
- ELECTRON EMBEGET**
Electron nonequilibrium in open-cycle MHD generators
03 p0083 A74-28957
- ELECTRON GAS**
Electron vibrational energy transfer under MHD combustion generator conditions
03 p0095 A74-37612
- ELECTRON MICROSCOPES**
Mass transfer in fuel cells --- electron microscopy of components, thermal decomposition of Teflon, water transport, and surface tension of KOH solutions
[NASA-CR-134519] 01 p0009 A74-10075
- ELECTRON-ION RECOMBINATION**
Ionization, recombination and voltage drop measurements in a closed cycle MHD generator
03 p0096 A74-37622
- ELECTROSTATIC PRECIPITATORS**
Low gas temperature solution to high resistivity ash problems --- flue gas temperature effect on efficiency of electrostatic precipitator
03 p0116 A74-28027
- Pilot study of electrostatic precipitation for removing fly ash at Basin Electric's Leland Olds Station
03 p0116 A74-28029
- EMISSION**
Optimal control of sulfur dioxide emissions at power stations: Models and a case study
[AD-775392] 03 p0102 A74-22292
- EMPLOYMENT**
Energy in the near term --- prediction analysis techniques for energy consumption and employment
02 p0079 A74-20617
- ENERGY**
Impacts of new energy technology, using generalized input-output analysis --- coal gasification
[PB-226139/4GA] 03 p0101 A74-21697
- ENERGY BUDGETS**
Flight/propulsion control integration aspects of energy management
[SAS PAPER 740480] 03 p0090 A74-34978
- The energy dilemma and its impact on air transportation
[NASA-CR-135993] 01 p0015 A74-11743
- The air transportation/energy system
01 p0016 A74-11745
- Energy conservation and air transportation
01 p0016 A74-11746
- Conclusions and recommendations --- for problems in energy situation, air transportation, and hydrogen fuel
01 p0016 A74-11748
- ENERGY CONSUMPTION**
Onboard energy sources and propulsion systems for balloons
[ONERA, TP NO. 1311] 02 p0037 A74-24313
- Solar energy utilization by physical methods --- including hydropower, windpower, direct solar heating and electric power
02 p0042 A74-27323
- Energy management display
03 p0090 A74-34844
- Econometric models: Their application to the economic and energy sectors
[CR-BIB-220] 02 p0062 A74-17660
- Energy in general --- technology for meeting world energy demand
02 p0068 A74-18587
- Issues involved in developing an environmental ethic --- socioeconomic factors in energy supply and demand
02 p0069 A74-18594
- Man versus his institutions --- goals of rational energy policy
02 p0070 A74-18603
- Transportation energy use in the United States: A statistical history, 1955 - 1971
[E-1391-NSF] 02 p0070 A74-18607

SUBJECT INDEX

ENERGY CONVERSION

- Natural resources development and policies, including environmental considerations. Addendum: Changing patterns in the world energy situation
[R/C-7/2/ADD.1] 02 p0070 N74-18609
- Energy, resources and the environment: A set of presentations
[873-61] 02 p0075 N74-19615
- US transportation: Some energy and environmental considerations
[872-164] 02 p0075 N74-19624
- Consumption of energy in New York State: 1972 (with estimates for 1973)
[OER-19] 02 p0079 N74-20614
- Energy in the near term --- prediction analysis techniques for energy consumption and employment
02 p0079 N74-20617
- Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system
[P-5146] 02 p0080 N74-20621
- Coping with the fuel shortage: A guide for Los Angeles residents
[P-5154] 02 p0080 N74-20622
- Energy research and development: A selected reading list
[ORNL-RIS-73-65] 02 p0080 N74-20627
- Patterns of energy consumption in the United States
02 p0080 N74-20699
- Conservation and efficient use of energy: A state regulator's view
03 p0100 N74-21686
- Trends of energy use in California and the south coast air basin
[EQL-MHMO-6] 03 p0103 N74-22592
- Energy alternatives for California: The current crisis. 2: Conservation of energy
[P-5156] 03 p0103 N74-22595
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 4: Energy from fossil fuels
[NASA-CR-138188] 03 p0103 N74-22603
- The administration's proposal for relaxation of air pollution standards --- Congressional hearing on proposals for reducing clean air standard and effects of sulfur oxides in fuels
[GPO-22-629] 03 p0108 N74-26411
- Energy Emergency Act
[GPO-26-038] 03 p0112 N74-27444
- The price elasticity of residential energy use
[P-5180] 03 p0112 N74-27446
- ENERGY CONVERSION**
- Thermionic energy conversion. Volume I - Processes and devices --- Book
01 p0004 N74-14327
- Evolution of studies in the field of gas lasers
01 p0005 N74-16909
- Recent developments in the field of thermionic power conversion and its possible effects on power supply systems in space and on earth
[DGLR PAPER 73-092] 01 p0005 N74-17195
- Energy supply and energy transformers in satellites and spacecraft
01 p0006 N74-18189
- Prospects of energy conversion and storage derived from space systems technology
02 p0033 N74-19485
- The motion of a conducting piston in a channel with variable inductance
02 p0036 N74-22279
- Direct energy conversion by means of solar cells
02 p0040 N74-24937
- Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems
02 p0041 N74-27136
- Solar energy to meet the nation's energy needs
[NASA-TN-X-68290] 01 p0011 N74-10754
- Solar energy for the terrestrial generation of electricity
01 p0012 N74-10896
- Solar-energy for heating and cooling
01 p0016 N74-11787
- Energy demand and its effect on the environment
[P-5048] 01 p0017 N74-11790
- The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption
[PB-207519] 01 p0017 N74-11796
- An assessment of solar energy as a national energy resource
[NASA-CR-136191] 01 p0019 N74-12462
- Energy facts
01 p0020 N74-12672
- Energy consumption: Past, present, future
01 p0020 N74-12675
- Energy and resource consumption
01 p0020 N74-12676
- Energy resources
01 p0020 N74-12677
- Components for solar energy
01 p0020 N74-12678
- Solar power generation and distribution
01 p0021 N74-12680
- National energy policy
01 p0021 N74-12681
- Solar energy potential
01 p0021 N74-12682
- Impacts of solar energy utilization
01 p0021 N74-12683
- Strategy for solar heating and cooling in buildings
01 p0021 N74-12685
- An inventory of energy research, volume 1
01 p0021 N74-12688
- Energy research and development: A selected reading list
[ORNL-RIS-73-65-REV-1] 01 p0022 N74-12695
- Isotope kilowatt program
[ORNL-TN-4243] 01 p0025 N74-14377
- Energy conservation through effective utilization
[MSIR-73-102] 01 p0027 N74-14688
- National Fuels and Energy Conservation Act of 1973
[S-REPT-93-526] 01 p0027 N74-14693
- Storage and transportation of synthetic fuels. A report to the synthetic fuels panel
[ORNL-TN-4307] 01 p0030 N74-15448
- The energy situation in the community, situation 1972, forecasts 1973
01 p0030 N74-15679
- Energy resources of the United States --- based on geological survey of all available sources of energy
[CIRC-650] 01 p0031 N74-15685
- The effect of fuel availability on future R and D programs in power generation
01 p0031 N74-15689
- Energy, resources and the environment
[N72-180-REV-1] 01 p0032 N74-15695
- Outlook for energy in the United States to 1985
01 p0032 N74-15697
- An economic evaluation of MHD-steam powerplants employing coal gasification
[BN-MI-7796] 02 p0051 N74-16620
- Balancing the demand and supply of coal
02 p0052 N74-16658
- Wind machines --- aerodynamics of sailing vehicles
02 p0059 N74-16797
- NSF presentation --- summary on energy conversion research program
02 p0059 N74-16798
- Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 N74-16810
- Direct energy conversion methods
[AD-770000] 02 p0061 N74-16816
- Kinetics of coal gasification in a low pressure, low residence time, entrained flow reactor
02 p0061 N74-17190
- NSF-RANN energy abstracts: A monthly abstract journal of energy research
[ORNL-RIS-73-52-VOL-1-NO-9] 02 p0062 N74-17680
- New sources of power: Solar energy
02 p0063 N74-17790
- Investigation in energy transfer and energy conversion for advanced power and propulsion systems
[AD-771581] 02 p0067 N74-18417
- Recycling solid waste for utility fuel and recovery of other resources --- identification of mechanical problems in materials handling
02 p0071 N74-18723
- Electricity: The conversion industry
[NP-19837] 02 p0072 N74-18730
- Energy recovery from waste: Solid waste as supplementary fuel in power plant boilers
[SN-36Q.II] 02 p0076 N74-19699
- Heat operated cryogenic electrical generator --- using liquid helium conversion
[NASA-CASE-MPO-13303-1] 02 p0077 N74-19701

ENERGY CONVERSION EFFICIENCY

SUBJECT INDEX

- Electric power generation system directly from laser power
[NASA-CASX-WPO-13308-1] 02 p0077 W74-19702
- The present state of planning and erection of large experimental wind-power stations
[NASA-TT-F-15512] 03 p0099 W74-21678
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 4: Energy from fossil fuels
[NASA-CN-138188] 03 p0103 W74-22603
- Technology of Efficient Energy Utilization --- proceedings of conference on research and development contributions to efficient energy utilization
03 p0106 W74-23510
- Chemical Vapor deposition research for fabrication of solar energy converters
[NSF-NANW/SE/GI-36731X/PR/73/3] 03 p0106 W74-25616
- Wind generating stations under joint operational conditions --- operation and need for alternate energy methods
[NASA-TT-F-15637] 03 p0106 W74-25617
- Statistical summary and evaluation on electric power generation from wind power stations --- experience with powered generating stations in Denmark
[NASA-TT-F-15651] 03 p0106 W74-25618
- Energy Emergency Act
[GPO-26-038] 03 p0112 W74-27444
- World energy and the oceans
03 p0115 W74-27827
- A planning methodology for the analysis and design of wind-power systems
03 p0119 W74-28534
- ENERGY CONVERSION EFFICIENCY**
- Heating of a substance by an arc plasma
01 p0001 A74-10463
- Qualitative analysis of the efficiency of MHD energy conversion
01 p0003 A74-13944
- Vitreous oxide antireflection films in high-efficiency solar cells
01 p0004 A74-14250
- On the theory of alternating-current electrofluiddynamic converters
01 p0007 A74-18988
- Loss mechanisms in an MHD generator --- Book on argon plasma nonequilibrium Faraday generator efficiency
02 p0033 A74-19455
- Schottky-barrier solar-cell calculations
02 p0035 A74-21028
- Solar cell development in the Federal Republic of Germany
02 p0037 A74-24903
- The optimization of silicon photocell operated in conjunction with solar radiation concentrators
02 p0037 A74-24906
- Status of wind-energy conversion
02 p0042 A74-27772
- Fuel cells with the fuel dissolved in the electrolyte
03 p0084 A74-30529
- Vertical multijunction solar-cell one-dimensional analysis
03 p0086 A74-33971
- Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaidzhan SSR
03 p0087 A74-34095
- Effect of series resistance on the illuminating efficiency and optical thickness of the alloyed layer of silicon photocells
03 p0087 A74-34099
- Potential improvements in efficiency and cost of solar cells
03 p0088 A74-34369
- Solar and laser energy conversion with Schottky barrier solar cells
03 p0088 A74-34370
- The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells
03 p0088 A74-34373
- Comparison of vertical multi-junction and conventional solar cell performance
03 p0088 A74-34376
- GaAs solar cells with AlAs windows
03 p0088 A74-34383
- Qualification testing of laboratory produced violet solar cells
03 p0088 A74-34390
- Optimum design of antireflection coating for silicon solar cells
03 p0089 A74-34394
- Vitreous oxide antireflection films in high-efficiency solar cells
03 p0089 A74-34396
- Improved performance from thin silicon solar cells
03 p0089 A74-34401
- A new solar selective surface --- mesh for high solar energy absorption
03 p0093 A74-36264
- The effect of magnetic field upon the output performance of segmented-open type MHD generator
03 p0095 A74-37609
- Optimization of open cycle power plant MHD generator
03 p0095 A74-37610
- MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators
03 p0096 A74-37613
- Study of a bi-phase D.C. M.H.D. generator using a new notion system
03 p0096 A74-37618
- The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators
03 p0096 A74-37619
- Results of the Eindhoven MHD shocktunnel experiment
03 p0097 A74-37623
- Research on electrochemical energy conversion systems --- electrolytes for hydrocarbon-air fuel cells
[AD-766329] 01 p0013 W74-10951
- Solar heat utilization in residential heating systems
01 p0019 W74-12664
- Method of calculation of annual overall efficiency of modern wind-power plants
[NASA-TT-F-15310] 02 p0046 W74-15748
- Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Bonnef-Gross wind turbine
[NASA-TT-F-15302] 02 p0047 W74-15762
- Antenna towers as wind tower generation plants
[NASA-TT-F-15304] 02 p0047 W74-15763
- Measures for slowing growth in electricity consumption
[P-5017] 02 p0054 W74-16676
- Wind energy conversion systems
[NASA-TN-X-69786] 02 p0055 W74-16757
- Energy storage using high pressure electrolysis and methods for reconversion --- in automobile fuel synthesis
02 p0057 W74-16780
- Status and applicability of solid polymer electrolyte technology to electrolytic hydrogen and oxygen production
02 p0058 W74-16782
- Experience with Jacobs wind-driven electric generating plant, 1931 - 1957
02 p0058 W74-16786
- Economic considerations of utilizing small wind generators
02 p0058 W74-16789
- Technical feasibility study for the development of a large capacity wind powered electrical generating system --- by using vertical airfoil motion along track system
02 p0059 W74-16791
- NASA presentation --- wind energy conversion systems planning
02 p0060 W74-16799
- Energy options for the future --- nuclear energy, synthetic fuels, and pollution control methods
02 p0069 W74-18599
- Investigation of energy conversion in rapidly cycling fuel cells, 1. A system for studying the surface diffusion of hydrogen on metals, 2
02 p0071 W74-18720
- Status of wind-energy conversion
[NASA-TN-X-71523] 02 p0077 W74-19705
- Calculation and comparison of the economy of electrochemical fuel cells
[MTC-74-11868] 03 p0108 W74-26496
- Operating conditions and types of wind-power electric substations for rural areas
[NASA-TT-F-15517] 03 p0109 W74-26512

ENERGY DISTRIBUTION

Long range trends in the character of electric power systems

02 p0049 N74-15908

Issues involved in developing an environmental ethic --- socioeconomic factors in energy supply and demand

02 p0069 N74-18594

ENERGY POLICY

The use of the pressurized balloon for detecting energy resources

02 p0033 A74-19473

Energy problems in air transportation --- options for demand reduction, efficiency increase and fuel alternatives

02 p0033 A74-19479

The implications for air transportation of energy shortage

02 p0033 A74-19486

The fuel crisis and the controller --- turbojet aircraft descent trajectories for fuel consumption reduction

02 p0034 A74-19726

The airship can meet the energy challenge

02 p0034 A74-20166

Investigation of photovoltaic applications --- for solar energy conversion

02 p0040 A74-24939

Conclusions and recommendations of the United States Solar Energy Panel

02 p0040 A74-24941

Energy self-sufficiency - An economic evaluation

03 p0085 A74-31446

Performance versus cost tradeoffs - Initial look at alternatives --- for aircraft engine fuel

cost minimization [SAL PAPER 740494]

03 p0090 A74-34989

Fuel state - Expensive

03 p0092 A74-35496

A review of precious resources and their effect on air transport; Proceedings of the Spring Convention, London, England, May 15, 16, 1974

03 p0093 A74-36316

The development of aircraft as influenced by the shortage of materials and fuel

03 p0093 A74-36319

Precious resources and air transport - An airline view --- fuel price increase effects

03 p0093 A74-36322

The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy

Utilization, Washington, D.C., April 30, 1974

03 p0093 A74-36331

Growing federal support for solar energy applications

03 p0094 A74-36335

The good and bad usages of air transport

03 p0094 A74-36941

Report to the president and to the council on environmental quality

01 p0024 N74-14094

Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part I: Technical sessions, March 21 and 22

[PB-223536/48A]

01 p0025 N74-14499

Manergy: An energy management model of the United States for the prediction of energy demand, resource consumption, environmental effects, the assessment of new technology, and energy resource alternatives

01 p0026 N74-14665

Review of world energy supplies --- reserves and resources of fossil and fissile fuels

[IGU/A-1-73]

01 p0026 N74-14666

Energy policy research and the State of Florida

[P-5078]

01 p0026 N74-14684

Federal agency energy conservation [Q8-1]

01 p0026 N74-14686

Federal energy conservation --- Federal policy on conservation and reduction of energy requirements

01 p0026 N74-14687

Energy conservation through effective utilization [HBSIR-73-102]

01 p0027 N74-14688

EPA pollution regulations and fuel shortage: The impact on mass transit

01 p0027 N74-14690

Energy crisis and small business --- Federal Trade Commission report on investigation of petroleum industry

01 p0027 N74-14691

Energy research and development, 2

01 p0027 N74-14692

National Fuels and Energy Conservation Act of 1973 [S-REPT-93-526]

01 p0027 N74-14693

Electric energy requirements for environmental protection

[CONF-730205-4]

01 p0027 N74-14695

Energy and the environment: Electric power

[PS-223326/06A]

01 p0028 N74-14791

Energy situation and nuclear power --- global applications of nuclear reactors

[EP-19838]

01 p0029 N74-15391

Storage and transportation of synthetic fuels. A report to the synthetic fuels panel

[OHL-TN-4307]

01 p0030 N74-15448

Prospects for hydrogen as a fuel for transportation systems and for electrical power generation

[OHL-TN-4305]

01 p0030 N74-15449

Time factors in slowing down the rate of growth of demand for primary energy in the United States

[BQL-7]

01 p0030 N74-15667

The energy situation in the community, situation 1972, forecasts 1973

01 p0030 N74-15679

Individual action for energy conservation

01 p0030 N74-15680

Energy consumption and gross national product in the United States: An examination of a recent change in the relationship

01 p0030 N74-15681

Conservation and efficient use of energy, part 1

01 p0030 N74-15682

Factors affecting the use of coal in present and future energy markets --- background paper for Congressional investigation of earth resources and energy policies

01 p0031 N74-15684

Energy resources of the United States --- based on geological survey of all available sources of energy

[CIRC-650]

01 p0031 N74-15685

Legislative authority of Federal agencies with respect to fuels and energy: A staff analysis

[P-5078]

01 p0031 N74-15686

The President's energy message and S. 1570

01 p0031 N74-15687

Summary of the energy conservation and development recommendations contained in the final report of the National Commission on Materials Policy,

June 1973: A background paper

01 p0031 N74-15688

Energy conservation, part 1

01 p0031 N74-15690

Energy, resources and the environment [H72-180-REV-1]

01 p0032 N74-15695

Outlook for energy in the United States to 1985

01 p0032 N74-15697

Energy conservation with solar climate control --- solar heating and cooling of buildings

[P-5078]

02 p0050 N74-16513

A new view of solar energy --- as comprehensive national energy policy

02 p0050 N74-16514

A bibliography of non-technical literature on energy

[P-5078]

02 p0051 N74-16641

A bibliography of Congressional publications on energy from the 89th Congress to 1 July 1971

[P-5078]

02 p0051 N74-16642

Balancing supply and demand for energy in the United States --- conferences

02 p0051 N74-16651

Future United States population, economic growth, and energy demands

02 p0051 N74-16652

Government, policies, national objectives, and the energy industries

02 p0051 N74-16653

Capital requirements of the energy industries

02 p0052 N74-16654

Long run cost trends: Persian Gulf and United States

02 p0052 N74-16655

Balancing the demand and supply of oil

02 p0052 N74-16656

- Balancing the supply and demand for natural gas
02 p0052 #74-16657
- Balancing the demand and supply of coal
02 p0052 #74-16658
- Balancing the demand and supply of electricity and nuclear fuels
02 p0052 #74-16659
- Balancing the demand and supply of other energy forms
02 p0052 #74-16660
- Environmental protection and long run supply of crude oil in the United States
02 p0052 #74-16661
- Energy emergency legislation, part 1
02 p0052 #74-16662
- Fuel shortages, part 1
02 p0053 #74-16664
- Fuel shortages, part 2
02 p0053 #74-16665
- The evolution and dynamics of national goals in the United States
02 p0053 #74-16666
- A review of energy issues and the 91st Congress
02 p0053 #74-16667
- Compact to conserve oil and gas
02 p0053 #74-16668
- Federal Energy Organization: A staff analysis
02 p0053 #74-16669
- Geothermal energy resources and research
02 p0053 #74-16670
- A methodology for projecting the electrical energy demand of the manufacturing sector in California [R-991-NSF/CSRA]
02 p0053 #74-16673
- Fuel from organic matter: Possibilities for the state of California [P-5107]
02 p0054 #74-16674
- The Soviet Union, the Middle East, and the evolving world energy situation --- soviet influence [P-5105]
02 p0054 #74-16675
- Energy conservation in public and commercial buildings [P-5093]
02 p0054 #74-16677
- California's electricity quandary. 3: Slowing the growth rate [R-1116-NSF/CSA]
02 p0054 #74-16680
- Geothermal energy
02 p0054 #74-16684
- United States petroleum situation through 1980 [AD-761576]
02 p0054 #74-16691
- The US energy crisis, the multinational oil corporations and their relationship to US foreign policy in the Middle East [AD-760868]
02 p0055 #74-16697
- Where there is a wind, there is a way
02 p0055 #74-16763
- H2-O2 combustion powered steam-BED central power systems [NASA-TN-X-71512]
02 p0060 #74-16800
- Hydrogen economy --- based on hydrogen as energy source [BNL-18224]
02 p0060 #74-16809
- Solar energy evaluation group report [ANL-8045]
02 p0061 #74-17527
- A review of energy policy activities of the 92d Congress
02 p0062 #74-17669
- NSF-RANN energy abstracts: A monthly abstract journal of energy research [ORNL-RIS-73-52-VOL-1-NO-9]
02 p0062 #74-17680
- Feasibility study of a satellite solar power station [NASA-CR-2357]
02 p0063 #74-17784
- New sources of power: Solar energy
02 p0063 #74-17790
- Solar energy systems --- for generating electricity and producing hydrogen fuels [H73-26]
02 p0064 #74-17795
- Energy conservation strategies [PB-224493/7GA]
02 p0064 #74-17800
- Petroleum: A prediction made in 1950 [P-5135]
02 p0065 #74-18194
- The hydrogen IC engine: Its origins and future in the emerging energy-transportation-environment system [BEPT-729212]
02 p0067 #74-18403
- Investigation in energy transfer and energy conversion for advanced power and propulsion systems [AD-771581]
02 p0067 #74-18417
- Computer simulation of world dynamics and implications for policy decisions --- social issues in energy policies
02 p0068 #74-18585
- Economic basis for energy and resource use --- energy policy considering social impact
02 p0068 #74-18586
- The international aspects of importing natural gas --- economics of shipping liquefied natural gas
02 p0068 #74-18588
- Remarks --- capital requirements to meet energy shortages
02 p0068 #74-18590
- Symposium on Energy, Resources and the Environment. Session on Ethics and Environmental Aspects of the Demand for and Use of Energy, volume 2 --- socioeconomic aspects of energy resource development [H72-69-VOL-2-REV-1]
02 p0068 #74-18591
- National energy policies --- for development of low cost energy
02 p0069 #74-18592
- An energy ethic --- socioeconomic ethics of energy source development
02 p0069 #74-18593
- Issues involved in developing an environmental ethic --- socioeconomic factors in energy supply and demand
02 p0069 #74-18594
- Environmental issues and institutional arrangements --- economic and environmental aspects of energy policy
02 p0069 #74-18595
- Mechanisms for achieving cleaner power, prices, regulations --- energy policy
02 p0069 #74-18596
- Energy demand in Japan, 1975 to 1985
02 p0069 #74-18600
- Major R&D programs to meet the energy crisis --- solar energy, nuclear fusion, and hydrogen-based power supplies
02 p0069 #74-18602
- Man versus his institutions --- goals of rational energy policy
02 p0070 #74-18603
- Energy-related research and development
02 p0070 #74-18605
- The potential for energy conservation in commercial air transport [R-1360-NSF]
02 p0070 #74-18606
- Natural resources development and policies, including environmental considerations. Addendum: Changing patterns in the world energy situation [R/C.7/2/ADD.1]
02 p0070 #74-18609
- Energy conservation and S. 2176, part 2
02 p0070 #74-18622
- Quantitative energy studies and models: A state of the art review
02 p0070 #74-18623
- Proceedings: Energy Resource Conference (2nd) [PB-224750/OGA]
02 p0071 #74-18634
- Energy conversion --- bibliography [AD-771750]
02 p0071 #74-18638
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 1: Solar energy [NASA-CR-137242]
02 p0071 #74-18721
- Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator [JPRS-61359]
02 p0071 #74-18723
- Technical options for energy conservation in buildings [BBS-TN-789]
02 p0071 #74-18724
- And what if we were to switch to hydrogen? --- use of hydrogen derived from water as a fuel source [LA-TN-73-40]
02 p0072 #74-18729
- Electricity: The conversion industry [SP-19837]
02 p0072 #74-18730
- Liquid hydrogen as a fuel for motor vehicles; a comparison with other systems
02 p0074 #74-19391
- H.R. 11864: Solar Heating and Cooling Demonstration Act of 1974. Background and legislative history
02 p0075 #74-19604

- Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area [H-RPT-92-1313] 02 p0075 N74-19605
- Atomic Energy Commission 1 December 1973 report on energy research and development 02 p0075 N74-19606
- Energy resources of the United States [CIBC-650] 02 p0075 N74-19614
- Energy, resources and the environment: A set of presentations [H73-61] 02 p0075 N74-19615
- Council on Energy Policy 02 p0075 N74-19617
- The gasoline shortage: A national perspective 02 p0075 N74-19618
- US transportation: Some energy and environmental considerations [H72-164] 02 p0075 N74-19624
- Energy recovery from waste: Solid waste as supplementary fuel in power plant boilers [SW-36D.II] 02 p0076 N74-19699
- Analysis of the possible use of wind power in Sweden. Part 1: Wind power resources, theory of wind-power machines, preliminary model 1 and 10 MW wind generators [NASA-TT-P-15441] 02 p0077 N74-19708
- Report of the Wind Power Committee of 1962 [NASA-TT-P-15442] 02 p0078 N74-19710
- Final environmental statement for the geothermal leasing program. Volume 2: Leasing of geothermal resources in three California areas 02 p0078 N74-19975
- Final environmental statement for the geothermal leasing program. Volume 3: Proposed geothermal leasing and operating regulations 02 p0078 N74-19976
- Final environmental statement for the geothermal leasing program. Volume 4: Comments on draft impact statement and proposed regulations 02 p0078 N74-19977
- National energy policy for meeting US energy requirements 02 p0079 N74-20613
- Final environmental statement for the geothermal leasing program. Volume 1: Promulgation of leasing and operating regulations 02 p0079 N74-20616
- Energy in the near term --- prediction analysis techniques for energy consumption and employment 02 p0079 N74-20617
- Energy program, 1972 [BH-IC-8612] 02 p0080 N74-20619
- Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system [P-5146] 02 p0080 N74-20621
- Coping with the fuel shortage: A guide for Los Angeles residents [P-5154] 02 p0080 N74-20622
- Approach to the holistic analysis of the system man-energy-environment [JUL-982-EG] 02 p0080 N74-20626
- Optimal electrical energy growth strategies in an era of environmental concern 02 p0080 N74-20697
- Energy sources - Citations from the early DDC collections [AD-773325] 02 p0081 N74-20705
- Background material for the Energy Policy Workshop, 11-12 January 1973 --- conferences [H73-12] 02 p0082 N74-21619
- Conservation of energy 02 p0082 N74-21620
- The gasoline and fuel oil shortage --- congressional hearing to determine causes and corrective actions for fuel shortage problem [GPO-99-740] 02 p0082 N74-21624
- Project SAGE phase 1 report: Solar assisted gas energy water heating feasibility for application in new apartments [EQL-MBHO-11] 03 p0099 N74-21675
- Medium-term prospects and guidelines in the community gas sector 03 p0100 N74-21684
- Conservation and efficient use of energy: A state regulator's view 03 p0100 N74-21686
- Potential for the production of power from geothermal resources [LA-UR-73-926] 03 p0100 N74-21690
- Potential for hot-dry-rock geothermal energy in the western United States [LA-UR-73-1075] 03 p0100 N74-21691
- Studies of heat resistant materials for high-temperature gas reactor [NASA-TT-P-15576] 03 p0102 N74-22312
- Energy alternatives for California: The current crisis. 2: Conservation of energy [P-5156] 03 p0103 N74-22595
- Energy alternatives for California: The current crisis. 3: Allocation of scarce supplies [P-5157] 03 p0103 N74-22596
- Research on ground propulsion systems 03 p0103 N74-22600
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 4: Energy from fossil fuels [NASA-CN-138188] 03 p0103 N74-22603
- United States energy fact sheets, 1971 03 p0104 N74-22610
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 2: Power from nuclear fission [NASA-CN-138397] 03 p0105 N74-23481
- Staff study of the oversight and efficiency of executive agencies with respect to the petroleum industry, especially as it relates to recent fuel shortages [GPO-23-764] 03 p0105 N74-23487
- Presidential energy statements [GPO-24-936] 03 p0106 N74-23511
- Comparison and evaluation of power plant options for geosynchronous power stations. Part 1: Synchronous solar power [NASA-CN-138493] 03 p0106 N74-25615
- Chemical Vapor deposition research for fabrication of solar energy converters [NSF-MANW/SE/GI-36731X/PE/73/3] 03 p0106 N74-25616
- Solar energy research and utilization [NASA-TN-X-70660] 03 p0106 N74-25621
- The energy complex: Target for today's technology 03 p0108 N74-26409
- Geothermal resources, part 1 --- policy for geothermal resources development [GPO-21-438] 03 p0108 N74-26505
- Federal Energy Administration [GPO-26-725] 03 p0111 N74-27443
- Nuclear stimulation of natural gas [GPO-96-678] 03 p0112 N74-27448
- Coal policy issues. Part 2: Appendix 3: Additional statements received for the record [GPO-20-768] 03 p0112 N74-27450
- Clean energy from coal technology 03 p0113 N74-27524
- Conservation and efficient use of energy, part 2 [GPO-24-290] 03 p0113 N74-27525
- Conservation and efficient use of energy, part 3 [GPO-24-682] 03 p0113 N74-27526
- Conservation and efficient use of energy, part 4 [GPO-25-654] 03 p0113 N74-27527
- Problems, resources and necessary progress in Community energy policy 1975 - 1985 03 p0113 N74-27532
- Prospects of primary energy demand in the community (1975 - 1980 - 1985) --- long term trend analysis for Europe 03 p0113 N74-27533
- Energy resources and usage --- production planning in Australia [ER-2] 03 p0114 N74-27536
- Future energy supply: Approaches and options --- aspects of domestic energy policy 03 p0116 N74-28030
- The energy crisis: Impact of Canadian policies [GPO-27-709] 03 p0118 N74-28440
- Economic impact of petroleum shortages [GPO-27-213] 03 p0118 N74-28452
- Profitability of domestic energy company operations [GPO-28-572] 03 p0118 N74-28453
- Sales of fuel oil and kerosine in 1972 03 p0119 N74-28463
- World natural gas: 1972 03 p0119 N74-28464
- Nation's energy future --- review of Federal and private energy R and D [WASH-1281] 03 p0119 N74-28465

ENERGY REQUIREMENTS

SUBJECT INDEX

Proposed program and budget for photovoltaic systems
[HTR-6613] 03 p0119 W74-28538

Dissemination and utilization of solar energy
research results 03 p0120 W74-28540

Solar energy, proof of concept experiments ---
technology utilization 03 p0120 W74-28541

Economics of thermodynamic solar power systems.
Part 2: The turbine trade-off 03 p0120 W74-28547

The impact of energy shortages on US environmental
standards 03 p0122 W74-29342

Some simple calculations to suggest the effects of
six national policies upon use and supply of
energy 03 p0122 W74-29343

Gasoline, diesel, and heating oil shortages
[GPO-24-116] 03 p0123 W74-29344

Energy emergency legislation, part 2
[GPO-24-646] 03 p0123 W74-29352

ENERGY REQUIREMENTS

Solar power for our nation 01 p0004 A74-14465

Nuclear electric power --- selective assessment of
plant and reactor types 02 p0041 A74-27320

Geothermal electricity production 02 p0042 A74-27321

Engine sensory requirements for energy management
02 p0043 A74-28311

Energy: Compiled bibliography and tables of world
resources, consumption, and wastes
[LRP-63/73] 01 p0010 W74-10391

Energy research and development and space technology
01 p0012 W74-10892

A hydrogen energy carrier. Volume 1: Summary ---
for meeting energy requirements 01 p0014 W74-11727

A hydrogen energy carrier. Volume 2: Systems
analysis 01 p0014 W74-11728

Summary of systems analysis of hydrogen as an
energy carrier in the United States 01 p0015 W74-11729

Current energy shortage in the United States 01 p0015 W74-11730

Production of hydrogen --- for hydrogen economy 01 p0015 W74-11731

Implementation of a hydrogen energy carrier system 01 p0015 W74-11735

Energy research and development: An overview of
our national effort 01 p0016 W74-11788

Energy demand and its effect on the environment
[P-5048] 01 p0017 W74-11790

Energy trends and their future effects upon
transportation --- applied to rail, truck, and
air cargo operations and private energy uses
[P-5046] 01 p0017 W74-11791

The U.S. energy problem. Volume 2: Appendices,
part A --- to include alternate energy sources
for fossil fuels 01 p0017 W74-11795

The U.S. energy problem. Volume 2: Appendices,
part B --- to include development of alternate
power sources to reduce fossil fuel consumption
[PB-207519] 01 p0017 W74-11796

Energy R and D inventory data base. Bibliography,
1973 01 p0017 W74-11849

Energy facts 01 p0020 W74-12672

TERRASTAR: Terrestrial application of solar
technology and research 01 p0020 W74-12674

Energy consumption: Past, present, future 01 p0020 W74-12675

Energy and resource consumption 01 p0020 W74-12676

Energy resources 01 p0020 W74-12677

Solar heating and cooling buildings 01 p0020 W74-12679

National energy policy 01 p0021 W74-12681

Solar energy potential 01 p0021 W74-12682

Impacts of solar energy utilization 01 p0021 W74-12683

Market potential for solar heating and cooling in
buildings 01 p0021 W74-12684

An inventory of energy research, volume 1 01 p0021 W74-12688

Short term energy shortages 01 p0021 W74-12690

Energy research and development and space technology 01 p0022 W74-12691

Energy research and development: A selected
reading list 01 p0022 W74-12695

[ORNL-EIS-73-65-RHV-1] 01 p0022 W74-12695

Solar ponds extended 01 p0023 W74-13537

[UCID-16317] 01 p0024 W74-14097

Alternative energy sources: A research challenge
[CONR-730560-1] 01 p0024 W74-14097

Manergy: An energy management model of the United
States for the prediction of energy demand,
resource consumption, environmental effects, the
assessment of new technology, and energy
resource alternatives 01 p0026 W74-14665

Energy policy research and the State of Florida
[P-5078] 01 p0026 W74-14684

Federal agency energy conservation 01 p0026 W74-14686

[OR-1] 01 p0026 W74-14687

Federal energy conservation --- Federal policy on
conservation and reduction of energy requirements 01 p0026 W74-14687

Energy conservation through effective utilization
[HBSIS-73-102] 01 p0027 W74-14688

National Fuels and Energy Conservation Act of 1973
[S-REPT-93-526] 01 p0027 W74-14693

Electric energy requirements for environmental
protection 01 p0027 W74-14695

[CONR-730205-4] 01 p0027 W74-14695

Time factors in slowing down the rate of growth of
demand for primary energy in the United States
[EQL-7] 01 p0030 W74-15667

The energy situation in the community, situation
1972, forecasts 1973 01 p0030 W74-15679

Energy consumption and gross national product in
the United States: An examination of a recent
change in the relationship 01 p0030 W74-15681

Conservation and efficient use of energy, part 1 01 p0030 W74-15682

Legislative authority of Federal agencies with
respect to fuels and energy: A staff analysis 01 p0031 W74-15686

The President's energy message and S. 1570 01 p0031 W74-15687

Summary of the energy conservation and development
recommendations contained in the final report of
the National Commission on Materials Policy,
June 1973: A background paper 01 p0031 W74-15688

The effect of fuel availability on future R and D
programs in power generation 01 p0031 W74-15689

Energy conservation, part 1 01 p0031 W74-15690

Energy, resources and the environment
[H72-180-RHV-1] 01 p0032 W74-15695

Outlook for energy in the United States to 1985 01 p0032 W74-15697

Residential energy use: An econometric analysis
[R-1297-MSF] 01 p0032 W74-15698

Economy and practical applications of large
wind-driven power plants, part 1 02 p0045 W74-15741

[NASA-TT-F-15308] 02 p0045 W74-15741

Energy conservation with solar climate control ---
solar heating and cooling of buildings 02 p0050 W74-16513

A bibliography of non-technical literature on energy 02 p0051 W74-16641

A bibliography of Congressional publications on
energy from the 89th Congress to 1 July 1971 02 p0051 W74-16642

Balancing supply and demand for energy in the
United States --- conferences 02 p0051 W74-16651

Future United States population, economic growth,
and energy demands 02 p0051 W74-16652

Government, policies, national objectives, and the energy industries 02 p0051 W74-16653

Capital requirements of the energy industries 02 p0052 W74-16654

Balancing the demand and supply of oil 02 p0052 W74-16656

Balancing the demand and supply of other energy forms 02 p0052 W74-16660

Energy emergency legislation, part 1 02 p0052 W74-16662

Fuel shortages, part 1 02 p0053 W74-16664

Fuel shortages, part 2 02 p0053 W74-16665

A review of energy issues and the 91st Congress 02 p0053 W74-16667

A methodology for projecting the electrical energy demand of the manufacturing sector in California [R-991-NSF/CSRA] 02 p0053 W74-16673

The Soviet Union, the Middle East, and the evolving world energy situation --- soviet influence [P-5109] 02 p0054 W74-16675

Energy conservation in public and commercial buildings [P-5093] 02 p0054 W74-16677

California's electricity quandary. 3: Slowing the growth rate [R-1116-NSF/CSA] 02 p0054 W74-16680

Modeling of electric power demand growth [PB-224045/5GA] 02 p0054 W74-16690

United States petroleum situation through 1980 [AD-761576] 02 p0054 W74-16691

Hydrogen economy --- based on hydrogen as energy source [BNL-18224] 02 p0060 W74-16809

Solar energy evaluation group report [ANL-8045] 02 p0061 W74-17527

Econometric models: Their application to the economic and energy sectors [CER-BIE-220] 02 p0062 W74-17660

Translations on Eastern Europe Scientific Affairs, no. 383 --- Romanian research on fuel conservation with thermoenergetic equipment and digital processing and transmission of information [JPRS-61101] 02 p0062 W74-17661

Role of thermoenergetic research in saving fuel 02 p0062 W74-17663

NSF-BAMN energy abstracts: A monthly abstract journal of energy research [ORNL-BIS-73-52-VOL-1-NC-9] 02 p0062 W74-17680

Remarks --- computerized simulation of energy demands and financial management 02 p0068 W74-18589

The potential for energy conservation in commercial air transport [R-1360-NSF] 02 p0070 W74-18606

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 1: Solar energy [NASA-CR-137242] 02 p0071 W74-18721

Atomic Energy Commission 1 December 1973 report on energy research and development 02 p0075 W74-19606

Energy, resources and the environment: A set of presentations [W73-61] 02 p0075 W74-19615

Meeting California's energy requirements, 1975-2000 02 p0076 W74-19629

National energy policy for meeting US energy requirements 02 p0079 W74-20613

Optimal electrical energy growth strategies in an era of environmental concern 02 p0080 W74-20697

Energy sources - Citations from the early DDC collections [AD-773325] 02 p0081 W74-20705

Conservation of energy 02 p0082 W74-21620

The gasoline and fuel oil shortage --- congressional hearing to determine causes and corrective actions for fuel shortage problem [GPO-99-740] 02 p0082 W74-21624

Technology of Efficient Energy Utilization --- proceedings of conference on research and development contributions to efficient energy utilization 03 p0106 W74-23510

Wind generating stations under joint operational conditions --- operation and need for alternate energy methods [NASA-TT-P-15637] 03 p0106 W74-25617

The price elasticity of residential energy use [P-5180] 03 p0112 W74-27446

Energy alternatives for California: The current crisis. 4: Regulatory aspects of energy policy [P-5158] 03 p0112 W74-27447

Draft of proposed legislation to promote more effective management of certain related functions of the Executive Branch [H-DOC-93-119] 03 p0112 W74-27454

Energy Emergency Act [H-REPT-93-793] 03 p0112 W74-27455

Nuclear heat and hydrogen in future energy utilization [LA-5456-H3] 03 p0117 W74-28108

Agriculture and the fuel crisis --- Congressional hearing on fuel crisis problems [GPO-27-899] 03 p0118 W74-28841

Naval Petroleum Reserve Numbered 1, Elk Hills, California --- Congressional hearings on exploitation of petroleum reserve source [GPO-25-650] 03 p0118 W74-28450

Transportation and energy conservation in the Pacific Northwest 03 p0119 W74-28539

Coal: Bituminous and lignite in 1972 03 p0120 W74-28545

To conserve energy on the national system of interstate and defense highways --- Congressional legislation for controlling maximum speed limit on highways [GPO-25-702] 03 p0123 W74-29346

Architectural guidelines to promote efficient energy use --- congressional hearing for energy policy legislation [GPO-28-428] 03 p0123 W74-29347

ENERGY SOURCES

Gas generators - A perspective --- alternative energy sources comparison [AIAA PAPER 73-1168] 01 p0001 W74-11219

Energy supply and energy transformers in satellites and spacecraft 01 p0006 W74-18189

Power sources 4: Research and development in non-mechanical electrical power sources; Proceedings of the Eighth International Symposium, Brighton, Sussex, England, September 24-26, 1972 02 p0034 W74-23627

Onboard energy sources and propulsion systems for balloons [ONERA, TP NO. 1311] 02 p0037 W74-24313

Nuclear fission as a general source of energy 03 p0090 W74-34620

Data on incident solar energy 03 p0094 W74-36333

Solar energy to meet the nation's energy needs [NASA-TN-X-68290] 01 p0011 W74-10754

Energy research and development and space technology 01 p0012 W74-10862

A hydrogen energy carrier. Volume 1: Summary --- for meeting energy requirements [NASA-CR-134175] 01 p0014 W74-11727

A hydrogen energy carrier. Volume 2: Systems analysis [NASA-CR-134176] 01 p0014 W74-11728

Summary of systems analysis of hydrogen as an energy carrier in the United States 01 p0015 W74-11729

Current energy shortage in the United States 01 p0015 W74-11730

Production of hydrogen --- for hydrogen economy 01 p0015 W74-11731

Transmission and storage of hydrogen 01 p0015 W74-11732

Safety, legal, environmental, economic, political, and social aspects of hydrogen 01 p0015 W74-11734

Implementation of a hydrogen energy carrier system 01 p0015 W74-11735

- The energy situation --- emphasizing various energy sources, costs, and environmental effects
01 p0016 W74-11744
- Energy research and development: An overview of our national effort
01 p0016 W74-11788
- Energy demand and its effect on the environment [P-5048]
01 p0017 W74-11790
- Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses [P-5046]
01 p0017 W74-11791
- The U.S. energy problem. Volume 2: Appendices, part A --- to include alternate energy sources for fossil fuels [PR-207518]
01 p0017 W74-11795
- The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption [PB-267519]
01 p0017 W74-11796
- An assessment of solar energy as a national energy resource [NASA-CR-136191]
01 p0019 W74-12462
- Solar heat utilization in residential heating systems
01 p0019 W74-12664
- Energy facts
01 p0020 W74-12672
- TEERASTAR: Terrestrial application of solar technology and research [NASA-CR-129012]
01 p0020 W74-12674
- Energy consumption: Past, present, future
01 p0020 W74-12675
- Energy and resource consumption
01 p0020 W74-12676
- Energy resources
01 p0020 W74-12677
- Components for solar energy
01 p0020 W74-12678
- National energy policy
01 p0021 W74-12681
- Impacts of solar energy utilization
01 p0021 W74-12683
- Market potential for solar heating and cooling in buildings
01 p0021 W74-12684
- Strategy for solar heating and cooling in buildings
01 p0021 W74-12685
- The Federal Government and energy: A and B historical background
01 p0021 W74-12687
- An inventory of energy research, volume 1
01 p0021 W74-12688
- An inventory of energy research, volume 2
01 p0021 W74-12689
- Mathematical methods of optimal planning development and use of energy systems [JFNS-66546]
01 p0022 W74-12693
- Energy research and development: A selected reading list [ONML-EIS-73-65-REV-1]
01 p0022 W74-12695
- Report to the president and to the council on environmental quality
01 p0024 W74-14094
- Alternative energy sources: A research challenge [CONF-730560-1]
01 p0024 W74-14097
- Manergy: An energy management model of the United States for the prediction of energy demand, resource consumption, environmental effects, the assessment of new technology, and energy resource alternatives
01 p0026 W74-14665
- Review of world energy supplies --- reserves and resources of fossil and fissile fuels [IGU/A-1-73]
01 p0026 W74-14666
- Energy policy research and the State of Florida [P-5078]
01 p0026 W74-14684
- Federal agency energy conservation [QR-1]
01 p0026 W74-14686
- Energy conservation through effective utilization [WBSIR-73-102]
01 p0027 W74-14688
- EPA pollution regulations and fuel shortage: The impact on mass transit
01 p0027 W74-14690
- Energy research and development, 2
01 p0027 W74-14692
- National Fuels and Energy Conservation Act of 1973 [S-REPT-93-526]
01 p0027 W74-14693
- Bitumen-bearing rocks --- as potential energy sources
01 p0028 W74-15226
- Coal
01 p0028 W74-15230
- Geothermal resources --- exploitation for energy applications
01 p0028 W74-15240
- Energy situation and nuclear power --- global applications of nuclear reactors [WF-19838]
01 p0029 W74-15391
- Storage and transportation of synthetic fuels. A report to the synthetic fuels panel [ONML-TN-4307]
01 p0030 W74-15448
- Time factors in slowing down the rate of growth of demand for primary energy in the United States [EOL-7]
01 p0030 W74-15667
- The energy situation in the community, situation 1972, forecasts 1973
01 p0030 W74-15679
- Conservation and efficient use of energy, part 1
01 p0030 W74-15682
- Energy resources of the United States --- based on geological survey of all available sources of energy [CIRC-650]
01 p0031 W74-15685
- Legislative authority of Federal agencies with respect to fuels and energy: A staff analysis
01 p0031 W74-15686
- The President's energy message and S. 1570
01 p0031 W74-15687
- Summary of the energy conservation and development recommendations contained in the final report of the National Commission on Materials Policy, June 1973: A background paper
01 p0031 W74-15688
- The effect of fuel availability on future R and D programs in power generation
01 p0031 W74-15689
- Energy conservation, part 1
01 p0031 W74-15690
- Selected list of Bureau of Mines publications on petroleum and natural gas, 1961-1970 [BN-IC-8534]
01 p0032 W74-15691
- Energy, resources and the environment [W72-180-REV-1]
01 p0032 W74-15695
- Outlook for energy in the United States to 1985
01 p0032 W74-15697
- Residential energy use: An econometric analysis [R-1297-WSP]
01 p0032 W74-15698
- Progress in the utilization of wind power [NASA-TT-F-15346]
02 p0046 W74-15753
- The direct driving of synchronous generators by large scale wind electrical power generating plants in parallel operation with a synchronizing network, part 1 [NASA-TT-F-15301]
02 p0047 W74-15757
- The importance of and progress in the utilization of wind power in Denmark [NASA-TT-F-15333]
02 p0047 W74-15758
- Application of wind power to rational generation of electricity [NASA-TT-F-15334]
02 p0047 W74-15759
- Investigation of the possibilities of using wind power [NASA-TT-F-15336]
02 p0047 W74-15760
- Prospects for the utilization of wind energy in Czechoslovakia [NASA-TT-F-15305]
02 p0048 W74-15766
- The utilization of the wind energy [NASA-TT-F-15344]
02 p0048 W74-15769
- An economic evaluation of MHD-steam powerplants employing coal gasification [BN-RI-7796]
02 p0051 W74-16620
- A bibliography of non-technical literature on energy
02 p0051 W74-16641
- A bibliography of Congressional publications on energy from the 89th Congress to 1 July 1971
02 p0051 W74-16642
- Balancing supply and demand for energy in the United States --- conferences
02 p0051 W74-16651
- Future United States population, economic growth, and energy demands
02 p0051 W74-16652
- Government, policies, national objectives, and the energy industries
02 p0051 W74-16653

SUBJECT INDEX

ENERGY SOURCES CONTD

- Capital requirements of the energy industries
02 p0052 W74-16654
- Balancing the demand and supply of oil
02 p0052 W74-16656
- Balancing the demand and supply of coal
02 p0052 W74-16658
- Balancing the demand and supply of electricity and nuclear fuels
02 p0052 W74-16659
- Balancing the demand and supply of other energy forms
02 p0052 W74-16660
- Environmental protection and long run supply of crude oil in the United States
02 p0052 W74-16661
- Energy emergency legislation, part 1
02 p0052 W74-16662
- Fuel shortages, part 1
02 p0053 W74-16664
- Fuel shortages, part 2
02 p0053 W74-16665
- A review of energy issues and the 91st Congress
02 p0053 W74-16667
- Exploitation of wind energy --- windmill feasibility in industrial applications [NASA-TT-P-15309]
02 p0055 W74-16756
- Wind energy conversion systems [NASA-TN-X-69786]
02 p0055 W74-16757
- Percy Thomas wind generator designs
02 p0055 W74-16760
- Past developments of large wind generators in Europe
02 p0055 W74-16761
- Introduction to Voigt's wind power plant --- energy conversion efficiency
02 p0055 W74-16762
- Where there is a wind, there is a way
02 p0055 W74-16763
- Need for a regional wind survey
02 p0055 W74-16764
- Surface wind characteristics of some Aleutian Islands --- for selection of windpowered machine sites
02 p0056 W74-16766
- The sail wing windmill and its adaptation for use in rural India
02 p0056 W74-16771
- Kinetics of coal gasification in a low pressure, low residence time, entrained flow reactor
02 p0061 W74-17190
- A review of energy policy activities of the 92d Congress
02 p0062 W74-17669
- The present status of Honnet wind power plants [NASA-TT-P-15355]
02 p0063 W74-17787
- Petroleum: A prediction made in 1950 [P-5135]
02 p0065 W74-18194
- Symposium on Energy, Resources and the Environment. Volume 1: Session on International Issues [W72-69-VOL-1-BEV-2]
02 p0068 W74-18582
- Introductory remarks --- international cooperation in energy sources development
02 p0068 W74-18583
- Context of the session theme, international issues
02 p0068 W74-18584
- Computer simulation of world dynamics and implications for policy decisions --- social issues in energy policies
02 p0068 W74-18585
- Energy in general --- technology for meeting world energy demand
02 p0068 W74-18587
- National energy policies --- for development of low cost energy
02 p0069 W74-18592
- An energy ethic --- socioeconomic ethics of energy source development
02 p0069 W74-18593
- Environmental issues, an overview --- of energy source exploitation
02 p0069 W74-18597
- Symposium on Energy, Resources and the Environment. Volume 3: Session on Options for the Future and their Resources, Economic, and Environmental Effects [W72-69-VOL-3-BEV-1]
02 p0069 W74-18598
- Energy options for the future --- nuclear energy, synthetic fuels, and pollution control methods
02 p0069 W74-18599
- Energy options --- technological developments for new energy sources
02 p0070 W74-18604
- Natural resources development and policies, including environmental considerations. Addendum: Changing patterns in the world energy situation [E/C.7/2/ADD.1]
02 p0070 W74-18609
- Energy statistics: A supplement to the summary of national transportation statistics --- time series analysis of transported crude oils [PB-225331/8GA]
02 p0070 W74-18633
- Recycling solid waste for utility fuel and recovery of other resources --- identification of mechanical problems in materials handling
02 p0071 W74-18725
- Process for the simultaneous utilization of geothermic and hydrodynamic energy [ASC-TN-7475]
02 p0072 W74-18731
- Energy potential from organic wastes: A review of the quantities and sources [BM-IC-8549]
02 p0072 W74-18815
- Natural gas supply in the decade of the seventies
02 p0074 W74-19586
- Natural gas availability: Present and future
02 p0075 W74-19587
- Energy resources of the United States [CIRC-650]
02 p0075 W74-19614
- Meeting California's energy requirements, 1975-2000
02 p0076 W74-19629
- Clean fuels from biomass --- feasibility of converting plant systems to fuels [NASA-TN-X-71538]
02 p0077 W74-19706
- Proceedings of Workshop on Navy Alternate Energy Sources Research and Development [AD-773746]
02 p0078 W74-19717
- The gasoline and fuel oil shortage --- congressional hearing to determine causes and corrective actions for fuel shortage problem [GPO-99-740]
02 p0082 W74-21624
- Ultra-deep drilling for geothermals [AD-774108]
03 p0102 W74-22074
- Comparative evaluation of solar, fission, fusion, and fossil energy resources, part 3 [NASA-CR-138117]
03 p0103 W74-22590
- Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 1: Working group and panel reports [NASA-CR-138209]
03 p0104 W74-22704
- Technology of Efficient Energy Utilization --- proceedings of conference on research and development contributions to efficient energy utilization
03 p0106 W74-23510
- Transcript of talk on solar energy --- for community development [SLA-73-1025]
03 p0109 W74-26515
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion [AD-777737]
03 p0109 W74-26518
- The price elasticity of residential energy use [P-5180]
03 p0112 W74-27446
- Energy alternatives for California: The current crisis. 4: Regulatory aspects of energy policy [P-5158]
03 p0112 W74-27447
- Energy Emergency Act [H-REPT-93-793]
03 p0112 W74-27455
- Phase 4 oil regulations and petroleum marketing problems [GPO-24-574]
03 p0112 W74-27465
- Conservation and efficient use of energy, part 2 [GPO-24-290]
03 p0113 W74-27525
- Conservation and efficient use of energy, part 3 [GPO-24-682]
03 p0113 W74-27526
- Conservation and efficient use of energy, part 4 [GPO-25-654]
03 p0113 W74-27527
- Prospect of primary energy demand in the community (1975 - 1980 - 1985) --- 1984 + pers trend analysis for Europe
03 p0113 W74-27533
- Energy resources and usage --- production planning in Australia [ER-2]
03 p0114 W74-27536
- NSF-RANN energy abstracts: A monthly abstract journal of energy research, volume 1, no. 11, November 1973 [OBNL-EIS-73-52-VOL-1-NO-11]
03 p0114 W74-27537

- Second Annual Sea Grant Lecture and Symposium
[MISG-74-7] 03 p0115 W74-27826
- World energy and the oceans 03 p0115 W74-27827
- Future energy supply: Approaches and options ---
aspects of domestic energy policy 03 p0116 W74-28030
- Agriculture and the fuel crisis --- Congressional
hearing on fuel crisis problems 03 p0118 W74-28441
- Naval Petroleum Reserve Numbered 1, Elk Hills,
California --- Congressional hearings on
exploitation of petroleum reserve source
[GPO-25-650] 03 p0118 W74-28450
- Transportation and energy conservation in the
Pacific Northwest 03 p0119 W74-28539
- Systems analysis of solar energy programs.
Appendix: Research tasks 03 p0120 W74-28542
- Coal: Bituminous and lignite in 1972 03 p0120 W74-28545
- Architectural guidelines to promote efficient
energy use --- congressional hearing for energy
policy legislation 03 p0123 W74-29347
- [GPO-28-428]
- ENERGY STORAGE**
- Gas generators - A perspective --- alternative
energy sources comparison 01 p0001 A74-11219
- [AIAA PAPER 73-1768]
- Prospects of energy conversion and storage derived
from space systems technology 02 p0033 A74-19485
- Prospects for hydrogen as an energy resource 03 p0090 A74-34621
- Superconducting magnetic energy storage 03 p0092 A74-35289
- Energy research and development and space technology 01 p0012 W74-10892
- Transmission and storage of hydrogen 01 p0015 W74-11732
- Use of hydrogen and hydrogen-rich components as a
means of storing and transporting energy 02 p0057 W74-16781
- Status and applicability of solid polymer
electrolyte technology to electrolytic hydrogen
and oxygen production 02 p0058 W74-16782
- Superflywheel energy storage systems --- for
windpowered machines 02 p0058 W74-16783
- Energy storage by compressed air --- using
windpowered pumps 02 p0058 W74-16785
- A proposed national wind power B and D program ---
offshore wind power system for electric energy
supplies 02 p0059 W74-16794
- Sodium: Clean-energy storage medium for vehicular
power 02 p0065 W74-17871
- [LA-5406-MS]
- High energy sealed nickel-zinc batteries 02 p0072 W74-18737
- [AD-772944]
- Design options and tradeoffs in superconducting
magnetic energy storage with irreversible
switching 02 p0074 W74-19375
- [LA-UB-73-910]
- Design considerations for a
100-segajoule/500-megawatt superflywheel 02 p0081 W74-20709
- [AD-774736]
- ENERGY TECHNOLOGY**
- Photo-electric generators --- solar converters for
spacecraft and terrestrial power supplies 02 p0036 A74-23842
- The ESTEC technology programme in solar energy
conversion 02 p0037 A74-24902
- Solar cell development in the Federal Republic of
Germany 02 p0037 A74-24903
- Results and future prospects on photovoltaic power
development in France 02 p0037 A74-24904
- Technology and performance characteristics of
integral diode solar cells 02 p0038 A74-24908
- Low-cost silicon solar cells for terrestrial
applications 02 p0038 A74-24909
- New technology for CdS-Cu₂S solar cells of high
reliability 02 p0038 A74-24910
- The present potential of CdS solar cells as a
future contender for photovoltaic space and
terrestrial power applications 02 p0038 A74-24911
- Possibilities of the thin solar battery
applications for the terrestrial use units 02 p0038 A74-24912
- Terrestrial utilization of CdS-Cu₂S solar
photocells in the south of France 02 p0038 A74-24915
- Photoelectric power engineering --- applications
to solar batteries and converters 02 p0039 A74-24936
- Conclusions and recommendations of the United
States Solar Energy Panel 02 p0040 A74-24941
- Solar energy by photosynthesis --- technological
conversion systems modeled on photosynthesis 02 p0042 A74-27322
- Solar energy utilization by physical methods ---
including hydropower, windpower, direct solar
heating and electric power 02 p0042 A74-27323
- The case for hydrogen-fueled transport aircraft 03 p0083 A74-29452
- Future availability of liquid hydrogen 03 p0083 A74-29453
- Lasers blast a shortcut to the ultimate energy
solution --- through thermonuclear fusion 03 p0084 A74-29603
- Power sources --- solar arrays for CNES
applications satellites 03 p0084 A74-29949
- Clean fuels from biomass --- cellulose
fermentation to methane 03 p0084 A74-30101
- Solar energy to meet the nation's
energy needs 03 p0084 A74-30105
- Fusion power by laser implosion 03 p0085 A74-31574
- Symposium on Engineering Problems of Fusion
Research, 5th, Princeton University, Princeton,
N.J., November 5-9, 1973, Proceedings 03 p0087 A74-34050
- Theory and experiment in laser driven fusion 03 p0087 A74-34192
- Terrestrial applications of solar cell powered
systems 03 p0089 A74-34405
- Superconductivity - Large-scale applications 03 p0092 A74-36049
- Utilization of space technology for terrestrial
solar power applications 03 p0092 A74-36226
- Future propulsion techniques for ground transport 03 p0093 A74-36320
- The energy crisis and energy from the sun;
Proceedings of the Symposium on Solar Energy
Utilization, Washington, D.C., April 30, 1974 03 p0093 A74-36331
- Solar energy research and utilization 03 p0094 A74-36332
- Data on incident solar energy 03 p0094 A74-36333
- Growing federal support for solar energy
applications 03 p0094 A74-36335
- Thermochemical hydrogen generation --- closed
cycle processes selection 03 p0094 A74-36411
- Feasibility study for development of hot-water
geothermal systems --- application for potential
energy sources 02 p0064 W74-17801
- [AD-771016]
- Symposium on Energy, Resources and the
Environment. Volume 1: Session on
International Issues 02 p0068 W74-18582
- [W72-69-VOL-1-REV-2]
- Computer simulation of world dynamics and
implications for policy decisions --- social
issues in energy policies 02 p0068 W74-18585
- Energy in general --- technology for meeting world
energy demand 02 p0068 W74-18587

- The international aspects of importing natural gas
--- economics of shipping liquefied natural gas
02 p0068 N74-18588
- Remarks --- computerized simulation of energy
demands and financial management
02 p0068 N74-18589
- Energy options for the future --- nuclear energy,
synthetic fuels, and pollution control methods
02 p0069 N74-18599
- Major E&E programs to meet the energy crisis ---
solar energy, nuclear fusion, and hydrogen-based
power supplies
02 p0069 N74-18602
- Energy options --- technological developments for
new energy sources
02 p0070 N74-18604
- Proceedings of Workshop on Navy Alternate Energy
Sources Research and Development
[AD-773746] 02 p0078 N74-19717
- Energy research and development: A selected
reading list
[ORNL-RIS-73-65] 02 p0080 N74-20627
- Prospects for liquid hydrogen fueled commercial
aircraft
[PN-37] 02 p0080 N74-20647
- Medium-term prospects and guidelines in the
community gas sector
03 p0100 N74-21684
- Ultra-deep drilling for geothermals
[AD-774108] 03 p0102 N74-22074
- Energy and environment: System and perspectives
[LA-5447-83] 03 p0104 N74-22615
- Meeting future peak electrical energy demands by
means of electrochemical storage systems
[NASA-TT-F-15638] 03 p0104 N74-22709
- Application of phase transitions to the
electromechanical energy conversion --- in
ferroelectric ceramics
[ISL-CO-2/73] 03 p0105 N74-23327
- Technology of Efficient Energy Utilization ---
proceedings of conference on research and
development contributions to efficient energy
utilization
03 p0106 N74-23510
- The administration's proposal for relaxation of
air pollution standards --- Congressional
hearing on proposals for reducing clean air
standard and effects of sulfur oxides in fuels
[GPO-22-629] 03 p0108 N74-26411
- ENERGY TRANSFER**
- Regional and global energy transfer via passive
power relay satellites
01 p0005 A74-16116
- Electron vibrational energy transfer under EHD
combustion generator conditions
03 p0095 A74-37612
- Energy research and development and space technology
01 p0012 N74-10892
- Some results of testing of a solar water heating
installation during the heating season
[AD-754628] 02 p0048 N74-15777
- Review of the windpower activities at the Brace
Research Institute
02 p0058 N74-16787
- Investigation in energy transfer and energy
conversion for advanced power and propulsion
systems
[AD-771581] 02 p0067 N74-18417
- ENGINE CONTROL**
- Fuel system requirements for small gas turbine
engines
[SAS PAPER 740381] 03 p0083 A74-28746
- Flight/propulsion control integration aspects of
energy management
[SAS PAPER 740480] 03 p0090 A74-34978
- ENGINE DESIGN**
- The jet engine design that can drastically reduce
oxides of nitrogen
[AIAA PAPER 74-160] 01 p0006 A74-18797
- Astafan - A new concept from Turbomeca ---
constant speed ducted turbofan engine
02 p0037 A74-24697
- A model of convex programming for turbojet main
parameter selection optimization
[ASME PAPER 74-GR-79] 02 p0042 A74-27466
- An approach to aeroengine tradeoff factors
[SAS PAPER 740493] 03 p0091 A74-34990
- The impact of advanced turboshaft engine
technology on T700-powered helicopter systems
[AES PREPRINT 871] 03 p0094 A74-36606
- By-pass engines --- characteristics of USSR
aircraft engines for jet aircraft
[AD-772723] 02 p0074 N74-19413
- Engine cycle selection for commercial STOL aircraft
--- effect of aircraft requirements and
operational characteristics on engine parameters
02 p0079 N74-20408
- Problem of the application of turbofan engines in
air transport. Methods of increase in
efficiency of turbofan engine with high bypass
ratios
[AD-773292] 02 p0079 N74-20453
- ENGINE MONITORING INSTRUMENTS**
- Engine sensory requirements for energy management
02 p0043 A74-28311
- ENGINE NOISE**
- Refan program. Phase 1: Summary report
[NASA-TN-X-71456] 01 p0009 N74-10043
- ENGINE TESTS**
- High energy radiography - A new technique in the
development of efficiency and integrity in aero
gas-turbine engines
02 p0035 A74-21316
- Oxidation of carbon monoxide in diluted combustion
products at engine idling conditions
02 p0041 A74-25221
- Installation of turbine-fuels research combustor
laboratory --- test facility for analyzing fuel
problems in turbine engines
[AD-772945] 02 p0073 N74-18897
- ENGINEERING MANAGEMENT**
- Mathematical methods of optimal planning
development and use of energy systems
[JPSS-60546] 01 p0022 N74-12693
- ENTHALPY**
- Investigation of a non-equilibrium EHD generator
[AD-766493] 01 p0013 N74-10950
- ENVIRONMENT EFFECTS**
- Solar generators for sounding balloons
02 p0040 A74-24940
- Modelling of combustors - The effects of ambient
conditions upon performance
02 p0040 A74-25217
- Applications of meteorology to natural resource
planning --- agriculture, forestry, energy, and
recreation
01 p0014 N74-11395
- Application of ERSF imagery to fracture-related
mine safety hazards and environmental problems
in mining --- Indiana
[N74-10258] 02 p0049 N74-16019
- Symposium on Energy, Resources and the
Environment. Volume 1: Session on
International Issues
[N74-69-VOL-1-REV-2] 02 p0068 N74-18582
- Context of the session theme, international issues
02 p0068 N74-18584
- Oil shale: A clean energy source --- and its
environmental effects
03 p0099 N74-21676
- Applicability of Skylab remote sensing for
detection and monitoring of surface mining
activities --- Ohio, West Virginia, and
Pennsylvania
[N74-10572] 03 p0121 N74-28816
- ENVIRONMENT MANAGEMENT**
- Report to the president and to the council on
environmental quality
01 p0024 N74-14094
- Environmental issues and institutional arrangements
--- economic and environmental aspects of energy
policy
02 p0069 N74-18595
- Final environmental statement for the geothermal
leasing program. Volume 2: Leasing of
geothermal resources in three California areas
02 p0078 N74-19976
- Final environmental statement for the geothermal
leasing program. Volume 3: Proposed geothermal
leasing and operating regulations
02 p0078 N74-19976
- Final environmental statement for the geothermal
leasing program. Volume 4: Comments on draft
impact statement and proposed regulations
02 p0078 N74-19977

- Electricity growth: Economic incentives and environmental quality --- consumption and pricing of electricity in United States of America
03 p0100 W74-21687
- Action in the Atlantic: A vital step for our nation's energy and environmental needs
[G-70172-100N8.73-408] 03 p0111 W74-26873
- The impact of energy shortages on US environmental standards
[TP-450-USR] 03 p0122 W74-29342
- ENVIRONMENT MODELS**
- The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption
[PB-207519] 01 p0017 W74-11796
- ENVIRONMENT POLLUTION**
- The environment and the gas turbine
02 p0035 W74-21874
- Energy and the environment: Electric power
[PB-223326/0GA] 01 p0028 W74-14791
- ENVIRONMENT PROTECTION**
- Report to the president and to the council on environmental quality
01 p0024 W74-14094
- Electric energy requirements for environmental protection
[CONF-730205-4] 01 p0027 W74-14695
- Environmental protection and long run supply of crude oil in the United States
02 p0052 W74-16661
- Impacts of new energy technology, using generalized input-output analysis --- coal gasification
[PB-226139/4GA] 03 p0101 W74-21697
- ENVIRONMENTAL CONTROL**
- Aviation needs and public concerns --- civil aviation growth in Europe and environmental control
01 p0027 W74-14749
- An energy ethic --- socioeconomic ethics of energy source development
02 p0069 W74-18593
- Mechanisms for achieving cleaner power, prices, regulations --- energy policy
02 p0069 W74-18596
- Environmental issues, an overview --- of energy source exploitation
02 p0069 W74-18597
- Symposium on Energy, Resources and the Environment. Volume 3: Session on Options for the Future and their Resources, Economic, and Environmental Effects
[H72-69-VOL-3-REV-1] 02 p0069 W74-18598
- Major RSD programs to meet the energy crisis --- solar energy, nuclear fusion, and hydrogen-based power supplies
02 p0069 W74-18602
- Man versus his institutions --- goals of rational energy policy
02 p0070 W74-18603
- Energy options --- technological developments for new energy sources
02 p0070 W74-18604
- Conservation and efficient use of energy, part 3
[GPO-24-682] 03 p0113 W74-27526
- Use of western coal and air water quality control by Minnesota Power and Light Company
03 p0116 W74-28024
- ENVIRONMENTAL ENGINEERING**
- New frontiers of civil aeronautics
02 p0041 W74-25352
- Present air pollution situation in Kawasaki city and future countermeasures
[KS-27] 01 p0018 W74-12321
- ENVIRONMENTAL QUALITY**
- Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
[E74-10061] 01 p0013 W74-11182
- The energy situation --- emphasizing various energy sources, costs, and environmental effects
01 p0016 W74-11744
- Research on the application of satellite remote sensing to local, state, regional, and national programs involved with resource management and environmental quality
[NASA-CR-136472] 01 p0024 W74-14093
- Symposium on Energy, Resources and the Environment. Session on Ethics and Environmental Aspects of the Demand for and Use of Energy, volume 2 --- socioeconomic aspects of energy resource development
[H72-69-VOL-2-REV-1] 02 p0068 W74-18591
- Approach to the holistic analysis of the system man-energy-environment
[JUL-982-RG] 02 p0080 W74-20626
- Geothermal energy
[LA-OR-73-1316] 03 p0100 W74-21689
- Energy and environment: System and perspectives
[LA-5447-MS] 03 p0104 W74-22615
- Second Annual Sea Grant Lecture and Symposium
[HITSG-74-7] 03 p0115 W74-27826
- EQUIPMENT SPECIFICATIONS**
- Feasibility study and development of a constant temperature heat pipe system. Phase 2: Experimental design
[BSNO-CR(P)-430] 03 p0122 W74-29332
- ETHANE**
- Natural gas as an automotive fuel, an experimental study
[BN-RI-7806] 01 p0011 W74-10715
- Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases
[BN-RI-7921] 03 p0114 W74-27592
- ETHYLENE**
- Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases
[BN-RI-7921] 03 p0114 W74-27592
- EUROPE**
- Aviation needs and public concerns --- civil aviation growth in Europe and environmental control
01 p0027 W74-14749
- Past developments of large wind generators in Europe
02 p0055 W74-16761
- Problems, resources and necessary progress in Community energy policy 1975 - 1985
03 p0113 W74-27532
- Prospects of primary energy demand in the community (1975 - 1980 - 1985) --- long term trend analysis for Europe
03 p0113 W74-27533
- EUROPEAN SPACE PROGRAMS**
- Power sources --- solar arrays for CNES applications satellites
03 p0084 W74-29949
- EVAPORATION**
- Control of gasoline vapor losses from station and vehicle filling --- economics of vapor recovery systems
[EQL-BEHO-5] 03 p0101 W74-21771
- EVOLUTION (DEVELOPMENT)**
- Industrial evolution and revolution in the cisunar space, 1980 - 2010
[ASTRONAUT-PB-32] 03 p0111 W74-27353
- EXHAUST GASES**
- The environment and the gas turbine
02 p0035 W74-21874
- The association of automotive fuel composition with exhaust reactivity
[PB-222609/0] 01 p0010 W74-10129
- Catalytic combustion of carbon monoxide in gasoline engine exhaust using manganese catalysts
[AD-760395] 01 p0011 W74-10874
- Emission calculations for a scramjet powered hypersonic transport
[NASA-TN-X-71464] 01 p0018 W74-12445
- Exploratory development of a glass ceramic automobile thermal reactor --- anti-pollution devices
[NASA-CR-134513] 01 p0019 W74-12447
- Effect of water injection on nitric oxide emissions of a gas turbine combustor burning natural gas fuel
[NASA-TN-X-2959] 01 p0025 W74-14651
- Low energy gas utilization in combustion gas turbine
01 p0029 W74-15447
- Aldehyde and reactive organic emissions from motor vehicles. Part 1: Advanced automotive control systems vehicles
[PB-224251/9GA] 02 p0050 W74-16332
- Aldehyde and reactive organic emissions from motor vehicles. Part 2: Characterization of emissions from 1970 through 1973 model vehicles
[PB-224252/7GA] 02 p0050 W74-16333

- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. A critique of the 1975-1976 Federal automobile emission standards for hydrocarbons and oxides of nitrogen
[PB-224863/16A] 02 p0065 N74-18287
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. Automotive spark ignition engine emission control systems to meet the requirements of the 1970 clean air amendments
[PB-224862/36A] 02 p0065 N74-18288
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. A critique of the 1975 Federal automobile emission standard for carbon monoxide, National Academy of Sciences
[PB-224861/56A] 02 p0065 N74-18289
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards
[PB-224858/16A] 02 p0066 N74-18291
- NAS report on technological feasibility of 1975-1976 motor vehicle emissions standards. Manufacturability and costs to proposed low-emission automotive engine systems
[PB-224864/96A] 02 p0066 N74-18292
- Compilation of air pollutant emission factors (second edition)
[PB-223996/06A] 02 p0066 N74-18300
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. An evaluation of alternative power sources for low-emission automobiles, National Academy of Sciences
[PB-224859/96A] 02 p0067 N74-18406
- NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. Evaluation of catalyst as automotive exhaust treatment devices, National Academy of Sciences
[PB-224860/76A] 02 p0067 N74-18407
- Report by the Committee on Motor Vehicle Emissions
02 p0073 N74-19240
- A study of mandatory engine maintenance for reducing vehicle exhaust emissions. Volume 7: A user's manual and guide to the economic effectiveness computer program
[PB-225161/96A] 02 p0073 N74-19268
- A study of mandatory engine maintenance for reducing vehicle exhaust emissions. Volume 8: Experimental characterization of vehicle emissions and maintenance states
[PB-225026/46A] 02 p0074 N74-19269
- Oxygenates in automotive exhausts. Effect of an oxidation catalyst
[PB-227097/3] 03 p0105 N74-23190
- Cost and performance of automotive emission control technologies
[EOL-MEMO-7] 03 p0107 N74-26244
- Certain peculiarities of combustion of ballasted gases and stabilization of a flame --- burning low calorie industrial by-products
[AD-776731] 03 p0107 N74-26400
- The impact of auto emission standards
[GPO-21-548] 03 p0108 N74-26412
- Air pollution from motor vehicles
[APTIC-41654] 03 p0111 N74-27088
- Air pollution from motor vehicles, appendices
[APTIC-41655-APP] 03 p0111 N74-27089
- Design and evaluation of experimental ceramic automobile thermal reactors
[NASA-TM-D-7706] 03 p0117 N74-28035
- Compliance with Title 2 (auto emission standards) of the Clean Air Act
[GPO-25-824] 03 p0118 N74-28445
- EXHAUST SYSTEMS**
- Collecting fly ash from western low sulfur coals --- by using scrubbers in flue gas streams
03 p0116 N74-28028
- EXTERNALLY BLOWN FLAPS**
- Investigation of the relative merits of different power plants for STOL-aircraft with blown flap application --- analysis of design requirements for self-sustained gas supply systems
02 p0078 N74-20406
- F**
- F-4 AIRCRAFT**
- Sensitivity of suboptimal fixed-range flight paths --- aircraft fuel consumption dependence on atmospheric parameters
[AIAA PAPER 74-813] 03 p0097 A74-37822
- F-14 AIRCRAFT**
- F-14 optimum flight modes, volume 1
[AD-775246] 03 p0099 N74-21665
- FABRICATION**
- On inhomogeneities of thin film solar cells
02 p0039 A74-24918
- FAIR-SAFE SYSTEMS**
- Power conditioning system for FAA Air Route Traffic Control Centers
01 p0004 A74-14133
- FAILURE ANALYSIS**
- Smith-Putnam wind turbine experiment
02 p0055 N74-16758
- FANS**
- Using large wind power plants to directly drive synchronous generators in parallel operation with a governing network
[NASA-TT-F-15343] 02 p0048 N74-15765
- PARADAY EFFECT**
- Loss mechanisms in an MHD generator --- Book on argon plasma nonequilibrium Paraday generator efficiency
02 p0033 A74-19455
- Effects of the development of boundary layers on a Paraday MHD generator
03 p0096 A74-37621
- FARM CROPS**
- Clean fuels from biomass --- cellulose fermentation to methane
03 p0084 A74-30101
- FEASIBILITY ANALYSIS**
- Summary of the study of disposal of nuclear waste into space
01 p0005 A74-16123
- Prospects for hydrogen as an energy resource
03 p0090 A74-34621
- Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985
- The use of superconductivity in the USA transportation program
03 p0091 A74-35288
- A two-temperature, gas-particle suspension in MHD power generation
[ASME PAPER 73-PWR-C] 03 p0097 A74-37791
- Forecasting of technological progress for long-range planning of mining operations at coal mines --- prediction analysis technique for operational development
01 p0016 N74-1765
- The large scale wind driven electrical generating station --- efficiency and economic factors
[NASA-TT-F-15313] 02 p0046 N74-15750
- Progress in the utilization of wind power
[NASA-TT-F-15346] 02 p0046 N74-15753
- Utilization of wind power
[NASA-TT-F-15300] 02 p0046 N74-15756
- Investigation of the possibilities of using wind power
[NASA-TT-F-15336] 02 p0047 N74-15760
- Prospects for the utilization of wind energy in Czechoslovakia
[NASA-TT-F-15305] 02 p0048 N74-15766
- Percy Thomas wind generator designs
02 p0055 N74-16760
- Where there is a wind, there is a way
02 p0055 N74-16763
- Technical feasibility study for the development of a large capacity wind powered electrical generating system --- by using vertical airfoil motion along track system
02 p0059 N74-16791
- The present status of Bonnet wind power plants
[NASA-TT-F-15355] 02 p0063 N74-17787
- NAS report on technological feasibility of 1975-1976 motor vehicle emissions standards. Feasibility of meeting the 1975-1976 exhaust emission standards in actual use
[PB-224865/66A] 02 p0066 N74-18303
- Status of wind-energy conversion
[NASA-TM-X-71523] 02 p0077 N74-19705

FEDERAL SUPPORTS

SUBJECT INDEX

- Clean fuels from biomass --- feasibility of converting plant systems to fuels
[NASA-TN-X-71538] 02 p0077 N74-19706
- Combustion and heat recovery of Air Force waste petroleum oils and lubricants
[AD-774563] 02 p0082 N74-21391
- Feasibility of space disposal of radioactive nuclear waste. 2: Technical summary
[NASA-TN-X-2912] 03 p0102 N74-22504
- Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 N74-28005
- Feasibility study and development of a constant temperature heat pipe system. Phase 2: Experimental design
[NBSO-CR(P)-430] 03 p0122 N74-29332
- FEDERAL SUPPORTS**
Growing federal support for solar energy applications
03 p0094 A74-36335
- Energy consumption and gross national product in the United States: An examination of a recent change in the relationship
01 p0030 N74-15681
- NASA authorization for fiscal year 1975, part 1 --- Congressional hearings on funding of NASA programs
02 p0082 N74-21605
- FEED SYSTEMS**
Vapor generator feed pump for Rankine cycle automotive propulsion system (Chandler Evans)
[PB-222849/2] 01 p0011 N74-10747
- FERROELECTRICITY**
Application of phase transitions to the electrochemical energy conversion --- in ferroelectric ceramics
[ISL-CO-2/73] 03 p0105 N74-23327
- FIGURE OF MERIT**
Figure-of-merit calculation methods for organic heat-pipe fluids
[NASA-TN-X-2945] 01 p0015 N74-11736
- FILM THICKNESSES**
Effect of series resistance on the illuminating efficiency and optical thickness of the alloyed layer of silicon photocells
03 p0087 A74-34099
- FINANCIAL MANAGEMENT**
Growing federal support for solar energy applications
03 p0094 A74-36335
- Remarks --- computerized simulation of energy demands and financial management
02 p0068 N74-18589
- Remarks --- capital requirements to meet energy shortages
02 p0068 N74-18590
- Profitability of domestic energy company operations
[GPO-28-572] 03 p0118 N74-28453
- FISSILE FUELS**
Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 5: Conclusions and recommendations
[NASA-CR-138183] 03 p0103 N74-22604
- FISSIONABLE MATERIALS**
Review of world energy supplies --- reserves and resources of fossil and fissile fuels
[IGU/A-1-73] 01 p0026 N74-14666
- Comparative evaluation of solar, fission, fusion, and fossil energy resources, part 3
[NASA-CR-138117] 03 p0103 N74-22590
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 2: Power from nuclear fission
[NASA-CR-138397] 03 p0105 N74-23481
- FLAME STABILITY**
Certain peculiarities of combustion of ballasted gases and stabilization of a flame --- burning low calorie industrial by-products
[AD-776731] 03 p0107 N74-26400
- FLUORINABLE GASES**
Natural gas as an automotive fuel, an experimental study
[BM-MI-7806] 01 p0011 N74-10715
- Residential energy use: An econometric analysis
[E-1297-WSP] 01 p0032 N74-15698
- Balancing the supply and demand for natural gas
02 p0052 N74-16657
- Kinetics of coal gasification in a low pressure, low residence time, entrained flow reactor
02 p0061 N74-17190
- FLIGHT CHARACTERISTICS**
F-14 optimum flight modes, volume 1
[AD-775246] 03 p0099 N74-21665
- FLIGHT CONTROL**
Flight/propulsion control integration aspects of energy management
[SAR PAPER 740480] 03 p0090 A74-34978
- FLIGHT MECHANICS**
Investigation of the economic efficiency of surplus tanking of aircraft fuel
03 p0085 A74-33092
- FLIGHT OPTIMIZATION**
Aircraft synaetric flight optimization --- gradient techniques for supersonic aircraft control
02 p0036 A74-23091
- Minimum time and minimum fuel flight path sensitivity
03 p0086 A74-33811
- FLIGHT PATHS**
Sensitivity of suboptimal fixed-range flight paths --- aircraft fuel consumption dependence on atmospheric parameters
[AIAA PAPER 74-813] 03 p0097 A74-37822
- FLIGHT TESTS**
Energy management display
03 p0090 A74-34844
- FLIGHT TIME**
Minimum time and minimum fuel flight path sensitivity
03 p0086 A74-33811
- FLOW CHARACTERISTICS**
Optimization of open cycle power plant HED generator
03 p0095 A74-37610
- FLOW EQUATIONS**
The effect of magnetic field upon the output performance of segmented-open type HED generator
03 p0095 A74-37609
- FLOW RESISTANCE**
The Dolphin airship with undulating propulsion system - A new form of the evaluation factor
02 p0035 A74-22272
- FLOW STABILITY**
Nonlinear stability of magnetohydrodynamic generators
[AIAA PAPER 74-507] 03 p0086 A74-33106
- FLOW THEORY**
The time dependent magnetohydrodynamic generator
03 p0096 A74-37615
- FLUID MECHANICS**
Figure-of-merit calculation methods for organic heat-pipe fluids
[NASA-TN-X-2945] 01 p0015 N74-11736
- FLUID POWER**
Fluid power for aircraft: Modern hydraulic technology /2nd edition/
02 p0036 A74-23376
- FLUOROCARBONS**
Properties of solid polymer electrolyte fluorocarbon films --- used in hydrogen/oxygen fuel cells
[NASA-TN-D-7482] 01 p0011 N74-10547
- FLYWHEELS**
Antenna towers as wind tower generation plants
[NASA-TT-F-15304] 02 p0047 N74-15763
- Superflywheel energy storage system --- for windpowered machines
02 p0058 N74-16783
- Wind power, part 2 - economic feasibility, 1949
[NASA-TT-F-15419] 02 p0063 N74-17792
- Design considerations for a 100-megajoule/500-megawatt superflywheel
[AD-774736] 02 p0081 N74-20709
- FOLDING STRUCTURES**
The RAE lightweight solar array --- design and development for Radio Astronomy Explorer satellite
02 p0039 A74-24921
- FORECASTING**
Problems, resources and necessary progress in Community energy policy 1975 - 1985
03 p0113 N74-27532
- FOSSIL FUELS**
Potential pollutants in fossil fuels
[PB-225039/7GA] 02 p0066 N74-18313

- Consumption of energy in New York State: 1972
(with estimates for 1973)
[OEK-19] 02 p0079 N74-20614
- Comparative evaluation of solar, fission, fusion,
and fossil energy resources. Part 4: Energy
from fossil fuels
[NASA-CR-138188] 03 p0103 N74-22603
- Comparative evaluation of solar, fission, fusion,
and fossil energy resources. Part 5:
Conclusions and recommendations
[NASA-CR-138183] 03 p0103 N74-22604
- Gasification of fossil fuels under oxidative,
reductive, and pyrolytic conditions
[PB-226668/0] 03 p0114 N74-27611
- Nitrogen oxides, sulfur oxides, and particulate
control technology for fossil fuel combustion
03 p0116 N74-28026
- FOSSILS**
Review of world energy supplies --- reserves and
resources of fossil and fissile fuels
[IGU/A-1-73] 01 p0026 N74-14666
- FRACTURE MECHANICS**
Fracture of coal and oil shale for in situ
processing or remote removal: A proposal
support document
[SLA-73-946] 02 p0073 N74-19047
- FRACTURING**
Study of application of ERTS-A imagery to
fracture-related mine safety hazards in the coal
mining industry --- Indiana
[E74-10083] 01 p0014 N74-11195
- Study of application of ERTS-A imagery to
fracture-related mine safety hazards in the coal
mining industry
[E74-10336] 02 p0065 N74-18012
- FRAUNHOFER LINE DISCRIMINATORS**
Quantification of the luminescence intensity of
natural materials
01 p0005 A74-14892
- FREE ELECTRONS**
Electron nonequilibrium in open-cycle MHD generators
03 p0083 A74-28957
- FREIGHT COSTS**
The international aspects of importing natural gas
--- economics of shipping liquefied natural gas
02 p0068 N74-18588
- FRENCH SPACE PROGRAMS**
Actual state of French technical developments
concerning sources of space power
01 p0002 A74-12794
- Results and future prospects on photovoltaic power
development in France
02 p0037 A74-24904
- FREON**
Solar energy power system --- using freon
[NASA-CASE-HFS-21628-1] 01 p0025 N74-14496
- FREQUENCY RESPONSE**
Effect of dry friction on the response to a
symmetric harmonic signal of an energy converter
producing mechanical energy
02 p0034 A74-20067
- FUEL CELLS**
Design of high-temperature solid-electrolyte
fuel-cell batteries for maximum power output per
unit volume
02 p0036 A74-22355
- Cost efficiency of tungsten carbide-carbon fuel
cells
02 p0036 A74-24054
- Fuel cells with the fuel dissolved in the
electrolyte
03 p0084 A74-30529
- Mass transfer in fuel cells --- electron
microscopy of components, thermal decomposition
of Teflon, water transport, and surface tension
of KOH solutions
[NASA-CR-134519] 01 p0009 N74-10075
- Study of fuel cell system for powered balloon ---
reusable powerplants
[AD-766253] 01 p0009 N74-10083
- Electrolyte for hydrocarbon air fuel cells
[AD-766313] 01 p0010 N74-10085
- Matrices for H₂PO₄ fuel cells
[AD-766312] 01 p0010 N74-10086
- Properties of solid polymer electrolyte
fluorocarbon film --- used in hydrogen/oxygen
fuel cells
[NASA-TN-D-74827] 01 p0011 N74-10547
- Research on electrochemical energy conversion
systems --- electrolytes for hydrocarbon-air
fuel cells
[AD-766329] 01 p0013 N74-10951
- Air mobility fuel cell study --- desulfurization
of JP-4 fuel
[AD-766757] 01 p0022 N74-12744
- The 1.5-kW fuel cell powerplant
[AD-767302] 01 p0022 N74-12744
- Hydrogen generator --- for hydrocarbon fueled fuel
cells
[AD-767402] 01 p0024 N74-13766
- Investigation of energy conversion in rapidly
cycling fuel cells, 1. A system for studying
the surface diffusion of hydrogen on metals, 2
02 p0071 N74-18720
- Dependence of efficiency and specific
characteristics of fuel cells on discharge
conditions
[AD-773264] 02 p0081 N74-20704
- The 1.5-kW fuel cell powerplant catalyst
investigation
[AD-774274] 02 p0081 N74-20710
- Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 N74-21693
- Prospects and scientific problems of the
application of methods of the application of
methods of direct electrical power acquisition
from chemical fuels
[AD-776734] 03 p0107 N74-25625
- Calculation and comparison of the economy of
electrochemical fuel cells
[MTC-74-11868] 03 p0108 N74-26496
- Cost effectiveness of tungsten carbide-carbon fuel
cells
[NASA-TT-F-15748] 03 p0120 N74-28543
- FUEL COMBUSTION**
Conversion of fuel nitrogen to NO_x in a compact
combustor
[ASME PAPER 73-WA/GT-2] 01 p0002 A74-13293
- The jet engine design that can drastically reduce
oxides of nitrogen
[AIAA PAPER 74-160] 01 p0006 A74-18797
- Modelling of combustors - The effects of ambient
conditions upon performance
02 p0040 A74-25217
- H₂-O₂ combustion powered steam-MHD central power
systems
02 p0042 A74-27775
- NASA Lewis H₂-O₂ MHD program
03 p0095 A74-37611
- Performance of Army engines with leaded and
unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 N74-17523
- The hydrogen IC engine: Its origins and future in
the emerging energy-transportation-environmental
system
[REPT-729212] 02 p0067 N74-18403
- FUEL CONSUMPTION**
The implications for air transportation of energy
shortage
02 p0033 A74-19486
- The fuel crisis and the controller --- turbojet
aircraft descent trajectories for fuel
consumption reduction
02 p0034 A74-19726
- Airline airplanes for the eighties - A response
--- emphasizing system efficiency and fuel savings
02 p0036 A74-23464
- Lockheed S-3A Viking - With low fuel consumption
over a wide power range the TF34-GE2 has high
thrust to weight
02 p0036 A74-23839
- Minimum time and minimum fuel flight path
sensitivity
03 p0086 A74-33811
- Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985
- Performance versus cost tradeoffs - Initial look
at alternatives --- for aircraft engine fuel
cost minimization
[SAE PAPER 740494] 03 p0090 A74-34989
- Fuel state - Expensive
03 p0092 A74-35496
- The economic utilisation of resources through
aviation --- manhours, land and fuel
03 p0093 A74-36321

FUEL CONTAMINATION

SUBJECT INDEX

Precious resources and air transport - An airline view --- fuel price increase effects
03 p0093 A74-36322

Jet transport energy management for minimum fuel consumption and noise impact in the terminal area [AIAA PAPER 74-811]
03 p0097 A74-37821

Sensitivity of suboptimal fixed-range flight paths --- aircraft fuel consumption dependence on atmospheric parameters
[AIAA PAPER 74-813]
03 p0097 A74-37822

Energy demand and its effect on the environment [P-5048]
01 p0017 M74-11790

Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses [P-5046]
01 p0017 M74-11791

The U.S. energy problem. Volume 2: Appendices, part A --- to include alternate energy sources for fossil fuels [PB-207518]
01 p0017 M74-11795

The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption [PB-207519]
01 p0017 M74-11796

Energy and resource consumption
01 p0020 M74-12676

Energy resources
01 p0020 M74-12677

Short term energy shortages
01 p0021 M74-12690

Energy in transportation --- energy costs of passenger and cargo transportation
01 p0023 M74-13675

Time factors in slowing down the rate of growth of demand for primary energy in the United States [EQL-7]
01 p0030 M74-15667

Individual action for energy conservation
01 p0030 M74-15680

Energy consumption and gross national product in the United States: An examination of a recent change in the relationship
01 p0030 M74-15681

The effect of fuel availability on future B and D programs in power generation
01 p0031 M74-15689

Energy, resources and the environment [M72-180-REV-1]
01 p0032 M74-15695

Aviation needs and public concerns --- discussing noise, fuel and airport problems
02 p0062 M74-17685

And what if we were to switch to hydrogen? --- use of hydrogen derived from water as a fuel source [LA-TR-73-40]
02 p0072 M74-18729

Installation of turbine-fuels research combustor laboratory --- test facility for analyzing fuel problems in turbine engines [AD-772945]
02 p0073 M74-18897

The gasoline shortage: A national perspective
02 p0075 M74-19618

Aeronautical fuel conservation possibilities for advanced subsonic transports --- application of aeronautical technology for drag and weight reduction [NASA-TR-X-71927]
02 p0080 M74-20654

Background material for the Energy Policy Workshop, 11-12 January 1973 --- conferences [M73-12]
02 p0082 M74-21619

Energy alternatives for California: The current crisis. 3: Allocation of scarce supplies [P-5157]
03 p0103 M74-22596

United States energy fact sheets, 1971
03 p0104 M74-22610

Staff study of the oversight and efficiency of executive agencies with respect to the petroleum industry, especially as it relates to recent fuel shortages [GPO-23-764]
03 p0105 M74-23487

Economic impact of petroleum shortages [GPO-27-213]
03 p0118 M74-28452

Some simple calculations to suggest the effects of six national policies upon use and supply of energy [TR-360]
03 p0122 M74-29343

FUEL CONTAMINATION

Clean, bright, and dry --- jet engine fuel contamination control
02 p0034 A74-20213

Combustion and heat recovery of Air Force waste petroleum oils and lubricants [AD-774563]
02 p0082 M74-21391

FUEL CONTROL

Fuel system requirements for small gas turbine engines [SAE PAPER 740381]
03 p0083 A74-28746

Hydrogen-methane fuel control systems for turbojet engines [NASA-CR-121247]
02 p0050 M74-16493

Experimental reel response system for high performance simplified aerial refueling store --- operational test of hose reel assembly and control system [AD-771389]
02 p0064 M74-17799

FUEL OILS

Purification of fuel oils by centrifugal force
02 p0034 A74-20216

Fuel state - Expensive
03 p0092 A74-35496

Thermal-oxidative stability of automotive diesel fuels [AD-758146]
02 p0049 M74-15817

Energy potential from organic wastes: A review of the quantities and sources [BN-IC-8549]
02 p0072 M74-18815

Retail pricing of petroleum products --- Congressional hearing on pricing policy of petroleum products [GPO-23-614]
03 p0118 M74-28449

Sales of fuel oil and kerosine in 1972
03 p0119 M74-28463

FUEL SYSTEMS

Fuel system requirements for small gas turbine engines [SAE PAPER 740381]
03 p0083 A74-28746

Fuel system requirements for light aircraft turbocharged reciprocating engines [SAE PAPER 740382]
03 p0083 A74-28747

Electric vehicle battery research and development [NASA-TR-X-71471]
01 p0012 M74-10946

Hydrogen-methane fuel control systems for turbojet engines [NASA-CR-121247]
02 p0050 M74-16493

Experimental reel response system for high performance simplified aerial refueling store --- operational test of hose reel assembly and control system [AD-771389]
02 p0064 M74-17799

Installation of turbine-fuels research combustor laboratory --- test facility for analyzing fuel problems in turbine engines [AD-772945]
02 p0073 M74-18897

Multifuel diesel engines [AD-771198/9CA]
02 p0074 M74-19408

FUEL TANKS

Application of hydrogen to commercial transports [SAE PAPER 740451]
03 p0090 A74-34985

FUEL TESTS

Aviation turbine fuel and its lubricating qualities. II
02 p0035 A74-22271

Low energy gas utilization in combustion gas turbine
01 p0029 M74-15447

FUEL-AIR RATIO

Oxidation of carbon monoxide in diluted combustion products at engine idling conditions
02 p0041 A74-25221

Natural gas as an automotive fuel, an experimental study [BN-RI-7806]
01 p0011 M74-10715

FUELS

Substitute catalysts for platinum in automobile emission control devices and petroleum refining [PB-222167/9]
01 p0018 M74-11941

University energy research centers
01 p0019 M74-12668

Review of world energy supplies --- reserves and resources of fossil and fissile fuels [IGU/A-1-73]
01 p0026 M74-14666

Influence of fuels and lubricants on turbine engine design and performance, fuel and lubricant analyses [AD-769309]
02 p0050 M74-16483

Energy sources - Citations from the early DDC collections [AD-773325]
02 p0081 M74-20705

FURNACES

- Lignite and the cyclone burner in a new 235-MW generating station
03 p0116 W74-28031
- Detailed construction and equipment costs for the 235-MW Milton E. Young Generating Station
03 p0117 W74-28032

G

GALLIUM ARSENIDES

- GaAs solar cells with AlAs windows
03 p0088 W74-34383

GAS ANALYSIS

- Analyses of natural gases, 1972
[PB-225977/8]
03 p0105 W74-23337

GAS DYNAMICS

- Significant research results for 1971, High Temperature Institute, USSR Academy of Sciences
--- plasma physics and gas dynamics
[AD-765753]
01 p0012 W74-10898

GAS EVOLUTION

- Kinetics of coal gasification in a low pressure, low residence time, entrained flow reactor
02 p0061 W74-17190

GAS FLOW

- Qualitative analysis of the efficiency of MHD energy conversion
01 p0003 W74-13944
- Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems
02 p0041 W74-27136
- Thermal control range associated with heat pipe cycling
03 p0092 W74-36232
- Design and modeling of the gas flow system for a compact 10 MW MHD generator system
03 p0095 W74-37606
- Low gas temperature solution to high resistivity ash problems --- flue gas temperature effect on efficiency of electrostatic precipitator
03 p0116 W74-28027

GAS GENERATORS

- Gas generators - A perspective --- alternative energy sources comparison
[AIAA PAPER 73-1168]
01 p0001 W74-11219
- Solid state hydrogen gas generator --- rocket deployed balloons inflation
[AIAA PAPER 73-1232]
01 p0001 W74-11257
- Hydrogen production by reforming processes - The alternatives and economics
03 p0086 W74-33992
- PSA hydrogen plants - How well have they performed --- Pressure Swing Adsorption production method
03 p0087 W74-33994
- Hydrogen generator --- for hydrocarbon fueled fuel cells
[AD-767402]
01 p0024 W74-13766
- An economic evaluation of MHD-steam powerplants employing coal gasification
[BM-HI-7796]
02 p0051 W74-16620
- Investigation of the relative merits of different power plants for STOL-aircraft with blown flap application --- analysis of design requirements for self-sustained gas supply systems
02 p0078 W74-20406

GAS HEATING

- Gas-heated 'heat pipe' vacuum furnace --- using thermionic energy conversion
01 02 p0034 W74-19724
- Project SAGE phase 1 report: Solar assisted gas energy water heating feasibility for application in new apartments
[EQL-MEHO-11]
03 p0099 W74-21675

GAS INJECTION

- Effect of plasma injection on cold wall type MHD generator
03 p0091 W74-35276
- Boundary layer control in two-phase liquid-metal MHD generators
03 p0096 W74-37620

GAS IONIZATION

- Stabilization of ionization instability in an MHD generator
03 p0083 W74-28943

- Ionization, recombination and voltage drop measurements in a closed cycle MHD generator
03 p0096 W74-37622

GAS LASERS

- Evolution of studies in the field of gas lasers
01 p0005 W74-16909

GAS MIXTURES

- Process design considerations in cryogenic hydrogen recovery plants
03 p0086 W74-33993

- Natural gas as an autoactive fuel, an experimental study
[BM-HI-7806]
01 p0011 W74-10715
- An economic evaluation of MHD-steam powerplants employing coal gasification
[BM-HI-7796]
02 p0051 W74-16620

GAS REACTORS

- Studies of heat resistant materials for high-temperature gas reactor
[NASA-TT-X-15576]
03 p0102 W74-22312

GAS TURBINE ENGINES

- Clean, bright, and dry --- jet engine fuel contamination control
02 p0034 W74-20213
- High energy radiography - A new technique in the development of efficiency and integrity in aero gas-turbine engines
02 p0035 W74-21316
- The environment and the gas turbine
02 p0035 W74-21874
- Oxidation of carbon monoxide in diluted combustion products at engine idling conditions
02 p0041 W74-25221
- Fuel system requirements for small gas turbine engines
[SAE PAPER 740381]
03 p0083 W74-28746
- The impact of advanced turboshaft engine technology on T700-powered helicopter systems
[AHS PREPRINT 871]
03 p0094 W74-36606
- Low NOx emission combustor development for automobile gas turbine engines
[PB-225133/86A]
02 p0067 W74-18414
- State of technology on hydrogen fueled gas turbine engines
[NASA-TN-X-71561]
03 p0107 W74-26253
- Adaptability of the closed Brayton gas turbine to utility power plants
[EERT-73-310448]
03 p0111 W74-27280

GAS TURBINES

- Aviation gas turbine engines (selected portions)
[AD-756810]
01 p0011 W74-10751
- Second iteration analysis of a fossil fuel-fired gas turbine-potassium-steam combined cycle
[ORNL-NSF-EP-39]
01 p0019 W74-12577
- Low energy gas utilization in combustion gas turbine
01 p0029 W74-15447

GASES

- Energy potential from organic wastes: A review of the quantities and sources
[BM-IC-8549]
02 p0072 W74-18815
- Gasification of fossil fuels under oxidative, reductive, and pyrolytic conditions
[PB-228668/0]
03 p0114 W74-27611

GASOLINE

- The association of automotive fuel composition with exhaust reactivity
[PB-222609/0]
01 p0010 W74-10129
- Determining the effects of gasoline price on use of metals in automobile manufacture
[BM-RI-7871]
02 p0062 W74-17666
- The gasoline shortage: A national perspective
02 p0075 W74-19618
- Control of gasoline vapor losses from station and vehicle filling --- economics of vapor recovery systems
[EQL-MEHO-5]
03 p0101 W74-21771
- Elasticity of demand for gasoline in the south coast air basin
[EQL-MEHO-10]
03 p0102 W74-22581
- Gasoline, diesel, and heating oil shortages
[GPO-24-116]
03 p0123 W74-29344

GELS

- Aircraft fuel system tests with gelled fuel-flowmeter calibration, fuel boost pump and jettison tests
[FAA-NA-73-43]
01 p0017 W74-11828

GENERAL AVIATION AIRCRAFT

- Fuel system requirements for small gas turbine engines
 [SAB PAPER 740381] 03 p0083 A74-28746
 General aviation cost impact study. Volume 1:
 Executive summary 02 p0062 N74-17779
 [AD-771603]
 General aviation cost impact study. Volume 2:
 Research methodology 02 p0062 N74-17780
 [AD-771606]
 General aviation cost impact study. Volume 3:
 Planning guide 02 p0062 N74-17781
 [AD-771759]

GEOLOGICAL FAULTS

- Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry
 --- Indiana 02 p0049 N74-16007
 [E74-10238]
 Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining --- Indiana
 [E74-10258] 02 p0049 N74-16019

GEOLOGICAL SURVEYS

- Nuclear fuels: Uranium 01 p0028 N74-15257
 Nuclear fuels: Thorium 01 p0029 N74-15258
 Oil and gas 01 p0029 N74-15259
 Oil shale 01 p0029 N74-15260
 Peat 01 p0029 N74-15261
 Review of the results from the eastern Atlantic continental margin program of the international decade of ocean exploration
 [PB-226580/96A] 03 p0102 N74-22091
 Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va.
 [PB-228689/6] 03 p0121 N74-28919

GEOLOGY

- Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
 [E74-10061] 01 p0013 N74-11182
 Satellite geological and geophysical remote sensing of Iceland
 [E74-10073] 01 p0014 N74-11188
 Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments
 [E74-10124] 01 p0023 N74-13051

GEOCHEMISTRY

- ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
 [E74-10345] 02 p0082 N74-20948

GEOPHYSICS

- Satellite geological and geophysical remote sensing of Iceland
 [E74-10073] 01 p0014 N74-11188

GEOTHERMAL ENERGY CONVERSION

- Geothermal electricity production 02 p0042 A74-27321
 Some interfaces in resource utilization --- power source from earth crust heat
 [LA-UR-73-570] 01 p0022 N74-12696
 Assessment of geothermal energy resources 01 p0030 N74-15661
 Soviet geothermal electric power engineering, report 2
 [AD-754947] 02 p0048 N74-15776
 Feasibility study for development of hot-water geothermal systems --- application for potential energy sources
 [AD-771016] 02 p0064 N74-17801
 Process for the simultaneous utilization of geothermic and hydrodynamic energy
 [AEC-TR-7475] 02 p0072 N74-18731
 Geothermal energy
 [LA-UR-73-1316] 03 p0100 N74-21689
 Potential for the production of power from geothermal resources
 [LA-UR-73-926] 03 p0100 N74-21690
 Potential for hot-dry-rock geothermal energy in the western United States
 [LA-UR-73-1075] 03 p0100 N74-21691

GEOTHERMAL RESOURCES

- Geothermal electricity production 02 p0042 A74-27321
 Development of geothermal reservoirs from over-pressured areas beneath the Gulf coastal plain of Texas. A feasibility study of power production from overpressured reservoirs
 [AD-766855] 01 p0018 N74-12183
 Solar energy potential 01 p0021 N74-12682
 Geothermal resources --- exploitation for energy applications 01 p0028 N74-15240
 Assessment of geothermal energy resources 01 p0030 N74-15661
 Classification of public lands valuable for geothermal steam and associated geothermal resources
 [CIRC-647] 02 p0049 N74-16049
 Geothermal energy resources and research 02 p0053 N74-16670
 Geothermal energy 02 p0054 N74-16684
 Feasibility study for development of hot-water geothermal systems --- application for potential energy sources
 [AD-771016] 02 p0064 N74-17801
 Final environmental statement for the geothermal leasing program. Volume 2: Leasing of geothermal resources in three California areas
 [AD-771016] 02 p0078 N74-19975
 Final environmental statement for the geothermal leasing program. Volume 3: Proposed geothermal leasing and operating regulations
 [AD-771016] 02 p0078 N74-19976
 Final environmental statement for the geothermal leasing program. Volume 4: Comments on draft impact statement and proposed regulations
 [AD-771016] 02 p0078 N74-19977
 Final environmental statement for the geothermal leasing program. Volume 1: Promulgation of leasing and operating regulations
 [AD-771016] 02 p0079 N74-20616
 Ultra-deep drilling for geothermals
 [AD-774108] 03 p0102 N74-22074
 Geothermal resources, part 1 --- policy for geothermal resources development
 [GPO-21-438] 03 p0108 N74-26505
 Geothermal resources, part 2 --- technology utilization in geothermal development of Pacific Northwest
 [GPO-26-473] 03 p0109 N74-26506
 Energy from geothermal resources
 [GPO-32-309] 03 p0109 N74-26510
 GERMANIUM ALLOYS
 State of developments and research problem on the switching of silicon germanium alloy thermoelectric elements
 [AD-765845] 01 p0009 N74-10080
 GLASS
 Exploratory development of a glass ceramic automobile thermal reactor --- anti-pollution devices
 [NASA-CR-134513] 01 p0019 N74-12447
 GOLD
 Si-Au Schottky barrier nuclear battery --- for medical applications
 [TID-26342] 01 p0017 N74-11851
 Optical properties of thin gold films applied to Schottky barrier solar cells
 [NASA-CR-137981] 02 p0076 N74-19698
 GOVERNMENT PROCUREMENT
 Final environmental statement for the geothermal leasing program. Volume 1: Promulgation of leasing and operating regulations
 [AD-771016] 02 p0079 N74-20616
 Project FOL (Petroleum, Oil, and Lubricants): Optimizing procurement of aviation fuels or defense supply agency
 [AD-775053] 03 p0104 N74-22622
 GOVERNMENT/INDUSTRY RELATIONS
 Energy self-sufficiency - An economic evaluation
 [AD-775053] 03 p0085 A74-31446
 An analysis of the national transportation policy
 [AD-775053] 03 p0086 A74-33299
 Proceedings: Energy Resource Conference (2nd)
 [PB-224750/OGA] 02 p0071 N74-18634

- Staff study of the oversight and efficiency of executive agencies with respect to the petroleum industry, especially as it relates to recent fuel shortages
[GPO-23-764] 03 p0105 N74-23487
- Future energy supply: Approaches and options --- aspects of domestic energy policy 03 p0116 N74-28030
- GOVERNMENTS**
- Federal agency energy conservation
[QB-1] 01 p0026 N74-14686
- Federal energy conservation --- Federal policy on conservation and reduction of energy requirements 01 p0026 N74-14687
- Classification of public lands valuable for geothermal steam and associated geothermal resources
[CIRC-647] 02 p0049 N74-16049
- The evolution and dynamics of national goals in the United States 02 p0053 N74-16666
- California's electricity quandary. 3: Slowing the growth rate
[R-1116-NSP/CSA] 02 p0054 N74-16680
- GRADIENTS**
- Aircraft symmetric flight optimization --- gradient techniques for supersonic aircraft control 02 p0036 A74-23091
- GRAPHS (CHARTS)**
- Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614
- GRAVITATIONAL EFFECTS**
- Performance tests of gravity-assist heat pipes with screen-wick structures
[AIAA PAPER 74-723] 03 p0092 A74-35954
- GROUND EFFECT MACHINES**
- Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 A74-27842
- The assessment of an air-supported and propelled urban transport system
[CRAMPFIELD-CIS-1] 02 p0070 N74-18610
- GROUND STATIONS**
- Power conditioning system for FAA air route traffic control centers 01 p0019 N74-12636
- GROUND WIND**
- Surface wind characteristics of some Aleutian Islands --- for selection of windpowered machine sites 02 p0056 N74-16766
- GULF STREAM**
- Research applied to ocean sited power plants --- for offshore electric power generation
[PB-228067/5] 03 p0110 N74-26523
- H**
- HALL EFFECT**
- Performance and Hall field limitation studies in the Stanford M-8 MHD generator 03 p0095 A74-37605
- HANDBOOKS**
- Commercial petroleum products, properties and applications --- USSR petroleum industry handbook
[AD-754703] 01 p0010 N74-10128
- HAZARDS**
- Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry --- Indiana
[B74-10083] 01 p0014 N74-11195
- HEALTH**
- A progress report on coal mine health and safety 03 p0115 N74-28021
- HEAT EXCHANGERS**
- Light bulb heat exchanger for magnetohydrodynamic generator applications - Preliminary evaluation
[NASA-TN-D-7534] 02 p0067 N74-18557
- HEAT PIPES**
- Development program for a liquid methane heat pipe 01 p0003 A74-14046
- Gas-heated 'heat pipe' vacuum furnace --- using thermionic energy conversion 01 02 p0034 A74-19724
- Heat pipes --- using low thermoconductive and boiling point working fluids 03 p0083 A74-29445
- Electrohydrodynamic heat pipe experiments 03 p0084 A74-30111
- Theoretical and experimental investigation of two-component heat pipes
[AIAA PAPER 74-720] 03 p0092 A74-35953
- Performance tests of gravity-assist heat pipes with screen-wick structures
[AIAA PAPER 74-723] 03 p0092 A74-35954
- Thermal control range associated with heat pipe cycling 03 p0092 A74-36232
- Figure-of-merit calculation methods for organic heat-pipe fluids
[NASA-TN-X-2945] 01 p0015 N74-11736
- A novel method of cooling semiconductor devices for power electronics
[BMFT-FET-02] 01 p0015 N74-11739
- Method of forming a wick for a heat pipe
[NASA-CASE-WFO-13391-1] 02 p0074 N74-19584
- Development concept for a small, split-core, heat-pipe-cooled nuclear reactor
[NASA-TN-X-2996] 02 p0078 N74-20238
- Heat pipe design handbook, part 1
[NASA-CR-134264] 03 p0102 N74-22569
- Feasibility study and development of a constant temperature heat pipe system. Phase 2: Experimental design
[ESBO-CR(P)-430] 03 p0122 N74-29332
- HEAT PUMPS**
- Design, evaluation and reconnection effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy
[NASA-CR-120277] 03 p0119 N74-28536
- HEAT RESISTANT ALLOYS**
- Studies of heat resistant materials for high-temperature gas reactor
[NASA-TT-F-15576] 03 p0102 N74-22312
- HEAT SOURCES**
- Wind power systems for individual applications --- electric power supplies for homes 02 p0058 N74-16788
- HEAT TRANSFER**
- Heating of a substance by an arc plasma 01 p0001 A74-10463
- Gas-heated 'heat pipe' vacuum furnace --- using thermionic energy conversion 01 02 p0034 A74-19724
- Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels 02 p0036 A74-23221
- Design considerations for the airframe-integrated scramjet
[NASA-TN-X-2895] 01 p0019 N74-12448
- Solar heat utilization in residential heating systems 01 p0019 N74-12664
- Heat pipe design handbook, part 1
[NASA-CR-134264] 03 p0102 N74-22569
- HEAT TRANSFER COEFFICIENTS**
- Investigation of heat exchange in an MHD generator channel 03 p0086 A74-33565
- HEATING**
- Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22
[PB-223536/46A] 01 p0025 N74-14499
- HEATING EQUIPMENT**
- This is how you can heat your home with a little windmill
[NASA-TT-F-15518] 03 p0099 N74-21681
- The development of a solar-powered residential heating and cooling system
[NASA-TN-X-70089] 03 p0108 N74-26504
- HELICOPTER DESIGN**
- Future of the light turbine helicopter 03 p0084 A74-29517
- HELICOPTER ENGINES**
- Future of the light turbine helicopter 03 p0084 A74-29572
- The impact of advanced turboshaft engine technology on T700-powered helicopter systems
[AMS PREPRINT 871] 03 p0094 A74-36606
- A simplified life-cycle cost comparison of various engines for small helicopter use
[NASA-TN-X-71517] 02 p0074 N74-19405

HELIUM

Analysis of natural gases, 1972
[PB-225977/8] 03 p0105 H74-23337

HELIUM SHALES

Development of a multipolar inductor utilizing the possibilities of hollow superconductors with supercritical helium circulation --- noting hermetic seal/rotating shaft problems
03 p0101 H74-21921

HIGH ALTITUDE

Wind power turbogenerator for high altitude wind utilization
[NASA-TT-P-15455] 03 p0099 H74-21677

HIGH ALTITUDE BALLOONS

The use of the pressurized balloon for detecting energy resources
02 p0033 A74-19473

HIGH TEMPERATURE NUCLEAR REACTIONS

Studies of heat resistant materials for high-temperature gas reactor
[NASA-TT-P-15576] 03 p0102 H74-22312

HIGH TEMPERATURE RESEARCH

Significant research results for 1971, High Temperature Institute, USSR Academy of Sciences --- plasma physics and gas dynamics
[AD-765753] 01 p0012 H74-10898

HIGH TEMPERATURE TESTS

Characteristics and applications of the solar furnaces of the Central Laboratory of Armament
02 p0034 A74-19559

HIGH VOLTAGES

High voltage solar cell power generating system for regulated solar array development
[AIAA PAPER 73-1105] 01 p0002 A74-12242

High voltage solar cell power generating system
03 p0088 A74-34387

The multiple junction edge illuminated solar cell
[NASA-TN-X-71476] 01 p0012 H74-10947

HIGHWAYS

To conserve energy on the national system of interstate and defense highways --- Congressional legislation for controlling maximum speed limit on highways
[GPO-25-702] 03 p0123 H74-29346

HISTORIES

From scientific research to the atomic industry --- history of nuclear power industry
[JPRS-60564] 01 p0023 H74-13428

The evolution and dynamics of national goals in the United States
02 p0053 H74-16666

HONEYCOMB STRUCTURES

The use of paper honeycomb for prototype blade construction for small to medium-sized wind driven generators
02 p0056 H74-16779

HUMAN FACTORS ENGINEERING

New frontiers of civil aeronautics
02 p0041 A74-25352

Approach to the holistic analysis of the system man-energy-environment
[JUL-982-2C] 02 p0000 H74-20626

HUMIDITY

Study of the effect of increased humidity on the mirror coatings of solar energy concentrators
03 p0087 A74-34097

HYDRATES

Thermochemistry of salt hydrates
[PB-227966/9] 03 p0121 H74-28664

HYDRAULIC EQUIPMENT

Effect of dry friction on the response to a sinusoidal harmonic signal of an energy converter producing mechanical energy
02 p0034 A74-20067

Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level --- computerized data retrieval system for development of hydraulic equipment
01 p0016 H74-11759

HYDRAULIC FLUIDS

Fluid power for aircraft: Modern hydraulic technology /2nd edition/
02 p0036 A74-23376

HYDROCARBON FUELS

Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues
[DFVLR-SC1008-301] 01 p0006 A74-18925

Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels
03 p0085 A74-32600

Energy demand and its effect on the environment
[P-5048] 01 p0017 H74-11790

The U.S. energy problem. Volume 2: Appendices, part A --- to include alternate energy sources for fossil fuels
[PB-207518] 01 p0017 H74-11795

The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption
[PB-207519] 01 p0017 H74-11796

Combustion of the gases methane, LP gas and ammonia in a mixing reactor --- air pollution control device
[POA-1-C-1442-B3] 01 p0022 H74-12824

Oil and gas
01 p0029 H74-15259

FEAT

Potential pollutants in fossil fuels
[PB-225039/7GA] 02 p0066 H74-19313

Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 H74-24698

HYDROCARBONS

Research on electrochemical energy conversion systems --- electrolytes for hydrocarbon-air fuel cells
[AD-766329] 01 p0013 H74-10951

NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. A critique of the 1975-1976 Federal automobile emission standards for hydrocarbons and oxides of nitrogen
[PB-224863/1GA] 02 p0065 H74-18287

HYDRODYNAMICS

Process for the simultaneous utilization of geothermic and hydrodynamic energy
[AEC-TR-7475] 02 p0072 H74-18731

Heat operated cryogenic electrical generator --- using liquid helium conversion
[NASA-CASR-WFO-13303-1] 02 p0077 H74-19701

HYDROGEN

Solid state hydrogen gas generator --- rocket deployed balloons inflation
[AIAA PAPER 73-1232] 01 p0007 A74-11257

Hydrogen production by reforming processes - The alternatives and economics
03 p0086 A74-33992

Process design considerations in cryogenic hydrogen recovery plants
03 p0086 A74-33993

A hydrogen energy carrier. Volume 1: Summary --- for meeting energy requirements
[NASA-CN-134175] 01 p0014 H74-11727

A hydrogen energy carrier. Volume 2: Systems analysis
[NASA-CN-134176] 01 p0014 H74-11728

Summary of systems analysis of hydrogen as an energy carrier in the United States
01 p0015 H74-11729

Current energy shortage in the United States
01 p0015 H74-11730

Production of hydrogen --- for hydrogen economy
01 p0015 H74-11731

Transmission and storage of hydrogen
01 p0015 H74-11732

Safety, legal, environmental, economic, political, and social aspects of hydrogen
01 p0015 H74-11734

Implementation of a hydrogen energy carrier system
01 p0015 H74-11735

Conclusions and recommendations --- for problems in energy situation, air transportation, and hydrogen fuel
01 p0016 H74-11748

Hydrogen generator --- for hydrocarbon fueled fuel cells
[AD-767402] 01 p0024 H74-13766

Prospects for hydrogen as a fuel for transportation systems and for electrical power generation
[ORNL-TN-4305] 01 p0030 H74-15449

H2-O2 combustion powered steam-MHD central power systems
[NASA-TN-X-71512] 02 p0060 H74-16800

- Hydrogen economy --- based on hydrogen as energy source
[BUL-18224] 02 p0060 N74-16809
- Investigation of energy conversion in rapidly cycling fuel cells, 1. A system for studying the surface diffusion of hydrogen on metals, 2
02 p0071 N74-18720
- NASA Lewis H2-O2 MHD program
[NASA-TH-X-71520] 02 p0076 N74-19697
- Nuclear heat and hydrogen in future energy utilization
[LA-5456-MS] 03 p0117 N74-28108
- HYDROGEN FUELS**
- The case for hydrogen fueled transport aircraft
[AIAA PAPER 73-1323] 01 p0002 A74-11315
- The hydrogen fuel economy and aircraft propulsion
[AIAA PAPER 73-1319] 01 p0006 A74-17905
- The jet engine design that can drastically reduce oxides of nitrogen
[AIAA PAPER 74-160] 01 p0006 A74-18797
- Hydrogen - Make-sense fuel for an American supersonic transport
[AIAA PAPER 74-163] 02 p0033 A74-19353
- The case for hydrogen-fueled transport aircraft
03 p0083 A74-29452
- Future availability of liquid hydrogen
03 p0083 A74-29453
- PSA hydrogen plants - How well have they performed --- Pressure Swing Adsorption production method
03 p0087 A74-33994
- Prospects for hydrogen as an energy resource
03 p0090 A74-34621
- Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985
- An initial step: A demonstration project --- promoting subsonic, hydrogen-fueled aircraft
01 p0016 N74-11747
- Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 N74-16810
- Solar energy systems --- for generating electricity and producing hydrogen fuels
[N73-26] 02 p0064 N74-17795
- The hydrogen IC engine: Its origins and future in the emerging energy-transportation-environment system
[REPT-729212] 02 p0067 N74-18403
- State of technology on hydrogen fueled gas turbine engines
[NASA-TH-X-71561] 03 p0107 N74-26253
- Preliminary performance appraisal of Navy V/STOL transport and search-type airplanes using hydrogen fuel
[NASA-TH-X-71550] 03 p0108 N74-26435
- HYDROGEN ISOTOPES**
- Theory and experiment in laser driven fusion
03 p0087 A74-34192
- HYDROGEN OXYGEN FUEL CELLS**
- Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems
01 p0009 N74-10074
- Energy storage using high pressure electrolysis and methods for reconversion --- in automobile fuel synthesis
02 p0057 N74-16780
- High voltage fuel cell assembly --- performance tests of experimental units
[AD-774820] 03 p0101 N74-21696
- Low wattage hydrogen: Air fuel cells --- with bottled hydrogen or metal hydrides as fuel
[AD-778550] 03 p0121 N74-28553
- HYDROGEN-BASED ENERGY**
- H2-O2 combustion powered steam-MHD central power systems
02 p0042 A74-27775
- Lasers blast a shortcut to the ultimate energy solution --- through thermonuclear fusion
03 p0084 A74-29603
- Thermochemical water decomposition processes
03 p0085 A74-31450
- Thermochemical hydrogen generation --- closed cycle processes selection
03 p0094 A74-36411
- And what if we were to switch to hydrogen? --- use of hydrogen derived from water as a fuel source
[LA-TH-73-40] 02 p0072 N74-18729
- HYDROGENATION**
- The refining of turbine fuels by modern hydrotreating
[AIAA PAPER 74-162] 01 p0006 A74-18798
- Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues
[DPVLE-SOMDDR-301] 01 p0006 A74-18925
- Carbonization and hydrogenation of coal --- application to developing economies
[ID/86] 03 p0105 N74-23072
- HYDROGENOLYSIS**
- A proposed national wind power R and D program --- offshore wind power system for electric energy supplies
02 p0059 N74-16794
- HYDROGEOLOGY**
- Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography
[ID-10508] 03 p0105 N74-22955
- HYDROLOGY**
- Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
[E74-10061] 01 p0013 N74-11182
- Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments
[E74-10124] 01 p0023 N74-13051
- HYPERSONIC SPEED**
- Design considerations for the airframe-integrated scramjet
[NASA-TH-X-2895] 01 p0019 N74-12448
- HYPERSONIC VEHICLES**
- Emission calculations for a scramjet powered hypersonic transport
[NASA-TH-X-71464] 01 p0018 N74-12445
- ICELAND**
- Satellite geological and geophysical remote sensing of Iceland
[E74-10073] 01 p0014 N74-11188
- IMPLOSIONS**
- Fusion power by laser implosion
03 p0085 A74-31574
- IMPULSE GENERATORS**
- Description of the energy source project delivering 1 megajoule in 1 microsecond --- noting high efficiency magnetic energy transfer by mutually coupled inductances and fast response electromechanical circuit breakers
[LP-3] 02 p0061 N74-17454
- INDEXES (DOCUMENTATION)**
- An inventory of energy research, volume 2
01 p0021 N74-12689
- INDIANA**
- Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry --- Indiana
[E74-10083] 01 p0014 N74-11195
- Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry --- Indiana
[E74-10258] 02 p0049 N74-16007
- Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining --- Indiana
[E74-10258] 02 p0049 N74-16019
- Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10336] 02 p0045 N74-18012
- INDUSTRIAL ENERGY**
- Consumption of energy in New York State: 1972 (with estimates for 1973)
[OER-19] 02 p0079 N74-26013
- INDUSTRIAL MANAGEMENT**
- Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/ --- Russian book
03 p0092 A74-36137
- Projected availability of motor gasoline and distillate fuels, 1975 - 1985
[AD-775859] 03 p0107 N74-26239

INDUSTRIAL PLANTS

SUBJECT INDEX

Industrial evolution and revolution in the
cislunar space, 1980 - 2010
[ASTRONAUT-78-32] 03 p0111 N74-27353
Profitability of domestic energy company operations
[GPO-28-572] 03 p0116 N74-28453

INDUSTRIAL PLANTS
From scientific research to the atomic industry
--- history of nuclear power industry
[JPES-60584] 01 p0023 N74-13428

INDUSTRIAL SAFETY
A progress report on coal mine health and safety
03 p0115 N74-28021

INDUSTRIES
Commercial petroleum products, properties and
applications --- USSR petroleum industry handbook
[AD-754703] 01 p0010 N74-10128
Energy crisis and small business --- Federal Trade
Commission report on investigation of petroleum
industry 01 p0027 N74-14691
The US energy crisis, the multinational oil
corporations and their relationship to US
foreign policy in the Middle East
[AD-760868] 02 p0055 N74-16697

INFORMATION DISSEMINATION
Dissemination and utilization of solar energy
research results
[UTR-6544] 03 p0120 N74-28540

INFORMATION RETRIEVAL
The history of technology and engineering solutions
--- computerized data retrieval for coal mine
planning 01 p0016 N74-11760

INHIBITION
A Kentucky coal utilization research program.
Project 4: Measurement of inhibition isotherms
for Kentucky coal --- considering organic sulfur
and pyritic sulfur removal 03 p0113 N74-27530

INHOMOGENEITY
On inhomogeneities of thin film solar cells
02 p0039 A74-24918

INORGANIC COMPOUNDS
Thermochemistry of salt hydrates
[PB-227966/9] 02 p0121 N74-28664

INSTALLING
Problems in the electrical equipment of wind power
plants
[NASA-TT-F-15312] 02 p0046 N74-15749

INSTRUMENT LANDING SYSTEMS
Jet transport energy management for minimum fuel
consumption and noise impact in the terminal area
[AIAA PAPER 74-811] 03 p0097 A74-37821

INTEGRATED CIRCUITS
Technology and performance characteristics of
integral diode solar cells 02 p0038 A74-24908

INTERMETALLICS
State of developments and research problem on the
switching of silicon germanium alloy
thermoelectric elements
[AD-765845] 01 p0009 N74-10080

INTERNAL COMBUSTION ENGINES
Natural gas as an automotive fuel, an experimental
study
[BM-BI-7806] 01 p0011 N74-10715
Catalytic combustion of carbon monoxide in
gasoline engine exhaust using manganese catalysts
[AD-760295] 01 p0011 N74-10874
Performance of 4-cylinder engines with leaded and
unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 N74-17523
The hydrogen IC engine: Its origins and future in
the emerging energy-transportation-environment
system
[RPPT-729212] 02 p0067 N74-18403
Substitution of JP-5 aviation fuel for DF-2 diesel
under field conditions
[AD-777047] 03 p0107 N74-26243

INTERNATIONAL COOPERATION
The energy situation in the community, situation
1972, forecasts 1973 01 p0030 N74-15679
The evolution and dynamics of national goals in
the United States 02 p0053 N74-16666

Symposium on Energy, Resources and the
Environment. Volume 1: Session on
International Issues
[N72-69-VOL-1-REV-2] 02 p0068 N74-18582
Introductory remarks --- international cooperation
in energy sources development 02 p0068 N74-18583
Context of the session theme, international issues
02 p0068 N74-18584
Economic basis for energy and resource use ---
energy policy considering social impact 02 p0068 N74-18586
Controlled fusion research
[PUPB-G-4] 02 p0074 N74-19290

INTERNATIONAL LAW
Legal considerations and constraints on US nuclear
policy
[AD-754641] 01 p0024 N74-13697

INTERNATIONAL TRADE
The US energy crisis, the multinational oil
corporations and their relationship to US
foreign policy in the Middle East
[AD-760868] 02 p0055 N74-16697
Natural resources development and policies,
including environmental considerations.
Addendum: Changing patterns in the world energy
situation
[E/C.7/2/ADD.1] 02 p0070 N74-18609
World natural gas: 1972 03 p0119 N74-28464

INVENTORY MANAGEMENT
Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614

ION CURRENTS
Solid state batteries 03 p0090 A74-34771

ION ENGINES
Physical behaviour of some bio-waste gases in an
ion engine
[AIAA PAPER 73-1113] 01 p0001 A74-10691
High voltage solar cell power generating system
for regulated solar array development
[AIAA PAPER 73-1105] 01 p0002 A74-12242

ION IMPLANTATION
Analysis and improvement of silicon solar cells
02 p0037 A74-24905

IONISERS
Relaxation phenomena in an MHD generator with
pre-ionizer --- Book 02 p0033 A74-19454

IRON ALLOYS
Evaluation of alloys and coatings for use in
automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 N74-28990

ISOTHERMAL PROCESSES
A Kentucky coal utilization research program.
Project 4: Measurement of inhibition isotherms
for Kentucky coal --- considering organic sulfur
and pyritic sulfur removal 03 p0113 N74-27530

J

J-85 ENGINE
Hydrogen-methane fuel control systems for turbojet
engines
[NASA-CR-121247] 02 p0050 N74-16493

JAPAN
Present air pollution situation in Kawasaki city
and future countermeasures
[KS-27] 01 p0018 N74-12321
Energy demand in Japan, 1975 to 1985 02 p0069 N74-18600

JET AIRCRAFT NOISE
Performance and noise aspects of supersonic
transport 01 p0003 A74-13798
Jet transport energy management for minimum fuel
consumption and noise impact in the terminal area
[AIAA PAPER 74-811] 03 p0097 A74-37821

JET ENGINE FUELS
The case for hydrogen fueled transport aircraft
[AIAA PAPER 73-1323] 01 p0002 A74-11315
The refining of turbine fuels by modern
hydrotreating
[AIAA PAPER 74-162] 01 p0006 A74-18798
Supersonic fuels from aedua oils produced by the
thermal cracking of crude oil residues
[DFVLR-SONDOR-301] 01 p0006 A74-18925

- Clean, bright, and dry --- jet engine fuel contamination control 02 p0034 A74-20213
- Aviation turbine fuel and its lubricating qualities. II 02 p0035 A74-22271
- The case for hydrogen-fueled transport aircraft 03 p0083 A74-29452
- Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels 03 p0085 A74-32600
- Aviation turbine fuels, 1972 01 p0014 A74-11592
- The policy effects analysis method: A system dynamics simulation study of the defense fuel supply system 03 p0103 A74-22598
- Fuel for supersonic passenger aircraft [AD-778801] 03 p0122 A74-29207
- JET ENGINES**
- A simplified life-cycle cost comparison of various engines for small helicopter use [NASA-TN-X-71517] 02 p0074 A74-19405
- JET EXHAUST**
- Jet engine exhaust emissions of high altitude commercial aircraft projected to 1990 [NASA-TN-X-3007] 02 p0079 A74-20591
- JP-4 JET FUEL**
- Air mobility fuel cell study --- desulfurization of JP-4 fuel [AD-766757] 01 p0022 A74-12742
- The 1.5-kW fuel cell powerplant [AD-767302] 01 p0022 A74-12744
- JP-5 JET FUEL**
- Substitution of JP-5 aviation fuel for DF-2 diesel under field conditions [AD-777047] 03 p0107 A74-26243
- JUNCTION DIODES**
- Technology and performance characteristics of integral diode solar cells 02 p0038 A74-24908
- The multiple junction edge illuminated solar cell [NASA-TN-X-71476] 01 p0012 A74-10947
- K**
- KENTUCKY**
- The Western Kentucky Coal Industry: An economic analysis [UKY-TR76-73-IMHR1] 03 p0118 A74-28439
- KEROSENE**
- Conversion of fuel nitrogen to NOx in a compact combustor [ASME PAPER 73-WA/GT-2] 01 p0002 A74-13293
- Sales of fuel oil and kerosene in 1972 03 p0119 A74-28463
- L**
- LABINAR WAKES**
- MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators 03 p0096 A74-37613
- LAND USE**
- The economic utilization of resources through aviation --- manhours, land and fuel 03 p0093 A74-36321
- Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution) [E74-10061] 01 p0013 A74-11182
- Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments [E74-10124] 01 p0023 A74-13051
- Classification of public lands valuable for geothermal steam and associated geothermal resources [CIRC-647] 02 p0049 A74-16049
- Final environmental statement for the geothermal leasing program. Volume 3: Proposed geothermal leasing and operating regulations 02 p0078 A74-19976
- Final environmental statement for the geothermal leasing program. Volume 4: Comments on draft impact statement and proposed regulations 02 p0078 A74-19977
- Final environmental statement for the geothermal leasing program. Volume 1: Promulgation of leasing and operating regulations 02 p0079 A74-20616
- LANDING GEAR**
- Fluid power for aircraft: Modern hydraulic technology /2nd edition/ 02 p0036 A74-23376
- LASER HEATING**
- Fusion power by laser implosion 03 p0085 A74-31574
- Theory and experiment in laser driven fusion 03 p0087 A74-34192
- Electric power generation system directly from laser power [NASA-CASE-WPO-13308-1] 02 p0077 A74-19702
- LASER OUTPUTS**
- Lasers blast a shortcut to the ultimate energy solution --- through thermonuclear fusion 03 p0084 A74-29603
- Developments in laser technology-II; Annual Technical Meeting, 17th, Seminar-in-Depth, San Diego, Calif., August 27-29, 1973, Proceedings 03 p0087 A74-34191
- Solar and laser energy conversion with Schottky barrier solar cells 03 p0088 A74-34370
- LAW (JURISPRUDENCE)**
- Legislative authority of Federal agencies with respect to fuels and energy: A staff analysis 01 p0031 A74-15686
- Nondegradation policy of the Clear Air Act --- Congressional hearing to determine impact of degradation in cleanliness standards of air and water [GPO-20-928] 03 p0111 A74-27438
- LIFT**
- Dolphin airship with undulatory-flow propulsion - Dynamic lift 03 p0085 A74-33096
- LIFT AUGMENTATION**
- Investigation of the relative merits of different power plants for STOL-aircraft with blown flap application --- analysis of design requirements for self-sustained gas supply systems 02 p0078 A74-20406
- LIGHT AIRCRAFT**
- Fuel system requirements for light aircraft turbocharged reciprocating engines [SAE PAPER 740382] 03 p0083 A74-28747
- LIGHT SOURCES**
- High voltage solar cell power generating system 03 p0088 A74-34387
- LIGHTING EQUIPMENT**
- A wind plant to power sea signals [NASA-TT-F-15356] 02 p0060 A74-16803
- LINEAR ACCELERATORS**
- High energy radiography - A new technique in the development of efficiency and integrity in aero gas-turbine engines 02 p0035 A74-21316
- LIQUEFIED GASES**
- Development program for a liquid methane heat pipe 01 p0003 A74-14046
- Prospects for hydrogen as a fuel for transportation systems and for electrical power generation [ORNL-TN-4305] 01 p0030 A74-15449
- Hydrogen-methane fuel control systems for turbojet engines [NASA-CR-121247] 02 p0050 A74-16493
- LIQUEFIED NATURAL GAS**
- The international aspects of importing natural gas --- economics of shipping liquefied natural gas 02 p0068 A74-18588
- LIQUID FLOW**
- Electrohydrodynamic heat pipe experiments 03 p0084 A74-30005
- LIQUID HELIUM**
- Heat operated cryogenic electrical generator --- using liquid helium conversion [NASA-CASE-WPO-13303-1] 02 p0077 A74-19701
- Development of a multipolar inductor utilizing the possibilities of hollow superconductors with supercritical helium circulation --- noting hermetic seal/rotating shaft problems 03 p0101 A74-21921

LIQUID HYDROGEN

The case for hydrogen fueled transport aircraft
[AIAA PAPER 73-1323] 01 p0002 A74-11315

Cryogenic instrumentation at and above liquid
hydrogen temperature - Present and future
01 p0003 A74-14057

Hydrogen - Make-sense fuel for an American
supersonic transport
[AIAA PAPER 74-163] 02 p0033 A74-19353

The case for hydrogen-fueled transport aircraft
03 p0083 A74-29452

Future availability of liquid hydrogen
03 p0083 A74-29453

Fuel state - Expensive
03 p0092 A74-35496

Use of hydrogen and hydrogen-rich components as a
means of storing and transporting energy
02 p0057 A74-16781

The production of liquid hydrogen at the Rocket
Propulsion Establishment
[RPE-TR-71/17] 02 p0061 A74-16996

Liquid hydrogen as a fuel for motor vehicles; a
comparison with other systems
02 p0074 A74-19391

A problem statement: Ocean based
solar-to-hydrogen energy conversion macro system
02 p0076 A74-19694

Prospects for liquid hydrogen fueled commercial
aircraft
[PR-37] 02 p0080 A74-20647

Preliminary performance appraisal of Navy V/STOL
transport and search-type airplanes using
hydrogen fuel
[NASA-TS-I-71550] 03 p0108 A74-26435

LIQUID METAL COOLED REACTORS
Energy options for the future --- nuclear energy,
synthetic fuels, and pollution control methods
02 p0069 A74-18599

LIQUID METALS
Study of a bi-phase D.C. M.H.D. generator using a
new motion system
03 p0096 A74-37618

The effects of geometry and loss mechanisms on the
performance of two-phase liquid-metal MHD
generators
03 p0096 A74-37619

Boundary layer control in two-phase liquid-metal
MHD generators
03 p0096 A74-37620

Experimental two-phase liquid-metal
magnetohydrodynamic generator program
[AD-766588] 01 p0013 A74-10952

Liquid metal magnetohydrodynamics (LMHD)
technology transfer feasibility study. Volume
1: Summary
[NASA-CR-136197] 01 p0023 A74-13466

Liquid metal magnetohydrodynamics (LMHD)
technology transfer feasibility study. Volume
2: Appendixes
[NASA-CR-136198] 01 p0023 A74-13467

LIQUID OXYGEN
Cryogenic instrumentation at and above liquid
hydrogen temperature - Present and future
01 p0003 A74-14057

A problem statement: Ocean based
solar-to-hydrogen energy conversion macro system
02 p0076 A74-19694

LIQUID SODIUM
Performance tests of gravity-assist heat pipes
with screen-wick structures
[AIAA PAPER 74-723] 02 p0092 A74-35954

LIQUID-GAS MIXTURES
Impinging jet separators for liquid metal
magnetohydrodynamic power cycles
[NASA-CR-136552] 01 p0027 A74-14785

LITHIUM
The drift field model applied to the
lithium-containing silicon solar cell
03 p0090 A74-34421

Design, evaluation and recommendation effort
relating to the modification of a residential
3-ton absorption cycle cooling unit for
operation with solar energy
[NASA-CR-120277] 03 p0119 A74-28536

LITHOLOGY
Geologic information from satellite images ---
geological interpretation of ERTS-1 and Skylab
multispectral photography of Rocky Mountain areas
[A74-10507] 03 p0104 A74-22954

LOGISTICS MANAGEMENT

Substitution of JP-5 aviation fuel for DF-2 diesel
under field conditions
[AD-777047] 03 p0107 A74-26243

LOW COST
Individual action for energy conservation
01 p0030 A74-15680

Energy in general --- technology for meeting world
energy demand
02 p0068 A74-18587

National energy policies --- for development of
low cost energy
02 p0069 A74-18592

LOW TEMPERATURE
Low gas temperature solution to high resistivity
ash problems --- flue gas temperature effect on
efficiency of electrostatic precipitator
03 p0116 A74-28027

LOW TEMPERATURE PHYSICS
Cryogenic Engineering Conference, University of
Colorado, Boulder, Colo., August 9-11, 1972,
Proceedings
01 p0003 A74-14043

Superconductivity - Large-scale applications
03 p0092 A74-36049

LOW TEMPERATURE TESTS
Nickel-zinc cells with non-sintered electrodes
02 p0035 A74-20631

LOW THRUST PROPULSION
Theoretical performance of ammonia, hydrogen, and
biowaste resistojets
03 p0085 A74-31286

LUBRICANT TESTS
Study of the effect of dilution on the lubricity
of hydrotreated jet engine fuels
03 p0085 A74-32600

LUBRICANTS
Aviation fuels and lubricants
01 p0006 A74-18180

LUBRICATING OILS
Influence of fuels and lubricants on turbine
engine design and performance, fuel and
lubricant analyses
[AD-769309] 02 p0050 A74-16483

Waste lubricating oil research: An investigation
of several re-refining methods
[BM-R1-7884] 02 p0078 A74-20069

LUNAR EFFECTS
Effect of the sun, the moon and solar radiation
pressure on a near-equatorial synchronous
satellite
01 p0003 A74-13559

LUNAR ENVIRONMENT
Industrial evolution and revolution in the
cislunar space, 1980 - 2010
[ASTRONAUT-FB-32] 03 p0111 A74-27353

MAGNETIC COILS
Superconducting magnetic energy storage
03 p0092 A74-35289

MAGNETIC DIPOLES
Design study of superconducting 5 tesla dipole
magnets for MHD generators
[IPP-IV-53] 02 p0067 A74-18328

MAGNETIC EFFECTS
The effect of magnetic field upon the output
performance of segmented-open type MHD generator
03 p0095 A74-37609

MAGNETIC FIELDS
State-of-the-art and prospects of magnetoelectric
machines for self-contained electrical supply
systems and controllable electrical drivers
[AD-773893] 02 p0081 A74-20703

MAGNETIC INDUCTION
Results of the Rindhoven MHD shocktunnel experiment
03 p0097 A74-37623

MAGNETIC PISTONS
The motion of a conducting piston in a channel
with variable inductance
02 p0036 A74-22279

MAGNETIC SUSPENSION
The use of superconductivity in the USA
transportation program
03 p0091 A74-35288

Magnetic suspension and guidance of high speed
vehicles --- feasibility and cost effectiveness
[CTS-2] 02 p0072 A74-18892

MAGNETOELECTRIC MEDIA

State-of-the-art and prospects of magnetoelectric machines for self-contained electrical supply systems and controllable electrical drivers [AD-773893] 02 p0081 M74-20703

MAGNETOHYDRODYNAMIC FLOW

Effect of plasma injection on cold wall type MHD generator 03 p0091 A74-35276

MAGNETOHYDRODYNAMIC GENERATORS

Satellite nuclear power station: An engineering analysis --- Book 01 p0002 A74-13234

Optimization of the power of Faraday MHD generators operating on nonequilibrium plasma 01 p0003 A74-13943

Qualitative analysis of the efficiency of MHD energy conversion 01 p0003 A74-13944

Characteristics of a nonequilibrium MHD generator 01 p0005 A74-17439

Relaxation phenomena in an MHD generator with pre-ionizer --- Book 02 p0033 A74-19454

Loss mechanisms in an MHD generator --- Book on argon plasma nonequilibrium Faraday generator efficiency 02 p0033 A74-19455

The motion of a conducting piston in a channel with variable inductance 02 p0036 A74-22279

Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels 02 p0036 A74-23221

H2-O2 combustion powered steam-MHD central power systems 02 p0042 A74-27775

Stabilization of ionization instability in an MHD generator 03 p0083 A74-28943

Electron nonequilibrium in open-cycle MHD generators 03 p0083 A74-28957

Nonlinear stability of magnetohydrodynamic generators [AIAA PAPER 74-507] 03 p0086 A74-33106

Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator 03 p0086 A74-33564

Investigation of heat exchange in an MHD generator channel 03 p0086 A74-33565

Effect of plasma injection on cold wall type MHD generator 03 p0091 A74-35276

Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, University of Tennessee Space Institute, Tullahoma, Tenn., April 8-10, 1974 03 p0094 A74-37604

Performance and Hall field limitation studies in the Stanford M-8 MHD generator 03 p0095 A74-37605

Design and modeling of the gas flow system for a compact 10 MW MHD generator system 03 p0095 A74-37606

A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators 03 p0095 A74-37607

Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits 03 p0095 A74-37608

The effect of magnetic field upon the output performance of segmented-open type MHD generator 03 p0095 A74-37609

Optimization of open cycle power plant MHD generator 03 p0095 A74-37610

NASA Lewis H2-O2 MHD program 03 p0095 A74-37611

Electron vibrational energy transfer under MHD combustion generator conditions 03 p0095 A74-37612

MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators 03 p0096 A74-37613

The time dependent magnetohydrodynamic generator 03 p0096 A74-37615

Wall roughness and area variation effects in high subsonic MHD generator channels 03 p0096 A74-37616

Study of a bi-phase D.C. H.E.D. generator using a new motion system 03 p0096 A74-37618

The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37619

Boundary layer control in two-phase liquid-metal MHD generators 03 p0096 A74-37620

Effects of the development of boundary layers on a Faraday MHD generator 03 p0096 A74-37621

Ionisation, recombination and voltage drop measurements in a closed cycle MHD generator 03 p0096 A74-37622

Results of the Hindhoven MHD shock tunnel experiment 03 p0097 A74-37623

Electrode studies and recent results of nonequilibrium MHD generator experiments 03 p0097 A74-37624

Closed cycle MHD power generation experiments in the NASA Lewis facility 03 p0097 A74-37625

A two-temperature, gas-particle suspension in MHD power generation [ASME PAPER 73-PWR-C] 03 p0097 A74-37791

Closed cycle MHD for central station power with fossil or nuclear fuels [AD-766500] 01 p0012 M74-10949

Investigation of a non-equilibrium MHD generator [AD-766493] 01 p0013 M74-10950

Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-766588] 01 p0013 M74-10952

Development of design criteria, cost estimates, and schedules for an MHD high performance demonstration experiment [AD-766232] 01 p0017 M74-11852

Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 1: Summary [NASA-CR-136197] 01 p0023 M74-13466

Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 2: Appendixes [NASA-CR-136198] 01 p0023 M74-13467

Impinging jet separators for liquid metal magnetohydrodynamic power cycles [NASA-CR-136552] 01 p0027 M74-14785

Experimental research on model MHD generator U-02 (Stage 2), Scientific and Technical Report 17/73 [JPRS-60972] 02 p0050 M74-16424

H2-O2 combustion powered steam-MHD central power systems [NASA-TN-X-71512] 02 p0060 M74-16800

KIVA-I MHD generator modifications and tests [AD-770063] 02 p0060 M74-16815

Direct energy conversion methods [AD-770000] 02 p0061 M74-16816

Design study of superconducting 5 tesla dipole magnets for MHD generators [IFP-IV-53] 02 p0067 M74-18328

Light bulb heat exchanger for magnetohydrodynamic generator applications - Preliminary evaluation [NASA-TN-D-7534] 02 p0067 M74-18557

Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator [JPRS-61359] 02 p0071 M74-18723

NASA Lewis H2-O2 MHD program [NASA-TN-X-71520] 02 p0076 M74-19697

Passage of current through boundary layers --- and gas dynamic parameters of a magnetohydrodynamic generator [AD-775138] 03 p0102 M74-22372

Disk geometry MHD generator for high voltage aircraft power requirements [AD-775749] 03 p0107 M74-26255

The prospects for MHD power plants in power engineering [JPRS-62139] 03 p0110 M74-26774

Experience from the first stage of development of the U-25 installation [JPRS-62129] 03 p0110 M74-26775

- Induction magnetohydrodynamic MHD generator with a cavity-type nuclear reactor
[AD-777444] 03 p0111 N74-27247
- On the approaches to MHD-power generation
[JPRS-62196] 03 p0117 N74-28168
- Dynamic modeling and analysis of liquid-metal magnetohydrodynamic power systems
[AD-778757] 03 p0121 N74-28551
- MAGNETOHYDRODYNAMIC STABILITY**
- Stabilization of ionization instability in an MHD generator
03 p0083 A74-28943
- Nonlinear stability of magnetohydrodynamic generators
[AIAA PAPER 74-507] 03 p0086 A74-33106
- MAGNETOHYDRODYNAMIC WAVES**
- Investigation of a non-equilibrium MHD generator
[AD-766493] 01 p0013 N74-10950
- MAGNETOHYDRODYNAMICS**
- Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, University of Tennessee Space Institute, Tullahoma, Tenn., April 8-10, 1974
03 p0094 A74-37604
- Magnetohydrodynamic method of obtaining electrical energy (collected articles)
[AD-765933] 01 p0011 N74-10681
- MHD for power generation: The view of a chosen few
[AD-760342] 01 p0025 N74-14408
- Experimental research on model MHD generator U-02 (Stage 2), Scientific and Technical Report 17/73
[JPRS-60972] 02 p0050 N74-16424
- MAGNETS**
- Design study of superconducting 5 tesla dipole magnets for MHD generators
[IFP-IV-53] 02 p0067 N74-18328
- State-of-the-art and prospects of magnetoelectric machines for self-contained electrical supply systems and controllable electrical drivers
[AD-773893] 02 p0081 N74-20703
- MANAGEMENT METHODS**
- Legislative authority of Federal agencies with respect to fuels and energy: A staff analysis
01 p0031 N74-15686
- Energy conservation, part 1
01 p0031 N74-15690
- MANAGEMENT PLANNING**
- Relevance of ERIS to the State of Ohio --- management and planning of state resources
[N74-10024] 01 p0013 N74-11159
- Assessment of geothermal energy resources
01 p0030 N74-15661
- Federal Energy Organization: A staff analysis
02 p0053 N74-16669
- General aviation cost impact study. Volume 1: Executive summary
[AD-771603] 02 p0062 N74-17779
- General aviation cost impact study. Volume 2: Research methodology
[AD-771606] 02 p0062 N74-17780
- General aviation cost impact study. Volume 3: Planning guide
[AD-771759] 02 p0062 N74-17781
- Energy Reorganization Act of 1973
[GPO-25-108] 03 p0111 N74-27442
- Draft of proposed legislation to promote more effective management of certain related functions of the Executive Branch
[S-DOC-93-119] 03 p0112 N74-27454
- MANEUVERABILITY**
- Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
- MANPOWER**
- The economic utilization of resources through aviation --- manhours, land and fuel
03 p0093 A74-36321
- MANUFACTURING**
- Importance and progress of wind power utilization in Denmark
[NASA-TT-P-15349] 02 p0046 N74-15754
- MARINE ENVIRONMENTS**
- Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments
[N74-10124] 01 p0023 N74-13051
- MASS TRANSFER**
- Mass transfer in fuel cells --- electron microscopy of components, thermal decomposition of Teflon, water transport, and surface tension of KOH solutions
[NASA-CN-134519] 01 p0009 N74-10075
- MATERIALS**
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion
[AD-777737] 03 p0109 N74-26518
- MATERIALS HANDLING**
- Disposal of waste oils at military air bases
[SAE PAPER 740472] 03 p0091 A74-35001
- Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/ --- Russian book
03 p0092 A74-36137
- Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses
[P-5046] 01 p0017 N74-11791
- MATERIALS RECOVERY**
- Process design considerations in cryogenic hydrogen recovery plants
03 p0086 A74-33993
- MATERIALS TESTS**
- Characteristics and applications of the solar furnaces of the Central Laboratory of Armament
02 p0034 A74-19559
- MATHEMATICAL MODELS**
- Modelling of combustors - The effects of ambient conditions upon performance
02 p0040 A74-25217
- A model of convex programming for turbojet gain parameter selection optimization
[ASME PAPER 74-GT-79] 02 p0042 A74-27466
- The drift field model applied to the lithium-containing silicon solar cell
03 p0090 A74-34421
- Thermal control range associated with heat pipe cycling
03 p0092 A74-36232
- Mathematical methods of optimal planning development and use of energy systems
[JPRS-60546] 01 p0022 N74-12693
- Econometric models: Their application to the economic and energy sectors
[CE-MIB-220] 02 p0062 N74-17660
- MEASURING INSTRUMENTS**
- Cryogenic instrumentation at and above liquid hydrogen temperature - Present and future
01 p0083 A74-14057
- MECHANICAL DRIVES**
- Current European developments in solar paddle drives
01 p0014 N74-11672
- Voight variable speed drive --- for windpowered generator
02 p0057 N74-16779
- Technical feasibility study for the development of a large capacity wind powered electrical generating system --- by using vertical airfoil motion along track system
02 p0059 N74-16791
- Computer program for thermodynamic analysis of open cycle altishaft power system with multiple reheat and intercool
[NASA-TN-D-7589] 02 p0071 N74-18727
- MECHANICAL ENGINEERING**
- Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973 --- reports on reynolds number effects, energy in transportation, and wave buoy accelerometer
[DNR/NAE-1973(3)] 01 p0023 N74-13673
- MERCURY ALLOYS**
- Possibility of commutating thermoelectric batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 N74-10084
- METAL COATINGS**
- A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel
[NASA-CASE-NFS-22562-1] 02 p0076 N74-19700
- METAL FILMS**
- Application and durability of solar absorber coatings --- thermal power source for spaceborne cryogenic refrigerators
[AD-769449] 02 p0049 N74-16264

SUBJECT INDEX

MULTISPECTRAL PHOTOGRAPHY

- Optical properties of thin gold films applied to Schottky barrier solar cells
[NASA-CR-137981] 02 p0076 N74-19698
- METAL HYDRIDES**
Chemical storage of hydrogen in Ni/M2 cells
01 p0004 A74-14248
- Low wattage hydrogen: Air fuel cells --- with bottled hydrogen or metal hydrides as fuel
[AD-778550] 03 p0121 N74-28553
- METAL SUBPACIS**
Investigation of energy conversion in rapidly cycling fuel cells, 1. A system for studying the surface diffusion of hydrogen on metals, 2
02 p0071 N74-18720
- METALS**
Determining the effects of gasoline price on use of metals in automobile manufacture
[BM-MI-7871] 02 p0062 N74-17666
- METHEOLOGICAL PARAMETERS**
Sensitivity of suboptimal fixed-range flight paths --- aircraft fuel consumption dependence on atmospheric parameters
[AIAA PAPER 74-813] 03 p0097 A74-37822
- METHEOLOGICAL SERVICES**
Need for a regional wind survey
02 p0055 N74-16764
- METEOROLOGY**
Applications of meteorology to natural resource planning --- agriculture, forestry, energy, and recreation
01 p0014 N74-11395
- METHANE**
Physical behaviour of some biowaste gases in an ion engine
[AIAA PAPER 73-1113] 01 p0001 A74-10691
- Development program for a liquid methane heat pipe
01 p0003 A74-14046
- Natural gas as an automotive fuel, an experimental study
[BM-MI-7806] 01 p0011 N74-10715
- Hydrogen-methane fuel control systems for turbojet engines
[NASA-CR-121247] 02 p0050 N74-16493
- MICROWAVE TRANSMISSION**
Satellite nuclear power station: An engineering analysis --- Book
01 p0002 A74-13234
- Regional and global energy transfer via passive power relay satellites
01 p0005 A74-16116
- Space solar power --- satellite-borne generators for earth consumption
02 p0040 A74-24942
- MILITARY AIRCRAFT**
Engine sensory requirements for energy management
02 p0043 A74-28311
- The policy effects analysis method: A system dynamics simulation study of the defense fuel supply system
[P-5129] 03 p0103 N74-22598
- MILITARY HELICOPTERS**
Helicopter applications at sea
02 p0034 A74-19690
- MILITARY TECHNOLOGY**
Investigation of chemical APU application for small ground power sources
[AD-765724] 01 p0009 N74-10082
- MINERAL DEPOSITS**
Titanium-bearing rocks --- as potential energy sources
01 p0028 N74-15226
- Coal
01 p0028 N74-15230
- Nuclear fuels: Uranium
01 p0028 N74-15257
- Nuclear fuels: Thorium
01 p0029 N74-15258
- Factors affecting the use of coal in present and future energy makers --- background paper for Congressional investigation of earth resources and energy policies
01 p0031 N74-15684
- MINERAL EXPLORATION**
ERTS-1 imagery use in reconnaissance prospecting: Evaluation of the commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum --- interpretation of Colorado region
[E74-10007] 01 p0013 N74-11148
- Investigations using data in Alabama from ERTS-A --- land use, mineral exploration, geology, hydrology, water resources, data processing, data management, marine environments
[E74-10124] 01 p0023 N74-13051
- ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
[E74-10345] 02 p0082 N74-20948
- Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography
[E74-10508] 03 p0105 N74-22955
- MINES (EXCAVATIONS)**
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry --- Indiana
[E74-10083] 01 p0014 N74-11195
- Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level --- computerized data retrieval system for development of hydraulic equipment
01 p0016 N74-11759
- The history of technology and engineering solutions --- computerized data retrieval for coal mine planning
01 p0016 N74-11760
- Forecasting of technological progress for long-range planning of mining operations at coal mines --- prediction analysis technique for operational development
01 p0016 N74-11765
- Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry --- Indiana
[E74-10238] 02 p0049 N74-16007
- Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining --- Indiana
[E74-10258] 02 p0049 N74-16019
- Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10336] 02 p0065 N74-18012
- A progress report on coal mine health and safety
03 p0115 N74-28021
- MINING**
Evaluation of mine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses
[PB-225476/1] 03 p0115 N74-27918
- The Western Kentucky Coal Industry: An economic analysis
[UKY-TR76-73-INMR1] 03 p0118 N74-28439
- MIRRORS**
Study of the effect of increased humidity on the mirror coatings of solar energy concentrators
03 p0087 A74-34097
- Refurbishment of solar simulation optical train mirror assemblies
[NASA-CR-134123] 01 p0018 N74-12016
- MOLECULAR OSCILLATIONS**
Electron vibrational energy transfer under MHD combustion generator conditions
03 p0095 A74-37612
- MONTANA**
ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
[E74-10345] 02 p0082 N74-20948
- MULTISPECTRAL PHOTOGRAPHY**
Evaluation of the suitability of Skylab data for the purpose of petroleum exploration
[E74-10331] 02 p0055 N74-18007
- Geologic information from satellite images --- geological interpretation of ERTS-1 and Skylab multispectral photography of Rocky Mountain areas
[E74-10507] 03 p0104 N74-22954
- Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography
[E74-10508] 03 p0105 N74-22955

Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania
[B74-10572] 03 p0121 W74-24816

N

NASA PROGRAMS

The second fifteen years in space; Proceedings of the Eleventh Goddard Memorial Symposium, Washington, D.C., March 8, 9, 1973
01 p0004 A74-14463

NASA Lewis H2-O2 HHD program 03 p0095 A74-37611

NASA authorization for fiscal year 1975, part 1 --- Congressional hearings on funding of NASA programs 02 p0082 W74-21605

Solar heating and cooling --- Congressional hearing on technology for utilization of solar energy for heating and cooling buildings [GPO-29-939] 03 p0106 W74-25620

NASA authorization for fiscal year 1975, part 3 [GPO-31-919] 03 p0107 W74-26405

Applications of aerospace technology in the electric power industry [NASA-CR-138947] 03 p0119 W74-28537

Spaceship earth: A look ahead to a better life [NASA-TM-X-70139] 03 p0122 W74-29339

NATIONAL AVIATION SYSTEM

U.S. government airport capacity planning [SAF PAPER 740474] 03 p0091 A74-35000

NATIONS

Petroleum: A prediction made in 1950 [P-5135] 02 p0065 W74-18194

NATURAL GAS

Cryogenic instrumentation at and above liquid hydrogen temperature - Present and future 01 p0003 A74-14057

Natural gas as an automotive fuel, an experimental study [BN-RI-7806] 01 p0011 W74-10715

Oil and gas 01 p0029 W74-15259

Selected list of Bureau of Mines publications on petroleum and natural gas, 1961-1970 [BN-IC-8534] 01 p0032 W74-15691

Natural gas supply in the decade of the seventies 02 p0074 W74-19586

Natural gas availability: Present and future 02 p0075 W74-19587

Energy program, 1972 [BN-IC-8612] 02 p0080 W74-20619

Medium-term prospects and guidelines in the community gas sector 03 p0100 W74-21684

Analyses of natural gases, 1972 [PB-225977/8] 03 p0105 W74-23337

Action in the Atlantic: A vital step for our nation's energy and environmental needs [G-70172-10088.73-408] 03 p0111 W74-26873

Nuclear stimulation of natural gas [GPO-96-678] 03 p0112 W74-27448

World natural gas: 1972 03 p0119 W74-28466

NAVI

Proceedings of Workshop on Navy Alternate Energy Sources Research and Development [AD-773746] 02 p0078 W74-19717

NEW MEXICO

Noncaking coal gasified in a stirred-bed producer [BN-TPB-77] 02 p0073 W74-19117

ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum [B74-10345] 02 p0082 W74-20948

NEW YORK

Consumption of energy in New York State: 1972 (with estimates for 1973) [OER-19] 02 p0079 W74-20614

NICKEL

Fabrication and testing of negative-limited sealed nickel-cadmium cells [NASA-CR-135981] 01 p0009 W74-10078

NICKEL COMPOUNDS

Chemical storage of hydrogen in Ni/H₂ cells 01 p0004 A74-14248

NICKEL PLATE

Refurbishment of solar simulation optical train mirror assemblies [NASA-CR-134123] 01 p0018 W74-12016

NICKEL ZINC BATTERIES

Sealed, rechargeable nickel-zinc cells 02 p0035 A74-20630

Nickel-zinc cells with non-sintered electrodes 02 p0035 A74-20631

High energy sealed nickel-zinc batteries [AD-772944] 02 p0072 W74-18737

NITROGEN

Physical behaviour of some bio waste gases in an ion engine [AIAA PAPER 73-1113] 01 p0001 A74-10691

NITROGEN OXIDES

Conversion of fuel nitrogen to NO_x in a compact combustor [ASHE PAPER 73-WA/GT-2] 01 p0002 A74-13293

The jet engine designs that can drastically reduce oxides of nitrogen [AIAA PAPER 74-160] 01 p0006 A74-18797

NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. A critique of the 1975-1976 Federal automobile emission standards for hydrocarbons and oxides of nitrogen [PB-224863/1GA] 02 p0065 W74-18287

Low NO_x emission combustor development for automobile gas turbine engines [PB-225133/8GA] 02 p0067 W74-18414

NOISE REDUCTION

New frontiers of civil aeronautics 02 p0041 A74-25352

Jet transport energy management for minimum fuel consumption and noise impact in the terminal area [AIAA PAPER 74-811] 03 p0097 A74-37821

Refan program. Phase 1: Summary report [NASA-TM-X-71456] 01 p0009 W74-10043

Section 4: Propulsion and energy 01 p0026 W74-14671

Reduction of diesel engine exhaust noise in the petroleum mining industry --- by resonator type diffuser 03 p0118 W74-28388

NONEQUILIBRIUM FLOW

Electrode studies and recent results of nonequilibrium HHD generator experiments 03 p0097 A74-37624

NONEQUILIBRIUM IONIZATION

Closed cycle HHD power generation experiments in the NASA Lewis facility 03 p0097 A74-37625

NONEQUILIBRIUM PLASMAS

Optimization of the power of Faraday HHD generators operating on nonequilibrium plasma 01 p0003 A74-13943

Characteristics of a nonequilibrium HHD generator 01 p0005 A74-17439

Relaxation phenomena in an HHD generator with pre-ionizer --- Book 02 p0033 A74-19454

Loss mechanisms in an HHD generator --- Book on argon plasma nonequilibrium Faraday generator efficiency 02 p0033 A74-19455

Electron nonequilibrium in open-cycle HHD generators 03 p0083 A74-28957

NONLINEAR PROGRAMMING

A model of convex programming for turbojet main parameter selection optimization [ASHE PAPER 74-GT-79] 02 p0042 A74-27466

NOZZLE FLOW

Theoretical performance of ammonia, hydrogen, and bio waste resistojets 03 p0085 A74-31286

A two-temperature, gas-particle suspension in HHD power generation [ASHE PAPER 73-PWR-C] 03 p0097 A74-37791

NUCLEAR ELECTRIC POWER GENERATION

Nuclear eclectic power --- selective assessment of plant and reactor types 02 p0041 A74-27320

Self-contained low power atomic plants --- for converting nuclear energy into electrical power [AD-766969] 01 p0014 W74-11519

Si-Al Schottky barrier nuclear battery --- for medical applications [TID-26342] 01 p0017 W74-11851

- Balancing the demand and supply of electricity and nuclear fuels 02 p0052 W74-16659
- Energy demand in Japan, 1975 to 1985 02 p0069 W74-18600
- NUCLEAR RESEARCH**
- The U.S. energy problem. Volume 2: Appendices, part A --- to include alternate energy sources for fossil fuels [PB-207518] 01 p0017 W74-11795
- Energy research and development: A selected reading list [ORNL-RIS-73-65-REV-1] 01 p0022 W74-12695
- From scientific research to the atomic industry --- history of nuclear power industry [JPBS-60584] 01 p0023 W74-13428
- Legal considerations and constraints on US nuclear policy [AD-754641] 01 p0024 W74-13697
- Balancing the demand and supply of electricity and nuclear fuels 02 p0052 W74-16659
- Nuclear heat and hydrogen in future energy utilization [LA-5456-MS] 03 p0117 W74-28108
- NUCLEAR FISSION**
- Nuclear fission as a general source of energy 03 p0090 A74-34620
- NUCLEAR FUEL ELEMENTS**
- Isotope kilowatt program [ORNL-TN-4243] 01 p0025 W74-14377
- NUCLEAR FUELS**
- Nuclear fuels: Uranium 01 p0028 W74-15257
- Nuclear fuels: Thorium 01 p0029 W74-15258
- NUCLEAR FUSION**
- Evolution of studies in the field of gas lasers 01 p0005 A74-16909
- Lasers blast a shortcut to the ultimate energy solution --- through thermonuclear fusion 03 p0084 A74-29603
- Fusion reactor design problems 03 p0084 A74-31213
- Fusion power by laser implosion 03 p0085 A74-31574
- Controlled fusion research [PUPH-G-4] 02 p0074 W74-19290
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 5: Conclusions and recommendations [NASA-CR-138183] 03 p0103 W74-22604
- NUCLEAR HEAT**
- Nuclear fission as a general source of energy 03 p0090 A74-34620
- NUCLEAR PHYSICS**
- From scientific research to the atomic industry --- history of nuclear power industry [JPBS-60584] 01 p0023 W74-13428
- NUCLEAR POWER PLANTS**
- Satellite nuclear power station: An engineering analysis --- Book 01 p0002 A74-13234
- Nuclear Science Symposium, 20th, and Nuclear Power Systems Symposium, 5th, San Francisco, Calif., November 14-16, 1973, Proceedings 02 p0041 A74-25901
- Symposium on Engineering Problems of Fusion Research, 5th, Princeton University, Princeton, N.J., November 5-9, 1973, Proceedings 03 p0087 A74-34050
- Self-contained low power atomic plants --- for converting nuclear energy into electrical power [AD-766969] 01 p0014 W74-11519
- Research applied to ocean sited power plants --- for offshore electric power generation [PB-228067/5] 03 p0110 W74-26523
- NUCLEAR POWER REACTORS**
- Assessment of lightweight mobile nuclear power systems 01 p0006 A74-17813
- NUCLEAR PROPELLED AIRCRAFT**
- Assessment of lightweight mobile nuclear power systems 01 p0006 A74-17813
- The airship can meet the energy challenge 02 p0034 A74-20166
- NUCLEAR REACTORS**
- Fusion power by laser implosion 03 p0085 A74-31574
- A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors 03 p0087 A74-34093
- Nuclear fission as a general source of energy 03 p0090 A74-34620
- Energy situation and nuclear power --- global applications of nuclear reactors [NP-19838] 01 p0029 W74-15391
- Induction magnetohydrodynamic MHD generator with a cavity-type nuclear reactor [AD-777444] 03 p0111 W74-27247
- NUCLEAR RESEARCH**
- Nuclear Science Symposium, 20th, and Nuclear Power Systems Symposium, 5th, San Francisco, Calif., November 14-16, 1973, Proceedings 02 p0041 A74-25901
- NUCLEAR RESEARCH AND TEST REACTORS**
- Comparative evaluation of solar, fission, fusion, and fossil energy resources, part 3 [NASA-CR-138117] 03 p0103 W74-22590
- NUCLEAR TRANSFORMATIONS**
- Nuclear stimulation of natural gas [GPO-96-678] 03 p0112 W74-27448
- O**
- OCEAN BOTTOM**
- Review of the results from the Eastern Atlantic Continental Margin Program of the International Decade of Ocean Exploration --- geophysical prospecting and fishing areas [PB-225036/3GA] 02 p0065 W74-18073
- OCEANOGRAPHY**
- Review of the results from the eastern Atlantic continental margin program of the international decade of ocean exploration [PB-226580/9GA] 03 p0102 W74-22091
- OCEANS**
- The solar power options --- energy conversion 03 p0094 A74-36334
- Second Annual Sea Grant Lecture and Symposium [NITSG-74-7] 03 p0115 W74-27826
- World energy and the oceans 03 p0115 W74-27827
- OFFSHORE ENERGY SOURCES**
- Key issues in offshore oil 03 p0115 W74-27828
- The worldwide search for petroleum offshore [USGS-CIRC-694] 03 p0121 W74-28897
- OFFSHORE PLATFORMS**
- A proposed national wind power R and D program --- offshore wind power system for electric energy supplies 02 p0059 W74-16794
- OFFSHORE REACTOR SITES**
- Proceedings, Solar Sea Power Plant Conference and Workshop [PB-228066/7] 03 p0110 W74-26521
- Research applied to ocean sited power plants --- for offshore electric power generation [PB-228067/5] 03 p0110 W74-26523
- OHIO**
- Relevance of ERTS to the State of Ohio --- management and planning of state resources [E74-10024] 01 p0013 W74-11159
- Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10160] 01 p0024 W74-14028
- Automated strip-mine and reclamation mapping from ERTS [E74-10490] 03 p0101 W74-22014
- Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10572] 03 p0121 W74-28816
- OHMIC DISSIPATION**
- Evaluation of ohmic losses in solar cells and array 03 p0089 A74-34416

OIL EXPLORATION

ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of the commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum --- interpretation of
Colorado region
[E74-10007] 01 p0013 N74-11148

An evaluation of the suitability of ERTS data for
the purposes of petroleum exploration ---
geological structures of Oklahoma
[E74-10029] 01 p0018 N74-12119

Petroleum exploration subprogram: Geological
interpretation of proportional imagery from
ERTS-1 satellite
[E74-10213] 01 p0028 N74-15020

Oil exploration subprogram geological
interpretation of images provided by the ERTS-1
satellite --- Bolivia
[NASA-TT-F-15265] 01 p0028 N74-15070

The US energy crisis, the multinational oil
corporations and their relationship to US
foreign policy in the Middle East
[AD-760868] 02 p0055 N74-16697

Evaluation of the suitability of Skylab data for
the purpose of petroleum exploration
[E74-10331] 02 p0065 N74-18007

Review of the results from the Eastern Atlantic
Continental Margin Program of the International
Decade of Ocean Exploration --- geophysical
prospecting and fishing areas
[PB-225036/3GA] 02 p0065 N74-18073

ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[E74-10345] 02 p0082 N74-20948

Action in the Atlantic: A vital step for our
nation's energy and environmental needs
[G-70172-100H8.73-408] 03 p0111 N74-26873

Reduction of diesel engine exhaust noise in the
petroleum mining industry --- by resonator type
diffuser
03 p0118 N74-28388

The worldwide search for petroleum offshore
[USGS-CIRC-694] 03 p0121 N74-28897

Properties of Utah tar sands: Threemile Canyon
area, P. R. Spring deposit
[BM-RI-7923] 03 p0121 N74-28911

OIL RECOVERY
Disposal of waste oils at military air bases
[SAE PAPER 740472] 03 p0091 A74-35001

Thermal degradation of Green River kerogen at 150
to 350 C
[BM-RI-7924] 03 p0121 N74-28652

OIL SLICKS
Detecting and monitoring oil slicks with aerial
photos
03 p0085 A74-33071

OKLAHOMA
An evaluation of the suitability of ERTS data for
the purposes of petroleum exploration ---
geological structures of Oklahoma
[E74-10029] 01 p0018 N74-12119

ONE DIMENSIONAL FLOW
The effect of magnetic field upon the output
performance of segmented-open type MHD generator
03 p0095 A74-37609

OPERATING TEMPERATURE
Analysis and improvement of silicon solar cells
02 p0037 A74-24905

OPERATIONAL HAZARDS
Operational and accidental petroleum product
losses and their control and prevention /2nd
revised and enlarged edition/ --- Russian book
03 p0092 A74-36137

OPERATIONAL PROBLEMS
Fusion reactor design problems
03 p0084 A74-31213

Problems in the electrical equipment of wind power
plants
[NASA-TT-F-15312] 02 p0046 N74-15749

Final environmental statement for the geothermal
leasing program. Volume 3: Proposed geothermal
leasing and operating regulations
02 p0078 N74-19976

OPERATIONS RESEARCH
F-14 optimum flight modes, volume 1
[AD-775246] 03 p0099 N74-21665

OPERATIONS (PERSONNEL)

A progress report on coal mine health and safety
03 p0115 N74-28021

OPTICAL PROPERTIES

Optical properties of thin gold films applied to
Schottky barrier solar cells
[NASA-CR-137981] 02 p0076 N74-19698

OPTIMAL CONTROL

Aircraft symmetrical flight optimization ---
gradient techniques for supersonic aircraft
control
02 p0036 A74-23091

Determination of optimal air pollution control
strategies
02 p0073 N74-19229

Optimal control of sulfur dioxide emissions at
power stations: Models and a case study
[AD-775392] 03 p0102 N74-22292

OPTIMIZATION

A model of convex programming for turbojet main
parameter selection optimization
[ASME PAPER 74-GT-79] 02 p0042 A74-27466

Optimum design of antireflection coating for
silicon solar cells
03 p0089 A74-34394

Design and modeling of the gas flow system for a
compact 10 MW MHD generator system
03 p0095 A74-37606

A two-dimensional dynamic programming method for
the optimization of diagonal conducting wall
magnetohydrodynamic generators
03 p0095 A74-37607

Optimization of open cycle power plant MHD generator
03 p0095 A74-37610

Dependence of efficiency and specific
characteristics of fuel cells on discharge
conditions
[AD-773264] 02 p0001 N74-20704

ORBITAL SPACE STATIONS

Use of Shuttle in establishing large space
installations
01 p0004 A74-14121

ORGANIC MATERIALS

Fuel from organic matter: Possibilities for the
state of California
[P-5107] 02 p0054 N74-16674

ORGANIC WASTES (FUEL CONVERSION)

Energy potential from organic wastes: A review of
the quantities and sources
[BM-IC-8549] 02 p0072 N74-18815

OSCILLATION DAMPERS

The direct driving of synchronous generators by
large scale wind electrical power generating
plants in parallel operation with a
synchronizing network, part 1
[NASA-TT-F-15301] 02 p0047 N74-15757

OXIDATION

Oxidation of carbon monoxide in diluted combustion
products at engine idling conditions
02 p0041 A74-25221

Oxygenates in autoactive exhausts. Effect of an
oxidation catalyst
[PB-227097/3] 03 p0105 N74-23190

Gasification of fossil fuels under oxidative,
reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 N74-27611

OXIDATION RESISTANCE

Thermal-oxidative stability of automotive diesel
fuels
[AD-758146] 02 p0049 N74-15817

OXIDE FILMS

Vitreous oxide antireflection films in
high-efficiency solar cells
03 p0089 A74-34396

OXYGEN

H₂-O₂ combustion powered steam-MHD central power
systems
[NASA-TN-X-71512] 02 p0060 N74-16800

NASA Lewis H₂-O₂ MHD program
[NASA-TN-X-71520] 02 p0076 N74-19697

P

P-N JUNCTIONS

Vertical multijunction solar-cell one-dimensional
analysis
03 p0086 A74-33971

- The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells 03 p0088 A74-34373
- Comparison of vertical multi-junction and conventional solar cell performance 03 p0088 A74-34376
- PADDLES**
Current European developments in solar paddle drives 01 p0014 A74-11672
- PANELS**
A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel [NASA-CASE-HFS-22562-1] 02 p0076 A74-19700
- PAPERS**
The use of paper honeycomb for prototype blade construction for small to medium-sized wind driven generators 02 p0056 A74-16770
- PARABOLIC REFLECTORS**
Theoretical performance of cylindrical parabolic solar concentrators 01 p0001 A74-10026
- PARTICLE EMISSION**
Characterization of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions [PB-224243/6GA] 02 p0066 A74-18294
The impact of auto emission standards [GPO-21-548] 03 p0108 A74-26412
Compliance with Title 2 (auto emission standards) of the Clean Air Act [GPO-25-424] 03 p0118 A74-28445
- PARTICULATE SAMPLING**
Characterization of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions [PB-224243/6GA] 02 p0066 A74-18294
- PASSENGER AIRCRAFT**
Air transport in Europe - Commercial trends and prospects 03 p0093 A74-36327
Fuel for supersonic passenger aircraft [AD-778801] 03 p0122 A74-29207
- PATENT POLICY**
Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level --- computerized data retrieval system for development of hydraulic equipment 01 p0016 A74-11759
- PENNSYLVANIA**
Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution) [E74-10061] 01 p0013 A74-11182
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10160] 01 p0024 A74-14028
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10572] 03 p0121 A74-28816
- PERFORMANCE PREDICTION**
Qualitative analysis of the efficiency of MHD energy conversion 01 p0003 A74-13944
Calculations on a solar energy system --- for electric power and heat generation in buildings [LBL-1773] 01 p0023 A74-13538
- PERFORMANCE TESTS**
Nickel-zinc cells with non-sintered electrodes 02 p0035 A74-20631
Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaïdzhân SSR 03 p0087 A74-34095
Qualification testing of laboratory produced violet solar cells 03 p0088 A74-34390
The multiple junction edge illuminated solar cell 03 p0089 A74-34398
Performance tests of gravity-assist heat pipes with screen-wick structures [AIAA PAPER 74-723] 03 p0092 A74-35954
- Design and modeling of the gas flow system for a compact 10 MW MHD generator system 03 p0095 A74-37606
Results of the Eindhoven MHD shocktunnel experiment 03 p0097 A74-37623
Development of design criteria, cost estimates, and schedules for an MHD high performance demonstration experiment 01 p0017 A74-11652
French wind generator systems --- as auxiliary power sources for electrical networks 02 p0059 A74-16793
Construction of 850 and 4,000 ampere-hour silver-zinc cells using inorganic separator [AD-771397] 02 p0064 A74-17798
Supplement to the report on the results achieved with SEAS' experimental mill [NASA-TT-P-15516] 02 p0081 A74-20700
The 1.5-kW fuel cell powerplant catalyst investigation [AD-774274] 02 p0081 A74-20710
High voltage fuel cell assembly --- performance tests of experimental units [AD-774820] 03 p0101 A74-21696
Cost and performance of automotive emission control technologies [EOL-MEMO-7] 03 p0107 A74-26244
Calculation and comparison of the economy of electrochemical fuel cells [UTC-74-11868] 03 p0108 A74-26496
- PHOSPHONIC ACID**
Matrices for H3PO4 fuel cells [AD-766312] 01 p0010 A74-10086
- PHOTOELECTRIC CELLS**
The optimization of silicon photocell operated in conjunction with solar radiation concentrators 02 p0037 A74-24906
Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells 03 p0087 A74-34099
Inversion layer solar cell fabrication and evaluation --- measurement of response of inversion layer solar cell to light of different wavelengths [NASA-CR-136932] 02 p0060 A74-16807
- PHOTOELECTRIC EFFECT**
Possibilities of the thin solar battery applications for the terrestrial use units 02 p0038 A74-24912
Partial results concerning CdS solar cells 02 p0038 A74-24914
- PHOTOELECTRIC GENERATORS**
Photo-electric generators --- solar converters for spacecraft and terrestrial power supplies 02 p0036 A74-23842
Photoelectric power engineering --- applications to solar batteries and converters 02 p0039 A74-24936
Photoelectric converters based on various CdS heterojunctions 02 p0042 A74-27752
Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaïdzhân SSR 03 p0087 A74-34095
- PHOTOGEOLOGY**
ERTS-1 imagery use in reconnaissance prospecting: Evaluation of the commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum --- interpretation of Colorado region 01 p0013 A74-11148
Petroleum exploration subprogram: Geological interpretation of proportional imagery from ERTS-A satellite [E74-10213] 01 p0028 A74-15070
Oil exploration subprogram geological interpretation of images provided by the ERTS-A satellite --- Bolivia [NASA-TT-P-15265] 01 p0029 A74-15370
Geologic information from satellite images --- geological interpretation of ERTS-1 and Skylab multispectral photography of Rocky Mountain areas [E74-10507] 03 p0104 A74-22954
Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography [E74-10508] 03 p0105 A74-22955

PHOTOINTERPRETATION

Petroleum exploration subprogram: Geological interpretation of proportional imagery from ERTS-A satellite [N74-10213] 01 p0028 N74-15020

Oil exploration subprogram geological interpretation of images provided by the ERTS-A satellite --- Bolivia [NASA-TT-P-15265] 01 p0028 N74-15070

PHOTOLUMINESCENCE

Quantification of the luminescence intensity of natural materials 01 p0005 A74-14892

PHOTOMETERS

Investigation of silicon photoelectric cells as precision photodetectors --- electro-optical properties of silicon solar cells [NSC-TT-1686] 01 p0010 N74-10199

PHOTOSENSITIVITY

Photosensitive elements for solar sensors 01 p0005 A74-17296

Inversion layer solar cell fabrication and evaluation --- measurement of response of inversion layer solar cell to light of different wavelengths [NASA-CR-136932] 02 p0060 N74-16807

PHOTOSYNTHESIS

Solar energy by photosynthesis --- technological conversion systems modeled on photosynthesis 02 p0042 A74-27322

PHOTOVOLTAGES

The optimization of silicon photocell operated in conjunction with solar radiation concentrators 02 p0037 A74-24906

PHOTOVOLTAIC CELLS

Photovoltaic power and its applications in space and on earth: International Congress on the Sun in the Service of Man, Paris, France, July 2-6, 1973, Proceedings 02 p0037 A74-24901

Results and future prospects on photovoltaic power development in France 02 p0037 A74-24904

Low-cost silicon solar cells for terrestrial applications 02 p0038 A74-24909

The present potential of CdS solar cells as a future contender for photovoltaic space and terrestrial power applications 02 p0038 A74-24911

Optical coatings for semiconductor photovoltaic converters and solar energy concentrators 02 p0039 A74-24924

Investigation of photovoltaic applications --- for solar energy conversion 02 p0040 A74-24939

Trapping of solar energy at Basako with the aid of a silicon solar cell panel 02 p0041 A74-25481

Vertical multijunction solar-cell one-dimensional analysis 03 p0086 A74-33971

Photovoltaic Specialists Conference, 10th, Stanford University, Palo Alto, Calif., November 13-15, 1973, Conference Record 03 p0087 A74-34367

Principles of photovoltaic solar energy conversion 03 p0088 A74-34368

The NSF/RANN Photovoltaic Energy Conversion Program 03 p0089 A74-34404

The NASA-Lewis terrestrial photovoltaics program 03 p0089 A74-34406

The drift field model applied to the lithium-containing silicon solar cell 03 p0090 A74-34421

Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 1: Working group and panel reports [NASA-CR-138209] 03 p0104 N74-22704

Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 2: Invited papers [NASA-CR-138193] 03 p0104 N74-22705

PHOTOVOLTAIC CONVERSION

Prospects of energy conversion and storage derived from space systems technology 02 p0033 A74-19485

The ESTEC technology programme in solar energy conversion 02 p0037 A74-24902

Terrestrial utilization of CdS-Cu₂S solar photocells in the south of France 02 p0038 A74-24915

Photoelectric power engineering --- applications to solar batteries and converters 02 p0039 A74-24936

Space solar power --- satellite-borne generators for earth consumption 02 p0040 A74-24942

Potential improvements in efficiency and cost of solar cells 03 p0088 A74-34369

Solar and laser energy conversion with Schottky barrier solar cells 03 p0088 A74-34370

Proposed program and budget for photovoltaic systems [NTS-6613] 03 p0119 N74-28538

PIPELINES

Transmission and storage of hydrogen 01 p0015 N74-11732

Pipeline transport of liquid coal 03 p0115 N74-28022

PIPES (TUBES)

Performance characteristics of a pneumatic tube transportation system --- for interurban mass transit 02 p0072 N74-18888

PISTON ENGINES

Fuel system requirements for light aircraft turbocharged reciprocating engines [SAE PAPER 740382] 03 p0083 A74-28747

A simplified life-cycle cost comparison of various engines for small helicopter use [NASA-TN-X-71517] 02 p0074 N74-19405

PLANTS (BOTANY)

Peat 01 p0029 N74-15261

Clean fuels from biomass --- feasibility of converting plant systems to fuels [NASA-TN-X-71538] 02 p0077 N74-19706

PLASMA CONTROL

Fusion reactor design problems 03 p0084 A74-31213

PLASMA DIAGNOSTICS

Ionisation, recombination and voltage drop measurements in a closed cycle HED generator 03 p0096 A74-37622

PLASMA ELECTRODES

Electrode studies and recent results of nonequilibrium HED generator experiments 03 p0097 A74-37624

PLASMA GENERATORS

Stabilization of ionization instability in an HED generator 03 p0083 A74-28943

PLASMA HEATING

Heating of a substance by an arc plasma 01 p0001 A74-10463

PLASMA LOSS

Loss mechanisms in an HED generator --- Book on argon plasma nonequilibrium Faraday generator efficiency 02 p0033 A74-19455

PLASMA PHYSICS

Relaxation phenomena in an HED generator with pre-ionizer --- Book 02 p0033 A74-19454

Significant research results for 1971, High Temperature Institute, USSR Academy of Sciences --- plasma physics and gas dynamics [AD-765753] 01 p0012 N74-10898

PLASMA TEMPERATURE

Characteristics of a nonequilibrium HED generator 01 p0005 A74-17439

PLASMA TURBULENCE

Optimization of the power of Faraday HED generators operating on nonequilibrium plasma 01 p0003 A74-13943

PLASMA-ELECTROMAGNETIC INTERACTION

High voltage solar array experiments [NASA-CR-121280] 02 p0063 N74-17788

PLATINUM

Substitute catalysts for platinum in automobile emission control devices and petroleum refining [PB-222167/9] 01 p0018 N74-11941

SUBJECT INDEX

PROCUREMENT POLICY

- A semi-Delphi exercise on substitute catalysts for platinum in automobile emission control devices and petroleum refining [NHAB-314] 03 p0110 N74-26641
- PNEUMATIC EQUIPMENT**
Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems 02 p0041 A74-27136
Performance characteristics of a pneumatic tube transportation system --- for interurban mass transit 02 p0072 N74-18888
- POLARIZATION (CHARGE SEPARATION)**
Application of phase transitions to the electromechanical energy conversion --- in ferroelectric ceramics [ISL-CO-2/73] 03 p0105 N74-23327
- POLICIES**
Compendium of university forums of the National Commission on Materials Policy, May - June 1972. A background document. NCMF forum on Technological Innovation in the Production and Utilization of Materials at Pennsylvania State University, on 19-21 June 1972 [PB-223679/2GA] 01 p0025 N74-14251
The evolution and dynamics of national goals in the United States 02 p0053 N74-16666
- POLITICS**
Petroleum: A prediction made in 1950 [P-5135] 02 p0065 N74-18194
- POLLUTION**
Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution) [N74-10061] 01 p0013 N74-11182
- POLLUTION CONTROL**
Transportation controls under the Clean Air Act --- Congressional investigation of effects of clean air policy on transportation [GPO-20-345] 02 p0082 N74-21625
Cost and performance of automotive emission control technologies [BQI-NHMO-7] 03 p0107 N74-26244
A semi-Delphi exercise on substitute catalysts for platinum in automobile emission control devices and petroleum refining [NHAB-314] 03 p0110 N74-26641
Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion 03 p0116 N74-28026
Collecting fly ash from western low sulfur coals --- by using scrubbers in flue gas stream 03 p0116 N74-28028
Pilot study of electrostatic precipitation for removing fly ash at Basin Electric's Leland Olds Station 03 p0116 N74-28029
Future energy supply: Approaches and options --- aspects of domestic energy policy 03 p0116 N74-28030
Compliance with Title 2 (auto emission standards) of the Clean Air Act [GPO-25-424] 03 p0118 N74-28445
- POLLUTION MONITORING**
Detecting and monitoring oil slicks with aerial photos 03 p0085 A74-33071
- POLYCRYSTALS**
Heterogeneous solar converters based on polycrystalline cadmium sulfide and selenide [AD-776551] 03 p0107 N74-25623
- POLYMERIC FILMS**
Properties of solid polymer electrolyte fluorocarbon film --- used in hydrogen/oxygen fuel cells [NASA-TN-D-7482] 01 p0011 N74-10547
- PONDS**
Solar ponds extended [UCID-16317] 01 p0023 N74-13537
- POSSIBILITY**
Heat pipes --- using low thermoconductive and boiling point working fluids 03 p0083 A74-29445
- POTASSIUM**
Characteristics of a nonequilibrium MHD generator 01 p0005 A74-17439
- POWER CONDITIONING**
Power conditioning system for FAA Air Route Traffic Control Centers 01 p0004 A74-14133
Improved performance from thin silicon solar cells 03 p0089 A74-34401
Power conditioning system for FAA air route traffic control centers 01 p0019 N74-12636
- POWER EFFICIENCY**
Optimization of the power of Faraday MHD generators operating on nonequilibrium plasma 01 p0003 A74-13943
Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 A74-27842
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator 03 p0086 A74-33564
Evaluation of ohmic losses in solar cells and array 03 p0089 A74-34416
Superconducting magnetic energy storage 03 p0092 A74-35249
The effect of aerodynamic parameters on power output of windsills 02 p0056 N74-16773
- POWER PLANTS**
The 1.5-kW fuel cell powerplant [AD-767302] 01 p0022 N74-12744
A methodology for projecting the electrical energy demand of the commercial sector in California [R-1106-NST/CSEA] 02 p0054 N74-16679
Bearings for power station plant. A selective bibliography, 1960 - September 1973 [CS-BIB-288.1] 02 p0073 N74-19113
Optimal control of sulfur dioxide emissions at power stations: Models and a case study [AD-775392] 03 p0102 N74-22292
Use of western coal and air water quality control by Minnesota Power and Light Company 03 p0116 N74-28024
- POWER SUPPLIES**
Recent developments in the field of thermionic power conversion and its possible effects on power supply systems in space and on earth [DGLR PAPER 73-092] 01 p0005 A74-17195
Study of fuel cell system for powered balloon --- reusable powerplants [AD-766253] 01 p0009 N74-10083
The NASA-Lewis terrestrial photovoltaics program --- solar cell power system for weather station [NASA-TN-X-71491] 01 p0028 N74-14788
Sodium: Clean-energy storage medium for vehicular power [LA-5406-NS] 02 p0065 N74-17871
Some simple calculations to suggest the effects of six national policies upon use and supply of energy [TP-360] 03 p0122 N74-29343
- POWER TRANSMISSION**
Satellite nuclear power station: An engineering analysis --- Book 01 p0002 A74-13234
- PREDICTION ANALYSIS TECHNIQUES**
Manergy: An energy management model of the United States for the prediction of energy demand, resource consumption, environmental effects, the assessment of new technology, and energy resource alternatives 01 p0026 N74-14665
Energy in the near term --- prediction analysis techniques for energy consumption and employment 02 p0079 A74-20617
- PRESSURE REDUCTION**
Chemical storage of hydrogen in Ni/P2 cells 01 p0004 A74-14246
- PRIMARY BATTERIES**
Power sources 4: Research and development in non-mechanical electrical power sources; Proceedings of the Eighth International Symposium, Brighton, Sussex, England, September 24-26, 1972 02 p0034 A74-20627
- PROCUREMENT POLICY**
The policy effects analysis method: A system dynamics simulation study of the defense fuel supply system [P-5129] 03 p0103 N74-22505

PRODUCT DEVELOPMENT

The NASA-Lewis terrestrial photovoltaics program
03 p0089 A74-34406
Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 A74-16810
Determining the effects of gasoline price on use
of metals in automobile manufacture
[BM-RI-7871] 02 p0062 A74-17666

PRODUCTION ENGINEERING

Future availability of liquid hydrogen
03 p0083 A74-29453
Fabrication and testing of negative-limited sealed
nickel-cadmium cells
[NASA-CR-135981] 01 p0009 A74-10078
The history of technology and engineering solutions
--- computerized data retrieval for coal mine
planning 01 p0016 A74-11760

The 1.5-kW fuel cell powerplant
[AD-767302] 01 p0022 A74-12744
The production of liquid hydrogen at the Rocket
Propulsion Establishment
[RPE-TR-71/17] 02 p0061 A74-16996
A Kentucky coal utilization research program.
Project 3: Low BTU gas and solid desulfurized
fuel --- low cost production methods
03 p0113 A74-27529

A Kentucky coal utilization research program:
Summary of first year progress and accomplishments
--- cost controlling processing stages in coal
liquefaction 03 p0113 A74-27531

Technology and use of lignite --- conference on
coal utilization utilization for power plants
[BM-IC-8543] 03 p0115 A74-28020
Pipeline transport of liquid coal 03 p0115 A74-28022

Liquefaction of lignite with carbon monoxide and
water --- temperature and pressure effects
03 p0115 A74-28023

PRODUCTION PLANNING

The history of technology and engineering solutions
--- computerized data retrieval for coal mine
planning 01 p0016 A74-11760
Forecasting of technological progress for
long-range planning of mining operations at coal
mines --- prediction analysis technique for
operational development 01 p0016 A74-11765

NASA presentation --- wind energy conversion
systems planning 02 p0060 A74-16799

Energy resources and usage --- production planning
in Australia
[ER-2] 03 p0114 A74-27536

PROMETHIUM ISOTOPES

Si-Au Schottky barrier nuclear battery --- for
medical applications
[TID-26342] 01 p0017 A74-11851

PROPELLER BLADES

The use of paper honeycomb for prototype blade
construction for small to medium-sized wind
driven generators 02 p0056 A74-16770

PROPULSION SYSTEM CONFIGURATIONS

The Dolphin airship with undulating propulsion
system - A new form of the evaluation factor
02 p0035 A74-22272
Theoretical performance of ammonia, hydrogen, and
biowaste resistojets 03 p0085 A74-31286

Future propulsion techniques for ground transport
03 p0093 A74-36320

Section 4: Propulsion and energy 01 p0026 A74-14671

By-pass engines --- characteristics of USSR
aircraft engines for jet aircraft
[AD-772723] 02 p0074 A74-19413

The influence of individual components and of
their mechanical arrangement on the stationary
operating behaviour of dual cycle propulsion
engines 02 p0079 A74-20444

Problem of the application of turbofan engines in
air transport. Methods of increase in
efficiency of turbofan engine with high bypass
ratios
[AD-77292] 02 p0079 A74-20453

Research on ground propulsion systems

03 p0103 A74-22600

PROPULSION SYSTEM PERFORMANCE

Onboard energy sources and propulsion systems for
balloons
[ONERA, TP NO. 1314] 02 p0037 A74-24313
Complete mechanical energy utilization in
aeronautical propulsion systems 02 p0042 A74-27611

Flight/propulsion control integration aspects of
energy management
[SAM PAPER 740480] 03 p0090 A74-34978

Performance versus cost tradeoffs - Initial look
at alternatives --- for aircraft engine fuel
cost minimization
[SAM PAPER 740494] 03 p0090 A74-34969

The impact of advanced turboshaft engine
technology on T700-powered helicopter systems
[AHS PREPRINT 871] 03 p0094 A74-36606

Investigation in energy transfer and energy
conversion for advanced power and propulsion
systems
[AD-771581] 02 p0067 A74-18417

A simplified life-cycle cost comparison of various
engines for small helicopter use
[NASA-TN-X-71517] 02 p0074 A74-19405

Research on ground propulsion systems

03 p0103 A74-22600

Economic effects of propulsion system technology
on existing and future transport aircraft
[NASA-CR-134645] 03 p0117 A74-28230

PROPULSION EFFICIENCY

Performance and noise aspects of supersonic
transport 01 p0003 A74-13798

Energy problems in air transportation --- options
for demand reduction, efficiency increase and
fuel alternatives 02 p0033 A74-19479

The Dolphin airship with undulating propulsion
system - A new form of the evaluation factor
02 p0035 A74-22272

Complete mechanical energy utilization in
aeronautical propulsion systems 02 p0042 A74-27611

Dolphin airship with undulatory-flow propulsion -
Dynamic lift 03 p0085 A74-33096

An analysis of the national transportation policy
03 p0086 A74-33299

PROTECTIVE COATINGS

Present state of the art in conductive coating
technology 01 p0006 A74-17654

Optical coatings for semiconductor photovoltaic
converters and solar energy concentrators
02 p0039 A74-24924

PURIFICATION

Purification of fuel oils by centrifugal force
02 p0034 A74-20216

PSA hydrogen plants - How well have they performed
--- Pressure Swing Adsorption production method
03 p0087 A74-33994

PYROLYSIS

Gasification of fossil fuels under oxidative,
reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 A74-27611

Thermal degradation of Green River kerogen at 150
to 350 C
[BM-RI-7924] 03 p0121 A74-28652

Q

QUALITATIVE ANALYSIS

Qualitative analysis of the efficiency of H₂D
energy conversion 01 p0003 A74-13944

QUALITY CONTROL

Clean, bright, and dry --- jet engine fuel
contamination control 02 p0034 A74-20213

QUANTITATIVE ANALYSIS

Rapid group analysis of directly distilled
petroleum fractions by the method of recorded
fluid-adsorption chromatography /FAC/
03 p0083 A74-29415

R

RADAR IMAGERY

Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va. [PB-228689/6] 03 p0121 W74-28919

RADIANT FLUX DENSITY

Theoretical performance of cylindrical parabolic solar concentrators 01 p0001 A74-10026

RADIANT HEATING

Solar heat utilization in residential heating systems 01 p0019 W74-12664

RADIATION EFFECTS

Effects of radiation on the violet solar cell 03 p0085 A74-32908

RADIATION PRESSURE

Effect of the sun, the moon and solar radiation pressure on a near-equatorial synchronous satellite 01 p0003 A74-13559

RADIATION TOLERANCE

Comparison of vertical multi-junction and conventional solar cell performance 03 p0088 A74-34376

RADIO ASTRONOMY EXPLORER SATELLITE

The RAE lightweight solar array --- design and development for Radio Astronomy Explorer satellite 02 p0039 A74-24921

RADIO BEACONS

Wind-power supply for the decimeter range directional radio site at Schoeneberg (Rifel) and the experience gained [NASA-TT-P-15337] 02 p0046 W74-15768

RADIO RELAY SYSTEMS

Regional and global energy transfer via passive power relay satellites 01 p0005 A74-16116

RADIOACTIVE ISOTOPES

Isotope kilowatt program [ORNL-TN-4243] 01 p0025 W74-14377
A power conditioning system for radioisotope thermoelectric generator energy sources [NASA-TN-X-70678] 03 p0117 W74-28106

RADIOACTIVE WASTES

Summary of the study of disposal of nuclear waste into space 01 p0005 A74-16123
Feasibility of space disposal of radioactive nuclear waste. 1: Executive summary [NASA-TN-X-2911] 01 p0025 W74-14533
Energy demand in Japan, 1975 to 1985 02 p0069 W74-18600
Feasibility of space disposal of radioactive nuclear waste. 2: Technical summary [NASA-TN-X-2912] 03 p0102 W74-22504

RADIOGRAPHY

High energy radiography - a new technique in the development of efficiency and integrity in aero gas-turbine engines 02 p0035 A74-21316

RADIOISOTOPE BATTERIES

Solar vs. nuclear power - Is there a choice --- for earth satellite power systems [AIAA PAPER 74-489] 02 p0043 A74-27833

RAIL TRANSPORTATION

The use of superconductivity in the USA transportation program 03 p0091 A74-35288
Future propulsion techniques for ground transport 03 p0093 A74-36326
Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses [P-5046] 01 p0017 W74-11791

RAMJET ENGINES

Complete mechanical energy utilisation in aeronautical propulsion systems 02 p0042 A74-27611

RANKINE CYCLE

Vapor generator feed pump for Rankine cycle automotive propulsion system (Chandler Evans) [PB-222849/2] 01 p0011 W74-10747

RAPID TRANSIT SYSTEMS

Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 A74-27802

EPA pollution regulations and fuel shortage: The impact on mass transit 01 p0027 W74-14690

Performance characteristics of a pneumatic tube transportation system --- for interurban mass transit 02 p0072 W74-18886

Magnetic suspension and guidance of high speed vehicles --- feasibility and cost effectiveness [CTS-2] 02 p0072 W74-18892

RARE GASES

The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37619

REACTION KINETICS

Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels 02 p0036 A74-23221

REACTOR CORES

Development concept for a small, split-core, heat-pipe-cooled nuclear reactor [NASA-TN-X-2996] 02 p0078 W74-20238

REACTOR DESIGN

Fusion reactor design problems 03 p0084 A74-31213

Fusion power by laser implosion 03 p0085 A74-31574

Development concept for a small, split-core, heat-pipe-cooled nuclear reactor [NASA-TN-X-2996] 02 p0078 W74-20238

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 2: Power from nuclear fission [NASA-CR-138397] 03 p0105 W74-23481

REACTOR TECHNOLOGY

Assessment of lightweight mobile nuclear power systems 01 p0006 A74-17813
Nuclear Science Symposium, 20th, and Nuclear Power Systems Symposium, 5th, San Francisco, Calif., November 14-16, 1973, Proceedings 02 p0041 A74-25901

Symposium on Engineering Problems of Fusion Research, 5th, Princeton University, Princeton, N.J., November 5-9, 1973, Proceedings 03 p0087 A74-34050

RECLAMATION

Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [W74-10160] 01 p0024 W74-14028
Waste lubricating oil research: An investigation of several re-refining methods [BN-BI-7884] 02 p0079 W74-20069
Automated strip-mine and reclamation mapping from ERTS [W74-10490] 03 p0101 W74-22014

REFINING

The refining of turbine fuels by modern hydrotreating [AIAA PAPER 74-162] 01 p0006 A74-18798
Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues [DPVLE-SOMDDR-301] 01 p0006 A74-19925
Atmospheric emissions from the petroleum refining industry [PB-225040/56A] 02 p0066 W74-18305
Air pollution aspects of emission sources: Petroleum refineries; a bibliography with abstracts [AP-110] 02 p0073 W74-19228
Waste lubricating oil research: An investigation of several re-refining methods [BN-BI-7884] 02 p0079 W74-20069
A seal-Delphi exercise on substitute catalysts for platinum in automobile emission control devices and petroleum refining [NHAB-314] 03 p0110 W74-26641

REFRIGERATORS

Application and durability of solar absorber coatings --- thermal power source for spaceborne cryogenic refrigerators [AD-769449] 02 p0049 W74-16264

REFUELING

- Investigation of the economic efficiency of surplus tanking of aircraft fuel 03 p0085 A74-33092

REGULATIONS

- National energy policy 01 p0021 A74-12681
Final environmental statement for the geothermal leasing program. Volume 4: Comments on draft impact statement and proposed regulations 02 p0078 A74-19977

RELAXATION TIME

- Relaxation phenomena in an MHD generator with pre-ionizer --- Book 02 p0033 A74-19454

RELIABILITY ENGINEERING

- Power conditioning system for FAA Air Route Traffic Control Centers 01 p0004 A74-14133
New technology for CdS-Cu₂S solar cells of high reliability 02 p0038 A74-24910
Reliability of low-cost CdS/Cu₂S solar cells 03 p0084 A74-29823
Power source quality --- consequence and cures of source deficiencies in quality of ac electric power service 01 p0019 A74-12635

REMOTE REGIONS

- Wind utilization in remote regions: An economic study --- for comparison with diesel engines 02 p0058 A74-16790

REMOTE SENSORS

- Quantification of the luminescence intensity of natural materials 01 p0005 A74-14892
The use of the pressurized balloon for detecting energy resources 02 p0033 A74-19473
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10160] 01 p0024 A74-14028
Research on the application of satellite remote sensing to local, state, regional, and national programs involved with resource management and environmental quality [NASA-CR-136472] 01 p0024 A74-14093

RESCUE OPERATIONS

- Helicopter applications at sea 02 p0034 A74-19690

RESEARCH AND DEVELOPMENT

- Evolution of studies in the field of gas lasers 01 p0005 A74-16909
Does research in the field of aeronautics have a future --- emphasis on aircraft design refinements and cost reduction 02 p0041 A74-25723
Symposium on Engineering Problems of Fusion Research, 5th, Princeton University, Princeton, N.J., November 5-9, 1973, Proceedings 03 p0087 A74-34050
Energy R and D inventory data base. Bibliography, 1973 01 p0017 A74-11849
The Federal Government and energy: R and D historical background 01 p0021 A74-12687
Energy research and development, 2 01 p0027 A74-14692
ESF presentation --- summary on energy conversion research program 02 p0059 A74-16798
Solar energy evaluation group report [AEL-8045] 02 p0061 A74-17527
Introductory remarks --- international cooperation in energy sources development 02 p0068 A74-18583
Major R&D programs to meet the energy crisis --- solar energy, nuclear fusion, and hydrogen-based power supplies 02 p0069 A74-18602
Controlled fusion research [POPR-G-4] 02 p0074 A74-19290
Atomic Energy Commission 1 December 1973 report on energy research and development 02 p0075 A74-19606

- Proceedings of Workshop on Navy Alternate Energy Sources Research and Development [AD-773746] 02 p0078 A74-19717
The energy complex: Target for today's technology 03 p0108 A74-26409
Nation's energy future --- review of Federal and private energy R and D [WASH-1281] 03 p0119 A74-28465
Study of Hanford capability for solar energy research and development [BNWL-1801] 03 p0120 A74-28546

RESEARCH FACILITIES

- University energy research centers 01 p0019 A74-12668
An inventory of energy research, volume 2 01 p0021 A74-12689

RESEARCH MANAGEMENT

- Nation's energy future --- review of Federal and private energy R and D [WASH-1281] 03 p0119 A74-28465

RESEARCH PROJECTS

- Actual state of French technical developments concerning sources of space power 01 p0002 A74-12794
Energy research and development: An overview of our national effort 01 p0016 A74-11788
An inventory of energy research, volume 1 01 p0021 A74-12688
An inventory of energy research, volume 2 01 p0021 A74-12689
Energy policy research and the State of Florida [P-5078] 01 p0026 A74-14684
Conservation and efficient use of energy, part 1 01 p0030 A74-15682
NASA authorization for fiscal year 1975, part 1 --- Congressional hearings on funding of NASA programs 02 p0082 A74-21605

- Systems analysis of solar energy programs. Appendix: Research tasks [RTR-6513-APP] 03 p0120 A74-28542

RESERVES

- Review of world energy supplies --- reserves and resources of fossil and fissile fuels [IGP/A-1-73] 01 p0026 A74-14666

RESISTOJET ENGINES

- Theoretical performance of ammonia, hydrogen, and bioaste resistojets 03 p0085 A74-31286

RESOURCE ALLOCATION

- Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system [P-5146] 02 p0080 A74-20621
Energy alternatives for California: The current crisis. 3: Allocation of scarce supplies [P-5157] 03 p0103 A74-22596
Energy alternatives for California: The current crisis. 4: Regulatory aspects of energy policy [P-5158] 03 p0112 A74-27447
Draft of proposed legislation to promote more effective management of certain related functions of the Executive Branch [H-DOC-93-119] 03 p0112 A74-27454
Energy Emergency Act [H-HEPT-93-793] 03 p0112 A74-27455
Phase 4 oil regulations and petroleum marketing problems [GPO-24-574] 03 p0112 A74-27465

RESOURCES MANAGEMENT

- Relevance of ERTS to the State of Ohio --- management and planning of state resources [E74-10024] 01 p0013 A74-11159
Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution) [E74-10061] 01 p0013 A74-11182
Satellite geological and geophysical remote sensing of Iceland [E74-10073] 01 p0014 A74-11188
Applications of meteorology to natural resource planning --- agriculture, forestry, energy, and recreation 01 p0014 A74-11395
The Federal Government and energy: R and D historical background 01 p0021 A74-12687

Energy research and development: A selected reading list
[ORNL-RIS-73-65-RHV-1] 01 p0022 N74-12695

Research on the application of satellite remote sensing to local, state, regional, and national programs involved with resource management and environmental quality
[NASA-CR-136472] 01 p0024 N74-14093

Bitumen-bearing rocks --- as potential energy sources 01 p0028 N74-15226

Coal 01 p0028 N74-15230

Geothermal resources --- exploitation for energy applications 01 p0028 N74-15240

Nuclear fuels: Uranium 01 p0028 N74-15257

Nuclear fuels: Thorium 01 p0029 N74-15258

Oil and gas 01 p0029 N74-15259

Peat 01 p0029 N74-15261

Assessment of geothermal energy resources 01 p0030 N74-15661

Factors affecting the use of coal in present and future energy markets --- background paper for Congressional investigation of earth resources and energy policies 01 p0031 N74-15684

Long run cost trends: Persian Gulf and United States 02 p0052 N74-16655

Balancing the supply and demand for natural gas 02 p0052 N74-16657

Balancing the demand and supply of other energy forms 02 p0052 N74-16660

Federal Energy Organization: A staff analysis 02 p0053 N74-16669

An energy ethic --- socioeconomic ethics of energy source development 02 p0069 N74-16593

Environmental issues and institutional arrangements --- economic and environmental aspects of energy policy 02 p0069 N74-18595

Environmental issues, an overview --- of energy source exploitation 02 p0069 N74-18597

Symposium on Energy, Resources and the Environment. Volume 3: Session on Options for the Future and their Resources, Economic, and Environmental Effects
[N72-69-VOL-3-REV-1] 02 p0069 N74-18598

Natural gas supply in the decade of the seventies 02 p0074 N74-19586

Natural gas availability: Present and future 02 p0075 N74-19587

Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614

Council on Energy Policy 02 p0075 N74-19617

Meeting California's energy requirements, 1975-2000 02 p0076 N74-19629

National energy policy for meeting US energy requirements 02 p0079 N74-20613

The gasoline and fuel oil shortage --- congressional hearing to determine causes and corrective actions for fuel shortage problem
[GPO-99-740] 02 p0082 N74-21624

United States energy fact sheets, 1971 03 p0104 N74-22610

Energy Reorganization Act of 1973
[GPO-25-108] 03 p0111 N74-27442

Federal Energy Administration
[GPO-26-725] 03 p0111 N74-27443

Energy Emergency Act
[GPO-26-038] 03 p0112 N74-27444

Energy Emergency Act
[H-REPT-93-793] 03 p0112 N74-27455

Phase 4 oil regulations and petroleum marketing problems
[GPO-24-574] 03 p0112 N74-27465

Naval Petroleum Reserve Numbered 1, Elk Hills, California --- Congressional hearings on exploitation of petroleum reserve source
[GPO-25-650] 03 p0118 N74-28350

Coal: Bituminous and lignite in 1972 03 p0120 N74-28545

To conserve energy on the national system of interstate and defense highways --- Congressional legislation for controlling maximum speed limit on highways
[GPO-25-702] 03 p0123 N74-29346

REYNOLDS NUMBER
Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973 --- reports on reynolds number effects, energy in transportation, and wave buoy accelerometer
[DNR/NAE-1973(3)] 01 p0023 N74-13673

RIGID ROTORS
Rotor dynamic considerations for large wind power generator systems 02 p0056 N74-16772

French wind generator systems --- as auxiliary power sources for electrical networks 02 p0059 N74-16793

ROCKET ENGINES
Complete mechanical energy utilization in aeronautical propulsion systems 02 p0042 N74-27611

ROCKY MOUNTAINS (NORTH AMERICA)
Geologic information from satellite images --- geological interpretation of ERTS-1 and Skylab multispectral photography of Rocky Mountain areas
[N74-10507] 03 p0104 N74-22954

ROTARY WINDS
Antenna towers as wind tower generation plants
[NASA-TT-F-15304] 02 p0047 N74-15763

The Oregon State University wind studies --- economic feasibility of windpowered generators 02 p0059 N74-16792

Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TRAC rotor)
[AD-771037] 02 p0061 N74-17764

ROTATING GENERATORS
An electrical generator with a variable speed input: Constant frequency output 02 p0057 N74-16778

ROTOR AERODYNAMICS
Rotor dynamic considerations for large wind power generator systems 02 p0056 N74-16772

ROTOR SPEED
Influence of wind frequency on rotational speed adjustments of windmill generators
[NASA-TT-F-15184] 01 p0012 N74-10348

Bucket rotor wind-driven generator 02 p0057 N74-16776

ROMANIA
Translations on Eastern Europe Scientific Affairs, no. 383 --- Romanian research on fuel conservation with thermoenergetic equipment and digital processing and transmission of information
[JPES-61101] 02 p0062 N74-17661

Role of thermoenergetic research in saving fuel 02 p0062 N74-17663

RURAL AREAS
The sail wing windmill and its adaptation for use in rural India 02 p0056 N74-16771

Lines of development of rural wind power plants
[NASA-TT-F-15513] 02 p0081 N74-20701

RURAL LAND USE
Final environmental statement for the geothermal leasing program. Volume 2: Leasing of geothermal resources in three California areas 02 p0078 N74-19975

S

S-3 AIRCRAFT

Lockheed S-3A Viking - With low fuel consumption over a wide power range the TF34-GE2 has high thrust to weight 02 p0036 N74-23839

- SAFETY**
 Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining --- Indiana
 [E74-10258] 02 p0049 N74-16019
 Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
 [E74-10336] 02 p0065 N74-18012
 Evaluation of mine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses
 [PB-225476/1] 03 p0115 N74-27918
- SAILING**
 An introduction to the Princeton sailing windmill
 02 p0056 N74-16769
 The sail wing windmill and its adaptation for use in rural India
 02 p0056 N74-16771
 Wind machines --- aerodynamics of sailing vehicles
 02 p0059 N74-16797
- SATELLITE ATTITUDE CONTROL**
 Technological problems with large-area solar cell arrays
 [DGLR PAPER 73-107] 01 p0005 A74-17204
- SATELLITE DESIGN**
 Satellite solar power stations to meet future energy demands
 01 p0001 A74-11020
 Technological problems with large-area solar cell arrays
 [DGLR PAPER 73-107] 01 p0005 A74-17204
- SATELLITE PERTURBATION**
 Effect of the sun, the moon and solar radiation pressure on a near-equatorial synchronous satellite
 01 p0003 A74-13559
- SATELLITE POWER TRANSMISSION (TO EARTH)**
 Use of Shuttle in establishing large space installations
 01 p0004 A74-14121
 Regional and global energy transfer via passive relay satellites
 01 p0005 A74-16116
 Space solar power --- satellite-borne generators for earth consumption
 02 p0040 A74-24942
- SATELLITE SOLAR ENERGY CONVERSION**
 Solar cell development in the Federal Republic of Germany
 02 p0037 A74-24903
 Description and interpretation of the results observed concerning the technological solar cell satellite
 02 p0039 A74-24929
 Space solar power --- satellite-borne generators for earth consumption
 02 p0040 A74-24942
 Solar vs. nuclear power - Is there a choice --- for earth satellite power systems
 [AIAA PAPER 74-489] 02 p0043 A74-27833
 Power sources --- solar arrays for CSES applications satellites
 03 p0084 A74-29949
 Layout and technology of the CTS solar array blanket --- Communications Technology Satellite
 02 p0089 A74-34412
- SATELLITE SOLAR POWER STATIONS**
 Satellite solar power stations to meet future energy demands
 01 p0001 A74-11020
 The use of the Space Shuttle to support large space power generation systems
 01 p0003 A74-14112
 Solar power for our nation
 01 p0004 A74-14465
 Space solar power --- satellite-borne generators for earth consumption
 02 p0040 A74-24942
 Feasibility study of a satellite solar power station
 [NASA-CF-2357] 02 p0063 N74-17784
- SATELLITE-BORNE INSTRUMENTS**
 Current European developments in solar paddle drives
 01 p0014 N74-11672
- SCHOTTKY DIODES**
 Schottky-barrier solar-cell calculations
 02 p0035 A74-21028
- Solar and laser energy conversion with Schottky barrier solar cells
 03 p0088 A74-34370
 Optical properties of thin gold films applied to Schottky barrier solar cells
 [NASA-CR-137981] 02 p0076 N74-19698
- SCRUBBERS**
 Collecting fly ash from western low sulfur coals --- by using scrubbers in flue gas stream
 03 p0116 N74-28028
- SEA WATER**
 Medium-capacity air motor pilot plant with hydraulic energy accumulation by pumping
 [NASA-TT-P-15289] 02 p0046 N74-15755
 Proceedings, Solar Sea Power Power Plant Conference and Workshop
 [PB-228066/7] 03 p0110 N74-26521
- SEDIMENTARY ROCKS**
 Oil shale
 01 p0029 N74-15260
- SEMICONDUCTING FILMS**
 Present state of the art in conductive coating technology
 01 p0006 A74-17654
 Description and interpretation of the results observed concerning the technological solar cell satellite
 02 p0039 A74-24929
- SEMICONDUCTOR DEVICES**
 Optical coatings for semiconductor photovoltaic converters and solar energy concentrators
 02 p0039 A74-24924
- SEMICONDUCTOR JUNCTIONS**
 Schottky-barrier solar-cell calculations
 02 p0035 A74-21028
 Photoelectric converters based on various CdS heterojunctions
 02 p0042 A74-27752
 Principles of photovoltaic solar energy conversion
 03 p0088 A74-34368
 A novel method of cooling semiconductor devices for power electronics
 [BNFT-PMT-02] 01 p0015 N74-11739
- SEMICONDUCTORS (MATERIALS)**
 Photo-electric generators --- solar converters for spacecraft and terrestrial power supplies
 02 p0036 A74-23842
- SEPARATORS**
 Impinging jet separators for liquid metal magnetohydrodynamic power cycles
 [NASA-CR-136552] 01 p0027 N74-14785
 Construction of 850 and 4,000 ampere-hour silver-zinc cells using inorganic separator
 [AD-771397] 02 p0064 N74-17798
- SERVICES LIFE**
 Sealed, rechargeable nickel-zinc cells
 02 p0035 A74-20630
 Reliability of low-cost CdS/Cu₂S solar cells
 03 p0084 A74-29823
 The NSF/RANN Photovoltaic Energy Conversion Program
 03 p0089 A74-34404
- SHOCKCONTROL**
 Effect of dry friction on the response to a symmetric harmonic signal of an energy converter producing mechanical energy
 02 p0034 A74-20067
- SHALE OIL**
 Fracture of coal and oil shale for in situ processing or remote removal: A proposal support document
 [SLA-73-946] 02 p0073 N74-19047
 Energy program, 1972
 [BN-IC-8612] 02 p0080 N74-20619
 Oil shale: A clean energy source --- and its environmental effects
 03 p0099 N74-21676
 Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases
 [BN-RI-7921] 03 p0114 N74-27592
- SHALES**
 Oil shale
 01 p0029 N74-15260
- SHIPS**
 A problem statement: Ocean based solar-to-hydrogen energy conversion macro system
 02 p0076 N74-19694

- SHOCK RESISTANCE**
Characteristics and applications of the solar furnaces of the Central Laboratory of Arsenal
02 p0034 A74-19559
- SHOCK TUBES**
Effects of the development of boundary layers on a Faraday HED generator
03 p0096 A74-37621
- SHOCK TUNNELS**
Results of the Lindhoven HED shocktunnel experiment
03 p0097 A74-37623
- SHOCK WAVES**
Investigation of a non-equilibrium HED generator [AD-766493]
01 p0013 A74-10950
- SHORT CIRCUITS**
Vertical multi-junction solar-cell one-dimensional analysis
03 p0086 A74-33971
- SHORT HAUL AIRCRAFT**
Amphibian STOL and its facilities [SAE PAPER 740488]
03 p0091 A74-34993
- SHORT TAKEOFF AIRCRAFT**
Amphibian STOL and its facilities [SAE PAPER 740488]
03 p0091 A74-34993
Investigation of the relative merits of different power plants for STOL-aircraft with blow flap application --- analysis of design requirements for self-sustained gas supply systems
02 p0078 A74-20406
Engine cycle selection for commercial STOL aircraft --- effect of aircraft requirements and operational characteristics on engine parameters
02 p0079 A74-20408
- SHROUDED TURBINES**
Advantages of the diffuser-augmented wind turbine
02 p0057 A74-16775
- SIDE-LOOKING RADAR**
Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va. [PB-228689/6]
03 p0121 A74-28919
- SILencers**
Reduction of diesel engine exhaust noise in the petroleum mining industry --- by resonator type diffuser
03 p0118 A74-28388
- SILICON**
Improved performance from thin silicon solar cells
03 p0089 A74-34401
- Si-Au Schottky barrier nuclear battery --- for medical applications**
[TID-26342]
01 p0017 A74-11851
Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 1: Working group and panel reports [NASA-CR-138209]
03 p0104 A74-22704
Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 2: Invited papers [NASA-CR-138193]
03 p0104 A74-22705
- SILICON ALLOYS**
State of developments and research problem on the switching of silicon germanium alloy thermoelectric elements [AD-765845]
01 p0009 A74-10080
- SILICON JUNCTIONS**
The optimization of silicon photocell operated in conjunction with solar radiation concentrators
02 p0037 A74-24906
Investigation of photovoltaic applications --- for solar energy conversion
02 p0040 A74-24939
Current prospects for solar cells
02 p0040 A74-24943
Solar energy conversion for spacecraft --- using single crystal silicon solar cells
02 p0041 A74-26817
Effect of series resistance on the illuminating efficiency and optical thickness of the alloyed layer of silicon photocells
03 p0087 A74-34099
Optimum design of antireflection coating for silicon solar cells
03 p0089 A74-34394
The multiple junction edge illuminated solar cell
03 p0089 A74-34398
Investigation of silicon photoelectric cells as precision photodetectors --- electro-optical properties of silicon solar cells [NRC-77-1686]
01 p0010 A74-10199
- SILICON TRANSISTORS**
Photosensitive elements for solar sensors
01 p0005 A74-17296
- SILVER ZINC BATTERIES**
Construction of 850 and 4,000 ampere-hour silver-zinc cells using inorganic separator [AD-771397]
02 p0064 A74-17798
- SINGLE CRYSTALS**
Solar energy conversion for spacecraft --- using single crystal silicon solar cells
02 p0041 A74-26817
Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 2: Invited papers [NASA-CR-138193]
03 p0104 A74-22705
- SITES**
Wind power research at Oregon State University --- for selecting windpowered machinery sites
02 p0056 A74-16767
Wind data for wind driven plant --- site selection for optimal performance
02 p0056 A74-16768
Analysis of the winds of site 300 as a source of power [UCRL-51469]
03 p0109 A74-26514
- SOCIAL FACTORS**
Aviation needs and public concerns --- civil aviation growth in Europe and environmental control
01 p0027 A74-14749
Computer simulation of world dynamics and implications for policy decisions --- social issues in energy policies
02 p0068 A74-18585
Economic basis for energy and resource use --- energy policy considering social impact
02 p0068 A74-18586
Symposium on Energy, Resources and the Environment. Session on Ethics and Environmental Aspects of the Demand for and Use of Energy, volume 2 --- socioeconomic aspects of energy resource development [N72-69-VOL-2-REV-1]
02 p0068 A74-18591
National energy policies --- for development of low cost energy
02 p0069 A74-18592
An energy ethic --- socioeconomic ethics of energy source development
02 p0069 A74-18593
Issues involved in developing an environmental ethic --- socioeconomic factors in energy supply and demand
02 p0069 A74-18594
Mechanisms for achieving cleaner power, prices, regulations --- energy policy
02 p0069 A74-18596
- SOCIOLOGY**
The evolution and dynamics of national goals in the United States
02 p0053 A74-16666
- SOLAR ARRAYS**
High voltage solar cell power generating system for regulated solar array development [AIAA PAPER 73-1105]
01 p0002 A74-12242
The use of the Space Shuttle to support large space power generation systems
01 p0003 A74-14112
Technological problems with large-area solar cell arrays [DGLR PAPER 73-107]
01 p0005 A74-17204
Present state of the art in conductive coating technology
01 p0006 A74-17654
Photovoltaic power and its applications in space and on earth; International Congress on the Sun in the Service of Man, Paris, France, July 2-6, 1973, Proceedings
02 p0037 A74-24901
The ESTEC technology programme in solar energy conversion
02 p0037 A74-24902
Results and future prospects on photovoltaic power development in France
02 p0037 A74-24904
The RAE lightweight solar array --- design and development for Radio Astronomy Explorer satellite
02 p0039 A74-24921

- Current delivered by the solar array of the D2A-Tourneval satellite 02 p0039 A74-24928
- The solar generator of the telecommunication satellite Syphonie 02 p0039 A74-24933
- Solar generators for sounding balloons 02 p0040 A74-24940
- Trapping of solar energy at Baako with the aid of a silicon solar cell panel 02 p0041 A74-25481
- Solar energy conversion for spacecraft --- using single crystal silicon solar cells 02 p0041 A74-26817
- Power sources --- solar arrays for CNES applications satellites 03 p0084 A74-29949
- Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaidzhan SSR 03 p0087 A74-34095
- Photovoltaic Specialists Conference, 10th, Stanford University, Palo Alto, Calif., November 13-15, 1973, Conference Record 03 p0087 A74-34367
- High voltage solar cell power generating system 03 p0088 A74-34387
- The NSF/BAW Photovoltaic Energy Conversion Program 03 p0089 A74-34404
- Layout and technology of the CTS solar array blanket --- Communications Technology Satellite 03 p0089 A74-34412
- Evaluation of ohmic losses in solar cells and array 03 p0089 A74-34416
- Utilization of space technology for terrestrial solar power applications 03 p0092 A74-36226
- Testing for thermal fatigue failures in solar arrays --- space environment simulation in temperature cycling vacuum chamber 01 p0010 A74-10240
- Method of making silicon solar cell array --- and mounting on flexible substrate [NASA-CASE-LEW-11069-1] 01 p0027 A74-14784
- The NASA-Lewis terrestrial photovoltaics program --- solar cell power system for weather station [NASA-TN-X-71491] 01 p0028 A74-14788
- High voltage solar array experiments [NASA-CN-121280] 02 p0063 A74-17788
- Comparison and evaluation of power plant options for geosynchronous power stations. Part 1: Synchronous solar power [NASA-CN-138493] 03 p0106 A74-25615
- A computer program to determine geometric parameters for the APN solar arrays [NASA-TN-X-70656] 03 p0106 A74-25619
- Effect of shading on CdS/Cu₂S solar cells and optical solar array design [PB-227900/8] 03 p0110 A74-26522
- SOLAR CELLS**
- Spacecraft electrical power --- solar cells and storage batteries 01 p0002 A74-12201
- Vitreous oxide antireflection films in high-efficiency solar cells 01 p0004 A74-14250
- Photosensitive elements for solar sensors 01 p0005 A74-17296
- Schottky-barrier solar-cell calculations 02 p0035 A74-21028
- The ESTEC technology programme in solar energy conversion 02 p0037 A74-24902
- Solar cell development in the Federal Republic of Germany 02 p0037 A74-24903
- Analysis and improvement of silicon solar cells 02 p0037 A74-24905
- Technology and performance characteristics of integral diode solar cells 02 p0038 A74-24908
- Low-cost silicon solar cells for terrestrial applications 02 p0038 A74-24909
- New technology for CdS-Cu₂S solar cells of high reliability 02 p0038 A74-24910
- The present potential of CdS solar cells as a future contender for photovoltaic space and terrestrial power applications 02 p0038 A74-24911
- Possibilities of the thin solar battery applications for the terrestrial use units 02 p0038 A74-24912
- Partial results concerning CdS solar cells 02 p0038 A74-24914
- Terrestrial utilization of CdS-Cu₂S solar photocells in the south of France 02 p0038 A74-24915
- On inhomogeneities of thin film solar cells 02 p0039 A74-24918
- Optical coatings for semiconductor photovoltaic converters and solar energy concentrators 02 p0039 A74-24924
- Description and interpretation of the results observed concerning the technological solar cell satellite 02 p0039 A74-24929
- Photoelectric power engineering --- applications to solar batteries and converters 02 p0039 A74-24936
- Direct energy conversion by means of solar cells 02 p0040 A74-24937
- Investigation of photovoltaic applications --- for solar energy conversion 02 p0040 A74-24939
- Current prospects for solar cells 02 p0040 A74-24943
- Solar energy conversion for spacecraft --- using single crystal silicon solar cells 02 p0041 A74-26817
- Reliability of low-cost CdS/Cu₂S solar cells 03 p0084 A74-29823
- Effects of radiation on the violet solar cell 03 p0085 A74-32908
- Vertical multijunction solar-cell one-dimensional analysis 03 p0086 A74-33971
- Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells 03 p0087 A74-34099
- Photovoltaic Specialists Conference, 10th, Stanford University, Palo Alto, Calif., November 13-15, 1973, Conference Record 03 p0087 A74-34367
- Potential improvements in efficiency and cost of solar cells 03 p0088 A74-34369
- Solar and laser energy conversion with Schottky barrier solar cells 03 p0088 A74-34370
- The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells 03 p0088 A74-34373
- Comparison of vertical multi-junction and conventional solar cell performance 03 p0088 A74-34376
- GaAs solar cells with AlAs windows 03 p0088 A74-34383
- High voltage solar cell power generating system 03 p0088 A74-34387
- Qualification testing of laboratory produced violet solar cells 03 p0088 A74-34390
- Optimum design of antireflection coating for silicon solar cells 03 p0089 A74-34394
- Vitreous oxide antireflection films in high-efficiency solar cells 03 p0089 A74-34396
- The multiple junction edge illuminated solar cell 03 p0089 A74-34398
- Improved performance from thin silicon solar cells 03 p0089 A74-34401
- Terrestrial applications of solar cell powered systems 03 p0089 A74-34405
- The NASA-Lewis terrestrial photovoltaics program 03 p0089 A74-34406
- Evaluation of ohmic losses in solar cells and array 03 p0089 A74-34416
- The drift field model applied to the lithium-containing silicon solar cell 03 p0090 A74-34421

- Investigation of silicon photoelectric cells as precision photodetectors --- electro-optical properties of silicon solar cells
[NRC-TT-1686] 01 p0010 N74-10199
- The use of PEP Teflon in solar cell cover technology
[NASA-TM-X-71485] 01 p0012 N74-10944
- The multiple junction edge illuminated solar cell
[NASA-TM-X-71476] 01 p0012 N74-10947
- Method of making silicon solar cell array --- and mounting on flexible substrate
[NASA-CASB-LRW-11069-1] 01 p0027 N74-14784
- The NASA-Lewis terrestrial photovoltaics program --- solar cell power system for weather station
[NASA-TM-X-71491] 01 p0028 N74-14788
- Inversion layer solar cell fabrication and evaluation --- measurement of response of inversion layer solar cell to light of different wavelengths
[NASA-CR-136932] 02 p0060 N74-16807
- Feasibility study of a geosynchronous solar power station
[NASA-CR-2357] 02 p0063 N74-17784
- Study terrestrial applications of solar cell powered systems
[NASA-CR-134512] 03 p0100 N74-21685
- Status of PEP encapsulated solar cell modules used in terrestrial applications
[NASA-TM-X-71564] 03 p0109 N74-26508
- Solar thermal electric power systems
03 p0109 N74-26509
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion
[AD-777737] 03 p0109 N74-26518
- Effect of shading on CdS/Cu(x)S solar cells and optimal solar array design
[PB-227900/8] 03 p0110 N74-26522
- A theoretical analysis of the current-voltage characteristics of solar cells
[NASA-CR-138828] 03 p0120 N74-28544
- SOLAR COLLECTORS**
- Theoretical performance of cylindrical parabolic solar concentrators
01 p0001 N74-10026
- The optimization of silicon photocell operated in conjunction with solar radiation concentrators
02 p0037 N74-24906
- Optical coatings for semiconductor photovoltaic converters and solar energy concentrators
02 p0039 N74-24924
- Study of the effect of increased humidity on the mirror coatings of solar energy concentrators
03 p0087 N74-34097
- Refurbishment of solar simulation optical train mirror assemblies
[NASA-CR-134123] 01 p0018 N74-12016
- Components for solar energy
01 p0020 N74-12679
- Solar heating and cooling buildings
01 p0020 N74-12679
- Calculations on a solar energy system --- for electric power and heat generation in buildings
[LBL-1773] 01 p0023 N74-13538
- Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22
[PB-223536/4GA] 01 p0025 N74-14499
- Inversion layer solar cell fabrication and evaluation --- measurement of response of inversion layer solar cell to light of different wavelengths
[NASA-CR-136932] 02 p0060 N74-16807
- New sources of power: Solar energy
02 p0063 N74-17790
- Solar concentrators of a novel design --- reflecting wall light channel structure
[NFI-74-21] 02 p0078 N74-19711
- A computer program to determine geometric parameters for the APB solar arrays
[NASA-TM-X-70656] 03 p0106 N74-25619
- Research applied to solar-thermal power systems
03 p0108 N74-26503
- Solar thermal electric power systems
03 p0109 N74-26509
- Low-cost, air mass 2 solar simulator
[NASA-TM-X-3059] 03 p0114 N74-27719
- SOLAR ENERGY**
- Solar power for our nation
01 p0004 N74-14465
- Prospects of energy conversion and storage derived from space systems technology
02 p0033 N74-19485
- Direct energy conversion by means of solar cells
02 p0040 N74-24937
- Conclusions and recommendations of the United States Solar Energy Panel
02 p0040 N74-24941
- Data on incident solar energy
03 p0094 N74-36333
- Growing federal support for solar energy applications
03 p0094 N74-36335
- Solar energy to meet the nation's energy needs
[NASA-TM-X-68290] 01 p0011 N74-10754
- Solar energy for the terrestrial generation of electricity
01 p0012 N74-10856
- Solar-energy for heating and cooling
01 p0016 N74-11787
- The U.S. energy problem. Volume 2: Appendices, part A --- to include alternate energy sources for fossil fuels
[PB-207518] 01 p0017 N74-11795
- The U.S. energy problem. Volume 2: Appendices, part B --- to include development of alternate power sources to reduce fossil fuel consumption
[PB-207519] 01 p0017 N74-11796
- An assessment of solar energy as a national energy resource
[NASA-CR-136191] 01 p0019 N74-12462
- TERRESTRIAL: Terrestrial application of solar technology and research
[NASA-CR-129012] 01 p0020 N74-12674
- Energy consumption: Past, present, future
01 p0020 N74-12675
- Components for solar energy
01 p0020 N74-12678
- Solar power generation and distribution
01 p0021 N74-12680
- Solar energy potential
01 p0021 N74-12682
- Impacts of solar energy utilization
01 p0021 N74-12683
- Market potential for solar heating and cooling in buildings
01 p0021 N74-12684
- Strategy for solar heating and cooling in buildings
01 p0021 N74-12685
- Solar ponds extended
[UCID-16317] 01 p0023 N74-13537
- Solar energy power system --- using freon
[NASA-CASB-NPS-21628-1] 01 p0025 N74-14496
- Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22
[PB-223536/4GA] 01 p0025 N74-14499
- A new view of solar energy --- as comprehensive national energy policy
02 p0050 N74-16514
- NSF presentation --- summary on energy conversion research program
02 p0059 N74-16798
- NASA presentation --- wind energy conversion systems planning
02 p0060 N74-16799
- Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 N74-16810
- Solar energy evaluation group report
[ANL-8045] 02 p0061 N74-17527
- New sources of power: Solar energy
02 p0063 N74-17790
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 1: Solar energy
[NASA-CR-137242] 02 p0071 N74-18741
- H.R. 11664: Solar Heating and Cooling Demonstration Act of 1974. Background and legislative history
02 p0071 N74-19604
- Project SAGE phase 1 report: Solar assisted gas energy water heating feasibility for application in new apartments
[EOL-HEMO-11] 03 p0099 N74-21675
- Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 5: Conclusions and recommendations
[NASA-CR-138183] 03 p0103 N74-22604

- Chemical Vapor deposition research for fabrication of solar energy converters
[NSF-RANN/SE/GI-367311/PR/73/3] 03 p0106 A74-25616
- Solar energy research and utilization
[NASA-TM-X-70660] 03 p0106 A74-25621
- Solar sea power --- conceptual design
[PB-228068/3] 03 p0110 A74-26519
- Proceedings, Solar Sea Power Power Plant Conference and Workshop
[PB-228066/7] 03 p0110 A74-26521
- Low-cost, air mass 2 solar simulator
[NASA-TM-X-3059] 03 p0114 A74-27719
- Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 A74-28005
- Proposed program and budget for photovoltaic systems
[HTR-6613] 03 p0119 A74-28538
- Dissemination and utilization of solar energy research results
[HTR-6544] 03 p0120 A74-28540
- Solar energy, proof of concept experiments --- technology utilization
[HTR-6537] 03 p0120 A74-28541
- Study of Hanford capability for solar energy research and development
[BNWL-1801] 03 p0120 A74-28546
- Economics of thermodynamic solar power systems. Part 2: The turbine trade-off
[UCID-16386-PT-2] 03 p0120 A74-28547
- SOLAR ENERGY ABSORBERS**
- A new solar selective surface --- mesh for high solar energy absorption
03 p0093 A74-36264
- TERRASTAR: Terrestrial application of solar technology and research**
[NASA-CR-129012] 01 p0020 A74-12674
- Application and durability of solar absorber coatings --- thermal power source for spaceborne cryogenic refrigerators
[AD-765449] 02 p0049 A74-16264
- A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel
[NASA-CASB-RFS-22562-1] 02 p0076 A74-19700
- Solar heated and cooled office building for the Massachusetts Audubon Society: Initial planning and design
[C-75457] 03 p0103 A74-22602
- Design, evaluation and recommendation effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy
[NASA-CR-120277] 03 p0119 A74-28536
- Thermochemistry of salt hydrates
[PB-227966/9] 03 p0121 A74-28664
- SOLAR ENERGY CONVERSION**
- The ESTEC technology programme in solar energy conversion
02 p0037 A74-24902
- The optimization of silicon photocell operated in conjunction with solar radiation concentrators
02 p0037 A74-24906
- Photoelectric power engineering --- applications to solar batteries and converters
02 p0039 A74-24936
- Investigation of photovoltaic applications --- for solar energy conversion
02 p0040 A74-24939
- Current prospects for solar cells
02 p0040 A74-24943
- Trapping of solar energy at Bamako with the aid of a silicon solar cell panel
02 p0041 A74-25481
- Solar energy conversion for spacecraft --- using single crystal silicon solar cells
02 p0041 A74-26817
- Solar energy by photosynthesis --- technological conversion systems modeled on photosynthesis
02 p0042 A74-27322
- Solar energy utilization by physical methods --- including hydropower, windpower, direct solar heating and electric power
02 p0042 A74-27323
- Photoelectric converters based on various CdS heterojunctions
02 p0042 A74-27752
- Solar energy to meet the nation's energy needs
03 p0084 A74-30105
- Principles of photovoltaic solar energy conversion
03 p0088 A74-34368
- The NSF/RANN Photovoltaic Energy Conversion Program
03 p0089 A74-34404
- Terrestrial applications of solar cell powered systems
03 p0089 A74-34405
- Utilization of space technology for terrestrial solar power applications
03 p0092 A74-36226
- A new solar selective surface --- mesh for high solar energy absorption
03 p0093 A74-36264
- The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy. Utilization, Washington, D.C., April 30, 1974
03 p0093 A74-36331
- Solar energy research and utilization
03 p0094 A74-36332
- The solar power options --- energy conversion
03 p0094 A74-36334
- Solar energy systems --- for generating electricity and producing-hydrogen fuels
[H73-26] 02 p0064 A74-17795
- A problem statement: Ocean based solar-to-hydrogen energy conversion macro system
02 p0076 A74-19694
- Solar Heating and Cooling Demonstration Act
[GPO-27-370] 03 p0100 A74-21683
- Study terrestrial applications of solar cell powered systems
[NASA-CR-134512] 03 p0100 A74-21685
- Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 1: Working group and panel reports
[NASA-CR-138209] 03 p0104 A74-22704
- Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 2: Invited papers
[NASA-CR-138193] 03 p0104 A74-22705
- A computer program to determine geometric parameters for the AFM solar arrays
[NASA-TM-X-70656] 03 p0106 A74-25619
- Solar heating and cooling --- Congressional hearing on technology for utilization of solar energy for heating and cooling buildings
[GPO-29-939] 03 p0106 A74-25620
- Research applied to solar-thermal power systems
03 p0108 A74-26503
- The development of a solar-powered residential heating and cooling system
[NASA-TM-X-70089] 03 p0108 A74-26504
- Solar thermal electric power systems
03 p0109 A74-26509
- Transcript of talk on solar energy --- for community development
[SLA-73-1025] 03 p0109 A74-26515
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion
[AD-777737] 03 p0109 A74-26518
- Systems analysis of solar energy programs. Appendix: Research tasks
[HTR-6513-APP] 03 p0120 A74-28542
- SOLAR FURNACES**
- Characteristics and applications of the solar furnaces of the Central Laboratory of Argonne
02 p0034 A74-19559
- Solar-energy for heating and cooling
01 p0016 A74-11787
- SOLAR GENERATORS**
- Satellite solar power stations to meet future energy demands
01 p0001 A74-11020
- Actual state of French technical developments concerning sources of space power
01 p0002 A74-12794
- Technological problems with large-area solar cell arrays
[DGLR PAPER 73-107] 01 p0005 A74-17204
- Photo-electric generators --- solar converters for spacecraft and terrestrial power supplies
02 p0036 A74-23842
- Current delivered by the solar array of the D2A-Tournaesol satellite
02 p0039 A74-24928
- The solar generator of the telecommunication satellite Syphonie
02 p0039 A74-24933

SUBJECT INDEX

SPACECRAFT POWER SUPPLIES

Solar generators for sounding balloons
 02 p0040 A74-24940

Solar generator simulation for satellite projects
 --- analog models of volt-ampere characteristics
 02 p0041 A74-26324

Power sources --- solar arrays for CNEES
 applications satellites
 03 p0084 A74-29949

Current European developments in solar paddle drives
 01 p0014 A74-11672

Components for solar energy
 01 p0020 A74-12678

Solar heating and cooling buildings
 01 p0020 A74-12679

Solar power generation and distribution
 01 p0021 A74-12680

Heterogeneous solar converters based on
 polycrystalline cadmium sulfide and selenide
 [AD-776551]
 03 p0107 A74-25623

Solar sea power --- boiler components including
 boiler, condenser, turbine, cold water pipe
 [PB-228069/1]
 03 p0110 A74-26520

SOLAR HEATING

Solar energy utilization by physical methods ---
 including hydropower, windpower, direct solar
 heating and electric power
 02 p0042 A74-27323

Solar energy to meet the nation's energy needs
 03 p0084 A74-30105

Solar energy to meet the nation's energy needs
 [NASA-TM-X-68290]
 01 p0011 A74-10754

Solar-energy for heating and cooling
 01 p0016 A74-11787

An assessment of solar energy as a national energy
 resource
 [NASA-CR-136191]
 01 p0019 A74-12462

Solar heat utilization in residential heating
 systems
 01 p0019 A74-12664

**TERRASTAR: Terrestrial application of solar
 technology and research**
 [NASA-CR-129012]
 01 p0020 A74-12674

Solar heating and cooling buildings
 01 p0020 A74-12679

Solar power generation and distribution
 01 p0021 A74-12680

Solar energy potential
 01 p0021 A74-12682

Market potential for solar heating and cooling in
 buildings
 01 p0021 A74-12684

Strategy for solar heating and cooling in buildings
 01 p0021 A74-12685

Some results of testing of a solar water heating
 installation during the heating season
 [AD-754628]
 02 p0048 A74-15777

Energy conservation with solar climate control ---
 solar heating and cooling of buildings
 02 p0050 A74-16513

Solar Heating and Cooling Demonstration Act
 [GPO-27-370]
 03 p0100 A74-21683

Solar heating and cooling --- Congressional
 hearing on technology for utilization of solar
 energy for heating and cooling buildings
 [GPO-29-939]
 03 p0106 A74-25620

Systems analysis of solar energy programs.
 Appendix: Research tasks
 [NTR-6513-APP]
 03 p0120 A74-28542

SOLAR RADIATION

Effect of the sun, the moon and solar radiation
 pressure on a near-equatorial synchronous
 satellite
 01 p0003 A74-13559

Solar energy to meet the nation's energy needs
 [NASA-TM-X-68290]
 01 p0011 A74-10754

Application and durability of solar absorber
 coatings --- thermal power source for spaceborne
 cryogenic refrigerators
 [AD-769449]
 02 p0089 A74-16264

Solar concentrators of a novel design ---
 reflecting wall light channel structure
 [RFI-74-21]
 02 p0078 A74-19711

SOLAR REFLECTORS

Use of Shuttle in establishing large space
 installations
 01 p0004 A74-14121

SOLAR SENSORS

Photosensitive elements for solar sensors
 01 p0005 A74-17296

SOLAR SIMULATORS

Refurbishment of solar simulation optical train
 mirror assemblies
 [NASA-CR-134123]
 01 p0018 A74-12014

Low-cost, air mass 2 solar simulator
 [NASA-TM-X-3059]
 03 p0114 A74-27719

SOLID STATE DEVICES

Solid state hydrogen gas generator --- rocket
 deployed balloons inflation
 [AIAA PAPER 73-1232]
 01 p0001 A74-11257

Power conditioning system for FAA Air Route
 Traffic Control Centers
 01 p0004 A74-14133

Solid state batteries
 03 p0090 A74-34771

SOLIDIFICATION

A Kentucky coal utilization research program.
 Project 5: Caking characteristics of Kentucky
 coal
 03 p0122 A74-29015

SPACE ENVIRONMENT SIMULATION

High voltage solar array experiments
 [NASA-CR-121280]
 02 p0063 A74-17788

SPACE STRUCTURAL STRUCTURES

The AAE lightweight solar array --- design and
 development for Radio Astronomy Explorer satellites
 02 p0039 A74-24921

SPACE EXPLORATION

NASA authorization for fiscal year 1975, part 1
 --- Congressional hearings on funding of NASA
 programs
 02 p0082 A74-21605

SPACE FLIGHT

Innovation and space flight --- aerospace
 technology transfer to other fields
 03 p0005 A74-32607

SPACE PROGRAMS

The second fifteen years in space; Proceedings of
 the Eleventh Goddard Memorial Symposium,
 Washington, D.C., March 8, 9, 1973
 01 p0004 A74-14463

Innovation and space flight --- aerospace
 technology transfer to other fields
 03 p0085 A74-32607

SPACE SHUTTLES

The use of the Space Shuttle to support large
 space power generation systems
 01 p0003 A74-14112

Use of Shuttle in establishing large space
 installations
 01 p0004 A74-14121

Summary of the study of disposal of nuclear waste
 into space
 01 p0005 A74-16123

Feasibility of space disposal of radioactive
 nuclear waste. 1: Executive summary
 [NASA-TM-X-2911]
 01 p0025 A74-14533

NASA authorization for fiscal year 1975, part 1
 --- Congressional hearings on funding of NASA
 programs
 02 p0082 A74-21605

Feasibility of space disposal of radioactive
 nuclear waste. 2: Technical summary
 [NASA-TM-X-2912]
 03 p0102 A74-22504

SPACECRAFT MODULES

Use of Shuttle in establishing large space
 installations
 01 p0004 A74-14121

SPACECRAFT POWER SUPPLIES

Spacecraft electrical power --- solar cells and
 storage batteries
 01 p0002 A74-12297

High voltage solar cell power generating system
 for regulated solar array development
 [AIAA PAPER 73-1105]
 01 p0002 A74-12242

Actual state of French technical developments
 concerning sources of space power
 01 p0002 A74-12794

Energy supply and energy transformers in
 satellites and spacecraft
 01 p0006 A74-18189

Prospects of energy conversion and storage derived
 from space systems technology
 02 p0033 A74-19485

Photo-electric generators --- solar converters for
 spacecraft and terrestrial power supplies
 02 p0036 A74-23842

- Photovoltaic power and its applications in space and on earth; International Congress on the Sun in the Service of Man, Paris, France, July 2-6, 1973, Proceedings 02 p0037 A74-24901
- Results and future prospects on photovoltaic power development in France 02 p0037 A74-24904
- The RAE lightweight solar array --- design and development for Radio Astronomy Explorer satellite 02 p0039 A74-24921
- Optical coatings for semiconductor photovoltaic converters and solar energy concentrators 02 p0039 A74-24924
- Current delivered by the solar array of the D2A-Tourneval satellite 02 p0039 A74-24928
- The solar generator of the telecommunication satellite Syphonie 02 p0039 A74-24933
- Spaceborne sources of electric power --- Russian book 02 p0040 A74-24986
- Solar generator simulation for satellite projects --- analog models of volt-ampere characteristics 02 p0041 A74-26324
- Solar energy conversion for spacecraft --- using single crystal silicon solar cells 02 p0041 A74-26817
- Solar vs. nuclear power - Is there a choice --- for earth satellite power systems [ATAA PAPER 74-489] 02 p0043 A74-27833
- Effects of radiation on the violet solar cell 03 p0085 A74-32908
- Layout and technology of the CTS solar array blanket --- Communications Technology Satellite 03 p0089 A74-34412
- A power conditioning system for radioisotope thermoelectric generator energy sources [NASA-TM-X-70678] 03 p0117 A74-28106
- SPACECRAFT RADIATORS
Development program for a liquid methane heat pipe 01 p0003 A74-14046
- SPACECRAFT SHIELDING
Present state of the art in conductive coating technology 01 p0006 A74-17654
- SPACECRAFT STABILITY
Photosensitive elements for solar sensors 01 p0005 A74-17296
- SPARK IGNITION
NAS report on technological feasibility of 1975-1976 motor vehicle emission standards. Automotive spark ignition engine emission control systems to meet the requirements of the 1970 clean air act [PB-224862/3GA] 02 p0065 A74-18288
- SPATIAL DISTRIBUTION
Two-dimensional electric fields in HED-generator channels - Optimum load circuits 03 p0095 A74-37608
- SPECTRAL REFLECTANCE
Optimum design of antireflection coating for silicon solar cells 03 p0089 A74-34394
- SPECULAR REFLECTION
Study of the effect of increased humidity on the mirror coatings of solar energy concentrators 03 p0087 A74-34097
- SPEED CONTROL
Wind power, part 2 - economic feasibility, 1949 [NASA-TT-F-15419] 02 p0063 A74-17792
- STABILITY STUDIES
Method of forming a wick for a heat pipe [NASA-CAS2-WPO-13391-1] 02 p0074 A74-19584
- STANDARDS
Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level --- computerized data retrieval system for development of hydraulic equipment 01 p0016 A74-11759
- Classification of public lands valuable for geothermal steam and associated geothermal resources [CIBC-647] 02 p0049 A74-16049
- Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion 03 p0116 A74-28026
- STATISTICAL ANALYSIS
Natural resources development and policies, including environmental considerations. Addendum: Changing patterns in the world energy situation [E/C.7/2/ADD.1] 02 p0070 A74-18609
- STEAM
Classification of public lands valuable for geothermal steam and associated geothermal resources [CIBC-647] 02 p0049 A74-16049
- NASA Lewis H2-O2 HED program [NASA-TM-X-71520] 02 p0076 A74-19697
- Liquefaction of lignite with carbon monoxide and water --- temperature and pressure effects 03 p0115 A74-28023
- STEAM TURBINES
Thermal cycle and effectiveness of a maneuverable power assembly with an HED generator and turbogenerator 03 p0086 A74-33564
- Research applied to solar-thermal power systems 03 p0108 A74-26503
- STORAGE BATTERIES
Spacecraft electrical power --- solar cells and storage batteries 01 p0002 A74-12201
- Power sources 4: Research and development in non-mechanical electrical power sources; Proceedings of the Eighth International Symposium, Brighton, Sussex, England, September 24-26, 1972 02 p0034 A74-20627
- Batteries for storage of wind-generated energy 02 p0058 A74-16784
- STRESS RELIEVING
Rotor dynamic considerations for large wind power generator systems 02 p0056 A74-16772
- STRIP MINING
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10160] 01 p0024 A74-14028
- Strip-mined watershed hydrologic data acquisition study --- remote infrared aerial photography [PB-223558/8GA] 01 p0025 A74-14105
- Automated strip-mine and reclamation mapping from ERTS [E74-10490] 03 p0101 A74-22014
- Pipeline transport of liquid coal 03 p0115 A74-28022
- Applicability of Skylab remote sensing for detection and monitoring of surface mining activities --- Ohio, West Virginia, and Pennsylvania [E74-10572] 03 p0121 A74-28816
- STRUCTURAL DESIGN
Fabrication and testing of negative-limited sealed nickel-cadmium cells [NASA-CR-135981] 01 p0009 A74-10078
- Importance and progress of wind power utilization in Denmark [NASA-TT-F-15349] 02 p0046 A74-15754
- Percy Thomas wind generator designs 02 p0053 A74-16760
- Technical options for energy conservation in buildings [NBS-TN-789] 02 p0071 A74-18724
- Solar concentrators of a novel design --- reflecting wall light channel structure [BFI-74-21] 02 p0078 A74-19711
- Design considerations for a 100-megajoule/500-megawatt superflywheel [AD-774736] 02 p0081 A74-20709
- STRUCTURAL DESIGN CRITERIA
Small wind-electrical installations for export [NASA-TT-F-15350] 02 p0048 A74-15770
- A comment on towers for windmills --- structural and economic criteria 02 p0059 A74-16795
- Some extemporaneous comments on our experiences with towers for wind generators 02 p0059 A74-16796
- Architectural guidelines to promote efficient energy use --- congressional hearing for energy policy legislation [GPO-28-428] 03 p0123 A74-29347

STRUCTURAL ENGINEERING

Solar heated and cooled office building for the
Massachusetts Audubon Society: Initial planning
and design
[C-75457] 03 p0103 N74-23602

STRUCTURAL MEMBERS

Motion picture history of the erection and
operation of the Smith-Putnam Wind generator
02 p0055 N74-16759

STRUCTURAL PROPERTIES (GEOLOGY)

HRTS-1 imagery use in reconnaissance prospecting:
Evaluation of the commercial utility of HRTS-1
imagery in structural reconnaissance for
minerals and petroleum --- interpretation of
Colorado region
[N74-10007] 01 p0013 N74-11148

An evaluation of the suitability of HRTS data for
the purposes of petroleum exploration ---
geological structures of Oklahoma
[N74-10029] 01 p0018 N74-12119

Application of HRTS-1 imagery to fracture related
mine safety hazards in the coal mining industry
--- Indiana
[N74-10238] 02 p0049 N74-16007

Evaluation of the suitability of Skylab data for
the purpose of petroleum exploration
[N74-10331] 02 p0065 N74-18007

Study of application of HRTS-A imagery to
fracture-related mine safety hazards in the coal
mining industry
[N74-10336] 02 p0065 N74-18012

HRTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of HRTS-1
imagery in structural reconnaissance for
minerals and petroleum
[N74-10345] 02 p0082 N74-20948

Geologic information from satellite images ---
geological interpretation of HRTS-1 and Skylab
multispectral photography of Rocky Mountain areas
[N74-10507] 03 p0104 N74-22954

STRUCTURAL STABILITY

The Oregon State University wind studies ---
economic feasibility of windpowered generators
02 p0059 N74-16792

STRUCTURAL WEIGHT

Lockheed S-3A Viking - With low fuel consumption
over a wide power range the TF34-G22 has high
thrust to weight
02 p0036 A74-23839

The RAE lightweight solar array --- design and
development for Radio Astronomy Explorer satellite
02 p0039 A74-24921

SUBASSEMBLIES

Motion picture history of the erection and
operation of the Smith-Putnam wind generator
02 p0055 N74-16759

SUBSONIC AIRCRAFT

An initial step: A demonstration project ---
promoting subsonic, hydrogen-fueled aircraft
01 p0016 N74-11747

SUBSONIC FLOW

Wall roughness and area variation effects in high
subsonic MHD generator channels
03 p0096 A74-37616

SULFONES

Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 N74-21698

SULFUR COMPOUNDS

Combustion of the gases methane, LP gas and
ammonia in a mixing reactor --- air pollution
control device
[FOA-1-C-1442-B3] 01 p0022 N74-12824

SULFUR OXIDES

Assessment of SO2 control alternatives and
implementation patterns for the electric utility
industry
[PB-224119/8GA] 02 p0050 N74-16339

Optical control of sulfur dioxide emissions at
power stations: Models and a case study
[AD-775392] 03 p0102 N74-22292

The administration's proposal for relaxation of
air pollution standards --- Congressional
hearing on proposals for reducing clean air
standard and effects of sulfur oxides in fuels
[GPO-22-629] 03 p0108 N74-26411

SULFURIC ACID

Present air pollution situation in Kawasaki city
and future countermeasures
[KS-27] 01 p0018 N74-12321

SUPERCARBOHENS

Fuel system requirements for light aircraft
turbocharged reciprocating engines
[SAE PAPER 740382] 03 p0083 A74-28747

SUPERCONDUCTING MAGNETS

The use of superconductivity in the USA
transportation program
03 p0091 A74-35268

Superconducting magnetic energy storage
03 p0092 A74-35289

Superconductivity - Large-scale applications
03 p0092 A74-36049

Design options and tradeoffs in superconducting
magnetic energy storage with irreversible
switching
[LA-UR-73-910] 02 p0074 N74-19375

SUPERCONDUCTING POWER TRANSMISSION

Superconducting magnetic energy storage
03 p0092 A74-35289

Development of a multipolar inductor utilizing the
possibilities of hollow superconductors with
supercritical helium circulation --- noting
hermetic seal/rotating shaft problems
03 p0101 N74-21921

Cryogenic power transmission technology: Cryogenic
dielectrics
[ORNL-TN-4433] 03 p0117 N74-28138

SUPERCONDUCTIVITY

International Cryogenic Engineering Conference,
5th, Kyoto, Japan, May 7-10, 1974, Preprints.
Volumes 1 & 2
03 p0091 A74-35287

The use of superconductivity in the USA
transportation program
03 p0091 A74-35288

Superconductivity - Large-scale applications
03 p0092 A74-36049

Survey of large-scale applications of
superconductivity
[BRL-18376] 03 p0117 N74-28205

SUPERCritical FLOW

Development of a multipolar inductor utilizing the
possibilities of hollow superconductors with
supercritical helium circulation --- noting
hermetic seal/rotating shaft problems
03 p0101 N74-21921

SUPERSONIC AIRCRAFT

Aircraft symmetric flight optimization ---
gradient techniques for supersonic aircraft
control
02 p0036 A74-23091

Minimum time and minimum fuel flight path
sensitivity
03 p0086 A74-33811

SUPERSONIC COMBUSTION

Effect of finite chemical reaction rates on heat
transfer to the walls of combustion-driven
supersonic MHD generator channels
02 p0036 A74-23221

SUPERSONIC COMBUSTION RAMJET ENGINES

The jet engine design that can drastically reduce
oxides of nitrogen
[AIAA PAPER 74-160] 01 p0006 A74-18797

Emission calculations for a scramjet powered
hypersonic transport
[NASA-TN-X-71464] 01 p0018 N74-12445

Design considerations for the airframe-integrated
scramjet
[NASA-TN-X-2895] 01 p0019 N74-12448

SUPERSONIC TRANSPORTS

Performance and noise aspects of supersonic
transport
01 p0003 A74-13798

Aviation fuels and lubricants
01 p0006 A74-18180

Hydrogen - Make-sense fuel for an American
supersonic transport
[AIAA PAPER 74-163] 02 p0033 A74-19353

Fuel for supersonic passenger aircraft
[AD-778801] 03 p0101 N74-29207

SURFACE DIFFUSION

Investigation of energy conversion in rapidly
cycling fuel cells, I. A system for studying
the surface diffusion of hydrogen on metals, 2
02 p0071 N74-18720

SURFACE ROUGHNESS EFFECTS

Wall roughness and area variation effects in high
subsonic MHD generator channels
03 p0096 A74-37616

SURFACE VEHICLES

SUBJECT INDEX

SURFACE VEHICLES

The use of superconductivity in the USA transportation program 03 p0091 A74-35288

Future propulsion techniques for ground transport 03 p0093 A74-36320

Wind machines --- aerodynamics of sailing vehicles 02 p0059 A74-16797

SUSQUEHANNA RIVER BASIN (MD-WT-PA)

Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution) [A74-10061] 01 p0013 A74-11182

SWEDEN

Analysis of the possible use of wind power in Sweden. Part 1: Wind power resources, theory of wind-power machines, preliminary model 1 and 10 MW wind generators [NASA-TT-P-15441] 02 p0077 A74-19708

Air pollution from motor vehicles [APTIC-41654] 03 p0111 A74-27088

Air pollution from motor vehicles, appendices [APTIC-41655-APP] 03 p0111 A74-27089

SYMPHONIE SATELLITES

The solar generator of the telecommunication satellite Syphonie 02 p0039 A74-24933

SYNCHRONOUS MOTORS

The asynchronous EFD device 01 p0024 A74-13759

Using large wind power plants to directly drive synchronous generators in parallel operation with a governing network [NASA-TT-P-15343] 02 p0048 A74-15765

Motion picture history of the erection and operation of the Smith-Putnam wind generator 02 p0055 A74-16759

SYNCHRONOUS SATELLITES

Satellite nuclear power station: An engineering analysis --- Book 01 p0002 A74-13234

Effect of the sun, the moon and solar radiation pressure on a near-equatorial synchronous satellite 01 p0003 A74-13559

Use of Shuttle in establishing large space installations 01 p0004 A74-14121

Space solar power --- satellite-borne generators for earth consumption 02 p0040 A74-24942

Comparison and evaluation of power plant options for geosynchronous power stations. Part 1: Synchronous solar power [NASA-CN-138493] 03 p0106 A74-25615

SYNTHETIC FUELS

Clean fuels from biomass --- feasibility of converting plant systems to fuels [NASA-TM-X-71538] 02 p0077 A74-19706

SYSTEM EFFECTIVENESS

Airline airplanes for the eighties - A response --- emphasizing system efficiency and fuel savings 02 p0036 A74-23464

NASA Lewis H2-O2 MHD program 03 p0095 A74-37611

SYSTEM FAILURES

Power source quality --- consequence and cures of source deficiencies in quality of ac electric power service 01 p0019 A74-12635

SYSTEMS ANALYSIS

Characteristic lines (yearly permanent level lines) and characteristic wind variables for wind energy production --- design methods for electrical generators [NASA-TT-P-15354] 02 p0046 A74-15747

Air power plants in Russia and the United States (from Dimitry Stein, Elektrizitaetswirtsch., volume 40, no. 16, 1941) [NASA-TT-P-15338] 02 p0047 A74-15761

SYSTEMS ENGINEERING

MHD for power generation: The view of a chosen few [AD-760342] 01 p0025 A74-14408

Design options and tradeoffs in superconducting magnetic energy storage with irreversible switching [LA-UR-73-910] 02 p0074 A74-19375

T

TABLES (DATA)

Energy: Compiled bibliography and tables of world resources, consumption, and wastes [LBP-63/73] 01 p0010 A74-10391

TASKER AIRCRAFT

Experimental reel response system for high performance simplified aerial refueling store --- operational test of hose reel assembly and control system [AD-771389] 02 p0064 A74-17799

TASKER SHIPS

The international aspects of importing natural gas --- economics of shipping liquefied natural gas 02 p0068 A74-18588

TAR SANDS

Properties of Utah tar sands: Threemile Canyon area, P. R. Spring deposit [BM-EI-7923] 03 p0121 A74-28911

TECHNOLOGICAL FORECASTING

Evolution of studies in the field of gas lasers 01 p0005 A74-16909

Airports evolution and qualification 02 p0033 A74-19481

Airline airplanes for the eighties - A response --- emphasizing system efficiency and fuel savings 02 p0036 A74-23464

The present potential of CdS solar cells as a future contender for photovoltaic space and terrestrial power applications 02 p0038 A74-24911

Conclusions and recommendations of the United States Solar Energy Panel 02 p0040 A74-24941

Does research in the field of aeronautics have a future --- emphasis on aircraft design refinements and cost reduction 02 p0041 A74-25723

Future of the light turbine helicopter 03 p0084 A74-29572

Energy self-sufficiency - An economic evaluation 03 p0085 A74-31446

U.S. government airport capacity planning [SAR PAPER 740474] 03 p0091 A74-35000

Solar energy research and utilization 03 p0094 A74-36332

Thermochemical hydrogen generation --- closed cycle processes selection 03 p0094 A74-36411

Forecasting of technological progress for long-range planning of mining operations at coal mines --- prediction analysis technique for operational development 01 p0016 A74-11765

TECHNOLOGIES

Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion 03 p0116 A74-28026

TECHNOLOGY ASSESSMENT

The technology and economics of commercial airplane design. I 01 p0001 A74-10144

Gas generators - A perspective --- alternative energy sources comparison [AIAA PAPER 73-1168] 01 p0001 A74-11219

Thermoelectric generators --- radio relay station power supply application 01 p0002 A74-13448

Assessment of lightweight mobile nuclear power systems 01 p0006 A74-17813

The refining of turbine fuels by modern hydrotreating [AIAA PAPER 74-162] 01 p0006 A74-18798

Prospects of energy conversion and storage derived from space systems technology 02 p0033 A74-19455

Photo-electric generators --- solar converters for spacecraft and terrestrial power supplies 02 p0036 A74-23842

Solar cell development in the Federal Republic of Germany 02 p0037 A74-24903

Technology and performance characteristics of integral diode solar cells 02 p0038 A74-24908

- New technology for CdS-Cu₂S solar cells of high reliability 02 p0038 A74-24910
- Current prospects for solar cells 02 p0040 A74-24943
- Spaceborne sources of electric power --- Russian book 02 p0040 A74-24986
- Nuclear eclectic power --- selective assessment of plant and reactor types 02 p0041 A74-27320
- Geothermal electricity production 02 p0042 A74-27321
- Solar vs. nuclear power - Is there a choice --- for earth satellite power systems [AIAA PAPER 74-489] 02 p0043 A74-27833
- Clean fuels from biomass --- cellulose fermentation to methane 03 p0084 A74-30101
- The NSF/BASU Photovoltaic Energy Conversion Program 03 p0089 A74-34404
- Layout and technology of the CTS solar array blanket --- Communications Technology Satellite 03 p0089 A74-34412
- The energy crisis and energy from the sun; Proceedings of the Symposium on Solar Energy, Utilization, Washington, D.C., April 30, 1974 03 p0093 A74-36331
- The good and bad usages of air transport 03 p0094 A74-36941
- Effects of the development of boundary layers on a Faraday MHD generator 03 p0096 A74-37621
- Wind energy --- assessment of windpowered generator technology [NASA-TT-P-15382] 02 p0047 A74-15764
- Energy-related research and development 02 p0070 A74-18605
- The assessment of an air-supported and propelled urban transport system [CRANFIELD-CTS-1] 02 p0070 A74-18610
- Quantitative energy studies and models: A state of the art review 02 p0070 A74-18623
- State of technology on hydrogen fueled gas turbine engines [NASA-TN-X-71561] 03 p0107 A74-26253
- Survey of large-scale applications of superconductivity [SEL-18376] 03 p0117 A74-28205
- TECHNOLOGY TRANSFER**
- Industrial use of aerospace technology 01 p0002 A74-12905
- Innovation and space flight --- aerospace technology transfer to other fields 03 p0085 A74-32607
- Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 1: Summary [NASA-CN-136197] 01 p0023 A74-13466
- Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 2: Appendixes [NASA-CN-136198] 01 p0023 A74-13467
- Applications of aerospace technology in the electric power industry [NASA-CN-138947] 03 p0119 A74-28537
- TECHNOLOGY UTILIZATION**
- Industrial use of aerospace technology 01 p0002 A74-12905
- The use of the Space Shuttle to support large space power generation systems 01 p0003 A74-14112
- Technological problems with large-area solar cell arrays [DGLB PAPER 73-107] 01 p0005 A74-17204
- Innovation and space flight --- aerospace technology transfer to other fields 03 p0085 A74-32607
- Developments in laser technology-II: Annual Technical Meeting, 17th, Seminar-in-Depth, San Diego, Calif., August 27-29, 1973, Proceedings 03 p0087 A74-34191
- Terrestrial applications of solar cell powered systems 03 p0089 A74-34405
- The NASA-Lewis terrestrial photovoltaics program 03 p0089 A74-34406
- International Cryogenic Engineering Conference, 5th, Kyoto, Japan, May 7-10, 1974, Preprints. Volumes 1 & 2 03 p0091 A74-35287
- Superconductivity - Large-scale applications 03 p0092 A74-36049
- Utilization of space technology for terrestrial solar power applications 03 p0092 A74-36226
- Geothermal resources --- exploitation for energy applications 01 p0028 A74-15240
- The evolution and dynamics of national goals in the United States 02 p0053 A74-16666
- Geothermal resources, part 1 --- policy for geothermal resources development [GPO-21-438] 03 p0108 A74-26505
- Geothermal resources, part 2 --- technology utilization in geothermal development of Pacific Northwest [GPO-26-473] 03 p0109 A74-26506
- Status of PEP encapsulated solar cell modules used in terrestrial applications [NASA-TN-X-71564] 03 p0109 A74-26508
- Energy from geothermal resources [GPO-32-309] 03 p0109 A74-26510
- Second Annual Sea Grant Lecture and Symposium [MTSG-74-7] 03 p0115 A74-27826
- World energy and the oceans 03 p0115 A74-27827
- Dissemination and utilization of solar energy research results [HTP-6544] 03 p0120 A74-28540
- Solar energy, proof of concept experiments --- technology utilization [HTP-6537] 03 p0120 A74-28541
- Spaceship earth: A look ahead to a better life [NASA-TN-X-70139] 03 p0122 A74-29339
- TECTONICS**
- Geologic information from satellite images --- geological interpretation of HRTS-1 and Skylab multispectral photography of Rocky Mountain areas [H74-10507] 03 p0104 A74-22954
- TEFLON (TEFALON)**
- The use of PEP Teflon in solar cell cover technology [NASA-TN-X-71485] 01 p0012 A74-10944
- TELECOMMUNICATION**
- Translations on Eastern Europe Scientific Affairs, no. 383 --- Romanian research on fuel conservation with thermoenergetic equipment and digital processing and transmission of information [JPES-61101] 02 p0062 A74-17661
- TEMPERATURE CONTROL**
- Thermal control range associated with heat pipe cycling 03 p0092 A74-36232
- TEMPERATURE EFFECTS**
- Reliability of low-cost CdS/Cu₂S solar cells 03 p0084 A74-29823
- TEMPERATURE GRADIENTS**
- The solar power options --- energy conversion 03 p0094 A74-36334
- TEMPERATURE PROFILES**
- Theoretical and experimental investigation of two-component heat pipes [AIAA PAPER 74-720] 03 p0092 A74-35953
- TENNESSEE VALLEY (AL-KY-TN)**
- Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area [H-ENPT-92-1313] 02 p0075 A74-19605
- TEST FACILITIES**
- Closed cycle MHD power generation experiments in the NASA Lewis facility 03 p0097 A74-37625
- Installation of turbine-fuels research combustor laboratory --- test facility for analyzing fuel problems in turbine engines [AD-772945] 02 p0073 A74-18897
- THIAS**
- Development of geothermal reservoirs from over-pressured areas beneath the Gulf coastal plain of Texas. A feasibility study of power production from overpressured reservoirs [AD-766855] 01 p0018 A74-12183

- ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[A74-10345] 02 p0082 A74-20948
- TF-34 ENGINE**
Lockheed S-3A Viking - With low fuel consumption
over a wide power range the TF34-G2 has high
thrust to weight 02 p0036 A74-23839
- THERMAL CYCLING TESTS**
Testing for thermal fatigue failures in solar arrays
--- space environment simulation in temperature
cycling vacuum chamber 01 p0010 A74-10240
- THERMAL DEGRADATION**
Thermal degradation of Green River kerosene at 150
to 350 C
[BN-RI-7924] 03 p0121 A74-28652
- THERMAL EFFECT**
Heating of a substance by an arc plasma
01 p0001 A74-10463
Translations on Eastern Europe Scientific Affairs,
no. 383 --- Romanian research on fuel
conservation with thermoenergetic equipment and
digital processing and transmission of information
[JPSS-61101] 02 p0062 A74-17661
Role of thermoenergetic research in saving fuel
02 p0062 A74-17663
- THERMAL REACTIONS**
Exploratory development of a glass ceramic
automobile thermal reactor --- anti-pollution
devices
[NASA-CN-134513] 01 p0019 A74-12447
Design and evaluation of experimental ceramic
automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 A74-28035
Evaluation of alloys and coatings for use in
automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 A74-28990
- THERMAL RESISTANCE**
Design of high-temperature solid-electrolyte
fuel-cell batteries for maximum power output per
unit volume 02 p0036 A74-22355
- THERMAL SHOCK**
Characteristics and applications of the solar
furnaces of the Central Laboratory of Arsenal
02 p0034 A74-19559
- THERMAL STABILITY**
Thermal-oxidative stability of automotive diesel
fuels
[AD-758146] 02 p0049 A74-15817
- THERMIONIC CONVERTERS**
Thermionic energy conversion. Volume I - Processes
and devices --- Book 01 p0004 A74-14327
Recent developments in the field of thermionic
power conversion and its possible effects on
power supply systems in space and on earth
[DGLR PAPER 73-092] 01 p0005 A74-17195
Gas-heated 'heat pipe' vacuum furnace --- using
thermionic energy conversion 01 02
p0034 A74-19724
Self-contained low power atomic plants --- for
converting nuclear energy into electrical power
[AD-766969] 01 p0014 A74-11519
Electric power generation system directly from
laser power
[NASA-CASE-WFO-13308-1] 02 p0077 A74-19702
- THERMIONIC POWER GENERATION**
Recent developments in the field of thermionic
power conversion and its possible effects on
power supply systems in space and on earth
[DGLR PAPER 73-092] 01 p0005 A74-17195
Direct energy conversion methods
[AD-770000] 02 p0061 A74-16816
- THERMOCHEMICAL PROPERTIES**
Thermochemistry of salt hydrates
[PB-227966/9] 03 p0121 A74-28664
- THERMOCHEMISTRY**
Thermochemical water decomposition processes
03 p0085 A74-31450
Thermochemical hydrogen generation --- closed
cycle processes selection 03 p0094 A74-36411
- THERMOCOUPLES**
Possibility of constructing thermoelectric
batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 A74-10084
- THERMODYNAMIC CYCLES**
Thermal cycle and effectiveness of a maneuverable
power assembly with an MHD generator and
turbogenerator 03 p0086 A74-33564
Thermal control range associated with heat pipe
cycling 03 p0092 A74-36232
- THERMODYNAMIC PROPERTIES**
Heat pipes --- using low thermoconductive and
boiling point working fluids 03 p0083 A74-29445
Aviation turbine fuels, 1972 01 p0014 A74-11592
Computer program for thermodynamic analysis of
open cycle multishaft power system with multiple
reheat and intercool
[NASA-TN-D-7589] 02 p0071 A74-18727
Heat pipe design handbook, part 1
[NASA-CN-134264] 03 p0102 A74-22569
- THERMODYNAMICS**
Problem of the application of turbofan engines in
air transport. Methods of increase in
efficiency of turbofan engine with high bypass
ratios
[AD-773292] 02 p0079 A74-20453
Economics of thermodynamic solar power systems.
Part 2: The turbine trade-off
[UCID-16386-PT-2] 03 p0120 A74-28547
- THERMOELECTRIC GENERATORS**
Thermoelectric generators --- radio relay station
power supply application 01 p0002 A74-13448
State of developments and research problem on the
switching of silicon germanium alloy
thermoelectric elements
[AD-765845] 01 p0009 A74-10080
Possibility of constructing thermoelectric
batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 A74-10084
Thermal cycle and efficiency of a versatile power
unit with a magnetohydrodynamic generator and
thermoelectric generator
[JPSS-61359] 02 p0071 A74-18723
A power conditioning system for radioisotope
thermoelectric generator energy sources
[NASA-TN-X-70678] 03 p0117 A74-28106
- THERMOELECTRIC MATERIALS**
Thermoelectric generators --- radio relay station
power supply application 01 p0002 A74-13448
- THERMOELECTRIC POWER GENERATION**
Thermoelectric generators --- radio relay station
power supply application 01 p0002 A74-13448
- THERMONUCLEAR EXPLOSIONS**
Fusion power by laser implosion 03 p0085 A74-31574
- THERMONUCLEAR POWER GENERATION**
Lasers blast a shortcut to the ultimate energy
solution --- through thermonuclear fusion
03 p0084 A74-29603
A preliminary engineering design of a 'Venetian
blind' direct energy converter for fusion reactors
03 p0087 A74-34093
Energy consumption: Past, present, future
01 p0020 A74-12675
- THICKNESS**
Improved performance from thin silicon solar cells
03 p0089 A74-34401
- THIN FILMS**
Possibilities of the thin solar battery
applications for the terrestrial use units
02 p0038 A74-24912
Partial results concerning CdS solar cells
02 p0038 A74-24912
On inhomogeneities of thin film solar cells
02 p0039 A74-24918
Description and interpretation of the results
observed concerning the technological solar cell
satellite 02 p0039 A74-24929

- Application and durability of solar absorber coatings --- thermal power source for spaceborne cryogenic refrigerators [AD-769449] 02 p0049 #74-16264
- TRACITION**
Nuclear fuels: Thorium 01 p0029 #74-15258
- THRUST MEASUREMENT**
Lockheed S-3A Viking - With low fuel consumption over a wide power range the TF34-GE2 has high thrust to weight 02 p0036 #74-23839
- THRUST VECTOR CONTROL**
Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems 02 p0041 #74-27136
- TRANSISTORS**
A novel method of cooling semiconductor devices for power electronics [BMFT-PET-02] 01 p0015 #74-11739
- TIME DEPENDENCE**
The time dependent magnetohydrodynamic generator 03 p0096 #74-37615
- TIME SERIES ANALYSIS**
Energy statistics: A supplement to the summary of national transportation statistics --- time series analysis of transported crude oils [PB-225331/80A] 02 p0070 #74-18633
- TOWERS**
A comment on towers for windmills --- structural and economic criteria 02 p0059 #74-16795
Some extemporaneous comments on our experiences with towers for wind generators 02 p0059 #74-16796
- TRADEOFFS**
An approach to aeroengine tradeoff factors [SAE PAPER 740493] 03 p0091 #74-34990
- TRAJECTORY OPTIMIZATION**
Aircraft syncretic flight optimization --- gradient techniques for supersonic aircraft control 02 p0036 #74-23091
- TRANSIENT RESPONSE**
The time dependent magnetohydrodynamic generator 03 p0096 #74-37615
- TRANSMISSION LINES**
Advanced electrical power generation and distribution concepts for military facilities [AD-765476] 02 p0061 #74-16819
- TRANSPORT AIRCRAFT**
The case for hydrogen-fueled transport aircraft 03 p0083 #74-29452
An approach to aeroengine tradeoff factors [SAE PAPER 740493] 03 p0091 #74-34990
Advanced controls for commercial transport aircraft --- USAF Control Configured Vehicles and NASA Active Control Technology programs [SAE PAPER 740453] 03 p0091 #74-35008
Jet transport energy management for minimum fuel consumption and noise impact in the terminal area [AIAA PAPER 74-811] 03 p0097 #74-37821
Emission calculations for a scramjet powered hypersonic transport [NASA-TN-X-71464] 01 p0018 #74-12445
Economics of air transport --- direct and indirect costs [NASA-TT-F-15249] 01 p0026 #74-14682
Aeronautical fuel conservation possibilities for advanced subsonic transports --- application of aeronautical technology for drag and weight reduction [NASA-TN-X-71927] 02 p0080 #74-28654
- TRANSPORT VEHICLES**
Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 #74-27842
Magnetic suspension and guidance of high speed vehicles --- feasibility and cost effectiveness [CTS-2] 02 p0072 #74-18892
- TRANSPORTATION**
An analysis of the national transportation policy 03 p0086 #74-33299
- Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973 --- reports on Reynolds number effects, energy in transportation, and wave buoy accelerometer [DNR/NAE-1973(3)] 01 p0023 #74-13673
- Energy in transportation --- energy costs of passenger and cargo transportation 01 p0023 #74-13675
- Transportation controls under the Clean Air Act --- Congressional investigation of effects of clean air policy on transportation [GPO-20-345] 02 p0082 #74-21625
- To conserve energy on the national system of interstate and defense highways --- Congressional legislation for controlling maximum speed limit on highways [GPO-25-702] 03 p0123 #74-29346
- TRANSPORTATION ENERGY**
Future propulsion techniques for ground transport 03 p0093 #74-36320
Sodium: Clean-energy storage medium for vehicular power [LA-5406-NS] 02 p0065 #74-17871
Transportation energy use in the United States: A statistical history, 1955 - 1971 [R-1391-NSF] 02 p0070 #74-18607
US transportation: Some energy and environmental considerations [H72-164] 02 p0075 #74-19624
Transportation and energy conservation in the Pacific Northwest 03 p0119 #74-28539
- TRENDS**
Where are we headed in air transport? --- trends for future aircraft design 01 p0020 #74-12669
- TRUCKS**
Energy trends and their future effects upon transportation --- applied to rail, truck, and air cargo operations and private energy uses [P-5046] 01 p0017 #74-11791
- TUNGSTEN CARBIDES**
Cost efficiency of tungsten carbide-carbon fuel cells 02 p0036 #74-24054
Cost effectiveness of tungsten carbide-carbon fuel cells [NASA-TT-F-15748] 03 p0120 #74-28543
- TURBINE BLADES**
Utilization of wind power [NASA-TT-F-15300] 02 p0046 #74-15756
Smith-Putnam wind turbine experiment 02 p0055 #74-16758
Introduction to Voigt's wind power plant --- energy conversion efficiency 02 p0055 #74-16762
Voigt variable speed drive --- for windpowered generator 02 p0057 #74-16779
Wind electric power station [NASA-TT-F-15522] 03 p0100 #74-21682
- TURBINE ENGINES**
Future of the light turbine helicopter 03 p0084 #74-29572
Installation of turbine-fuels research combustor laboratory --- test facility for analyzing fuel problems in turbine engines [AD-772945] 02 p0073 #74-18897
- TURBINE WHEELS**
The Oregon State University wind studies --- economic feasibility of windpowered generators 02 p0059 #74-16792
- TURBINES**
Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Bonnef-Gross wind turbine [NASA-TT-F-15302] 02 p0047 #74-15762
- TURBOCOMPRESSORS**
Fuel system requirements for light aircraft turbocharged reciprocating engines [SAE PAPER 740382] 03 p0083 #74-28747
Vertical axis wind rotors: Status and potential --- energy conversion efficiency and aerodynamic characteristics 02 p0057 #74-16774
Advantages of the diffuser-augmented wind turbine 02 p0057 #74-16775

TURBOFAN ENGINES

SUBJECT INDEX

Computer program for thermodynamic analysis of open cycle multishaft power system with multiple reheat and intercool
[NASA-TN-D-7589] 02 p0071 W74-18727

The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines 02 p0079 W74-20444

TURBOFAN ENGINES
Lockheed S-3A Viking - With low fuel consumption over a wide power range the TF34-822 has high thrust to weight 02 p0036 A74-23839

Atafan - A new concept from Turbomeca --- constant speed ducted turbofan engine 02 p0037 A74-24697

Problem of the application of turbofan engines in air transport. Methods of increase in efficiency of turbofan engine with high bypass ratios [AD-773292] 02 p0079 W74-20453

TURBOGENERATORS
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator 03 p0086 A74-33564

Investigation of chemical APU application for small ground power sources [AD-765724] 01 p0009 W74-10082

Energy storage using high pressure electrolysis and methods for reconversion --- in automobile fuel synthesis 02 p0057 W74-16780

Solar sea power --- conceptual design [PB-228068/3] 03 p0110 W74-26519

Solar sea power --- boiler components including boiler, condenser, turbine, cold water pipe [PB-228069/1] 03 p0110 W74-26520

TURBOJET ENGINES
A model of convex programming for turbojet main parameter selection optimization [ASME PAPER 74-GT-79] 02 p0042 A74-27466

Complete mechanical energy utilization in aeronautical propulsion systems 02 p0042 A74-27611

Effect of water injection on nitric oxide emissions of a gas turbine combustor burning natural gas fuel [NASA-TN-X-2959] 01 p0025 W74-14651

Section 4: Propulsion and energy 01 p0026 W74-14671

The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines 02 p0079 W74-20444

TURBOMACHINE BLADES
Bucket rotor wind-driven generator 02 p0057 W74-16776

TURBOMACHINERY
Turbo-actuators turn flow into mechanical output --- power conversion for missile control or pneumatic systems 02 p0041 A74-27136

High wind power plants --- design and performance evaluation [NASA-TT-P-15444] 02 p0077 W74-19709

TURBOPROP ENGINES
Complete mechanical energy utilization in aeronautical propulsion systems 02 p0042 A74-27611

TURBOPUMP ENGINES
Influence of fuels and lubricants on turbine engine design and performance, fuel and lubricant analyses [AD-769309] 02 p0050 W74-16483

TURBOSHAPTS
The impact of advanced turboshaft engine technology on T700-powered helicopter systems [AHS PREPRINT 871] 03 p0094 A74-36606

TURBULENT HEAT TRANSFER
Investigation of heat exchange in an MHD generator channel 03 p0086 A74-33565

TURBULENT WAKES
MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators 03 p0096 A74-37613

TWO PHASE FLOW
Theoretical and experimental investigation of two-component heat pipes [AIAA PAPER 74-720] 03 p0092 A74-35953

The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37619

Boundary layer control in two-phase liquid-metal MHD generators 03 p0096 A74-37620

A two-temperature, gas-particle suspension in MHD power generation [ASME PAPER 73-PWR-C] 03 p0097 A74-37791

U

U.S.S.R.
Commercial petroleum products, properties and applications --- USSR petroleum industry handbook [AD-754703] 01 p0010 W74-10128

Soviet geothermal electric power engineering, report 2 [AD-754947] 02 p0048 W74-15776

The Soviet Union, the Middle East, and the evolving world energy situation --- soviet influence [P-5109] 02 p0054 W74-16675

By-pass engines --- characteristics of USSR aircraft engines for jet aircraft [AD-772723] 02 p0074 W74-19413

UNITED STATES OF AMERICA
Legal considerations and constraints on US nuclear policy [AD-754641] 01 p0024 W74-13697

Patterns of energy consumption in the United States 02 p0080 W74-20699

Electricity growth: Economic incentives and environmental quality --- consumption and pricing of electricity in United States of America 03 p0100 W74-21687

Potential for hot-dry-rock geothermal energy in the western United States [LA-UR-73-1075] 03 p0100 W74-21691

United States energy fact sheets, 1971 03 p0104 W74-22610

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 2: Power from nuclear fission [NASA-CN-138397] 03 p0105 W74-23481

The impact of energy shortages on US environmental standards [TP-450-USB] 03 p0122 W74-29342

UNIVERSITY PROGRAM
University energy research centers 01 p0019 W74-12668

UNMANNED SPACECRAFT
A power conditioning system for radioisotope thermoelectric generator energy sources [NASA-TN-X-70678] 03 p0117 W74-28106

UNSTEADY FLOW
Dolphin airship with undulatory-flow propulsion - dynamic lift 03 p0085 A74-33096

The time dependent magnetohydrodynamic generator 03 p0096 A74-37615

URANIUM
Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado --- hydrogeology and uranium exploration from ERTS-1 MSS photography [E74-10508] 03 p0105 W74-22955

URANIUM ISOTOPES
Nuclear fuels: Uranium 01 p0028 W74-15257

URBAN DEVELOPMENT
Transcript of talk on solar energy --- for community development [SLA-73-1025] 03 p0105 W74-26515

URBAN TRANSPORTATION
EPA pollution regulations and fuel shortage: The impact on mass transit 01 p0027 W74-14690

The assessment of an air-supported and propelled urban transport system [CRANFIELD-CTS-1] 02 p0070 W74-18610

UTAH

Properties of Utah tar sands: Threesile Canyon area, P. R. Spring deposit [BH-RI-7923] 03 p0121 H74-28911

UTILITIES

Adaptability of the closed Brayton gas turbine to utility power plants [REPT-73-310448] 03 p0111 H74-27280

UTILIZATION

Study terrestrial applications of solar cell powered systems [NASA-CR-134512] 03 p0100 H74-21685

V

VACUUM APPARATUS

Thermionic energy conversion. Volume I - Processes and devices --- Book 01 p0004 A74-19327

VACUUM CHAMBERS

Testing for thermal fatigue failures in solar arrays --- space environment simulation in temperatures cycling vacuum chamber 01 p0010 H74-10240

VACUUM FURNACES

Gas-heated 'heat pipe' vacuum furnace --- using thermionic energy conversion 01 02 p0034 A74-19724

VAPOR DEPOSITION

Chemical Vapor deposition research for fabrication of solar energy converters [NSF-RANN/SE/GI-36731X/PR/73/3] 03 p0106 H74-25616

VAPOR PHASES

Heating of a substance by an arc plasma 01 p0001 A74-10463
Heat pipes --- using low thermoelectrode and boiling point working fluids 03 p0083 A74-29445

VAPORIZERS

Vapor generator feed pump for Rankine cycle automotive propulsion system (Chandler Evans) [PB-222849/2] 01 p0011 H74-10747

VAPORIZING

Directional properties of coal and their utilization in underground gasification experiments [BH-TPE-73] 01 p0018 H74-12159

VARIABLE PITCH PROPELLERS

Astafan - A new concept from Turbomeca --- constant speed ducted turbofan engine 02 p0037 A74-24697
Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TBAC rotor) [AD-771037] 02 p0061 H74-17764

VARIATIONAL PRINCIPLES

A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators 03 p0095 A74-37607

VEGETATION

Peat 01 p0029 H74-15261

VEHICULAR TRACKS

Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 A74-27842

VELOCITY DISTRIBUTION

MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators 03 p0096 A74-37613

VERTICAL TAKEOFF AIRCRAFT

Preliminary performance appraisal of Navy V/STOL transport and search-type airplanes using hydrogen fuel [NASA-TN-X-71550] 03 p0108 H74-26435

VISCOS FLOW

MHD effects on viscous and thermal wakes and their influence on the performance of MHD generators 03 p0096 A74-37613

VISCOS FLUIDS

Aircraft fuel system tests with gelled fuel-flowmeter calibration, fuel boost pump and jettison tests [FAR-NA-73-43] 01 p0017 H74-11028

VITREOUS MATERIALS

Vitreous oxide antireflection films in high-efficiency solar cells 01 p0004 A74-14250

Vitreous oxide antireflection films in high-efficiency solar cells 03 p0069 A74-34396

VOLT-AMPERE CHARACTERISTICS

Analysis and improvement of silicon solar cells 02 p0037 A74-24905

Technology and performance characteristics of integral diode solar cells 02 p0038 A74-24908

Partial results concerning CdS solar cells 02 p0038 A74-24914

Current delivered by the solar array of the D2a-Tournefort satellite 02 p0039 A74-24928

Solar generator simulation for satellite projects --- analog models of volt-ampere characteristics 02 p0041 A74-26324

Effects of radiation on the violet solar cell 03 p0085 A74-32908

Vertical multijunction solar-cell one-dimensional analysis 03 p0086 A74-33971

Principles of photovoltaic solar energy conversion 03 p0088 A74-34368

The effect of depletion region recombination currents on the efficiencies of Si and GaAs solar cells 03 p0088 A74-34373

The multiple junction edge illuminated solar cell 03 p0089 A74-34398

Evaluation of ohmic losses in solar cells and array 03 p0089 A74-34416

The drift field model applied to the lithium-containing silicon solar cell 03 p0090 A74-34421

Performance and Hall field limitation studies in the Stanford M-8 MHD generator 03 p0095 A74-37605

VOLTAGE CONVERTERS (AC TO AC)

On the theory of alternating-current electrofluiddynamic converters 01 p0007 A74-18988

VOLTAGE GENERATORS

DC generator for Kolkhoz wind powered generators [NASA-TT-P-15347] 02 p0063 H74-17786

VOLTAGE REGULATORS

DC generator for Kolkhoz wind powered generators [NASA-TT-P-15347] 02 p0063 H74-17786

W

WALL TEMPERATURE

Effect of plasma injection on cold wall type MHD generator 03 p0091 A74-35276

WASTE DISPOSAL

Summary of the study of disposal of nuclear waste into space 01 p0005 A74-16123

Disposal of waste oils at military air bases [SAB PAPER 740472] 03 p0091 A74-35001

Feasibility of space disposal of radioactive nuclear waste. 1: Executive summary [NASA-TN-X-2911] 01 p0025 H74-14533

Recycling solid waste for utility fuel and recovery of other resources --- identification of mechanical problems in materials handling 02 p0071 H74-18725

Combustion and heat recovery of Air Force waste petroleum oils and lubricants [AD-774563] 02 p0082 H74-21391

Feasibility of space disposal of radioactive nuclear waste. 2: Technical summary [NASA-TN-X-2912] 03 p0102 H74-22504

WASTE ENERGY UTILIZATION

Certain peculiarities of combustion of ballasted gases and stabilization of a flame --- burning low calorie industrial by-products [AD-776731] 03 p0107 H74-26400

WASTE UTILIZATION

Physical behaviour of some biowaste gases in an ion engine [AIAA PAPER 73-1113] 01 p0001 A74-10691

Theoretical performance of ammonia, hydrogen, and
biowaste resistojets 03 p0085 A74-31286

Nuclear fission as a general source of energy 03 p0090 A74-34620

Recycling solid waste for utility fuel and
recovery of other resources --- identification
of mechanical problems in materials handling 02 p0071 A74-18725

Energy recovery from waste: Solid waste as
supplementary fuel in power plant boilers
[SW-36B.II] 02 p0076 A74-19699

WATER

Future availability of liquid hydrogen 03 p0083 A74-29453

Thermochemical water decomposition processes 03 p0085 A74-31450

Some results of testing of a solar water heating
installation during the heating season
[AD-754628] 02 p0048 A74-15777

A proposed national wind power R and D program ---
offshore wind power system for electric energy
supplies 02 p0059 A74-16794

WATER FLOW

Boundary layer control in two-phase liquid-metal
HSD generators 03 p0096 A74-37620

WATER INJECTION

Effect of water injection on nitric oxide
emissions of a gas turbine combustor burning
natural gas fuel
[NASA-TN-X-2959] 01 p0025 A74-14651

WATER POLLUTION

Detecting and monitoring oil slicks with aerial
photos 03 p0085 A74-33071

Nondegradation policy of the Clean Air Act ---
Congressional hearing to determine impact of
degradation in cleanliness standards of air and
water
[GPO-20-928] 03 p0111 A74-27438

WATER RESOURCES

Investigations using data in Alabama from ERTS-A
--- land use, mineral exploration, geology,
hydrology, water resources, data processing,
data management, marine environments
[A74-10124] 01 p0023 A74-13051

WATER VAPOR

Process for the simultaneous utilization of
geothermic and hydrodynamic energy
[AEC-TR-7475] 02 p0072 A74-18731

WATER VEHICLES

Wind machines --- aerodynamics of sailing vehicles
02 p0059 A74-16797

A wind plant to power sea signals
[NASA-TT-F-15356] 02 p0060 A74-16803

WATERSHEDS

Strip-mined watershed hydrologic data acquisition
study --- remote infrared aerial photography
[PB-223558/8GA] 01 p0025 A74-14105

WAVEGUIDES

A new solar selective surface --- mesh for high
solar energy absorption 03 p0093 A74-36264

WEATHER STATIONS

The NASA-Lewis terrestrial photovoltaics program
--- solar cell power system for weather station
[NASA-TN-X-71491] 01 p0028 A74-14788

WIND MEASUREMENT

The measurement of large wind energy generators
[NASA-TT-F-15433] 03 p0104 A74-22703

WELDING

Study of the possibility of using solar radiant
energy for welding and brazing metals
03 p0115 A74-28005

WEST VIRGINIA

Applicability of Skylab remote sensing for
detection and monitoring of surface mining
activities --- Ohio, West Virginia, and
Pennsylvania
[A74-10160] 01 p0024 A74-14028

Applicability of Skylab remote sensing for
detection and monitoring of surface mining
activities --- Ohio, West Virginia, and
Pennsylvania
[A74-10572] 03 p0121 A74-28816

WINDS

The direct driving of synchronous generators by
large scale wind electrical power generating
plants in parallel operation with a
synchronizing network, part 1 02 p0047 A74-15757
[NASA-TT-F-15301]

Using large wind power plants to directly drive
synchronous generators in parallel operation
with a governing network
[NASA-TT-F-15343] 02 p0048 A74-15765

WICKS

Method of forming a wick for a heat pipe
[NASA-CASE-WFO-13391-1] 02 p0074 A74-19584

WIND MEASUREMENT

Need for a regional wind survey 02 p0055 A74-16764

Wind power research at Oregon State University ---
for selecting windpowered machinery sites 02 p0056 A74-16767

Analysis of the winds of site 300 as a source of
power
[UCRL-51469] 03 p0109 A74-26514

WIND PASSES

Utilization of wind power
[NASA-TT-F-15300] 02 p0046 A74-15756

WIND VARIATIONS

Influence of wind frequency on rotational speed
adjustments of windmill generators
[NASA-TT-F-15184] 01 p0012 A74-10948

WIND VELOCITY

Utilization of wind power
[NASA-TT-F-15300] 02 p0046 A74-15756

Wind power turbogenerator for high altitude wind
utilization
[NASA-TT-F-15455] 03 p0099 A74-21677

WIND VELOCITY MEASUREMENT

Wind data for wind driven plant --- site selection
for optimal performance 02 p0056 A74-16768

WINDMILLS (WINDPOWERED MACHINES)

Influence of wind frequency on rotational speed
adjustments of windmill generators
[NASA-TT-F-15184] 01 p0012 A74-10948

Wind energy: Its value and the choice of site for
exploitation
[NASA-TT-F-15311] 02 p0045 A74-15734

High powered electrical power generation by wind
motors
[NASA-TT-F-15303] 02 p0045 A74-15739

Newark windmill power generation plant
[NASA-TT-F-15306] 02 p0045 A74-15740

Economy and practical applications of large
wind-driven power plants, part 1
[NASA-TT-F-15308] 02 p0045 A74-15741

Wind-powered machines --- design, aerodynamic
characteristics, and economics
[NASA-TT-F-15149] 02 p0045 A74-15742

Wind power plants in Russia
[NASA-TT-F-15331] 02 p0045 A74-15743

Observations on modern wind-electric power plants
--- in Italy during post-war reconstruction
[NASA-TT-F-15357] 02 p0045 A74-15745

Application of wind power to rational generation
of electricity
[NASA-TT-F-15334] 02 p0047 A74-15759

Investigation of the possibilities of using wind
power
[NASA-TT-F-15336] 02 p0047 A74-15760

Wind power demonstration and siting problems ---
for recharging electrically driven automobiles
02 p0056 A74-16765

An introduction to the Princeton sailing windmill
02 p0056 A74-16769

The use of paper honeycomb for prototype blade
construction for small to medium-sized wind
driven generators 02 p0056 A74-16770

The sail wing windmill and its adaptation for use
in rural India 02 p0056 A74-16771

The effect of aerodynamic parameters on power
output of windmills 02 p0056 A74-16773

Superflywheel energy storage system --- for
windpowered machines 02 p0058 A74-16783

Review of the windpower activities at the Brace
Research Institute 02 p0058 A74-16787

SUBJECT INDEX

WINDPOWERED GENERATORS

- A comment on towers for windsills --- structural and economic criteria 02 p0059 N74-16795
- Wind power, part 2 - economic feasibility, 1949 [NASA-TT-P-15419] 02 p0063 N74-17792
- Report of the Wind Power Committee of 1962 [NASA-TT-P-15442] 02 p0078 N74-19710
- Supplement to the report on the results achieved with SEAS' experimental mill [NASA-TT-P-15516] 02 p0081 N74-20700
- Report on results achieved with SEAS experimental mill [NASA-TT-P-15515] 03 p0099 N74-21680
- Statistical summary and evaluation of ventoelectric power station output (part 2 of 2) [NASA-TT-P-15652] 03 p0104 N74-22708
- Statistical summary and evaluation on electric power generation from wind power stations --- experience with powered generating stations in Denmark [NASA-TT-P-15651] 03 p0106 N74-25618
- WINDOWS**
- Gals solar cells with Alas windows 03 p0088 A74-34383
- WINDPOWER UTILIZATION**
- Solar energy utilization by physical methods --- including hydropower, windpower, direct solar heating and electric power 02 p0042 A74-27323
- Status of wind-energy conversion 02 p0042 A74-27772
- The solar power options --- energy conversion 03 p0094 A74-36334
- Wind-powered machines --- design, aerodynamic characteristics, and economics [NASA-TT-P-15149] 02 p0045 N74-15742
- Importance and progress of wind power utilization in Denmark [NASA-TT-P-15353] 02 p0045 N74-15746
- Utilization of wind power in agriculture in the USSR [NASA-TT-P-15345] 02 p0046 N74-15752
- Progress in the utilization of wind power [NASA-TT-P-15346] 02 p0046 N74-15753
- Medium-capacity air motor pilot plant with hydraulic energy accumulation by pumping [NASA-TT-P-15299] 02 p0046 N74-15755
- Utilization of wind power [NASA-TT-P-15300] 02 p0046 N74-15756
- The direct driving of synchronous generators by large scale wind electrical power generating plants in parallel operation with a synchronizing network, part 1 [NASA-TT-P-15301] 02 p0047 N74-15757
- Application of wind power to rational generation of electricity [NASA-TT-P-15334] 02 p0047 N74-15759
- Investigation of the possibilities of using wind power [NASA-TT-P-15336] 02 p0047 N74-15760
- Using large wind power plants to directly drive synchronous generators in parallel operation with a governing network [NASA-TT-P-15343] 02 p0048 N74-15765
- Prospects for the utilization of wind energy in Czechoslovakia [NASA-TT-P-15305] 02 p0048 N74-15766
- Exploitation of wind energy --- windmill feasibility in industrial applications [NASA-TT-P-15309] 02 p0055 N74-16756
- Wind energy conversion systems [NASA-TT-P-15386] 02 p0055 N74-16757
- Where there is a wind, there is a way 02 p0055 N74-16763
- Need for a regional wind survey 02 p0055 N74-16764
- Surface wind characteristics of some Aleutian Islands --- for selection of windpowered machine sites 02 p0056 N74-16766
- Wind power research at Oregon State University --- for selecting windpowered machinery sites 02 p0056 N74-16767
- Wind data for wind driven plant --- site selection for optimal performance 02 p0056 N74-16768
- Vertical axis wind rotors: Status and potential --- energy conversion efficiency and aerodynamic characteristics 02 p0057 N74-16774
- Advantages of the diffuser-augmented wind turbine 02 p0057 N74-16775
- Bucket rotor wind-driven generator 02 p0057 N74-16776
- Review of the windpower activities at the Brace Research Institute 02 p0058 N74-16787
- Wind utilization in remote regions: An economic study --- for comparison with diesel engines 02 p0058 N74-16796
- Wind machines --- aerodynamics of sailing vehicles 02 p0059 N74-16797
- NSF presentation --- summary on energy conversion research program 02 p0059 N74-16798
- NASA presentation --- wind energy conversion systems planning 02 p0060 N74-16799
- The economy and practicality of large scale wind generation stations (conclusion) [NASA-TT-P-15348] 02 p0060 N74-16802
- The dc generators for utilizing wind power [NASA-TT-P-15351] 02 p0063 N74-17789
- Wind power, part 2 - economic feasibility, 1949 [NASA-TT-P-15419] 02 p0063 N74-17792
- Status of wind-energy conversion [NASA-TT-P-71523] 02 p0077 N74-19705
- Analysis of the possible use of wind power in Sweden. Part 1: Wind power resources, theory of wind-power machines, preliminary model 1 and 10 MW wind generators [NASA-TT-P-15441] 02 p0077 N74-19708
- High wind power plants --- design and performance evaluation [NASA-TT-P-15444] 02 p0077 N74-19709
- Supplement to the report on the results achieved with SEAS' experimental mill [NASA-TT-P-15516] 02 p0081 N74-20700
- Lines of development of rural wind power plants [NASA-TT-P-15513] 02 p0081 N74-20701
- The present state of planning and erection of large experimental wind-power stations [NASA-TT-P-15512] 03 p0099 N74-21678
- Studies of the utilization of wind energy: The use of dc generator/mercury-vapor inverter sets connected to ac networks [NASA-TT-P-15514] 03 p0099 N74-21679
- Report on results achieved with SEAS experimental mill [NASA-TT-P-15515] 03 p0099 N74-21680
- This is how you can heat your home with a little windmill [NASA-TT-P-15518] 03 p0099 N74-21681
- Wind electric power station [NASA-TT-P-15522] 03 p0100 N74-21682
- Statistical summary and evaluation on electric power generation from wind power stations --- experience with powered generating stations in Denmark [NASA-TT-P-15651] 03 p0106 N74-25618
- Analysis of the winds of site 300 as a source of power [UCRL-51469] 03 p0109 N74-26514
- A planning methodology for the analysis and design of wind-power systems 03 p0119 N74-28534
- WINDPOWERED GENERATORS**
- Status of wind-energy conversion 02 p0042 A74-27772
- Wind energy: Its value and the choice of site for exploitation [NASA-TT-P-15411] 02 p0045 N74-15734
- High powered electrical power generation by wind motors [NASA-TT-P-15403] 02 p0045 N74-15739
- Neuwerk windmill power generation plant [NASA-TT-P-15306] 02 p0045 N74-15740
- Economy and practical applications of large wind-driven power plants, part 1 [NASA-TT-P-15308] 02 p0045 N74-15741
- Wind power plants in Russia [NASA-TT-P-15331] 02 p0045 N74-15743
- Observations on modern wind-electric power plants --- in Italy during post-war reconstruction [NASA-TT-P-15357] 02 p0045 N74-15745
- Importance and progress of wind power utilization in Denmark [NASA-TT-P-15353] 02 p0045 N74-15746

Characteristic lines (yearly permanent level lines) and characteristic wind variables for wind energy production --- design methods for electrical generators
[NASA-TT-F-15354] 02 p0046 W74-15747

Method of calculation of annual overall efficiency of modern wind-power plants
[NASA-TT-F-15310] 02 p0046 W74-15748

Problems in the electrical equipment of wind power plants
[NASA-TT-F-15312] 02 p0046 W74-15749

The large scale wind driven electrical generating station --- efficiency and economic factors
[NASA-TT-F-15313] 02 p0046 W74-15750

Utilization of wind power with Ward-Leonard type circuit in inverted operation
[NASA-TT-F-15352] 02 p0046 W74-15751

Importance and progress of wind power utilization in Denmark
[NASA-TT-F-15349] 02 p0046 W74-15754

The direct driving of synchronous generators by large scale wind electrical power generating plants in parallel operation with a synchronizing network, part 1
[NASA-TT-F-15301] 02 p0047 W74-15757

The importance of and progress in the utilization of wind power in Denmark
[NASA-TT-F-15333] 02 p0047 W74-15758

Air power plants in Russia and the United States (from Dmitry Stein, Elektrizitetswirtsch., volume 40, no. 16, 1941)
[NASA-TT-F-15338] 02 p0047 W74-15761

Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Bonnef-Gross wind turbine
[NASA-TT-F-15302] 02 p0047 W74-15762

Antenna towers as wind tower generation plants
[NASA-TT-F-15304] 02 p0047 W74-15763

Wind energy --- assessment of windpowered generator technology
[NASA-TT-F-15342] 02 p0047 W74-15764

Using large wind power plants to directly drive synchronous generators in parallel operation with a governing network
[NASA-TT-F-15343] 02 p0048 W74-15765

New wind power station --- used during fuel shortage in World War 2
[NASA-TT-F-15332] 02 p0048 W74-15767

Wind-power supply for the decimeter range directional radio site at Schoeneberg (Rifel) and the experience gained
[NASA-TT-F-15337] 02 p0048 W74-15768

The utilization of the wind energy
[NASA-TT-F-15344] 02 p0048 W74-15769

Small wind-electrical installations for export
[NASA-TT-F-15350] 02 p0048 W74-15770

Exploitation of wind energy --- windmill feasibility in industrial applications
[NASA-TT-F-15309] 02 p0055 W74-16756

Smith-Putnam wind turbine experiment
02 p0055 W74-16758

Motion picture history of the erection and operation of the Smith-Putnam wind generator
02 p0055 W74-16759

Percy Thomas wind generator designs
02 p0055 W74-16760

Past developments of large wind generators in Europe
02 p0055 W74-16761

Introduction to Voigt's wind power plant --- energy conversion efficiency
02 p0055 W74-16762

Wind power demonstration and siting problems --- for recharging electrically driven automobiles
02 p0056 W74-16765

Wind power research at Oregon State University --- for selecting windpowered machinery sites
02 p0056 W74-16767

Wind data for wind driven plant --- site selection for optimal performance
02 p0056 W74-16768

Rotor dynamic considerations for large wind power generator systems
02 p0056 W74-16772

Vertical axis wind rotors: Status and potential --- energy conversion efficiency and aerodynamic characteristics
02 p0057 W74-16774

Wind-powered asynchronous AC/DC/AC converter system --- for electric power supply regulation
02 p0057 W74-16777

Voigt variable speed drive --- for windpowered generator
02 p0057 W74-16779

Use of hydrogen and hydrogen-rich components as a means of storing and transporting energy
02 p0057 W74-16781

Status and applicability of solid polymer electrolyte technology to electrolytic hydrogen and oxygen production
02 p0058 W74-16782

Batteries for storage of wind-generated energy
02 p0058 W74-16784

Experience with Jacobs wind-driven electric generating plant, 1931 - 1957
02 p0058 W74-16786

Wind power systems for individual applications --- electric power supplies for homes
02 p0058 W74-16788

Economic considerations of utilizing small wind generators
02 p0058 W74-16789

Technical feasibility study for the development of a large capacity wind powered electrical generating system --- by using vertical airfoil motion along track system
02 p0059 W74-16791

The Oregon State University wind studies --- economic feasibility of windpowered generators
02 p0059 W74-16792

French wind generator systems --- as auxiliary power sources for electrical networks
02 p0059 W74-16793

A proposed national wind power B and D program --- offshore wind power system for electric energy supplies
02 p0059 W74-16794

Some extemporaneous comments on our experiences with towers for wind generators
02 p0059 W74-16796

Using the energy of the wind for electrification
[NASA-TT-F-15307] 02 p0060 W74-16801

A wind plant to power sea signals
[NASA-TT-F-15356] 02 p0060 W74-16803

DC generator for Kolkhoz wind powered generators
[NASA-TT-F-15347] 02 p0063 W74-17786

The present status of Bonnef wind power plants
[NASA-TT-F-15355] 02 p0063 W74-17787

The dc generators for utilizing wind power
[NASA-TT-F-15351] 02 p0063 W74-17789

High wind power plants --- design and performance evaluation
[NASA-TT-F-15444] 02 p0077 W74-19709

Report of the Wind Power Committee of 1962
[NASA-TT-F-15442] 02 p0078 W74-19710

Wind power turbogenerator for high altitude wind utilization
[NASA-TT-F-15455] 03 p0099 W74-21677

The present state of planning and erection of large experimental wind-power stations
[NASA-TT-F-15512] 03 p0099 W74-21678

Studies of the utilization of wind energy: The use of dc generator/mercury-vapor inverter sets connected to ac networks
[NASA-TT-F-15514] 03 p0099 W74-21679

Report on results achieved with SEAS experimental mill
[NASA-TT-F-15515] 03 p0099 W74-21680

This is how you can heat your home with a little windmill
[NASA-TT-F-15518] 03 p0099 W74-21681

Wind electric power station
[NASA-TT-F-15522] 03 p0100 W74-21682

The measurement of large wind energy generators
[NASA-TT-F-15433] 03 p0104 W74-22703

Wind generating stations under joint operational conditions --- operation and need for alternate energy methods
[NASA-TT-F-15637] 03 p0106 W74-25617

Statistical summary and evaluation on electric power generation from wind power stations --- experience with powered generating stations in Denmark
[NASA-TT-F-15651] 03 p0106 W74-25618

Operating conditions and types of wind-power electric substations for rural areas
[NASA-TT-F-15517] 03 p0109 W74-26512

WINDPOWERED PUMPS

Medium-capacity air motor pilot plant with
hydraulic energy accumulation by pumping
[NASA-TT-P-15299] 02 p0046 M74-15755
Vertical axis wind rotors: Status and potential
--- energy conversion efficiency and aerodynamic
characteristics 02 p0057 M74-16774
Energy storage by compressed air --- using
windpowered pumps 02 p0058 M74-16785

WORKING FLUIDS

Heat pipes --- using low thermoconductive and
boiling point working fluids 03 p0083 A74-29445
Boundary layer control in two-phase liquid-metal
MHD generators 03 p0096 A74-37620
A two-temperature, gas-particle suspension in MHD
power generation
[ASME PAPERS 73-PWR-C] 03 p0097 A74-37791

X

X RAYS

High energy radiography - A new technique in the
development of efficiency and integrity in aero
gas-turbine engines 02 p0035 A74-21316

Z

SIBC

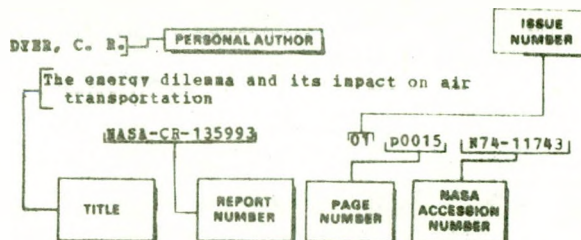
A panel for selectively absorbing solar thermal
energy and the method for manufacturing the panel
[NASA-CASR-MYS-22562-1] 02 p0076 M74-19700

PERSONAL AUTHOR INDEX

ENERGY / A Continuing Bibliography (Issue 03)

FEBRUARY 1975

Typical Personal Author Index Listing



Listings in this index are arranged alphabetically by personal author. The title or the document provides the user with a brief description of the subject matter. The report number helps to indicate the type of document listed (e.g., NASA report, translation, NASA contractor report). The issue, page and accession numbers are located beneath and to the right of the title, e.g., p0015 N74-11743. Under any one author's name the accession numbers are arranged in sequence with the IAA accession numbers appearing first.

A

- ABRAHAM, C.
New frontiers of civil aeronautics 02 p0041 A74-25352
- ADAMS, A. A.
Research on electrochemical energy conversion systems [AD-766329] 01 p0013 N74-10951
- ADELHAY, H. A.
Energy self-sufficiency - An economic evaluation 03 p0085 A74-31446
Long run cost trends: Permian Gulf and United States 02 p0052 N74-16655
- ADLERHART, O. J.
Low wattage hydrogen: Air fuel cells [AD-778550] 03 p0121 N74-28553
- AGNEW, A. P.
Compendium of university forums of the National Commission on Materials Policy, May - June 1972. A background document. NCHP forum on Technological Innovation in the Production and Utilization of Materials at Pennsylvania State University, on 19-21 June 1972 [PB-223679/26A] 01 p0025 N74-14251
Compendium of University forums of the National Commission on Materials Policy, May - June 1972. A background document: University Forum on National Materials Policy, Massachusetts Institute of Technology on 30 May - 2 June 1972 [PB-223678/46A] 01 p0029 N74-15290
- AGNINOTBI, B. E.
Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels 03 p0085 A74-32600
- AGHOBIE, A.
The jet engine design that can drastically reduce oxides of nitrogen [AIAA PAPER 74-160] 01 p0006 A74-18797
- AGRESTI, S. E.
Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system [P-5146] 02 p0080 N74-20621
- AILEBERT, P.
Wind energy: Its value and the choice of site for exploitation [NASA-TT-P-15311] 02 p0845 N74-15734
- AJAMI, P.
Thermochemistry of salt hydrates [PB-227966/9] 03 p0121 N74-28664

- ALIEV, N. P.
Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaidzhan SSR 03 p0087 A74-34095
- ALLER, E.
Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22 [PB-223536/46A] 01 p0025 N74-14499
- ALLISON, M. J.
An electrical generator with a variable speed input: Constant frequency output 02 p0057 N74-16778
- ALLSUP, J. E.
Natural gas as an automotive fuel, an experimental study [BM-BI-7806] 01 p0011 N74-10715
- ALPER, M. E.
Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 1: Summary 01 p0023 N74-13466
Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 2: Appendixes [NASA-CR-136198] 01 p0023 N74-13467
- ALSTON, I. A.
Magnetic suspension and guidance of high speed vehicles [CIS-2] 02 p0072 N74-18892
- ALSTON, W. E.
Properties of solid polymer electrolyte fluorocarbon films [NASA-TN-D-7482] 01 p0011 N74-10547
- ALVAREZ, E. C.
Economics of air transport [NASA-TT-F-15249] 01 p0026 N74-14682
- AMATO, R. V.
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10083] 01 p0014 N74-11195
Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry [E74-10238] 02 p0049 N74-16007
Application of ERTS imagery to fracture-related mine safety hazards and environmental problems in mining [E74-10258] 02 p0049 N74-16019
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10336] 02 p0065 N74-18012
- AMEND, W. E.
The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37610
Boundary layer control in two-phase liquid-metal MHD generators 03 p0096 A74-37620
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-766588] 01 p0013 N74-10952
- AMINGUILL, D.
Analysis and improvement of silicon solar cells 02 p0037 A74-24905
- AMMAR, M.
Pollution-free electrochemical power generation from low grade coal [PB-228006/3] 03 p0114 N74-27583
- ANDERSON, G. Y.
Design considerations for the airframe-integrated scramjet [NASA-TN-X-2895] 01 p0019 N74-12448

ANDERSON, J. E.
Research applied to ocean sited power plants
[PB-228067/5] 03 p0110 N74-26523

ANDERSON, J. L.
Assessment of lightweight mobile nuclear power
systems 01 p0006 A74-17813

ANDERSON, K. P.
Residential energy use: An econometric analysis
[E-1297-NSF] 01 p0032 N74-15698
California's electricity quandary. 3: Slowing
the growth rate. [E-1116-NSF/CSA] 02 p0054 N74-16680
The price elasticity of residential energy use
[P-5180] 03 p0112 N74-27446

ANDERSON, L. L.
Energy potential from organic wastes: A review of
the quantities and sources [EN-IC-8549] 02 p0072 N74-18815

ANDERSON, P. F.
Design, evaluation and recommodation effort
relating to the modification of a residential
3-ton absorption cycle cooling unit for
operation with solar energy [NASA-CN-120277] 03 p0119 N74-28536

ANTONIDES, G. J.
Testing for thermal fatigue failures in solar arrays
01 p0010 N74-10240

APPELL, B. B.
Liquefaction of lignite with carbon monoxide and
water 03 p0115 N74-28023

ARABADZHEV, A. M.
Forecasting of technological progress for
long-range planning of mining operations at coal
mines 01 p0016 N74-11765

ARCHALLA, F. G.
Method of forming a wick for a heat pipe
[NASA-CASE-MPO-13391-1] 02 p0074 N74-19584

ARCHIEBALD, P. B.
Analysis of the winds of site 300 as a source of
power [UCBL-51469] 03 p0109 N74-26514

ARGYROPOULOS, G. S.
Electron nonequilibrium in open-cycle MHD generators
03 p0083 A74-28957
Wall roughness and area variation effects in high
subsonic MHD generator channels 03 p0096 A74-37616

ARMSTRONG, P. C.
Nuclear fuels: Uranium 01 p0028 N74-15257

ARNOLD, R. A.
Effects of radiation on the violet solar cell
03 p0085 A74-32908

ARNDT, W. P.
Use of western coal and air water quality control
by Minnesota Power and Light Company 03 p0116 N74-28024

ARNOLD, J. E.
Air mobility fuel cell study
[AD-766757] 01 p0022 N74-12742

ASTA, A.
Studies of the utilization of wind energy: The
use of dc generator/mercury-vapor inverter sets
connected to ac networks [NASA-TT-F-15514] 03 p0099 N74-21679

ATSELI, A.
Present state of the art in conductive coating
technology 01 p0006 A74-17654

AUDIBERT, B.
Current delivered by the solar array of the
D24-Tournefort satellite 02 p0039 A74-24928

AUSTIN, A. L.
The hydrogen fuel economy and aircraft propulsion
[AIAA PAPER 73-1319] 01 p0006 A74-17905

AUSTIN, L. M.
Project FOL (Petroleum, Oil, and Lubricants):
Optimizing procurement of aviation fuels or
defense supply agency [AD-775053] 03 p0104 N74-22622

AVENEL, J. A.
Aircraft fuel system tests with gelled
fuel-flowmeter calibration, fuel boost pump and
jettison tests [FAA-WA-73-43] 01 p0017 N74-11828

AVENITT, P.
Coal 01 p0028 N74-15230

AVENOV, B. B.
Some results of testing of a solar water heating
installation during the heating season
[AD-754628] 02 p0048 N74-15777

B

BACCINETTI, P.
Pipeline transport of liquid coal 03 p0115 N74-28022

BADGLEY, F. L.
A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 N74-18304

BAIBERIDZE, B.
The production of liquid hydrogen at the Rocket
Propulsion Establishment [RPN-TN-71/17] 02 p0061 N74-16996

BAKER, R. S.
Electrolyte for hydrocarbon air fuel cells
[AD-766313] 01 p0010 N74-10085
Matrices for H3PO4 fuel cells
[AD-766312] 01 p0010 N74-10086
High voltage fuel cell assembly
[AD-774820] 03 p0101 N74-21696
Electrolyte for hydrocarbon air fuel cells
[AD-774832] 03 p0101 N74-21698

BAKHOV, M. IA.
Testing of photoelectric generators in the
conditions of Apsheron Peninsula, Azerbaidzhan SSR
03 p0087 A74-34095

BALAGUROV, V. A.
State-of-the-art and prospects of magnetoelectric
machines for self-contained electrical supply
systems and controllable electrical drivers
[AD-773893] 02 p0081 N74-20703

BALASKOVIC, P.
Onboard energy sources and propulsion systems for
balloons [ONERA, TP NO. 1311] 02 p0037 A74-24313

BALCONB, J. D.
Nuclear heat and hydrogen in future energy
utilization [LA-5456-MS] 03 p0117 N74-28108

BALL, R. W.
Energy alternatives for California: The current
crisis. 3: Allocation of scarce supplies
[P-5157] 03 p0103 N74-22596

BALSHISSE, R. B.
Energy options 02 p0070 N74-18604

BARANOV, V. IU.
Qualitative analysis of the efficiency of MHD
energy conversion 01 p0003 A74-13944

BARANOV, V. Y.
Passage of current through boundary layers
[AD-775138] 03 p0102 N74-22372

BARAOHA, C. R.
The drift field model applied to the
lithium-containing silicon solar cell 03 p0090 A74-34421

BARBER, R. E.
Investigation of chemical APV application for
small ground power sources [AD-765724] 01 p0009 N74-10082

BARBER, R. E.
Solid state hydrogen gas generator
[AIAA PAPER 73-1232] 01 p0001 A74-11257

BARCHILLINI, P. L.
Prospects of energy conversion and storage derived
from space systems technology 02 p0033 A74-19485

BARR, B. G.
Research on the application of satellite remote
sensing to local, state, regional, and national
programs involved with resource management and
environmental quality [NASA-CN-136472] 01 p0024 N74-14093

BARR, R. L.
A preliminary engineering design of a 'Venetian
blind' direct energy converter for fusion reactors
03 p0087 A74-34093

- BAUER, F.
Application of phase transitions to the
electromechanical energy conversion
[ISL-CO-2/73] 03 p0105 #74-23327
- BAUGHMAN, E. L.
Modeling of electric power demand growth
[PB-224045/5GA] 02 p0034 #74-16690
- BAUMHISTEN, F.
A wind plant to power sea signals
[NASA-TT-F-15356] 02 p0060 #74-16803
- BEATTY, D. F.
ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[E74-10345] 02 p0082 #74-20948
- BECCU, K. D.
Meeting future peak electrical energy demands by
means of electrochemical storage systems
[NASA-TT-F-15634] 03 p0104 #74-22709
- BECKERT, W. F.
Solid state hydrogen gas generator
[AIAA PAPER 73-1232] 01 p0001 #74-11257
- BEERHORN, A.
Disposal of waste oils at military air bases
[SAB PAPER 740472] 03 p0091 #74-35001
- BELOZHOV, A.
Fusion reactor design problems
03 p0084 #74-31213
- BELT, J. E.
Proceedings of Workshop on Navy Alternate Energy
Sources Research and Development
[AD-773746] 02 p0078 #74-19717
- BELTON, G.
Thermochemistry of salt hydrates
[PB-227966/9] 03 p0121 #74-28664
- BENNETT, G. W.
Hydrogen-methane fuel control systems for turbojet
engines
[NASA-CR-121247] 02 p0050 #74-16493
- BENTALL, R. E.
Current European developments in solar paddle drives
01 p0014 #74-11672
- BENTON, L. F.
Analyses of natural gases, 1972
[PB-225577/8] 03 p0105 #74-23337
- BERG, C. A.
Energy conservation through effective utilization
[NBSIR-73-102] 01 p0027 #74-14688
- BERGOT, R. E.
Wind power demonstration and siting problems
02 p0056 #74-16765
- BERGMAN, P. D.
An economic evaluation of MHD-steam powerplants
employing coal gasification
[BN-RI-7796] 02 p0051 #74-16620
- BERMAN, E.
Investigation of photovoltaic applications
02 p0040 #74-24939
- BERMAN, E. B.
California's electricity quandary. 3: Slowing
the growth rate
[R-1116-NSF/CSA] 02 p0054 #74-16680
- BERNARD, J.
Partial results concerning CdS solar cells
02 p0038 #74-24914
Description and interpretation of the results
observed concerning the technological solar cell
satellite
02 p0039 #74-24929
- BERNATOWICZ, D. T.
The NASA-Lewis terrestrial photovoltaics program
03 p0089 #74-34406
Method of making silicon solar cell array
[NASA-CASE-LHW-11069-1] 01 p0027 #74-14784
The NASA-Lewis terrestrial photovoltaics program
[NASA-TN-X-71491] 01 p0028 #74-14788
- BERNARD, E. L., JR.
The worldwide search for petroleum offshore
[OSGS-CIRC-694] 03 p0121 #74-28897
- BERNARD, D. T.
Low gas temperature solution to high resistivity
ash problems
03 p0116 #74-28027
- BERGPOLOV, I. E.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 #74-29207
- BESSON, J.
New technology for CdS-Cu₂S solar cells of high
reliability
02 p0038 #74-24910
- BIBNSTOCK, D.
An economic evaluation of MHD-steam powerplants
employing coal gasification
[BN-RI-7796] 02 p0051 #74-16620
- BIBBBERNER, H.
A novel method of cooling semiconductor devices
for power electronics
[BNFT-FBT-02] 01 p0015 #74-11739
- BITTURIE, V. A.
Two-dimensional electric fields in MHD-generator
channels - Optimum loading circuits
03 p0095 #74-37608
- BLAGOVIDOV, I. P.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 #74-29207
- BLAKE, C. L.
U.S. government airport capacity planning
[SAB PAPER 740474] 03 p0091 #74-35000
- BLANK, L.
A hydrogen energy carrier. Volume 1: Summary
[NASA-CR-134175] 01 p0014 #74-11727
A hydrogen energy carrier. Volume 2: Systems
analysis
[NASA-CR-134176] 01 p0014 #74-11728
- BLANKENSHIP, C. F.
Design and evaluation of experimental ceramic
automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 #74-28035
Evaluation of alloys and coatings for use in
automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 #74-28990
- BLINDE, E. R.
The NSF/RANN Photovoltaic Energy Conversion Program
03 p0089 #74-34404
- BLOH, J. E.
Relaxation phenomena in an MHD generator with
pre-ionizer
02 p0033 #74-19454
Results of the Eindhoven MHD shocktunnel experiment
03 p0097 #74-37623
- BODEN, D. F.
Nickel-zinc cells with non-sintered electrodes
02 p0035 #74-20631
- BORER, E.
Cost efficiency of tungsten carbide-carbon fuel
cells
02 p0036 #74-24054
- BOGDANOFF, D. W.
Impinging jet separators for liquid metal
magnetohydrodynamic power cycles
[NASA-CR-136552] 01 p0027 #74-14785
- BOGUS, K.
GaAs solar cells with alloy windows
03 p0088 #74-34383
- BORR, E.
Calculation and comparison of the economy of
electrochemical fuel cells
[NTC-74-11868] 03 p0108 #74-26496
Cost effectiveness of tungsten carbide-carbon fuel
cells
[NASA-TT-F-15748] 03 p0120 #74-28543
- BOLIN, V. A.
Certain peculiarities of combustion of ballasted
gases and stabilization of a flame
[AD-776731] 03 p0107 #74-26400
- BOOTH, L. A.
Nuclear heat and hydrogen in future energy
utilization
[LA-5456-BS] 03 p0117 #74-28108
- BORCHERTS, R. H.
The use of superconductivity in the USA
transportation program
03 p0091 #74-35288
- BORDBHAY, J. P.
Development of a multipolar inductor utilizing the
possibilities of hollow superconductors with
supercritical helium circulation
03 p0101 #74-21921
- BOYLE, R. R.
The effect of fuel availability on future R and D
programs in power generation
01 p0031 #74-15689
- BRADLEY, J. C.
Clean, bright, and dry
02 p0034 #74-20213

FRANCH, W. B.
Energy management display 03 p0090 A74-34844

BRANDHORST, H. W., JR.
Optimum design of antireflection coating for silicon solar cells 03 p0089 A74-34394
The multiple junction edge illuminated solar cell 03 p0089 A74-34398
The drift field model applied to the lithium-containing silicon solar cell 03 p0090 A74-34421
The multiple junction edge illuminated solar cell [NASA-TN-X-71476] 01 p0012 N74-10947

BRASLOW, A. L.
Aeronautical fuel conservation possibilities for advanced subsonic transports [NASA-TN-X-71927] 02 p0080 N74-20654

BRITNISH, B.
Development concept for a small, split-core, heat-pipe-cooled nuclear reactor [NASA-TN-X-2996] 02 p0078 N74-20238

BRENNAN, W. B.
Controlled fusion research [FUPB-0-4] 02 p0074 N74-19290

BRESNABAN, D. L.
Refan program. Phase 1: Summary report [NASA-TN-X-71456] 01 p0009 N74-10043

BREWER, G. D.
The case for hydrogen fueled transport aircraft [AIAA PAPER 73-1323] 01 p0002 A74-11315
Hydrogen - Make-sense fuel for an American supersonic transport [AIAA PAPER 74-163] 02 p0033 A74-19353
The case for hydrogen-fueled transport aircraft 03 p0083 A74-29452

BROCKBAUM, C. E.
Petroleum exploration subprogram: Geological interpretation of proportional imagery from ERTS-A satellite [E74-1021J] 01 p0028 N74-15020

BRODER, J. D.
Optimum design of antireflection coating for silicon solar cells 03 p0089 A74-34394
The use of FEP Teflon in solar cell cover technology [NASA-TN-X-71485] 01 p0012 N74-10944
Method of making silicon solar cell array [NASA-CASE-LEW-11069-1] 01 p0027 N74-14784

BROGAN, I. E.
Development of design criteria, cost estimates, and schedules for an MHD high performance demonstration experiment [AD-766232] 01 p0017 N74-11852

BROCHER, M. J.
Theoretical and experimental investigation of two-component heat pipes [AIAA PAPER 74-720] 03 p0092 A74-35953

BROOKS, B. L.
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities [E74-10160] 01 p0024 N74-14028
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities [E74-10572] 03 p0121 N74-28816

BROWN, D. W.
Potential for hot-dry-rock geothermal energy in the western United States [LA-UR-73-1075] 03 p0100 N74-21691

BROWN, W. E.
Sodium: Clean-energy storage medium for vehicular power [LA-5406-MS] 02 p0065 N74-17871

BROWNE, E. D.
An analysis of the national transportation policy 03 p0086 A74-33299

BROUCCHE, B. A.
Theory and experiment in laser driven fusion 03 p0087 A74-34192

BROUING, G.
Does research in the field of aeronautics have a future 02 p0041 A74-25723

BUCKNELL, E. L.
Influence of fuels and lubricants on turbine engine design and performance, fuel and lubricant analyses [AD-769309] 02 p0050 N74-16483

BUDGER, E. P.
A comment on towers for windmills 02 p0059 N74-16795

BUNCELEN, L. W.
KIVA-I MHD generator modifications and tests [AD-770063] 02 p0060 N74-16815

BURS, R.
Layout and technology of the CTS solar array blanket 03 p0089 A74-34412

BULL, J. S.
Jet transport energy management for minimum fuel consumption and noise impact in the terminal area [AIAA PAPER 74-811] 03 p0097 A74-37821

BURAKHAROV, B. B.
Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits 03 p0095 A74-37608

BUNLEIGH, R. J.
A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors 03 p0087 A74-34093

BURNETT, J. E.
Industrial use of aerospace technology 01 p0002 A74-12905

BUTLER, A. P., JR.
Nuclear fuels: Uranium 01 p0028 N74-15257

BUTLER, E. W.
Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado [E74-10508] 03 p0105 N74-22955

BUSHIKOV, A. E.
Characteristics of a nonequilibrium MHD generator 01 p0005 A74-17439

C

CADY, T.
A hydrogen energy carrier. Volume 1: Summary [NASA-CN-134175] 01 p0014 N74-11727
A hydrogen energy carrier. Volume 2: Systems analysis [NASA-CN-134176] 01 p0014 N74-11728

CALL, R. L.
Inversion layer solar cell fabrication and evaluation [NASA-CN-136932] 02 p0060 N74-16807

CALNON, J.
Performance and noise aspects of supersonic transport 01 p0003 A74-13798

CALVERT, C.
Investigation in energy transfer and energy conversion for advanced power and propulsion systems [AD-771581] 02 p0067 N74-18417

CALVIN, M.
Solar energy by photosynthesis 02 p0042 A74-27322

CANNON, C. C.
Peat 01 p0029 N74-15261

CAMP, R. E.
Electrolyte for hydrocarbon air fuel cells [AD-766313] 01 p0010 N74-10085
Matrices for H₂PO₄ fuel cells [AD-766312] 01 p0010 N74-10086
High voltage fuel cell assembly [AD-774820] 03 p0101 N74-21696
Electrolyte for hydrocarbon air fuel cells [AD-774832] 03 p0101 N74-21698

CAPUANI, A.
Engine cycle selection for commercial STOL aircraft 02 p0079 N74-20408

CARDWELL, L. E.
Analyses of natural gases, 1972 [PB-225977/8] 03 p0105 N74-23337

CASE, M.
Cost efficiency of tungsten carbide-carbon fuel cells 02 p0036 A74-24054
Cost effectiveness of tungsten carbide-carbon fuel cells [NASA-TT-F-15748] 03 p0120 N74-28543

- CABRIGIS, I. A.
Engine sensory requirements for energy management
02 p0043 A74-28311
- CABRE, A.
Utilization of wind power with Ward-Leonard type
circuit in inverted operation
[NASA-TT-P-15352] 02 p0046 W74-15751
The dc generators for utilizing wind power
[NASA-TT-P-15351] 02 p0063 W74-17789
- CASHION, W. B.
Bitumen-bearing rocks
01 p0028 W74-15226
- CASS, G. B.
Cost and performance of automotive emission
control technologies
[EOL-8880-7] 03 p0107 W74-26244
- CASTELLANI, A.
The use of the pressurized balloon for detecting
energy resources
02 p0033 A74-19473
- CEGIBLSKI, J. M., JR.
Low energy gas utilization in combustion gas turbine
01 p0029 W74-15447
- CHADDA, P. D. S.
Comparison of vertical multi-junction and
conventional solar cell performance
03 p0088 A74-34376
- CHADBICK, J. W.
General aviation cost impact study. Volume 1:
Executive summary
[AD-771603] 02 p0062 W74-17779
General aviation cost impact study. Volume 2:
Research methodology
[AD-771606] 02 p0062 W74-17780
General aviation cost impact study. Volume 3:
Planning guide
[AD-771759] 02 p0062 W74-17781
- CHAGUNAVA, V. T.
Catalytic combustion of carbon monoxide in
gasoline engine exhaust using manganese catalysts
[AD-760395] 01 p0011 W74-10874
- CHANG, H. H.
Bucket rotor wind-driven generator
02 p0057 W74-16776
- CHANG, K. Y.
A two-dimensional dynamic programming method for
the optimization of diagonal conducting wall
magnetohydrodynamic generators
03 p0095 A74-37607
- CHAO, H. H.
Thermochemical water decomposition processes
03 p0085 A74-31450
- CHAREBY, A.
Sealed, rechargeable nickel-zinc cells
02 p0035 A74-20630
High energy sealed nickel-zinc batteries
[AD-772944] 02 p0072 W74-18737
- CHASON, A.
Study of a bi-phase D.C. M.H.D. generator using a
new motion system
03 p0096 A74-37618
- CHAMPIS, H. A.
The international aspects of importing natural gas
02 p0068 W74-18588
- CHER, C.
Kinetics of coal gasification in a low pressure,
low residence time, entrained flow reactor
02 p0061 W74-17190
- CHERRY, W. B.
Conclusions and recommendations of the United
States Solar Energy Panel
02 p0040 A74-24941
Solar energy research and utilization
03 p0094 A74-36332
Solar energy research and utilization
[NASA-TM-X-70660] 03 p0106 W74-25621
- CHICHENSTEIN-MILLS, I.
The economic utilization of resources through
aviation
03 p0093 A74-36321
- CHRISTALLER, E.
Exploitation of wind energy
[NASA-TT-P-15309] 02 p0055 W74-16756
- CHUMAROV, I. I.
Rapid group analysis of directly distilled
petroleum fractions by the method of recorded
fluid-adsorption chromatography /PAC/
03 p0083 A74-29415
- CICCHETTI, C. J.
Electricity growth: Economic incentives and
environmental quality
03 p0100 W74-21687
- CILIANO, E.
Quantitative energy studies and models: A state
of the art review
02 p0070 W74-18623
- CIVIRSEAS, R. C.
A simplified life-cycle cost comparison of various
engines for small helicopter use
[NASA-TM-X-71517] 02 p0074 W74-19405
- CLARK, A. F.
Solar ponds extended
[UCID-16317] 01 p0023 W74-13537
- CLARK, J. H.
Magnetic suspension and guidance of high speed
vehicles
[CTS-2] 02 p0072 W74-18892
- CLARK, S. H.
Government, policies, national objectives, and the
energy industries
02 p0051 W74-16653
- CLERBENT, J. D.
Satellite nuclear power station: An engineering
analysis
01 p0002 A74-13234
Comparative evaluation of solar, fission, fusion,
and fossil energy resources, part 1
[NASA-CR-138117] 03 p0103 W74-22590
Comparative evaluation of solar, fission, fusion,
and fossil energy resources. Part 2: Power
from nuclear fission
[NASA-CR-138397] 03 p0105 W74-23481
- CLEWS, R. H.
Wind power systems for individual applications
02 p0058 W74-16788
- COCKSHUTT, E. P.
Energy in transportation
01 p0023 W74-13675
- COHEN-SOLAL, G.
Current prospects for solar cells
02 p0040 A74-24943
- COLBY, D. S.
Determining the effects of gasoline price on use
of metals in automobile manufacture
[BN-RI-7871] 02 p0062 W74-17666
- COLL, R.
Experimental two-phase liquid-metal
magnetohydrodynamic generator program
[AD-766588] 01 p0013 W74-10952
- COLL, R. L.
The effects of geometry and loss mechanisms on the
performance of two-phase liquid-metal MHD
generators
03 p0096 A74-17619
Boundary layer control in two-phase liquid-metal
MHD generators
03 p0096 A74-37620
- COLLINS, D. H.
Power sources 4: Research and development in
non-mechanical electrical power sources;
Proceedings of the Eighth International
Symposium, Brighton, Sussex, England, September
24-26, 1972
02 p0034 A74-20627
- COLLINS, R. J.
An evaluation of the suitability of ERTS data for
the purposes of petroleum exploration
[E74-10029] 01 p0018 W74-12119
Evaluation of the suitability of Skylab data for
the purpose of petroleum exploration
[E74-10331] 02 p0065 W74-18007
- CONNS, J. B.
Feasibility study for development of hot-water
geothermal systems
[AD-771016] 02 p0064 W74-17801
- CONTOLIS, W. H.
The effect of fuel availability on future R and D
programs in power generation
01 p0031 W74-15689
- COOK, C. S.
Closed cycle MHD for central station power with
fossil or nuclear fuels
[AD-766500] 01 p0012 W74-10944
- COOK, G. L.
Retorting indexes for oil-shale pyrolyses from
ethylene-ethane ratios of product gases
[BN-RI-7921] 03 p0114 W74-27592

- COOL, R. S.
Qualification testing of laboratory produced violet solar cells 03 p0088 A74-34390
- COTE, A. W.
General aviation cost impact study. Volume 1: Executive summary [AD-771603] 02 p0062 M74-17779
General aviation cost impact study. Volume 2: Research methodology [AD-771606] 02 p0062 M74-17780
General aviation cost impact study. Volume 3: Planning guide [AD-771759] 02 p0062 M74-17781
- COTTON, F. O.
Waste lubricating oil research: An investigation of several re-refining methods [BM-BI-7884] 02 p0078 M74-20069
- COX, K.
A hydrogen energy carrier. Volume 2: Systems analysis [NASA-CR-134176] 01 p0014 M74-11728
- COX, K. R.
A hydrogen energy carrier. Volume 1: Summary [NASA-CR-134175] 01 p0014 M74-11727
- CRIBBINS, P. D.
The energy dilemma and its impact on air transportation [NASA-CR-135993] 01 p0015 M74-11743
- CROSS, J. S.
Balancing the demand and supply of other energy forms 02 p0052 M74-16660
- CUDLIP, J. J.
Performance characteristics of a pneumatic tube transportation system 02 p0072 M74-18888
- CULBERTSON, W. C.
Oil shale 01 p0029 M74-15260
- CUMMINS, J. J.
Thermal degradation of Green River kerogen at 150 to 350 C [BM-BI-7924] 03 p0121 M74-28652
- CURPES, C. O.
Properties of Utah tar sands: Threemile Canyon area, F. R. Spring deposit [BM-BI-7923] 03 p0121 M74-28911
- CURTIS, D. J.
Qualification testing of laboratory produced violet solar cells 03 p0088 A74-34390
- CURTIS, H. S.
Low-cost, air mass 2 solar simulator [NASA-TS-X-3059] 03 p0114 M74-27719
- CUTNER, K. L.
F-14 optimum flight modes, volume 1 [AD-775246] 03 p0099 M74-21665
- CUTLER, W. H.
Gas generators - A perspective [AIAA PAPER 73-1168] 01 p0001 A74-11219
- CUTTING, J. C.
The effects of geometry and loss mechanisms on the performance of two-phase liquid-metal MHD generators 03 p0096 A74-37619
Boundary layer control in two-phase liquid-metal MHD generators 03 p0096 A74-37620
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-766588] 01 p0013 M74-10952
- D
- DAILY, J. W.
Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels 02 p0036 A74-23221
- DANBOLENA, I. G.
A planning methodology for the analysis and design of wind-power systems 03 p0119 M74-28534
- DAMIDAS, F.
Description of the energy source project delivering 1 megajoule in 1 microsecond [LP-3] 02 p0061 M74-17454
- DANIEL-BEN, V. S.
Dependence of efficiency and specific characteristics of fuel cells on discharge conditions [AD-773264] 02 p0081 M74-20704
- DAVIS, B. K.
Solar energy power system [NASA-CASE-RPS-21628-1] 01 p0025 M74-14496
- DAVIS, M. S.
Project SAGE phase 1 report: Solar assisted gas energy water heating feasibility for application in new apartments [RQL-HERO-11] 03 p0099 M74-21675
- DAUSON, D. E.
Low NOx emission combustor development for automobile gas turbine engines [PB-225133/8GA] 02 p0067 M74-18414
- DANSON, J. K.
Prospects for hydrogen as an energy resource 03 p0090 A74-34621
- DEAN, P.
A bibliography of non-technical literature on energy 02 p0051 M74-16641
- DECASPERIS, A. J.
The 1.5-kW fuel cell powerplant [AD-767302] 01 p0022 M74-12744
- DECOMA, A. W.
Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases [BM-BI-7921] 03 p0114 M74-27592
- DEHETTER, J. J.
An economic evaluation of MHD-steam powerplants employing coal gasification [BM-BI-7796] 02 p0051 M74-16620
- DEMETRIADES, S. T.
Electron nonequilibrium in open-cycle MHD generators 03 p0083 A74-28957
- DEGUEL, O. E.
Solid state hydrogen gas generator [AIAA PAPER 73-1232] 01 p0001 A74-11257
- DEVANEY, J. W., III
Key issues in offshore oil 03 p0115 M74-27828
- DEVERALL, J. E.
Performance tests of gravity-assist heat pipes with screen-wick structures [AIAA PAPER 74-723] 03 p0092 A74-35954
- DEITER, W. L.
A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors 03 p0087 A74-34093
- DICKINSON, J. T.
Transportation and energy conservation in the Pacific Northwest 03 p0119 M74-28539
- DIERL, L. A.
Effect of water injection on nitric oxide emissions of a gas turbine combustor burning natural gas fuel [NASA-TS-X-2959] 01 p0025 M74-14651
- DILLE, B. K.
Recycling solid waste for utility fuel and recovery of other resources 02 p0071 M74-18725
- DIMITRIADES, S.
The association of automotive fuel composition with exhaust reactivity [PB-222609/0] 01 p0010 M74-10129
Oxygenates in automotive exhausts. Effect of an oxidation catalyst [PB-227097/3] 03 p0105 M74-23190
- DIMITRIEVSKII, V. A.
Induction magnetohydrodynamic MHD generator with a cavity-type nuclear reactor [AD-777444] 03 p0111 M74-27247
- DOBROV, G. H.
Forecasting of technological progress for long-range planning of mining operations at coal mines 01 p0016 M74-11765
- DOCTOR, R. D.
Measures for slowing growth in electricity consumption [P-5017] 02 p0054 M74-16676
California's electricity quandary. 3: Slowing the growth rate [R-1116-NSF/CSA] 02 p0054 M74-16680

- Energy alternatives for California: The current crisis. 2: Conservation of energy [P-5156] 03 p0103 N74-22595
- DODGE, E.
Economic considerations of utilizing small wind generators 02 p0058 N74-16789
- DOLBY, J. S.
Ionisation, recombination and voltage drop measurements in a closed cycle MHD generator 03 p0096 A74-37622
- DOLB, S. R.
California's electricity quandary. 3: Slowing the growth rate [N-1116-NSF/CSA] 02 p0054 N74-16680
- DOWNELLY, M. E.
Some simple calculations to suggest the effects of six national policies upon use and supply of energy [TP-360] 03 p0122 N74-29343
- DOCLITTLE, P. G.
Thermal degradation of Green River kerogen at 150 to 350 C [BH-MI-7924] 03 p0121 N74-28652
- DOSS, B. D.
Electron nonequilibrium in open-cycle MHD generators 03 p0083 A74-28957
Wall roughness and area variation effects in high subsonic MHD generator channels 03 p0096 A74-37616
- DRUMHELLER, E.
Study of Hanford capability for solar energy research and development [BHUL-1801] 03 p0120 N74-28546
- DUGAS, D. J.
Fuel from organic matter: Possibilities for the state of California [P-5107] 02 p0054 N74-16674
- DUNBAR, P. E.
A theoretical analysis of the current-voltage characteristics of solar cells [NASA-CN-138828] 03 p0120 N74-28544
- DUNCAN, D. C.
Energy resources of the United States [CIRC-650] 01 p0031 N74-15685
Energy resources of the United States [CIRC-650] 02 p0075 N74-19614
- DUNLOP, J. D.
Chemical storage of hydrogen in H₂/H₂ cells 01 p0004 A74-14248
- DVERBYAKOV, V. S.
Study of the possibility of using solar radiant energy for welding and brazing metals 03 p0115 N74-28005
- DYER, C. E.
The energy dilemma and its impact on air transportation [NASA-CN-135993] 01 p0015 N74-11743
- DYER, D. P.
MHD for power generation: The view of a chosen few [AD-760342] 01 p0025 N74-14408
- E**
- EABL, M. W.
Chemical storage of hydrogen in H₂/H₂ cells 01 p0004 A74-14248
- EASTMOND, B. J.
Research on the application of satellite remote sensing to local, state, regional, and national programs involved with resource management and environmental quality [NASA-CN-136472] 01 p0024 N74-14093
- BEACE, E. L.
Design of high-temperature solid-electrolyte fuel-cell batteries for maximum power output per unit volume 02 p0036 A74-22355
- EBERLE, W. E.
Reduction of TACV power requirements by multiple-stage air cushions 02 p0043 A74-27842
- EBERT, H.
Aviation turbine fuel and its lubricating qualities. II 02 p0035 A74-22271
- ECCLYSTON, H. H.
The association of automotive fuel composition with exhaust reactivity [PB-222609/0] 01 p0010 N74-10129
- ECKERT, J. A.
Investigation of photovoltaic applications 02 p0040 A74-24939
- EDWARDS, I.
Theoretical performance of ammonia, hydrogen, and bio-waste resistojets 03 p0085 A74-31286
- ENRICKS, E. A.
Use of Shuttle in establishing large space installations 01 p0004 A74-14121
Regional and global energy transfer via passive power relay satellites 01 p0005 A74-16116
Industrial evolution and revolution in the civil space, 1980 - 2010 [ASTRONAUT-PB-32] 03 p0111 N74-27353
- EL-BEHA, M. F.
Theoretical performance of cylindrical parabolic solar concentrators 01 p0001 A74-10626
- ELDER, C. E.
Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va. [PB-228689/6] 03 p0121 N74-28919
- ELDER, J. L.
Technology and use of lignite [BH-IC-8543] 03 p0115 N74-28020
- ELDRIDGE, P. R.
Solar energy systems [N73-26] 02 p0064 N74-17795
Proposed program and budget for photovoltaic systems [N74-6613] 03 p0119 N74-28538
- ELLENBAUM, D. D.
Heat operated cryogenic electrical generator [NASA-CASE-MPO-13303-1] 02 p0077 N74-19701
- ELLINGBOE, D. C.
A bibliography of Congressional publications on energy from the 89th Congress to 1 July 1971 02 p0051 N74-16642
- ELLIS, J. J.
Pipeline transport of liquid coal 03 p0115 N74-28022
- ELLIS, J. H.
Investigation of chemical APU application for small ground power sources [AD-765724] 01 p0009 N74-10082
- ELSEL, W.
Design study of superconducting 5 tesla dipole magnets for MHD generators [IPP-IV-53] 02 p0067 N74-18328
- EMERSON, J. D.
Outlook for energy in the United States to 1980 01 p0032 N74-15697
- EMERY, E. O.
Review of the results from the Eastern Atlantic Continental Margin Program of the International Decade of Ocean Exploration [PB-225036/3GA] 02 p0065 N74-18073
Review of the results from the eastern Atlantic continental margin program of the international decade of ocean exploration [PB-226580/9GA] 03 p0102 N74-22091
- EMMETT, J. L.
Fusion power by laser implosion 03 p0085 A74-31574
- ERICKSON, M. W.
Balancing the supply and demand for natural gas 02 p0052 N74-16657
- ERLICKI, M. S.
Direct energy conversion by means of solar cells 02 p0040 A74-24937
- ERLINSBERG, E.
Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues [DPVLR-SONDDE-301] 01 p0006 A74-10007
- ERMOLAEV, O. M.
Certain peculiarities of combustion of ballasted gases and stabilization of a flame [AD-776731] 03 p0107 N74-26400
- ESCHER, W. J. D.
Hydrogen - Make-sense fuel for an American supersonic transport [AIAA PAPER 74-163] 02 p0033 A74-19353

- Future availability of liquid hydrogen
03 p0083 A74-29453
- Prospects for hydrogen as a fuel for
transportation systems and for electrical power
generation
[ORNL-TM-4305] 01 p0030 A74-15449
- A problem statement: Ocean based
solar-to-hydrogen energy conversion macro system
02 p0076 A74-19694
- Prospects for liquid hydrogen fueled commercial
aircraft
[PR-37] 02 p0080 A74-20647
- ESGAR, J. B.
State of technology on hydrogen fueled gas turbine
engines
[NASA-TM-X-71561] 03 p0107 A74-26253
- EVDOKIMOV, V. B.
The optimization of silicon photocell operated in
conjunction with solar radiation concentrators
02 p0037 A74-24906

F

- FALCO, M.
Aircraft symmetric flight optimization
02 p0036 A74-23091
- FALCONER, C. A.
Long range trends in the character of electric
power systems
02 p0049 A74-15908
- FANG, P. B.
Low-cost silicon solar cells for terrestrial
applications
02 p0038 A74-24909
- FEDORUS, G. A.
Heterogeneous solar converters based on
polycrystalline cadmium sulfide and selenide
[AD-776551] 03 p0107 A74-25623
- FEO, G.
Engine cycle selection for commercial STOL aircraft
02 p0079 A74-20408
- FEEDMAN, S.
The second fifteen years in space; Proceedings of
the Eleventh Goddard Memorial Symposium,
Washington, D.C., March 8, 9, 1973
01 p0004 A74-14463
- FERGUSON, G. J.
Gasification of fossil fuels under oxidative,
reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 A74-27611
- FERGUSON, B. L.
The 1.5-kw fuel cell powerplant
[AD-767302] 01 p0022 A74-12744
- FERRI, A.
The jet engine design that can drastically reduce
oxides of nitrogen
[AIAA PAPER 74-160] 01 p0006 A74-18797
- FERRI, A., JR.
Legal considerations and constraints on US nuclear
policy
[AD-754641] 01 p0024 A74-13697
- FESTIVIAU, Y.
Application of phase transitions to the
electromechanical energy conversion
[ISL-CO-2/73] 03 p0105 A74-23327
- FISCH, W. I.
Nuclear fuels: Uranium
01 p0028 A74-15257
- FISCHER, B.
Technology and performance characteristics of
integral diode solar cells
02 p0038 A74-24908
- FISHBACH, L. G.
A simplified life-cycle cost comparison of various
engines for small helicopter use
[NASA-TM-X-71517] 02 p0074 A74-19405
- FISHER, J. C.
Applicability of remote sensor data to geologic
analysis of the Bonanza test site Colorado
[A74-10508] 03 p0105 A74-22955
- FLISCHON, J.
Trapping of solar energy at Banako with the aid of
a silicon solar cell panel
02 p0041 A74-25481
- FLEMING, P. D.
Natural gas as an automotive fuel, an experimental
study
[BN-BI-7806] 01 p0011 A74-10715

- FLITCHER, J. C.
Spaceship earth: A look ahead to a better life
[NASA-TM-X-70139] 03 p0122 A74-29339
- FLITCHER, R. S.
The environment and the gas turbine
02 p0035 A74-21874
- FLORIS, C. V.
Petroleum exploration subprogram: Geological
interpretation of proportional imagery from
BRTS-A satellite
[E74-10213] 01 p0028 A74-15020
- FOLEY, R. T.
Research on electrochemical energy conversion
systems
[AD-766329] 01 p0013 A74-10951
- FORERMAN, K. M.
Advantages of the diffuser-augmented wind turbine
02 p0057 A74-16775
- FORRESTIERI, A. P.
Terrestrial applications of solar cell powered
systems
03 p0089 A74-34405
- Method of making silicon solar cell array
[NASA-CASE-LEW-11069-1] 01 p0027 A74-14784
- Status of PEP encapsulated solar cell modules used
in terrestrial applications
[NASA-TM-X-71564] 03 p0109 A74-26508
- FORNEY, A. J.
Analyses of tars, char, gases, and water found in
effluents from the synthane process
[BN-TPR-76] 02 p0049 A74-15808
- FORRESTER, J.
Computer simulation of world dynamics and
implications for policy decisions
02 p0068 A74-18585
- Remarks
02 p0068 A74-18589
- POSTER, J. D.
Jet transport energy management for minimum fuel
consumption and noise impact in the terminal area
[AIAA PAPER 74-811] 03 p0097 A74-37821
- POSTER, W. G.
Development program for a liquid methane heat pipe
01 p0003 A74-14046
- PRAAS, A. P.
Isotope kilowatt program
[ORNL-TM-4243] 01 p0025 A74-14377
- PRADENBURGH, E. A.
Dynamic model wind tunnel tests of a
variable-diameter, telescoping-blade rotor
system (TRAC rotor)
[AD-771037] 02 p0061 A74-17764
- PRATHE, W. E.
US transportation: Some energy and environmental
considerations
[E72-164] 02 p0075 A74-19624
- FRANTSEVICH, I. M.
Study of the possibility of using solar radiant
energy for welding and brazing metals
03 p0115 A74-28005
- FREEMAN, S. D.
Issues involved in developing an environmental ethic
02 p0069 A74-18594
- FRIEDWALD, D. A.
Energy and environment: System and perspectives
[LA-5447-85] 03 p0104 A74-22615
- FRENI, J.
New technology for CdS-Cu₂S solar cells of high
reliability
02 p0038 A74-24910
- FRIEDMAN, B.
Direct energy conversion by means of solar cells
02 p0040 A74-24937
- FROELICH, A. J.
Power conditioning system for FAA air route
traffic control centers
01 p0019 A74-12636
- FROELICH, A. J., JR.
Power conditioning system for FAA Air Route
Traffic Control Centers
01 p0004 A74-14133

G

- GADDE, E. M.
A computer program to determine geometric
parameters for the AFM solar arrays
[NASA-TM-X-70656] 03 p0106 A74-25619

- CABRELL, G.**
A novel method of cooling semiconductor devices for power electronics [BSFT-FET-02] 01 p0015 N74-11739
- CARRISON, G. W.**
Development of design criteria, cost estimates, and schedules for an HHD high performance demonstration experiment [AD-766232] 01 p0017 N74-11852
- CASION, S. J.**
Analyses of tars, char, gases, and water found in effluents from the synthane process [BM-TFM-76] 02 p0049 N74-15808
- CAYBIL, S.**
Direct energy conversion by means of solar cells 02 p0040 N74-24937
- CAVHILOVA, I. P.**
Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells 03 p0087 N74-34099
- CASIN, V. K.**
Study of the effect of increased humidity on the mirror coatings of solar energy concentrators 03 p0087 N74-34097
- CESTEL, J. E.**
Characterization of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions [PB-224243/6GA] 02 p0066 N74-18294
- CHONG, D. W.**
Alternative energy sources: A research challenge [CONF-730560-1] 01 p0024 N74-14097
Energy resources and usage [RR-2] 03 p0114 N74-27536
- CHRSNAN, I. I.**
Multifuel diesel engines [AD-771198/9GA] 02 p0074 N74-19408
- CHRSTEN, K.**
Does research in the field of aeronautics have a future 02 p0041 N74-25723
- GILBERT, B. J.**
Gasification of fossil fuels under oxidative, reductive, and pyrolytic conditions [PB-228668/0] 03 p0114 N74-27611
- GILLIS, J. A., JR.**
A power conditioning system for radioisotope thermoelectric generator energy sources [NASA-TN-X-70678] 03 p0117 N74-28106
- GILMORE, E.**
Need for a regional wind survey 02 p0055 N74-16764
- GLASS, P. E.**
Satellite solar power stations to meet future energy demands 01 p0001 N74-11020
The use of the Space Shuttle to support large space power generation systems 01 p0003 N74-14112
Space solar power 02 p0040 N74-24942
The solar power options 03 p0094 N74-36334
Energy conservation with solar climate control 02 p0050 N74-16513
A new view of solar energy 02 p0050 N74-16514
Feasibility study of a satellite solar power station [NASA-CF-2357] 02 p0063 N74-17784
New sources of power: Solar energy 02 p0063 N74-17790
- GLASSMAN, A. J.**
Computer program for thermodynamic analysis of open cycle multishaft power system with multiple reheat and intercool [NASA-TN-D-7589] 02 p0071 N74-18727
- GODLEWSKI, M. P.**
The drift field model applied to the lithium-containing silicon solar cell 03 p0090 N74-34421
- GODWIN, L. E.**
Classification of public lands valuable for geothermal steam and associated geothermal resources [CIBC-647] 02 p0049 N74-16049
- GOLLSITE, M.**
Innovation and space flight 03 p0085 N74-32607
- GOSTLINGER, J. W.**
Waste lubricating oil research: An investigation of several re-refining methods [BM-EI-7884] 02 p0078 N74-20069
- GOPF, G. B.**
Noncaking coal gasified in a stirred-bed producer [BM-TFM-77] 02 p0073 N74-19111
- GOLDSMITH, M. A.**
The development of aircraft as influenced by the shortage of materials and fuel 03 p0093 N74-36319
- GOLDSMITH, J. S.**
Hydrogen-methane fuel control systems for turbojet engines [NASA-CR-121247] 02 p0050 N74-16493
- GOXALLES, M. J.**
Future United States population, economic growth, and energy demands 02 p0051 N74-16652
- GOODMAN, R. E.**
Research on electrochemical energy conversion systems [AD-766329] 01 p0013 N74-10951
- GOODMANSON, L. T.**
Where are we headed in air transport? 01 p0020 N74-12669
- GOULD, R. E.**
Exploratory development of a glass ceramic automobile thermal reactor [NASA-CR-134513] 01 p0019 N74-12447
- GOVEB, A.**
Vertical multijunction solar-cell one-dimensional analysis 03 p0086 N74-33971
- GRAUBAND, M. E.**
Coping with the fuel shortage: A guide for Los Angeles residents [P-5154] 02 p0080 N74-20622
- GRAVES, R. E.**
Calculations on a solar energy system [LBL-1773] 01 p0023 N74-13538
- GRIBLEY, R. S.**
Environmental issues, an overview 02 p0069 N74-18597
Energy, resources and the environment: A set of presentations [N73-61] 02 p0075 N74-19615
Background material for the Energy Policy Workshop, 11-12 January 1973 [N73-12] 02 p0082 N74-21619
- GRIBB, M.**
Investigation of the relative merits of different power plants for STOL-aircraft with blown flap application 02 p0078 N74-20406
The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines 02 p0079 N74-20444
- GROBMAN, J.**
Jet engine exhaust emissions of high altitude commercial aircraft projected to 1990 [NASA-TN-X-3007] 02 p0079 N74-20591
- GROSE, G. G.**
Flight/propulsion control integration aspects of energy management [SAE PAPER 740480] 03 p0090 N74-34978
- GRUB, C.**
Construction of 850 and 4,000 ampere-hour silver-zinc cells using inorganic separator [AD-771397] 02 p0064 N74-17798
- GUNNING, G. D.**
Outlook for energy in the United States to 1985 01 p0032 N74-15697
- GUSEINOV, M. K.**
Testing of photoelectric generators in the conditions of Apsheron Peninsula, Azerbaidzhan SSR 03 p0087 N74-34095
- GUSTAFSON, W. A.**
A two-temperature, gas-particle suspension in HHD power generation [ASME PAPER 73-PWR-C] 03 p0097 N74-37791
- GUSTAVSON, M. E.**
An energy ethic 02 p0069 N74-18593

GUTHRIE, M. P.

- Energy research and development: A selected reading list
[ORNL-EIS-73-65-REV-1] 01 p0022 W74-12695
- NSF-RANN energy abstracts: A monthly abstract journal of energy research
[ORNL-EIS-73-52-VOL-1-NO-9] 02 p0062 W74-17680
- Energy research and development: A selected reading list
[ORNL-EIS-73-65] 02 p0080 W74-20627
- NSF-RANN energy abstracts: A monthly abstract journal of energy research, volume 1, no. 11, November 1973
[ORNL-EIS-73-52-VOL-1-NO-11] 03 p0114 W74-27537
- GYFTOPOULOS, E. P.
Thermionic energy conversion. Volume I - Processes and devices 01 p0004 A74-14327

H

HAGE, H.

- Feasibility study and development of a constant temperature heat pipe system. Phase 2: Experimental design
[ESRO-CR(P)-430] 03 p0122 W74-29332

HAIGLER, L. E.

- Classification of public lands valuable for geothermal steam and associated geothermal resources
[CIRC-647] 02 p0049 W74-16049

HAIBBS, H. G.

- Ionisation, recombination and voltage drop measurements in a closed cycle MPD generator
03 p0096 A74-37622

HALL, H. J.

- Potential pollutants in fossil fuels
[PB-225039/7GA] 02 p0066 W74-18313

HALL, R. B.

- Proceedings, Coal Combustion Seminar
[PB-224210/5GA] 02 p0051 W74-16627

HALL, T. W.

- General aviation cost impact study. Volume 1: Executive summary
[AD-771603] 02 p0062 W74-17779
- General aviation cost impact study. Volume 2: Research methodology
[AD-771606] 02 p0062 W74-17780
- General aviation cost impact study. Volume 3: Planning guide
[AD-771759] 02 p0062 W74-17781

HAMMEN, H. J.

- California's electricity quandary. 3: Slowing the growth rate
[R-1116-NSF/CSA] 02 p0054 W74-16680

HANDLEY, L. H.

- Study of fuel cell system for powered balloon
[AD-766253] 01 p0009 W74-10083

HARSHMAN, B. E.

- Thermochemical hydrogen generation
03 p0094 A74-36411

HANSFORD, F. F.

- Bearings for power station plant. A selective bibliography, 1960 - September 1973
[CE-BIE-28B.1] 02 p0073 W74-19113

HANSON, J. A.

- A problem statement: Ocean based solar-to-hydrogen energy conversion macro system
02 p0076 W74-19694

HANSON, R. A.

- Low NOx emission combustor development for automobile gas turbine engines
[PB-225133/8GA] 02 p0067 W74-18414

HAO, B. E.

- Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems
01 p0009 W74-10074

HARRINGTON, R. E.

- Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion
03 p0116 W74-28026

HARRIS, W. R.

- Energy alternatives for California: The current crisis. 4: Regulatory aspects of energy policy
[P-5158] 03 p0112 W74-27447

HART, R. E., JR.

- The multiple junction edge illuminated solar cell
03 p0089 A74-34398

- The multiple junction edge illuminated solar cell
[NASA-TR-X-71476] 01 p0012 W74-10947

HARTLEY, W.

- Hydrogen production by reforming processes - The alternatives and economics
03 p0086 A74-33992

HARVEY, C. E.

- The Western Kentucky Coal Industry: An economic analysis
[UKY-TR76-73-INHE1] 03 p0118 W74-28439

BASSAN, R.-E.

- Theoretical performance of cylindrical parabolic solar concentrators
01 p0001 A74-10026

HASSE, R. A.

- Fuel system requirements for light aircraft turbocharged reciprocating engines
[SAE PAPER 740382] 03 p0083 A74-28747

HATOBI, S.

- Stabilization of ionization instability in an HMD generator
03 p0083 A74-28943

HATSOPOULOS, G. N.

- Thermionic energy conversion. Volume I - Processes and devices
01 p0004 A74-14327

HAUSER, J. E.

- A theoretical analysis of the current-voltage characteristics of solar cells
[NASA-CR-138828] 03 p0120 W74-28544

HAUSER, L. G.

- The effect of fuel availability on future R and D programs in power generation
01 p0031 W74-15689

HAUSGAARD, O.

- Consumption of energy in New York State: 1972 (with estimates for 1973)
[OER-19] 02 p0079 W74-20614

HAUSE, W.

- Use of hydrogen and hydrogen-rich components as a means of storing and transporting energy
02 p0057 W74-16781

HAULEY, C. D.

- Electron vibrational energy transfer under HMD combustion generator conditions
03 p0095 A74-37612

HAYDEN, J. T.

- Magnetic suspension and guidance of high speed vehicles
[CTS-2] 02 p0072 W74-18892

HAYES, J. R.

- Petroleum: A prediction made in 1950
[P-5135] 02 p0065 W74-18194

HAYNES, W. P.

- Analyses of tars, char, gases, and water found in effluents from the synthane process
[BN-TPR-76] 02 p0049 W74-15808

HAYS, L. G.

- Liquid metal magnetohydrodynamics (LMHMD) technology transfer feasibility study. Volume 1: Summary
[NASA-CR-136197] 01 p0023 W74-13466
- Liquid metal magnetohydrodynamics (LMHMD) technology transfer feasibility study. Volume 2: Appendixes
[NASA-CR-136198] 01 p0023 W74-13467

HAZARD, B. E.

- Conversion of fuel nitrogen to NOx in a compact combustor
[ASME PAPER 73-WA/GT-2] 01 p0002 A74-13293

HEAL, E. B.

- Electricity: The conversion industry
[NP-19837] 02 p0072 W74-18730

HEALY, T.

- Electric energy requirements for environmental protection
[CONF-730205-4] 01 p0027 W74-14695

HEDRICK, J. K.

- Minimum time and minimum fuel flight path sensitivity
03 p0086 A74-33811

- Sensitivity of suboptimal fixed-range flight paths
[AIAA PAPER 74-813] 03 p0097 A74-37822

HEIDTBAUM, U.

- A novel method of cooling semiconductor devices for power electronics
[BMFT-FBT-02] 01 p0015 W74-11739

- BRID, R. A.
Superconductivity - Large-scale applications
03 p0092 A74-36049
- BRITNER, R.
Control of gasoline vapor losses from station and
vehicle filling
[NGL-MSO-5] 03 p0101 A74-21771
- BELFUS, D. J.
A two-temperature, gas-particle suspension in HED
power generation
[ASME PAPER 73-PWR-C] 03 p0097 A74-37791
- BENFILL, W. R.
Quantification of the luminescence intensity of
natural materials
01 p0005 A74-14892
- BERN, R.
Recent developments in the field of thermionic
power conversion and its possible effects on
power supply systems in space and on earth
[DGLB PAPER 73-092] 01 p0005 A74-17195
- BERRY, R. R.
Investigations using data in Alabama from ERTS-A
[E74-10124] 01 p0023 A74-13051
- BERRY, J. R.
Design considerations for the airframe-integrated
scramjet
[NASA-TN-X-2895] 01 p0019 A74-12448
- BROTHMAN, W.
A proposed national wind power R and D program
02 p0059 A74-16794
- BROWN, R.
Development of geothermal reservoirs from
over-pressured areas beneath the Gulf coastal
plain of Texas. A feasibility study of power
production from overpressured reservoirs
[AD-766855] 01 p0018 A74-12183
- BROWIG, L. O.
Growing federal support for solar energy
applications
03 p0094 A74-36335
- BROWN, T. D.
Quantification of the luminescence intensity of
natural materials
01 p0005 A74-14892
- BROWIG, C. R.
On inhomogeneities of thin film solar cells
02 p0039 A74-24918
- BROWN, E. W.
Wind power research at Oregon State University
02 p0056 A74-16767
- BICKS, G. V.
Energy statistics: A supplement to the summary of
national transportation statistics
[PB-225331/8GA] 02 p0070 A74-18633
- BIGHTON, J. W.
ARPA Workshop on Needs of the Department of
Defense for Catalysis, Volume 2
[AD-777734] 03 p0114 A74-27610
- BILLER, L.
Lignite and the cyclone burner in a new 235-mw
generating station
03 p0116 A74-28031
- BILTS, F. R.
Purification of fuel oils by centrifugal force
02 p0034 A74-20216
- BIBST, R.
Electric energy requirements for environmental
protection
[CONF-730205-4] 01 p0027 A74-14695
- BOCH, R.
Performance and noise aspects of supersonic
transport
01 p0003 A74-13798
- BOFFMAN, A. C.
High voltage solar cell power generating system
for regulated solar array development
[AIAA PAPER 73-1105] 01 p0002 A74-12242
High voltage solar cell power generating system
03 p0088 A74-34387
- BOGAN, W. W.
Project POL (Petroleum, Oil, and Lubricants):
Optimizing procurement of aviation fuels or
defense supply agency
[AD-775053] 03 p0104 A74-22622
- BOLDER, R. C.
Low NOx emission combustor development for
automobile gas turbine engines
[PB-225133/8GA] 02 p0067 A74-18414
- BOLDRENS, F. E.
Oxidation of carbon monoxide in diluted combustion
products at engine idling conditions
02 p0041 A74-25221
- HOLLANDAY, R. B.
Advanced controls for commercial transport aircraft
[SAB PAPER 740453] 03 p0091 A74-35008
- BOLY, E. J.
Energy situation and nuclear power
[EP-19838] 01 p0029 A74-15391
- BOHIGSHAUM, F. R.
The synchronous EPD device
01 p0024 A74-13759
- BOHNEY, R.
High wind power plants
[NASA-TT-F-15444] 02 p0077 A74-19709
Wind power turbogenerator for high altitude wind
utilization
[NASA-TT-F-15455] 03 p0099 A74-21677
Wind electric power station
[NASA-TT-F-15522] 03 p0100 A74-21682
- BOHELICK, A. L.
The Soviet Union, the Middle East, and the
evolving world energy situation
[P-5109] 02 p0054 A74-16675
- BORTON, T. R.
The production of liquid hydrogen at the Rocket
Propulsion Establishment
[RPE-TN-71/17] 02 p0061 A74-16996
- BORRITT, C. R.
A new solar selective surface
03 p0093 A74-36264
- BOUDEN, J. W. M. A.
Loss mechanisms in an HED generator
02 p0033 A74-19455
Results of the Eindhoven HED shocktunnel experiment
03 p0097 A74-37623
- BOVEL, R. J.
The effect of depletion region recombination
currents on the efficiencies of Si and GaAs
solar cells
03 p0088 A74-34373
- BSU, C.
Dynamic modeling and analysis of liquid-metal
magnetohydrodynamic power systems
[AD-778757] 03 p0121 A74-28551
- BSU, Y. Y.
Clean fuels from biomass
03 p0084 A74-30101
Clean fuels from biomass
[NASA-TN-X-71538] 02 p0077 A74-19706
- BURR, D.
GaAs solar cells with AlAs windows
03 p0088 A74-34383
- BURR, R. B.
Energy research and development: A selected
reading list
[ORNL-ES-73-65-REV-1] 01 p0022 A74-12695
Energy research and development: A selected
reading list
[ORNL-ES-73-65] 02 p0080 A74-20627
- BUCKE, R. R.
Preliminary reports, memoranda and technical notes
of the Materials Research Council summer
conference. Volume 2: Proceedings of the
discussion group on solar energy conversion
[AD-777737] 03 p0109 A74-26516
- BUDDLE, F. P.
The evolution and dynamics of national goals in
the United States
02 p0053 A74-16666
- BURBANK, R. W.
United States petroleum situation through 1980
[AD-761576] 02 p0054 A74-16691
- BUGHES, W. L.
Energy storage using high pressure electrolysis
and methods for reconversion
02 p0057 A74-16780
- BUNTLEY, D.
Applicability of remote sensor data to geologic
analysis of the Bonanza test site Colorado
[E74-10508] 03 p0105 A74-22955
- BUTCHINSON, V. V.
Selected list of Bureau of Mines publications on
petroleum and natural gas, 1961-1970
[BS-IC-8534] 01 p0032 A74-15691

BUTTER, U.

- Influence of wind frequency on rotational speed adjustments of windmill generators
[NASA-TT-P-15184] 01 p0012 W74-10948
- Past developments of large wind generators in Europe
02 p0055 W74-16761
- Some extemporaneous comments on our experiences with towers for wind generators
02 p0059 W74-16796
- BWANG, C. C.
Light bulb heat exchanger for magnetohydrodynamic generator applications - Preliminary evaluation
[NASA-TN-D-7534] 02 p0067 W74-18557

ILES, P. A.

- Improved performance from thin silicon solar cells
03 p0089 A74-34401

INGERSO, R. D.

- Jet engine exhaust emissions of high altitude commercial aircraft projected to 1990
[NASA-TN-X-3007] 02 p0079 W74-20591

ISHIOO, M.

- Investigation of silicon photoelectric cells as precision photodetectors
[NRC-TT-1686] 01 p0010 W74-10199

IVANOV, A.

- DC generator for Kolkhoz wind powered generators
[NASA-TT-P-15347] 02 p0063 W74-17786

IVANOV, A. A.

- Lines of development of rural wind power plants
[NASA-TT-P-15513] 02 p0081 W74-20701

IVANOV, M. D.

- Operational and accidental petroleum product losses and their control and prevention /2nd revised and enlarged edition/
03 p0092 A74-36137

IVANOV, M. I.

- Forecasting of technological progress for long-range planning of mining operations at coal mines
01 p0016 W74-11765

IVANOV, P. P.

- Optimization of open cycle power plant MHD generator
03 p0095 A74-37610

J

JACKSON, R. C.

- A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators
03 p0095 A74-37607

JACOBS, R. L.

- Experience with Jacobs wind-driven electric generating plant, 1931 - 1957
02 p0058 W74-16786

JACOBSON, I. A., JR.

- Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases
[BN-RI-7921] 03 p0114 W74-27592

JACOBI, H. D.

- Energy self-sufficiency - An economic evaluation
03 p0085 A74-31446

JANSEN, K. E.

- Pilot study of electrostatic precipitation for removing fly ash at Basin Electric's Leland Olds Station
03 p0116 W74-28029

JANSSON, R. E. W.

- Theoretical performance of ammonia, hydrogen, and blowaste resistojets
03 p0085 A74-31286

JANTZEN, E.

- Aviation fuels and lubricants
01 p0006 A74-18180

JARDIN, S.

- Nonlinear stability of magnetohydrodynamic generators
[AIAA PAPER 74-507] 03 p0086 A74-33106

JESSE, P. W.

- Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va.
[PB-228689/6] 03 p0121 W74-28919

JONES, S.

- A novel method of cooling semiconductor devices for power electronics
[BNFT-FRT-02] 01 p0015 W74-11739

JOHNSON, G. E.

- Analyses of tars, char, gases, and water found in effluents from the synthane process
[BN-TPB-76] 02 p0049 W74-15808

JOHNSON, J. E.

- Storage and transportation of synthetic fuels. A report to the synthetic fuels panel
[ORNL-TN-4307] 01 p0030 W74-15448

JOHNSON, L. A.

- Properties of Utah tar sands: Threemile Canyon area, P. R. Spring deposit
[BN-RI-7923] 03 p0121 W74-28917

JOHNSTON, A. A.

- Performance of Army engines with leaded and unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 W74-17523

JONES, L. W.

- Liquid hydrogen as a fuel for motor vehicles; a comparison with other systems
02 p0074 W74-19391

JONES, T. B.

- Electrohydrodynamic heat pipe experiments
03 p0084 A74-30335

JOSKOW, P. L.

- Energy self-sufficiency - An economic evaluation
03 p0085 A74-31446

JUCHER, P.

- The present status of Bonnef wind power plants
[NASA-TT-P-15355] 02 p0063 W74-17787

JUST, J. E.

- Impacts of new energy technology, using generalized input-output analysis
[PB-226139/4GA] 03 p0101 W74-21697

JUUL, J.

- Investigation of the possibilities of using wind power
[NASA-TT-P-15336] 02 p0047 W74-15760
- Supplement to the report on the results achieved with SEAS' experimental mill
[NASA-TT-P-15516] 02 p0081 W74-20700
- Report on results achieved with SEAS experimental mill
[NASA-TT-P-15515] 03 p0099 W74-21680

JUULS, J.

- Application of wind power to rational generation of electricity
[NASA-TT-P-15334] 02 p0047 W74-15759

K

KANE, H.

- Economic basis for energy and resource use
02 p0068 W74-18586
- Remarks
02 p0068 W74-18590

KAJIKAWA, T.

- Effect of plasma injection on cold wall type MHD generator
03 p0091 A74-35276

KANEBAKKE, H.

- Combustion of the gases methane, LP gas and ammonia in a mixing reactor
[FOA-1-C-1442-B3] 01 p0022 W74-12824

KARLIN, J. J.

- Solar vs. nuclear power - Is there a choice
[AIAA PAPER 74-489] 02 p0043 A74-27833

KARPENKO, I. V.

- Possibilities of the thin solar battery applications for the terrestrial use units
02 p0038 A74-24912

KAS'IANOV, V. A.

- On the theory of alternating-current electrofluidynamic converters
01 p0007 A74-18988

KASHIHARA, T.

- Effect of plasma injection on cold wall type MHD generator
03 p0091 A74-35276

KASICH-PILIPENKO, I. Y.

- Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 W74-28005

KATHLL, S.

- Oil shale: A clean energy source
03 p0099 W74-21676

KATINA, C. E.

- PSA hydrogen plants - How well have they performed
03 p0087 A74-33994

- KAYUKAWA, H.
The effect of magnetic field upon the output performance of segmented-open type MHD generator
03 p0095 A74-37609
- KBECK, D. A.
Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va.
[PB-228689/6] 03 p0121 N74-28919
- KEDDY, E. S.
Performance tests of gravity-assist heat pipes with screen-wick structures
[AIAA PAPER 74-723] 03 p0092 A74-35954
- KRITA, I.
Trapping of solar energy at Bamako with the aid of a silicon solar cell panel
02 p0041 A74-25481
- KELLEN, W. E.
Cryogenic instrumentation at and above liquid hydrogen temperature - Present and future
01 p0003 A74-14057
- KELLEY, R. J.
Aircraft symmetric flight optimization
02 p0036 A74-23091
- KELLY, B. P.
Investigation of photovoltaic applications
02 p0040 A74-24939
- KELLY, D. L.
Application of hydrogen to commercial transports
[SAE PAPER 740451] 03 p0090 A74-34985
- KELLY, T. J.
Solar power for our nation
01 p0004 A74-14465
- KENNE, J. E.
Performance tests of gravity-assist heat pipes with screen-wick structures
[AIAA PAPER 74-723] 03 p0092 A74-35954
- KENNEDY, E. L.
High voltage solar array experiments
[NASA-CR-121280] 02 p0063 N74-17788
- KERR, J.
Aviation fuels and lubricants
01 p0006 A74-18180
- KESSELER, E.
Design and modeling of the gas flow system for a compact 10 MW MHD generator system
03 p0095 A74-37606
- KHAYIN, M. D.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 N74-29207
- KIELY, M. F.
Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TRAC rotor)
[AD-771037] 02 p0061 N74-17764
- KINANE, G. G.
Econometric models: Their application to the economic and energy sectors
[CE-BIE-220] 02 p0062 N74-17660
- KINSMAN, F. B.
ERTS-1 imagery use in reconnaissance prospecting: Evaluation of the commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
[E74-10007] 01 p0013 N74-11148
ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum
[E74-10345] 02 p0082 N74-20948
- KIRBY, K. D.
Satellite nuclear power station: An engineering analysis
01 p0002 A74-13234
- KIRCHHOFF, W.
The solar generator of the telecommunication satellite Symphonie
02 p0039 A74-24933
- KIRILLIN, V. A.
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator
[JPRS-61359] 02 p0071 N74-18723
The prospects for MHD power plants in power engineering
[JPRS-62139] 03 p0110 N74-26774
- KIRILLINA, V. A.
Magnetohydrodynamic method of obtaining electrical energy (collected articles)
[AD-765933] 01 p0011 N74-10681
- KIRILLOV, V. V.
Characteristics of a nonequilibrium MHD generator
01 p0005 A74-17439
Investigation of heat exchange in an MHD generator channel
03 p0086 A74-33565
- KIRWIN, J. E.
Fuel system requirements for light aircraft turbocharged reciprocating engines
[SAE PAPER 740382] 03 p0083 A74-28747
- KLEPPEIS, J. E.
Disk geometry MHD generator for high voltage high power aircraft requirements
[AD-775749] 03 p0107 N74-26255
- KLOSS, M.
High powered electrical power generation by wind motors
[NASA-TT-P-15303] 02 p0045 N74-15739
Problems in the electrical equipment of wind power plants
[NASA-TT-P-15312] 02 p0046 N74-15749
The direct driving of synchronous generators by large scale wind electrical power generating plants in parallel operation with a synchronizing network, part 1
[NASA-TT-P-15301] 02 p0047 N74-15757
Using large wind power plants to directly drive synchronous generators in parallel operation with a governing network
[NASA-TT-P-15343] 02 p0048 N74-15765
- KLUM, D. L.
Recycling solid waste for utility fuel and recovery of other resources
02 p0071 N74-18725
- KLUSSMANN, W.
Investigation of the relative merits of different power plants for STOL-aircraft with blown flap application
02 p0078 N74-20406
- KLYACHKINA, A. L.
Problem of the application of turbofan engines in air transport. Methods of increase in efficiency of turbofan engine with high bypass ratios
[AD-773292] 02 p0079 N74-20453
- KNEPPER, D. H., JR.
Geologic information from satellite images
[E74-10507] 03 p0104 N74-22954
Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado
[E74-10508] 03 p0105 N74-22955
- KNEV, S.
Photoelectric converters based on various CdS heterojunctions
02 p0042 A74-27752
- KOESTER, J. K.
Performance and Hall field limitation studies in the Stanford M-8 MHD generator
03 p0095 A74-37605
- KOESTLIN, H.
Present state of the art in conductive coating technology
01 p0006 A74-17654
- KOHL, E. C.
Fabrication and testing of negative-limited sealed nickel-cadmium cells
[NASA-CR-135981] 01 p0009 N74-10078
- KOLTUN, M. M.
Optical coatings for semiconductor photovoltaic converters and solar energy concentrators
02 p0039 A74-24924
Study of the effect of increased humidity on the mirror coatings of solar energy concentrators
03 p0087 A74-34097
Effect of series resistance on the illuminating efficiency and optimal thickness of the active layer of silicon photocells
03 p0087 A74-34099
- KOMAR, C. A.
Directional properties of coal and their utilization in underground gasification experiments
[BH-TPE-73] 01 p0018 N74-12159

- KONASHCHENKO, V. N.
Heterogeneous solar converters based on polycrystalline cadmium sulfide and selenide [AD-776551] 03 p0107 N74-25623
- KOROV, S. V.
Heat pipes 03 p0083 A74-29445
- KONSTANTINOVA, E.
Photoelectric converters based on various CdS heterojunctions 02 p0042 A74-27752
- KOONARIAN, A.
Ultra-deep drilling for geothermals [AD-774108] 03 p0102 N74-22074
- KONIAGINA, G. M.
Optimization of open cycle power plant MHD generator 03 p0095 A74-37610
- KOSOBAB, B. I.
State-of-the-art and prospects of magnetoelectric machines for self-contained electrical supply systems and controllable electrical drivers [AD-773893] 02 p0081 A74-20703
- KORNEV, Y. I.
Study of the possibility of using solar radiant energy for welding and brazing metals 03 p0115 N74-28005
- KOVACH, B. G.
Technology of Efficient Energy Utilization 03 p0106 N74-23510
- KOVASIUK, V. I.
Optimization of open cycle power plant MHD generator 03 p0095 A74-37610
- KRASNOV, V. I.
Optimization of the power of Faraday MHD generators operating on nonequilibrium plasma 01 p0003 A74-13943
- KRETSCHMER, D.
Modelling of combustors - The effects of ambient conditions upon performance 02 p0040 A74-25217
- KUCHANN, C.
Investigation of the possibilities of using wind power [NASA-TT-P-15336] 02 p0047 N74-15760
- KUCHEN, A.
Wind generating stations under joint operational conditions [NASA-TT-P-15637] 03 p0106 N74-25617
- KUCOP, R. H.
Disposal of waste oils at military air bases [SAE PAPER 740472] 03 p0091 A74-35001
- KUBB, W. R.
Technology and use of lignite [BN-IC-2543] 03 p0115 N74-28020
- KUSHO, A.
Power conditioning system for FAA Air Route Traffic Control Centers 01 p0004 A74-14133
Power conditioning system for FAA air route traffic control centers 01 p0019 N74-12636
- KYBAP, C. P.
Determination of optimal air pollution control strategies 02 p0073 N74-19229
- LACKBY, M. E.
Second iteration analysis of a fossil fuel-fired gas turbine-potassium-steam combined cycle [ORNL-NSF-EP-39] 01 p0019 N74-12577
- LACHOIX, G.
Wind energy [NASA-TT-P-15342] 02 p0047 N74-15764
Wind power, part 2 - economic feasibility, 1949 [NASA-TT-P-15419] 02 p0063 N74-17792
- LAGOUTTE, E.
Study of a bi-phase D.C. M.H.D. generator using a new motion system 03 p0096 A74-37618
- LAIRD, W. B.
Future energy supply: Approaches and options 03 p0116 N74-28030
- LAND, D. V.
A critical review of mathematical diffusion modeling techniques for predicting air quality with relation to motor vehicle transportation [PB-224656/9GA] 02 p0066 N74-18304
- LANPE, Y. U.
Gasification of fossil fuels under oxidative, reductive, and pyrolytic conditions [PB-228468/0] 03 p0114 N74-27611
- LANDSHAM, A. P.
Photoelectric power engineering 02 p0039 A74-24936
- LANTS, E.
Development concept for a small, split-core, heat-pipe-cooled nuclear reactor [NASA-TN-X-2996] 02 p0078 N74-20238
- LAQUER, M. L.
Superconducting magnetic energy storage 03 p0092 A74-35289
Design options and tradeoffs in superconducting magnetic energy storage with irreversible switching [LA-UR-73-910] 02 p0074 N74-19375
- LARSON, C. E.
Energy options for the future 02 p0069 N74-18599
- LISTER, L. L.
Atmospheric emissions from the petroleum refining industry [PB-225040/5GA] 02 p0066 N74-18305
- LATYSHEV, V. N.
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator 03 p0086 A74-33564
Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator [JPRS-61359] 02 p0071 N74-18723
- LAVI, A.
Solar sea power [PB-228068/3] 03 p0110 N74-26519
Solar sea power [PB-228069/1] 03 p0110 N74-26520
Proceedings, Solar Sea Power Plant Conference and Workshop [PB-228066/7] 03 p0110 N74-26521
- LAWARD, T. A.
Review of the windpower activities at the Brace Research Institute 02 p0058 N74-16787
- LE METAYER, M.
Description and interpretation of the results observed concerning the technological solar cell satellite 02 p0039 A74-24929
- LEBEDINSKIY, A. P.
Multifuel diesel engines [AD-771198/9GA] 02 p0074 N74-19408
- LEB, D. O.
Economic comparison of two solar/hydrogen concepts [SLA-73-900] 02 p0060 N74-16810
- LEE, K.
Geologic information from satellite images [E74-10507] 03 p0104 N74-22954
Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado [E74-10508] 03 p0105 N74-22955
- LEES, L.
Time factors in slowing down the rate of growth of demand for primary energy in the United States [EQL-7] 01 p0030 N74-15667
- LEFEBVRE, A. H.
The environment and the gas turbine 02 p0035 A74-21874
- LEPORA, M. E.
Thermal-oxidative stability of automotive diesel fuels [AD-758146] 02 p0049 N74-15817
- LESSENDOCK, T.
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10083] 01 p0014 N74-11195
- LESSENDOCK, T. V.
Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry [E74-10238] 02 p0049 N74-16007
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10336] 02 p0065 N74-18012

- LESSING, L.
Lasers blast a shortcut to the ultimate energy solution
03 p0084 A74-29603
- LEVINTON, W. R.
Refurbishment of solar simulation optical train mirror assemblies
[NASA-CR-134123] 01 p0018 W74-12016
- LEVY, R., JR.
High voltage solar cell power generating system for regulated solar array development
[AIAA PAPER 73-1105] 01 p0002 A74-12242
High voltage solar cell power generating system
03 p0088 A74-34387
- LEWIS, E. A.
Mission calculations for a scramjet powered hypersonic transport
[NASA-TN-X-71464] 01 p0018 W74-12445
- LIANG, C. C.
Solid state batteries
03 p0090 A74-34771
- LINDY, L. R.
ANPA Workshop on Needs of the Department of Defense for Catalysis, Volume 2
[AD-777734] 03 p0114 W74-27610
- LINDY, W. F.
ANPA Workshop on Needs of the Department of Defense for Catalysis, Volume 2
[AD-777734] 03 p0114 W74-27610
- LIBERATORE, A. J.
Noncaking coal gasified in a stirred-bed producer
[BN-TPR-77] 02 p0073 W74-19117
- LIDONENKO, E. S.
Photoelectric power engineering
02 p0039 A74-24936
Prospects and scientific problems of the application of methods of the application of methods of direct electrical power acquisition from chemical fuels
[AD-776734] 03 p0107 W74-25625
- LIEBERMAN, E.
Disposal of waste oils at military air bases
[SAE PAPER 740472] 03 p0091 A74-35001
Combustion and heat recovery of Air Force waste petroleum oils and lubricants
[AD-774563] 02 p0082 W74-21391
- LILL, I.
Combustion of the gases methane, LP gas and ammonia in a mixing reactor
[FOA-I-C-1442-H3] 01 p0022 W74-12824
- LIMAY, D. R.
Quantitative energy studies and models: A state of the art review
02 p0070 W74-18623
- LINDAHL, D. H.
The gasoline shortage: A national perspective
02 p0075 W74-19618
- LINDER, E. R.
Review of world energy supplies
[IGD/A-1-73] 01 p0026 W74-14666
- LINDSAY, J. D. G.
Design options and tradeoffs in superconducting magnetic energy storage with irreversible switching
[LA-UR-73-910] 02 p0074 W74-19375
- LINES, C. E.
Percy Thomas wind generator designs
02 p0055 W74-16760
- LINNER, L.
Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Bonnet-Gross wind turbine
[NASA-TT-P-15302] 02 p0047 W74-15762
- LINVILLE, B.
Energy program, 1972
[BN-IC-8612] 02 p0080 W74-20619
- LISSAVER, P. B. S.
Wind machines
02 p0059 W74-16797
- LITTLE, E. H.
Design options and tradeoffs in superconducting magnetic energy storage with irreversible switching
[LA-UR-73-910] 02 p0074 W74-19375
- LO, H. P.
Time factors in slowing down the rate of growth of demand for primary energy in the United States
[EQL-7] 01 p0030 W74-15667
- LOESCH, E. R.
Solar cell development in the Federal Republic of Germany
02 p0037 A74-24903
- LOPESKI, J. J.
Principles of photovoltaic solar energy conversion
03 p0088 A74-34368
- LOKAY, V. I.
Aviation gas turbine engines (selected portions)
[AD-756810] 01 p0011 W74-10751
- LOPARENKO, E. K.
Rapid group analysis of directly distilled petroleum fractions by the method of recorded fluid-adsorption chromatography /PAC/
03 p0083 A74-29415
- LOUIS, J. F.
HMD effects on viscous and thermal wakes and their influence on the performance of HMD generators
03 p0096 A74-37613
Disk geometry HMD generator for high voltage high power aircraft requirements
[AD-775749] 03 p0107 W74-26255
- LOVE, R. A.
Energy recovery from waste: Solid waste as supplementary fuel in power plant boilers
[SU-36D.II] 02 p0076 W74-19699
- LOVEY, J. R.
A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel
[NASA-CASE-NFS-22562-1] 02 p0076 W74-19700
- LUKSHA, E.
Fabrication and testing of negative-limited sealed nickel-cadmium cells
[NASA-CR-135981] 01 p0009 W74-10078
- LUNDQUIST, G. E.
Energy problems in air transportation
02 p0033 A74-19479
- LUDOW, T. H.
Balancing the demand and supply of coal
02 p0052 W74-16658
- MA, J. L.
Collecting fly ash from western low sulfur coals
03 p0116 W74-28028
- MACHOV, P. W.
Energy self-sufficiency - An economic evaluation
03 p0085 A74-31486
- MACKENTHUN, W.
Neuverk windmill power generation plant
[NASA-TT-P-15306] 02 p0045 W74-15740
- MACKOVCIAN, J., JR.
Feasibility study of a satellite solar power station
[NASA-CR-2357] 02 p0063 W74-17784
- MAGNI, E. M.
Potential pollutants in fossil fuels
[PB-225039/76a] 02 p0066 W74-18313
- MARABOVA, E. S.
Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells
03 p0087 A74-34099
- MARSUTOVA, E. K.
Aviation gas turbine engines (selected portions)
[AD-756810] 01 p0011 W74-10751
- MALANDAIN, A.
Development of a multipolar inductor utilizing the possibilities of hollow superconductors with supercritical helium circulation
03 p0101 W74-21921
- MALYSKII, Y. N.
Possibility of commutating thermoelectric batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 W74-10084
- MALIUTA, D. D.
Qualitative analysis of the efficiency of HMD energy conversion
01 p0003 A74-13944
- MALYSHEV, V. V.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 W74-29207
- MALIUTA, D. D.
Passage of current through boundary layers
[AD-775138] 03 p0102 W74-22372

- HANABY, O. J.
Characterization of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions
[PB-224243/66A] 02 p0066 W74-18294
- HANCAHNT, L. C.
Properties of Utah tar sands: Threemile Canyon area, F. R. Spring deposit
[BN-HI-7923] 03 p0121 W74-28911
- HANCOCK, A. I.
Heterogeneous solar converters based on polycrystalline cadmium sulfide and selenide
[AD-776551] 03 p0107 W74-25623
- HANCHIONNA, H. R.
Effect of water injection on nitric oxide emissions of a gas turbine combustor burning natural gas fuel
[NASA-TM-X-2959] 01 p0025 W74-14651
- HANIAN, D.
Role of thermoenergetic research in saving fuel
02 p0062 W74-17663
- HANINOV, T.
Reduction of diesel engine exhaust noise in the petroleum mining industry
03 p0116 W74-28388
- HANSTON, C. H.
Electrode studies and recent results of nonequilibrium MHD generator experiments
03 p0097 A74-37624
- Closed cycle MHD for central station power with fossil or nuclear fuels
[AD-766500] 01 p0012 W74-10949
- HARTIN, A. E.
Physical behaviour of some biowaste gases in an ion engine
[AIAA PAPER 73-1113] 01 p0001 A74-10691
- HARTIN, C.
Actual state of French technical developments concerning sources of space power
01 p0002 A74-12794
- HARTIN, J.
Partial results concerning CdS solar cells
02 p0038 A74-24914
- HARTINI, C.
The measurement of large wind energy generators
[NASA-TT-F-15433] 03 p0104 W74-22703
- HARTINUSSE, S.
Terrestrial utilization of CdS-Cu₂S solar photocells in the south of France
02 p0038 A74-24915
- HASHFIELD, P.
Fuel state - Expensive
03 p0092 A74-35496
- HASTBS, R. W.
Terrestrial applications of solar cell powered systems
03 p0089 A74-34405
- HATVEY, V. P.
Effect of series resistance on the illuminating efficiency and optimal thickness of the alloyed layer of silicon photocells
03 p0087 A74-34099
- HAYBODIN-TANABIC, H.
Fuel cells with the fuel dissolved in the electrolyte
03 p0084 A74-30529
- HAYNE, E.
The large scale wind driven electrical generating station
[NASA-TT-F-15313] 02 p0046 W74-15750
- HAYWARD, O. H.
Feasibility study of a satellite solar power station
[NASA-CR-2357] 02 p0063 W74-17784
- HASZINA, P. K.
Trends of energy use in California and the south coast air basin
[EQL-NEBO-6] 03 p0103 W74-22592
- HASZINS, G. A.
The use of FEP Teflon in solar cell cover technology
[NASA-TM-X-71485] 01 p0012 W74-10944
- HCCLOBER, P. T.
California's electricity guaranty. 3: Slowing the growth rate
[H-1116-WSP/CSA] 02 p0054 W74-16680
- HCCBACHER, S.
Bucket rotor wind-driven generator
02 p0057 W74-16776
- HCCULLOCH, W. H.
Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 W74-16810
- HCCULLOCH, T. H.
Oil and gas
01 p0029 W74-15259
- HCDONALD, S. L.
Environmental protection and long run supply of crude oil in the United States
02 p0052 W74-16661
- HCGRE, D. A.
Balancing the demand and supply of electricity and nuclear fuels
02 p0052 W74-16659
- HCGUIRE, E. F.
Use of western coal and air water quality control by Minnesota Power and Light Company
03 p0116 W74-28024
- HCHER, H. H.
Thermal control range associated with heat pipe cycling
03 p0092 A74-36232
- HCKIE, J. W.
Balancing the demand and supply of oil
02 p0052 W74-16656
- HCLABE, R. C.
Energy management display
03 p0090 A74-34844
- HCHICHAEL, F.
Solar sea power
[PB-228068/3] 03 p0110 W74-26519
- HCHILLER, D. F.
Pollution-free electrochemical power generation from low grade coal
[PB-228006/3] 03 p0114 W74-27543
- HCHURSTY, G. J.
Interdisciplinary applications and interpretations of HETS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
[A74-10061] 01 p0013 W74-11182
- HCHAB, I. H.
Ionisation, recombination and voltage drop measurements in a closed cycle MPD generator
03 p0096 A74-37622
- HCHAHARA, J. H.
The fuel crisis and the controller
02 p0034 A74-19726
- HCOUAT, R. F.
Schottky-barrier solar-cell calculations
02 p0035 A74-21028
- HCVAY, D. E.
The 1.5-kW fuel cell powerplant catalyst investigation
[AD-774274] 02 p0081 W74-20710
- HCHER, D.
Design and modeling of the gas flow system for a compact 10 MW MHD generator system
03 p0095 A74-37606
- HCHIN, S. A.
Two-dimensional electric fields in MHD-generator channels - Optimum loading circuits
03 p0095 A74-37608
- HCHVEDRY, Y.
And what if we were to switch to hydrogen?
[LA-TM-73-40] 02 p0072 W74-18729
- HCHSHEUNG, H.
Supersonic fuels from medium oils produced by the thermal cracking of crude oil residues
[DPVLE-SOHDH-301] 01 p0006 A74-18925
- HCHSHER, E. P.
Energy self-sufficiency - An economic evaluation
03 p0085 A74-31446
- HCHBUTTEY, L. A.
The prospects for MHD power plants in power engineering
[JPRS-62139] 03 p0110 W74-26774
- HCHRICK, R. H.
Design, evaluation and reconaedation effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy
[NASA-CR-120277] 03 p0119 W74-28536
- HCHILL, S. W.
Fluid power for aircraft: Modern hydraulic technology /2nd edition/
02 p0036 A74-23376

- NETHA, K. C.**
Study of the effect of dilution on the lubricity of hydrotreated jet engine fuels
03 p0085 A74-32600
- NEUBER, R.-B.**
Characteristics and applications of the solar furnaces of the Central Laboratory of Armasent
02 p0034 A74-19559
- NEYER, G. W.**
Progress in the utilization of wind power
[NASA-TT-P-15346] 02 p0046 A74-15753
- NEYER, B.**
The use of paper honeycomb for prototype blade construction for small to medium-sized wind driven generators
02 p0056 A74-16770
- NIKO, R. J.**
Experimental reel response system for high performance simplified aerial refueling store
[AD-771389] 02 p0064 A74-17799
- NIJLIER, R. D.**
Liquefaction of lignite with carbon monoxide and water
03 p0115 A74-28023
- NILOVANOY, A. F.**
The optimisation of silicon photocell operated in conjunction with solar radiation concentrators
02 p0037 A74-24906
- NISBERG, R. V.**
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 A74-29207
- NITCHEN, B.**
Electron vibrational energy transfer under EHD combustion generator conditions
03 p0095 A74-37612
- NIKITIAN, A. A.**
On the theory of alternating-current electrofluiddynamic converters
01 p0007 A74-18988
- NOCKOVICH, J., JR.**
Solar power for our nation
01 p0004 A74-14465
- NOFFITT, J. V.**
Performance of Aray engines with leaded and unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 A74-17523
- NOIS, B. W.**
A preliminary engineering design of a 'Venetian blind' direct energy converter for fusion reactors
03 p0087 A74-34093
- NOON, B. G.**
Fuel system requirements for small gas turbine engines
[SAE PAPER 740381] 03 p0083 A74-28746
- NOON, W. C.**
Terrestrial applications of solar cell powered systems
03 p0089 A74-34405
- NOOS, W. E.**
Energy trends and their future effects upon transportation
[P-5046] 01 p0017 A74-11791
Energy policy research and the State of Florida
[P-5078] 01 p0026 A74-14684
A methodology for projecting the electrical energy demand of the manufacturing sector in California
[R-991-NSP/CSRA] 02 p0053 A74-16673
A methodology for projecting the electrical energy demand of the commercial sector in California
[R-1106-NSP/CSRA] 02 p0054 A74-16679
- NOBLEY, L. A.**
Evaluation of mine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses
[PB-225476/1] 03 p0115 A74-27918
- NOHRIS, D. E.**
Energy demand and its effect on the environment
[P-5048] 01 p0017 A74-11790
Energy conservation in public and commercial buildings
[P-5093] 02 p0054 A74-16677
- NOHRIS, J. P.**
Figure-of-merit calculation methods for organic heat-pipe fluids
[NASA-TN-X-2945] 01 p0015 A74-11736
- NOUSE, P. H.**
Conclusions and recommendations of the United States Solar Energy Panel
02 p0040 A74-24941
The NSF/BAW Photovoltaic Energy Conversion Program
03 p0089 A74-34404
NSF presentation
02 p0059 A74-16794
- NOSES, C. A.**
Performance of Army engines with leaded and unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 A74-17523
Installation of turbine-fuels research combustor laboratory
[AD-772945] 02 p0073 A74-18897
- NOSEN, C. A.**
Where there is a wind, there is a way
02 p0055 A74-16763
- NOTTE, C.**
Analysis and improvement of silicon solar cells
02 p0037 A74-24905
- NOTTE, S.**
Analysis and improvement of silicon solar cells
02 p0037 A74-24905
Partial results concerning CDS solar cells
02 p0038 A74-24914
Description and interpretation of the results observed concerning the technological solar cell satellite
02 p0039 A74-24929
- NOUGHTON, L. A.**
The implications for air transportation of energy shortage
02 p0033 A74-19486
- NOY, C. C.**
A methodology for projecting the electrical energy demand of the manufacturing sector in California
[R-991-NSP/CSRA] 02 p0053 A74-16673
A methodology for projecting the electrical energy demand of the commercial sector in California
[R-1106-NSP/CSRA] 02 p0054 A74-16679
- NUCHNIK, G. F.**
Prospects and scientific problems of the application of methods of the application of methods of direct electrical power acquisition from chemical fuels
[AD-776734] 03 p0107 A74-25625
- NUFFLER, L. J. F.**
Geothermal resources
01 p0028 A74-15240
Classification of public lands valuable for geothermal steam and associated geothermal resources
[CIBC-647] 02 p0049 A74-16049
- NUSTENBUCH, H.**
Design study of superconducting 5 tesla dipole magnets for HGD generators
[IFP-IV-53] 02 p0067 A74-18328
- NUROI, W.**
Investigation of silicon photoelectric cells as precision photodetectors
[NRC-TT-1686] 01 p0010 A74-10199
- NUSEY, J. E.**
A new view of solar energy
02 p0050 A74-16514
- NURRAY, D. O.**
Development program for a liquid methane heat pipe
01 p0003 A74-14046
- NURRAY, H.**
A hydrogen energy carrier. Volume 1: Summary
[NASA-CR-134175] 01 p0014 A74-11727
A hydrogen energy carrier. Volume 2: Systems analysis
[NASA-CR-134176] 01 p0014 A74-11728
- NURBELL, R. J.**
Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TRAC rotor)
[AD-771537] 02 p0044 A74-17764
- NUSATOV, B. A.**
Effect of dry friction on the response to a symmetric harmonic signal of an energy converter producing mechanical energy
02 p0034 A74-20067
- MUSLIN, B.**
And what if we were to switch to hydrogen?
[LA-TN-73-40] 02 p0072 A74-18729

- HUTCH, J. J.
The potential for energy conservation in
commercial air transport
[R-1360-MSF] 02 p0070 W74-18606
Transportation energy use in the United States: A
statistical history, 1955 - 1971
[R-1391-MSF] 02 p0070 W74-18607
Coping with the fuel shortage: A guide for Los
Angeles residents
[P-5154] 02 p0080 W74-20622
BYTTON, R. J.
The present potential of Cds solar cells as a
future contender for photovoltaic space and
terrestrial power applications 02 p0038 A74-24911

N

- NAUDY, A. W.
Study of the effect of dilution on the lubricity
of hydrotreated jet engine fuels 03 p0085 A74-32600
NABANG, J. E.
Study of the effect of dilution on the lubricity
of hydrotreated jet engine fuels 03 p0085 A74-32600
NEDOSPASOV, A. V.
Experience from the first stage of development of
the U-25 installation
[JPRS-62129] 03 p0110 W74-26775
NELSON, V.
Need for a regional wind survey 02 p0055 W74-16764
NESTEROV, B. P.
Direct energy conversion methods
[AD-770000] 02 p0061 W74-16816
NGUYEN-DUY, T.
Analysis and improvement of silicon solar cells
02 p0037 A74-24905
New technology for Cds-Cu2S solar
cells of high
reliability 02 p0038 A74-24910
NICHOLS, L. D.
H2-O2 combustion powered steam-MHD central power
systems 02 p0042 A74-27775
NASA Lewis H2-O2 MHD program 03 p0095 A74-37611
Closed cycle MHD power generation
the NASA Lewis facility 03 p0097 A74-37625
H2-O2 combustion powered steam-MHD central power
systems
[NASA-TN-X-71512] 02 p0060 W74-16800
NASA Lewis H2-O2 MHD program
[NASA-TN-X-71520] 02 p0076 W74-19697
NICHOLS, H. A.
Minimum time and minimum fuel flight path
sensitivity 03 p0086 A74-33811
Sensitivity of suboptimal fixed-range flight paths
[AIAA PAPER 74-813] 03 p0097 A74-37822
NIEDEBAUER, G. F.
Development concept for a small, split-core,
heat-pipe-cooled nuclear reactor
[NASA-TN-X-2996] 02 p0078 W74-20238
NIELSEN, E. V.
Report of the Wind Power Committee of 1962
[NASA-TT-P-15442] 02 p0078 W74-19710
NIKOLAEV, A. V.
Heating of a substance by an arc plasma
01 p0001 A74-10463
NINHO, R. A.
KIVA-I MHD generator modifications and tests
[AD-770063] 02 p0060 W74-16815
NIXON, R.
National energy policy for meeting US energy
requirements 02 p0079 W74-20613
NIXON, W. E.
An introduction to the Princeton sailing windmill
02 p0056 W74-16769
NOEL, J. B.
French wind generator systems 02 p0059 W74-16793

- NOLAN, J. J.
Development of design criteria, cost estimates,
and schedules for an MHD high performance
demonstration experiment
[AD-766232] 01 p0017 W74-11852
NOMURA, O.
Effect of plasma injection on cold wall type MHD
generator 03 p0091 A74-35276
NORWOOD, G. A.
Energy research and development: A selected
reading list
[ORNL-RIS-73-65-RIV-1] 01 p0022 W74-12695
Energy research and development: A selected
reading list
[ORNL-RIS-73-65] 02 p0080 W74-20627
NUCKOLLS, J.
Fusion power by laser implosion 03 p0085 A74-31574
NUTT, R. V.
Proceedings of Workshop on Navy Alternate Energy
Sources Research and Development
[AD-773746] 02 p0078 W74-19717

O

- ODGENS, J.
Modelling of combustors - The effects of ambient
conditions upon performance 02 p0040 A74-25217
OLDRIEVE, R. E.
Evaluation of alloys and coatings for use in
automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 W74-28990
OLHARY, J. F.
Environmental issues and institutional arrangements
02 p0069 W74-18595
OLIVER, D. A.
Electron nonequilibrium in open-cycle MHD generators
03 p0083 A74-28957
Nonlinear stability of magnetohydrodynamic
generators
[AIAA PAPER 74-507] 03 p0096 A74-33106
The time dependent magnetohydrodynamic generator
03 p0096 A74-37615
OLSON, J. C.
Nuclear fuels: Thorium 01 p0029 W74-15258
OHAN, R. A.
Advantages of the diffuser-augmented wind turbine
02 p0057 W74-16775
OHARA, I.
Fuel cells with the fuel dissolved in the
electrolyte 03 p0084 A74-30529
OPJOEDEN, R. E.
High voltage solar cell power generating system
03 p0088 A74-34387
ORBISTON, R. A.
Rotor dynamic considerations for large wind power
generator systems 02 p0056 W74-16772
OSTAD-HOSSSEINI, A.
Solar heat utilization in residential heating
systems 01 p0019 W74-12664
OVERBERRY, U. K., JR.
Directional properties of coal and their
utilization in underground gasification
experiments
[BN-TPR-73] 01 p0018 W74-12159
OZAWA, Y.
The effect of magnetic field upon the output
performance of segmented-open type MHD generator
03 p0095 A74-37609

P

- PADALKO, L. P.
Mathematical methods of optimal planning
development and use of energy systems
[JPRS-60546] 01 p0022 W74-12693
PALZ, W.
Actual state of French technical developments
concerning sources of space power
01 p0002 A74-12794
Photo-electric generators
02 p0036 A74-23842

- Results and future prospects on photovoltaic power development in France
02 p0037 A74-24904
- Analysis and improvement of silicon solar cells
02 p0037 A74-24905
- New technology for CdS-Cu₂S solar cells of high reliability
02 p0038 A74-24910
- Power sources
03 p0084 A74-29949
- PANCHENKO, V. P.
Qualitative analysis of the efficiency of MHD energy conversion
01 p0003 A74-13944
- PANERO, E. B.
Context of the session theme, international issues
02 p0068 A74-18584
- PAPPAGEORGIS, J. G.
The US energy crisis, the multinational oil corporations and their relationship to US foreign policy in the Middle East
[AD-76C868]
02 p0055 A74-16697
- PARNSTEIN, R. B.
Power source quality
01 p0019 A74-12635
- PARTAIN, L.
Effect of shading on CdS/Cu(x)S solar cells and optimal solar array design
[PB-227900/8]
03 p0110 A74-26522
- PARTAIN, L. D.
Reliability of low-cost CdS/Cu₂S solar cells
03 p0084 A74-29823
- PASHKOV, S. A.
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
- Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator
[JPRS-61359]
02 p0071 A74-18723
- Experience from the first stage of development of the U-25 installation
[JPRS-62129]
03 p0110 A74-26775
- PASICHENYI, V. V.
Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 A74-28005
- PASINI, J., III
Directional properties of coal and their utilization in underground gasification experiments
[BM-TPR-73]
01 p0018 A74-12159
- PATIL, N. B.
Optimal control of sulfur dioxide emissions at power stations: Models and a case study
[AD-775392]
03 p0102 A74-22292
- PATTERSON, B. E.
Utilization of space technology for terrestrial solar power applications
03 p0092 A74-36226
- PATTERSON, S. O.
Ultra-deep drilling for geothermals
[AD-774108]
03 p0102 A74-22074
- PAWLOWSKI, P.
A novel method of cooling semiconductor devices for power electronics
[BMET-PET-02]
01 p0015 A74-11739
- PEASEMAN, B.
Nickel-zinc cells with non-sintered electrodes
02 p0035 A74-20631
- PECK, D. L.
Assessment of geothermal energy resources
01 p0030 A74-15661
- PENNERWELL, J. D.
Applicability of Skylab remote sensing for detection and monitoring of surface mining activities
[E74-10160]
01 p0024 A74-14028
- Applicability of Skylab remote sensing for detection and monitoring of surface mining activities
[E74-10572]
03 p0121 A74-28816
- PERALTA, B.
The refining of turbine fuels by modern hydrotreating
[AIAA PAPER 74-162]
01 p0006 A74-18798
- PERRY, R. P.
Electrohydrodynamic heat pipe experiments
03 p0084 A74-29335
- PERSHING, D. W.
Proceedings, Coal Combustion Seminar
[PB-224210/5GA]
02 p0051 A74-15627
- PESCHKE, W.
Energy supply and energy transformers in satellites and spacecraft
01 p0006 A74-18189
- PETRESCU, G. W.
Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
[E74-10061]
01 p0013 A74-11182
- PETTERSON, J. T.
Applications of meteorology to natural resource planning
01 p0014 A74-11395
- PETERSON, R. E.
Application and durability of solar absorber coatings
[AD-769449]
02 p0049 A74-16264
- PETRICK, W.
Boundary layer control in two-phase liquid-metal MHD generators
03 p0096 A74-37620
- PETROSYANTS, A. M.
Self-contained low power atomic plants
[AD-766969]
01 p0014 A74-11519
- From scientific research to the atomic industry
[JPRS-60584]
01 p0023 A74-13428
- PETTICREW, R. W.
Exploratory development of a glass ceramic automobile thermal reactor
[NASA-CR-134513]
01 p0019 A74-12447
- PETTIJOHN, W. A.
Automated strip-mine and reclamation mapping from ERTS
[E74-10490]
03 p0101 A74-22014
- PEZZANI, G.
Airports evolution and qualification
02 p0033 A74-19481
- PFISTERER, P.
On inhomogeneities of thin film solar cells
02 p0039 A74-24918
- PHEN, R. L.
Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 1: Summary
[NASA-CR-136197]
01 p0023 A74-13466
- Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 2: Appendixes
[NASA-CR-136198]
01 p0023 A74-13467
- PHILLIPS, E. C.
Method of forming a wick for a heat pipe
[NASA-CASE-MPO-13391-1]
02 p0074 A74-19584
- PHILLIPS, J. R.
Performance tests of gravity-assist heat pipes with screen-wick structures
[AIAA PAPER 74-723]
03 p0092 A74-35954
- PICHARD, G.
New technology for CdS-Cu₂S solar cells of high reliability
02 p0038 A74-24910
- PICHAUD, F. D.
Method of calculation of annual overall efficiency of modern wind-power plants
[NASA-TT-F-15310]
02 p0046 A74-15748
- PIDGE, E.
Characteristic lines (yearly permanent level lines) and characteristic wind variables for wind energy production
[NASA-TT-F-15354]
02 p0046 A74-15747
- Antenna towers as wind tower generation plants
[NASA-TT-F-15304]
02 p0047 A74-15763
- PINKHASIK, D. S.
Experience from the first stage of development of the U-25 installation
[JPRS-62129]
03 p0110 A74-26775
- PINO, L.
Experimental reel response system for high performance simplified aerial refueling store
[AD-771389]
02 p0064 A74-17799
- PISHCHIKOV, S. I.
Experience from the first stage of development of the U-25 installation
[JPRS-62129]
03 p0110 A74-26775

R

PITMAN, J. K.
Oil shale 01 p0029 N74-15260

PITTINGER, L. C.
Experimental two-phase liquid-metal
magnetohydrodynamic generator program
[AD-766588] 01 p0013 N74-10952

PIVKO, S.
Complete mechanical energy utilization in
aeronautical propulsion systems 02 p0042 A74-27611

PLANTS, K. D.
An economic evaluation of MHD-steam powerplants
employing coal gasification
[BM-BI-7796] 02 p0051 N74-16620

PLOTKIN, S. E.
Energy conservation strategies
[PB-224493/7GA] 02 p0064 N74-17800

POE, P. A.
Cost effectiveness of tungsten carbide-carbon fuel
cells
[NASA-TT-F-15748] 03 p0120 N74-28543

POEL, P. A.
Cost efficiency of tungsten carbide-carbon fuel
cells 02 p0036 A74-24054
Calculation and comparison of the economy of
electrochemical fuel cells
[N7C-74-11868] 03 p0108 N74-26496

POLIBDOV, V. V.
The motion of a conducting piston in a channel
with variable inductance 02 p0036 A74-22279

PONOMAREV, V. M.
Two-dimensional electric fields in MHD-generator
channels - Optimum loading circuits 03 p0095 A74-37608

POPE, B. B.
Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 N74-16810

POPOVICI, T.
Role of thermoenergetic research in saving fuel
02 p0062 N74-17663

PORTER, J. L.
Flight/propulsion control integration aspects of
energy management
[SAB PAPER 740480] 03 p0090 A74-34978

POWE, R. E.
Technical feasibility study for the development of
a large capacity wind powered electrical
generating system 02 p0059 N74-16791

POWELL, J. R.
Survey of large-scale applications of
superconductivity
[BNL-18376] 03 p0117 N74-28205

PRABHU, V. D.
Investigation of energy conversion in rapidly
cycling fuel cells, 1. A system for studying
the surface diffusion of hydrogen on metals, 2
02 p0071 N74-18720

PREDECHESKII, G.
By-pass engines
[AD-772723] 02 p0074 N74-19413

PROKOP'EV, V. M.
Effect of dry friction on the response to a
symmetric harmonic signal of an energy converter
producing mechanical energy 02 p0034 A74-20067

PRUITT, V. B.
Flight/propulsion control integration aspects of
energy management
[SAB PAPER 740480] 03 p0090 A74-34978

FSCHEUNER, H.
Technology and performance characteristics of
integral diode solar cells 02 p0038 A74-24908

FUCHKOV, B. G.
Commercial petroleum products, properties and
applications
[AD-754703] 01 p0010 N74-10128

FULFEBY, D. L.
Schottky-barrier solar-cell calculations
02 p0035 A74-21028

PULLIN, D. A. W.
High energy radiography - A new technique in the
development of efficiency and integrity in aero
gas-turbine engines 02 p0035 A74-21316

RAAB, B.
Solar vs. nuclear power - Is there a choice
[AIAA PAPER 74-489] 02 p0043 A74-27833

RABENHORN, D. W.
Superflywheel energy storage system 02 p0058 N74-16783
Design considerations for a
100-megajoule/500-megawatt superflywheel
[AD-774736] 02 p0081 N74-20709

RARDEN, J.
Effect of finite chemical reaction rates on heat
transfer to the walls of combustion-driven
supersonic MHD generator channels 02 p0036 A74-23221

RAHFUSE, R. V.
Noncaking coal gasified in a stirred-bed producer
[BM-TPR-77] 02 p0073 N74-19117

RAIBLE, C. J.
The association of automotive fuel composition
with exhaust reactivity
[PB-222609/0] 01 p0010 N74-10129

RALLS, W. B.
Conservation and efficient use of energy: A state
regulator's view 03 p0100 N74-21686

RALPH, E. L.
Feasibility study of a satellite solar power station
[NASA-CR-2357] 02 p0063 N74-17784

RANNEY, J. W.
Application and durability of solar absorber
coatings
[AD-769449] 02 p0049 N74-16264

RANKIN, W. A.
Performance tests of gravity-assist heat pipes
with screen-wick structures
[AIAA PAPER 74-723] 03 p0092 A74-35954

RATAJCEK, A. F.
Status of FEP encapsulated solar cell modules used
in terrestrial applications
[NASA-TN-X-71564] 03 p0109 N74-26508

RAVIN, J. W.
Terrestrial applications of solar cell powered
systems 03 p0089 A74-34405
Study terrestrial applications of solar cell
powered systems
[NASA-CR-134512] 03 p0100 N74-21685

RAY, D. L.
Nation's energy future
[NASA-1281] 03 p0119 N74-28465

RECK, R. O.
Energy conservation strategies
[PB-224493/7GA] 02 p0064 N74-17800

REDMAN, F. W.
Pilot study of electrostatic precipitation for
removing fly ash at Basin Electric's Leland Olds
Station 03 p0116 N74-28029

REED, L. E.
Automated strip-mine and reclamation mapping from
ERTS
[E74-10490] 03 p0101 N74-22014

REINHART, K. K.
The ESTEC technology programme in solar energy
conversion 02 p0037 A74-24902

REINIG, L. F.
Some interfaces in resource utilization
[LA-UR-73-570] 01 p0022 N74-12696

REITAN, D. K.
Wind-powered asynchronous AC/DC/AC converter system
02 p0037 N74-16777

REHAUD, A.
Helicopter applications at sea 02 p0034 A74-19690

REUPKE, W. A.
Comparative evaluation of solar, fission, fusion,
and fossil energy resources, part 3
[NASA-CR-138117] 03 p0103 N74-22590

REVESZ, A. G.
Vitreous oxide antireflection films in
high-efficiency solar cells 01 p0004 A74-14250
Vitreous oxide antireflection films in
high-efficiency solar cells 03 p0089 A74-34396

- RICHARDSON, B. L.**
The refining of turbine fuels by modern
hydrotreating
[AIAA PAPER 74-162] 01 p0006 A74-18798
- RIFTJENS, L. M. T.**
Results of the Eindhoven EHD shocktunnel experiment
03 p0097 A74-37623
- RILEY, T. J.**
The multiple junction edge illuminated solar cell
03 p0089 A74-34398
The multiple junction edge illuminated solar cell
[NASA-TN-X-71476] 01 p0012 A74-10947
- RIONDAN, R. M.**
Vapor generator feed pump for Rankine cycle
automotive propulsion system (Chandler Evans)
[PB-222849/2] 01 p0011 A74-10747
- RIOUX, C.**
Description of the energy source project
delivering 1 megajoule in 1 microsecond
[LFP-3] 02 p0061 A74-17454
- RIOUX, R. L.**
Classification of public lands valuable for
geothermal steam and associated geothermal
resources
[CIRC-647] 02 p0049 A74-16049
- ROBERT, J.**
Study of a bi-phase D.C. M.M.D. generator using a
new motion system
03 p0096 A74-37618
- ROBERTS, E.**
Man versus his institutions
02 p0070 A74-18603
- ROBERTS, M.**
Mechanisms for achieving cleaner power, prices,
regulations
02 p0069 A74-18596
- ROBERTS, B. W.**
The energy complex: Target for today's technology
03 p0108 A74-26409
- ROBINSON, J.**
Evolution of studies in the field of gas lasers
01 p0005 A74-16909
- ROBINSON, U. E.**
Thermal degradation of Green River kerogen at 150
to 350 C
[BM-XI-7924] 03 p0121 A74-28652
- ROBSON, G. B.**
Geothermal electricity production
02 p0042 A74-27321
- RODOT, B.**
Current prospects for solar cells
02 p0040 A74-24943
- ROHMISCH, B.**
Technological problems with large-area solar cell
arrays
[DGLR PAPER 73-107] 01 p0005 A74-17204
- ROGERS, J.**
Evaluation of ohmic losses in solar cells and array
03 p0089 A74-34416
- ROGERS, J. D.**
Design options and tradeoffs in superconducting
magnetic energy storage with irreversible
switching
[LA-UR-73-910] 02 p0074 A74-19375
- ROGERS, B. E.**
Automated strip-mine and reclamation mapping from
ERTS
[E74-10490] 03 p0101 A74-22014
- ROGUE, B.**
New wind power station
[NASA-TT-P-15332] 02 p0048 A74-15767
- ROISES, A.**
Analysis and improvement of silicon solar cells
02 p0037 A74-24905
- ROM, P. R.**
Summary of the study of disposal of nuclear waste
into space
01 p0005 A74-16123
Assessment of lightweight mobile nuclear power
systems
01 p0006 A74-17813
Solar energy to meet the nation's energy needs
03 p0084 A74-30105
Solar energy to meet the nation's energy needs
[NASA-TN-X-68290] 01 p0011 A74-10754
- ROSA, R. J.**
Satellite nuclear power station: An engineering
analysis
01 p0002 A74-13234
- ROSE, D. J.**
Nuclear eclectic power
02 p0041 A74-27320
- ROSSANO, A. T.**
A critical review of mathematical diffusion
modeling techniques for predicting air quality
with relation to motor vehicle transportation
[PB-224656/9GA] 02 p0066 A74-18304
- ROSSILLER, G.**
Wind-power supply for the decimeter range
directional radio site at Schoeneberg (Bifel)
and the experience gained
[NASA-TT-P-15337] 02 p0048 A74-15768
- ROTHFUS, B.**
Solar sea power
[PB-228068/3] 03 p0110 A74-26519
- ROUX, M.**
Energy: Compiled bibliography and tables of world
resources, consumption, and wastes
[LFP-63/73] 01 p0010 A74-10391
- RUDIGER, B. W.**
Lignite and the cyclone burner in a new 235-mw
generating station
03 p0116 A74-28031
- RUMMANN, H.**
Process design considerations in cryogenic
hydrogen recovery plants
03 p0086 A74-33993
- RUSSELL, J. A.**
Performance of Army engines with leaded and
unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 A74-17523
- RUSSELL, O. E.**
Study of application of ERTS-A imagery to
fracture-related mine safety hazards in the coal
mining industry
[E74-10083] 01 p0014 A74-11195
Application of ERTS-1 imagery to fracture related
mine safety hazards in the coal mining industry
[E74-10238] 02 p0049 A74-16007
Application of EREP imagery to fracture-related
mine safety hazards and environmental problems
in mining
[E74-10258] 02 p0049 A74-16019
Study of application of ERTS-A imagery to
fracture-related mine safety hazards in the coal
mining industry
[E74-10336] 02 p0065 A74-18012
- RYDMAN, V. I.**
Direct energy conversion methods
[AD-770000] 02 p0061 A74-16816

S

- SABLES, B. E.**
Ultra-deep drilling for geothermals
[AD-774108] 03 p0102 A74-22014
- SAPPEN, M. M.**
Heat operated cryogenic electrical generator
[NASA-CAS8-WPO-13303-1] 02 p0077 A74-19701
- SAILOR, V. L.**
Hydrogen economy
[BNL-18224] 02 p0060 A74-16809
- SAKISAKA, S.**
Energy demand in Japan, 1975 to 1985
02 p0069 A74-18600
- SALLER, G. P.**
Performance versus cost tradeoffs - Initial look
at alternatives
[SAE PAPER 740494] 03 p0090 A74-34989
Economic effects of propulsion system technology
on existing and future transport aircraft
[NASA-CR-134645] 03 p0117 A74-28230
- SALLIS, Y.**
Photosensitive elements for solar sensors
01 p0005 A74-17296
Solar generators for sounding balloons
02 p0040 A74-24940
- SALTER, R. G.**
Energy conservation in public and commercial
buildings
[P-5093] 02 p0054 A74-16677
- SANS, B. W.**
Refan program. Phase 1: Summary report
[NASA-TN-X-71456] 01 p0009 A74-10043
- SAMUELS, G.**
Isotope kilowatt program
[ORNL-TN-4243] 01 p0025 A74-14377

- SATER, B. I.
The multiple junction edge illuminated solar cell
[NASA-TN-X-71476] 01 p0012 N74-10947
- SATER, B. I.
The multiple junction edge illuminated solar cell
03 p0089 A74-34398
- SAUER, T.
Wind power plants in Russia
[NASA-TT-F-15331] 02 p0045 N74-15743
- SAUNDERS, D. F.
ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of the commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[N74-10007] 01 p0013 N74-11148
ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[N74-10345] 02 p0082 N74-20948
- SAVAGE, B. L.
A hydrogen energy carrier. Volume 1: Summary
[NASA-CR-134175] 01 p0014 N74-11727
A hydrogen energy carrier. Volume 2: Systems
analysis
[NASA-CR-134176] 01 p0014 N74-11728
- SAVINO, J. E.
Status of wind-energy conversion
02 p0042 A74-27772
Wind energy conversion systems
[NASA-TN-X-69786] 02 p0055 N74-16757
Status of wind-energy conversion
[NASA-TN-X-71523] 02 p0077 N74-19705
- SASATSKY, D. L.
Geologic information from satellite images
[N74-10507] 03 p0104 N74-22954
- SAUTER, E. F.
The hydrogen fuel economy and aircraft propulsion
[AIAA PAPER 73-1319] 01 p0006 A74-17905
- SAYED, M.
Effect of shading on CdS/Cu(x)S solar cells and
optimal solar array design
[PB-227900/8] 03 p0110 N74-26522
- SAYED, M. S.
Reliability of low-cost CdS/Cu2S solar cells
03 p0084 A74-29823
- SCARLETT, J. J.
Air transport in Europe - Commercial trends and
prospects
03 p0093 A74-36327
- SCHIEBER, D.
Direct energy conversion by means of solar cells
02 p0040 A74-24937
- SCHMIDT, M. J.
Development of design criteria, cost estimates,
and schedules for an MHD high performance
demonstration experiment
[AD-766232] 01 p0017 N74-11852
- SCHMIDT, W.
The Dolphin airship with undulating propulsion
system - A new form of the evaluation factor
02 p0035 A74-22272
Dolphin airship with undulatory-flow propulsion -
Dynamic lift
03 p0085 A74-33096
- SCHMIDT, A. S.
Elasticity of demand for gasoline in the south
coast air basin
[EQL-MEMO-10] 03 p0102 N74-22581
- SCHMIDT, S. J.
MHD effects on viscous and thermal wakes and their
influence on the performance of MHD generators
03 p0096 A74-37613
- SCHNEGER, A.
Solar generator simulation for satellite projects
02 p0041 A74-26324
- SCHUKIN, O. P.
The history of technology and engineering solutions
01 p0016 N74-11760
- SCHUTTLER, R.
Analysis and improvement of silicon solar cells
02 p0037 A74-24905
- SCHWARTZ, S.
Experimental reel response system for high
performance simplified aerial refueling store
[AD-771389] 02 p0064 N74-17799
- SCHWARTZ, S. J.
Electric vehicle battery research and development
[NASA-TN-X-71471] 01 p0012 N74-10946
- Batteries for storage of wind-generated energy
02 p0058 N74-16784
- SCHWEINPURT, S. P.
Energy resources of the United States
[CIRC-650] 01 p0031 N74-15685
Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614
- SCHWEPP, F. C.
Modeling of electric power demand growth
[PB-224045/5GA] 02 p0054 N74-16690
- SEDERSTROM, D. C.
Energy management display
03 p0090 A74-34844
F-14 optimum flight modes, volume 1
[AD-775246] 03 p0099 N74-21665
- SEIDEL, G. R.
Small wind-electrical installations for export
[NASA-TT-F-15350] 02 p0048 N74-15770
- SEIDEL, E. R.
Energy conservation strategies
[PB-224493/7GA] 02 p0064 N74-17800
- SEIKEL, G. R.
H2-O2 combustion powered steam-MHD central power
systems
02 p0042 A74-27775
NASA Lewis H2-O2 MHD program
03 p0095 A74-37611
H2-O2 combustion powered steam-MHD central power
systems
[NASA-TN-X-71512] 02 p0060 N74-16800
Light bulb heat exchanger for magnetohydrodynamic
generator applications - Preliminary evaluation
[NASA-TN-D-7534] 02 p0067 N74-18557
NASA Lewis H2-O2 MHD program
[NASA-TN-X-71520] 02 p0076 N74-19697
- SEILINGER, D. E.
Oxygenates in automotive exhausts. Effect of an
oxidation catalyst
[PB-227097/3] 03 p0105 N74-23190
- SEKINO, S.
Studies of heat resistant materials for
high-temperature gas reactor
[NASA-TT-F-15576] 03 p0102 N74-22312
- SEKOTOV, V. E.
Using the energy of the wind for electrification
[NASA-TT-F-15307] 02 p0060 N74-16801
The present state of planning and erection of
large experimental wind-power stations
[NASA-TT-F-15512] 03 p0099 N74-21678
Operating conditions and types of wind-power
electric substations for rural areas
[NASA-TT-F-15517] 03 p0109 N74-26512
- SENEBA, F.
Prospects for the utilization of wind energy in
Czechoslovakia
[NASA-TT-F-15305] 02 p0048 N74-15766
- SENEBOV, V. D.
Investigation of heat exchange in an MHD generator
channel
03 p0086 A74-33565
- SENAPATHI, S. O.
Chemical Vapor deposition research for fabrication
of solar energy converters
[NSF-RANN/SE/GI-36731X/PR/73/3] 03 p0106 N74-25616
Research applied to solar-thermal power systems
03 p0108 N74-26503
- SENRAGLI, G.
Observations on modern wind-electric power plants
[NASA-TT-F-15357] 02 p0045 N74-15745
- SHABLOVSKII, V. K.
Spaceborne sources of electric power
02 p0040 A74-24986
- SHARRO, J. E.
Quantitative energy studies and models: A state
of the art review
02 p0070 N74-18623
- SCHCHIPACHEV, G. I.
Rapid group analysis of directly distilled
petroleum fractions by the method of recorded
fluid-adsorption chromatography /FAC/
03 p0083 A74-29415
- SHAFER, Y. I.
Wind-powered machines
[NASA-TT-F-15149] 02 p0045 N74-15742
- SHIDLIA, A. E.
Magnetohydrodynamic method of obtaining electrical
energy (collected articles)
[AD-765933] 01 p0011 N74-10681

- SHENDELIN, A. B.**
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
Optimization of open cycle power plant MHD generator
03 p0095 A74-37610
- SHENKOV, E. B.**
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
- SHENKOV, I. B.**
Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator
[JPRS-61359] 02 p0071 A74-18723
Experience from the first stage of development of the U-25 installation
[JPRS-62129] 03 p0110 A74-26775
- SHULTON, B. B.**
Aviation turbine fuels, 1972
01 p0014 A74-11592
- SHNEPPER, K. I.**
DC generator for Kolkhov wind powered generators
[NASA-TT-P-15347] 02 p0063 A74-17786
Lines of development of rural wind power plants
[NASA-TT-P-15513] 02 p0081 A74-20701
- SHNEPPER, L. R.**
Nuclear fission as a general source of energy
03 p0090 A74-34620
- SHENKOV, E. B.**
The sail wing windmill and its adaptation for use in rural India
02 p0056 A74-16771
- SHENDELIN, A. Y.**
Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator
[JPRS-61359] 02 p0071 A74-18723
The prospects for MHD power plants in power engineering
[JPRS-62139] 03 p0110 A74-26774
Experience from the first stage of development of the U-25 installation
[JPRS-62129] 03 p0110 A74-26775
- SHIGAROV, B. A.**
Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 A74-28005
- SHINADA, K.**
Electric power generation system directly from laser power
[NASA-CASE-WFO-13308-1] 02 p0077 A74-19702
- SHIODA, S.**
Stabilization of ionization instability in an MHD generator
01 p0083 A74-28943
Effects of the development of boundary layers on a Faraday MHD generator
03 p0096 A74-37621
- SHISHKOV, E. V.**
Thermal cycle and effectiveness of a maneuverable power assembly with an MHD generator and turbogenerator
03 p0086 A74-33564
- SHISHKOV, Y. V.**
Thermal cycle and efficiency of a versatile power unit with a magnetohydrodynamic generator and thermoelectric generator
[JPRS-61359] 02 p0071 A74-18723
- SHCHERBA, B. A.**
Advanced controls for commercial transport aircraft
[SAE PAPER 740453] 03 p0091 A74-35008
- SHOHIN, S. B.**
Certain peculiarities of combustion of ballasted gases and stabilization of a flame
[AD-776731] 03 p0107 A74-26400
- SHOUFF, V. E.**
World energy and the oceans
03 p0115 A74-27827
- SHTEYNBUK, V. L.**
Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level
01 p0016 A74-11759
- SBU, H. T.**
Dynamic modeling and analysis of liquid-metal magnetohydrodynamic power systems
[AD-778757] 03 p0121 A74-28551
- SHUMYATSKII, B. IA.**
Optimization of open cycle power plant MHD generator
03 p0095 A74-37510
- SHUMYATSKII, V. I.**
Experience from the first stage of development of the U-25 installation
[JPRS-62129] 03 p0110 A74-26775
- SHVATSOV, G. A.**
The motion of a conducting piston in a channel with variable inductance
02 p0036 A74-22279
- SIDOROV, V. S.**
Experience from the first stage of development of the U-25 installation
[JPRS-62129] 03 p0110 A74-26775
- SILIN, L. L.**
State of developments and research problem on the switching of silicon germanium alloy thermoelectric elements
[AD-765845] 01 p0009 A74-10080
- SILLIN, L. P., JR.**
Major R&D programs to meet the energy crisis
02 p0069 A74-18602
- SILLS, T. D.**
An approach to aeroengine tradeoff factors
[SAE PAPER 740493] 03 p0091 A74-34990
- SIMMS, V. L.**
Optimum design of antireflection coating for silicon solar cells
03 p0089 A74-34394
- SINCOFF, M. Z.**
The energy dilemma and its impact on air transportation
[NASA-CR-135993] 01 p0015 A74-11743
- SINGER, F.**
National energy policies
02 p0069 A74-18592
- SINHA, A. K.**
Evaluation of nine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses
[PB-225476/1] 03 p0115 A74-27918
- SISOV, M. I.**
Spaceborne sources of electric power
02 p0040 A74-24986
- SKRABEK, E. A.**
Heat pipe design handbook, part 1
[NASA-CR-134264] 03 p0102 A74-22569
- SLIVIN, B.**
The assessment of an air-supported and propelled urban transport system
[CRANFIELD-CTS-1] 02 p0070 A74-18610
- SMITH, B. G., JR.**
Amphibian STOL and its facilities
[SAE PAPER 740488] 03 p0091 A74-34993
- SHIRNOV, L. P.**
Forecasting of technological progress for long-range planning of mining operations at coal mines
01 p0016 A74-11765
- SMITH, B. E.**
Smith-Putnam wind turbine experiment
02 p0055 A74-16758
- SMITH, C. B.**
California's electricity quandary. 3: Slowing the growth rate
[R-1116-NSF/CSA] 02 p0054 A74-16680
- SMITH, J. B.**
H2-O2 combustion powered steam-MHD central power systems
02 p0042 A74-27775
NASA Lewis H2-O2 MHD program
03 p0025 A74-37611
H2-O2 combustion powered steam-MHD central power systems
[NASA-TN-X-71512] 02 p0060 A74-16800
Light bulb heat exchanger for magnetohydrodynamic generator applications - Preliminary evaluation
[NASA-TN-D-7534] 02 p0067 A74-18557
- SMITH, B.**
NASA Lewis H2-O2 MHD program
[NASA-TN-X-71520] 02 p0076 A74-19697

- SMITH, H. C.
Geothermal energy
[LA-UR-73-1316] 03 p0100 W74-21689
Potential for the production of power from
geothermal resources
[LA-UR-73-926] 03 p0100 W74-21690
- SMITH, R. R.
A preliminary engineering design of a 'Venetian
blind' direct energy converter for fusion reactors
03 p0087 A74-34093
- SORENBERG, E.
Analysis of the possible use of wind power in
Sweden. Part 1: Wind power resources, theory
of wind-power machines, preliminary model 1 and
10 MW wind generators
[NASA-TT-F-15441] 02 p0077 W74-19708
- SORRELLER, B.
Investigation of the economic efficiency of
surplus tanking of aircraft fuel
03 p0085 A74-33092
- SCLACOLU, I.
Fuel cells with the fuel dissolved in the
electrolyte
03 p0084 A74-30529
- SONJU, O. R.
Design and modeling of the gas flow system for a
compact 10 MW MHD generator system
03 p0095 A74-37606
- SOVIE, R. J.
Closed cycle MHD power generation experiments in
the NASA Lewis facility
03 p0097 A74-37625
- SPARR, R. R.
Balancing the supply and demand for natural gas
02 p0052 W74-16657
- SPANO, A. R.
Fusion reactor design problems
03 p0084 A74-31213
- SPARLING, R. C.
Outlook for energy in the United States to 1985
01 p0032 W74-15697
- SPENCER, J. D.
Energy program, 1972
[EE-IC-8612] 02 p0080 W74-20619
- SPREGLER, G.
Aviation fuels and lubricants
01 p0006 A74-18180
- SPRECHER, B. F.
Method of forming a wick for a heat pipe
[NASA-CASE-WPO-13391-1] 02 p0074 W74-19584
- STAATS, B. R.
Nuclear fuels: Thorium
01 p0029 W74-15258
- STADLER, E.
Gas-heated 'heat pipe' vacuum furnace
01 02
p0034 A74-19724
- STAGGERS, B. O.
Energy Emergency Act
[H-REPT-93-793] 03 p0112 W74-27455
- STALBOTH, P. R.
Turbo-actuators turn flow into mechanical output
02 p0041 A74-27136
- STAUBER, J. B.
Optimal electrical energy growth strategies in an
era of environmental concern
02 p0080 W74-20697
- STELLE, J. D.
The policy effects analysis method: A system
dynamics simulation study of the defense fuel
supply system
[P-5129] 03 p0103 W74-22598
- STEPANCO, E.
Evaluation of mine electrical systems with respect
to safety, technology, economics, and legal
considerations. Volume 1: Text, tables and
analyses
[PB-225476/1] 03 p0115 W74-27918
- STEPANOV, B.
Photoelectric converters based on various CdS
heterojunctions
02 p0042 A74-27752
- STEIN, D.
Importance and progress of wind power utilization
in Denmark
[NASA-TT-F-15353] 02 p0045 W74-15746
Utilization of wind power in agriculture in the USSR
[NASA-TT-F-15345] 02 p0046 W74-15752
- Importance and progress of wind power utilization
in Denmark
[NASA-TT-F-15349] 02 p0046 W74-15754
The importance of and progress in the utilization
of wind power in Denmark
[NASA-TT-F-15333] 02 p0047 W74-15758
New wind power station
[NASA-TT-F-15332] 02 p0048 W74-15767
- STEIN, D. B.
Statistical summary and evaluation of
ventoselectric power station output (part 2 of 2)
[NASA-TT-F-15652] 03 p0104 W74-22708
Statistical summary and evaluation on electric
power generation from wind power stations
[NASA-TT-F-15651] 03 p0106 W74-25618
- STEINER, J.
Airline airplanes for the eighties - A response
02 p0036 A74-23464
- STEINER, J. B.
The technology and economics of commercial
airplane design. I
01 p0001 A74-10144
- STELLA, P.
Vertical multijunction solar-cell one-dimensional
analysis
03 p0086 A74-33971
- STEOVICH, V. A.
Soviet geothermal electric power engineering,
report 2
[AD-754947] 02 p0048 W74-15776
- STEWART, H. A.
PSA hydrogen plants - How well have they performed
03 p0087 A74-33994
- STIEB, B. J.
Solar and laser energy conversion with Schottky
barrier solar cells
03 p0088 A74-34370
- STODHART, A. R.
Wind data for wind driven plant
02 p0056 W74-16768
- STOFEL, E.
Spacecraft electrical power
01 p0002 A74-12201
- STOIANOV, V.
Photoelectric converters based on various CdS
heterojunctions
02 p0042 A74-27752
- STOLL, E.
Thermoelectric generators
01 p0002 A74-13448
- STONE, P. L.
Design and evaluation of experimental ceramic
automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 W74-28035
- STONE, E.
Oil shale: A clean energy source
03 p0099 W74-21676
- STONACK, H. C.
Preliminary performance appraisal of Navy V/STOL
transport and search-type airplanes using
hydrogen fuel
[NASA-TN-X-71550] 03 p0108 W74-26435
- STRAKEY, J. P., JR.
Analyses of tars, char, gases, and water found in
effluents from the synthane process
[BN-TPN-76] 02 p0049 W74-15808
- STRONBERG, R. P.
Transcript of talk on solar energy
[SLA-73-1025] 03 p0109 W74-26515
- STRUNK, V. A.
Aviation gas turbine engines (selected portions)
[AD-756810] 01 p0011 W74-10751
- STUELFAGEL, T. R.
Future of the light turbine helicopter
03 p0084 A74-29572
- STURN, G. P., JR.
The association of automotive fuel composition
with exhaust reactivity
[PB-222609/0] 01 p0010 W74-10129
- SVENDRUP, H. P.
Design of high-temperature solid-electrolyte
fuel-cell batteries for maximum power output per
unit volume
02 p0036 A74-22355
- SWEENEY, T. R.
An introduction to the Princeton sailing windmill
02 p0056 W74-16769

- SWEET, D. C.
Relevance of ERTS to the State of Ohio
[N74-10024] 01 p0013 N74-11159
- SYMONDS, E.
Capital requirements of the energy industries
02 p0052 N74-16654
- SINGO, G. C.
The U.S. energy problem. Volume 2: Appendices,
part A
[PB-207518] 01 p0017 N74-11795
The U.S. energy problem. Volume 2: Appendices,
part B
[PB-207519] 01 p0017 N74-11796
Energy storage by compressed air
02 p0058 N74-16765

T

- TALLEY, H. W., II
Manergy: An energy management model of the United
States for the prediction of energy demand,
resource consumption, environmental effects, the
assessment of new technology, and energy
resource alternatives
01 p0026 N74-14665
- TATE, B.
Electrode studies and recent results of
nonequilibrium MHD generator experiments
03 p0097 A74-37624
- TAVIP, J. E.
Process for the simultaneous utilization of
geothermal and hydrodynamic energy
[AEC-TR-7475] 02 p0072 N74-18731
- TAYLOR, B. J.
Design considerations for a
100-megajoule/500-megawatt superflywheel
[AD-774736] 02 p0081 N74-20709
- TELEGIN, G. P.
Experience from the first stage of development of
the U-25 installation
[JPBS-62129] 03 p0110 N74-26775
- TENO, J.
Design and modeling of the gas flow system for a
compact 10 MW MHD generator system
03 p0095 A74-37606
- TERABE, H.
Present air pollution situation in Kawasaki city
and future countermeasures
[KS-27] 01 p0018 N74-12321
- TERESCHENKO, Y. E.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 N74-29207
- TEREKHABABA, B. F.
The energy crisis and energy from the sun;
Proceedings of the Symposium on Solar Energy
Utilization, Washington, D.C., April 30, 1974
03 p0093 A74-36331
Data on incident solar energy
03 p0094 A74-36333
- TERRELL, P. E.
Energy resources of the United States
[CIRC-650] 01 p0031 N74-15685
Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614
- THOMAS, G.
ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of the commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[N74-10007] 01 p0013 N74-11148
- THOMAS, G. E.
ERTS-1 imagery use in reconnaissance prospecting:
Evaluation of commercial utility of ERTS-1
imagery in structural reconnaissance for
minerals and petroleum
[N74-10345] 02 p0082 N74-20948
- THOMAS, H. L.
Status of wind-energy conversion
02 p0042 A74-27772
Solar energy to meet the nation's
energy needs
03 p0084 A74-30105
Solar energy to meet the nation's
energy needs
[NASA-TN-X-68290] 01 p0011 N74-10754
NASA presentation
02 p0060 N74-16799
Status of wind-energy conversion
[NASA-TN-X-71523] 02 p0077 N74-19705
- TICHAU, E.
Process design considerations in cryogenic
hydrogen recovery plants
03 p0086 A74-31993
- TILLMAN, E. S., JR.
Hydrogen generator
[AD-767402] 01 p0024 N74-13766
- TINBERHAUS, K. D.
Cryogenic Engineering Conference, University of
Colorado, Boulder, Colo., August 9-11, 1972,
Proceedings
01 p0003 A74-14043
- TITOV, V. M.
The motion of a conducting piston in a channel
with variable inductance
02 p0036 A74-22279
- TITTINGTON, W. A.
Status and applicability of solid polymer
electrolyte technology to electrolytic hydrogen
and oxygen production
02 p0058 N74-16782
- TOMPKIN, J.
Introduction to Voigt's wind power plant
02 p0055 N74-16762
Voigt variable speed drive
02 p0057 N74-16779
- TOSH, J. D.
Performance of Army engines with leaded and
unleaded gasoline. Phase 1: Laboratory testing
[AD-766760] 02 p0061 N74-17523
- TOUSLEY, W. E., JR.
A bibliography of Congressional publications on
energy from the 89th Congress to 1 July 1971
02 p0051 N74-16642
- TREBLIN, F. C.
The RAE lightweight solar array
02 p0039 A74-24921
Solar energy conversion for spacecraft
02 p0041 A74-26817
- TROUT, A. M.
Effect of water injection on nitric oxide
emissions of a gas turbine combustor burning
natural gas fuel
[NASA-TN-X-2959] 01 p0025 N74-14651
- TRUKHOV, V. S.
Study of the effect of increased humidity on the
mirror coatings of solar energy concentrators
03 p0087 A74-34097
- TSCHECHT, B. A.
Strip-mined watershed hydrologic data acquisition
study
[PB-223558/8GA] 01 p0025 N74-14105
- TSK, A. E.
Si-Au Schottky barrier nuclear battery
[TID-26342] 01 p0017 N74-11851
- TOPOLEV, A. A.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 N74-29207
- TURCANU, C.
A model of convex programming for turbojet main
parameter selection optimization
[ASHE PAPER 74-GT-79] 02 p0042 A74-27466
- TYKVENKO, E. M.
Possibilities of the thin solar battery
applications for the terrestrial use units
02 p0038 A74-24912
- TYLER, L. D.
Fracture of coal and oil shale for in situ
processing or remote removal: A proposal
support document
[SLA-73-946] 02 p0073 N74-19047

U

- ULINICH, F. E.
Qualitative analysis of the efficiency of MHD
energy conversion
01 p0003 A74-13944
- ULINICH, F. E.
Passage of current through boundary layers
[AD-775138] 03 p0102 N74-22372
- UNAROV, G. Y.
Some results of testing of a solar water heating
installation during the heating season
[AD-754628] 02 p0048 N74-15777
- UNKEL, W.
Performance and Hall field limitation studies in
the Stanford M-8 MHD generator
03 p0095 A74-37605

V

- VANTS, J. G.
The airship can meet the energy challenge
02 p0034 A74-20166
- VALENTA, J. C.
Characterization of particulates and other
non-regulated emissions from mobile sources and
the effects of exhaust emissions control devices
on these emissions
[PB-224243/6GA] 02 p0066 A74-18294
- VANICH, U.
Vertical axis wind rotors: Status and potential
02 p0057 A74-16774
- VANREYTS, J. W.
Utilization of wind power
[NASA-TT-P-15300] 02 p0046 A74-15756
- VANIN, V. E.
Characteristics of a nonequilibrium MHD generator
01 p0005 A74-17439
- VANLEUNEN, R.
Aviation needs and public concerns
02 p0062 A74-17685
- VANLEUNEN, R.
Aviation needs and public concerns
01 p0027 A74-14749
- VASSANT, J. B.
Wind utilization in remote regions: An economic
study
02 p0058 A74-16790
- VANGL, G. E., JR.
Potential pollutants in fossil fuels
[PB-225039/7GA] 02 p0066 A74-18313
- VANGIS, P., C.
Oil exploration subprogram geological
interpretation of images provided by the ERTS-A
satellite
[NASA-TT-P-15265] 01 p0028 A74-15070
- VASILIEV, L. L.
Heat pipes
03 p0083 A74-29445
- VANPRIND, A.
Results of the Hindhoven MHD shocktunnel experiment
03 p0097 A74-37623
- VASSO, L. E.
The impact of advanced turboshaft engine
technology on T700-powered helicopter systems
[AHS PREPRINT 871] 03 p0094 A74-36606
- VESTAL, R. L.
Gasification of fossil fuels under oxidative,
reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 A74-27611
- VETBELLA, S.
The use of the pressurized balloon for detecting
energy resources
02 p0033 A74-19473
- VEXZANI, R.
Medium-capacity air motor pilot plant with
hydraulic energy accumulation by pumping
[NASA-TT-P-15299] 02 p0046 A74-15755
The utilization of the wind energy
[NASA-TT-P-15344] 02 p0048 A74-15769
- VIG, R. S.
Detailed construction and equipment costs for the
235-MW Hilton R. Young Generating Station
03 p0117 A74-28032
- VINEY, R. B.
Detecting and monitoring oil slicks with aerial
photos
03 p0085 A74-33071
- VOROB'EV, V. S.
Optimization of the power of Faraday MHD
generators operating on nonequilibrium plasma
01 p0003 A74-13943
- VOSS, A.
Approach to the holistic analysis of the system
man-energy-environment
[JUL-982-NG] 02 p0080 A74-20626
- VUL, V. E.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0122 A74-29207
- W
- WALKER, E. D., JR.
Mass transfer in fuel cells
[NASA-CR-134519] 01 p0009 A74-10075

- WALTERS, R. L.
Research on the application of satellite remote
sensing to local, state, regional, and national
programs involved with resource management and
environmental quality
[NASA-CR-136472] 01 p0024 A74-14093
- WANG, R. Y.
Optimum design of antireflection coating for
silicon solar cells
03 p0089 A74-34394
- WANG, T. G.
Heat operated cryogenic electrical generator
[NASA-CASE-MPO-13303-1] 02 p0077 A74-19701
- WANDS, C. J.
Design of high-temperature solid-electrolyte
fuel-cell batteries for maximum power output per
unit volume
02 p0036 A74-22355
- WATSON, J.
Investigation in energy transfer and energy
conversion for advanced power and propulsion
systems
[AD-771581] 02 p0067 A74-18417
- WATSON, R. D.
Quantification of the luminescence intensity of
natural materials
01 p0005 A74-14892
- WATLAND, R. G.
Classification of public lands valuable for
geothermal steam and associated geothermal
resources
[CIRC-647] 02 p0049 A74-16049
- WEART, W. D.
Fracture of coal and oil shale for in situ
processing or reate removal: A proposal
support document
[SLA-73-946] 02 p0073 A74-19047
- WEAVER, R. D.
Pollution-free electrochemical power generation
from low grade coal
[PB-228006/3] 03 p0114 A74-27543
- WEIL, R. E.
The hydrogen IC engine: Its origins and future in
the emerging energy-transportation-environment
system
[REPT-729212] 02 p0067 A74-18403
- WEISSENBORN, A. E.
Nuclear fuels: Uranium
01 p0028 A74-15257
- WEIST, G.
Investigation of the relative merits of different
power plants for STOL-aircraft with blown flap
application
02 p0078 A74-20406
- WELDON, D. E.
Design options and tradeoffs in superconducting
magnetic energy storage with irreversible
switching
[LA-UR-73-910] 02 p0074 A74-19375
- WELLSAW, P.
Oil shale: A clean energy source
03 p0099 A74-21676
- WENDER, I.
Liquefaction of lignite with carbon monoxide and
water
03 p0115 A74-28023
- WENDL, R. J.
Flight/propulsion control integration aspects of
energy management
[SAE PAPER 740480] 03 p0090 A74-34978
- WESTINK, T., JR.
Surface wind characteristics of some Aleutian
Islands
02 p0056 A74-16766
- WESTORF, R. E., JR.
Thermochemical hydrogen generation
03 p0094 A74-36411
- WERTS, G. C.
Energy in general
02 p0068 A74-18587
- WHEELER, E. P., JR.
A progress report on coal mine health and safety
03 p0115 A74-28021
- WHISMAN, M. L.
Waste lubricating oil research: An investigation
of several re-refining methods
[BN-HI-7884] 02 p0078 A74-20069

- WHITBY, R. B.
Precious resources and air transport - An airline view
03 p0093 A74-36322
- WHITE, D. C.
Energy self-sufficiency - An economic evaluation
03 p0085 A74-31446
- WHITE, D. B.
Classification of public lands valuable for geothermal steam and associated geothermal resources
[CIRC-647] 02 p0049 W74-16049
- WHITENHEAD, A. H., JR.
Aeronautical fuel conservation possibilities for advanced subsonic transports
[NASA-TN-X-71927] 02 p0080 W74-20654
- WHITTLE, G. P.
Investigations using data in Alabama from ERTS-A
[E74-10124] 01 p0023 W74-13051
- WICKENS, A. B.
Future propulsion techniques for ground transport
03 p0093 A74-36320
- WINE, C. B.
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10083] 01 p0014 W74-11195
Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry
[E74-10238] 02 p0049 W74-16007
Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining
[E74-10258] 02 p0049 W74-16019
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10336] 02 p0065 W74-18012
- WISSENER, W.
The effect of aerodynamic parameters on power output of windmills
02 p0056 W74-16773
- WILCOX, C.
Motion picture history of the erection and operation of the Smith-Putnam wind generator
02 p0055 W74-16759
- WILLIAMS, J. B.
Satellite nuclear power station: An engineering analysis
01 p0002 A74-13234
Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 1: Solar energy
[NASA-CR-137242] 02 p0071 W74-18721
Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 4: Energy from fossil fuels
[NASA-CR-138188] 03 p0103 W74-22603
Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 5: Conclusions and recommendations
[NASA-CR-138183] 03 p0103 W74-22604
Comparison and evaluation of power plant options for geosynchronous power stations. Part 1: Synchronous solar power
[NASA-CR-138493] 03 p0106 W74-25615
- WILLIAMS, J. B.
Substitution of JP-5 aviation fuel for DF-2 diesel under field conditions
[AD-777047] 03 p0107 W74-26243
- WILLIAMS, B.
Astafan - A new concept from Turbomeca
02 p0037 A74-24697
- WILLIAMS, B. D.
A hydrogen energy carrier. Volume 1: Summary
[NASA-CR-134175] 01 p0014 W74-11727
A hydrogen energy carrier. Volume 2: Systems analysis
[NASA-CR-134176] 01 p0014 W74-11728
- WILLIAMS, B. B.
The implications for air transportation of energy shortage
02 p0033 A74-19486
- WILLIAMS, B. S., JR.
Satellite geological and geophysical remote sensing of Iceland
[E74-10073] 01 p0014 W74-11188
- WILSON, R. B.
The Oregon State University wind studies
02 p0059 W74-16792
- WINGEN, J. G.
Outlook for energy in the United States to 1985
01 p0032 W74-15697
- WINSTON, B.
Solar concentrators of a novel design
[EPI-74-21] 02 p0078 W74-19741
- WITTE, E.
Economy and practical applications of large wind-driven power plants, part 1
[NASA-TT-F-15308] 02 p0045 W74-15741
The economy and practicality of large scale wind generation stations (conclusion)
[NASA-TT-F-15348] 02 p0060 W74-16802
- WOBBEN, P. J.
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10083] 01 p0014 W74-11195
Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry
[E74-10238] 02 p0049 W74-16007
Application of EREP imagery to fracture-related mine safety hazards and environmental problems in mining
[E74-10258] 02 p0049 W74-16019
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry
[E74-10336] 02 p0065 W74-18012
- WOLF, E.
Solar energy utilization by physical methods
02 p0042 W74-27323
Potential improvements in efficiency and cost of solar cells
03 p0088 A74-34369
Comparison of vertical multi-junction and conventional solar cell performance
03 p0088 A74-34376
- WOLKOWITZ, E.
The good and bad usages of air transport
03 p0094 W74-36941
- WOOD, L.
Fusion power by laser implosion
03 p0085 A74-31574
- WOODARD, J. B., JR.
Modeling of electric power demand growth
[PB-224045/5GA] 02 p0054 W74-16690
- WOUTERS, L. F.
Economics of thermodynamic solar power systems. Part 2: The turbine trade-off
[UCID-16386-PT-2] 03 p0120 W74-28547
- WU, C. C.
Solar sea power
[PB-228068/3] 03 p0110 W74-26119
Solar sea power
[PB-228069/1] 03 p0110 W74-26520
- WU, Y. C. L.
Engineering aspects of magnetohydrodynamics; Proceedings of the Fourteenth Symposium, University of Tennessee Space Institute, Tullahoma, Tenn., April 8-10, 1974
03 p0094 A74-37604
A two-dimensional dynamic programming method for the optimization of diagonal conducting wall magnetohydrodynamic generators
03 p0095 A74-37607
- WURKIN, E. F.
Developments in laser technology-II; Annual Technical Meeting, 17th, Seminar-in-Depth, San Diego, Calif., August 27-29, 1973, Proceedings
03 p0087 A74-37191

Y

- YAKOLEVSKII, V. V.
Fuel for supersonic passenger aircraft
[AD-778801] 03 p0142 W74-29207
- YAMAHOTO, E.
Effects of the development of boundary layers on a Faraday MHD generator
03 p0096 A74-37621
- YAMASHITA, I.
Effects of the development of boundary layers on a Faraday MHD generator
03 p0056 A74-37621

YANG, Y. Y.
Satellite nuclear power station: An engineering analysis
01 p0002 A74-13234

YASHOVSKY, P. M.
Determining the effects of gasoline price on use of metals in automobile manufacture
[BM-BI-7871] 02 p0062 W74-17666

YASS, M.
Low-cost, air mass 2 solar simulator
[NASA-TS-X-3059] 03 p0114 W74-27719

YASUI, R. K.
Utilization of space technology for terrestrial solar power applications
03 p0092 A74-36226

YERGEN, E. J.
General aviation cost impact study. Volume 1:
Executive summary
[AD-771603] 02 p0062 W74-17779
General aviation cost impact study. Volume 2:
Research methodology
[AD-771606] 02 p0062 W74-17780
General aviation cost impact study. Volume 3:
Planning guide
[AD-771759] 02 p0062 W74-17781

YER, J. B.
Optical properties of thin gold films applied to Schottky barrier solar cells
[NASA-CR-137981] 02 p0076 W74-19698

YER, Y.-C. B.
Solar and laser energy conversion with Schottky barrier solar cells
03 p0088 A74-34370

YERGEN, A. L.
Gasification of fossil fuels under oxidative, reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 W74-27611

YU, F. T. S.
Optimum design of antireflection coating for silicon solar cells
03 p0089 A74-34394

2

ZAKHAROV, I. O. B.
Effect of dry friction on the response to a symmetric harmonic signal of an energy converter producing mechanical energy
02 p0034 A74-20067

ZAKHIDOV, B. A.
Some results of testing of a solar water heating installation during the heating season
[AD-754628] 02 p0048 W74-15777

ZAKLYAZNINSKII, L. A.
Induction magnetohydrodynamic MHD generator with a cavity-type nuclear reactor
[AD-777444] 03 p0111 W74-27247

ZAKRI, G.
Effect of finite chemical reaction rates on heat transfer to the walls of combustion-driven supersonic MHD generator channels.
02 p0036 A74-23221

ZAKRESKI, G. K.
Natural gas supply in the decade of the seventies
02 p0074 W74-19586
Natural gas availability: Present and future
02 p0075 W74-19587

ZAUDERER, B.
Electrode studies and recent results of nonequilibrium MHD generator experiments
03 p0097 A74-37624
Closed cycle MHD for central station power with fossil or nuclear fuels
[AD-766500] 01 p0012 W74-10949
Investigation of a non-equilibrium MHD generator
[AD-766493] 01 p0013 W74-10950

ZEE, C.-B.
Effect of the sun, the moon and solar radiation pressure on a near-equatorial synchronous satellite
01 p0003 A74-13559

ZEMBRICH, D. K.
Improved performance from thin silicon solar cells
03 p0089 A74-34401

ZEMER, C.
Solar sea power
[PB-228068/3] 03 p0110 W74-26519
Solar sea power
[PB-228069/1] 03 p0110 W74-26520

ZHIVITSKII, G. S.
Aviation gas turbine engines (selected portions)
[AD-756810] 01 p0011 W74-10751

ZIMMERMAN, S. B.
Energy self-sufficiency - An economic evaluation
03 p0085 A74-31446

ZISKE, O. H.
Energy in the near term
02 p0079 W74-20617

ZRAKST, C. A.
Energy, resources and the environment
[W72-180-REV-1] 01 p0032 W74-15695
Introductory remarks
02 p0068 W74-18583

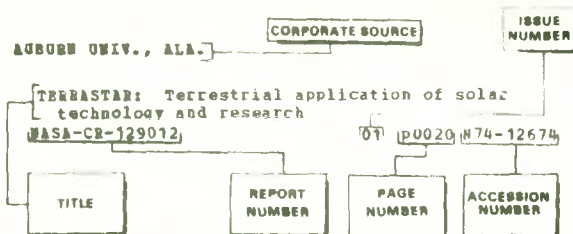
ZRALY, A. J.
Outlook for energy in the United States to 1985
01 p0032 W74-15697

CORPORATE SOURCE INDEX

ENERGY / A Continuing Bibliography (Issue 03)

FEBRUARY 1975

Typical Corporate Source Index Listing



The title of the document is used to provide a brief description of the subject matter. The issue, page number and NASA or IAA accession number are included in each entry to assist the user in locating the abstract in the abstract section of an individual supplement of Energy. If applicable, a report number is also included as an aid in identifying the document.

A

- AEROVIRONMENT, INC., PASADENA, CALIF.**
Wind machines 02 p0059 N74-16797
- AEROWATT CORP., PARIS (FRANCE).**
French wind generator systems 02 p0059 N74-16793
- AIR FORCE ACADEMY, COLO.**
Project POL (Petroleum, Oil, and Lubricants): Optimizing procurement of aviation fuels or defense supply agency [AD-775053] 03 p0104 N74-22622
- AIR FORCE SYSTEMS COMMAND, WRIGHT-PATTERSON AFB, OHIO.**
Magnetohydrodynamic method of obtaining electrical energy (collected articles) [AD-765933] 01 p0011 N74-10681
Aviation gas turbine engines (selected portions) [AD-756810] 01 p0011 N74-10751
Self-contained low power atomic plants [AD-766969] 01 p0014 N74-11519
By-pass engines [AD-772723] 02 p0074 N74-19413
Problems of the application of turbofan engines in air transport. Methods of increase in efficiency of turbofan engine with high bypass ratios [AD-773292] 02 p0079 N74-20453
State-of-the-art and prospects of magnetoelectric machines for self-contained electrical supply systems and controllable electrical drivers [AD-773893] 02 p0081 N74-20703
Dependence of efficiency and specific characteristics of fuel cells on discharge conditions [AD-773264] 02 p0081 N74-20704
Passage of current through boundary layers [AD-775138] 03 p0102 N74-22372
Prospects and scientific problems of the application of methods of the application of methods of direct electrical power acquisition from chemical fuels [AD-776734] 03 p0107 N74-25625
Certain peculiarities of combustion of ballasted gases and stabilization of a flame [AD-776731] 03 p0107 N74-26400
Fuel for supersonic passenger aircraft [AD-778801] 03 p0122 N74-29207

- AIRSEARCH MFG. CO., PHOENIX, ARIZ.**
Low NOx emission combustor development for automobile gas turbine engines [PB-225133/8GA] 02 p0067 N74-18414
Adaptability of the closed Brayton gas turbine to utility power plants [REPT-73-310448] 03 p0111 N74-27280
- ALABAMA UNIV., UNIVERSITY.**
Investigations using data in Alabama from ERTS-A [E74-10124] 01 p0023 N74-13051
- ALASKA UNIV., FAIRBANKS.**
Surface wind characteristics of some Aleutian Islands 02 p0056 N74-16766
- ALLIS-CHALMERS MFG. CO., YORK, PA.**
Smith-Putnam wind turbine experiment 02 p0055 N74-16758
Motion picture history of the erection and operation of the Smith-Putnam wind generator 02 p0055 N74-16759
- AMERICAN AIRLINES, INC., NEW YORK.**
Economic effects of propulsion system technology on existing and future transport aircraft [NASA-CR-134645] 03 p0117 N74-28230
- AMERICAN GAS ASSOCIATION, ARLINGTON, VA.**
Action in the Atlantic: A vital step for our nation's energy and environmental needs [G-70172-10088.73-408] 03 p0111 N74-26873
- AMERICAN PETROLEUM INST., NEW YORK.**
Future energy supply: Approaches and options 03 p0116 N74-28030
- AMERICAN UNIV., WASHINGTON, D.C.**
Research on electrochemical energy conversion systems [AD-766329] 01 p0013 N74-10951
- APPLIED DYNAMICS RESEARCH CORP., HUNTSVILLE, ALA.**
Dynamic modeling and analysis of liquid-metal magnetohydrodynamic power systems [AD-778757] 03 p0121 N74-28551
- APPLIED PHYSICS LAB., JOHNS HOPKINS UNIV., SILVER SPRING, MD.**
Superflywheel energy storage system 02 p0058 N74-16783
Design considerations for a 100-megajoule/500-megawatt superflywheel [AD-774736] 02 p0081 N74-20709
- ARGONNE NATIONAL LAB., ILL.**
Experimental two-phase liquid-metal magnetohydrodynamic generator program [AD-766588] 01 p0013 N74-10552
Solar energy evaluation group report [ANL-8045] 02 p0061 N74-17527
- ARIZONA UNIV., TUCSON.**
Inversion layer solar cell fabrication and evaluation [NASA-CR-136932] 02 p0060 N74-16807
Chemical vapor deposition research for fabrication of solar energy converters [NSF-RANN/SE/GI-36731X/PR/73/3] 03 p0106 N74-25616
Research applied to solar-thermal power systems 03 p0108 N74-26503
- ARKANSAS UNIV., FAYETTEVILLE.**
Energy in the near term 02 p0079 N74-20617
- ARKLA INDUSTRIES, INC., EVANSVILLE, IND.**
Design, evaluation and recommendation effort relating to the modification of a residential 3-ton absorption cycle cooling unit for operation with solar energy [NASA-CR-120277] 03 p0119 N74-28536

ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LAB.,
CLEVELAND, OHIO.

A simplified life-cycle cost comparison of
various engines for small helicopter use
[NASA-TN-X-71517] 02 p0074 N74-19405

ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LAB.,
MOFFETT FIELD, CALIF.

Motor dynamic considerations for large wind
power generator systems 02 p0056 N74-16772

ARMY COATING AND CHEMICAL LAB., ABERDEEN PROVING
GROUND, MD.

Thermal-oxidative stability of automotive diesel
fuels [AD-758146] 02 p0049 N74-15817

ARMY CONSTRUCTION ENGINEERING RESEARCH LAB.,
CHAMPAIGN, ILL.

Advanced electrical power generation and
distribution concepts for military facilities
[AD-765476] 02 p0061 N74-16819

ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER,
CHARLOTTESVILLE, VA.

State of developments and research problem on
the switching of silicon germanium alloy
thermoelectric elements [AD-765845] 01 p0009 N74-10080

Possibility of commutating thermoelectric
batteries with the aid of mercury amalgam
[AD-756068] 01 p0010 N74-10084

Commercial petroleum products, properties and
applications [AD-754703] 01 p0010 N74-10128

Catalytic combustion of carbon monoxide in
gasoline engine exhaust using manganese
catalysts [AD-760395] 01 p0011 N74-10874

Significant research results for 1971, High
Temperature Institute, USSR Academy of Sciences
[AD-765753] 01 p0012 N74-10898

Some results of testing of a solar water heating
installation during the heating season
[AD-754628] 02 p0048 N74-15777

Direct energy conversion methods
[AD-770000] 02 p0061 N74-16816

Multifuel diesel engines
[AD-771198/9GA] 02 p0074 N74-19408

Heterogeneous solar converters based on
polycrystalline cadmium sulfide and selenide
[AD-776551] 03 p0107 N74-25623

ARMY WAR COLL., CARLISLE BARRACKS, PA.

United States petroleum situation through 1980
[AD-761576] 02 p0054 N74-16691

The US energy crisis, the multinational oil
corporations and their relationship to US
foreign policy in the Middle East
[AD-760868] 02 p0055 N74-16697

ARO, INC., ARNOLD AIR FORCE STATION, TENN.

Development of design criteria, cost estimates,
and schedules for an BMD high performance
demonstration experiment [AD-766232] 01 p0017 N74-11852

ATOMIC ENERGY COMMISSION, WASHINGTON, D.C.

Energy B and D inventory data base.
Bibliography, 1973 01 p0017 N74-11849

Energy options for the future 02 p0069 N74-18599

Process for the simultaneous utilization of
geothermic and hydrodynamic energy
[AEC-TR-7475] 02 p0072 N74-18731

Nation's energy future
[WASH-1281] 03 p0119 N74-28465

AUSTRALIAN UNIV., ALA.

TERRASTAR: Terrestrial application of solar
technology and research [NASA-CR-129012] 01 p0020 N74-12674

Energy consumption: Past, present, future
01 p0020 N74-12675

Energy and resource consumption 01 p0020 N74-12676

Energy resources 01 p0020 N74-12677

Components for solar energy 01 p0020 N74-12678

Solar heating and cooling buildings 01 p0020 N74-12679

Solar power generation and distribution
01 p0021 N74-12680

National energy policy 01 p0021 N74-12681

Solar energy potential 01 p0021 N74-12682

Impacts of solar energy utilization 01 p0021 N74-12683

Market potential for solar heating and cooling
in buildings 01 p0021 N74-12684

Strategy for solar heating and cooling in
buildings 01 p0021 N74-12685

AVCO-EVERETT RESEARCH LAB., EVERETT, MASS.

Disk geometry MHD generator for high voltage
high power aircraft requirements
[AD-775749] 03 p0107 N74-26255

B

BATTILLE COLUMBUS LABS., OHIO.

General aviation cost impact study. Volume 1:
Executive summary [AD-771603] 02 p0062 N74-17779

General aviation cost impact study. Volume 2:
Research methodology [AD-771606] 02 p0062 N74-17780

General aviation cost impact study. Volume 3:
Planning guide [AD-771759] 02 p0062 N74-17781

BATTILLE-NORTHWEST, RICHLAND, WASH.

Study of Hanford capability for solar energy
research and development [BNWL-1801] 03 p0120 N74-28546

BENDIX CORP., ANN ARBOR, MICH.

Automated strip-line and reclamation sapping
from ERTS [B74-10490] 03 p0101 N74-22014

BOEING AEROSPACE CO., SEATTLE, WASH.

High voltage solar array experiments
[NASA-CR-121280] 02 p0063 N74-17788

BOEING COMMERCIAL AIRPLANE CO., SEATTLE, WASH.

Where are we headed in air transport?
01 p0020 N74-12669

BOEING VERVOL CO., PHILADELPHIA, PA.

The effect of aerodynamic parameters on power
output of windmills 02 p0056 N74-16773

BONNER AND MOORE ASSOCIATES, INC., HOUSTON, TEX.

Projected availability of motor gasoline and
distillate fuels, 1975 - 1985
[AD-775859] 03 p0107 N74-26239

BRIGHTON YOUNG UNIV., PROVO, UTAH.

Kinetics of coal gasification in a low pressure,
low residence time, entrained flow reactor
02 p0061 N74-17190

BROOKHAVEN NATIONAL LAB., UPTON, N.Y.

Hydrogen economy [BNL-18224] 02 p0060 N74-16809

Survey of large-scale applications of
superconductivity [BNL-18376] 03 p0117 N74-28205

BROWN, ROBERTI UND CIE, A.G., HEIDELBERG (WEST
GERMANY).

A novel method of cooling semiconductor devices
for power electronics [BNFT-FBT-02] 01 p0015 N74-11739

BUDGEN AND ASSOCIATES, POINTE CLAIRE (QUEBEC).

A comment on towers for windmills 02 p0059 N74-16795

BUREAU OF MINES, AMARILLO, TEX.

Analyses of natural gases, 1972
[PB-225977/8] 03 p0105 N74-23337

BUREAU OF MINES, BARTLESVILLE, OKLA.

Natural gas as an automotive fuel, an
experimental study [BM-BI-7806] 01 p0011 N74-10715

Aviation turbine fuels, 1972 01 p0014 N74-11592

Selected list of Bureau of Mines publications on
petroleum and natural gas, 1961-1970
[BM-IC-8534] 01 p0032 N74-15691

Aldehyde and reactive organic emissions from
motor vehicles. Part 1: Advanced automotive
control systems vehicles [PB-224251/9GA] 02 p0050 N74-16332

Aldehyde and reactive organic emissions from
motor vehicles. Part 2: Characterization of
emissions from 1970 through 1973 model vehicles
[PB-224252/7GA] 02 p0050 N74-16333

CORPORATE SOURCE INDEX

COMMISSION OF THE EUROPEAN COMMUNITIES,

Waste lubricating oil research: An investigation of several re-refining methods [BM-MI-7884] 02 p0078 N74-20069

Energy program, 1972 [BM-IC-8612] 02 p0080 N74-20619

Oxygenates in automotive exhausts. Effect of an oxidation catalyst [PB-227097/3] 03 p0105 N74-23190

BUREAU OF MINES, GRAND FORKS, N.DAK. Technology and use of lignite [BM-IC-8543] 03 p0115 N74-28020

BUREAU OF MINES, JACKSON, MISS. A progress report on coal mine health and safety 03 p0115 N74-28021

BUREAU OF MINES, LARAMIE, WYO. Retorting indexes for oil-shale pyrolyses from ethylene-ethane ratios of product gases [BM-MI-7921] 03 p0114 N74-27592

Thermal degradation of Green River kerogen at 150 to 350 C [BM-MI-7924] 03 p0121 N74-28652

Properties of Utah tar sands: Threesmile Canyon area, P. H. Spring deposit [BM-MI-7923] 03 p0121 N74-28911

BUREAU OF MINES, HOBKANTOWN, N.Y.A. Directional properties of coal and their utilization in underground gasification experiments [BM-TPE-73] 01 p0018 N74-12159

Noncaking coal gasified in a stirred-bed producer [BM-TPE-77] 02 p0073 N74-19117

Oil shale: A clean energy source 03 p0099 N74-21676

BUREAU OF MINES, PITTSBURGH, PA. Analyses of tars, char, gases, and water found in effluents from the synthane process [BM-TPE-76] 02 p0049 N74-15808

An economic evaluation of MHD-steam powerplants employing coal gasification [BM-MI-7796] 02 p0051 N74-16620

Liquefaction of lignite with carbon monoxide and water 03 p0115 N74-28023

Geologic structure analysis using radar imagery of the coal mining area of Buchanan County, Va. [PB-228689/6] 03 p0121 N74-28919

BUREAU OF MINES, WASHINGTON, D.C. The association of automotive fuel composition with exhaust reactivity [PB-222609/0] 01 p0010 N74-10129

Determining the effects of gasoline price on use of metals in automobile manufacture [BM-MI-7871] 02 p0062 N74-17666

Energy potential from organic wastes: A review of the quantities and sources [BM-IC-8549] 02 p0072 N74-18815

Sales of fuel oil and kerosene in 1972 03 p0119 N74-28463

World natural gas: 1972 03 p0119 N74-28464

Coal: Bituminous and lignite in 1972 03 p0120 N74-28545

C

CALIFORNIA INST. OF TECH., PASADENA. Time factors in slowing down the rate of growth of demand for primary energy in the United States [EQL-7] 01 p0030 N74-15667

Determination of optimal air pollution control strategies 02 p0073 N74-19229

Project SAGE phase 1 report: Solar assisted gas energy water heating feasibility for application in new apartments [EQL-MEMO-11] 03 p0099 N74-21675

Control of gasoline vapor losses from station and vehicle filling [EQL-MEMO-5] 03 p0101 N74-21771

Elasticity of demand for gasoline in the south coast air basin [EQL-MEMO-10] 03 p0102 N74-22581

Trends of energy use in California and the south coast air basin [EQL-MEMO-6] 03 p0103 N74-22592

Cost and performance of automotive emission control technologies [EQL-MEMO-7] 03 p0107 N74-26244

CALIFORNIA STATE UNIV., SAN DIEGO. Bucket rotor wind-driven generator 02 p0057 N74-16776

CALIFORNIA UNIV., BERKELEY. LAWRENCE BERKELEY LAB. Calculations on a solar energy system [LBL-1773] 01 p0023 N74-13538

CALIFORNIA UNIV., LIVERMORE. LAWRENCE LIVERMORE LAB. Solar ponds extended [UCID-16317] 01 p0023 N74-13537

Energy in general 02 p0068 N74-18587

An energy ethic 02 p0069 N74-18593

Analysis of the winds of site 300 as a source of power [UCRL-51469] 03 p0109 N74-26514

Economics of thermodynamic solar power systems. Part 2: The turbine trade-off [UCID-16386-PT-2] 03 p0120 N74-28547

CALIFORNIA UNIV., RIVERSIDE. Feasibility study for development of hot-water geothermal systems [AD-771016] 02 p0064 N74-17801

CAMBRIDGE SEVEN ASSOCIATES, MASS. Solar heated and cooled office building for the Massachusetts Audubon Society: Initial planning and design [C-75457] 03 p0103 N74-22602

CARNEGIE-MELLON UNIV., PITTSBURGH, PA. Solar sea power [PB-228068/3] 03 p0110 N74-26519

Solar sea power [PB-228069/1] 03 p0110 N74-26520

Proceedings, Solar Sea Power Plant Conference and Workshop [PB-228066/7] 03 p0110 N74-26521

CENTRAL ELECTRICITY GENERATING BOARD, LONDON (ENGLAND). Econometric models: Their application to the economic and energy sectors [CE-BIB-220] 02 p0062 N74-17660

Bearings for power station plant. A selective bibliography, 1960 - September 1973 [CE-BIB-288.1] 02 p0073 N74-19113

CENTRE D'ETUDES ET RECHERCHES DE LA COMPAGNIE ELECTRO-MECANIQUE, LE BOURGET (FRANCE). Development of a multipolar inductor utilizing the possibilities of hollow superconductors with supercritical helium circulation 03 p0101 N74-21921

CHANDLER EVANS, INC., WEST HARTFORD, CONN. Vapor generator feed pump for Rankine cycle automotive propulsion system (Chandler Evans) [PB-222849/2] 01 p0011 N74-10747

CHASE MANHATTAN BANK, NEW YORK. Outlook for energy in the United States to 1985 01 p0032 N74-15697

CHICAGO UNIV., ILL. Solar concentrators of a novel design [EFL-74-21] 02 p0078 N74-19711

CITIZENS' ADVISORY COMMITTEE ON ENVIRONMENTAL QUALITY, WASHINGTON, D.C. Report to the president and to the council on environmental quality 01 p0024 N74-14094

Major R&D programs to meet the energy crisis 02 p0069 N74-18602

CITY OF ST. LOUIS, MO. Energy recovery from waste: Solid waste as supplementary fuel in power plant boilers [SW-360.11] 02 p0076 N74-19699

COLORADO SCHOOL OF MINES, GOLDEN. Geologic information from satellite images [E74-10507] 03 p0104 N74-22954

Applicability of remote sensor data to geologic analysis of the Bonanza test site Colorado [E74-10508] 03 p0105 N74-22955

COLORADO STATE UNIV., FORT COLLINS. Solar thermal electric power systems 03 p0109 N74-26509

COMMISSION OF THE EUROPEAN COMMUNITIES, BRUSSELS (BELGIUM). The energy situation in the community, situation 1972, forecasts 1973 01 p0030 N74-15679

Medium-term prospects and guidelines in the community gas sector 03 p0100 N74-21684

Problems, resources and necessary progress in
Community energy policy 1975 - 1985
03 p0113 N74-27532

Prospects of primary energy demand in the
community (1975 - 1980 - 1985)
03 p0113 N74-27533

COMMITTEE ON AERONAUTICAL AND SPACE SCIENCES (U.S.
SENATE).

Energy-related research and development
02 p0070 N74-18605

NASA authorization for fiscal year 1975, part 1
02 p0082 N74-21605

Solar heating and cooling
[GPO-29-939] 03 p0106 N74-25620

NASA authorization for fiscal year 1975, part 3
[GPO-31-919] 03 p0107 N74-26405

COMMITTEE ON AGRICULTURE (U.S. HOUSE).

Agriculture and the fuel crisis
[GPO-27-899] 03 p0118 N74-28441

COMMITTEE ON ARMED SERVICES (U. S. SENATE).

Naval Petroleum Reserve Numbered 1, Elk Hills,
California
[GPO-25-650] 03 p0118 N74-28450

COMMITTEE ON BANKING AND CURRENCY (U.S. HOUSE).

EPA pollution regulations and fuel shortage: The
impact on mass transit
01 p0027 N74-14690

COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS
(U.S. SENATE).

Retail pricing of petroleum products
[GPO-23-614] 03 p0118 N74-28449

COMMITTEE ON COMMERCE (U. S. SENATE).

Energy research and development, 2
01 p0027 N74-14692

National Fuels and Energy Conservation Act of 1973
[S-REPT-93-526] 01 p0027 N74-14693

Council on Energy Policy
02 p0075 N74-19617

COMMITTEE ON FINANCE (U. S. SENATE).

Profitability of domestic energy company
operations
[GPO-28-572] 03 p0118 N74-28453

COMMITTEE ON FOREIGN AFFAIRS (U. S. HOUSE).

The energy crisis: Impact of Canadian policies
[GPO-27-709] 03 p0118 N74-28440

COMMITTEE ON GOVERNMENT OPERATIONS (U. S. HOUSE).

Conservation and efficient use of energy, part 1
01 p0030 N74-15682

Energy Reorganization Act of 1973
[GPO-25-108] 03 p0111 N74-27442

Federal Energy Administration
[GPO-26-725] 03 p0111 N74-27443

Draft of proposed legislation to promote more
effective management of certain related
functions of the Executive Branch
[H-DOC-93-119] 03 p0112 N74-27454

Conservation and efficient use of energy, part 2
[GPO-24-290] 03 p0113 N74-27525

Conservation and efficient use of energy, part 3
[GPO-24-682] 03 p0113 N74-27526

Conservation and efficient use of energy, part 4
[GPO-25-654] 03 p0113 N74-27527

COMMITTEE ON GOVERNMENT OPERATIONS (U. S. SENATE).

Staff study of the oversight and efficiency of
executive agencies with respect to the
petroleum industry, especially as it relates
to recent fuel shortages
[GPO-23-764] 03 p0105 N74-23487

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS (U. S.
SENATE).

Factors affecting the use of coal in present and
future energy markets
01 p0031 N74-15684

Legislative authority of Federal agencies with
respect to fuels and energy: A staff analysis
01 p0031 N74-15686

The President's energy message and S. 1570
01 p0031 N74-15687

Summary of the energy conservation and
development recommendations contained in the
final report of the National Commission on
Materials Policy, June 1973: A background paper
01 p0031 N74-15688

Energy conservation, part 1
01 p0031 N74-15690

A bibliography of non-technical literature on
energy
02 p0051 N74-16641

A bibliography of Congressional publications on
energy from the 89th Congress to 1 July 1971
02 p0051 N74-16642

Energy emergency legislation, part 1
02 p0052 N74-16662

Fuel shortages, part 1
02 p0053 N74-16664

Fuel shortages, part 2
02 p0053 N74-16665

The evolution and dynamics of national goals in
the United States
02 p0053 N74-16666

A review of energy issues and the 91st Congress
02 p0053 N74-16667

Compact to conserve oil and gas
02 p0053 N74-16668

Federal Energy Organization: A staff analysis
02 p0053 N74-16669

Geothermal energy resources and research
02 p0053 N74-16670

A review of energy policy activities of the 92d
Congress
02 p0062 N74-17669

Energy conservation and S. 2176, part 2
02 p0070 N74-18622

The gasoline shortage: A national perspective
02 p0075 N74-19618

Conservation of energy
02 p0082 N74-21620

Presidential energy statements
[GPO-24-936] 03 p0106 N74-23511

Geothermal resources, part 1
[GPO-21-438] 03 p0108 N74-26505

Geothermal resources, part 2
[GPO-26-473] 03 p0109 N74-26506

Nuclear stimulation of natural gas
[GPO-96-678] 03 p0112 N74-27448

Coal policy issues. Part 2: Appendix 3:
Additional statements received for the record
[GPO-20-768] 03 p0112 N74-27450

Energy emergency legislation, part 2
[GPO-24-846] 03 p0123 N74-29352

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE (U.S.
HOUSE).

Transportation controls under the Clean Air Act
[GPO-20-345] 02 p0082 N74-21625

Energy Emergency Act
[GPO-26-038] 03 p0112 N74-27444

COMMITTEE ON PUBLIC WORKS (U. S. HOUSE).

Energy Emergency Act
[H-REPT-93-793] 03 p0112 N74-27455

Gasoline, diesel, and heating oil shortages
[GPO-24-116] 03 p0123 N74-29344

To conserve energy on the national system of
interstate and defense highways
[GPO-25-702] 03 p0123 N74-29346

Architectural guidelines to promote efficient
energy use
[GPO-28-428] 03 p0123 N74-29347

COMMITTEE ON PUBLIC WORKS (U. S. SENATE).

The administration's proposal for relaxation of
air pollution standards
[GPO-22-629] 03 p0108 N74-26411

The impact of auto emission standards
[GPO-21-548] 03 p0108 N74-26412

Nondegradation policy of the Clean Air Act
[GPO-20-928] 03 p0111 N74-27438

Compliance with Title 2 (auto emission
standards) of the Clean Air Act
[GPO-25-424] 03 p0118 N74-28445

COMMITTEE ON SCIENCE AND ASTRONAUTICS (U. S. HOUSE).

Energy research and development and space
technology
01 p0012 N74-19892

Solar energy for the terrestrial generation of
electricity
01 p0012 N74-19896

Solar-energy for heating and cooling
01 p0016 N74-11787

Energy research and development: An overview of
our national effort
01 p0016 N74-11788

University energy research centers
01 p0019 N74-12668

Energy facts
01 p0020 N74-12672

The Federal Government and energy: R and D
historical background
01 p0021 N74-12667

An inventory of energy research, volume 1
01 p0021 W74-12688

An inventory of energy research, volume 2
01 p0021 W74-12689

Short term energy shortages
01 p0021 W74-12690

Energy research and development and space technology
01 p0022 W74-12691

Individual action for energy conservation
01 p0030 W74-15680

Conservation and efficient use of energy, part 1
01 p0030 W74-15682

Geothermal energy
02 p0054 W74-16684

N.R. 11864: Solar Heating and Cooling Demonstration Act of 1974. Background and legislative history
02 p0075 W74-19604

Solar Heating and Cooling Demonstration Act [GPO-27-370]
03 p0100 W74-21683

Research on ground propulsion systems
03 p0103 W74-22600

Energy from geothermal resources [GPO-32-309]
03 p0109 W74-26510

Conservation and efficient use of energy, part 2 [GPO-24-290]
03 p0113 W74-27525

Conservation and efficient use of energy, part 3 [GPO-24-682]
03 p0113 W74-27526

Conservation and efficient use of energy, part 4 [GPO-25-654]
03 p0113 W74-27527

COUNCIL ON ENVIRONMENTAL QUALITY, WASHINGTON, D.C.
Energy and the environment: Electric power [PB-223326/OGA]
01 p0028 W74-14791

CRANFIELD INST. OF TECHNOLOGY (ENGLAND).
The assessment of an air-supported and propelled urban transport system [CRANFIELD-CTS-1]
02 p0070 W74-18610

Magnetic suspension and guidance of high speed vehicles [CTS-2]
02 p0072 W74-18892

D

DARTMOUTH COLL., DARTMOUTH, N.H.
Si-Au Schottky barrier nuclear battery [TID-26342]
01 p0017 W74-11851

DECISION SCIENCES CORP., JENKINTOWN, Pa.
Quantitative energy studies and models: A state of the art review
02 p0070 W74-18623

DEFENSE DOCUMENTATION CENTER, ALEXANDRIA, VA.
Energy conversion [AD-771750]
02 p0071 W74-18638

Energy sources - Citations from the early DDC collections [AD-773325]
02 p0081 W74-20705

DELAWARE UNIV., WESLARK.
Effect of shading on CdS/Cu(x)S solar cells and optimal solar array design [PB-227900/8]
03 p0110 W74-26522

DENVER RESEARCH INST., COLO.
Applications of aerospace technology in the electric power industry [NASA-CR-138947]
03 p0119 W74-28537

DENVER UNIV., COLO.
Balancing supply and demand for energy in the United States
02 p0051 W74-16651

DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FÜR LUFT- UND RAUMFAHRT, COLOGNE (WEST GERMANY).
The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines
02 p0079 W74-20444

DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FÜR LUFT- UND RAUMFAHRT, PORS (WEST GERMANY).
Section 4: Propulsion and energy
01 p0026 W74-14671

DOV CHEMICAL CO., MIDLAND, MICH.
Characterisation of particulates and other non-regulated emissions from mobile sources and the effects of exhaust emissions control devices on these emissions [PB-224243/6GA]
02 p0066 W74-18294

DUKE UNIV., DURHAM, N.C.
Performance characteristics of a pneumatic tube transportation system
02 p0072 W74-18888

DYNATHERM CORP., COCKEYSVILLE, MD.
Heat pipe design handbook, part 1 [NASA-CR-134264]
03 p0102 W74-22569

E

EARTH SATELLITE CORP., WASHINGTON, D.C.
Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [W74-10083]
01 p0014 W74-11195

Application of ERTS-1 imagery to fracture-related mine safety hazards in the coal mining industry [W74-10238]
02 p0049 W74-16007

Application of EERP imagery to fracture-related mine safety hazards and environmental problems in mining [W74-10258]
02 p0049 W74-16019

Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [W74-10336]
02 p0065 W74-18012

ELSON OIL CO., OKLAHOMA CITY, OKLA.
An evaluation of the suitability of ERTS data for the purposes of petroleum exploration [W74-10029]
01 p0018 W74-12119

Evaluation of the suitability of Skylab data for the purposes of petroleum exploration [W74-10331]
02 p0065 W74-18007

ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (SWITZERLAND).
Energy: Compiled bibliography and tables of world resources, consumption, and wastes [LEP-63/73]
01 p0010 W74-10391

EDO CORP., COLLEGE POINT, N.Y.
Experimental real response system for high performance simplified aerial refueling store [AD-771389]
02 p0064 W74-17799

ELECTRICAL RESEARCH ASSOCIATION, SURREY (ENGLAND).
Wind data for wind driven plant
02 p0056 W74-16768

ELECTRICITY COMMISSION OF NEW SOUTH WALES, SYDNEY (AUSTRALIA).
Electricity: The conversion industry [EP-19837]
02 p0072 W74-18730

ENERGY RESEARCH CORP., BETHEL, CONN.
Electrolyte for hydrocarbon air fuel cells [AD-766313]
01 p0010 W74-10085

Matrices for H₂PO₄ fuel cells [AD-766312]
01 p0010 W74-10086

Hydrogen generator [AD-767402]
01 p0024 W74-13766

High energy sealed nickel-zinc batteries [AD-772944]
02 p0072 W74-18737

High voltage fuel cell assembly [AD-774820]
03 p0101 W74-21696

Electrolyte for hydrocarbon air fuel cells [AD-774832]
03 p0101 W74-21698

ENGELHARD MINERALS AND CHEMICALS CORP., WESLARK, N.J.
Low wattage hydrogen: Air fuel cells [AD-778550]
03 p0121 W74-28553

ENVIRONMENTAL PROTECTION AGENCY, RESEARCH TRIANGLE PARK, N.C.
The association of automotive fuel composition with exhaust reactivity [PB-222609/0]
01 p0010 W74-10129

Applications of meteorology to natural resource planning
01 p0014 W74-11395

Compilation of air pollutant emission factors (second edition) [PB-223996/OGA]
02 p0066 W74-18300

Air pollution aspects of emission sources: Petroleum refineries; a bibliography with abstracts [AP-110]
02 p0073 W74-19228

Air pollution from motor vehicles [APTIC-41654]
03 p0111 W74-27088

Air pollution from motor vehicles, appendices [APTIC-41655-APP]
03 p0111 W74-27089

Compilation of air pollutant emission factors, supplement 1, second edition [PB-228708/4]
03 p0111 W74-27162

Nitrogen oxides, sulfur oxides, and particulate control technology for fossil fuel combustion
03 p0116 N74-28026

ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, D.C.
Energy conservation strategies
[PB-224493/76A] 02 p0064 N74-17800

ESCHER TECHNOLOGY ASSOCIATES, ST. JOHNS, NICH.
A problem statement: Ocean based solar-to-hydrogen energy conversion macro system
02 p0076 N74-19694

Prospects for liquid hydrogen fueled commercial aircraft
[PR-37] 02 p0080 N74-20647

ESSO RESEARCH AND ENGINEERING CO., LINDEN, N.J.
Potential pollutants in fossil fuels
[PB-225039/76A] 02 p0066 N74-18313

Combustion and heat recovery of Air Force waste petroleum oils and lubricants
[AD-774563] 02 p0082 N74-21391

EUROPEAN SPACE RESEARCH AND TECHNOLOGY CENTER, WOONDSIJK (NETHERLANDS).
Current European developments in solar paddle drives
01 p0014 N74-11672

EUROPEAN SPACE RESEARCH ORGANIZATION, PARIS (FRANCE).
The influence of individual components and of their mechanical arrangement on the stationary operating behaviour of dual cycle propulsion engines
02 p0079 N74-20444

F

FEDERAL AVIATION ADMINISTRATION, WASHINGTON, D.C.
Power conditioning system for FAA air route traffic control centers
01 p0019 N74-12636

FEDERAL POWER COMMISSION, WASHINGTON, D.C.
Percy Thomas wind generator designs
02 p0055 N74-16760

Natural gas supply in the decade of the seventies
02 p0074 N74-19586

Natural gas availability: Present and future
02 p0075 N74-19587

FIAT S.P.A., TURIN (ITALY).
Engine cycle selection for commercial STOL aircraft
02 p0079 N74-20408

FIRST NATIONAL CITY BANK, NEW YORK.
Capital requirements of the energy industries
02 p0052 N74-16654

FLINDERS UNIV., BEDFORD PARK (AUSTRALIA).
Controlled fusion research
[FUPB-G-4] 02 p0074 N74-19290

FLORIDA UNIV., GAINESVILLE.
Mass transfer in fuel cells
[NASA-CR-134519] 01 p0009 N74-10075

G

GENERAL ELECTRIC CO., CINCINNATI, OHIO.
Hydrogen-methane fuel control systems for turbojet engines
[NASA-CR-121247] 02 p0050 N74-16493

GENERAL ELECTRIC CO., LYNN, MASS.
Status and applicability of solid polymer electrolyte technology to electrolytic hydrogen and oxygen production
02 p0058 N74-16782

GENERAL ELECTRIC CO., PHILADELPHIA, PA.
Closed cycle MHD for central station power with fossil or nuclear fuels
[AD-766500] 01 p0012 N74-10949

Investigation of a non-equilibrium MHD generator
[AD-766493] 01 p0013 N74-10950

GENERAL ELECTRIC CO., SANTA BARBARA, CALIF.
Use of hydrogen and hydrogen-rich components as a means of storing and transporting energy
02 p0057 N74-16781

GEOLOGICAL SURVEY, WASHINGTON, D.C.
Satellite geological and geophysical remote sensing of Iceland
[E74-10073] 01 p0014 N74-11188

Bitumen-bearing rocks
01 p0028 N74-15226

Coal
01 p0028 N74-15230

Geothermal resources
01 p0028 N74-15240

Nuclear fuels: Uranium
01 p0028 N74-15257

Nuclear fuels: Thorium
01 p0029 N74-15258

Oil and gas
01 p0029 N74-15259

Oil shale
01 p0029 N74-15260

Peat
01 p0029 N74-15261

Energy resources of the United States
[CIRC-650] 01 p0031 N74-15685

Classification of public lands valuable for geothermal steam and associated geothermal resources
[CIRC-647] 02 p0049 N74-16049

Energy resources of the United States
[CIRC-650] 02 p0075 N74-19614

The worldwide search for petroleum offshore
[USGS-CIRC-694] 03 p0121 N74-28897

GEORGIA INST. OF TECH., ATLANTA.
Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 1: Solar energy
[NASA-CR-137242] 02 p0071 N74-18721

Comparative evaluation of solar, fission, fusion, and fossil energy resources, part 3
[NASA-CR-138117] 03 p0103 N74-22590

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 4: Energy from fossil fuels
[NASA-CR-138188] 03 p0103 N74-22603

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 5: Conclusions and recommendations
[NASA-CR-138183] 03 p0103 N74-22604

Comparative evaluation of solar, fission, fusion, and fossil energy resources. Part 2: Power from nuclear fission
[NASA-CR-138397] 03 p0105 N74-23481

Comparison and evaluation of power plant options for geosynchronous power stations. Part 1: Synchronous solar power
[NASA-CR-138493] 03 p0106 N74-25615

GONZALEZ (RICHARD J.), HOUSTON, TEX.
Future United States population, economic growth, and energy demands
02 p0051 N74-16652

GOULD, INC., BENDOTA HEIGHTS, MINN.
Fabrication and testing of negative-limited sealed nickel-cadmium cells
[NASA-CR-135981] 01 p0009 N74-10078

GRUBMAN AEROSPACE CORP., BETHPAGE, N.Y.
Advantages of the diffuser-augmented wind turbine
02 p0057 N74-16775

H

HARVARD UNIV., CAMBRIDGE, MASS.
Mechanisms for achieving cleaner power, prices, regulations
02 p0069 N74-18596

HELIOTEK, SYLMAR, CALIF.
Study terrestrial applications of solar cell powered systems
[NASA-CR-134512] 03 p0100 N74-21685

HERMANN OBERTH-GESELLSCHAFT, GESELLSCHAFT FÜR FÖRDERUNG DER FORSCHUNG UND ERSCHLISSUNG DES WELTRAUMS E. V., HANNOVER (WEST GERMANY).
Industrial evolution and revolution in the cislunar space, 1980 - 2010
[ASTRONAUT-PB-32] 03 p0111 N74-27353

HITMAN ASSOCIATES, INC., COLUMBIA, MD.
Assessment of SO2 control alternatives and implementation patterns for the electric utility industry
[PB-224119/80A] 02 p0050 N74-16339

HOBBSWELL, INC., MINNEAPOLIS, MINN.
Application and durability of solar absorber coatings
[AD-769449] 02 p0049 N74-16264

F-14 optimum flight modes, volume 1
[AD-775246] 03 p0099 N74-21665

HOUSTON UNIV., TEX.
A hydrogen energy carrier. Volume 1: Summary
[NASA-CR-134175] 01 p0014 N74-11727

A hydrogen energy carrier. Volume 2: Systems analysis
[NASA-CR-134176] 01 p0014 N74-11728

CORPORATE SOURCE INDEX

JOINT PUBLICATIONS RESEARCH SERVICE,

Summary of systems analysis of hydrogen as an energy carrier in the United States 01 p0015 H74-11729
 Current energy shortage in the United States 01 p0015 H74-11730
 Production of hydrogen 01 p0015 H74-11731
 Transmission and storage of hydrogen 01 p0015 H74-11732
 Safety, legal, environmental, economic, political, and social aspects of hydrogen 01 p0015 H74-11734
 Implementation of a hydrogen energy carrier system 01 p0015 H74-11735
 HUDSON INST., INC., CHOTON-ON-HUDSON, N.Y.
 Context of the session theme, international issues 02 p0068 H74-18584
 Economic basis for energy and resource use 02 p0068 H74-18586
 Remarks 02 p0068 H74-18590
 HYDRO-QUEBEC INST. FOR RESEARCH, VANHEUSEN.
 Wind utilization in remote regions: An economic study 02 p0058 H74-16790
 IDAHO UNIV., MOSCOW.
 Transportation and energy conservation in the Pacific Northwest 03 p0119 H74-28539
 INDIANA GEOLOGICAL SURVEY, BLOOMINGTON.
 Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10083] 01 p0014 H74-11195
 Application of ERTS-1 imagery to fracture related mine safety hazards in the coal mining industry [E74-10238] 02 p0049 H74-16007
 Application of ERTS imagery to fracture-related mine safety hazards and environmental problems in mining [E74-10258] 02 p0049 H74-16019
 Study of application of ERTS-A imagery to fracture-related mine safety hazards in the coal mining industry [E74-10336] 02 p0065 H74-18012
 INFORMATIONICS, INC., ROCKVILLE, MD.
 Soviet geothermal electric power engineering, report 2 [AD-754947] 02 p0048 H74-15776
 INSTITUTE FRANCO-AMERICAINE DE RECHERCHES, ST. LOUIS (FRANCE).
 Application of phase transitions to the electromechanical energy conversion [ISL-CO-2/73] 03 p0105 H74-23327
 INSTITUTE OF ENERGY ECONOMICS OF JAPAN.
 Energy demand in Japan, 1975 to 1985 02 p0069 H74-18600
 INSTITUTE OF GAS TECHNOLOGY, CHICAGO, ILL.
 Review of world energy supplies [IGU/A-1-73] 01 p0026 H74-14666
 INSTITUTE OF TRANSPORT AVIATION, PARIS (FRANCE).
 Aviation needs and public concerns 01 p0027 H74-14749
 INTERIOR DEPT., WASHINGTON, D.C.
 Federal agency energy conservation [OE-1] 01 p0026 H74-14686
 Federal energy conservation 01 p0026 H74-14687
 Assessment of geothermal energy resources 01 p0030 H74-15661
 Final environmental statement for the geothermal leasing program. Volume 2: Leasing of geothermal resources in three California areas 02 p0078 H74-19975
 Final environmental statement for the geothermal leasing program. Volume 3: Proposed geothermal leasing and operating regulations 02 p0078 H74-19976
 Final environmental statement for the geothermal leasing program. Volume 4: Comments on draft impact statement and proposed regulations 02 p0078 H74-19977

Final environmental statement for the geothermal leasing program. Volume 1: Pronulgation of leasing and operating regulations 02 p0079 H74-20616
 United States energy fact sheets, 1971 03 p0104 H74-22610
 Clean energy from coal technology 03 p0113 H74-27524
 INTERTECHNOLOGY CORP., WARRENTON, VA.
 The U.S. energy problem. Volume 2: Appendices, part A [PB-267518] 01 p0017 H74-11795
 The U.S. energy problem. Volume 2: Appendices, part B [PB-267519] 01 p0017 H74-11796
 Energy storage by compressed air 02 p0058 H74-16785

J

JACOBS WIND ELECTRIC CO., INC., FORT MYERS, FLA.
 Experience with Jacobs wind-driven electric generating plant, 1931 - 1957 02 p0058 H74-16786
 JET PROPULSION LAB., CALIF. INST. OF TECH., PASADENA.
 Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 1: Summary [NASA-CN-136197] 01 p0023 H74-13466
 Liquid metal magnetohydrodynamics (LMHD) technology transfer feasibility study. Volume 2: Appendices [NASA-CN-136198] 01 p0023 H74-13467
 Impinging jet separators for liquid metal magnetohydrodynamic power cycles [NASA-CN-136552] 01 p0027 H74-14785
 Inversion layer solar cell fabrication and evaluation [NASA-CN-136932] 02 p0060 H74-16807
 Method of forming a wick for a heat pipe [NASA-CASE-WFO-13391-1] 02 p0074 H74-19584
 Optical properties of thin gold films applied to Schottky barrier solar cells [NASA-CN-134981] 02 p0076 H74-19698
 Heat operated cryogenic electrical generator [NASA-CASE-WFO-13303-1] 02 p0077 H74-19701
 Electric power generation system directly from laser power [NASA-CASE-WFO-13308-1] 02 p0077 H74-19702
 Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 1: Working group and panel reports [NASA-CN-138209] 03 p0104 H74-22704
 Workshop proceedings: Photovoltaic conversion of solar energy for terrestrial applications. Volume 2: Invited papers [NASA-CN-138193] 03 p0104 H74-22705
 JOINT COMMITTEE ON ATOMIC ENERGY (U. S. CONGRESS).
 Atomic Energy Commission 1 December 1973 report on energy research and development 02 p0075 H74-19606
 JOINT ECONOMIC COMMITTEE (U. S. CONGRESS).
 The gasoline and fuel oil shortage [GPO-99-740] 02 p0082 H74-21624
 Economic impact of petroleum shortages [GPO-27-213] 03 p0118 H74-28452
 JOINT PUBLICATIONS RESEARCH SERVICE, ARLINGTON, VA.
 Trends in the mechanization of the coal industry and guarantee of patent-ability of designs that are competitive on the world technological level 01 p0016 H74-11759
 The history of technology and engineering solutions 01 p0016 H74-11760
 Forecasting of technological progress for long-range planning of mining operations at coal mines 01 p0016 H74-11765
 Mathematical methods of optimal planning development and use of energy systems [JPBS-60546] 01 p0022 H74-12693
 From scientific research to the atomic industry [JPBS-60584] 01 p0023 H74-13428
 Experimental research on model MHD generator U-02 (Stage 2), Scientific and Technical Report 17/73 [JPBS-60972] 02 p0050 H74-16424

Translations on Eastern Europe Scientific
Affairs, no. 383
[JPBS-61101] 02 p0062 W74-17661
Role of thermoenergetic research in saving fuel
02 p0062 W74-17663
Thermal cycle and efficiency of a versatile power
unit with a magnetohydrodynamic generator and
thermoelectric generator
[JPBS-61359] 02 p0071 W74-18723
The prospects for MHD power plants in power
engineering
[JPBS-62139] 03 p0110 W74-26774
Experience from the first stage of development
of the U-25 installation
[JPBS-62129] 03 p0110 W74-26775
On the approaches to MHD-power generation
[JPBS-62196] 03 p0117 W74-28168
JOY MFG. CO., LOS ANGELES, CALIF.
Collecting fly ash from western low sulfur coals
03 p0116 W74-28028
Pilot study of electrostatic precipitation for
removing fly ash at Basin Electric's Leland
Olds Station
03 p0116 W74-28029

K

KABREN (LHO) ASSOCIATES, REDWOOD CITY, CALIF.
Present air pollution situation in Kawasaki city
and future countermeasures
[KS-27] 01 p0018 W74-12321
Wind energy: Its value and the choice of site
for exploitation
[NASA-TT-P-15311] 02 p0045 W74-15734
Wind-powered machines
[NASA-TT-P-15149] 02 p0045 W74-15742
Wind power plants in Russia
[NASA-TT-P-15331] 02 p0045 W74-15743
Observations on modern wind-electric power plants
[NASA-TT-P-15357] 02 p0045 W74-15745
Problems in the electrical equipment of wind
power plants
[NASA-TT-P-15312] 02 p0046 W74-15749
Utilization of wind power in agriculture in the
USSR
[NASA-TT-P-15345] 02 p0046 W74-15752
Progress in the utilization of wind power
[NASA-TT-P-15346] 02 p0046 W74-15753
Medium-capacity air motor pilot plant with
hydraulic energy accumulation by pumping
[NASA-TT-P-15299] 02 p0046 W74-15755
The importance of and progress in the
utilization of wind power in Denmark
[NASA-TT-P-15333] 02 p0047 W74-15758
Application of wind power to rational generation
of electricity
[NASA-TT-P-15334] 02 p0047 W74-15759
Investigation of the possibilities of using wind
power
[NASA-TT-P-15336] 02 p0047 W74-15760
Air power plants in Russia and the United States
(from Dimitry Stein, Elektrizitaetswirtsch.,
volume 40, no. 16, 1941)
[NASA-TT-P-15338] 02 p0047 W74-15761
Wind energy
[NASA-TT-P-15342] 02 p0047 W74-15764
Using large wind power plants to directly drive
synchronous generators in parallel operation
with a governing network
[NASA-TT-P-15343] 02 p0048 W74-15765
Prospects for the utilization of wind energy in
Czechoslovakia
[NASA-TT-P-15305] 02 p0048 W74-15766
New wind power station
[NASA-TT-P-15332] 02 p0048 W74-15767
Wind-power supply for the decimeter range
directional radio site at Schoeneberg (Eifel)
and the experience gained
[NASA-TT-P-15337] 02 p0048 W74-15768
Wind power, part 2 - economic feasibility, 1949
[NASA-TT-P-15419] 02 p0063 W74-17792
Analysis of the possible use of wind power in
Sweden. Part 1: Wind power resources, theory
of wind-power machines, preliminary model 1
and 10 MW wind generators
[NASA-TT-P-15441] 02 p0077 W74-19708
Report of the Wind Power Committee of 1962
[NASA-TT-P-15442] 02 p0078 W74-19710

Supplement to the report on the results achieved
with SEAS' experimental mill
[NASA-TT-P-15516] 02 p0081 W74-20700
The present state of planning and erection of
large experimental wind-power stations
[NASA-TT-P-15512] 03 p0099 W74-21678
Studies of the utilization of wind energy: The
use of dc generator/mercury-vapor inverter
sets connected to ac networks
[NASA-TT-P-15514] 03 p0099 W74-21679
Report on results achieved with SEAS
experimental mill
[NASA-TT-P-15515] 03 p0099 W74-21680
This is how you can heat your home with a little
windmill
[NASA-TT-P-15518] 03 p0099 W74-21681
Wind electric power station
[NASA-TT-P-15522] 03 p0100 W74-21682
Studies of heat resistant materials for
high-temperature gas reactor
[NASA-TT-P-15576] 03 p0102 W74-22312
Statistical summary and evaluation of
ventoelectric power station output (part 2 of 2)
[NASA-TT-P-15652] 03 p0104 W74-22708
Reduction of diesel engine exhaust noise in the
petroleum mining industry
03 p0118 W74-28388

KANSAS STATE UNIV., MANHATTAN.
Optimal electrical energy growth strategies in
an era of environmental concern
02 p0080 W74-20697
KANSAS UNIV. CENTER FOR RESEARCH, INC., LAWRENCE.
Research on the application of satellite remote
sensing to local, state, regional, and
national programs involved with resource
management and environmental quality
[NASA-CR-136472] 01 p0024 W74-14093
KENTUCKY UNIV., LEXINGTON.
Proceedings: Energy Resource Conference (2nd)
[PB-224750/OSA] 02 p0071 W74-18634
A Kentucky coal utilization research program.
Project 3: Low BTU gas and solid desulfurized
fuel
03 p0113 W74-27529
A Kentucky coal utilization research program.
Project 4: Measurement of inhibition
isotherms for Kentucky coal
03 p0113 W74-27530
A Kentucky coal utilization research program:
Summary of first year progress and
accomplishments
03 p0113 W74-27531
The Western Kentucky Coal Industry: An economic
analysis
[UKY-TR76-73-INRR1] 03 p0118 W74-28439
A Kentucky coal utilization research program.
Project 5: Caking characteristics of Kentucky
coal
03 p0122 W74-29015
KERNFORSCHUNGSANLAGE, JUELICH (WEST GERMANY).
Approach to the holistic analysis of the system
man-energy-environment
[JUL-982-BG] 02 p0080 W74-20626
KERR-MCCREY CORP., OKLAHOMA CITY.
Balancing the demand and supply of electricity
and nuclear fuels
02 p0052 W74-16659

L

LIBRARY OF CONGRESS, WASHINGTON, D.C.
Energy facts
01 p0020 W74-12672
The Federal Government and energy: A and B
historical background
01 p0021 W74-12687
Factors affecting the use of coal in present and
future energy makers
01 p0031 W74-15684
Summary of the energy conservation and
development recommendations contained in the
final report of the National Commission on
Materials Policy, June 1973: A background paper
01 p0031 W74-15688
A bibliography of non-technical literature on
energy
02 p0051 W74-16641

- A bibliography of Congressional publications on energy from the 89th Congress to 1 July 1971
02 p0051 N74-16642
- The evolution and dynamics of national goals in the United States
02 p0053 N74-16666
- A review of energy issues and the 91st Congress
02 p0053 N74-16667
- A review of energy policy activities of the 92d Congress
02 p0062 N74-17669
- The gasoline shortage: A national perspective
02 p0075 N74-19618
- Conservation of energy
02 p0082 N74-21620
- The impact of energy shortages on US environmental standards
[TP-450-USB] 03 p0122 N74-29342
- Some simple calculations to suggest the effects of six national policies upon use and supply of energy
[TP-360] 03 p0122 N74-29343
- LINCOLN LAB., MASS. INST. OF TECH., LEXINGTON.
Calculation and comparison of the economy of electrochemical fuel cells
[UTC-74-11868] 03 p0108 N74-26496
- LINGUISTIC SYSTEMS, INC., CAMBRIDGE, MASS.
Influence of wind frequency on rotational speed adjustments of windmill generators
[NASA-TT-F-15184] 01 p0012 N74-10948
- Method of calculation of annual overall efficiency of modern wind-power plants
[NASA-TT-F-15310] 02 p0046 N74-15748
- Exploitation of wind energy
[NASA-TT-F-15309] 02 p0055 N74-16756
- Using the energy of the wind for electrification
[NASA-TT-F-15307] 02 p0060 N74-16801
- A wind plant to power sea signals
[NASA-TT-F-15356] 02 p0060 N74-16803
- DC generator for Kolkhoz wind powered generators
[NASA-TT-F-15347] 02 p0063 N74-17786
- The present status of Honnef wind power plants
[NASA-TT-F-15355] 02 p0063 N74-17787
- Operating conditions and types of wind-power electric substations for rural areas
[NASA-TT-F-15517] 03 p0109 N74-26512
- LITTLE (ARTHUR D.), INC., CAMBRIDGE, MASS.
Energy conservation with solar climate control
02 p0050 N74-16513
- A new view of solar energy
02 p0050 N74-16514
- Feasibility study of a satellite solar power station
[NASA-CR-2357] 02 p0063 N74-17784
- New sources of power: Solar energy
02 p0063 N74-17790
- Solar heated and cooled office building for the Massachusetts Audubon Society: Initial planning and design
[C-75457] 03 p0103 N74-22602
- LOCKHEED MISSILES AND SPACE CO., SUNNYVALE, CALIF.
Testing for thermal fatigue failures in solar arrays
01 p0010 N74-10240
- LOS ALAMOS SCIENTIFIC LAB., N.MEX.
Some interfaces in resource utilization
[LA-UR-73-570] 01 p0022 N74-12696
- Sodium: Clean-energy storage medium for vehicular power
[LA-5406-BS] 02 p0065 N74-17871
- And what if we were to switch to hydrogen?
[LA-TR-73-40] 02 p0072 N74-18729
- Design options and tradeoffs in superconducting magnetic energy storage with irreversible switching
[LA-UR-73-910] 02 p0074 N74-19375
- Geothermal energy
[LA-UR-73-1316] 03 p0100 N74-21689
- Potential for the production of power from geothermal resources
[LA-UR-73-926] 03 p0100 N74-21690
- Potential for hot-dry-rock geothermal energy in the western United States
[LA-UR-73-1075] 03 p0100 N74-21691
- Energy and environment: System and perspectives
[LA-5447-MS] 03 p0104 N74-22615
- Nuclear heat and hydrogen in future energy utilization
[LA-5456-BS] 03 p0117 N74-28108
- MARYLAND UNIV., COLLEGE PARK.
An assessment of solar energy as a national energy resource
[NASA-CR-136191] 01 p0019 N74-12462
- Proceedings of the Solar Heating and Cooling for Buildings Workshop. Part 1: Technical sessions, March 21 and 22
[PB-223536/4GA] 01 p0025 N74-14499
- MASSACHUSETTS INST. OF TECH., CAMBRIDGE.
Long run cost trends: Persian Gulf and United States
02 p0052 N74-16655
- Modeling of electric power demand growth
[PB-224045/5GA] 02 p0054 N74-16690
- Computer simulation of world dynamics and implications for policy decisions
02 p0068 N74-18585
- Remarks
02 p0068 N74-18589
- Impacts of new energy technology, using generalized input-output analysis
[PB-226139/4GA] 03 p0101 N74-21697
- Optimal control of sulfur dioxide emissions at power stations: Models and a case study
[AD-775392] 03 p0102 N74-22292
- Second Annual Sea Grant Lecture and Symposium
[NITSC-74-7] 03 p0115 N74-27826
- Key issues in offshore oil
03 p0115 N74-27828
- MASSACHUSETTS UNIV., AMHERST.
A proposed national wind power R and D program
02 p0059 N74-16794
- Research applied to ocean sited power plants
[PB-228067/5] 03 p0110 N74-26523
- A planning methodology for the analysis and design of wind-power systems
03 p0119 N74-28534
- RAI-PLANCK-INSTITUT FÜR PLASMAPHYSIK, GARCHING (WEST GERMANY).
Design study of superconducting 5 tesla dipole magnets for MGD generators
[IFP-IV-53] 02 p0067 N74-18328
- MCGILL UNIV., MONTREAL (QUEBEC).
Review of the windpower activities at the Brace Research Institute
02 p0058 N74-16787
- MICHIGAN PUBLIC SERVICE COMMISSION.
Conservation and efficient use of energy: A state regulator's view
03 p0100 N74-21686
- MICHIGAN UNIV., ANN ARBOR.
Experimental determination of dynamic characteristics of hydrogen oxygen fuel cell systems
01 p0009 N74-10074
- Liquid hydrogen as a fuel for motor vehicles; a comparison with other systems
02 p0074 N74-19391
- Preliminary reports, memoranda and technical notes of the Materials Research Council summer conference. Volume 2: Proceedings of the discussion group on solar energy conversion
[AD-777737] 03 p0109 N74-26518
- MINNESOTA POWER AND LIGHT CO., DULUTH.
Use of western coal and air water quality control by Minnesota Power and Light Company
03 p0116 N74-28024
- MINNESOTA POWER COOPERATIVE, INC., GRAND FORKS, N. DAK.
Lignite and the cyclone burner in a new 235-mw generating station
03 p0116 N74-28031
- Detailed construction and equipment costs for the 235-mw Hilton R. Young Generating Station
03 p0117 N74-28032
- MITRE CORP., SCLMAY, VA.
Energy, resources and the environment
[N72-180-REV-1] 01 p0032 N74-15695
- Solar energy systems
[N73-26] 02 p0064 N74-17795
- Symposium on Energy, Resources and the Environment. Volume 1: Session on International Issues
[N72-69-VOL-1-REV-2] 02 p0068 N74-18582
- Introductory remarks
02 p0068 N74-18583

The international aspects of importing natural gas
02 p0068 W74-18588

Symposium on Energy, Resources and the
Environment. Session on Ethics and
Environmental Aspects of the Demand for and
Use of Energy, volume 2
[M72-69-VOL-2-REV-1] 02 p0068 W74-18591

Issues involved in developing an environmental
ethic 02 p0069 W74-18594

Environmental issues and institutional
arrangements 02 p0069 W74-18595

Environmental issues, an overview
02 p0069 W74-18597

Symposium on Energy, Resources and the
Environment. Volume 3: Session on Options for
the Future and their Resources, Economic, and
Environmental Effects
[M72-69-VOL-3-REV-1] 02 p0069 W74-18598

Energy, resources and the environment: A set of
presentations 02 p0075 W74-19615

US transportation: Some energy and
environmental considerations
[M72-164] 02 p0075 W74-19624

Background material for the Energy Policy
Workshop, 11-12 January 1973
[M73-12] 02 p0082 W74-21619

Proposed program and budget for photovoltaic
systems [MTR-6613] 03 p0119 W74-28538

MITRE CORP., WASHINGTON, D.C.

Dissemination and utilization of solar energy
research results [MTR-6544] 03 p0120 W74-28540

Solar energy, proof of concept experiments
[MTR-6537] 03 p0120 W74-28541

Systems analysis of solar energy programs.
Appendix: Research tasks
[MTR-6513-APP] 03 p0120 W74-28542

MOLECULAR ENERGY CORP., MURRAY HILL, N.J.

Construction of 850 and 4,000 ampere-hour
silver-zinc cells using inorganic separator
[AD-771397] 02 p0064 W74-17798

MONTANA POWER CO., BUTTE.

Low gas temperature solution to high resistivity
ash problems 03 p0116 W74-28027

MONTANA STATE UNIV., BOZEMAN.

Technical feasibility study for the development
of a large capacity wind powered electrical
generating system 02 p0059 W74-16791

MOTOREN- UND TURBINEN-UNION MUENCHEN G.M.B.H. (WEST
GERMANY).

Investigation of the relative merits of
different power plants for STOL-aircraft with
blown flap application 02 p0078 W74-20406

N

NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH
COUNCIL, WASHINGTON, D.C.

Substitute catalysts for platinum in automobile
emission control devices and petroleum refining
[PB-222167/9] 01 p0018 W74-11941

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975-1976 Federal automobile
emission standards for hydrocarbons and oxides
of nitrogen [PB-224863/1GA] 02 p0065 W74-18287

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Automotive spark ignition engine emission
control systems to meet the requirements of
the 1970 clean air amendments
[PB-224862/3GA] 02 p0065 W74-18288

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards. A
critique of the 1975 Federal automobile
emission standard for carbon monoxide,
National Academy of Sciences
[PB-224861/5GA] 02 p0065 W74-18289

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards
[PB-224858/1GA] 02 p0066 W74-18291

NAS report on technological feasibility of
1975-1976 motor vehicle emissions standards.
Manufacturability and costs to proposed
low-emission automotive engine systems
[PB-224864/9GA] 02 p0066 W74-18292

NAS report on technological feasibility of
1975-1976 motor vehicle emissions standards.
Feasibility of meeting the 1975-1976 exhaust
emission standards in actual use
[PB-224865/6GA] 02 p0066 W74-18303

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
An evaluation of alternative power sources for
low-emission automobiles, National Academy of
Sciences [PB-224859/9GA] 02 p0067 W74-18406

NAS report on technological feasibility of
1975-1976 motor vehicle emission standards.
Evaluation of catalyst as automotive exhaust
treatment devices, National Academy of Sciences
[PB-224860/7GA] 02 p0067 W74-18407

Report by the Committee on Motor Vehicle Emissions
02 p0073 W74-19240

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

A computer program to determine geometric
parameters for the APN solar arrays
[NASA-TN-X-70656] 03 p0106 W74-25619

Solar energy research and utilization
[NASA-TN-X-70660] 03 p0106 W74-25621

A power conditioning system for radioisotope
thermoelectric generator energy sources
[NASA-TN-X-70678] 03 p0117 W74-28106

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
LANGLEY RESEARCH CENTER, LANGLEY STATION, VA.

Design considerations for the
airframe-integrated scramjet
[NASA-TN-X-2895] 01 p0019 W74-12448

Aeronautical fuel conservation possibilities for
advanced subsonic transports
[NASA-TN-X-71927] 02 p0080 W74-20654

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
LEWIS RESEARCH CENTER, CLEVELAND, OHIO.

Refan program. Phase 1: Summary report
[NASA-TN-X-71456] 01 p0009 W74-10043

Properties of solid polymer electrolyte
fluorocarbon film
[NASA-TN-D-7482] 01 p0011 W74-10547

Solar energy to meet the nation's energy needs
[NASA-TN-X-68290] 01 p0011 W74-10754

The use of FEP Teflon in solar cell cover
technology [NASA-TN-X-71485] 01 p0012 W74-10944

Electric vehicle battery research and development
[NASA-TN-X-71471] 01 p0012 W74-10946

The multiple junction edge illuminated solar cell
[NASA-TN-X-71476] 01 p0012 W74-10947

Figure-of-merit calculation methods for organic
heat-pipe fluids [NASA-TN-X-2945] 01 p0015 W74-11736

Emission calculations for a scramjet powered
hypersonic transport [NASA-TN-X-71464] 01 p0018 W74-12445

Feasibility of space disposal of radioactive
nuclear waste. 1: Executive summary
[NASA-TN-X-2911] 01 p0025 W74-14533

Effect of water injection on nitric oxide
emissions of a gas turbine combustor burning
natural gas fuel [NASA-TN-X-2959] 01 p0025 W74-14651

Method of making silicon solar cell array
[NASA-CASE-LEW-11069-1] 01 p0027 W74-14784

The NASA-Lewis terrestrial photovoltaics program
[NASA-TN-X-71491] 01 p0028 W74-14788

Wind energy conversion systems
[NASA-TN-X-69786] 02 p0055 W74-16757

Where there is a wind, there is a way
02 p0055 W74-16763

Batteries for storage of wind-generated energy
02 p0058 W74-16784

NASA presentation 02 p0060 W74-16799

H2-O2 combustion powered steam-HRD central power
systems [NASA-TN-X-71512] 02 p0060 W74-16800

Light bulb heat exchanger for
magnetohydrodynamic generator applications -
Preliminary evaluation [NASA-TN-D-7534] 02 p0067 W74-18557

- Computer program for thermodynamic analysis of open cycle multishaft power system with multiple reheat and intercool
[NASA-TN-D-7589] 02 p0071 N74-18727
- A simplified life-cycle cost comparison of various engines for small helicopter use
[NASA-TN-X-71517] 02 p0074 N74-19405
- NASA Lewis R2-02 HED program
[NASA-TN-X-71520] 02 p0076 N74-19697
- Status of wind-energy conversion
[NASA-TN-X-71523] 02 p0077 N74-19705
- Clean fuels from biomass
[NASA-TN-X-71538] 02 p0077 N74-19706
- Development concept for a small, split-core, heat-pipe-cooled nuclear reactor
[NASA-TN-X-2996] 02 p0078 N74-20238
- Jet engine exhaust emissions of high altitude commercial aircraft projected to 1990
[NASA-TN-X-3007] 02 p0079 N74-20591
- Feasibility of space disposal of radioactive nuclear waste. 2: Technical summary
[NASA-TN-X-2912] 03 p0102 N74-22504
- State of technology on hydrogen fueled gas turbine engines
[NASA-TN-X-71561] 03 p0107 N74-26253
- Preliminary performance appraisal of Navy V/STOL transport and search-type airplanes using hydrogen fuel
[NASA-TN-X-71550] 03 p0108 N74-26435
- Status of PEP encapsulated solar cell modules used in terrestrial applications
[NASA-TN-X-71564] 03 p0109 N74-26508
- Low-cost, air mass 2 solar simulator
[NASA-TN-X-3059] 03 p0114 N74-27719
- Design and evaluation of experimental ceramic automobile thermal reactors
[NASA-TN-D-7706] 03 p0117 N74-28035
- Evaluation of alloys and coatings for use in automobile thermal reactors
[NASA-TN-D-7699] 03 p0122 N74-28990
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
MARSHALL SPACE FLIGHT CENTER, HUNTSVILLE, ALA.
- Solar energy power system
[NASA-CASE-MFS-21628-1] 01 p0025 N74-14496
- A panel for selectively absorbing solar thermal energy and the method for manufacturing the panel
[NASA-CASE-MFS-22562-1] 02 p0076 N74-19700
- The development of a solar-powered residential heating and cooling system
[NASA-TN-X-70089] 03 p0108 N74-26504
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.
PASADENA OFFICE, CALIF.
- Method of forming a wick for a heat pipe
[NASA-CASE-MPO-13391-1] 02 p0074 N74-19584
- Heat operated cryogenic electrical generator
[NASA-CASE-MPO-13303-1] 02 p0077 N74-19701
- Electric power generation system directly from laser power
[NASA-CASE-MPO-13308-1] 02 p0077 N74-19702
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
WASHINGTON, D.C.
- Energy-related research and development
02 p0070 N74-18605
- Spaceship earth: A look ahead to a better life
[NASA-TN-X-70139] 03 p0122 N74-29339
- NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER,
ATLANTIC CITY, N.J.
- Aircraft fuel system tests with gelled fuel-flowmeter calibration, fuel boost pump and jettison tests
[FAA-WA-73-43] 01 p0017 N74-11828
- NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.
- Energy conservation through effective utilization
[NBSIR-73-102] 01 p0027 N74-14688
- Technical options for energy conservation in buildings
[NBS-TN-789] 02 p0071 N74-18724
- The energy complex: Target for today's technology
03 p0108 N74-26409
- NATIONAL CENTER FOR ENERGY MANAGEMENT AND POWER,
PHILADELPHIA, PA.
- Thermochemistry of salt hydrates
[PB-227566/9] 03 p0121 N74-28664
- NATIONAL COMMISSION ON MATERIALS POLICY,
WASHINGTON, D.C.
- Compendium of university forums of the National Commission on Materials Policy, May - June 1972. A background document. NCHP forum on Technological Innovation in the Production and Utilization of Materials at Pennsylvania State University, on 19-21 June 1972
[PB-223679/2GA] 01 p0025 N74-14251
- Compendium of University forums of the National Commission on Materials Policy, May - June 1972. A background document. University Forum on National Materials Policy, Massachusetts Institute of Technology on 30 May - 2 June 1972
[PB-223678/4GA] 01 p0029 N74-15290
- NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC., NEW YORK.
- Energy consumption and gross national product in the United States: An examination of a recent change in the relationship
01 p0030 N74-15681
- NATIONAL ENVIRONMENTAL RESEARCH CENTER, RESEARCH TRIANGLE PARK, N.C.
- Proceedings, Coal Combustion Seminar
[PB-224210/5GA] 02 p0051 N74-16627
- Atmospheric emissions from the petroleum refining industry
[PB-225040/5GA] 02 p0066 N74-18305
- NATIONAL MATERIALS ADVISORY BOARD, WASHINGTON, D.C.
- A semi-Delphi exercise on substitute catalysts for platinum in automobile emission control devices and petroleum refining
[NAB-314] 03 p0110 N74-26641
- NATIONAL RESEARCH COUNCIL OF CANADA, OTTAWA (ONTARIO).
- Investigation of silicon photoelectric cells as precision photodetectors
[NRC-TT-1686] 01 p0010 N74-10199
- Quarterly bulletin of the Division of Mechanical Engineering and the National Aeronautical Establishment, 1 July - 30 September 1973
[DNE/NAE-1973(3)] 01 p0023 N74-13673
- Energy in transportation
01 p0023 N74-13675
- NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C.
- NSF presentation
02 p0059 N74-16798
- NAVAL CIVIL ENGINEERING LAB., PORT HUENEME, CALIF.
- Substitution of JP-5 aviation fuel for DF-2 diesel under field conditions
[AD-777047] 03 p0107 N74-26243
- NAVAL INTELLIGENCE SUPPORT CENTER, WASHINGTON, D.C.
- Induction magnetohydrodynamic HED generator with a cavity-type nuclear reactor
[AD-777444] 03 p0111 N74-27247
- NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER,
ANNAPOLIS, MD.
- Proceedings of Workshop on Navy Alternate Energy Sources Research and Development
[AD-773746] 02 p0078 N74-19717
- NEW ALCHEMY INST., WOODS HOLE, MASS.
- The sail wing windmill and its adaptation for use in rural India
02 p0056 N74-16771
- NEW SOUTH WALES UNIV., KENSINGTON (AUSTRALIA).
- Energy situation and nuclear power
[NRC-19838] 01 p0029 N74-15391
- NEW YORK STATE OFFICE OF ECONOMIC RESEARCH, ALBANY.
- Consumption of energy in New York State: 1972 (with estimates for 1973)
[OER-19] 02 p0079 N74-20614
- NIIPPON STEEL CORP., YAWATA (JAPAN).
- Studies of heat resistant materials for high-temperature gas reactor
[NASA-TT-F-15576] 03 p0102 N74-22312
- NORTH ATLANTIC TREATY ORGANIZATION, BRUSSELS (BELGIUM).
- Technology of Efficient Energy Utilization
03 p0106 N74-23510
- NORTH CAROLINA STATE UNIV., RALEIGH.
- Balancing the supply and demand for natural gas
02 p0052 N74-16657
- A theoretical analysis of the current-voltage characteristics of solar cells
[NASA-CR-138828] 03 p0120 N74-28544

O

OAK RIDGE NATIONAL LAB., TENN.

Second iteration analysis of a fossil fuel-fired gas turbine-potassium-steam combined cycle
[ORNL-NSF-EP-39] 01 p0019 N74-12577

An inventory of energy research, volume 1
01 p0021 N74-12688

An inventory of energy research, volume 2
01 p0021 N74-12689

Energy research and development: A selected reading list
[ORNL-EIS-73-65-REV-1] 01 p0022 N74-12695

Isotope kilowatt program
[ORNL-TM-4243] 01 p0025 N74-14377

Electric energy requirements for environmental protection
[CONP-730205-4] 01 p0027 N74-14695

Storage and transportation of synthetic fuels. A report to the synthetic fuels panel
[ORNL-TM-4307] 01 p0030 N74-15448

Prospects for hydrogen as a fuel for transportation systems and for electrical power generation
[ORNL-TM-4305] 01 p0030 N74-15449

NSF-RANN energy abstracts: A monthly abstract journal of energy research
[ORNL-EIS-73-52-VOL-1-NO-9] 02 p0062 N74-17680

Energy research and development: A selected reading list
[ORNL-EIS-73-65] 02 p0080 N74-20627

NSF-RANN energy abstracts: A monthly abstract journal of energy research, volume 1, no. 11, November 1973
[ORNL-EIS-73-52-VOL-1-NO-11] 03 p0114 N74-27537

Cryogenic power transmission technology: Cryogenic dielectrics
[ORNL-TM-4433] 03 p0117 N74-28138

OFFICE OF NAVAL RESEARCH, LONDON (ENGLAND).
R&D for power generation: The view of a chosen few
[AD-760342] 01 p0025 N74-14408

OFFICE OF SCIENCE AND TECHNOLOGY, WASHINGTON, D.C.
Energy options 02 p0070 N74-18604

OFFICE OF THE WHITE HOUSE PRESS SECRETARY, WASHINGTON, D.C.
National energy policy for meeting US energy requirements 02 p0079 N74-20613

OKLAHOMA STATE UNIV., STILLWATER.
An electrical generator with a variable speed input: Constant frequency output 02 p0057 N74-16778

Energy storage using high pressure electrolysis and methods for reconversion 02 p0057 N74-16780

OKLAHOMA UNIV., NORMAN.
Manergy: An energy management model of the United States for the prediction of energy demand, resource consumption, environmental effects, the assessment of new technology, and energy resource alternatives 01 p0026 N74-14665

Wind power demonstration and siting problems 02 p0056 N74-16765

OLD DOMINION UNIV., NORFOLK, VA.
The energy dilemma and its impact on air transportation
[NASA-CR-135993] 01 p0015 N74-11743

The energy situation 01 p0016 N74-11744

The air transportation/energy system 01 p0016 N74-11745

Energy conservation and air transportation 01 p0016 N74-11746

An initial step: A demonstration project 01 p0016 N74-11747

Conclusions and recommendations 01 p0016 N74-11748

OREGON STATE UNIV., CORVALLIS.
Wind power research at Oregon State University 02 p0056 N74-16767

The Oregon State University wind studies 02 p0059 N74-16792

Transportation and energy conservation in the Pacific Northwest 03 p0119 N74-28539

OWENS-ILLINOIS, INC., TOLEDO, OHIO.

Exploratory development of a glass ceramic automobile thermal reactor
[NASA-CR-134513] 01 p0019 N74-12447

P

PARENTE (ROBERT B.), LOS ANGELES, CALIF.
Power source quality 01 p0019 N74-12635

PARIS UNIV., ORSAY (FRANCE).
Description of the energy source project delivering 1 megajoule in 1 microsecond
[LP-3] 02 p0061 N74-17454

PEABODY COAL CO., ST. LOUIS, MO.
Balancing the demand and supply of coal 02 p0052 N74-16658

Pipeline transport of liquid coal 03 p0115 N74-28022

PENNSYLVANIA STATE UNIV., UNIVERSITY PARK.
Interdisciplinary applications and interpretations of ERTS data within the Susquehanna River Basin (resource inventory, land use, and pollution)
[E74-10061] 01 p0013 N74-11182

Evaluation of mine electrical systems with respect to safety, technology, economics, and legal considerations. Volume 1: Text, tables and analyses
[PB-225476/1] 03 p0115 N74-27918

PENNSYLVANIA UNIV., PHILADELPHIA.
Solar heat utilization in residential heating systems 01 p0019 N74-12664

PENNSYLVANIA CORP., HOUSTON, TEX.
Economic considerations of utilizing small wind generators 02 p0058 N74-16789

POLYTECHNIC INST. OF BROOKLYN, N.Y.
The synchronous EPD device 01 p0024 N74-13759

PRATT AND WHITNEY AIRCRAFT, EAST HARTFORD, CONN.
Air mobility fuel cell study
[AD-766757] 01 p0022 N74-12742

The 1.5-kW fuel cell powerplant
[AD-767302] 01 p0022 N74-12744

The 1.5-kW fuel cell powerplant catalyst investigation
[AD-774274] 02 p0081 N74-20710

PRATT AND WHITNEY AIRCRAFT, SOUTH BEND, CONN.
Study of fuel cell system for powered balloon
[AD-766253] 01 p0009 N74-10083

PRATT AND WHITNEY AIRCRAFT, WEST PALM BEACH, FLA.
Influence of fuels and lubricants on turbine engine design and performance, fuel and lubricant analyses
[AD-769309] 02 p0050 N74-16483

PRINCETON UNIV., N.J.
An introduction to the Princeton sailing windmill 02 p0056 N74-16769

R

R AND D ASSOCIATES, SANTA MONICA, CALIF.
ARPA Workshop on Needs of the Department of Defense for Catalysis, Volume 2
[AD-777734] 03 p0114 N74-27610

RAND CORP., SANTA MONICA, CALIF.
Energy demand and its effect on the environment
[P-5048] 01 p0017 N74-11790

Energy trends and their future effects upon transportation 01 p0017 N74-11791

Energy policy research and the State of Florida
[P-5078] 01 p0026 N74-14684

Residential energy use: An econometric analysis
[R-1297-NSF] 01 p0032 N74-15698

A methodology for projecting the electrical energy demand of the manufacturing sector in California
[R-991-NSF/CSRI] 02 p0053 N74-16673

Fuel from organic matter: Possibilities for the state of California
[P-5107] 02 p0054 N74-16674

The Soviet Union, the Middle East, and the evolving world energy situation
[P-5109] 02 p0054 N74-16675

- Measures for slowing growth in electricity consumption
[P-5017] 02 p0054 N74-16676
- Energy conservation in public and commercial buildings
[P-5093] 02 p0054 N74-16677
- A methodology for projecting the electrical energy demand of the commercial sector in California
[R-1106-NSF/CSRA] 02 p0054 N74-16679
- California's electricity quandary. 3: Slowing the growth rate
[R-1116-NSF/CSA] 02 p0054 N74-16680
- Petroleum: A prediction made in 1950
[P-5135] 02 p0065 N74-18194
- The potential for energy conservation in commercial air transport
[R-1360-NSF] 02 p0070 N74-18606
- Transportation energy use in the United States: A statistical history, 1955 - 1971
[R-1391-NSF] 02 p0070 N74-18607
- Energy alternatives for California: The current crisis. 1: The impact of Arab oil export policies on the California energy system
[P-5146] 02 p0080 N74-20621
- Coping with the fuel shortage: A guide for Los Angeles residents
[P-5134] 02 p0080 N74-20622
- Energy alternatives for California: The current crisis. 2: Conservation of energy
[P-5156] 03 p0103 N74-22595
- Energy alternatives for California: The current crisis. 3: Allocation of scarce supplies
[P-5157] 03 p0103 N74-22596
- The policy effects analysis method: A system dynamics simulation study of the defense fuel supply system
[P-5129] 03 p0103 N74-22598
- The price elasticity of residential energy use
[P-5180] 03 p0112 N74-27446
- Energy alternatives for California: The current crisis. 4: Regulatory aspects of energy policy
[P-5158] 03 p0112 N74-27447
- RESEARCH POLYTECHNIC INST., TROY, N.Y.
Long range trends in the character of electric power systems
02 p0049 N74-15908
- RESEARCH INST. OF NATIONAL DEFENSE, SUBSIDIARY (SUNDBY).
Combustion of the gases methane, LP gas and ammonia in a mixing reactor
[FOA-1-C-1442-R3] 01 p0022 N74-12824
- ROCKET PROPULSION ESTABLISHMENT, WRESTCOTT (ENGLAND).
The production of liquid hydrogen at the Rocket Propulsion Establishment
[RPE-TR-71/17] 02 p0061 N74-16996
- ROCKETDYNE, CANOGA PARK, CALIF.
Investigation of chemical APU application for small ground power sources
[AD-765724] 01 p0009 N74-10082
- S**
- SANDIA LABS., ALBUQUERQUE, N.MEX.
Economic comparison of two solar/hydrogen concepts
[SLA-73-900] 02 p0060 N74-16810
- Fracture of coal and oil shale for in situ processing or remote removal: A proposal support document
[SLA-73-946] 02 p0073 N74-19047
- Transcript of talk on solar energy
[SLA-73-1025] 03 p0109 N74-26515
- SANTA CLARA UNIV., CALIF.
Electric energy requirements for environmental protection
[CONF-730205-4] 01 p0027 N74-14695
- SCIENCE APPLICATIONS, INC., LA JOLLA, CALIF.
Vertical axis wind rotors: Status and potential
02 p0057 N74-16774
- SCIENTIFIC RESEARCH INSTRUMENTS CORP., BALTIMORE, MD.
Gasification of fossil fuels under oxidative, reductive, and pyrolytic conditions
[PB-228668/0] 03 p0114 N74-27611
- SCIENTIFIC TRANSLATION SERVICE, SANTA BARBARA, CALIF.
Oil exploration subprogram geological interpretation of images provided by the ERTS-A satellite
[NASA-TT-F-15265] 01 p0028 N74-15070
- High powered electrical power generation by wind motors
[NASA-TT-F-15303] 02 p0045 N74-15739
- Economy and practical applications of large wind-driven power plants, part 1
[NASA-TT-F-15308] 02 p0045 N74-15741
- Importance and progress of wind power utilization in Denmark
[NASA-TT-F-15353] 02 p0045 N74-15746
- Characteristic lines (yearly permanent level lines) and characteristic wind variables for wind energy production
[NASA-TT-F-15354] 02 p0046 N74-15747
- The large scale wind driven electrical generating station
[NASA-TT-F-15313] 02 p0046 N74-15750
- Utilization of wind power with Ward-Leonard type circuit in inverted operation
[NASA-TT-F-15352] 02 p0046 N74-15751
- Importance and progress of wind power utilization in Denmark
[NASA-TT-F-15349] 02 p0046 N74-15754
- The direct driving of synchronous generators by large scale wind electrical power generating plants in parallel operation with a synchronizing network, part 1
[NASA-TT-F-15301] 02 p0047 N74-15757
- Parallel operation of a synchronous generator and an infinitely high-powered network when driven by a Honnef-Gross wind turbine
[NASA-TT-F-15302] 02 p0047 N74-15762
- Antenna towers as wind tower generation plants
[NASA-TT-F-15304] 02 p0047 N74-15763
- The utilization of the wind energy
[NASA-TT-F-15344] 02 p0048 N74-15769
- Small wind-electrical installations for export
[NASA-TT-F-15350] 02 p0048 N74-15770
- The economy and practicality of large scale wind generation stations (conclusion)
[NASA-TT-F-15348] 02 p0060 N74-16802
- The dc generators for utilizing wind power
[NASA-TT-F-15351] 02 p0063 N74-17789
- High wind power plants
[NASA-TT-F-15444] 02 p0077 N74-19709
- Wind power turbogenerator for high altitude wind utilization
[NASA-TT-F-15455] 03 p0099 N74-21677
- Wind generating stations under joint operational conditions
[NASA-TT-F-15637] 03 p0106 N74-25617
- Statistical summary and evaluation on electric power generation from wind power stations
[NASA-TT-F-15651] 03 p0106 N74-25618
- Study of the possibility of using solar radiant energy for welding and brazing metals
03 p0115 N74-28005
- Cost effectiveness of tungsten carbide-carbon fuel cells
[NASA-TT-F-15748] 03 p0120 N74-28543
- SELECT COMMITTEE ON SMALL BUSINESS (U. S. HOUSE).
Energy crisis and small business
01 p0027 N74-14691
- Concentration by competing raw fuel industries in the energy market and its impact on small business. Volume 2: Tennessee Valley area
[H-REPT-92-1313] 02 p0075 N74-19605
- Phase 4 oil regulations and petroleum marketing problems
[GPO-24-574] 03 p0112 N74-27465
- SERVICIO GEOLOGICO DE BOLIVIA, LA PAZ.
Petroleum exploration subprogram: Geological interpretation of proportional imagery from ERTS-A satellite
[E74-10213] 01 p0028 N74-15020
- Oil exploration subprogram geological interpretation of images provided by the ERTS-A satellite
[NASA-TT-F-15265] 01 p0028 N74-15070
- SIRRA CLUB, WASHINGTON, D.C.
Man versus his institutions
02 p0070 N74-18603
- SOLAR WIND CO., EAST HOLDEN, MAINE.
Wind power systems for individual applications
02 p0058 N74-16788

SOUTHERN METHODIST UNIV., DALLAS, TEX.

Development of geothermal reservoirs from over-pressured areas beneath the Gulf coastal plain of Texas. A feasibility study of power production from overpressured reservoirs [AD-766455] 01 p0018 H74-12183

SOUTHWEST RESEARCH INST., SAN ANTONIO, TEX.

Performance of Aray engines with leaded and unleaded gasoline. Phase 1: Laboratory testing [AD-766760] 02 p0061 H74-17523

Installation of turbine-fuels research combustor laboratory [AD-772945] 02 p0073 H74-18897

STANFORD RESEARCH INST., ARLINGTON, VA.

Legal considerations and constraints on US nuclear policy [AD-754641] 01 p0024 H74-13697

STANFORD RESEARCH INST., MENLO PARK, CALIF.

Government, policies, national objectives, and the energy industries 02 p0051 H74-16653

Meeting California's energy requirements, 1975-2000 02 p0076 H74-19629

Patterns of energy consumption in the United States 02 p0080 H74-20699

Pollution-free electrochemical power generation from low grade coal [PB-228006/3] 03 p0114 H74-27543

STATE OF OHIO DEPT. OF DEVELOPMENT, COLUMBUS.

Relevance of ERTS to the State of Ohio [H74-10024] 01 p0013 H74-11159

STEVENS INST. OF TECH., HOBOKEN, N.J.

The hydrogen IC engine: Its origins and future in the emerging energy-transportation-environment system [REPT-729212] 02 p0067 H74-18403

STUTTGART UNIV. (WEST GERMANY).

Past developments of large wind generators in Europe 02 p0055 H74-16761

Some extemporaneous comments on our experiences with towers for wind generators 02 p0059 H74-16796

Feasibility study and development of a constant temperature heat pipe system. Phase 2: Experimental design [ESFO-CR(P)-430] 03 p0122 H74-29332

SUN OIL CO., PHILADELPHIA, PA.

Balancing the demand and supply of other energy forms 02 p0052 H74-16660

SYDNEY UNIV. (AUSTRALIA).

Alternative energy sources: A research challenge [CONF-730560-1] 01 p0024 H74-14097

Energy resources and usage [ER-2] 03 p0114 H74-27536

SYSTEMS RESEARCH LABS., INC., DAYTON, OHIO.

KIVA-1 HRE generator modifications and tests [AD-770663] 02 p0060 H74-16815

Investigation in energy transfer and energy conversion for advanced power and propulsion systems [AD-771581] 02 p0067 H74-18417

T

TECHNISCHE HOOGESCHOOL, DRELT (NETHERLANDS).

Aviation needs and public concerns 02 p0062 H74-17685

TECHTRAN CORP., GLEN BURNIE, MD.

Economics of air transport [NASA-TT-P-15249] 01 p0026 H74-14682

Neuwerk windmill power generation plant [NASA-TT-P-15306] 02 p0045 H74-15740

Utilization of wind power [NASA-TT-P-15300] 02 p0046 H74-15756

Lines of development of rural wind power plants [NASA-TT-P-15513] 02 p0081 H74-20701

The measurement of large wind energy generators [NASA-TT-P-15433] 03 p0104 H74-22703

Meeting future peak electrical energy demands by means of electrochemical storage systems [NASA-TT-P-15634] 03 p0104 H74-22709

TENNESSEE UNIV., KNOXVILLE.

Strip-mined watershed hydrologic data acquisition study [PB-223558/8GA] 01 p0025 H74-14105

TETRA TECH, INC., ARLINGTON, VA.

Ultra-deep drilling for geothermals [AD-774108] 03 p0102 H74-22074

TEXAS INSTRUMENTS, INC., DALLAS.

ERTS-1 imagery use in reconnaissance prospecting: Evaluation of the commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum [H74-10007] 01 p0013 H74-11148

ERTS-1 imagery use in reconnaissance prospecting: Evaluation of commercial utility of ERTS-1 imagery in structural reconnaissance for minerals and petroleum [H74-10345] 02 p0082 H74-20948

TEXAS UNIV., AUSTIN.

Balancing the demand and supply of oil 02 p0052 H74-16656

Environmental protection and long run supply of crude oil in the United States 02 p0052 H74-16661

TOMPKIN (JOSEPH), SALEM, ORR.

Introduction to Voigt's wind power plant 02 p0055 H74-16762

Voigt variable speed drive 02 p0057 H74-16779

TRANSPORTATION SYSTEMS CENTER, CAMBRIDGE, MASS.

Energy statistics: A supplement to the summary of national transportation statistics [PB-225331/8GA] 02 p0070 H74-18633

TRW SYSTEMS GROUP, REDONDO BEACH, CALIF.

A study of mandatory engine maintenance for reducing vehicle exhaust emissions. Volume 7: A user's manual and guide to the economic effectiveness computer program [PB-225141/90A] 02 p0073 H74-19268

TRW SYSTEMS, SAN DIEGO, CALIF.

A study of mandatory engine maintenance for reducing vehicle exhaust emissions. Volume 8: Experimental characterization of vehicle emissions and maintenance status [PB-225024/4GA] 02 p0074 H74-19269

TULANE UNIV., NEW ORLEANS, LA.

Investigation of energy conversion in rapidly cycling fuel cells. 1. A system for studying the surface diffusion of hydrogen on platinum, 2 02 p0071 H74-18728

U

UNION ELECTRIC CO., ST. LOUIS, MO.

Recycling solid waste for utility fuel and recovery of other resources 02 p0071 H74-18725

UNITED AIRCRAFT CORP., STRATFORD, CONN.

Dynamic model wind tunnel tests of a variable-diameter, telescoping-blade rotor system (TRAC rotor) [AD-771037] 02 p0061 H74-17764

UNITED NATIONS DEVELOPMENT PROGRAM.

Carbonization and hydrogenation of coal [ID/86] 03 p0105 H74-23072

UNITED NATIONS, NEW YORK.

Natural resources development and policies, including environmental considerations. Addendum: Changing patterns in the world energy situation [E/C.7/2/ADD.1] 02 p0070 H74-18609

V

VIRGINIA UNIV., CHARLOTTESVILLE.

National energy policies 02 p0069 H74-18592

W

WASHINGTON STATE UNIV., PULLMAN.

Transportation and energy conservation in the Pacific Northwest 03 p0119 H74-20539

WASHINGTON UNIV., SEATTLE.

A critical review of mathematical diffusion modeling techniques for predicting air quality with relation to motor vehicle transportation [PB-224656/9GA] 02 p0066 H74-18304

WEST TEXAS STATE UNIV., CANTON.

Need for a regional wind survey 02 p0055 H74-16764

WESTINGHOUSE ELECTRIC CORP., BOULDER, COLO.
Solar thermal electric power systems
03 p0109 #74-26509

WESTINGHOUSE ELECTRIC CORP., EAST PITTSBURGH, PA.
The effect of fuel availability on future R and
D programs in power generation
01 p0031 #74-15689

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
Method of forming a wick for a heat pipe
[NASA-CASR-WPO-13391-1] 02 p0074 #74-19584
World energy and the oceans
03 p0115 #74-27827

WINDWORKS, INC., WUKWANAGO, WIS.
The use of paper honeycomb for prototype blade
construction for small to medium-sized wind
driven generators
02 p0056 #74-16770

WISCONSIN UNIV., MADISON.
Wind-powered asynchronous AC/DC/AC converter
system
02 p0057 #74-16777
Electricity growth: Economic incentives and
environmental quality
03 p0100 #74-21687

WOLF RESEARCH AND DEVELOPMENT CORP., POCONOKE CITY,
MD.
Applicability of Skylab remote sensing for
detection and monitoring of surface mining
activities
[#74-10160] 01 p0024 #74-14028
Applicability of Skylab remote sensing for
detection and monitoring of surface mining
activities
[#74-10572] 03 p0121 #74-28816

WOODS HOLE OCEANOGRAPHIC INSTITUTION, MASS.
Review of the results from the Eastern Atlantic
Continental Margin Program of the
International Decade of Ocean Exploration
[PB-225036/3GA] 02 p0065 #74-18073
Review of the results from the eastern Atlantic
continental margin program of the
international decade of ocean exploration
[PB-226580/9GA] 03 p0102 #74-22091

WYOMING UNIV., LARAMIE.
Low energy gas utilization in combustion gas
turbine
01 p0029 #74-15447
Retorting indexes for oil-shale pyrolyses from
ethylene-ethane ratios of product gases
[BM-BI-7921] 03 p0114 #74-27592

X

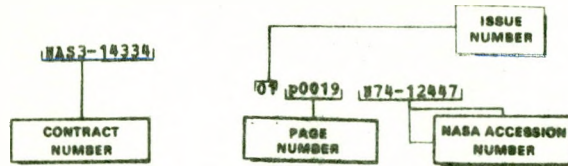
XEROX, ROCHESTER, N.Y.
Refurbishment of solar simulation optical train
mirror assemblies
[NASA-CN-134123] 01 p0018 #74-12016

CONTRACT NUMBER INDEX

ENERGY / A Continuing Bibliography (Issue 03)

FEBRUARY 1975

Typical Contract Number Index Listing



Listings in this index are arranged alphanumerically by contract number. Under each contract number, the accession numbers denoting documents that have been produced as a result of research done under that contract are arranged in ascending order with the IAA accession numbers appearing first. The accession number denotes the number by which the citation is identified in either the IAA or STAR section. Preceding the accession number are the issue and page number in the particular supplement in which the citation may be found.

AF PROJ. 683M
01 p0022 N74-12742
02 p0082 N74-21391
AF PROJ. 3048
02 p0050 N74-16483
AF PROJ. 3144
01 p0011 N74-10681
AF PROJ. 3145
03 p0107 N74-26255
AF PROJ. 6665
01 p0009 N74-10083
AF PROJ. 7116
02 p0067 N74-18417
AF PROJ. 7360
02 p0049 N74-16264
AF PROJ. 9800
01 p0012 N74-10949
AF 29(600)-2671
02 p0036 A74-23091
AF 49(638)-1207
02 p0036 A74-23091
AF-AFOSR-72-2299
01 p0006 A74-17905
AF-AFOSR-2393-72
02 p0064 N74-17801
AEO PROJ. PF226
01 p0017 N74-11852
ARPA ORDER 1622-3
02 p0048 N74-15776
ARPA ORDER 2184
01 p0018 N74-12183
02 p0064 N74-17801
ARPA ORDER 2341
03 p0109 N74-26518
ARPA ORDER 2419
03 p0102 N74-22074
AT(29-1)-789
02 p0060 N74-16810
02 p0073 N74-19047
03 p0109 N74-26515
AT(45-1)-1830
03 p0120 N74-28546
AT(49-15)-3063
02 p0043 A74-27833
DA PROJ. 1F1-62204-A-139
02 p0061 N74-17764
DA PROJ. 1G6-63702-DG-10
01 p0022 N74-12744
01 p0024 N74-13766
02 p0081 N74-20710
DA PROJ. 1T0-61102-A-34A
01 p0010 N74-10085
01 p0013 N74-10951
03 p0101 N74-21698

DA PROJ. 1T0-62105-A-106
02 p0049 N74-15817
DA PROJ. 1T6-62611-A-106
03 p0107 N74-26239
DA PROJ. 1T6-62705-A-012
01 p0010 N74-10086
03 p0101 N74-21696
DA PROJ. 1T7-62705-A-053
02 p0072 N74-18737
DA PROJ. 4A0-62112-A-891
02 p0061 N74-16819
DAAB07-71-C-0134
02 p0035 A74-20630
DAAB07-72-C-0114
02 p0072 N74-18737
DAAD05-70-C-0007
02 p0073 N74-18897
DAAD05-72-C-0427
02 p0061 N74-17523
DAAD05-73-C-0558
03 p0107 N74-26239
DAAJ02-68-C-0074
02 p0061 N74-17764
DAAK02-70-C-0518
01 p0022 N74-12744
02 p0081 N74-20710
DAAK02-71-C-0397
01 p0024 N74-13766
DAAK02-72-C-0084
01 p0013 N74-10951
DAAK02-72-C-0247
01 p0010 N74-10086
DAAK02-72-C-0424
01 p0009 N74-10082
DAAK02-72-C-0458
03 p0101 N74-21696
DAAK02-72-C-0474
03 p0121 N74-28553
DAAK02-73-C-0084
01 p0010 N74-10085
03 p0101 N74-21698
DABC04-73-C-0032
03 p0102 N74-22292
DABC15-71-C-0253
03 p0109 N74-26518
DABC15-73-C-0312
03 p0114 N74-27610
DABC19-71-C-0001
01 p0024 N74-13697
DGRST-70-7-2503
03 p0101 N74-21921
DI-BH-GO-1011729
03 p0115 N74-27918
DI-14-31-0001-3843
01 p0025 N74-14105

DI-14-32-0001-1209
03 p0096 A74-37613
DI-14-32-0001-1211
03 p0096 A74-37616
DOT-FA72NA-3118
02 p0062 N74-17779
02 p0062 N74-17780
02 p0062 N74-17781
E-3002
03 p0119 N74-28539
EPA-S-802255
02 p0076 N74-19699
EPA-68-01-0402
02 p0065 N74-18287
02 p0065 N74-18288
02 p0065 N74-18289
02 p0066 N74-18291
02 p0066 N74-18292
02 p0066 N74-18303
02 p0067 N74-18406
02 p0067 N74-18407
EPA-68-01-0430
01 p0011 N74-10747
EPA-68-02-0206
03 p0114 N74-27611
EPA-68-02-0629
02 p0066 N74-18313
EPA-68-04-0014
02 p0067 N74-18414
EPA-70-126
02 p0066 N74-18294
ESTEC-1703/72-SK
03 p0122 N74-29332
FAA PROJ. 181-520-020
01 p0017 N74-11828
FSTC PROJ. T7023012301
01 p0011 N74-10874
F19628-73-C-0139
01 p0009 N74-10083
F29601-72-C-0083
01 p0022 N74-12742
F29601-73-C-0101
02 p0082 N74-21391
F33615-70-C-1515
02 p0067 N74-18417
F33615-71-C-1144
03 p0090 A74-34978
F33615-71-C-1425
02 p0060 N74-16815
F33615-71-C-1470
02 p0050 N74-16483
F33615-71-C-1905
03 p0107 N74-26255
F33615-72-C-1088
02 p0036 A74-23221
03 p0095 A74-37605
F33615-72-C-1163
03 p0090 A74-34978
F33615-72-C-1310
03 p0086 A74-33971
F33615-73-C-3130
03 p0090 A74-34978
F33615-73-C-5074
02 p0049 N74-16264
F44620-69-C-0031
03 p0095 A74-37607
F44620-72-C-0053
02 p0048 N74-15776
F44620-73-C-0001
03 p0083 A74-28957
03 p0096 A74-37616
F44620-73-C-0045
03 p0095 A74-37612
GS-00-DS-(P)-94008
01 p0018 N74-11941
03 p0110 N74-26641
JPL-953074
02 p0074 N74-19584
JPL-953461
02 p0060 N74-16807
JPL-953680
01 p0009 N74-10078

NAONR-16-73
01 p0013 N74-10952
NAONR-19-72
01 p0013 N74-10952
NASA ORDER L-58514
01 p0005 A74-14892
NASA ORDER S-70243-AG
01 p0014 N74-11188
NASN-2362
03 p0119 N74-28537
NASN-2481
02 p0045 N74-15734
02 p0045 N74-15742
02 p0045 N74-15743
02 p0045 N74-15745
02 p0046 N74-15749
02 p0046 N74-15752
02 p0046 N74-15753
02 p0046 N74-15755
02 p0047 N74-15758
02 p0047 N74-15759
02 p0047 N74-15760
02 p0047 N74-15761
02 p0047 N74-15764
02 p0048 N74-15765
02 p0048 N74-15766
02 p0048 N74-15767
02 p0048 N74-15768
02 p0063 N74-17792
02 p0077 N74-19708
02 p0078 N74-19710
02 p0081 N74-20700
03 p0099 N74-21678
03 p0099 N74-21679
03 p0099 N74-21680
03 p0099 N74-21681
03 p0100 N74-21682
03 p0102 N74-22312
03 p0104 N74-22708
NASN-2482
01 p0012 N74-10948
02 p0046 N74-15748
02 p0055 N74-16756
02 p0060 N74-16801
02 p0060 N74-16803
02 p0063 N74-17786
02 p0063 N74-17787
03 p0109 N74-26512
NASN-2483
01 p0028 N74-15070
02 p0045 N74-15739
02 p0045 N74-15741
02 p0045 N74-15746
02 p0046 N74-15747
02 p0046 N74-15750
02 p0046 N74-15751
02 p0046 N74-15754
02 p0047 N74-15757
02 p0047 N74-15762
02 p0047 N74-15763
02 p0048 N74-15769
02 p0048 N74-15770
02 p0060 N74-16802
02 p0063 N74-17789
02 p0077 N74-19709
03 p0099 N74-21677
03 p0106 N74-25617
03 p0106 N74-25618
03 p0120 N74-28543
NASN-2485
01 p0026 N74-14682
02 p0045 N74-15740
02 p0046 N74-15756
02 p0046 N74-15756
03 p0104 N74-22700
03 p0104 N74-22709
NAS3-14319
02 p0050 N74-16493
NAS3-14334
01 p0019 N74-12447
NAS3-14364
02 p0063 N74-17788

CONTRACT NUMBER INDEX

NAS3-15826
01 p0002 A74-12242
03 p0088 A74-34387
NAS3-16804
02 p0063 W74-17784
NAS3-16828
03 p0100 W74-21685
NAS3-17326
03 p0117 W74-28230
NAS5-21735
01 p0018 W74-12119
NAS5-21762
03 p0101 W74-22014
NAS5-21778
03 p0104 W74-22954
NAS5-21782
01 p0013 W74-11159
NAS5-21795
01 p0014 W74-11195
02 p0049 W74-16007
02 p0065 W74-18012
NAS5-21796
01 p0013 W74-11148
02 p0082 W74-20948
NAS5-21876
01 p0023 W74-13051
NAS5-23133
01 p0013 W74-11182
NAS7-100
03 p0088 A74-34370
03 p0092 A74-36226
01 p0009 W74-10078
01 p0027 W74-14785
02 p0060 W74-16807
02 p0074 W74-19584
02 p0076 W74-19698
02 p0077 W74-19701
02 p0077 W74-19702
03 p0104 W74-22704
NAS8-25996
03 p0119 W74-28536
NAS9-11461
01 p0018 W74-12016
NAS9-11532
02 p0036 A74-23091
NAS9-11927
03 p0102 W74-22569
NAS9-13297
02 p0065 W74-18007
NAS9-13310
01 p0024 W74-14028
03 p0121 W74-28816
NAS9-13358
02 p0049 W74-16019
NAS9-13394
03 p0104 W74-22954
NGL-66-001-015
03 p0104 W74-22954
03 p0105 W74-22955
NGL-17-004-024
01 p0024 W74-14093
NGL-44-005-114
01 p0014 W74-11728
NGL-06-002-127
03 p0084 A74-30335
NGL-10-005-022
01 p0009 W74-10075
NGL-11-002-145
01 p0002 A74-13234
NGL-11-002-166
02 p0071 W74-18721
03 p0103 W74-22590
03 p0103 W74-22603
03 p0103 W74-22604
03 p0105 W74-23481
NGL-11-002-181
03 p0106 W74-25615
NGL-33-016-131
01 p0006 A74-18797
NGL-34-002-195
03 p0120 W74-28544
NGL-01-003-044
01 p0020 W74-12674
NGL-44-005-114
01 p0014 W74-11727
NGL-47-003-028
01 p0015 W74-11743
NOD-9925
03 p0102 W74-22074
NR PROJ. 213-098
03 p0099 W74-21665

NR PROJ. 274-164
03 p0121 W74-28551
NR PROJ. 9800
01 p0013 W74-10950
NSP AG-465
02 p0055 W74-16757
NSP AG-485
03 p0104 W74-22704
03 p0104 W74-22705
NSP C-645
01 p0017 W74-11795
01 p0017 W74-11796
NSP C-727
03 p0083 A74-28957
03 p0096 A74-37616
NSP C-831
03 p0119 W74-28538
03 p0120 W74-28540
03 p0120 W74-28541
03 p0120 W74-28542
NSP GI-44
01 p0032 W74-15698
02 p0053 W74-16673
02 p0054 W74-16679
02 p0054 W74-16680
02 p0070 W74-18606
02 p0070 W74-18607
NSP GI-27876
03 p0121 W74-28664
NSP GI-29726
01 p0030 W74-15667
03 p0099 W74-21675
03 p0101 W74-21771
03 p0102 W74-22581
03 p0103 W74-22592
03 p0107 W74-26244
NSP GI-32488
01 p0019 W74-12462
01 p0025 W74-14499
NSP GI-32874
02 p0054 W74-16690
03 p0101 W74-21697
NSP GI-34027
03 p0114 W74-27543
NSP GI-34872
03 p0110 W74-26522
NSP GI-34979
03 p0110 W74-26523
NSP GI-36731X
03 p0106 W74-25616
03 p0108 W74-26503
NSP GI-37815
03 p0109 W74-26509
NSP GI-39114
03 p0110 W74-26519
03 p0110 W74-26520
NSP GI-39115
03 p0110 W74-26521
NSP GK-2773
02 p0043 A74-27842
NSP GK-38130
03 p0086 A74-33106
03 p0096 A74-37615
NSP GX-28193
02 p0065 W74-18073
03 p0102 W74-22091
NSP-1A-AAA-B-479
01 p0022 W74-12695
N00014-72-C-0194
03 p0090 A74-34844
N00014-72-C-0405
03 p0099 W74-21665
N00014-73-C-0039
01 p0012 W74-10949
01 p0013 W74-10950
N00014-73-C-0195
03 p0121 W74-28551
N00017-72-C-4401
02 p0081 W74-20709
N00019-70-C-0498
02 p0064 W74-17799
N00024-73-C-5043
02 p0064 W74-17798
OST-40
02 p0050 W74-16339
PROJ. 2950
03 p0119 W74-28538
03 p0120 W74-28540
03 p0120 W74-28541
03 p0120 W74-28542

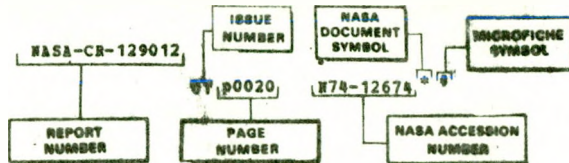
PROJECT TRENDS
03 p0095 A74-37607
RF0180206
01 p0013 W74-10952
R0240302
01 p0013 W74-10952
SRI PROJ. MCC-2355
02 p0076 W74-19629
SRI PROJ. 8974
01 p0024 W74-13697
W-31-109-ENG-38
-02 p0061 W74-17527
W-7405-ENG-26
01 p0019 W74-12577
01 p0022 W74-12695
01 p0025 W74-14377
01 p0030 W74-15448
01 p0030 W74-15449
02 p0062 W74-17680
02 p0080 W74-20627
03 p0114 W74-27537
03 p0117 W74-28138
W-7405-ENG-36
01 p0022 W74-12696
02 p0065 W74-17871
03 p0100 W74-21689
03 p0100 W74-21690
03 p0100 W74-21691
03 p0104 W74-22615
03 p0117 W74-28108
W-7405-ENG-48
01 p0023 W74-13537
01 p0023 W74-13538
03 p0109 W74-26514
03 p0120 W74-28547
501-04-03-03
01 p0019 W74-12448
501-21
03 p0117 W74-28035
03 p0122 W74-28990
501-24
01 p0025 W74-14651
02 p0071 W74-18727
02 p0079 W74-20591
502-25
01 p0011 W74-10547
03 p0114 W74-27719
503-10
02 p0067 W74-18557
503-25
02 p0078 W74-20238
503-35
01 p0015 W74-11736
739-70
01 p0009 W74-10043
770-18
01 p0025 W74-14533
03 p0102 W74-22504
791-93-60-01
02 p0080 W74-20654

REPORT/ACCESSION NUMBER INDEX

ENERGY / A Continuing Bibliography (Issue 03)

FEBRUARY 1973

Typical Report/Accession Number Index Listing



Listings in this index are arranged alphanumerically by report number. The issue and page number indicate the actual Supplement and page where the citation may be located. The accession number denotes the number by which the citation is identified. An asterisk (*) indicates that the item is a NASA report. A pound sign (#) indicates that the item is available on microfiche. A plus sign (+) indicates a document that cannot be microfiched but for which one-to-one facsimile is available.

AD-754020	01	p0048	N74-15777	*
AD-754641	01	p0024	N74-13697	*
AD-754703	01	p0010	N74-10120	*
AD-754947	02	p0048	N74-15776	*
AD-756068	01	p0010	N74-10084	*
AD-756810	01	p0011	N74-10751	*
AD-758186	02	p0049	N74-15817	*
AD-760342	01	p0025	N74-14408	*
AD-760395	01	p0011	N74-10874	*
AD-760868	02	p0055	N74-16697	*
AD-761576	02	p0054	N74-16691	*
AD-765476	02	p0061	N74-15819	*
AD-765724	01	p0009	N74-10082	*
AD-765753	01	p0012	N74-10898	*
AD-765845	01	p0009	N74-10080	*
AD-765933	01	p0011	N74-10681	*
AD-766232	01	p0017	N74-11852	*
AD-766253	01	p0009	N74-10083	*
AD-766312	01	p0010	N74-10086	*
AD-766313	01	p0010	N74-10085	*
AD-766329	01	p0013	N74-10951	*
AD-766493	01	p0013	N74-10950	*
AD-766500	01	p0012	N74-10949	*
AD-766588	01	p0013	N74-10952	*
AD-766757	01	p0022	N74-12742	*
AD-766760	02	p0061	N74-17523	*
AD-766855	01	p0018	N74-12183	*
AD-766969	01	p0014	N74-11519	*
AD-767302	01	p0022	N74-12744	*
AD-767402	01	p0024	N74-13766	*
AD-769309	02	p0050	N74-16483	*
AD-769449	02	p0049	N74-16264	*
AD-770000	02	p0061	N74-16816	*
AD-770063	02	p0060	N74-16815	*
AD-771016	02	p0064	N74-17801	*
AD-771037	02	p0061	N74-17764	*
AD-771198/96A	02	p0074	N74-19408	*
AD-771389	02	p0064	N74-17799	*
AD-771397	02	p0064	N74-17798	*
AD-771581	02	p0067	N74-18417	*
AD-771603	02	p0062	N74-17779	*
AD-771606	02	p0062	N74-17780	*
AD-771750	02	p0071	N74-18638	*
AD-771759	02	p0062	N74-17781	*
AD-772723	02	p0074	N74-19413	*
AD-772944	02	p0072	N74-18737	*
AD-772945	02	p0073	N74-18897	*
AD-773264	02	p0081	N74-20704	*
AD-773292	02	p0079	N74-20453	*
AD-773325	02	p0081	N74-20705	*
AD-773746	02	p0078	N74-19717	*
AD-773893	02	p0081	N74-20703	*

AD-774108	03	p0102	N74-22078	*
AD-774274	02	p0081	N74-20710	*
AD-774563	02	p0082	N74-21391	*
AD-774736	02	p0081	N74-20709	*
AD-774820	03	p0101	N74-21696	*
AD-774832	03	p0101	N74-21698	*
AD-775053	03	p0104	N74-22622	*
AD-775138	03	p0102	N74-22372	*
AD-775246	03	p0099	N74-21665	*
AD-775392	03	p0102	N74-22292	*
AD-775749	03	p0107	N74-26255	*
AD-775859	03	p0107	N74-26239	*
AD-776551	03	p0107	N74-25623	*
AD-776731	03	p0107	N74-26400	*
AD-776734	03	p0107	N74-25625	*
AD-777047	03	p0107	N74-26243	*
AD-777448	03	p0111	N74-27247	*
AD-777734	03	p0114	N74-27610	*
AD-777737	03	p0109	N74-26518	*
AD-778550	03	p0121	N74-28553	*
AD-778757	03	p0121	N74-28551	*
AD-778801	03	p0122	N74-29207	*
ADL-C-74030	02	p0063	N74-17788	*
AEC-TR-7475	02	p0072	N74-18731	*
AEDC-TR-73-115	01	p0017	N74-11852	*
AER-73-15	02	p0079	N74-20614	*
AFAPL-TR-73-52-VOL-2	02	p0050	N74-16483	*
AFAPL-TR-73-71	02	p0060	N74-16815	*
AFAPL-TR-74-6	03	p0107	N74-26255	*
AFCLL-TR-73-0447	01	p0009	N74-10083	*
AFRL-21	02	p0061	N74-17523	*
AFRL-27	02	p0073	N74-18897	*
AFRL-TR-73-167	02	p0049	N74-16264	*
AFOSR-73-0034TR	02	p0048	N74-15776	*
AFOSR-73-1344TR	01	p0018	N74-12183	*
AFOSR-73-2070TR	02	p0064	N74-17801	*
AFWL-TR-73-26	04	p0022	N74-12742	*
AFWL-TR-73-244	02	p0082	N74-21391	*
AHS PREPRINT 871	03	p0094	N74-366	*
AIAA PAPER 73-1105	01	p0002	N74-12242	*
AIAA PAPER 73-1113	01	p0001	N74-10691	*
AIAA PAPER 73-1168	01	p0001	N74-11219	*
AIAA PAPER 73-1232	01	p0001	N74-11257	*
AIAA PAPER 73-1319	01	p0006	N74-17905	*
AIAA PAPER 73-1323	01	p0002	N74-11315	*
AIAA PAPER 74-160	01	p0006	N74-18797	*
AIAA PAPER 74-162	01	p0006	N74-18798	*
AIAA PAPER 74-163	02	p0033	N74-19353	*
AIAA PAPER 74-489	02	p0043	N74-27833	*
AIAA PAPER 74-507	03	p0086	N74-33106	*
AIAA PAPER 74-720	03	p0092	N74-35953	*
AIAA PAPER 74-723	03	p0092	N74-35954	*
AIAA PAPER 74-811	03	p0097	N74-37821	*
AIAA PAPER 74-813	03	p0097	N74-37822	*
ANL-ENG-73-02	01	p0013	N74-10952	*
ANL-8045	02	p0061	N74-17527	*
AP-42	02	p0066	N74-18300	*
AP-110	02	p0073	N74-19222	*
APL-TG-1229	02	p0081	N74-20709	*

REPORT/ACCESSION NUMBER INDEX

APTD-1357 01 p0011 H74-10747 #
 APTD-1374 02 p0067 H74-18414 #
 APTD-1567 02 p0066 H74-18294 #
 APTD-1568-PT-1 02 p0050 H74-16332 #
 APTD-1568-PT-2 02 p0050 H74-16333 #

 APTIC-41654 03 p0111 H74-27088 #
 APTIC-41655-APP 03 p0111 H74-27089 #
 APTIC-47644 01 p0018 H74-12321 #

 ABL-73-0122 02 p0067 H74-18417 #

 ARO-PMT-TR-73-75 01 p0017 H74-11852 #

 ASOB-9239-10-M 03 p0102 H74-22292 #

 ASME PAPER 73-PWR-C 03 p0097 A74-37791 #
 ASME PAPER 73-WA/GT-2 01 p0002 A74-13293 #
 ASME PAPER 74-GT-79 02 p0042 A74-27466 #

 ASTRONAUT-PB-32 03 p0111 H74-27353 #

 AT-6097-R12 02 p0067 H74-18414 #

 EM-IC-8240-SUPPL 01 p0032 H74-15691 #
 EM-IC-8534 01 p0032 H74-15691 #
 EM-IC-8543 03 p0115 H74-28020 #
 EM-IC-8549 02 p0072 H74-18815 #
 EM-IC-86C7 03 p0105 H74-23337 #
 EM-IC-8612 02 p0080 H74-20619 #

 EM-OFB-70(1)-73 03 p0115 H74-27918 #

 EM-BI-7756 01 p0010 H74-10129 #
 EM-BI-7796 02 p0051 H74-16620 #
 EM-BI-7806 01 p0011 H74-10715 #
 EM-BI-7837 03 p0105 H74-23190 #
 EM-BI-7869 03 p0121 H74-28919 #
 EM-BI-7871 02 p0062 H74-17666 #
 EM-BI-7884 02 p0078 H74-20069 #
 EM-BI-7921 03 p0114 H74-27592 #
 EM-BI-7923 03 p0121 H74-28911 #
 EM-BI-7924 03 p0121 H74-28652 #

 EM-TFB-73 01 p0018 H74-12159 #
 EM-TFB-76 02 p0049 H74-15808 #
 EM-TFB-77 02 p0073 H74-19117 #

 EMFI-FBT-02 01 p0015 H74-11739 #

 EMFR-7 01 p0023 H74-13051 #

 ENL-18224 02 p0060 H74-16809 #
 ENL-18376 03 p0117 H74-28205 #

 ENWL-1801 03 p0120 H74-28546 #

 ER36685 02 p0061 H74-16996 #

 C-75457 03 p0103 H74-22602 #

 CCL-321 02 p0049 H74-15817 #

 CE-BIB-28B.1 02 p0073 H74-19113 #
 CE-BIB-220 02 p0062 H74-17660 #

 CERL-PR-E-13 02 p0061 H74-16819 #

 CIRC-647 02 p0049 H74-16049 #
 CIRC-650 01 p0031 H74-15685 #
 CIRC-650 02 p0075 H74-19614 #

 CONF-730205-4 01 p0027 H74-14695 #
 CONF-730223-1 03 p0114 H74-27536 #
 CONF-730440-1 01 p0022 H74-12696 #
 CONF-73056C-1 01 p0024 H74-14097 #
 CONF-730970 03 p0117 H74-28205 #
 CONF-731002-1 01 p0023 H74-13538 #
 CONF-731102-1 02 p0074 H74-19375 #

 CRAWFIELD-CTS-1 02 p0070 H74-18610 #

 CRC-APRAC-CAPE-13-68-15-VOL-7 02 p0073 H74-19268 #
 CRC-APRAC-CAPE-13-68-16-VOL-8 02 p0074 H74-19269 #

 CTS-2 02 p0072 H74-18892 #

 DDC-TAS-74-2 02 p0071 H74-18638 #

DDC-TAS-74-10 02 p0081 H74-20703 #

 DFVLR-SOMDDR-301 01 p0006 A74-18925

 DGLE PAPER 73-092 01 p0005 A74-17195 #
 DGLR PAPER 73-107 01 p0005 A74-17204 #

 DHE/WAE-1973(3) 01 p0023 H74-13673 #

 DOT-TSC-OST-73-34 02 p0070 H74-18633 #

 DRL-2-PT-1 03 p0102 H74-22549 #

 DTE-72-3-PT-1 03 p0102 H74-22569 #

 E-26-606-PT-2 03 p0105 H74-23481 #
 E-7175 03 p0117 H74-28035 #
 E-7518 02 p0071 H74-18727 #
 E-7536 01 p0011 H74-10547 #
 E-7542 02 p0078 H74-20238 #
 E-7565 01 p0025 H74-14651 #
 E-7593 02 p0067 H74-18557 #
 E-7625 01 p0011 H74-10754 #
 E-7632 01 p0015 H74-11734 #
 E-7676 03 p0182 H74-22504 #
 E-7679 01 p0025 H74-18533 #
 E-7749 01 p0009 H74-18043 #
 E-7760 01 p0018 H74-12445 #
 E-7772 01 p0013 H74-10944 #
 E-7795 01 p0012 H74-10947 #
 E-7813 01 p0012 H74-10944 #
 E-7822 02 p0079 H74-20591 #
 E-7828 01 p0028 H74-14788 #
 E-7856 03 p0122 H74-28990 #
 E-7885 03 p0114 H74-27719 #
 E-7890 02 p0060 H74-16880 #
 E-7907 02 p0076 H74-18697 #
 E-7908 02 p0074 H74-18683 #
 E-7912 02 p0077 H74-19745 #
 E-7945 02 p0077 H74-19745 #
 E-7962 03 p0100 H74-26433 #
 E-7990 03 p0107 H74-26253 #
 E-7998 03 p0109 H74-26508 #

 E/C.7/2/ADD.1 02 p0070 H74-18688 #

 ECOM-0114-F 02 p0072 H74-18737 #

 EDO-9972 02 p0064 H74-17799 #

 EFI-74-21 02 p0078 H74-19711 #

 EOS-1155 01 p0018 H74-12816 #

 EPA-R2-73-249 02 p0066 H74-18313 #
 EPA-R5-73-021 02 p0064 H74-17800 #

 EPA-650/2-73-017 02 p0066 H74-18305 #
 EPA-650/2-73-021 02 p0051 H74-16627 #

 EQL-MEMO-5 03 p0101 H74-21771 #
 EQL-MEMO-6 03 p0103 H74-22592 #
 EQL-MEMO-7 03 p0107 H74-26244 #
 EQL-MEMO-10 03 p0102 H74-22581 #
 EQL-MEMO-11 03 p0099 H74-21675 #

 EQL-7 01 p0030 H74-18667 #

 ER-2 03 p0114 H74-27536 #

 ERC-00845 01 p0010 H74-10085 #
 ERC-0397F 01 p0024 H74-13764 #
 ERC-0959F 01 p0010 H74-18086 #
 ERC-1455F 03 p0101 H74-21696 #
 ERC-2597S 03 p0101 H74-21698 #

 ESRO-CR(P)-430 03 p0122 H74-29332 #

 E74-10007 01 p0013 H74-11148 #
 E74-10024 01 p0013 H74-11159 #
 E74-10029 01 p0018 H74-12119 #
 E74-10061 01 p0013 H74-11182 #
 E74-10073 01 p0014 H74-11188 #
 E74-10083 01 p0014 H74-11195 #
 E74-10124 01 p0023 H74-13851 #
 E74-10160 01 p0024 H74-14828 #
 E74-10213 01 p0028 H74-15820 #
 E74-10238 02 p0049 H74-16007 #
 E74-10258 02 p0049 H74-16019 #

REPORT/ACCESSION NUMBER INDEX

E74-10331	02	p0065	N74-18007**	IGU/A-1-73	01	p0026	N74-14666
E74-10336	02	p0065	N74-18012**	IPP-IV-53	02	p0067	N74-18328 *
E74-10345	02	p0082	N74-20948**	IR-2	02	p0076	N74-19699 *
E74-10490	03	p0101	N74-22014**	ISL-CO-2/73	03	p0105	N74-23327 *
E74-10507	03	p0104	N74-22954**	ITR-2	03	p0101	N74-21698 *
E74-10508	03	p0105	N74-22955**	ITR-3	01	p0013	N74-10951 *
E74-10572	03	p0121	N74-28816**	JPL-SP-43-3-VOL-1	03	p0104	N74-22704**
FAA-NA-73-43	01	p0017	N74-11828 *	JPL-SP-43-3-VOL-2	03	p0104	N74-22705**
FAA-RD-73-138	01	p0017	N74-11828 *	JPL-TN-33-621	01	p0027	N74-14785**
FDA-1-C-1442-M3	01	p0022	N74-12824 *	JPL-TN-33-676	02	p0076	N74-19698**
FSTC-HT-23-131-73	02	p0061	N74-16816 *	JPL-1200-59-VOL-1	01	p0023	N74-13466**
FSTC-HT-23-1011-72	02	p0048	N74-15777 *	JPL-1200-59-VOL-2	01	p0023	N74-13467**
FSTC-HT-23-1016-73	01	p0012	N74-10898 *	JPRS-60546	01	p0022	N74-12693 *
FSTC-HT-23-1023-72	03	p0107	N74-25623 *	JPRS-60584	01	p0023	N74-13428 *
FSTC-HT-23-1248-72	01	p0011	N74-10874 *	JPRS-60972	02	p0050	N74-16424 *
FSTC-HT-23-1275-72	01	p0010	N74-10084 *	JPRS-61101	02	p0062	N74-17661 *
FSTC-HT-23-1838-72	01	p0010	N74-10128 *	JPRS-61359	02	p0071	N74-18723 *
FSTC-HT-23-1981-72	02	p0074	N74-19808 *	JPRS-62129	03	p0110	N74-26775 *
FSTC-HT-23-2026-72	01	p0009	N74-10080 *	JPRS-62139	03	p0110	N74-26774 *
FTD-HT-23-8-74	02	p0081	N74-20704 *	JPRS-62196	03	p0117	N74-28168 *
FTD-HT-23-26-74	02	p0081	N74-20703 *	JUL-982-BB	02	p0080	N74-20626 *
FTD-HT-23-537-74	02	p0074	N74-19413 *	KS-27	01	p0018	N74-12321 *
FTD-HT-23-698-74	03	p0102	N74-22372 *	L-8152	01	p0019	N74-12448**
FTD-HT-23-701-74	03	p0122	N74-29207 *	LA-TB-73-40	02	p0072	N74-18729 *
FTD-HT-23-702-73	01	p0014	N74-11519 *	LA-UR-73-570	01	p0022	N74-12696 *
FTD-HT-23-872-74	03	p0107	N74-26400 *	LA-UR-73-910	02	p0074	N74-19375 *
FTD-HT-24-2-74	03	p0107	N74-25625 *	LA-UR-73-926	03	p0100	N74-21690 *
FTD-HT-24-287-72	01	p0011	N74-10751 *	LA-UR-73-1075	03	p0100	N74-21691 *
FTD-HT-24-661-73	02	p0079	N74-20453 *	LA-UR-73-1316	02	p0100	N74-21689 *
FTD-HT-24-1737-72	01	p0011	N74-10681 *	LA-5406-MS	02	p0065	N74-17871 *
FUPB-G-4	02	p0074	N74-19290 *	LA-5447-MS	03	p0104	N74-22615 *
G-70172-100B8, 73-408	03	p0111	N74-26873 *	LA-5456-MS	03	p0117	N74-28108 *
GPO-20-345	02	p0082	N74-21625 *	LBL-1773	01	p0023	N74-13538 *
GPO-20-768	03	p0112	N74-27450 *	LP-3	02	p0061	N74-17454 *
GFC-20-928	03	p0111	N74-27438 *	LRF-63/73	01	p0010	N74-10391 *
GFC-21-438	03	p0108	N74-26505 *	M-TU-74-3	03	p0108	N74-26504**
GPO-21-548	03	p0108	N74-26412 *	MEC-10-73	02	p0064	N74-17798 *
GPO-22-629	03	p0108	N74-26411 *	HIT-8L-73-1	03	p0101	N74-21697 *
GPO-23-614	03	p0118	N74-28449 *	HIT-8L-73-015	02	p0054	N74-16690 *
GPO-23-764	03	p0105	N74-23487 *	HITSG-74-7	03	p0115	N74-27826 *
GPO-24-116	03	p0123	N74-29344 *	MTB-6513-APP	03	p0120	N74-28542 *
GPO-24-290	03	p0113	N74-27525 *	MTB-6537	03	p0120	N74-28541 *
GFC-24-574	03	p0112	N74-27465 *	MTB-6544	03	p0120	N74-28540 *
GFC-24-682	03	p0113	N74-27526 *	MTB-6613	03	p0119	N74-28538 *
GPO-24-846	03	p0123	N74-29352 *	M72-69-VOL-1-REV-2	02	p0068	N74-18582 *
GPO-24-936	03	p0106	N74-23511 *	M72-69-VOL-2-REV-1	02	p0068	N74-18591 *
GFC-25-108	03	p0111	N74-27442 *	M72-69-VOL-3-REV-1	02	p0069	N74-18598 *
GFC-25-424	03	p0118	N74-28445 *	M72-164	02	p0075	N74-19624 *
GPO-25-650	03	p0118	N74-28450 *	M72-180-REV-1	01	p0032	N74-15695 *
GPO-25-654	03	p0113	N74-27527 *	M73-12	02	p0082	N74-21619 *
GPO-25-702	03	p0123	N74-29346 *	M73-26	02	p0064	N74-17795 *
GPO-26-038	03	p0112	N74-27444 *	M73-61	02	p0075	N74-19615 *
GPO-26-473	03	p0109	N74-26506 *	NASA-CASE-LBN-11069-1	01	p0027	N74-14784*
GFC-26-725	03	p0111	N74-27443 *	NASA-CASE-HFS-21628-1	01	p0025	N74-14496**
GFC-27-213	03	p0118	N74-28452 *	NASA-CASE-HFS-22562-1	02	p0076	N74-19700**
GFC-27-370	03	p0100	N74-21683 *	NASA-CASE-NPO-13303-1	02	p0077	N74-19701**
GPO-27-709	03	p0118	N74-28440 *	NASA-CASE-NPO-13308-1	02	p0077	N74-19702**
GPO-27-899	03	p0118	N74-28441 *	NASA-CASE-NPO-13391-1	02	p0074	N74-19584**
GPO-28-428	03	p0123	N74-29347 *	NASA-CR-2357	02	p0063	N74-17784**
GFC-28-572	03	p0118	N74-28453 *	NASA-CR-120277	03	p0119	N74-28536**
GPO-29-939	03	p0106	N74-25620 *	NASA-CR-121247	02	p0050	N74-16493**
GFC-31-919	03	p0107	N74-26405 *				
GFC-32-309	03	p0109	N74-26510 *				
GPO-83-011	03	p0112	N74-27454 *				
GPO-56-678	03	p0112	N74-27448 *				
GPO-99-740	02	p0082	N74-21624 *				
GRU-2DJ-73	02	p0066	N74-18313 *				
H-DOC-93-119	03	p0112	N74-27454 *				
H-REPT-92-1313	02	p0075	N74-19605 *				
H-REPT-93-793	03	p0112	N74-27455 *				
HIT-550	02	p0050	N74-16339 *				
ID/86	03	p0105	N74-23072 *				
IGPP-OCR-73-18	02	p0064	N74-17801 *				

REPORT/ACCESSION NUMBER INDEX

NASA-CR-121280	02	p0063	N74-17788**	NASA-TT-F-15299	02	p0046	N74-15755**
NASA-CR-129012	01	p0020	N74-12674**	NASA-TT-F-15300	02	p0046	N74-15756**
NASA-CR-134123	01	p0018	N74-12016**	NASA-TT-F-15301	02	p0047	N74-15757**
NASA-CR-134175	01	p0014	N74-11727**	NASA-TT-F-15302	02	p0047	N74-15762**
NASA-CR-134176	01	p0014	N74-11728**	NASA-TT-F-15303	02	p0045	N74-15739**
NASA-CR-134264	03	p0102	N74-22569**	NASA-TT-F-15304	02	p0047	N74-15763**
NASA-CR-134512	03	p0100	N74-21685**	NASA-TT-F-15305	02	p0048	N74-15766**
NASA-CR-134513	01	p0019	N74-12447**	NASA-TT-F-15306	02	p0045	N74-15740**
NASA-CR-134519	01	p0009	N74-10075**	NASA-TT-F-15307	02	p0060	N74-16801**
NASA-CR-134645	03	p0117	N74-28230**	NASA-TT-F-15308	02	p0045	N74-15741**
NASA-CR-135816	01	p0014	N74-11188**	NASA-TT-F-15309	02	p0055	N74-16756**
NASA-CR-135848	01	p0013	N74-11148**	NASA-TT-F-15310	02	p0046	N74-15748**
NASA-CR-135865	01	p0013	N74-11159**	NASA-TT-F-15311	02	p0045	N74-15734**
NASA-CR-135870	01	p0018	N74-12119**	NASA-TT-F-15312	02	p0046	N74-15749**
NASA-CR-135961	01	p0013	N74-11182**	NASA-TT-F-15313	02	p0046	N74-15750**
NASA-CR-135972	01	p0014	N74-11195**	NASA-TT-F-15331	02	p0045	N74-15743**
NASA-CR-135981	01	p0009	N74-10078**	NASA-TT-F-15332	02	p0048	N74-15767**
NASA-CR-135993	01	p0015	N74-11743**	NASA-TT-F-15333	02	p0047	N74-15758**
NASA-CR-136169	01	p0023	N74-13051**	NASA-TT-F-15334	02	p0047	N74-15759**
NASA-CR-136191	01	p0019	N74-12462**	NASA-TT-F-15336	02	p0047	N74-15760**
NASA-CR-136197	01	p0023	N74-13466**	NASA-TT-F-15337	02	p0048	N74-15768**
NASA-CR-136198	01	p0023	N74-13467**	NASA-TT-F-15338	02	p0047	N74-15761**
NASA-CR-136287	01	p0024	N74-14028**	NASA-TT-F-15342	02	p0047	N74-15764**
NASA-CR-136472	01	p0024	N74-14093**	NASA-TT-F-15343	02	p0048	N74-15765**
NASA-CR-136476	01	p0028	N74-15020**	NASA-TT-F-15344	02	p0048	N74-15769**
NASA-CR-136536	02	p0049	N74-16007**	NASA-TT-F-15345	02	p0046	N74-15752**
NASA-CR-136552	01	p0027	N74-14785**	NASA-TT-F-15346	02	p0046	N74-15753**
NASA-CR-136586	02	p0049	N74-16019**	NASA-TT-F-15347	02	p0063	N74-17786**
NASA-CR-136842	02	p0065	N74-18007**	NASA-TT-F-15348	02	p0060	N74-16802**
NASA-CR-136847	02	p0065	N74-18012**	NASA-TT-F-15349	02	p0046	N74-15754**
NASA-CR-136857	02	p0082	N74-20948**	NASA-TT-F-15350	02	p0048	N74-15770**
NASA-CR-136881	03	p0101	N74-22014**	NASA-TT-F-15351	02	p0063	N74-17789**
NASA-CR-136932	02	p0060	N74-16807**	NASA-TT-F-15352	02	p0046	N74-15751**
NASA-CR-137242	02	p0071	N74-18721**	NASA-TT-F-15353	02	p0045	N74-15746**
NASA-CR-137981	02	p0076	N74-19698**	NASA-TT-F-15354	02	p0046	N74-15747**
NASA-CR-138117	03	p0103	N74-22590**	NASA-TT-F-15355	02	p0063	N74-17787**
NASA-CR-138183	03	p0103	N74-22604**	NASA-TT-F-15356	02	p0060	N74-16803**
NASA-CR-138188	03	p0103	N74-22603**	NASA-TT-F-15357	02	p0045	N74-15749**
NASA-CR-138193	03	p0104	N74-22705**	NASA-TT-F-15419	02	p0063	N74-17792**
NASA-CR-138209	03	p0104	N74-22704**	NASA-TT-F-15433	03	p0104	N74-22703**
NASA-CR-138230	03	p0104	N74-22954**	NASA-TT-F-15441	02	p0077	N74-19708**
NASA-CR-138231	03	p0105	N74-22955**	NASA-TT-F-15442	02	p0078	N74-19710**
NASA-CR-138397	03	p0105	N74-23481**	NASA-TT-F-15444	02	p0077	N74-19709**
NASA-CR-138453	03	p0106	N74-25615**	NASA-TT-F-15455	03	p0099	N74-21677**
NASA-CR-138647	03	p0121	N74-28816**	NASA-TT-F-15512	03	p0099	N74-21678**
NASA-CR-138828	03	p0120	N74-28544**	NASA-TT-F-15513	02	p0081	N74-20701**
NASA-CR-138947	03	p0119	N74-28537**	NASA-TT-F-15514	03	p0099	N74-21679**
				NASA-TT-F-15515	03	p0099	N74-21680**
NASA-TN-X-2895	01	p0019	N74-12448**	NASA-TT-F-15516	02	p0081	N74-20700**
NASA-TN-X-2911	01	p0025	N74-14533**	NASA-TT-F-15517	03	p0109	N74-26512**
NASA-TN-X-2912	03	p0102	N74-22504**	NASA-TT-F-15518	03	p0099	N74-21681**
NASA-TN-X-2945	01	p0015	N74-11736**	NASA-TT-F-15522	03	p0108	N74-21682**
NASA-TN-X-2959	01	p0025	N74-14651**	NASA-TT-F-15576	03	p0102	N74-22312**
NASA-TN-X-2996	02	p0078	N74-20238**	NASA-TT-F-15634	03	p0104	N74-22709**
NASA-TN-X-3007	02	p0079	N74-20591**	NASA-TT-F-15637	03	p0106	N74-25617**
NASA-TN-X-3059	03	p0114	N74-27719**	NASA-TT-F-15651	03	p0106	N74-25618**
NASA-TN-X-68290	01	p0011	N74-10754**	NASA-TT-F-15652	03	p0104	N74-22708**
NASA-TN-X-65786	02	p0055	N74-16757**	NASA-TT-F-15748	03	p0120	N74-28543**
NASA-TN-X-70089	03	p0108	N74-26504**				
NASA-TN-X-70139	03	p0122	N74-29339**	NBS-TN-789	02	p0071	N74-18724
NASA-TN-X-70656	03	p0106	N74-25619**	NBSIR-73-102	01	p0027	N74-14688
NASA-TN-X-70660	03	p0106	N74-25621**	NCEL-TN-1333	03	p0107	N74-26243
NASA-TN-X-70678	03	p0117	N74-28106**				
NASA-TN-X-71456	01	p0009	N74-10043**	NCHP-UF-3	01	p0029	N74-15290
NASA-TN-X-71464	01	p0018	N74-12445**	NCHP-UF-6	01	p0025	N74-14251
NASA-TN-X-71471	01	p0012	N74-10946**				
NASA-TN-X-71476	01	p0012	N74-10947**	MISC-TRANS-3489	03	p0111	N74-27247
NASA-TN-X-71485	01	p0012	N74-10944**				
NASA-TN-X-71491	01	p0028	N74-14788**	NAB-297	01	p0018	N74-11941
NASA-TN-X-71512	02	p0060	N74-16800**	NAB-314	03	p0110	N74-26641
NASA-TN-X-71517	02	p0074	N74-19405**				
NASA-TN-X-71520	02	p0076	N74-19697**	NP-19837	02	p0072	N74-18730
NASA-TN-X-71523	02	p0077	N74-19705**	NP-19838	01	p0029	N74-15391
NASA-TN-X-71538	02	p0077	N74-19706**				
NASA-TN-X-71550	03	p0108	N74-26435**	NRC-TT-1686	01	p0010	N74-10199
NASA-TN-X-71561	03	p0107	N74-26253**				
NASA-TN-X-71564	03	p0109	N74-26508**	NSF-RA-N-74-013-VOL-1	03	p0104	N74-22704**
NASA-TN-X-71927	02	p0080	N74-20654**	NSF-RA-N-74-013-VOL-2	03	p0104	N74-22705**
NASA-TN-D-7482	01	p0011	N74-10547**	NSF-RA/N-73-3	03	p0120	N74-28540
NASA-TN-D-7534	02	p0067	N74-18557**	NSF-RA/N-73-3	03	p0120	N74-28541
NASA-TN-D-7589	02	p0071	N74-18727**	NSF-RA/N-73-3-APP	03	p0120	N74-28542
NASA-TN-D-7699	03	p0122	N74-28990**	NSF-RA/N-73-001	01	p0019	N74-12462**
NASA-TN-D-7706	03	p0117	N74-28035**	NSF-RA/N-73-004	01	p0025	N74-14499
				NSF-RA/N-73-063	03	p0110	N74-26520
NASA-TT-F-15149	02	p0045	N74-15742**	NSF-RA/N-73-064	03	p0110	N74-26521
NASA-TT-F-15184	01	p0012	N74-10948**	NSF-RA/N-73-079	03	p0121	N74-28664
NASA-TT-F-15249	01	p0026	N74-14682**				
NASA-TT-F-15265	01	p0028	N74-15070**				

REPORT/ACCESSION NUMBER INDEX

NSP-BA/N-73-111	03	p0119	N74-28538	02	p0066	N74-18292	
NSP-BA/N-73-0108	03	p0114	N74-27543	02	p0066	N74-18303	
NSP-BA/N-74-002	03	p0110	N74-26523	02	p0074	N74-19244	
NSP-BA/N-74-003	03	p0110	N74-26519	02	p0065	N74-18073	
NSP-BA/W-73-006	02	p0055	N74-16757	02	p0066	N74-18313	
NSP-RANN-71-1-2	01	p0017	N74-11795	02	p0066	N74-18305	
NSP-RANN-71-1-3	01	p0017	N74-11796	02	p0067	N74-18414	
NSP-RANN/SE/GI-3911/PR-74-2	03	p0110	N74-26519	02	p0073	N74-19268	
NSP-RANN/SE/GI-27976/TR-73-4	03	p0121	N74-28664	02	p0070	N74-18633	
NSP-RANN/SE/GI-34872-73-4	03	p0110	N74-26522	03	p0115	N74-27918	
NSP-RANN/SE/GI-36731X/PR/73/3	03	p0106	N74-25616	03	p0105	N74-23337	
NSP-RANN/SE/GI-39114/PR-73-1	03	p0110	N74-26520	03	p0101	N74-21697	
NSRDC-4195	02	p0078	N74-19717	03	p0102	N74-22091	
NTC-74-11868	03	p0108	N74-26496	03	p0105	N74-23190	
NTI/T1065A	03	p0121	N74-28551	03	p0110	N74-26522	
OR-10-SUPPL	02	p0079	N74-20614	03	p0121	N74-28664	
OR-19	02	p0079	N74-20614	03	p0114	N74-27543	
ORERA, TP NO. 1311	02	p0037	A74-24313	03	p0110	N74-26521	
ORIS-TR-20	01	p0012	N74-10949	03	p0110	N74-26523	
ORNL-C-10-73	01	p0025	N74-14408	03	p0110	N74-26519	
ORNL-EIS-73-52-VOL-1-NO-9	02	p0062	N74-17680	03	p0110	N74-26520	
ORNL-EIS-73-52-VOL-1-NO-11	02	p0114	N74-27537	03	p0114	N74-27611	
ORNL-EIS-73-65	03	p0080	N74-20627	03	p0121	N74-28919	
ORNL-EIS-73-65-REV-1	01	p0022	N74-12695	03	p0111	N74-27162	
ORNL-NSP-EP-39	01	p0019	N74-12577	PR-37	02	p0080	N74-20647
ORNL-TH-4243	01	p0025	N74-14377	PWA-PR-5673	02	p0050	N74-16483
ORNL-TH-4305	01	p0030	N74-15449	PWA-4635	01	p0022	N74-12742
ORNL-TH-4307	01	p0030	N74-15448	PWA-4704	01	p0022	N74-12744
ORNL-TH-4433	03	p0117	N74-28138	PWA-4704A-SUPPL	02	p0081	N74-20710
ORSEN-SEEL-TR-9-73	01	p0013	N74-11182	PWA-4792	01	p0009	N74-10083
OWBR-A-030-TEWN(1)	01	p0025	N74-14105	QPR-1	03	p0110	N74-26520
P-5017	02	p0054	N74-16676	QPR-3	01	p0024	N74-14028
P-5046	01	p0017	N74-11791	QPR-3	02	p0049	N74-16019
P-5048	01	p0017	N74-11790	QPR-5	03	p0121	N74-28816
P-5078	01	p0026	N74-14684	QR-1	01	p0026	N74-14686
P-5053	02	p0054	N74-16677	R-679-5	01	p0011	N74-10747
P-5107	02	p0054	N74-16674	R-991-NSF/CSRA	02	p0053	N74-16673
P-5109	02	p0054	N74-16675	R-1106-NSF/CSRA	02	p0054	N74-16679
P-5129	03	p0103	N74-22598	R-1116-NSF/CSA	02	p0054	N74-16680
P-5135	02	p0065	N74-18194	R-1297-NSF	01	p0032	N74-15698
P-5146	02	p0080	N74-20621	R-1360-NSF	02	p0070	N74-18606
P-5154	02	p0080	N74-20622	R-1391-NSF	02	p0070	N74-18607
P-5156	03	p0103	N74-22595	R-9284	01	p0009	N74-10082
P-5157	03	p0103	N74-22596	RDA-TR-3501-002-VOL-2	03	p0114	N74-27610
P-5158	03	p0112	N74-27447	REPT-73-145	03	p0108	N74-26496
P-5180	03	p0112	N74-27446	REPT-73-310448	03	p0111	N74-27280
PB-207518	01	p0017	N74-11795	REPT-735D231	01	p0012	N74-10949
PB-207519	01	p0017	N74-11796	REPT-74-1	03	p0105	N74-22951
PB-221659	01	p0019	N74-12462	REPT-74-3	03	p0104	N74-22954
PB-222167/9	01	p0018	N74-11941	REPT-74-13-EP	03	p0122	N74-29343
PB-222609/0	01	p0010	N74-10129	REPT-74-78EP	03	p0122	N74-29342
PB-222849/2	01	p0011	N74-10747	REPT-732-015-1	01	p0009	N74-10078
PB-223326/CGA	01	p0028	N74-14791	REPT-2817-3001	02	p0049	N74-16264
PB-223536/4GA	01	p0025	N74-14499	REPT-729212	02	p0067	N74-18403
PB-223558/8GA	01	p0025	N74-14105	RGH-042	03	p0107	N74-26239
PB-223678/4GA	01	p0029	N74-15290	RPE-TR-71/17	02	p0061	N74-16996
PB-223679/2GA	01	p0025	N74-14251	RPR-12.1	02	p0066	N74-18304
PB-223996/0GA	02	p0066	N74-18300	RR-35	01	p0025	N74-14105
PB-224045/5GA	02	p0054	N74-16690	R74ABG153	02	p0050	N74-16493
PB-224119/8GA	02	p0050	N74-16339	S-REPT-93-526	01	p0027	N74-14693
PB-224210/5GA	02	p0051	N74-16627	SAE PAPER 740381	03	p0083	A74-28746
PB-224243/6GA	02	p0066	N74-18294	SAE PAPER 740382	03	p0083	A74-28747
PB-224251/9GA	02	p0050	N74-16332	SAE PAPER 740451	03	p0090	A74-34985
PB-224252/7GA	02	p0050	N74-16333	SAE PAPER 740453	03	p0091	A74-35006
PB-224493/7GA	02	p0064	N74-17800	SAE PAPER 740472	03	p0091	A74-35001
PB-224656/9GA	02	p0066	N74-18304	SAE PAPER 740474	03	p0091	A74-35000
PB-224750/0GA	02	p0071	N74-18634	SAE PAPER 740480	03	p0090	A74-34978
PB-224858/1GA	02	p0066	N74-18291	SAE PAPER 740488	03	p0091	A74-34993
PB-224859/9GA	02	p0067	N74-18406	SAE PAPER 740493	03	p0091	A74-34990
PB-224860/7GA	02	p0067	N74-18407	SAE PAPER 740494	03	p0090	A74-34989
PB-224861/5GA	02	p0065	N74-18289	SAR-15	01	p0009	N74-10075
PB-224862/3GA	02	p0065	N74-18288	SD-72-SA-0173	03	p0111	N74-27353
PB-224863/1GA	02	p0065	N74-18287				

REPORT/ACCESSION NUMBER INDEX

SER-50797	02	p0061	N74-17764	0
SLA-73-900	02	p0060	N74-16810	0
SLA-73-904	02	p0073	N74-19047	0
SLA-73-1025	03	p0109	N74-26515	0
SRIC-72EPA-650/2-73-042	03	p0114	N74-27611	0
SSC-TN-8974-68	01	p0024	N74-13697	0
SW-36D.II	02	p0076	N74-19699	0
TETRA-T-A-74-339-005	03	p0102	N74-22074	0
TID-26342	01	p0017	N74-11851	0
TM-73-489	02	p0050	N74-16493	00
TP-360	03	p0122	N74-29343	0
TP-450-USE	03	p0122	N74-29342	0
TR-82	03	p0102	N74-22292	0
UCID-16317	01	p0023	N74-13537	0
UCID-16386-PT-2	03	p0120	N74-28547	0
UCRL-51469	03	p0109	N74-26514	0
UKI-TN70-73-CEED4	02	p0071	N74-18634	0
UKI-TN76-73-IMHR1	03	p0118	N74-28439	0
US-PATENT-AFEL-SW-83816	01	p0027	N74-14784	0
US-PATENT-AFEL-SW-421702	01	p0025	N74-14496	00
US-PATENT-AFEL-SW-446567	02	p0074	N74-19584	00
US-PATENT-AFEL-SW-455164	02	p0077	N74-19702	00
US-PATENT-AFEL-SW-457295	02	p0077	N74-19701	00
US-PATENT-AFEL-SW-458484	02	p0076	N74-19700	00
US-PATENT-CLASS-29-572	01	p0027	N74-14784	0
US-PATENT-CLASS-29-588	01	p0027	N74-14784	0
US-PATENT-CLASS-136-89	01	p0027	N74-14784	0
US-PATENT-3,780,424	01	p0027	N74-14784	0
USANRDL-TN-73-32	02	p0061	N74-17764	0
USAPA-TN-74-2	03	p0104	N74-22622	0
USAMERDC-21583	03	p0121	N74-28553	0
USGS-CIRC-694	03	p0121	N74-28897	0
U1-702700-P	02	p0082	N74-20948	00
U1-702700-2	01	p0013	N74-11148	00
WASH-1281	03	p0119	N74-28465	0
WHOI-COMTRIF-3218	02	p0065	N74-18073	0
WHOI-COMTRIF-3218	03	p0102	N74-22091	0
WHOI-REF-73-75	03	p0102	N74-22091	0
WHOI-73-75	02	p0065	N74-18073	0
W73-14368	01	p0025	N74-14105	0
X-704-74-139	03	p0106	N74-25621	00
X-711-74-121	03	p0106	N74-25619	00
X-711-74-164	03	p0117	N74-28106	00