



Corporate PPAs Europe

Your Monthly
Bulletin

Brochure

We will provide you with Corporate PPA Intelligence

Wouldn't it be nice having the latest developments in the fast changing European Corporate PPA markets at your fingertips? Maycroft is now launching our new Corporate PPAs Europe Monthly Bulletin. A magazine that will provide you key insights on the latest trends and events in Corporate PPAs across Europe.

The European electricity markets are changing fast as most countries are moving to market based arrangements for the production of renewable energy. This together with the increasing electricity and CO2 market prices and the decreased costs of producing wind and solar energy builds the case for a growth acceleration of renewable Corporate PPAs. However, across Europe Renewable PPA markets are in different phases of development, each country with their own barriers and opportunities.

One month at a time we will give you an edge on how the renewable sourcing of electricity is changing and how that creates opportunities to be seized and risks to be managed. Benefit from our proven, unique and extensive power business intelligence with regards to the global Renewable Corporate PPA best practices.

We will explore the key management issues, such as:

- The best practices in structuring Corporate PPAs from around the world;
- The latest news about renewable regulations and support schemes;
- The different PPA structures and its pros and cons;
- Insider knowledge about the PPA market opportunities in each European country;
- Tips and tricks of how to negotiate a successful PPA;
- In depth impact analysis of the latest developments and trends;
- Practical cases of Corporate PPA structures.

The Different Categories in the Bulletin

In each issue you will find articles under at least the following categories

- New Developments
- Best Practices
- Country Profile
- Risk Management

Our Special Offer

Subscribe now and profit from our special offer!

You will get the January and February issue for free and only pay € 495 for the 2019 subscription.

If after the first 2 free issues you are not satisfied we will refund the fee.

Subscribing is easy, simply drop email at: contact@maycroft.com and we will take care if the rest.

Looking forward welcoming you as a member of our Corporate PPA community.

I am Kasper Walet, editor in chief of the Corporate PPA Europe Bulletin

Kasper Walet

The unstoppable Renewable Corporate PPA Markets in Europe

Examples from Germany and Italy

Up to now the bulk of the Renewable Corporate PPAs were signed in the Scandinavian countries, the UK and the Netherlands. But the unstoppable trend is that PPAs are spreading all over Europe as more and more markets, such as Spain and Poland are open to sign PPAs. In countries like Italy and Germany the potential is certainly there, but the regulatory environment is not fully cooperative yet.

Nevertheless we have just seen proof of some early adapters signing new renewable corporate PPAs in Germany and Italy.

In Italy the market is desperately waiting for the new Renewable Law which publication is already expected since the Italian government came with their Energy Plan by the end of 2017. Since then the new Law was delayed several times due to a change of government and new stricter renewable target requirements by the EU.

This week U.K. renewable investment firm Octopus signed another private PPA in Italy, this time with EGO Group for 63 MW of unsubsidized solar PV projects. Meanwhile, Canadian Solar Inc. has signed a 10-year PPA with TrailStone GmbH for the energy generated from a 17 MW project in Sicily.

Octopus renewed its existing two-year PPA with Italian renewable energy trader EGO Group for a further five years. Under this new PPA Octopus will continue supplying the buyer with the generated electricity from five operational, unsubsidized PV sites totaling 68 MW. The electricity will be provided at a fixed contracted price valid until September 2023 for both energy and Guarantees of Origin, for which contracts were also signed. The five sites are located near Montalto di Castro in the Lazio region of Italy and were part of a €23m refinancing by Octopus earlier this year in January. Overall, EGO has contracted 103 MW of Octopus' 173 MW Italian PV portfolio.

A week before Octopus signed a similar five year deal with Shell Energy Europe, for 70.5 MW of solar PV energy. The agreement covers the energy from six of 10 unsubsidized solar projects the investment firm is currently building in Italy and expects to complete in early 2019. Energy from these projects will be sold at a fixed price under the PPA, and Octopus will again supply Guarantees of Origin for the energy sold.

NEW DEVELOPMENTS

In related news, Canadian Solar has signed a 10-year PPA with TrailStone GmbH for the electricity produced by a 17.6 MWp solar PV plant portfolio in Sicily. It is jointly owned by the Canadian-Chinese solar company (51%) and Manni Energy (49%), a renewable energy company devoted to engineering, O&M services, and energy efficiency and part of Manni Group, which will also provide turnkey EPC services for the project.

This PPA will cover 100% of the electricity generated and is believed to be the longest-term PPA for a fully unsubsidized solar PV portfolio signed to date in Italy. The PPA pricing scheme is based on a fixed price floor and contains an upside-sharing mechanism as well. As part of the agreement, TrailStone will also act as market representative for the portfolio on the Italian wholesale market.

In Germany there was hardly any interest to sign PPAs as the EEG guaranteed the wind farm operators a fixed subsidized rate for the electricity. But that is definitely going to change with the end of the EEG subsidy starting in 2021, when for the first 20 year old wind and solar installations the subsidy payments will expire.

From 1 January 2021, the EEG subsidy will run out for about 6000 German wind power plants. In total, this corresponds to an installed capacity of 4.5 GW. Starting in 2022, further plants will drop from the EEG remuneration each year. Based on today's data, this could affect about 1600 wind power plants annually with a total installed capacity of about 2.5 gigawatts between 2022 and 2026.

With no subsidy anymore but still with good operational conditions the owners of these plants would like to receive a good revenue and hedge against fluctuating market prices by entering into PPAs. Offering good opportunities for corporates to source green electricity via the same PPA.

Mercedes Benz, that already was the first European car manufacturer to sign a PPA earlier this year in Poland, is the first corporate that signed a PPA in this case with Norwegian energy provider Statkraft to purchase wind energy from six community-owned wind farms in Germany with a total capacity of 46 MW. The power will be used to supply several Mercedes-Benz plants across Germany.

The wind farms, which were built between 1999 and 2001, are currently receiving feed-in tariff payments from the German government but those payments are set to expire in 2020 and 2021, after which Mercedes-Benz will begin its contract for the wind energy. In doing so, Mercedes-Benz Cars said that it is ensuring the economical operation of existing wind farms, which can continue to contribute to Germany's climate goals.

According to the contract between Mercedes and Statkraft, the power supplied by the wind farms will be integrated into the existing supply contract by Enovos Energie Deutschland GmbH. Enovos primarily ensures the accounting, grid use, and the integration of the green power supply into the energy portfolio of Mercedes-Benz plants.

NEW DEVELOPMENTS

Conclusion

There is no doubt that the PPA market is going to blossom all over Europe, so now is the time to prepare, educate your people and be ready for exciting opportunities for both project developers and corporate buyers.

What if Corporate buyers are not too big to fail?

In 2018 Norwegian aluminum company Norsk Hydro signed a 29-year wind PPA with Green Investment Group, a subsidiary of Macquarie for a new 235 MW onshore wind farm in Sweden. The contract is believed to be the world's longest corporate wind power PPA. The deal came a year after Macquarie and Norsk Hydro signed a 19 year PPA for the 650 MW Markbygden onshore wind farm, Europe's largest onshore wind project.

So this might look like 2 deals made in heaven for both GIG and Norsk Hydro. Norsk Hydro has now purchased 100% of its Norwegian primary aluminum power needs from renewable sources. What both parties probably did not foresee was the possible threat coming from a flawed relationship between Norsk Hydro and the Brazilian government.

How is it possible that a situation in Brazil could almost kill a PPA for Norway?

The dispute is between Norsk Hydro and the Brazilian government about Alunorte, the world's biggest refinery for alumina, a white powdery metal that is key to making aluminum. Earlier this year, Brazilian environmental regulators ordered Norsk Hydro to cut production at Alunorte by 50 percent, following accusations that it had contaminated local drinking water. Causing problems for securing supplies of alumina for their aluminum plants in Norway.

As a result Norsk Hydro announced early October 2018 that they might be forced to temporarily shut down all their plants in Norway, as other market supplies of alumina were very limited. Although it was a close call, it did not happen. Just a few days after this announcement Norsk Hydro reached an agreement with the Brazilian government and they could resume 50% of their capacity at the Alunorte refinery.

But what was once again highlighted by this event is that by signing a corporate PPA the counterparty risk for the project developer is very high. Whether it is Google, Facebook or Ikea, 19 or even 29 years is a very long time to make a proper assessment of the future financial status of the corporate buyer. Over that period a lot can happen that could bankrupt the company. In the end no company is too big too fail.

So a proper risk assessment should be made by using worst scenarios, such as an economic crisis in China or if an alternative for aluminum would be found, to understand the impact of such a negative event on the underlying fundamentals of the PPA.

Now let's assume that as a result of the Brazilian affair, Norsk was actually forced to temporarily shut down all its Norwegian aluminum plants. If you know that Norsk Hydro's energy consumption of 15.5 TWh is approximately 12 percent of Norway's electricity usage, you can imagine the impact the event would have on the Scandinavian power markets and for the rest of Europe.

RISK MANAGEMENT

If the price of the PPA is benchmarked against the NordPool Index price the revenues for the project owner would probably go way below the so-called levelized costs of the wind farms required to recoup at least all investment costs. That is the reason why in several PPAs there is a floor price or put option being built in to ensure minimum revenues to the project owner. In return the project owner will guarantee to the buyer that they will never pay more than a pre agreed cap, for instance 90% of the Index price.

Also if Norsk Hydro would demand the seller to curtail the production as they do need the electricity for their plants, the question would be who is going to pay for the damage to the project owner? The produced electricity could of course still be sold on the NordPool Day Ahead Market, but at a much lower rate.

There are several possible solutions: this curtailment risk is borne by the buyer, in this case Norsk Hydro, or there is some kind of risk sharing arrangement or all the risk will be on the project owner as it could be considered as a regular business risk.

The bottom line of this almost true case is that the seller under the PPA should have a clear understanding of the corporate buyers' business, the future outlook and the potential threats.

Only by proper risk management these uncertain events could prevent a project from going down.

COUNTRY PROFILE

France redesigns its energy market a boost for Renewable Corporate PPAs

President Macron's government has changed the French energy landscape that was dominated by nuclear power for decades. Through the new Energy Transaction Act the market is now wide open for the penetration of renewables into the energy mix.

In 2016 the French government started to replace the FiT system for a market based Contract of Difference Model. A model quite similar to that in Germany, whereby the developer will be paid the difference between the wholesale price and the cost of generation from renewable sources. The government has also introduced a competitive tendering process for all future renewable capacity.

That change in practice is not that easy, is clearly shown by the French government postponing the 2025 deadline of a 50% share of nuclear power in the energy mix, down from the current 75%. This after grid operator RTE warned that without a massive increase in renewables the country risked power shortages. The growth of renewables was significantly slowed down by long-running opposition from activists. It can take over 8-10 years to get French wind farm projects up and running because of systematic legal objections by opponents whereas in Germany, Europe's biggest wind power producer, it can be as short as 3 years. Recently the French government announced measures to get rid of these red tape hurdles.

The rise of Renewable Corporate PPA in France

The size of nuclear power in the French electric mix has always provided a stable power price over the past decades, but now this is going to change. Renewable Corporate PPAs may become a substitution to this safety-net, as the changes in the energy mix will be associated with price unpredictability, especially during the initial phase.

The PPA segment is now attracting the interest of wind and solar industry. The latest private sector tenders confirm the attractiveness and potential of the French market for renewable corporate PPA's, and renewable energy investments in general.

Among the first movers are two big energy consumers – the Airport of Paris and state-owned railway company, SNCF – which have decided to consider bids from renewable energy producers and use a Corporate PPA model to meet part of their huge energy demands.

Recently a PPA was signed by French renewable energy company, Akuo Energy and French internet company, Qwant.

Corporate PPAs will be able to offer the stable electricity prices currently being granted by nuclear power, over the next few years.

COUNTRY PROFILE

Interesting business opportunities for Aggregators to support French renewable producers

Since the introduction of the "complément de rémunération", the French Feed-In Premium scheme for renewable energies in 2016, producers must choose how to sell their energy on the wholesale market. Aggregators, both French and foreign companies are now offering a safe and simple market access solution to the wind and solar producers to help them sell their production at the best price and mitigate balancing risk.

For many renewable producers it will make financial sense to delegate the risk management to aggregators that work full time on balancing, forecasting and counterbalancing mix and production variations to spread risk.

Proxy Generation PPA

An innovative way to mitigate Buyer's Operational Risks

I recently read some interesting information about an innovative PPA contract structure ; the Proxy Generation PPA. In this post I will give you an understanding of what it could do for you.

Under the traditional Corporate PPAs buyers will be able to manage the fuel risk(weather) and the price risk via the market (banks, traders) or (re-)insurance companies. The only risk that is out of their control - as it remains in the hands of the wind or solar farm operators- is the Operational Risk.

What is considered as Operational Risks for the corporate buyer?

The buyers have little or no impact at all on what turbines are purchased by the project company, how they are maintained or upgraded, or what terms and conditions are negotiated into warranties and services agreements, etc. Although the buyers cannot influence this, in general they bear the financial impacts and risks of those decisions. In contrast to for instance mitigating price risk, there is no party in the market that is willing to take up that risk.

To avoid having to accept a risk that is out of their control, buyers have attempted to push some of this operational risk back onto the seller while negotiating a PPA. Keep in mind that both sellers and buyers have different interests . The sellers want to have operational flexibility and the buyers want to both maximize generation during periods of high power prices and increase certainty in the amount of power they are expecting to buy. Dealing with this relative straight forward issue became really complex and lengthy with various covenants, exceptions and exclusions necessary to govern this competing dynamics between the seller and the corporate buyer.

Today PPAs usually have robust provisions measuring the actual mechanical availability of the project as compared to a pre-agreed required availability. These provisions are designed to ensure that the project is able to produce electricity during productive weather conditions. However, the availability guarantee is full with negotiated exceptions including, for example:

PPA BEST PRACTICES

- Curtailments by the TSO;
- Periods when the wholesale prices drop below a pre-set floor;
- Substation failure;
- Serial defect of equipment;
- Curtailments required to protect environmentally endangered or threatened species

As a result, the availability guarantee language in today's PPA contracts is often highly bespoke, limited in the protection it offers buyers and difficult to enforce.

The Proxy Generation PPA

The Proxy Generation PPA as advocated and co-developed by Microsoft represents a conscious evolution of the Corporate PPA. That evolution is first towards simplicity, a goal that is also preached by organizations like RE-Source and EFET of which the latter tries to develop a standard PPA contract similar like the one they have developed for instance for electricity and gas trading. By replacing the Corporate PPA's as-generated energy construct and operational covenants with a single Proxy Generation calculation based on weather conditions and the EOE, the Proxy Generation PPA removes the back and forth negotiation over operational covenants and the need to police those covenants.

The Proxy Generation PPA is, in many ways, a fundamental rethinking of what constitutes a PPA. The PPA is a construct that is calculated based on the actual generation of a project, as measured by the project's electrical meter. The Proxy Generation PPA, by contrast, reorients the PPA towards settlement measuring the expected generation of the project given a specific volume of fuel (e.g. the wind speed at each turbine) as measured by the project's operational and meteorological measurement equipment.

The calculation

For a wind farm, Proxy Generation calculates this expected generation quantity profile as a function of:

1. Measured weather conditions at each individual turbine;
2. The turbines' expected fuel-to-power conversion efficiency (also known as the "power curve") and
3. The project's Expected Operational Efficiency ("EOE").

PPA BEST PRACTICES

In short—by calculating the settlement of a Proxy Generation PPA based on the measured input (fuel) as opposed to the measured output (energy) the Proxy Generation PPA buyer avoids taking on exposure to the project's Operational Risk.

The Operational Risk is captured by the EOE which, as a single number, replaces the labyrinth of operational covenants and their exceptions that have become standard in traditional Corporate PPAs. Prior to signing the Proxy Generation PPA, the seller determines and commits to the EOE. Once operational, if the project out-performs its EOE, that outcome is to the seller's benefit. If the project under-performs its EOE, that outcome is to its detriment. The Corporate buyer has no risk—neither upside nor downside— to the project's operational performance, as intended.

Given that Proxy Generation is a calculation of idealized production rather than actual generation, prior to entering into a Proxy Generation PPA, the corporate buyer and the project will need to agree upon a third party with the required expertise to provide the Proxy Generation calculation service. The independent calculation agent, then, becomes a crucial third party to the Proxy Generation PPA.

But just like to world famous Dutch oracle Johan Cruyff already said: “each advantage has its disadvantage”. The downside to adding a third party to the traditional Corporate PPA process in order to settle on Proxy Generation is cost. Calculation of Proxy Generation as a service typically costs 0.5% of contract value and requires a new contract—a Calculation Services Agreement— to be entered into between the seller and the off taker.

Conclusion

While keeping intact most of the Corporate PPA architecture that has been successfully utilized to contract for corporate renewable energy transactions so far, the Proxy Generation PPA represents a conscious evolution of the Corporate PPA.

That evolution is first towards simplicity. By replacing the traditional Corporate PPA's settlements based on as-generated energy and complex and lengthy operational covenants with a single Proxy Generation calculation based on weather conditions and the EOE, the Proxy Generation PPA removes the back and forth negotiation over operational covenants and the need to police those covenants.

PPA BEST PRACTICES

That evolution is also towards the complementary goals of aligning green power buyers and sellers' interests in the operation of projects and empowering corporate buyers to fully utilize the latest risk management tools available in the insurance and commodity markets. The Proxy Generation reverses the traditional utility PPA assumption of bluntly pushing Core Risks onto the buyer.

In summary we can say that by re-allocating the Operational Risk via the Proxy Generation PPA achieves three goals will be achieved:

1. A simplified contracting process, allowing the Proxy Generation PPA to be stripped of complex and difficult-to-enforce contractual provisions around mechanical availability, turbine selection or limitations on maintenance outages;
2. Aligning interests between the project and the Corporate buyer;
3. Empowering the corporate buyer to pursue hedging strategies—if and as it deems necessary—to mitigate Fuel Risk and Price Risk, each of which can separately be hedged through contracts with insurance and commodity market participants, respectively.