Wind & Hydropower Technologies Program

Harnessing America's abundant natural resources for clean power generation

NAWIG NEWS

THE QUARTERLY NEWSLETTER OF THE NATIVE AMERICAN WIND INTEREST GROUP

SPRING 2004

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 elicit comments and input on wind development in Indian Country.

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Wind Turbines Power Remote Navajo Homesteads

Some families on the Navajo Reservation are seeing things in a new light—a light powered by electricity from the wind.

Larry Ahasteen, renewable energy specialist for the Navajo Tribal Utility Authority (NTUA), and regional crews combine photovoltaic (PV) systems and small wind turbines to create hybrid systems that produce electricity for remote Navajo households.

"We use Mother Nature to generate power," Ahasteen said. "We want to use both the wind and the sun. The sun doesn't shine all the time."

It's estimated that 18,000 remote households on the Navajo Reservation do without electricity. The reservation spans 26,000 miles across three states, and the cost to extend the electrical grid averages about $27,000 per mile. Some families use diesel generators and kerosene lamps to supply limited power. Families who apply for electrical service at the NTUA district office may be eligible to lease PV panels if the household is located too far from transmission lines. The hybrid PV/wind systems installed by the NTUA crews now provide another power option for these off-the-grid families.

The NTUA crews first experimented with PV systems combined with an LP gas generator, but they soon learned that the LP gas generator had high maintenance costs.

"Our customers need reliable systems, and wind turbines are the answer," Ahasteen said. "After consulting with wind and solar people, we developed a good hybrid system."

NTUA's hybrid system consists of eight solar panels in an 880-watt array, a 400-watt Air-X turbine, and four 6-volt, 770-amp-hour batteries in series to create a 24-VDC configuration. The system is modular; if the NTUA crews have to remove a system, they can easily do so and move it to a new location.

PIX13168

NTUA's technicians plan to install 63 hybrid systems this year to provide power for remote Navajo homesteads.

According to Ahasteen, they installed the first wind turbine with guy wires. They later revised their design and mounted turbines on utility poles, which made the turbines more secure and more efficient.

"We installed 40 PV units with wind turbines, and we thought it worked so well that this year we're adding 63 more units," he said.

— Story continued on page 2

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— Story continued from front page

The hybrid systems are funded in part by federal grant money. In 2000, Sandia National Laboratories, the Navajo Nation, and the U.S. Department of Energy (DOE) signed a Memorandum of Understanding (MOU), which authorized collaboration and technology transfer to the Navajo Nation. Providing energy for Navajo families located off the grid became the focus of the MOU.

In 2001, President Bush signed the Navajo Nation Electrification Demonstration Project (NNEDP) into law. This law directed the Secretary of Energy to establish a 5-year program to assist members of the Navajo Nation to meet their electricity needs. In 2002, NTUA received a $2.8 million grant to implement the NNEDP. Within 5 months, NTUA crews had enabled 550 homes on the Navajo Nation to receive electricity for the first time.

In 2003, the Navajo Nation received a $2.3 million renewal grant ($1.15 million for electrical line extensions and $1.15 million for PV and wind systems). NTUA charges families $75 per month, which covers the maintenance cost of the units. No additional costs are incurred by the families; NTUA maintains the systems.

Wind resource maps produced by the National Renewable Energy Laboratory show that the Navajo Reservation has between a Class 2 to Class 4 resource, which may allow NTUA to install larger wind turbines. The NTUA crews are also installing two anemometers—one in Black Mesa, Arizona, and one in Gray Mountain—to measure their wind resource. They hope to obtain an additional two from Northern Arizona University (NAU) to install in the Gray Mountain area and in Chinle.

Ahasteen has been involved with renewable energy since the 1970s, when he installed PV systems for the Navajo Nation, but he views the hybrid systems as a beginning.

"We want to look at other renewables like biomass and fuel cell technologies to produce power. We have all of these big power plants on our reservation, and we benefit very little from them. Although it creates jobs and produces royalty, we still have to buy our electricity. These hybrid units are used on the reservation to produce energy for the people.

"I'm a very traditional Navajo," he continued. "My philosophy is that we need to honor and respect the things we get. Activists say, 'Let's use wind and solar—it's free.' It's not free. According to the Navajo philosophy, we have to honor and respect and give offerings so that these things will continue. Here at NTUA, we believe in the same principle."

Interview: Tex Hall, President, National Congress of American Indians

Robert Gough/PIX13168

Why is wind important to the Tribes of the Great Plains?

Wind is an incredible untapped energy resource that could go a long way toward making this country energy independent. It has been said that there is an ocean of energy crossing the Great Plains every day—tribes here have many thousands of megawatts of potential wind power. In fact, most of the Great Plains Tribes have distinct names for and stories about the winds that recognize the different personalities and characteristics of the winds coming from the four directions.

Today, our persistent winds represent a fabulous opportunity for all people on the Great Plains to generate clean, reliable electricity without having to dig up our lands or pollute our air or water.

What plans do the Mandan, Hidatsa, and Arikara have for wind energy development at Ft. Berthold?

We have an unbelievable wind resource at Ft. Berthold. According to the wind potential resource maps produced by the National Renewable Energy Laboratory in Colorado, we have many thousands of times more power in the wind than the amount of energy we use on the reservation. Just a small fraction of our resource could become a foundation for sustainable economic development on the reservation, powering Tribal projects such as our planned gas refinery and for sale and export over the regional transmission grid.

Our Tribe has received an initial grant from DOE to develop a single turbine to provide power for our casino and hotel at Newtown, ND. We completed all the studies and broke ground late last year. We are currently completing final negotiations with regard to interconnection to meet Tribal load and perhaps sell occasional surplus power for those times when the wind produces more energy that we can use directly. We are also engaged in a second round of feasibility studies that examine the wind development potential at other sites on the reservation. We are participating in the Intertribal Council on Utility Policy environmental justice community revitalization demonstration project, which lays the road map for collaborative Tribal wind energy development. Ft. Berthold will site an initial 10-MW project as part of an 80-MW distributed generation intertribal project. A collaborative 80-MW project could attain an economy of scale that would make a local 10-MW project affordable.

You are the President of the National Congress of American Indians; what role can the NCAI play in wind energy development in Indian Country?

As the oldest and longest-standing Indian organization, NCAI plays an important role in shaping national executive and legislative policies that promote the interests of American Indians and Alaskan Natives. We voice the concerns and aspirations of native peoples from across the country.

How can the U.S. DOE and the Wind Powering America program help Native Americans achieve their interests in wind energy development?

The U.S. DOE held its first tribal energy summit in conjunction with the NCAI Executive Meeting in Washington, DC, this February. This is an important first step to building a closer relationship between the administration and Tribes. We need the DOE to request funding for a variety of Indian energy initiatives, especially in the field of renewables, in which over the past 10 years the Department has never once requested appropriations at the levels authorized by Congress.

Wind Powering America has done an excellent job of bringing program information to Native Americans throughout the country, to Indian Tribes, and to Native Alaskans and Hawaiians. With limited funding compared to those available for state programs, the WPA Native American Initiative has helped build tribal capacity through the anemometer loan program and through the WEATS program (our Tribe has sent several representatives to WEATS for training in wind energy applications).

Read the entire Tex Hall interview at www.windpoweringamerica.gov.

DOE's Tribal Energy Program Funds Wind Energy Projects

Indian land comprises 5% of the land area of the United States, but it contains an estimated 10% of U.S. energy resources. The U.S. Department of Energy's (DOE's) Tribal Energy Program promotes Tribal energy self-sufficiency and economic development and fosters employment on America's Tribal lands. In August 2003, DOE awarded $2.9 million to develop 16 renewable energy and energy efficiency projects on Tribal lands. The following Tribes are now pursuing wind energy projects as a result of the awards:

Assiniboine and Sioux Tribes, Montana

The Assiniboine and Sioux Tribes plan to buy, install, and operate a 660-kilowatt wind turbine on the Fort Peck Reservation in Montana under a cost-shared development project. The estimated 2,000,000 kilowatts of power generated by the turbine will be distributed among the Tribal Building, Fort Peck Community College, and Assiniboine & Sioux Tribal Industries.

The Tribes plan to use the $134,000 in annual savings from reduced electricity bills to establish a senior citizens' kitchen to feed 65-85 elders a day and finance an educational training and certification program. Electricity sales from the project will help maintain the turbine, improve existing electricity infrastructure, and upgrade the energy efficiency of Tribal buildings.

Rosebud Sioux Tribe, South Dakota

The Rosebud Sioux Tribe in South Dakota will begin developing a 30-megawatt wind energy project on Tribal lands. For more on the Rosebud Sioux Tribe's wind project, please refer to the Winter 2003 issue of the NAWIG News.

Northern Cheyenne Tribe, Montana

The Northern Cheyenne Tribe will conduct pre-construction activities for a 30-megawatt wind facility. Activities will include permitting, avian and cultural assessments, and transmission and interconnection studies needed to obtain financing and power purchase agreements.

Makah Indian Nation, Washington

The Makah Nation will complete the pre-development tasks for a 30-megawatt wind project and associated infrastructure.

Although no funds for renewable energy and energy efficiency projects will be available in FY2004 due to the limited amount of discretionary funds appropriated by Congress, future opportunity announcements will be posted on the Tribal Energy Web site at www.eere.energy.gov/tribalenergy. For possible contracting and financial assistance opportunities with the U.S. Department of Energy, visit DOE's e-Center at http://e-center.doe.gov.

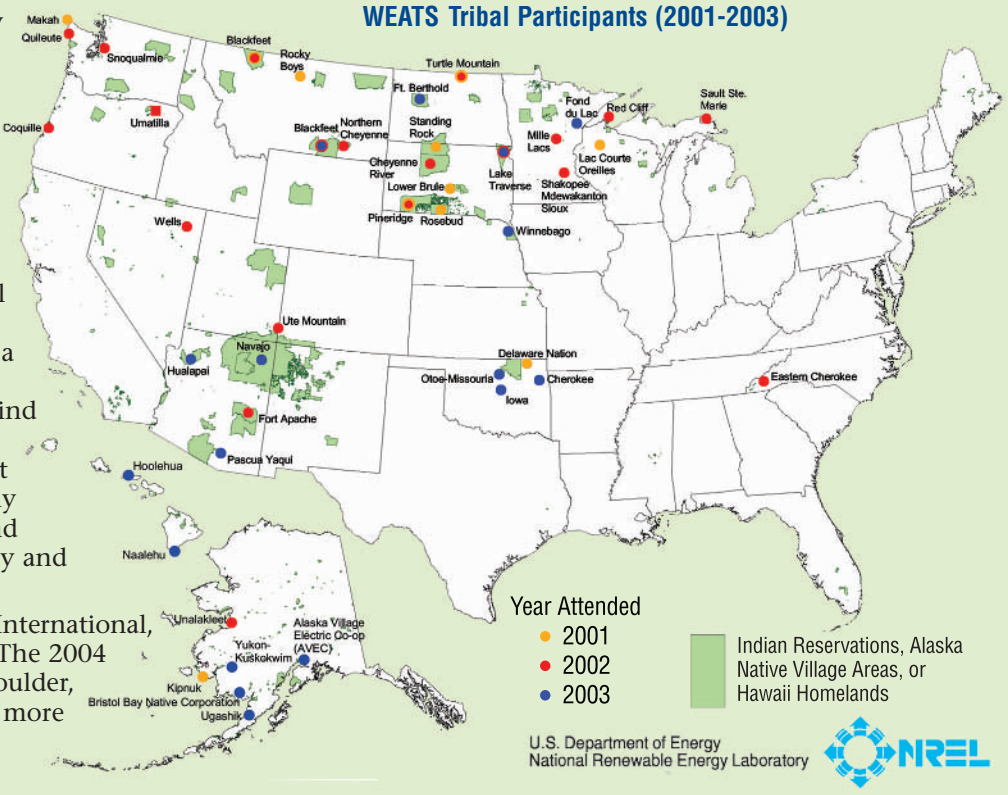
Fifteen Tribes Attend 2003 Wind Energy Applications and Training Symposium

Thirty-three participants from six countries and 15 Tribes gathered at the National Wind Technology Center in Boulder, Colorado, during the last week of October for the 2003 WEATS workshop.

WEATS, an internationally acclaimed annual hands-on wind energy workshop, is designed for project planners, developers, utility officials, and engineers directly involved with energy projects who are considering wind energy development and want to learn more about wind energy technology applications. Participants gain practical knowledge and analytical tools for conducting project pre-feasibility and identification analysis and implementation of wind energy projects.

This year's participants attended presentations and discussions on wind technology, wind farms, small wind applications, and field installation of an anemometer and a small wind turbine. They also enjoyed a tour of the Ponnequin wind farm. Participants developed useful contacts and practical expertise that will help them evaluate and possibly implement wind energy projects and ensure that they operate successfully and profitably.

WEATS is funded jointly by NREL's International, Tribal Energy, and wind programs. The 2004 WEATS workshop will be held in Boulder, Colorado, from August 25 - 27. For more information, contact Tony Jimenez at 303-384-7027.



2004 Calendar

Mar. 19 - 21 ***Denver March Powwow*** — Denver, CO
http://www.denvermarchpowwow.org

Mar. 19 - 21 ***Energy Independence Day Campaign kick-off at the Denver March Powwow***
http://www.energyindependenceday.org

Mar. 25 - 27 ***National American Indian Science and Engineering Fair*** — Albuquerque, NM
http://www.aises.org/events/naisef

Mar. 28 - 31 ***Global WINDPOWER 2004 Conference & Exhibition*** — Chicago, IL
http://www.awea.org/global04.html

Apr. 14 - 16 ***Western Governors' Association North American Energy Summit*** — Albuquerque, NM
http://www.westgov.org

Apr. 19 - 22 ***National Tribal Environmental Council (NTEC) 2004 Conference*** — Myrtle Beach, SC
http://www.ntec.org/

Apr. 22 - 23 ***Tribal Energy Conference*** — Las Vegas, NV
http://www.lawseminars.com/htmls/seminars04/04tribnv/about.htm

Apr. 27 - 29 ***Alaska Rural Energy Conference*** — Talkeetna, AK
http://www.uaf.edu/aetdl/conferences.html

May 5 - 6 ***Sustainable Energy Solutions 2004 Conference*** — Denver, CO
http://www.CERTRedEarth.com

May 17 - 20 ***Affiliated Tribes of Northwest Indians (ATNI) Mid-Year Conference*** — Lincoln City, OR
http://www.atnitribes.org/announc.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

June 23 - 24 ***Community Wind Energy: A New National Market*** — Minneapolis, MN
http://www.windustry.com/conferences/default.htm

Aug. 5 - 7 ***Southwest Sustainability Expo*** — Flagstaff, AZ
Contact Tom Acker, 303-384-7020

Aug. 25 - 27 ***WEATS*** — Boulder, CO
Contact Tony Jimenez, 303-384-7027

Aug. 28 - Sept. 3 ***World Renewable Energy Congress*** — Denver, CO • http://www.nrel.gov/wrec/

Oct. 10 - 15 ***National Congress of American Indians (NCAI) 61st Annual Session*** — Ft. Lauderdale, FL
http://www.ncai.org/main/pages/national_calendar/ncai_events.asp

Oct. 25 - 30 ***Alaska Federation of Natives Annual Convention*** — Anchorage, AK
http://www.nativefederation.org/frames/calendar.html

Nov. 11 - 14 ***American Indian Science and Engineering Society (AISES) 26th Annual National Conference*** — Anchorage, AK
http://www.aises.org/calendar

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.

Useful Links

Wind Powering America • www.windpoweringamerica.gov
American Wind Energy Association • www.awea.org
U.S. Department of Energy Tribal Energy Program • www.eere.energy.gov/tribalenergy
National Wind Coordinating Committee • www.nationalwind.org

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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