

Use of IEC 61400-25 within Vattenfall wind power

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USE61400-25

Background and overview of O&M trends

Trends

- Utilities and IPPs - from 30 % to 40 % of installations 2006.
- Power companies use O&M experience from other areas.
- Vendors know strengths and weaknesses of their products.
- Combination of manufacturers knowledge of technology and customers knowledge of O&M beneficial to all parties.

Prerequisite for efficient and effective O&M

- Access to online and historical wind turbine data.

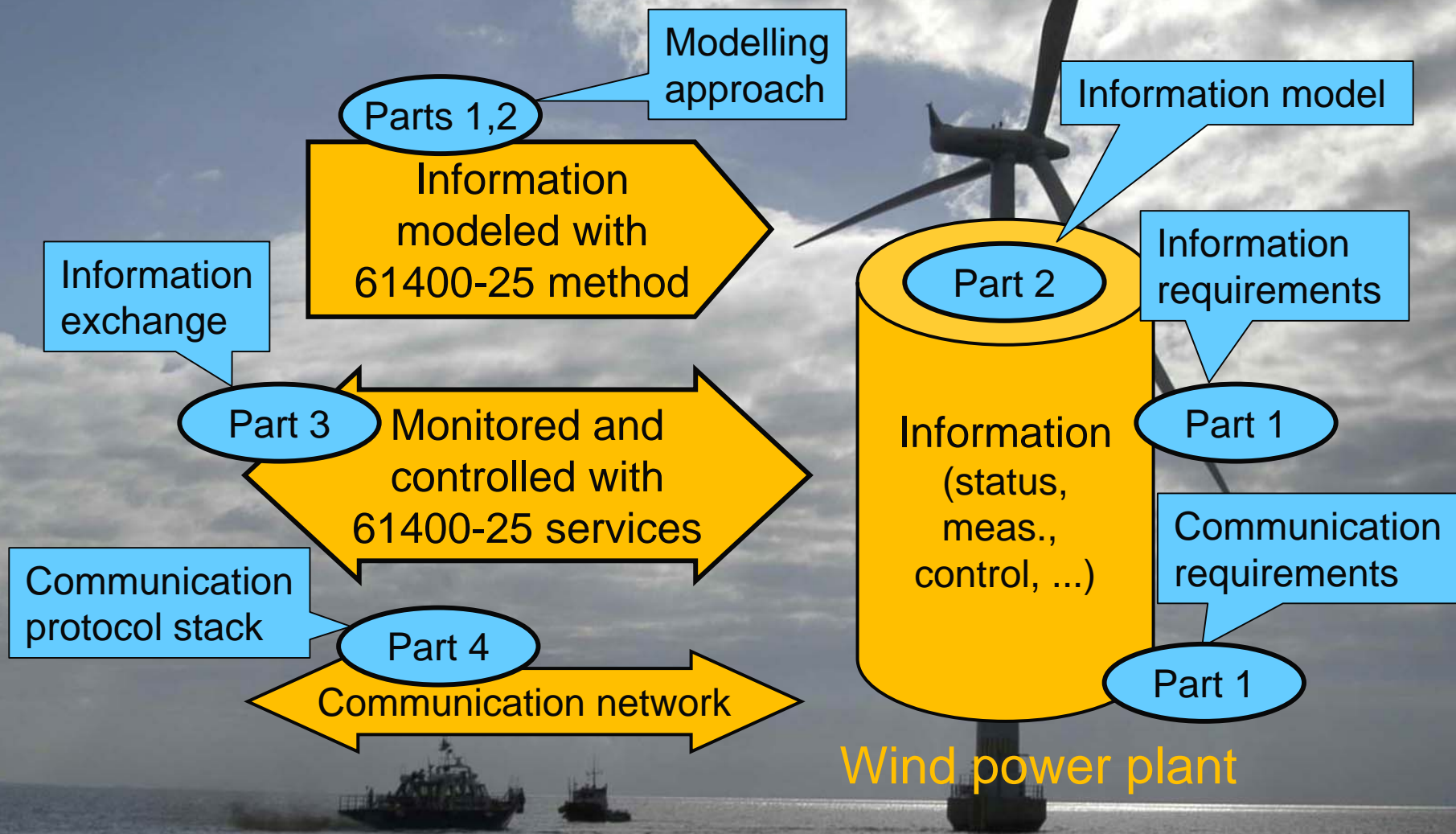
IEC 61400-25 WIND TURBINES Communications for Monitoring and Control of Wind Power Plants

Vattenfall has been involved in the development of the IEC61400-25 standard from the very beginning.

The fact that more than 10 countries have been involved in the work shows the importance of the standard.

With the publication of the IEC61400-25 series of standards there is now a complete solution to the earlier problems to get easy access to relevant data.

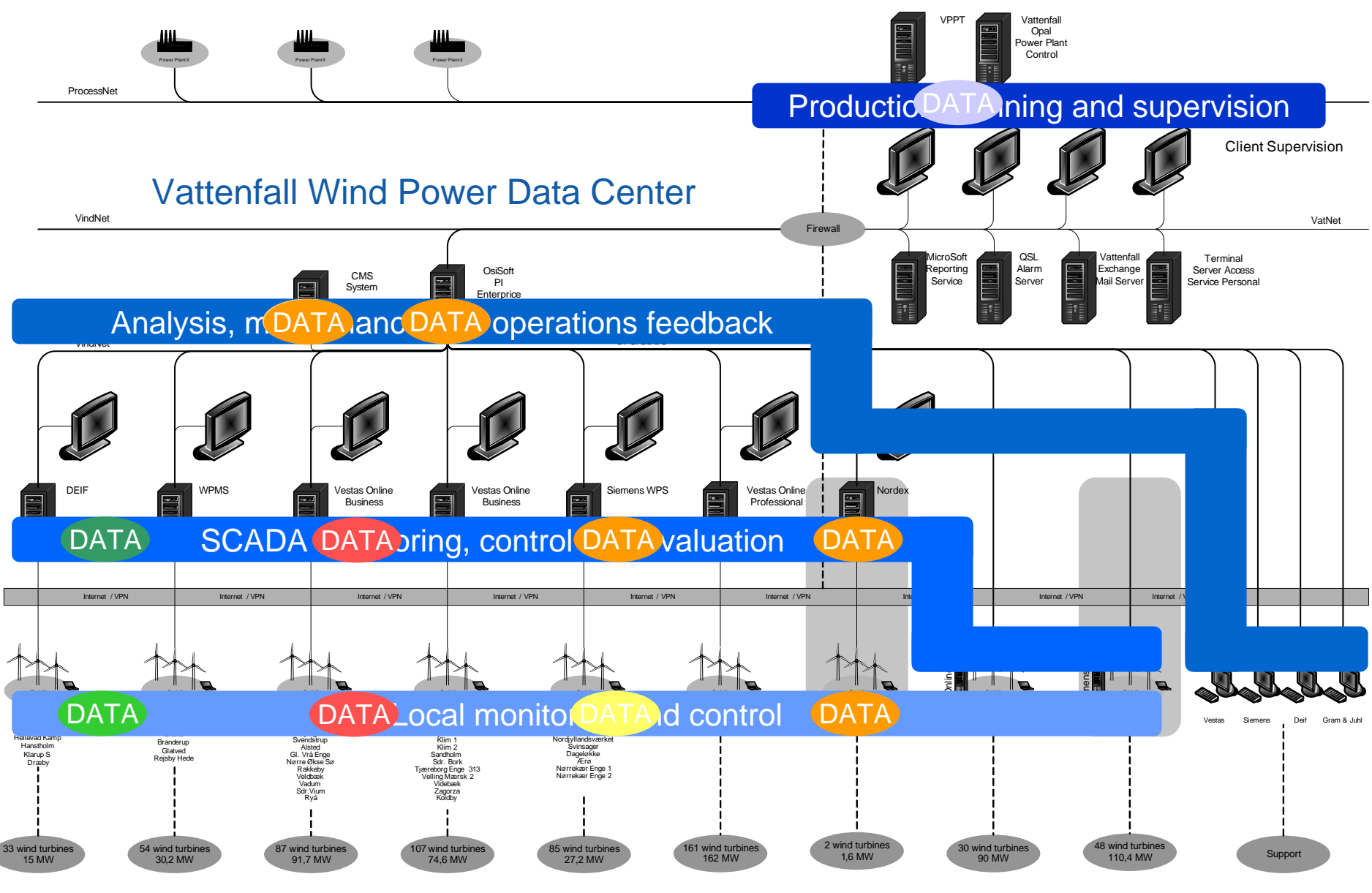
61400-25 Overview



Benefits of the IEC 61400-25 series



- Supports the O&M processes
- Analysis of key data from different turbines without pre-processing and translation.
- Access to data without converters or extra communication equipment.
- Monitoring and control solution can be bought as different parts (best-of-breed).
- Possibility to use a common supervision system.
- Vendor-specific protocols can be replaced.
- Focus towards applications of real value to the customer.

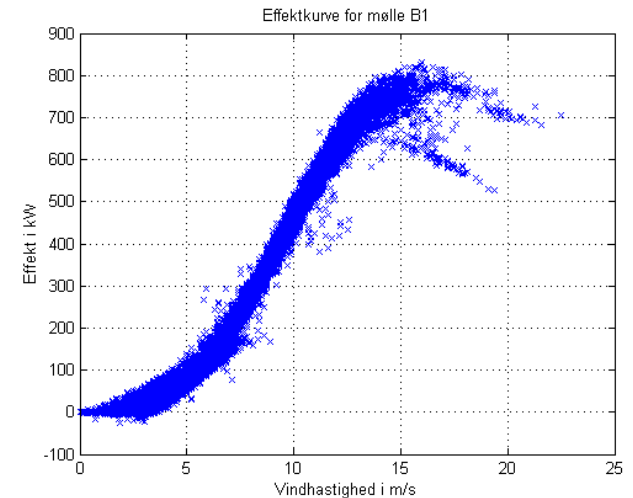


Vattenfall Wind power data center

- System infrastructure for overall WPP management.
- SCADA level with several vendor-specific servers.
- Wind Power Data Center supports analysis, maintenance and operational feedback.
- Objectives: reduce O&M costs, overview of WT operation, minimize outage times, increase production, optimize service planning.
- Process information (PI) management system collects data from Vattenfall WPPs in a common database.
- Data available to users/systems through reporting, specific PI system applications, and communication interfaces.

Conclusions

- The IEC 61400-25 standard series provides access to key O&M data.
- Data necessary for evaluations and analysis to improve O&M of wind power plants.
- Standard supports whole range of business cases and customer-supplier roles.
- Both customer and supplier benefit from decreased costs for data access and system integration.
- The IEC 61400-25 series of standards is part of Vattenfall technical requirements for future procurements.



Thank you!

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Integration of SCADA systems

- IEC 61400-25 facilitates a unified operational platform.
- Present PI solution relies on vendor-specific front-end systems to interface to wind power plants.
- Standardized communication opens up for a direct connection to WPP.
- WPPs could be managed independently of vendor specific SCADA systems.
- The number of SCADA servers can be decreased.
- Operation from one SCADA system facilitates efficient, secure and reliable operation.