




Inside

Sustainability at wpd: From organic milk to carbon compensation Page 3



Around 90 WTGs
under construction
in Germany in 2023

Page 4



Marshland
challenge:

Expertise in foundations
required

Page 2

A wind farm on the marshland – like offshore on land



Turbines in the adjoining Brake wind farm

A wind project on difficult terrain? That can cause a project to fail – but it can also be a challenge which can be faced up to successfully. This is true in the case of wpd's project in the wind field of Ovelgönne/Brake in northern Lower Saxony.

Six turbines are to be erected here: three as a repowering measure in the “Brake” sector, two in the area of “Ovelgönne” and one in “Ovelgönne-Niederort”.

The six turbines will be erected in the Wesermarsch region. The land here is protected by dikes from the river Weser overflowing its banks and from storm surges; two thirds of the land lies below the mean flood water level. You can encounter drainage channels and ditches everywhere. And yet you feel as if there is water just below the grass. It is said that even the sheep that are so typical for the countryside frequently sink up to their bellies. Constructing an onshore wind farm here is almost like “offshore on land”.

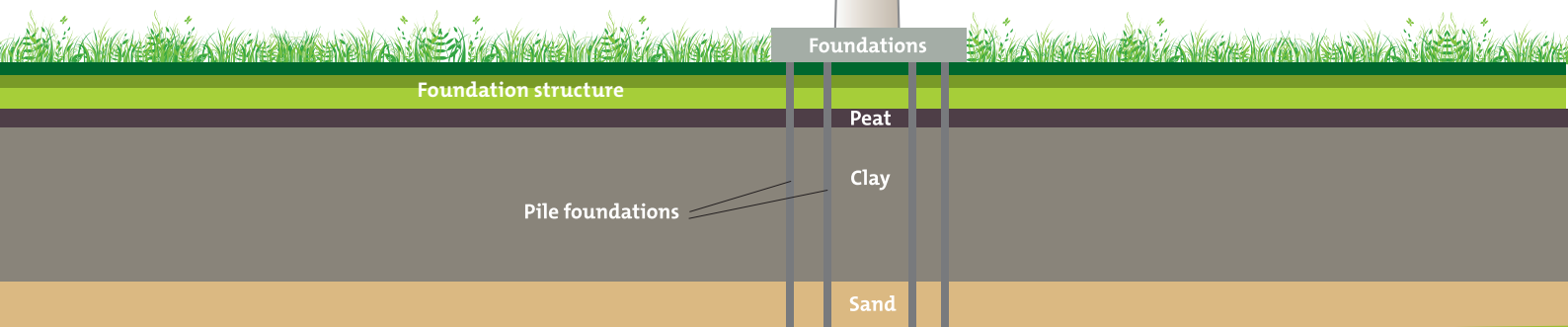
However, the local wind conditions are ideal. For over a year, the teams in the departments for building infrastructure and technical project management at wpd repeatedly assembled all the stakeholders in order to agree on a foundation concept: from soil experts and specialists in the design of foundations to representatives of the turbine manufacture. A Herculean task to get such a multitude of stakeholders around a table time and again.

There was no question of lowering the level of the groundwater by technical means as the turbines come within 600 m of residential developments. Many of the older residential buildings here were built on wooden piles. If the level of the groundwater were to fall, the piles would be exposed to oxygen which would cause them to rot.

This necessitated a foundation concept for the turbines themselves but also for all further surfaces that represents a radical departure from the standard. While the turbines will rest on pile foundations, infrastructure areas will be built upwards from the turf. No excavations and no backfilling. Instead, surfaces will be constructed in four to six layers between which so-called “geomats” will ensure stability. According to current estimates, the layers to be built for approach roads will be approx. 90 centimetres and 130 cm for the crane sites. The technical term for this design is “mattress” and it is complemented by numerous stabilising pile foundations.

All in all, the participants are sure that this will be a once in a lifetime project. Ultimately, the plan for the building application is a very colourful design. Every colour and every line in the drawing represents a unique challenge presented by the Wesermarsch area as a construction site. The Ovelgönne project shows what can be accomplished in terms of construction technology if all the available know-how is marshalled.

Simplified representation of the foundations



Acting sustainably – from organic milk to carbon compensation

Sustainability and awareness of our interactions with our environment – these are the guiding principles behind wpd's corporate conduct and development. However, they also leave their mark on everyday working life at our now 17 facilities in Germany and our offices in a total of 29 countries around the world.

For example, wpd has been preparing its own carbon footprint report for many years and it offsets its emissions through in-house projects and the German non-profit organisation atmosfair.

Theoretically, of course, wpd could offset all its emissions simply through the operation of the wind farms in its own portfolio. But wpd has deliberately chosen to separate compensation from its actual business and for many years now, it has committed to various compensation projects worldwide, in Nepal, Guatemala, Pakistan or also in Germany. You can find more on this topic on our website at: <https://www.wpd.de/en/wpd/sustainable-action-at-wpd/>

Recently, wpd started supporting the expansion of a community recycling center (CRC) in the Nepalese region of Langtang in which the waste from seven villages is collected, separated and prepared for recycling. And in Madagascar, wpd is sponsoring the electrification of a health centre focusing on mother and child care to ensure that emergency treatment and deliveries are carried out with suitable lighting and vaccines and medicines can be safely stored. Rooftop solar panels were installed for this purpose.

We are also trying to make our daily processes gradually more sustainable by implementing various measures. And over the last few years there has been mounting evidence of how it has become second nature to wpd employees to think along sustainability lines. The annual wpd green office competition and the specially set up, digital "Green Board" as

a forum for the exchange of ideas, experiences and tips as well as for the joint implementation of new campaigns for a greener company reflect wpd teams' heightened awareness of this topic. A wide variety of campaigns contribute to this awareness over the course of the year, be it waste collection campaigns or competitions which promote increased use of bicycles.

And wpd doesn't stop at the colour green as employees also have their eyes on social injustice besides ecological and economic sustainability. For example, a clothing collection for a home for people with disabilities in Romania contributed over 100 cardboard boxes of clothes in good condition. Thanks to the generous support of wpd, the aid transport organised by the "Social and Ecological Future" foundation for the centre for people with disabilities was also able to bring an industrial washing machine and a new cooker to Romania. The joy elicited by the aid truck in these more than 60 people, some of whom suffer from severe disabilities and who live in great poverty on the Ukrainian border, was immense.

Whether with projects for renewable energy, commitment to our environment or to other people: We try to contribute and to make a difference for our joint future.



<https://www.wpd.de/en/wpd/sustainable-action-at-wpd/>

Waste management in Nepal



Electrification of health centre in Madagascar



Strongly positioned – around 90 turbines currently under construction

wpd currently has around 420 MW or almost 90 wind turbines under construction from earlier approval processes in Germany. The company is reinforcing its strong position as one of the leading companies in the sector in its home market of Germany with a strong pipeline.

The political choices made to achieve the expansion targets set are having a noticeable effect here on the market for onshore wind. For 2023 alone, wpd expects approvals to be issued for wind farms with a total capacity of over 400 MW.



4,800 MW of onshore wind capacity
at the planning stage in Germany



400 MW of onshore wind capacity
to be approved in 2023



420 MW (90 turbines)
of onshore wind capacity
under construction in Germany



**We will be at Husum Wind from 12/9 to 15/9!
Come and see us in Hall 4, Stand B06**

15 September is career day at Husum Wind.
Are you looking for a stimulating, long-term job?
On career day, you can find us on our stand at NCC 29.

Company runs in Leipzig ...



... and Bremen



wpd Cup



wpd laces up the sports shoes

wpd is doing more than driving the energy turnaround with wind and solar projects. The teams themselves are also active, and more often than not they are also promoting a good cause in their sporting activities. Whether it's a volleyball tournament or a company run: pictures and

reports of our colleagues participating in events keep flooding in from all kinds of locations. And after a four year break, it was finally time to fight again for goals, victories and cups in the wpd Cup, the traditional football tournament at the Bremen subsidiary.

Celebrations: wpd commissions its next projects

Official commissioning processes are always a reason for a celebration. This year, too, we were able to hand over a number of projects for their intended purpose. The solar park celebration in Baden-Württemberg's Wiernsheim (10 Mwp) was followed in the summer by two wind farm parties for the Ehra-Lessien (over 25 MW) and Oyle-Bühren (almost 21 MW) projects, both of them in Lower Saxony. Planning for the coming inaugurations are already underway ...



*Wind farm celebration
in Ehra-Lessien (top) and
solar park celebration in
Wiernsheim (bottom)*

Ukraine, Georgia, Columbia – Welcome to wpd!

After Iceland and Belgium, wpd is continuing to drive the globalisation of its corporate activities. Columbia sees the addition of the fourth country in North and South America following Canada, the USA and Chile. In Europe, wpd's sales office in Georgia is due to be set up after the opening of the office in Ukraine. Promising new markets for further projects which we will realise for the global energy turnaround.



*Opening of wpd's office in Ukraine
with representatives of the town of
Czernowitz, the wpd team and Hartmut
Brösamle, CEO of wpd AG*

New structures, fresh synergies in North America

wpd is restructuring itself in the North American market: wpd USA and wpd Canada are becoming Team North America! By integrating the two facilities that previously operated separately, the intention is to leverage the existing synergies even better and more productively with new elan. In this way, existing and future project plans can join forces and can be advanced on a cross-border basis, as it were.

Canada

USA

Committed even beyond the project

wpd is working on implementing the 102 MW Khanbogd project in Mongolia. In addition, the team is also showing its commitment on the level of economic policy and it was part

of a delegation visit during an intergovernmental exchange between Mongolia and Germany. Hans-Christoph Brumberg, General Manager Asia at wpd, also acted as Co-Chairman here in a meeting of the German-Mongolian Economic Committee (DMWA). In an interview in a programme by Bloomberg TV Mongolia, wpd had previously identified the

opportunities for renewable energies in Mongolia and had even had its own documentary produced for Mongolian TV in which the basic principles of exploiting wind energy are explained.



Meeting of the intergovernmental working group in the capital of Ulaanbaatar in June

Mongolia

Taiwan

Implementation of the next projects in Taiwan



In mid-April, construction of the 200th onshore turbine by wpd Taiwan in the country was celebrated in the Chuangwei II project. Since then, this number has continued to grow. The next turbines have recently been erected in the Hsinyuan project; with a hub height of 112 metres, these are currently the tallest turbines in Taiwan.

And while the final turbines are being installed for Hsinyuan, the next components for the Kewei and Hefeng projects are already on the high seas en route to Taiwan. wpd's Taiwanese team will once again take charge of the entire logistics from the port as well as assembly under its own steam.

Turbine in the Chuangwei wind farm

200th
wpd wind turbine
in Taiwan

wpd Adria: Four markets, valuable experience and great prospects

Croatia
Bosnia-Herzegovina
Montenegro
North Macedonia



*Wind farm Katuni
in Croatia*

“wpd Adria” represents wpd’s office in Croatia and its activities in the Adriatic region. This

region offers ideal conditions for the development of wind and solar projects. The company has been running an office in Dubrovnik since 2000 and has now successfully implemented four wind farms in Croatia with a total installed capacity of 92 MW: Trtar-Krtolin (2006, 11.2 MW), Orlice (2009, 9.6 MW), Ponikve (2012, 36.8 MW) and Katuni (2016, 34.2 MW).

Besides Croatia, wpd’s operations in the Adriatic region are currently focused in Bosnia and Herzegovina, Montenegro and Northern Macedonia. The energy turnaround is seen very differently here and the markets are not only relatively small in terms of their geographical size but also have different regulatory systems.

This is where the wealth of experience that wpd Adria has gained in over two decades of operations in Croatia, pays off. In this period, the country joined the EU and as Bosnia and Herzegovina, Montenegro and Northern Macedonia are considered candidates to join, wpd’s rich experience is turning out to be a real competitive advantage as partners can benefit from their extensive know-how when planning projects. And this has certainly contributed to the fact that wpd has established a project pipeline of more than 1,500 MW in the Adriatic region.

One highlight here is the Virovi project in Northern Macedonia which is becoming the largest wind farm in the country with a capacity of 414 megawatts and it represents the largest foreign investment in the country.

In Bosnia and Herzegovina, wpd is working on a wind farm system in four municipalities with an installed capacity of more than 1000 MW. Two phases are currently going through the approval process in the shape of the Čadilj (138 MW) and Marino Brdo (126 MW) wind farms. The Vaganj and Kruzi projects are waiting for concessions for a total capacity of more than 800 MW.

In Croatia, wpd Adria is resetting its focus. With respect to wpd’s four existing projects in Croatia, the wind farms are to be hybridised and expanded to include photovoltaic systems. In the Katuni project, approval has already been issued for the erection of a 30 MW PV system which will share its grid connection with the wind farm in a so-called “cable pooling” process. A similar approach is to be adopted for the other three wind farms with potential for a further 50 MW of capacity.

At the same time, wpd Adria is working closely with the Department for Power Purchase Arrangements (PPA) in Bremen which offers an enormous boost to project development thanks to wpd’s great experience as a partner for PPAs. For example, Croatia has now seen the first agreement concluded between two non-governmental market participants.

Previously, wind projects in the country had only been planned and realised near the coast. In the future, the country’s energy strategy is also to comprise projects in locations remote from the coast. wpd Adria has already launched its first continental wind measurement campaign for this purpose: in Tovarnik in the Pannonian plain near the course of the Danube.

The team is not only ideally positioned in the Balkan region thanks to its experience and commitment but is also eyeing the prospect of a successful future.

Strongly positioned in the global solar boom: wpd solar on a growth trajectory

Active in 10 countries

3,235 MW of photovoltaics at the planning stage

Over 100 employees



2023

Solar energy
in the EU:

62.4 GW

2022

Solar energy
in the EU:

48.3 GW

Solar energy is playing an ever more important role in the global energy landscape. In the meantime, it is fair to talk of a “solar boom” that is driving the energy turnaround to decisive effect.

This boom can be evidenced by one impressive milestone: worldwide generation capacity passed the terawatt mark in 2022. And the positive market developments of the first months of 2023 confirm this trend. The forecast is for 341 GW of newly installed solar power capacity by the end of the year, a rise of 43% over the previous year.

Globally, China’s solar market is the undisputed number one but the European market is also displaying strength, reflecting the commitment of the European Union (EU) to renewable energies and the energy turnaround. With an increase from 14.1 GW in 2022 to a probable figure of 62.4 GW in 2023, the indications point to impressive growth of 35%.

As part of this development, wpd solar is well on its way to becoming a solar IPP (Independent Power Producer) with its commitment to expanding its photovoltaics division. And this strong position is to be further expanded. In order to successfully implement in particular the large volume of projects at the construction preparation stage in the European market, wpd is continuously expanding its teams entrusted with realising projects and the procurement of components.

The aim is to be able to offer “the energy turnaround from a single source”, as it were, to pool the know-how required on a global scale and to continuously expand its constantly growing expertise in solar projects. This includes building interdisciplinary teams of experts with experience in the areas of project development, technical planning, finance, construction and operation.

In this process, wpd is constantly focused on the concept of planning and realising projects with equal partners with teams set up to best possible effect. The creation of synergies guarantees that the potential for the long-term success of a project can be leveraged.

The context for realising projects is changing rapidly in a dynamic market. wpd solar is developing and operating projects accordingly with its focus on efficiency and the long term. The financial strength of the company enables it to respond to changes and adjust its alignment accordingly. The focus here is always on the aspect of operational and maintenance strategy. This is the only way to maximise the performance and lifespan of the turbines. Here, too, wpd’s teams are contributing the right resources, expert knowledge and processes to the project.

The boom in the sector and in the market is driving the global energy turnaround together with wind energy. wpd solar is experiencing its own boom, so-to-speak, and showing itself to be excellently positioned for the future.

Global increase in solar energy
in **2022:**

239 GW

66 % of renewable energies

SOURCE: GWEC (2023), IRENA (2023),
SOLARPOWER EUROPE 2023

More than just a new name – wpd windmanager technik becomes energy grid service



After the acquisition of Deutsche Windtechnik Umspannwerke and Oldenburger Oltec Service, the subsidiary wpd windmanager technik has been operating as energy grid service since 1 June. The new name is the next step in the company's realignment.

Four managing directors in the shape of Nils Brümmer, Oliver Klausch, Frank Lorenzen and Torsten Stoll (from l to r in the picture) are steering the fate of the company. "The aim", states Nils Brümmer, "is to continue the successful divisions of wpd windmanager technik, particularly in the area of electrical infrastructure and to add new services. In particular, this includes offering solutions in measurement and control technology as well as for issues surrounding transformer substations for wind farms and solar parks. We create short lines of communication for our customers thanks to our successful internal networking in looking after the various voltages."

A reliable, permanent energy feed is the top priority. Only a working turbine can produce renewable electricity – a truism but of enormous importance in times of energy shortages. The operations teams on the ground make sure this is the case thanks to regular inspections.

The company's cable test van can quickly identify potential faults in the park cabling. Keeping important electronic components in stock, from a simple fuse to complex sub-assemblies, saves valuable time in the procurement of spare parts.

Not least, energy grid service ensures that the systems it looks after maintain a high performance with intelligent solutions and tailored measurement and control technology concepts.

"By acquiring Oltec Service, we can now also count on a wealth of technical knowledge," Oliver Klausch emphasises. "In this way, we can offer innovative communication and control technology tailored to our customers, including at a high voltage and extra high voltage level."

With the many years of experience contributed by the 117 employees, the team is ideally equipped to deal with current and future challenges. Reinforcement of the personnel structure is also a key issue here. "As our facilities are excellently networked, we are able to offer jobs in all the important wind and solar regions in Germany," Torsten Stoll states. The managing directors of energy grid service are in agreement: "We are convinced that we will be able to convert the realignment of wpd windmanager's subsidiary in conjunction with the expanded range of services into better performance and availability of our customers' wind and solar energy systems. In doing so, we will also make an important contribution to the success of the necessary energy turnaround."

Come and
see us at
HUSUM Wind:

HUSUM WIND
12.-15. Sep 23
Hall 4
Stand C16



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