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E|NEWS

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Erneuerbare Energien: Erfahrungen und Trends weltweit

Dear Readers,

„I want you to panic because the house is on fire!“ – these impressive words came from the mouth of the 16-year-old climate protection activist Greta Thunberg at this year‘s World Economic Forum in Davos. Impressive, on one hand, due to the clarity of the choice of words and on the other hand, due to the authenticity of the 16-year-old. This is because, although we deal with renewable and sustainable energy on a daily basis and climate change is not a question of fashion for us, the controversial nature of the topic is made even clearer when people of the younger generation such as Greta Thunberg or participants of the Friday school strike show that they look forward to their future with great concern.

And what is being done? As usual, not much! Even though, by establishing the Coal Commission, Germany has at least announced that it will be phasing out coal now after the nuclear phase-out, 2038 is many years too late for a serious climate change and, according to projections, also relatively expensive from the socio-economic point of view. The question whether the planned phase-out or perhaps a significantly higher CO_2 tax would not have achieved the same result in the medium term will unfortunately only be answered in hindsight. The advantage of the CO_2 tax would be that the relevant technologies could play to their strengths through market mechanisms. Renewable energy, storage technologies, flexibility options and smart grid would pay off in the medium term, of course. The topic of PPAs would pick up speed again and perhaps Germany would once again be a pioneer in energy transition. At the moment, however, this is rather a pious hope – but we are not losing faith.

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PPAs for renewable energy and CHP power plants

Old wine in new bottles?

by Joachim Held

New buzzwords can be regularly heard in the realm of energy management: terms, as imprecise as possible and studded with as many Anglicisms as possible, herald technical or economic developments which are then called a „mega-trend" if their occurrence is highly probable. Certain buzzwords indeed accurately prophet important future trends and strategies. Other pass by without even leaving a trace of significant economic success. Recently the press has increasingly reported about „the first PPAs" for the subsidy-free financing of renewable power plants. Similarly, press releases of large industrial companies teem with reports about their climate policy commitment pursued through so-called „Corporate PPAs" and one seminar event follows the next. Whether it's a buzzword or "old wine", one thing must be established first:

WHAT IS A PPA?

PPA stands for Power Purchase Agreement. In contrast to electricity supply contracts, the designation as a purchase agreement reflects the focus of the arrangement on long-term sales interests, without the reciprocal supply and offtake obligations (on which every exchange relationship is based) actually having to be structured in any different way than that in a supply contract. This approach was shaped above all by project financing concepts for power plants where essential inputs and outputs must be legally safeguarded to sustainably guarantee the economic profitability and thus the bankability of a project. As a prerequisite for the bankability and thus the feasibility of the project, PPAs are typically negotiated and concluded long before the start of the construction and the commissioning of the power plant. Therefore, PPAs are often closely interlinked with the power plant construction and other project contracts. For a project to be economically profitable, for example, the start of the supply and the availability guarantees must be accordingly regulated in the financing, power plant construction and maintenance contracts.

OLD WINE?

In this respect, the significance of PPAs for a power plant project is not a new and, above all, not a German phenomenon. For example, conventional power plant projects have always been financed on the basis of PPAs. And in the international power plant business in particular, the fact that similar conflicts of interest are frequent among project participants has resulted in PPAs becoming a cross-jurisdictional contract type. Since the input side of wind turbines and PV power plants is secured by the largely free-of-charge use of natural resources such as solar radiation and wind, and since ongoing operating costs are low, PPAs are of paramount importance for the long-term refinancing of the capex. Therefore, a standard regulatory framework for PPAs has been developed, especially in countries where wind turbines and PV power plants have to be operated without state subsidies. Particularly mentioned here should be the USA, the southern European states and developing and emerging countries with no conventional power supply infrastructure.

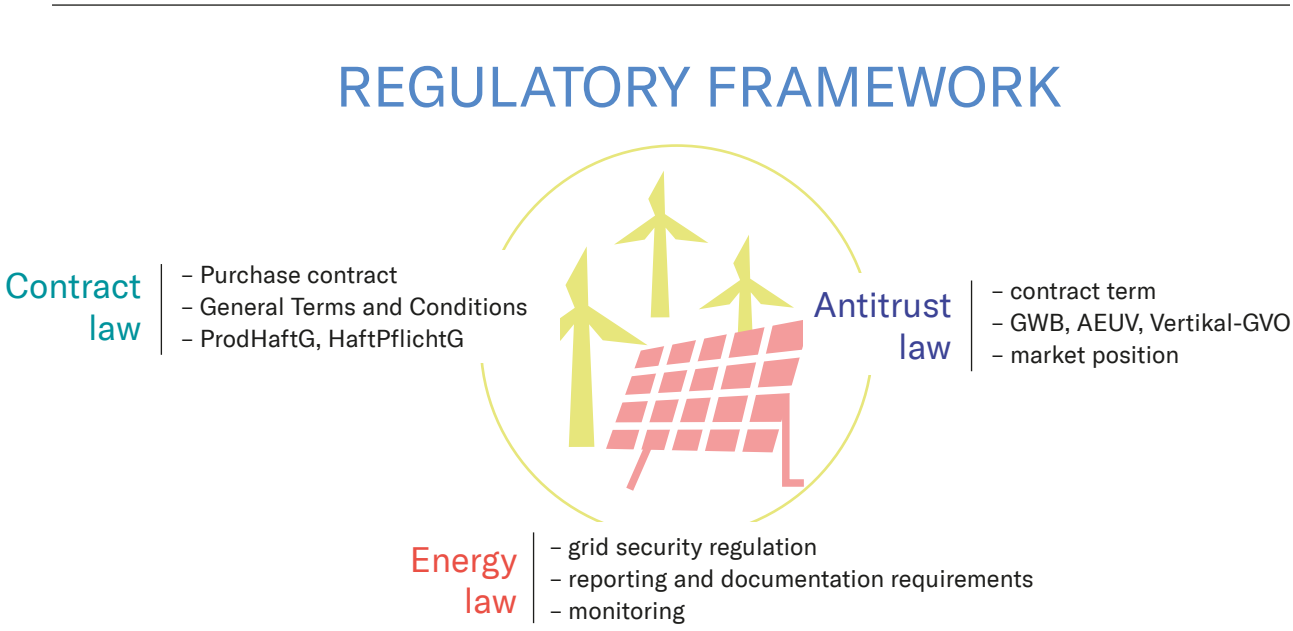
NEW WINE IN OLD BOTTLES?

In this regard, in legal terms, the phenomenon of PPAs can probably be described as new wine in old bottles. For PPAs concerning renewable power plants, on the one hand, the contractual standards, historically derived from large-scale power plant construction, should be combined with the newer structures for power plants subject to the direct marketing regime. In the case of this special, partly volatile, generation technology, considered should thus be new marketing strategy components (e.g. the marketing of flexibility, the marketing of electricity generated using a residential solar power plant assigned to specific land plots or of electricity generated for own consumption, certificates, etc.), new organisational forms (e.g. citizen utilities) or the special regulatory framework under energy and environment law (e.g. due to downstream requirements arising from the CHP District Heating Promotion Act [KWKG-Wärmenetzförderung], the Renewable Heating Act [EEWärmeG] or the Energy Saving Ordinance [EnEV]).

LEGAL FRAMEWORK FOR PPAS ARISING FROM CONTRACT LAW

Every contract is based, first of all, on the general law of obligations (§§ 241 German Civil Code [BGB] et seq.) and contract law (§§ 311 BGB et seq.). In this regard, electricity supply contracts are generally classified as purchase agreements (§§ 433 BGB et seq.). Due to the strict requirements that must be met for a contract to qualify as an individually negotiated contract, electricity supply contracts must also comply with the general consumer protection standards arising from the law concerning standard business terms (§§ 305 BGB et seq.), subject to certain restrictions also in the area of contracts concluded with entrepreneurs (§ 310 (1) BGB).

Although PPAs do not have to meet the special energy law requirements arising from § 41 of the Electricity and Gas Supply Act [EnWG] and § 310 (2) BGB, because PPAs are wholesale and redistribution electricity contracts, also such contracts are often based on contractual standards for mass consumer supply arising from the regulatory frameworks of the Regulation on General Conditions for the Basic Supply of Electricity to Household Consumers and the Auxiliary Supply of Electricity from the Low-Voltage Grid [StromGVV] and the Low-Voltage Connection Regulation [NAV] so typical clauses can also often be found in PPAs. In particular, clauses on metering, recording and processing of production and supply related data, billing and access rights normally correspond largely to the general standards, whereas individual deviations are permissible up to the relatively broad limit of being contrary to public policy (§§ 138, 242 BGB).



After all, decentralised, renewable power plants must be operated in a regulatory environment that has become very complex by now and is shaped mainly by subsidies, taxes and levies. Also within the framework of subsidised direct marketing, long-term electricity marketing agreements can form the basis for investments in power plants. Thus, direct marketing agreements already play an important role in the financing of offshore wind farms, since the statutory price to be applied as minimum remuneration offers a high degree of refinancing security, but it is the value added arising from the supply of electricity to the direct trader that is decisive at least for the project yield. The price to be applied is only the statutory minimum remuneration. Since the level of the minimum remuneration to be achieved under the auction system is just an estimate by the EEG power plant operator, it is to be expected that incorrect forecasts will be offset in future only through direct marketing contracts to close the gap in the refinancing beyond the price for which a contract was awarded during the auction. In this case, PPAs should include comprehensive provisions known from the EEG and CHP direct marketing agreements to regulate the rights and obligations arising from the statutory subsidy system.

Due to their financing character, important are instruments of property law for security purposes (e.g. §§ 93 et seq. BGB in conjunction with § 946 BGB, easements, charges on land, and pre-emption and heritable building rights), as well as the provisions of suretyship law (§§ 765 BGB et seq.) and insolvency law (e.g. § 119 of the German Insolvency Act [InsO]).

Finally, PPAs partly reflect regulations already known from the power plant construction agreements so also the recently amended regulations of §§ 651a BGB et seq. and other building law requirements arising from the law on standard business terms and the VOB/B (i.e. Construction contract procedures (VOB) - Part B: General conditions of contract relating to the execution of construction work) must be often observed.

OUTLOOK: INDIVIDUAL PPA STRUCTURING OR AUCTIONING OF STANDARD AGREEMENTS?

How far renewable and highly efficient power generation projects will actually go without any subsidies is currently still difficult to predict in the German market. The energy market continues to be highly dependent on political and general economic developments, which can only be predicted to a limited extent. One thing is certain though: the reality check will come sooner or later. Therefore, the long-term refinancing periods for investments in power plants allow betting that grid parity will be achieved during the refinancing period. In addition, electricity-cost-intensive companies, power plant constructors, banks, electricity suppliers and traders should find a new market niche in time – a niche that will be likely to develop into a substantial segment of the market in the long term. Therefore, for renewable, efficient but also only decentralised electricity or heat generation projects, the development of PPAs is inevitable, even in the German power plant market which has so far been shaped by the principle of guaranteed purchase and feed-in tariffs under the Renewable Energy Sources Act (EEG) and the Combined Heat and Power Act (KWKG). Thus, there is much to suggest that PPAs are not only a buzzword in the realm of energy management but rather "new wine" – albeit still very young – with a lot of potential for the further economic development.

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CONTRACT COMPONENTS OF PPA

Quantity coordination	– production-requirements – supply – minimum quantity
Proof of origin	– green power character – prohibition of multiple sale
Price adjustment	– big investments – long amortization period – efficiency clause

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Photovoltaik

Latest developments in Germany

by Kai Imolauer

Solar power is currently cheap as never before. This opens up huge opportunities, not only for own consumption, but also for PPAs. This means that in many new scenarios, EEG remuneration is no longer the best source of revenue, but only serves to effectively hedge buyer risks.

This thus creates opportunities for project developers and investors to implement or acquire further projects. Bifacial and Floating PV additionally contribute to the growing potential of projects. In view of the still existing 52 GW funding ceiling, the currently still positive situation should be taken advantage of in terms of financing and hedging.

Not many things can epitomise the energy transition as much as photovoltaics (PV). PV has already witnessed many dramas and success stories ever since the EEG was enacted in 2000. The rise and the collapse of the German and European PV industry, accompanied by severe cost reductions, have been causing much commotion in the market right from the start. Recently, the abolition of the European import customs has led to further reductions in investment costs and thus energy generation costs, making solar power even more competitive. Due to the favourable market conditions, the increase in PV capacities in the last months of 2018 was close to the target corridor set in the EEG.[1]

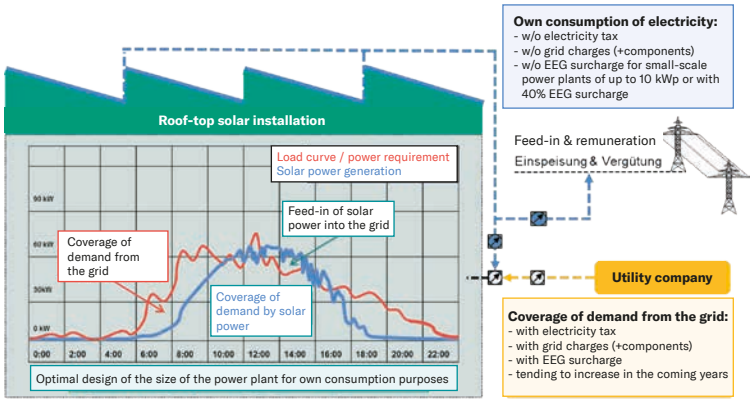
CONTRADICTORY SIGNALS FROM BERLIN AND BRUSSELS

The adoption of the Act amending the Renewable Energy Sources Act, the Combined Heat and Power Act, the Energy Industry Act and other provisions of energy law ("Collective Energy Act") in mid December 2018 has strongly worsened the mood in the German PV industry. The cuts in incentives for residential electricity and for building-mounted PV power plants with a capacity of between 40 kWp and 750 kWp[2] are thwarting the trend described above and show that PV is apparently not one of the focal points of the energy policy in Berlin's politics. The special auctions adopted at the same time have improved the situation in terms of numbers, but the PV was deprived of the foundations to show its real strength, which lies in the implementation of small-scale and decentralised power plants.

By contrast, a positive signal came from the EU when the package of measures „Clean energy for all Europeans - unlocking Europe's growth potential" was adopted at the same time. One of the EU's targets fixed there is a binding renewable energy target of at least 32 % to be reached by 2030. The package also prohibits imposing levies, surcharges or fees on unsubsidised electricity generated in power plants of less than 30 kWp for own consumption, which should give a significant boost to the decentralised generation of energy for own consumption in the commercial sector.[3]

PV POWER PLANTS ARE EVEN MORE PROFITABLE DESPITE CUTS

Despite all contradictory political signals, the PV market still has a lot of potential. On the one hand, it can be said that in the segment where the funding will gradually be reduced to 8.9 ct/kWh by April 2019, roof-top installations are indeed profitable, especially as regards the generation of energy for own consumption.



Presentation of how the system of production for own consumption works for roof-top solar installations

[1] Working Group on Renewable Energy Statistics; Monthly Report on the Development of Renewable Power Generation and Capacity in Germany – version as of 13/12/2018; 2018; website accessed on 3/1/2019:
[2] Clearingstelle EEG, KWKG ["Combined Heat and Power Act"]; Energiesammelgesetz ["Collective Energy Act"]; website accessed on 3/1/2019: http://www.clearingstelle-eeg-kwkg.de/eeg2017/aenderung7/material
[3] European Commission: Clean energy for all Europeans; 2018; website accessed on 3/1/2019: https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans

Equally attractive remains the construction of smaller-scale rooftop solar systems and greenfield plants with a capacity of up to 750 kWp, especially within the 110m range along motorways and railway lines. Assuming conservative premises and a favourably located grid connection point, it is currently possible to achieve total returns on capital of above 5.0 % for greenfield and rooftop solar installations with a capacity of up to 750 kWp. Given the current interest rate situation, PV projects of this size are still lucrative and should be taken into account when considering investments.

THE PATH TO SUCCESSFUL PV PROJECTS LEADS THROUGH A THOROUGH CURRENT STATE ANALYSIS AND A SUITABLE PROJECT DESIGN.

Because the use of electricity generated in the PV power plant for own consumption is currently most profitable, a first step in any project should be to determine the customer and to analyse its load curve for the amount of electricity to be purchased. By comparing the results of such an analysis with the output of a PV power plant, the optimum performance of the PV power plant can be determined, depending on the target value. At this point, analysed should be also the possibilities of including other energy generation technologies such as block-type thermal power stations (BTTP) or heat pumps or the use of battery systems to reduce the power price through so-called „peak shaving“. One of the challenges involved in the direct supply of various final consumers is the metering, which innovative companies however now tackle using digital solutions.

Furthermore, sites with access to conversion areas or areas in the aforementioned 110-metre corridor along motorways and railways, which are suitable for the installation of greenfield systems, are potentially valuable locations for new projects. Dual use areas may also be considered, where synergistic effects between solar power generation and e-mobility can be created, e.g. with solar carports.

PPAs AND LEASE AS ATTRACTIVE MODELS

If areas in the direct vicinity of electricity consumers are not large enough or not suitable for the planned production of electricity for own consumption, it is also possible to secure one's electricity sales via a corporate PPA (Power Purchase Agreement). Under such long-term contracts, electricity generated in a specific power generation system geographically distant from the final consumer (in this case a PV power plant) can be marketed (in contrast to merchant PPAs where the electricity is included in the balancing group by the trader). In this way, the electricity price can be secured in the long term for the operator and the consumer, and part of the purchased electricity can be supplied at lower prices and more sustainably. Such power purchase agreements are still relatively rarely used in Germany, but in many parts of the world they have already become a standard tool for regulating the relationships between electricity producers and consumers.

Especially for companies that do not want to get involved with the generation of energy for own consumption, not only the conclusion of a PPA but also lease is a very attractive option. This option enables the consumer or the owner of the site area to achieve profits or savings without any significant additional costs.

Since mixed forms of the models mentioned above are often the optimum and, in particular, PPAs entail uncertainties for both parties to the contract, we recommend obtaining professional advice. Especially in tailor-made solutions, not only the legal advice, but also an efficient use of resources and the management of processes and business structures involving several stakeholders and shareholders, as well as the metering concept, are an important step towards success.

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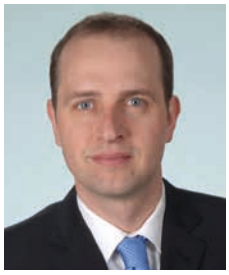

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Floating PV

Is floating solar a new trend?

by Nadine Juch and Michael Rogoll

Floating photovoltaic (FPV) systems, also called floatovoltaics because they float on water, tone down the discussion about land use competition and are technically very advanced. Slightly higher yields, easier installation and opportunities is what outweighs slightly higher system operation costs

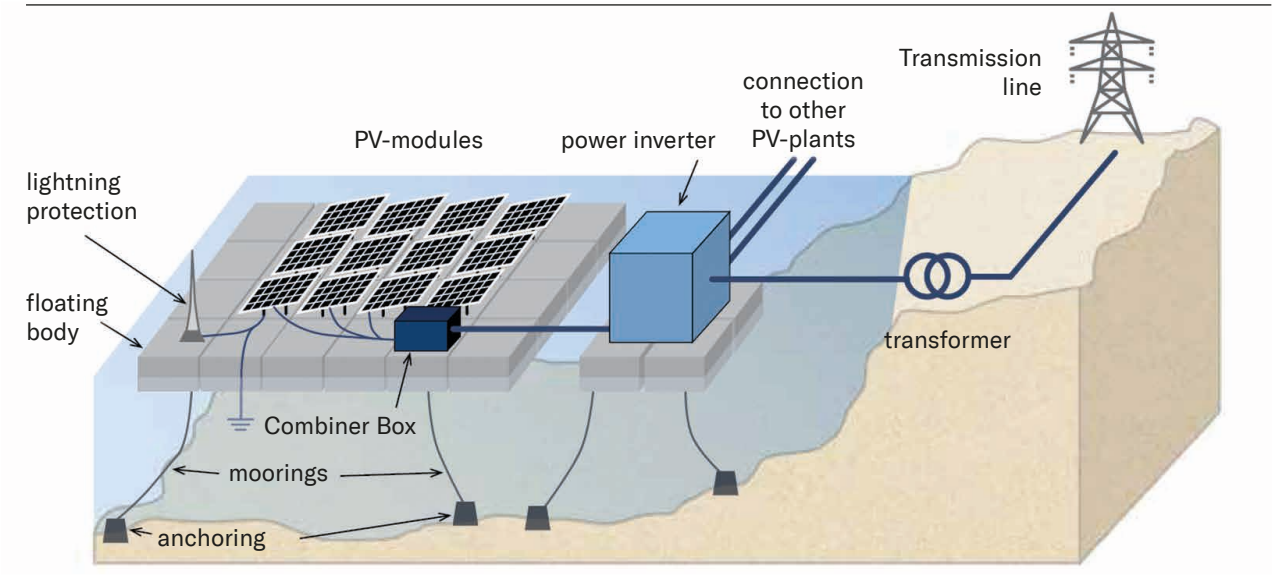
FLOATING PV AS A NEW TREND

Besides the technological trend towards bifacial PV systems, also an increased installation of PV systems on bodies of water has been recently observed. These so-called floating PV power plants are installed on the surface of placid water such as bays or lakes and use floating underwater structures. The PV systems as well as the inverters are anchored to the bottom but it is also possible to connect them to the mainland via floating power lines. Ice formation or temporary drying out of the water do not necessarily rule out an installation.

Since 2008 when the first commercial power plant with a capacity of 175 kWp was put into operation in California, the capacities of power plants have increased manifold. In 2016, the first power plant with a capacity of over 10 MWp was commissioned and today, the largest floating PV system has a capacity of 150 MWp. Currently, most of the worldwide installed capacity of 1,100 MWp is in Asia.

OPPORTUNITIES AND CHALLENGES

FPV helps eliminate the problem of the land-use competition. It also eliminates the problem of the need for site preparation and in most cases also the problem of the shading of panels, while helping improve energy yield thanks to the cooling effects of water. The easy scalability of the systems possible due to the even surface of the water basin can help achieve efficiency gains during installation.



Schematic representation of a floating PV system (Source: Solar Energy Research Institute of Singapore (SERIS) at the National University of Singapore)

The obvious combination of pumped-storage hydroelectric power stations and floating PV plants will enable greater flexibility in the operation of pumped-storage hydroelectric power stations, especially in times of water shortage. In addition, any problems with the volatility of the solar energy generation can be mitigated.

Despite the fact that a certain amount of experience is available due to the already installed capacity, there are no long-term studies on the resistance of the components especially in salt water and on the impact of such power plants on the ecosystem. Critical aspects remain also the electrical operational safety, maintenance and repair, and the anchoring system.

TECHNOLOGICAL POTENTIAL AND ECONOMIC PROFITABILITY

Assuming that one percent of the water surface of artificial water basins in Europe is used, the potential for floating PV power plants is 20,000 MWp. Particularly in Germany, the non-permanently flooded conversion areas should also be considered in the medium term, for example abandoned open-pit mining sites.

In terms of economic profitability, the installation costs for large-scale Asian projects ranged between 0.7 €/Wp and 1.05 €/Wp in 2018. The resulting higher system and ongoing insurance costs are usually offset with a better performance ratio. Nonetheless, since no significant floating PV capacity has been installed in Germany so far, there are no directly comparable values available yet here.[1]

LEGAL FRAMEWORK

To be able to install floating photovoltaic systems, the legal requirements should be formulated.

PUBLIC LAW FRAMEWORK

The question is whether a development plan and/or a construction permit are also required to the same extent as for land-based installations. Certainly, water law should be taken into account. In particular, the Water Management Act (WHG) and the applicable local water laws form the legal framework here.

Installations in, above and below surface waters should be constructed, operated, maintained and decommissioned in such a way that no harmful water pollution can be potentially caused and the maintenance of the water is not made more difficult than what is unavoidable depending on the circumstances. These installations include in particular engineered structures such as buildings, bridges and piers. In addition, local laws apply.

The definition of a power plant under the Water Management Act covers all artificial facilities and structures of certain duration, as well as those perceived as such, which can have significance for water management. The purpose is to counter the potential hazards posed by installations that are located particularly close to bodies of water. This thus includes PV power plants floating on water.

In Bavaria, such facilities may only be constructed on bodies of water classed according to the official classification as bodies of water of primary and secondary significance with the approval of the district administration authorities (Bavarian Water Act, BayWG). Legal regulations can extend this permit requirement to include bodies of water of tertiary significance, i.e. usually small basins and streams. As a rule, the obligation to obtain a permit under water law excludes the approval procedure under construction law. In such cases, no construction permit is required.

A facility is located in a body of water if it lies within its natural or a defined shoreline. A facility is located on water if it is either less than 60 m from the shoreline or if it can impair the maintenance or the development of the body of water.

[1] International Bank for Reconstruction and Development / The World Bank, Where Sun Meets Water – Floating Solar Market Report; 2018; website accessed on 3/1/2019: http://www.worldbank.org/en/topic/energy/publication/where-sun-meets-water

CIVIL LAW ISSUES

If a permit under water law is granted, this does not yet mean that the owner agrees to the use of the water surface. Thus, a relevant permit, lease or loan-for-use agreement must be concluded with the owner.

In particular, other third-party rights to use the body of water should be taken into account, e.g. fishing rights or shipping rights. For this, if necessary, other agreements should be signed with the authorised parties.

REMUNERATION FOR THE GENERATED ELECTRICITY

The electricity generated in the photovoltaic system can be either consumed by the producer or covered by the regime of the Renewable Energy Sources Act (EEG). If the photovoltaic system is to receive remuneration under the EEG, it must fulfil the relevant conditions. Such a photovoltaic system can be installed, for example, on another building structure, on officially approved sites or on conversion areas.

In 2014, the Clearingstelle EEG KWKG had to clarify whether electricity generated in a photovoltaic system floating on an excavation lake was eligible for the increased remuneration under EEG 2012 (old version) for conversion areas. The Clearingstelle confirmed that eligibility because, in this specific case, the excavation lake was located on the area of a still active gravel quarry and the ecological pollution of the area caused by the gravel quarry continued at the relevant time as no ecological restoration took place.

CONCLUSION

In the future, floating PV systems will be a reasonable as well as technically and economically feasible alternative to „standard“ PV systems.

After an economic profitability and technical preliminary analysis, the next step is to determine the framework conditions under public law; in particular, what class of significance a given body of water has been assigned to and whether corresponding special legal regulations apply. These regulations can vary depending on the federal state and the body of water. Depending on the respective business case, it may be necessary to further examine whether a PV power plant is eligible for the EEG remuneration or whether there are any options of direct marketing or consumption. Finally, a user agreement must also be concluded with the respective owner of the body of water.

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The year 2018 for Polish renewable energy

A flashback

by Piotr Mrowiec, LL.M.

The year 2018 could be seen as a turning point for the Polish renewable energy sector. After the years of recession, the first auction for large wind turbines was finally held in 2018. And although the auction prices achieved were not particularly attractive, it is already certain that further bidding rounds will be organised in 2019. In 2018, already a third round of auctions for smaller-scale PV power plants was held. However, the transition in the energy sector was not caused by the auction rounds held, but rather by drastic increases in electricity prices. This has prompted the government, which has not been particularly fond of the renewable energy sector so far, to rethink its approach. The government increasingly sees renewable energy as a price-stabilising element of the market and is moving away from its initial anti-renewable energy approach. But the perspective of renewable energy project developers is also changing; many are keeping an eye on the rival markets and want to sell renewable electricity in competition with coal-fired electricity. In Poland, the renewable energy market is developing into a normal business model that is not dependent on subsidies. It is therefore worth taking a brief look back at the most important events of 2018.

AUCTION ROUND FOR WIND AND SOLAR OF UP TO 1 MWP

According to the information provided by the Energy Regulatory Office (URE), the auction round AZ/9/2018 held on 15 November 2018 attracted 251 project developers who submitted 554 bids for the sale of energy generated by PV power plants and wind turbines with a capacity of up to 1 MWp. The lowest price, less VAT, at which the energy was sold, was PLN 288.99 / MWh and the highest price was PLN 364.99 / MWh. In total, 8 169 917.016 MWh of electricity with the total value of PLN 2 878 556 631.19 was sold. The following table includes information on the three auctions organised so far.

Results of three auction rounds in the years (2016, 2017 and 2018)			
New power plants – solar/wind – with an installed capacity of up to 1 MW			
	Results of the auction held on 30 December 2016	Results of the auction held on 29 June 2017	Results of the auction held on 15 November 2018
Number of project developers whose bids were selected as winning bids in the auction	62	236	251
Number of winning bids	84	352	554
Lowest price	253,50 PLN/MWh	195,00 PLN/MWh	288,99 PLN/MWh
Highest price	408,80 PLN/MWh	398,87 PLN/MWh	364,99 PLN/MWh

Only after more than 2 years of the entry into force of the Renewable Energy Sources Act, based on which the previous green certificate system was replaced with the auction model, did the Polish state manage to organise the first auction round for large wind turbines. The auction for power plants with a capacity of more than 1 MW, jointly organised for photovoltaic systems and (onshore) wind turbines, was held on 5 November 2018. The maximum amount of electricity that could be auctioned was 45 000 000 MWh. The highest price per 1 MWh that could be bid (so called reference price) was PLN 320 per MWh (about 7.36 Eurocent / kWh).

The expectations for these auctions were high, but the results were very disillusioning from the perspective of the project developers. The average price was PLN 196.17 / MWh. As a result of this auction, more than 41,996 TWh of electricity worth over PLN 8.238 billion was sold. 31 bids were awarded contracts.

Ordinary auction no. AZ/6/2018	
Results of the auction held on 5 November 2018; New power plants – solar/wind – with an installed capacity of more than 1 MW	
Number of producers whose bids were selected as winning bids in the auction	23
Number of winning bids	31
Lowest price of electricity sold	157,80 PLN/MWh
Highest price of electricity sold	216,99 PLN/MWh

PROBLEMS OF PROJECT DEVELOPERS WITH THE DURATION OF GRID CONNECTION AGREEMENTS

In accordance with the relevant provisions of energy law, the deadline for the first feed-in of electricity produced from a renewable energy source is 48 months counted from the date of concluding the grid connection agreement (except for offshore wind turbines). For many of the wind projects, the deadline will expire in May this year, because projects for which a grid connection agreement was concluded before the introduction of the restrictive regulation are subject to a 4-year period counted from the date of the adoption of the relevant law. If the next auction is organised before the expiry of the grid connection agreements, then the projects that will be awarded contracts will enjoy the automatic renewal of the grid connection agreements – this possibility is provided for again in the amended RES Act. It should be however assumed that many projects will not be awarded contracts or will not even participate in the auction, discouraged by the low auction prices. If the grid connection agreement expires and the project developer is not able to conclude a new grid connection agreement, such a project becomes practically worthless. However, the legislator has finally recognised that risk and intends to remedy it by amending the relevant regulations accordingly.

THE PLANNED AMENDMENT TO THE POLISH RES ACT

The enactment of the planned amendment to the Polish RES Act is scheduled for the 1st quarter of 2019. The amendment is necessary not only because of the issue of grid connection, but also because of the lack of implementing regulations. According to the current legal situation, no new auction can be organised in 2019. The amendment to the RES Act aims to make the conduct of auctions possible this year. The amendment will determine the maximum amounts of energy to be sold and their price caps. It will also establish new reference prices representing the maximum prices allowed in bids.

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Guaranteed purchase and incentives

Self-consumption increasingly attractive in Belarus

by Hans Lauschke and Viktor Marinitch

The Belarusian feed-in tariffs offer renewable power producers attractive remuneration over a period of ten years, the associated yield and investment security, and guaranteed purchase beyond this period by the state-owned electricity supplier „Belenergo" (state monopolist). In addition, the possibility of self-consumption is becoming increasingly attractive and is now being used by a rapidly growing number of companies. This trend is supported by the guaranteed purchase of excess energy and by numerous incentive measures.

OVERVIEW OF THE BELARUSIAN FEED-IN TARIFF SYSTEM

The incentive system for renewable energy in Belarus is based on a state-guaranteed feed-in tariff that is higher than the regular market rate paid for electricity. The tariffs are set by applying a coefficient multiplied by the offi-cially established and fixed market rate. The applied coefficient depends, among other things, on the electricity production technology. The amount of electricity that can be fed into the grid at the higher tariff is capped by a quota system. The construction of new installations is only permitted within the framework of tendered quotas or for self-consumption.

The quotas are not allocated based on the amount of energy to be fed into the grid, but based on the electrical capacity of the planned renewable power plants. When the quota tender is advertised, the tenderers indicate the total capacity of their planned power plants. The construction of power plants with a higher capacity than that approved under the allocated quota is not permitted.

For 2019-2021, the following quotas have been approved for the construction of new renewable power plants:

Renewable technology	Approved quotas (in MW)		
	2019	2020	2021
Biogas	-	6	6
Wind energy	15.9	19.8	-
Solar power	-	-	-
Hydro power	-	7	55
Wood fuel and other types of biomass		1.5	1.5
Geothermal and other sources (except non-renewable energies)	-	-	20
Total	15.9	34.3	82.5

The state purchases the entire energy generated by these power plants and pays remuneration for it in accordance with the applicable higher tariff rate. This higher feed-in tariff is guaranteed for ten years of the power plant's operating life. It is calculated by multiplying the applicable coefficient by the market tariff. The coefficient currently varies between 1.01 and 1.3 depending on the energy source. In this way, it offers revenues 1.01 to 1.3 times higher than the actual market rate.

The following coefficients will apply to power plants to be put into operation between 1 January 2019 and 31 December 2021 or constructed under the quotas allocated in 2018:

1. Wind turbines, irrespective of their capacity
the first 10 years from commissioning a power plant with an operating life of – 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: 1.3 – 301 kW to 2 MW: 1.25 – over 2 MW: 1.2
3. Power plants which produce energy from wood fuels 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
4. Biogas power plants
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
5. PV 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
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: 1.1

COMPONENTS OF THE MARKET RATE

As already mentioned, electricity generated from renewable energy sources is sold at a higher price to the state-owned electricity supplier. Since 1 August 2018, the market rate for 1 kWh, which is later multiplied by a coeffi-cient, has been calculated as follows:

Market rate=Base rate(0.31+0.69 C/Ca)*

The base rate is the amount set by the state-owned electricity supplier and approved by the Belarusian Ministry of Antimonopoly Regulation and Trade.

"C" means the exchange rate of BYN against the USD fixed by the National Bank of the Republic of Belarus at the time of payment.

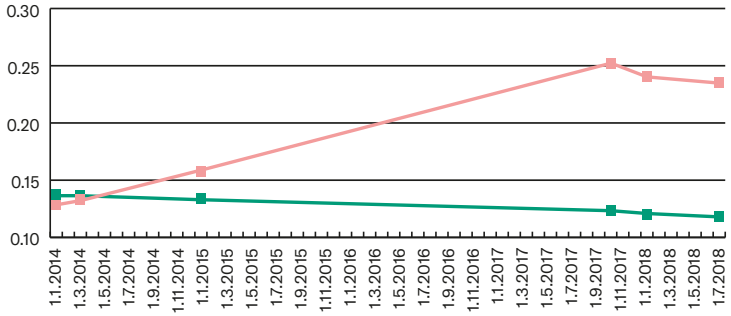
"Ca" means the exchange rate of BYN against the USD as determined by the National Bank of the Republic of Belarus at the time when the base rate was actually approved.

This procedure is used for adjusting the rates for inflation.

The final price for renewable energy is calculated as follows:

*Final price=Market rate*coefficient+VAT (20 %)*

The following chart shows the development of the base rate in recent years which serves as the basis for the calculation:



	1.1.2014	1.3.2014	1.1.2015	1.10.2016	1.1.2018	1.7.2018
BASE RATE (USD)	0.13706	0.13654	0.13391	0.12315	0.12046	0.11808
BASE RATE (BYN)	0.12884	0.13299	0.15802	0.25197	0.24048	0.23495

Figure 1: Historical overview of the base rates

Aufgrund der Monopolstellung des staatlichen Energieversorgers Belenergo (bzw. seiner Tochtergesellschaften) werden Stromlieferverträge in Belarus praktisch ausschließlich mit diesem als Vertragspartei geschlossen. Er legt dabei unter anderem die Bedingungen für die Lieferung der von der Erzeugungsanlage erzeugten elektrischen Energie fest. In der Regel unterliegt der Vertrag einer festen, vom staatlichen Energieversorger vorgegebenen Form und ermöglicht kaum Anpassungsspielraum.

SELF-CONSUMPTION AS AN ATTRACTIVE OPTION

Because the subsidised quotas are really low (e.g. for 2019: only 15.9 MW for wind and 0 MW for solar was allo-cated for the whole of Belarus), it is advisable to look for alternatives for the deployment of renewable power plants. As already described, the construction of renewable power plants outside the quota scheme described above is made possible for legal entities that generate energy from renewable energy sources for self-consumption. Renewable energy systems to be used for self-consumption can be installed without any major restrictions.

In addition, these power plants to be used for meeting their own energy requirements enjoy a feed-in guarantee for excess energy produced. This excess energy will be, however, charged by the electricity supplier at the market rate, multiplied by the so-called reducing coefficient (x < 1). The reducing coefficient for power generation plants com-missioned since 1 January 2018 is currently 0.1, i.e. the producer‘s return is 10 % of the market rate.

More than 50 % of renewable energy in Belarus is already produced today for self-consumption.

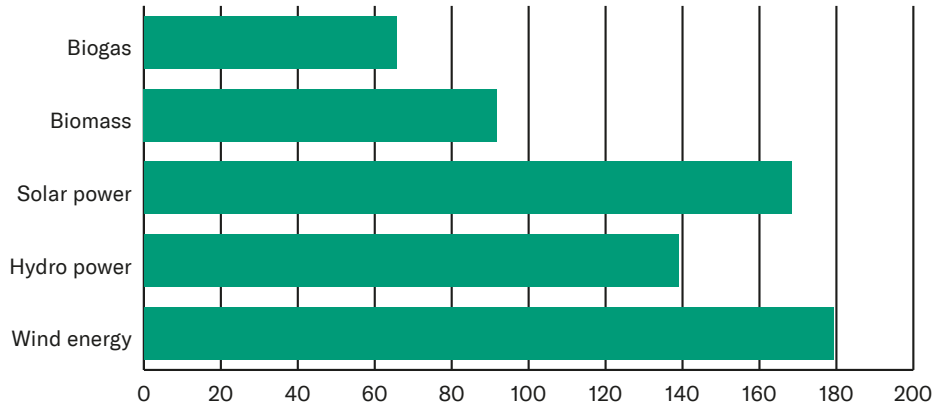


Figure 2: Overview of renewable power plants in Belarus (including those producing energy for self-consumption)

CORPORATE POWER PURCHASE AGREEMENTS (PPA) THEORETICALLY POSSIBLE?

In Belarus, there is no possibility of selling energy outside the public grid without the involvement of the grid opera-tor (the so-called Corporate Power Purchase Agreement). In principle, energy may only be supplied to the final consumer through the public grid with the participation of the state-owned electricity supplier, i.e. an „off-grid“ solution (where the producer sells its electricity directly to the consumer through a direct connection) is not possible.

Also, the theoretical possibility resulting from the regulations on self-consumption where a system installed for self-consumption would belong to a third party, who would then, for example, lease it to the consumer using it for self-consumption, cannot be implemented in practice. Although the applicable laws do not yet contain any provisions regarding the question of whether the power plant must be necessarily owned by the electricity consumer, docu-ments developed during the planning, construction and commissioning of a power plant must include the purpose of the project: For self-consumption by the owner. This means that the power plant to be installed must be con-nected to the owner being the consumer. For the connection of another consumer (e.g. the lessee of the power plant), a permit of the state-owned electricity supplier would have to be obtained. There are no precedents for this yet and we do not believe it is feasible at this stage to obtain such a permit.

OTHER INCENTIVE SCHEMES WHICH SUPPORT SELF-CONSUMPTION

In addition to sector-specific guarantees, investors when investing in the construction of renewable power plants can also enjoy additional advantages provided for under investment law. For example, investors can be exempted from value added tax when importing renewable power plants or corresponding components from abroad. Like-wise, property tax may be waived for properties on which such power plants are sited. Some of such incentives can also be used for power plants that are to produce electricity for self-consumption.

When investing in renewable power plants, the investor can also conclude with the Belarusian state a so-called investment contract for the implementation of an investment project. On the basis of such an investment contract, the investor has the opportunity to receive a wealth of advantages and preferences. During the term of the contract, the investor can benefit from the following advantages:

- granting of a land plot for the implementation of an investment project without participating in an auction
- full VAT deduction and exemption from payment of customs duties in respect of goods and services required for the implementation of the investment project
- exemption from payment of land tax

In addition to the above-mentioned advantages, investors are given the opportunity to additionally optimise their taxes as they are partially or completely exempt from the obligatory payment of taxes and/or fees to the Belarusian authorities.

Similar advantages as those offered in the case of an investment contract are also offered for investments in renewable energy projects

- in one of the special economic zones
- in small and medium-sized towns (throughout the territory of the Republic of Belarus with the exception of the 22 largest cities)
- in the Chinese-Belarusian Industrial Park

OUTLOOK

The Belarusian government strives to further increase the share of renewable energies in the total energy consump-tion. The objective of Directive No. 3 of the President of the Republic of Belarus dated 14/06/2007 is to achieve a share of 6% of the produced green energy in the total energy consumption. The figures clearly show the steady growth in the total capacity of renewable power plants. As a party to the Paris Agreement of 12 December 2015, Belarus is bound by the resulting commitments and is expected to make progress in further promoting renewable energy.

However, the development will largely depend on the effects of the planned commissioning of the Belarusian nu-clear power plant Ostrowez in 2020. The forecast capacity of the nuclear power plant will probably cover the ma-jority of energy consumption in Belarus, make the country an energy exporter virtually overnight once it is commis-sioned, and thus take the further expansion of renewable energies off the political agenda.

Therefore, it is important to act fast in order to secure for yourself the currently favourable conditions over the next two years. The acquisition of existing power plants, which have already been granted a feed-in tariff under the previous model, via a share deal through the so-called secondary market (regardless of whether they have already been completed, are still under construction or are in the planning phase), is particularly worthwhile. In such a case, the purchaser receives the so far applied guaranteed feed-in tariff over the remaining period determined in the permit and, thus, earns a calculable return.

CONCLUSION

In Belarus, there are basically two possibilities to use renewable energy:

- Sale to the state-owned electricity supplier Belenergo within the framework of the allocated quotas and with incentive coefficients; and/or
- Self-consumption (plus feed-in of excess energy produced).

Experience shows that the construction of renewable power plants for self-consumption in Belarus pays off not only from an ecological point of view, but also from the economic aspects due to the low production costs and the guaranteed feed-in of excess energy produced at fixed tariff rates.

However, it is not (yet) possible to sell electricity to a third party (e.g. industrial companies) via PPA using a direct wire or the public grid. All energy must be sold to the state-owned electricity supplier.

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→ Aus aller Welt

NEW SUBSIDIES TO PROMOTE THE RENEWABLE ENERGY SECTOR IN SPAIN

Expansion on the Balearic Islands to be funded with EUR 60 million in subsidies

by Christoph Himmelskamp

The expansion of renewables on the Balearic Islands is lagging behind the Spanish mainland. Therefore, their expansion is to be promoted with public funding of at least EUR 60 million in 2019. The implementing provisions will be published in the nearest future.

On the Spanish mainland, 34 % of electrical energy is already generated from renewable sources, while the current ratio for the Balearic Islands is only 2 %. Since most of the electricity generated on the Balearic Islands is generated locally using fossil fuels, the 2017 average LCOE of EUR 84.6/MWh is nearly double the average mainland cost of EUR 50/MWh (source: UNEF).

Several times in the past, the Madrid Ministry of Energy has announced auctions for the expansion of renewable energy on the Spanish islands and has already published draft laws, but in 2017 only auctions for the whole of Spain were issued, without taking into account the special features of the islands.

The subsidies now announced in Order TEC/1314/2018 of 7 December are to be organised by the „Instituto par la Diversificación y Ahorro de Energía“ (IDAE), whose task will then be to organise the competitive auctions for renewable energy projects on the Spanish islands.

RENEWABLE ENERGY EXPANSION ON THE BALEARIC ISLANDS TO BE FUNDED WITH EUR 60 MILLION IN SUBSIDIES

The electricity generated under the projects should be fed into the public grid and eligible for funding under the European Regional Development Fund (ERDF) to enable co-financing within the framework of the ERDF Fund and IDAE funds. The EUR 60 million will be transferred to IDAE from the surplus funds of the Spanish interconnection grid over the next few days, so it can be expected that the auctions will be implemented swiftly.

According to UNEF's estimates, the subsidies will expand the renewable capacities by 250 MW, which would mean a reduction of 325,000 tons of CO2 per year. In addition, the lower LCOE would save the Spanish interconnection grid money, which would compensate for the subsidies within a short period of time.

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LEGISLATIVE CHANGES

Latest tax, legal and economic news from Spain

by Ramón Marés

The Spanish Electricity Act stipulates that all parameters for determining the reasonable rate of return for renewable power plants may be revised in every regulatory period (every 6 years). This means that also the value that determines the appropriate rate of return for the remainder of the lifetime of the power plants may be revised.

The second regulatory period starts on 1 January 2020 and expires on 31 December 2025. Therefore, on 28 December 2018, the Spanish Ministry for the Ecological Transition (Ministerio de la Transición Ecológica) presented a bill proposing the reasonable rate of return for the 2020-2025 period. The financial yield is calculated based on the Spain 10-Year Government Bond Yield and increased by the amount of difference, if any.

For renewable power plants, combined heat and power (CHP) systems and waste-to-energy plants, the reasonable rate of return for the 2020-2025 period is 7.09%, and 5.58% for electricity generation installations with additional remuneration in the non-mainland territories (TNP).

The methodology used to calculate the reasonable rate of return for power generation was proposed by the National Commission on Markets and Competition (CNMC; the Spanish network regulator) and is based on the weighted average cost of capital (WACC).

The most important thing about this draft, however, is that it is intended to amend the Electricity Act. The bill proposes an amendment where, during the next two regulatory periods, i.e. until 31 December 2030, the currently applicable reasonable rate of return (i.e. the rate determined for the first regulatory period) for all renewable power plants, CHP systems and waste-to-energy plants (entitled to remuneration), which already applied

before the effective date of the Act (Real Decreto-Ley) 9/2013, could not be changed and the power plant operators would have to maintain this reasonable rate of return.

Currently, the reasonable rate of return for power plants installed before the effective date of the Act (Real Decreto-Ley) 9/2013 is 7.389 % and 6.503 % for power plants generating electricity outside mainland Spain.

The owners of such power plants are however entitled to waive their specific rate of return and apply the generally applicable reasonable rate of return instead. This applies subject to change during every regulatory period (every six years). If they decided to waive the specific rate of return, they would have to notify this decision to the competent authority (Dirección General de Política Energética y Minas) before 1 January 2020.

Nevertheless, the allowances and financial compensation to be paid to the owners of the power plants based on court or arbitration decisions after the effective date of the Act (Real Decreto-Ley) 9/2013 and its implementing provisions would be deducted from the amount corresponding to the difference between the amount of the remuneration payable under the reasonable rate of return scheme "frozen" until 31 December 2030 and the amount they would have received if they had waived this reasonable rate of return.

This means that foreign investors with favourable arbitration decisions or with ongoing arbitration proceedings may choose between:

- applying the reasonable rate of return of 7.38 %. In this case, the allowance or the compensation will be deducted by 31 December 2030, unless the owner decided to waive it.
- waiving this reasonable rate of return and applying the reasonable rate of return of 7.09 % over the 2020-2025 period.

This measure aims to help avoid disputes with foreign investors under the Energy Charter Treaty (ECT).

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Events

THEMA	Energiesammelgesetz – Neues aus EEG, KWKG und Co
TERMIN / ORT	26.2.2019 / Berlin 21.3.2019 / Hamburg

THEMA	Energieverteilernetze und Anreizregulierung
TERMIN / ORT	7.3.2019 / Köln

THEMA	EEG-Umlageentlastung
TERMIN / ORT	11.4.2019 / Nürnberg

THEMA	Wärmewende Netzwerk - Wärmewende zielgerichtet umsetzen
TERMIN / ORT	21.5.2019 / Köln

THEMA	Corporate PPA
TERMIN / ORT	22.5.2019 / Köln

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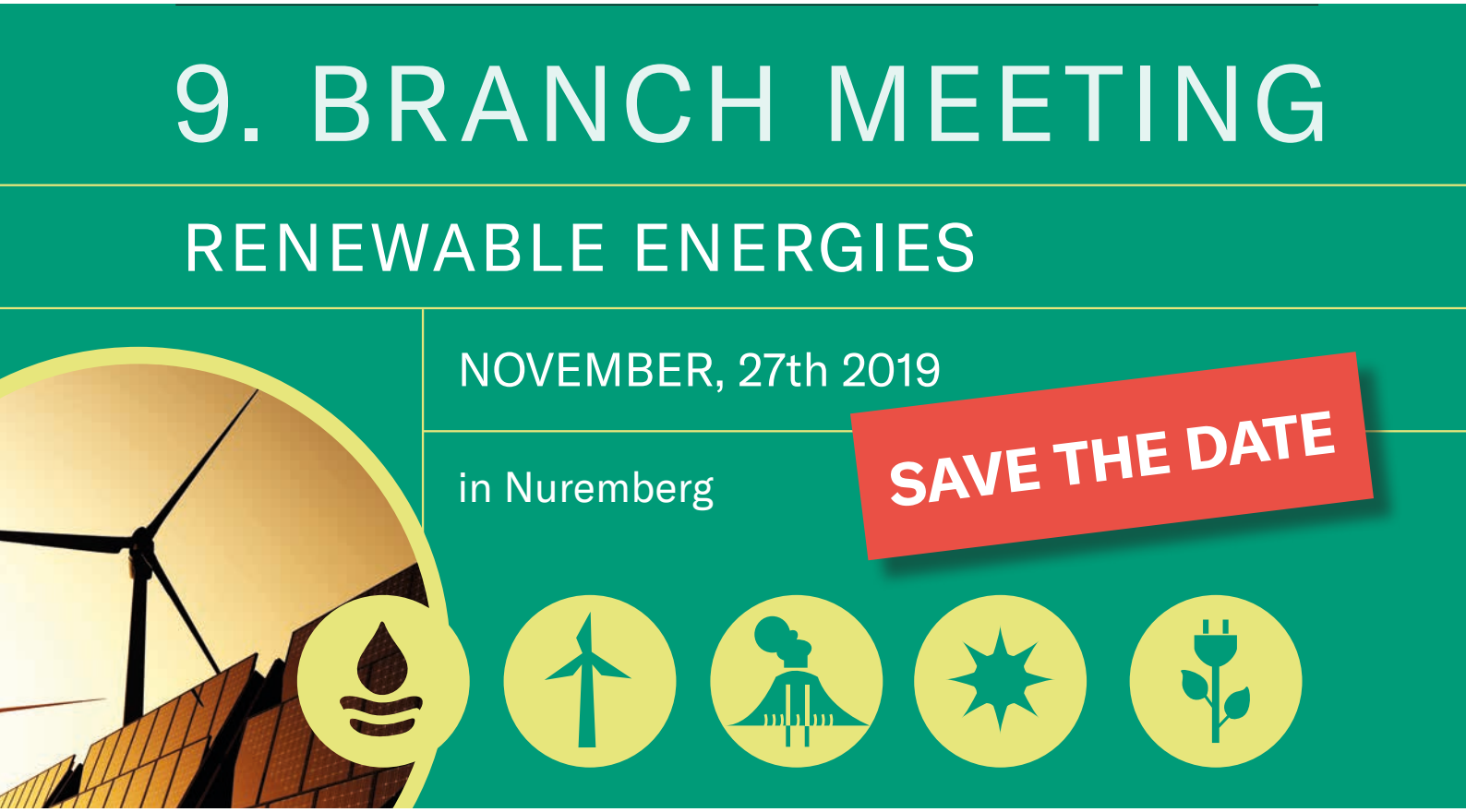
Events



We are happy to invite you to be pur guest in our Nuremberg headquarters on November, 27th 2019. We will provide you with the latest legal, economic and tax aspects for renewable energy projects.

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