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CLEAN ENERGY AT WORK IN ST. GEORGE, ALASKA

City turns to distributed generation in its plan to boost industry and job creation

By Patrick Pletnikoff



Like many rural communities in Alaska, St. George struggles with sustainability. St. George is located on the northeast shore of St. George Island, the southernmost of the four Pribilof Islands, 750 miles west of Anchorage.

Although we are surrounded by a resource that feeds the world, we strug-

gle to maintain jobs for our residents. The lack of components necessary to develop and maintain a sustainable local industry to provide those jobs is a reality that St. George has been actively addressing for generations.

St. George is located in the middle of the most productive seafood harvest-

ing grounds in the world. Millions of dollars are generated by the seafood industry which operates in waters used by residents for thousands of years. The volumes of seafood extracted off the shores of our community are shipped around the world. The residents would like to better participate



in that industry. The city of St. George is working to facilitate participation, but lacks essential infrastructure.

What does industry need? We know industry needs reliable transportation, a labor force, access to resource materials and low cost energy. St. George, along with many remote communities, has a higher cost of doing business; for example, fuel costs are astronomical.

To help resolve the energy issues on St. George, the Alaska Energy Authority (AEA) created a long-term plan in partnership with our community to address the needs on the island. This included both wind generation and upgrading the diesel generators to become more efficient.

I am pleased to report that the new diesel generators that were installed last fall as part of this project included a heat recovery system that completely heats the St. George school, city offices, and the public safety building. The city and school have little to no need to even turn on their boilers because the heat recovery system is so efficient. The design and implementation by AEA could become a model for all rural villages looking to combat the ever-rising energy costs. The efficiency of the system is monitored using the latest technology available. AEA set the system up with an Internet based load control system. The trained and certified technicians based in Anchorage monitor and adjust the

load required by the generators 24/7. They turn down the generators to nearly idle when the need is low, and increase output when the need increases throughout the day. This ability to monitor the load maximizes fuel efficiency, which lowers the overall cost of fuel consumed.

Alaska has quickly become a global leader in remote wind diesel systems. The Aleutian and Pribilof Islands are home to the strongest, highest quality and consistent wind regimes in the country. The AEA measured winds with maximum entropy principle (MEP) towers for four years to get solid reliable data prior to embarking on the turbine project. The scale used to determine the viability of wind power generation is measured on a scale of one to seven; St. George scored a seven. This month the completion of controllers and communications software will allow a 95 Kw refurbished Windmatic turbine to be integrated into the existing power grid, providing more than half of the community's electricity needs and significantly reducing the current \$1/Kwh residential rate. The diesel power system was designed in conjunction with the Rural Power System Upgrade (RPSU) division of AEA.

Reliable low-cost energy is essential for St. George and other rural communities throughout our state. We applaud AEA's vision and commitment to making significant clean and economical improvements to the electrical infrastructure on our island. I would be remiss if I failed to mention the outstanding professionalism and passion of three AEA staff members in particular who truly went above and beyond to make this critical project happen — Sara Fisher-Goad, Sandra Moller and the project manager, Tim Sandstrom. Our strong and productive partnership with AEA produced great energy improvements that will make St. George more competitive in the regional fishery economy and help to stabilize our community. ✎

FORD BRINGS CLEAN ENERGY TO DEALERS THROUGH PILOT PROGRAM



Ford Motor Company is collaborating with Wind Energy Corporation to bring a new and innovative source of clean energy to its dealers. Under a pilot program exclusive to Ford, Wind Energy will install wind sail and solar panel systems at four Ford dealerships, a nearly \$750,000 investment, to help power dealer facilities.

Each Windy System includes highly efficient wind sail technology that harvests wind energy and an integrated 7-kilowatt solar array. Ford dealers will use the electricity to power their buildings, electric vehicle charging stations and lot lighting. The wind sails will be emblazoned with the Ford blue oval logo and the name of the dealership – serving as a bold statement by Ford and its dealers’ to their commitment to sustainability.

A Windy System is expected to deliver 20,000 kilowatts of electricity

annually. That is enough energy to power two average-sized homes for a year or charge a Ford Focus Electric 870 times, Fusion Energi 2,600 times and C-MAX Energi 2,600 times. Using one Windy System will offset nearly 14 tons of greenhouse gases per year.

“We are pleased to be working with Wind Energy Corporation to offer a pioneering, clean energy option to Ford dealers,” said John Felice, vice president, U.S. Marketing, Sales and Service for Ford. “This is yet another innovative tool to help Ford and its dealers address a global sustainability challenge.”

Participating dealers are electric vehicle-certified and were selected by Ford and Wind Energy Corporation for both their exceptional commitment to clean energy and their wind and solar-efficient locations. Installations of the systems are set to begin in early 2015 and be

completed by spring. Once installed, the dealerships will keep the systems permanently.

Participating dealers include: Dana Ford Lincoln, in Staten Island, New York; Tom Holzer Ford, in Farmington Hills, Michigan; The Ford Store, in Morgan Hill, California, and Fiesta Ford, in Indio, California.

“The Windy System was created in concert with world-class partners and we are thrilled to bring this innovative renewable energy solution to Ford and its dealers, including our beta site at Boggus Ford in Harlingen, Texas,” said Jim Fugitte, CEO.

“What sets the Windy System apart is its combination of wind, solar, and market impact. It is a branded beacon of sustainability that delivers both energy and a point of view,” said Jack Phillips, COO of Wind Energy.

— Source: Wind Energy Corporation

NORTHERN POWER SYSTEMS SUPPLIES WIND COMPONENTS FOR ADVANCED HYBRID ENERGY TECHNOLOGY PROJECT IN ASIA

100kW turbines and microgrid expertise to help power South Korean island

Northern Power Systems has commissioned four of its NPS 100 wind turbines in South Korea's newest and most advanced hybrid energy project, while working in close collaboration with the national grid operator Korean Electric Power Corporation (KEPCO), to ensure effective delivery of this hybrid microgrid.

The 100kW turbines are the largest component of energy generation in what's known as a "high-penetration" wind-diesel hybrid system with solar and storage. Power is now delivered to remote island residents with an integrated, reliable wind/solar/storage supply for as low as \$.25 per kWh, representing substantial savings over the previous diesel-only energy solution.

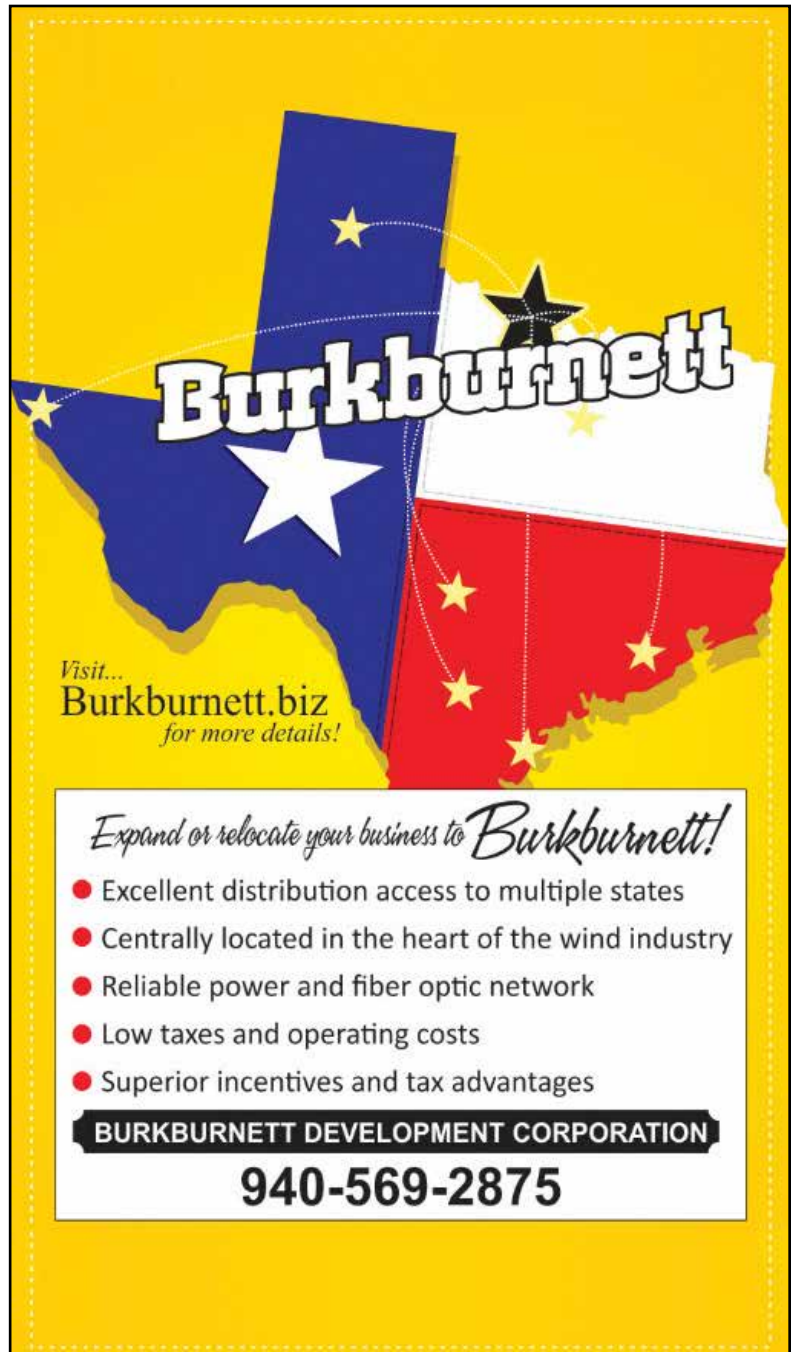
The NPS 100-21 was chosen due to its superior energy production, its compatibility with multiple generation technologies, a proven history of operating in hybrid microgrids, and its ability to withstand typhoons that regularly affect the region. The distributed wind turbines were supplied and installed in cooperation with Haebaram Energy.

The installation also features a KEPCO developed Energy Management System (EMS), 314 kW array of solar photovoltaic (PV) panels and a 3 MWh Hyosung battery storage facility. The site provides enough power to supply more than 160 homes, a water treatment plant, a lighthouse and radar station on the island.

The project is the cornerstone of an initiative to transform the islands around the Korean peninsula into renewable power communities, no longer dependent

on fossil fuel and government subsidies. The microgrid and full inverter were designed by

KEPCO which plans to install similar systems on additional local islands.



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Courtesy of Northern Power Systems

Northern Power Systems is now offering throughout Asia both its next generation distributed wind turbine, featuring state-of-the-art blade technology and a variety of hub heights, as well as proven capabilities to effectively deliver reliable power generation in a variety of environmental conditions.

Troy Patton, CEO and President of Northern Power Systems, said, “We are excited to be bringing our solutions to Asian markets. We have been helping to deliver stable energy solutions to hybrid microgrids for over 10 years in North America. During this time we have proven that we can provide a significantly lower cost of energy that leverages local natural resources.”

UK'S BEST-SELLING 100kW TURBINE NOW BACKED BY 10-YEAR PERFORMANCE GUARANTEE

Northern Power Systems has announced its new wind turbines will be backed by its 10-Year Performance Guarantee Programme (PGP) in the United Kingdom.

The PGP will protect owners of the NPS 100, Britain's best-selling 100 kW wind turbine, by ensuring 95 percent availability and 95 percent performance to power curve over 10 years. This is double the time of the current standard 5-year warranty available from most manufacturers in the British market.

The annual cost for the 10-Year PGP to the customer will be directly linked to annual power production and charged per kWh produced.

Under the program, both the owner and Northern Power Systems will benefit from turbines meeting and exceeding expected performance.

During the program NPS will be the sole service provider. Knowing that the wind turbine will pro-

duce maximum energy and return on investment, while offering the lowest total cost of ownership for the turbine's 20-plus year life, provides peace of mind for the turbine owner.

Reinout Oussoren, Vice President Global Sales at Northern Power Systems commented “This type of performance guarantee programme is normally only seen with utility scale projects and is the first of its kind offered for wind turbines up to 100kW in Britain.”

Graham Hygate Managing Director at developer Fine Energy commented “Northern Power Systems' 10-Year Performance Guarantee brings further financial stability for investors in wind energy. By providing long term backing, we expect it to create opportunities for growth in the small wind market.”

For more information, visit the company's website at www.northernpower.com.

ENDURANCE WIND POWER UNVEILS AN ADVANCED NEW DESIGN

New turbine model boasts 35 percent higher generation than predecessor

Endurance Wind Power recently launched its new 85kW E4660 wind turbine at RenewableUK's 36th Annual Conference in Manchester.

This new turbine generates 35 percent more electricity than the original model, which means

a lower cost of energy and an excellent return on investment (ROI) even at modest wind sites, effectively turning back the clock on the UK Feed in Tariffs to 2012 levels.

The 35 percent jump in productivity more than compensates for

the 30 percent Feed in Tariff (FiT) depression that has taken place over the last 18 months, giving installers a second chance at achieving the FiT revenues of 2012.

Dave Rankin, UK Managing Director of Endurance Wind Power, said: “The purpose of UK's Feed

in Tariff scheme is to make wind more affordable and that is what this machine does. Endurance has created an even more efficient machine that shows DECC's Feed-in Tariff scheme continues to work."

Brett Pingree, Commercial Vice President at Endurance Wind Power, said: "You don't get a lot of second chances, but if you didn't invest in wind this year, or you missed out on the FIT revenues of 2012, this new machine is one of those rare second chances."

The biggest selling wind turbine in the UK is the Endurance E Series: more than 600 have been installed by farmers, landowners, small businesses and community groups. The new E4660 is a powerful advancement of the UK's leading small wind machine.

The higher output and larger swept area deliver a lower 'levelized cost of energy' (LCOE), making wind work in more places by opening up sites with lower wind speed sites where the business case for installation previously didn't make commercial sense.

The capability of the E4660 to generate a strong ROI from lower wind speeds allows many more farmers and local communities up and down the country to 'farm wind' from single turbines.

The E4660 has undergone extensive design verification testing at the Endurance Wind Turbine test facility, a location that features powerful nightly winds and provides an ideal range of wind conditions to validate turbine performance.

Dr. Daryl Musselman, P.Eng., Vice President of Engineering at Endurance, said "the goal of this new product development effort was to maximise the customer benefit by optimising the efficiency of the design, while retaining all of the essential elements that our customers recognise and appreciate in the smaller E3120 model. The E4660 is the product of a global engineering effort and incorporates lessons learned from over 14 million fleet hours of operation in the UK and around the world. I am very proud of what our teams have achieved in the design of this new turbine."

Louisa Coursey, Small & Medium Wind Development Manager at RenewableUK, said: "Small and medium wind turbines are already powering many UK homes, farms and businesses, and are a crucial strategic consideration for UK policy makers looking to support the shift from the Big 6 to the Big 60,000."

The E3120 will continue to be available in the UK and in Endurance's other markets including Italy, Canada, and the United States. ↴



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