



Renewable, reliable and affordable energy for Alaskans

Over 30 miles north of the Arctic Circle in a remote and isolated corner of NW Alaska, the native village of Kotzebue is home to over 3,200 people. The village gets their electricity from Kotzebue Electric Association (KEA). Their primary source of electrical generation is from numerous large diesel generators: 94% of all electricity in rural Alaska comes from diesel generators with 180 micro grids serving well over 100,000 people.

In April of 2012 EWT and KEA commissioned and brought online two DW54-900kW turbines, both with 54m rotors installed on 75m towers designed with high strength steel and special alloys for arctic climates. EWT's cold weather package, black blades, ice detection and heating systems used in Kotzebue's turbines are specifically designed to optimize performance, reliability, and to extend the operating life under arctic conditions. Despite challenging logistics in getting machinery and equipment to site, unique foundation requirements on frozen tundra, crane limitations and harsh weather, the two turbines were successfully installed and fully integrated into KEA generation and distribution system. The two DW54-900kW are now providing 20% of energy demand, and are saving over 280,000 gallons of diesel fuel per year. As the cost of fuel continues to rise, every kWh generated by wind becomes more and more valuable.



EWT Wind Diesel Case Study

Diesel generators are used to generate electricity in every corner of the globe: from remote villages, to islands and isolated communities in the arctic. Although diesel engines can be reliable, effective, and well suited for the application of generating electricity, the costs of energy are relatively high and the diesel engines are also the source of polluting emissions, potential ground and water contamination, and soot. Recently most of these communities, utilities and electric cooperative did not know of the potential benefits of integrating wind energy into their diesel power plant.

With the advancement of both wind energy technology as well as grid control system, improved integration and operations, lower cost of ownership, advanced monitoring capabilities and support services, wind energy is now a proven and cost effective solution for integration into diesel power plants.

Benefits to owner operators:

- Increased profitability through fuel and maintenance savings as well as lower lifetime cost of energy generation from the wind
- Increased fuel security and cost stability, lower the vulnerability to rising fuel cost and availability
- Reduced need for diesel fuel storage capacity
- Lower maintenance and repair costs of diesel generators due to less run-time
- Increased power quality through active power compensation and KVAR support
- Potential added value from the environmental attributes of generating green energy and the reduction of greenhouse gas emissions and particulate matter
- Introducing clean technology into the community

Working with EWT

EWT uses state of the art direct-drive technology: less complexity, decreasing cost of maintenance and minimising expensive replacement costs. As all people who live in remote and isolated locations know, the relative cost of goods and services are much greater than elsewhere.

The *DIRECTWIND* 900kW uses a full back-to-back power converter allowing for optimal integration and operation. Grid instability and poor power quality (common in diesel micro-grids) can now use the DW 900kW's many programmable functions.

EWT also provides technology solutions for arctic applications. Using special cold-weather alloys and internal heating systems the DW 900kW can reliably and efficiently operate in temperatures as low as -40°C. Optional black blades can help to reduce ice build-up and increase operational availability.

System monitoring is one of the best ways to assure both performance and reliability. By exceeding industry standards the *DIRECTWIND* Management System can not only allow EWT technicians to monitor the system 24/7 remotely, but also use its advanced functionality to optimize performance and increase the operating life of the wind turbine.

EWT specializes in distributed wind applications and has years of experience providing sales and technical support, project management and logistics, engineering, installation, and in-house service and maintenance. EWT is committed in to the successful lifetime operation of our systems, and projects even in remote and challenging locations like Kotzebue, AK.



EWT B.V.

Lindeboomseweg 51
3825 AL Amersfoort
The Netherlands
T +31 (0)33 454 05 20
F +31 (0)33 456 30 92
sales@ewtdirectwind.com
www.ewtdirectwind.com