

Press Release

Wind Energy Solutions (WES) introduces a modular design high-penetration wind-hybrid system for remote off-grid power generation.

Zijdewind [NL], November 20, 2006. During October 2006 WES celebrated a new company milestone by successfully completing the development, field-testing, and optimisation of a new high-penetration hybrid system aimed at off-grid power generation. This modular design WES Hybrid (wind-diesel) system provides up to 100% wind power - from nominal wind speed and up - and can be connected to a virtually unlimited number of diesel generators and WES type wind turbines. The proven 80 kW WES¹⁸ Classic and 250 kW WES³⁰ Classic models were in 2005 further optimised by incorporating a state-of-the-art power control cabinet that includes a state-of-the-art IGBT type frequency converter. This new control system complies with the latest international power quality standards and ensures reliable stable operation even under complex weak grid conditions. Power electronics technology and design applied in the WES Hybrid is an evolutionary further development of the control system that connects solitary WES wind turbines to the grid. The new advanced patent-pending WES Hybrid load management technology continuously adjusts system output to the actual power consumption, and thus eliminates the need for a wasteful 'traditional' system dump load.

Today polluting and costly to operate diesel generators provide a substantial part of the electric power required in off-grid regions of the world. Such locations include remote islands, rural areas in developing countries, and the North American arctic territories. Due to high fuel transport costs and depending on site-specific local conditions, electricity generated by diesel generators typically costs between € 0.15 – 0.50 per kWh.

WES18 Hybrid or WES30 Hybrid systems in their basic wind-diesel form comprise a WES wind turbine connected to a diesel generator with equal or larger rated capacity. The diesel generator primarily functions as a back-up power source in case there is insufficient or no wind available. It is also an essential system component that creates necessary grid power during start-up from a full-stop situation. During operation wind power generation always has first priority, which maximises diesel fuel savings. As a result a WES18 Hybrid generates electric power for €0.12 – 0.14 per kWh, and the larger WES30 Hybrid for even less in the range of €0.09 – 0.11 per kWh.

Finally, anticipating at the growing importance renewable power sources will play in the world's future energy supply the 'basic' wind-diesel function has been expanded by several additional (power) production/storage module options. Some international WES Hybrid projects under development will in addition include solar power, battery-pack type energy storage, a hydrogen production and/or seawater/ brackish water desalination module.

About WES

Founded in 2003 Wind Energy Solutions has specialised in small to medium-sized variable speed type wind turbines with power ratings from 2.5 kW to 250 kW. Our modern product range is the result of continuous evolutionary wind technology development effort during the past 25 years. In total about 1,000 units of the variable speed pitch controlled two-blade 80 kW WES¹⁸ and 250

kW WES³⁰ are now operational in four continents under a wide variety of wind climates. WES wind turbines are admired worldwide as being robust and reliable, and due too the lightweight nacelles they are easy to erect even in remote places with inadequate transport logistics. These built-in product qualities together with a dedicated professional staff both contribute to our mission statement: “*To Bring Renewable Energy Everywhere*”.

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