

As part of its Native American outreach, DOE's Wind Powering America program has initiated a quarterly NAWIG newsletter to present Native American wind information, including projects, interviews with pioneers, issues, WPA activities, and related events. It is our hope that this newsletter will both inform and elucidate comments and input on wind development in Indian Country.



Rosebud Sioux: First Tribe in the Nation to Sell Wind Power

Alex "Little Soldier" Lunderman had a vision. The former Rosebud Sioux tribal chairman saw a long line of people behind him walking toward a traditional tipi. In the tipi, he saw computers and other kinds of technologies that his people could use to protect their Mother Earth, and he knew that generating clean electricity from the Four Winds could help his people. The Rosebud Sioux Wind Project proves that he was right.

Lunderman passed into the Spirit World in 2000, but his legacy lives on. In February 2003, the first utility-scale tribally owned wind turbine, a 750-kilowatt NEG Micon named after Lunderman, was installed on the Rosebud Sioux Indian Reservation, marking the end of eight years of preparation and the beginning of a bright economic future for the tribe.

The History

In 1995, the Rosebud tribe, the Tribal Utility Commission, and the Rosebud Casino paid for the installation of an anemometer and began measuring their wind resources. The tribe's wind resource proved to be a Class 5/Class 6 resource, which is considered excellent. This news came as no surprise to members of the tribe—they joke about how the wind always blows on the Rosebud Reservation.

In 1998, the tribe applied for a cooperative grant from the U.S. Department of Energy (DOE) to build a commercial utility turbine. The tribe had 18 months of wind data to back up their request. Working closely with the Intertribal Council on Utility Policy (COUP) and Distributed Generation, Inc., the Rosebud tribe negotiated the first



Robert Gough/PIX12817

Fourth of July powwow at the Rosebud Reservation.

U.S. Department of Agriculture Rural Utilities Service loan to a tribe for a commercial wind energy project.

On May 1, 2003, the Rosebud Sioux held a dedication ceremony. At the dedication, the tribe became the first tribe in the nation to receive a check for the sale of wind power. Their turbine, which can produce more than 2 million kilowatt-hours per year, sometimes generates more energy than the Rosebud Casino can use, so the tribe sells its excess clean energy to Basin Electric for local use, with a multi-year sale of "green power" to Ellsworth Air Force Base. This is possible because of a cooperative effort with Basin, Nebraska Public Power, and the Western Area Power Administration.

The tribe has also negotiated the first tribal sale of "green tags," or renewable energy credits, to NativeEnergy of

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Vermont. Under a long-term agreement, NativeEnergy purchases green tags that will be generated by the wind turbine over its operating lifetime. NativeEnergy sells the green tags to individuals and businesses through its WindBuildersSM programs, which help build new wind farms.

The Rosebud tribe is working with the Western Area Power Administration to gain access to the federal transmission grid that crosses their reservation. Tribe members would like to use this "road" for their wind resource to sell "Red Green Power" to federal agencies and others that have green power requirements.

The Future

The installation of the Rosebud turbine is only the first phase in the Tribal Wind Power Demonstration Project Plan, an environmental justice through community revitalization plan for intertribal wind development sponsored by the Rosebud Sioux tribe and Intertribal COUP.

Indian reservations on the northern Great Plains possess a tremendous wind resource, estimated to exceed several hundred gigawatts. To put that in perspective, the installed energy generation capacity of the entire United States from all sources of energy is about 600 gigawatts. This incredible wind resource can help revitalize tribal communities and economies across the Northern Great Plains through the development of large, utility-scale



Robert Gough/PIX12517

Connie Fox and tribal leader Tex Hall, NCAI president and chairman of the Mandan Hidatsa, Arikara Nation, offering a prayer on Drags Wolf Hill at the groundbreaking for the Ft. Berthold, North Dakota reservation's initial wind turbine project.

renewable energy generation. Developing these sustainable, renewables-based tribal economies will provide for future tribal economic, cultural, and community revitalization, sustainability, and capacity building. Intertribal COUP's plan for the Great Plains tribes would bring at least 3,000 megawatts of power to market in the next decade.

"We want the Rosebud Sioux turbine to be the beginning," said Robert Gough, secretary of Intertribal COUP.

Integrated Resource Planning

Tribal governments are increasingly interested in participating in the control or regulation of energy generation, distribution, and consumption on their reservations. One tool used by utilities to assess future energy supply and demand is Integrated Resource Planning (IRP). IRP involves identifying and comparing all practicable energy efficiency and energy supply options available to the tribe, including the potential renewable energy sources located on each reservation. Section 114 of the Environmental Policy Act (EPA) lays out the framework for an IRP. <http://www.es.wapa.gov/irp/files/IRPbro.pdf>

The process walks the planner through (1) assessing existing resources (e.g. power plants), forecasting future electric loads, and identifying objectives (e.g., reliable service, minimal environmental impacts, reasonable prices for consumers); (2) identifying options to deal with the discrepancy between expected loads and existing capacities; and (3) evaluating the economic, environmental, and societal conditions of those options. Possible options to consider include:

Demand-Side Options:

- Consumer Energy Efficiency: home weatherization, energy-efficient appliances, lighting, heating and air-conditioning, water heating, duct repair, motors, refrigeration, energy-efficient construction, appliance timers and controls, thermal storage, and geothermal heat pumps

- Utility Energy Conservation: load management, high efficiency motors, and reduced transmission and distribution losses
- Rates: time-of-use, interruptible, and revenue decoupling
- Renewables: solar heating and cooling, photovoltaics, passive solar design, and daylighting

Supply-Side Options:

- Conventional Power Plants: fossil-fuel, nuclear, extending the life of existing plants, hydro/pumped storage, repowering, and utility battery storage
- Non-Utility-Owned Generation: cogeneration, independent power producers, and distributed generation
- Purchases: requirement transactions, coordination transactions, and competitive bidding
- Renewables: wind, biomass, geothermal, solar thermal, and photovoltaics.

Most tribes in the Western Area Power Administration service area are eligible to receive federal firm hydropower allocations through 20-year contracts. Tribes that are direct customers for federal power or are under Tribal or Federally mandated EE/RE reporting programs (e.g. Federal Executive Order 13123) may be required to prepare IRPs.

Tribes interested in working with the Wind Powering America Program on resource assessment or on IRPs may contact: Marguerite Kelly, National Renewable Energy Laboratory, 1617 Cole Blvd., Golden, Colorado 80401. 303-384-7441. marguerite_kelly@nrel.gov



Interview: Ron Philemonoff, chairman of TDX Power

Tell us a little about TDX and TDX Power.

The U.S. government settled the Alaska Native land claims in 1971 by creating Alaska Native Claims Settlement Act (ANCSA) corporations (in other states, reservations were created). Tanadgusix (TDX) Corporation is an Alaskan Native Village Corporation formed under the ANCSA.

Tell us why TDX became interested in wind energy.

The Aleut people and TDX have been interested in wind energy long before modern times. My welcome remarks from the ribbon-cutting ceremony on St. Paul describe how we feel about the wind:

"For millions of years, the Aleuts lived off this great land and sea and all of the natural resources that it provided. For all of those years and to this day, there was and is always one thing between the land and the sea: there was and there is the wind. The wind was and is our foe and our friend. It was the wind that blew our fathers, brothers, and sons to the deep dark depths of the sea. But the wind also blew the Aleut chief's son from the Aleutian Islands to the Pribilofs and showed us the way. The wind blows our scent to the reindeer. The wind provides the winter ducks for our hunters.

"Some say that this is where the wind is born, and some say this land is nothing but a blowhole. To the Aleut people, this is where we are born, and we welcome the wind.

"Now we will catch the wind and ride it into the 21st century."

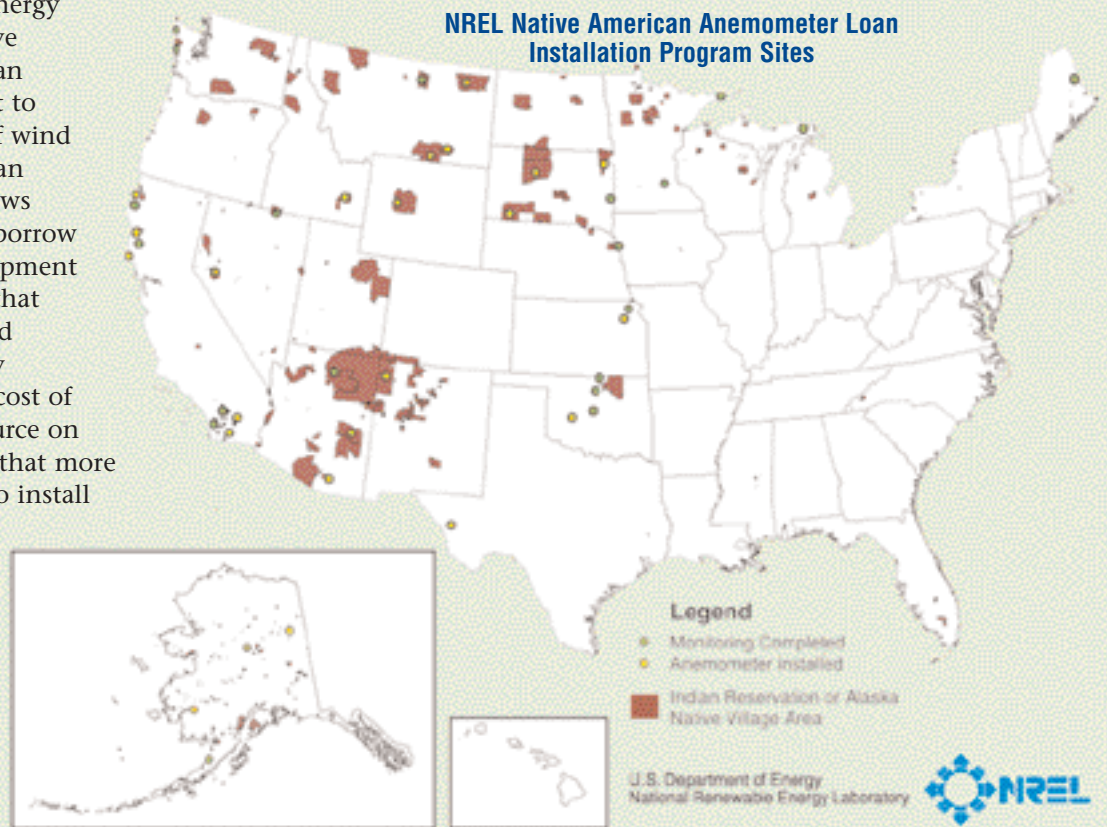
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TDX formed three subsidiary corporations to diversify its business ventures. One of these subsidiary corporations, TDX Power Inc., is an independent power producer with a hybrid wind-diesel power plant in St. Paul (the largest hybrid wind-diesel power plant in Alaska); a 4-MW Cat diesel power plant in Sand Point, Alaska; and a 10-MW diesel and natural gas power plant on the North Slope in Dead Horse, Alaska.

Anemometer Loan Program Promotes Turbine Installation on Native American Lands

The National Renewable Energy Laboratory's (NREL's) Native American Anemometer Loan Program is part of an effort to promote the installation of wind turbines on Native American lands. NREL's program allows Native American tribes to borrow anemometers and the equipment needed for installation so that they may measure the wind resource on tribal lands. By significantly reducing the cost of quantifying the wind resource on tribal lands, NREL expects that more tribes will be encouraged to install wind turbines. The Anemometer Loan Program is administered jointly by NREL and the Western Area Power Administration as part of the U.S. Department of Energy's Wind Powering America Initiative. For more information, visit

http://www.eere.energy.gov/windpoweringamerica/na_anemometer_loan.html.



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What has been the local response to the wind turbine?

The local Aleut people have welcomed the new technology and are proud that we have tamed the wind with the largest wind turbine in Alaska. The local people are also upset that local and statewide energy policies have prevented this system from providing the ultimate benefit of wind energy to the individual homeowner. They cannot understand why they must continue to pay \$.40/kWh for diesel-generated electricity when we have captured the wind with the second-greatest average in the nation.



Tony Jimenez, NREL/PIX12823

Alexander Israel, NREL intern for the Wind Powering America program.

Navajo Engineering Student Interns at the NWTC

Alexander Israel, a member of the Navajo tribe and junior at Northern Arizona University, worked at the National Renewable Energy Laboratory's (NREL's) National Wind Technology Center (NWTC) near Boulder, Colorado, as a summer intern.

The mechanical engineering student first became interested in wind energy after conducting a wind assessment test at a site near Flagstaff, Arizona. After hearing about the NWTC internship program from his adviser/mentor, he decided to apply.

Israel looked forward to his new experience and his trip to Colorado. During his summer at NREL, he worked with the Wind Powering America team. Israel processed the data plugs for different sites, updated the monthly summary spreadsheet, added a wind rose to the graphs, and helped create final site reports. He also enjoyed watching renewable energy presentations.

"The entire NREL experience was memorable," Israel said. "Being at the wind site and seeing all the turbines was amazing."

Israel is interested in pursuing a career in the renewable energy field.

What prevents wind from reaching its full potential in Alaska Native villages?

Technology is a limiting factor for further wind power development in Alaska. While the majority of the wind power industry continues to race toward larger, more sophisticated machines, few manufacturers focus on the small and midsize turbine market required in Alaska. In addition, politics and the structure of the Alaskan electric utility system also limit wind energy because there is little incentive to reduce fuel costs. The state fuel subsidy program, Power Cost Equalization (PCE), often encourages inefficiency in rural electric utilities because the subsidies do not reward efficiency.

To read the complete interview with Ron Philemonoff, please visit www.windpoweringamerica.gov.

Calendar

2003

- Nov. 16 – 21 **National Congress of American Indians (NCAI) 60th Annual Session** — Albuquerque, NM
http://www.ncai.org/main/pages/national_calendar/NCAI/annual2003/index.asp
- Dec. 10 – 12 **Alaska Inter-Tribal Council (AITC) Annual Convention** — Anchorage, AK
<http://www.akforum.com/1202%20News.pdf>

2004

- Feb. 10 – 13 **Affiliated Tribes of Northwest Indians (ATNI) Winter Conference** — Portland, OR
<http://www.atntribes.org/03wintertoc.html>
- Feb. 18 – 19 **Wind Energy and Rural Development in North Dakota V** — Fargo, ND
<http://www.undeerc.org/WindV>
- Mar. 1 – 3 **Power-Gen Renewable Energy Power Industry Conference** — Las Vegas, NV
<http://pgre04.events.pennnet.com>
- Mar. 28 – 31 **Global Windpower 2004** — Chicago, IL
<http://www.awea.org/global04.html>
- June 20 – 23 **National Congress of American Indians (NCAI) Mid-Year Session** — Uncasville, CT
http://www.ncai.org/main/pages/national_calendar/ncai_events.asp

Current Native American wind events can also be found on the Wind Powering America Web site at http://www.eere.energy.gov/windpoweringamerica/wpa_na_calendar.asp.



Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

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