



CUSTOMER CASE STUDY

Going green with AVEVA™ PI System™

Entega - www.entega.de

Industry - Power generation, renewables, biogas, PV, wind

Goals

- Increase green energy generation capacity
- Collect, integrate, and analyze data within the existing business intelligence system

Challenges

- A wide array of asset types, OEMs, and monitoring systems made creating reports for analysis inefficient and time-consuming

Results

- Gained the ability to collect, analyze, archive, and export information using just one integrated solution
- Optimized overall plant and individual asset performance

Solution

- AVEVA PI System

Headquartered in Darmstadt, just south of Frankfurt, ENTEGA powers the homes of over 600,000 customers, making it one of Germany's largest suppliers of public services. Its sales subsidiary is one of the biggest regional suppliers of carbon-neutral energy and, so far, the company has invested €850M in renewable energy. ENTEGA has a myriad of renewable plants, all with different assets, including 11 wind parks, three solar parks, two biogas plants, and 130 PV plants. By 2020, it plans to generate 1.1Bn kWh per year in green energy. With such lofty goals, the company opted to deploy AVEVA PI System to collect the right data and insights across disparate data sources in order to keep all equipment operating at maximum efficiency.

Disparate data sources across plants and manufacturers

Previously, ENTEGA monitored its conventional power plants by collecting and downloading raw data using various SCADA systems, and that data was ultimately analyzed using Microsoft Excel files. However, it was nearly impossible for ENTEGA to apply the same methods to its renewable energy equipment. Each type of plant had a wide array of equipment, including wind, PV, biogas, and gas turbines, all of which were often from different manufacturers and required different techniques to monitor assets.

“Our portfolio consists of many different manufacturers who operate different systems to monitor assets,” said Zijad Lemeš, Department Head of Plant Management. “We collect the raw data from several different systems, so when we try to create reports to analyze that data and any of the behavior of the power plants, it’s very inefficient and time consuming.” To optimize plant performance, ENTEGA needed to find a new way to collect and integrate data so the team could analyze it within the existing business intelligence system.

A centralized data acquisition system

In 2015, ENTEGA chose AVEVA PI System to establish a single source of truth and manage its real-time and historical data at all of its renewable energy plants, regardless of manufacturer. “We needed a powerful database, which is possible with AVEVA PI System,” said Lemeš. “The system allows us to store large amounts of data at different temporal resolutions, which is very important for future analysis.”

ENTEKA installed PI Interfaces at each site and mapped site data to a centralized AVEVA PI Server. AVEVA PI System was linked directly to Cogent, which is the site monitoring and control tool that allows ENTEKA to see online values, KPIs, historical data, and forecast information. Now, with the flow of real-time data from AVEVA PI System, ENTEKA has all power plant operational data in one dashboard view, allowing the team to easily understand and optimize plant and individual asset performance.

Wind turbine visibility in one simple view

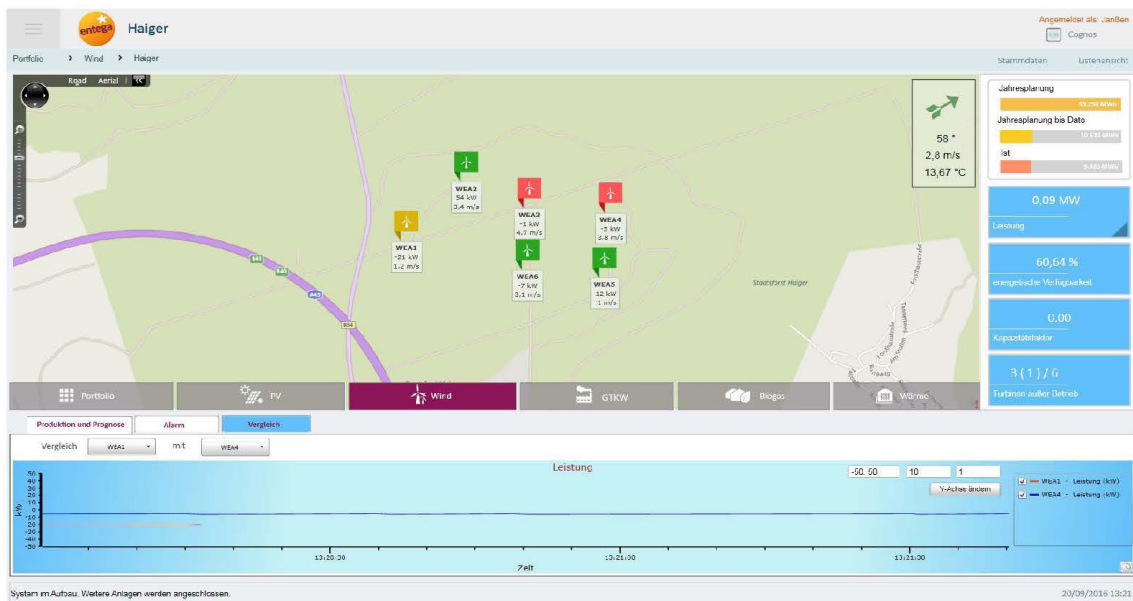
For ENTEKA’s wind farms, weather and turbine availability are paramount to producing clean energy. Within that dashboard, ENTEKA now has access to forecast, energy availability, and energy capacity for every wind turbine within its wind farms. Turbines are shown in red, yellow, and green, which serves as a quick indicator of the health and functionality of each asset. An alarm indicates any status change, such as equipment failure. By quickly drilling down into each turbine, ENTEKA can compare theoretical power versus actual power to determine if assets are operating at optimal levels.

“A holistic and integrated solution has the advantage of allowing us to collect data from different technologies and different manufacturers, allowing us to analyze, archive and export information to other applications using only one tool.”

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Zijad Lemeš
Head of Department, Plant Management

System set-up and architecture

Dashboard – Wind Level



All systems go: With the help of data streaming from AVEVA PI System, ENTEGA now has a bird's eye view of wind turbine status, functionality, and capacity.

Meeting individual needs with AVEVA PI System

For the first time, ENTEGA has brought technical and commercial data together into one integrated solution to capture every site's varying array of assets. "When we built the technical connections between the sites and AVEVA PI System, there wasn't much copy and paste," said Lemeš.

"Every site is unique; every player is unique, and they all have different needs to be satisfied." With the flexibility of AVEVA PI System, ENTEGA was able to accommodate the unique needs of each plant with one centralized solution.