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Renewable Energies: Global Trends and Experiences

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In Focus

> Development of the EEG surcharge depending on the installation of new renewable energy capacities

By Kai Imolauer

What consequences the installation of new renewable capacities will have on the EEG surcharge can be calculated using the EEG calculator by Agora. Even in the case of a mid-level installation of new renewable capacities, i.e. in a more optimistic scenario than presumed in the EEG, only 15.8% of today's primary energy consumption would be covered from renewable energy sources in 2030, which is an increase of just under 3 percentage points compared to 2017. The installation of new renewable capacities would thus have to be much more promoted to make it possible to cover demand in a few years from now. How the situation could look like, what consequences such an intensified installation of new capacities would have on the EEG surcharge and where EEG 17 will take us in 12 years – all this is addressed in the article below.

What impact will the targets set in the EEG or an intensified installation of new renewable energy (RE) capacities have on the EEG surcharge? And how will the EEG surcharge and the electricity price develop over the years? This and other questions can be answered based on the EEG calculator developed and published by think-tank „Agora Energiewende“ (further: Agora).

Simply speaking, as is generally known, the EEG surcharge arises from the difference between the fixed tariffs paid to power plant operators and the average market price quoted at a given time at the energy exchange. The development of the EEG surcharge is thus dependent on diverse factors which influence the price quoted at the energy exchange. Such factors naturally include e.g. the phasing-out of nuclear power, the fossil fuel phase-out plan,

exports, etc. The price is however particularly influenced by the installation of new capacities in diverse renewable energy sectors.

As for the calculator: by selecting the weight of various influencing factors, you can generate a simulation and a graphic representation of diverse indicators, e.g. the EEG surcharge, generation capacities and electricity volumes over a period from 2010 to 2035. Our calculations are based on nominal (i.e. not inflation-adjusted) values – you can select this type of value in the EEG calculator settings. The values stated in the text are net values.

Below, we present three scenarios calculated using the EEG calculator:

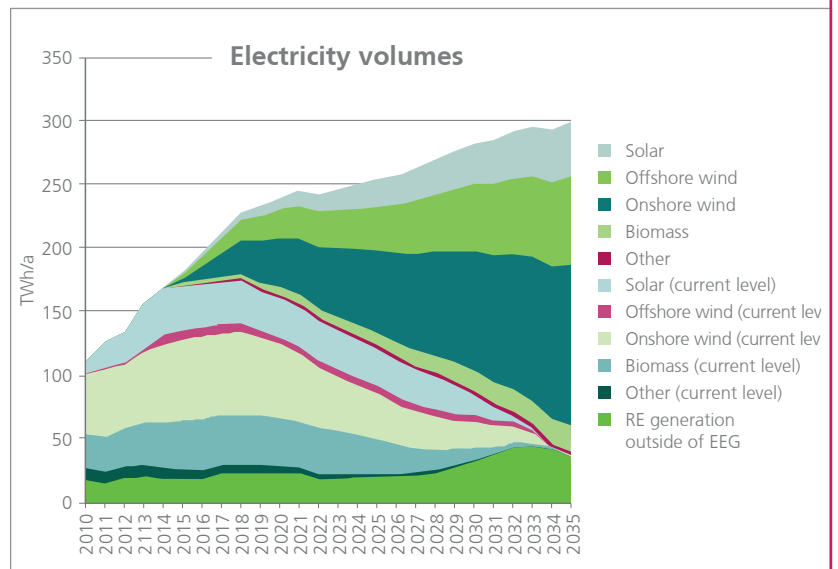
Scenario one: Prospective development of the EEG surcharge and electricity volume amid a presumable level of newly installed capacities in line with the EEG

First of all, we would like to model a scenario where the EEG 2017 targets are presented. In the previous year, the share of renewable energy in electricity consumption was approx. 36%. According to the federal government, this share should increase to 65% by 2030. This should be achieved, among other things, based on the objective of decreasing electricity consumption, which is highly questionable.

To present the possible development of the EEG surcharge and the electricity volume based on the targets formulated in the EEG, a reference value is provided by Agora. For example, the calculator takes into account the fact that due to the auction model, the level of completion of onshore wind power projects will be only 90%. Thus, with initially higher values for this technology, it is assumed that the average annual rate of addition of installed capacity will be 2.61 GW in the long term. In the case of offshore wind power, values of between 0.8 and 0.9 GW are assumed; in the

case of photovoltaics it is 2.5 GW, and in the case of biomass it is 0.2 GW. Thus, by 2030, an electricity volume of approx. 280 TWh/a could be generated from renewable energy sources.

Chart 1



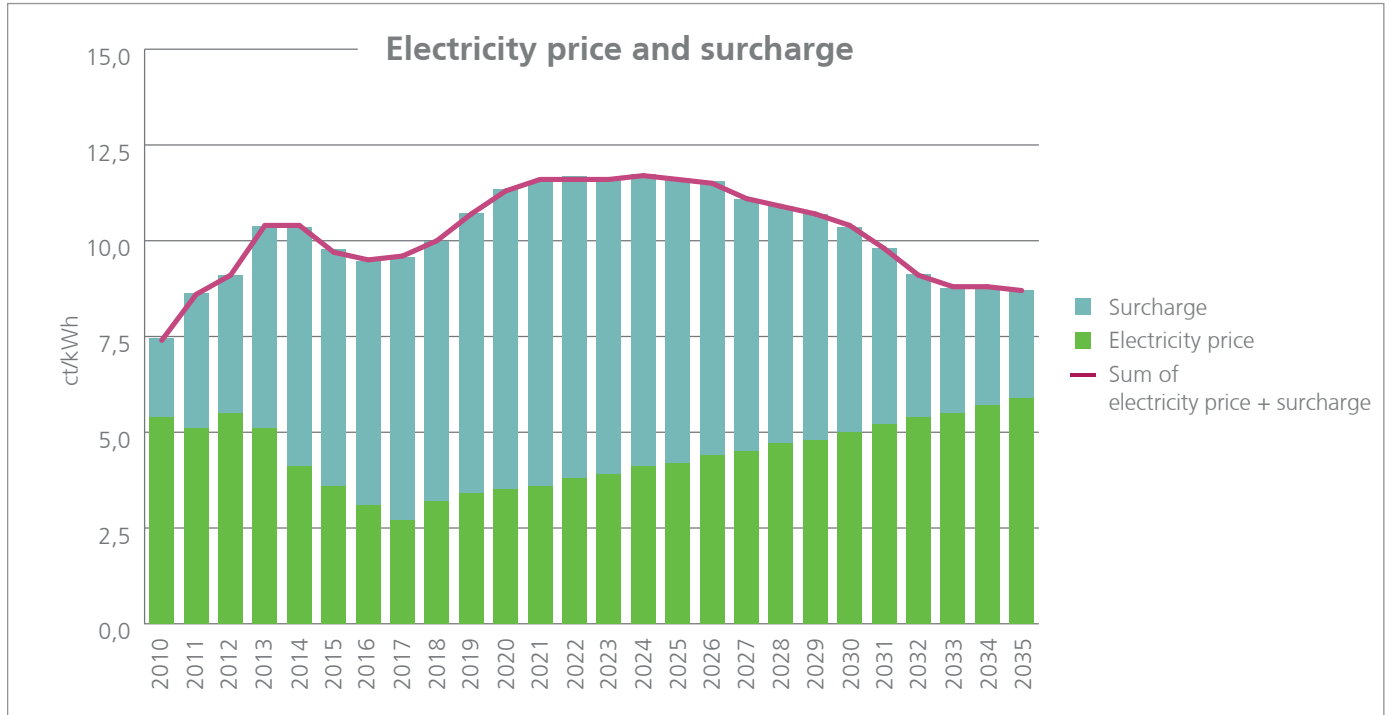


Chart 2

The Agora calculator was primarily designed to calculate the development of the EEG surcharge over time. The relevant diagram shows the electricity price (the price quoted at the energy exchange) and die EEG surcharge applicable in the respective year. In this way, the interdependence of both values relative to the

rate of installation of new renewable capacities is illustrated. In the case of the said reference values, the EEG surcharge – after a slight increase to maximally 7.96 ct/kWh in 2021– would significantly fall in the long term. In 2030 already, the EEG surcharge would be just 5.35 ct/kWh. By comparison, the 2018 EEG surcharge is currently at 6.79 ct/kWh.

Scenario two: A very high rate of installation of new capacities

The second scenario illustrates the development of the values amid a very high rate of installation of new capacities.

If you set all input parameters concerning the installation of new capacities for the above-mentioned technologies to the maximum rates allowed by the Agora calculator, the annual figure for the installation of new capacities will be 6 GW for onshore wind, 2 GW for offshore wind, 6 GW for photovoltaics and 0.4 GW for biomass. Thus, by 2030, an electricity volume of nearly 500 TWh/a could be generated from renewable energy sources (see chart 3).

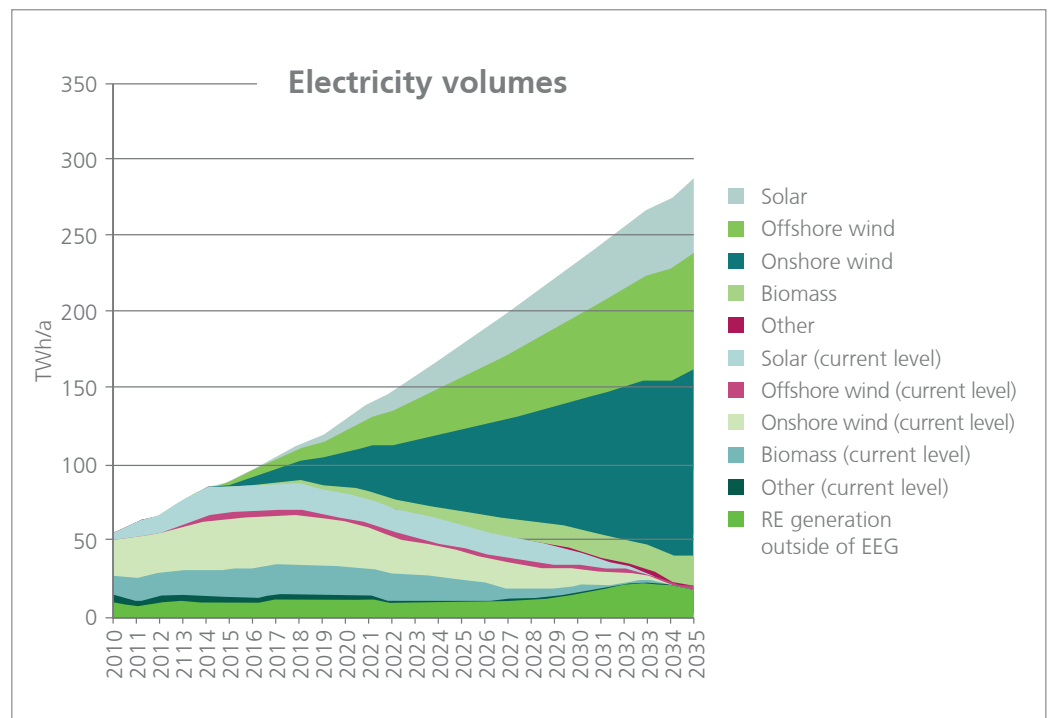
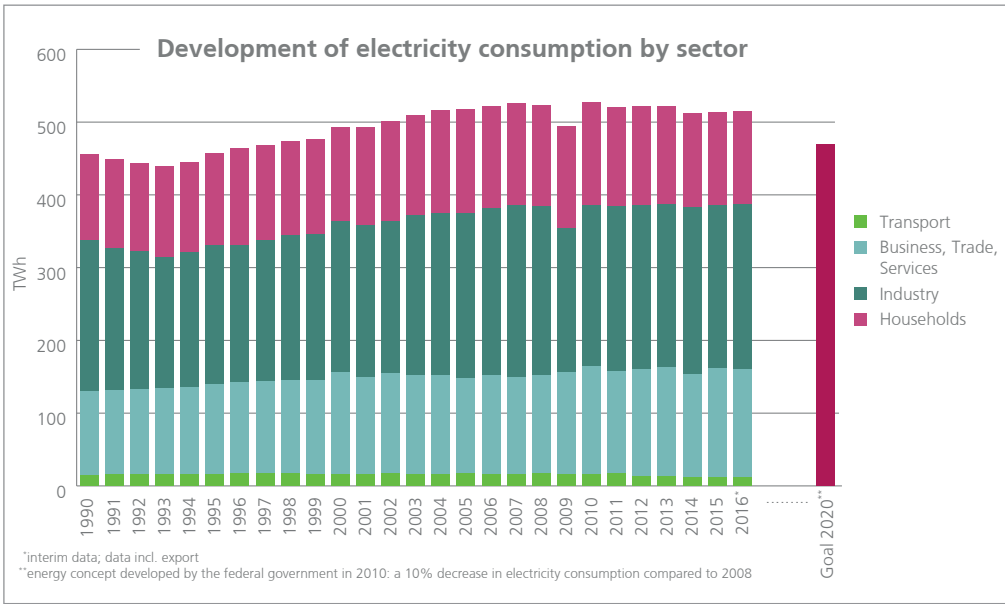


Chart 3



Chart 4



Such a volume of generated electricity would make it possible to cover nearly all of today's demand for electricity of approx. 520 TWh/a (see chart 4). Because the targets set in the EEG envisage even a declining rate of electricity consumption in the long term, electricity consumption could be thus entirely covered from renewable energy in 2030, according to these values.

It is, nonetheless, questionable, whether it will be indeed possible to lower electricity consumption to such an extent over the years. Due to the electrification of most diverse areas, a claim that demand for electricity will strongly increase could also be justified. Especially the reorientation of the automotive sector towards electro mobility could lead to a rapid increase in demand for electricity. Volker Quaschnig has developed a relevant model which illustrates the possible level of future demand for electricity. He expects that electricity consumption will be increasing linearly and will cross the threshold of 1000 TWh already in 2030 (see chart 5).

Presumably, as regards demand for electricity, neither the targets set by the federal government nor Quaschnig's extreme-case scenario will come true. A possibly realistic scenario in this regard is presented in scenario 3 further in this article.

Chart 6

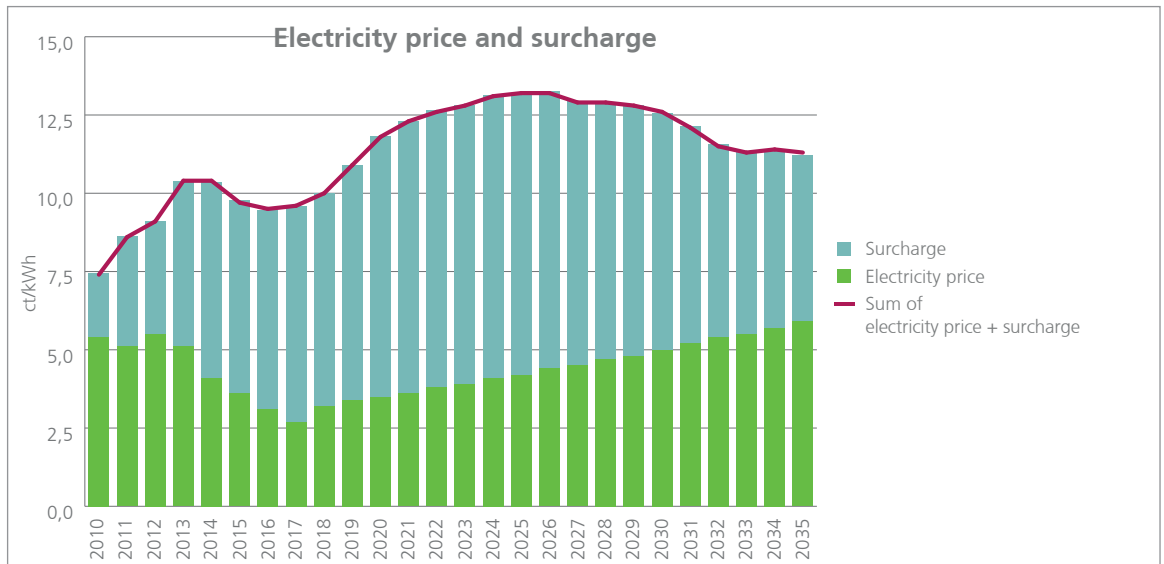
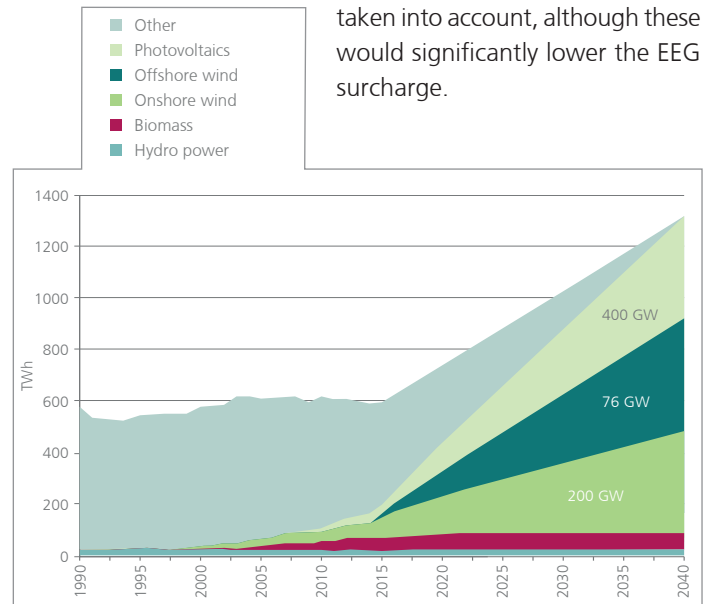


Chart 5



In the case of the very high level of installation of new renewable capacities described above and presented in the Agora calculator, the EEG surcharge would reach its peak value of 9.03 ct/kWh in 2024 (see chart 6), which is only approx. 2.2 Cent higher than today's EEG surcharge.

Also in this scenario, it can be seen again that the EEG surcharge will decrease in the long term. In 2030, it would be only 7.57 ct/kWh.

It should be also mentioned at this point that opportunities for broader refinancing (reduction of privileges for energy-intensive industries, cross-subsidisation based on CO₂ tax, etc.) have not been taken into account, although these would significantly lower the EEG surcharge.



Scenario three: A „realistically“ possible level of installation of new capacities

The EEG calculator makes it possible to present not only extreme-case values. The author believes that it is possible to illustrate a realistically possible development if, for example, the middle scenario is selected, i.e. where values are slightly higher than the reference values in the first scenario. If the annual installed capacity were 3 GW for onshore wind power, 1 GW for offshore wind power, 3 GW for photovoltaics and 0.2 GW for biomass, this would make it possible to generate an electricity volume of over 300 TWh from renewable energy sources in 2030 (see chart 7).

a decreasing EEG surcharge in the long term. Irrespective of whether the price is driven by a higher share of the EEG surcharge due to a lower electricity price or involves a (in %) lower electricity price and thus a higher EEG surcharge, calculations lead to the same result in the end.

Similarly interesting is the share of renewables in total primary energy consumption. Currently (as of 2017), renewables have a share of a good 13%. But what would be their share in 2030 if the developments presented in the third scenario materialised? If the level of electricity generated from renewable energy sources was 210 TWh in 2017 and 310 TWh in 2030, it would be possible to cover in 2030 only 15.8 % of today's primary energy consumption using renewable energy sources. This is despite the fact that the federal government set the goal of strongly reducing primary energy consumption from the current 13,383 petajoules in 2017 to 7.190 petajoules in 2050. It is, however, extremely doubtful whether measures will be initiated to enable such a strong reduction in primary energy consumption (energy transition).

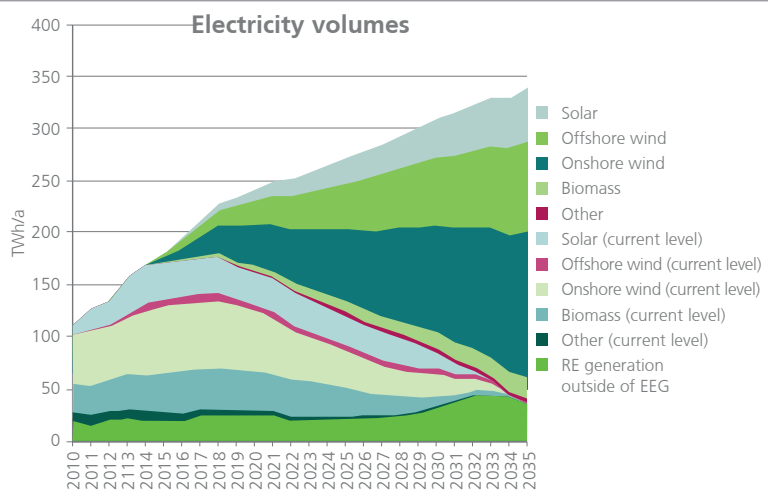
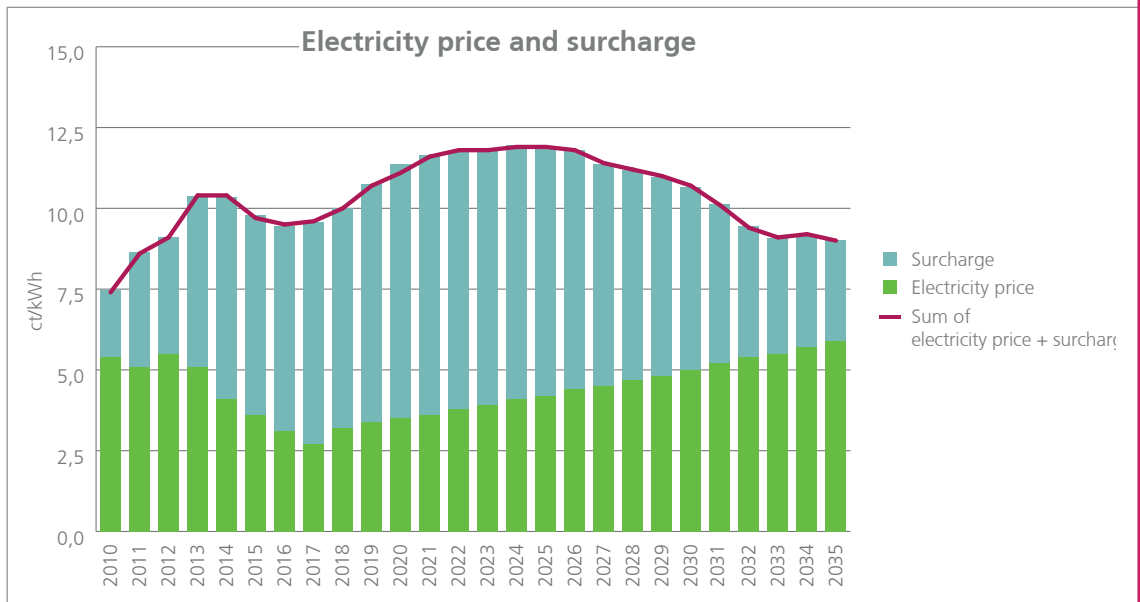


Chart 8

Chart 7

Also here, Agora's EEG calculator illustrates the development of the EEG surcharge in form of a diagram. As regards the rates of the EEG surcharge, the difference compared to the first scenario is naturally relatively small due to the small difference in the levels of the installation of new capacities. In this case, the EEG surcharge would reach its peak level in 2021 at 8.03 ct/kWh, which is only slightly higher than the level in the reference scenario (see chart 8). Also here it can be stated that the EEG surcharge will strongly decrease over time. In 2030, it would be only 5.65 ct/kWh.



As can be seen from the electricity price/ the surcharge charts, the EEG calculator assumes that electricity prices will be increasing nearly linearly in the future. Agora assumes here that the increasing prices of CO₂ and raw materials will more than offset the electricity-price-decreasing effect of the increasing share of renewables. This increase of approx. 3.65% p.a. always involves

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Around the world

> Amendment of the Renewable Energy Law – a necessary step towards organising new auctions for renewable energies

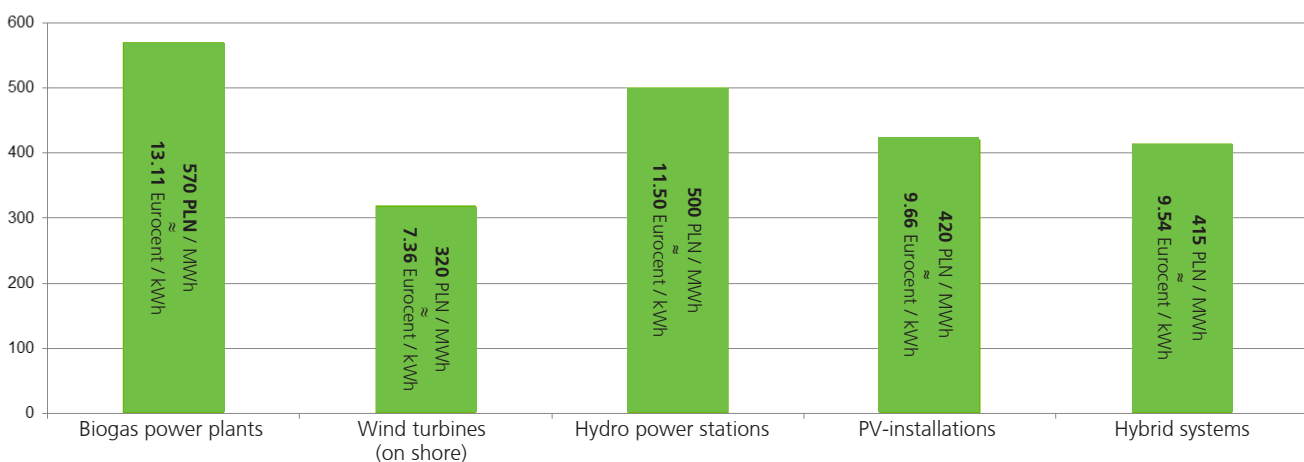
By Piotr Mrowiec

In 2017, the Polish government realised that lack of the European Commission’s approval of the Renewable Energy Law in the notification procedure and granting funds for electricity generated in renewable energy sources at amounts determined at auctions may be questioned as being in conflict with state aid principles. Finally, the President signed the amendment to the Renewable Energy Law at the end of June and most of the amended provisions which are of key importance for the organisation of new auctions became effective.

On 29 June 2018, the President of Poland signed the Law amending the Renewable Energy Law and some other Laws. The new law was enacted at high speed in an accelerated legislative procedure. The Sejm first adopted the amendment to the RE Law on 7 June this year and the Senate approved it without any changes already on 29 June. Still on the same day, the amendment was signed by the President into law and immediately published in the Polish Journal of Laws. Except for some provisions, the amendment takes effect 14 days upon publication.

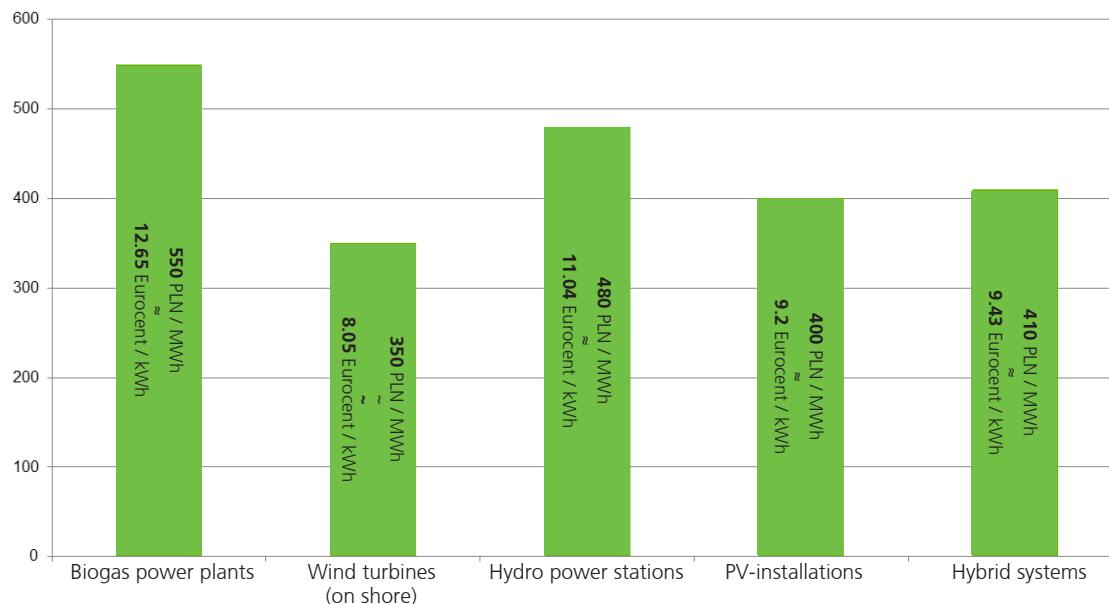
According to the amendment the installed effective capacity for micro plants will be increased up to 50 kW (previously 40 kW). The amendment specifies in more detail the elements of the annual summary report for the President of the Energy Regulatory Authority (URE) and eliminates superfluous elements of declarations to be submitted by renewable electricity producers. The legislator decided to set the reference prices – that is the maximum prices which can be quoted in offers for sale of the produced energy at auctions in 2018 – directly in the law. Below, you find the reference prices for plants with a capacity of up to 1 MW and over 1 MW.

Reference prices for plants with a total effective capacity of up to 1 MW





Reference prices for plants with a total effective capacity of over 1 MW



Certain changes in the principles regulating the pre-classification procedure are of importance to investors who prepare for the participation in auctions. According to the new provisions, producers who wish to participate in auctions held in 2018 must either again file an application with the President of URE for issuing the relevant certificate on admittance to an auction or submit a declaration on participation in the auction.

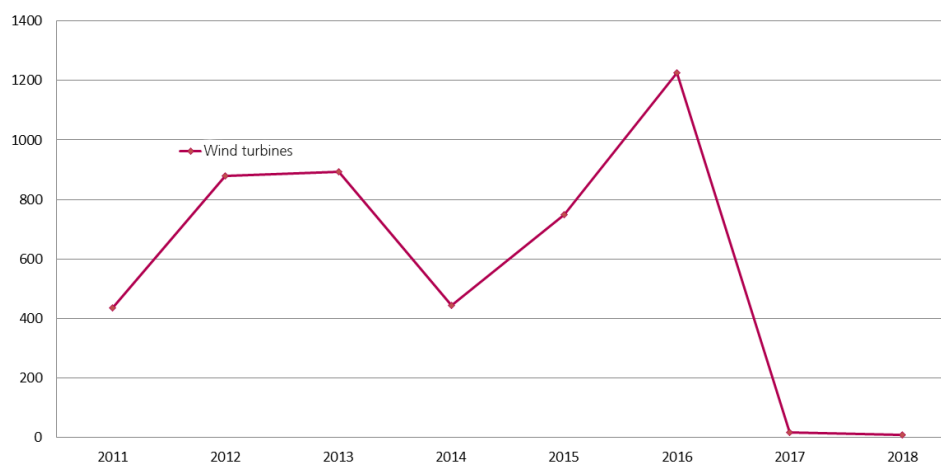
Attention should be paid to the amount of electricity which will be contracted at the next auctions. Some very good news is the amount of power to be contracted with photovoltaic installations or wind turbines with an effective capacity of over 1 MW. It enables the completion of wind projects that are ready for installation but for which no auction has been organised so far. The dramatic stagnation in the development of wind projects can be seen from the graphics below.

The amount of solar and wind power to be purchased from operators of PV installations and wind turbines at auctions in 2018 is:

- > for plants with a capacity of over 1 MW – 45 000 000 MWh;
- > for plants with a capacity of up to 1 MW – 16 065 000 MWh.

Apart from the auction system, the law provides for several new solutions for producers of electricity from renewable energy sources; they are intended for micro and small RE plants that use stable and predictable energy sources (hydro, biogas, agricultural biogas). The law opens up the possibility of feeding combined energy from various sources into the grid via one single or several grid connection point(s) and changes the unfavourable taxation principles applicable to wind turbines (change of the term „construction“ in the construction law and of the definition of the term „wind turbine“ in the Law on Wind Power Investments).

Installed power capacity [MW] in the years 2011 – 2018 (per year)



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Around the world

> Developments in the regulatory framework for renewable energy in Kenya: Energy Bill 2017

By Penninah Munyaka

The Energy Bill 2017 (the Bill) aims to rationalise and consolidate the legal provisions regarding the energy sector. It is intended to align the industry-specific legal provisions with the new constitution of Kenya. To this end, the Bill should provide clarity as regards the roles of the two levels of government – the National Government and the County Governments. Moreover, it should create a single legal framework to enable the development of this sector. This includes the discovery of different energy resources in Kenya, both fossil and renewable, and the opportunities resulting from declining costs in the renewable energy sector.

At the time when this article was written, the Bill was adopted by the National Assembly and passed on to the Senate.

The Bill covers all aspects of energy regulation except for discovery, development and production of petroleum. In this article, we will address all issues that relate to renewable energy. We will give you an overview of the implications of the new Bill, address the existing regulations and have a look at possible changes in the administrative and regulatory procedures in the renewable energy sector.

Regulatory supervision and guidelines

ERC

The control over the energy sector will remain in the hands of the Energy Regulatory Commission (ERC). To this end, the ERC is vested with a specific authority to regulate all aspects relating to renewable energy. The tasks of the ERC include the issuance

of licenses and the supervision of compliance with the conditions of the licenses; it has the power to impose sanctions and penalties for non-compliance and to issue instructions to ensure compliance with the requirements.

Rural Electrification and Renewable Energy Corporation (REREC)/Renewable Energy Resource Advisory Committee (RERAC)

The Bill creates two new corporate bodies: the Rural Electrification and Renewable Energy Corporation (REREC) and the Renewable Energy Resource Advisory Committee (RERAC).

The REREC will replace the Rural Electrification Authority (REA) formed under the currently applicable Energy Law. The REREC will continue to be responsible for the tasks of the REA and will be given additional regulatory powers specifically relating to the renewable energy sector. This will give the REREC the central role in legislation, research and development, international collaborations, and the promotion of renewable energy sources within society.





The RERAC is an inter-ministerial committee which is composed of the Principal Secretary in the Ministry of Energy and Petroleum, the CEO of the REREC, the MD of Geothermal Development Company Limited and the MD of Kenya Electricity Generating Company Limited, among others. The functions of the Committee is to advise the Cabinet Secretary for Energy and Petroleum on criteria for the allocation of renewable resources, licensing of renewable energy resource areas, management of water towers and catchment areas, development of multi-purpose projects such as dams and reservoirs for power generation, and management and development of renewable energy sources.

Rights to renewable resources

Sections 72 and 76 of the Bill provide that all renewable resources and geothermal resources are vested in the government:

The rights to all untapped renewable energy sources under or on the surface of the national territory are vested in the National Government, except where any rights have been granted or vested in any other person by or under any written law.

This regulation aims to clarify which of the two government corporate bodies is in control of the renewable resources. The National Government is tasked with managing the resources in the interest of the Kenyan people. But renewable resources are not evenly spread across the country. It is easy for the local population and local governments to register ownership of resources located within their territories and, thus, to exclude others. With the resources being under the control of the National Government, the whole country could participate in their exploitation and also in the profits derived from them.

By extension, this means that no one would be allowed to use a renewable resource without the respective permit, license or authorisation. Together with the constitutional provisions, this would enable the government to impose regulatory controls on renewable resources.

Royalties for extracting geothermal energy

Section 84 of the Bill proposes introducing royalties for extracting geothermal energy. The royalties would change throughout the lifecycle of a geothermal drilling project. They would be 1 % – 2.5 % in the first 10 years of production and between 2 % and 5 % in the following years.

Here, the royalties would depend on the producer's profit [value of geothermal energy at the well head]. The profit would be calculated based on the current sales price. This price would be reduced by all expenses reasonably incurred by the producer for delivering energy to the consumer.

The royalties would be apportioned between the National Government, the County Government and the local community on the territory of which the well would be situated. The introduction of these royalties caused many debates between these three groups, since each of them demanded a bigger share in the royalties. According to the Bill, the community's share would be 5%, the County Government's share would be 20% and the National Government's share would be 75%.

Geothermal resources can be found primarily in the poorer regions of the country where fertile land and other resources that could be used for developing the communities are non-existent. Communities and local governments in these regions demand 45% of the royalties to counterbalance the underdevelopment of the local population. After all, this might be the only valuable resource in their region. The National Assembly did not address these demands but it can be assumed that new debates will be sparked off when the Bill is passed on to the Senate.

The Cabinet Secretary is vested with the authority to impose or reduce royalties if this was beneficial for investment or the extraction of the resource. The text of the Bill is formulated very vaguely so as to give the Cabinet Secretary sufficient elbow room to issue decrees.

It can be assumed that every decree will raise intense political debates. Headwind should be expected in particular from the local communities and local governments. Therefore, decrees will presumably be issued only in very specific cases and only for very large-scale projects because these offer high added value to local communities and municipalities in the form of creation of jobs and construction of infrastructure.

Attracting investors

Preparation of renewable energy resources inventory and resource maps

High initial investment costs constitute a large barrier to the development and use of any type of renewable energy. A significant part hereof is attributable to feasibility studies. The National Government acting through the Ministry of Energy and Petroleum intends to reduce these costs in order to attract investors. To this end, a renewable energy resources inventory and resource map will be prepared. This aspect is addressed in section 73 and the government is given a period of 12 months for the implementation after the Bill comes into force. In addition, the Ministry will be bound to prepare updates on the progress to be published in the Gazette every two years.



Net metering

One of the novelties includes the introduction of net-metering. Net-metering allows consumers who own small-scale electric power generators to feed excess electricity into the grid. In return, they will receive a credit. The Bill provides that only producers generating less than 1 MW may participate in the net-metering system. They will be allowed to supply excess electricity only to distribution licensees or retailers. The introduction of net-metering is subject to the rules of market economy which will decide about the success of the project. An example for successful net-metering in Kenya is the PV installation for the SOS Children's Village in Mombasa.

The Renewable Energy Feed-in-Tariff System (FiT)

The Bill proposes introducing feed-in tariffs for renewable energy. The objective is to increase/improve the generation of electricity from renewable energy sources, local consumption, local production and innovation in the area of renewable energy.

For the administration and implementation of the FiTs, the Cabinet Secretary may introduce regulations in consultation with the ERC. This includes the technical and operational requirements for connection to the grid, the duration of the feed-in-tariff approval, the priority of purchase of electrical energy generated using renewable energy sources and the tariff to be paid by distribution licensees to licensees under the FiT system.

Currently, no draft regulations exist that would show how the FiT system will be implemented. Thus, until a new system is gazetted under the Bill, the present FiT will continue in place. It includes: wind, biomass, hydro, geothermal energy, biogas and solar. Two evaluations have been performed since its introduction in 2008. They were based on feedback from market players, and findings of the Ministry were used. It can be assumed that any regulations which will be developed under the new Bill will be consistent with the present FiT regulation.

Summary

We do not expect any major changes in the area of renewable energy if the new energy bill was approved by the Cabinet. Most of the debates will revolve around the royalties and their allocation between the National Government, the County Governments and the local communities.

The Kenyan energy regulation will remain stable and predictable. This is thanks to the high involvement of the government acting through the Ministry of Energy and Petroleum, the ERC, non-governmental corporate bodies, private individuals and local lobbies. This cooperation also leads to a better understanding between the groups and has a positive impact on the development of the renewable energy sector under a single comprehensive regulatory framework.

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Around the world

> Waiting for the amendment of EEG and KWKG – no good start for the grand coalition's energy policy

By Joachim Held

Although the European Commission and the Federal Ministry of Economic Affairs and Energy (BMWi) have reached an agreement over the approval under state aid law of the EEG privilege for CHP plants producing electricity for self-supply, the amendment to the Renewable Energy Law (EEG) and the Combined Heat and Power Act (KWKG) necessary for the implementation of the agreed issues has been further delayed due to the smouldering coalition conflict and increasing political resistance.

The further legislative work has been postponed until after Parliament's summer recess due to the controversy within the coalition between Federal Minister of Economic Affairs Altmaier and Federal Environment Minister Svenja Schulze (SPD) over additional auctions under the EEG: Schulze believes that they should have been included in the amendment, initially euphemistically termed „100-day law“, but they were delayed contrary to the coalition agreement by Minister Altmaier, an opponent of the EEG and climate protection policy. It is expected that there will be considerable delays and legislative amendments in the further course of the legislative process after the summer recess.

Whereas the approval under state aid law for the exemption of CHP plants producing electricity for self-supply from the EEG surcharge has been missing since the second last EEG amendment in 2014, the European Commission gave the green light for partial exemption from the EEG surcharge already early May.

As early as March, the Federal Ministry of Economic Affairs and Energy (BMWi) submitted a bill amending the EEG and KWKG, which besides various further amendments laid the foundations for the implementation of the issues agreed during the negotiations with the European Commission.

The Ministry wanted to amend the EEG by further reducing the incentive allowance caps in auctions for onshore wind turbines and photovoltaic power plants. This would further limit the funding opportunities. According to the Ministry's proposal, the allowance cap for energy from onshore wind turbines would be reduced from 6.3 cent/kWh to 5.7 cent/kWh in the auction period from August 2018 to February 2019. The allowance cap of 8.91 cent/kWh for photovoltaic plants would be cut down to 6.50 cent/kWh.

The funding conditions should generally worsen also for CHP plants:



First of all, the rule for all CHP funding should be that „investment grant may not cumulate“. Furthermore, the incentives for the existing CHP plants of currently 1.5 cent should be reduced to 0.7 cent/kWh. The prospect that the amendments to the EEG and KWKG are to apply retrospectively as of 01/01/2018 and will cover not only levying EEG surcharges to CHP plants producing electricity for self-supply but also the reduction of incentives for CHP plants, caused irritation among industry players.

The bill at least made it clear that the transitional provision of § 35(14) KWKG 2017 also applied to modernisation measures involving modernisation costs of at least 25 percent but lower than 50 percent of the construction costs of a new CHP plant.

In the meantime, also the CHP industry has set up a political initiative against the plans of Federal Minister of Economic Affairs Peter Altmaier (CDU) to limit the protection of investment projects provided under the EEG and KWKG and the legitimate expectations arising from those laws. This is concurrent with the increasing economic pressure exerted by some network operators pro-actively implementing the legislative plans. Those operators have been charging the affected CHP plants the full EEG surcharge already since 01/01/2018.

Industry experts estimate that about 10,000 small CHP plants with a capacity of up to 1 MW and about 300 CHP plants with a capacity of 1 MW to 10 MW currently no longer enjoy the partial EEG surcharge exemption. Thus, for example, even smaller municipalities that have installed small block heating power

plants with a power capacity of 50 kW in their schools must now pay over EUR 10,000 in extra EEG surcharges annually. Much harder hit are the power self-supply facilities of municipal utility companies, which have been caught by surprise by the Ministry's plans to lower the capacity threshold up to which relief is granted to 1 MW, and industrial CHP plants, which have, anyway, always faced a barrage of criticism from the European Commission. CHP plants with a power capacity of 2 MW often have to pay over half a million euros annually to cover the extra portion of the EEG surcharge. This renders such plants entirely unprofitable. Plant operators may, therefore, respond to these circumstances only by a shutdown, creating provisions or – if they secured their business by setting up a special-purpose entity – by filing for insolvency. Thus, it should be expected that, being in financial distress, they will file claims against this legally contentious practice and lawmakers will be under a still stronger pressure after the summer recess.

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Around the world

> Renewable energy in Lithuania – new incentives under the market premium model

By Hans Lauschke and Liudgardas Maculevičius

According to a bill drawn up by the Ministry of Energy the Lithuanian RE funding system will be governed by a market premium model in the future. The market premium amount will be determined based on competition by way of energy source-independent auctions. All market players have been explicitly invited to participate in the legislative initiative and to submit proposals for this new incentive model.

After a long period of stagnation and only some movement in the area of already existing projects or projects under construction renewable energies (RE) in Lithuania will finally receive new political support: On 16 May 2018, the Ministry of Energy published the draft of a new incentive model for renewable energies.

More competition and no fixed funding anymore

The proposed amendment to the Renewable Energy Law (RE Law) provides for an entirely new system of support for the production of electricity from renewable energy sources. The aim is to increase the production of electricity from RE sources up to at least 3 terawatt hours (TWh) by 2020 (by comparison: today, slightly more than 2 TWh of electricity are generated in renewable energy plants). Moreover, it is planned to increase the market integration of renewable electricity producers.

What are the major differences to the present model?

The current incentive system in Lithuania is based on a long-term fixed approach where funding is granted for 12 years from issuing the energy production licence. So far, the Lithuanian subsidy instruments have been characterised by competition between the individual types of energy production and capping of incentives under a quota regime. The quotas were allocated at technology-specific state auctions. But those incentives were exhausted already about 3 years ago and no new auctions have been held since then.

By contrast, the new incentive model will be technology-neutral, i. e. the contract will finally be awarded to the project offering the lowest price, irrespectively of the type of energy production. As previously, the intention is to offer operators of RE plants the possibility to receive a calculable return from their investment by granting them extensive funds. But the fixed feed-in tariff would be replaced by a market premium which would be added to the market price – as previously, this incentive should be paid for the maximum period of 12 years (cap) (should the cost of the plant be amortised earlier, the incentives would be capped earlier as well).

There will also be reductions in the grid connection costs. So far, in most cases, they have been borne by network operators. In the future, this obligation will rest with power producers. The scope of tasks of power producers will also be increased by their mandatory inclusion in the mechanism of balancing electricity supply and demand. However, the very lucrative feed-in priority applicable so far to renewables will be maintained.

What is the procedure for calculating the feed-in tariffs?

The already mentioned market premium is to be determined competition-based by way of auctions. These auctions will be held for certain energy volumes to be produced, independently of the type of RE. An entirely new feature of this concept is that subject to certain conditions also projects launched in other EU member states will be allowed to participate in these auctions based on bilateral agreements to be signed for this purpose.





Crucial for the calculation of incentives are the following factors:

Reference price

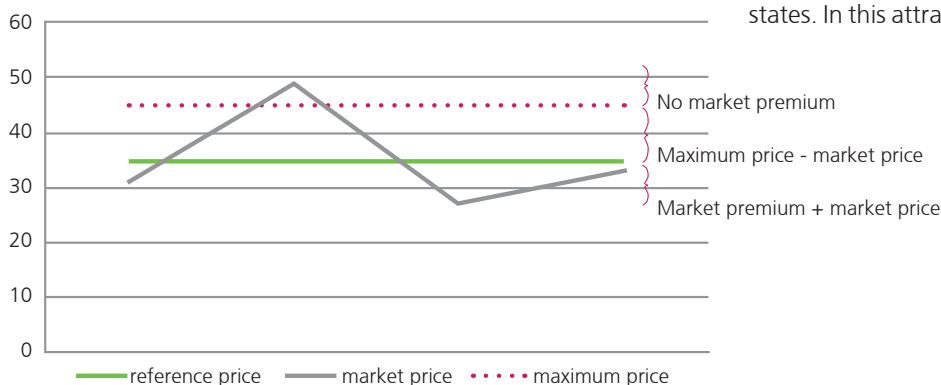
- > is basically calculated according to the pro-cedure of the National Commission for Energy Control and Prices in due consideration of the price at the Nord Pool power exchange;
- > is independent from the type of technology;
- > applies throughout the funding period (until the costs of the plant are completely amor-tised but no longer than for 12 years);

Market price

- > is (currently) calculated based on the average hourly electricity price for the region of Lithuania at the Nord Pool power exchange;

Maximum price

- > is basically calculated according to the pro-cedure of the National Commission for Energy Control and Prices;
- > this fixed amount may not be exceeded in bids for a market premium.



Calculation method

- > If market price > reference price = maximum price - market price is paid;
- > If market price < reference price = total market premium is paid;
- > If market price > maximum price = no market premium is paid;
- > If market price ≥ 0 = no market premium is paid.

Alternative option: Purchase of plants on the secondary market

In Lithuania, apart from constructing new plants, investors have the possibility to purchase, on the secondary market, plants (regardless of whether completed, still under construction, or in the planning phase) that already enjoy a feed-in tariff under the present funding model. In such a case, a 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

As regards the expansion of RE, apart from reducing CO2 emissions, Lithuania's declared focus is on regaining energy independence which it lost in 2009 when the nuclear plant, Ignalina, was shut down and dismantled.

In presenting the legislative bill, the Lithuanian Ministry of Energy has acknowledged that the development of renewable energies, which has been stagnating in the past years, needs a new stimulus – in particular in view of the country's aspiration to regain energy independence. However, the planning of the new funding model is currently still in infancy: The amendment of the RE Law, if adopted by the Lithuanian Parliament, will probably become effective as of 1 May 2019.

In any case, the bill promises the long-awaited new tailwind for the Lithuanian RE sector and this might open up new opportunities both to construction companies and producers.

For many years, Rödl & Partner has been a pioneer in providing consulting services in the renewable energy sector in the Baltic states. In this attractive market for energy projects we have built a reputation among im-portant international investors and plant manufacturers as one of the leading legal and tax specialists. Should you therefore wish to receive more information on this topic, our interdisciplinary experts will be glad to help and assist you.

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Around the world

> Spain's Certificates of Origin in practice – the merchant and PPAs

By Christoph Himmelskamp

Spain has adjusted regulations regarding certificates of origin – certificados de origen – in a bid to simplify their trading but also to make them more unique and, thus, more valuable.

As of 18/04/2018, the Spanish government issued a revised version of „Circular“ 1/2018 regarding the regulation on certificates of origin (Garantias de Origin - GO) so as to bring Spanish law into line with the European law amendments in this area.

Among other things, the regulation lays down new rules for participating in trading organised by the Association of Issuing Bodies (AIB) and determines which market players are entitled to trade in GOs in Spain and abroad.

The price for GOs has increased 8-fold in the last two years but it should be noted that the initial prices were very low. According to GO Trader ACT Commodities, the price is currently 0.25 EUR/MWh.

GOs can be claimed by renewable energy producers as soon as they register for the specific remuneration for renewable power plants (Sistema de Liquidación del régimen retributivo específico de la CNMC). Once they are registered they can transfer GOs to traders in Spain or export them to other European countries or to a country with which the EU has concluded a respective agreement. But the certificates may be transferred or exported exclusively to a so-called „Comercializadora“, i.e. a direct seller who has registered in the country of destination. If the certificates are traded via AIB all transaction participants must be listed there. In addition to being transferred to traders, GOs can be sold to energy end consumers. Comercializadoras are only allowed to sell GOs to their end consumers.

On principle, all renewable energy producers receive the respective GOs for each 1 MWh they generate; but power plants that receive incentives under RD 423/2014 (the successor to RD 661/2007) in Spain may only export these GOs if they waive the incentive. This is not yet economically reasonable.

When concluding a PPA, IPPs should remember to check whether the „route to market“ section, i.e. the section regulating market access via the direct seller (Comercializadora), contains an exclusion of the automatic transfer of GOs so as to ensure that their ownership continues to lie with the IPPs. Direct sellers normally include the profit from (sale of the) GOs in their market access fees charged to the IPPs (0.5 – 1€/MWh). It should be born in mind that deadlines for filing an application for the issuance of GOs are relatively short and that GOs expire after only 12 months.

IPPs (or a group company) must reinvest profits from the sale or the transfer of GOs in the form of measures aiming to improve profitability of existing renewable energy plants or in the form of research activities aiming to improve the global climate.

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Around the world

> Italy – The potential of the storage system market

By Gennaro Sposato

All experts agree that Italy is one of the most attractive storage system markets. Among other things, this is due to the consolidation of the legal framework, the clarification of previously ambiguous issues regarding the possibility of using tax advantages, as well as due to the wide-spread interest in new technologies, and customer demand for environmentally sustainable electricity. Italy's great potential is also confirmed by the fact that renowned storage system manufacturers have already expanded to Italy in recent past.

All studies which deal with the topic of storage systems consider Italy to be one of the most attractive locations for the sale and marketing of storage systems and the related innovative electricity supply models.

In its last year's report entitled „Electricity Storage and Renewables – Costs and Markets to 2030“, the International Renewable Energy Agency (IRENA) emphasises that the general interest in new technologies and an increase in demand for environmentally sustainable electricity have encouraged many people to invest in storage systems even if it is not entirely profitable now strictly from the business perspective. Besides Germany, where, according to IRENA, over 55,000 battery systems with a total capacity of approx. 300 MWh were installed between 2013 and 2016, also Australia, the USA and specifically also Italy are regarded as the key markets of the future, which in turn has encouraged many storage system manufacturers to establish their production lines in these markets.

At the same time, in late 2016, the Energy Strategy Group of Politecnico di Milano estimated that the expected potential of the Italian market for storage systems in residential housing facilities would reach approx. EUR 150 million by 2025, while the theoretical potential, also subject to a significant reduction in purchase costs and the creation of appropriate state incentives for subsidising storage systems, such as those in the region of Lombardy, is expected to be much over this value in the range of up to a billion euros.

Retrofit (Installation of storage systems in existing power plants)

	Small-scale storage systems (3kW – 5kW)	Mid-scale storage systems (>6kW)
Number of power plants	250,000	50,000
Theoretical market potential	EUR 850 – 1,000 million	EUR 200 – 400 million
Expected market potential	EUR 40 – 50 million	EUR 20 – 40 million

Ex novo (installation of storage systems together with a new PV power plant)

	Small-scale storage systems (3kW – 5kW)	Mid-scale storage systems (>6kW)
Number of power plants	20,000 per year	15,000 per year
Theoretical market potential	EUR 500 – 700 million	EUR 75 – 100 million
Expected market potential	EUR 50 – 70 million	EUR 11 – 20 million

Source: Energy Storage Report 2016, Energy Strategy Group – Politecnico di Milano

The attractiveness of the Italian storage system market has increased also due to the consolidation of the regulatory framework, a process which began a few years ago and has now laid solid foundations for the development and offering of innovative business models and for making appropriate investments.

While, for example a few years ago, there was still legal uncertainty as to whether and on what conditions storage systems could be installed in existing power plants that already received state funding (mainly due to Conto Energia regulations concerning PV power plants), the GSE (the authority managing the payment of incentives) not only confirmed in its framework for the installation of storage systems, last updated in June 2017, that the installation of a storage system in an existing PV power plant is allowed and does not result in the loss of the already awarded incentives, but also established regulatory procedures which must be complied with.

This was due to the decisions passed by the state authority responsible for electricity and gas, ARERA, No. 574/2014/R/eel and No. 642/2014/R/eel, which, together with the technical regulations of the Italian Electrotechnical Committee CEI 0-16 (medium voltage) and CEI 0-21 (low voltage), constitute the regulatory framework for the installation and operation of storage systems in Italy. In particular, these regulations prescribe



technical requirements which storage systems must meet to be integrated into the grid and set out the appropriate certification modalities which manufacturers must observe to be allowed to import and sell storage systems in Italy.

In addition to the now definitively confirmed compatibility of storage systems subsequently installed in existing power plants with the funding tariffs set out in the Conto Energia regulations, the Italian tax authority has also clarified another issue which has been of utmost importance for end consumers in deciding whether to invest in storage systems or not.

End consumers who install a PV power plant in their residential property have the option – based on the Presidential Decree no. 917/1986 and the Circular Letter No. 22/E of 2 April 2013– to deduct the respective costs for tax purposes.

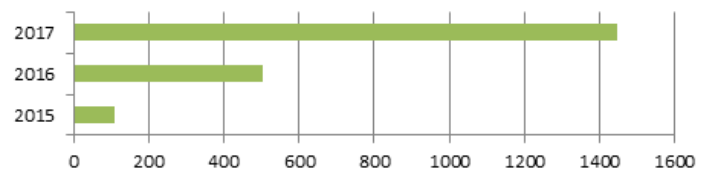
According to the said regulations (whose applicability has been so far confirmed by the legislator year after year), private individuals can currently still deduct expenses incurred in 2018 for the installation of PV power plants, at up to 50% of the costs but maximally EUR 96,000.00, from personal income tax. The expenses can be deducted from the personal income tax in the year of mounting or of the first payment and over the subsequent nine years in the same amount.

Previously, however, it wasn't clear whether also the costs incurred for the installation of storage systems –irrespective of whether such storage systems were installed along with or after the installation of the power plant– should be treated as deductible within this framework; this caused considerable uncertainty on the market as regards the calculation of the economic benefit of buying a storage system.

This aspect has recently been clarified by the Italian tax authority in the Circular Letter No. 7/E of 27 April 2018 where the tax authority confirms that the installation of a storage system does allow deducting the appropriate costs for tax purposes and this is irrespective of the fact whether the storage system was installed together with the PV power plant or afterwards.

The attractiveness of Italy in terms of energy storage is also reflected in the statistics concerning the installation of this technology, recently published by GSE. According to GSE's 2017 report, as of 31/12/2017, the authority received a total of 1,445 registrations regarding the installation of storage systems in PV power plants already subsidised by GSE, 942 of which related to the year 2017 and the other related to other batteries installed in prior years.

Cumulative number of storage systems installed in subsidised PV power plants



Source: GSE

If you consider the fact that these reports only related to storage systems installed in PV power plants subsidised by GSE, while non-subsidised PV power plants are not subject to such a registration obligation, and that the regulatory framework has been consolidated only in the last two years, then the increase in new installations in 2017 (nearly +100% on the previous year) confirms the enormous potential of the Italian storage system market, predicted by all international studies.

In this context, it should also be taken into account that PV power plant owners currently have the option to sell any excess electricity that they generated but did not consume to GSE on favourable conditions through the so-called Scambio sul Posto as part of a net metering procedure which is easy to navigate for end consumers. Thus, the public electricity grid serves as a kind of a virtual storage system, which currently makes the installation of a storage system less attractive. However, if –as many market observers have already speculated– the Scambio sul Posto, which is financed from a surcharge added to electricity bills, is abolished, this will encourage even more PV power plant owners to specifically opt for the installation of a storage system.

Thus, all indications are that the Italian storage system market will develop favourably and, finally, this has also been confirmed by the fact that many renowned German and international storage system manufacturers have already expanded to Italy to seize the opportunities there and to gain a competitive advantage before other competitors decide to enter this market.

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Around the world

> New EU Directive: A renewable energy (RE) investment offensive in heating/ cooling and in the generation of electricity for household self-consumption is on the horizon

By Benjamin Richter und Dr. Marius Dillig

During so-called „trilogue negotiations“, the European Parliament agreed with the EU member states and the European Commission on even more ambitious expansion goals and endorsed a revision of the renewable energy directive: according to the agreement, about 32% of average gross final consumption of energy of the EU member states should be covered from renewable sources by 2030, which is a significant increase compared to the current 17%. Thus, the directive defines the development of the European renewable energy markets until 2030 and will result in large-scale investment incentive programmes at national level not only in the electricity sector but also especially in district heating and district cooling as well as in the transport sector.

The agreement to amend the EU’s renewable energy directive (so far 2009/28/EC) is a part of the large package „Clean Energy for all Europeans“ and regulates the issues and the pace of expansion. By 2030, 32 % of average gross final consumption of energy of the EU member states should be covered from renewable sources, with the option to revise the target upwards after a review in 2023. Besides political climate-related effects, this measure aims to help generate up to EUR 60 billion in savings annually as regards expenses for fossil fuels¹. In addition to electrification, also the reduction in heat generated from fossil fuels will be a goal of major importance. The already defined

national targets for individual member states will continue to apply as the minimum standard. There are great country-specific differences between the member states (in correlation with their resources), with some of the countries demanding a target of 13% (such as the Netherlands or the Czech Republic) or more ambitious targets such as 49% (Sweden) and 38% (Finland). The fact that the target of 18% set to Germany is far below the targets Germany has set itself clearly shows the weakness of the new directive that the ambitious EU-level 2030 targets also come down to mandating an obligatory path of expansion of renewables in the individual countries.

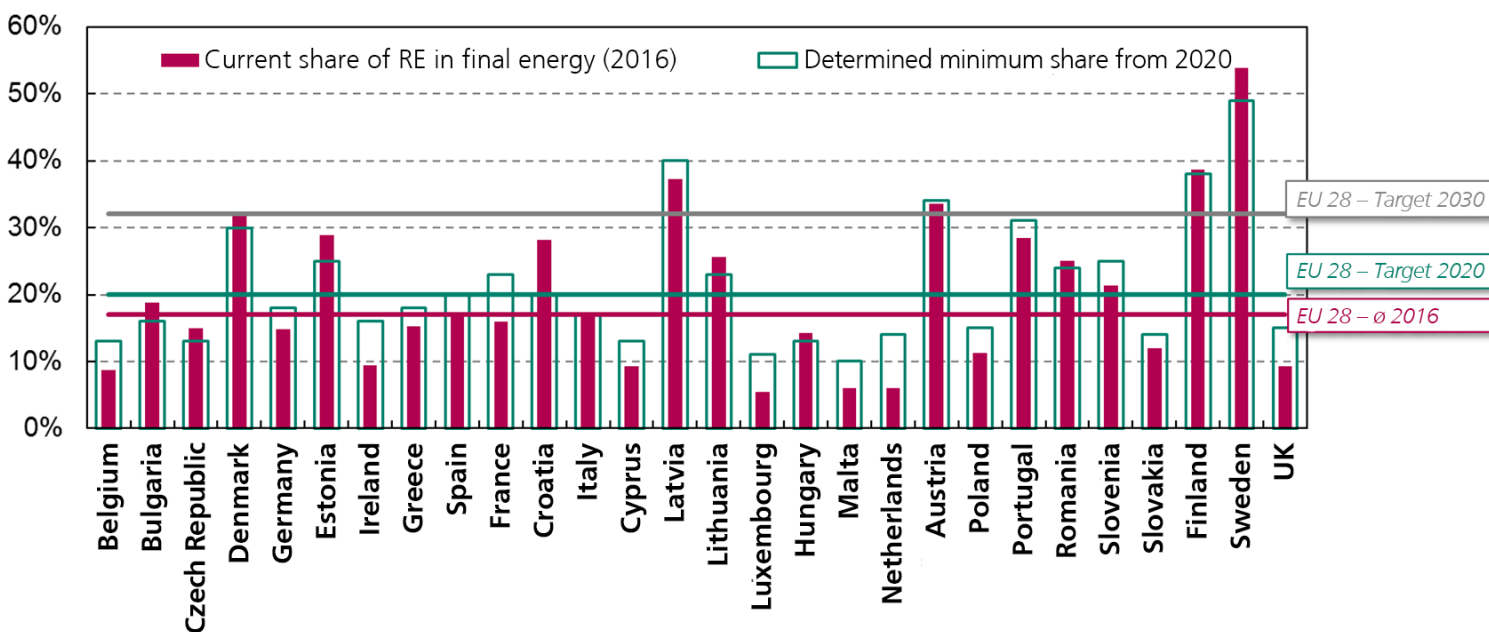


Illustration 1: current and planned shares of renewable energy in gross final consumption of energy²

¹ European Commission, 2016, Achieving global leadership in renewable energies

² Eurostat 2018, Share of renewable energy in gross final energy consumption, 2004 -2016 [nrg_ind_335a]



In summary, the most important substantive requirements imposed by the directive on the member states as regards the expansion of investment in renewable energy generation capacities are as follows:

Further expansion of the shares of renewable energy in the production of electricity and strengthening of household self-consumption

The goal will be to increase the share of electricity from renewable sources on the European average from the current rate of approx. 29.6 %³ to 50% by 2030. Due to steep falls in prices we have observed in photovoltaics (of up to 80% since 2009) and wind power, renewables already currently account for over 85% of investments in the European electricity production sector. The goal of the new directive is to further ensure high investment stability and transparency to investors and, at the same time, enable access to a more market-based incentive system. The feed-in priority for electricity from renewables should be abolished where reasonable; however, this should not present any new hurdles due to the low marginal cost of power at least in the case of wind turbines and PV power plants.

In addition, household self-consumption will be exempted from fees and charges (probably from 2026) in the case of small-scale installations of up to 30kWp. This is an important signal of the integration of photovoltaics as a technology for decentralised energy supply because, e.g. in Germany, installations exceeding the minimum capacity of 10 kWp are currently required to pay the EEG surcharge at the rate of 40%. In this respect, this minimum capacity threshold thus has to be increased. But the directive goes on to mandate even more: it requires member states which nonetheless intend to charge prosumers with fees

to first evidence that exempting this group of consumers from charges would have a negative impact on the general system. It also provides for the elimination of double taxation as regards stored electricity, which finally enables establishing business models involving the multiple use of storage systems for peak shaving, system service, pooling for balancing energy.

According to the latest information, the current draft of the directive should also enable peer-to-peer electricity trading between citizens without any bureaucratic and financial hurdles. In this way, decentralised suppliers, such as citizen cooperatives, should be strengthened and incentivised. This encourages the expansion of blockchain-based systems, as e.g. the pilot project by utility company Stadtwerke Wuppertal (Tal.Mark) has already shown. Because this would have a highly „disruptive“ impact on the existing electricity trading system, it remains to be seen which country will be brave enough to adjust its regulatory framework to include these business models.

Revolutionising the heating and cooling sector using renewable energy

The EU member states will be required to increase the share of renewable energy in the supply of heating and cooling energy by 1.3 percentage points a year. In doing so, they will be also required to create appropriate incentive systems. Assuming the low rate of penetration of renewable heating in this sector so far, e.g. in the heating systems in Germany where this rate is currently approx. 7%⁴ (excluding the share of renewable energy in waste recycling), this means that the installed capacity will more than double by 2030. According to Rödl & Partner's estimates for the entire European Union, the additional volume of investment in heating and cooling renewable energy generation facilities will be approx. EUR 36 billion a year (Illustration 2).

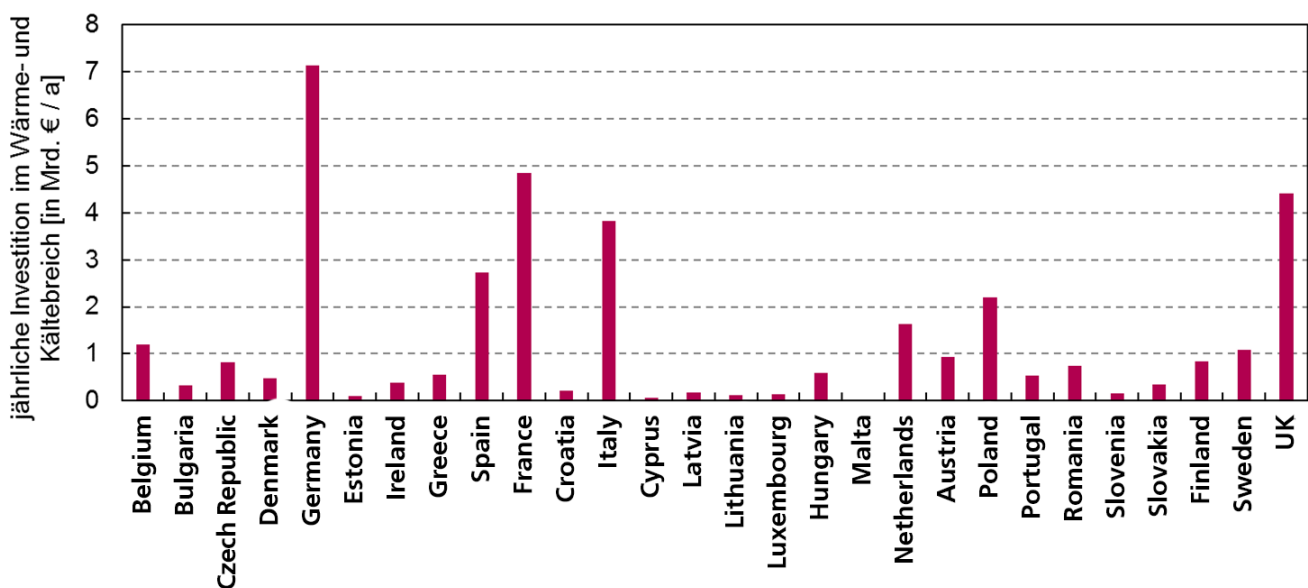


Illustration 2: Extrapolation of the additional annual investment volume in the European countries in the area of generating heating and cooling energy from renewable sources based on the path of expansion at the rate of 1.3% (Rödl & Partner)⁵

³ Eurostat 2018, Share of renewable energy in total gross energy consumption of the EU28

⁴ BDEW, 2017, Strategic paper „Zukunft Wärmenetzsysteme“ [„The future of heating systems“]

⁵ based on final energy data by Eurostat, 2018, Simplified energy balances - annual data [nrg_100a]



The new guidelines for the member states regarding further development of the district heating sector are dealt with in Article 24. The article originally read that independent producers of heating or waste heat from renewable resources should be allowed the rights of access to local district heating systems. Network operators should off-take heating energy produced by third parties and even enable third parties to directly supply the customers. This regulation, however, was significantly relaxed in the latest version of the draft. In addition to this partial „unbundling“ in district heating, the current draft also envisages the option of directly obligating district heating suppliers to increase the share of renewables by 1% a year. Furthermore, a range of exceptions has been defined, such as capacity limitations, requirements regarding the technical parameters of heating or cost related aspects, which in practice significantly hinders access for third parties.

Moreover, consumer rights have been strengthened and options of terminating contracts of supply created. District heating or cooling suppliers will be obliged to provide end consumers with information about the share of renewables and the performance of their system and to ensure that consumers have the opportunity to generate electricity for self-consumption from renewable sources in a more efficient way.

Decarbonisation of the transport sector and transitioning to synthetic fuels

In transport, the new directive prescribes fixed shares for renewable fuels, especially synthetic and biofuels, and the use of renewable electricity. According to the directive, the share should increase to 14% in 2030, whereas the share of first generation biofuels in this may be no more than 7%. This should lower the use of agricultural land and impede the consequences of land-use change. Advanced second generation biofuels, such as e.g. synthetic natural gas (SNG) or Fischer-Tropsch fuels, may have a share of at least 3.5 percentage points in that. In this respect, a strong expansion in incentives to pilot and demo installations and first commercial installations should be expected in the years ahead. Also due to the above-mentioned amendments to the directive, the flexible coupling of those installations with the power sector and the use of waste heat released in exothermic reactions for heating systems can lead to special cost advantages and positively influence investment decisions.

Strengthening the sustainability criteria

The reorganisation of the system of guarantees of origin which certify the green quality of eco electricity products is another issue addressed by the directive. Here, it was debatable whether and how the system of guarantees of origin should be expanded to cover state-funded electricity volumes in the whole EU. So far, this has been applied only in some countries. In Germany, however, such guarantees (or certificates) are only issued for renewable power plants that do not receive financial support

in form of the EEG compensation for the generated electricity. The negotiated compromise on the directive's Article 19, which regulates this issue, currently provides that guarantees of origin should be basically introduced for the entire renewable energy sector – i.e. also for volumes regulated by the EEG. These guarantees, however, should not be auctioned to third parties as the EC originally envisaged. In addition, according to the compromise text, the member states should be free to decide whether they allow issuing guarantees of origin also for energy volumes which already receive financial support such as that under the EEG. Overall, the guarantees of origin offer another, probably significant source of income for investors investing in renewable power plants.

Conclusion:

The bold EU-level guidelines address many of the current challenges facing the decarbonisation of the power sector. The achievement of the set targets partially requires a massive reform of the member states' systems, far beyond the current commitment. For investors and companies from the renewable energy sector, this means further that they should continue to attentively observe the regulatory framework and the situation around incentive programmes offered in the individual countries. Investment opportunities seem to abound: whether in deep geothermal energy, synthetic fuels, business models using the combination of photovoltaics and storage systems in the segment of small-scale installations or renewable energy in the heating/cooling segment – in all of those areas state-of-the-art technologies are already present and they only wait for investors or an enabling regulatory framework.

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Around the world

> Eastern Africa – a region with good opportunities for german companies

By Matthias Klarl

For some months, Eastern Africa has been sending positive signals again, especially through the person of the new Ethiopian Prime Minister, who, elected in April 2018, has vowed to resolve internal conflicts and deepen Ethiopia's relations with the neighbouring countries. Even in the earlier years, Eastern Africa had achieved strong growth, mostly due to large-scale infrastructure projects intended to sustainably strengthen the region's economic growth. In terms of renewable energy, the region around Ethiopia is particularly attractive, which is confirmed by the presence of wind, solar and geothermal projects currently implemented by international market players.

The most recent efforts of the new Ethiopian Prime Minister, Dr. Abiy, and his numerous visits to the neighbouring countries since his inauguration in April 2018, add new impetus to the development of Eastern Africa. Large-scale infrastructure projects and regional integration lay a foundation for long-term growth. In this and in the next issues of „E|nEws“, we want to paint a more detailed picture of some countries from the region and present possible areas of activities for German companies from the renewable energy sector. With its high growth rates and a large population, Ethiopia is the perfect springboard for that and is tipped as the main hope for Eastern Africa.

Ethiopia – Overview

With a population of approx. 105 million, Ethiopia is one of the most populous countries in Eastern Africa.¹ Although the Ethiopian GDP significantly increased between 2008 (USD 26.8 billion) and 2017 (USD 80.9 billion), Ethiopia remains one of the poorest countries in the world, with a per capita income of approx. USD 2,100 (2017).^{2,3} Nonetheless, Ethiopia has emerged as the fastest growing economy in Eastern Africa: Ethiopia's economy experienced growth averaging 10.3% a year from 2005/06 to 2015/16, compared to a rather moderate regional average of 5.4%.⁴ The Ethiopian favourable economic growth is primarily driven by large-scale infrastructure projects, e.g. the construction of new roads and a train connection to the Port of Djibouti, which intensify trade in the region.

As for the country's culture, Ethiopia is home to diverse religions and over 80 ethnic groups. The social inequality between the ethnic groups led to brutal conflicts in the past. These have been however largely resolved since the election of Prime Minister Dr. Abiy in April 2018. Meanwhile, high hopes are placed on the new Prime Minister, who has already announced numerous reforms.

The need for action is enormous: in addition to the task of resolving ethnic conflicts or ending the border conflict with Eritrea, there are also economic challenges to overcome. Dr. Abiy has announced, among other things, that state monopolies will be privatised and market access will be facilitated to international investors. Despite the positive growth rates, further structural reforms and FDIs are still absolutely necessary to secure the country's economic success and reduce poverty and famines in the long term.⁵

The electricity market in Ethiopia and the role of renewable energy sources

At about 89%, most of Ethiopia's electricity consumption is covered by hydropower (2017: 3,814 GW). Wind power (2017: 324 MW) and biomass (2017: 142 MW), however, play a much less important role in the energy mix. Solar and geothermal energy currently have only a subordinate role (2017: 21 MW in total).⁶

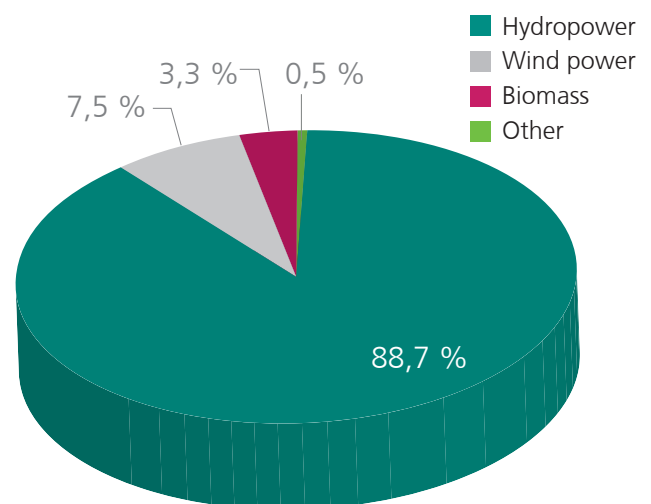


Illustration 1: Installed capacity in Ethiopia by technology (2017), in MW

¹ <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

² <https://de.statista.com/statistik/daten/studie/331929/umfrage/bruttoinlandsprodukt-bip-by-aethiopien/>

³ <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

⁴ <http://www.worldbank.org/en/country/ethiopia/overview>

⁵ AfDB, East Africa Economic Outlook, 2018

⁶ <http://resourceirena.irena.org/gateway/dashboard/?topic=4&subTopic=16>



Nonetheless, Ethiopia is setting itself ambitious goals in renewable energy in a bid to further stimulate the economy. By this, the country aims to fight poverty and reach a lower-middle-income status by 2025. Ethiopia's electrification rate is only 24 %, with only 10 % in rural areas.⁷ The aim is to not just to establish a nationwide electricity supply system, but also to cover the entire supply from renewable energy sources. The construction of Africa's largest gravity dam, the Grand Ethiopian Renaissance Dam (6,450 MW), is aimed at further expanding hydro power. By this, Ethiopia not only wants to cover all of the country's demand for electricity from renewable energy sources but also use excess electricity for export. The large hydropower potential also means unparalleled favourable tariffs for the country's domestic industry.

Because, due to its geographical location, Ethiopia is often plagued by draughts, which negatively affect the generation of electricity from hydropower, Ethiopia currently bets more and more on alternative generation technologies, in addition to hydropower. The focus is on wind, solar and geothermal energy. This aims to reduce seasonal power fluctuations and increase the stability of power supply. Already three wind farms have been installed in Ethiopia: Adama (34 WTGs), Adama II (102 WTGs) and Ashegoda (84 WTGs) with a total nominal capacity of 324 MW.⁸

The country plans to install further wind farms, such as e.g. the 120-MW Ayisha wind farm. Ethiopia intends to expand the wind power capacity to 1,224 MW by 2020. As for solar energy, which is the most abundant resource, mostly small-scale yet very successful projects have been implemented so far, such as e.g. the quickly progressing electrification of small villages.⁹ But also in this area first large-scale projects such as the 100-MW solar farm Metehara are being planned. Thanks to its location in the East African Rift, Ethiopia has particularly good conditions for geothermal energy. In late 2017, Ethiopian Electric Power (EEP) thus signed first power purchase agreements for a total capacity of 1,000 MW: for the project in Corbetti and for the Tulu-Moye project, each of which has an estimated capacity of 500 MW.¹⁰



Illustration 3: Eng. Azeb Asnake, CEO of Ethiopian Electric Power, and Luka Buljan, Managing Director of Berkeley Energy, in December 2017 during signing the PPA for the geothermal project Corbetti in Ethiopia. (Source: InfraCo Africa)



Illustration 2: Wind farm Adama I + II (photo: Matthias Klarl)

Further projects are being currently developed, financed e.g. under the „Geothermal Risk Mitigation Programme“ (GRMF) (<http://www.grmf-eastafrika.org/>), on whose implementation Rödl & Partner has advised the African Union already for years and thus gained valuable experience of the Eastern African energy market.

⁷ <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

⁸ https://www.thewindpower.net/windfarms_list_de.php

⁹ <http://www.sonnenseite.com/de/zukunft/solarstrom-fuer-aethiopien.html>

¹⁰ <https://renewablesnow.com/news/ethiopia-signs-ppas-for-1-gw-of-geothermal-power-595425/>

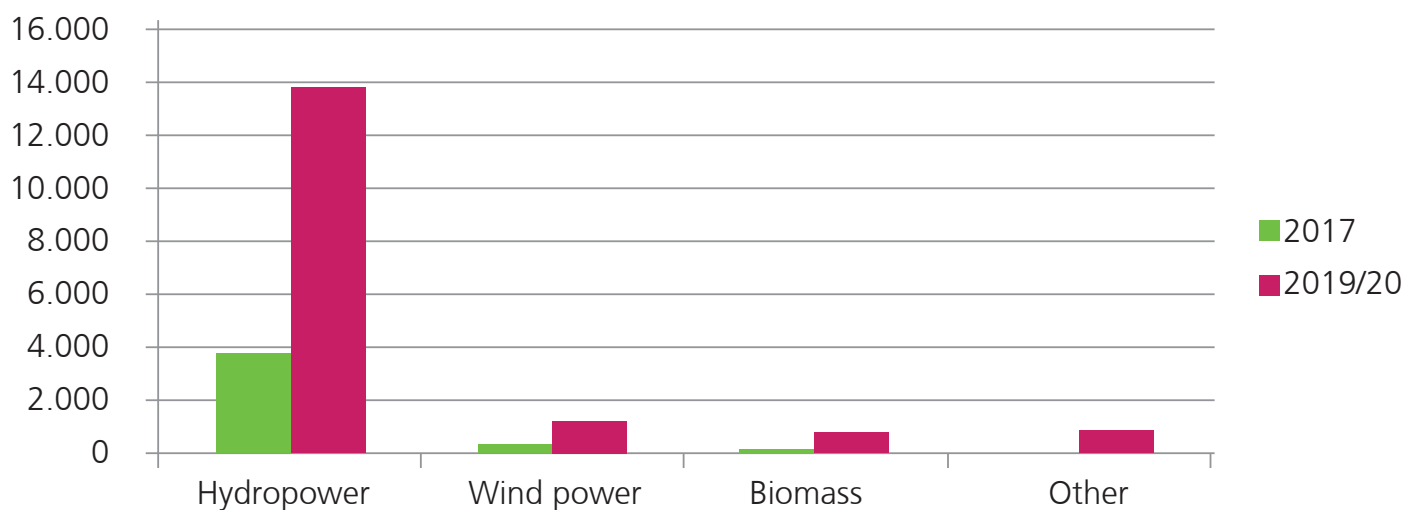


Illustration 4: Planned installed capacity by 2020, in MW

Illustration 2 shows planned expansion of the installed capacity in line with the Ethiopian government's „Growth and Transformation Plan II“. Between 2017 and 2020, the following capacity additions for the individual technologies are envisaged in the plan:

- > Hydropower: + 10,003 MW
- > Wind power: + 900 MW
- > Bioenergy: + 639 MW
- > Geothermal energy: + 570 MW
- > Solar power: + 286 MW

The Ethiopian government intends to use various funding instruments in order to reach these targets, e.g. investors will be attracted with tenders, tax facilitations or exemptions from import customs duties.¹¹

Further market monitoring and initiation of first local contacts are recommended

Despite the social and administrative challenges in Ethiopia, it is worth continuing to monitor the local developments and making the first contacts with prospective business partners. The construction of motorways and railway networks or of Sub-Saharan Africa's first light-rail network opened in Ethiopia's Addis Abeba and built and financed by Chinese investors confirm the will of the international community to continue to develop the Eastern

African region. The constant opening of the economy to foreign investors, the plans of the government to cover 100% of demand for electricity from renewable sources, and the first PPAs signed with private-sector project developers indicate further growth potential which also German companies should not ignore.

If you are interested in more information about the local market or wish to use Rödl & Partner's assistance in the search for local business partners, we have a project office and a local cooperation partner directly in Addis Abeba who will be happy to help.

In the next issue of E|nEws's series about Eastern Africa we will write about Tanzania and Djibouti.

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¹¹ <http://global-climatescope.org/en/policies/#/?country=ET>



News on international renewable energy incentive programmes

> Regional Liquidity Support Facility (RLSF)

The Regional Liquidity Support Facility is a liquidity facility governed by the African Trade Insurance Agency (ATI) and supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) with approximately 33 million Euro. Payment obligations of electricity utilities subject to PPA contracts are being hedged for a duration by up to six months.

For a successful application the following criteria must be fulfilled:

- > Location of the project within the ATI member countries or other third party countries if ATI can conclude agreements with the government accordingly
- > Project size up to 50 MW (in exceptional cases up to 100 MW)
- > Supported technologies: PV, Hydropower, Onshore Wind, Geothermal plants, Biomass or CHP
- > Support of the project by the government and the (usually state-owned) electricity purchaser

The RLSF is comprised of two components:

- > Cash funds being disbursed directly to IPPs once the guarantee is being drawn. For this purpose, the BMZ has allocated approximately 31 million Euro of funding.
- > An additional guarantee in the amount of the cash funds provided by the ATI in the case of cash funds running out

> Scaling Solar Zambia – Second project ready for implementation

The second PV project as part of the Scaling Solar Programme has secured financing. The financial package consists of:

- > A Loan amounting to 11.75 million USD of the European Investment Bank (EIB)
- > Senior Loan amounting to 10 million USD of the International Financing Corporation (IFC) – Part of the World Bank Group
- > Concessional loan amounting to 12 million USD provided by the IFC-Canada Climate Change Program

The project with a performance of approximately 34 kWp realized by Enel has achieved a FiT of 7,5 USDcent/kWh in the first Scaling Solar tender round.

With RENEREX Rödl & Partner provides project developers /vendors as well as investors with a platform for the secure exchange of project information. Alongside its main function as a matchmaking platform between project developer/vendor and investor, on RENEREX users may benefit from a broad database of funding and financing programmes. Without being bound to the location of already published projects, users may retrieve useful support programmes filtered by region and technology. Register for free at: <https://www.renerex.com>

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> International Climate Initiative (IKI) – country-specific selection procedure opened

The support programme of the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) draw a line between thematic and country specific selection programmes. The current procedure as part of the international climate protection initiative includes country-specific projects only and is targeting applications from the following countries:

- > Columbia
- > Mexico
- > Philippines

In the case of Mexico and the Philippines, funding is foreseen to be granted for one bilateral project for each country with a volume between 25-30 and 30-35 million Euro respectively. In Columbia, two bilateral projects are supposed to be funded with a volume between 15 and 20 million Euro each. The projects have to be executed with more than two organizations with a strong share of national partners that need to receive a minimum of 50 percent of the programme's resources. The funding is being distributed as grants, a maximum quota has not been set. However, an appropriate own share of the applicants has to be proved. Additionally, if possible other support programmes should be acquired as well.

The proposed projects may include technical consulting services and/or investments following and supporting the target of fulfilling the NDC (Nationally Determined Contributions) and NBSAP (National Biodiversity Strategies and Action Plans) with due regard to the respective SDGs (Sustainable Development Goals).

The application procedure is following a two-step process. Project outlines can be submitted on the IKI-Online platform until September 27th, 2018. Positively evaluated projects will be admitted to the second step for which the submission of the applications is required.

The range of admissible applicants has been determined widely and includes applicants on a national and international scale:

- > Enterprises
- > Universities and research facilities and institutions headed in partnering countries (including accredited national implementation organizations at international and national organizations)
- > International and multilateral organizations and facilities such as development banks, organizations and programmes of the United Nations
- > German Federal implementation organizations
- > Non-Governmental Organizations (NGO's)

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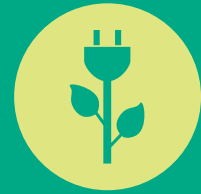


8. BRANCH MEETING

RENEWABLE ENERGIES

14th NOVEMBER 2018

in Nuremberg



We hereby invite you to be part of our yearly Branch Meeting, on the 14th, November 2018. We will provide you with the latest legal, economic and tax information for renewable energy projects from a national and international point of view.

- › Over 30 presentations from 15 countries and over 35 speakers
- › Keynote: Christian Baudis (Digital entrepreneur and ex Google-Germany CEO)
- › Free of charge: successful Corporate PPA
- › Update Matchmaking platform Renorex
- › And much more

www.roedl.de/ee-bt

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Visit our website: www.roedl.de/ee.

Recognising potentials

“At times you recognise something’s quality only if you open your eyes consciously. Identifying potential is one of our core competences.”

Rödl & Partner

“Experienced ‘Casteller’ realise pretty soon if it is worth to pursue the idea of a new formation.”

Castellers de Barcelona



“Each and every person counts” – to the Castellers and to us.

Human towers symbolise in a unique way the Rödl & Partner corporate culture. They personify our philosophy of solidarity, balance, courage and team spirit. They stand for the growth that is based on own resources, the growth which has made Rödl & Partner the company we are today.

“Força, Equilibri, Valor i Seny” (strength, equilibrium, valour and common sense) is the Catalan motto of all Castellers, describing their fundamental values very accurately. It is to our liking and also reflects our mentality. Therefore Rödl & Partner embarked on a collaborative journey with the representatives of this long-standing tradition of human towers – Castellers de Barcelona – in May 2011. The association from Barcelona stands, among many other things, for this intangible cultural heritage.

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