



## Project Profile: Jepirachi, Colombia

Project name:	Jepirachi
Owner:	Empresas Públicas de Medellín.
Power utility:	Empresas Públicas de Medellín
Installed capacity:	19,5 MW
Wind turbine type:	N60/1300 kW
Tower height and type:	60 m. tubular tower
Number of wind turbines:	15
Wind speed:	10 m/s
Site:	Guajira peninsula in the north east of Colombia near the Caribbean Sea
Site description:	Semi-arid landscape with temperatures up to 40 °c
Wind turbine siting:	Two parallel rows, rectangular to the coast
Building Period:	November 2003 – March 2004
Grid connection:	March 2004
Extent of delivery:	Nordex was responsible for supplying, installing and commissioning of the turbines. Nordex is responsible for the maintenance.
Calculated annual power output:	82.000.000 kWh
Maintenance:	Nordex GmbH
Warranty period:	1 year, 1 more year optional

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On December 21, 2003, utility Empresas Públicas de Medellín (EPM) together with Nordex started up the first eight of a total of 15 turbines at Colombia's first wind farm true to the motto "La nueva energía de Colombia" – new energy for Colombia. Located in the territory of the Wayúu Indians in the desert of the Guajira peninsular, the Jepirachi wind farm comprises 15 Nordex N60 turbines all producing clean electricity.

The "Jepirachi" project is the country's first wind park connected to the grid. It is also the first MW-wind farm of Latin America. The name of the wind park, "Jepirachi" is a word from the language of the Wayuu Indians living here and means "north-east wind".

The location is ideal from a climatological point of view. At a height of 50 meters the average wind speed is around 10 m/s. In addition to this, wind distribution is constantly good, ensuring a high annual yield. These figures are the result of measurements made by EPM jointly with GTZ (Gesellschaft für Technische Zusammenarbeit) within the framework of the TERNA wind energy program.



The energy market in Colombia, which has been deregulated since 1995, is characterized by a low price level. This is because all power plants with a capacity of more than 20 megawatts feeding into the national grid have to sell their energy via the electricity exchange. For this reason, the government recognition of the wind park as a "technical innovation project" was crucial. This makes it possible for EPM to count the investment costs towards the pre-tax profit. In addition to this, EPM is currently negotiating with the World Bank's Prototype Carbon Fund for a certificate trade for the CO<sub>2</sub> saving. Reimbursement for 800,000 tons of CO<sub>2</sub> emissions avoided comes to approx. USD 3.2 mn.

The composition of the existing power plant network also promises to provide support. At present, some two thirds of national energy output in Colombia comes from hydro power plants. But longer periods of drought have resulted in repeated supply bottlenecks. This is why politicians are increasingly supporting a broader energy mix in the grid. Up to now, this comprised principally fossil fuels, such as pit coal, oil and an increasing amount of natural gas.



The farm generates 82 million kWh of energy each year. The electricity is fed into the national grid via the Jepirachi transformer, where it enters the 110 kV high-voltage line located only 700 meters away.

The project was launched in summer 2003, when the base plates produced in Germany were shipped across the Atlantic for local assembly. This was followed in autumn 2003 by the arrival of the fifteen nacelles, 45 blades and the tower segments in two ship loads via the port of Puerto Bolívar in the north of the peninsular.

The turbines were assembled step by step, with the first N60 on Colombian soil ready for use on November 17, 2003. Finally, the switch was thrown on December 16 setting the first turbine in motion for generating the "new energy made in Colombia".

