NTUA WIND ENERGY FEASIBILITY STUDY ON THE NAVAJO NATION

DOE EE/RE Tribal Energy Program
Fiscal Year 2008 Program Review
Denver, Colorado
Tuesday, November 18, 2008
THE NAVAO NATION: A BRIEF OVERVIEW

- Ancient homelands in the American Southwest
  - On the Colorado Basin in the present states of Arizona, New Mexico and Utah
  - Reservation includes an area of 26,000 square miles, which is similar in size to state of West Virginia

- Traditional lifestyle of the Navajo
  - Lifestyle of herding and grazing
  - Land is bound by four sacred mountains in a high desert climate

- Electrification of the Reservation
  - 18,000 of 48,000 homes on the reservation do not have electricity services (37.5% of homes on the reservation)
  - Navajo homes represent 75% of U.S. tribal homes without access to electricity
NTUA ORGANIZATION

- Founded in 1959
- Six District, One Sub-District Offices
- Headquarters Office in Fort Defiance, Arizona
NAVajo TRIBal UTILITY AUTHORITY

- Created to provide utility services to the Navajo reservation by the Tribal Council
- Governed by a seven member Management Board, which is appointed and confirmed by the Government Services Committee
- Headed by a General Manager, who is selected by the Management Board and confirmed by the Government Services Committee
Organized for the operation, maintenance, and expansion of utility services to customers within the Navajo Nation
- To improve the health and welfare of the residents of the reservation
- To promote employment for Navajo people

Operates as a non-profit corporation
Electricity
Natural Gas
Water
Wastewater
Renewable Energy

...in the Navajo Nation’s 26,000 square mile reservation
RENEWABLE ENERGY PROGRAM

- Residential Electricity Service
  - Renewable Energy Sources
    - Photovoltaic power systems
    - Hybrid Photovoltaic-Wind power systems
  - Net Metering
- Utility-Scale Generation
  - Wind Generation Exploratory Activities
  - Alternative Energy Sources
- May participate in electricity generation per the NTUA Plan of Operation
RESIDENTIAL PHOTOVOLTAIC (PV) SYSTEMS

- Introduced to provide an electricity alternative for Navajo homes beyond the reach of the grid.
- Standardized Systems:
  - Self-contained
  - Stand-alone
  - Standard Service Entrance
PROJECT ACTIVITIES

 ✓ Establishment of Navajo Wind Team
 ✓ Visit to regional wind sites
 ✓ Site selection
 ✓ Outreach to tribal entities
 ✓ ROW/permitting process
   ▪ Cultural, Environmental Assessments
 ✓ Avian Pre-Assessment
 ✓ Procurement of hardware
 ✓ Installation of anemometer kits
   ▪ Collection of wind data
   ▪ Analysis of wind data
NTUA WIND ACTIVITIES: GRAY MOUNTAIN

- Installation: October, 2007
- On-reservation
- 50 meter met tower
NTUA Wind Activities: Aubrey Cliffs

- Installation: May, 2008
- Off-reservation
- 50 meter met tower
LESSONS LEARNED

- Scope will change based upon circumstances of the project
- Education is key to establishing and maintaining harmony among the people, the government and entities of tribes
- The most significant pre-development task, in terms of time, may be the permitting process
- Find those entities which are interested in Indian Country and the resources owned by Indian Country
- Even pre-development presents excellent opportunities for capacity building
- Navajo Nation must gain a degree of control over its energy future
THANK YOU!

- Thank you for inviting the Navajo Tribal Utility Authority (NTUA) to present at the 2008 TEP Program Review.
- For additional information about the NTUA Renewable Energy Program:

  Terry W. Battiest  
  NTUA Renewable Energy Program  
  Email: terryb@ntua.com  
  Phone: 928/729-5721

CELEBRATING 50 YEARS IN 2009!!!