

EPRI-TC-80-907-4

**EPRI**

EPRI TC-80-907  
TC-80-907

Conference Proceedings  
December 1980

# Proceedings of the Fourth Annual Geothermal Conference and Workshop

**Keywords:**

Geothermal  
Research Projects  
Power Plants

**MASTER**

Prepared by  
Atlas Corporation  
Santa Cruz, California

ELECTRIC POWER RESEARCH INSTITUTE

## **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.**

THE BACA DATA DISSEMINATION PROGRAM

P. B. Sherwood  
WESTEC Services Inc.  
505 Marquette Avenue, N.W.  
Albuquerque, NM 87102 (505) 243-2835

M. A. Marquis  
Department of Energy  
600 Second Street, N.W.  
Albuquerque, NM 87102

Introduction The goal of the federal government's coordinated program of research and development in geothermal energy is to stimulate the economic, reliable, operationally safe, and environmentally and socially acceptable commercial development of this energy resource. This commercialization plan is based on the premise that developers, utilities, and the financial community will not make large-scale commitments to unfamiliar technology until confidence is gained from the commercial-scale demonstration of this technology. The primary objective of the Baca Geothermal Demonstration Power Plant Project, therefore, is to provide that confidence through a first-of-a-kind commercial-scale fifty-megawatt demonstration of the production of electric power from a liquid-dominated hydrothermal resource in the United States.

The Baca Geothermal Demonstration Power Plant Project is organized and largely cost-shared under a cooperative agreement which casts the U. S. Department of Energy (DOE), Public Service Company of New Mexico (PNM), and Union Geothermal Company of New Mexico (Union) into the roles of partners in a joint undertaking. In the absence of government participation, all technical and financial data generated during plant design, construction and operation would remain proprietary within the respective industrial firms. Under the Baca Cooperative Agreement, however, all such data are to be organized and disseminated to the public at the sole expense of DOE. The Baca data dissemination task is being performed by WESTEC Services, Inc., under contract to PNM and Union.

Project Data Sources The Project will be an integrated commercial-scale geothermal electric power generating plant which utilizes a liquid-dominated resource. As such it will include the geothermal field system, fluid production equipment, fluid transmission system, steam separator system, electric generating plant, H<sub>2</sub>S abatement system, geothermal fluid treatment and spent fluid disposal facilities, and a tie-in to the electric utility transmission network.

All technical data from the Project and most routine interpretation of technical data will be available for dissemination without restriction. However, any computer programs, proprietary interpretive methods, correlations derived from operations outside the Project, and information regarding contractual relationships will generally not be made available for dissemination.

The following categories of data are anticipated to be made available from this Project:

- Financial
  - Capital Costs
  - Resource Development Costs
  - Owners' Costs
  - Operations and Maintenance Costs
  - Fuel Costs
  - Total Generation Costs
- Legal/Licensing/Permitting
  - A Case History of the Regulatory Process Required for the Baca Project
- Facilities Engineering and Operations
  - Engineering and Economic Evaluations
  - Engineering Design Documents
  - Engineering Planning Evaluations
  - Operations and Maintenance Reports
  - Comparisons of Design vs. Actual Performance
  - Operational Characteristics Evaluations
  - Injection Data Evaluations
  - Metallurgical and Chemical Analyses of Materials Problems
- Environmental Monitoring
  - Ecology and Water Quality Monitoring Including Characterization of the Botanical, Zoological, and Hydrological Ecology of the Project Region
  - Meteorology and Air Quality Monitoring, Resulting in Implementation of a Network of Monitoring Stations for Air Quality and Site Meteorology
- Exploration Data
  - Vertical and Horizontal Ground Movement Evaluations

#### Exploration Data (Continued)

- Gravity and Tilt Measurement Evaluations
  - Near-Surface Temperature Measurement Evaluations
  - Electrical Resistivity Studies
  - Telluric Studies
  - Formation Rock Properties
- Resource Development/Production (Subsurface) Data
    - Pressure Transient Analyses
    - Interference Test Analyses
    - Interpretation of Tracer Studies
    - Injectivity of the Reservoir
    - Reservoir Performance Predictions
    - Integrated Reservoir Case History

Information User Groups Very simply, the purpose of the Baca Data Dissemination Program is to link the Project data sources to a potentially broad spectrum of information users and to ultimately provide these information users with the data they need to gain the confidence in this unfamiliar technology required to stimulate further commercial development of this energy resource.

Major sources of project data will include the power plant, the production system, and all associated geological, geophysical, subsurface, environmental, legal and financial data as outlined in the preceding section. Potential users of these data include industrial organizations such as utilities, resource developers, architect-engineering firms, and equipment manufacturers; financial institutions rank high as desired potential data users. Additional anticipated data users include research and academic groups, technical support and field support service organizations, resource conservation and regulatory agencies, and special interest groups. Each of these generic groups will have specific information requirements necessary to influence decisions affecting their future involvement in geothermal projects. One immediate goal of the Baca Data Dissemination Program is to identify and plan for addressing these specific information user requirements.

Information Dissemination Planning The primary objective of the Baca Data Dissemination Program is to provide the generic information user groups, identified in the previous section, with quantitative bases for assessing the technological and economic risks and benefits associated with geothermal development. To meet this objective, an Information Dissemination Plan has been in preparation which will clearly define exactly who each of the user groups are and what information content

and form is acceptable to each. To aid in this planning effort, an industrial and financial community survey has been formulated to identify the specific information needs of each user group addressed.

Once the findings of the industrial and financial community survey have been evaluated, a basic plan for communicating with each of the several user groups will be formulated. The conceptual approach for information communication calls for a series of modular summary report units to be formulated (including both financial and technical report formats), which will be combined into assemblies appropriate to each user group, and disseminated. In some instances, more detailed information will be available to the information user, upon request, in the form of Topical Reports and Quarterly Technical Progress Reports. In addition, an annual Baca Project Symposium will be conducted in Albuquerque, New Mexico, to stimulate better communication and interaction between the information users and the project data analysts. The first such symposium is tentatively scheduled for the late-1980/early-1981 time frame.

Present Status WESTEC Services, Inc. has mobilized a project team with extensive geothermal experience to implement the Baca Data Dissemination Program. Systems, Science and Software is providing the evaluation of geological, geophysical, and subsurface data, while Coopers and Lybrand is providing the project financial analyses. WESTEC Services is providing the overall program management as well as the evaluation of power plant, production system, environmental, legal and institutional data.

A total of over sixty reports or studies relating to the Baca Project have already been prepared by PNM and Union. Executive Summaries of these reports are presently being prepared and will be available to industry by contacting WESTEC Services' Albuquerque Office. The Information Dissemination Plan is expected to be completed in July 1980 along with the first Baca Project Quarterly Technical Progress Report. The first Modular Summary Reports can be expected to appear in early-1981.

#### Bibliography

Maddox, J. D., et al., 1979, Baca Geothermal Demonstration Power Plant Data Gathering, Evaluation and Dissemination, *in* Expanding the Geothermal Frontier, Transactions Vol. 3, GRC Annual Meeting: Reno, Nevada, p. 405-408.