



Project Profile: Gut Losten, Germany

Project name:	Gut Losten
Owner:	e.disnatur (subsidiary of the utility Edis AG)
Contractors:	e.disnatur
Power utility:	Edis AG
Installed capacity:	11.5 MW.
Wind turbine type:	N90/2300 kW
Tower height and type:	80 m. tubular tower.
Number of wind turbines:	5
Wind speed:	6.6 m/s
Site:	The site is located in Losten, near Bad Kleinen in Mecklenburg-West Pomerania, Germany.
Site description:	Agricultural landscape. The e.disnatur concept in Losten is based on the combination of different types of renewable energies, including wind and biomass
Wind turbine siting:	The turbines are installed circularly
Building Period:	Winter 2003 / 2004
Grid connection:	April 2004
Extent of delivery:	Nordex was responsible for the supply and the commissioning of the turbines as well as for supervision of the installation and of the maintenance
Calculated annual power output:	20,000,000 kWh
Maintenance:	Nordex Energy GmbH
Warranty period:	3 years

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"To cover a good part of the regional demand for electricity and heating from domestic energy sources such as the wind, biogas and the sun in a sustainable manner", this is the aim of the "Energy Mix" project in Losten, near Bad Kleinen in Mecklenburg-West Pomerania realized by Edisnatur, a subsidiary of the east German utility Edis AG.

As a first step, Edisnatur ordered a total of five wind turbines of the N90/2,300 kW series in 2003. The machines went on grid in 2004 and produce some 20 million kilowatt hours of clean electricity per annum. By way of comparison: this is equal to the electricity requirements of 5,000 households. Such a high energy yield has been made possible thanks to machines that have been especially optimized for medium wind speeds.

With a rotor diameter of 90 meters and an output of 2.3 megawatts, the N90 is one of the world's largest series-produced wind turbines. Compared with the base N80 model, the N90's rotor diameter is 10 meters larger. This translates into a 27% increase in rotor sweep to 6,362 square meters, roughly the area of a football field. This sweep plays a key role in energy yield, which is why the N90 promises far greater efficiency than earlier turbines in locations characterized by weak to medium wind speeds.

Today, Nordex boasts the greatest experience in the 90 meter rotor segment of the market. All the necessary certificates on noise, power curves and grid compatibility have been obtained for the N90. Similarly, type testing and certification for the turbines on 80 and 100 meter tube towers as well as on a 105 meter lattice mast have been completed.



At Gut Losten, apart from the foundations and roads, a cable line of about 15 kilometres had to be laid to Wismar for the grid connection.

The concept in Losten is based on synergies and the combination of different types of renewable energy production and other land uses. For this reason, the land between the wind turbines is to be put to agricultural use again. The Losten stockbreeding company intends to grow crops here, which are to be turned into biogas together with the pig slurry collected and converted into heat and electricity in biogas facilities. According to plans, some 60,000 cubic metres of slurry are to be converted into energy. This amounts to approx. 50 per cent of the slurry produced by around 65,000 animals.

However, the "Energy Mix" goes one step further. In the near future, a photovoltaic demonstration system is to be installed in Bad Kleinen.

