



US/ECRE

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Export Support of Renewable Energy Industries

**Grant Number 1,
Deliverable Number 3,
Final Report**

**Prepared for:
U.S. Department of
Energy/Golden Field Office**

**Under Grant Number
DE-FG36-96GO10158**

MASTER

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SECTION 1 -- PURPOSE

The purpose of this document is to present a final report on grant coordination and effectiveness under Agreement DE-FG36-96GO10158 - Grant 1. This agreement has been issued to the U.S. Export Council for Renewable Energy by the U.S. Department of Energy's Golden Field Office (DOE/GFO).

SECTION 2 -- BACKGROUND

The United States Export Council for Renewable Energy (US/ECRE), a consortium of six industry associations founded in 1982, promotes the interests of the renewable energy and energy efficiency member companies which provide goods and services in biomass, geothermal, hydropower, passive solar, photovoltaics, solar thermal, wind, wood energy, and energy efficiency technologies. US/ECRE member trade associations are: the American Wind Energy Association (AWEA), National Association of Energy Service Companies (NAESCO), National BioEnergy Industries Association (NBIA), Geothermal Energy Association (GEA), National Hydropower Association (NHA), and the Solar Energy Industries Association (SEIA).

These associations offer export promotion services to enhance U.S. industry market share in renewables in the international marketplace. US/ECRE also works closely with three affiliate organizations which are:

- The International Fund for Renewable Energy and Energy Efficiency (IFREE), which provides cost-shared prefeasibility studies for U.S. firms.
- The Renewable Energy and Efficiency Training Institute (REETI), which uses U.S. industry trainers to provide a broad range of short-term renewable energy and energy efficiency courses (technical, financial, institutional and business).
- The Center for Renewable Energy and Sustainable Technology (CREST), which provides outreach on renewable energy and efficiency technologies through the Internet.

US/ECRE's mission is to catalyze export markets for renewable energy and energy efficiency technologies worldwide by:

- strengthening and enhancing U.S. industry efforts to achieve its export goals;
- providing leadership and support in developing new paradigms for widespread adoption of renewable energy and energy efficiency technologies worldwide;
- working to change laws and regulations of target countries to be more conducive to use of renewable energy;

- using international contacts in government, industry, and the utility sector to help identify opportunities for U.S. industry and open new markets;
- marshaling resources that are not available to individual industry associations; and
- assisting U.S. industry in understanding parameters of financing, and its availability.

US/ECRE works with industry on individual projects to help identify and develop business opportunities and to better position U.S. firms in the international marketplace. At the same time, US/ECRE works with host countries, financing institutions, and other organizations to facilitate larger-scale renewable energy programs. Under this grant with the DOE-Golden Field Office, US/ECRE has conducted a number of in-house activities, as well as to manage activities by member trade associations, affiliate organizations and non-member contractors and consultants.

SECTION 3 -- GRANT ACTIVITIES

Activities managed under this Grant Agreement are listed below.

- Grant 1: Grant Management
- Grant 2: Renewable Energy Trade Leads
- Grant 3: Multilateral Development Bank Support
- Grant 4: Small Business Project Development Assistance
- Grant 5: REFAD "Train the Trainer" Follow-Up Support
- Grant 6: Renewable Energy in the Americas (REIA)
- Grant 7: US/ECRE In-Country Representative in Brazil
- Grant 8: Renewable Energy in the Americas Project Support
- Grant 9: Asia-Pacific Market Development
- Grant 10: Asia Pilot Projects
- Grant 11: India Project Development

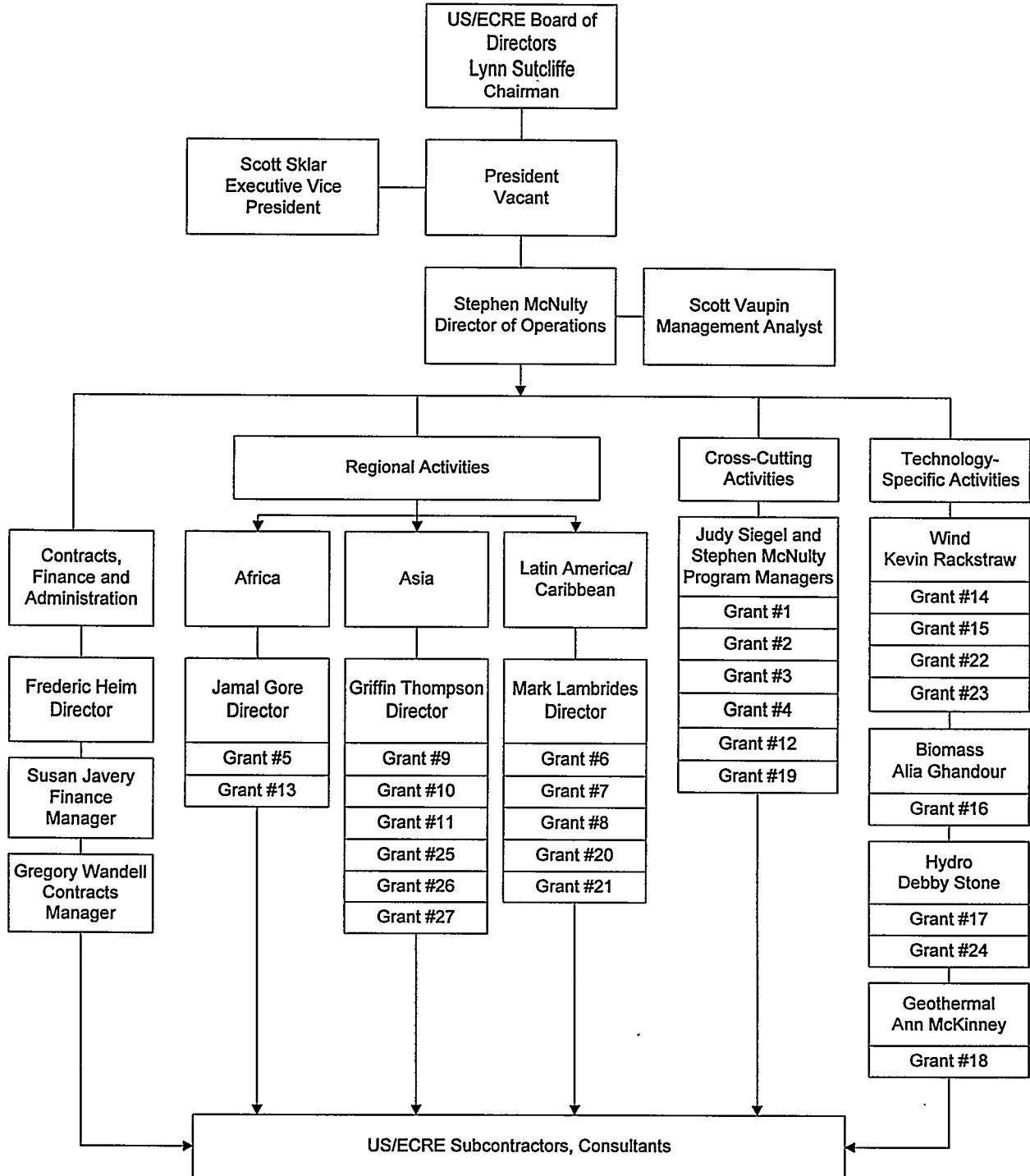
- Grant 12: Support for Renewable Energy Projects in Russia
- Grant 13: REFAD Project Support
- Grant 14: Xcalak Wind Project Support
- Grant 15: Wind Energy Market Development
- Grant 16: Central America Bioenergy Project Development and Trade Promotion
- Grant 17: Hydropower Market Promotion
- Grant 18: Geothermal Energy Market Development
- Grant 19: Renewable Energy and Efficiency Training
- Grant 20: Production of Power Money: Latin America Edition
- Grant 21: Support of Hemispheric Cooperation
- Grant 22: Renewable Energy Power Development - Argentina
- Grant 23: Wind Energy Power Development - Argentina
- Grant 24: Hydro Energy Power Development - Argentina
- Grant 25: Asia-Pacific Initiative Conference Support
- Grant 26: China Program Development Support
- Grant 27: Indonesia Market Assessment

SECTION 4 -- PROGRAM MANAGEMENT

To ensure the timely completion of the grants enumerated above, US/ECRE employed a proven management structure that was fully responsive to all project requirements. This management structure has been used successfully by US/ECRE on both private- and public-sector projects with similar operational requirements. Exhibit 1 provides the management structure for grant activities completed under this Agreement.

EXHIBIT 1

US/ECRE ORGANIZATION CHART
FOR DOE/GFO AGREEMENT



US/ECRE held routine meetings, both with core US/ECRE staff, and with affiliated renewable energy industry organizations, subcontractors and consultants to ensure that program activities proceeded on schedule and within budget. These meetings were essential to avoid duplication of efforts and to leverage DOE and other federal resources in achieving the objectives of this Grant Agreement.

Exhibit 2 lists the specific grants conducted under the Agreement, the dollar amount of the corresponding grant, and the specific deliverables required for the grant area. *All deliverables under this award have been completed and submitted to the Golden Field Office Program Manager per Agreement.*

EXHIBIT 2
BUDGET AND LIST OF DELIVERABLES/PAYMENT SCHEDULE

Award Number/Description As Proposed	DOE Obligations	Deliverables
1. Grant Management	40,771	a) Management work plan and timeline. b) Mid-year contract status report. c) Annual Report providing results of activities conducted under this effort.
2. Renewable Energy Trade Leads	\$29,715	a) Program plan, associated timeline, REXPORT distribution list, and publication source list. b) Interim report on REXPORT trade leads. c) Final report on REXPORT trade leads.
3. Multilateral Development Bank Support	\$49,329	a) Multilateral Development Bank (MDB) work plan. b) Midyear MDB project status report. c) Final MDB project status report.
4. Small Business Project Development Assistance	\$40,365	a) Ten trip reports and project opportunity data sheets.
5. REFAD "Train the Trainer" Follow-Up Support	\$20,961	a) Work plan on proposed activities. b) Mid-year report on activities resulting from the '96 "Train the Trainers" Program. c) Follow-Up report on activities resulting from the '96 "Train the Trainers" Program.
6. Renewable Energy in the Americas (REIA)	\$69,233	a) Proposed conference work plan. b) Draft venue contract for the REIA-97 Conference. c) Preparation of a preliminary conference agenda. d) Listing of proposed key speakers and participants.
7. US/ECRE In-Country Representative in Brazil	\$20,000	a) Detailed Primer outline. b) Draft renewable energy export primer for Brazil. c) Final renewable energy export primer for Brazil.

EXHIBIT 2
BUDGET AND LIST OF DELIVERABLES/PAYMENT SCHEDULE

Award Number/Description As Proposed	DOE Obligations	Deliverables
8. Renewable Energy In the Americas Project Support	\$91,281	<ul style="list-style-type: none"> a) Draft agenda to DOE for renewable energy components of the energy minister's meeting in Santa Cruz, Bolivia. b) Draft agenda to DOE for the energy outcomes of the summit on sustainable development. c) Final agenda for the third REIA working group meeting. d) Final outcomes report based on results from the summit on sustainable development and the working group meeting. e) Final agenda for the Caribbean renewable energy trade mission. f) Renewable energy project opportunity data sheets. g) Trip report from the mission with industry participant comments. h) Survey results regarding renewable energy equipment sales in the Caribbean and Brazil. i) Baseline of renewable energy equipment sales including U.S. market share.
9. Asia-Pacific Market Development	\$70,119	<ul style="list-style-type: none"> a) Listing of trading companies with whom U.S. renewable energy companies and US/ECRE can work to trade renewable energy products overseas. b) Listing of regional commercial banks that are potentially interested in financing renewable energy projects. c) Report on the operations and potential fuel savings associated with renewable energy hybrid systems in Asia.
10. Asia Pilot Projects	\$94,171	<ul style="list-style-type: none"> a) Report on the Energy conference detailing the companies and products which traveled to China. b) Report on the Memoranda of Understanding (MOU) to be signed between US/ECRE and the SETC. c) Final report which presents the results of activities conducted under this grant, as well as proposed next steps.
11. India Project Development	\$58,767	<ul style="list-style-type: none"> a) Grant work plan. b) IREDA report. c) CII Energy Summit report. d) Final import assessment report.
12. Support for Renewable Energy Projects in Russia	\$38,843	<ul style="list-style-type: none"> a) Work plan. b) Mid-year report on Russia renewable energy project opportunities. c) Final impact assessment report on Russia renewable energy project opportunities.

EXHIBIT 2
BUDGET AND LIST OF DELIVERABLES/PAYMENT SCHEDULE

Award Number/Description As Proposed	DOE Obligations	Deliverables
13. REFAD Project Support	\$64,506	a) Work plan on proposed activities. b) Report on pilot phase expansion program. c) Survey on socio-economic impact assessment, and baseline finding report.
14. Xcalak Wind Project Support	\$31,216	a) Report on technical issues that includes a schedule of replacement/ repair costs. b) Report on the institutional issues and the proposed recommendations.
15. Wind Energy Market Development	\$37,172	a) Program outline and agenda. b) Final report.
16. Central America Development & Promotion	\$45,821	a) Status Report & Market Update. b) Final report & impact assessment of measurable outcomes.
17. Hydropower Market Promotion	\$36,343	a) A plan outlining hydro delegation activities. b) Trip reports for trade missions. c) Final reports.
18. Geothermal Energy Market Development	\$42,787	a) Argentine Trip Report. b) Report on legal framework and market potential in Argentina and distribute to industry. c) Trip reports, copies of laws and regulations.
19. Renewable Energy and Efficiency Training	\$23,596	a) Detailed Workplan and Activity Description. b) Report on Training Subcommittee Meeting, 1st quarter. c) Report on Training Subcommittee Meeting, 2nd quarter. d) Report on Training Subcommittee Meeting, 3rd quarter. e) Report on Training Subcommittee Meeting, 4th quarter. f) Report on Training Coordination and Cooperation.
20. Power Money: Latin America Edition	\$23,000	a) Draft copy of the final document. b) Final document (the blues) prior to printing. c) Four (4) copies of the revised Sources of Financing Latin America with a list for distribution of the remaining 496 copies of the document.
21. Support of Hemispheric Cooperation	\$43,313	a) Report on Policy and Regulatory Issues and Impacts in the Development of Clean Energy Projects in Latin America and the Caribbean.
22. Energy Development - Argentina (NRECA)	\$27,360	a) Draft report on financial issues for replicating renewable projects in Argentina. b) Final Report on financial issues for replicating renewables in Argentina.

EXHIBIT 2
BUDGET AND LIST OF DELIVERABLES/PAYMENT SCHEDULE

Award Number/Description As Proposed	DOE Obligations	Deliverables
23. Wind Energy Power Development - Argentina	\$85,931	a) Draft report on wind study. b) Final Report on wind study.
24. Hydro Energy Power Development- Argentina	\$86,334	a) Draft report on the hydro. b) Final report on the hydro study.
25. Asia-Pacific Initiative Conference Support	\$73,012	a) Work plan delineating US/ECRE activities to be conducted in support of the API initiative. b) List of Asian and other decision-makers recommended for participation and why. c) Final report assessing the impact of the conference on the goals of DOE/CORECT and the EPA Energy Technology Initiative that are jointly supporting this effort.
26. China Program Development Support	\$45,735	a) Work plan on US/ECRE activities to be conducted under the joint MOU. b) Mid-year report to DOE and EPA concerning implementation of the MOU between US/ECRE and ERI. c) Final report on US/ECRE-ERI program detailing the projects identified, the partnerships made and the impact on the ETI objective. d) Work plan on US/ECRE activities to be conducted in China in support of the API. e) China position paper.
27. Indonesia Market Assessment	\$69,720	a) Market assessment methodology and action plan. b) Interim report. c) Final market assessment.

Open communications with the DOE-Golden Field Office and DOE headquarters in the Forrestal Building were also essential to ensuring that US/ECRE activities met the contractual requirements of DOE/GFO and fulfilled the goals of the Grant Agreement. Toward this end, a kick-off meeting was held in Washington, DC, and a semi-annual program review meeting was held in Golden, Colorado. The semi-annual meeting was held to brief GFO staff on program milestones and progress, to identify problems impeding progress, and to formulate solutions to resolve these problems.

The activities under this Grant Agreement complement and feed into the overall program of the Committee on Renewable Energy Commerce and Trade (CORECT). CORECT is the interagency working group of 14 federal agencies charged with promoting exports of U.S. renewable energy technologies. Special emphasis was placed on ensuring that efforts by US/ECRE, subcontractors, and consultants were well-integrated into CORECT initiatives and complemented the goals of that organization. Routine meetings were held with DOE/CORECT

staff on the progress of the DOE/GFO key activities. In addition, other CORECT member agencies were kept apprised of and participated in relevant activities conducted under this activity.

SECTION 5 -- PROGRAM ACCOMPLISHMENTS

The best testament to the successful completion of this Grant Agreement is that all deliverables were completed and a large amount of important work was accomplished under US/ECRE's direction for the mutual benefit the U.S. renewable energy industry and other stakeholders. US/ECRE management staff successfully coordinated the activities of our sub-recipients, including contractors and consultants. Through cooperation with USDOE under this Grant Agreement, US/ECRE helped to further many of the shared goals of the two organizations, goals such as:

- enhancing U.S. renewable energy industry efforts in penetrating international markets;
- improving world environmental quality through implementation of renewable energy projects;
- increasing use of renewable energy technology and in a small way helping to improve U.S. energy security through reducing the need for imports of petroleum based products;
- helping companies to understand the availability of project financing and also working to include renewable energy into the portfolios of multilateral lending institutions;
- improving strategic planning and opening international markets for U.S. industry.

In addition, through this Grant Agreement, US/ECRE facilitated the provision of training and associated activities; the development of outreach materials; and the conduct of conferences for the exchange of information, ideas, and the development of business opportunities.

Activities under this Grant Agreement were also targeted to the furtherance of technology-specific activities and market development for these technologies such as wind, hydropower, solar, and bioenergy. Also, market assessment activities were conducted.

SECTION 6 -- PROGRAM OUTCOMES

Exhibit 3 provides a description of specific outcomes of this Agreement by grant area. The outcomes of activities include:

- Identification of business leads for sale of U.S. renewable energy technologies, services, and equipment;

- Creation of lending portfolios in financing institutions for use in renewable energy project construction;
- Installation (current and future) of hundreds of megawatts of renewable energy power;
- Conduct a number of conferences, workshops, meetings, and trade missions;
- Public dissemination of information on renewable energy;
- Development of important market and technology assessments, strategic plans, and country market studies; and
- Provision of training.

EXHIBIT 3 – US/ECRE – DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
1. Grant Management	<ul style="list-style-type: none"> To provide support for US/ECRE in managing and overseeing the grants under the Agreement. Provide trade leads to US/ECRE member trade associations, who in turn select leads of potential interest to their industry members. Leads are distributed in industry publications. 	<ol style="list-style-type: none"> Work plan and timeline. Mid-year status report. Annual Report. 	<ul style="list-style-type: none"> Tracked 27 grants under DOE/GFO Agreement. Managed the submission of all required deliverables under this grant. Identified over 250 trade lead activities in over 50 countries.
2. Renewable Energy Trade Leads	<ul style="list-style-type: none"> Provide on-site support for the World Bank's ASTAE and Solar Initiative units. 	<ol style="list-style-type: none"> Multilateral Development Bank (MDB) work plan. Midyear MDB project status report. Final MDB project status report. 	<ul style="list-style-type: none"> Operational support and research support projects. Assisted in economic and sector work, partner twinning, training activities and best practices. US/ECRE support contributed to \$1.1 billion in World Bank/GEF projects or project components which will lead to over 500 MW of installed renewable energy capacity and over 1100 MW of avoided capacity initiatives (demand-side management). Over 10 projects identified for a total investment of over \$20 million in investment opportunities and varying technical sizes ranging from 150 kW to 15 MW.
3. Multilateral Development Bank Support	<ul style="list-style-type: none"> Through the Small Business Travel Fund, US/ECRE cost-shared travel expenses for industry members to pursue project opportunities in developing markets. To increase the capacity at South African educational institutions to institute renewable energy education at various levels, from local installer and maintenance training to full-fledged academic programs. 	<ol style="list-style-type: none"> Work plan on proposed activities. Mid-year report on activities resulting from the '96 "Train the Trainers" Program. Follow-Up report. 	<ul style="list-style-type: none"> Trained over 30 local trainers. One of the two host institutions for this year's Durban workshop began developing an aggressive fundraising campaign after participation in the 1995 course and is currently establishing a training center on its own. Interest in renewables has developed at Historically Black Colleges and Universities as the result of REFAD's efforts. REFAD training programs over the last few years have served as an impetus for active participation in renewable energy programs throughout the country.
4. Small Business Project Development Assistance			
5. REFAD "Train the Trainer" Follow-Up Support			

EXHIBIT 3 - US/ECRE - DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
<p>6. Renewable Energy in the Americas (REIA) Conference-II Support</p>	<ul style="list-style-type: none"> Conduct regional Conference on developing sustainable renewable energy and energy efficiency projects in the Western Hemisphere. 	<ol style="list-style-type: none"> Proposed conference work plan. Draft venue contract for the REIA-97 Conference. Preparation of a preliminary conference agenda. Listing of proposed key speakers and participants. 	<ul style="list-style-type: none"> At REIA'97 in Brazil, brought together over 300 decision-makers from 20 countries to explore RE/EE issues, opportunities, and financing. As a result of the conference it is expected that more than 12 new renewable energy projects will be identified in the region and at least 5 business relationships will be forged, which will result in joint ventures or other business deals, and many retail sales of renewable energy equipment will occur. The World Bank/Brazilian Ministry of Mines and Energy met about potential Renewable Energy Loan. [Up to \$50 million for the support of the rural electrification efforts in Brazil]; The IDB met on the creation of the "Sustainable Markets for Sustainable Energy Initiative." [A multimillion dollar initiative to encourage renewable energy and energy efficiency project lending at the IDB]; Workshop on the potential applications of renewable energy and energy efficiency technologies at hotels and resorts in Brazil. [Approximately 50 Brazilian properties represented, many of whom expressed an interest in meeting separately with U.S. companies to examine potential technology sales]; Workshop on "Evaluating Renewable Energy Options for Rural Villages." [Organized by NREL. Focused on modeling tools which enable selection of least cost rural electrification technologies.] The PV Training Certification Seminar. [Organized by the Institute for Sustainable Power. Offered an Overview of PV service provider certification issues]. A session on "Brazilian Renewable Energy Market Opportunities." [The Brazilian Ministry of Mines and Energy organized this full-day event intended to provide potential U.S. investors with information regarding the Brazilian market conditions and its future]. It is expected that the WorldBank will contribute approximately \$30 million to a multi-year \$100 million effort in rural electrification in Bolivia. Of this, approximately 50% will be spent on renewables and the remainder will be grid extension.

EXHIBIT 3 - US/ECRE - DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
7. US/ECRE In-Country Representative in Brazil	<ul style="list-style-type: none"> To provide local access to industry trade leads in Brazil--one of the fastest growing markets worldwide for RE/EE/services. 	<ol style="list-style-type: none"> Detailed Primer outline. Draft renewable energy export primer for Brazil. Final renewable energy export primer for Brazil. 	<ul style="list-style-type: none"> The In-Country Representative provided general and specific information on Brazilian markets to U.S. companies through a variety of activities, including preparation of trade missions, company-specific advocacy services, policy research and reform initiatives, and identification of financing alternatives. Detailed renewable energy market primer for Brazil prepared. Identified project opportunities: presently there are 5 projects under operation, 6 under construction, and two additional projects planned in Brazil.
8. Renewable Energy in the Americas Project Support	<ul style="list-style-type: none"> To improve the sustainability of energy throughout the Americas. REIA has been very influential as a steering committee member. This process continues and will serve as the key forum to prepare the energy agenda for the 1998 Summit of the Americas in Chile. 	<ol style="list-style-type: none"> Draft agenda of energy minister's meeting in Santa Cruz, Bolivia. Draft agenda for the summit on sustainable development. Final agenda for the third REIA working group meeting. Final outcomes report of the summit on sustainable development and the working group meeting. Final agenda for Caribbean renewable energy trade mission. Renewable energy project opportunity data sheets. Trip report from Caribbean Trade Mission. Survey results of renewable energy equipment sales in the Caribbean and Brazil. Baseline of renewable energy equipment sales. 	<ul style="list-style-type: none"> Hemispheric cooperation activities to improve the sustainability of energy throughout the Americas has been very successful to date. This process continues and will serve as the key forum to prepare the energy agenda for the 1998 Summit of the Americas in Chile. Results are occurring in terms of project reform and increased awareness by LAC countries of RE/EE potential/ applications in their nations. The key follow up on the Hemispheric Energy Symposium activity will be the Summit of the Americas event in 1998. If successful, the energy agenda promoted there will be focused on sustainable energy matters. The Working Group continues to grow. Six new countries are being solicited to join the group. At least five newly identified renewable energy projects are being pursued as a result of the Caribbean trade mission. REIA is actively supporting the U.S. developers in each of these projects with the hopes of bringing these to closure within the year. Follow-up to the Caribbean and Brazilian Survey/ Matching grant will include assistance to and business deals which potentially come out of this process.
9. Asia-Pacific Market Development	<ul style="list-style-type: none"> To identify commercial business opportunities which will result in the export of products and services by U.S. renewable energy firms to customers in the countries of the 	<ol style="list-style-type: none"> Listing of trading companies. Listing of regional commercial banks. Report on the operations and potential fuel savings 	<ul style="list-style-type: none"> Provided information to over 1000 industry members on trading companies that could serve as partners in RE/EE projects in Asia. Provided U.S. companies with information on financial institutions in this region. Conducted technical analysis of system alternatives to diesel

EXHIBIT 3 - US/ECRE - DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
10. Asia Pilot Projects	<p>Asia-Pacific Market Region.</p> <ul style="list-style-type: none"> Sponsor Chinese companies/ decision-makers to U.S. Strengthen US/ECRE-Industry partnership with the Chinese Energy Research Institute (CERI) and the State Economic and Trade Commission (SETC) which coordinate public-private sector activities in RE/EE in the country. 	<p>associated with hybrid systems in Asia.</p> <ol style="list-style-type: none"> Report on the Energy conference. Report on the MOU to be signed between US/ECRE and the SETC. Final report. 	<p>generation for the Philippines. Study found that the advantage of the wind/solar PV systems, in addition to lower cost, is that they take advantage of two renewable resources instead of just one, thereby lowering the probability that the system will not supply power because of low resource. Battery life is increased because the system results in fewer deep discharges to the battery bank.</p> <ul style="list-style-type: none"> Working with SETC, CERI, other multilateral development banks and internationally focused organizations to promote renewable energy as viable investment opportunities. Compiling directory of investors and venture capitalists who have a particular interest in the Chinese market, which will be useful to companies which find financing difficult to obtain. \$200 million to be made available to the Chinese in 1998 through World Bank and other sources. (Another \$25 million to be made available by the UNDP to the Chinese). 3 industry projects resulted from US/ECRE-led trade mission to China.
11. India Project Development	<ul style="list-style-type: none"> To identify commercial project opportunities in India. 	<ol style="list-style-type: none"> Grant work plan. IREDA report. CII Energy Summit report. Final import assessment report. 	<ul style="list-style-type: none"> US/ECRE in cooperation with CII, the Winrock REPSO, and the All India Women's Conference, is preparing a proposal for a model renewable energy village. The village will be a showcase of how an Indian village can use a range of renewable energy technologies on a commercial basis. The project is intended to test and demonstrate the various elements needed - financial, technical, social, institutional - for a truly sustainable village renewable energy system. Identified specific commercial project applications in India for U.S. Industry. Establishment of Solar Bank Project in India which would guarantee that sufficient end-user financing is available for the widespread diffusion of solar home systems. This financing is an absolute imperative for increased U.S. sales of solar products in India, as well as around the world. Created foundation with its partnerships with key Indian organizations which will assist with successful market development in India. Identified significant organizations with whom ongoing commercial relationships can be built leading to project development which will benefit both U.S. and Indian firms, and their respective economies.

EXHIBIT 3 - US/ECRE - DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
12. Support for Renewable Energy Projects in Russia	<ul style="list-style-type: none"> To continue efforts toward technical and financial support for renewable energy activities in Russia, engaging trade liaisons and assisting private U.S. renewable energy companies in penetrating this market and developing marketing plans. 	<ul style="list-style-type: none"> a) Work plan. b) Mid-year report. c) Final impact assessment. 	<ul style="list-style-type: none"> International "scaffolding" constructed to facilitate the crafting of the necessary policy and financial elements integral to private power sector participation. In addition to the telecommunications sector, identified other end-use markets in Russia and the Commonwealth of Newly Independent States (NIS) for the sale of products in order to generate a current and future revenue stream to finance start up production and future plant expansion. Integral role in designing the renewable energy training session in conjunction with the U.S. Department of Commerce's SABIT program. Conducted seminar on renewable energy opportunities in Moscow. Near-to-mid-term potential for the transfer of technology related to small-scale biomass, wind, hydro, and geothermal energy equipment. Pre-feasibility evaluation on the Biomass Initiative in Arkhangelsk Region; completed August, 1997.
13. REFAD Project Support	<ul style="list-style-type: none"> To support business development activities in Southern African Development Community (SADC) nations, particularly to establish strong linkages with the African private sector. 	<ul style="list-style-type: none"> a) Work plan. b) Report on pilot phase expansion program. c) Survey on socio-economic impact assessment, and baseline finding report. 	<ul style="list-style-type: none"> 100 renewable energy systems installed with the revolving fund that was established. Loan repayment is in process. REFAD is continuing to work with the Government of Namibia to identify additional large-scale support for project expansion. Developing evaluation tool for Namibia Revolving Fund program.
14. Xcalak Wind-Hybrid Project Support	<ul style="list-style-type: none"> To address institutional issues related to Xcalak wind-hybrid project in Mexico. 	<ul style="list-style-type: none"> a) Report on technical issues that includes a schedule of replacement/ repair costs. b) Report on the institutional issues and the proposed recommendations. 	<ul style="list-style-type: none"> Identified technical/institutional barriers to project implementation and proposed resolutions. Private companies are being queried about their interest in taking over and operating the Xcalak system.
15. Wind Energy Market Development	<ul style="list-style-type: none"> Bring foreign private sector and government decisionmakers to the U.S. for exposure to U.S. wind energy technologies, industry members, and sources of support from U.S. and multilateral institutions. 	<ul style="list-style-type: none"> a) Program outline and agenda. b) Final report. 	<ul style="list-style-type: none"> Supported decision-makers from several countries to participate in Wind Conference and Field Tour. One of the guests from Chile represented a utility that is now the host to a joint US/Chile wind/diesel hybrid project for rural electrification. Two other guests from Peru have developed a proposal for wind farm development in one region of Peru. The Chinese guest is now the principal resource assessment

EXHIBIT 3 - US/ECRE - DOE GOLDEN FY 1997 ACTIVITY SUMMARY

Grant	Purpose	Deliverables	Outcomes
<p>16. Central America Development and Promotion for Biomass Industry</p>	<p>•To build on market development and project promotion activities conducted to date by the National Bioenergy Industries Association that are on the verge of yielding concrete projects/business opportunities for U.S. bioenergy companies.</p>	<p>a) Status Report & Market Update. b) Final report & impact assessment of measurable outcomes.</p>	<p>counterpart under a US/China energy agreement that has a significant wind energy component. •The Mexican guest is trying to develop wind water pumping projects in the state of Oaxaca, the windiest state in Mexico. •Developed tracking matrix for NBIA's pipeline of biomass projects in Honduras, Guatemala, and Nicaragua. •Prepared agreement with the Biomass-Users Network-Central America to collaborate on a regional bagasse cogeneration workshop. •Power purchase negotiations continue between ENEE and proponents of the BioGen woodwaste project continue. •Identified 5-10 MW woodwaste project in Nicaragua, which could fuel the establishment of a 5-10 MW plant. •Feasibility study support provided to Cohdesa Project. •Regional network established and maintained for project identification, market intelligence, and project support. •Education/outreach provided to non-energy engineers.</p>
<p>17. Hydropower Market Promotion</p>	<p>•To promote private hydropower development and US hydropower goods and services in Latin America and Asia.</p>	<p>a) A plan outlining hydro delegation activities. b) Trip reports for trade missions. c) Final reports.</p>	<p>•22MW project, named Lake Miniati, under development in the Philippines. •Meeting with Hedcor Hydro took place to develop a joint venture for new projects. •Identified market opportunities for hydropower development in Peru, including the development of a 1 MW hydro site. •Identified up to 60,000 MW of large hydro potential and 15,000 MW of mini-hydro potential in Peru in eastern portion of the country where electricity is needed. •Potential for \$132 billion in construction costs for potential projects in Peru, Bolivia, the Philippines and Indonesia.</p>

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Grant	Purpose	Deliverables	Outcomes
18. Geothermal Energy Market Development	<ul style="list-style-type: none"> To provide initial stage market development missions and assistance in improving the business climate for private sector development of geothermal resource extraction legislation and regulations. 	<ul style="list-style-type: none"> a) Argentine Trip Report. b) Report on legal framework and market potential in key countries (Nicaragua, Guatemala, Bolivia, and Argentina) and distribute to industry. c) Trip reports, copies of laws and regulations. 	<ul style="list-style-type: none"> Provided comments on the perspective of geothermal energy developers at the request of the Ministry of Energy regarding a Nicaraguan geothermal law. Geothermal legislation developed in Nicaragua, Guatemala, and Argentina.
19. Renewable Energy and Efficiency Training	<ul style="list-style-type: none"> To support the CORECT Training Subcommittee with the manpower and services necessary to facilitate greater training and education, cooperation and coordination among public and private sectors. 	<ul style="list-style-type: none"> a) Workplan /Activity Description. b) Report on Training Subcommittee Meeting and Quarterly Reports. c) Report on Training Coordination and Cooperation. 	<ul style="list-style-type: none"> Identified list of currently accessible worldwide web training and information resources for renewable energy and energy efficiency (RE/EE). Improved the coordination of the various programs funded by government agencies, fostering greater impact of renewables in the marketplace. Developed contractors' strategy recommendation for dealing with contracted activities related to RE/EE information. Determining general priorities and guidelines for obtaining RE/EE information posted on web sites. Coordination on the electronic information components of the EPA Climate Technology Initiative Action Plan Review Draft. Promoted implementation of communications oriented training event.
20. Power Money: Latin America Edition	<ul style="list-style-type: none"> To update information on U.S. Government and multilateral financial resources available to assist the renewable energy industry, both in the U.S. and in developing countries, with a focus on Latin America and the Caribbean. 	<ul style="list-style-type: none"> a) Draft copy of the final document. b) Final document (the blues) prior to printing. c) Four (4) copies of the revised Sources of Financing Latin America to DOE/GFO with a distribution list for the remaining copies of the document (approx. 500). 	<ul style="list-style-type: none"> Distributed "Sources of Financing Renewable Energy" to decisionmakers, businesses, and government officials at the REIA97 Conference and Exhibition. Identified sources of financing for renewable energy projects, including government, private, and multilateral entities.

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Grant	Purpose	Deliverables	Outcomes
21. Support of Hemispheric Cooperation	<ul style="list-style-type: none"> To further efforts to improve Western hemispheric cooperation on clean energy matters, including multinational cooperation resulting from the Hemispheric Energy Symposium process, as well as project specific cooperation through the U.S. Joint Implementation (USIIJ). 	<p>a) Report on Policy and Regulatory Issues and Impacts in the Development of Clean Energy Projects in Latin America and the Caribbean.</p>	<ul style="list-style-type: none"> US/ECRE has been able to deliver to the Hemispheric Energy Symposium critical information on the likely impacts of energy reform on the future development of renewable energy projects. The Hemispheric Energy Symposium is expected to play directly into the energy agenda for the 1998 Summit of the Americas, Santiago, Chile. US/ECRE will remain engaged, and if successful, the action items coming out of this event will include the development of energy policies which promote the use of renewables.
22. Energy Development - Argentina (NRECA)	<ul style="list-style-type: none"> To leverage the effects of implementing renewable energy projects and examine the financial issues preventing widespread replication of renewable energy projects in Argentina and throughout the region. 	<p>a) Draft report on financial issues for replicating renewable projects in Argentina. b) Final Report on financial issues for replicating renewables in Argentina.</p>	<ul style="list-style-type: none"> List of privatized utilities by province and concessionaire. Identified financial, public policy, and institutional barriers to stimulating the renewable energy market in Argentina.
23. Wind Energy Power Development - Argentina	<ul style="list-style-type: none"> To achieve accelerated diffusion of renewable energy technology in Argentina and Chile. 	<p>a) Draft report on wind study. b) Final Report on wind study.</p>	<ul style="list-style-type: none"> Furthered wind opportunities in Chile and Argentina that are expected to yield projects for U.S. firms.
24. Hydro Energy Power Development - Argentina	<ul style="list-style-type: none"> To review and update certain areas of the 1995 pre-feasibility studies, completed in 1995, as well as to assess the market in Argentina for power greenfield developments. 	<p>a) Draft report on the hydro. b) Final report on the hydro study.</p>	<ul style="list-style-type: none"> US/ECRE, through its subcontractor, Synergics Energy Development Inc, has developed a working relationship with the Cooperativa de Electricidad de Bariloche (CEB) and is exploring project opportunities.
25. Asia-Pacific Initiative Conference Support	<ul style="list-style-type: none"> To promote U.S. renewable energy and energy efficiency goods and services throughout the Asia region. 	<p>a) Work plan delineating US/ECRE activities to be conducted in support of the API initiative. b) List of Asian and other decision-makers recommended for participation in the API conference, and why. c) Final report assessing the impact of the conference on the goals of DOE/CORECT</p>	<ul style="list-style-type: none"> Conducted landmark conference involving over 400 decision-makers from U.S. and Asia. Pursued over 50 project opportunities. Signed regional accord involving 23 countries/organizations.

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Grant	Purpose	Deliverables	Outcomes
<p>26. China Program Development Support</p>	<ul style="list-style-type: none"> To maintain the crucial relationships vital to establishment of a U.S. dominated market in China's renewable energy sector. 	<p>and the EPA Energy Technology Initiative (jointly supporting this effort).</p> <ol style="list-style-type: none"> Work plan on US/ECRE activities to be conducted under the joint MOU. Mid-year report to DOE and EPA concerning implementation of the MOU between US/ECRE and ERI. Final report on US/ECRE-ERI program detailing the projects identified, the partnerships made and the impact on the ETI objective. Work plan on US/ECRE activities to be conducted in China in support of API. China position paper. 	<ul style="list-style-type: none"> Three projects totaling 15 MW of turbine sales are in various stages of the approval process. Completed approximately 12 MW sales in three provinces. In negotiations with high level Chinese officials and with U.S. financial institutions to develop a financing mechanism available to U.S. renewable energy companies to ease the burden of entering into a complex market like China. Coordinated October 10, 1997 half-day seminar outlining opportunities and technical issues regarding wind farm development. Development of partnerships between U.S. companies and their Chinese counterparts. Several hundred million dollars will soon be available for renewable energy and energy efficiency projects in China. \$50 million loan pool, which has now been approved by both ExIm Bank and the Chinese State Planning Commission, will be available to U.S. renewable energy companies wanting to do business in China.
<p>27. Indonesia Market Assessment</p>	<ul style="list-style-type: none"> To strengthen the local market for renewable energy technologies and to identify business-development opportunities for U.S. companies that manufacture renewable energy equipment and systems. The Initiative will assess the market potential for renewable energy technologies in specific sub-sectors and services. 	<ol style="list-style-type: none"> Market assessment methodology and action plan. Interim report. Final market assessment. 	<ul style="list-style-type: none"> World Bank has loan underway for over \$100 million involving hydro, geothermal, and PV technologies for grid-connected and remote applications. Policy reform underway in Indonesia. Wind opportunities being identified in Eastern Islands. Companies pursuing over \$300 million in RE opportunities.