

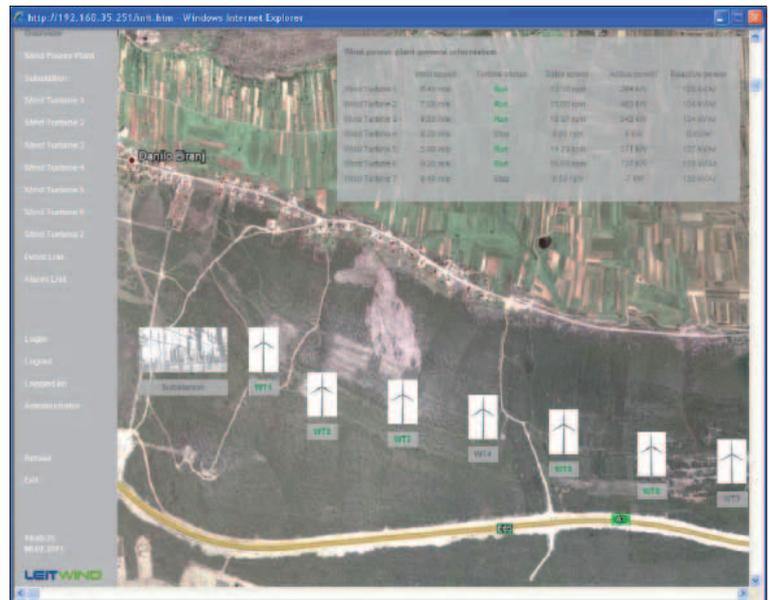


Control wind parks effectively

Together with zenon, wind power provides clean energy

Over the Mediterranean Sea, on the hills of the Croatian Crno Brdo, the seven wind turbines catch the breezes from and to sea, transforming them into clean energy. Erecting wind turbines in remote areas is a challenge in itself. To connect them with the utility substations and feed the generated energy into the public power grid requires further know-how. The South Tyrolean specialists of the Leitwind company have achieved an interesting project using zenon as their control system.

■ A wind power station was installed in Crno Brdo consisting of several wind turbines within one park. Leitwind AG already had international experience of wind parks in Europe, Asia and North America. They undertook the task of completing the Crno Brdo wind park. Paul Thaler, responsible for software at Leitwind, sees the continuing challenge that erecting wind parks pose: "How will the wind park be connected to the power grid - and how can the equipment control be harmonized with the utility substations?" As Leitwind erects wind parks in various countries the requirements are generally very heterogeneous. The company therefore searched for a SCADA manufacturer with experience in utility



Overview of the wind park with geographical allocation.

substations. Using COPA-DATA and the control system zenon it was possible for Leitwind to fulfill various specifications consistently and with manageable efforts. The wind park in Croatia was implemented by Robert Strauss, Control Technician at Leitwind. "The project in Croatia is a park with seven LTW77 turbines, each of which produces 1.5 MW, resulting in a total supply of 10.5 MW. A Simatic S7-300 has been implemented into the system control. A Beckhoff CXC20 has been deployed for primary control. We have chosen zenon for the visualization." An interface which conformed to the IEC 61850 or the 61400-25 was of particular importance for the implementation of the project. As there was a short timeline for the project, implementation had to occur quickly. The control system needed to support remote access to the visualization so that maintenance tasks could be completed remotely.

COMMUNICATION COUNTS

The Leitwind AG wind park management system offers flexibility in the management of numerous wind power stations. So, the operator, for example, can start or stop all equipment simultaneously, remove one part from operation, or start them in parallel at the press of a button. Another important function is to provide current data on production and availability. Furthermore, active power regulation and reactive power is necessary. All this should be readily available, not only on site but also remotely. Therefore, the network operator can take regulatory action at

larger wind parks and, for example, be able to reduce output or generate reactive power in the case of network instability.

The wind park management system must be able to communicate with various energy protocols, especially IEC 61850, DNP3 and in the future also IEC 61400-25. The decision about which protocol is actually used is often made very late in the project development process. Just as with the connection to a higher level control station or to the energy supplier. Robert Strauss: "One of the most important reasons why we chose zenon and COPA-DATA was their sound knowledge and experience of utility substations. We could always fall back on this expert knowledge without having to read every protocol in detail." With zenon, Leitwind could just access the supplied communication protocols and switch or edit them as required. It was therefore no problem that the customer specifications were such that the wind park should first be controlled via IEC 61850, resulting in the data not being available on time. Leitwind was able to make a smooth switch over to a connection via a Modbus protocol.

FLEXIBLE ENGINEERING

The possibility of quickly supplementing zenon projects with variants and being able to immediately react to changing requirements, eases project working. So does the modular structure of the control system. Only those parts which are actually used are licensed, every time. Therefore, for important remote

