

WINDPOWERUPDATE



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10 x N80/2500 kW
to Ireland
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NATCON7:
New Nordex
Subsidiary
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FRANCE:
Strong winds and
high yield
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NORDEX SERVICE ACADEMY

Nordex founds service academy in Rostock, Germany

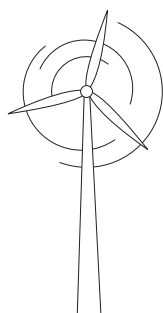
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SÜDWIND WIND TURBINES

The success story

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Cover photo: 16 x N80 / 2500 kW shipped to Havøygavlen (N). Photo: Bert Wiklund.

Editorial



Dear Reader,

we are pleased to present to you the August issue of our newsletter Windpower Update. In this edition, you will find an outline of some of our new wind turbine projects in Europe and in the U.S. Furthermore, you will gain an insight into Nordex' worldwide activities and information concerning the new Nordex Service Academy as well as our new affiliate "Natcon7".

Earlier this year, we published our half-year report 2001/2002. In the first six months of the fiscal year, we increased the turnover by 47% to EUR 190 million, with an increased export share in the second quarter of 55% mainly due to the growth markets in Europe. This development, however, is also partly in line with the weak market conditions in Germany at the beginning of the year caused by seasonal effects and a change in the environmental permitting procedures. However, this situation is now improving – a fact underlined by the receipt of several contracts totalling more than 50 wind turbines in the megawatt class at the Hamburg Exhibition WindEnergy 2002 in June.

These contracts as well as the new contracts for a further 16 x N80/2500 kW wind turbines for the Kings Mountain project in Ireland and the Ahrenviölfeld project in Germany, underline our strategic focus on wind turbine development in the megawatt class. In this newsletter we report on these two new megawatt projects as well as the ongoing N80-projects in the Netherlands and Norway. Enjoy the new Windpower Update!

Yours faithfully

Dr. Dietmar Kestner
President and CEO

Nordex Product Program

	Power Regulation	Generator Effect	Rotor Diameter
Nordex N43/600 kW	Stall	600/125 kW	43 m
Nordex N50/800 kW	Stall	800/200 kW	50 m
Nordex N60, N62/1300 kW	Stall	1300/250 kW	60 or 62 m
Nordex S70, S77/1500 kW	Pitch/variable	1500 kW	70 or 77 m
Nordex N80/2500 kW	Pitch/variable	2500 kW	80 m
Nordex N90/2300 kW	Pitch/variable	2300 kW	90 m

Natcon7

Nordex Control 2 provides an interactive access to all the principle operating modes and data concerning all aspects of the wind turbines and the wind parks.

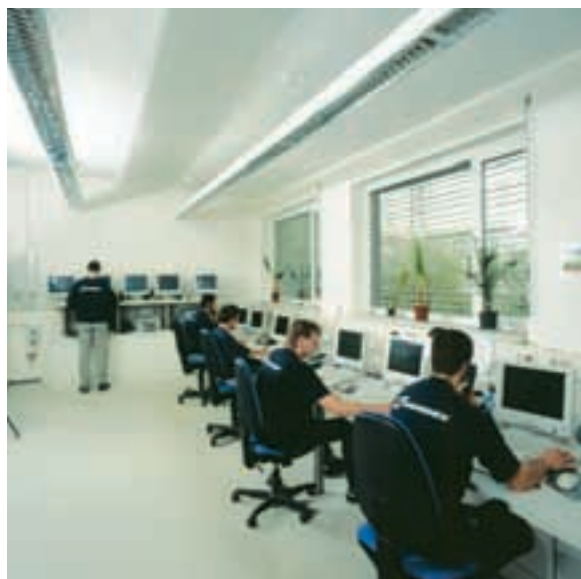
This real-time recording and analysis of the data by Nordex Control 2 can be effected seven days a week, around the clock, both nationally and internationally.

Nordex founds technology subsidiary Natcon7.

On April 1, 2002, Nordex AG founded Natcon7 GmbH. Nordex holds 75 per cent of the shares in the new subsidiary. The remaining shares are held by the Natcon7 management. With Natcon7, Nordex is stepping up its activities in the area of automation and information technologies. "For us these technologies are part of core competence in the further development of modern wind turbines. Above all, by applying and integrating the latest methods in information technology we are able to further develop the monitoring and control of our turbines, independent of location and platform, at low cost," explains Dietmar Kestner, CEO of Nordex AG. Nordex worked closely together with Natcon7 automation experts in many areas prior to the foundation of the company. For example, the team was involved in the development of "Nordex Control 2", the modern communication system for the monitoring and analysis of wind turbines. This system provides a large number of web-capable services for browser-based interaction with a wind turbine. With this, Nordex offers the first web-based, fully integrated client-server architecture for wind turbines.

The advantage: the exchange of information with the wind turbine is effected independently of any

The active transmission of the data via e-mail or SMS ensures that the user is always provided with the latest information. Furthermore, this data transmission capability ensures, through a 24-hour remote monitoring service, a rapid reaction time.



Nordex Control 2 makes it possible to display the values in either tabular or graphic form. The data can also be exported directly into databases or other Windows programs.

particular location or platform. For the customer, no investment is required for additional hardware or software. All the information and services relating to a wind turbine are available using a standard browser.

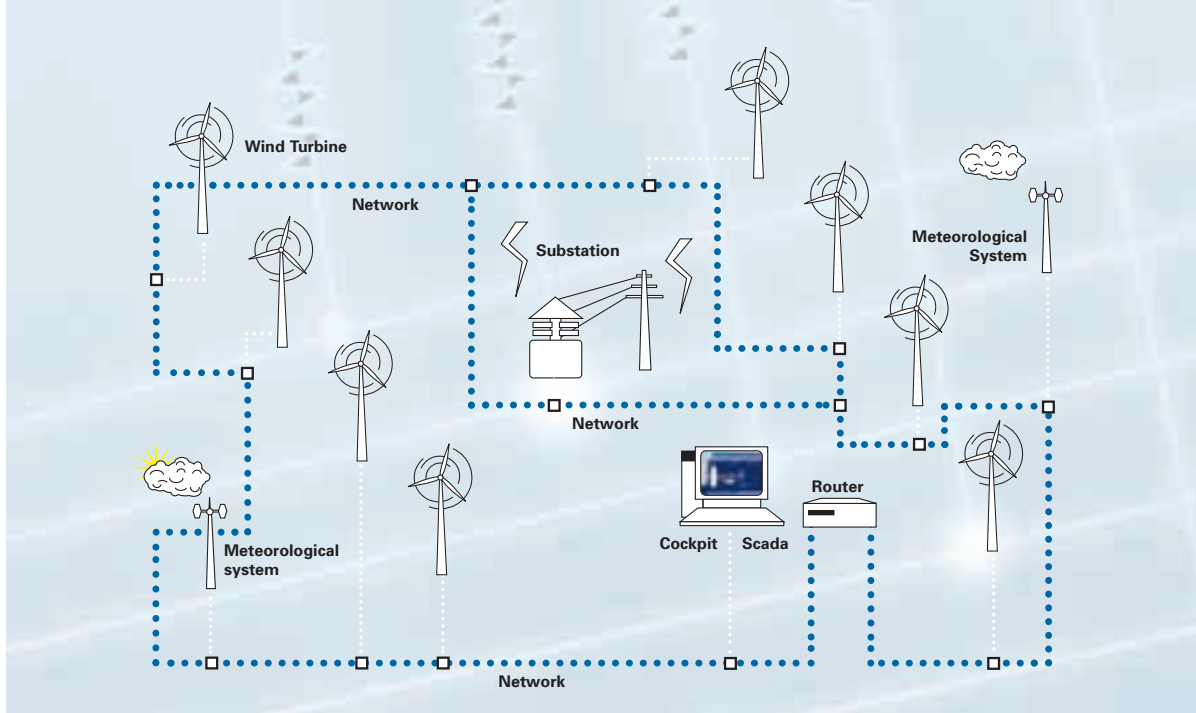
But Natcom7 plans to go further than this: the company is currently developing virtual power plant portals for decentralized energy management. With the aid of these portals in the future, it is intended that decentralized power plants will be able to fulfil all the requirements of combined operation.

These include, for example, demand-oriented control of energy feed-in. "With the new systems our customers are able to operate a geographically widespread plant mix comprising wind, water, solar, biomass, fuel cell or geothermal plants in a virtual power plant," explains Dirk Adam, Natcon7 Managing Director.

The control systems hitherto used in decentralized power plant construction were originally developed for centralized plants. Key functions such as automatic load distribution over several decentralized power ➤



The wind farm portal® Nordex Control 2 registers all the data concerning individual wind turbines, the meteorological and management systems, the substation as well as the complete wind park



plants, the event or interval-controlled synchronization of decentralized data on a central computer, as well as a fully automatic notification, analysis and reporting system, are missing. The consequence: today, as a rule the monitoring and controlled operation of decentralized power plants is effected via manual access by dialing into the individual plant by telephone from a remote monitoring centre. This process has to be performed every day, approximately every four hours per plant.

One simple example underlines the potential savings resulting from an automated solution: in the case of manual access, the control and monitoring centre for 300 wind turbines would have to be staffed for 3-shift operation with a workforce of 18. In addition to the personnel costs, at least six fully-equipped

computer workplaces and a central server would have to be included in this model calculation. Initial calculations by Natcon7 project that the automated solution via the "Wind Farm Portal" would result in a cost benefit of some 25 per cent and can be amortized within as little as one year.

The sales potential for Natcon7 in the main market "decentralized energy" is huge. There are 56,000 wind turbines in operation worldwide. And the market will be growing by some 16 per cent per annum in the coming years. Says Adam: "Especially with the increasing technological challenges presented by offshore projects, a dependable, rapid-reaction and operator-free control solution is becoming increasingly important".

BWEA

Congratulations

Nordex Wind Turbine Model in New BWEA Offices.

The British Wind Energy Association (BWEA) has received a very nice Nordex wind turbine model to decorate the reception area in their new offices. The photo shoot is from the official opening of the offices on June 24, 2002, attended among others by the British Energy Minister Mr. Brian Wilson.

Nordex congratulates BWEA on the new premises!



Brian Wilson, British Energy Minister, and Nick Goodall, CEO BWEA, in front of the new BWEA offices.

First Suppliers' Day in Rostock

At the initiative of the Nordex central Purchasing Department, on April 19, 2002, Nordex held its first Suppliers' Day at the International Chamber of Commerce in Rostock, Germany.

Some 60 component suppliers and service companies from Rostock and surroundings took the opportunity to obtain information about extending work together with Nordex in initial contact discussions with representatives of Nordex.

In his welcoming speech, Wilhelm Hecking, Board Member and responsible for the supply chain at Nordex, underlined the importance of the Suppliers' Day for Nordex: "We view the Suppliers' Day as an important additional facet of our commitment in the area of Greater Rostock. In 1999 we decided to concentrate our German production facilities in Rostock. There were numerous reasons for this. Rostock offers sufficiently qualified skilled workers, a good infrastructure for national and international transport connections, an ample supply of commercial premises and, last but not least, a dense network of industrial suppliers and service companies. All in all, these represented, and still represent, ideal prerequisites for expanding."

Over the past two years this has made it possible in Rostock for Nordex to develop into one of the greatest industrial employers in Mecklenburg-West Pomerania. Today Nordex employs more than 400 staff in Rostock alone, and in the near future, Nordex is going to train additional manpower in the new rotor blade production facility. Furthermore, Nordex has invested in extending switch-cabinet production and a training centre. In other words: Nordex is gearing up for further substantial growth at the Rostock location.

As a company with relatively low value-added-chain depth, however, Nordex also has to create prerequisites elsewhere. Because 75% of the components of turbines are supplied, the network of partner companies has to grow as well. It is the aim of Nordex, together with partners and other companies in the region, to take the opportunity to create a new industrial core in the area of Greater Rostock and to establish Mecklenburg-West Pomerania as a centre for the wind power industry.

Did you know that...

- a modern 1.3 MW wind turbine will annually displace more than 2,000 tonnes of carbon dioxide.
- Nordex offers a wide range of positions for highly qualified staff both in the commercial and the technical areas. Check www.nordex-online.com
- the wind resources above the shallow waters in the seas around Europe could theoretically provide more than all of Europe's electricity supplies.
- in 2001, Germany was the largest wind turbine market with 2,627 MW wind power installed last year (World Market Update 2001, BTM Consult).

Tow Law and High Hedley Hope



At the end of the rainbow, some of the N50 Nordex wind turbines at the Tow Law and High Hedley Hope projects.

Following the erection of the first six N50 wind turbines in UK towards the end of 2001, for the two adjoining Tow Law and High Hedley Hope projects in North-East England, the official opening by the local Member of Parliament and Government Minister, Hilary Armstrong, took place in Tow Law on May 17, 2002.

The two projects, each comprising three N50 machines, are owned by National Wind Power Ltd and LPC Northern (a subsidiary of the London Power Company).

Ulrich Wischermann, Managing Director of Nordex Energy GmbH, the manufacturer of the wind turbines, and Graham Bocking, Director of Nordex UK Ltd, the UK-based subsidiary which carried out the projects, joined the Managing Directors of National Wind Power and The London Power Company at the event, which involved not only politicians and officials from the local

area but also local school children who were at the centre of the celebrations. The children aged between 6 and 11 from two local primary schools, had painted pictures of the wind turbines and suggested names in a competition organised by the project owners. At a ceremony on site, the children unveiled a name plate "High Breezer" on one of the turbines, the other winning names included Tina Turner, Milly, Wind Waver, Fell Flower and a personalised Hillery's Hilltop Turbine.

The installation of the machines was completed shortly before Christmas by Nordex Project Manager,

Martin Otto, Site Manager, Edwin Dednam, and their team in a smooth operation, and in a successful cooperation with both customers. Edwin will be heading up the service organisation now being developed in UK to take good care of the growing number of Nordex wind turbines in the fast growing market with some of Europe's best wind conditions. Nordex now has 6 projects completed in UK.

Further information and support for UK and Irish customers is available from Claus Poulsen, Nordex UK's General Manager, in the Manchester office.

May 17, 2002: Tow Law and High Hedley Hope projects officially opened by Angus Norman, Managing Director of the London Power Company and Hilary Armstrong, local Member of Parliament and Government Minister



Large Strategic Order

Kings Mountain, Ireland

One of the most powerful wind farms on the Emerald Isle.

Nordex has signed a contract for the supply of ten turbines, type N80/2500 kW, for the "Kings Mountain" wind park near Sligo, on the west coast of Ireland. The order is worth some EUR 18 million, not including the foundation and electrical engineering costs. This work is to be carried out by the customer, ESBI (Electricity Supply Board International), headquartered in Dublin. The final customer is the Irish utility company Airtricity.

Says Dr. Dietmar Kestner, CEO of Nordex AG: "After the large order from Powergen Renewables Ltd. in Scotland in February this year and with the strategic project from Airtricity we have now succeeded in gaining a foothold in the Irish market.

Together with Great Britain, this is one of the most important growth markets for wind energy in Europe. Thanks to the high and constant winds, wind energy is well on the way to become the most economical form of power generation on the Emerald Isle."

The project "Kings Mountain" will be implemented in several stages up to the spring of 2003. The ten Nordex N80 machines with a hub height of 60 metres and a rotor diameter of 80 metres will generate a total of 85 million kWh of clean energy per annum in an area with an average annual wind speed of 9.0 m/s. "Kings Mountain" will then number among the most powerful wind parks in Ireland.

...goes on and on

More production capacity has now been created for the S70, S77/1500kW.

Since starting production of the 1.5 MW turbines in the summer of 2000, the production and installation team can today look back on a proud achievement: on March 27, 2002, Südwind turbine no. 100 left the production facility in Rostock, heading for the Wansleben wind park in Saxony-Anhalt, Germany. Today (July 2002) already 136 units of the pitch regulated 1.5 MW wind turbine have been installed in Germany.

The success story behind the production of the 1.5 MW turbines in the Rostock plant began in August 2000 with an S70/1500 kW. This first machine was intended for the Ühlitz wind park near Schwerin, Germany. In the same year, a further 14 Südwind machines "made in Rostock" were produced. Incidentally, the S70 and S77 replaced their predecessor, the S46/600 and the S46/750kW - a turbine that was still produced in Lichtenau until December 2000.

Delivery of the machines to the Hohen Pritz wind park in autumn 2001 marked the production of the 50th turbine. From then on things really took off - the production team assembled an average of three Südwind turbines a week. Thus the Rostock team was able to boast a production of 63 Südwind turbines in 2001 alone.

With the move of the Nordex rotor-blade production to the new production facility in Rostock in autumn of last year and the simultaneous move of N60 production to Denmark, further capacities have now been created for pod manufacture of the S70 and S77 in Hall 5 in Rostock.



Installation of the S77/1500 kW.

and on



New Projects

Nordex megawatt wind turbines are expanding rapidly, above all in Germany.

12 x N60/1300 kW. Nordex is implementing two projects for the Ostwind Group, Germany. The Blüten wind farm is being set up near Ludwigslust in the German state of Mecklenburg-Vorpommern. Comprising Nordex 12 x N60/1300 kW wind turbines, the wind farm is being constructed for a price of EUR 12.7 million and is scheduled for completion at the end of July 2002.

8 x S70/1500 kW. Ostwind is placing orders by Nordex' 8 x S70/1500 kW series for its Wansleben wind farm situated west of Halle (Saxony-Anhalt). Specially developed for weaker wind conditions, the turbines will be installed on 85 meter towers to achieve an optimum energy yield. All eight turbines are to be installed between August and September 2002 for a total price of approx. EUR 12 million.

10 x N62/1300 kW. Another German project is a contract signed with Plambeck Neue Energie, Germany, which provides for the installation of Nordex 10 x N62/1300 kW turbines to the Mangelsdorf wind farm. Valued at EUR 10 million, the project is scheduled to be completed as early as in August 2002.

6 x N80/2500 kW. Also in Germany, more N80/2500 kW will soon be installed. Six of these giant machines are to be constructed for three different wind farms in Ahrenviölfeld, north of Husum. The main reason for placing the order with Nordex was the profitability and the favourable experience which the customers already had with the Nordex turbines and maintenance. This order is worth roughly EUR 10 million excluding the construction of access roads, foundations and grid connections. The project is to be completed by the end of 2002.

120 Nordex Wind Turbines

In the early spring this year, Nordex concluded a framework contract with Energiekontor AG. The agreement covers the supply and the installation of 120 Nordex wind turbines within the

next two years. Each year, Energiekontor can ask for a supply of at least 60 Nordex wind turbines, and the German project developer is free to choose among the Nordex wind turbines ranging from 1.3 MW to 2.5 MW. The hub heights of these wind turbines can vary from 61.5 to 114.5 metres and the machines will be delivered with either tubular towers or lattice towers.

New Member of Management Board

NPV Planung und Vertrieb



Markus Lesser

Markus Lesser appointed member of NPV Management Board.

On April 1, 2002, Markus Lesser was appointed a member of the Management Board of Nordex Planung und Vertrieb GmbH, Germany. Mr. Lesser, a 37-year-old mechanical engineer, will be in charge of sales of Nordex wind turbines in Germany and the German-speaking area abroad, together with Mr. Hempel. Mr. Lesser has worked for the Nordex Group since January

1, 2001, most recently as head of sales planning and sales manager for the S70/1500 kW and S77/1500 kW at Südwind Energy GmbH. For his new task as a member of the NPV Board, Mr. Lesser will be able to draw on more than ten years of experience as a top-level manager in prestigious global plant-engineering companies. ➤

Before joining the Nordex Group, Mr. Lesser was in charge of quality management as well as sales and marketing at the Tyco Engineered Product Group in Germany, amongst other companies.

Mr. Lesser sees the most important aim of his new task as the rapid further improvement of the Nordex market position. Says Mr.

Lesser: "Last year we were able to considerably increase newly installed capacity in Germany, the most important wind market in the world. A contributory factor in this was, in particular, the acceptance by the market of the two largest wind turbines, the Nordex N80/2500 kW and the Südwind S70, S77 / 1500 kW. My objective is to further improve our position on the strong domestic market and to use this as a base for stepping up our international expansion."

Training Initiative

Nordex Service Academy

Nordex AG founds Service Academy in Rostock.

"As one of the technological leaders in the megawatt class, we have to depend on our staff having the best possible qualifications", explains Dietmar Kestner, CEO of Nordex AG, at the opening of the new Service Academy in Rostock. The manufacturer of wind turbines has invested some EUR 560,000 on the conversion of a building in the grounds of its production facility into a modern training centre.

In addition to seminar rooms, a computer workroom and a laboratory for test components have been installed over an area of some 700 square metres. In the future, it is intended that all Nordex technical staff shall have an opportunity to obtain qualifications free of charge. The training program includes basic courses with up to 16 teaching units and training courses in greater detail to train specialists for specific types of machine.

Says Kestner, "Nordex and the whole sector have grown considerably over the past ten years. At the same time, the technical challenges have become an ever-greater challenge. Employees with the necessary specialist knowledge are now difficult to find on the labour market. This is why, with the sup-

port of the regional state government, we have founded our own academy."

But Nordex does not only want to train its German employees. The courses are open to all members of the Group worldwide. Moreover, customers and service-providers can also take advantage of this Nordex service. This institution, which is unique in the wind energy industry, aims to further increase quality in production and service, thereby supporting the international growth of the Nordex Group.



On May 6, 2002, the Nordex Service Academy was officially opened. Dieter Schörken (Economics and Tourism Senator of Rostock City) and Prime Minister Harald Ringstorff are being guided through the new service academy by Karsten Brüggemann (Manager of the Nordex Service Academy).

The laboratory for test components. The component shown on the photo is a hydraulic unit for the N50/800 kW Nordex wind turbine. The unit supplies the pressurized oil that actuates the tip brakes of the stall blades, as well as the brakes of the rotor and the yaw system. Furthermore, the pressurized oil is used to lift the nacelle roof.

N80/2500 kW in the Netherlands and Norway

Ongoing Installations...



... in the Netherlands.

The foundation works of the 22.5 MW Nordex wind farm at the Nerefco oil refinery near Rotterdam in the Netherlands started in June, and the nine N80/2500 kW wind turbines are now being erected. The wind conditions at the shoreline where the turbines are being installed are very good, and the commissioning of the giant N80/2500 kW with a hub height of 80 metres will take place from September 2002.

... and in Norway.

In the beginning of July 2002, the first five N80/2500 kW wind turbines for the Havøygavlen project in Norway were shipped from the floating dock at Århus Harbour, Denmark. Blades, tower sections and nacelles were shipped on the same boat from the German shipping company SAL, and the loading of the ship lasted for two days. After a 2,500 km voyage of about 4 days the ship arrived to the harbour in Havøysund in Norway 70 km south of the North Cape. This harbour is a very small harbour with only one pier and no cranes. The SAL ship is equipped with three cranes, and from Havøysund Harbour the wind turbines were directly loaded onto trucks transporting the wind turbine parts to the site situated approx. 5 km from the harbour.

The towers, produced by Welcon in Give, Denmark, were divided in four tower sections of 18 to 23 metres. When the sections are mounted, the towers measure 80 metres and weigh 172 tons. In order to obtain the most stable transport during the voyage in the Norwegian Sea, the tower sections

Shipment to Norway: The nacelles for Havøygavlen were loaded into the hold of the ship...



...then followed by the tower sections.



One of the huge N80 nacelles at the Nerefco site.

have been mounted with supports. Besides the benefits of a more secure transport on both truck and ship, these supports also provide an easier handling of the sections when loading and unloading.

The nacelles which have been assembled in the Nordex facilities in Rostock, Germany, were transported in three parts. The cooling system was mounted in the nacelle at the harbour in Århus, and the hub was not mounted to the nacelle before the arrival to the site at Havøygavlen. When mounted, the huge nacelle weighs 125 tons. The length of the blades is 38.8 metres and the weight is approx. 8.6 tons per blade.

After having unloaded the wind turbine parts in Havøysund, the ship returned to the harbour in Denmark to pick up the next five megawatt wind turbines. All in all, the project consists of sixteen N80/2500 kW wind turbines. Not only is the wind farm the northernmost in the world, it is also Norway's largest wind park so far. You can read more about the project in the last issue of Windpower Update. You can also follow the ongoing installation from the web-cam installed at the Norwegian site (see www.nordex-online.com).



July 15, 2002: The first N80 installed at the site in Norway.

Merdelou and Fontanelles

Enertrag operates 12 Nordex wind turbines near Montpellier

Electricity from wind power has become European. Enertrag is the first German energy supplier using the wind in France. From the wind turbine sites Merdelou and Fontanelles, 12 Nordex wind turbines with a total of 15.6 MW produce 45 million kWh annually - electricity for 45,000 people. The wind turbine sites situated 1,000 metres above sea level in Southern France belong to the most windy areas in Europe. Enertrag has invested 21 million Euros in this project, and from July this year also private investors could take part in the project.

Endurance and know-how

When Enertrag began the preparation of the sites in 1998, it was not possible to foresee the endurance such a project would demand. Besides building up a work team, the most time-demanding task was the legal verification. Furthermore, ten years of experience in the wind turbine arena is not easily transferred to

another country. Hundreds of details had to be co-ordinated and adapted. Even in autumn 2001 when the construction finally started, all questions were not solved. Nevertheless, Enertrag and Nordex successfully carried out the project immediately.

Wind turbine sites with strong winds and high yield

On the sites situated 100 km from the Mediterranean Sea, the wind blows with an annual average wind speed of 10 m/s. This ensures a very high yield. The well-proven wind turbine type N60/1300 kW was specially chosen for these wind conditions, as only a few powerful wind turbines have been constructed for such extreme weather conditions.



Tower section ready to be mounted



Installation of the wind turbine tower measuring 46 m. in total



The nacelles arrive to the site



The nacelle is lifted by the crane, and then mounted to the tower.



The 29 m long and 5 tons heavy blade prepared to be lifted.



The blade is now ready to be mounted to the hub



The blade is mounted to the hub

Fitou Collects Clean kWh

The seven N60/1300 kW at the Fitou site operate in favourable wind conditions.

Right after the installation in February and in March 2002 of the twelve N60/1300 kW Nordex wind turbines on top of the mountain Merdelou, more Nordex megawatt wind turbines were erected at the Fitou site in the south of France between Perpignan and Narbonne. The site is situated in the picturesque region of Aude near the lake Leucate and the Mediterranean Sea providing a perfect location with the strong winds existing in this region.

The private owners of the Fitou site are the two families Barnada and Lecorcier having developed the site since 1995. The seven N60/1300 kW Nordex turbines have been erected on 60 m tubular towers with GL1 approvals. According to the

studies of EED (Espace Eolien Développement), the annual production in this windy area will reach approx. 23 million kWh. For the development of further projects in France, Nordex and the developer and operator of the wind farm Moulin à Vent de Fitou, have made a partnership.



The Fitou wind farm was officially opened in May 2002.

Two Orders from Southern France

Avignonnet and Tuchan

In April this year, Nordex received two new orders from the south of France. In total the customers have ordered 20 wind turbines with a total order value of approx. 9 million Euro. The foundations, the roads to the site and the grid connection are not included in the supply of the 20 wind turbines. Nordex will install both projects in this financial year, and before September 2002.

For the customer Seris Eole, a joint-venture between French developer Seris and the Boralex-Group (Canada), Nordex will

install the "Avignonnet" wind farm. The 10 turbines of the type N50/800 kW will be built 50 km south-east of Toulouse. In this region, Nordex has already installed three wind turbine farms.

The second project, the enlargement of the "Tuchan" wind farm, is situated 30 km south east of Perpignan. On this site, Nordex will install 10 wind turbines of the N43/600 kW, and the customer is SNC ERT. The site is in an altitude of 880 metres a.s.l., and the annual average wind speed is more than 10 m/s. As in other parts of the world, the well-proven N43/600 kW wind turbine has been very successful in France, and with this project 43 units of this machine are producing clean energy in the country.

General Agreement with SIIF

Nordex expects an important increase in the orders from France. One reason for this increase is the general agreement recently signed between Nordex and the developer SIIF Energies, a subsidiary of the French power supplier EDF. As one of three manufacturers, Nordex were qualified to

realise SIIF-projects on the basis of standard SIIF-conditions. SIIF develops wind farms worldwide of approx. 1500 MW. Nordex has been present on the French Market since 1996. Last year, the company was the market leader in the country. Nordex delivered in 2001 approx. 65% of the new installed wind turbine power of 52 MW. Because of high wind speeds and a legally regulated feeding remuneration of 8.4 Eurocents per kWh wind power, France is one of the most important emerging markets in the world. According to the Danish institute BTM Consult, the annual growth in France until 2006 will count for more than 50%.

New Project in Portugal

3.9 MW turnkey project

After the successful cooperation in the past between Nordex Ibérica and Enersis over the installation of the two Nordex wind farms in Portugal (Lomba da Seixa and Cabezo Alto), a new turnkey project has been signed in April 2002 for a 3.9 MW wind farm. The new project, Igreja Nova 2, is situated in Mafra, 60 km

north of Lisboa and consists of three N60/1300 kW on 69 metre tubular towers. The project includes the supply of the wind turbines, the towers, the civil works, the electrical installations and the commissioning. In May 2002, the civil works started, and the three giant wind turbines will be installed in August this year.

Worldwide Installations

Country Installed Wind Turbines

Country	Installed Wind Turbines									
	N27/150	N27/250	N29/250	N43/600	S46/600 S46/700	N50/800	N54/1000	N60/1300 N62/1300	S70/1500 S77/1500	N80/2500
Australia	1	0	3	0	0	0	0	0	0	0
Austria	1	0	5	0	0	0	0	0	0	0
Belarus	0	0	1	0	0	0	0	0	0	0
Canada	0	0	0	0	0	0	0	20	0	0
China	0	16	14	111	0	12	0	4	0	0
Denmark	21	10	0	33	0	49	0	39	0	0
Egypt	0	0	0	105	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	3	0	0
France	0	0	1	43	0	0	0	19	0	0
Germany	97	24	76	106	51	22	158	335	136	13
Greece	0	0	1	37	0	0	0	0	0	0
Holland	0	0	0	4	0	6	0	0	0	0
Hungary	0	0	1	0	0	0	0	0	0	0
India	79	6	178	0	0	0	0	0	0	0
Israel	0	1	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	2	0	0	0	0
Japan	2	0	4	7	0	3	0	11	0	0
Latvia	0	0	0	0	0	0	3	0	0	0
Luxembourg	0	0	0	0	0	0	2	0	0	0
Poland	0	0	1	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	19	0	0
Russia	0	0	4	0	0	0	0	0	0	0
Spain	0	0	0	25	0	0	0	15	0	0
Sweden	0	0	0	1	0	0	0	0	0	0
Syria	1	0	0	0	0	0	0	0	0	0
UK	0	0	0	3	0	6	0	28	0	0
Uruguay	1	0	0	0	0	0	0	0	0	0
USA	0	0	1	1	0	0	10	10	0	0
Total	203	57	289	476	51	100	173	503	136	13
Capacity (MW)	30.45	14.25	72.25	285.60	33.00	80.00	173.00	653.90	204.00	32.50

Total installed wind turbines: 2001

Total installed capacity (MW): 1578.7

Last update of this page: July 10, 2002

USA

Nordex Turbines to North Dakota

Nordex will supply North Dakota with two of the well-proven N60/1300 kW wind turbines.

The two turbines will be delivered with 60 metre tubular towers in Cold Climate Version (CCV) and in 60 Hz. The project is a turnkey project, and the customer is Basin Electric Power Cooperative who also purchased the two N60/1300 kW wind turbines of the Chamberlain, South Dakota project (see Windpower Update no. 12, December 2001). The Nordex 1.3 megawatt wind turbines will be delivered to the site 16 miles south of Minot in October 2002 and installed right after in order to be ready for the take over

in the beginning of November 2002. The nacelles will be produced in Denmark and transported by ship and truck to North Dakota. The blades and towers will be produced in the U.S.A. The towers, which will come under Basin Electric's scope of supply, will be manufactured by DMI Industries of North Dakota. To date, the Nordex 1.3 MW machines in South and soon-to-be North Dakota will be the largest nameplate wind turbines in the Dakotas, an area of vast wind energy potential in the United States.

Exhibition

AWEA 2002

Together with more than 85 exhibitors from the wind energy sector and an overall record-setting attendance crowd, Nordex participated in WINDPOWER 2002 Conference and Exhibition, arranged by the American Wind Energy Association (AWEA) and co-sponsored by the U.S. Department of Energy.

The event, which is the U.S. wind energy industry's premier business gathering, took place in Portland, Oregon, from June 2 to 5, and around 1,200 wind turbine enthusiasts attended WINDPOWER 2002. "We were very happy with both the attendance and attitudes at AWEA 2002," remarked John Fedorko, President of Nordex USA, "we feel that both those things together showed real market potential in the United States and

we are excited that Nordex will be there to participate actively in this growing renewable energy sector."

The event was a great marketing opportunity for Nordex as well. "Clearly, Nordex as a worldwide company made a very positive statement at AWEA 2002," remarked Robert Paul, Director of Sales for Nordex USA, "as people were very interested in learning more



Nordex booth at the AWEA Conference in Portland.

about the Nordex 1300 kW machine and new product offerings that may be on the horizon for Nordex USA. Just as important, the conference attendees were happy to learn about Nordex' extensive and proven track record in the MW+ machine size, as well as our diverse experience in operating in colder and otherwise harsh climates."

The overall positive atmosphere of AWEA 2002 had a distinctly different prologue leading up to the conference. After a period of uncertainty on the U.S. market, due to legislative problems in Washington, D.C., today's prognoses seem more

positive than ever. At the beginning of the year, and after the best year ever in U.S. wind energy history with wind turbine installations in 2001 to power approx. 475,000 households, the market collapsed to a very large extent. The reason for the decline was mainly the hesitant market waiting for a decision concerning the renewal of the production tax credit ("PTC") incentive.

This renewal was announced on March 8, 2002, and the important basis for a reliable planning was now provided. Furthermore, the U.S. House and Senate will hopefully extend the PTC by a further five years with a renewable energy portfolio standard stating that a growing percentage of the electricity should come from renewable sources like wind-generated power. "We are optimistic about the US market and some of the opportunities that are present there," concluded Jens Pedersen, Vice Managing Director of Nordex Energy, Denmark.

Canada

Grand Opening

Pincher Creek wind turbines celebrated after cold Canadian winter with high performance.

Canadian Hydro Developers, Inc. celebrated the official opening of its newest North American facility on June 18, 2002, when they hosted the Hon. Ralph Klein, Premier of Alberta, Canada, at a ribbon-cutting ceremony to unveil the 20 Nordex N60/1300 kW cold climate version (CCV) wind turbines erected last year near the town of Pincher Creek.

Canadian Hydro officers joined the Premier in marking the wind farms' opening, along with several Pincher Creek town officials, citizens, and representatives from the Nordex USA office. John Fedorko, President of Nordex USA, remarked, "It would have been possible to have the ribbon-cutting ceremony back when the project was finished (December 2001), but not many people would have shown up here in December! Fortunately, though, our CCV model turbines can take the bitter Canadian winters better than we humans can, and we are happy with how the turbines performed in their first winter."



The Pincher Creek wind turbines at the ribbon-cutting ceremony in June.

Canadian Hydro's Chief Executive Officer John Keating expressed his company's pride in "the largest installation of wind generation in western Canada." With the recent passage of the Wind Power Production Incentive by the Canadian federal government, Canada's wind industry is poised to expand at a rapid pace in the next few years. As was made apparent with the Pincher Creek wind farms, John Fedorko noted that, "Nordex will be ready to meet the demands and challenges of the booming Canadian market, especially in terms of compatibility with the rigors of the harsh Canadian winters."

Nordex at WindEnergy 2002

Positive results from the first international wind fair in Hamburg.



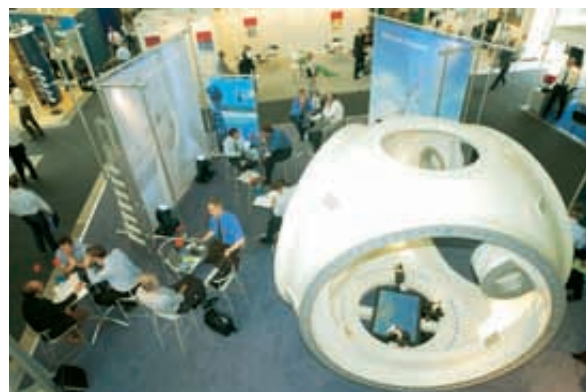
Nordex booth at WindEnergy 2002

With several sales contracts signed directly at WindEnergy 2002 (June 18 - 21, 2002) for the supply of more than 50 wind turbines, Nordex AG is able to report some highly positive results from the first international wind fair in Hamburg, Germany. The orders will already be reflected in this calendar year's earnings. Some of them form part of the master agreements recently concluded with different customers, but some new customers have also decided to buy from Nordex.

Says Dr. Dietmar Kestner, CEO of Nordex AG: "This shows that the log jam in Germany, cau-

sed by the new licensing ordinance for the installation of wind parks, is breaking up. Furthermore, these large orders underline the fact that Nordex receives its orders for the supply of turbines in the second half of the calendar year and that the product portfolio optimally suits the demand of the market."

At the première of the WindEnergy 2002 International Trade Fair, Nordex made use of more than



The huge hub of the N90/2300 kW wind turbine decorated the booth.



More than 100 Nordex customers enjoyed the Nordex boat event Thursday evening.

300 square metres to inform German and international visitors about new products and detailed solutions. The focus was on the multi-megawatt class and modern service concepts as well as on the recent innovation, the "Nordex Control 2". This wind farm portal was particularly well received by the visitors, who were introduced to the system at the booth through a direct connection of the Nordex control system to wind turbines in operation in Denmark.

Half-Year Report 2001/2002

Nordex asserting itself well in a difficult environment.

At the end of the second quarter of fiscal 2001/2002, Nordex is still on track to meet its target of full-year growth of approx. 30 percent. In the first half of its fiscal year (October 1, 2001 - March 31, 2002), the company posted roughly a 47 percent increase in turnover to EUR 190 million (previous year: EUR 129 million). Exports in the first half accounted for roughly 32 percent, with this share as high as some 55 percent in the second quarter. Foreign sales already include part of the first two export orders for the top-of-the-range N80 to the Netherlands and Norway for a total price of approx. EUR 62 million.

Nordex' rising export ratio is also partly due to weak market conditions in Germany since January 2002, caused in particular by seasonal effects as well as special conditions relating to the granting of permits, something which has been impacting the German market since the beginning of the year. Thus, it is now necessary for wind farms to be approved pursuant to the German Federal Emission Protection Act. Together with new procedural rules, this change in responsibility has led to delays.

Order receipts reflect this general trend in the German market. All in all, Nordex received new orders worth roughly EUR 180 million in the first half. However, experts assume that demand will rebound sharply in Germany in the second half of the year. Nordex additionally expects a continuation of its strong foreign business as it has successfully entered new growth markets in Europe in particular. Thus, in France and the UK it was amongst the market leaders in 2001. Established in 2000, US subsidiary Nordex USA Inc. has been reporting rising demand in North America since the extension of the production tax credits (tax allowance for wind power projects).

Earnings are stable, with earnings before interest and tax (EBIT) coming to roughly EUR 4.7 million in the first half (previous year: EUR 4.6 million). Earnings in the first half still came under strain from the scheduled start-up losses in connection with the new

rotor-blade production facilities. Thanks to the favorable interest income, earnings before tax doubled to roughly EUR 5.9 million (previous year: EUR 2.7 million).

Nordex has reconfirmed its full-year guidance for fiscal 2001/2002 and continues to project turnover of approx. EUR 460 million (previous year: EUR 354 million) together with an EBIT margin of 4.9 percent (previous year: 4.0 percent). A contribution to this wider margin will be made by rotor-blade production in second half of the fiscal year. You can download the report from our website.





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