CHANGE IN EXCITATION  ENERCON looks to new generator technology for EP5 platform

CONCEPT FOR “POST-EEG PHASE”  ENERCON supports continued operation and repowering projects

EP3 START IN ASIA  ENERCON begins installation of first WECs in Vietnam
The energy transition is an important collaboration project for which there is no alternative. The unrelenting progression of climate change and the increasing demand for energy in a number of countries mean it is vital that there is a changeover from conventional to renewable energy generation. The hot summer temperatures we have experienced bring home the impact of climate change all too clearly. However, a great deal of patience and staying power is required for the energy transition to become a reality. It is a mammoth project that has been coming up against resistance and reservations from the conventional energy establishment and its powerful lobby from the moment it started. The players in the project and its supporters must therefore show great commitment and perseverance.

We are currently seeing this in our domestic market, which has been plunged into major crisis as the result of misguided political reforms: expansion of renewables in Germany is stagnating and, in the face of the state parliament elections, politicians appear hesitant to tackle the subject. The result is that the country once seen as a model for climate protection is falling in the global ranking and will not reach the agreed climate targets. The expertise we have built up over the years and the jobs we thought to be safe are now at risk in this uncertain climate.

The figures clearly demonstrate the catastrophic situation, which is the equivalent of a total collapse—according to the specialist agency “Wind an Land”, expansion at the beginning of 2019 plummeted by almost 100 percent compared to the previous year. The introduction of the tendering system and a dramatic bottleneck of approvals are to blame for this. The German Wind Energy Association claims that over 10,000 MW are currently tied up in the approval process. The result is a lossy order book and a serious loss in profits in Germany.

However, the responsibility for this plight does not lie solely with politicians. So-called conservationists are on a systematic crusade against onshore wind energy and are discreditng us in an encroaching manner, with the effect that fewer and fewer wind energy converters are being built. People that present climate-friendly wind turbines as the worst evil for nature and the environment are not only spreading fake news, they are also agitating out of proportion: are the repositories for yellow barrels and the lunar landscapes spanning square kilometres left behind by the nuclear and fossil energy world really any better for the environment? “Conservationists” also need to think beyond the notion that power comes out of the socket.

As pioneers of renewable energies – a well-deserved title for the onshore wind energy sector – we must not give up hope. It is vital that we continue to fight to reach our goals, because they are what is right. The increase in support for the Greens at the European elections and the sustained popularity enjoyed by the “Fridays for Future” movement are proof that climate protection is becoming a priority for more and more people. Sooner or later – and at the very latest when we have a government that takes climate protection seriously rather than using it as a gesture politics – the energy transition will regain momentum in Germany and the market will pick up again. If we don’t stay on the ball, others will reap the fruits of our pioneering labour.

Until then, we will continue navigating the stormy seas. ENERCON is transforming itself to stay on course. It won’t be possible for us to continue in our old ways in Germany – the collapse of the onshore industry is just too severe and the prospects too bleak. We are thus adopting a new market strategy and will focus our efforts on our core business on international markets for the time being. At the same time, we are consistently pushing ahead with the systematic development of new business segments in our role as a supplier of system solutions for renewable energies. This will help us to diversify and prepare us for the market requirements in energy systems characterised by renewables.

In line with this strategy, we are also rapidly expanding our range of products and services. The ENERCON Energiekonzept 20+ (EEK20+) for operators and owners of existing WECs is a good example. It contains options for repowering or continued operation once funding ends and will start to coincide with the HUSUM Wind trade fair (10 to 13 September). Our involvement in this area also clearly demonstrates our commitment to the German market despite all of the difficulties we are currently facing: we are still present there and are on hand to support our customers.

In the meantime, politicians should react to the volatile situation and take action at last. The wind industry needs a functioning domestic market to act as a basis for international business. Germany is a living lab for our technologies and services. It would be disastrous if politicians were to abandon the wind industry as they did with the solar industry years ago. If the same mistakes are made again, the renewables industry will be at risk of further desindustrialisation! We are ready for a crisis summit and hope it is not too late to take decisive action. Looking at other countries making ambitious headway in climate protection should at least give us hope: they have recognised that renewables are valuable and part of the overall economic responsibility of a forward-thinking country. There is no reason why our country should not arrive at this conviction, too.

Hans-Dieter Kettwig
Managing Director of ENERCON

Stay on course for energy transition despite adverse conditions!
Higher energy yield estimation for E-126 EP3

Following assessment of the first measurement series conducted as part of E-126 EP3 performance validation, ENERCON has increased the energy yield estimation for this type of WEC. The measurement campaign at the prototype site in Kirch Mulsow (Mecklenburg-Western Pomerania) will still be ongoing until autumn of this year, but the measurements taken up until now already show conclusive results: the sound power level is below the guaranteed values and the performance measurement is going so exceptionally well that ENERCON’s research and development company WRD has already adjusted the corresponding cp curves and raised the energy yield estimation for this WEC type by 5%.

The prototype of the E-126 EP3 in Kirch Mulsow was installed on a hybrid tower at a hub height of 135 metres and was commissioned in August 2018. Diverse measurements and tests have been carried out on this WEC since then. The Scharndorf prototype site in Austria can also report positive news – ENERCON has installed the first E-126 EP3 on an MST tower there: installation was completed in July and the WEC was successfully commissioned.

AURICH
ENERCON Managing Director
Simon-Hermann Wobben leaves company

ENERCON Managing Director Simon-Hermann Wobben has left the company of his own accord. In early July, Mr Wobben resigned from his position as Managing Director of ENERCON GmbH and all other positions he had held in the ENERCON organisation in order to take on new professional challenges. ENERCON and the Aloys Wobben Stiftung would like to thank Mr Wobben for his many years of successful work and his commitment to the company, and wish him all the best in his future endeavours.

The focus of the ENERCON organisation will not be affected by this personnel change. ENERCON’s objectives, principles and claims as a leading technology and energy company in the renewables sector will remain unchanged. The company will continue on its course of increasing focus on international markets and consistently developing new business areas as a supplement to the core business of WEC technology with all the necessary commitment and vigour. For the time being, ENERCON Managing Director Hans-Dieter Kettwig will be carrying on the business of ENERCON GmbH.

LICHTENAU
New building completed for customer Training Center

The new building for ENERCON’s customer Training Center was completed in Lichtenau (North Rhine-Westphalia) at the end of July. It will be the central facility for customer training courses on operating ENERCON wind energy converters and their technology, and safety, maintenance and servicing. The newly constructed building contains training rooms, offices, a canteen and a shop open to the public. On top of this, an e-charging column will be installed in front of the Training Center building.

The hall where practical training units are completed is the heart of the Training Center. These include occupational health and safety, WEC operation and maintenance and service training courses. The hall features abseiling and service hoist platforms and an E-115 nacelle that can be used to train participants in maintenance work. Outside, there is a fire protection container for fire drills and an E-126 EP3 machine house on a tower at a total height of almost 17 metres. Training courses on working at height are provided in this area. Currently training courses are planned for 20 weeks in a year, on which 20 customers will be trained over 4 days.
Lower Saxony’s Minister for the Environment kicks off summer tour atop ENERCON wind energy converter

Lower Saxony Minister for the Environment, Energy, Construction and Climate Protection, Olaf Lies (SPD), took a four-day summer tour focusing on topics relating to the energy transition.

“Climate protection as an opportunity” was the slogan of this year’s tour, which the Minister kicked off at the start of July with a visit to the ENERCON E-126 EP8 visitor WEC in Georgsfeld, Aurich. After ascending around 140 metres, he emphasised the need for more onshore wind energy in Germany to the journalists who had joined him: “Looking at the countryside from up here, it makes me think I not only want us to generate a lot of renewable energy, but I also want us to use a lot of that energy here in the future”, said Lies.

He went on to explain that using the energy in the local area increases the acceptance of wind energy.

“We need systems like power-to-gas to allow us to use the energy at all times”, the Energy Minister reinforced, and pointed out the associated opportunities for pioneering wind energy regions to generate added value for citizens, municipalities and companies.

Lies offered reassurance in response to questions on the alarming slump in the German onshore wind market, which is also affecting the region of East Frisia: “We are in a very difficult phase, but with a lot of pressure and a firm belief that climate protection targets can be met, I think we will be able to recover.”

The Minister would like to see more honesty in the political debate surrounding the course of the energy transition: “People need to be made aware that an exit alone is not possible! Exits from coal and nuclear energy are underway; an exit from gas is planned. It is important to be honest with people and tell them they need to enter into something as well. We need to enter into renewables, into wind energy”, said the Minister, leaving no doubt of his views.

Visibly impressed by the panoramic view of the East Frisian energy landscape from the E-126 nacelle, Lies added: “Perhaps sometimes we need to show more backbone and say to people: there’s no way around it, you will be seeing the energy transition – but what you’re seeing is good too!”

New ENERCON E-103 EP2 certified in accordance with newest grid codes

In August, ENERCON received the unit certificate for the E-103 EP2 in accordance with the newest German grid codes. The certificate was issued in accordance with the grid codes VDE-AR-N 4110, VDE-AR-N 4120 and VDE-AR-N 4130, which took effect in April 2019. The E-103 EP2 is the first type of wind energy converter to receive this verification.

The unit certificate confirms that the WEC complies with the technical requirements for connection to the medium, high and ultra-high voltage grid. It was issued by the FGH Zertifizierungsgesellschaft mbH, which is based in Mannheim.

ENERCON has set up a new training site for EP3-related courses in France: Following in the footsteps of the Training Center in Emden, East Frisia, the new Training Center is in Longueil-Sainte-Marie in the department of Oise.

International installation teams will come to the training construction site to be familiarised with the WEC technology and the installation processes. The main focus of the Longueil-Sainte-Marie site is on training French-speaking installation technicians. Apart from in France, they may also be deployed to install EP3 projects in countries such as Canada.

At the training area, the course participants can work on an original E-126 EP3 machine house including a generator, hub and rotor blade, as well as a practice tower. The tower is also used for grid connection and service hoist training. Prostressing and grouting training can also be carried out inside it.

ENERCON NEWS_
Production of first EP5 underway

MANUFACTURING OF COMPONENTS FOR THE FIRST E-147 EP5/4.3 MW WEC HAS STARTED AT ENERCON’S PRODUCTION PARTNERS. THE PLANTS ARE MAKING USE OF THE PROTOTYPE PHASE TO OPTIMISE THEIR PROCESSES READY FOR SERIES PRODUCTION.
ENERCON is entering the prototype phase for its first EPS WEC type. Manufacturing of the components for the first E-147 EPS/4.3 MW prototype is already in full swing at ENERCON’s production partners in Aurich and Magdeburg. Measures are also being taken to prepare for installation of the first WECs at sites in Finland. The E-147 EPS/4.3 MW prototype phase also marks an important chapter in Lagerwey’s integration: it is the first joint WEC type to be launched on the market since ENERCON acquired the Dutch manufacturer.

“The innovative ideas originally developed by Lagerwey for its LP4 concept are now being industrialised for the E-147 EPS/4.3 MW,” says Sascha Exner, Project Manager for the E-147 EPS at ENERCON’s research and development company WRD. “Specifically, our aim here is to bring the design up to the usual ENERCON standard and optimise processes for series production. In a way, our new product will incorporate the best of both worlds.”

The wide-ranging expertise of the production partners in ENERCON’s network is a crucial factor here. “The individual production companies are all specialists in manufacturing WEC components. They are therefore a great help in establishing EPS series production,” says Jost Backhaus, Managing Director of ENERCON Production GmbH, who coordinates all production processes for ENERCON. “On top of this, processes such as purchasing and quality control which precede and accompany production are currently being organised to meet ENERCON standards”, adds Backhaus. “All of the measures will be in place by the time series production starts. This means our customers can be sure their EPS WECs will be at the high level they expect from ENERCON.”

The link to installation is another of the focal points. “We see to it that the material containers for the new EPS wind turbines are stocked according to the ENERCON materials management concept and the technicians can find all parts and assemblies in the order required for the construction site”, says Meyer-Stöver. The objective of this measure is to ensure the new wind energy converter types can be installed without a hitch, and that the installation technicians do not have to adjust to the new machines.

“Assembly of EPS nacelle at Mechanic Anlagenbau GmbH.”

“EP5 generator”

Windgeneratorenfertigung Magdeburg GmbH is producing the E-147 EPS generators for ENERCON. Managing Director Daniel Burek sees the design and technology of the new components as beneficial for production: the generator rotors can be manufactured more easily because the EPS generators are permanent magnet generators (also see reports on p. 15 ff.). The upstream pole shoe production process complete with winding the electromagnets is no longer necessary. Now, when constructing the rotor, the permanent magnet regulating magnets just have to be inserted. In addition, the process of stacking – or placing the electrical steel in the stator – is also easier compared to other ENERCON WEC types. No steel structure is required and only one type of plate. The incorporation of form-wound coils in the new EPS generators will also simplify and speed up manufacturing.

“We plan to optimise the processes for series production by introducing automated placement of the magnets during rotor construction and achieving automation of the stacking process during stator production”, explains Daniel Burek. Windgeneratorenfertigung Magdeburg hopes to see further positive effects with regard to time, quality and costs in the series production of the EPS generators as a result of these measures.

“Mechanic Anlagenbau GmbH in Aurich is in charge of manufacturing the EPS machine house. Directly adjacent to the EPS nacelle line production, the first of these new machine houses are taking form at the plant. "One of the main things we adapt when assembling the nacelle is the bolting standard", explains Wolfgang Meyer-Stöver, technical ramp-up coordinator for the prototype production at ENERCON Production GmbH. The technicians ensure all bolt connections are in line with the standardised ENERCON specification. “We provide WRD with constructive feedback during the process for the developers to take into account when designing the rest of the planned EPS WEC types”, says Wolfgang Meyer-Stöver.

“The fact that customers are choosing our new products proves to us that we are on the right track with our new developments.”

ENERCON Sales Director Stefan Lottermeyer

windblatt 03_2019
First EPS projects

ENERCON is installing its first E-147 EPS/4.3 MW customer project in Paltusmäki, Finland. The wind farm is located in the region of Ostrobothnia in the west of Finland, around three kilometres from the coast. WRD also plans to use this site to carry out test measurements on the WEC. In this project, ENERCON is installing five of the new WEC types on MST towers at a hub height of 132 metres for its customer Energiequelle. Calculations show the annual energy yield will be approximately 75.5 million kilowatt-hours.

German projects involving the E-147 EPS are also in the planning and preparation stages. The first major project with this type of WEC to be sold in ENERCON’s domestic market is the Züssow Ranzin wind farm (Mecklenburg-Western Pomerania). A total of 17 WECs are planned for MST towers with a hub height of 155 metres and the annual energy yield will be approximately 75.5 million kilowatt-hours.

On the whole, the outlook is positive for the new WEC type. ENERCON is already gearing itself up for the delivery of around 100 WECs across the world in the coming months. “We are delighted with the positive response on the market”, says ENERCON Senior Sales Manager Stefan Lütkemeyer. “The fact that customers in tough competitive markets are choosing our new products proves to us that we are on the right track with our new developments.” //

This is converted to electrical energy according to the Lorentz force principle (named after the Dutch physicist Hendrik Anton Lorentz). The force acts on moving electrical charges in a magnetic field: if a conductor is moving perpendicularly to the magnetic field, the Lorentz force acts on the charges in the conductor and sets them in motion. This gives rise to a potential difference and thus an electrical voltage between the ends of the conductor.

The magnetic field in the WEC generator is generated in the rotor, with the method of generation depending on the technology used. It is either separately excited with the aid of electrical coils, or generated using permanent magnets. The rotation of the generator rotor in relation to the fixed generator stator creates a circumferential magnetic field in the generator that induces electrical energy in the stator conductors and conductor windings as a result of the Lorentz force. //

The new EPS platform WEC types will be the first ENERCON wind energy converters to feature permanent magnet generators (PMG) (also see technology topic, p. 16-17). With this generator technology, the magnetic fields required for power generation are produced in the generator rotor using permanent magnets, whereas the magnetic fields in separately excited generators are produced electrically with the aid of coils.

However, the basic principle of power generation is the same for both types of generator technology: they convert kinetic energy into electrical energy following the principle of electromagnetic induction. This principle discovered by the English physicist Michael Faraday in 1831 involves generating electrical voltage by changing a magnetic field.

The generator is supplied with kinetic energy via a rotating shaft. This voltage is then fed to the generator stator, where it is converted into electrical energy that can be transferred to the grid.

Manufacture of the first hubs for the E-147 EPS has begun at the Rothenseer Anlagenbau GmbH (Roan) plant in Magdeburg. “Employees from Roan spent several weeks at Lagerwey in Barneveld at the end of 2018 and the beginning of 2019 making preparations for prototype production”, reports Roan Managing Director Dirk Hofmann. The prototype phase started at the Magdeburg plant in calendar week 25, accompanied in turn by development engineers from Lagerwey and WRD. “We are in constant contact so that we can learn from each other on a long-term basis”, says Hofmann. 42 hubs for the E-147 EPS are set to be manufactured at Roan by the end of the year. 42 generators will also be assembled to their final state at the plant.

On the whole, the outlook is positive for the new WEC type. ENERCON is already gearing itself up for the delivery of around 100 WECs across the world in the coming months. “We are delighted with the positive response on the market”, says ENERCON Senior Sales Manager Stefan Lütkemeyer. “The fact that customers in tough competitive markets are choosing our new products proves to us that we are on the right track with our new developments.” //
The market requirements in the relevant onshore wind energy markets presuppose that wind energy converters are becoming more and more efficient. At the same time, drastic changes to the framework conditions are putting WEC manufacturers under increasing cost pressure. ENERCON responds by constantly developing its WEC technology further to provide customers with competitive products that meet the highest technology and quality standards. This strategy also includes the further development and implementation of new generator technology concepts: generators with permanent magnets (PMG) will be used at ENERCON for the first time ever in the EPS platform wind energy converters.

"The use of permanent magnet generators in the new large WEC model ranges with rotor diameters starting at 136 metres and nominal power starting at 6 MW allows powerful, high-yield WEC types to be realised at competitive cost and with minimal use of material for generator construction", explains Matthias Bartsch, Division Manager of Generator Development at ENERCON’s research and development company WRD. "If we had stuck to the separately excited concept, it would have been just about impossible to develop a generator of this size and power class." The PMG technology is therefore an ideal fit for ENERCON’s new compact WEC design introduced together with the EP3 platform and developed chiefly with cost optimisation in mind.

In PM generators, the magnetic fields required for power generation are produced in the generator rotor with the aid of permanent magnets whereas separately excited generators produce the magnetic fields required for power generation electrically by using coils (see technical lexicon, p. 15). Permanent magnets made of an alloy of neodymium, iron and boron (NdFeB), which is based on neodymium, a rare-earth metal, are used for the PM generators of the EPS platform. The permanent magnets result in a constant excitation field which, however, cannot be influenced during WEC operation. In turn, no excitation device is required and no excitation power has to be put up, which is the case with separately excited generators.

According to engineers, the key advantages of this generator technology lie in the more compact design, reduced weight, easier handling with regard to production, transport & logistics and installation as well as the resulting cost reduction, which in turn leads to a lower levelised cost of energy (LCOE). "The weight reduction amounts to as much as 20 percent compared to similar designs using separate excitation", says Matthias Bartsch. That is the equivalent of around 10 tonnes. The LCOE value is as much as 4 percent lower than for comparable WECs with separately excited generators.

"Furthermore, they have a higher level of efficiency than separately excited generators", says Matthias Bartsch. "There are virtually no losses in the rotor, meaning the generator does not require as much cooling capacity. The technology is less complex and requires fewer components." PMG technology also offers certain advantages with regard to noise reduction. The fact that the PMG concept allows for a larger air gap between the generator rotor and the generator stator is another positive. It provides for easier alignment of the generator during installation, which is particularly helpful in large WECs with larger generator diameters. ENERCON also designs the new generators so that the generator rotor and the generator stator can be flexibly divided for easier transport.

ENERCON’s claim to performance is to supply its customers with the best technology of the highest quality. "The PMG technology will not see us depart from this principle. Like the wind energy converters using our existing separately excited generator concept, the new PMG WEC types are designed for a service life of at least 25 years", explains Matthias Bartsch. These expectations are backed up by the many years of positive experience gained by development partner Lagerwey – now an ENERCON development unit – who developed the PMG technology on which the EP5 generator concept is based.

ENERCON IS USING GENERATORS WITH PERMANENT MAGNETS (PMG) FOR THE FIRST TIME IN ITS EPS PLATFORM WIND ENERGY CONVERTERS. THE TECHNOLOGY WILL ENABLE LARGER AND MORE POWERFUL GENERATORS UNDER THE PREMISE THAT MATERIAL INPUT IS MINIMISED AND COSTS ARE REDUCED.
German wind expansion implodes in first half of year

WIND PROJECTS IN GERMANY ARE NEEDED FOR THE ENERGY TRANSITION. AT LESS THAN 300 MW OF NEW INSTALLATIONS IN THE FIRST HALF OF 2019, ONSHORE WIND EXPANSION SANK TO ITS LOWEST EVER LEVEL SINCE THE RENEWABLE ENERGY SOURCES ACT WAS INTRODUCED. THIS SPELLS BAD NEWS NOT ONLY FOR THE WIND ENERGY SECTOR, BUT FOR CLIMATE PROTECTION AND THE ENERGY TRANSITION IN PARTICULAR.

The stiplation of large general distances to be complied with and a restrictive approval practice are not the only factors reducing the chances of success for current wind energy plans. There is a trend leaning towards appealing against all wind projects across the board, putting a lot of pressure on the energy transition. The specialist agency “Wind an Land” carried out an industry survey together with the German Wind Energy Association in order to determine how many wind energy converters are currently in lawsuits across Germany and how many projects are being blocked by the military and aviation sectors. The results: 325 wind turbines with a capacity of more than 1,000 megawatts (MW) are currently in lawsuits, and 100 of these are already in operation. The most common cause of action is species conservation, which is cited in more than three-quarters of cases. As many as 68% of the lawsuits are led by nature conservation organisations, and by far the most frequent of these is NABU. Other environmental associations rarely make an appearance.

ENERCON and the wind energy associations are therefore making intensive efforts to enter into talks with the constructive nature conservation organisations, and to direct joint proposals for more approvals for wind energy projects at policymakers. After all, climate change is the biggest destroyer of species. Stopping the energy transition will not save red kites and the like, it will put them under even greater threat instead. A special species conservation regulation needs to be established for repowering projects, for example. At present, there are wind farms that cannot be modernised with up-to-date wind energy converters because protected species have settled there following their installation. This happens despite the fact the new neighbours were only attracted to this newly created living space due to the reduction in activities there such as farming.

Furthermore, the regional administrative authority in Gießen has proposed that differentiations should be made between areas when planning the use of land in a region. There should be areas where species conservation is the top priority and wind energy expansion is deferred. By contrast, renewables expansion and other uses should be prioritised on other areas of land. Species conservation should be ranked as less important here so that it does not prevent wind farms and other infrastructure projects from being realised. For this to become reality, the Federal Government and State Governments would have to show considerable will to allow this prioritisation and implement it in law, too. However, this kind of effort is vital to giving wind energy expansion the boost it needs to successfully get back on track.

Onshore wind energy expansion in Germany is lacking momentum: What political measures are needed to help ease up the bottleneck of approvals?

Onshore wind energy is vital to the success of the energy transition, but expansion has virtually ground to a halt in Germany. Current figures from the German Wind Energy Association (BWE) show that the expansion of onshore wind energy in ENERCON’s home market fell by almost 90 percent in the first half of 2019 compared to the same period in the previous year. A range of obstacles are currently blocking new wind energy projects with a total capacity over 10,000 megawatts. In countless cases nature and species conservation is used to fight wind energy projects in legal and opposition proceedings. Sometimes there are no valid regional parks, and sometimes politicians are simply not prepared to allocate new areas of land. As a result, not even half of the amount put out to tender by the Federal Network Agency in the latest rounds was exploited, and now even the regulating authority claims things have reached an “alarming dimension”.

ENERCON met up with Johann Saathoff, Coordinator of Energy Policy for the SPD Bundestag faction, and representatives of the wind energy associations in Berlin. Together they discussed possible ways of tackling the disastrous bottleneck of approvals that has built up. Saathoff represents the Aurich-Emden constituency in the Bundestag as a directly elected Member of Parliament, and joined windblatt for an interview after the meeting.

Johann Saathoff, Coordiantor of Energy Policy for the SPD Bundestag faction: What measures can we expect from the federal legislator to get Germany to return to a noteworthy level of onshore wind energy expansion?

Johann Saathoff: The main task of the federal legislator is to create clear framework conditions for industry and thus play a part in ensuring planning security. For me, clear expansion paths are particularly important here. We fixed the 65 % target in the coalition agreement. Reliable expansion paths now need to follow. Where onshore wind is concerned, we have to consider that a significant amount of gigawatt capacity will fall out of the EEG after 2021, and only some of these wind turbines will continue to operate. That means we need to install an average of 4 GW and more every year until 2030. We have been saying this for months, but talks in the working group of the coalition factions are progressing very slowly. A commitment needs to be made in the autumn. If we decide on a coal-phase out and a climate protection act, we need to adapt the EEG as well.

Johann Saathoff: I’d like to start by taking the heat out of the debate. Referring to it as instrumentalisation won’t get us anywhere. The SPD Bundestag faction is fully committed to our climate protection targets. These can only be met with a sizeable contribution from the onshore wind energy sector. We therefore urgently need to address the challenges presented by the approval practice. The regional differences in approval practice are a great hindrance and cause approval procedures to go on for much longer than they did a few years ago. We need to come to a mutual understanding at national level and in the federal states and lay down the necessary framework conditions. This requires commitment on the part of the state governments. Mr Söder is putting forward lots of proposals for climate protection measures at the minute, I am still waiting on his initiative to abolish the 10 H regulation.

Johann Saathoff: We should all be anxious to show that the wind energy sector is not only hugely important from a climate policy point of view, but also for industrial policy. The industry should be fighting together with politicians and trade unions to keep jobs in the wind energy sector. The SPD has asked the Chancellor to call a wind summit, just as several other associations and trade unions have done too. However, investors, operators and owners in some places need to understand that there are regions where they have caused trouble. We are now paying the price. We need to win back the trust that has been lost by pulling together.
European elections spark hope of more climate protection

Climate protection is high up on the agenda in the European Institutions. This is not only due to the success of the Greens, who managed to increase their number of seats to 70 in the elections, but also the huge level of support for “the Fridays for Future” movement. Just a few weeks ago, the European Commission published a communication assessing the drafts of all 28 national energy and climate plans. Apart from the United Kingdom, all of the member states put forward plans. But the surge of interest in the topic of climate has not yet been transformed into ambitious targets. “On the whole, the content of the plans is disappointing”, says Christopher Frey, responsible for European Politics at ENERCON, in his assessment of the proposals. “We are even missing almost 2% until we reach the 32% target for the expansion of renewable energies.” A far more important discovery, however, is that the concrete measures defined in the national plans are not sufficient to achieve the goals that have been set. A few months now remain to put maximum pressure on the member states and ensure they make substantial improvements to their plans. The final plans have to be presented to the EU by the end of 2019. The wind energy sector would benefit from ambitious implementation of the renewables targets. The massive slump in the German wind energy market has been noticeably reflected in the level of expansion across Europe. It fell by a third in 2018 compared with 2017 to 10.1 gigawatts. It’s now high time to breathe new life into the EU: it fell by a third in 2018 compared with 2017 to 10.1 gigawatts. It’s now high time to breathe new life into the European energy transition and the onshore wind element in particular. //
ENERCON supports continued operation and repowering projects

ENREC PRACTICE_ E-138 EP3

Partner concept for “post-EEG-phase”

ENREC is expanding its service portfolio for operators and owners of existing WECs after funding has ended. The focus of the ENREC Energiekonzept 20+ (EEK20+) is on retaining the site for onshore wind energy generation in future.

ENERC ON

The clock is ticking. Between 2020 and 2025, the funding guaranteed by the state under the EEG will stop for more than 5,000 ENREC WECs currently in operation in Germany. WECs such as the E-40 and E-46 are not alone - this situation will also apply to thousands of legacy WECs installed by competitors before 2005. According to the German Association of Energy and Water Industries (BDEW), almost 16 gigawatts of generating capacity and around 30 percent of the installed onshore wind energy power are affected across Germany. Significant consequences are in store for the operators and owners of this existing fleet, system-relevant as a result of its size alone. Remuneration for kilowatt-hours from these WECs will be calculated on the basis of the up-to-the-minute price of electricity on the exchanges. This is at a low level compared with the EEG funding and is subject to unpredictable fluctuation.

As these circumstances mean there is no security of revenue, many operators and owners are looking into the possibility of repowering and replacing legacy WECs with more modern and efficient ones. Following successful participation in the tendering process, they would then be eligible for guaranteed remuneration under the existing EEG rules once more. Operators and owners of existing WECs that are not or not yet repowerable will be forced to come up with a new operating and marketing concept to ensure continued operation of their existing WECs economically viable. “The expiration of EEG funding will result in a completely new situation for operators and owners”, explains Thomas Krings, Head of Sales at ENREC’s subsidiary Quadra Energie GmbH. “They will have to consider themselves entirely at the mercy of the market and turn into fully-fledged power plant operators.”

As such it is their sole responsibility to find solutions for marketing the energy they generate to ensure they can continue to operate their existing WECs profitably. ENREC is on hand to help them enter this new territory: the supplier of system solutions for renewable energies has developed a groundbreaking partnership concept especially for owners and operators of legacy WECs in the “post-EEG-phase”. The ENREC Energiekonzept 20+ (EEK20+) includes consultation and support for repowering projects and for scenarios for continued operation.

If repowering is the preferred option, the sales and planning departments will develop tailored solutions for site renewal, and help with the approval procedure and participation in the tender process. Working out a solution for continued operation first entails an examination of the viability of equipping the legacy WECs with remote control function, and then retrofitting the equipment. This is essential if they are to continue to operate outside the EEG. Together with Quadra, concepts for direct energy marketing or alternative options such as direct supply to industrial energy consumers, Power Purchase Agreements (PPAs) or integrated energy concepts will be developed. The possibility of ENREC taking over the site may also be considered in this regard. If all efforts to implement repowering or continued operation are in vain, ENREC offers support to operators in dismantling the site.

“However, the focus is always on retaining the site for the use of wind energy in the future”, stresses ENREC Sales Director Stefan Lütkemeyer. From a systemic perspective, too, it is extremely important that the affected wind energy sites are safeguarded once funding ends. “These sites are absolutely essential for the further implementation of the energy transition - in other sectors, too - and to ensure climate protection targets are met. This fact is made all the more important thanks to the significant restrictions placed on building new WECs in Germany in recent times. It would be a fatal blow for the energy transition if wind energy sites were to be dismantled, causing a reduction in installed onshore capacity rather than the increase desperately needed. The climate protection targets would then become unattainable.”

ENREC prioritises repowering in the EEK20+. “Employing the most modern WEC technology at a wind energy site allows the highest yields and the most revenue to be obtained. The kilowatt-hours can be increased multifold”, says Thomas Krings. However, there is currently no possibility of legal approval for repowering at more than 60 percent of the sites affected. In these cases, ENREC’s objective is to keep established wind energy sites for as long as possible, even if this is just an interim solution until laws are made which create the necessary conditions for site repowering. The wind energy sector is currently piling on the pressure for this to happen. “Our aim is to prevent existing WECs from being dismantled as far as we can. Dismantlement means the site is lost as an area for energy generation”, says Krings.

Existing wind farms that are not or not yet repowerable can supply industrial consumers with green electricity in order to secure revenue. Quadra bundles together existing WECs in a ‘20+ pool’ and manages all energy logistics issues for operators, owners and energy consumers with this important option. “Our green PPA is the energy logistics solution that covers both continued operation and the delivery promise made between WEC operators and consumers that goes with it”, explains Thomas Krings. The guarantee of the wind energy converters’ technical reliability and availability is especially significant with this undertaking. ENREC customers have a distinct advantage here thanks to the gearless and low-wear WEC technology and the expertise available from ENREC Service; the WECs have been maintained consistently since commissioning and are in an impeccable overall condition when funding ends. Another advantage of this model is that ENREC wind energy converters in the 20+ pool will continue to be maintained after funding has ended with a service concept specially adapted to the challenges of continued operation.

ENREC offers “post-EEG-customers” a tailored service contract for continued operation of existing WECs. The offer is focussed around the prime needs of operators and owners of existing WECs. It is only valid in combination with a separate marketing contract with Quadra Energie GmbH.

The contract terms cover the maintenance, 24/7 remote monitoring and a flat rate for standard repairs (excluding major component including spare part and labour costs as well as travel costs for the Service teams). ENREC guarantees the availability of spare parts until the end of the service life.

The WEC must be fitted with ENREC talked control technology and a valid structural safety verification for the continued operation service contract. ENREC Service is offering operators and owners of existing WECs a free upgrade to remote control functionality until 31 December 2019 in the framework of the EEK20+ concept.

As an alternative to the EEK20+ service contract, the marketing contract can also be combined with one of the more comprehensive service contracts, such as the EPPC3. The EEK20+ service contract is available for E-40 wind energy converters. A contract covering the same contents is currently being prepared for E-46 type WECs.

The EEK20+ offers our customers a comprehensive service portfolio to ensure they are well-equipped for the “post-EEG-phase”. The message we want to put across is: we are by your side”, summarises Stefan Lütkemeyer. “Nevertheless, every customer has to decide for themselves whether they want to continue once funding has expired. All we can do is appeal to you not to be scared off by the new situation. The customers who have landed in the “post-EEG-category” are some of the pioneers of wind energy in Germany. It was their commitment and enthusiasm that formed the basis for our industry and the energy transition. It would be an enormous shame if they weren’t prepared to take the next step to integrating onshore wind energy in the market.”

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EEEK20+ SERVICE CONTRACT

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After Europe and North America, ENERCON is now also launching its new EP3 WEC generation on the Asian market. The components for the first Vietnamese EP3 WECs were already delivered in July. They will be used for a total of 16 E-126 EP3/4.0 MW WECs destined for the “Trung Nam Phase II” project, representing a 64-MW expansion of the first wind farm to be installed by ENERCON in Vietnam. ENERCON is installing the wind energy converters on steel towers at a hub height of 116 metres for its customer Trung Nam Group. They will be constructed at the Loi Hai site in the province of Ninh Thuan in the south of the country. Commissioning is scheduled for the start of 2020. Phase III is already being planned and is set to be implemented directly afterwards. “Trung Nam is a strategically significant customer for ENERCON”, says Steffen Brauns, Regional Manager for Asia-Pacific at ENERCON Sales International. “We are pleased that Trung Nam has also been won over by the new WEC generation, and that we are already in talks about follow-up projects to add to the plans already referred to. We hope this will set the right impulse in Vietnam.” In addition to one ENERCON wind farm, Trung Nam already operates several hydropower plants and solar parks in Vietnam. By taking on a second wind farm, it is pursuing its aim to make a significant contribution to achieving a sustainable energy mix in the country.

As well as the market launch of the EP3 in Vietnam, Steffen Brauns’ team is also preparing to realise the first EP3 projects in Korea. A total of 7 E-126 EP3/4.0 MW WECs are being installed on MST towers at a hub height of 135 metres for the Keumbong Wind Farm. It is located in the Dangwon-do province on the east coast of Korea. Construction of the first WECs is expected to start this year, with the wind farm set to be completed and commissioned by the summer of 2020.

The EP3 WEC generation is also well received in Korea. “We have already concluded another contract to supply 7 E-138 EP3 E2 WECs for a community-owned energy project”, says Sjoerd Feenstra, Senior Sales Manager at ENERCON Sales Asia-Pacific. “We are happy to get such a positive response to our new products in two markets so important for this region, leading to these showcase projects. We hope it will spark the interest of more potential investors to allow us to build on our market position in Asia further.”
ENERCON has successfully realised another reference project at a challenging mountain location in France. Nine E-82 E4 wind energy converters have been installed at the “Les Taillades” wind farm in the Cevennes for its customer EDF Renouvelables. Commissioning of the wind energy converters with a nominal power of 3.0 MW started in early summer.

The project is located in the commune of Chasseradès in the department of Lozère in the Occitanie region of southern France – a rural area in the Cevennes, the southeasterly part of the French Massif Central. “The location is at an altitude of 1,400 metres and is thus one of the highest sites ENERCON has used for the installation of wind energy converters in France to date”, emphasises Project Manager Aymeric Feron from ENERCON Project & Logistics Management. “This area sees a lot of precipitation in winter. There was snow on the construction sites until the end of March.” It was mid-April – as soon as the construction sites were clear of snow – before the three installation teams were able to start installation with three large cranes.

“The construction permit requirements meant we had six weeks to install the nine wind energy converters”, reports Aymeric Feron. Strong winds also plagued the installation phase, causing delays to crane work. Due to the difficult conditions at many of the WEC installation sites, the teams often had to revert to a single-blade installation process for the rotor blades, which also requires more time.

The geography of the project region and the specific site threw up challenges even during the planning phase. “The wind farm is a long way away from the major transport links”, explains Frédérique Portrait, Project Developer at EDF Renouvelables. “In order to reach the wind farm construction site, the abnormal WEC component loads had to be transported 15 kilometres through the forest, sometimes with steep inclines”, adds Aymeric Feron. The route also took them over several bridges and through narrow built-up areas. “We therefore started to inspect the route and apply for transport approvals as soon as possible to ensure we would have time to resolve any problems with the authorities”. Construction of the access roads and crane platforms was also subject to strict environmental requirements put forward by the authorities.

“We overcame all the challenges in this difficult situation thanks to the motivation of the teams and the cooperation between ENERCON and EDF Renouvelables”, summarises Frédérique Portrait. “They were flexible and able to respond to any situation, used the necessary resources and found the right technical solutions. One example was the problem of crossing Lake Montbel and the Langogne Bridge, solved by switching the trailer, reloading the components and arranging earlier delivery of the wind energy converters to the port of Sète.”

The wind energy converters were installed on hybrid towers at a hub height of 85 metres. The concrete segments were produced by ENERCON’s French production partner WEC Mâts Beton at its plant in Longueil-Sainte-Marie. Due to the site conditions, the E-82 WECs are equipped with rotor blade de-icing systems. //