Second EP4 prototype installed

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EDITORIAL

The renewables industry should be seen as a problem solver again!

Dear customers, business partners and employees,

After the amendment is before the amendment – this dictum is also true for the recently amended Renewable Energy Sources Act 2017. Nevertheless, the bill is still unfinished since law makers have built in a whole of ten powers to issue statutory instruments and tasked the Federal Ministry of Economics and the Federal Network Agency with the drafting.

In particular, the designation of the grid expansion regions is an open issue that is crucial to our industry. According to current plans, the addition of WECs will be limited just in those German states that have had the highest addition rates so far.

By contrast, tardy grid operators whose job for years has been to take care of the required grid expansion got away scot-free even though they are obviously being sluggish about it. We should jointly argue the case that not only the producers of clean power but also the causers of these bottlenecks should be taken up on their promise.

We should find regional solutions to bring about an increasingly decentralised regional power supply. Even now, numerous projects show that we are innovative as an industry and are able to shoulder our responsibility for the system as carriers of the energy transition. ENERCON, for instance, supplies clean balancing energy from its battery storage system in Feldheim, and several power-to-gas projects in Haren and on the island of Föhr are in the planning stage. Last but not least, our wind energy technology continues making progress. This year ENERCON was able to commission already two prototypes of its new EP4 platform; a third prototype site is under development (see cover topic). These examples show that we meet the challenges and always come up with practical answers to the question on how kilowatt-hours can be fed into the grid in an intelligent way.

In Brussels we must continue our effort to make the European Commission drive the energy transition further instead of rolling it back. Certainly, the fact that new British prime minister Theresa May announced that the government was going to pass on promoting the planned Hinkley Point NPP by means of a fixed feed-in tariff is particularly good news from other EU countries.

The upcoming election campaigns in 2016/2017 require us to draw attention to these key issues about the future. This is not going to be a “no-brainer” because, unfortunately, energy and climate protection issues have moved far down on the list of priorities. This is quite incomprehensible in light of steadily increasing numbers also of “climate refugees” or torrential rains and once-in-a-century floods that have almost become standard news items even in our climes. Recently, even a new geological epoch has been proclaimed – the “Anthropocene.” It denotes the period during which humans have thrown the earth’s climate off kilter in record time. These are issues about the future that reach far beyond the politics of the day. We as the renewables industry must succeed in being perceived again as those who help master this tremendous challenge. However, to do so we must pick up people from their regions and together continue on our way toward a successful, positive energy transition.

Hans-Dieter Kettwig
ENERCON Managing Director
Expansion looks set to break records

The expansion of onshore wind energy in Germany is on track for record-breaking results. According to the trade associations BWE and VDMA Power Systems, a total of 1,892 MW (net) of wind energy capacity was installed onshore in the first half of 2016. Given that 1,093 MW was achieved in the same period the previous year, this corresponds to a rise of 73 percent. The associations expect to see net capacity over the whole of 2016 rising to between 4,000 and 4,400 MW, which would make it the third strong year in succession for onshore wind energy.

Nonetheless, the continued growth of Germany as a centre of innovation and production has involved a hard-fought battle for the wind industry. This is not only because it has been achieved against a background of changing conditions, with the industry having to adapt as the remuneration system mutates into a tendering process. According to BWE and VDMA, a stable domestic market is also a prerequisite for success in the foreign marketplace. In the past, German manufacturers have owed their strong position in the world market to the fact that they are continuing to refine their technology at home in Germany. Figure: EP4 generator at the Enercon innovation centre in Aurich.
ENERCON Bahn trials transportation of concrete tower segments

ENERCON Bahn e.g.o.o. has successfully trialled the transportation of concrete tower segments by rail. Several half and third segments of an E-101 prefabricated concrete tower were loaded onto specially equipped heavy-duty flatbed rail trucks at the WEC Turmbau concrete tower factory in Emden. The segments weighing several tonnes were then taken non-stop overnight to Mannheim, where ENERCON maintains a strategic temporary storage facility for wind energy converter components destined for construction sites in southwest Germany. They are transported by heavy-duty truck over the final stretch from Mannheim as and when required.

ENERCON hailed the test run a success. “We learned some important lessons which will help us develop a concept for moving concrete tower segments by rail”, says Thijs Schloss, Head of Inbound & Service Logistics at ENERCON Logistic GmbH. ENERCON’s objective is to develop practicable alternatives to the time-consuming and disruptive transportation of concrete segments by road, for implementation in the medium term. In addition to the use of inland waterways, a method by which considerable quantities of freight are transported in Germany, rail is the other main option under consideration.

“A positive side-effect is that rail transportation takes a considerable amount of strain off the roads and creates a much better environmental footprint than road freight.” So by shifting more heavy cargoes from road to rail, we are making a decisive contribution to greener transportation, which should go hand in hand with the energy transition”, says Schloss. “The successful test run once again underlines the fact that e.g.o.o. has a USP when it comes to handling heavy and abnormally sized loads”, says Christian Stavermann, Head of Transport at e.g.o.o. “Our long history of meeting ENERCON’s transport needs means we have considerable experience to call on, which serves us well particularly with the introduction of new areas of business, such as more wide-ranging project logistics. There are only a few railway companies in Europe with this expertise at their fingertips.”

HAREN

Open-door day at Haren manufacturing site

ENERCON manufacturing companies at the Haren site throw open their doors in early August. Some 5,500 visitors took the opportunity to watch rotor blade and rotor blade components being manufactured, and to talk to ENERCON employees about subjects related to wind energy and the energy transition.

Among the guests was Bernd Busemann, President of the Parliament of Lower Saxony, who praised the “ingenious inspiration of wind-power pioneer Dr. Aloys Wobben” during his words of welcome, and urged politicians to support the energy transition and wind energy. Simon-Her- mann Wobben, a member of the board of the Alros Wobben Stiftung, returned to this point in his speech and drew attention to the challenges inherent in the 2014 EEG amendment. Reinhardt Winter, the district chief executive, promised the support of Emsland and pointed to the impressive industrial growth seen in the region, partly thanks to the job creator ENERCON. Haren’s Mayor Marco Horroghott also came along, as did local and state politicians, representatives of trade associations, and some of ENERCON’s local suppliers and customers. AERO Ems GmbH and Hanseer Komponentenfertigung GmbH operate some of the most state-of-the-art rotor blade plants in the world, where they manufacture rotor blades and rotor blade components for some of the world’s wind energy converters. The E-101, E-115, E-136 EP4, and E-141 EP4 are manufactured there. AERO Ems GmbH operate some of the most state-of-the-art rotor blade plants in the world, where they manufacture rotor blades and rotor blade components for some of the world’s wind energy converters. The E-101, E-115, E-136 EP4, and E-141 EP4 are manufactured there.

Leasing for the temporary storage facility: e.g.o.o. train carrying prefabricated concrete tower segments.
**First ENERCON wind energy converter certified to ‘TAB Hochspannung’**

ENERCON is the first manufacturer of wind energy converters anywhere in the world to receive a unit certificate from the FFH certification agency under the new specifications of ‘TAB Hochspannung’ (VDE-AR-N 4120). The VDE-AR-N 4120 standard sets out the regulations governing connection to the high-voltage grid (110 kV) in Germany. The unit certificate was issued for the E-92 wind energy converter with the new FACTS 2.0 control system. An important distinction from previous grid connection conditions concerns HVRT behaviour and negative sequence input in the case of asymmetrical grid faults, to which the latest grid code software offers a complete solution.

Thanks to this certification, ENERCON is now the first manufacturer of wind energy converters to receive independent confirmation from an accredited agency that the certified wind energy converters comply with the directives. This is an important prerequisite for the certification of wind farms connected to the high-voltage grid. As the VDE-AR-N 4120 standard will become mandatory on 1 January 2017, FACTS 2.0 has also been subjected to exhaustive practical tests in Canada. An E-92 and an E-82 at Beaupré wind farm in Quebec (164 converters, wind farm capacity 364 MW) have been upgraded with the new software for this purpose. The aim of the tests is mainly to validate the electrical characteristics of ENERCON wind energy converters in 60 Hz grids.

“The tests went very well”, reports Markus Fischer, ENERCON’s Regional Manager for Grid Integration in Canada. “The results provide welcome confirmation of the quality of our product and its development.” ENERCON hopes to complete the series of tests at Beaupré wind farm by the end of the year. The FACTS 2.0 control software will be used in all new ENERCON WECs in the future.

The continued development of grid inclusive technology in the future is a hot topic at ENERCON. On the one hand, grid operators place ever greater demands on the grid properties of wind energy converters when updating their grid codes. On the other, ENERCON wants to be technologically prepared for the challenges which will arise in the future with the further expansion of renewable energies and the increasingly high-level penetration of grids with inverters. One of the questions that will have to be considered concerns which system services will be required by an energy system based on the generation of electricity by wind energy converters with inverters.

**Training kicks off at ENERCON for nearly 85 young beginners**

For 85 new apprentices, 1 August was their first day at work with ENERCON in Aurich. The young men and women will complete their training at ENERCON sites in East Frisia over the next few years. After being welcomed by the instructors and enjoying a communal breakfast in the Energy, Education and Experience Centre (EEZ), they went on a tour of ENERCON facilities at the North Industrial Estate and had their first look at the companies where they will receive their training. Thanks to this certification, ENERCON is now the first manufacturer of wind energy converters to receive independent confirmation from an accredited agency that the certified wind energy converters comply with the directives. This is an important prerequisite for the certification of wind farms connected to the high-voltage grid. As the VDE-AR-N 4120 standard will become mandatory on 1 January 2017.

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**AURICH**

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ENERCON currently trains apprentices in more than twenty trades, industrial and commercial fields, and also offers dual study places. Once again, electrical engineering and metalworking will be two of the key areas of specialisation for the 2016 intake. But there will also be some less traditional programmes on offer this year; for instance, one young woman will be starting her training as a construction materials tester. This is only the second time that ENERCON has trained an apprentice in this profession.

The prospects of being offered employment once they have successfully completed their training remain very good for ENERCON’s apprentices. As a leading, versatile and constantly growing enterprise, ENERCON needs personnel with all sorts of different skill sets.
Second EP4 prototype erected

ENERCON is right on course with the prototype phase of the new EP4 platform. After erecting the first EP4 prototype at Lelystad in the Netherlands in early April, the second prototype has now been successfully commissioned at the Husum wind test field in Schleswig-Holstein. In parallel to this, preparations are already underway for the erection of the third prototype, the new low-wind E-141 EP4 converter, which was unveiled back in November. “By late 2016, all of the EP4 platform prototypes will be in operation”, says EP4 programme manager Arno Hildebrand. “Thus we have optimal preconditions for ramping up series production early in 2017.”

The second EP4 prototype, an E-126 EP4/4.2 MW, was mounted on a tubular steel tower in Husum. The wind energy converter went into operation at the end of August. Mechanical measurements on this machine will soon be underway; they have already begun on the first EP4 prototype in Lelystad. Series of measurements to calculate power curves and loads are required before the converter series can be certified. ENERCON is also verifying that the sound emission levels are as forecast.

The developers are delighted with the results of the first measurements in Lelystad: “We are very satisfied with the way the machine is performing in practice”, says Arno Hildebrand. “Everything’s looking very positive. The forecasts and calculations we made during the development phase are spot on. There are no anomalies that would require us to take any action, apart from the fine-tuning which is customary with prototypes.”

This explains why the EP4 team is already able to focus on the next stage: the erection of the third EP4 prototype and, at the same time, of ENERCON’s first 4.2 MW low-wind converter. Preparations for the first E-141 EP4 are going full speed ahead. The site in central Germany has been developed, and construction will be able to start as soon as approval is granted. The prototype should have been installed by the end of the year. //

The E-126 EP4/4.2 MW was developed for sites with moderate wind speeds (Wind Class IIA), and combines innovative technology with an intelligent modular design. It uses more identical parts and standard components, and offers customers with a wide range of site conditions the highest standards of quality together with maximum efficiency and reliability. The E-126 EP4 generates 14.8 million kWh per annum at onshore sites with average wind velocities of 7.5 m/sec and a hub height of 135 m. Yet its sound emission levels are low: when operating at optimum performance, the total sound emission level is a mere 105.0 dB(A).

The E-141 EP4/4.2 MW low-wind converter (Wind Class III) has a rotor diameter of 141 m, which is the largest onshore rotor on the market anywhere in the world, and generates more than 13 million kWh per annum at sites with mean wind velocities of 6.5 m/sec. Its sound power level is 105.5 dB(A). Except for the outer blade, the rotor blade, generator, mechanical equipment, nacelle and E-module are identical to those used in the E-126 EP4.
Innovative assembly system for tubular steel towers

ENERCON IS ASSEMBLING THE TUBULAR STEEL TOWERS FOR WIND ENERGY CONVERTERS OF THE NEW EP4 PLATFORM WITH THE HELP OF A RECENTLY DEVELOPED GROUT JOINT. THE MAINTENANCE-FREE CONNECTION SYSTEM ALLOWS LARGE TOWER SECTIONS TO BE DIVIDED LONGITUDINALLY FOR EASE OF TRANSPORTATION.

Because of transport and logistics considerations, certain limits are set on the design of tubular steel towers for wind energy converters. Due to road construction conditions, components transported by road should be no higher than 4.4 m, which means that the diameter of the tubular steel segments must not exceed these dimensions. In order not to have to miss out on using larger sections divided longitudinally. Because of their smaller dimensions and lower weights, these are much easier to transport, and are only used because of the low temperatures, a screw version is available as an alternative to the method described above. In this case, two longitudinal flanges are welded to the outer edges of the sections divided longitudinally, which are then screwed to a cover plate lengthwise and crosswise. The complete section can then be erected. The screw connection is maintenance-free. //

With a grout joint, rows of head dowel pins are welded to the interior steel wall at the outer edges of the steel sections which have been longitudinally divided into three parts. When assembling the individual segments, two clamping strips are fitted to them and a reinforcement is positioned over the joint. The area above the separating edge is then sealed with a cover plate secured to the clamping strips, before concrete is poured into the cavity above the joint. Once it cures, the segments are permanently connected to one another and the tower sections can be erected.

For sites with cold-climate conditions where concrete cannot be used because of the low temperatures, a screw version is available as an alternative to the method described above. In this case, two longitudinal flanges are welded to the outer edges of the longitudinally divided steel sections, which are then screwed to a cover plate lengthwise and crosswise. The complete section can then be erected. The screw connection is maintenance-free. //

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The two ENERCON apprentices Mario Hölischer and Tim Helmerichs are feeling pretty proud of themselves: since August, users of e-bikes in Emden have been able to recharge their batteries with renewable energy at a pedelec charging station. Together with fellow-apprentices, Hölischer and Helmerichs developed and built the station as part of a practice-based project while training at Elektrische Schaltanlagenfertigung GmbH, a subsidiary of ENERCON, as electronics technicians for facility engineering. The ambitious training project was completed in association with Emden’s public utility company. The team comprised Marco Götz, Evert Groenhoff, Janik Seeger and Jana Herzog. Their fellow-students at the vocational school were equally enthused; they enjoyed hearing the reports of the ENERCON apprentices, and are keen to conduct similar projects themselves during their training. //

The project exceeded the actual training objective by some margin”, acknowledges ENERCON’s certified trainer Martin Cremer. “It covered every aspect of the job likely to be encountered by electronics technicians during their working lives. Our apprentices developed all of the e-technology for the station, built it, and prepared the necessary documentation.” The project took two and a half years to complete. Apprentices from three year groups were involved; in addition to Mario Hölischer and Tim Helmerichs, who began the fourth year of their apprenticeship in August, the team comprised Marco Götz, Evert Groenhoff, Janik Seeger and Jana Herzog.

Teamwork required

The project was tasked with assessing the magnitude of the challenge: “What capacity do we need for the battery? What charging currents are required? How should the charging station’s e-technology be designed?”, asks Mario Hölischer. “We found it a lot more interesting than simply dealing with the problem on a theoretical level”, adds Tim Helmerichs. Their fellow-students at the vocational school were equally enthused; they enjoyed hearing the reports of the ENERCON apprentices, and are keen to conduct similar projects themselves during their training. //

EMDEN/AURICH

ENERCON apprentices built charging station for e-bikes

THE AMBITIOUS TRAINING PROJECT FOR ELECTRONICS TECHNICIANS WAS COMPLETED IN ASSOCIATION WITH EMDEN’S PUBLIC UTILITY COMPANY. CYCLISTS DO NOT HAVE TO PAY TO USE THE NEW CHARGING STATION AT THE CARAVAN SITE AT EMDEN HARBOUR.
New regulatory framework from Brussels for renewable energies

WITH NEW DIRECTIVES, THE EUROPEAN COMMISSION WILL ALSO SIGNIFICANTLY AFFECT NATIONAL TARGETS AND MEASURES FOR THE DEVELOPMENT OF WIND ENERGY UNTIL 2030. FIRST PROPOSALS ARE ALREADY EXPECTED IN DECEMBER 2016.

The fact that government and state leaders of the EU member states committed to a target for the development of renewable energies by the year 2030 is a good thing. However, the target which they finally agreed on is disappointing: 27% renewable energies by the year 2030. Even though this is supposed to be the “minimum target”, it is not going to incite member states to make a greater effort. Currently exactly the opposite is happening in many of the countries; the expansion of renewable energies is being curbed. At the same time, there is still no European legislation for beyond 2020. Because of this, there is a lot of uncertainty as to how renewable energies are to develop in the short or medium term. This is a quite a contradiction to the climate agreement reached in Paris in December 2015. Here, the Europeans appeared as trailblazers in matters of climate protection and breaking away from the fossil fuel era.

How is this supposed to continue in Europe and how is the national market supposed to be stabilised? Due to a resolution passed by the member countries, the European Commission is currently drafting two decisive new directives. One of these applies to renewable energies for the time period from 2021 to 2030. It will be replacing the previously applicable directive, no legally binding national expansion targets have been set according to the decision made by the member states. In concrete terms, this means that the European Commission is relying on the good will of each individual state to achieve the target. The previously binding national targets have led to vigorous growth since 2009. Yet, despite these binding targets, some countries will be falling short of their objectives. How then will it be possible to enforce measures if they are on a voluntary basis?

Directive for renewable energies post 2020
The greatest challenge with regard to the directive for renewable energies is that, contrary to the previously applicable directive, no legally binding national expansion targets have been set according to the decision made by the member states. In concrete terms, this means that the European Commission is relying on the good will of each individual state to achieve the target. The previously binding national targets have led to vigorous growth since 2009. Yet, despite these binding targets, some countries will be falling short of their objectives. How then will it be possible to enforce measures if they are on a voluntary basis?

Talks are of a tight network made up of national action plans, which would be evaluated and monitored by the Commission. This way, binding schemes are supposed to be created in the countries. However, this (still) does not guarantee that it will be

enforced and implemented. Therefore, it is being discussed as to whether action should be taken at the European level. Europe-wide tendering, for instance, is currently being considered. As a whole, however, this scheme will certainly not be sufficient to meet targets. The exact organisation of the measures and their level of obligation will be decisive factors. Key elements such as the option of setting up national incentive schemes, a technology-specific incentive scheme to prevent wind-fall gain and allowing a priority to renewable energy systems to feed energy into the grid have to remain key elements and be stipulated in the new directive.

Reform of the European Market design
Just as important is the reform of the European Market design. The European Commission has formulated that the market has to be made fit for renewable energies. This is a very positive improvement because up until now attempts were always made to integrate renewables in a market essentially geared to conventional energy sources. Therefore, the focus of the reform should be on making the market more flexible. This includes not introducing the proposed capacity markets. Europe is struggling with a high overcapacity of infraflexible conventional power plants. It would be better to set incentives in order to be more flexible on the market. Wind energy is particularly advantageous in this respect. Shorter deadlines and shorter lead times for offers on the electricity market could provide a better outlook for direct marketers to work in the markets. This would require a lower capacity of conventional power plants. By the same token, it should be possible for renewable energies to provide system services. For this, however, changes would have to be made in terms of operating reserves and reactive power.

Both European Commission schemes provide new opportunities, but also mean great challenges for politics and the industry. The aim should be to maintain a stable framework for renewable energies in Europe and in its member states in order to at least achieve the common objectives and make a strong European contribution to meeting the Paris Agreement. //

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Wind power installed in Europe by end of 2015 (cumulative, GW)

European Union: 141.579 GW
Candidate Countries: 4.741 GW
EFTA: 907 GW
Total Europe: 147.772 GW

Source: WindEurope
Is the economic crisis in southern Europe creating new export opportunities?

TO MAKE ONSHORE WIND ENERGY TECHNOLOGY FROM GERMANY AN EXPORT SUCCESS – THAT IS WHAT THE FEDERAL ECONOMIC MINISTER SIGMAR GABRIEL (SPD) IS CAMPAIGNING FOR. IT COULD HELP EU STATES WHICH ARE GOING THROUGH TOUGH TIMES, SUCH AS GREECE, TO EMERGE FROM THE FINANCIAL CRISIS, AS WELL AS CREATING NEW SALES MARKETS FOR OUR HOME-GROWN WIND INDUSTRY, BELIEVES THE MINISTER. THAT IS WHY, DURING HIS VISIT TO GREECE IN EARLY JULY, GABRIEL BEAT THE DRUM HARD FOR AN ENERGY TRANSITION ‘MADE IN GERMANY’. THE WINDBLATT ASKED HIM TO TELL US MORE.

We showed the way with the energy transition in Germany. Wind energy converters generate regional added value. Once the size of the market grows to a particular level, jobs are created in manufacturing industry and in the service sector. Moreover, the expansion of renewables reduces reliance on imported oil and gas. In the medium and long term, that will have a positive impact not only on the environment, but also on the budgets of local authorities and on consumers’ wallets.

What support is being provided by the Federal Government to ensure that the move towards renewables translates into higher export sales? The best advertising tool we can use abroad will be to ensure the ecological and financial success of the energy transition in Germany. We have also established a series of energy partnerships and dialogues with partner countries around the world. And last but not least, the energy export initiative of the Federal Ministry of Economic Affairs provides crucial support to German companies entering foreign markets.

The layout of what is called “grid expansion regions” is doubtlessly the issue that is critical for the wind industry. By March of next year the Federal Network Agency is expected to have defined the areas in which the grid is too weak for continued dynamical addition of WECs. Another key question is whether designation of these zones will be limited in time and, more important yet, whether tardy grid operators may drag their feet about additions with impunity or will be put under pressure, e.g. by penalties. So far, nothing of the sort has come up, however, the debate with the Federal Network Agency has not yet begun. What is particularly annoying about the designation of the grid expansion regions is that even in those zones wind energy projects may submit tenders only if they will feed their entire wind power into the public grid later on. This will stifle any initiative to use generated power regionally in order not to strain the overloaded grid in the first place. Not even auxiliary power supply systems for production facilities using a wind energy converter on the company premises will be possible in this scenario. At least, the ministry of economics promised to tackle the issue of “integrated energy” [i.e., the use of power from renewables for heat and mobility] more thoroughly during the next legislative period.

The 2 gigawatts of on-demand load that are intended for a time displacement in power supply during grid-related shutdowns might be something of a first step into the integrated energy concept. Starting in the fall, the conditions at which providers of on-demand loads may apply will be defined in detail. Providers may include energy-intensive businesses but also operators of storage systems and power-to-gas plants that convert green power into hydrogen or methane. Probably, combined heat and power plants will be preferred but the drafting of the ordinance may also provide chances for certain other technologies.

The drafting of the pro-innovation tendering that also made its way into the bill by power to issue statutory instruments is still anybody’s guess. 50 MW of the tendering volume are to be allocated to this segment. This might be an option to give market access to regenerative hybrid power plants or power-to-gas plants.

Joint tendering with other EU countries Under pressure from the European Commission two requirements that will be difficult to meet for the wind industry were included in the EEG 2017: Germany is to test joint tendering with other EU countries. Denmark will be the candidate for transnational wind power tendering. The official goal is to reduce costs further by widening the tendering catchment area; however, opening it to other countries definitely smacks of harmonization of the promoting instruments by the European Commission – which is something the industry has successfully resisted so far.

Moreover, by means of a joint pilot tender exercise for large-scale solar plants, wind farms and offshore wind farms the Commission is pushing for technology-neutral tendering in order to promote only the most advantageous power generation method in the medium term. Starting in 2018, onshore wind farms will compete against photovoltaic plants in the setting of a pilot experiment. A key element of this will be that approval continues to be a prerequisite for access. Otherwise, all players will be threatened with what has already happened in the PV sector, meaning that extremely low bids are submitted for non-existing projects in order to raid the market and put reputable vendors under pressure. ENERCON still advocates intense engagement of all parties involved in those issues that might decide the future of renewable energies. //

Photo: Bredel
ENERCON’s SIP upgraded

ENERCON CUSTOMERS VISITING THE SERVICE INFO PORTAL 4.0 WILL BENEFIT FROM A MORE USER-FRIENDLY EXPERIENCE AND NEW FUNCTIONS. THE WORLDWIDE LAUNCH OF THE REVISED VERSION BEGAN IN LATE AUGUST.

Improved user prompting, more efficient performance, and the ability to display on any device customers’ individual wind energy converter data, which can be freely configured to meet their own specific needs, are important cornerstones of the new ENERCON Service Info Portal (SIP). With its latest Version 4.0, ENERCON has fundamentally revamped the SIP and equipped it with a contemporary layout. Customers benefit from a highly-functional and user-friendly interface, which allows them to access all the relevant information about their wind energy converters quickly and easily at any time.

As well as the power curve of individual wind energy converters and/or wind farms, this includes status and service reports, which are stored here, too. One key feature is that upon accessing the new portal, all of the most important information is now instantly available at a glance; users can configure their own personal ‘dashboard’, and arrange the individual modules of information on the start screen as tiles of different sizes. This virtually enables them to create their own wind farm control centre. “We placed a lot of value on usability when we designed the SIP 4.0 at ENERCON’s customer service centre. The new design was informed by many suggestions and ideas for improvements gathered from customer feedback.

The SIP 4.0 also makes it easier for operators to meet their reporting obligations. Using the operation report function allows them to summarise information of relevance to decision-making about wind energy converters or wind farms in a PDF file with just a few clicks of the mouse. Individual customisation allows SIP users plenty of evaluation options. An ‘EEG’ module also makes it possible to calculate refunds for lost profits when the grid operator disconnects wind energy converters.

Moreover, the SIP 4.0 makes allowances for the different types of contract available from the ENERCON Service concept ‘EPK’. For instance, there is an information module for direct marketing, and one for EPK-B. If ENERCON customers have selected the optional contract available from the ENERCON Service concept ‘EPK+B’, there is an information module for direct marketing, and one for EPK+B. If ENERCON customers have selected the optional module in the SIP 4.0 will display pertinent information related to the marketing of their volumes of energy. The equivalent applies with the ENERCON Service concept ‘EPK’. For instance, there is an information module for direct marketing, and one for EPK-B. If ENERCON customers have selected the optional contract available from the ENERCON Service concept ‘EPK+B’.

Focus on usability

That is why all of the customer documentation has been brought together in a more manageable way in the new SIP. The special menu option allows the user to access not only operating manuals and lists of ENERCON contact details, but also the latest news from ENERCON’s customer service centre. Documents on lift and winch inspections are stored here, too.

The SIP 4.0 is also being used to evaluate availability and analyse the power curve over specific periods. It is also possible to compare different wind energy converters.

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Multi-level security barriers

In order to ensure that the system is secure and protect it against theft or data loss, ENERCON uses multi-level security barriers with SIP 4.0 and secure encryption with redundant data management. “In other words, we use a very high level of security technology”, says Manfred Janßen. Security checks conducted by independent IT experts have verified this high standard of security.

Janßen is delighted to report that “The entire project has gone very well. All of the ENERCON divisions which were involved collaborated together very successfully, and the SIP project was completed in just one year.” The global introduction of the new portal in a number of different languages began in late August, and it should be possible to switch off the old SIP by the end of 2016. //
First slagheap repowered with an ENERCON E-101

ENERCON HAS REPLACED A SUPERANNUATED E-66 WITH A NEW E-101 FOR THE OPERATING COMPANY RUHRWIND HERTEN GMBH ON THE FORMER SLAGHEAP AT HOPPENBRUCH IN HERTEN (NORTH RHINE-WESTPHALIA).

The site of Hopenbruch in Herten (North Rhine-Westphalia) is special in several respects. Together with its neighbour, the former slagheap – which was being formed with the waste material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area. To the southwest of the material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area. To the southwest of the material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area.

The repowering of this site is special in several respects. Together with its neighbour, the former slagheap – which was being formed with the waste material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area. To the southwest of the material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area. To the southwest of the material from two collieries right up until 1992 – constitutes the largest slagheap landscape in the entire Ruhr area.

Despite an extensive upgrade by ENERCON last year, the operator did not believe that the E-66 could continue to be economically viable. After twenty years, no more remuneration would be paid under the EEG for the kilowatt hours generated by the E-66. In addition, the E-101 is much more efficient: while the E-66 generated an annual average energy yield of 2,550 MWh, the E-101 is forecast to produce 4,700 MWh, in other words to generate about 2½ times more electricity on the same site. This will be enough to supply 1,900 households and prevent the production of 5,000 tonnes of CO₂.

The deadline for the repowering was tight, as the E-101 was intended to be up and running by the end of September. As a result, the old converter and its foundation were disassembled in Week 9 of the year. The most testing challenges involved in the construction work arose from the complexity of the site: space was extremely limited on top of the slagheap, and the only possible access was via a narrow winding road. The situation was compounded by the specific ground conditions; after all, a slagheap is composed of loose deposited material. In order to create more space, we first removed about two metres of topsoil from the slagheap and shifted it to the side”, reports ENERCON project manager Dominik Weiss. “This meant that the project and construction managers had to supervise the work very carefully”, sums up Dominik Weiss.

A logistics point was also built at the foot of the slagheap to provide short-term storage for the converter components, apart from the rotor blades and the steel sections of the tower, which found a separate temporary home at a nearby industrial estate.

Ground improving measures necessary

Before work could start on building the foundation, vibro replacement was carried out to improve the quality of the ground. According to a geotechnical report, the vibro-replacement columns had to be inserted into the ground with great precision, so that the existing columns of the old converter could continue to be used for the E-101.

Once the foundation was completed, the construction team had strong winds to contend with as they erected a 97 m high tower. In Week 27, work began on installing the WEC.
First UK wind farm with E-92 machines goes online in EPC Project

ENERCON SUPPLIES 5 x E-92/2.35 MW FOR THE SPALDINGTON AIRFIELD EPC PROJECT IN YORKSHIRE, ENGLAND. ENERCON’S AGGREGATE INSTALLED CAPACITY IN THE UK REACHES 1 GW, WITH FURTHER PROJECTS SCHEDULED IN THE COUNTRY DESPITE FEARS OVER THE RECENT “BREXIT” DECISION.

ENERCON has installed the first E-92 WECs in the UK. A total of five turbines from the 2.35-MW series were installed at the Spaldington Airfield project in Yorkshire, England. The wind farm was commissioned this spring and has since been running smoothly at ENERCON’s normal high operating levels.

The wind farm, with a power output of 11.75 MW, is located roughly 10 miles north of the small town of Goole in a predominantly rural region in the East Riding of Yorkshire. ENERCON’s customer for this project was the internationally active project developer and wind farm operator, Falck Renewables S.p.A. The enterprise expects to achieve an annual energy yield of up to 27,000 megawatt hours—sufficient energy to supply 7,000 households with green energy, saving up to 12,000 tons of CO2. In addition to supplying, installing and connecting the WECs to the grid, ENERCON was also in charge of building access roads and crane pads, and constructing a 33 kV transmission substation.

Example of EPC contract

“This project is an excellent example of an EPC contract (engineering, procurement, construction) where, in addition to the delivery and installation of the WECs, ENERCON also acted as the general contractor responsible for project development” said Chris Catley, ENERCON’s Sales Manager responsible for the project. “The project is one of the first EPC contracts we have concluded in the UK,” explains Catley. “The feedback we have received has been extremely positive across the board”, Catley especially commended the outstanding teamwork, collaboration and cooperation demonstrated between the ENERCON team involved, its subcontractors and the customer.

Richard Briggs, ENERCON’s Project Manager for Spaldington, concurred, highlighting that “the project was not without challenges. In addition to known factors, such as constrained site access and working on made ground with an active unexploded ordinance risk, we had to deal with unforeseen issues such as unseasonably bad weather, contaminated ground and a lack of resource for delivery escorts. However, through close collaboration with the client and stakeholders, we successfully delivered within the required timescales, while keeping quality and cost within expectations. I was particularly happy with the process and how internal and external teams worked together to achieve a common goal. Our experiences at Spaldington are already going to shape and improve our current and future EPC projects.”

ENERCON’s commitment remains unchanged

For this reason, ENERCON is not too concerned about “Brexit”. In a referendum held at the end of June, a majority of British citizens voted to exit the European Union. “Whatever route the UK takes over the coming years ENERCON will remain in the UK, and at our customers’ service. Whether in the EU or a new market outside of it, our commitment remains unchanged.”

ENERCON has been doing business in the UK since 1996. The first project was near Nympsfield in Gloucestershire, England. Back then, an E-40/500 kW was installed. Later, ENERCON established its own UK Service organisation, with decentralised Service stations and a central warehouse, and successively hired more staff for service, sales and project management. A UK branch office was opened in Edinburgh in 2012, providing the platform for strong year on year growth, and leading ENERCON towards its 1,000th MW of installed capacity in the UK, reached in July 2016. So far, more than 770 ENERCON turbines have been installed in the country and ENERCON’s UK market share now stands at 18 percent. The firm has 270 employees in the UK and recently celebrated its significant “One GW” milestone with customers and business partners at an event in Edinburgh at the end of July.
Almost everywhere in Chile wind conditions range from good to excellent. Because of this, there is great potential for wind energy on the South American market. However, the Andes state is still lagging behind as far as renewable energies are concerned. Currently, the installed capacity of wind energy is only 919 MW. Chile’s energy demand is primarily covered by fossil fuels and large hydropower plants. But the political framework conditions are currently undergoing changes and the installed capacity is supposed to be quadrupled by the year 2025. Now, ENERCON is also present on the Chilean market and recently installed its first wind energy converters there.

The "Alto Baguales II" project, an extension of the country’s first wind farm near the city of Coyhaique in the Aysén region, marks ENERCON’s debut in Chile. The two E-44/900 kW wind turbines were installed for the power supplier, Edelaysén S.A. Coyhaique, the region’s capital, is located approximately 1,650 kilometres south of the country’s capital city, Santiago, and has a population of roughly 43,000 inhabitants. Their main source of income is lumber, several zinc mines in the surrounding area and tourism.

The two E-44 machines were installed on steel towers with a hub height of 55 m. ENERCON was in charge of delivery, installation, grid connection and commissioning. In addition to this first project’s unpredictable factors in a new country without a local subsidiary and the remote location, the region’s grid conditions presented some of the greatest challenges. The site has a relatively small isolated grid with a power generation capacity of only about 50 MW. A great advantage for this situation is ENERCON’s intelligent grid feed system which ensures yield-optimised operation of WECs in grids with heavily fluctuating voltage or frequency.

Following its successful entry in the Chilean market, ENERCON intends to step up its presence in the country says Mariano Romero, ENERCON Sales Manager for Chile. The next steps are to realise further wind farm projects and establish a base for a local Service team. “We are currently looking at more than 1.5 gigawatts in projects of varying sizes throughout the country,” explains Romero. A recent amendment to the country’s legislation is a facilitating factor for these plans. It stipulates that a total of 20 % of Chile’s energy demand should be covered by renewable energies by the year 2025.
New ENERCON specialists for inland sites

SYSTEMATIC FURTHER DEVELOPMENT OF ENERCON’S PLATFORM STRATEGY

With the E-141 EP4 / 4,200 kW and E-103 EP2 / 2,350 kW ENERCON has added two new high performance low wind turbines in the 2 MW and 4 MW segments of their product range. Taller towers, an enlarged rotor diameter for increased annual energy output and low sound power levels for sites with more stringent sound level requirements are just a few of the features of this innovative turbine generation.