



Recognising potentials

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Renewable Energies: Global Trends and Experiences

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> In this issue you can read:

In Focus

- > RENEREX – Short interview with Anton Berger 2

Around the world

- > Development of the global onshore wind markets with particular consideration of the German market and German manufacturers 3
- > Wind power in Germany: Quo vaditis ageing power plants? 6
- > A Building Ground or A Green Vehicle Transition? 8
- > European Commission publishes its decision on support for Czech installations commissioned between 2006 and 2012 10
- > Spain: Tech neutral auction of 2,000 MW RE capacity eligible for incentives to run on 17 May 2017 12
- > Renewable Energy auctions in Poland and auctions planned for 2017 14

- > Adjusting coefficients for the promotion of renewable energy 17
- > Public tender programmes and direct sale of renewable energies and natural gas in South Africa 18
- > Renewable Energies Under Trump Administration – Is It All Over? 20
- > Lithuania consistently puts its money on combined heat and power plants – Opportunities for construction companies and power producers 23

News on international renewable energy incentive programmes

- > Scaling Solar – 2nd tender round in Zambia has started 25
- > BMUB's export initiative for environmental technologies 25



In Focus

> Short interview with Anton Berger on the renewable energy exchange platform RENEREX

1. Where did the idea of Renerex come from?

For over 10 years Rödl & Partner has assisted investors and project developers in renewable energy at home and abroad. Therefore, we regularly receive enquiries from project developers who search for investors to finance their projects, and enquiries from investors looking for projects. Moreover, the competition for attractive investment opportunities on the German renewable energy market is continuously increasing, and the significance of renewable energies in developing and emerging countries is growing. Therefore, we developed Renerex, a matching platform, an international and cross-technology online marketplace for RE projects, which we provide for free to investors and project developers all over the world.

2. What added value does Renerex bring?

When we developed the platform, we put special emphasis on the confidential data exchange feature. Each and every investor and project developer undergoes a short plausibility check to prevent the placing of non-serious offers. In addition, the investor's identity is revealed to the project developer only after the investor requests detailed information about a given project. This way investors can avoid undesirable enquiries. Project developers also benefit from the fact that, on the one hand, they may easily submit detailed information through RENEREX, but on the other hand, they retain full control as to with whom they share this information and how detailed it is. As a special highlight, RENEREX also automatically displays links to information about country- and technology-specific funding programmes. Our specialists regularly update the database, so the information is always up-to-date.

RENEREX opens up additional investment opportunities, creates new financing alternatives for project developers, informs users about funding programs and offers access to Rödl & Partner's broad portfolio of consulting services. Thus, through the central online platform RENEREX we are able to quickly and in a targeted manner find for you the right advisor from our international renewable energy expert group, whenever you need one.

3. If I register, do I commit myself to anything?

Obviously: no! You commit yourself neither by registering as investor or project developer nor by creating projects in the system or requesting more detailed information about projects. RENEREX is a completely free of charge platform by Rödl & Partner.

If you wish, we will be happy to assist you with our consulting services for your planned project transaction.

4. How is data security handled?

The RENEREX online platform is hosted and maintained in Germany and is, therefore, subject to European data security law, directives and standards. It is additionally secured by SSL. Of course, we use the data only for the registration process. The data is neither transferred nor used by third parties, whatsoever.

5. How is the platform currently fairing and how do you see the future of RENEREX?

We are happy that 34 project developers and 27 investors are actively using RENEREX. RENEREX is still a very young product. The first big campaigns have been launched only recently. Additionally, we have developed an information flyer in three language versions (German, English and Spanish) and a product information video. We assume that the number of users and, especially, of projects on the platform will grow rapidly. Thus, we encourage you to regularly visit the website.

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Around the world

> Development of the global onshore wind markets with particular consideration of the German market and German manufacturers

by Simon Zenses

The global wind market continues to grow together. Energy producers must compete for market shares in a growing number of countries and on an ever larger scale. This trend starts to affect also German manufacturers. M&As and collaborative partnerships are the latest market trends and further consolidation measures are about to be launched. The wind is blowing from all directions, it will be exciting to see how German manufacturers deal with these market developments.

Wind power has long stopped to be the eco-niche. The global forecasts for the next decade promise solid growth, the construction of offshore wind turbines could increase even by 20 percent p.a. Onshore wind energy, when directly compared with offshore wind energy, is today much more affordable and more technologically advanced. German wind turbine makers play an important role on the global market, but have to further strengthen their global position given the prospect of a decline in the German wind market.

Global market

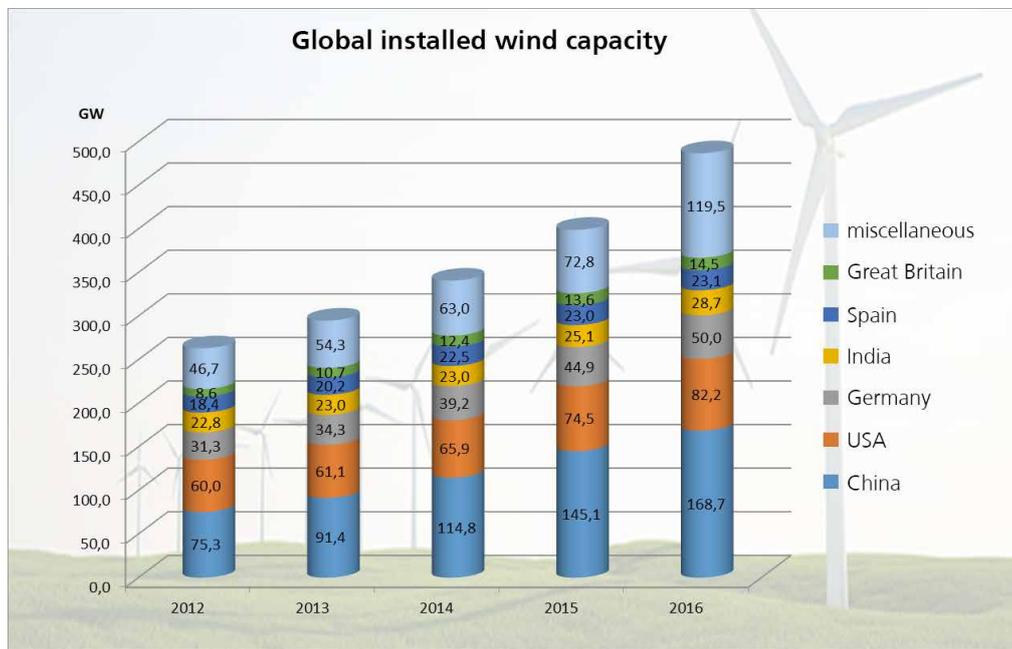


Figure 1 – Global installed wind capacity (source: Global Wind Energy Council 2016)

With 168.7 GW worth of installed capacity (as of 2016), China is by far the leader in wind energy production. The USA took the second place with 82.2 GW, which is nearly half as much as China's installed wind capacity, followed by Germany with about 50 GW and by India and Spain with 28.7 GW and 23.1 GW, respectively. Countries such as the UK, Canada, France, Italy and Brazil content themselves with 10–15 GW.

Situation in Germany

The German market experienced strong growth also in 2016. In the previous year, 1,624 new wind turbines with a total capacity of 4,625 MW were built, which accounts for an about 10% increase in total capacity. The above figure includes 238 new turbines with a capacity of 697 MW which were repowered. This means a 40% increase in the capacity of the repowered turbines as compared to 2015. Nearly a half of the new wind turbines were installed in the northern German states (Lower Saxony, Schleswig-Holstein and Nord Rheine-Westphalia). In each of the southern German states (Bavaria and Baden-Württemberg), this share is about 7.5%, whereas the remaining 35% is distributed over the rest of Germany. It is rather expected that in the future this share will further decrease or almost come to a standstill, especially in Bavaria.

At the end of 2016, after adjustment for the number of decommissioned turbines, there were 27,270 installed wind turbines, which represented an installed wind capacity of 45,911 MW.

In the future, the state will control the expansion of wind energy by a changeover to the auction system. Consequently, it will be possible to

increase the installed wind capacity by a little less than 3,000 MW a year only. Thus, according to the German Renewable Energy Law (EEG) 2017, the potential of the onshore wind energy to be newly installed until 2025 is capped at about 26 GW, whereas about 75% of this target could be reached through repowering measures alone. The above cap does not include an additional 2,053 wind turbines with a total capacity of 6,128 MW whose commissioning was approved until 31/12/2016 and therefore may be installed by the end of 2018 outside the auction system.



As a comparison: it is expected that the new installed capacity in the offshore wind energy segment will reach nearly 11 GW by 2025.

Global market situation, trend on the market of wind turbine manufacturers and outlook

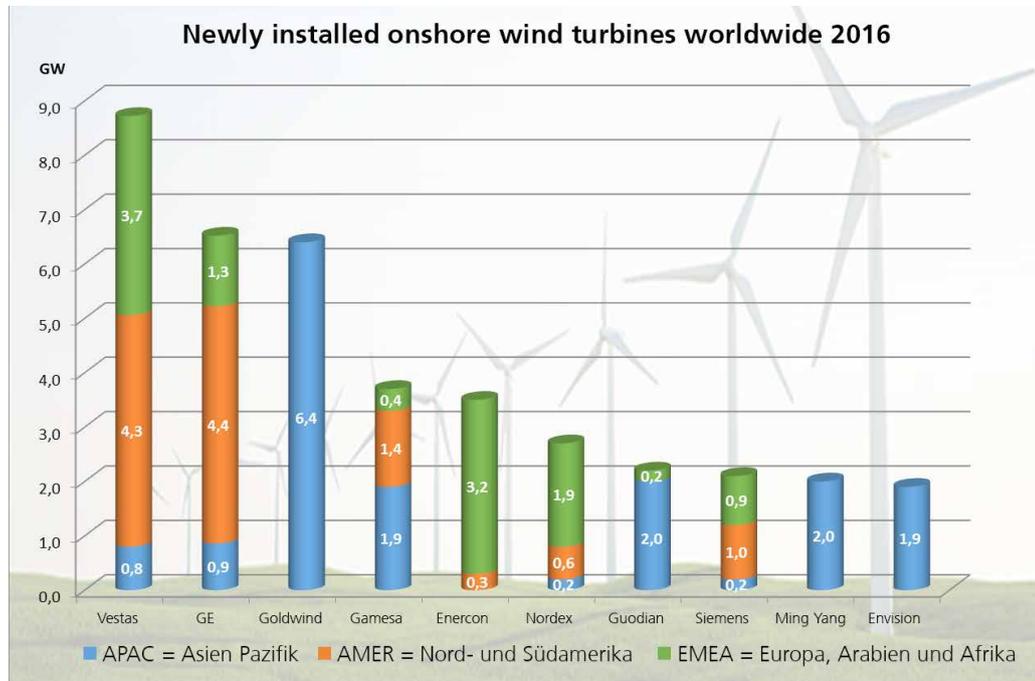


Figure 2 – Newly installed onshore wind turbines worldwide 2016
(source: Bloomberg New Energy Finance 2016)

The increase in the newly installed wind turbines shows who has sensed „the wind of change“ early enough and has already braced up for the newly emerging market conditions. A wide range of turbine types alone is no longer sufficient for a manufacturer to successfully compete on the market. The active tapping into new global markets and the widening of the service portfolio have never been so crucial for generating a broad range of projects.

Vestas is one of the companies which noticed this trend early enough and has successfully responded to it. In further expanding its market presence to 35 countries in 2016, Vestas, after losing its position of the world's leader for a short period, was able to reclaim and secure its top spot boasting 8.7GW worth of wind turbines installed in 2016. The same strategy and the acquisition of energy divisions of France's Alstom Group in 2015 enabled the U.S. turbine manufacturer GE with wind turbines installed in 21 countries worldwide to rank second with 6.5 GW worth of installed capacity, and third was Goldwind (6.4 GW).

A declining trend can be observed among Chinese manufacturers, who have so far primarily focused on the domestic market and thus have had few significant achievements on the global market. The reason for this is the reduction in the number of approvals granted by the Chinese government for the construction of new turbines by one-third due to network capacity shortages

as no sufficient grid infrastructure was provided for the broad range of variable renewable energy sources. As a consequence, Goldwind, which boasted the strongest increase in the past years, fell two places down to the third place in the ranking. The same applies to its competitors, Guodian, Ming Yang and Envision, all of whom are now planning to intensify international expansion.

In this process, German wind turbine manufacturers, such as Nordex and Senvion, are among the premium targets of Chinese company hunters. The Chinese turbine makers see the opportunity for expanding on the global market in taking the bull by the horns and more and more often initiate joint ventures. But the big market players follow this trend too, and after the takeover of Gamesa by Siemens another heavyweight manufacturer will contend with Vestas for the top position in the global wind turbine market in the future. A similar goal, though on a smaller scale, is pursued through the merger between Nordex and Acciona.

What this means for German manufacturers

Given the exponential growth of the international market compared to the German market, the largest German wind turbine manufacturers from the Mittelstand segment, such as Enercon, Senvion and Nordex, must adapt to the new conditions by further developing wind turbines, breaking into new international sales markets, reducing the development and production costs and offering a broader portfolio of products and services.

Collaborative partnerships are gaining in importance too: Siemens and Nordex are already very active in this respect, with Nordex already generating 60% of its annual revenue outside Germany (2015). Other German manufacturers do not sit on their hands either: Enercon and EWE are banding together in their capacity of wind turbine manufacturers and energy suppliers to work out new business ideas in the area of renewable energies and smart grids. They share a vision of decentralised energy systems that would be largely based on renewable energies. Senvion's CEO Jürgen Geißlinger (former Executive Chairman for the automotive supplier Schaeffler) bets, in turn, on well-known concepts from the automotive industry. One of them is to design wind turbine bodies in a way enabling their delivery in a disassembled form in containers. This allows avoiding extra charges for special shipment. Another method adopted from the automotive industry is ordering the core components such as gearbox from suppliers that offer turnkey solutions. A stra-



tegy for quickly bringing products to foreign market is to take over production facilities of smaller wind turbine manufacturers abroad and to manufacture rotor blades there. Senvion follows this strategy and has acquired a stake in the Kenersys production facilities in Baramati, India, to regain its position as an international market player.

Conclusion

In the future, German manufacturers will be under significantly stronger pressure coming from foreign players abroad. This also applies in Germany. But this change also offers German wind turbine makers a great opportunity for gaining a foothold abroad. The market will generally become more competitive and mergers and collaborative partnerships will result in the concentration of the market in the hands of a small number of remaining players. For wind farm operators and designers this will rather mean lower prices of wind turbines – at least in the short term – because of the strong competition for projects among manufacturers. In addition, manufacturers are put under ever stronger price pressure due to tariff reductions and higher design costs arising from environmental and other issues in many countries and at the same time they are expected to implement the more and more complex wind projects in a cost-effective manner. However, it is questionable whether a further tendency towards oligopoly will result in lower prices in the medium, and first of all, in the long term.

It will be exciting to see how German manufacturers will secure their positions on the global market and what mergers and acquisitions will come up next.

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Around the world

> Wind power in Germany:

Quo vaditis ageing power plants? – Why wind farms should be given special attention starting from the 15th year of their operation

by Kai Imolauer

Why you should give a special thought to your wind farms entering the last 5-year phase of the tariff period and why you should start to think about it before actually being forced to do so. A heads up for operators to closely monitor the specific aspects of ageing power plants and the related framework, so that the post-tariff-period operation of your power plant, often described as “the golden end”, does not become a dead end.

The EEG was enacted in Germany on 01/04/2000 and since then this act of law has guaranteed a stable Feed-in-Tariff for wind turbine operators over a period of 20 or 21 years. Over 27,000 wind turbines have been connected to the grid ever since then. Next year, the number of wind turbines in wind farms reaching the last phase of the EEG tariff period, i.e. starting their 15th year of operation, will be close to 10,000. At the end of 2020, the EEG financing period will end for about 6,000 wind turbines and – if they continue to operate – they will have to generate profits based on prices determined on the European Electricity Exchange (EEX).

Wind turbines are currently facing bad publicity in Germany: On the one hand, citizen initiatives that have sprung up in every part of the country to campaign against wind power have unceasingly attracted some media attention. The media reports are often based on more or less founded environmental protection related decisions passed by licensing authorities who are often against further expansion of wind power. On the other hand, at the turn of the year, many wind turbines in Germany malfunctioned, rotor blades broke down (as in the Laubersreuth wind farm) or even broke off (the Briest wind farm)¹. Such a series of failures accumulated in less than 25 days and nota bene relating to power plants built between 1999 and 2002, is certainly unusual, but has exposed a critical aspect:

Operators should devote their attention to their existing power plants early on and know action alternatives early enough to be able to respond quickly.

Old power plants in the special phase of their life cycle

Many power plants are entering the last phase of their life cycle before the end of their EEG tariff-based financing period or are already in that phase. Generally, this implies that all financial loans have been paid off and the achieved contribution margins are significantly higher. But the “golden end” scenario for amortised power plants, so often promised and included in earlier profitability calculations, has increasingly failed to come true. This could be attributable to incorrect estimates regarding the lifetime of certain large components (e.g. rotor blades, generator, tower, or foundations). But this issue is also significantly influenced by deviating assumptions regarding maintenance and repair costs for the last years of operation and the related operational security. Another factor is that many owners of old power plants simply underestimate the necessity of exploring early on the opportunities for further operation under current market conditions. The general rule for wind turbines is the same as for any other machine, like e.g. for a private passenger car: when certain mileage is reached, you have to ask yourself how

¹ Source: <http://www.spiegel.de/wirtschaft/unternehmen/windkraft-traege-rotorregler-fuehrten-laut-analyse-zu-mysterioeser-havarie-serie-a-1137530.html> ;
<http://www.frankenpost.de/region/muenchberg/Sturmtief-Thomas-zerstoert-Windrad;art2441,5386432> ;
<http://www.taz.de/!5388209/>



long more you want to invest in repairs and maintenance and when the time comes you need to disinvest.

In wind turbines, however, there is a whole range of factors that must be taken into account early on to make a financially optimal decision. One thing is sure: When the wind turbine suffers a major defect, every single day of downtime costs you huge amounts lost from the annual profit and you must make decisions quickly so as to minimise the financial losses as much as you can.

A crystal ball to foretell the future

Basically, three scenarios are possible:

1. Your wind turbine operates till the end of the EEG tariff period and suffers no major damage;
2. Your wind turbine suffers major damage in the end phase of its estimated life span (about 20 years assumed at the outset of the project) and the repair of the damage is at least partially covered under a full maintenance contract (or insurance) because you extended the contract to cover the whole 20-year period (usually though on different terms and offering different benefits than for the previous phase!);
3. Your wind turbine suffers major damage in the end phase of its estimated life span and the damage is not covered under a (full) maintenance contract so you need to invest heavily in the repair.

What those scenarios have in common is that in all of them, you must weigh up the future profits and costs in order to assess whether to pursue options like:

- > further operation
- > sale or
- > dismantling.

Under scenarios 2 and 3 this decision must be made significantly faster because of the case of damage. When is it advantageous to select further operation, what happens in case of major damage?

As a rule, old wind turbines involve many different considerations and steps which are, however, intertwined with each other and sooner or later interlock; therefore, it is important to start to actively explore already from the 14th year of operation the following issues:

1. Because of the expiry of full-maintenance contracts normally after 15 years, the maintenance policies and the pay-out amounts relating to the remainder of the life span are of central importance in deciding whether and for how long further operation of a wind turbine will be economically reasonable – such policies should be negotiated or extended early on;
2. If the wind turbine suffers major damage not covered under a full maintenance contract or because of the age of the power

plant the maintenance (or insurance) company does not cover 100% of the damage, you should clearly know how long it will be possible for the wind turbine to operate and make up for the higher costs, and whether the investment is reasonable;

3. This requires understanding whether and how long after the end of the EEG period it will be possible to further operate the power plant, taking into account
 - > whether it will be technically possible to continue to operate the power plant in terms of lifetime and safety
 - > whether it will be legally possible to continue to operate the power plant (required approvals, duration of the operating license, extension of validity of type tests, lease contracts extendable?, etc.)
 - > whether it will be financially possible to continue to operate the power plant (e.g. new maintenance and lease terms, future electricity prices guaranteeing profits, etc.)
4. What options of selling electricity do I have as a plant operator after the end of the EEG tariff period?
5. From which year is it advantageous to sell the wind turbine or conduct repowering, and on what conditions would further operation be reasonable also when there is no major damage to the wind turbine?

These and many other questions should be considered when reflecting on the last 5 years of the EEG tariff period in the case of wind turbines. We recommend, however, that everyone should deal with these issues early on and check the action scenario alternatives. In any case, every single day of the wind turbine's downtime trims your operating result and thus cripples your original profitability calculation.

We will be happy to assist you in exploring options and opportunities, with the first consultation to discuss the situation being completely non-binding and for free.

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Around the world

> A Building Ground or A Green Vehicle Transition?

by Benjamin Hufnagel

The green transition in the traffic sector has not started yet. But there are more and more indications that changes are on their way. Thanks to incentive programmes, the public charging infrastructure will be soon expanded, and car manufacturers have already announced that they will launch many new car makes within the coming 3 years. The renewable energy sector will benefit mainly from the fact that the incentives for charging stations are linked to the use of electricity from renewable energy sources.

The electric vehicle breakthrough did not come in 2016, either. At least in Germany, the widely talked-about green vehicle transition has not arrived yet. It seems that after the initial excitement we must yet wait for the transition to happen. Electric cars are hardly popular and there are hardly any special offers that potential buyers would find attractive. The disillusioning statistics relating to the number of newly registered electric vehicles in Germany are thus hardly surprising.

Between January and November 2016, electric cars accounted for only 0.7% (about 12,000) of the total number of new registrations. Thus, Germany is still below average compared to other European countries.

Also the mechanism of incentives for buyers of EVs has failed to be effective: until the end of January 2017, only 10,835 grant applications were filed in total.

The target of the federal government is that one million electric cars should be operating by 2020 in the country. But the achievement of this target seems to be hardly possible from today's perspective. A reason for the number of new registrations being lower than expected is the missing EV charging infrastructure. In a bid to advance the expansion of a nationwide EV charging infrastructure, the Federal Ministry of Transport and Digital Infrastructure (BMVI) adopted an incentive programme with a funding volume of about EUR 300 million. Out of this amount, BMVI plans to provide EUR 200 million for the installation of 5,000 fast charging stations (>22 kW) and EUR 100 million for the construction of about 10,000 normal charging stations (3.7 kW to 22 kW). Applications are filed online with the Federal Administrative Service Institution (BAV). Private investors, cities and municipalities could apply for incentives for the construction of EV charging stations as part of the first application round, which started on 01/03/2017. In this round, applications were accepted



by 28/04/2017, 12:00 hours. The funds were awarded on a first come first served basis. Therefore, applicants were requested to file applications as early as possible as the amount of funds (EUR 5 million) to be awarded was limited. The interest was so big that only within the first two weeks, the amounts applied for exceeded the planned funding volume. In addition to diverse technical requirements and 24/7 accessibility, one of the main requirements for being eligible for the funds was that electricity had to be generated from renewable energy sources evidenced by certificates of origin or from local renewable sources. Meeting this requirement is inevitable in helping reduce emissions in the traffic sector with the use of EVs.

Next funding rounds are yet to be announced by BAV. No specific timeframes have been defined yet, though. The amount of funds to be available in the next tenders has not been announced, either. BMVI first wants to analyse the first funding round and appropriately adjust the next ones. The specific terms of the next rounds will also depend on the outcome of the coming Bundestag elections.

There are currently about 6 000 EV charging stations in Germany. The aim of the Federal Transport Minister Alexander Dobrind is to give e-mobility a further push by installing a further 15 000 charging stations. According to the plans of the German National Platform for Electric Mobility, it is quite possible to reach the one-million target, but 7,100 publicly accessible fast charging stations and 70,000 normal charging stations should be installed by 2020 to that end.

Unquestionably, demand for electric cars depends on the availability of a nationwide charging infrastructure. The financial incentives for the installation of new charging stations also in a way signal how electrical mobility is perceived. The public charging infrastructure is a critical element in dispelling "range anxiety" among consumers.

Another element that is key to the success of the electric mobility market is the ease of using the charging station, and the technical standardisation.

The EU Directive on the deployment of alternative fuels infrastructure (AFID) sets out important principles in this respect. In particular, payment and authentication methods should be harmonised. Charging station operators should offer at least three payment methods like cash, EC or credit card, or a web-based payment per smartphone, unless they offer powering up for free. In case of online payment methods, the user can e.g. transfer the money using an app or a QR code for systems such as Paypal.

Conclusion

The green vehicle transition is currently not progressing as expected. But positive trends are in sight amid the incentive mechanisms furthering the expansion of the charging infrastructure. If the green vehicle transition picks up steam in the medium term, we might expect that this will have a positive impact on the renewable energy sector too. A latest study conducted jointly by Freiburg's Öko-Institut and a Belgian organisation Transport and Mobility Leuven at the behest of the European Environmental Agency (EEA) has shown that if, in 2050, electric cars were charged mainly using electricity from renewable resources, emissions could be reduced by 84%.

To achieve this target, an additional capacity of 150 GW from renewable resources would be required.

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Around the world

> European Commission publishes its decision on support for Czech installations commissioned between 2006 and 2012

by Olaf Naatz

As we already discussed in the February issue of this newsletter, the European Commission approved the support scheme provided for in Act No. 180/2005 on the Production of Electricity from Renewable Energy Sources, which finally led to the publication by the Czech Energy Regulatory Office of the price decision regarding the level of support for the year 2017.

In this article we would like to address the content of the decision. The decision is really worth reading and has in the meantime been published on the [webpage of the European Commission](#).

In its decision, the European Commission concludes that the support scheme for the RE installations commissioned in the period 2006 – 2012 complies with EU law. However, the support scheme should not have been introduced before the European Commission gave its final approval. Nevertheless, the European Commission refrained from raising objections.

It is stated in the decision, in the first place, that the support scheme was classified as the so-called „new aid“ and not as „existing aid“, a fact that was differently construed by some members of the professional community. New aid may in principle be granted only after the European Commission issues its final approval.

Moreover, according to the decision, the support scheme complies with the guidelines on state aid for environmental protec-

tion from 2001 and 2008. In particular, it is stated that the IRR assumed or calculated by the Czech authorities, as presented in Table 3 of the decision, is appropriate. In the opinion of the European Commission, the support does not basically lead to overcompensation. In respect of the support to promote photovoltaics, this stance is also substantiated by reference to the introduction of the solar duty.

In this context, the European Commission agrees with the ruling of the Czech constitutional court, according to which the introduction of the solar duty was not retroactive and did not violate the operators' legitimate expectations. The reasoning behind this is, in particular, that the support scheme is a non-notified and thus basically unlawful measure to which the principle of legitimate expectations cannot be applied. Furthermore, the European Commission follows the constitutional court's line of argumentation that is unclear to us, namely that the support scheme guarantees only that beneficiaries will recover their initial investment in the renewable installation within the first 15 years from commissioning but it does not guarantee any specific sup-



port tariff. The discussed RE Promotion Act also guarantees the amount of the revenues to be earned over a period of 15 years. According to EU case law, individual operators are no longer protected from future amendments to regulations favourable to them, whereas this argument should rather apply to the withdrawal of support for photovoltaic power plants commissioned after 31 March 2011 and the resulting short period between the passing and coming into force of the amendment.

As we already mentioned in our last newsletter article, the Czech authorities undertook to adopt a review mechanism that would enable identifying any risk of overcompensation. It is stated in the decision that such mechanism refers mainly to overcompensation that might arise whenever aid under the support scheme is granted in addition to the actual operating aid, because the current operating aid scheme does not incorporate any provisions allowing the adjustment of support levels in case of cumulation of aid. The support level was calculated taking into account only tax exemptions applicable at that time. In addition, the review mechanism should address the risk of overestimation of cost factors used for the calculation of the support level (technical and economic parameters, such as capex per kW, operating costs, capacity utilisation).

The review should be carried out 10 years after the commissioning of the installations. Installations commissioned between 2006 and 2008 may be reviewed till end of 2019 so as to give the Czech legislator enough time to create an appropriate legal framework for the review and, if necessary, the recouping of overcompensation. The decision of the European Commission does not stipulate any specific manner in which overcompensation should be recouped, but the mentioned options include, for example, the reduction of the level of future support, the reduction of the period during which support is paid out, or the recovery of the amounts of aid that have led to overcompensation.

Please note that the review of support will be carried out at the level of individual installations only in the cases of aid cumulation. With respect to installations that receive support only in the form of the feed-in tariff or green bonus, the authorities, and in the case of doubt, the Energy Regulatory Office, will generally examine the correctness of assumptions or cost factors used to

determine the amount of the feed-in tariff or the green bonus. No review will be carried out at the level of individual installations. However, it should be assumed that, when assessing the cost factors, the authorities will take into account the data that the installation operators obtained to calculate their capital expenditures.

If, contrary to the opinion expressed by the Czech constitutional court and the European Commission, we continue to assume that the legitimate expectations of the operators of the existing installations are protected, it should be concluded that the publication of the commitment to introducing a review mechanism and to create a legal framework allowing, where necessary, the recouping of overcompensation has compromised the principle of protection of legitimate expectations at least for future investors. It should now be assumed that if the review reveals that the level of granted support results in overcompensation (despite the solar duty), the Czech Republic will initiate further measures to recoup the overcompensation.

At the end of the decision document, the European Commission analyses the submissions made by 10 investors alleging violations of the Energy Charter Treaty and the bilateral investment treaty between Germany and the Czech Republic. Hardly surprisingly, the European Commission is again of the opinion that foreign investors can invoke neither the Energy Charter Treaty nor investment treaties signed between EU member states and that any arbitral awards would not be enforceable.

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Around the world

> Spain: Tech neutral auction of 2,000 MW RE capacity eligible for incentives to run on 17 May 2017

by Christoph Himmelskamp

On 12 April, relevant regulations (Resoluciones) were published in the Spanish Law Gazette BOE. Wind power, PV and other technologies should be treated equally during the auction.

On 12 April, after speculations over an auction circulated in the Spanish media since as early as October 2016, the Law Gazette BOE published the long expected regulations governing the auction participation conditions. The reason for the auctions is the necessity to meet the EU objectives for expanding renewable energy in the Member States by 2020.

The object of the auction will be rights for the allocation of specific remuneration for a minimum capacity of 2,000 MW, whereas the regulations provide that this capacity may be additionally increased by virtue of a ministerial regulation.

The only requirement the auction participants have to meet in order to qualify for the auction is to obtain a bank guarantee of EUR 60/kW. The relevant qualification documents must be filed by 11 May with the OMI-Polo Español, S.A. (OMIE). After the qualification stage, the accepted participants receive further information on the the auction procedure and the data needed to access the electronic auction platform.

The minimum capacity of a bid is 100 kW, whereas each bid may be divided into different tranches. The maximum indivisible tranche is 200,000 kW and the minimum tranche is 1 kW.

The criterion for awarding the right to be included in the specific remuneration scheme will be the percentage reduction of a fictional value of initial investment which participants must offer for each tranche of their bids. The maximum fictional investment value prescribed by the Ministry is EUR 1,200,000/MW for wind power and PV and EUR 2,000,000/MW for other technologies. According to RD 413/2012, investors should achieve a "reasonable rate of return" on their investment within a life span of 25 years. The "reasonable rate of return" is 300 basis points over 10-year bonds of Spain as of 2013 – this makes 7.5% until a potential revision at the end of 2019.

According to the Ministry, the annual specific remuneration for projects to be commissioned in 2019, assuming a reduction of 0%, totals EUR 36,908/MW for PV and EUR 45,056/MW for wind power provided that a PV plant produces power during 2,367



hours and a wind power plant during 3,000 hours per year. If these values are not reached, the specific remuneration will be proportionately reduced.

This means in practice that, for example, the specific remuneration would total EUR 13,750.80 /year/MW for a PV power plant if the investment value was reduced by 20%. In the case of a reduction by 25%, the remuneration would total EUR 7,961.50 and in the case of a 30% reduction – only EUR 2,172.20 /year/MW.

Renewable energy plants receive the specific remuneration additionally to the revenues they earn from the sale of the generated power on the Spanish market. The calculation of the specific remuneration that should allow reaching the „reasonable rate of return“ is based on “floor” and “cap” market prices which have impact on the specific remuneration in case of under- or overpayment.

On 17 May between 9.00 and 11.00, participants will submit their bids electronically with the OMEL, which will announce the auction results to the bidders within 24 hours after the auction. The auction will be won by those plants which offer the highest percentage reduction in investment costs and, therefore, will generate the lowest specific additional costs in the power system. In order to calculate the specific additional costs, the specific remuneration is divided by the maximum number of operating hours. This means that, assuming the same percentage reduction of investment costs, a wind power plant has lower specific additional costs compared with a PV plant, because a wind power plant generates power for 3,000 hours and a PV plant for only 2,367 hours. In such a case, the wind power plant would win the auction.

The auction is designed as a marginal system auction scheme according to which, to put it simply, the last winning bid determines the specific remuneration for all other successful bids.

After publishing the results in the BOE, the successful participants have 6 months for assigning the awarded capacity to specific projects. However, the loan guarantee of 60/kW required for the entry into the specific remuneration scheme has to be deposited as early as 45 days after winning the bid. This bank guarantee will be released during the planning and construction phase until commissioning, no later than on 31/12/2019, in line with project steps.

Associations criticise the regulation due its complexity but also due the lack of investment certainty. Because the Ministry may adjust the “reasonable rate of return” and all other parameters every 6 years (for the first time as of 1/1/2020), no planning certainty will be ensured according to the associations. It remains to be seen whether the auction will be a success despite the complicated regulations and the requirement to present high financial guarantees and whether 2000 MW in RE capacity will be generated in Spain as of 1/1/2020.

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Around the world

> Renewable Energy auctions in Poland and auctions planned for 2017

by Piotr Mrowiec

The auction system is a new incentive system for renewable energy in Poland. Under this system, the state procures a certain amount of electricity generated from renewable energy sources. In order to purchase it, it organises an auction in which renewable power producers take part. The deadlines and dates of the planned auctions are published on the [homepage of the Polish Energy Regulatory Office](#).

The auction procedure and principles have been laid down in the Renewable Energy Law (General Part) and in the Rules on Auctions for the Sale of Electricity Produced in Renewable Power Plants (Auction Rules). An enterprise looking to generate renewable energy and, simultaneously, to receive incentives as part of the auction system must take appropriate steps before, during and after the auction.

Before the auction

At least 30 days before the auction, an announcement is published in the public information bulletin of the Polish Energy Regulatory Office (ERO), which includes the auction date, type and parameters. In order to be admitted to the auction, power producers must fulfil all parameter-related requirements specified in the public announcement.

Then, the power producer must register on the online auction platform (Polish abbrev. IPA) and activate his account there. It is a dedicated platform operated by ERO for holding auctions. You can register by filling out a registration form. If you grant a power of attorney, you must additionally pay a stamp duty into the bank account of the authorities with jurisdiction over the place where the ERO is established (currently the Warsaw City Council, Ochota District). Importantly, the bid for the sale of a certain amount of energy produced in a renewable power plant cannot be signed by an attorney or a commercial attorney (prokurent). The bid must be signed by the person authorised to represent the electricity producing company in accordance with the statutory rules of representation. The ERO has announced that during the 30 December 2016 auction as many as 15 bids were submitted against the rules of representation and therefore were disqualified. Therefore, we remind all potential auction participants about this formal requirement.

Next, the producer must submit an electronically signed application for a certificate of admission to the auction or a declaration of participation in the auction. Furthermore, he must establish a security in the form of a security deposit or a bank guarantee.

The conditions for the security deposit and the bank guarantee have been set in the auction rules.

Once the producer meets all the requirements set in the auction rules, including fulfilling the auction parameters, having a valid certificate or an approved declaration, and having his security positively verified, he may participate in the auction.

Auction procedure

According to the auction rules, an auction session must last at least eight hours. The session start and end date cannot be on a public holiday in the meaning of the Polish Public Holidays Act. Therefore, an auction may end on a Saturday (as it is not a statutory public holiday). Producers may submit their bids via the OAP only. §12(7) of the auction rules says that a producer may submit only one bid per one concrete renewable power plant. During the session, producers may modify or withdraw their bids up to one hour before the end of the auction session. If a producer withdraws his bid for a certain power plant within the permissible time, he can submit a new bid for the same power plant.

Auction closing and verification

Once the auction is closed, bids cannot be supplemented or refined. A bid is considered submitted if it meets the requirements set in the Auction Rules, i.e. it has the required elements, the declaration, and valid signatures. If you withdraw and re-submit or modify a bid, only the most recent one will be considered. Producers must place at least three non-rejected bids for an auction to be declared as valid. If there are fewer bids, the auction is not valid. If a bid's asking price increased by one-off state aid exceeds the reference price (as regards ordinary auctions) or the maximum price (as regards supplementary auctions), the bid is rejected. Once the auction session closes, the ERO President immediately informs the public about the conducted auction on his website.



If the auction is successful (i.e. it was valid and ended in selecting a winner), the ERO President additionally announces, among others, the winning bidders.

However, winning the auction is only the beginning. The producer who won the auction must think of the further steps. Pursuant to Article 72 of the Polish Renewable Energy Sources Act (RES Act-PL), the winner must fulfil certain post-auction obligations. These are published in the information letter of the president of the ERO.

Auction of 30 December 2016

The day preceding the last day of 2016 was the date of the first auction round for renewable energies. Sadly, not everything went smoothly. Already from 10 a.m., the IPA was inaccessible, probably because of web traffic overload. The disappointed bidders demanded that the auction be repeated. Despite major problems due to which many bidders could not submit their bids, the ERO announced in its information letter of 3 January 2017 that the auction was valid and named the winner. Nevertheless, the ERO admitted its fault for the problems and announced that it would organise an additional auction in 2017.

Auctions planned for 2017

As already mentioned, two auctions are planned to be held in 2017. An additional auction is to be held to console those bidders who were not able to participate in the first auction. The question is whether only bidders who were registered for the first auction (and who did not manage to submit a valid bid) or all those interested will be able to participate in this auction.

The government is also preparing for the regular auction to be held in 2017. To that end, the Minister of Energy issued on 16 March 2017 the regulation on the 2017 reference price for electricity from renewable energy sources and on time frames applicable to producers who win the auctions in 2017. The regulation stipulates the maximum PLN price per 1 MWh at which producers of electricity generated from renewable energy sources may sell it in 2017 at auction (the so-called reference price).

In comparison to the 2016 reference price, the following applies: The reference price for 9 of the 21 types of renewable power

plants remained at the same level as in 2016, while for 8 the reference price was increased and for 4 it was lowered.

For instance, the reference price was decreased for power plants producing electricity with the help of solar power (PV systems). For power plants with a total installed capacity of up to 1 MW the current reference price is 450 PLN/MW (10.67 cents/1 kWh) in comparison to 465 PLN/MW (11.03 cents/ 1 kWh) in 2016. For PV systems with a total installed capacity of over 1 MW the reference price is 425 PLN/MW (10.08 cents/1 kWh) in comparison to 445 PLN/MW (10.56 cents/ 1 kWh) in 2016. The reference price for power plants with a total installed capacity of over 1 MW which produce electricity from onshore wind energy was lowered from 385 PLN/MW (9.13 cents/1 kWh) in 2016 to 350 PLN/MW (8.3 cents /1 kWh). Interestingly, the reference price for onshore wind power plants with a total capacity of up to 1 MW was increased from 300 PLN/MW (7.18 cents/1 kWh) to 320 PLN/MW (7.59 cents/1 kWh), i.e. by 20 PLN/MW. The greatest increase in the reference price from 305 PLN/MW (7.24 cents/1 kWh) in 2016 to 405 PLN/MW (9.6 cents/ 1 kWh) concerns power plants which produce electricity only from landfill gas.

Importantly, exceeding the reference price stated in the auction bid means that the bid will be rejected.

Until 3 April 2017 neither the Ministry of Energy nor the ERO President had announced when the additional auction would take place. Moreover, no reasons for the problems during the auction on 30 December 2016 were given.

Also, no concrete date for the „main auction“ has been announced (as of 6 April 2017). However, the auction is expected to take place at the end of 2017. On 3 April 2017, two regulations of the Council of Ministers were published in the Polish Journal of Laws. The first of them refers to chronology of the planned auctions on the sale of electricity produced from renewable resources in 2017 (Polish Journal of Laws of 2017, item 713). The second regulation stipulates the maximum amount and value of electricity from renewable energy sources which may be sold at auction in 2017 (Journal of Laws of 2017, item 712). The following table shows the maximum amount of electricity from renewable energy sources which may be sold by producers at auction in 2017. Only those amounts were stated for which the regulation stipulates a value of over 0.



		Maximum amount of electricity (MWh)	Maximum value of sold electricity (PLN)
Producers who submitted a declaration of participation in an auction, in case of renewable power plants with total installed capacity of up to 1 MW	Renewable power plants with a rate of installed capacity utilisation of over 3504 MWh / MW / year (in total, regardless of the energy source)	1 659 047	556 174 673
	Renewable power plants with a CO2 emission of under 100 kg/MWh and a rate of installed capacity utilisation of over 3504 MWh/MW/year.	1 484 764	631 329 732
	Renewable power plants where only agricultural biogas is used for power production.	1 149 296	683 370 550
Producers who submitted a declaration of participation in an auction, in case of renewable power plants with total installed capacity of over 1 MW	Renewable power plants with a rate of installed capacity utilisation of over 3504 MWh / MW / year (in total, regardless of the energy source)	10 502 338	3 768 589 370
	Renewable power plants where only agricultural biogas is used for electricity production.	2 118 162	1 260 181 015
Producers who produce electricity in renewable power plants with a total installed capacity of up to 1 MW for the first time after the auction	Renewable power plants with a rate of installed capacity utilisation of over 3504 MWh / MW / year (in total, regardless of the energy source)	825 000	308 182 262
	Renewable power plants with a CO2 emission of under 100 kg/MWh and a rate of installed capacity utilisation of over 3504 MWh/MW/year.	540 000	299 025 631
	Renewable power plants where only agricultural biogas is used for power production.	8 190 000	5 280 863 522
	Renewable power plants other than those mentioned in the regulation	4 725 000	2 182 908 687
Producers who produce power in renewable power plants with a total installed capacity of over 1 MW for the first time after the end of the auction	Renewable power plants with a rate of installed capacity utilisation higher than 3504 MWh / MW / year (in total, regardless of the energy source)	10 500 000	5 423 952 758
	Renewable power plants where electricity is produced from biodegradable fractions of industrial and municipal waste of vegetable or animal origin, including residual waste from waste processing facilities and water and sewage treatment waste, especially waste water – according to the provisions of the law on waste concerning the qualification of the fraction of energy obtained from waste thermal processing	4 644 000	2 242 015 403
	Renewable power plants with a CO2 emission of under 100 kg/MWh and a rate of installed capacity utilisation of over 3504 MWh/MW/year.	540 000	305 387 878
	Renewable power plants where only agricultural biogas is used for electricity production.	3 510 000	2 263 227 224
	Renewable power plants other than those mentioned in the regulation	5 175 000	1 972 413 921
TOTAL		55 562 607	27 177 622 626

Based on the regulation of the Council of Ministers on the maximum amount and value of electricity from renewable energy sources which may be sold at auction in 2017 dated 20 March 2017 (Polish Journal of Laws of 2017, item 712)

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Around the world

> Adjusting coefficients for the promotion of renewable energy

by Marianna Schimanowitsch

Since 21 August 2016, the volume and capacity management for Belarusian renewable power plants has been subject to a quota regime.

Feed-in tariffs are guaranteed for 20 years of the power plant operation and are tiered during the first 10 years based on the so-called incrementing coefficients; during the further 10 years, the feed-in tariff remains at the same level.

Now, some of the coefficients which were determined in 2016 for the quota allocation for 2017-2019 are to be lowered.

As regards the functioning of the Belarusian promotion of renewable energies: „Energy transition in Belarus – new framework conditions for renewable energies“ dated 03/07/2015

The decrease of the renewable energy coefficients aims to further reduce state aid for the renewable energy market and to make it work according to market-oriented principles. The decrease does not affect companies which have already started to implement RE projects.

The go-ahead for the targeted expansion of „green“ energy in Belarus was given in form of the Presidential Decree no. 209 of 2015. The decree introduced a quota regime for the installation of renewable power plants.

The state buys energy not only from the power plants which participated in the public tender, but also from those who operate their power plants outside the quota system. However, the coefficients applicable in those cases are considerably lower. The production and sale of energy from old power plants which were installed under the quota system is particularly lucrative for investors. Such power plants can be purchased on the so-called secondary market. On this market they can buy existing plants or projects of which not all have been even finished, but which have already been guaranteed a coefficient. These proceedings offers a calculable return, with a relatively low risk.

If you want to know more, Rödl & Partner will be happy to advise you on this topic.

Overview of the changed coefficients:

> Installation quotas allocated in 2015 > Power plant put into operation between 21 August 2015 and 31 December 2018	> Installation quotas allocated in 2016 > Power plant put into operation between 1 January 2017 and 31 December 2019
1. Wind power plants, irrespective of their capacity	
the first 10 years from commissioning a power plant with an operating life of	
> less than 5 years: 1.2 > more than 5 years: 1.05	> less than 5 years: 1.1 > more than 5 years: 1.01
2. Power plants which use energy of natural water currents	
the first 10 years from commissioning a power plant with a capacity of	
> up to 300 kW: 1.2 > 301 kW to 2 MW: 1.15 > over 2 MW: 1.1	> up to 300 kW: 1.3 > 301 kW to 2 MW: 1.25 > over 2 MW: 1.2
3. Power plants which produce energy from woodfuels and other biomass	
the first 10 years from commissioning a power plant with a capacity of	
> up to 300 kW: 1.3 > 301 kW to 2 MW: 1.25 > over 2 MW: 1.2	> up to 300 kW: 1.3 > 301 kW to 2 MW: 1.25 > over 2 MW: 1.2
4. Biogas power plants	
the first 10 years from commissioning a power plant with a capacity of	
> up to 300 kW: 1.3 > 301 kW to 2 MW: 1.25 > over 2 MW: 1.2	> up to 300 kW: 1.3 > 301 kW to 2 MW: 1.15 > over 2 MW: 1.1
5. PV power plants	
the first 10 years from commissioning a power plant with a capacity of	
> up to 300 kW: 2.5 > 301 kW to 2 MW: 2.3 > over 2 MW: 2.	> up to 300 kW: 2.0 > from 301 kW to 2 MW: 1.7 > over 2 MW: 1.5
6. Power plants which use geothermal energy and other energy sources not classified as non-renewable	
the first 10 years from commissioning a power plant with a capacity of	
> up to 300 kW: 1.2 > 301 kW to 2 MW: 1.15 > over 2 MW:	> up to 300 kW: 1.2 > 301 kW to 2 MW: 1.15 > over 2 MW: 1.1

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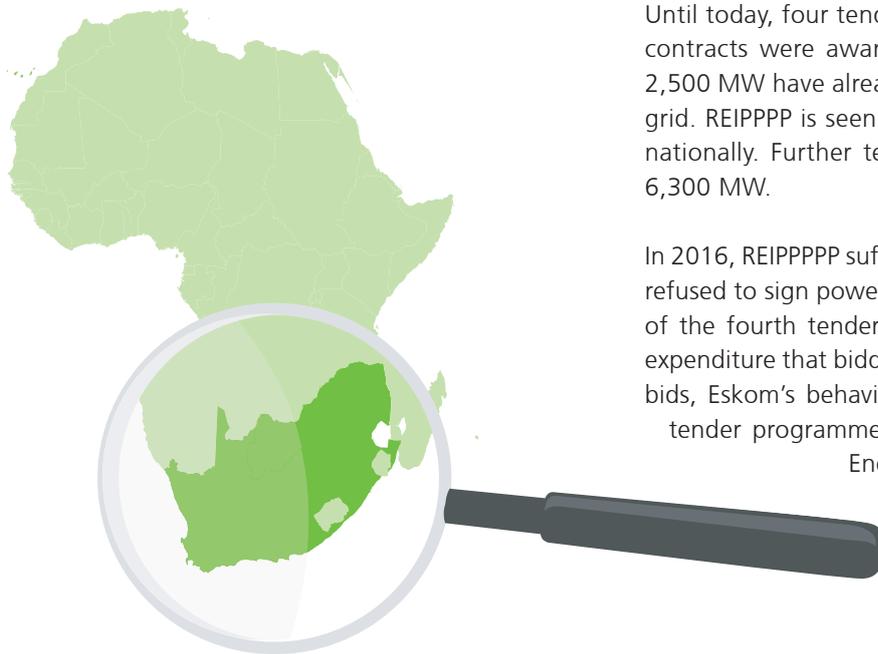


Around the world

> Public tender programmes and direct sale of renewable energies and natural gas in South Africa

by Anna-Lena Becker

Since the start of the public tender programme for renewable energy projects in 2011 contracts for over 6,300 MW have been awarded in four tender rounds. Further tenders are to be launched for another 6,300 MW. Additionally, a public tender programme is being prepared for the import of and energy production from natural gas.



Public tender programme for renewable energy projects

In 2011, South Africa launched the “Renewable Energy Independent Power Production Procurement Programme” (REIPPPP), a public tender programme for renewable energy projects. With REIPPPP South Africa decided against the implementation of a feed-in tariff. REIPPPP comprises mainly renewable energy projects with a capacity of 5 MW and above. But the tender programme involves also smaller projects with a capacity between 1 and 5 MW.

Besides the diversification of the energy mix – South Africa’s energy industry is based on coal power (85%) – REIPPPP aims at introducing independent power producers (IPP) into the market. The power industry in South Africa is dominated by the state-owned company Eskom.

Within the framework of REIPPPP, the price to be paid by Eskom for the power generated by independent power producers is determined by way of competitive bids. Successful bidders are awarded contracts with Eskom for 20 years.

Until today, four tender rounds have been held under which contracts were awarded for more than 6,300 MW. About 2,500 MW have already been installed and connected to the grid. REIPPPP is seen as a big success both locally and internationally. Further tenders are to be launched for another 6,300 MW.

In 2016, REIPPPP suffered its first big setback, though. Eskom refused to sign power purchase agreements with the winners of the fourth tender round. Given the substantial financial expenditure that bidders have to incur in order to submit their bids, Eskom’s behaviour throws an overall bad light on the tender programme. A positive note is, however, that the

Energy Ministry and South African President

put pressure on Eskom. In February, Eskom announced that the power purchase agreements will be signed in the near future. Even if it is not

certain at the moment whether REIPPPP

enters the fifth round in its original form, the majority of market players is confident that the tender programme will be continued. In addition, further public tender programmes may be launched by South African municipalities in the future. Some municipalities in South Africa want to start to purchase their power not from Eskom alone, but also directly from independent power producers. Such a wish has been expressed by, among others, the City of Cape Town. However, this project is still in its planning phase.

Direct sale

Due to the uncertainties surrounding the tender programme, the companies in South Africa are more and more interested in direct sale and contracting models. There is no legal framework regulating direct marketing in South Africa. But BMW succeeded to implement the first wheeling project in South Africa. This was possible through signing a power purchase agreement with a biogas plant operator and energy wheeling agreements with Eskom and the responsible municipality.



In South Africa, contracting models may be attractive for companies especially due to the rapidly increasing power prices. Since 2004, electricity costs have increased by 300%. Therefore, a power purchase agreement providing for a fixed tariff for 10 to 20 years may be a favourable alternative.

Public tender programme for natural gas

Besides renewable energies, South Africa aims to intensify the use of natural gas for power generation. The Energy Ministry decided to increase the power generation capacity by 3,716 MW (natural gas) which should be purchased within a public tender programme.

South Africa has no confirmed large resources of natural gas. It is suspected that huge resources of shale gas lie in the region around the Karoo desert, but nothing is confirmed yet. Therefore, the focus is for the moment on the import of liquefied natural gas (LNG) from Mozambique.

The LNG-to-Power IPP Procurement Programme envisages the purchase of 3,000 MW by way of public tender. This programme comprises the development of infrastructure for the import and regasification of LNG and the development, construction and operation of combined cycle power plants in two South African ports (Coega and Richards Bay). The announcement of the Request for Qualification is expected shortly.

Another tender has been announced for the construction of a natural gas power plant (600 MW). During a public tender procedure, strategic partners should be identified for state-owned enterprises yet to be nominated. The strategic private partners will play a key role in the development, financing, operation and maintenance of the power plant. In 2016, a relevant request for interest was published.

Conclusion

The energy sector in South Africa continues to develop and offers huge potential for independent power producers, power plant constructors and engineers. Collaboration with a South African partner and participation in a public tender programme offer German enterprises an opportunity to successfully enter into the South-African market.

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Around the world

> Renewable Energies Under Trump Administration – Is It All Over?

by Ralf Rüdensburg

After Donald Trump repeatedly said during the presidential election campaign that he believed that the climate change was a “hoax”, i.e. a bluff, trick or a joke, and after he wrote in his book “Crippled America” published in 2015 that, in his opinion, investing in renewables was a bad idea and developing renewable energy sources was a big mistake, we could only anxiously wait to see what measures he would take in this respect if elected. After assuming presidency, Donald Trump indeed began to implement some of his public announcements, which at first glance are not good news for the renewable energy industry. It is however important not to jump to conclusions and try to see a broader picture that goes beyond what is happening in the Oval Office in order to assess the current situation from the viewpoint of investors.

Significant developments at federal level since inauguration of Donald Trump

In appointing Scott Pruitt as the new head of the Environmental Protection Agency, Donald Trump appointed a person who still in early March 2017 questioned the fact that carbon dioxide plays a crucial role in the climate change and, additionally, was involved as Attorney General of Oklahoma in a dispute against the Environmental Protection Agency. One of the main tasks of this federal agency is to issue regulations to implement environmental laws passed by the U.S. Congress. With such a sceptic about the climate change at the wheel of the federal agency it remains to be seen to what extent the current direction will change and what its implications will be. The government proposed cutting the budget of the Environmental Protection Agency from USD 8.1 billion to USD 5.7 billion and reducing the headcount by 25% from the current 15 000 officials.

At the end of March, Donald Trump also issued an executive order to revise the Clean Power Plan enacted under the Barack

Obama administration. Among other things, it will be investigated to what extent the regulations of the Clean Power Plan are a setback to oil and gas producers and coal-fired power plants. Now, do those developments mean that one should steer clear from the USA as an investment location for renewable energies? The answer is definitely NO. The picture of the situation should not be drawn only based on what is currently happening at the federal level. At the state level, the adopted course regarding renewable energies will not be derailed, whatsoever. The developments and plans for the future so far allow assuming that the renewable energy market will grow.

The situation at state level

The U.S. states have far-reaching powers in terms of deciding which energy sources to incentivize. In adopting the so-called Renewable Portfolio Standard Policies, a large number of U.S. states committed to supplying a certain share of their electricity from renewable resources by a certain date or year. The graph



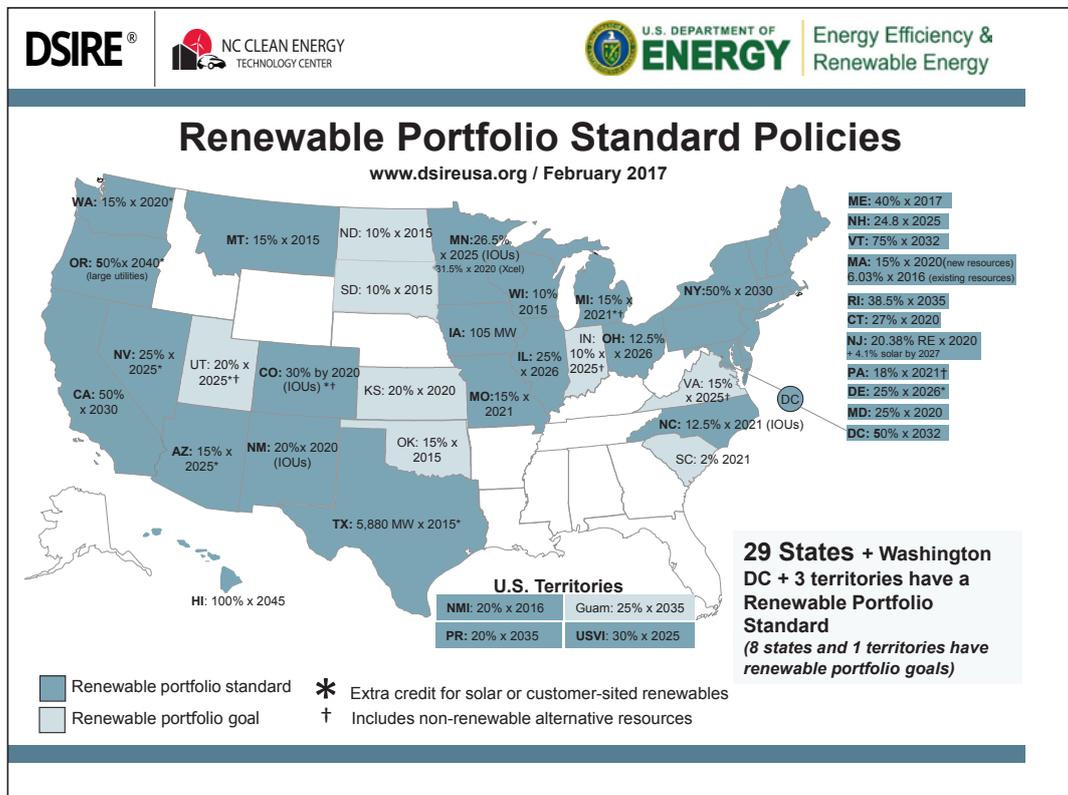
released in February 2017, i.e. after Donald Trump's inauguration, shows that 29 U.S. states, Washington D.C. and 3 U.S. territories implemented the Renewable Portfolio Standard Policies. Another 8 U.S. states and one U.S. territory have at least set themselves voluntary Renewable Portfolio Goals.

Importantly, certain U.S. states, especially the very populous ones like California, Texas, New York and Pennsylvania, have enacted additional targets to be met with renewables in their states. For example, the States of California and New York want to increase the share of renewables in the energy mix to 50% by 2030.

What is important about the Renewable Portfolio Standards is the fact that utilities are required to supply a certain share of energy from renewable resources. The website of Pacific Gas &

Electric, one of the largest electric utilities in California, reads for example that the share of electricity generated from renewable resources will be 33% by 2020. Consolidated Edison, one of the largest electric utilities in the State of New York, wants to generate 50% of electricity from wind or solar resources by 2030.

There are many examples proving that these announcements and self-set targets should be treated seriously. For example, according to a report by the California Energy Commission, generation of electricity from renewable resources more than doubled between 1990 and 2016, having increased from 30,000 GWh to nearly 70.000 GWh. This increase is mainly attributable to electricity generation from wind and solar energy sources. According to the report, significant reasons for this trend include – alongside the positive impact on the climate change – lower



electricity generation costs for renewable energies. Given the targets undertaken by the states and the increasing competitiveness of renewables in terms of generation costs, this trend is not expected to end.

Another example from Florida shows that U.S. states which do not have Renewable Portfolio Standard Policies or Renewable Portfolio Goals in place are also committed to reaching ambitious goals and targets for renewable energies. Florida Power & Light Company, which serves about 4.8 million consumers and is thus one of the largest electric utilities in the USA, plans to install a total photovoltaic capacity of 2.1 GW between 2017 and 2023. The share of fossil fuels in the energy mix for the supplied area will be thus significantly reduced.

Incentives

Based on the above explanations, it is evident that the use of renewable energies in the USA will continue to play an important role and the renewable energy sector is expected to grow. After the change of the government, investors find themselves asking, in particular, how the incentives for renewables could change in the future. In this respect, it is reasonable to adopt a practical approach and closely monitor developments not only at the federal but also mainly at the state level.

Important federal incentive mechanisms include Production Tax Credit and Investment Tax Credit. If the government planned to cut or even abandon any of these taxpayer reliefs, such a



bill would have to go through the whole legislative process in the Congress. And it is not at all certain that the process would end in success. As the case when Trump tried to undo or replace the Affordable Care Act (ObamaCare) has already shown, the dominance of Republicans in the Senate and the House of Representatives does not automatically mean that Trump's administration will win the majority support. When making any decisions, the authorities would also consider the impact on the labor market in the USA. According to a February 2017 report by the Environmental and Energy Study Institute, the U.S. Department of Energy assumes that about 3.4 million Americans are employed directly in the renewable energy sector, and this trend is increasing. In comparison, the number of Americans directly employed in the fossil fuel sector is about 3 million, according to the assumptions.

Taxpayer reliefs at the state or municipal level, such as tax credits, land or sales tax exemptions, should be in each case taken into account when making investment decisions and also in this area no negative changes are expected judging by the trends we anticipate.

Conclusion

For German companies, the latest developments mean that they should monitor how the situation develops in practice

and should not make any hasty decisions. On 5 January 2017, the Energy Information Administration published the Annual Energy Outlook with projections to 2050, where it projects that electricity generation from renewable resources will increase by 2040 more significantly than in the case of all other energy sources. This trend will be driven, among other things, by the continuously decreasing electricity generation costs for renewable energies and the currently applicable federal and state regulations which promote the use of renewable energies. Even if there is no absolute certainty as to what future will bring, especially at the federal level, it is important to identify and seize the arising opportunities.

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Around the world

> Lithuania consistently puts its money on combined heat and power plants – Opportunities for construction companies and power producers

by Michael Manke and Hans Lauschke

The Lithuanian energy policy aimed to increase the share of renewable energy in the total energy consumption by 2020 to at least 23 %. This expansion target was reached already in 2014. Since then, increasing this target any further has been the subject of much debate. While in the previous years the further expansion of on- and offshore wind power was debated, now mainly the high-volume auctions for base-load combined heat and power plants have been making the headlines. No end to this trend is in sight.

Background

After the 2009 shutdown of the biggest nuclear power plant in the region, Lithuania from power exporter became power importer overnight. The country is now extremely dependent on the Russian gas, which increased the worry about the Lithuanian energy security especially when the Ukrainian crisis broke out. In addition to the reduction of CO₂ emissions, which Western European countries expect to achieve through the use of renewable energies, the Lithuanian energy policy makers have particularly focused on breaking the country's dependence on Russian gas.

Lithuania promotes renewable energy with the help of various instruments. Characteristic of the Lithuanian subsidy instruments is the competition between the individual types of energy production and the capping of incentives under a quota regime. The Renewable Energies Act stipulates the targets for the expansion of various types of renewable energies (wind, solar, biomass and hydro) by 2020.

- > Wind power: at least 500 MW;
- > Solar power: at least 10 MW (exclusive of small-scale power plants with an installed capacity of up to 30 kW);
- > Biomass: at least 105 MW;
- > Hydro power: at least 141 MW.

In the medium term, however, an amendment to the Renewable Energies Act and, thus, an increase in the quotas can be expected. Moreover, there could be a free capacity to allot, if a power plant which was already granted incentives is not put into operation within the time set down in the power production license and if, therefore, the power plant project owner loses the license along with the guaranteed feed-in tariff. However, also the acquisition of project companies with already guaranteed feed-in tariffs is a very attractive solution.

Here come combined heat and power plants

Wind power still has the greatest share in the Lithuanian renewable energies. And it will remain an important pillar of the Lithuanian renewable energy production – currently, an increase in the installed (onshore) wind power capacity from 500 MW to 750 MW is being debated. The offshore production is also being the subject of much debate.

Nevertheless, under the lee of this debate a new pillar is forming. In the recent months several high-volume auctions for combined heat and power plants have caught international attention.

Especially at the municipal level, there is a great need for modernising the existing power plants in Lithuania. Biomass is particularly advantageous here. The term biomass refers to phytomass (plants) as well as to zoomass (animal material) which can be found in great amounts in bio-waste and excrements. Biomass power plants coupled with combined heat and power are especially attractive in Lithuania, because many rural communities have a well-developed district-heating network, even if the infrastructure is generally bad. This opens up opportunities for renewable power producers with efficient and innovative technologies.

German know-how in demand

On 12 July 2016 after a one-year auction the bids for the construction of a combined heat and power plant in the capital city of Vilnius were accepted. The power plant is planned to have a capacity of 227 MW_{th} and 88 MW_e. It should consist of two combined heat and power plants (one using waste and another using biomass) and produce 1.627 TWh of heat and 0.817 TWh of electricity per year. With an investment volume of about EUR 190 million, it was the largest auction held since Lithuania gained independence. A consortium consisting of Germany's Steinmüller Babcock Environment, Poland's Budimex and Lithuania's UAB Kauno will handle the construction of the



waste-to-energy plant, with a transaction volume amounting to EUR 149.65 million.

A similar project is currently carried out in Kaunas, Lithuania's second largest city. It should be finished by the end of 2019. The power plant's planned capacity is approx. 24 MWe and 70 MWth. It should burn approx. 200,000 tonnes of communal and industrial waste a year and, therefore, supply 40% of Kaunas' heat requirement.

Germany's Baumgarte Boiler Systems was selected to build a waste incineration boiler. The total volume of the project is approx. EUR 150 million.

State aid allowed – further projects more probable

The Vilnius project is financed by the European Investment Bank via the European Fund for Strategic Investments (EFSI) and by Lithuanian state aid amounting to EUR 150 million.

Therefore, the state aid was reviewed by the European Commission – and finally approved. Pursuant to the EU state aid rules, member states may, under certain conditions, grant aid for high-efficiency cogeneration installations. The European Commission held that the Vilnius project increases energy efficiency and should lead to energy savings of 40%. Therefore, the EC came to the conclusion that the state aid would not unduly distort the competition and that it was compliant with EU legislation.

The approval of the state aid may lead to further combined heat and power plants auctions of this size in Lithuania.

Acquisition of existing combined heat and power plants – German enterprises as power producers

In the past year, a sensation was caused also by the acquisition of three combined heat and power plants by Danpower Baltic UAB, a joint venture of Danpower GmbH, which is a heat supplier and contracting company, with Lithuania's Geco Investicijos UAB.

The total generating capacities of the acquired boiler plants are 120.8 MWth. Two of the heating plants supply Vilnius annually with approx. 300 Gwh of heat fed into the grid of Vilniaus Energija, the communal district heating grid operator. The third heating plant is in Kaunas, Lithuania's second largest city, and feeds annually approx. 200 GWh into the grid of Kauno Energija, also a communal district heating grid operator.

An interdisciplinary M&A-Team of Rödl & Partner Lithuania was a buy-side adviser to and represented Danpower Baltic UAB in this acquisition transaction.

The objective of the transaction was to acquire the already existing project companies and, especially, the granted feed-in licenses together with the guaranteed feed-in tariffs. As Lithuania still highly depends on imported gas and gas prices are going down all over the world, Lithuania's energy prices went down, too. Due to guaranteed feed-in tariffs, the existing power plants are a lucrative acquisition target which is sure to bring returns.

Conclusion

The need for cost-effective supply of energy is high in Lithuania, especially in rural areas. After the expansion of wind power in recent years, the production of electricity using combined heat and power plants as a technology capable of providing baseload power has now experienced a significant boost. High-volume auctions can be also expected in the coming years. Moreover, companies may seize new opportunities arising from acquisitions of the existing power plants. In this process, guaranteed feed-in tariffs promise sure returns. In recent years, especially German companies have had positive experiences in this area.

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News on international renewable energy incentive programmes

> Scaling Solar – 2nd tender round in Zambia has started

After the successful tender for 100 MWp carried out in Zambia last year, Industrial Development Corporation (IDC) of Zambia concluded another agreement under the Scaling Solar program this year. In a second tender round, a further 200 MWp will be now offered for allocation and additional 300 MWp will follow. The allocation is based on a two-stage procedure. The pre-qualification phase ends on 5 May 2017. You can download the documents from the following [link](#).

In the first tender round, bids for two solar parks, 50 MWp each, were accepted with the asking price at 6.02 U.S. cents /kWh. The winning bids were submitted by France's Neoen SAS and First Solar. The state-owned utility company ZESCO is the power off-taker with whom the supply agreement with a term of 25 years will be concluded. Neoen signed the agreement in March 2017, the signing of the second agreement is planned for May 2017.

Besides Zambia, Scaling Solar operates so far also in Senegal, Madagascar and Ethiopia. The project is financed by USAID's Power Africa, the Ministries of Foreign Affairs of the Netherlands and Denmark, as well as DevCo.

> BMUB's export initiative for environmental technologies

The aim of the export initiative is to promote and increase the knowledge and usage of environmental and climate protection technologies as well as innovative infrastructure in underdeveloped countries. The focus is on basic public services. The subsidy is granted among other things for:

- > feasibility studies conducted abroad
- > country studies
- > pilot projects abroad
- > international networking

The subsidy is granted in form of non-repayable grants, the subsidy quota depends on project related expenses and the possible commitment of own funds – therefore, the level of subsidy is dependent on project specifications. State aid law requirements must be met.

The application procedure is composed of two stages. First, project ideas are submitted only per e-mail by 15 May 2017. Positively assessed ideas move to the next phase where applications are filed. The procedure should be completed in the third quarter of 2017. This deadline is not absolute. Generally, it is possible to submit project ideas until 30 November 2017, but it may be that they will not be considered anymore.

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