

Wind Power in Alaska

FALL 2010

Working Now

Wind is the fastest growing sector of the renewable energy market in Alaska, nationwide and worldwide. Six states including Texas, Oregon and Minnesota now generate more than 5% of their electricity from windpower. Iowa generates 19% of its electricity from wind.

Worldwide, wind power is used in over 82 countries. In the U.S., wind projects accounted for 39% of all new electric generating capacity installed in 2009.

Growing

Twenty communities in Alaska from Kasigluk to Kodiak to Kotzebue are now using wind power. Several more have wind projects underway. Kodiak generates 9% of its electricity from wind, and Toksook and Kasigluk have topped 20%.

On the Raibelt, Golden Valley Electric Association is moving forward with plans to build a 24-megawatt (MW) wind farm at Eva Creek near Healy. In Anchorage, developer CIRI is pursuing a 53-MW wind farm on Fire Island that could power up to 17,000 homes, and Alaska Environmental Power in Delta Junction is looking at expanding from 1 MW to 25 MW.

Making a Difference

Kodiak Electric Association's three wind turbines installed in July 2009 have cut diesel fuel use by more than 900,000 gallons, saving the utility more than \$2.3 million in just under a year.

Unalakleet has cut diesel fuel use by nearly 40,000 gallons since installing six turbines in November 2009 for a savings of more than \$100,000.



ALASKA COMMUNITIES POWERED WITH WIND*

| | | | |
|-----------------|------------|-------------|------------------------|
| Kotzebue | Kodiak | Toksook Bay | <u>NEAR COMPLETION</u> |
| Selawik | Hooper Bay | Chevak | Quinhagak |
| St. Paul Island | Perryville | Tununak | Mekoryuk |
| Kasigluk | Unalakleet | Nunapitchuk | Kokhanok |
| Wales | Nome | Nightmute | |
| Delta Junction | Kongiganak | Nikolski | |
| Savoonga | Gambell | | |

*Wind-generated electricity ranges from a few percent up to 23% of total electrical load

Benefits and Challenges of Wind

Alaskans pay some of the highest energy prices in the country - in some communities more than five times the national average. Wind provides a stable, predictably priced source of energy because the cost of the fuel - the wind - is free. Over time, renewable energy sources like wind and hydro are cheaper and less risky than relying on volatile-priced fossil fuels.

Wind is intermittent so turbines often need to be coupled with diesel, natural gas, hydro, or other sources of power; or utilize a storage system such as batteries to allow energy to be stored and tapped for later use. Wind power also fluctuates which means more work for utility managers to balance the electric load to match demand and supply. Nearly all wind systems installed in Alaska are paired with diesel generators where they are being used to reduce the amount of diesel fuel used.

JOIN REAP: For as little as \$10 per year you can support the leading renewable energy coalition in Alaska, and help create a clean energy future for Alaska

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WIND PROJECT UPDATES

Kodiak



Three GE 1.5 MW turbines produce 9% of Kodiak's electricity.

Installed in July 2009, Kodiak Electric Association's wind turbines have saved the utility more than \$2.3 million in avoided diesel fuel costs in just under a year. The 388-foot tall turbines are the largest in the state. Total project cost was \$21.4 million.

Delta Junction



A Northwind 100 turbine and a 900 EWT turbine are in use in Delta Junction.

Alaska Environmental Power installed two turbines totalling 1 megawatt and is selling electricity to Golden Valley Electric Association. In 2010, the turbines have produced nearly 200,000 kilowatt-hours, the equivalent of offsetting about 14,000 gallons of diesel. The company hopes to expand to 25 megawatts next year.

Nome



Nome is using 18 Entegri Wind Systems' EW50 turbines.

Banner Wind LLC's 1.17-megawatt wind farm in Nome has produced almost 490,000 kilowatt-hours of electricity in 2010, offsetting more than 30,000 gallons of diesel fuel and saving more than \$120,000. Total project cost was \$5.5 million.

Unalakleet



Six Northwind 100 turbines are providing power in Unalakleet.

Unalakleet Village Electric Cooperative's six turbines came on line in November 2009, and have cut diesel fuel use by more than 41,000 gallons for a savings of more than \$100,000. Total project cost was \$5.35 million.

Chevak



Chevak's four new Northwind 100 turbines.

Alaska Village Electric Cooperative serves 53 villages in rural Alaska, and has adopted a goal to cut diesel fuel use 25% by 2020. The wind farm in Chevak came online in May 2010. The turbines are expected to produce up to 1 million kilowatt hours a year, enough to offset 74,000 gallons of diesel.

Projects underway*

| | | |
|------------|--------------|-------------|
| St. George | Noorvik | Pilot Point |
| Emmonak | Shaktoolik | Sand Point |
| Buckland | Tuntutuliak | Bethel |
| Deering | Kwigillingok | Tin City |

*Systems under construction or in the design phase



Renewable Energy Alaska Project (REAP) is a coalition of urban and rural Alaska electric utilities, businesses, conservation organizations, consumer groups, Alaska Native organizations, and municipal, state and federal entities that all share the goal of developing Alaska's vast renewable energy resources. For more information, visit www.REAlaska.org.