

WIND & SOLAR

Energy with wpd



think energy



Development, financing, construction and operation of wind and solar energy projects

*With our experienced team, we are working
to restructure the energy supply*

Finite sources of raw materials, climate change and the question of energy independence are increasingly making renewable energies a central component of the energy mix. wpd has been working on the energy transition since 1996 and is building new wind projects and solar parks in Europe, the Americas and Asia.

We have played a key role in shaping the wind industry since its beginnings and strive to meet the requirements of the future with foresight.

For us, implementing sustainable projects is based on building partnerships on an equal footing as well as fairness and continuity. We are driven by the urgent need for decarbonization, but also by the political will and social support for the expansion of renewable energies. We owe the success of our fast-growing medium-sized company largely to the great commitment, many years of experience and high level of expertise of our employees.

Welcome to wpd!



Dr. Gernot Blanke
CEO



Dr. Hartmut Brösamle
COO



Björn Nullmeyer
CFO

Our team in 29 countries

at 74 locations

Germany

Bremen
Berlin
Bietigheim-
Bissingen
Dresden
Düsseldorf
Hamburg
Hanover
Kassel
Leipzig
Mainz
Münster
Munich
Osnabrück
Potsdam
Regensburg
Rostock
Schleswig
Würzburg

Belgium

Liège

Bulgaria

Varna

Croatia

Dubrovnik

Finland

Espoo
Oulu

France

Bordeaux
Boulogne-
Billancourt
Cholet
Dijon
Lille
Limoges
Lyon
Montauban
Nancy
Nantes
Paris
Tours

Greece

Athens

Iceland

Reykjavik

Italy

Bari
Cagliari
Rome

Luxembourg

North Macedonia

Skopje

Poland

Breslau
Gdańsk
Poznań

Romania

Bukarest
Cluj
Iasi

Spain

Valladolid

Sweden

Stockholm
Storuman

Switzerland

Zurich

Ukraine

Czernowitz

Brazil

São Paulo

Canada

Calgary
Toronto
Victoria

Chile

Punta Arenas
Santiago de Chile

Colombia

Bogota

USA

Houston, Texas
Mission Viejo, CA
Portland, OR

Indonesia

Jakarta

Japan

Tokyo

Mongolia

Ulaanbaatar

Philippines

Manila

South Korea

Seoul

Taiwan

Taichung
Taipei
Yunlin

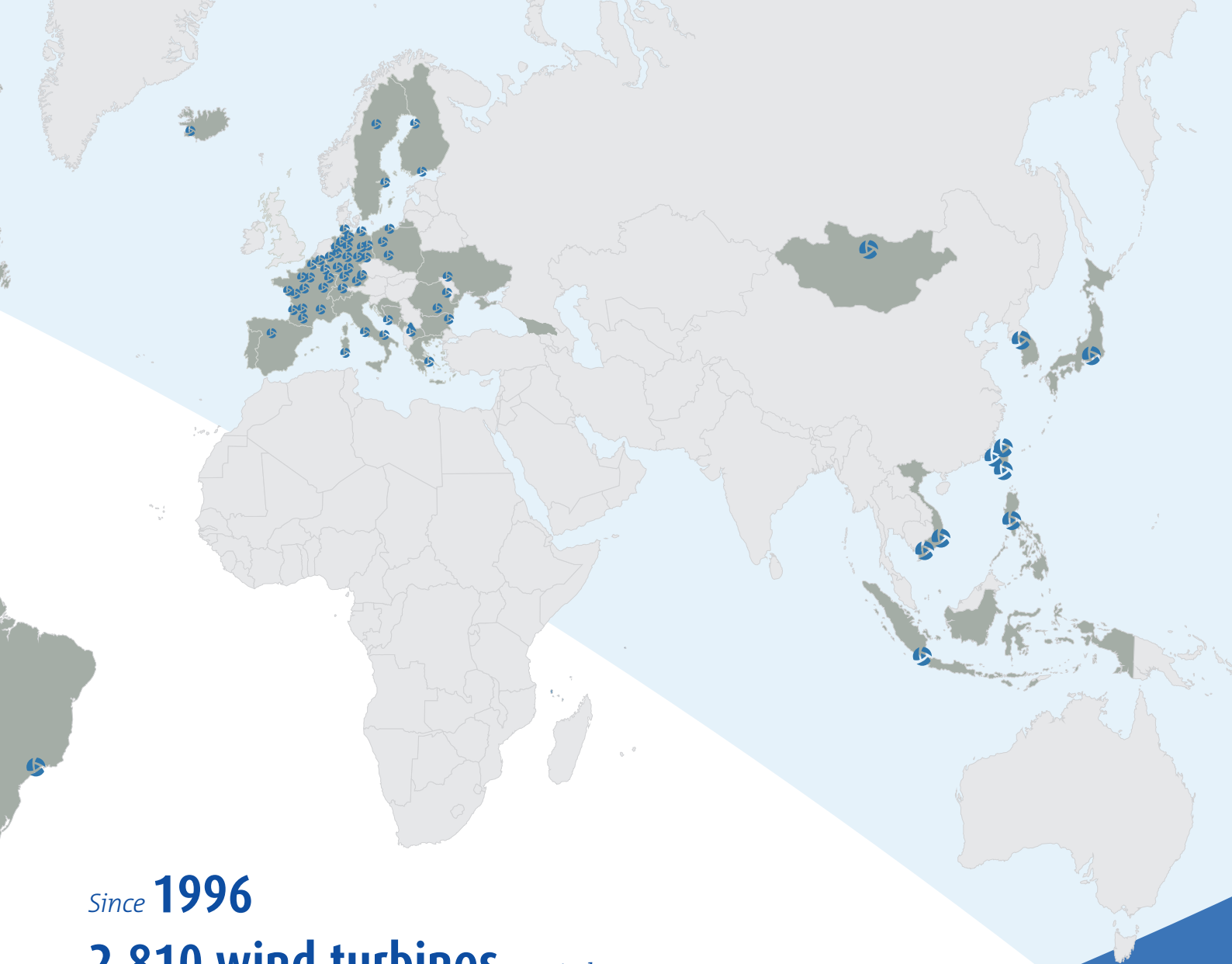
Vietnam

Ho-Chi-Minh-Stadt
Kon Tum



competent & reliable

wpd employees from our offices in Germany



Since **1996**

2,810 wind turbines *erected*

6,970 MW *installed capacity*

3,512 MW *own capacity*

Around
1,300 employees
worldwide

Today, wpd employs around 1,300 staff who are driving the expansion of wind and solar energy around the world and who offer a complete value-added chain in this field. The company's head office has been located in Bremen since wpd was set up in 1996.

The wpd group



1,300 employees

Development
and operation



600 employees

Commercial
management and
technical operational
management

 **windmanager**

wpd wind and solar projects

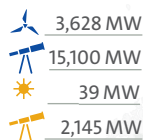


Active in **33 countries**

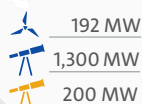
31,585 MW *wind onshore in planning process*

7,360 MW *photovoltaic in planning process*

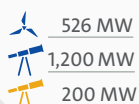
Germany



Sweden



Finland



Mongolia



Japan



South Korea



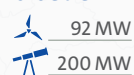
Bosnia-Herzegovina



Bulgaria



Croatia



Georgia



Greece



Italy



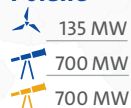
Montenegro



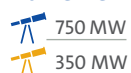
North Macedonia



Poland



Romania



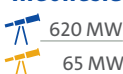
Ukraine



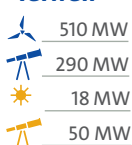
Vietnam



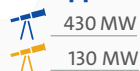
Indonesia



Taiwan



Philippines



Key

- Wind projects onshore installed
- Wind projects onshore in planning process
- Solar projects installed
- Solar projects in planning process

Status: 12.2024

Benefit from our expertise

1

Evaluation of the location

Our engineers identify the best locations for wind farms, taking into account technical and commercial parameters but also conservation concerns and the wishes of the local communities.

2

Secured under private law

Suitable locations are secured by means of purchase or lease agreements with the property owners.

3

Investigation of protected species

The comprehensive assessment of possible impacts on flora and fauna is based on species protection expert opinions and analyses.

4

Determining the potential of the wind

We conduct our own high-quality wind measurements in order to determine the exact potential of the wind and to calculate the potential yield professionally.





5

Technical planning

Specialists work out the best possible configuration of the wind farm drawing on a variety of parameters.

6

Urban development planning / permission process

We conduct all the surveys, produce the necessary documentation and accompany the entire process until final approval.

7

Planning for connection to grid

Working with the operator of the grid, our electrical engineers draw up the best concept for connecting to the grid.

8

Business concept / finance

We draw up solid financing concepts for the wind farm in conjunction with leading banks.



Benefit from our expertise

9

Procurement of turbines

When purchasing wind turbines, the focus is on long-term reliability and cost-effectiveness.

10

Project construction / implementation

Our construction engineers provide support in all phases of the construction process, thereby guaranteeing that the wind farm will be built reliably.





11

Compensation and replacement measures

We develop and implement site-specific compensation and replacement measures comprehensively and sustainably and provide long-term support for them.

12

Commissioning

Our electrical engineers ensure that the wind farm is safely connected to the power grid.

13

Management and operation of the plant

We ensure the best possible technical and commercial operation of the turbines throughout the entire lifetime of the wind farm.

14

Marketing electricity

We develop innovative concepts in order to act as an independent producer of wind power on the market.



Our history

2005

wpd enters the world of international project financing with a 50 megawatts project in Taiwan

Wind turbines with more than 1,000 MW are installed by wpd

2011

Stadtwerke München takes a 33 percent stake in wpd europe GmbH; the international onshore activities in Europe and Canada are consolidated in this wpd subsidiary

2000

wpd offshore GmbH founded

More than 100 turbines and over 100 megawatts on the grid

1996

wpd GmbH founded by Dr. Klaus Meier and Dr. Gernot Blanke

1997

Realisation of the first wind farm: Olzheimer Berg

2001

wpd AG set up

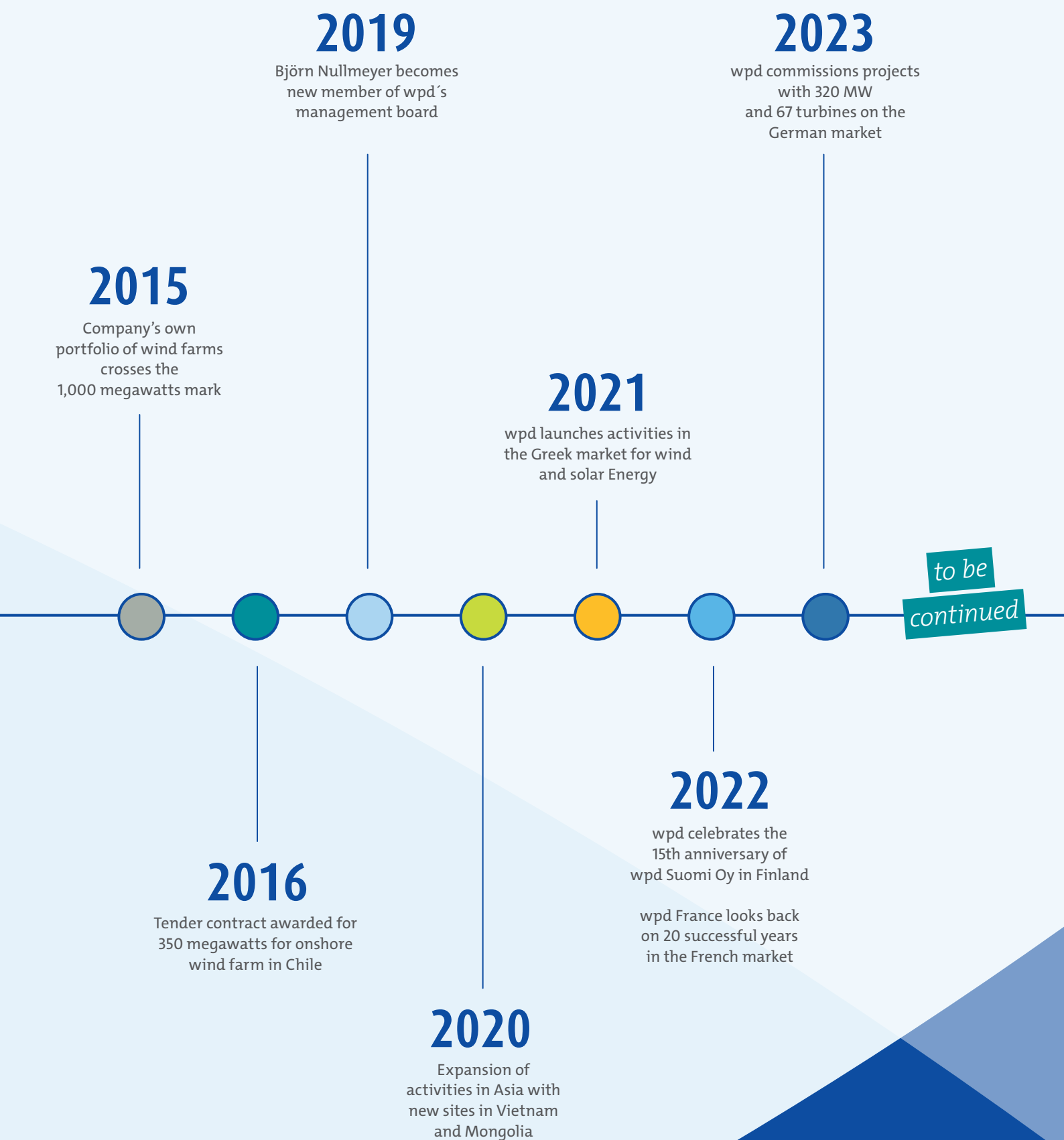
Over 200 turbines and around 240 megawatts in operation

2006

wpd acquires EnerSys GmbH; this leads to acceleration of international project development; Managing Director of EnerSys, Dr. Hartmut Brösamle, is appointed to the board of wpd AG

2014

wpd commissions its first two projects in Canada, and also starts construction of a major project in Finland



SOLAR

Energy with wpd



Photovoltaics represent an important pillar of renewable energies, and cross-technology solutions often make sense here. wpd therefore sharpened its focus on photovoltaics in 2016 and restructured its previous activities around the world in this business segment.



focus on the sun



wpd rounds off portfolio with photovoltaics

With solar energy, our focus is on so-called utility scale solar projects. Large-scale, free-standing solar power stations make a major contribution to reliability of supply and affordable renewable electricity. wpd delivers everything from a single source. We provide the finance and connection to the grid, coordinate expert reports and studies, plan the design of the park, purchase the components and manage the construction. wpd has already successfully implemented its first projects, e.g. in Taiwan where it realised PV roof-top projects in industrial parks.

Building on this success, we are currently working on expanding the project pipeline and reinforcing local teams in our priority regions of Europe, North America and in parts of Asia.

WIND

Energy with wpd

For more than two decades, wpd has been playing a determining role in shaping the ongoing development of the environmentally friendly and cost-efficient use of wind energy on land.

Our teams reliably and continuously prove that they are capable of mastering very different challenges in the development and implementation of onshore projects.

Staff from the wpd team in Finland

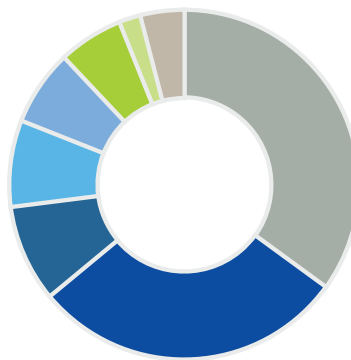


A major success in more than two decades

In 1996 the two founders stood alone – today 1,200 employees at wpd work in the onshore wind energy division. Of these, around 720 work in the German market and 480 in international markets – and we are currently developing onshore projects primarily in Europe but also in America and Asia.

All these employees represent a total of about 2,810 wind turbines so far with a total worldwide installed power of around 6,900 megawatts. Ahead of them lie projects amounting to a further 31,585 megawatts – a challenge that all those involved approach with high motivation and the conviction that they will master it just as successfully as the others before.

The individual teams, sometimes working with partners, take reliable care of all phases of the projects – from the first evaluations of the location, wind measurements, the approvals process, finance, turbine purchase through to the construction and sustainable operation of the wind farm.



Manufacturer of the turbines installed by us

- Enercon 34 %
- Vestas/NEG Micon 29 %
- Siemens 9 %
- Nordex 9 %
- GE 7 %
- Senvion 6 %
- Frisia 2 %
- Others 4 %

Farnstädt

Many interests – one farm

Facts

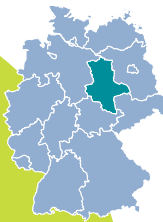
Number of turbines:
16

Type:
Vestas V-90

Rated power:
32 MW

Location:
Saxony-Anhalt

Commissioned:
2007



As early as 2004, wpd erected three turbines in the 1.5 megawatt class at the Farnstädt location in collaboration with a private operator, and took over the design for a further 16 turbines from a small planning office. The planning process for this took several years before final commissioning. During this period, our in-house experts determined the ideal turbine and farm configuration, concluded numerous licensing contracts as well as a very sophisticated permit

process and implemented the construction of a transformer substation. wpd mastered the task of finding solutions on behalf of all stakeholders: land-owners, the local community, the regulatory authority, the utility and the operator of the neighbouring wind farm. The 16 new turbines have been in operation since October 2007.



Wilstedt

Facts



Number of turbines: 9

Type: Enercon E-82

Rated power: 18 MW

Location: Lower Saxony

Commissioned: 2008



”

„Work has been going on to expand this farm since 2013, and our new group of owners also opted for wpd as their partner. We really appreciate working with them on an equal footing!“

Hermann Cordes,
farmer and chairman of the group
of owners for the wind farm extension in Wilstedt/Lower Saxony.




Facts

Number of turbines: 9

Type: Enercon E-101

Rated power: 27 MW

Location:
Mecklenburg-Western Pomerania

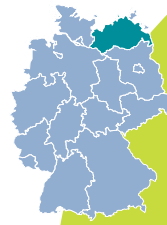
Commissioned: 2013 / 2014

Dalwitz

Perseverance leads to success

When wpd organised a major inauguration ceremony with 250 guests at the Dalwitz wind farm in September 2014, all those involved had a long period of project development behind them. After all, roughly seven years had elapsed from wpd's initial contact with the Municipal Office of Gnoien, the local authority of Walkendorf and the landowners until the inauguration. Due to species protection, military airspace security and an uneven construction site, the turbine locations had to be moved and repositioned several times. After a long winter, work finally began on constructing the roads and laying the deep foundations in the spring of 2013. The turbines were successively commissioned from the end of 2013. Nine Enercon E-101 units each with a rated power of three megawatts now generate green electricity on the site.

On paper, the annual yield amounts to 70,000 to 80,000 megawatt hours, equating to the electricity needs of around 20,000 average households.



Facts

Number of turbines: 11

Type: Enercon E-82 and E-101

Rated power: 26 MW

Location:
Mecklenburg-Western Pomerania

Commissioned: 2012

Fahrenwalde

Speedy time travel

The 26 megawatt Fahrenwalde project can be described as a collaboration project with challenges. For wpd, the special planning feature lay in the speedy implementation specified. The permit was only issued in March 2012 but the target was to commission all the turbines in the same year.

A target that the wpd teams met as by the end of 2012, all ten Enercon E-82 turbines and one Enercon E-101 had been erected. The wpd team also experienced one hitherto rare surprise when constructing the transformer substation. Several finds from various periods of human history from the Bronze age to the Slavic period made it necessary to conduct an archaeological dig. Although construction was interrupted, in the end all the turbines were commissioned on schedule.



Facts

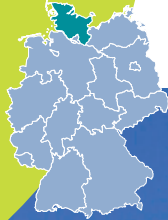
Number of turbines: 6

Type: Enercon E-70

Rated power: 13.8 MW

Location: Schleswig-Holstein

Commissioned: 2009 / 2011



Wehren

Less is more: Repowering in Wehren

The Wehren wind farm represents one of wpd's first repowering projects. This wind farm was originally built in 1998 with eight Type E-40 Enercon turbines. As part of the repowering project, this number was ultimately reduced to six Enercon E-70 units. The first five turbines were commissioned in August 2009 and the final turbine in January 2011.

At the same time, the installed power at the location was increased from 4 megawatts to 13.8 megawatts; the annual energy yield rose to over 23,000 megawatt hours. A good example of how repowering can make sense. Several turbines from an earlier technology and power classification are replaced by fewer but more modern turbines – multiplying the energy yield at the same time.





Leipzig

A groundbreaking project

Wind energy is generated directly for industry at the Leipzig wind farm, in this case for the car manufacturer BMW. Specific features of the site such as integration into the existing infrastructure and the consideration given to factory processes represented particular challenges. Here, too, wpd delivered customised planning.

The direct integration of wind turbines into industrial estates with one or more consumers offers the opportunity to take the strain off the grid and for the companies involved it represents a visible connection with the production of green electricity. The four turbines of type N-100 from Nordex each with a rotor diameter of 100 m supply the energy generated directly to BMW's own works grid. With a gross energy yield of around 28,000 megawatt hours per annum, this saves carbon emissions on a scale of over 21,000 tons.

Facts

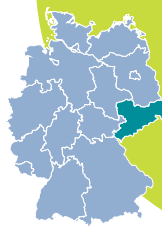
Number of turbines: 4

Type: Nordex N-100

Rated power: 10 MW

Location: Saxony

Commissioned: 2013



Montagne-Gaillard



Facts

Number of turbines: 8

Type: Enercon E-82

Rated power: 18.4 MW

Location: Picardy / France

Commissioned:
2013 / 2014

Example of successful local participation

The Montagne-Gaillard wind farm is located between Amiens and Saint-Quentin in the municipalities of Épehy and Villers-Faucon on a site boasting excellent wind conditions. It consists of eight wind turbines with a total rated power of 18.4 megawatts enabling annual production of around 40,000 megawatt hours.

The towers for the turbines are among the first to be produced by the manufacturer Enercon in its factory for prefabricated concrete towers in Longueuil-Sainte-Marie, around 100 km distant. Many local companies also participated in setting up the wind farm. It was finally commissioned in May 2014 which enabled wpd France to celebrate a major inauguration party in July with almost 300 guests.

Ponikve

Strong performance on the Adriatic

wpd is among the pioneers in the Croatian wind market, and in 2006 it commissioned its first wind farm in the country near the Adriatic coast. The second followed in 2009, and the Ponikve wind farm became the third and hitherto most powerful project realised by wpd in Croatia. It is situated 60 kilometres north-west of Dubrovnik on the Pelješac peninsula and it can supply around 17,000 households with environmentally friendly energy.

The wpd construction teams on the ground experienced this project as one of their most exciting as the rocky ground of the project site located on a mountain ridge made it necessary to conduct extensive, challenging blasting work. Imponderables such as storms, sleet and heavy snow as well as the construction of a separate transformer substation were further challenges. But thanks to the know-how and commitment of its teams, wpd completed the wind farm on schedule.



Facts

Number of turbines: 4 and 3

Type: Senvion MM-92

Rated power: 8.2 and 6.15 MW

Location: Ontario / Canada

Commissioned: 2014

Springwood und Whittington

Premiere in North America

After a planning and permit phase lasting several years, wpd was able to celebrate a major success at the end of 2013 with the start of construction on the Springwood and Whittington wind farm in the province of Ontario in Canada and to break ground on the infrastructure for a total of seven wind turbines of type Senvion MM-92.

Arctic temperatures made the work considerably harder for a period of time, but the commissioning date was met and the turbines have been running since the end of 2014. Implementation of these first two projects in Canada was an important milestone for our local team and the wpd Group as a whole as the wind farms were also the first ever projects in North America.



”

„With projects of this complexity, it’s a question of experience, knowledge of the country and implementation skill – and at the end it’s the environment that benefits. This is what wpd stands for and we have relied on them as our partner for many years.“

Mirko Sedlacek, KfW IPEX-Bank,
Team Head Power, Renewables and Water

Facts

Number of turbines: 16

Type: Enercon E-70

Rated power: 36.8 MW

Location: Peninsula of Peljeac / Croatia

Commissioned: 2012



Tohkoja

Wind farm defies icy conditions

In acquiring the project rights for the Tohkoja wind farm, wpd secured its third project in Finland in 2014. Construction was a challenge primarily in terms of the schedule as the long winters only allowed short windows for setting up the turbines with the result that they had to be completed in stages. The frequently icy conditions in Finland also played a role in the choice of turbines. All the rotor blades are fitted with blade heating and are thus able to operate safely even at sub-zero temperatures.



Facts

Number of turbines: 22

Type: Vestas V-117

Rated power: 72.6 MW

Location: Finland

Commissioned: 2016

Guanyin

Hand in hand with Nature

wpd has been operating in Taiwan since 2005. A planning office was acquired in 2016 with infraVest Energy Co. Ltd., and the company familiar to all today, wpd Taiwan energy Co. Ltd., was set up. In spite of extreme geographical and climatic conditions such as typhoons in the summer and the ever-present risk of earthquakes, wpd has successfully implemented numerous projects in Taiwan to date.

One of these projects is the Guanyin onshore project on Taiwan's north coast which was realised by wpd in collaboration with infraVest. The total of 19 turbines in the project were commissioned between 2009 and 2011. Previously, the planners worked with the state "Forest Bureau" which is respon-

sible for environmental matters to develop a concept for how the area required for the project can be compensated. wpd's Taiwanese team arranged for selected species of bushes and trees to be planted in a nearby technology park. For every tree felled, one and a half times more new seedlings were planted which wpd Taiwan continues to care for. And these are not the only things we are looking after. The Guanyin onshore wind farm has also become the new home for a flock of little terns. Every year, a nearby road is closed to protect the birds during their breeding season.

Facts

Number of turbines: 19

Type: Enercon E-70

Rated power: 43.7 MW

Location: Taiwan

Commissioned: 2009 - 2011

www.windmanager.de

Efficient wind farm management

24 hours a day, 7 days a week

wpd windmanager handles all tasks relating to the commercial and technical management of wind farms and solar projects. In the 24/7 control centre, our sister company monitors all assets worldwide and around the clock. The high quality and safety standards of wpd windmanager are certified according to ISO 9001 and ISO 27001. The company meets constantly growing challenges by developing new services.

As a globally active and continuously growing company, fund companies, municipal utilities, operators and institutional investors have been relying on the sound expertise of wpd windmanager since 1998. In addition to Germany, the operations manager is active in various other European countries, in South America and also in Asia.

Our contribution

„Climate protection is one the greatest challenges of the coming decades.

It's important to us to also support non-commercial projects from other fields in addition to our successful commitment to the wind and solar energy sector, and thus to make our small contribution to preserving our planet.”

Dr. Hartmut Brösamle, COO

wpd is committed to the construction of small-scale biogas plants in Nepal ...



Protecting climate and nature sustainably

CSR projects offset 100% of our carbon emissions



... and to reforestation measures in Guatemala

Our motivation is to protect the climate and our resources. That is why we are making an especially strong commitment in this area. Naturally by expanding wind and solar energy but also by taking a responsible view of our everyday work. For example, we do our utmost to avoid flights and car journeys, we provide company bicycles and increasingly rely on electromobility. To this end, numerous charging points for electric cars have been installed at our facilities.

At wpd, we have long been offsetting 100% of the emissions caused by our work. In doing so, we work with the German non-profit organisation atmosfair. For our offices, business travel, flights, employee commutes and the work of our IT department, 3,800 tons of carbon were offset in 2020 and 2021 and 4,700 tons in 2022.

For example, together with atmosfair, we have thus been able to support the construction and maintenance of several hundred small-scale biogas systems in Nepal.

Each system saves around 3 tons of carbon per year, counteracting the deforestation of local forests. Since September 2022, we have also been supporting a local waste management project in the region in addition to building new biogas systems.

In addition, we are subsidising further sustainable, sensible projects such as reforestation in Guatemala, the replacement of paraffin lamps with solar lamps in Pakistan and the rewetting of a moor in Mecklenburg-Western Pomerania.

We receive regular positive feedback from these projects. In Guatemala, around 2 hectares of land are reforested every year with around 3,000 tree seedlings. In Pakistan, the solar lamps funded by wpd save a substantial amount of carbon and relieve the financial strain on families. And the restoration of the moor in Lenorenwald in Mecklenburg makes a valuable contribution to the countryside's water balance, climate protection and nature conservation.

Small steps that we regard as meaningful and important.

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