

World's Largest Off-shore Wind Farm Enters Commercial Operation Using Wind River's Technology

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Wind River solution used in innovative wind turbine technology at Horns Rev

Wind River, the worldwide market leader in embedded software and services, today announced that the wind turbine technology installed to power the world's largest off-shore wind farm at Horns Rev, an aquatic reef 20 kilometers off the west coast of Denmark in the North Sea, is built on Wind River's embedded software solutions. The Horns Rev wind farm is about to enter commercial operation following the completion of delivery tests.

Wind River's technology was used to build the control systems of the 80, 110m high wind turbines for the Danish energy producer in control of the wind farm, Elsam. At the heart of each wind turbine is Wind River technology, which controls every aspect of the various regulation, monitoring, data collection and control tasks and insures increased technological efficiencies and guaranteed reliability.

"Wind is one of the world's most promising non-polluting renewable energy sources," said Jerry Fiddler, chairman and co-founder Wind River. "Reducing the drain on depleting fossil fuels and pollution is a global concern. The world's capacity to generate energy from the wind has tripled over the last year and Denmark is at the forefront of revolutionising how wind power is produced, establishing itself as a proving ground for the greatest innovations in industrial technology. We are delighted that Wind River is helping to making renewable energy a reality and is enabling the latest advances in energy production".

The Horns Rev wind farm is expected to produce 600 million kWh of electricity yearly. Denmark relies on wind for 16 per cent of its power making it one of the world's leading proponents of electricity generation using wind turbines and has set the goal of generating 4000MW of electricity per year using this technology by 2030.

The control of a wind turbine is highly complex: the blades, the angle of the turbine, aircraft warning lights, the amount of electricity generated and the interaction of the turbine with other machines in the vicinity needs to be carefully monitored and controlled. Wind River technology controls each wind turbine, which is managed in real-time via an IP network. Each turbine operates as an autonomous power plant and contains five StrongARM microprocessors each running on Wind River.

The 80 wind turbines are also networked to each other and a central control station, where energy production from each wind turbine is self-regulated.

"Denmark will rely on Horns Rev to produce almost two per cent of its annual power consumption," said Jens Bonefeld, project manager for Horns Rev at Elsam. "People will benefit from being able to switch on that power daily, day or night. We needed a robust wind turbine control system built that ensured high availability and going offshore with wind farming made this a greater challenge. The use of Wind River's technology at the heart of the operation at Horns Rev has been key to ensuring that the wind farm proves itself to be a reliable power source".

The reliability of Wind River's technology, specifically its industry leading real-time operating system VxWorks, allows Elsam the owner of the wind farm, to tightly regulate the wind farm. Horns Rev operates as a power station, therefore it has to meet regulation commands from the central control station that reflect demands set by the grid operator Eltra to secure a stable and uninterrupted power supply for consumers.

Images:

<http://www.naeurope.co.uk/en/story.htx?nr=300001221>

About the Horns Rev project

Further information on the Horns Rev wind farm is located at <http://www.hornsrev.dk>

About Wind River

Wind River is the worldwide leader in embedded software and services. It is the only company to provide market-specific embedded platforms that integrate real-time operating systems, development tools and technologies. Wind River's products and professional services are used in multiple markets including aerospace and defense, automotive, digital consumer, industrial, and network infrastructure. Wind River provides high-integrity technology and expertise that enables its customers to create superior products more efficiently. Companies from around the world are standardising on Wind River, creating the most reliable products while also accelerating their time to market. For further details, check: <http://www.windriver.com>