



RESEARCH TRIANGLE
CLEANTECH CLUSTER™

» Transformation Through Collaboration



MEMBER STORIES OF IMPACT



CHALLENGE

LOWER COST INTEGRATION

Large scale wind power projects are integrated into the electric grid in two ways. In addition to the obvious electrical connection, another critical component is the communications integration that allows wind turbines and switchgear to be controlled and monitored by grid operators. Modern wind systems can exceed the complexity of a power plant with thousands of pieces of data to monitor the performance and health of turbines. Real-time data from the turbines must be sent to utility control centers for monitoring and control of these valuable assets in order to optimize performance and plan maintenance.



Senvion GmbH needed to create a standardized solution that could be used across multiple wind projects around the world. At the request of their customers, the solution would be based on international standards to reduce the cost of integration and maintenance with highly interoperable communications. Senvion’s goal was to avoid custom solutions, which were different for each project.



SOLUTION

LEVERAGING INTERNATIONAL STANDARDS

Since 2013, Senvion has collaborated with Triangle MicroWorks to create a standardized protocol gateway solution which can be deployed across various projects. Triangle Microworks solution leverages the SCADA Data Gateway which communicates with Senvion wind turbines using IEC 61850 / IEC 61400-25, an industry standard for remote monitoring and control of wind turbines. A solution based on industry standards helps Senvion deliver a more reliable and maintainable system for utilities in a more cost-effective way. This new gateway solution allows equipment to communicate with the wind turbines by translating legacy communications (like OPC DA, DNP3, IEC 60870-5, and ICCP/TASE.2).

Communications for large-scale wind projects typically require a lot of time and effort from system integrators. However, the Triangle Microworks gateway solution can be adapted to new Senvion projects in less time with fewer complications. There is also flexibility to integrate SCADA systems in different parts of the world using multiple communication protocols. “This has been the best integrated gateway for Senvion IEC 61400-25 interfaces. It is powerful, reliable, and has short lead times for fixes and adaptations,” says Senvion’s Fred Assmann.

Senvion’s first deployment was at Bald Hills wind farm in Australia with 52 wind turbines, a total capacity of 106 MW, and over 6,000 monitored data points. Senvion and its partners have deployed the solution at other sites around the world.

IMPACT

RENEWABLE AND RELIABLE FUTURE

Triangle MicroWorks, along with its customers, have proven over the last 20 years that standardized communication solutions are more reliable and reduce operating costs. Communication standards allow electric utilities to integrate equipment from multiple vendors to create the best solutions for a more reliable grid. The Senvion project is a great example of how adopting standards provides a strategic advantage for manufacturers because their utility customers prefer interoperable solutions. The net environmental impact is positive because grid operators have the necessary diagnostics and control to manage potentially intermittent renewable sources. Future renewable energy projects that are larger scale and even more complex will benefit by using the same standards-based approach that was so successful for Triangle MicroWorks and Senvion.

WHO WE ARE

ABOUT RTCC

The Research Triangle Cleantech Cluster (RTCC) is an initiative of business, government, academic and nonprofit leaders focused on accelerating the growth of the Research Triangle Region's cleantech economy.

We promote collaboration and partnership which drives innovation and sector growth and creates competitive advantage for both companies and the region by concentrating resources on a single vision and plan to advance company growth and attract cleantech investment.

RTCC works to ensure the region is recognized for its leadership in research, innovation and growth in the clean technology sector by leading a global marketing program, promoting cleantech business growth, and by engaging and convening cluster companies and partners.

Learn More

Find more information about Triangle MicroWorks gateway solution at:

TriangleMicroWorks.com/wind

ABOUT Triangle MicroWorks

For over 20 years, Triangle MicroWorks (TMW) has provided leading solutions for standards-based communication protocols used in the electric utility industry. TMW provides solutions to engineers and software developers to implement communications for embedded devices, SCADA systems, and substations. In addition, TMW offers software tools for testing and simulating communications for power systems.

Triangle MicroWorks is located in Raleigh, North Carolina and supports customers in over 60 countries around the world.

Triangle MicroWorks joined the Research Triangle Cleantech Cluster to collaborate with innovative cleantech companies in North Carolina and to help promote the positive impact they have around the world.