University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

US Department of Energy Publications | US Department of Energy

1-1-2008

Tribal Renewable Energy – Final Report

A. David Lester

Follow this and additional works at: http://digitalcommons.unl.edu/usdoepub

Part of the Bioresource and Agricultural Engineering Commons

Lester, A. David, "Tribal Renewable Energy – Final Report" (2008). *US Department of Energy Publications.* Paper 23.
http://digitalcommons.unl.edu/usdoepub/23

This Article is brought to you for free and open access by the US Department of Energy at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in US Department of Energy Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Tribal Renewable Energy – Final Report

Award Number:	**DE-FG36-03GO13039**
Recipient Organization:	**Council of Energy Resource Tribes**
Project Title:	**Native American Technical Assistance and Training for Renewable Energy Resource Development and Electrical Generation Facilities Management**
Project Director/ Principal Investigator:	**A. David Lester** **Executive Director**
Recipient Address:	**695 South Colorado Boulevard, Suite 10** **Denver, Colorado 80246** **303-282-7576**
Period Covered:	**July 24, 2003 – April 30, 2008**
DOE Project Officer:	**Lizana K. Pierce, lizana.pierce@go.doe.gov**

Part One: Executive Summary

DOE/CERT Cooperative Agreement has demonstrated that Indian Tribes are ready to undertake the positive steps in developing their internal governmental capacities in program planning and project development as well as the enterprise management capability to undertake the development of their substantial natural base of renewable energy resources and to learn the basic technologies in wind, solar, bio-mass and alternative energy production. The project also demonstrated that virtually every Indian Tribe and community in the United States would benefit socially, economically and in public health values thru a sustained federally coordinated Tribal energy efficiency initiative; and, that a small amount of seed money along with supportive technical assistance would yield continuing benefits for years to come. The project demonstrated that there is great synergism when federal agencies work with national and regional Tribal organizations in leveraging each other's strengths and resources toward common goals. The project demonstrated that the private sector American renewable energy industry is also ready to work in coordination with Tribes and federal agencies as partners in both

renewable energy development and in bringing energy efficiency capacity to Tribal communities and in transferring technological skills and knowledge to Tribes. The project also documented the fact a federal program working with a Tribal organization can reach Tribes so that individual Tribes do not have to work in isolation; each discovering and overcoming the same problems over and over again. Thru the project Tribes and DOE have indentified and documented the barriers that up to date are blocking the development of world class, Tribally owned, wind and solar resources. Among these barriers are: 1) The need for investment in Tribal institutional capacity that can provide a foundation for the long term resource assessments, project planning and development and provide a portal thru which access to technical, financial and markets can be linked; 2) Federal tax policy creates disincentives for private capital to flow to Tribally controlled development whether for necessary physical infrastructure such as roads that access the Tribal resource zones or for the financing for the construction and installation of the renewable energy technology; 3) Tax credits and bonding that provide stimulus for development in the general American economy do not work because of the special status of Indian lands and Tribal governments; special statutory and regulatory provisions are needed if Tribally developed Indian renewable energy potential is to be integrated into the American energy markets; and, 4) The old models for Tribal natural resource development is outdated and obsolete in the modern era of Indian self determination and Tribal self governed economic development making reform a high national priority for Indian Tribal leadership. By identifying and documenting the potential future clean energy supply that America could benefit from when Indian renewable energy is developed; coupled with the identification of the major barriers to successful, Tribal development of Indian resources provides the public with a clear path to removing the barriers and securing the benefits of clean, green Indian energy.

Part Two: Accomplishments of the Project's Goals and Objectives

Introduction

To understand the manner in which CERT undertook the implementation of the DOE/CERT Cooperative Agreement, it is important to understand the CERT Mission established by the Tribes in creating CERT and the National Indian Energy Vision adopted by the Tribes in 1999.

The CERT Mission: *Adopted in 1975*

To assist the Tribes develop their management capabilities and governmental capacities to use their energy resources as the foundation for building stable, balanced self-governing economies.

In short, the Tribes see energy as a means to sustainable and prosperous self governing communities living lives according to each Tribe's own values and priorities. Energy development is not an end to itself, but a means to the higher goal, to achieve their historic struggle to become prosperous as politically separate and distinct Indian communities within the larger US political economy.

The National Indian Energy Vision (*Adopted in 1999)*

"That every sovereign Indian Tribe will have sufficient energy to support its social and economic well-being."

There are three protocols of the vision.

1. Tribes will have to work with the government to reform Federal Policy so that Tribes can fully participate in the American energy markets to assure a sustainable energy future for Indian Tribes.
2. Tribes will cooperate with each other to support a national Tribal energy marketplace as producers and consumers of energy.
3. Tribes and the American energy private sector will form mutually beneficial partnerships in the development and deployment of Indian energy in the North American energy markets.

The practical elements of Tribal energy sufficiency are:

- capability of Tribes to own and regulate the development of their own energy resources for their internal domestic consumption as well as for export to the larger North American energy markets;
- capability of Tribes to manage and regulate their energy demand through conservation and efficiency to become the more energy efficient economies within their economic regions;
- capability to accept and to use federal hydropower as a reliable supply of affordable electricity within their Tribal economies; and
- capability of Tribes to use the interstate energy transportation infrastructure to both buy and sell energy on equal footing with other energy producers and local distribution utilities.

It is within this context that the goals and objectives of the DOE/CERT Cooperative Agreement were developed. While the Tribal leadership that governs and directs CERT established the mission and the vision, it did so knowing full well that the CERT program had to help Tribes grasp these statements and convert them into a specific and distinct Tribal energy vision.

Background

The experience, knowledge, and exposure of Tribes to renewable energy and energy efficiency at the outset of the project period were generally lower than that of comparable rural communities; because federal policy suppressed Tribal self governance and the Indian Bureau with federal employees performed local governmental functions, Tribes were not aware of the importance of energy to economic and social development. Even Tribes whose conventional energy resources had been developed, their own energy supply needs were not part of the development objectives. The standard federal Indian energy lease relegated Tribal resource owners to passive royalty interest owners with no role in the development planning or in its operations. Energy whether as fuel or electricity was the domain of the non-Indian world; it was not something Tribes or Indians did.

The challenge facing the DOE EE/RE Indian program was to change that perceived reality and to inspire Tribes to take on the job of using their renewable energy for their own energy futures; and, to use the methods and technologies of modern energy management to reduce energy waste.

In the early years of the DOE EE/RE Indian Program of the handful of Tribes that had secured grants, few were intimately involved in the projects. Tribes relied on hired consultants to fulfill the work required of the grants. However, as a result of the dedicated staff of the DOE EE/RE Indian Program and the CERT cooperative agreement with support from several national laboratories, the awakening of Tribes to the potential of developing their renewable energy resources to become largely energy self reliant on the one hand, and using that resource development to build more diversified sustainable local Tribal economies has begun.

In the years immediately preceding the DOE/CERT cooperative agreement, the Bonneville and Western Power Administrations in response to the advocacy of Mni Sose and the Affiliated Tribes of Northwest Indians, two regional Tribal organizations and CERT as the national Indian energy organization, began including Tribes as preference customers eligible to buy “at cost” federal hydropower.

The federal power allocation process required Tribes calculate their electric power loads and make projections of electricity use growth as part of the process of accessing federal power. This new information led them to realize that the systems that supply the Tribes are being strained by Tribal population and economic growth.

Indian Tribes began to see themselves in new ways with respect to their role in electricity supply; the potential for becoming energy self-determining by using their renewable energy in conjunction with federal hydropower. Tribes now view

the DOE Indian Renewable Energy Program as the programmatic means to achieving their own Tribal energy vision.

The more Tribes learned about energy as rate payers, as resource owners and as hosts to thousands of miles of energy transportation infrastructure, the more they are discovering just how far they have been left behind the states when it comes to developing policies and plans that would enable Tribes to use their abundant conventional and renewable energy resources as economic engines and energy efficiency as a foundation for sustainable, prosperous Tribal economies.

The renewable energy resource maps developed by DOE along with the Indian Energy Report issued by the Energy Information Administration in 1999 made it clear that Indian lands held valuable renewable energy resources. What percentage of the total renewable energy resource potential of the United States were within Tribal boundaries is difficult to quantify. But the growing body of information being developed by EE/RE Indian projects is convincing evidence that the potential is significant. In addition to the renewable energy base, Indian lands contain 20-25% of the on-shore developable and producible oil and natural gas reserves and resources. Indian lands hold one-third of the low sulfur Western coal and 90% of known uranium ore deposits on non-federal lands in the lower 48 contiguous states. Water is an essential element in any energy development effort and in the West; Tribal water is an important factor since many Tribes have underutilized water rights. As evidenced by the Section 1813 Tribal Energy Rights of Way Study, Indian lands sit astride the major transportation corridors in the West and are important to the strengthening of the North American Power Grid.

But, energy development within Indian Country differs significantly from the rest of the American economy because of the unique status of Tribes and of Indian land within the American political economy. This fact makes sound federal programs and policies essential if the Indian resources are to be developed in ways that not only benefit Tribal economies but also contribute to vital national energy policy goals.

The experience of DOE's EE/RE Indian Program, those of the several National Laboratories such as Lawrence Livermore, Sandia, Idaho National Engineering Lab and NREL along with that of the DOE-CERT Cooperative Agreement has resulted in significant advancement of knowledge and understanding for Tribes and Tribal organizations as well as DOE about the complexity of creating an Indian Tribal niche in the emerging renewable energy industry of North America. In addition, significant progress in mobilizing interest and resources from the private sector is being made.

The potential for DOE to play a major role for Tribal renewable and conventional energy resources development in supplying future US renewable and conventional energy demand was recognized by the Congress as evidenced by passage of the Indian Tribal Energy Development and Self Determination Act of 2005 thereby creating within DOE the Office of Indian Energy ***Policy*** and Programs.

The lessons learned from the experience and the findings of this historic DOE cooperative agreement with Indian Tribes through CERT, the national Tribal energy organization, should form the foundation for a dynamic future role for DOE in bringing Indian energy resources development forward in ways that promote the accomplishment of the established federal Indian policy of self determination and national energy policies of increased energy independence through development of American renewable and conventional energy resources.

Therefore, the DOE-CERT Cooperative Agreement and its accompanying goal and objectives statements represent a critical departure point for the future of DOE programs working with Indian Tribes across a vast geographic and cultural diversity. When the amount of conventional and renewable on-shore US energy resources in Indian Country are known, the importance of working with Indian Tribes to develop the Indian lands energy potential becomes clear.

Goals Statement:

Facilitate the technical expertise and training of American Indian Tribal expertise in:

- renewable energy resource development;
- electrical generation facilities;
- distributed generation options;
- support for Tribal feasibility studies;
- energy efficiency and energy management; and
- strategic Tribal energy planning and visioning.

Project Objectives:

CERT engaged in a synergistic project scope in which activities and tasks encompassed several project objectives simultaneously rather than engaging in discrete tasks aimed at single objectives. CERT created a data system that documented these activities and tasks and allocated them across its objectives matrix according to the major emphasis of the activity or task with an effort to count accurately each separate set of accomplished tasks. Below is the statement of each objective.

a. Measures to maximize energy production from existing operations or to develop new renewable energy projects.
b. Identify energy conservation opportunities for Tribes.
c. Demonstrate cost effective use of electricity resources and the importance of strategic planning, i.e., Tribal Integrated Energy Resource Planning that considers all resources.
d. Facilitate training to develop Tribal expertise for renewable energy development and energy conservation and efficiency.
e. Facilitate alliances between private expertise and Tribes in the development of renewable and energy efficiency.
f. Facilitate Tribal participation in federal policy changes.

In carrying out the work of the project CERT worked at three levels of Tribal interests—the local, the regional and national. CERT worked with individual Tribes in response to Tribal interest in one or more of our project goals and objectives. CERT also stimulated the interest of other Tribal organizations at both the regional and national levels to make Indian renewable energy and energy efficiency one of their priority issues. CERT worked with the Tribes and their regional and other national organizations in helping them focus their interests and in developing workshops and speakers to fulfill the need for information as well as case studies.

The following lists those tasks which were previously reported throughout the project in quarterly reports and other work products of the project.

Native American Technical Assistance and Training for Renewable Energy Resource Development and Electrical Generation Facilities Management

Goal: To facilitate technical expertise and training of Native Americans in renewable energy resource development for electrical generation facilities, and distributed generation options contributing to feasibility studies, strategic planning and visioning. Also, to provide information to Tribes on energy efficiency and energy management techniques.

To provide facilitation and coordination of expertise from government agencies and private industries to interact with Native Americans in ways that will result in renewable energy resource development, energy efficiency program development and electrical generation facilities management by Tribal entities. The intent is to help build capacity within the Tribes to manage these important resources.

	Project Strategies			
Objectives	**Case Studies**	**Training**	**Technical Assistance**	**Information Dissemination**
Identify measures that Tribes can take to maximize energy production from existing operations or to develop new renewable energy resource projects	X	X	X	X
Identify energy conservation opportunities for Tribes	X	X	X	X
Demonstrate how Tribes can cost-effectively use electricity resources, and the importance of strategic planning that considers all resources	X	X	X	X
Facilitate training to help develop Tribal expertise in renewable resource development and energy conservation	X	X	X	X
Facilitate alliances between teams of private experts and Tribes to develop energy efficiency, renewable energy, and distributed generation projects	X	X	X	X
Facilitate Tribal participation into federal policy changes	X	X	X	X

Technical and Institutional Case Studies		
Aha Macav Power Services - Tribally owned power distribution		Case studies are a part of the Red Earth Renewable Energy Strategies "The Bottom Line for Tribal Energy" report prepared by Global Energy Decisions completed during the quarter October - December 2005
Capturing the Economic Impact of Wind Generation		
Dancing Eagle Casino, Pueblo of Laguna, New Mexico		
Hopi Tribe - DOE First Steps		
Hopi Tribe Initiative for Energy Independence		
Integrated Resource Planning - Understanding Cash Flow at Risk in a Tribal Energy Portfolio		
Kenai Fjords National Park Fuel Cells		
Nez Perce Biodiesel		
Police Department Building - Pueblo of Laguna, New Mexico		
Salt River Landfill Gas		
Transmission: The McCamey, TX Wind Generation Solution		
Wampanoag Tribal Focus on Sustainability and Community in Tribal Building		
White Earth Reservation - DOE First Steps		
Yurok Tribe - DOE First Steps		

Energy Audit Case Studies	**State**	**Date Completed**
Umatilla Reservation	Oregon	Feb-05
Laguna Pueblo	New Mexico	Feb-05
Laguna Pueblo - Utility Power supply assessment	New Mexico	Jun-05
Fort Mojave	Arizona	Sep-05
Pawnee Tribe	Oklahoma	Oct-05
Osage Nation	Oklahoma	Oct-05
Rosebud Sioux Tribe	South Dakota	Nov-05
Ohkay Owingeh	New Mexico	Jan-06
Ohkay Owingeh - Power quality assessment	New Mexico	Jan-06
Saginaw Chippewa Tribe	Michigan	Jun-07
Northern Plains EE/Wx Training	Nebraska	Jun-07

National Conferences/Workshops	Date	Co-Sponsors
Energy Efficiency on Tribal Lands: Maximizing Our Potential	May-06	
Indian Energy Solutions 2005 - "E" Words of American Indian Nation Building, Energy, Economies, Environment	Jun-05	Morongo Band of Mission Indians
Indian Energy Solutions 2006 - Maximizing Partnerships Between Tribes, Government & Industry	Aug-06	Saginaw Chippewa Indian Tribe
Indian Energy Solutions 2007 - Meeting America's Need for Clean Energy with Tribal Renewable Resources	Nov-07	Pechanga Band of Luiseno Indians
National Tribal Energy Finance Symposium	Nov-04	Umatilla Tribe
National Tribal Right-of-Way Workshop - Valuation Techniques "Assessing Rights of Ways on Tribal Lands"	Aug-05	
National Tribal Utility Infrastructure Workshop	Oct-06	Fort Mojave
Sovereignty and Tribal Development	Mar-06	
Sustainable Energy Solutions Conference 2005 - Looking to Mother Earth for Guidance and Answers	Nov-05	
Tribal Energy Development in the 21st Century	Nov-07	National Congress of American Indians
Tribal Energy Efficiency Symposium	Dec-05	
Tribal Sustainability Forum	Dec-06	

Regional Conferences/Workshops	Date	Co-Sponsors
CERT IPAMS Conference on Rights of Way, renewable energy project development	Mar-07	
Hydropower for Community Development	Apr-07	Confederated Salish and Kootenai Tribes
Indian Energy: Opportunities and Challenges	Jan-05	Midwest Alliance of Sovereign Tribes
Oklahoma Tribal Energy Summit	Jul-04	Oklahoma Tribes
Power Generation Projects	Jan-05	Southwest Tribal Energy Consortium
Renewable Energy Symposium	Jun-04	Affiliated Tribes of Northwest Indians
Right-of-Way Strategies and Negotiations Seminar	Nov-06	Pueblo of Isleta
Southwestern Tribal Energy Strategic Planning Workshop	Aug-04	Pueblo of Laguna
Strategic Opportunities for Oklahoma Tribal Energy Development	May-04	Oklahoma Tribes
Tribal Executive Deal Structuring Symposia	Dec-04	Fort Mojave
Tribal Housing Weatherization Initiative Pre-Pilot Dialogue	Sep-06	
Tribal Renewable Energy	Mar-04	So California Tribal Chairmen's Assoc
Tribal Right of Way Policy Update and Workshop	Oct-06	Pueblo of Isleta
Tribal Water and Energy: Essentials for Self-Determination	Jan-04	Mni Sose Intertribal Water Rights Coalition
Workshop on New Technology for Tribal Wind Energy Development	Jul-07	Pueblo of Isleta

Conferences/workshops attended and participated	Date	Subject
15th Annual Region 9 EPA Tribal Conference	Oct-07	Climate Friendly Energy Opportunities
1st Nations Development Institute - 2008 National Conference	Mar-08	Panel discussions - Visionary Leaders & Asset Watch: Indentify, Preserve & Protect
Affiliated Tribes of Northwest Indians	Apr-05	Presented on CERT Energy Programs
Affiliated Tribes of Northwest Indians (ATNI)	Sep-06	Presented broad overview on Indian energy and highlighting the 1813 Rights of Way study
Affordable Comfort International Northwest 2007: Where Performance Hits Home Conference	Feb-07	Participated in sessions on new technology and techniques in weatherization
American Indian Bar Association	Apr-06	Presented on energy opportunities for Tribal communities
California Nations Indian Gaming Association	Jan-06	Promote energy audits, energy efficiency and energy management at casinos
California Tribal Geothermal Workshop	Jun-06	Presented on funding opportunities and a broad view of Indian energy
Choctaw Tribe of Mississippi's Annual Convention	Oct-06	Presented on Rights of Way issues and what TERA provisions means
Clean Energy Education Partnership Conference	May-07	Energy efficiency & clean energy (Rosebud Sioux)
Colorado Wind Conference	Sep-06	Presented on the vast opportunities and challenges Indian Energy possesses
Developing Utility Ability Workshop	Jan-06	Policy issues related to Tribal utility formation
Energy Development on Tribal Lands Conference	Jul-07	Presented on the practical aspects of making the Tribal partnership work
Energy Development on Tribal Lands in Rocky Mountain States Conference	Apr-08	Tribal renewable & fossil fuel development
Energy Out West - Energy Efficiency on Tribal Lands: Maximizing our Potential Conference	Apr-06	Tribal roundtable discussion on how weatherization services may be better delivered to Tribes
Fort Mojave Tribal Utility Conference	Jan-06	Participate & document the proceedings/Luncheon keynote presenter

Great Plains Regional Tribal Economic Development Summit	Apr-05	Wind Development panel. Presented strategic planning for renewable energy development
GreenBuild 2006 National Convention	Nov-06	Assisted in development of agenda & faculty also keynote presentation
Indian Energy in an Uncertain Climate Conference	Mar-07	Discussed methods of sustainable energy and economic development for and by Tribes
Indigenous Resource Management	Oct-06	Spoke on issues Tribes and transmission companies are facing
Intermountain Harvest Energy Summit	Jan-06	Presented Indian view on western development and energy infrastructure
Intertribal Monitoring Association's Conference on Trust Reform	Oct-06	Discussed Trust Reform and Tribal energy and natural resources
National American Indian Housing Council	May-06	Presented on "Mobilizing Energy Efficiency in Indian Country"
National Congress of American Indians' 63rd Annual Convention	Oct-06	Spoke on Rights of Way and Tribal Energy of the Trust Lands update
National Congress of American Indians' Conference	Jan-06	Presented on the 1813 Rights of Way study
National Congress of American Indians Executive Council Conference	Mar-08	Participated in roundtable on sustainable Tribal energy
National Indian Gaming Association Conference	Apr-06	Presented workshop "Energy Efficiency & the Tribal Casino"
National Indian Gaming Association Conference	Mar-07	Presented Energy Efficiency Design in Tribal Enterprises
National Indian Gaming Association Conference	Jan-05	Conducted the Energy Efficiency track
National Native American Economic Policy Summit	May-07	Assisted in conference planning & presented on central role of energy to economic growth
NCAIED Reservation Economic Summit	Jan-06	Promote Indian Business interests in Tribal energy development
National Weatherization Conference	Oct-05	Attended to learn more on the DOE Weatherization Assistance program and other programs
Native American Calling Radio Talk Show	Oct-05	Represented the Tribal Energy Efficiency Initiative to the Indian "public" through the radio media

Native American Energy and Mineral Institute Training Workshop on Renewable Energy Analysis and Economics	Jul-06	Three day course covering financial and economic analysis of various renewable projects
Native American Finance Officers Association Annual Conference	Sep-07	Presented on Indian energy and encouraged greater funding efforts for Tribal energy projects
Native American Finance Officers Spring Conference	Mar-08	Panel - Making a Successful Leap into the Energy Frontier
NCAI 64th Annual Convention	Nov-07	Tribal Energy Development in the 21st Century
NCAIED Annual First American Leadership Awards Banquet	Jun-07	Spoke on energy efficiency, renewable energy & economic development of Tribal economies
Osage Oil and Gas Summit	Sep-07	Attended and participated in the Summit
Osage Tribal Energy Summit	Aug-06	Spoke on creating a comprehensive Tribal sustainable energy policy
PowerGen Renewable 2005	Jan-05	Met with a number of potential presenters for Indian Energy Solutions 2005 conference
RES 2004 Conference	Feb-04	Promote regional workshops and discuss the goals of CERT's energy program
RES 2005 Conference	Jan-05	Workshop "Managing Energy" and "Tribal Energy and Self-Determination"
RES 2007 - National Reservation Economic Summit and American Indian Business Trade Fair	Mar-07	Discussed modern methods in Indian economic development, renewable energy & energy efficiency
Rights of Way Meetings	Jun-06	Tribes, energy industry, and federal agencies learn and share information on the work in progress
Rocky Mountain Renewable and Fossil Energy Partnership Roundtable	Jan-05	Building the awareness and network for Indian Energy Solutions 2005 conference
Southwest Renewable Energy Conference	Aug-06	Learn current trends and developments in renewable energy and how Tribes may benefit
Southwest Tribal Energy Consortium (SWTEC)	Mar-06	Discussions on shaping the consortium structure for potential energy project
Southwest Tribal Energy Peer Exchange	Sep-07	Presented information and ideas on renewable energy and opportunities in the Southwest
Tribal Business Development and Project Financing Workshop	Oct-07	Presented at workshop on Tribal Energy Project Financing

Tribal Economic Diversification Workshop	Jul-08	Tribal project financing
Tribal Energy in the Southwest Conference	Dec-06	Speaker on Rights of Way implications for the future
Tribal Energy in the Southwest Conference	Dec-07	Presented on Indian Energy as Tribal Nation Building
Tribal Green Design Summit: Strategies for Applying Green Design and Development Techniques	Mar-07	Presented on Energy Efficiency, Tribal Planning, Policy and Implementation
United Indian Nations of Oklahoma, Kansas and Texas Meeting	Jan-07	Presented on renewable energy and energy efficiency for sustainable economic development
United Native American Housing Association Quarterly Meeting	Aug-06	Outreach to Northern Plains Tribes about the Weatherization Training program
United South & Eastern Tribes Annual Expo	Oct-06	Presented on Rights of Way
University of Denver Sturm College of Law	Oct-06	Presented general information of Indian & Tribal energy & natural resources
University School of Law Seminar	May-06	Presented on energy development in the West and the impact on water resources
US Department of Energy 2007 Tribal Energy Program Review	Nov-07	Presented on cooperative agreement project work with US Department of Energy
US Department of Energy and US Department of Interior	Feb-08	Departmental program priorities for 08-09
US Department of Energy Tribal Program Review	Oct-04	Presented on cooperative agreement project work with US Department of Energy
US Departments of Energy and Interior Section 1813 Scoping Meeting	Aug-06	Tribal representatives perspective on the 1813 study
Working Effectively with Tribal Governments, US EPA Region 8	Oct-07	Participated in discussions on working relationships with Tribal Governments

Strategic Planning		**Completed**
Jicarilla Apache Tribe	Strategic Energy Planning Session	May-04
Pawnee Nation of Oklahoma	Strategic Energy Planning Session	Jul-04
Fort Sill Apache Tribe	Strategic Energy Planning Session	Feb-05
Yakama Tribe	Strategic Energy Planning Session	Apr-05
Rosebud Sioux Tribe	Strategic Energy Planning Session	Apr-05
Osage Nation	Strategic Energy Planning Session	Dec-05
Rosebud Sioux Tribe	Strategic Energy Planning Session	May-06
Pueblo of Isleta	Strategic Energy Planning Session	Aug-06
Eastern Shoshone and Northern Arapahoe Tribes	Strategic Energy Planning Session	Aug-06
Pueblo of Acoma	Strategic Energy Planning Session	Sep-06
Pueblo of Isleta	Strategic Energy Planning Session	Sep-06
Pueblo of Isleta	Strategic Energy Planning Session	Nov-06
Pueblo of Acoma	Strategic Energy Planning Session	Nov-06
Osage Nation	Strategic Energy Planning Session	Feb-07
Shoshone-Bannock Tribes	Strategic Energy Planning Session	Apr-07
Pueblo of Isleta	Strategic Energy Planning Session	May-07
Pueblo of Isleta	Strategic Energy Planning Session	Jun-07

Other Technical Assistance	Subject	Completed
Umatilla Indian Reservation	Discuss potential development of a wind project	Sep-04
Morongo Band of Mission Indians	Discuss Tribal strategic energy planning and projects	Sep-04
Pawnee Nation	Assisted in proposal to ANA - energy resource needs	Sep-04
Inter-Tribal Council of Arizona	Discuss partnering on energy efficiency conference	Sep-04
Fort Sill Apache Tribe	Discuss strategic energy planning	Sep-04
Cherokee Nation	Discuss the potential of a Tribal biomass project	Sep-04
Eastern Shawnee Tribe of Oklahoma	Provided information on smoke control technologies	Sep-04
Fort Mojave Tribe	Assisted with review of proposal for a concentrated solar project	Sep-04
Southern Ute Indian Tribe	Input on the Tribe’s development of "Homeland Security Office"	Sep-04
Umatilla Indian Reservation	Attended an architectural design charrette with the Tribe	Jun-05
Osage Nation	Assist with developing Osage Energy Summit	Jun-05
Western Area Power Administration	Assist with a concept for Tribes in Southwest region about power allocations	Jun-05
Fort Mojave Tribe	Research tax law and provisions on development of solar project	Jun-05
Shoshone-Bannock Tribe	Assist on proposal for hydrogen	Jun-05
Umatilla Indian Reservation	Discuss Tribe's future energy goals	Sep-05
Salish Kootenai	Assistance with Right-of-Way negotiations with Bonneville Power	Sep-05
Arapahoe Tribe	Potential of small scale hydropower technologies	Dec-05
Pueblo of Acoma	Presentation on renewable energy and energy efficiency	Mar-06
Metro State Community College	Spoke to class on Tribes, governance, natural resource management and development	Mar-06
Kaibab Paiute Tribal Council	Present overview of Indian energy development	Mar-06

Ute Mountain Ute Tribe	Present CERT Indian energy services	Mar-06
Rosebud Sioux Tribe	Right of Way issues	Mar-06
Pueblo of Zia	Explore joint venture with the Southern Ute Tribe	Jun-06
Pueblo of Laguna	Discussions on energy audit and weatherization training	Jun-06
Pueblo of Jemez	Introduce Current C and discuss stock tank water development	Jun-06
Rosebud Sioux Tribe	Presented information on improving energy efficiency through weatherization	Jun-06
Pueblo of Zia	Networking Zia Pueblo with Northern Plains Tribes on energy, natural resources and management	Sep-06
Menominee Tribe	Development of a small wind project with other renewable energy technologies	Sep-06
Pine Ridge Sioux Tribe	Wind-Solar demonstration project on a small scale basis	Sep-06
Choctaw Tribe	Development of a Tribal biomass project	Sep-06
Pueblo of Pojoaque	Requested information on RF:s by DOE and DEMB	Sep-06
Hopi Tribe	Requesting an update on Title V	Sep-06
Pueblo of Isleta	Update on status of the Rights of Way study and resource development proposals	Sep-06
Morongo Band of Mission Indians	Requested information on thin film PV modules	Sep-06
San Felipe Pueblo	Section 1813 ROW study, energy strategic planning and potential energy project opportunities	Sep-06
Umatilla Indian Reservation	Presentations about Codes and Standards for Energy Efficiency	Sep-06
Yakama Tribal Utility	Discuss potential of renewable energy projects (wind & small hydro)	Sep-06
Pueblo of Laguna	Discuss energy concerns and opportunities	Sep-06
Zuni Pueblo	Presented on overview of the Energy Policy Act of 2005 and the 1813 Study	Sep-06
Crow Creek	Energy efficient building codes	Sep-06
Pueblo of Isleta	Discuss Right of Way issues with Tribal Council and educate themselves on valuation methods and strategies	Dec-06

Umatilla Indian Reservation	Assistance on a wind farm project under development	Dec-06
Southwest Tribal Energy Consortium	Continue developing the initial parts of inter-Tribal partnerships and project feasibility	Dec-06
Osage Nation	Discuss strategic planning services re: comprehensive nationwide strategic planning	Dec-06
Southern California Tribal Chairmen's Association	Presentation regarding management of Tribal energy structures and facilities re: energy efficiency	Dec-06
Ohkay Owingeh	Information requested on DOE/NREL wind anemometer lending program	Dec-06
Pueblo of Isleta	Assistance to develop a sample RFP on Rights of Way	Dec-06
Crow Creek Sioux	Forwarded information on building codes and code software	Dec-06
Salt River Tribe	Requested Tribal energy code information	Dec-06
Southwest Tribal Energy Consortium	Decision on project location and several potential renewable technologies were discussed	Dec-06
Shoshone-Bannock Tribes	Requested information on possible funding options for weatherization training	Dec-06
Lummi Tribe	Discussed the results and process of the federal study of Tribal Rights-of-Way	Mar-07
Southwest Tribal Energy Consortium	Investigate and evaluate information on concentrated solar technologies	Mar-07
Pueblo of Isleta	Discussed past strategic planning and to develop an approach for a Comprehensive Strategic Plan	Mar-07
Shoshone Bannock Tribes of Fort Hall	Attended meeting to answer questions on energy project development	Mar-07
Osage Nation Congressional Committee	Discuss the benefits of strategic planning for Tribal resource and energy development opportunities	Mar-07
Saginaw Chippewa Tribe	Discuss Strategic planning for energy planning and benefits of effective planning	Mar-07
Osage Nation Executive Branch	Energy opportunities as identified in their 25-year Strategic Plan	Jun-07
Pueblo of Isleta	Assisted leadership to develop project priorities and spend plan	Jun-07
Osage Nation Strategic Planning Task Force	Energy planning discussions	Jun-07
Pueblo of Isleta	Continued assisting leadership to develop project priorities and spend plan	Jun-07
Pechanga Tribal Council	Discussed energy planning, renewable energy projects, energy efficiency audits and opportunity to join SWTEC	Jun-07

Southwest Tribal Energy Consortium	Development of a multi-Tribal energy project	Jun-07
Navajo Nation Vice President	Update activities in energy efficiency and renewable energy	Jun-07
Pueblo of Laguna	Discussed energy efficiency and gauging community preparedness for training readiness	Jun-07
Pueblo of Laguna	Introduced the Wind Energy Group and their unique turbines for potential manufacturing	Jun-07
Osage Nation	Provided information on renewable energy resources—wind, solar and hydro opportunities	Jun-07
Salish Kootenai	Request for information on funding for small hydropower low impact certification	Jun-07
Pasqua Yaqui Tribe	Request assistance on funding and technical assistance for energy auditing of Tribal homes	Sep-07
Pueblo of Acoma	Requested a CERT presentation on the various opportunities for community and economic development	Sep-07
Southwest Tribal Energy Consortium	Attended meetings, conference calls and produced monthly summary of project activities	Sep-07
Pueblo of San Felipe	Conducted right-of-way workshop for Tribal Council and Tribal staff	Sep-07
Pueblo of Isleta	Conducted right-of-way workshop for Tribal Council and Tribal staff	Sep-07
Pueblo of Isleta	Meetings to discuss evaluation criteria for the RFP process	Sep-07
Yakama Nation	Facilitated the transfer of a privately owned 90kw wind turbine to Yakama	Sep-07
Pueblo of Laguna Utility Authority	Worked with the Pueblo to explore opportunities in renewable energy technology manufacturing	Sep-07
Pueblo of Laguna	Continued with their Tribal energy planning	Sep-07
Pasqua Yaqui Tribe	Advised and assisted in developing approach for grant application	Dec-07
Dine Power Authority	Renewable generation opportunities	Mar-08
Southwest Tribal Energy Consortium	Investment risk and return of a major concentrated solar project	Mar-08
Creek Nation Tribal Council	Presented outline for developing data for a comprehensive energy strategy	Apr-08
Navajo Nation-Dine Power Authority	Discuss renewable energy development	Apr-08
Osage Nation	Discuss various aspects of their overall energy program strategies	Apr-08

Information Dissemination was accomplished through various avenues. Information was distributed at conferences, workshops, mailings and posted on the CertRedEarth.com website.

Information Dissemination
1. State and Tribal energy efficiency building codes, other standards, online case studies and website links posted on website
2. Listserv of Tribal representatives interested in updates and funding opportunities for EE/RE technologies and retrofits entered into website database
3. Database of technical resources and funding opportunities for strategic planning and energy/economic-community vision development entered into website database
4. Listed co-ops currently servicing Tribes, and RE's currently available through co-ops posted on website
5. Posted links to private and public websites and databases helpful to Tribes and their energy priorities
6. RFI, RFQ, RFP samples posted to website
7. Posted and distributed new items on Indian Energy and upcoming energy issues that affect Indian Country

Reports, Publications and Presentations	**Completed**
Presentation: Renewable Energy and Energy Efficiency Overview	Dec-03
Tribal Renewable Energy	Mar-04
Presentation: Southern California Tribal Renewable Workshop	Mar-04
Tribal Water and Energy: Essentials for Self Determination	Mar-04
Overview of Strategic Energy Planning - Strategic Opportunities for Oklahoma Tribal Energy Development	Jun-04
Renewable Energy Symposium Report	Jun-04
Jicarilla Apache Tribe Strategic Energy Planning Meeting	Sep-04
Pawnee Nation of Oklahoma, Energy Strategic Plan	Sep-04
Oklahoma Tribal Energy Summit	Sep-04
White paper on Tribal energy development opportunities in Southern California	Dec-04
PowerPoint presentation for Fort Sill Apache Planning Project	Dec-04
Tribal Executive Deal Structuring Symposia, Laughlin, Nevada	Dec-04

Toward Energy Efficiency in New Buildings – Umatilla	Mar-05
Energy Audits of the Pueblo of Laguna	Mar-05
Streamlining Federal Permitting for Increased Indian Energy Production	Mar-05
Tribal Energy Investment Funding	Mar-05
Memo - Learning from Other Funds	Mar-05
Rights-of-Way Outlines	Mar-05
Southwest Tribal Energy Consortium — Summary	Mar-05
Midwest Alliance of Sovereign Tribes/Council of Energy Resource Tribes	Mar-05
Fort Sill Apache Tribe Strategic Planning Session Report	Mar-05
Utility Power Monitoring — Pueblo of Laguna	Jun-05
Rights-of-Way Power Point Presentation	Jun-05
Sicangu Lakota Oyate, Upper Cut Meat Residence, Renewable Energy Project	Jun-05
Integrated Resource Management Guidebook for Tribal Homelands	Sep-05
Assessing Rights-of-Way on Tribal Lands	Sep-05
Organization for Energy Efficiency Information	Sep-05
Energy Audits of Buildings on Osage Nation Indian Reservation in Oklahoma	Dec-05
Energy Audits of Buildings on Pawnee Nation Lands in Oklahoma	Dec-05
Energy Audits of Buildings on Rosebud Sioux Tribal Lands in South Dakota	Dec-05
Forging the Energy Future: CERT's Plans for the People's Side of the Meter	Dec-05
Laguna Pueblo Power Monitoring	Dec-05
Red Earth Renewable Energy Strategies: The Bottom Line for Tribal Energy	Dec-05
Sustainable Energy Solutions 2005	Dec-05
Article: Interconnections to Open Markets	Dec-05
Presentation: Transmission Planning – An Essential Element of Tribal Project Development	Dec-05
Osage Nation - Community Meetings for Energy Development	Dec-05

Final Report on Findings and Recommendations for Proposed Energy Efficiency Projects – Residential and Tribal Buildings – Ohkay Owingeh	Mar-06
Report: Final Report on Findings and Recommendations for Proposed Energy Efficiency Projects – Casino and Resort – Ohkay Owingeh	Mar-06
Power Quality Power Consumption Power Security Site Report – Ohkay Owingeh Casino	Mar-06
Developing Utility Ability: Dispensing the Value of Tribal Energy Resources to the Tribal Community	Mar-06
Southwest Tribal Energy Consortium Planning Meeting - Project Kick-Off	Mar-06
Presentation: Southwest Tribal Energy Consortium Planning Meeting– Background/Initial Efforts	Mar-06
Presentation: California Nations Indian Gaming Association, January 11-13, 2006	Mar-06
Sovereignty and Tribal Development Workshop	Mar-06
Worksite Tour of Sunpower, Inc.	Mar-06
Developing Utility Ability – Dispensing the Value of Tribal Energy Resources to the Tribal Community	Mar-06
Presentation: Techniques for Energy Efficiency	Jun-06
Energy Efficiency in Tribal Communities: Maximizing Our Potential	Jun-06
Presentation: California Tribal Geothermal Workshop	Jun-06
Presentation: Mobilizing Energy Efficiency in Indian Country	Jun-06
Presentation: Ohkay Owingeh Energy Efficiency Audit	Jun-06
Presentation: Wind River Reservation Joint Business Council	Jun-06
Presentation: Pueblo of Nambe Indian Energy Presentation	Jun-06
Action Planning -Rosebud, South Dakota May 30-31, 2006	Jun-06
Presentation: Sicangu Lakota Oyate Energy Efficiency in Indian Country	Jun-06
Article: Rosebud Sioux Tribe's Tribal Utility Commission is Committed to Energy Efficiency	Jun-06
Little Thunder Clean Energy Education Partnership pilot project prime example	Jun-06
Tribal Housing Weatherization Initiative – Pre-Pilot Dialogue	Sep-06
Indian Energy Solutions: Maximizing Partnerships Between Tribes, Government and Industry	Sep-06
Southwest Renewable Energy Conference	Sep-06
Presentation: Tribal Housing Weatherization Initiative Pilot Project	Sep-06

Hydropower Guidebook	Sep-06
RFP: Tribal Housing Energy Planning and Weatherization Training Program	Dec-06
National Tribal Utility Infrastructure Workshop	Dec-06
Tribal Rights-of-Way Policy Update and Workshop	Dec-06
Right-of-Way Strategies and Negotiations Seminar	Dec-06
The Tribal Sustainability Forum	Mar-07
Presentation: Tribal Green Design Summit: Tribal Planning, Policy, and Implementation	Mar-07
IPAMS Conference Report	Mar-07
Hydropower for Community Development Conference	Jun-07
CD: Hydropower Guidebook	Jun-07
Wind Energy Workshop Report	Sep-07
Presentation: Southwest Tribal Energy Peer Exchange	Sep-07
Presentation: Right-of-way Presentation	Sep-07
Presentation: WEG Workshop Presentation	Sep-07
Presentation: 15th Annual Region 9 EPA Tribal Conference	Dec-07
Presentation: Tribal Energy in the Southwest	Dec-07
CERT Alert	Throughout

Leveraging Resources

The Council of Energy Resource Tribes demonstrated the ability to leverage grant funds to stretch their limited resources to accomplish the goals and objectives for this project. The Council of Energy Resource Tribes was able to generate program income from conferences and workshops plus work with our professional partners to donate their time, travel and/or to reduce their rates.

Program income generated and used as cost sharing $121,580.48

National Conference/Workshop partners	
Indian Energy Solutions 2005	Morongo Band of Mission Indians
Indian Energy Solutions 2006	Saginaw Chippewa Indian Tribe
Indian Energy Solutions 2007	Pechanga Band of Luiseno Indians
National Tribal Energy Finance Symposium	Umatilla Tribe
National Tribal Utility Infrastructure Workshop	Fort Mojave
Tribal Energy Development in the 21st Century	National Congress of American Indians

Regional Conference/Workshop partners	
Hydropower for Community Development	Confederated Salish and Kootenai Tribes
Indian Energy: Opportunities and Challenges	Midwest Alliance of Sovereign Tribes
Oklahoma Tribal Energy Summit	Oklahoma Tribes
Power Generation Projects	Southwest Tribal Energy Consortium
Renewable Energy Symposium	Affiliated Tribes of Northwest Indians
Right-of-Way Strategies and Negotiations Seminar	Pueblo of Isleta
Southwestern Tribal Energy Strategic Planning Workshop	Pueblo of Laguna
Strategic Opportunities for Oklahoma Tribal Energy Development	Oklahoma Tribes
Tribal Executive Deal Structuring Symposia	Fort Mojave
Tribal Renewable Energy	So California Tribal Chairmen's Assoc.
Tribal Right of Way Policy Update and Workshop	Pueblo of Isleta
Tribal Water and Energy: Essentials for Self-Determination	Mni Sose Intertribal Water Rights Coalition
Workshop on New Technology for Tribal Wind Energy Development	Pueblo of Isleta

Partners who donated or discounted services:	
AirStrata	McCabe & Associates
Arnold & Porter	Native American Bank
ATNI, Margie Schaff	Native Power
Cardinal Wind	Navigant
Center of the American West	Premier Energy Services
Current-C	Red Mountain Tribal Energy
Dykema Gossett	Roger Taylor, NREL Tribal Program
Emerson Process Management	Sampson Oil
First Nations Project	Summit Blue
Gardner, Carton & Douglas	Stratus Consulting
Global Energy Advisors	Synertech Systems
Hezekiah Services	Turbine Air Systems
Jones & Keller	Wagner Power Systems
Lawrence Livermore National Laboratory	Wind Energy Group
LumaBright	Zeros
Mach5	

CERT conducted an aggressive program of workshops and conferences designed to raise the awareness of Tribal professional and political leadership of the unique opportunities that their ownership of renewable energy resources offer them. These workshops were included in a number of CERT sponsored sustainable energy conferences and were the key feature of the annual CERT Indian Energy Solutions conferences. These conferences attracted both Tribal and corporate sponsors who also contributed expert speakers and workshop presenters. The conferences attracted attendees from private industry including investor owned utilities, rural electric co-ops, technology companies, developers and consulting firms. Federal and state agencies also sent representatives as registered attendees as well as speakers and presenters. Tribal representatives compose the larger group of conference participants and they come from a cross section of Tribes nationally and are not restricted to the CERT Tribal membership.

CERT charges a minimal registration fee for Tribal representatives including CERT member Tribes. Government and private industry registrants to the conference also pay a registration fee. These fees are treated by CERT and accounted for as "program income" and are used to further the objectives of the cooperative agreement.

In addition, CERT has sparked greater interest among public and private institutions of higher learning by providing speakers and assistance in developing conference and workshop agendas and in consulting with students and professors in development of courses of study. Several professional groups have turned to CERT to assist them develop symposia and workshops specifically on Indian renewable energy development, among these are the Federal Indian Bar Association and the Law Seminars International series of Indian energy seminars conducted for the Northwest, the Southwest, California, the New England States and for the Washington, DC community of attorneys for Tribes, industry and government that want to learn more about the law and issue of Indian renewable energy development.

Through the Cooperative Agreement, Tribes were able to play a significant role and to participate on relative equal terms with private industry in a study of energy rights-of-way through Tribal lands. Industry contended that the policy and law requirement for Tribal Consent for rights-of-way through Tribal lands created a burden on consumers, made the markets less efficient, created security risks and was incompatible with national energy policy. The Tribes responded that Tribal consent brought value to both parties of the right-of-way agreement and resulted in more greater efficient use and development of Indian energy resources while creating productive business relationships for the Tribes and the transmission and pipeline industries.

The DOE and the Department of the Interior were charged with joint responsibility to conduct the study. Lacking a national data base on rights-of-way through Tribal lands and access to the information contained in the negotiated agreements, the Study required full participation from the companies and the Tribes. Through the cooperative agreement supplemented by additional Tribal contributions, CERT was able to reach across the Country to the Tribes with agreements with either or both transmission or gas pipelines. By mobilizing the network of regional Tribal organizations and major national Tribal groups as well, CERT was able to motivate the Tribes to produce the data the two federal departments would need to answer the questions posed by the Congress in Section 1813 of the EPAct of 2005. The conclusion was that while the requirement for negotiating Tribal consent may pose a burden on a company, the record shows that negotiating with Indian Tribes for rights-of-way was not a burden on the industry as a whole nor on energy consumers, did not interfere with the functioning of the marketplace, did not create any security risks, and was not inconsistent with national energy policy especially in light of the fact that Congress had just passed a significantly empowering Indian provision in that same National Energy Policy Act.

The result of the study, while important, was complimented by the fact that nearly every Indian Tribe became aware of the importance of Indian lands to the American energy industry, and provided both CERT and DOE another vehicle to further educate Tribal leaders about the opportunities for their own economic development through Tribal renewable energy and energy efficiency initiatives as opposed to being passive landowners simply leasing land to developers who would exploit the resource potential.

Part Three: Summary of Project

A. Original Hypotheses

The underlying hypotheses of the cooperative agreement was that DOE and CERT could accomplish more in promoting the achievement of the national Indian energy vision that fell within the purview of the EE/RE Indian Program by working together as a team, than by working separately and independently for the development of the abundant Tribal renewable energy resource base, and could show Tribes that they could save substantial financial resources for the Tribe, its enterprises, and the members who lived in the Tribal communities through energy conservation.

Additionally it was assumed that when Tribes understood the value of their renewable energy resources and the rapid growth of the markets for renewable energy generated electric power, Tribes would develop a desire to develop their capacity to plan and initiate renewable energy projects through the DOE Indian Program as well as through partnerships with private industry. And that when Tribes became aware of how energy inefficient their buildings and homes were, and the economic loss that inefficiency represented to their budgets and to the families of the Tribe, they would desire to save the money now wasted on inefficient lighting and heating and cooling, and invest in greater social and economic development activities.

The project also assumed that private industry would find working with Indian Tribes and communities, for both renewable energy development and energy conservation and efficiency, interesting and profitable, and that private industry would be receptive to business partnerships with Tribes in development projects and in enterprises created to implement Tribal renewable development goals.

It was assumed that once policy and legal barriers to Tribal development were identified, Tribes would be motivated to communicate these findings to the agencies and Congress, and those agencies and the U.S. Congress would have interest in reforming those policies, as well as enacting incentives for Tribes to develop energy resources as part of the Tribal economic development vision for achieving economic parity with other American communities.

Lastly, it was assumed that individual Indians living in their own homelands and Indian students attending colleges and post secondary training schools, would be attracted to learning the technologies and gain the skills needed to implement Tribal renewable energy development and energy efficiency projects and programs in their Tribal communities.

B. Approaches used

Conferences and workshops conducted by CERT, or with other regional and Tribal organizations, were a major component of the educational and training strategy for the project. These tested several of the original hypotheses on an on-going basis. Industry and Tribes were recruited to become sponsors and to provide speakers and presenters at the CERT Indian Energy Solutions and Sustainable Indian Energy conferences that CERT put on throughout the length of the project, from 2003 to 2008. Speakers and sponsorships were recruited from within the federal family of agencies including the USDA, DOE, Department of the Interior, HUD, HHS and DOD. Members of Congress and senators were recruited to speak and participate in these conferences, as were key committee staff members who could provide first-hand information on federal policy direction to all in attendance.

CERT conducted specific Tribal conferences and assisted individual Tribes in developing sponsorships, agenda topics and speakers for their own Tribal energy conferences. CERT provided assistance in developing Tribal energy visioning workshops and strategic Tribal energy planning as well as assisting specific Tribes in identifying specific Tribal objectives as they planned for energy development or energy efficiency projects.

Through these conferences and workshops, CERT continually updated the Tribes and was updated by the Tribes in an interactive participatory methodology that CERT adapted from the Technology of Participation® developed by the Institute of Cultural Affairs. CERT also used these opportunities to reconnect with Tribal values and cultures so that the contemplated development resonated with and acted in concert with Tribal values for cultural and community continuity. Tribal distrust of government and energy industry was not reinforced, but was mediated by active participation and leadership of known and proven Tribal leaders, and by trusted Tribal organizations of long standing.

C. Problems encountered

There were several problems encountered. Among them was the low level of funding support for critical Tribal development success. Among these was the mismatch between the EE/RE program objectives, as mandated by its authorization and appropriations, and the critical first steps required by Tribes to be able to reach the stage of organizational capacity to plan and support the development of renewable projects that would be self sustaining from their own energy production and sales.

Even simple steps like creating a business plan are not possible until organizationally the Tribe has developed the capacity to create them. While it is always possible to hire an outside expert to do these tasks and to create the documents; unless the plan is owned and championed by internal Tribal leadership, the plan will remain a static document sitting on a shelf gathering dust at the Tribe and at DOE.

Tribes encountered problems along every step of a project development flow chart. The remarkable thing discovered by the DOE-CERT Cooperative Agreement is that those Tribes that had a “project champion” have been able to persevere and advance the project along its developmental trajectory. Those that relied on outside expertise did not find the traction to overcome the problems and advance to the next stage of the project.

The historic exclusion of Tribes from participating in any phase of energy industry development, and the lack of Tribal members hired by companies and utilities serving Tribal community energy supply needs, continues to be a significant barrier. Families do not have internal role models and communities and Tribes have no one familiar to them who understand the language of renewable energy or that of the electric utility industry. Even Tribes that have had great success in other industries are not much further ahead in bridging the human resource deficit that exits in Indian Country with respect to the various components of the energy industry. However, given that only a few years ago there were few Indians familiar with any industry and that most Tribal economies were dominated by government programs, most Tribes take as a given that they can with time and training and opportunity close the human resource deficit and contribute to the domestic energy labor pool.

D. Departures from planned methodology

The significant deviation from the methodology was the unexpected imposition created by the Section 1813 of the EPAct of 2005 study of the issues surrounding the legal federal policy that requires formal Tribal Consent, just and fair compensation to the Tribe for rights-of-way through Tribal lands, and the companion policy that limits the duration of the rights-of-way to a 20 year time term, except where that is waived by the Tribe and approved by the Secretary of the Interior. The natural gas pipeline industry initiated the issue with Congress causing the passage of Section 1813. Congress directed DOE and the Department of the Interior to study the nature and extent of the problem if any. The pipeline industry was very aggressive in pressing for the study but once the study was mandated by Congress, the electric transmission industry also became involved.

The study did detract from the original methodology and required CERT to devote personnel and budget resources to it as a major activity that was not in the original plan. Nevertheless, the study results were very satisfactory and the cooperation between DOE-DOI with the Tribes and industry was not questioned by the Tribes. A major accomplishment of the study was the degree to which a highly controversial issue was managed in a way in which the integrity of the two departments in the eyes of the Tribes was enhanced.

Another major problem that required a deviation from the original methods as planned was the virtual inability of Tribal projects to access private capital, either equity or debt, to finance otherwise feasible projects. Part of the problem was the lack of equity capital within the sponsoring Tribes, making access to debt financing impossible, and the raising of equity a requirement; and another part of

the problem is that financial institutions that have experience financing Tribal business operations in agriculture, tourism, hospitality and gaming as well as in manufacturing, retail and commercial development, but not in conventional or renewable energy projects. Those institutions' energy financing business units have no experience financing Tribal energy projects or enterprises. But more fundamental is that the incentives that drive project development–tax credits are available to for profit developers but not for Indian Tribes whose tax status is unique. Tribal tax status in the Internal Revenue Code is unlike that of counties, states, or rural electric co-ops or any not for profit entity.

In addition, the old model for any form of Indian owned energy resource whether it is renewable or conventional, compromises the political integrity of the Tribe as a domestic sovereign and creates the potential for community discontinuity for the Tribe. If a Tribe gives a non-Indian developer a lease to develop the Tribal resources, the Tribe under current policy surrenders much of its tax base to the state and its political subdivisions such as counties and other tax districts. And, the development falls within the regulatory authority of the state as well. Current policy, developed under a contradictory federal policy designed to terminate Tribal political authority, now inhibits the ability of the Tribe to raise income to provide basic services that the company operating within Tribal jurisdiction has come to expect and that Tribal members desperately need. Therefore, the project has identified significant built-in disincentives on top of the inaccessibility of incentives enjoyed by other Americans.

Finally, the fact that the rules for electric power generation, transmission and distribution were developed when it was expected that Indian Tribes as effective political, economic separate communities would cease to exist, and individual Indian families would assimilate as did the immigrants from other lands assimilated into the general American population. The fact that Tribes managed to survive two hundred years of federal pressure to disaggregate as communities, and to assert new policy priorities of Indian self determination and Tribal political integrity and self government known as Tribal Sovereignty, have created new entrants to the electric utility and regulatory framework that have different status from states, investor owned utilities and from municipal utilities as well. How does a Tribe acquire access to a transmission line that is owned by a federal agency? Owned by private investors? Or, how can a Tribe have power it wants to buy transmitted over wire owned and regulated by other governments that ignore or do not respect Tribal status? Can a Tribe negotiate for power outside the regulatory authority of state utility monopolies?

Tribal projects have floundered on the rocks of all of the barriers cited above. Yet, some projects, while taking years of hard work have been completed and are producing clean power for its Tribal customers. A prime example is the Rosebud Sioux Tribe's wind turbine developed by the Rosebud Sioux Tribal Utility Commission. The success stories underline the finding that Tribal institutional and human resource development are necessary investments and lead to successful Tribal renewable energy projects as well as successful Tribal energy efficiency initiatives. In each case, these projects benefited by the ability of the Tribal capacity to enlist and mobilize support from private and government leaders who find ways to overcome the barriers and move the projects forward.

This success story, while small in terms of generated power, is large in the lessons it teaches all who have an interest in promoting the progress of Tribal development of Indian renewable energy resources. The power of an institutionalized Tribally mandated mission is visibly demonstrated by the Rosebud Tribe's Utility Commission in its work in renewable power and in localized empowerment of energy efficiency.

E. Assessment of impact on project results

The critical objectives of the project were completed within the project period and within project budgets. However, the metrics of the project have to be measured in terms of the growth in activities and interest expressed throughout the project period by a broad and disparate collection of interest groups and constituencies; they included more than a dozen federal agencies across four separate federal cabinet level departments, six different committees of the US Senate and House of Representatives that requested information about Indian renewable energy, private trade associations such as the Edison Electric Institute and a dozen investor owned electric utilities serving Indian Tribes and communities throughout the West and Midwest, Indian student organizations in science, engineering, business and law enrolled in Tribal, state and private colleges as well as individual students writing research papers called and accessed the CERT web site, Tribal planners and program developers, Tribal Councils that are the elected governing bodies of Indian Tribes, practitioners of both Indian and energy law representing both Indian Tribes and energy companies and private sector energy developers, agencies of state governments, and several visits from foreign countries touring US methods in the development of indigeneous economies – to name the more outstanding examples.

There is little doubt that Indian Tribal energy resources will become a major element in future Tribal economic development from three major points of view.

The first is Indian renewable energy development as a means of creating generation of new income for the provision of essential governmental services, jobs and surplus revenue that can be used to invest in more diversified Tribal economic development. The second is for Indian renewable energy to become a major supplement to the increasing shortfall of reliable power supply from the utilities that supply Tribal economies with electricity due to restrained investment in both new generation capacity and in new transmission and distribution systems capacities. Also, as Tribes contemplate the full potential of their energy resource base, they will begin to use their renewable energy as a basis for creating their own Tribal or multi-Tribal electricity utilities. Some are already studying how they can use their federal hydropower allocation, which is a firm contract for delivery to firm their wind and solar generated power. Tribes are becoming conscious of the social and political as well as the economic values inherent in being energy self reliant in a marketplace that is becoming increasingly volatile in price and supply.

Our work in energy efficiency revealed a number of lessons as well that should guide future Tribal endeavors. The first lesson we learned from our audits of Tribes in virtually all major climate zones of the contiguous 48 states is that not one single Tribe is benefiting from the past 30 years of progress in energy efficiency in building design or in energy management. Our audits included with each Tribe samples of buildings and homes for the various construction eras represented by federal construction funding over the past 75 years, including some buildings that are on the register of historic buildings as well as some that are of very recent construction. All were found to be very inefficient in heating and cooling design and in equipment employed, inefficient in lighting for both indoor and outdoor purposes. These included facilities for Tribal offices, services such as health and education and for facilities constructed to house their economic enterprises, which range from manufacturing to agriculture and from retail to natural resource development and processing. Our sample showed that as much as 40% reduction in energy consumption could be accomplished with moderate application of new lighting and H-VAC equipment and in modest improvements in insulation and weatherization.

We also learned that Tribal wide energy efficiency is inhibited by the fractionated “ownership control” exercised by the programs the either occupy and manage the facilities or by the programs whose funds sponsored the construction. Another barrier encountered was the lack of any specific federal incentives direct or indirect available to the local program or to the Tribe to undertake energy efficiency as a priority. Finally, the absence of financial or technical assistance to support comprehensive studies and the development of specific plans to achieve energy efficiency places the burden on Tribes that have little to no discretionary general funds to direct to such activity.

To make our work in energy efficiency demonstrable, we have undertaken a special project that could not be completed within the time period of the cooperative agreement, to assist the Tribes of the Northern Great Plains develop "in community" expertise in conducting energy audits and implementing cost effective, remedial energy efficiency actions, to protect the health and the budgets of the families living in housing constructed thru the Indian HUD Housing programs over the years. Our project design is to include the housing programs' Boards as well as housing residents and members of the governing Tribal councils, so that the knowledge and benefits would transcend program and community boundaries, and begin to inform decision makers at all levels of a Tribe, from the family all the way to governing councils, that modest steps have lasting positive social and economic benefits. The project is being continued under the new CERT grant from DOE EE/RE Indian Energy Program.

There are several indicators that point to and support the above conclusions. The more tangible indicators are the increasing number of hits and visits to the CERT website (www.CERTRedEarth.com) over the course of the project period and the expanded interest by Indian Tribes as evidenced by the number of attendees at conferences and workshops sponsored by CERT or by other Indian and Tribal organizations on their own or in cooperation with CERT and, in the number of Tribes that are undertaking active planning and other developmental steps toward development of their renewable energy resources, within the scope of the DOE EE/RE program, through NREL, through other national labs, through the DOE/CERT Cooperative agreement, and on their own in partnership with universities, private citizens coalitions and non-profits as well as the renewable private sector industry.

The challenges facing renewable energy have been mapped and documented in the experiences of this cooperative agreement as well as in the overall collective experiences of the other Indian renewable energy projects.

More importantly, it is becoming well known that Tribal lands possess world class renewable energy resources including wind, solar, biomass and for some geothermal and hydro. Tribes are becoming more aware of the new technology revolution that is making many resources feasible for either community based or commercial scaled development. This awareness and the attention being given to national energy issues and policy have combined to make Tribal decision makers more aware of the opportunities in energy efficiency and renewable energy development.