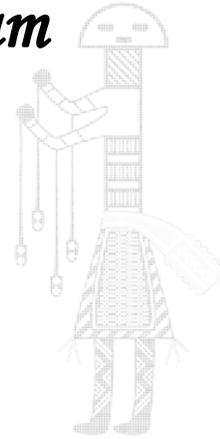
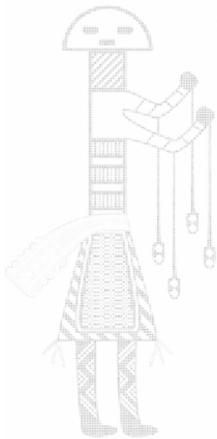




**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**

DOE's Tribal Energy Program



**Lizana K. Pierce, Project Manager
U.S. DOE, Golden Field Office**



DOE's Tribal Energy Program

Promote tribal energy sufficiency, economic development and employment on tribal lands through the use of renewable energy and energy efficiency technologies



Authority

Title V of the Energy Policy Act (EPAct 2005)





DOE's Tribal Energy Program



Mission

Offering financial and technical assistance to Tribes through government-to-government partnerships that:

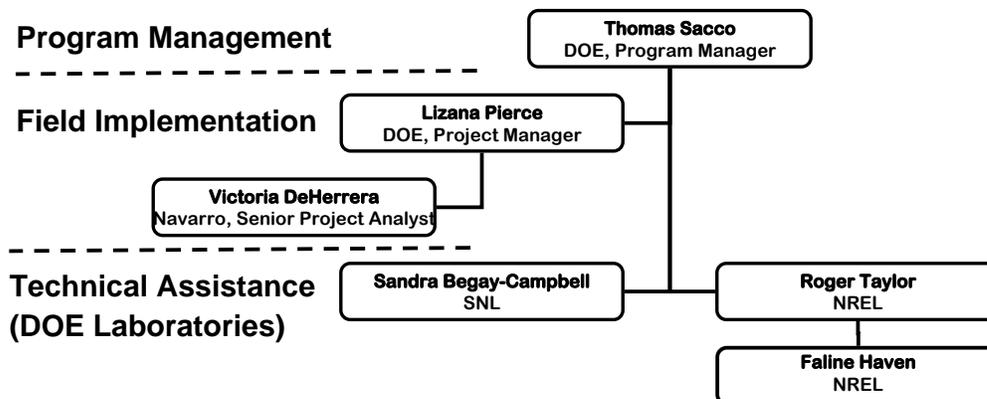
- 1) Allow Tribal leaders to make informed decisions;***
- 2) Bring renewable energy and energy efficiency options to Indian Country;***
- 3) Enhance human capacity through education and training;***
- 4) Improve local Tribal economies and the environment; and***
- 5) Make a difference in the quality of life of Native Americans.***



DOE's Tribal Energy Program

Organization

Program Management through DOE Headquarters, implementation through the DOE Golden Field Office, and technical support through the DOE's Laboratories





DOE's Tribal Energy Program Funding

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
Requested	\$2,100	\$8,307	\$6,000	\$5,500	\$4,000	\$3,957
Enacted	\$3,000	\$6,000	\$5,000	\$5,500	\$4,000	\$3,957
Earmarks	\$0	\$1,000*	\$3,300**	\$2,000***	\$1,000*	\$0
Discretionary	\$3,000	\$5,000	\$1,700	\$3,500	\$3,000	\$2,000
Competitive	14	24	7	20	11	15

* Council of Energy Resource Tribes (CERT)

** CERT, ICOUP, and Pyramid Lake Paiute

*** CERT and Pyramid Lake Paiute



Renewable Energy Resources



Using the Sun, Wind, Water,
and Earth





Renewable Energy Technologies



DOE's Prime Focus is Research & Development



DOE's Tribal Energy Program

"Indian land comprises 5% of the land area of the United States, but contains an estimated 10% of all energy resources in the United States"

Tribal Trust Lands Comprises 55.7 Million Acres (Per BIA)

"Wind resources in the Great Plains could meet 75% of the electricity demand in the contiguous 48 states." (Native American Energy Development and Self-Determination Act of 2003)



Tribal energy resource development can support local economies and Tribal sovereignty

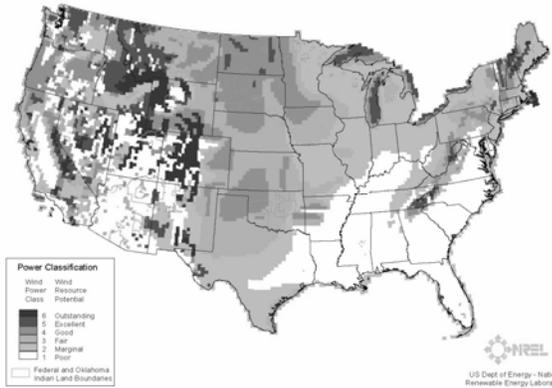
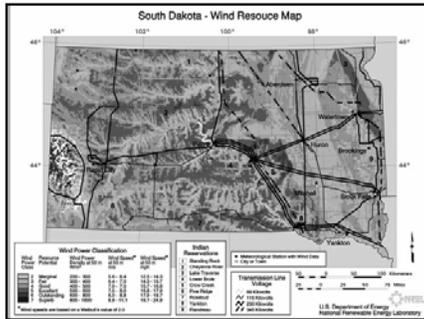




DOE's Tribal Energy Program

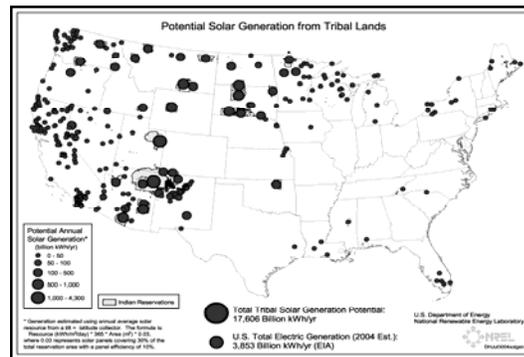
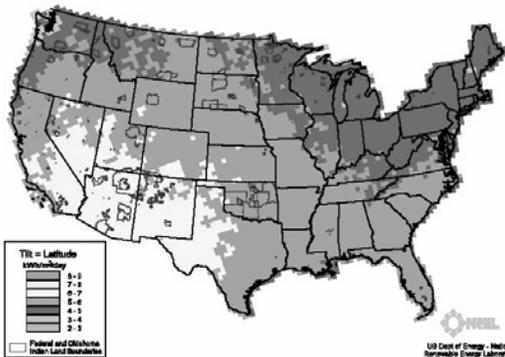
Wind Potential on Tribal Lands about 14% of U.S. Annual Electric Generation (~ 3,853 Billion kWh/year)

Wind potential of about 535 Billion kWh/yr on Indian Lands in Lower 48 States



DOE's Tribal Energy Program

Solar Electric Potential on Tribal Lands ~4.5 times the Total U.S. Electric Generation in 2004

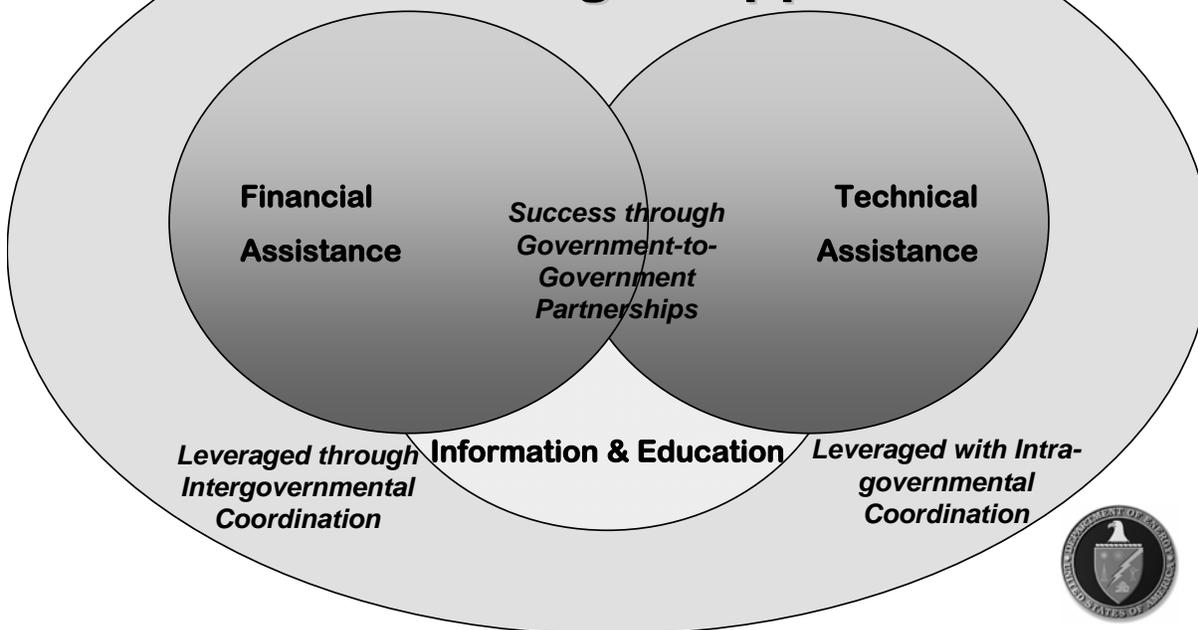


Solar Electric Potential of 17,600 Billion kWh/yr on Indian Lands





DOE's Tribal Energy Program **Three Pronged Approach**

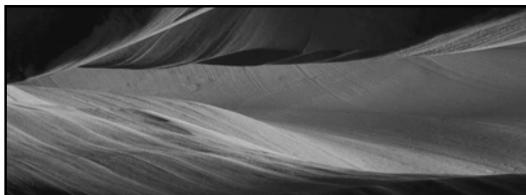


DOE's Tribal Energy Program **Providing Financial Assistance**

Providing financial and technical assistance to Tribes for the evaluation and development of renewable energy resources on Tribal Lands

Eligibility:

Federally-recognized Tribes or Tribal Energy Resource Development Organization (two or more entities, at least one of which is an Indian Tribe



Tribal Lands include Indian reservations; Public domain Indian allotments; Former Indian reservations in Oklahoma; Land held by under the provisions of the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.); and Lands held in fee simple or under a Federal land lease.

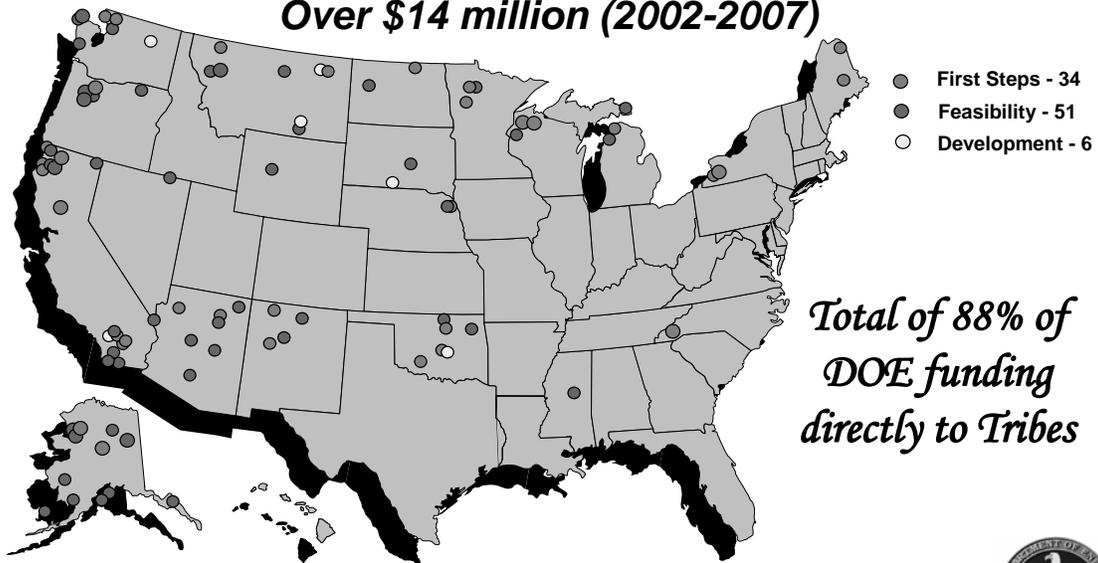
Funds Awarded through a Competitive Process





DOE's Tribal Energy Program

DOE has funded 91 tribal energy projects totaling
Over \$14 million (2002-2007)



Total of 88% of
DOE funding
directly to Tribes

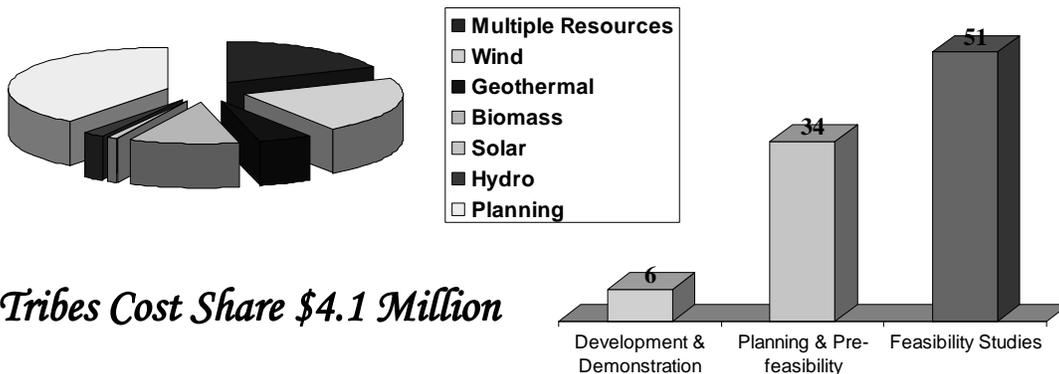
Tribes cost-shared \$4.1 million



DOE's Tribal Energy Program

Tribal Projects

DOE Investment of Over \$14 Million



Tribes Cost Share \$4.1 Million

Ninety-one (91) Tribal energy projects funded (2002-2007)

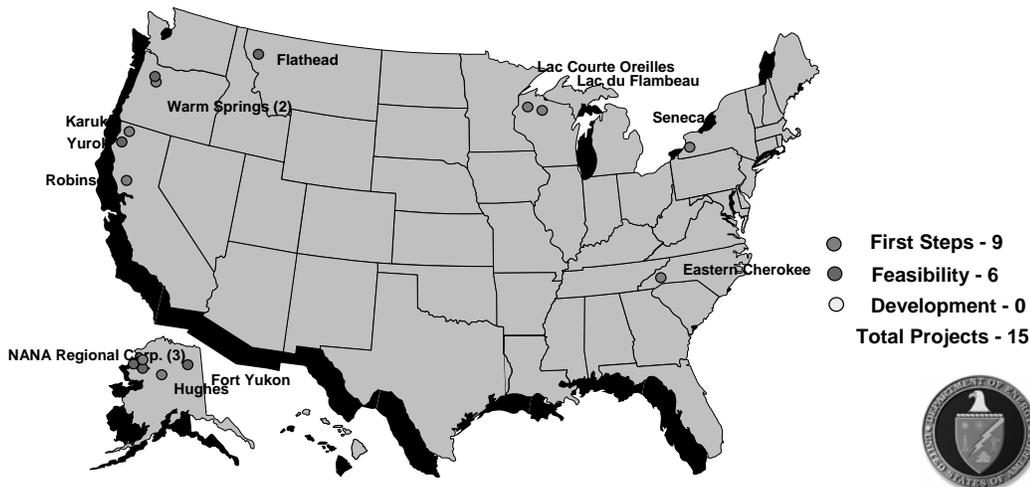




DOE's Tribal Energy Program

2007 TEP Project Awards

Department of Energy Names Director for Office of Indian Energy Policy and Makes \$2 Million Available for Projects on Tribal Lands



DOE's Tribal Energy Program

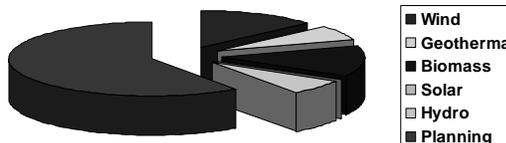
2007 TEP Project Awards

"First Step" Projects

- Eastern Band of Cherokee Indians - Strategic Energy Plan
- Hughes Village Council (Consortium of AK Villages) Designated Interior Regional Housing Authority to Manage - Capacity Building for Efficiency
- Karuk Tribe of California - Energy Option Analysis and Conservation
- Lac Courte Oreilles Band of Lake Superior Chippewa Indians - Energy Options Analysis & Resource Planning
- Lac du Flambeau Band of Lake Superior Chippewa Indians - Strategic Energy Planning & Energy Options
- NANA Regional Corporation - Strategic Energy Plan & Energy Options
- Seneca Nation of Indians - Energy Organization Development
- Robinson Rancheria Band of Pomo Indians (Consortium of California Tribes) - Strategic Energy Planning & Energy Options
- Warm Springs Power & Water Enterprises - Capacity and Awareness Building

Feasibility Projects

- Council of Athabaskan Tribal Governments - Biomass Heat and Power & Biomass Delivery
- NANA Regional Corporation - Geothermal
- NANA Regional Corporation - Wind Energy
- Salish & Kootenai Holding Company (Flathead Reservation) - Biomass Heating
- Warm Springs Power and Water Enterprises - Utility-scale Wind Energy
- Yurok Tribe Hydro & Wind Energy





DOE's Tribal Energy Program

Assisting Tribes Meet Their Energy Goals

Past Accomplishments

- Mandan, Hidatsa & Arikara Tribes in North Dakota install a 66 kW wind turbine to power Three Bears Casino (2005)
- Pueblo of Laguna installed wind and solar systems to power Major's Ranch



Solar Installations at Pueblo of Laguna's Majors Ranch



Turbine (67 kW)
Installed at Fort Berthold
September 2005



DOE's Tribal Energy Program

Assisting Tribes Meet Their Energy Goals

Past Accomplishments

- Installation of the first utility-scale turbine (750 kW) on Tribal lands in the contiguous U.S. (Rosebud Sioux)
- Jicarilla Apache installed 2.4 kW solar electric system on Dulce High School
- Solar arrays installed on 18 homes in the Dilkon and Teesto Chapters of the Navajo Nation (21.6 kW)



Turbine Installed on the Rosebud Sioux
Reservation in South Dakota



Solar arrays on Navajo
home



Jicarilla Apache Reservation PV
array on Dulce High School



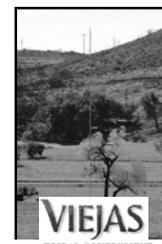


DOE's Tribal Energy Program Tribal Accomplishments

- **Three demonstrations completed and one underway**
- **Thirty-one (31) tribal feasibility studies completed and reports posted**
- **Eight (8) feasibility projects proceeding toward development**
- **Eighteen (18) tribes developed strategic energy plans and three proceeded to feasibility studies**
- **Installation of 50 anemometers measuring tribal wind resources in Indian Country**



Cabazon Band of Mission Indians



Viejas Tribal Government
Tribal Utility and Wind Study



Pueblo of Jemez
Geothermal Feasibility Study



Samish Indian Nation of Washington



DOE's Tribal Energy Program Tribal Accomplishments

Six (6) "development" projects

- Biomass demonstration project completed
 - Colville Indian Tribe installed substation to reduce line losses
- Two wind turbines (100 kW) installed
 - Assiniboine and Sioux Tribes installed two 50 kW wind turbines on the Fort Peck Reservation
- Potential for 60 MW of wind energy installations
 - Northern Cheyenne nearing PPA for 30 MW wind farm installation
 - Rosebud Sioux nearing PPA for 30 MW wind farm installation
- Demonstrations underway
 - Citizen Potawatomi Nation installing geothermal heat pumps and spurring greenhouse business using waste heat
 - Ramona Band ecotourism project underway



Citizen Potawatomi Nation of Oklahoma Geothermal "Fire Lake" Project



Colville Indian Power and Veneer Energy Substation





DOE's Tribal Energy Program

Accomplishments and Project Pipeline

Forty-five (45) feasibility studies

- Thirty-one (31) studies completed
- Eight (8) proceeding toward development
 - Kaw Nation pursuing wind development
 - Tulalip Tribe pursuing biogas development Snohomish County, Washington
 - St. Croix pursuing biomass facility for peaking power (1-3MW)
 - Northern Cheyenne Tribe pursuing large-scale wind farm (30 MW)
 - Three Affiliated Tribes (Mandan, Hidatsa & Arikara) exploring wind development
 - Lower Brule Sioux pursuing wind development
 - Cherokee Nation pursuing large scale wind development
 - Fort Bidwell pursuing geothermal heat & power



St. Croix Chippewa Biomass Study



Tulalip Tribes Biogas Feasibility Study

Three Affiliated Tribes Wind Feasibility Study



DOE's Tribal Energy Program

Providing Technical Assistance

Technical Assistance

- Technology Advice
- Models and Tools
- Resource Maps
- Strategic Energy Planning
- Project Support
- Economic Evaluations
- Design Review
- Special Studies



National Renewable Energy Laboratory (NREL) Science & Technology Facility and Solar Energy Research Facility (SERF)

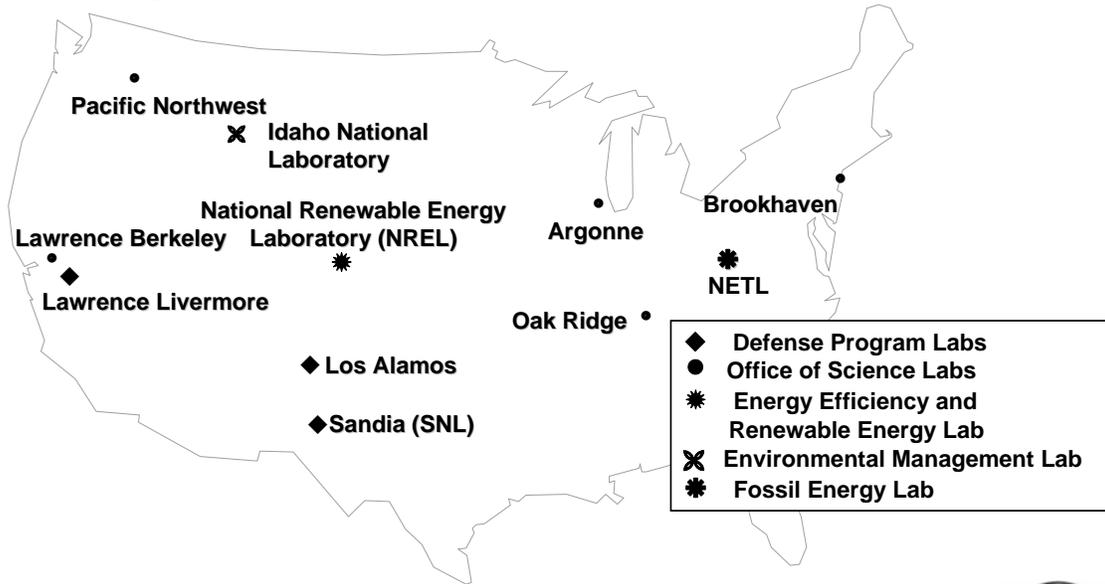


Assisting Tribes through technical expertise through DOE's National Laboratories





Major DOE National Laboratories



NREL and SNL Support the Tribal Energy Program and the Tribes



Major NREL Technology Thrusts

Supply Side

- Wind Energy
- Solar Photovoltaics
- Concentrating Solar Power
- Solar Buildings
- Biomass Power
- Biofuels
- Geothermal Energy
- Hydrogen
- Superconductivity
- Distributed Power



Demand Side

- Hybrid Vehicles
- Fuels Utilization
- Buildings Energy Technology
- Federal Energy Management
- Advanced Industrial Technologies

Cross Cutting

- Basic Energy Science
- Analytical Studies
- International

Tribal Energy Program



Only Laboratory Dedicated to Renewable Energy





Sandia National Laboratories

Tribal Energy Program Activities

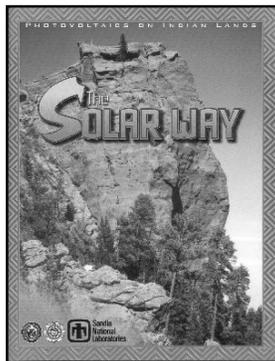
- Student Internship Program
- Support Tribal requests (grantees):
 - Ramona Band of Cahuilla
 - Hualapai Nation
 - Navajo Nation
 - Hopi Nation
 - Laguna Pueblo
- Published the Solar Way
 - Visual tour of solar in Indian Country
- SNL MOU's
 - Navajo
 - Hualapai Tribe



Sandia National Laboratory in Albuquerque, New Mexico



DOE's Tribal Energy Program

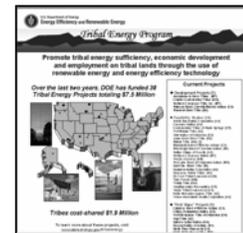
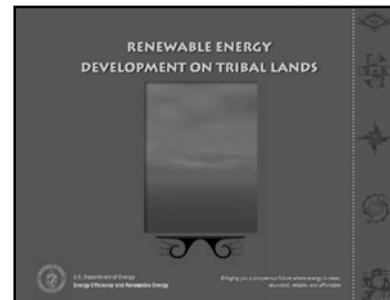


Tribal Energy Website
www.eere.energy.gov/tribalenergy

Information Resources



Guide to Tribal Energy Development
www1.eere.energy.gov/tribalenergy/guide





DOE's Tribal Energy Program Program Web Site

- Features
- Program Brochure
- Upcoming Workshops
- Financial Opportunities
- Projects on Tribal Lands
 - Project Overviews
 - Status and Reports
 - Contacts
- Information Resources
- Contacts



www.eere.energy.gov/tribalenergy



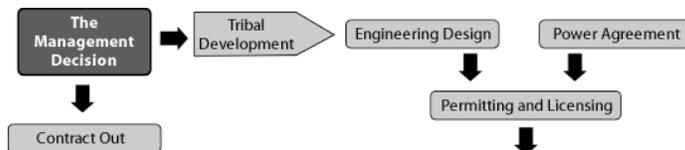
DOE's Tribal Energy Program Guide to Tribal Energy Development

Development Processes

- Strategic Planning
- Options Analysis
- Organizational Development
- Project Development

Resource Library

- Energy Resources
- Technologies
- Costs
- Risk Factors
- Legal Issues
- Financing Options
- Contacts



www.eere.energy.gov/tribalenergy/guide





DOE's Tribal Energy Program Student Internships

Requirements

- The student applicant must be a U.S. citizen and a **Native American**, defined as a member of a federally recognized tribe, Alaska Village, or Alaska Corporation (*excludes* state-recognized tribes; bands or groups; and first peoples of Guam or Hawaii). Specific interest in renewable energy is required.

Application Process

- Applications due February 23rd for 12 week internship at Sandia National Laboratories or contact Sandra Begay-Campbell at (505) 844-5418 or skbegay@sandia.gov
- Application form posted on TEP website annually

Internships

- Three (3) summer interns sponsored in 2003 and 2004 each
- Year-round intern sponsored (2002-2004)
- One (1) summer intern and two (2) year-round interns (2005)
- Three (3) summer interns and one year-round intern sponsored (2006)
- Three (3) summer interns sponsored (2007)

**Student Paper and Workshop Materials
Posted on TEP Website**



Summer Interns on the Navajo
Reservation (2003)

Summer Interns on a windy day (2004)



DOE's Tribal Energy Program Providing Information and Education

Co-sponsored Native American Energy and Mineral Institute (NAEMI) workshops

- Renewable Energy Analysis and Economics Workshop (July 2006)
- Biomass Energy Workshop (May 2006)
- Tribal Business Development: A One-Day Tutorial (May 2006)
- Solar Electricity and Solar Thermal Energy Workshop (June 2006)
- Renewable Energy for Tribal Community Development (August 2006)
- Wind Energy Applications and Training Seminar (August 2006)
- Renewable Energy for Tribal Community Development (August 2007)
- Oklahoma Renewable Energy for Tribal Community Development (September 2007)

Wind Energy Applications Training Symposium (WEATS)

- Co-sponsor WEATS 2006 (August 2006)
- Co-sponsored WEATS 2007 (August 2007)



WEATS 2006 participants touring
the National Wind Technology
Center (NWTTC)

Course Materials Posted on TEP Website
www.eere.energy.gov/tribalenergy/short_courses.cfm





DOE's Tribal Energy Program

Upcoming Workshops

- **Business Development and Financing Workshop (October 8-11, 2007)**
Business and legal frameworks are necessary elements of developing and sustaining renewable energy projects. This workshop is designed to identify business structure options, financing methods, and provide an understanding of the institutional tools needed to bring projects to reality.
- **TEP Program Review (November 5-8, 2007)**
Forum for tribes to meet and learn from other tribes pursuing energy sufficiency through conservation or renewable energy, and share in their successes.



Courses to be held at the Renaissance Denver Hotel, 3801 Quebec St, Denver, CO 80207

For agenda and registration information, see “Upcoming Workshops” featured on the TEP Website
www.eere.energy.gov/tribalenergy



DOE's Tribal Energy Program

Regional Workshops

Seven (7) regional Tribal Renewable Energy Development Workshops

Regional workshops to include: renewable energy technologies and energy efficiency concepts; renewable energy project development; organization and legal framework for development; and financing options.

- California Tribes (January 14-17, 2008, Sacramento, CA,)
- Nevada Tribes (February 4-7, 2008 , Reno, NV)
- Southwest Tribes (February 25-28, 2008, Albuquerque, NM)
- Alaska Natives (March 17-20, 2008, Ketchikan, AK)
- Alaska Natives (April 21-25, 2008, Anchorage, AK)
- Great Plains Tribes (May 12-15, 2008, 2008, Rapid City, SD)
- Great Lakes Tribes (July 21-24, 2008, Ashland, WI)





DOE's Tribal Energy Program

Title V of EAct 2005, Indian Provisions

Authorizes the creation of an "Office of Indian Energy Policy and Programs" within the Department of Energy

Department of Energy Program

- DOE Indian Energy Education Planning and Management Assistance Program (Authorization for \$20 Million for each fiscal year 2006-2016)
- DOE Loan Guarantee Program (Aggregate amount guaranteed not to exceed \$2 Billion)

Department of Interior Program

- Indian Tribal Energy Resource Development Program (Authorized such sums as are necessary in fiscal years 2006 through 2016)
- Indian Tribal Energy Resource Regulation (Grants for energy inventories and feasibility studies)

No Funds Appropriated for EAct 2005



DOE's Tribal Energy Program

Pending Legislation

Rep. Grijalva (Arizona) Introduces Bill to Facilitate Renewable Energy Projects on Tribal Lands (HR1954)

- Rep. Raúl M. Grijalva introduced legislation that will encourage businesses to partner with Native American tribes on renewable energy projects on tribal lands.
- The bill would allow tribes, which are tax-exempt, to transfer their share of the production tax credit (PTC) to private entities providing financing for joint venture renewable energy projects on tribal lands.

Transfer of Production Tax Credits allows Tribal Projects to be Competitive





Funding Resources

- Federal Grants
 - One-stop for Federal grant opportunities, see www.grants.gov
 - Forwarded monthly through TEP Tribal Email list
- Tribal Grants (Tribal Energy Program website)
 - See www.eere.energy.gov/tribalenergy/government_grants.cfm
Identifies any grants through the Tribal Energy Program, Other DOE opportunities, and Federal funding, and provides links to funding through DOI, USDA, DOC, EPA, and HUD
 - Other opportunities forwarded through TEP Tribal Email List
- Database of State Incentives for Renewables and Efficiency
 - DSIRE at www.dsireusa.org/
- Tax Incentives Assistance Project
 - TAIP at www.energytaxincentives.org/



Wind Powering America's (WPA) Native American Program

WPA recognizes the vast wind resources on tribal lands and provides technical assistance to:

- Evaluate the resource; and
- Pursue development options that best match Native interests

Wind Powering Native America Video
Anemometer Loan Program
Native American Wind Interest Group (NAWIG) Quarterly Newsletter



Native American Anemometer Loan Program has supported over 70 tribes



www.eere.energy.gov/windandhydro/windpoweringamerica/native_americans.asp



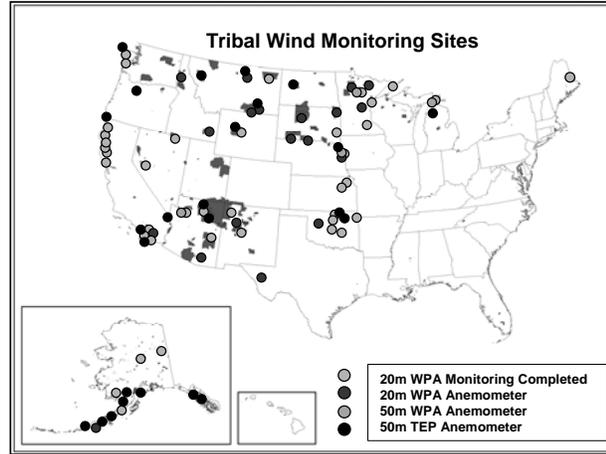


DOE's Tribal Energy Program

Native American Anemometer Loan Program

- Fifty (50) anemometers purchased under TEP grants
- Transferring equipment to NREL for re-use under the Native American Anemometer Loan Program

Tribes agreed to re-use by other tribes who wish to measure their wind resources



For more or to apply, see "Native American" at www.eere.energy.gov/windandhydro/windpoweringamerica



DOE's GeoPowering the West

GeoPowering the West is a commitment to dramatically increase the use of geothermal energy in the western United States



Jemez Pueblo received DOE support to study its geothermal resource

- Provides information and technical assistance to tribes
- Partners with tribes to expand the use of geothermal energy

- Site visits completed at Pyramid Lake Paiute, Walker River Paiute and Wind River Tribe
- Geothermal greenhouse tours provided to several New Mexico pueblo officials



**GEOPOWERING
THE WEST**

www.eere.energy.gov/geothermal





DOE's Tribal Energy Program

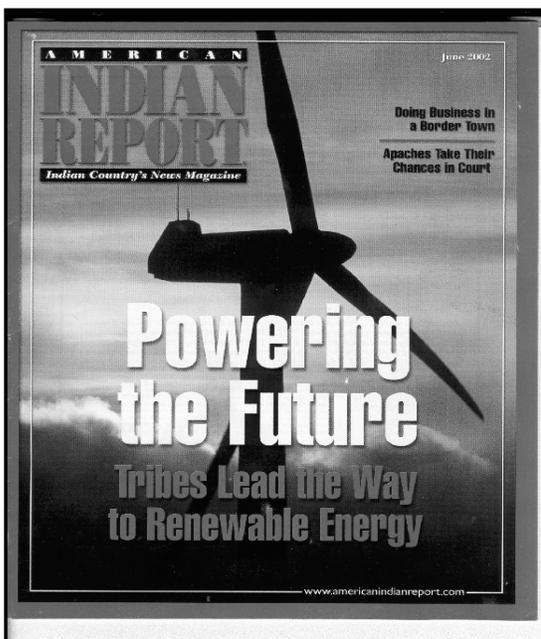
Contact Information

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Golden, CO 80401
Telephone: (303) 275-4727
Fax: (303) 275-4753
E-mail: lizana.pierce@go.doe.gov



The Tribal Energy Program team, from left to right: Lizana Pierce, Thomas Sacco, Victoria DeHerrera, Roger Taylor and Sandra Begay-Campbell. (Faline Haven not shown).

To receive periodic information on funding opportunities, upcoming workshops and training, and other tribal energy information, join our email list by contacting Lizana Pierce at lizana.pierce@go.doe.gov



QUESTIONS

“Tribes Leading the Way to Renewable Energy”

American Indian Report
June 2002

