ENO ENERGY | May 2023

The magazine
for success with wind

Power 2023

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ENO mag


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Du hast ein Haus und denkst über Photovoltaik nach? Dann lass dieses innovative Projekt doch einfach von eno energy machen. Wir als Arbeitgeber unterstützen dich in der Planung und Umsetzung einer PV-Anlage auf deinem Dach.
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The Flagship
Rated Power
6.0MW
Hub height
100–165m
Rotor diameter
160m
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Dreh´ mit uns am Windrad
SO FUNKTIONIERT ES:
2023
Made in Germany since 1999

Dear eno mag readers,

The German government has made a bold commitment to the development of wind power, with Chancellor Olaf Scholz calling for the construction of an average of four to five new onshore turbines every day up to 2030 as the only way wind power generation can be ramped up to 115 gigawatts within seven years. It is therefore “absolutely essential” to accelerate the expansion programme, says Federal Minister for Economic Affairs Robert Habeck. In his view, renewables are not just about protecting the climate, “they are about Germany’s future as a business location, they deliver security”.

The first regulations and laws on faster expansion have been initiated or are already in force, such as the Onshore Wind Act. This piece of legislation provides for each federal state in Germany to make 1.4 per cent of its area available for wind power generation by 2027, rising to two per cent by 2032.

This favourable regulatory environment is urgently needed, that much is clear. According to Windcomm, the amount of electricity generated from wind rose by 18 per cent last year. However, that was more to do with windy weather than expansion. Some 224 turbines generating 244.4 MW were decommissioned in 2022 alone; this contrasts with just 476 projects being implemented, generating a total of 2,072.5 MW.

Skilled. Innovative. Flexible.

Here at eno energy, we actively support the government’s ambitious proposals and are helping to bring its plans to life. With over 30 years of experience in engineering, we are committed to finding bespoke solutions for projects ranging from 4 to 100 MW and to reliable, fast delivery of complex construction schemes. In addition, we offer intelligent wind farm concepts and custom finance options.

We are proud of the positive market feedback on our innovative products and the high level of demand. 2022 saw us commissioning a number of wind turbines on the 4 MW platform, despite lengthy approval processes and complicated planning issues.

We are also pleased that we are bringing our 6 MW platform wind turbines to the market across a number of projects. The first eno152 turbines were installed as part of these projects, while completion of the eno160 type turbines is scheduled for the last quarter of the year.

Obviously, we cannot handle all these complex challenges on our own. Our watch-word is collaboration. That’s why I would like to take this opportunity to thank all our customers, partners and colleagues for their commitment and contributions. To further strengthen links between all stakeholders and experts, our Rostock Wind industry event is again taking place this year.

I hope that you enjoy reading this issue and discovering our completely revamped eno mag.

Best regards,

Karsten Porm

Rostock Wind 2023

Popular industry event to be held on 11 August

High-profile guests, insightful in-person exchange and a sailing trip on the River Warnow – that neatly sums up Rostock Wind. This year, the wind industry event will be held at the Radisson Blu Hotel in the historic Hanseatic city on 11 August. Attendees can look forward to presentations on technology, financing and planning, together with an attractive fringe programme.

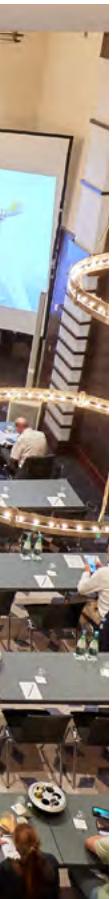
This will be the twelfth time that eno energy has brought together experts from the wind energy sector in Rostock to discuss the latest industry developments and current challenges.

Depending on their specialism and preferences, delegates at Rostock Wind can attend the technical, financing or planning forums. Whichever track they choose, the focus of the event is always on solution-oriented dialogue between like-minded professionals. The programme is correspondingly varied.

In the planning forum, Herbert Schwartz of anemos-jacob, an independent consultancy firm, will lead a discussion on wind resource assessment. Dr Steffen Hundt of Think RE will bring together buyers and vendors of renewable energy in the financing forum, where he is set to talk about power purchase agreements (PPA). Marc Thomsen of CMS-SHM, meanwhile, will be discussing

lifetime management with attendees of the technology forum. On top of all this, experts on law, raising capital, workplace safety and technology development will also be sharing their knowledge.

The event will kick off with a panel discussion for all attendees. Panel members will include Bärbel Heidebroek, vice chair of the German Wind Energy Association (Bundesverband WindEnergie e.V. – BWE). One of the key issues is how to accelerate the expansion of wind power. “The approval process generally takes around six years at the moment,” said Hermann Albers, chair of the German Wind Energy Association, speaking at Rostock Wind 2022. “This situation is no longer sustainable, especially in view of the rising demands on Germany’s energy supply.” His comments capture the tone of the last event, which primarily revolved around the German government’s summer package of measures. At Rostock Wind 2023, it is now time to take stock of the raft of legislation aimed at speeding up the expansion of wind energy generation.



Traditionally, Rostock Wind has always been held at the same time as Hanse Sail. A sailing trip on the River Warnow provides the perfect opportunity for a relaxing outing with a view of one of the world’s biggest gatherings of traditional sailing ships, after all the expert presentations and discussions. Anchors aweigh!

Tickets for the Rostock Wind symposium and the evening event are available at www.rostock-wind.com.

eno welcomes CRRC Corporation of China

International exchange creates space for ideas

eno energy recently welcomed high-level visitors to its production facility in Rostock Hinrichsdorf. China's CRRC Corporation sent a delegation consisting of the group's in-house component manufacturers for wind turbines, representatives of the group's own wind turbine maker, and the vice president of the Beijing head office.

As the world's largest manufacturer of rail rolling stock, CRRC is a global pioneer when it comes to innovation in the production of modern railway technology. CRRC is now also one of the leading manufacturers of wind turbines in China and a key supplier to the industry of components such as gearboxes, generators and power inverters.

eno energy has a long-standing relationship with CRRC going back six years, including providing design services that have proven themselves many times over in practical use.

The subject of the recent talks was possible deeper cooperation with the aim of increasing mutual market penetration.

Market innovation for maintenance

Eickhoff up-tower crane creates completely new options for gearbox servicing

Eickhoff

Eickhoff Antriebstechnik launched an innovation in the field of gearbox servicing last year. Working with crane manufacturer KENZFIGEE, a solution was developed that enables gearbox repairs to be carried out up-tower, i.e. at the top of the wind turbine – something that would previously have been impossible.

At the heart of this market innovation is a three-tonne crane which is fixed to the main frame of the turbine using aids designed specifically for the application and can be installed on wind turbines with hub heights of up to 141 metres. It can be adapted to suit almost all multi-MW class turbines fitted with gearboxes. All the components required for the crane are stored in a 40-foot container, meaning that logistics are simple and only a normal truck is needed. Unlike mobile or crawler cranes, which are often difficult to access, this system is much faster to erect, thus reducing downtime and minimising the loss of income and logistics costs associated with repair work. Importantly, the system allows gearbox repairs to be carried out up-tower, which was previously unthinkable. Heavy gearbox components such as casings, ring gears and spur gears, or even entire gearbox stages, can now be replaced in situ. This enables operators to avoid switching out the entire gearbox, which makes many repairs much less expensive.

The system was launched at Hamburg WindEnergy and is now being trialled. Alongside servicing Eickhoff gearboxes, the system is also suitable for multi-brand deployment, e.g. repairs to competing gearboxes, as well as work on other components such as generators. The Eickhoff Antriebstechnik solution creates new opportunities for servicing gearboxes on wind turbines and will thus help to ensure cost-efficient wind turbine operation.

The Eickhoff service team will be happy to answer any questions you may have:

Eickhoff Antriebstechnik GmbH – Service Department
Am Eickhoffpark 1, 44789 Bochum
Hotline: (+49) 234 975 2700
E-mail: gearbox@eickhoff-service.com

Optimising the 6 MW platform

eno152 and eno160 sound levels undergo testing prior to first-time installation for reduced permit requirements

The team at eno energy systems GmbH has spent the last 20 years developing high-quality, robust wind turbines, driven by passion, a thirst for knowledge and strong expertise. Not only can they draw on experience in operation and development, they also address any problems that arise during project development. ›››

The internal feedback loop that links the various parts of the company, connecting project development, project management, development, operations management and service, makes it possible to respond to the requirements of other departments while developing a turbine.

Wind turbine noise emissions are a topic that has become increasingly important in recent years as rotor diameters have grown. The majority of turbines now in the project planning phase are subject to night-time reductions in noise levels imposed by the authorities.

The noise emissions of a wind turbine are largely determined by the blades; the faster they turn, the louder they are. In order to meet noise limits, it is often necessary to reduce the rpm at night.

However, when rpm is reduced, so is generator voltage. If the generator voltage falls too far, the turbine can no longer supply electricity because the grid inverter is not receiving the necessary input voltage.

While the electrical excitation of the generator can be amplified to adapt the low generator voltage in the partial rpm range to the high voltage in the grid inverter, this leads to very high losses in the generator.

These losses need to be dissipated, or the generator will overheat, but this is only possible to a limited extent without sophisticated cooling systems.

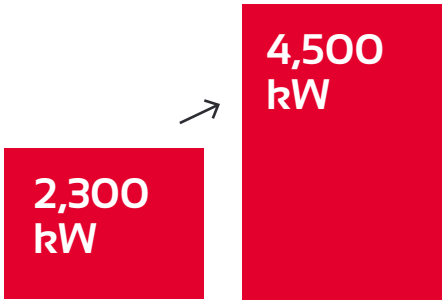
6 MW platform power-up

when rpm is reduced at night to comply with noise limits

Same rpm

Same noise level

Significant power increase:



> “Progress is the fruit of dissatisfaction”
>
> Jean-Paul Sartre,
>
> French author and philosopher

Consequently, in initial noise level predictions, power was reduced when electrical excitation was high, to the point where overheating was avoided.

A second option for aligning low generator voltage with high grid inverter voltage is the use of a step-up converter. This adapts the rectified generator voltage to the grid inverter voltage.

In the first stage of developing the 6 MW platform, the step-up converter was unable to handle the output of the eno152/160 in reduced-noise operation. Fortunately, the development team found an innovative way to double the transferrable power of the step-up converter, such that the converter no longer causes a power output bottleneck in reduced-noise operation.

Consequently, it is possible to align the generator voltage with the grid voltage, even when output is high, without the need to increase electrical excitation of the generator. The resulting reduction in generator losses means that more output can be demanded of the generator while keeping losses the same and supporting the sound modes developed as part of the latest update.

In summary, the output at different rpm speeds has been significantly improved, with an almost 100 per cent gain being seen in the important medium rpm ranges. Optimisation, critical scrutiny of predictions and constant learning all help to improve wind turbines throughout the course of their development, to design them in a way that makes project planning easier and to maximise the performance of the enoventum platform for developers, operators and for feed-in management.

Please contact us to find out more!

State-of-the-art technology for maximum added value

at the Willerswalde Wind Farm

In Mecklenburg-Vorpommern, not far from the town of Grimmen and adjacent to the main B 96 highway, the Willerswalde Wind Farm is currently taking shape as part of a joint project between EEN and the landowner, the Hansen family.

Three eno126 wind turbines with a nominal output of 4 MW and a hub height of 137 metres, and one eno140 with a hub height of 129 metres, are being constructed on a 34-hectare site.

The eno126 is one of the most popular wind turbines. It sets new standards for cost efficiency and, thanks to its IEC-IIA certification, is ideal for a wide range of locations. The first of the four planned wind turbines was erected in April 2023. Transport of the main components to the site represented a particular challenge, with the bridge on the approach to the site having a weight limit of 35 tonnes. Special consent was granted for direct access from the B 96, thereby avoiding the problem.

Construction managers Robert Gloede and Robert Hirsekorn are working to a schedule of commissioning the three eno126 turbines in summer 2023.

The eno140 is set to be connected to the grid in the autumn. In future, these turbines will provide electricity to thousands of homes in the region.

For both the 4 MW and 6 MW rated wind turbines, there are exciting projects planned for 2024, together with the prospect of rising customer sales.

Key facts

	eno126 4.0 MW	eno140 4.2 MW
Nominal power	4.0 MW	4.2 MW
Hub height	137 m	129 m
Rotor diameter	126 m	140.8 m

Wind speed		
Cut-in	3 m/s	3 m/s
Nominal	13 m/s	12 m/s
Cut-out	25 m/s	22 m/s
Rotor		
Diameter	126 m	140.8 m
Nominal speed	4–11.5 rpn	9.8 rpn
Swept area	12,468 m²	15,579 m²

The project management team, project managers, construction team, owners and cooperation partner recently met up for a barbecue to celebrate the progress of the wind farm.

Committed to our region and the future

eno energy has been producing and selling high-quality, durable wind turbines for more than 20 years. This has enabled eno energy to establish itself as a successful player in its sector. The company is contributing to the energy transition in the local Mecklenburg-Vorpommern region and beyond.

Renewable and sustainable

Enjoy long-term success

WITH ENO ENERGY

For many years, eno energy has been recognised by the Rostock Chamber of Commerce (IHK) as a top training company.

Recruitment of young talent is of paramount importance in today's world. Our aim is to retain our trainees and nurture them as we continue to make progress.

The recent crisis has also had a personal impact on employees. Work-life balance has assumed greater importance than prior to the pandemic. Flexible working hours, shorter weeks, greater health awareness and hybrid working are typical priorities. In accordance with these new attitudes to work, eno energy is constantly striving to ensure that competing professional and personal demands can be reconciled. Working from home has long been an option, and working hours can be adapted to suit personal needs. Face-to-face trade shows have been possible again since 2022. This means there were many opportunities throughout the year to meet potential employees and trainees in person. We choose to attend jobs fairs to engage with people. The skills shortage in technical occupations is a well-known problem, which we are actively addressing through our presence at these events.

This isn't just straightforward recruitment, it is also about providing a glimpse into the future. In the context of the energy transition, eno energy has extended its range of training options. In addition to a standard traineeship, the company also offers dual study courses in mechanical engineering and electrical engineering and information technology. An international business qualification is available for commercial trainees that enables them to take part in a placement in another country with support from the Erasmus scheme.

Sustainable energy is a growth market. eno energy is seeking to recruit more staff at all locations for day-to-day roles and to help develop the wind energy industry. We offer modern office settings and flexible working hours, support environmentally friendly rail travel and cycling via monthly subsidies and also offer our employees a staff benefit card.

"It's great to see that the political situation is paving the way for us to grow as strongly as we want and need to. Accordingly, employee recruitment and long-term retention is not just a buzzword, but a fundamental commitment within the eno group. eno is delighted to have many long-serving employees who have been loyal to the company for so long that they'll soon be celebrating their silver anniversaries," said the head of HR at eno energy.

APPLY NOW!

Working together to boost the region with wind

Mecklenburg-Vorpommern as a region offers excellent conditions for generating energy with wind.

“The donation came at just the right time. Our nursery is currently updating the playground and we can put the money to good use immediately.”

Lisa Glasow, “Feldmäuse” nursery

Many areas are designated as suitable for wind energy, thus enabling the construction of wind turbines to provide valuable energy. Although we all benefit from electricity from renewable sources, the people and communities in the immediate vicinity of wind turbines are impacted by its generation.

To compensate for this disadvantage, the Bürger- und Gemeindenbeteiligungsgesetz M-V (BüGembeteilG M-V, Mecklenburg-Vorpommern Citizen and Municipal Participation Act) entered into force on 28 May 2016. Among other things, this legislation obliges the builders and operators of wind turbines (project sponsors) to give the affected people and communities within a radius of five kilometres the opportunity to have a financial stake in the project. Since 26 June 2021, an opening clause makes it possible to also seek other solutions together with local communities and citizens.

When they plan a wind farm, project sponsors want to get the surrounding people and communities on board, so this opening clause offers a truly fantastic opportunity to develop the surrounding region at the same time. The clause makes the steps needed to bring about this involvement much simpler. It has enabled eno energy GmbH to bring three neighbouring communities on board with the Brusow wind farm through sponsorship, for example.

Sponsorship worth €3,000 went to the “Feldmäuse” nursery in Retschow.

Further donations were made to the agricultural engineering association in Jennewitz, the Reddelich and Brodhagen culture association, and the “Gemeinsam statt einsam in Kröpelin e.V.” support group, among others. These investments have improved community life in the surrounding areas, helped to shape community development and enhanced the quality of life in rural areas.

Silo 1 construction starts

After three years of planning, the Silo 1 Reconstruction, Renovation and Expansion project finally got under way.

Numerous stakeholders from the worlds of politics, business and the local region were invited to the official start of construction work on Silo 1. Our guests included members of Rostock City Council, together with council president Regine Lück, former mayor Roland Methling and the chair of the Rostock Maritime Council, Hans-Joachim Hasse.

“The aim is to use a heat pump for heating in the future. We want to completely avoid the use of gas and district heating in the building,” said planner Ulf Kristen of PMR.

The small silo in the city docks is being redesigned in keeping with its heritage-protected status and equipped with a sustainable energy supply (heat pump, solar panels and ice storage), thus ensuring that the building meets the 40 EE energy standard under the Federal Funding for Efficient Buildings programme (Bundesförderung für effiziente Gebäude, BEG). Renovation of the brick exterior by recycling the existing bricks will enable the building to blend in with the Hanseatic style of Rostock’s harbour.

“This is a step towards sustainability and a green future for Rostock, packaged in the maritime style of our Hanseatic city,” said Hans-Joachim Hasse, welcoming the company’s commitment to retaining the historic substance of the building.

> **“Silos 1 to 5 play a key role in Rostock harbour’s Maritime Mile.”**
>
> Hans-Joachim Hasse,
> Chair of the Maritime Council

We now have an exciting two-year construction phase ahead of us. eno energy GmbH is pleased to be part of such an innovative project and would like to thank all those involved, especially at Projektmanagement Rostock GmbH. Completion of the construction project is planned for January 2025.


We want you:
Be part of a green future
AT ENO ENERGY
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