National Renewable Energy Laboratory

WIND POWER ACROSS NATIVE AMERICA: OPPORTUNITIES, CHALLENGES, AND STATUS

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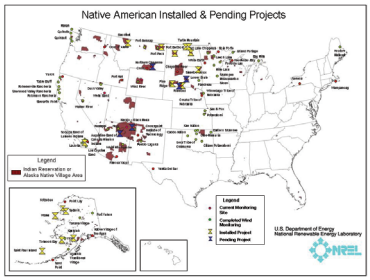
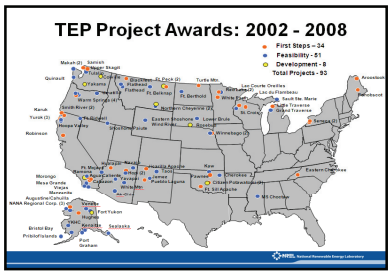
Existing and Pending Native American Wind Projects: 50 kW and Larger (March 2009)





In-Place Projects

1 - TDX Power, Inc.
(St. Paul Island, AK)
- 1x 225-kW turbine
- High-penetration wind-diesel system for TDX industrial area
- Installed 1999
- Financing: Commercial financing

2 - Alaska Village Electric Cooperative (AVEC) (Wales, AK)
- 2x 66-kW turbines
- High-penetration wind-diesel system
- Installed 2000

3 - Alaska Village Electric Cooperative (AVEC) (Selawik, AK)
- 2x 66-kW turbines
- High-penetration wind-diesel system
- Installed 2000

4 - Alaska Village Electric Cooperative (AVEC) (Toksook Bay, AK)
- 4x 100-kW turbines
- High-penetration wind-diesel system
- Installed 2006

5 - Alaska Village Electric Cooperative (AVEC) (Kasigluk, AK)
- 3x 100-kW turbines
- High-penetration wind-diesel system
- Installed June 2006

6 - Kotzebue Electric Association (KEA) (Kotzebue, AK)
- 10 x 66-kW turbines
- 1x 65-kW turbine
- 1x 100-kW turbine
- Initial installation: 1997, subsequently expanded
- Low-penetration wind-diesel system

7 - Assiniboine-Sioux Tribes
(Fort Peck, MT)
- 2x 50-kW turbines
- Energy will be used within the reservation
- Installed July 2006
- Financing: TEP grant

8 - Turtle Mountain Chippewa
(Belcourt, ND)
- 660-kW Vestas V47
- Installed in 2008 at Turtle Mountain Community College
- DOE TEP grant

9 - Oglala Sioux
(Pine Ridge, SD)
- 65-kW NordTank
- Installed in 2008
- Honor the Earth, Intertribal COUP, *Native*Energy, and private donors, DOE WPA Anemometer
- DOI /BIA Economic Development Turbine & Installation Training
- Supplies electricity to KILI radio station

10 – Siiseton-Wahpeton Community College
(Sisseton, ND)
- 2x 65-kW - Nortank
- Installed in 2008
- USDA, U.S. Dept. of Education, Sisseton-Wahpeton Tribe

11 - Spirit Lake Sioux
(Fort Totten, ND)
- 1x 100-kW turbine
- Meets part of casino load
- Installed 1996
- Financing: TEP grant

12 - Turtle Mountain Band of Chippewa
(Belcourt, ND)
- 1x 100-kW turbine
- Meets part of wastewater treatment plant load
- Installed 1996
- Financing: TEP grant

13 - Rosebud Sioux
(Rosebud Reservation, SD)
- 1x 750-kW turbine
- Energy sold to Basin Electric and Ellsworth AFB
- Green tags sold to *Native*Energy and to Ellsworth AFB through WAPA
- Installed: 2003
- Financing: TEP grant, RUS loan

14 - Blackfeet
(Browning, MT)
- 1x 100-kW turbine
- Energy sold to local utility
- Installed 1996
- Development supported by TEP
- Financing: TEP grant

15 –Campo Band of Kumeyaay
(Campo Reservation, CA)
- 50 MW
- Installed 2005
- Privately owned project: leasing land from the Tribe

16 - Three Affiliated Tribes
(Fort Berthold, ND)
- 1x 66-kW turbine
- Energy sold to local utility
- Installed 2005
- Financing: TEP grant

Pending Projects

17 - Northern Cheyenne
(Lame Deer, MT)
- 30 MW
- Development (pre-construction) work financed with TEP grant
- Tribe will retain an equity interest

18 - Rosebud Sioux
(St. Francis, SD)
- 30 to 60 MW
- Development (pre-construction) work financed with TEP grant

19 – Lower Brule
(SD)
- 225-MW project in development stage

20 - Navajo Nation
(AZ, NM, UT)
- 500-MW wind farm in development
- Gray Mountain , AZ

21 – Hopi
(AZ)
- 15 MW
- Privately owned project: leasing land from the Tribe
- Hopi planning to follow up with a wind project in which the tribe will retain an equity interest

Business Models

- Tribally owned: e.g., TDX Power, Blackfeet, Rosebud, others
- Joint venture: No current examples. Tribes evaluating lessons learned from community wind and tribal casino experiences
- Land lease to third-party owner: e.g., Campo Kumeyaay Nation.

Projects on Tribal Land Are *Different*

- Inability to directly monetize Production Tax Credit (PTC) and accelerated depreciation (affects projects with tribal equity interest)
- Tribal tax advantages: Not as valuable as the PTC. Projects with non-tribal partners may lose these tax advantages
- More stringent environmental regulations (federal NEPA)
- Agreements require multiple levels of review and approvals: Tribal, BIA, FWS, EPA, THPO/SHPO
- Since 1887, land status varies within an Indian reservation (checker-boarding): Trust, Allotted, Fee, Tribal, Individual Indian, Extended Families, and Non-Indians. Needed permissions and tax status vary depending on ownership status
- Tribal sovereignty/Tribal policies/Native American law: Applicable laws and jurisdictions vary with regard to projects and contracts
- Optimal business structure with Tribal equity interest has not emerged
- Clean Renewable Energy Bonds (CREBs) not expressly available to Tribes
- Tribes often do not control significant tribal loads such as casinos.

Campo Kumeyaay Nation Reservation, California. Photo credit: Robert Gough

Tribal Wind Opportunities and Issues

- Abundant wind resources, especially throughout the West
- Transmission access to Federal and non-Federal grids
- Renewable energy for climate change mitigation wedge
- Renewables and energy efficiency in Tribal "Green Collar" economies
- Environmental justice regarding past Federal policies
- Federal outreach programs (DOE TEP, WPA, DOI/BIA MAP, USDA 9006)
- Federal green energy preference under Energy Policy Act of 2005
- Tribal wind-Federal hydro integration study under Section 2606
- Intertribal ownership interest in Native Energy, a green tag broker (supporting Tribal wind projects by purchasing green tags at beginning of project)
- Tribal Energy Resource Agreements (TERA): Tribes can assume Federal permitting responsibilities for renewable and conventional energy projects.

KILI turbine at Pine Ridge Reservation, South Dakota. Photo credit: Robert Gough

NorthWind 100 turbine in Toksook Bay, Alaska. Photo credit: Northern Power Systems

WINDPOWER 2009 | Chicago, IL | May 4-7, 2009 | NREL/PO-500-45411

www.windpoweringamerica.gov Tribal Energy Program: www.eere.energy.gov/tribalenergy/