

Case Study 1 – JUWI/Windhunter: Costa Rica – Windpark PEG (Planta Eólica Guanacaste)

PEG is one of the largest wind energy projects in Latin America. A wind park with 55 wind turbines is to be developed and operated by the JUWI Group in Costa Rica.

Costa Rica plans to generate its entire power supply via renewable energies by 2021, if it meets this target it will be the first country in the world to do so. With the local conditions of Costa Rica being ideal, wind energy will be implemented on a par with hydropower. A rainy season lasting from May to November is followed by a dry season with strong wind from November to May.

The JUWI Group has developed the wind park project PEG (Planta Eólica Guanacaste), which is currently one of the largest wind energy projects in Latin America. 55 wind turbines (Enercon E44 900 kW, 45m hub height) will generate an installed capacity of 49.5 MW and an annual energy output of 240 million kW hours. The entire wind park has been built over a period of two years and will start operating in 2009, (with construction starting in February 2008). The JUWI group will build and operate the wind park over a period of twenty years, thanks to a BOT (build, operate, transfer) contract together with GDF Suez. The project was put out for tender in early 2006 by the ICE (Instituto Costarricense de Electricidad) with the objective to reduce annual CO2 emissions by 240,000 tons.

In September 2006, Windhunter (the polish partner of Ammonit) installed three fully equipped wind measurement systems to carry out accurate wind site assessments on the vast site. The towers were fitted with Ammonit data loggers and Thies sensors to perform wind measurements in very harsh climatic conditions, with very strong seasonal wind speeds (on average < 10 m/s in hub height).

The construction of the infrastructure and the first wind turbine (Enercon 28 E44) took place in 2008 within a very brief time slot, due to the extremely strong winds of the dry season. Later, with the erection of the rest of the (27 E44) wind turbines, the measuring system for the wind site assessment was replaced by the first of three new measuring systems suitable for monitoring the wind park. Two more fully equipped towers will follow once all the turbines are constructed and are in full operation. The three new wind measuring systems are to send measurement data to the wind park operations building online via fibre optic cables.

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