

Alaska's new frontier: Green power

Oil prices spur growing shift to renewable energy

BY STEFAN MILKOWSKI

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TOKSOOK BAY, Alaska -- Beyond the fishing boats, the snug homes and the tanks of diesel fuel marking this Eskimo village on the Bering Sea, three huge wind turbines tower over the tundra. Their blades spin slowly in a breeze cold enough to freeze skin.

One of the nation's harshest landscapes, it turns out, is becoming fertile ground for green power.

As interest in cleaning up power generation grows around the country, Alaska is fast becoming a testing ground for new technologies and an unlikely experiment in oil-state support for renewable energy. Alaskans are investing heavily in green power, not so much to reduce greenhouse emissions as to save cash.

In remote villages like this one, where diesel to power generators is shipped by barge and can cost more than \$5 a gallon in bulk, electricity from renewable sources such as wind is already competitive with power made from fossil fuels. In urban areas along the state's limited road system, large wind and hydroelectric projects are also becoming attractive.

Alaska produces more oil than any other state except Texas, but most of it leaves the state. Small markets and high transportation costs have kept local fuel prices high. As oil prices spiked last year, the state's coffers overflowed with oil-tax revenue, but the rising cost of diesel and other fuels became a local crisis.

Gov. Sarah Palin and state lawmakers responded by pledging last year to spend \$300 million over five years in grants to utilities, independent power producers or local governments to plan or build renewable energy projects. It is a substantial sum for a state with only 670,000 residents.

"Oil used to be cheap and convenient," said Steve Haagenson, who was appointed last year by Palin as statewide energy coordinator. "Today, it's just convenient."



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Residents of Toksook Bay, Alaska, get some of their electricity from new wind turbines.



Ben Charlie fills an oil tank for the Head Start building in Toksook Bay. It came to \$432 for 55 gallons.

Advocates of renewable energy here say Alaska, with its windy coasts, untapped rivers and huge tidal and wave resources, could quickly become a national leader. The state already generates 24 percent of its electricity from renewable sources -- almost exclusively hydroelectric -- and Palin last month announced a goal of 50 percent by 2025.

"Today's current low oil prices should not lull Alaskans into a false sense of security, as if these low prices are going to last," she said.

Environmentalists concerned about the impacts of climate change, already widely apparent in Alaska, have strongly backed the state investments in renewable energy. But the driving force among politicians was economic.

In many rural areas of the state, fuel costs have resulted in electricity prices of 75 cents or more per kilowatt-hour, five to 10 times the prices common in the Lower 48. Despite high installation costs and the need for cold-weather engineering, wind turbines can often produce power at a lower cost than diesel generators.

The Kotzebue Electric Association in northwest Alaska first demonstrated the value of utility-scale wind power in Alaska in 1997. Since then, nine other rural communities have added turbines, and dozens more are pursuing projects.

A state review completed in 2008 found that wind power was technically and most likely economically feasible in more than 100 Alaska villages, according to Martina Dabo, who oversees wind power programs at the Alaska Energy Authority, a public corporation whose mission is to reduce the cost of energy.

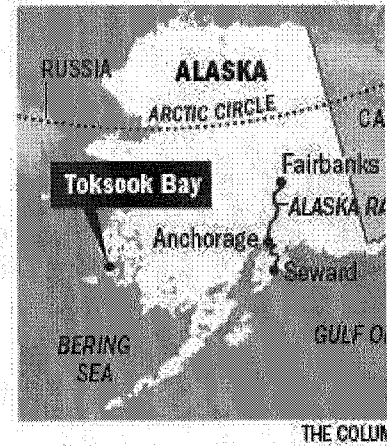
Northern Power Systems, a small turbine manufacturer in Barre, Vt., has capitalized on Alaska's interest in wind. The company initially designed its 100-kilowatt turbine for operation at the South Pole. "We said, 'Hey, there's a market in Alaska -- let's go after it,'" said Brett Pingree, the company's vice president for sales.

Northern Power now has turbines in eight Alaska villages, including Toksook Bay, and is working to develop projects in 45 others.

Renewable energy is also becoming attractive along the Railbelt, the area along the Alaska Railroad from Seward to Fairbanks where most of the state's residents live. While electric prices are lower than in the remote villages, renewable power would help guard against price spikes. A wind farm is under development for an island near Anchorage, and other projects are being studied, including two dams that could meet the entire Railbelt demand.

Although remote locations and limited demand hamper their development, Alaska's renewable resources are vast and diverse compared with those of other states. According to Roger Bedard of the Electric Power Research Institute, Alaska has more than half the country's ocean wave energy resources and more than 90 percent of its river current and tidal resources.

In Toksook Bay, residents credit the wind turbines with keeping electric bills from rising as fast as the price of oil.



"I think the turbines are very, very helpful," said Alexie Jimmie, who owns Bayview, one of the two stores in Toksook Bay. "Otherwise, we probably would pay way more than what we are paying."

Officials with the Alaska Village Electric Cooperative, which serves Toksook Bay and 52 other communities, estimate the turbines in Toksook Bay will pay for themselves through fuel savings in about 17 years, and will last 20 to 25 years.

The Chena Hot Springs Resort near Fairbanks is testing geothermal technologies, and villages along the Yukon River are experimenting with using river current to make power.

The plunge in oil prices has caused some lawmakers to question the state's investments in renewable energy, but Palin and others argue it is critical to push ahead. The Alaska Energy Authority released a hefty report last month assessing the feasibility of alternative energy projects in every rural community in the state. The authority also recommended grants for 72 renewable energy projects around the state.

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