



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

*DOE's Tribal Energy Program*



**Program Review**

**October 17, 2005**

**Lizana Pierce, Project Manager**

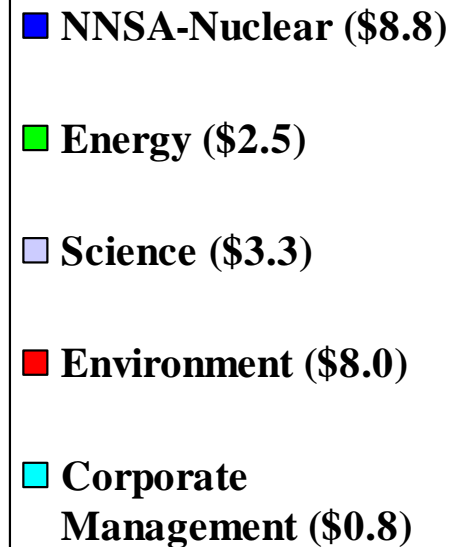
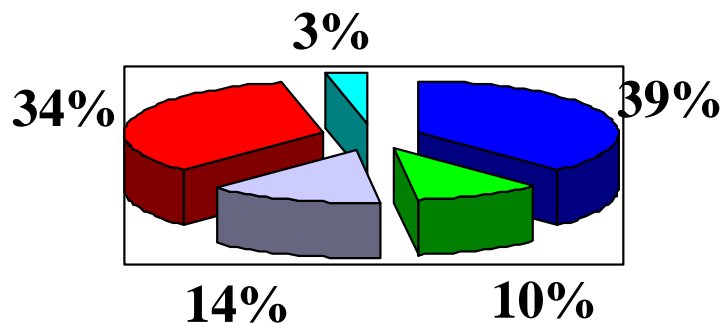
**U.S. DOE, Golden Field Office**



# Department of Energy

Advancing Energy and National Security through  
Science, Technology and Environmental Stewardship

## FY 2004 Budget Request \$23.4 Billion



Energy (\$2.45 Billion) includes:

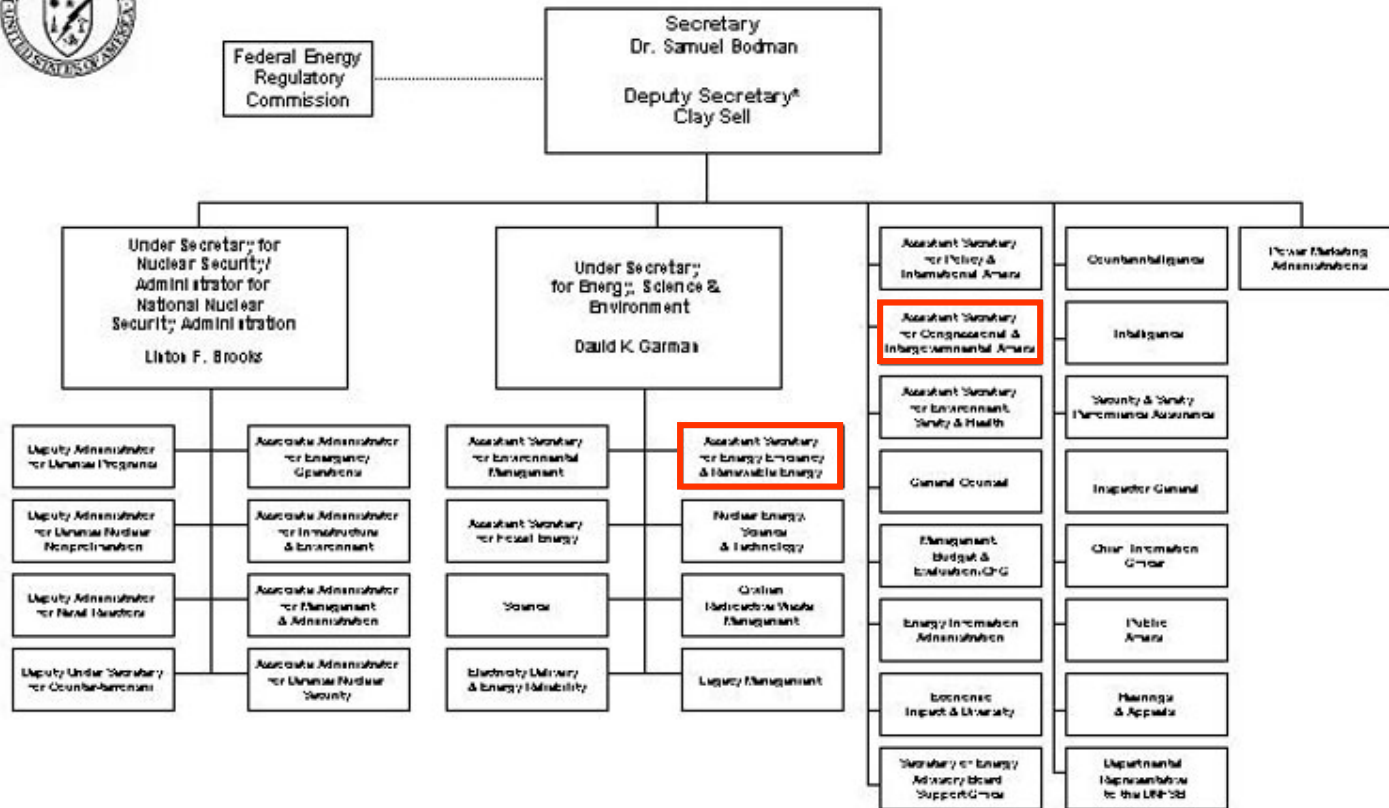
- Energy Efficiency and Renewable Energy (\$1.3)
- Fossil Energy (\$0.75)
- Nuclear Energy, Science and Technology (\$0.38)



# Department of Energy Organization




## DEPARTMENT OF ENERGY



**EPAct 2005 Directs the Establishment of an “Office of Indian Energy Policy and Programs”**

\*The Deputy Secretary also serves as the Chief Operating Officer





# DOE's Office of Energy Efficiency and Renewable Energy (EERE)

## Mission

The EERE's mission is to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships that:

- Enhance energy efficiency and productivity;
- Bring clean, reliable and affordable energy technologies to the marketplace; and
- Make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life.





# Renewable Energy Resources



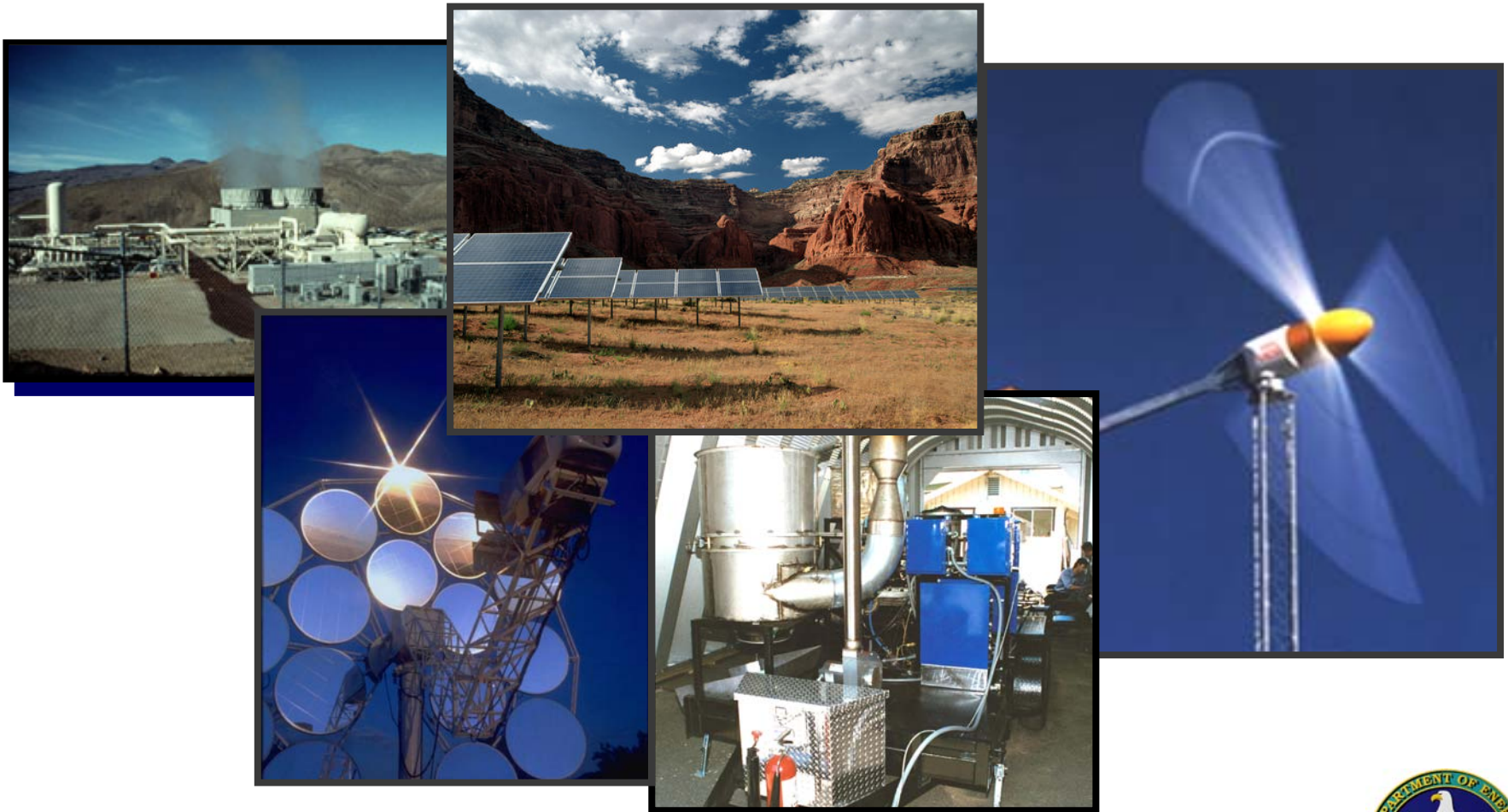
**Using the Sun, Wind, Water,  
and Earth**







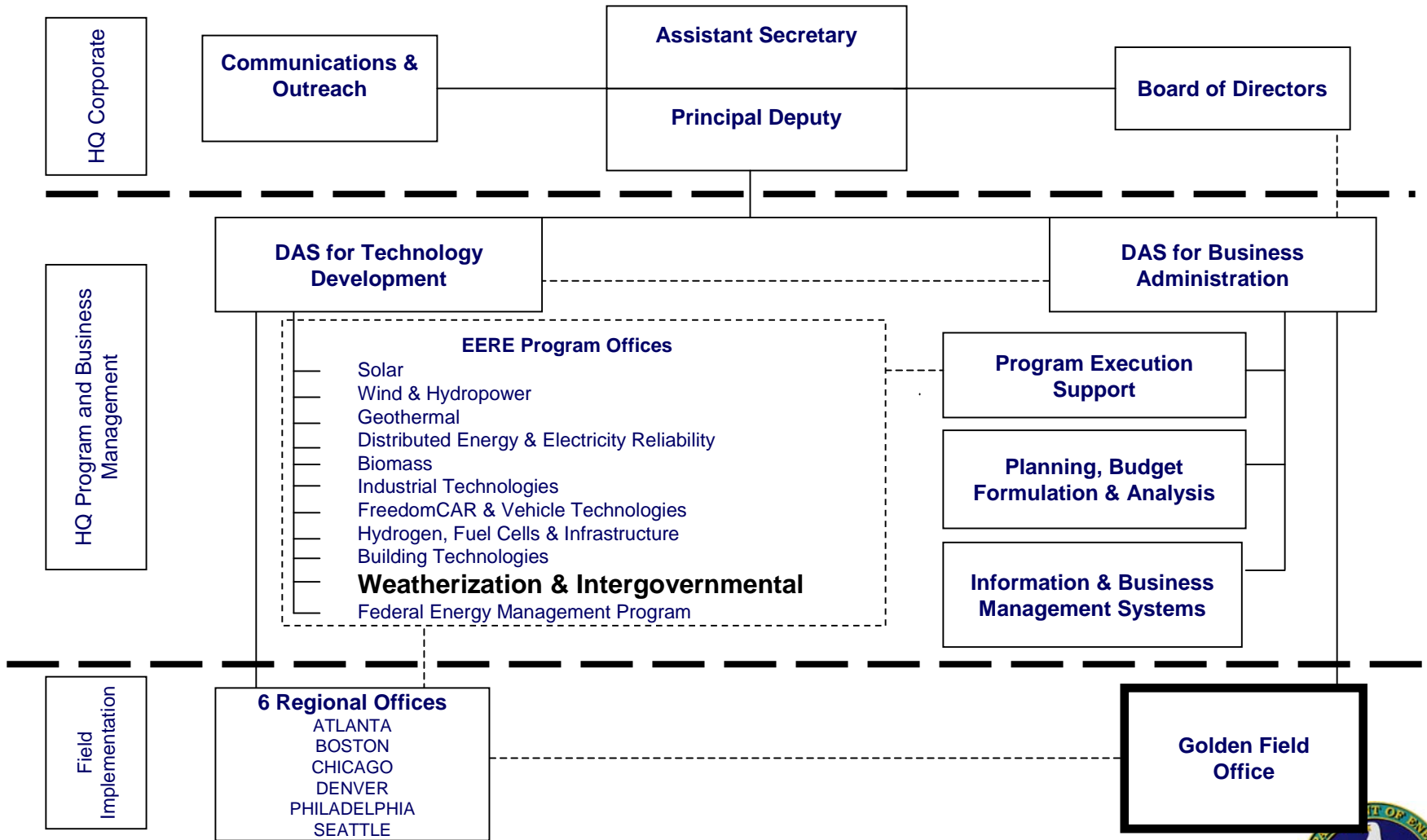
# Renewable Energy Technologies




**Prime Focus is Research and Development**



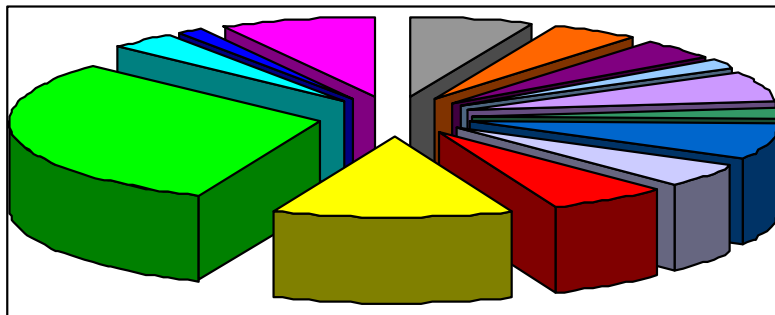
# Office of Energy Efficiency and Renewable Energy





# DOE's Office of Energy Efficiency and Renewable Energy (EERE)

## \$1.25 Billion EERE Budget Request (FY2005)



■ Biomass (\$81.3 Million)
■ Buildings (\$58.3 Million)
■ DER (\$53.1 Million)
■ FEMP (\$19.9 Million)
■ Fuel Cells (\$77.5 Million)
■ Geothermal (\$25.8 Million)
■ Hydrogen (\$95.3 Million)
■ Industrial (\$58.1 Million)
■ Solar Energy (\$80.3 Million)
■ Vehicles (\$156.7 Million)
■ WIP (\$380.1 Million)
■ Wind & Hydro (\$47.6 Million)
■ Other (\$14.5 Million)
■ Program Direction (\$102.4 Million)

Tribal Energy Budget (FY2005)

Appropriated: \$5.5 Million



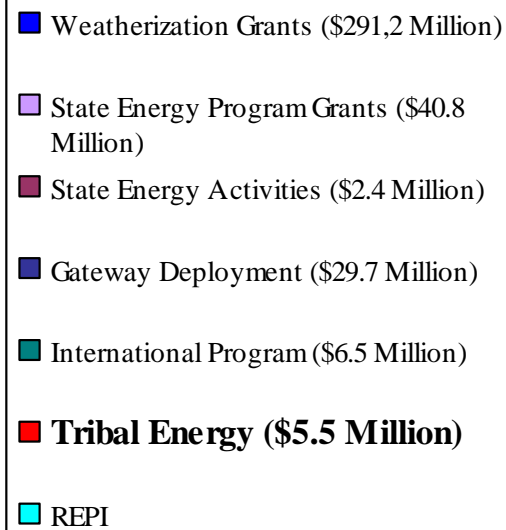
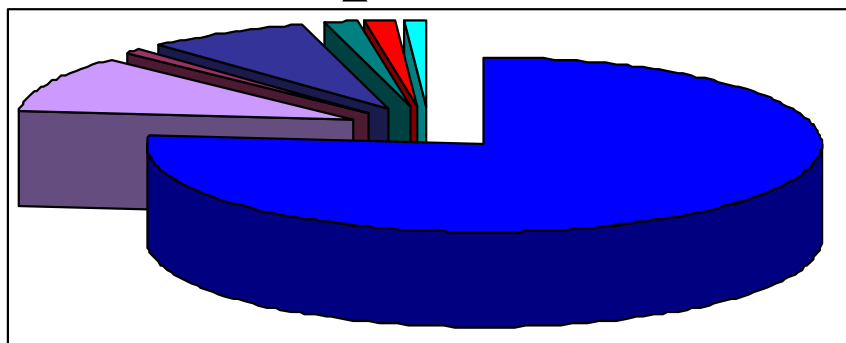




# DOE's Office Weatherization and Intergovernmental Program

## Tribal Energy Budget (FY2005)

Appropriated: \$5.5 Million



Per EPA Act 2005, Tribes eligible for REPI





## *DOE's Tribal Energy Program*

“Indian households on reservations are disproportionately without electricity. A total of 14.2% of Indian households have no access to electricity, as compared to only 1.4% of all U.S. households.” Navajo accounts for 75% of the households without electricity (2000 EIA Report)



DOE funded the Navajo Nation Electrification Demonstration Program (P.L. 106-511) resulting in 503 households electrified in fiscal year 2002

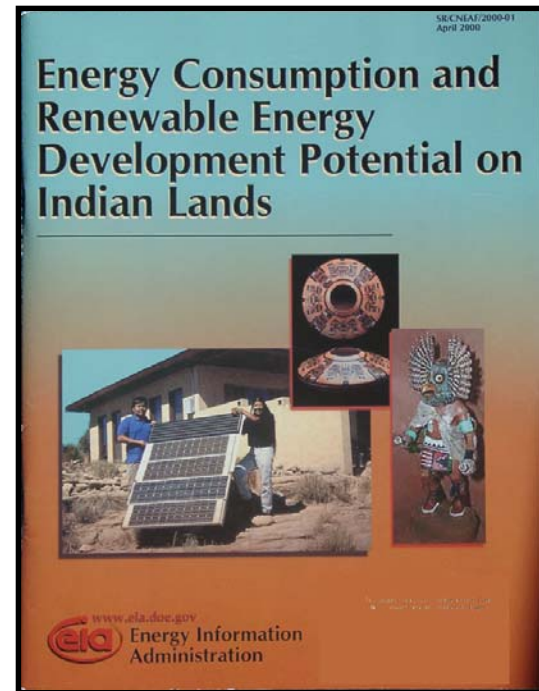




## *DOE's Tribal Energy Program*

The most-burdened 10 percent of Indian households on reservations spend 20 percent or more of their income on electricity.

Over twice the percentage of U.S. households at the same income level. (2000 EIA Report)





## *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”



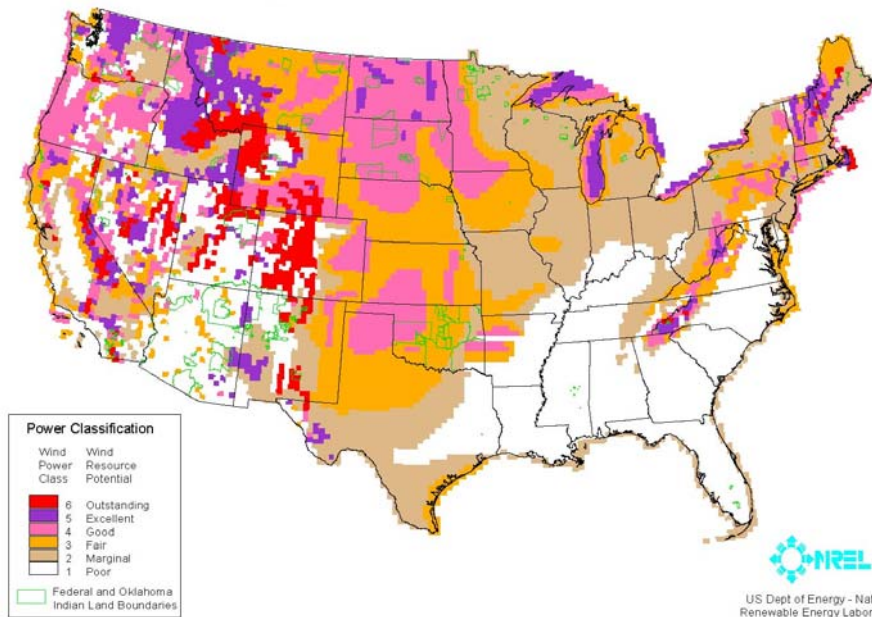
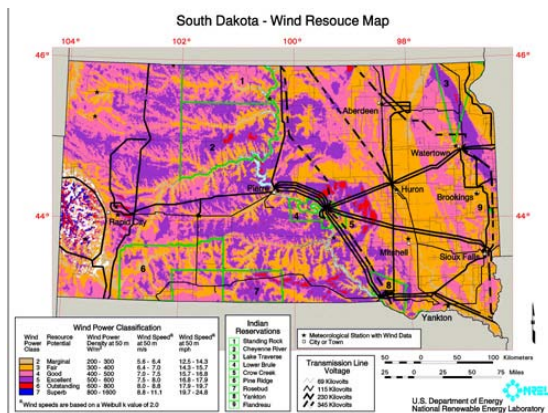
**EPAct 2005, requires the Federal Government to consume no less than 7 ½% renewable energy by 2013**

**Doubles energy credit for energy produced on Tribal Lands**



# DOE's Tribal Energy Program

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



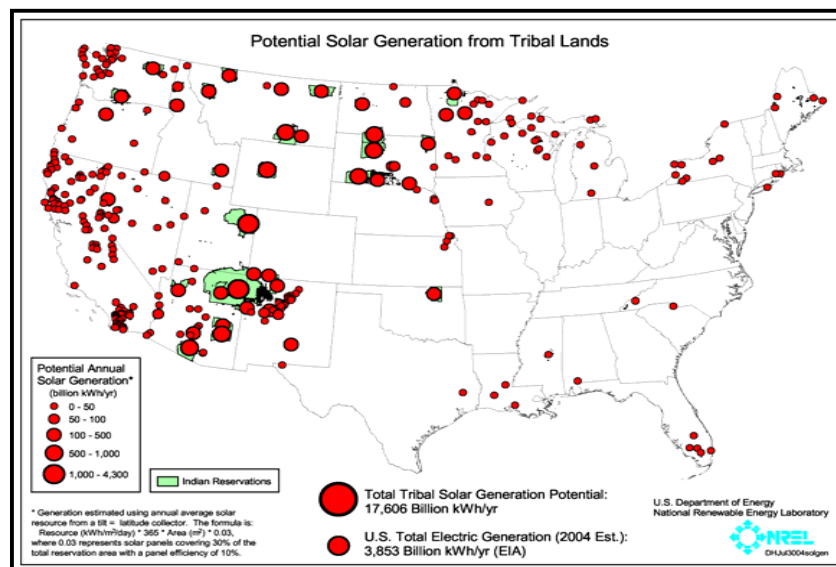
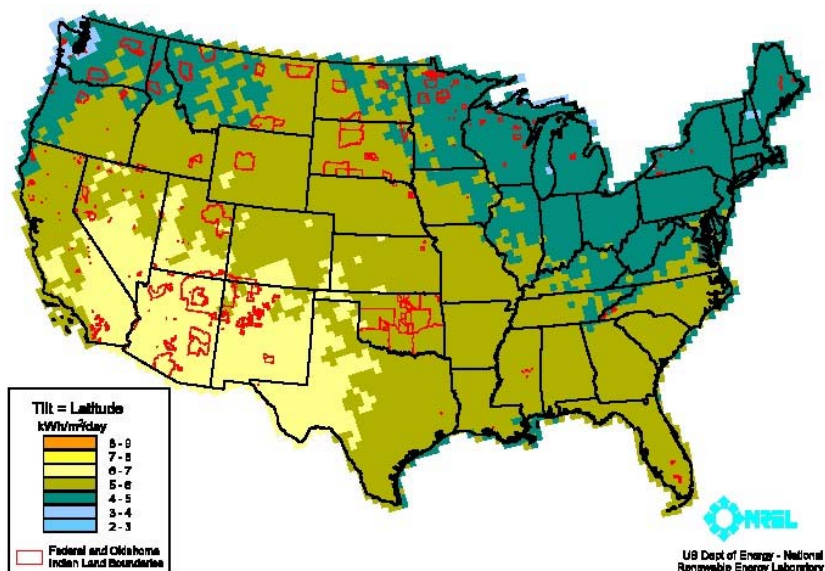
*Wind potential of about 535 Billion kWh/yr on Indian Lands in Lower 48 States*





# 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*

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



### *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.***

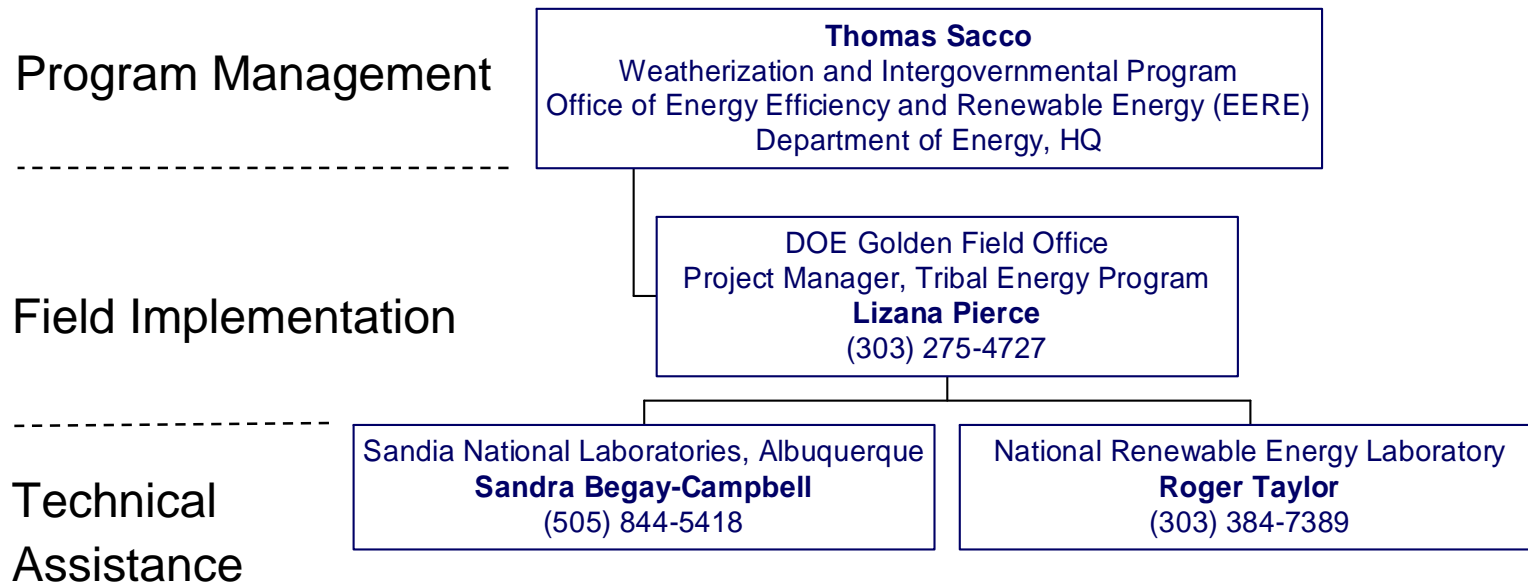




# *DOE's Tribal Energy Program*

## **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
Requested	\$2,100	\$8,307	\$6,000	\$5,500
Enacted	\$3,000	\$6,000*	\$5,000**	\$5,500***
Discretionary	\$3,000	\$5,000	\$1,700	\$3,500
Competitive Awards	14	24	7	20

\* Total of \$1,000,000 earmarked to the Council of Energy Resource Tribes (CERT)

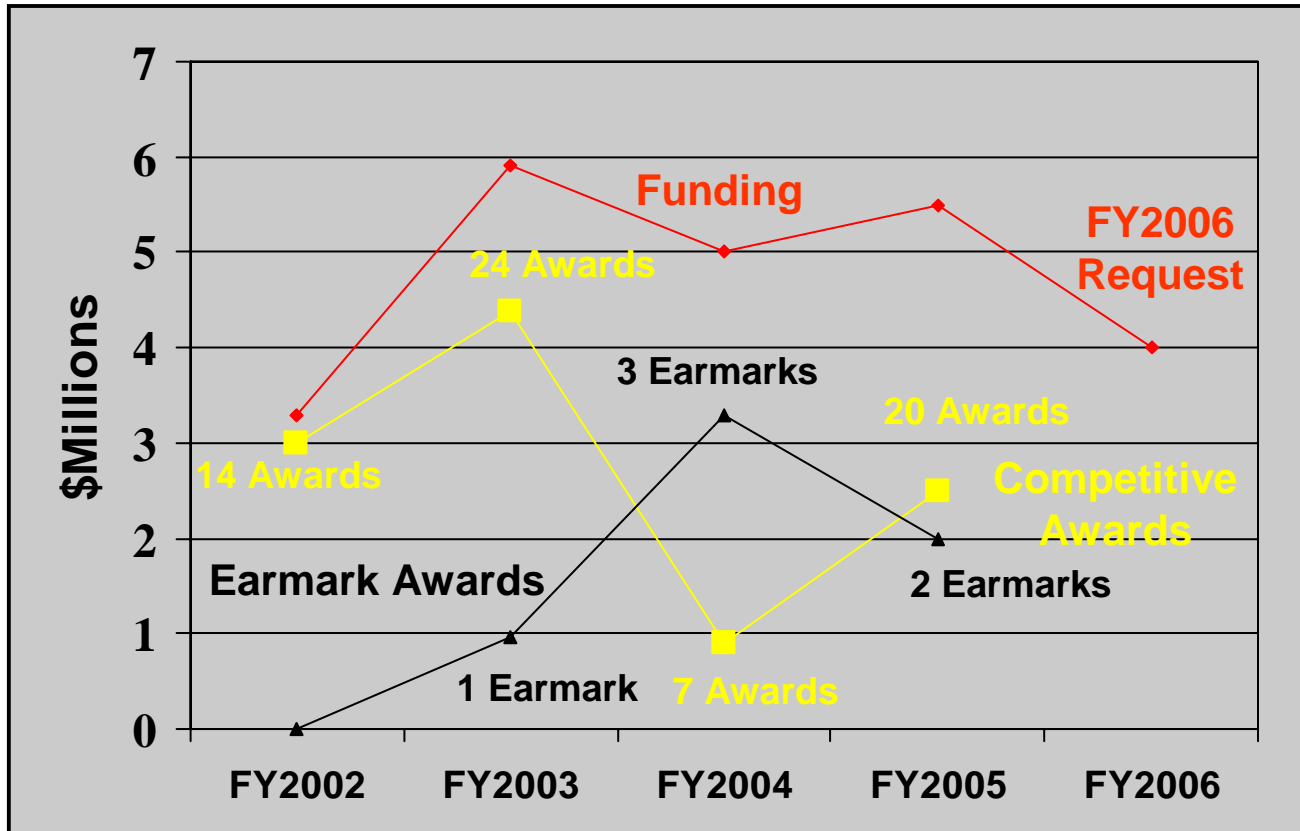
\*\* Total of \$3,300,000 earmarked to CERT, ICOUP, and Pyramid Lake Paiute

\*\*\* Total of \$2,000,000 earmarked for CERT and Pyramid Lake Paiute



# DOE's Tribal Energy Program Funding

## DOE Funding of \$6.3 Million for Three Earmark Awards



**Sixty-five (65) competitive awards valued at \$13.8 million  
(Tribes Cost Shared \$2.9 million)**







## *DOE's Tribal Energy Program*

# **Congressionally Directed Awards**

### **Council of Energy Resource Tribes (CERT)**



**Native American technical assistance and training for renewable energy resource development and electrical generation facilities management**

**DOE Funding: \$2.93 Million Period of Performance: Jul 2003 – Dec 2006**

### **Pyramid Lake Paiute Tribe (PLPT)**

**Characterize the geothermal resource and determine the potential for geothermal electrical production of at least one medium sized geothermal facility on tribal lands**

**DOE Funding: \$1.97 Million**

**Period of Performance: Jun 2004 – May 2006**



**PYRAMID LAKE PAIUTE TRIBE**



# *DOE's Tribal Energy Program*

## **Congressionally Directed Awards**



### **Intertribal Council on Utility Policy (Intertribal COUP)**

**Development of significant wind energy generation on Indian Reservations in the northern Great Plains as a viable strategy for community revitalization and capacity building through the development of sustainable homeland tribal economies**

**DOE Funding: \$1.27 Million**

**Period of Performance: Jun 2004 – Nov 2005**





# *DOE's Tribal Energy Program*



First 750 kW Turbine on Tribal Lands in the Contiguous U.S.

## **Funding Opportunities (Subject to Available Funding)**

### **First Steps Toward Developing Tribal Renewable Energy and Energy Efficiency**

- Strategic planning
- Energy options analysis
- Capacity building
- Organizational development

### **Renewable Energy Development on Tribal Lands**

- Feasibility studies
- Cost shared development projects

## **Education Programs**

- **Student Internships**
- **Teach-the-Teacher Workshops (Jul 2004)**
- **Biomass Workshop (Sep 2004)**
- **Regional Workshops (2003/2004)**
- **RE for Community Development (Aug 2005)**



# *DOE's Tribal Energy Program* **Funding Opportunities**

## **“First Steps” Toward Developing Renewable Energy and Energy Efficiency**

- **Strategic planning**
- **Energy options analysis**
- **Capacity building**
- **Organizational development**



Chairman Tex Hall,  
Three Affiliated  
Tribes Ground  
Breaking for Wind  
Turbine on the Fort  
Berthold  
Reservation

## **Renewable Energy Development on Tribal Lands**

- **Feasibility studies**
- **Development projects (cost shared)**

***Funds Awarded through a Competitive Process***





# *DOE's Tribal Energy Program*

## **Funding Opportunities**

- **Federally-recognized Tribes eligible for funding**
  - Federally-recognized Tribes;
  - Alaska Native villages; and
  - Alaskan Native Corporations.
- **Tribal Lands**
  - 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.



Solar Installations at Pueblo of Laguna's Majors Ranch



**EPAct authorizes \$20,000,000 for a DOE “Indian Energy Education Planning and Management Assistance Program” and \$20 Billion for “Loan Guarantee Program”**

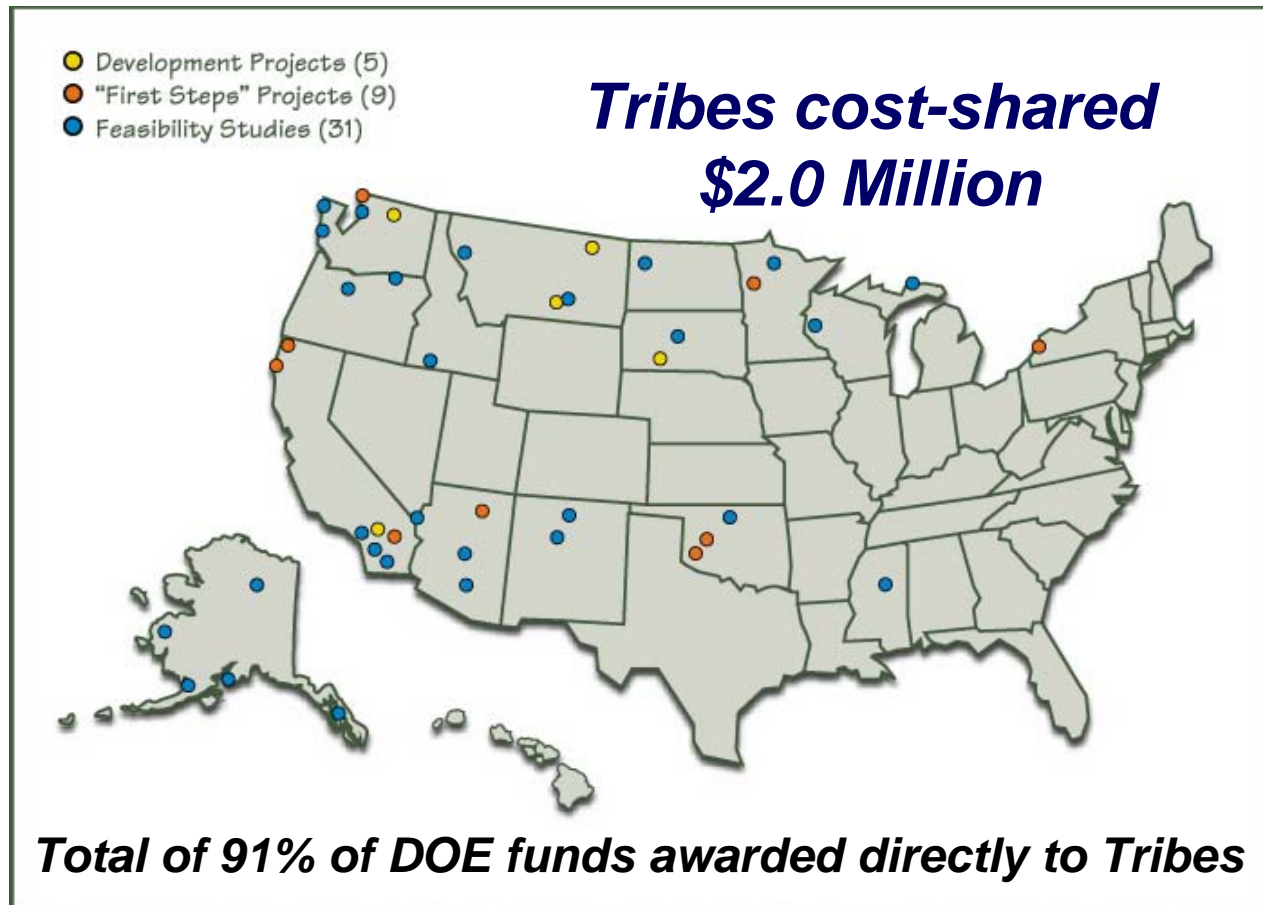






## *DOE's Tribal Energy Program*

**Over the last few years, DOE has funded 45 tribal energy projects totaling \$8.4 million**

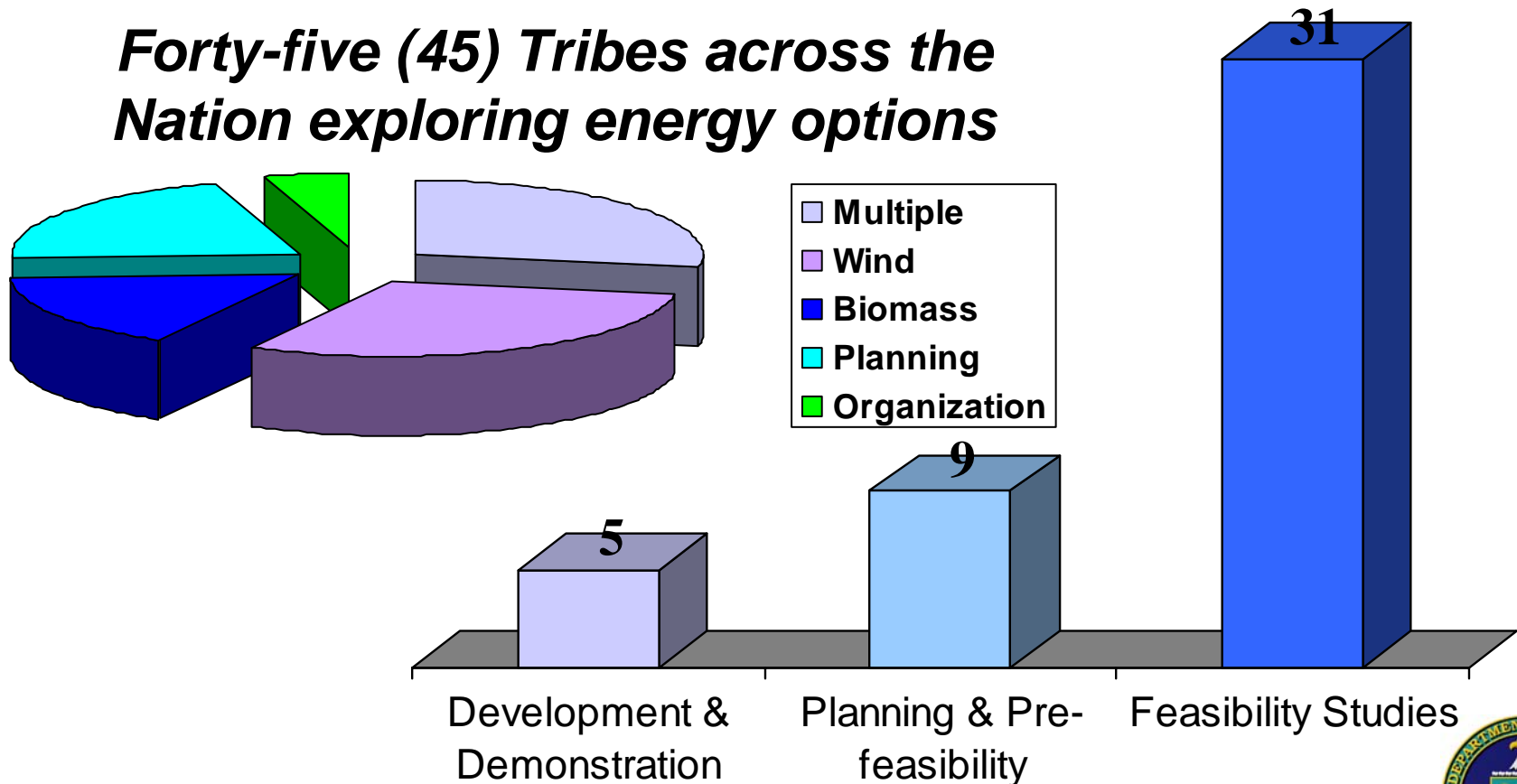




# DOE's Tribal Energy Program

## Tribal Projects

**Forty-five (45) Tribes across the Nation exploring energy options**



For more, see [www.eere.energy.gov/tribalenergy](http://www.eere.energy.gov/tribalenergy)





# *DOE's Tribal Energy Program*

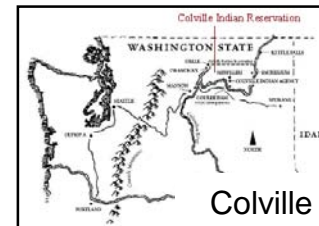
## Assisting Tribes Meet Their Energy Goals

### Accomplishments

- Installation of the first utility-scale turbine on Tribal lands in the contiguous U.S. (Rosebud Sioux)
- Installation of a substation at the Colville Indian Power and Vener plant in Washington State, projected to reduce line losses and save between \$160,000 and \$260,000 per year.
- Installation of 20 anemometers measuring tribal wind resources across the Nation.
- Mandan, Arikara and Hidatsa Tribes in North Dakota and Assiniboine and Sioux Tribes in Montana installing a total of 710 kW of wind energy
- The Northern Cheyenne and Rosebud Sioux Tribes are proceeding toward large-scale wind development with the near-term potential for 60 MW of installed wind energy in Indian Country



Kaw Nation  
Wind Resource  
Assessment



Colville Indian Power  
and Vener Energy  
Substation



Turbine Installed at Rosebud  
Sioux Reservation in South  
Dakota





# *DOE's Tribal Energy Program*

## **Tribal Accomplishment**

### **Accomplishments**

#### **Fourteen (14) feasibility studies completed**

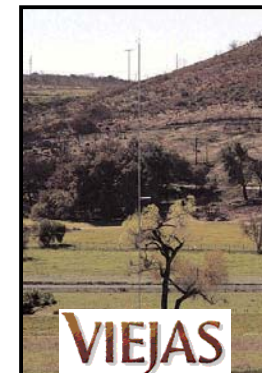
- **Confederated Tribes of the Umatilla Indian Reservation**
- **Kaw Nation of Oklahoma**
- **Makah Indian Nation**
- **Manzanita Band of Mission Indians**
- **Mississippi Band of Choctaw Indians**
- **Northern Cheyenne Tribe**
- **Pueblo of Jemez**
- **Red Lake Band of Chippewa Indians**
- **Shoshone-Paiute Tribes of the Duck Valley Reservation**
- **St. Croix Chippewa Indians of Wisconsin**
- **Tulalip Tribes of Washington**
- **Viejas Tribal Government**
- **White Mountain Apache Tribe**
- **Yukon-Kuskokwim Health Corporation**



Sealaska Wind Feasibility Study



Pueblo of Jemez  
Geothermal Feasibility  
Study



Viejas Tribal Government  
Tribal Utility and Wind  
Study



Makah Indian Nation  
Wind Feasibility Study







# DOE's Tribal Energy Program

## Tribal Accomplishment

### Accomplishments

Five (5) tribes develop strategic energy plans

- Cabazon Band of Mission Indians
- Citizen Potawatomi Nation
- Samish Indian Nation
- Smith River Rancheria
- Hopi Tribe



Samish Indian Nation  
of Washington



Smith River Rancheria



Citizen Potawatomi  
Nation of Oklahoma

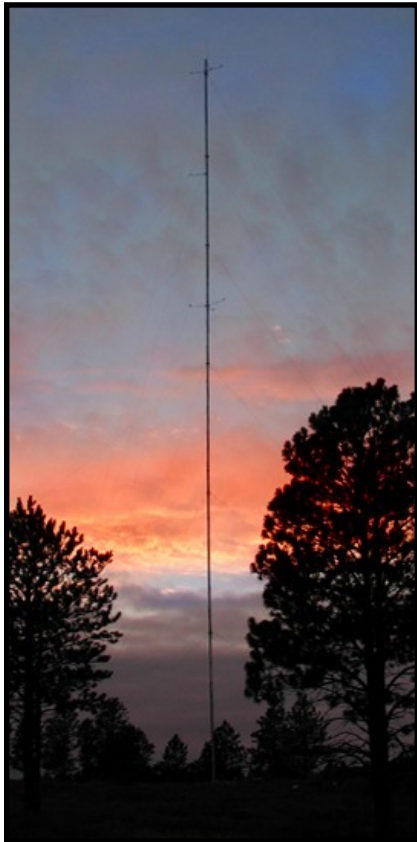


Cabazon Band of  
Mission Indians





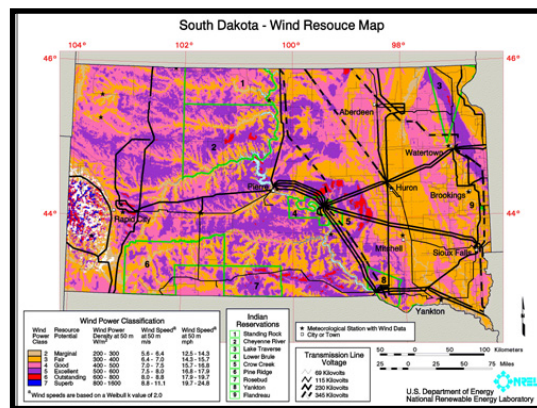
# DOE's Tribal Energy Program



Northern Cheyenne  
pursuing 30 MW Wind  
Farm

## Ongoing Tribal Projects

- **Northern Cheyenne Tribe**  
Pursuing large-scale wind development
- **Ramona Band of Cahuilla Mission Indians**  
Developing ecotourism cultural resort macro-grid  
hybrid renewable energy power system



High Resolution Wind Prospecting Maps  
Available for Most Tribal Lands

See Guide to Tribal Energy  
Development at

[www.eere.energy.gov/tribalenergy/guide](http://www.eere.energy.gov/tribalenergy/guide)

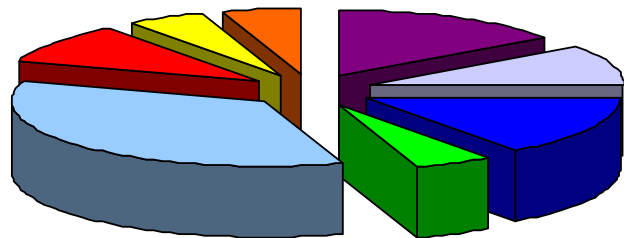




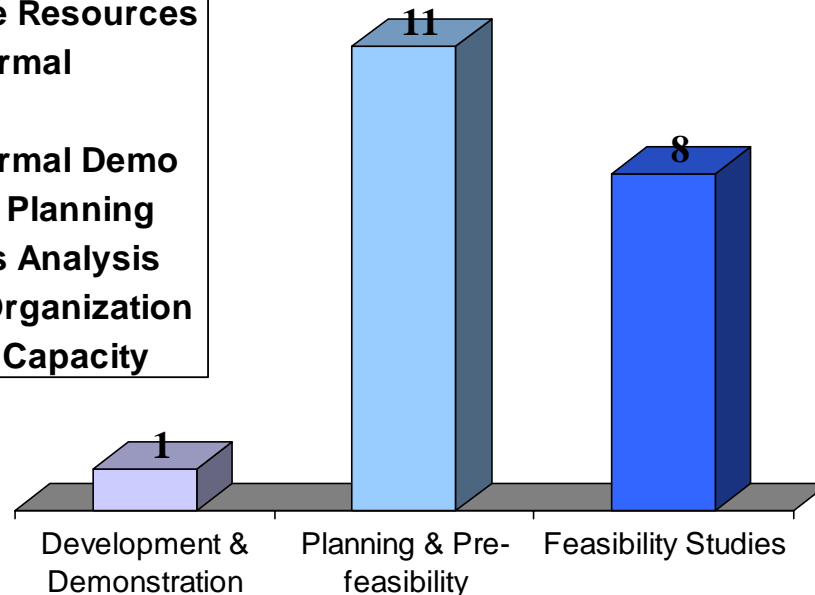
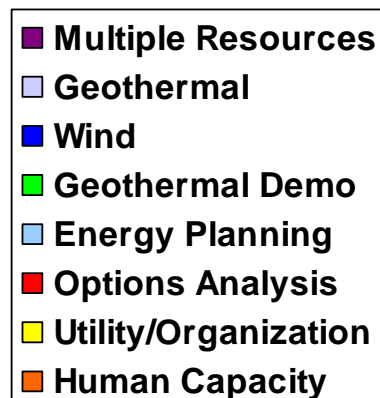
# DOE's Tribal Energy Program

## FY2005 Awards

### DOE awards \$2.4 million



*Tribes Cost Share*  
\$945,000 (28%)



**Twenty (20) awards to Tribes for energy planning, feasibility studies and demonstration**

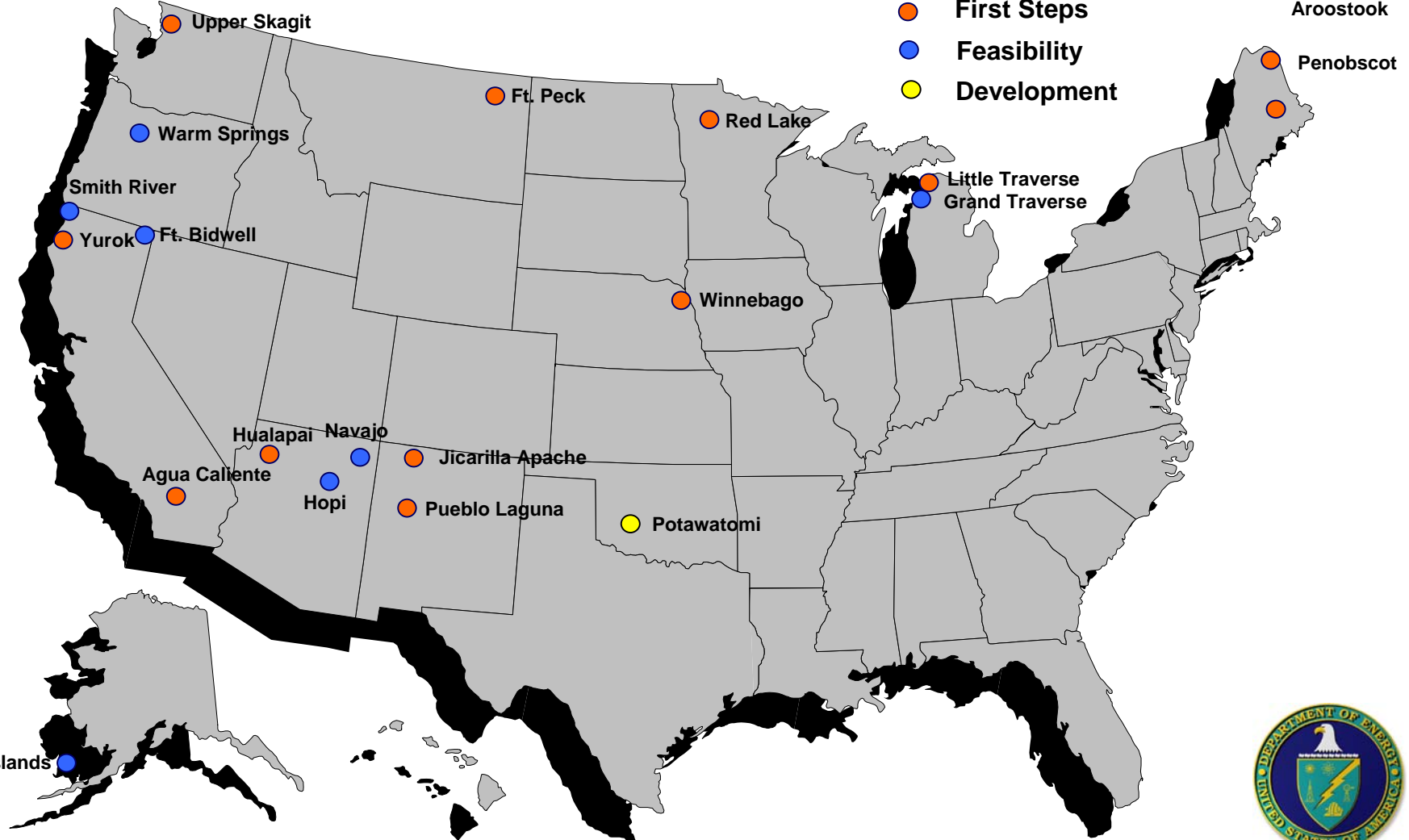


# 2005 Tribal Energy Program Project Awards

- First Steps
- Feasibility
- Development

Aroostook

Penobscot





# *DOE's Tribal Energy Program*

## ***DOE Funds 20 Tribal Energy Projects in 2005***

### **Renewable Energy Projects**

#### **Development Project**

- Citizen Potawatomi Nation

#### **Feasibility Studies**

- Aleutian Pribilof Islands Association
- Confederated Tribes of Warm Springs
- Fort Bidwell Tribe
- Grand Traverse Band of Ottawa and Chippewa Indians
- Hopi Tribe
- Navajo Tribal Utility Authority
- Pueblo of Laguna Utility Authority
- Smith River Rancheria

### **First Steps Projects**

- Agua Caliente Band of Cahuilla Indians
- Aroostook Band of Micmacs
- Assiniboine and Sioux Tribes of the Fort Peck Reservation
- Hualapai Tribe
- Jicarilla Apache Utility Authority
- Little Traverse Bay Bands of Odawa Indians
- Penobscot Indian Nation
- Red Lake Band of Chippewa Indians
- Upper Skagit Indian Tribe
- Winnebago Tribe of Nebraska
- Yurok Tribe



# *DOE's Tribal Energy Program*

## **Education Program**

### ➤ **Student Internships**

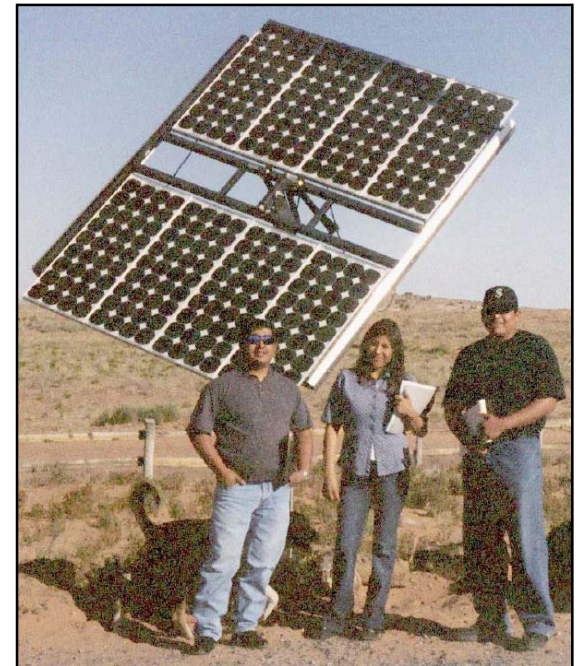
- Three (3) summer interns sponsored in 2003 and 2004 each
- Year-round intern sponsored (2002-2004)
- One (1) summer intern and two (2) year-round interns (2005)

### ➤ **Workshops**

- TC&U Teach the Teachers workshop (Jul 2004)
- Biomass Opportunities and Challenges in Indian Country  
DOE/BIA/NREL sponsored workshop (Sep 2004)
- Renewable energy for Community Development (Aug 2005)

### ➤ **Regional Tribal Workshops**

- Four (4) tribal energy workshops held 2004
- Three (3) planned 2004/2005



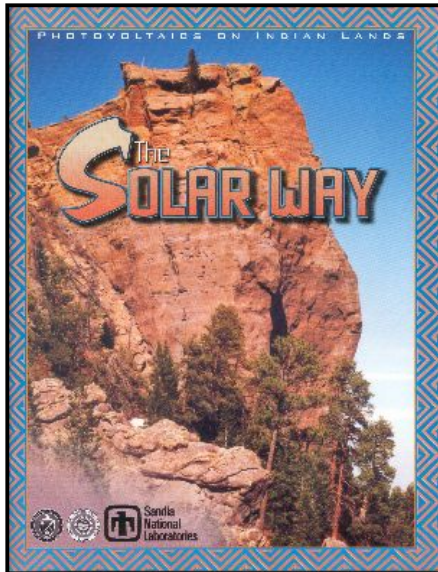
Summer Interns at installation on the Navajo Reservation (2003)

See Education and Training at [www.eere.energy.gov/tribalenergy](http://www.eere.energy.gov/tribalenergy)

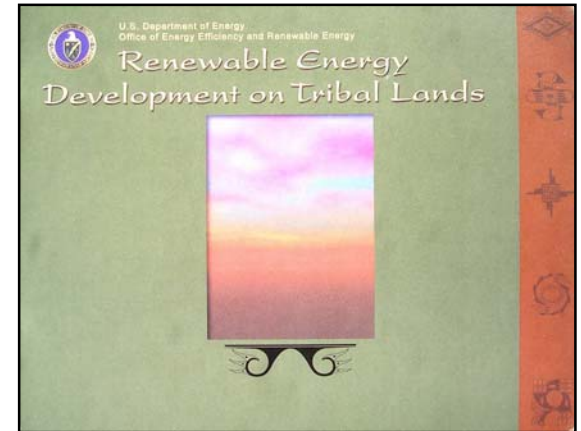
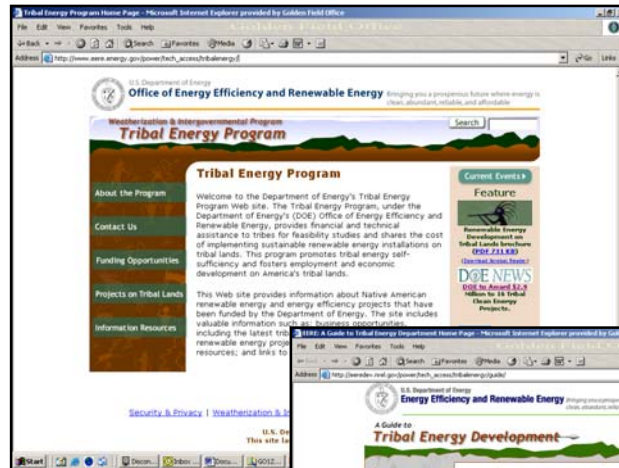




# DOE's Tribal Energy Program



## Information Resources

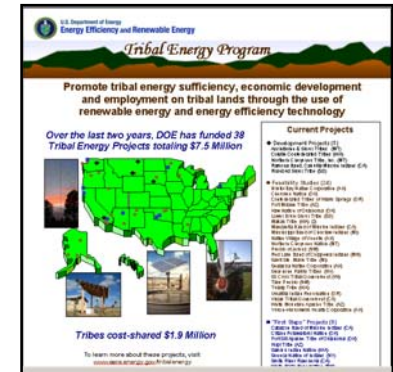


Tribal Energy Website

[www.eere.energy.gov/tribalenergy](http://www.eere.energy.gov/tribalenergy)

Guide to Tribal Energy Development

[www.eere.energy.gov/tribalenergy/guide](http://www.eere.energy.gov/tribalenergy/guide)

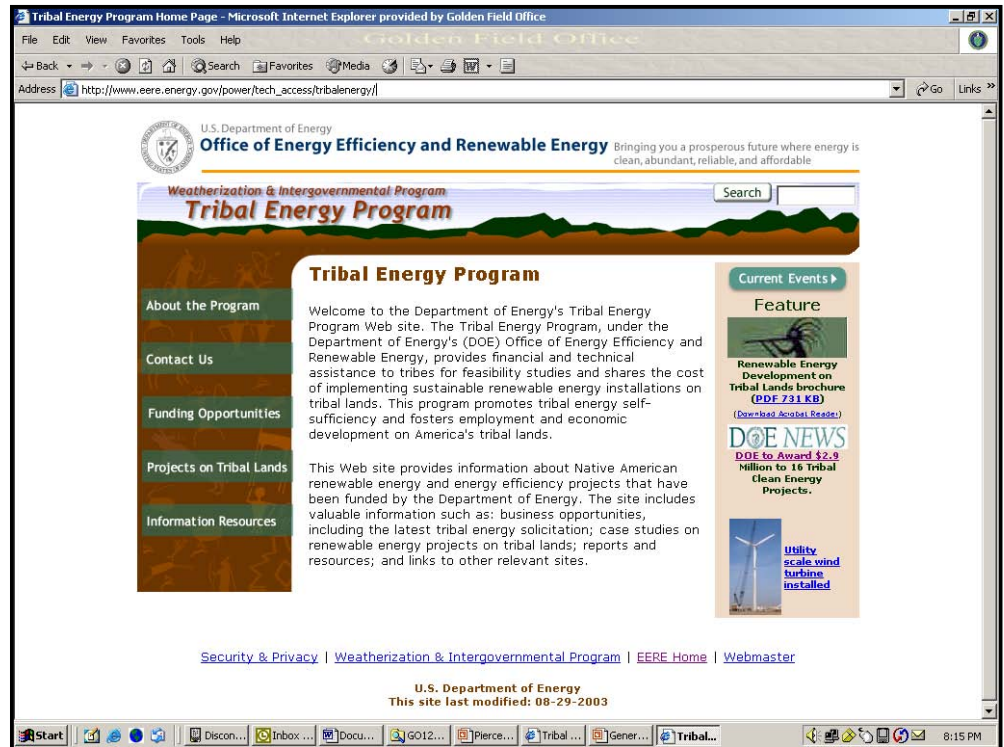






# DOE's Tribal Energy Program Program Web Site

- Features
- Current Events
- Funding Opportunities
- Projects on Tribal Lands
  - Project Overviews
  - Reports
  - Contacts
- Information Resource
- Program Contacts



[www.eere.energy.gov/tribalenergy](http://www.eere.energy.gov/tribalenergy)





# DOE's Tribal Energy Program

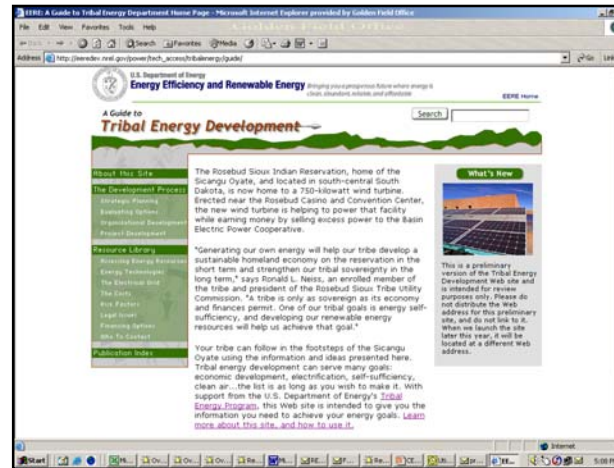
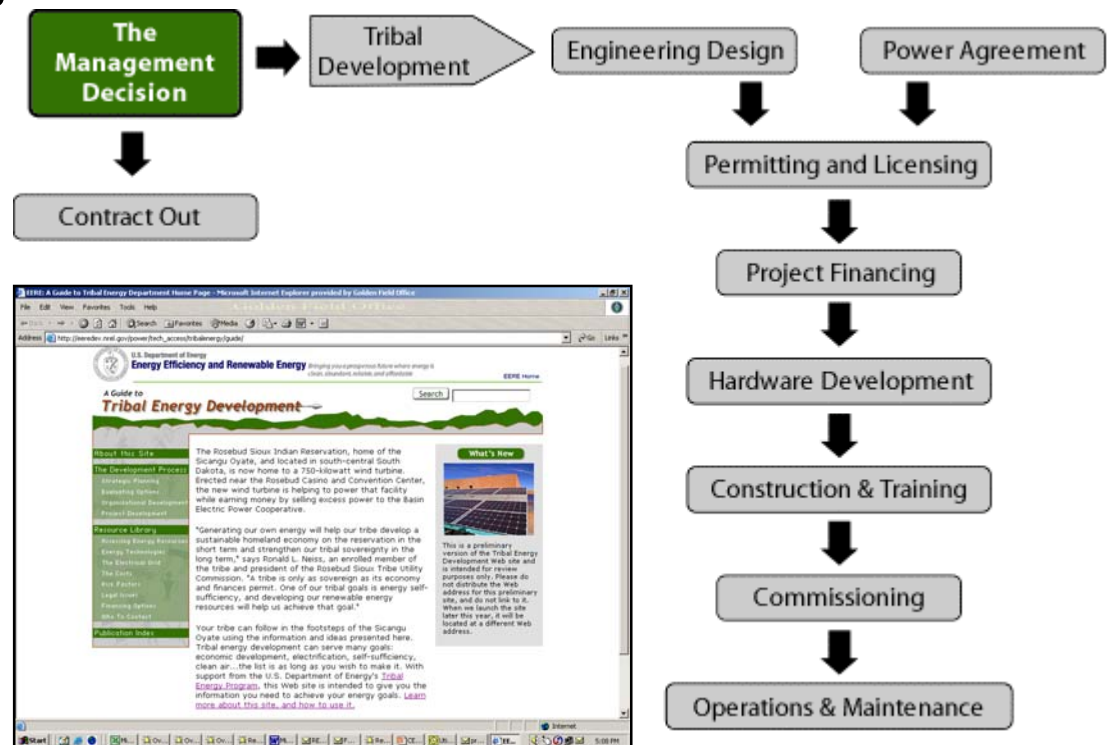
## Guide to Tribal Energy Development

### 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](http://www.eere.energy.gov/tribalenergy/guide)





# 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](http://www.eere.energy.gov/geothermal)**





# DOE's Geothermal Program



## Geothermal Resource Exploration and Definitions Program (GRED III)

Financial assistance for geothermal  
resource assessments

## Fort Bidwell Indian Community competitively selected for funding

### *Program Mission*

*To work in partnership with U.S. industry to establish geothermal energy as an economically competitive contributor to the U.S. energy supply*



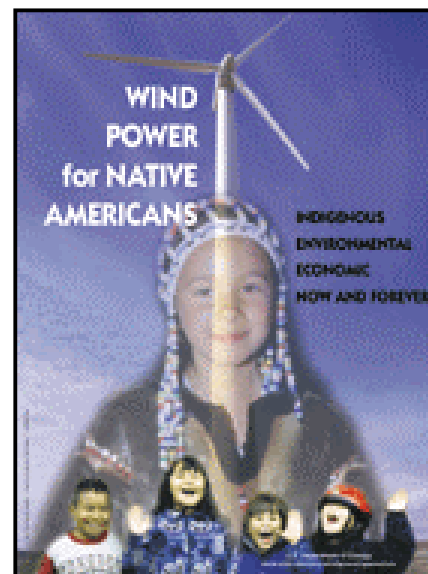


# Wind Powering America's (WPA) Native American Program

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**



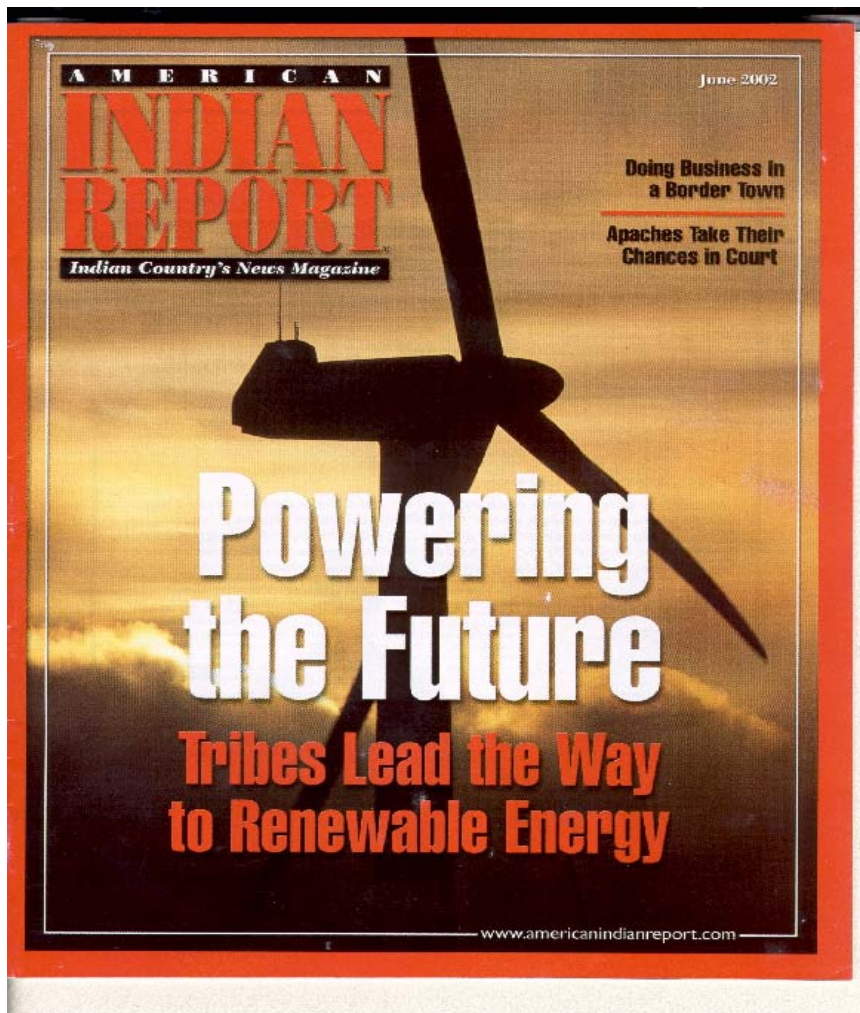
Native American Anemometer Loan Program has supported 55 tribes over the years



[www.eere.energy.gov/windandhydro/windpoweringamerica/](http://www.eere.energy.gov/windandhydro/windpoweringamerica/)







# *Questions*

**“Tribes Leading the Way to Renewable Energy”**

**American Indian Report  
June 2002**

