

# Digitalization enables cross-continental remote monitoring of wind park operation



Finland and North America are nearly 6,000 kilometers apart. But that distance is no obstacle thanks to digitalization that enables ABB's Global Low Voltage Wind Center of Excellence in Helsinki to monitor the operation of a remote wind park in Northern America.

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01 The Wind Center of Excellence personnel monitor converter performance from a remote support center.

The wind park has 46 wind turbines with a total capacity of 150 megawatts. That is enough electricity to power around 30,000 households. ABB has provided the wind turbine manufacturer with a single source of supply for generators and converters fully tested to work together for optimum performance and reliability.

## Secure remote access

All the wind turbines are equipped with ABB's air-cooled wind generators driven by liquid-cooled low voltage wind turbine converters. These converters are connected to the Wind Center of Excellence by NETA-21 remote monitoring adapters that work round the clock to automatically collect critical status data on the operation of the converter and generator. The NETA-21 devices are interconnected into the wind farm's Ethernet network that communicates with ABB via a secure remote connection.

The cooling of the ACS880-87LC converters is notable as high-efficiency liquid cooling has removed the need for air-conditioning, helping to reduce installation and operational costs. The converters also feature direct torque control (DTC) that ensures fast and accurate generator control and grid compliance.

## Expert supervision and service support

The Wind Center of Excellence has had a significant role in supervising and supporting the implementation of the wind park since it started operating in 2016.

The Center's personnel, consisting of experience field engineers and engineering specialists, can monitor converter and generation performance data including availability, condition, operating parameters and fault events. They can carry out the necessary software updates, predict component failures and identify converters that are not functioning as intended.



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02 All of the wind park's turbines are equipped with ABB's air-cooled wind generators and liquid-cooled low voltage wind turbine converters, ACS880-87LCs.

03 The wind converters are connected to the Wind Center of Excellence through remote monitoring tool adapters, NETA-21s..

04 Status of a wind park as seen from the surveillance system located in Helsinki at ABB's Global Low Voltage Wind Converter Center of Excellence.



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With remote monitoring, ABB experts are able to be 'on site' virtually to supervise all of the wind park's converters.

Sometimes, extreme weather conditions make site visits difficult or even impossible. But with the remote monitoring system, it does not matter whether there is heavy snowfall or thunderstorms, the wind turbines are still monitored round the clock. Should there be any breakdown or failure of a converter or generator, remote monitoring means that the ABB team can see the fault and order the necessary parts before a service team is dispatched. This saves a round-trip to the site and reduces downtime. And when technicians are on site they can communicate directly with experts in Helsinki to help them in solving problems.

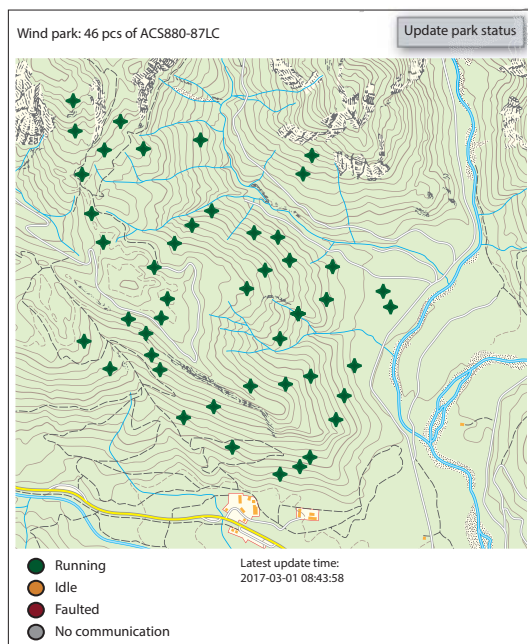
ABB's remote monitoring service does not represent a competitive offering to the existing remote connections provided by operators / turbine manufacturers. Rather, it is intended to provide extended support for these services when needed.

**For more information about ABB wind turbine converters and generators, please visit**

<http://new.abb.com/power-converters-inverters/wind-turbines>

<http://new.abb.com/motors-generators/generators/generators-for-wind-turbines>

The user interface of the monitoring system is designed to be visual by using drawings, charts and graphs. This enables the monitoring staff to easily get a full overview of the situation at the wind park.



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### Support in all conditions, all the time

The wind park is in a remote location, about 200 km from the nearest major population center. That means site visits for regular check-ups, service and maintenance work are time-consuming and costly.