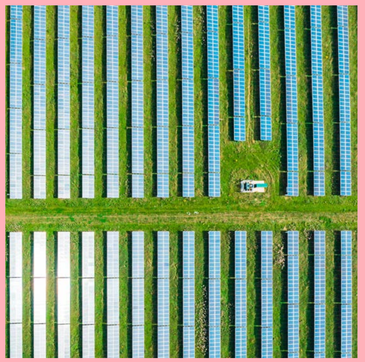
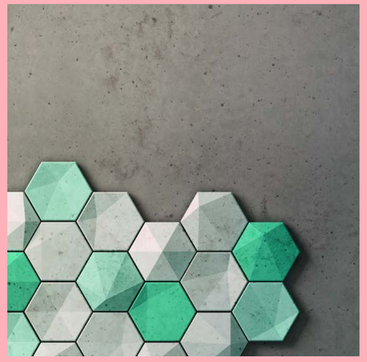
Bird & Bird

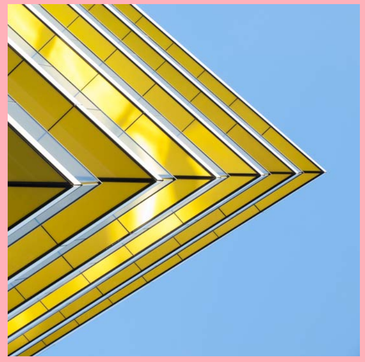
Corporate PPAs – *An international perspective*

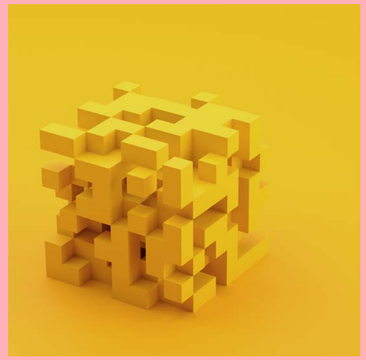
2023

Contents









Powering a Greener Future

Corporate PPAs in 2023

2022 was a transformative year for Corporate PPAs, with 36.7 GW of clean power deals being contracted through Corporate Power Purchase Agreements (PPAs).[1] With the highest number of deals emerging from the United States, Spain, India, Bangladesh and mainland China, these jurisdictions paved the way in embracing the corporate commitment to clean energy.[2]

An Overview: The Corporate PPA Landscape in 2022

This year witnessed an impressive surge in Corporate PPA deals, with more than 160 corporations, across 36 countries announcing Corporate PPA deals in 2022 – a growth of nearly 18% from 2021. Globally, 148GW of clean power deals have emerged through Corporate PPAs since 2008.[3] This appetite for Corporate PPAs, evidenced by the past year, has continued to grow throughout 2022 and into 2023. As corporations look to take advantage of a range of sustainability, economic and reputational benefits, the rise of Corporate PPAs shows no sign of slowing down.

The European PPA Market in 2023

Venturing into 2023, Europe continued to show its unwavering commitment to a cleaner, greener future. In the first quarter, 47 PPA deals were signed in Europe, with a total capacity of 4.6 GW equating to 11.5 TWh/year.[4] As at July 2023, over 135 PPA transactions had been recorded in the European market, and by October 2023, the market had secured 7.8 GW of renewable capacity under new PPAs. Based on these figures, we expect the total number of deals in 2023, to exceed the 193 transactions recorded in the previous year.[5]

Leading the Charge: How we can help your business

Having advised on some of the earliest Corporate PPAs in the Netherlands (2007) and the UK (2009), we have become an experienced advisor on these structures globally.

Our longstanding experience navigating the Corporate PPA landscape means that there's not much we haven't seen when it comes to advising on these evolving, and often complex structures.

This report looks at the main drivers propelling the growth of Corporate PPAs globally. It addresses several innovative deal structures and provides an overview of market considerations in key jurisdictions across Western and Eastern Europe, the Nordics, Asia-Pac and the USA.

[1]Statista (2023, March 30). Renewable PPA contracted capacity globally 2012 – 2022. https://www.statista.com/statistics/1375942/renewable-ppa-capacity-worldwide/

[2]S&P Global Commodity Insights (2023, March 2). Global Corporate Clean Energy Procurement Crosses 50GW with Asia as the Largest Region in 2022. https://www.spglobal.com/commodityinsights/en/ci/research-analysis/global-corporate-clean-energy-procurement-crosses-50-gw.html

[3]Bloomberg NEF (2023, February 9). Corporations Brush Aside Energy Crisis, Buy Record Clean Power. https://about.bnef.com/blog/corporations-brush-aside-energy-crisis-buy-record-clean-power/

[4]S&P Global Commodity Insights (2023, May) European PPA market continues to grow in the first quarter of 2023 www.spglobal.com/commodityinsights/en/ci/research-analysis/european-ppa-market-continues-to-grow-in-the-first-quarter-2023.html.

[5]S&P Global Commodity Insights (2023, July) European PPA market on track to reach record number of deals this year www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/072523-european-ppa-market-on-track-to-reach-record-number-of-deals-this-year.

Understanding the Global Corporate PPA Market

What is a Corporate PPA?

A Corporate PPA allows corporate energy consumers to purchase power directly, and on a long-term basis, from renewable energy generators, even if they're not located nearby. They provide an alternative to the traditional model, where businesses purchase power from utilities that gather energy from multiple generators.

Corporate PPAs are long term agreements (typically between 10-20 years) that provide price certainty for both the corporate and the generator by using fixed or floor pricing structures. We elaborated on this in pages 10–11 of this report.

The Global Market: 2022/23 at a glance

Since 2022, we have seen continued, major growth in the Corporate PPA market.

In Europe, Corporate PPA activity has accelerated. In 2022 alone, the number of signed deals increased by 29%, as buyers across the region opt for longer-term power deals that protect them from the volatile wholesale electricity market.[6] Moving forward, we expect to see an increase in short-term tripartite PPAs.[7]

In the first half of 2023, the market remained steady, with 15 solar power and six onshore wind power deals being signed in Europe, amassing a total capacity of 1,135 MW.[8] During this period, power prices continued to fluctuate in Sweden, Italy, Spain and the United Kingdom whilst in Poland, France, Germany and the Netherlands there was an increase of up to 7.7%.[9]

Market Overview: EMEA

During 2022, deal activity in the Europe, Middle East and Africa (EMEA) region declined by 7%, compared to the region's activity in 2021.[10] This can be attributed to the ongoing energy crisis, and continued uncertainty of supply of gas from Russia due to the Ukraine invasion.

However, as the European Commission proposes power market reforms and lower gas prices, it is expected that activity will continue to increase in Europe throughout 2023.

Market Overview: APAC and US

Clean power deals in the Asia Pacific have nearly doubled, while the US saw an 18% increase, hitting a record of 24.1 GW out of the global 36.7GW deals.[11] This growth is largely due to the virtual PPA model which sells power straight to the market, helping buyers avoid fluctuating prices.[12]

Who are the key drivers of growth?

The main participants in these deals are tech companies and data centre owners. In 2022, Amazon led globally with 10.9 GW deals. Other tech giants leading the way in clean power purchases included Meta (2.6 GW), Google (1.6 GW), and Microsoft (1.3 GW). Large industrial companies, including oil & gas companies (e.g. Occidental Petroleum, Chevron and Energy Transition Partners) and chemical companies (e.g. Covestro and Borealis) also contributed significantly to the demand.

In Europe, by the end Q3 2023 companies in telecommunications, ICT and heavy industries had accounted for 60% of signed Corporate PPAs. The market saw continued diversification with other sectors such as transport, automotive and retail increasingly contributing to the growth of the PPA landscape and the decarbonisation of industry.[13] Numerous sources are also advocating for the passing of the Renewable Energy Directive which contains advantageous stimulations for the PPA market and the European Commission's Electricity Market Design reform proposals, which help support the energy transition in the region.[14]

Paving the way towards Clean Energy: The RE100 Movement

The RE100 is a global corporate initiative uniting over 420 major businesses, all dedicated to achieving 100% renewable electricity. With an ever-growing membership, these companies are making significant strides in green energy consumption. So far, the RE100 have procured 440TWh of clean electricity and aspire to achieve carbon free grids by 2040.

[6]GreenBiz (2023, 17 February) 150GW later: the dizzying rise of the power purchase agreement www.greenbiz.com/article/150-gw-later-dizzying-rise-power-purchase-agreement

[7]Ibid

[8]Ibid at Note 4

[9]Ibid at Note 4

[10]Ibid

[11]Ibid

[12]Ibid

[13]Ibid at Note 5

[14]Ibid

EU Regulatory Update

The EU has made several initiatives promoting renewable energy and Corporate PPAs:

1. **Renewable Energy Directive (RED II)**

   In December 2018, the EU adopted the recast Renewable Energy Directive (RED II), which set a goal for the EU to source 32% of its energy from renewables by 2030. It also provided a framework supporting the uptake of Corporate PPAs.

2. **'Fit for 55' Package**

   In July 2021, the EU Commission published the 'Fit for 55' package, proposing changes to RED II (called RED III). The aim of RED III was to reduce GHG emissions by 55% by 2030. The commission also increased the renewable energy target to 40% for 2030, and set up more support for Corporate PPAs. This included clearer reporting requirements, reducing regulatory barriers to PPAs, and offering financial safety nets such as credit guarantees.

3. **REPowerEU Plan**

   In May 2022, in response to the Ukraine invasion, the European Commission launched the REPowerEU Plan. The main objective was to set out a roadmap for phasing out EU dependence on Russian fossil fuels. Once again, they, proposed a new renewable energy target of 45% by 2030.

EU's Renewable Energy Evolution: From RED II Directives to the 'Fit for 55' Ambitions

As of June 2021, all Member States successfully transposed the directive RED II, a directive that reduces regulatory and administrative barriers to Corporate PPAs to promote their adoption. This will be monitored through the integrated national energy and climate plans which Member States must submit in accordance with the directive.

In addition to this, RED II:

a) requires Member States to recognise guarantees origin (GOs) issued by other Member States in accordance with RED II; and

b) clarifies that Member States may allow the issue and transfer of GOs directly to corporate offtakers pursuant to a Corporate PPA from renewable generators that already receive financial support from a support scheme (e.g. feed in tariffs).

The latter point is important as it reverses a previous proposal by the European Commission. Previously the European Commission suggested that Member States must ensure that GOs from renewable generators, that already receive financial support from a support scheme, be auctioned centrally, rather than being transferred directly to offtakes under a Corporate PPA. This would have had a negative effect on Corporate PPAs, as GOs are vital for businesses to be prove they're using renewable power.

Even with this reversal, Member States still have the option to restrict the issue of GOs for subsidised renewable generators.

The success of Corporate PPAs largely depends on how each Member State adopts RED 11's requirements. The creation of an enabling framework to facilitate the transfer of GOs across borders and encourage the conclusion of Corporate PPAs will likely drive growth in this exciting market. The Fit for 55 package, officially adopted by the European Commission on 14 July 2021, concluded negotiations with a provisional agreement to agreement to raise the share of renewables to 42.5% by 2030.[15]

Furthermore, on 14 March 2023, the European Commission proposed reforms to the European Union's electricity market design to increase renewables, phase-out gas, decrease the impact of volatile fossil fuel prices on consumer bills and make the EU's energy industry cleaner and more competitive.[16] The proposed reforms will introduce measures that incentivise long-term power production contracts in the Electricity Regulations, the Electricity Directive, and the REMIT Regulation.[17]

The Commission intends to facilitate the deployment of PPAs so that companies can secure a direct supply of energy and profit from stable prices. The reforms will also require Member States to ensure the availability of market-based guarantees, to reduce credit risk to buyers.[18]

Regulatory Issues: Financial Services

With synthetic Corporate PPAs, in parallel to the conventional contracts between the parties, the Generator and the Corporate will enter into a contract for difference or other financial derivative contract where they agree a fixed strike price for the renewable electricity provided by the Generator (Virtual PPA or VPPA). The Generator and the Corporate settle the difference between the fixed strike price and the variable market price at which the Generator sells the renewable electricity it produces to the utility supplier. This system acts as a financial safeguard for the Corporate against the fluctuating electricity prices in its standard electricity supply contract with the utility.

The Generator and the Corporate will each need to consider whether they are carrying out a regulated activity under financial services laws because a VPPA (as a contract for difference) may constitute a regulated financial instrument. In addition to authorisation requirements, the Generator and the Corporate will also need to consider reporting requirements under MiFID II and obligations under European Market Infrastructure Regulation (EMIR) which may include reporting, margin, risk mitigation and recordkeeping obligations. Legal advice needs to be sought to consider whether any of these requirements apply to the Generator or Corporate when entering into the VPPA.

[15]Europäisches Parliament Think Tank (europa.eu) (2023, 22 March) www.europarl.europa.eu/thinktank/de/document/EPRS_BRI(2021)698781

[16]European Commission (2023, 14 March) Reform of the EU electricity market design ec.europa.eu/commission/presscorner/detail/en/IP_23_1591

[17]Ibid

[18]Ibid

What is particularly exciting about the European corporate PPA market is that it provides a positive story in the face of our ongoing energy crisis. The long-term, typically fixed, nature of PPA contracts makes them less susceptible to short-term price increases and volatility, so these are not passed on proportionately to the buyer. This strengthens their appeal in a climate of rising prices, which was reflected in the record deal volumes seen in 2021 in Europe, reaching 8.8GW. In the medium-term, the prolonged high power prices we see across the region should further increase buyer demand, as an expanding pool of large power users (regardless of their sustainability agenda) seek a wider variety of hedging solutions.

Helen Dewhurst Senior Associate, Corporate Sustainability Team, Bloomberg

Opportunities and threats

Corporate Consumer

Opportunities

- Fix/floor/cap power price – safeguard against rising or fluctuating energy prices in the wholesale markets.
- Achieve sustainability targets and objective to buy 100% of power demand from renewable sources. This is fast becoming more important than economic drivers.
- Smaller corporates can join together to share risk and enhance bargaining power.
- Blockchain PPAs will make it easier to aggregate demand with other corporates and enter the market.
- New technology emerging to enable 24/7 purchase of renewable power (e.g. Google).

Threats

- Board appetite for the deal – economic benefits only add up if the board trusts the power price forecasts. Board is often unwilling to pay more in short-term for lower prices in long term. This is a particular risk this year, given current extremely high year-ahead pricing.
- Complexity/costs in negotiating the contracts. Power purchase is not core business. This will pose a hurdle for small and medium sized enterprises.
- A utility will still be required to provide power when the generating station is not generating (renewable power is intermittent). Allocation of volume and shaping risk is a key issue – it can affect the level of price certainty that is achieved and means the corporate is buying power at a profile/volume that doesn't match its demand.
- If a project finance lender has financed a project, it may require further security from the corporate: e.g. direct agreement or parent company guarantees.
- Change in law risks affecting the commercial balance of the deal and triggering re-negotiation.

Generators

Opportunities

- Generator can achieve a stable price over the long- term as the corporate often has more appetite to hedge against rising/fluctuating power prices. This is particularly attractive for projects financed by investment funds and project finance.
- The corporate is sometimes willing to pay higher than wholesale prices in the short term, with the expectation that this will pay off in the long-term when prices rise and the corporate still has the benefit of the fixed price.
- The phasing out of renewable subsidies means that Corporate PPAs offer a new route to market for generators.
- Blockchain PPAs are an easier route to match generation with corporate demand and to access higher tariffs.

Threats

- Price – the price the corporate is willing to pay may not be sufficient to bank the project.
- Creditworthiness/bankability of offtaker – a bigger issue for unsubsidised projects as the Corporate PPA will represent almost 100% of total project revenues.
- Power offtake not core business for the corporate: if wholesale power prices decline will the corporate default in order to buy their way out of a bad bargain?
- Inconsistencies between regulatory regimes in different member states making it difficult to achieve scale across jurisdictions with one offtaker.
- The deal will need to be bankable. More complex to get a Corporate PPA approved by banks/investors?
- Optimisation and energy storage.

By 2030, 100% of the power used in Borealis' Polyolefins and Hydrocarbons operations shall be of renewable origin, derived from wind, solar and other renewable power assets. PPAs play a major role in reaching this target, and consequent reduction of Scope 2 emissions. The advice of Bird & Bird's international renewables team on the negotiations of various PPAs across Europe supports Borealis to reach its ambitious renewable power targets.

Ouafik El Kasmioui Borelias Group

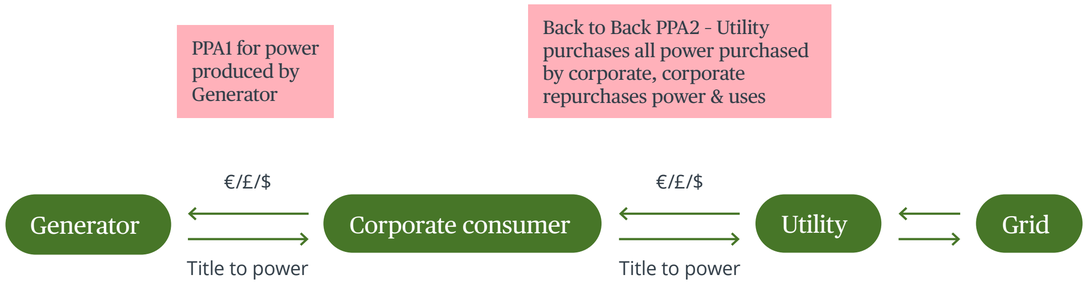
Corporate PPA Contract Structures

Sleeved vs Synthetic: Navigating Corporate PPAs

The two leading models for Corporate PPAs are (a) the “Sleeved” Corporate PPA; and (b) the “Synthetic” Corporate PPA. The Sleeved Corporate PPA is the contract structure that has mainly been adopted in Europe, whereas the Synthetic Corporate PPA has been the preferred contract structure in the USA.

We are now seeing more appetite for the Synthetic Corporate PPA structure in Europe, primarily because it is seen as a simpler contract to execute.

A) “Sleeved” Corporate PPA

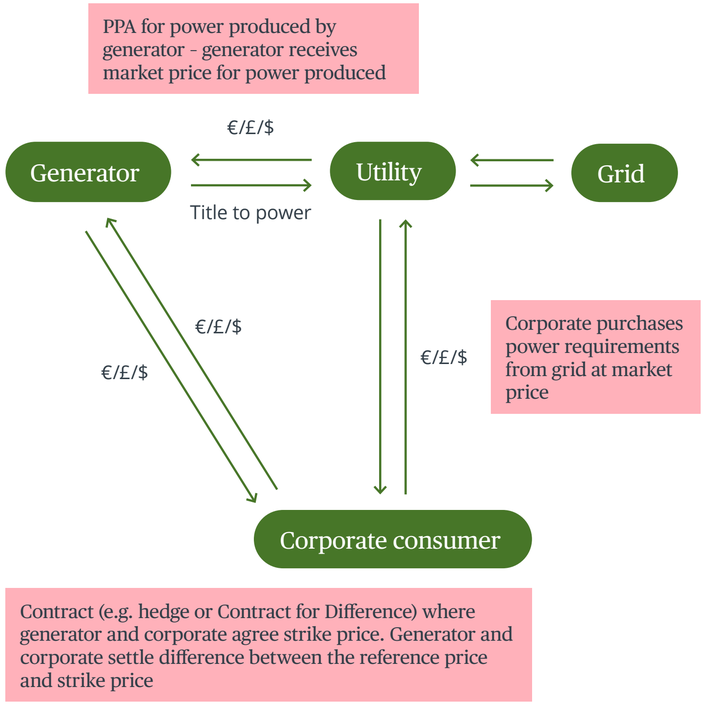


Key features

Generator sells power directly to the corporate and the utility then sleeves the power through the grid and supplies it to the corporate’s site (together with top up power as necessary):

1. Generator sells power at the meter point to corporate consumer under PPAI.
2. Corporate consumer immediately on-sells power at the meter point to the utility under PPA2. The utility then “sleeves” the power through the grid and sells power to the corporate consumer at its site. The utility will perform a balancing service under this PPA2 (renewable energy is intermittent) by topping up the renewable electricity with extra if needed (for example when the generator is not generating).
3. Renewable benefits can be sold either from generator to utility or from generator to corporate consumer.
4. Regulatory regimes usually require a licensed utility to be involved to put electricity onto the grid (i.e. transport the power from the generator’s site to the corporate consumer’s site).
5. The generator can be entirely independent or sometimes the corporate consumer may make an investment into the generator itself to support the project (and open a new revenue stream in potential dividends).
6. Depending on the regulatory regime, the licensed utility and balancing party may be the same entity (as in the UK) or separate entities (as in the Netherlands).

B) “Synthetic” Corporate PPA



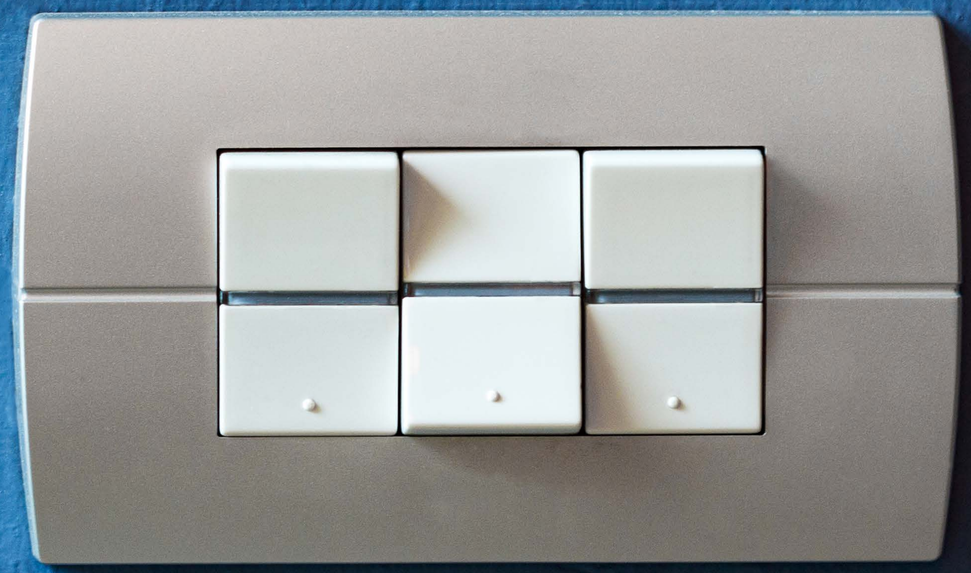
Key features

Generator “virtually” sells the power that it produces to the corporate for a strike price.

1. Generator sells renewable electricity to a utility under a standard power purchase agreement at a market price.
2. Utility continues to sell power to the corporate consumer under a standard electricity supply agreement at a market price.
3. In parallel to these conventional contracts the generator and the corporate consumer enter into a contract for difference, option or other financial hedge where they agree a strike price for the renewable electricity produced by the generator (Derivative Contract/VPPA).
4. Generator and corporate consumer settle the difference between the strike price and the variable reference price. This reference price is usually based on a wholesale price index. The contract for difference therefore provides a hedge between the strike price and the reference price.

International PPA markets have always been complex, yet the shift from a buyer's to seller's market has added further complexity for aspiring PPA buyers. With this change, PPA buyers will need a clear yet flexible global renewable electricity procurement strategy to take advantage of the opportunities as they arise. This will also require an ability to align internal stakeholders and adapt to these opportunities and changes in the global markets in order not to miss out.

Alexander Quarles van Ufford Schneider Electric Sustainability Business



Which model to choose:

Sleeved Vs Synthetic

Sleeved

Direct contract to purchase power from the generator – easier to show power used is procured from renewable sources.

Corporate and generator must be on the same aggregated grid system (so a sleeved model would not work across e.g., US states or EU Member States).

Synthetic

Power can be sold "virtually" across separate energy markets (e.g. across US states or in theory across EU Member States). This has been a strong driver for use of synthetic PPAs in the USA (the USA energy market is disaggregated).

Arguably a simpler structure – it is a contract for difference/financial hedge, rather than two back-to-back contracts for sale of power.

This structure requires the Generator and Corporate to enter a contract for difference which may be a regulated financial instrument and so there is a need to consider whether this involves carrying out a regulated activity requiring financial services authorisation (for example under MiFID II) or compliance with reporting or margin obligations (such as under European Market Infrastructure Regulation (EMIR)).

Note: when deciding which model to choose, the corporate's preferred accounting treatment for the Corporate PPA should be considered.

Optimisation of Structures

Aggregation models

As the volume under a single Corporate PPA is often large with long term commitments, the traditional Corporate PPA structures are predominantly used by large energy consumers such as tech companies and the chemical industry. There is an increased interest from smaller corporates looking to move to renewable energy consumption, however smaller corporates will often find themselves with projects which are too big for their offtake requirements. In this instance, one of the following aggregation models might be a solution.

PPAs and Aggregation: Adapting for Smaller Companies

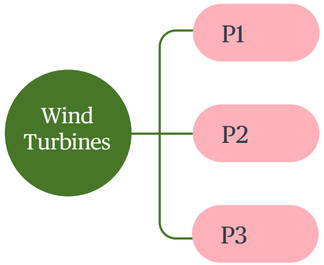
Club

Under the club structure, large corporates club together to aggregate their energy offtake.

A great example of the club structure is the Dutch wind consortium formed by Google, AkzoNobel, DSM and Philips.

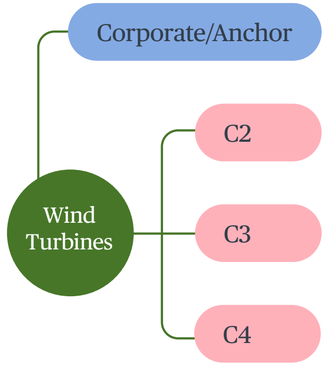
The corporates joined forces to optimise the Corporate PPAs they entered into for the offtake of energy produced by two wind farms. The corporates each committed to one quarter of the energy offtake of each project, all on similar terms and conditions. This club was the first in Europe. In the US, the structure is more commonly used.

Whilst the search for the “ideal partners” and the formation of the club takes a considerable amount of time, once clubbed together the corporates can benefit from the economies of scale and power of negotiation. The model can also be re-used several times.



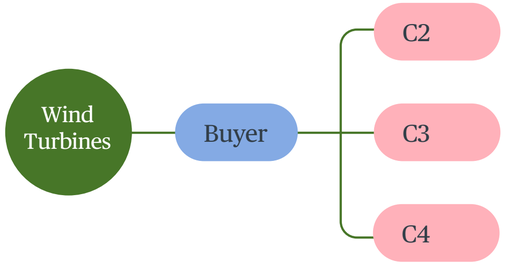
Anchor tenant

Under this structure, a large offtaker commits to the offtake of a large portion of a project, securing the repayment of the debt by the generator. Smaller corporates can join the project and may secure a Corporate PPA for a smaller part of the project and for a shorter term, either with the large offtaker or with the generator itself. However, some generators may be reluctant to be flexible on the contract terms as the smaller corporates are not material in obtaining financing.



Reselling

This structure is less common as the benefits are limited. Under this structure, a large corporate can purchase 100% of the offtake of a project and then resell it in predetermined tranches to smaller corporates. There is little to no flexibility for a smaller corporate to negotiate the terms of the contract. This reduces the upside compared to buying on the market.



Proxy Generation PPA & Volume Firming Agreements

Price risk

A Given the amount of hedging and financial instruments available in the market, Corporates often favour price risk (taking on the risk of a fixed/floor/capped price) because their main reason for entering into Corporate PPA is price predictability. Additionally, this approach may provide the accounting flexibility a corporate need to avoid the Corporate PPA being classified as a derivative.

Operational & Weather Risks

When negotiating a Corporate PPA, negotiations often evolve around an appropriate risk allocation for operational and weather risks. These risks can lead to the plant producing less energy than forecast, producing an imbalance on the electricity trading system (and associated charges).

Operational Risks

As corporates may not have the in-depth knowledge of the project specifics (as it is not their core business) or the ability to control the operation of the project, it can be argued that the generator handles operational risks. The generator is the party that selected the turbines or panels, ancillary equipment and arranged the (terms of the) relevant contracts (including performance, maintenance and curtailment clauses), all determining the actual performance or output of a project.

Whilst the traditional PPA is calculated against the actual output of a project (i.e. pay as produced), a ‘proxy generation PPA’ is calculated against the expected output based on the projects specifics and its power curve, shifting operational risk back to the project.

After agreeing the terms of a proxy generation PPA, the parties agree on a number which reflects the expected operational performance of that project. If the project performs better than the agreed number, then any upside is for the generator, however if the project performs worse than expected, the generator may suffer. A calculation service agreement with an independent calculation agent is required to assess the expected output of a project which could make arranging this structure costly. Microsoft has been very active in developing solutions for the allocation of operational risk.

Weather Risks

In addition to operational risks, renewable energy projects are unique producing variable outputs throughout the day, due to weather intermittency. While weather patterns can be predicted to some degree, they cannot be forecast with 100% certainty or far ahead of time. Microsoft, in collaboration with its partners, has developed the ‘volume firming agreement’. This agreement protects corporate buyers against the intermittency and weather-related risks inherent to renewable projects. These agreements transfer the ‘shaping’ risk – stemming from project intermittency – away from the corporate buyers by offering them a ‘baseload’ or fixed amount of electricity throughout the day. Generators who take on such weather risk will resort to storage and balancing solutions, or they may seek to offset the risk with insurers who are comfortable managing such challenges.

24/7 Model

One of the newest models is the 24/7 model developed by Google. Through its 24/7 Carbon-Free Energy Compact with Sustainable Energy for All, Google strives to power its global data centres and offices with sustainable energy, around the clock. This is a bold statement knowing the challenges posed by the intermittent nature of renewable energy, however Google is convinced that new renewable technologies have evolved to a point where they can support consistent power, negating the need for grey energy to provide a baseload. Google’s strategy to achieve this 24/7 carbon free goal is focused on developing new contract structures, supporting innovative technologies, and developing new smart solutions to manage their energy consumption. Their goal is to align their electricity consumption with clean energy every hour of every day, everywhere.

Blockchain PPAs

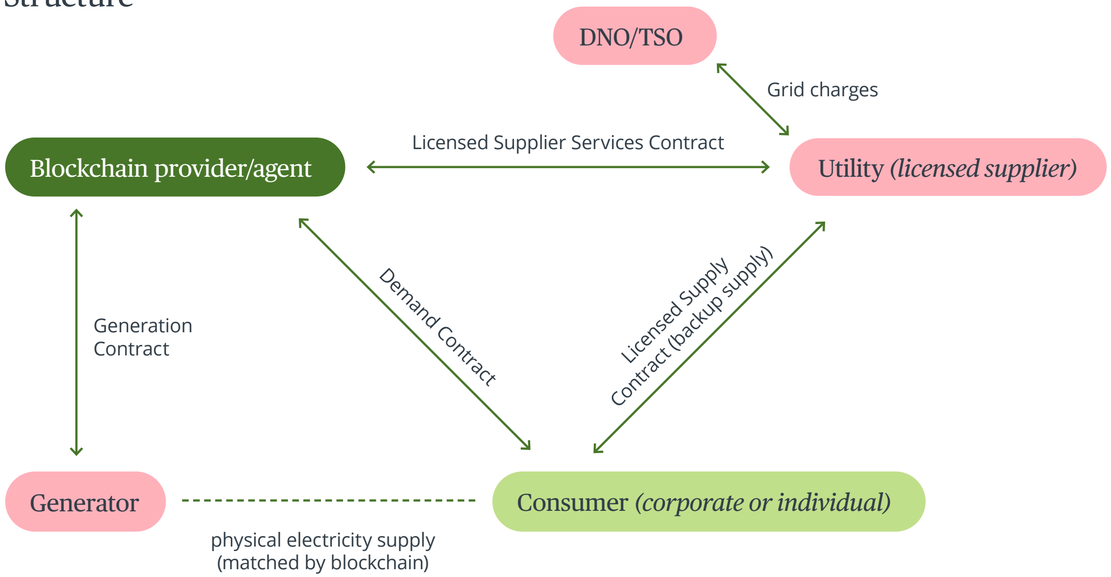
In 2020 we saw increased used of blockchain in the energy sector, including in the PPA space. Blockchain can be used to create local energy markets (via virtual power plants) by aggregating and matching generator supply and consumer demand in an automated way. Both generators and energy consumers can enter into a contract with a blockchain platform provider. The blockchain provider will agree to provide a ‘matching’ service where the renewable energy generation is automatically matched with the consumer’s demand (and is therefore not trading on the usual electricity trading market). The contract that corporates enter into with the blockchain provider is simpler than traditional corporate PPAs made directly with generators, particularly if the corporate was aggregating demand with others under a club corporate PPA. Blockchain PPAs therefore offer up a real opportunity to open up a route to market for a broader range and volume of corporate energy consumers.

Overcoming the Challenges of Blockchain

This structure is not without its challenges, which we very much hope can be overcome, particularly:

- Even with blockchain, the licensable activities within the electricity market still exist – generation, distribution and supply. Whilst blockchain PPAs match renewable generation and demand, this is only done virtually, there is still a physical regulated supply between generator and consumer. Parties therefore need to be clear which party is responsible for performing each of these regulated functions and paying necessary grid charges to transport the power.
- As both generator and corporate contract with the blockchain provider (rather than with each other) the generator may not know who the corporate is when it enters into the contract, and there may not be any guarantee or security provided by the blockchain provider for the corporate's obligations.
- As the technology is so new, generally we are seeing Blockchain PPAs only for a short-term trial basis (so around a year) so at the moment Blockchain PPAs are not sufficient to 'bank' a project. We expect this to change in the coming year as the technology becomes more established and regulatory hurdles overcome.

Blockchain PPAs - Example Contract Structure



The global availability of green power at competitive prices is a key success factor in Covestro's sustainability journey and a prerequisite for becoming fully circular. Covestro pursues the long-term goal of operating all production facilities with 100% renewable energies. To this end, we are building a comprehensive portfolio of corporate power purchase agreements (PPA) in countries where this contract model is available. Creating a direct link between an asset and us as an offtaker through the long-term commitment of a PPA not only supports the construction of new renewable energy capacities through long-term financing, but also allows us the effective steering of our emission balance and provides us with a widely accepted too to achieve our net zero objective.

Sylvia Baumheier VP Site Infrastructure NRW, COVESTRO

International Case Studies

Australia

Australia's Corporate PPA landscape continues to mature with a significant number of transactions underway. With a turbulent energy market on the horizon, it presents a prime opportunity for corporate buyers.

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Australia is transitioning from an electricity system dominated by coal-fired generation to a system based around renewable energy.

Historical Growth of Renewable Investments

Investment in Australia's renewable and storage industry boomed in the latter half of the 2010s, reaching a high in 2018. This was largely driven by the Renewable Energy Target ("RET"). The RET was the Commonwealth Government scheme to increase the proportion of electricity generated from renewable sources and reduce greenhouse gas emissions from electricity generation, which legislated for large-scale generation of 33,000 GWh by 2020. It incentivised participants, particularly retailers, to enter into PPAs to receive green benefits known as LGCs (or large-scale generation certificates).

The installation of large-scale renewable energy has slowed significantly after the rapid growth to achieve the RET. Although the RET has been fully subscribed and has not been extended by the Commonwealth Government, State governments have been active in setting increased targets for renewable energy generation to drive investment in the sector, drive down power costs and achieve a greater reduction of emissions. During 2022, there was a series of major policy and program developments at Federal and State level that are likely to unlock investment in large-scale renewable energy and storage.

The Transitioning Energy Landscape

Market participants in the energy sector will need to remain cognisant of the transformation taking place in relation to the way in which Australia generates and distributes energy. With the number of renewable energy assets increasing to more than one-fifth of Australia's total energy output (and growing), together with the proposed closure of a significant number of coal fired power stations, the natural consequence is a move towards a decentralised market with energy production and consumption being accessed on a local level rather than from large utilities. This shift, together with increasing shareholder activism and focus on sustainability, may encourage corporate energy consumers to procure energy directly from local renewable energy assets through the mechanism of a Corporate PPA.

Significance of Corporate PPAs

The emergence and growth of Corporate PPAs has diversified the market for large-scale renewable energy and they have become instrumental in the energy transition.

As electricity retailers met their purchase obligations under the RET and the demand for retailer PPAs slowed, Corporate PPAs have become a key source of on-going investment in large-scale renewable capacity.

Benefits for Corporates

In Australia, there are compelling reasons for corporates to consider procuring energy from clean and renewable energy assets. From a corporate energy consumer perspective, Corporate PPAs allow for price certainty, management of price fluctuations, reduced energy bills and emissions, and have corporate social responsibility and public relations benefits.

Corporates should note that the form of PPA in the Australian market has diversified to include smaller retail PPAs and offerings, which may be more accessible to 'mid-scale' buyers.

Filling the Market Gap

With Australian generators and investors finding it challenging to find medium to long term PPAs from a "retailer" or state government backed reverse auctions or schemes, there is a gap in the market that corporates can help to address. If corporates enter into Corporate PPAs directly with renewable energy generating projects, it

provides these projects with contractual price certainty on the price of both the electricity they intend to export and the value of the associated large scale renewable energy certificates. This will assist projects in meeting bankability requirements, allow them to gain access to different types of senior debt and stimulate further investment in the sector as institutional investors see key project risks around pricing being alleviated.

Market Performance in 2022

Despite the National Electricity Market experiencing unprecedented wholesale electricity price increases and volatility during 2022, a new record for the volume of Corporate PPA deals was set in 2022 (at just under 1600 MW), beating the previous high of 2021 (1360 MW).

The major drivers behind this surge were sustainability targets, particularly in relation to net zero transition and wider ESG strategy. Given the increasing number of corporates setting net zero targets for 2025 or 2030, this trend seems poised to continue. A combination of financial and sustainability drivers will likely support on-going strength in Australia's Corporate PPA market.

Learning from International Markets

It is key to acknowledge that the US and European experiences in relation to Corporate PPAs have allowed the Australian market to develop from a rather unique standpoint. Australian corporates can take comfort from such international experience and seek to adopt a best practice approach to selecting which contractual models it will deploy in the market.

The Growing Importance of Corporate PPAs

Since 2017, over 130 Corporate PPAs have been signed in Australia, accounting for over 5.6 GW of renewable energy commitments. This highlights the role of Corporate PPAs in Australia's energy transition towards cleaner energy sources.

The health of the Corporate PPA market was underlined by the diversity of buyer types and sizes during 2022. There were a series of PPAs signed with high-profile corporates including:

- Apple, Upper Burdekin Wind Farm (QLD), 164 MW
- BHP, Goyder South Wind Farm (SA), 203 MW
- Telstra, McIntyre Wind Farm (QLD), 111MW
- Microsoft, Walla Walla Solar Farm (SA), 315 MW
- University of Sydney, Snowy Hydro (NSW), variable
- Woolworths, Port August Renewable Energy Park (SA), 38 MW
- Anglo-American, Clarke Creek Wind Farm and Blue Grass Solar Farm (QLD), 234 MW
- Southern Sydney Regional Organisation of Councils, Moree, Nevertire and Hillston Solar Farms (NSW), 96 MW

Outlook for the Future

Whilst 2022 was a challenging year in the National Electricity Market, Corporate PPAs remain an effective vehicle for renewable energy procurement – and are set to play a significant role in Australia's energy transition.

Croatia

While waiting on the adoption of relevant legislation on corporate PPAs, virtual PPAs are on the rise.

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The Regulatory Landscape: Transposition of the EU Winter Package

In 2021, Croatia transposed the "EU Winter Package" of energy legislation through the adoption of the Electricity Market Act and the RES Act, and has recognised corporate PPAs as one form of off-taking electricity from RES electricity producers. However, the relevant acts do not explicitly regulate corporate PPAs and only recognise them in as much as they mention a definition of a "renewable energy purchase agreement" being an agreement based on which a natural or legal person has agreed to purchase electricity from renewable sources directly from electricity producer, which does not have a valid PPA concluded with Croatian Energy Market Operator ("HROTE") based on feed-in tariffs. Currently, as of Q3 2023, there are no implementing by-laws that would further regulate corporate PPAs or renewable energy purchase agreements on the market.

Virtual vs Direct PPAs

Under the current regime, a virtual PPA would be possible without additional regulatory requirements. However, a direct Corporate PPA would need to fulfil additional formalities. This is because the current legislation defines electricity sale purchase agreements between various market stakeholders (i.e., producer – supplier – consumer), which all must have their respective licenses and may act on the market only towards predefined counterparties. Producers may therefore sell their electricity to suppliers or traders, and not directly to end consumers, and vice-versa. Therefore, to execute a direct Corporate PPA, either the producer or the corporation as the end consumer would need to obtain a supplier's license, in order to fulfil the statutory preconditions. This would also invoke other formalities such as additional reporting obligations, divided accounting, etc.

Currently, there are no "real" direct Corporate PPAs executed in Croatia between a producer and corporate end consumer. However, in 2023 several virtual PPAs were executed. For example, partnerships have emerged between Professio Energia with its Mazin Gračac wind farm project and Hrvatski Telekom d.d. (part of Deutsche Telekom), as well as between Swiss RES producer and trader Axpo who signed a 10-year virtual PPA with 111 MW windfarm Kunovac (a joint investment between Finnish renewable energy fund manager Taaleri Energia and local developer Encro). Since virtual PPAs, as financial contracts for difference, i.e., hedging arrangements with respect to the price of electricity, do not require any specific regulatory approvals or licences, they are, more convenient for all market participants.

By 2023, soaring prices on the Croatian Power Exchange (CROPEX) prompted a number of RES electricity production facilities, set up in the past decade, to abandon the feed-in tariff agreements with HROTE,under which all producers sell all generated electricity to HROTE under a predetermined fixed price before their regular expiry. Instead, these facilitates entered into either offtake agreements with electricity suppliers or a commercial PPA, as was the case with wpd and its Croatian subsidiary wpd Adria which concluded a commercial PPA with Danske Commodities A/S in 2021, in their respective roles as registered producer and trader in Croatia.

Looking Ahead: Regulatory Developments

By including the corporate PPAs in the legislative framework and taking into account the overall interest of producers and (end)consumers on the RES market, all market participants (including the financing banks) are expecting that the legislation appropriately deals with this matter. This will enable corporate PPAs to become a standard and preferred model of electricity market participation.

Czech Republic

As subsidy policies become increasingly stringent, Corporate PPAs present an exciting opportunity for new and existing generators.

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The subsidy scheme in the Czech Republic for electricity generators from renewable energy sources is built on two main types of subsidies: (1) the one-off investment subsidy and (2) the operating subsidy.

Operating Subsidies

Operating subsidies can be provided in the form of green bonuses, auction bonuses or as the feed-in tariff which cannot be combined. In the case of green bonuses, the generator collects a fixed green bonus from the market operator (OTE, a.s.) as well as the amount received from on-selling its produced electricity at market price. In the case of the feed-in tariff, the generator earns the feed-in tariff set by the Energy Regulatory Office ("ERO") from the "mandatory" buyer regardless of the current market price. This form of support does not apply to electricity generators brought into operation after 1 January 2022, nor to the aid for keeping the generators in operation or to the modernisation of the generators.

The Auction System: Pros and Cons

Another significant way of supporting electricity production from renewable energy sources is the system of auctions, which represents a market-oriented principle of subsidy. The main advantage of such a support mechanism is the possibility to set the upper limit of the capacity and to define the available amount of subsidy. Furthermore, given the competitive nature of auctions, this mechanism is a cost-effective way of promoting renewable energy resources and further eliminates overcompensation. On the other hand, auctions impose certain costs and risks for bidders, which in turn may lead (and will most probably lead) to a lower level of participation in auctions and subsequently may result in more expensive offers. To date, the Ministry of Industry and Trade has already called for its third auction to support renewable energy sources, and the public interest in using this kind of support is reportedly on the rise.

The Role of the Government

The Ministry of Industry and Trade may determine the maximum amount of the auction bonus by a decree. Regarding electricity generators brought into operation or modernised after 1 January 2022, the Government is entitled to modify the individual aspects of the regime of green and auction bonuses by government decrees. Each calendar year shall the Government stipulate among others the types of the supported renewable energy resources from the three calendar years. The regulation for 2022 and the following period was adopted in the second half of June 2022 with effect from 1 July 2022. The supported renewable energy sources included solar, wind and water and other sources such as landfill gas, sludge, biomass etc. The decree for 2023 has not yet been adopted and is currently being discussed by the Government in the legislative process.

An Exciting Opportunity for Energy Generators

In the context of adopted changes to the system of subsidies, Corporate PPAs represent new business opportunities for both existing and new energy generators.

At present, there is no explicit regulation implementing the rules on the PPAs stipulated in the Directive No. 2018/2001 on the promotion of the use of energy from renewable sources. The lack of the regulation, however, does not prevent the players on the electricity market to conclude the PPAs in the regime of the Civil Code. In this respect, the provisions on the substantive content of the contract for supply of electricity will apply similarly.

Corporate PPAs in Action

The very first Corporate PPA in the Czech Republic was concluded between a small brewery and an investor Atlantis Management. The investor has agreed to build and operate a solar power plant with an output of 35 kWp on the rooftop of the Jarošov brewery. The brewery will rent the solar power plant and purchase electricity produced by the power plant for a price stipulated in the PPA. The project was completed two years ago and the PPA shall terminate after 20 years.

A more important and larger Corporate PPA in its scope and volume was concluded in the automotive sector in July 2021. Company ŠKO-ENERGO (as purchaser), supplying energy to ŠKODA AUTO, has entered into the PPA with Ambient Energy (as supplier). ŠKO-ENERGO has agreed to purchase electricity from four wind power plants in a total volume of 26.280 MWh per year. The construction of the power plant for the purpose of the PPA will be carried out by the Micronix Group, the operator of a wind park that will be expanded due to the construction. A contract for more than CZK 1 billion was concluded for 20 years with long-term cost fixation and minimization of price fluctuations. The first supplies of energy to the Czech automotive leader ŠKODA AUTO took place at the beginning of 2023.

The Current PPA Landscape

Despite the presence of relevant market stakeholders on energy market who may clearly benefit from the scheme, Corporate PPAs have not yet been widely used in the Czech Republic. One of the reasons why PPAs have not yet been used much in the Czech Republic is the relatively recent spike in the price of electricity. However, with market volatility and the evident benefits from existing PPA projects, , it is expected that more and more market stakeholders will be encouraged to negotiate Corporate PPAs in the Czech Republic. Moreover, the development of photovoltaic power plants presents a potential room for an increase in the use of PPA contracts. The Czech Republic does not currently offer and does not plan to offer operating subsidies in this area and thus developers will be forced to enter PPA contracts to secure bank financing.

Denmark

As the number of Corporate PPAs in Denmark continues to rise, here's everything businesses should know about the Danish PPA market.

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Denmark's Growing PPA Scene

Corporate PPAs are well-established in Denmark. The majority of Corporate PPAs entered into by Danish parties are related to international activities, due to Denmark's open economy and international outlook. As a result, some of the biggest and most publicly advertised PPAs are physically placed outside of Denmark, but with Danish developers or sponsors. Recently, there's been a huge surge in domestic renewable energy PPAs, driven by international data centre owners and local off-takers, highlighting Denmark's commitment to green energy on both a local and global level.

Rapid Growth of PPAs in 2022 - 2023

Over the course of 2022 and 2023, there was a substantial increase in Corporate PPAs in Denmark. Notable examples include:

- November 2022: Coloplast announced it had signed a 10-year PPA with Better Energy, which will facilitate the construction of a new solar park and secure green power for Coloplast Danish offices and production.
- September 2023: the Danish Technological Institute entered into a 10-year PPA with Better Energy to ensure renewable energy to cover the majority of the electricity consumption at their site in Taastrup.
- October 2023: PwC entered into a 10-year PPA with the company Better Energy to ensure a 100%renewable electricity consumption. The agreement supports the construction of a new solar park, which will enable the supply of green equivalent to the annual consumption of approximately 45,000 Danes.

Obstacles to Corporate PPAs

While there is a lot of interest in Corporate PPAs in Denmark, there are some fundamental obstacles making the use of them difficult. There are several legal issues which are not clarified and hence it is still difficult for financial institutions to provide financing for Corporate PPAs. Work is in progress to solve these obstacles and it is expected that these uncertainties will be resolved in the near future. That said, the Danish FSA has not yet issued any guidelines when a Corporate PPA may be subject to financial regulation.

In Denmark and the EU more broadly, the energy policy regarding renewables has changed considerably in recent years. In May 2022, the EU Commission adopted a recommendation to Member States to promote renewables PPAs, accompanied by a guidance. The recommendation is made in response to the crisis triggered by the Russian invasion of Ukraine and the need to urgently accelerate the deployment of renewable energy.

Denmark's 2050 Vision: the road to Green Energy

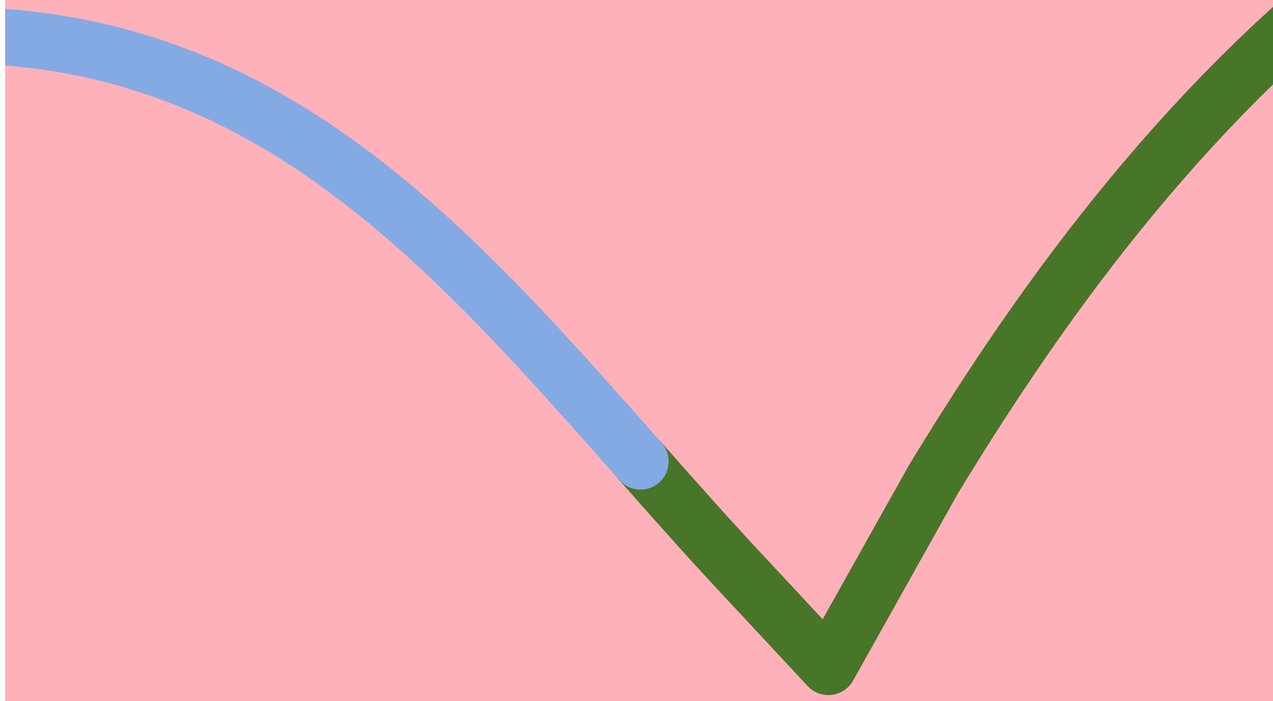
Notably, the Danish Government has recently published its ambitious Danish 2050 Energy Strategy, which aims to achieve 100% independence from fossil fuels in Denmark by 2050. The absence of a stable, long term legislative framework has hindered investment into renewable assets. The Danish Government's recent announcement that it will be introducing new legislation in line with recommendations from the Energy Commission, also looks to lean towards being technology neutral, offering only very limited, if any, subsidies. Despite this, the consensus amongst politicians in Denmark remains: more must be done to amplify renewable energy resources in Denmark.

Renewables in Denmark: Wind Power

Wind has dominated the renewable energy generation in Denmark for years, with energy derived from wind accounting for 47% of the total gross electricity consumption in Denmark. This figure is expected to skyrocket and reach around 92% by 2040. While wind leads the charge, solar and biomass are expected to gain traction in the coming years.

The Rise of Solar Power

Solar projects are emerging as the most suitable vehicle for Corporate PPAs in Denmark. There are a number of major companies interested in procuring electricity directly from solar plants under a Corporate PPA, either for financial reasons or to raise their green profile (or both). Subsequently, As pressure on corporates to act sustainably reaches an all-time high, companies will have no choice but to consider Corporate PPAs, even if they are not the most financially viable option. Corporate PPAs thus look set to become the key tool to ensure companies' meet their ESG objectives.



Finland

Corporate PPAs surge in Finland following increasing price volatility.

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PPAs offer both producers and buyers stability and predictability in energy pricing, while promoting the use of renewable energy and the implementation of green energy projects.

They are commonly used in renewable energy projects between electricity producers and buyers and can be employed in various situations and projects, such as:

- **Wind farms:** In wind farm projects, PPAs can be utilized to sell electricity generated by wind turbines to buyers.
- **Solar farms:** In solar farm projects, PPAs can be used to sell electricity generated by solar panels.
- **Hydropower plants:** PPAs can be employed in hydropower projects to sell electricity generated by hydropower plants.
- **Biomass power plants:** Biomass power plants can use PPAs to sell electricity when energy production is based on biomass.
- **Other renewable energy projects such as hydrogen:** PPAs can also be applied to other renewable energy projects, like geothermal energy or wave energy.

Corporate PPAs: The Finnish Electricity Market

PPAs are mostly utilised by large technology and industrial companies in Finland. It seems that medium-sized electricity consumers are also interested in purchasing electricity through PPAs, and the PPA market is expected to keep growing – currently being at its highest level in the Finnish energy sector's history. For solar power, PPAs are already being utilised in smaller projects compared to wind. There are also significant offshore wind projects under development that will accelerate new energy production. PPAs are seen as critical for the green energy transition.

Recent Market Developments impacting the Nordic Energy Market: The War on Ukraine

Finland is part of the Nordic wholesale electricity market (Nord Pool), which includes the Nordic countries as well as the Baltic countries. The Finnish system is interconnected with the system of Sweden, Norway and Estonia. Recent market developments have significantly increased the volatility of the power market prices. In particular, the strain of supplementing the supply of Russian imports has hugely impacted the market. Supply of power from Russia was disconnected on 14 May 2022, and it has not been resumed since then. In this respect, contracting parties located in different Nordic price areas, or indifferent countries for that matter, does not act as a restriction to enter into PPAs.

Sanctions imposed on Russia because of the war in Ukraine establish restrictions and prohibitions on the export of equipment, technology, and services in the Russian energy industry. Sanctions on Russia have been extended and amended multiple times recently and the situation is likely to vary.

Finland's Wind Power Surge and The Rise of PPAs

The number of PPAs for renewable energy has increased during the recent years. The Ministry of Economic Affairs and Employment of Finland reported that most wind power projects have used PPAs since 2019.

Recent Statistics

- According to the electricity statistics from the Finnish Energy Industry, the production of Finnish wind power increased by 41% from 2021 to 2022.
- In 2022, wind power accounted for 14.1% of Finland's electricity consumption. Finnish wind turbines generated11.5 TWh of this.
- The total electricity consumption in Finland in 2022 was just over 80 TWh, with wind power covering 14.1% of this.
- Wind power accounted for 16.7%of electricity production.

2022 Overview: A Record-Breaking Year for Wind Power

A record number of wind turbines were built in 2022 (2,430 MW, 437 units), and their production will largely impact the wind power generation figures for 2023. Based on ongoing wind power projects, it is predicted that by 2028, wind power will cover at least 28% of Finland's electricity consumption.

According to the Finnish Wind Power Association's (FWPA) report, wind power significantly increased Finland's renewable energy production in 2022. Throughout the year:

- 2,430 MW of new wind power capacity were built in Finland, leading to a 75% growth in Finland's wind power capacity.
- A total of 437 new wind turbines were commissioned.
- By the end of 2022, a total of 1,393 wind turbines had been installed in Finland, with a combined capacity of 5,677 MW.

Wind power is currently one of the most investment-attracting industries in Finland – projects completed just last year brought in over 2.9 billion euros of investments to the country. The majority of wind turbines completed during the year began generating electricity towards the end of the year, and their production will only start reflecting in the 2023 production figures.

Finnish Key Regulations and Requirements

In Finland, no license or permit is required for wind power itself. However, there are several regulatory requirements businesses should know when using wind power. These include:

1. Building Permits: granted by the Municipal Building Control Services, a building permit is always required when planning a new wind power system.
2. All "industrial-sized" wind farms require a permit from the Finnish Defence Forces.
3. The Finnish Energy Authority must be notified about a decision to construct a power plant with an expected capacity of over 1 MVA.

Usually, wind farms do not require environmental permit in Finland (Environmental Impact Assessment is required). No permits under Water Act are typically required either unless the planned wind farm concerns offshore wind power.

Navigating the Finnish Electricity Market Act

Connections to the transmission grid is based on the principle of open and non-discriminatory network access. In accordance with the Finnish Electricity Market Act (588/2013, as amended), a network operator is obliged to connect all generation facilities that fulfil the technical requirements and pay the relevant grid fees.

Role of Fingrid Oyj

Fingrid Oyj as a Transmission System Operator (TSO) has a responsibility to develop the Finnish electricity power system and an obligation to connect regional and distribution networks and power plants to its main grid. On request and against reasonable compensation, the system operator is obliged to provide access to the main grid for electricity consumption sites and power generating installations with technically approved connection solution.

Becoming an Electricity Supplier: Everything you need to know

To become an electricity supplier in Finland, a generator must acquire a party code and enter into an agreement with a company to act as a balancing party. Alternatively, a generator could perform the balancing function itself or enter into agreement with another electricity retailer who has an agreement with a balancing party (the so called "chain of open delivery").

In the context of PPAs, the national regulator allows for both direct and sleeved PPAs as well as financial PPAs. These may be entered into directly between the producer of electricity and the buyer, or electricity may be transported via TPIs.

Previous bidding system for Renewable Energy

The feed-in tariff-based support scheme closed for new wind power plants on 1 November 2017. Since the summer of 2018, wind power has also been built in Finland on a market-based basis, meaning without government subsidies. Feed-in tariff will be paid to the last projects included in its scope until 2029. A key reason for being able to construct wind power without subsidies is that one turbine generates more MWh per installed MW than older turbines.

Currently, there are no subsidy schemes for renewable energy projects in Finland to apply for. The ongoing tariff-based support scheme has been full booked for some time. The Government had set the maximum amount of generation capacity to be awarded premiums at 2 TWh, which was awarded from 2018-2020, and due to the relatively small amount of 2 TWh, this quota was used up rapidly.

France

As France reaches a crucial point in its development of Corporate PPAs (CPPAs), businesses should brace themselves for a new phase in the country's renewable energy landscape: the "democratisation phase of CPPAs".

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2022–2023: A Snapshot of the CPPA Market

From January 2022 to June 2023, around 1,418.6 GWh of new volume was contracted through corporate PPAs in France. This is an increase of more than 50% in contracted volumes, doubling of the number of corporate PPAs in France.[19]

Two major driving forces behind the surge were:

- Industrial Offtakers: The need to secure energy prices and to fulfil sustainability targets led to heightened interest from industrial offtakers
- Producers: Producers seeking to profit from higher electricity prices, compared to those granted under the existing tender procedures or French Contracts for Difference (CfD), also entered into more CPPAs.

Looking Ahead

This trend is expected to gain momentum by the end of 2023 and beyond. The implementation of a new guarantee fund to cover the offtaker risk and the enforcement of the ENR acceleration Act in March 2023 will support this development.

2022–2023: Corporate PPAs democratization period

The momentum of the French Corporate PPA market in 2022 continued into 2023, particularly for greenfield infrastructure. Corporate PPAs are developing in all economic sectors, with a significant increase in retail (40% of new CPPAs signed) and manufacturing (30% of new CPPAs).[20]

Listed below are key examples of retail and manufacturing companies leading the way:

- **Leroy Merlin:** In February 2023, the retail group Leroy Merlin signed the first Corporate PPA for a wind farm with the producer Voltalia. The Corporate PPA has a term of 23 years and covers an annual volume of 60 GWh, equivalent to around 20% of the group's annual consumption.[21]
- **Renault:** In November 2022, Voltalia announced the signing of the largest Corporate PPA in France with the car manufacturer Renault. This agreement, covering the construction of 350 MW of solar power plants in France, will generate an annual volume of 500 GWh.

  It is expected to cover around 50% of the consumption of the group's production sites. This should contribute to the group's goal of zero carbon emissions by 2050, for its ElectriCity plant, which assembles the electric vehicles in its line-up.[22]

Brownfield Projects on the Rise

The number of Corporate PPA projects is also increasing for brownfield projects. The contracted volume has expanded by 10% between 2022-2023. This trend will become more pronounced as the "feed-in tariff" contracts for solar and wind installations are expiring. This shift was demonstrated when, in March 2022, Boralex and EDF Renewables announced the signing of a CPPA with the L'Oréal Group for two wind farms whose "feed-in tariff" contracts have expired.

Driving Innovation: Agrophotovoltaic CPPAs

2023 also marked the emergence of Agrophotovoltaic CPPAs. The first was signed between Valorem and the supermarket group "Les Mousquetaires".[23]

[19] CPPAs Barometer in France, 2022-2023, available here

[20] Ibid

[21] Press release, February 21st, 2023 *"Leroy Merlin et Voltalia signent le premier Corporate PPA éolien pour une centrale neuve en France"*, available here

[22] Press release, November 24th, 2022 *"Voltalia signe un contrat d'approvisionnement en électricité solaire de 350 mégawatts avec Renault Group pour l'accompagner dans sa transition énergétique"*, available here

[23] Press release, June 5th, 2023 *"Dans les Landes, le Groupement Les Mousquetaires et VALOREM signent un PPA et s'associent pour accélérer la R&D dans l'agrivoltaïsme et la vente en circuit court"*, available here

Innovative in its approach, the installation was financed by setting up a local fund-raising scheme, whereby vegetables and fruit produced on solar panels will be sold in shops powered by the CPPA. This example demonstrates how the CPPA can be a tool to contribute to the development of local agriculture and production of local electricity.

Another example is the CPPA signed between TSE and Biomérieux laboratory.[24] This type of project, which is still experimental and in an early stage, reduces the amount of land required for photovoltaic power plants and improves agricultural yields.

We can also highlight the exponential development of collective self-consumption. Collective self-consumption is a new system that allows to share local energy production between several nearby consumption points. It is of increasing interest to companies. The number of collective consumption operations has doubled in just two months.[25]

A Dedicated Legal Framework: The Introduction of ENR Acceleration Act

Until now, Corporate PPAs have been completed in France without a specific legal framework. This has been rectified with the introduction of the ENR Acceleration Act, which establishes a specific regulatory framework around CPPAs. As France continues to fall behind in the development of renewable energy amid a growing electricity price crisis, the French legislature **"ENR Acceleration Act"** passed on March 10 2023, aims to accelerate the development of renewable energy in the country.[26] The ENR Acceleration Act set new rules for Corporate PPAs, while the overall goal is to halve the administrative processing time for projects.

ENR Acceleration Act: The Impacts

As of July, 2023, producers entering Corporate PPAs must obtain a licence to purchase for resale in accordance with article L.333-1 of the Energy Code. In order not to hinder the emergence of this practice, the legislator has allowed non-authorised producers to transfer their legal and regulatory obligations to a licensee.

These obligations relate to the management of capacity guarantees (article L. 333-1 2° of the Energy Code) and the resolution of imbalances as balancing group managers for electricity suppliers *[le règlement des écarts entre le sous-tirage et injection]*.

The responsibility to obtain a licence is only relevant for producers entering into physical PPAs. In the case of a sleeved PPA, the aggregator (known as the "sleever") that executes the contract could obtain the necessary authorisation since it purchases electricity from the producer and then sells it to the offtaker. Article L. 333-1 2° of the Code formalises an existing practice and removes any doubt as to the status of the producer as a party to the CPPA.

Public Authorities & CPPAs

Secondly, public authorities are also allowed to enter Corporate PPAs. Although the French Public Procurement Code did not explicitly prohibit such contracts, they are now allowed. However, the duration of these contracts might conflict with the principle of periodic competitive tendering laid down in the Public Procurement Code.

[24]Press release, June 19th, 2023 *"TSE approvisionnera Biomérieux en électricité décarbonée"*, available here

[25]SIA PARTNERS, *Study on collective self-consumption*, September 2023, available here

[26]D. MANDELLI, *French Senate Report on behalf of the commission for spatial planning and sustainable development*, 2022, available here

Article L.331-5 of the Energy Code allows public entities to enter long-term Corporate PPAs to ensure their access to green energy. Corporate PPAs will help the government's and local authorities' efforts to switch to cleaner energy sources.

Mixed Bidding

Finally, the ENR law introduces the possibility for bidders in *"Commission de regulation de l'Energie"* tenders to submit mixed bids combining a CPPA and the FIT or CfD mechanism. However, these Corporate PPAs will be subject to the control of the regulator. This opportunity may facilitate access to Corporate PPAs for small offtaker such as ETI and SME.[27] Indeed, if part of the financing of the generation plant is covered by Fit or CfD, this reduces the risks for the producer in the event of default by the offtaker with whom it has concluded a Corporate PPA for the other part of the plant.[28]

However, the ENR Act prohibits producers from selling guarantees of origin for the portion of electricity generated and traded under the Corporate PPA. This restriction could hinder these hybrid offers.

Establishing a CPPA'S Guarantee Fund for Industrial Companies

On November 10 2022, the French Government entrusted the French Public investment bank BPI France with the implementation of the "Garantie Électricité Renouvelable" (the **"GER"**), a guarantee fund designed to encourage the conclusion and the financing of Corporate PPAs for industrial companies who might not be able to issue offtaker guarantees requested by producers and their financing institutions.[29]

The GER guarantee fund has been operational since September 1, 2023. The initial funding of €68 million could facilitate the installation of 500 MW of new capacity. Further expansion is conceivable as the French industrial Corporate PPA market develops.

The GER takes a form of bank guarantee and should not be considered as state aid. Its role is to cover 80% of the CPPA remuneration in the event of default by the offtaker. However, the offtaker must default on three monthly payments to activate the GER.

Eligibility & Contractual Considerations

Eligibility for the GER is limited to onshore wind and photovoltaic producers that have not yet been commissioned in mainland France and whose plants are connected to the public electricity grid. Purchasers must operate in the extractive or manufacturing sectors.

The Corporate PPA must have a minimum duration of 10 years and a guaranteed annual volume of at least 10 GWh. The GER covers different Corporate PPA contractual arrangements, such as (i) a single producer and single offtaker, (ii) multiple SPVs owned by the same group with a single offtaker, and (iii) a central offtaker serving an industrial customer (pooling). When the GER is invoked, BPI pays the producer a monthly compensation based on market prices.

[27] PV Magazine, *"Ce que la loi d'accélération des EnR change pour les PPA"*, 2023, available here

[28] Ibid.

[29] French Government, Implementation of a fund guaranteeing long-term supply contracts for manufacturers when they are backed by renewable assets, November 10th, 2022, available here

Germany

The Corporate PPA market looks promising, amidst legal and regulatory challenges.

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Only having started mid-2018, the still quite young German Corporate PPA market has nicely developed since then.

Driving Forces Behind Germany's CPPA Market

Core drivers of this development have been (i) international solar PV developers which have rediscovered Germany as a market of interest, (ii) offshore wind tenders with subsidy-free outcome, (iii) brownfield onshore wind assets having been in operation for 15+ years or having run out of the German subsidy scheme and (iv) an increasing amount of offtakers following explicit sustainability targets. Especially the cap on emission certificates on the European level as well as the requirements set by EU taxonomy on the financing side have raised the importance of sourcing green electricity. Finally, the most important driver of this development has been the decreased levelized cost of energy (LCOE) with at the same time increased electricity spot prices (current and prospected).

The Rise of Solar PV and Challenges for Onshore Wind

From an asset perspective, most Corporate PPAs are concluded for greenfield solar PV projects (ground-mounted and rooftop). As with offshore wind, the LCOE of solar PV projects has developed to a level that Corporate PPAs are assessed as commercially attractive options by offtakers. Greenfield onshore wind assets, however, are rarely Corporate PPA-based, but in nearly all cases still subject to the German subsidy scheme of a so-called EEG market premium. The LCOE of onshore wind is still too high, furthermore Germany has fallen back in its onshore wind development mostly due to lawsuits against their permitting as well as overly long permitting durations (approximately 10 years from application to final and conclusive permit).

Based on the current electricity spot prices as well as the expected asset specific price levels of electricity price models, standard terms of Corporate PPAs are no longer fixed to a period of 15 years but vary in greenfield projects from 5 to 15 years (mostly between 5 or 10 years) and are in brownfield projects often in a range of 2 to 5 years. Especially with solar PV assets, a term of 5 years has been more and more accepted by banks in case of project finance.

Impact of German Legislation on Energy Prices: The Energy Brake Mechanism

At the same time, the German Corporate PPA market had to digest German legislation on cutting energy prices by a so-called energy brake mechanism. Such legislation derived from the very high energy prizes due to the Ukraine war and was established in 2022. Although this may have shortly slowed down the conclusion of Corporate PPAs, we do not expect a major negative effect on the German Corporate PPA market in the long run.

Outlook for the German Corporate PPA Market

Whilst the outlook for the German Corporate PPA market remains promising, some legal and regulatory challenges will need to be taken into account.

Renewables Targets & Legislative Packages

First of all, and as many other European countries, Germany has adopted its short- and long-term renewables targets. This was mainly done by two legislative packages, the so-called "Easter Package" and the so-called "Summer Package". Based on this legislation, the share of renewables shall reach 80% by 2030 of the gross electricity consumption compared to 46.2% in 2022 and includes the following targets:

- **offshore wind** 2030: 30 GW; 2035: 40 GW; 2045: 70 GW;
- **onshore wind** 2030: 115 GW; 2035: 157 GW; 2040: 160 GW;
- **solar PV** 2030: 215 GW; 2035: 309 GW; 2040: 400 GW.

Legal Requirements for Onshore Wind Development

Regarding onshore wind, the German states have been obliged by law to dedicate surface areas to the development of onshore wind within their states which in aggregate shall sum up to 2% of the overall surface areas in Germany.

Boosting Solar PV Development: Solar Package 1

Furthermore, at the time of the report, another legislation package on solar PV has been introduced by the German government which has not yet been passed (so-called “Solar Package 1”). With this Solar Package 1, the German Government aims to further boost the solar PV development (i) by making more areas available and easing the dual use of land (so called “Special PV Systems”: agricultural use, parking lots, floating plants and moors) with regard to ground-mounted solar PV and (ii) by expansion of rooftop solar PV, both commercial and private. The Special PV Systems shall be subject to a separate tender segment which shall gradually increase up to 3 GW per year.

Addressing the challenges of renewable projects

In addition, the German Government not only raised its renewable targets, but also identified that it needs to address the major challenges of renewable projects. For example, new legislation has been passed which aims to speed-up the permitting of renewable projects by, inter alia, providing the renewable aspect more weight in its balancing with environmental aspects.

Germany’s Green Hydrogen Strategy

Another potential booster of the development of renewable projects as well as the German Corporate PPA market is Germany’s green hydrogen targets. The German Government has established and recently updated a hydrogen strategy which aims at ramping up 10 GW of green hydrogen electrolysis capacity until 2030. The demand for electricity from renewable energy installations in this area will therefore rise even more and build an enormous potential for Corporate PPAs.

Potential Impact of RED III Directive

Finally, the implementation of the RED III directive may have further positive impact on the attractivity of Corporate PPAs in Germany.

Challenges in the German Corporate PPA Market

Despite this positive outlook, offtakers as well as project developers also need to be aware of some legal and regulatory challenges that may have an impact on the German Corporate PPA market. Such challenges are:

- Most renewable assets are based in the northern part of Germany, whereas many big industrial consumers are based in the southern part of Germany (in addition to the Ruhr area). This has led to tremendous imbalances in the electricity market so that it is currently discussed if Germany shall be split into different pricing zones. The discussion has intensified after ACERs request to the transmission system operators to evaluate different options. However, the split into different pricing zones is to our assessment rather unlikely, instead it can be expected that this issue may be tackled by different grid surcharges.
- At the time of this report, the German government considers temporarily introducing a subsidized electricity price for industrial consumers which is proposed to be at the level of 6 ct/kWh. Only a clearly defined and selected group of industrial consumers shall be eligible for such subsidized electricity price and such price shall be limited to 80% of the actual consumption. The difference between the spot price and the price of 6 ct/kWh shall be reimbursed. The German Corporate PPA market is currently quite nervous on the impact of such legislation should it be passed.
- Another possible obstacle is the recognition of GoOs issued for renewable plants in other jurisdictions in Germany. Although covered by a European Directive, mutual recognition is disturbed by different approaches to what (and how strict) requirements shall be applied. For example, the German Environmental Agency as the competent body did not accept GoOs from Iceland between May 2022 and end of July 2023 as it was assumed that the electricity from renewable assets in Iceland had been double counted.

Looking ahead

Overall, the outlook remains positive, with further and lasting growth in the German Corporate PPA market expected.

Hungary

Corporate PPAs are on the rise and becoming increasingly popular with large off-takers and well-accepted by financiers and authorities.

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An Introduction: Corporate PPAs in Hungary

The conclusion of Corporate PPAs has not been a widely used practice in Hungary until very recently. The first officially announced Corporate PPA was concluded in 2022, but with the stalling of the METÁR system and surging electricity prices in the times of energy crisis, Corporate PPAs are quickly gaining popularity and acceptance in the industry. The main reason for such late start is that electricity generators from renewable sources had to sell all of the electricity they generated to the Hungarian TSO, MAVIR, in order to benefit from the feed-in-tariff based state subsidy system, KÁT. Also, companies in Hungary had and still have the option to purchase certificates of origin (whether from the generator or from an electricity trader) which attest that the electricity purchased was generated from renewable sources. Companies with an agenda for sustainability and environmental responsibility therefore had the opportunity to purchase certificates of origin without necessarily having to directly conclude a PPA with the renewable generator.

The Shift to the METÁR system

As of the beginning of January 2017, the state subsidy of new renewable generation capacity of over 0.5 MW was introduced (generally referred to in Hungary as the "METÁR system"). In the METÁR system, the RES generators receive a subsidised electricity price and receive a premium over the market reference price (based on specific day-ahead prices of the Hungarian Electricity Exchange, HUPX) if the subsidised price is higher than the reference price, but also have to pay back if the subsidised price is lower than the reference price. The only exception is RES power plants below 0.5 MW, which had the option to receive a feed-in-tariff, but applications for this subsidy were closed on 27 April 2018. Therefore, with the introduction of the METÁR system, the renewable generators have to go out to the market and conclude PPAs with customers (or traders) that may give rise to a growing number of Corporate PPAs.

Corporate PPAs & Generators

Corporate PPAs may also be a way to go for those renewable generators whose eligibility to benefit from the KAT system expires. These generators will have to make a dire shift in their business model and handle the risk of price volatility, for which a long-term Corporate PPA may very well be an attractive solution.

Corporate PPAs & Bankability

Further, for projects that do not or would not want to qualify for state subsidies, Corporate PPAs can be an important factor in the bankability of the project for financiers. Such projects have increased in number is the past year in the absence of new METÁR tenders announced and the uncertainty when the next tender will come.

Currently, sustainability conscious corporates often meet their self-imposed sustainability targets by purchasing certificates of origin rather than entering into Corporate PPAs. Renewable generators eligible for either the KÁT or the METÁR system are not precluded from at the same time registering and selling certificates of origin, which thus far seems to have discouraged the conclusion of Corporate PPAs.

Models of Corporate PPAs

Sleeved PPAs

Sleeved PPAs may be difficult to implement in Hungary, because in this model the corporate would need an electricity trading license, which might prove to be too burdensome. However, there may be workarounds and physical delivery CPPAs may be arranged with the involvement of a balancing circle responsible party (generally a utility or trader).

On-site PPAs

On-site PPAs are also getting more popular, because large off-takers feel the pressure of higher energy prices as well as the risks of high price volatility. The challenges here are mostly related to grid and local-wire connections and bankability because the deviating land registry practices often make it difficult to have appropriate securities and pledges in place. Different innovative contractual structures are cropping up to cope with these challenges and we see regulatory changes that support especially solar installations.

Virtual PPAs

Virtual or synthetic power purchase agreements ("VPPAs") provide a more clear-cut alternative, however, some regulatory challenges remain there, too. It will have to be carefully considered whether VPPAs (often being in principle contracts for difference), may qualify as financial instruments and, therefore, concluding VPPAs may be considered as investment services which would require the authorisation of the National Bank of Hungary ("NBH"). Project companies that conclude VPPAs to sell the electricity generated by them may actually be dealing on own account with financial instruments, and, if it is performed as a regular economic activity, it constitutes an investment service activity which require an investment services license from the NBH. However, under certain conditions, the conclusion of VPPAs may still be exempt from the NBH's authorization. It is therefore important to carefully assess such conditions and implement the VPPA structure in a way that the exemption will apply.

Tax Challenges: Robin Hood Tax

From a business perspective, probably the greatest challenge for merchant PPAs of any type is the so-called Robin Hood Tax, i.e., the income tax on energy suppliers under Act LXVII of 2008, which is at 31% of the tax base of an electricity generator (with the exception of generators below 50MW having KAT or METÁR subsidy). Further, with respect to the tax year of 2023, the Robin Hood Tax was raised to 41%.

Outlook for Corporate PPAs in Hungary

Corporate PPAs are becoming more and more widely used in Hungary which we expect to further accelerate because of market circumstances and regulatory updates, as well as the increasing acceptance by financing institutions and deeper understanding of contractual structures by off-takers.

Italy

As Italy enters a new era where the PPA legislative and regulatory framework is evolving rapidly, the opportunities for generators and off-takers are endless.

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The Italian Corporate PPA Market: A Period of Growth and Transformation

Towards the end of the last decade, the Italian renewables market entered a period of rapid growth and transformation. This was not only the result of the country's favourable climate but due to a legal framework known as "Conto Energia" which provided economic support to the renewable energy sector through the "feed-in-tariffs" scheme. This scheme provides a guaranteed payment for electricity generated and exported by PV plants to the grid. Italian legislation grants generators the option to sell electricity, either through a mandatory purchase regime (ritiro dedicato), through bilateral agreements (PPAs) or on the electricity exchange market.

The Mandatory Purchase Regime

Since 2008, generators have opted more often for the mandatory purchase regime (ritiro dedicato) than for PPAs. The mandatory purchase regime is a simplified purchase and resale arrangement, entered between the generator and Gestore Servizi Energetici (GSE), the Italian national grid operator, whereby GSE purchases and resells the electricity to be exported to the grid (at a zonal price or a minimum guaranteed price) and, on behalf of the generator, transfers the fees for the use of the grid (dispatch and transmission fees) to distributors and to transmission system operators (TSO). However, since the beginning of 2013, the GSE has been charging generators of renewable energy who benefit from the mandatory purchase regime further costs, such as imbalance costs ("costi di sbilanciamento"), costs originating from the participation of the GSE in the intra-day market ("mercato infragiornaliero") and other relevant administrative costs for the services it supplies for the mandatory purchase regime. This trend, along with a significant drop in the electricity demand and a sharp decrease in prices, pushed many generators (usually electricity generators on large scale) to explore how to increase their revenues by selling electricity power generated by their plants.

Therefore, short term PPAs are hence a valid alternative for generators to the mandatory purchase regime.

Understanding the Types of PPAs in Italy

PPAs in Italy are bilateral contracts, executed "over-the-counter" at a purchase price directly negotiated with energy traders/wholesalers. These energy traders/ wholesalers, in turn, negotiate with the TSO the price deriving from energy generation.

In a limited number of occurrences, where a generator and a corporate can be physically connected through a private network, generators may find it convenient to enter into a Corporate PPA to sell directly to a customer who has a stable need for large volumes of energy.

Emergence of Long-term Corporate PPAs

Although no regulatory provisions prevent parties from entering into long-term Corporate PPAs, in the last three years Corporate PPA structures have started to be used in Italy, both in the form of physical and synthetic Corporate PPAs.

Drivers for the Growth of Corporate PPAs

This positive trend may be explained by several reasons: in the first instance, the effects of the crisis of raw materials, and especially the stable increase of the market price of natural gas - ultimately referrable to the Ukrainian war -, have rapidly overcome the drop in energy demands caused by the COVID-19 pandemics' outbreak, causing a sharp rise of the electricity price to the maximum price peak ever achieved by the Italian electricity market in the last decades. In the second place, regulatory changes allowing multiple consumers to share supply contracts (through "energy communities") and simplifying the use of PPAs for non-professional actors are a promising factor. Finally, corporations and industries are demonstrating a growing interest and sensibility in sustainability and CSR aspects in the wake of the Green New Deal EU policies, which, on the other hand, can provide a direct economic benefit in the background – for instance in terms of access to green bond financing.

In this respect, thanks to the ESG procedure to be enacted by corporates, we have noted in recent months an increase in Corporate PPAs requests, resulting in two different auctions launched by two technology corporations to secure the energy needed for maintaining its assets in Italy.

The Impact of COVID-19

Recently, the COVID-19 outbreak halted the energy transition's acceleration which had started in early 2019, due to the drop in energy demands and to the electricity price curve forecast until 2024. However, this setback has been completely overcome by a sharp increase in electricity prices. Despite the long-term returns associated with investment in renewables, risks associated with merchant price off-taker default are not helping the creation of a healthy environment for foreign investors looking to invest in Italy's renewables industry.

The Changing Regulatory Framework

We are currently entering a new era where generators generators and off-takers will benefit from new developments in the legislative and regulatory framework governing Corporate PPAs, introduced in August 2019 with further updates expected soon.

Electricity Prices: What to Expect

After the turmoil caused by the outbreak of the Ukraine war and the sharp increase in the gas prices which brought the electricity prices to soar dramatically, in 2023 the electricity prices have slowly returned to the general average price of under €100/MWh, registered until 2021. Therefore, it seems that there is no longer a need for governmental actions to stabilise electricity prices, asmarket prices are naturally adjusting.

In this situation, PPA prices are considerably and steadily going down.

Morocco

Described as a “renewable energy superpower”[30], the Kingdom of Morocco has exceptional wind and solar energy potential, estimated at 500TWh per year. This reserve, combined with strong political leadership, makes Morocco one of the leaders in renewable electricity production in Africa.

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As of December 31, 2022, renewable energy accounted for around 40% of installed electricity generation capacity.[31] What’s more, the Kingdom has set itself the target of generating at least 52% of its electricity from renewable sources by 2030. Corporate PPAs play a key strategic role and are gradually being developed.

A Necessary Tool for the Development of Moroccan Industries

The roadmap, launched in 2009 by King Mohammed VI[32], was coupled with the drafting of Law 13-09 on renewable energies (“**Law 13-09**”).[33] This first law established an appropriate regulatory framework to “encourage the development of renewable energy installations in Morocco”.[34] Law 13-09 has been the subject of two amending and amplifying laws - the first dated January 12 2016[35], and the second dated February 27 2023 (the “**Amended Law 13-09**”).[36] The purpose of these two amendments is to remedy the weaknesses of the original text and to make the sector more attractive. At the same time, the Moroccan legislator also reformed the system of self-generation of electricity at the end of 2022.[37]

Morocco’s Strategic Priorities

According to the Ministry of Energy Transition, these various reforms promote a model of electricity production that is decentralised, low-carbon and competitive.[38] At the same time, the Government has made the development of Morocco’s manufacturing industry one of its strategic priorities, along with the fight against climate change, without encouraging it to adopt a “green” approach. In addition to Amended Law 13-09, the implementation of the EU Carbon Adjustment Mechanism (CBAM), is an incentive to the implementation of low-carbon solutions into the kingdom.[39]

In this context, Corporate PPAs appear to be an appropriate and efficient tool for Moroccan companies to initiate their energy transition while maintaining their sustainable and responsible growth prospects, and to control their supply and production costs at a time of high energy prices.

The Emerging Role of Corporate PPAs in Morocco

Corporate PPAs are slowly emerging in the Kingdom of Morocco. On February 16 2023, Canadian company Aya Gold & Silver signed a 20-year Corporate PPA with Energie Eolienne du Maroc. The CPPA will cover 100% of the electricity needs of the Zgounder mine, located to the south-east of Marrakech, for the duration of its operation, and will prevent the emission of 56,000 tonnes of CO2 equivalent per year.[40]

In February 2021 and December 2022, the French IPP Quair announced the signature of a 1 Mw in-site Corporate PPA with Nestle[41] and 1,7 Mw offsite Corporate PPA with Safran, the French aeronautical subcontractor.[42]

Furthermore, a Corporate PPA has been signed between the Emirati IPP “Amea Power” and Amendis, a subsidiary of Veolia Morocco. Alongside its power generation capacity of 35 MW and 25-year duration, this Corporate PPA was aimed at decarbonising the provision of portable water treatment and transportation in the Tangier area. It combines both decarbonisation and public service improvements.

[30] Matt Oliver, “the African nation that could be the world’s first renewable superpower” The Telegraph, June 2nd, 2023, available here

[31] Ministère de la transition énergétique et du développement durable, Key power indicators, available here

[32] The National Energy Strategy, available here

[33] Law 13-09 on renewable energies, promulgated on February 11th, 2010

[34] Preamble to Law 13-09

[35] Law 58-15 amending and supplementing Law 13-09 on renewable energies, promulgated on January 12th, 2016

[36] Law 40-19 amending and supplementing law 13-09 on renewable energies and law 48-15 on the regulation of the electricity sector and the creation of the national electricity regulatory authority

[37] Law 82-21 on self-generation of electricity

[38] Press release from the Ministry of Ecological Transition dated December 20th, 2022, available here

[39] Konrad Adenauer Stifung, The EU Carbon Border Adjustment Mechanism: Implications for Morocco and Necessary Policy Adjustment, Policy paper, 2023, pp. 1-2, available here

[40] Agence Ecofin, “Maroc : Aya Gold & Silver signe un contrat d’achat d’électricité renouvelable avec Énergie Éolienne du Maroc”, February 20th, 2023, available here

[41] Press Release, March 15th, 2021, “Qair met en service la première centrale solaire privée du Maroc”, available here

[42] Press Release, December 09th, 2021, “Safran inaugure la première centrale photovoltaïque de l’industrie aéronautique au Maroc”, available here

Amea Power has announced that other Corporate PPAs of this kind are expected to be signed in other areas of Morocco, notably in Fes-Meknes.[43]

Finally, some Corporate PPAs are beginning to be concluded in the Agri-food sector. In 2022, for example, the IPP Nareva signed a 2 MW Corporate PPA with the Lesieur group to reduce the group's CO2 emissions.[44]

These examples show that the legal framework is adequate for the emergence of Corporate PPAs in different sectors of economy, even if minor regulatory adjustments could speed up the process.

Amended Law 13-09: Perfecting the Framework for Corporate PPAs

Firstly, the Amended Law 13-09 regulates the producer and the development of its generation facilities more than the commercial relations it enters with its offtakers. Article 26 of the Amended Law 13-09 expressly authorises the conclusion of electricity contracts between a producer and one or more offtakers if the offtakers are connected to the national medium-voltage, high-voltage and very high-voltage electronic network granted to the TSO.[45]

This gives developers access to all national electricity grids and a particularly large potential customer base of SMEs and large companies. The duration of the contract, the guaranteed volume and the price are freely negotiated between the parties. Similarly, the Amended Law 13-09 does not specify whether the CPPA is subject to a "take and pay" or "take or pay" system. Generation facilities constructed as Corporate PPA projects are governed by Chapters 2, 3 and 4 of Amended Law 13-09.

Firstly, photovoltaic installations are no longer subject to the "solar map" introduced in the first version of Law 13-09. As a reminder, Article 1 of Law 13-09 had introduced "siting zones determined by the administration". This requirement was abolished for photovoltaic projects by Law 40-19. However, it is important to note that wind energy projects are still subject to the obligation to be developed in a zone defined by the Ministerial Order of September 19 2011.[46]

Secondly, if the facility has a capacity of less than 2 MW, it is subject to a prior declaration to the Ministry, and if it has a capacity of more than 2 MW, it's subject to a development permit issued by the Ministry of Energy.[47]

This development authorisation is valid for three years, during which time the project must be carried out.[48] The operator must provide a bank guarantee or security deposit[49] and undertake to apply the principle of national preference in all works, supply and service contracts relating to the project.[50] Any change of control of the operator holding the development licence must be approved in advance by the authorities. These new provisions are based on law 40-19. On completion of the project and before the production site is put into operation, the developer must apply to the Ministry of Energy for a 25-year operating licence, renewable once.[51]

Thirdly, in order to gain access to the national grid, two agreements must be concluded between the producer and the national electricity transmission system operator: (i) a grid connection agreement under which the developer connects its plant to the national grid and (ii) a grid access agreement under which the developer is granted the right to feed electricity into the grid, subject to compliance with certain technical and financial conditions.

Finally, the development of the Corporate PPAs required the introduction of a monitoring system and proof that the energy purchased under the Corporate PPA was from renewable sources. In response, law 40-19 provides that any operator will now be able to obtain "certificates of origin" certifying that the electricity fed into the grid is of renewable origin. This system will necessarily be specified by implementing decrees. While the introduction of certificates of origin is to be welcomed, it will be necessary to analyse in detail the legal nature of these certificates, in particular their emissions, their transferability and whether they can be used for value. At present, the system is not operational. This is problematic for many industrial operators who need to justify the decarbonisation of energy production sources at their Moroccan sites but are unable to do so in practice.

[43] Energy and Utilities, AMEA Power starts first construction in Morocco with partner GPM, 2022, available here

[44] Lesieur Group, Annual Financial Report, 2022, p. 57, available here

[45] "Office Nationale de l'Electricité et de l'Eau Potable" (ONEE).

[46] Ministerial Order of September 19th, 2011, defining the zones intended to accommodate sites capable of housing installations to produce electricity from wind energy sources

[47] Article 3 of Amended Law 13-09

[48] Articles 8 and 11 of Amended Law 13-09

[49] This measure will have to be specified by decree

[50] This measure will also have to be specified by decree

[51] Article 13 of Amended Law 13-09

Norway

Whilst recent decades have seen a resurgence in the use of Corporate PPAs in Norway, recent market conditions and fewer renewable energy projects have led to a slight decline in the number of PPAs being finalised.

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Government-regulated power purchase agreements have traditionally been an important instrument in attracting power intensive industry to Norway, such as metal, wood and chemical industries. Today, most of the energy trading in Norway occurs at spot prices through the well-established Nordic power exchange, Nord Pool. Over the last decades, there has however been a substantial increase in the use of Power Purchase Agreements (PPAs) in Norway, particularly in connection with financing of onshore wind projects. In recent years, we have experienced a slight decline in the number of concluded PPAs due to market conditions and few new renewable projects having reached financial close.

Norway is part of a common Nordic power market with Sweden, Denmark and Finland, which in turn is integrated into the European power market via grid connections to the Netherlands, Germany, the Baltics, and Poland. During 2021, Norway will have installed two new interconnectors to Germany and the UK.

The Regulatory Environment in Norway

There is no standardised contractual framework universally adopted in the Norwegian PPA-market. Instead, it is common for larger entities to employ their own standards as a basis for individual negotiations when structuring the PPAs.

This means that most PPAs are concluded on a tailor-made basis. To a certain extent, we do see FEMA-based frameworks used in the Norwegian market as well.

The Norwegian energy market is fully deregulated and there are no particular laws or regulations surrounding the entering into of private PPAs, other than a requirement that any wholesaler of electricity needs a so-called electricity trading license, which is easily obtained by application to the regulator (Norwegian Energy Regulatory Authority (RME). A producer delivering electricity to the grid will also need a more extensive set of licenses and approvals.

PPA Growth Factors

In 2020, Copenhagen Economics, commissioned by the RME, presented an analysis on the development and use of long-term PPAs in Norway. The report indicates that the increase in the use of PPAs over the last decades was driven in part by the establishment of data centres in the Nordic region and the financing of onshore wind farms. In addition, it was also highlighted that increased attention to the energy transition and ESG strategies and, increasingly, legal requirements driven by EU policies which affect availability of capital, has increased the demand for large consumers being able to demonstrate that their energy use is sourced sustainably.

This has resulted in a number of PPAs being executed by well-known international corporates such as Google, IKEA and Facebook.

Electricity Certificates and Guarantees

Electricity certificates (so-called Elcerts) issued and traded under the Swedish-Norwegian certificate scheme have commonly been sold under PPAs in addition to the electricity. Generally speaking, all new renewable producing facilities that came online in the period from 2012 to 2021 will be allocated one Elcert per MWh of electricity produced, for a period of 15 years from commissioning. Elcerts have also been sold separately under so-called EPAs (Elcert Purchase Agreements), structured similarly to traditional PPAs, although this is more uncommon. Guarantees of Origin (GoO's) issued in accordance with EU regulations are also allocated to Norwegian renewable producers and commonly sold along with electricity under a PPA. There has been some uncertainty related to the future of the GoO's in Norway as the political platform of the current government contains provisions on removal of the system, but these provisions have to date not been followed up with concrete actions.

PPAs: Challenges and Future Prospects

The recent decline in PPAs concluded in the Norwegian market has a number of explanations. An extremely volatile spot market has resulted in a gap between supplier and buyer expectations, leading many renewable projects to choose lower hedging ratios in combination with shorter duration, or constructing projects on an all-equity basis, thereby avoiding the banks' price hedging requirements. The processing of onshore wind license applications was also put on hold by the Norwegian government in 2019, leading to a natural decrease of the number of onshore wind projects reaching FID over the last years. Since 2022, new applications are again being processed which is expected to lead to a rise in greenfield onshore wind development in Norway and a further demand for PPAs.

PPAs & Offshore Wind Power Developments

Lastly, it is important to highlight the uncertainty surrounding the use of PPAs in offshore wind power developments in Norway. Offshore wind projects in Norway currently depend on government subsidies, which will be made available through a competitive process for a Contract for Difference (CFD) with the Norwegian State. Under a CfD regime, it is not commercially attractive to enter into a PPA for the term of the CfD (15 years from commissioning) other than a pure route-to-market PPA. Nevertheless, it is anticipated that some offshore wind projects in Norway could be realised without CfDs, meaning that long-term PPAs are likely to be entered into for such projects subject to the requirements of the project finance providers.

Poland

Despite the difficulties arising from Poland's shifting energy market, there has been a steady increase in the volume of energy generated by Corporate PPAs in Poland.

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Following the Council Regulation (EU) 2022/1854 of October 6, 2022, *on an emergency intervention to address high energy prices*[52], Poland adopted its revenue-cap legislation in October 2022[53]. Until today (Q3, 2023) the Act has been amended for six times. Such a significant volatility of regulation directly affecting the revenues of energy market participants and the very fast pace of the procedure for successive legal changes have led to a significant level of legal uncertainty in the market. The Polish legislator decided to introduce this temporary legislation for the period until the end of 2023, rather than until the end of June 2023, as most other EU Member States did. Moreover, the legislation treats financial instruments associated with sales of electricity (like, e.g., Virtual PPAs) in less favorable way, which has had a chilling effect on the conclusion of new agreements of this kind.

The introduced revenue limits directly translated into price levels on the markets operated by the Polish Power Exchange leading to their legally motivated decrease. While prices reached dizzying levels in 2021/2022, with hourly prices happening to exceed the EUR 1000/MWh threshold, the volume-weighted average price on the Day-Ahead Market in August 2023 amounted to PLN 517.07/MWh (ca. EUR 115/MWh)[54]. However, there are opinions formulated in the market regarding the transitory nature of these declines and concerns about a return of prices to earlier levels after the anticipated expiration of revenue cap legislation.

New Trends and Notable Recent Deals

Despite the slightly more complicated contractual structure than in case of Virtual PPAs recently we could have observed increasing number of physically settled Sleeved Corporate PPAs at the expense of a decrease in number of Virtual PPAs being concluded. As a reminder, Virtual PPAs dominated the Polish market in previous years, while the first Sleeved Corporate PPAs appeared when a dozen of financially-settle agreements had already been concluded and publicly announced. The change in trend from Virtual PPAs to Sleeved Corporate PPAs has significant prospects of continuing in the long term. At present, of the 4 negotiation processes we are conducting in Poland, only one case involves Virtual PPA, and the other three involve Sleeved Corporate PPAs.

The most notable recent deals in Poland regarding Sleeved Corporate PPAs include, among others, one of the largest, in terms of volume, Corporate PPAs under which Qair Group companies will supply as much as 2 TWh of electricity to one of the largest off-takers in Poland over a 12-year period or another (newly closed, awaiting public announcement) Sleeved Corporate PPA between one of the largest cement sector players in Poland and an international market integrator (Bird & Bird Warsaw Office had the opportunity to advise on both this transactions – to Qair Group companies regarding the first and the cement sector off-taker as far as the second deal is concerned).

Recent Changes in the Regulatory Landscape

Changes in spatial planning and zoning legislation

The Act of July 7 2023, *on amending the Law on Spatial Planning and Development and certain other laws*[55] provides that renewable power sources with an installed electrical capacity of more than 150 kW or used for the commercial production of electricity, shall only be located based on local zoning plan. Due to lack of adopted local zoning plans in ca. 70% of the Polish territory, such projects will still be able to be located based on zoning decisions (as it predominantly happens today) but no longer than until the adoption of a general local plan by given municipality (and until December 31 2025, at the latest).

[52] O.J. EU LI 261 of 7.10.2022, p. 1.

[53] Act of October 27, 2022, on emergency measures to limit electricity prices and support certain consumers in 2023 (Journal of Laws of the Republic of Poland of 2022, item 2243, as further amended).

[54] For comparison: the volume-weighted average price on the Day-Ahead Market in August 2022 amounted to PLN 1,390.76/MWh (ca. EUR 302/MWh)

[55] Act of July 7, 2023, amending the Law on Spatial Planning and Development and certain other laws (Journal of Laws, item 1688).

The same act introduced provisions on integrated investment plans, enabling adoption or amendment of a local zoning plan on an area limited to one used for purposes of the given investment, based on an agreement between the investor and the municipality, providing, among other things, for the implementation of accompanying investments benefiting the local community. Moreover, the so-called '10H rule' has been relaxed[56] under the provisions of the Act of March 9 2023, *on amending the act on investments in wind power plants and some other acts*[57], providing for a new minimum distance from the wind turbines to the nearest residential buildings (at least 700 meters).

Cable pooling regulations

By adopting the Act of August 17 2023, *amending the Act on Renewable Energy Sources and certain other acts*[58] the legislator decided to introduce long-awaited regulations relating to cable pooling. The adoption allows for two or more renewable energy source installations belonging to one or more entities to be connected to the electricity grid with a rated voltage higher than 1 kV, at a single connection point, under single connection conditions and one connection agreement.

In case of two or more installations belonging to different entities, it will be necessary to conclude an agreement between them regulating responsibility towards grid operator, rules regarding cooperation between parties and representation.

Amendments regarding direct lines

The Act of July 28 2023, *on amending the Energy Law and certain other laws*[59] introduced solutions enabling the use of direct lines (replacing the previous legislation in this area which had a facade character[60]). Under the new regulations, it will be possible to develop a direct line based on an entry into the register kept by the President of the Energy Regulatory Office, made based on notification by the entity developing the direct line. It will be necessary to accompany this notification with information on the parameters of the direct line and (in case of installations with installed capacity exceeding 2 MW being connected) – with an expertise on its impact on the grid. The off takers of electricity supplied by the direct line will have to contribute to the costs of maintaining the electricity system by paying the so-called solidarity fee. Importantly, the burden will not apply to self-generation or cooperative structures where the electricity off-taker has a contractual right to use the power generating installation (some Energy-as-a-Service, ESCO or leasing models) and not simply purchases electricity generated by the installation.

Future perspectives

Despite the regulatory and economic uncertainty affecting the energy market in Poland from Q3, 2022 to Q3, 2023, the Corporate PPAs market in Poland did not stop its steady growth. It seems that in these difficult circumstances, participants of the energy market began to perceive additional, apart from the attractive price for consumers, advantages of this type of agreements, including, above all, resistance to legal and economic changes and stability of the contractual relationship. Given the continuing interest in this type of contract, the development of legislation in sustainable development and the new possibilities related to, inter alia, the regulation of integrated investment plans, cable pooling and direct lines, we expect further growth of the market for Corporate PPAs in Poland, both in terms of the number as well as variety of contract types.

[56]For more information: please see the Report for 2022.

[57]Act of March 9, 2023, on amending the Act on investments in wind power plants and certain other acts (Journal of Laws, item 553).

[58]The Act of August 17, 2023, amending the Act on Renewable Energy Sources and certain other laws (Journal of Laws, item 1762).

[59]The Act of July 28, 2023, amending the Energy Law and certain other laws (Journal of Laws, item 1681).

[60]For further reference please see: Bird & Bird, Corporate PPAs – an international perspective 2022, p. 43.

Portugal

Whilst Corporate PPA's continue to gain prominence in the Iberian space, supporting the expansion of renewable capacity, there remain a number of barriers to overcome.

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A Historical Commitment to Renewable Energy

Portugal has been consistently supportive of renewable energy generation, especially through encouraging legal regimes that have guaranteed and protected investment and the acquisition, by the supplier of last resort, of the electricity generated.

In fact, one of the national goals for the 2030 horizon is the reinforcement of the bet in renewable energies and the reduction of the energy dependency. The recent approval of the National Energy and Climate Plan 2021-2030 (PNEC 2030, in its Portuguese acronym) and the National Strategy for Hydrogen have reaffirmed Portugal's commitment in promoting the reduction of greenhouse gas emissions, the incorporation of energy from renewable sources and energy efficiency, the decarbonization of society and the promotion of the gradual introduction of hydrogen.

According to PNEC 2030, Portugal is the third country of the European Union with the highest level of renewable incorporation. This is the result of abundant natural resources but also of the overall legislative and regulatory stability over the last decades and of public policies that have fostered renewable energy projects since the 90's.

Such policies have relied mainly on the approval of public remuneration schemes that guaranteed stability and long-term predictability of return to private investors.

Electricity Production

In particular, electricity production in renewable energy plants registered in Portugal until 7 November, 2012, is promoted through a feed-in tariff. Since then, no guaranteed remuneration scheme has been approved for new projects in Portugal, other than for small-scale, self-consumption or renewable cogeneration projects and therefore, renewable projects in Portugal:

- Either benefit from a feed-in tariff granted prior to 2012, selling energy, through a power purchase agreement (PPA), to the supplier of last resort, which is legally obliged to acquire such energy, paying special regime generators the feed-in tariff that corresponds to their generation technology and the date of licensing; or
- were licensed after 2012 and thus, operate under a market regime, selling energy under organised markets or through bilateral agreements.

The Rise of Solar Power

Nonetheless, in this new world of sophisticated technologies, the reasons for supporting renewable energy generation have not diminished, but only grown bigger, given that a few years ago, a rampant interest in the deployment of solar energy in Portugal emerged. In fact, most renewable investment in Portugal has traditionally focused on the wind and hydro sectors, leaving solar energy overlooked. However, Portugal has recently witnessed a significant increase in capacity licensing requests for solar energy projects, which has resulted in a shortage of grid capacity.

The Solar Auction Initiative

For that reason, on 6 June 2019, the Portuguese Government launched an auction to grant grid capacity in which each participant submitted proposals either to benefit from a guaranteed remuneration (feed-in tariff) or to trade electricity under market conditions, against the payment of a contribution to the National Electricity System (SEN), both remuneration schemes being in place for a period of 15 years.

Largely due to the success of such auction, photovoltaic production has exceeded, for the first time, the annual mark, with 1,400MW allocated and a world record of €14.80 per MWh reached. The 2020 solar auction proved a success with Portugal breaking a new world record with the lowest price of solar energy recorded. The auction was awarded 670 MW, of which around 75% in storage mode (483 MW), a third bidding modality that was newly introduced. Following the success of these two auctions, the Portuguese Government decided to launch a new initiative in 2022, which consisted of a floating solar auction aimed at attributing reserve capacity to be leveraged by power plants to be installed in Portuguese dams. In this auction held on April 5, 183 MW were attributed, with two lots achieving the lowest tariffs in the world: €41.03/MWh and –€4.13/MWh (equivalent to a 110% discount to the reference tariff initially set). It is worth highlighting that this tariff is about 137% lower than the lowest tariff obtained in the previously mentioned 2020 solar auction, considered, at the time, to be the lowest in the world.

Recent Regulatory Changes

More recently, in January 2022, the legal regime applicable to SEN has undergone a profound transformation, with the approval of Decree of Law no. 15/2022, which now applies to a wide range of activities, such as the production and storage of electricity, the production of electricity for self-consumption and the issue of guarantees of origin.

Current Strategy & Outlook

Currently, the strategy for the Portuguese energy sector relies heavily on the installed capacity of renewable energy generation projects while the country prepares the decommissioning of the coal power plants and boosts private investment in renewable energy projects by launching competitive bidding procedures that bring support schemes closer to market prices and invests in the expansion of grid capacity to allow the connection of said projects.

The above mentioned new legal regime contains several solutions aimed at accelerating the energy transition, namely trough the to the creation and densification of the legal framework of innovative realities, such as storage, over-equipment, re-equipment, hybrids and hybridisation, which until now have been unregulated and are expected to allow a better and more efficient use of the capacity of the existing power plants.

Recent Corporate PPA's in Portugal

The new reality of operating without a feed-in tariff is challenging, given that all projects in Portugal are being licenced under a subsidy-free scheme and renewable energy generators are now faced with energy trading under organised markets.

However, stakeholders are exploring alternatives in Portugal. Portugal's regulatory and legal framework allows the use of different mechanisms for the active purchase of electricity by the consumer, the main ones being Renewable Energy Certificates, PPA's, production for self-consumption and Renewable Energy Communities, which are now being widely developed.

In fact, several players are venturing into the new world of virtual PPAs, as a way to mitigate the price volatility risk of spot-market sales and increase cash-flow stability.

A virtual PPA is a power-purchase agreement with no physical delivery of electricity to the off-taker, under which the electricity is sold in the spot market and the floating revenue is exchanged by the generator against fixed payments from a corporate off-taker.

Due to its benefits, Corporate PPAs are beginning to gain prominence in the Iberian space, supporting the expansion of renewable capacity. In Portugal, some examples are: Sakthi, which has awarded an 18 year contract for the supply of renewable energy by EDP, being the largest ever PPA signed in Portugal by the EDP group; Exus and Blackrock with Axpo (fixed prices of eight years for the energy produced in the Solar Power Plant located in Salvaterra de Magos (24MW)); Allianz Capital Partners and WeLink (a 20 year agreement regarding the Ourika solar power station); the Vale do Moura Photovoltaic Plant (28.8 MW) also signed by Axpo and Hyperion Renewables with a 10 year marketing guarantee, being the first bank-financed photovoltaic plant in the whole Iberian Peninsula which will not receive any type of public subsidy.

More recently, Aquila Capital and Axpo have signed a PPA through which Axpo Iberia undertakes to provide representation services for Portuguese power plants and the purchase of 100% renewable energy from Aquila Capital, through the four assets in its portfolio. The first half of 2023 was particularly fruitful for these contracts, with the Portuguese company Green Venture selling the output of its 40-MWP Valpacos solar park in northern Portugal to Statkraft AS under a PPA, Voltalia signing a corporate PPA with BA Glass Group in order to sell 12.4 MW of its Garrido solar park (a cluster comprising five solar parks from Pinhal Novo to Oliveira de Frades) with a capacity of 50.6 MW and Vodafone signing a PPA with Iberdrola, which will supply the first with 410 GWh of photovoltaic (PV) solar energy per year in Germany, Portugal, and Spain.

In Portugal, these instruments have often been associated with complex contractual schemes in which the parties regulate their relations through a macro contract (a framework agreement) and then enter into specific PPAs for the sale of the energy produced by each plant that the producer installs.

These Corporate PPA's guarantee new installed renewable capacity and allow the financing and, therefore, the installation of more renewable photovoltaic and wind power plants without any kind of influence of the electricity tariff on the price. Consequently, Portugal has managed to maintain (alongside with Spain) its position with the lowest prices in Europe.

There are, however, several barriers still to overcome. On the one hand, REN, the grid operator, faces a huge challenge in accommodating so many new solar generators – with regions such as Evora and Estremoz already seeing bottlenecks. So much so, that, in 2018, the government has put in place a lottery scheme (sorteio) to award future permits for areas where grid lacks capacity. The high number of photovoltaic plants without a subsidised tariff already approved by the government plus pending licence applications exceeded, in some network areas and on a large scale, the reception capacity in the national electricity distribution and transmission network. It is, however, expected that the new legal regime will change this situation, by simplifying the licensing procedures foreseen therein.

Additionally to this difficulty of access to the network, the main barriers in the current PPA market in Portugal are related to a lack of liquidity of such market and also the regulatory framework (the clawback issue), which makes decision-making difficult and hinders long-term investment. Naturally, the volatility of energy prices has also not contributed to an increase in confidence in these instruments, with companies becoming less and less favourable to closing prices in early stages of investments. Finally, consumers appetite for long-term solutions is still emerging with the consumers starting (just now) to look for long-term solutions with very competitive prices while trying to meet their sustainability goals.

However, some say that we are at a unique moment regarding the difference between the price of energy in the consumer country and the price in the generator country, with everything pointing out to the reduction of such difference. Therefore, this is an opportunity to generate more electricity and develop projects, which consumers are a priori prepared to absorb.

Romania

Corporate PPAs present significant opportunities for corporate buyers, as new projects advance into the Ready-to-Build (RTB) phase.

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The Corporate PPA Ban in Romania

Since 2007, Romania's electricity market has become increasingly liberalised. However, further to the signing of several detrimental long-term electricity sale agreement, by a state-owned producer, Romania's State banned all electricity producers from entering into directly negotiated electricity sale agreements. The PPA ban was in force for almost 10 years and within such period of time the electricity produced in Romania has been sold solely on the centralized markets administered by the Romanian Operator of the electricity and natural gas market "Opcom S.A." (as of March 2023, the Romanian Commodities Exchange also obtained a license for the administration of a wholesale centralized market).

2020: A New Development Phase for Romania's Electricity Market

In early 2020 Romania's electricity market entered a new phase of development, in line with the country's commitment to reach a RES 2030 target of 30.7% (to be potentially increased to 34%). From December 31, 2021, the ban on PPAs was lifted, further to the Government Emergency Ordinance no. 143/2021. The Energy Law no. 123/2012 was also amended to enable developers to sell, during the construction phase, the electricity that would have been produced by the generation facilities, despite not having a generation license - as per the law, the generation license should be obtained not later than 60 days prior to the start of delivery otherwise the PPA will be terminated further to the default of the developer.

Although the lift of the PPAs ban removed one of the main hurdles preventing investments in new renewable projects, a limited number of large PPAs have been entered into to date.

Recent Examples of PPAs in Romania

Recent examples of PPAs entered during the second phase of renewables include:

- the virtual PPA entered between Ursus Breweries and Energy
- the physical PPA entered between Verbund, Axpo and a multinational automotive supplier
- the virtual PPA entered between Orange and Engie.

Alro Group (the largest electricity consumer) has publicly announced its intention to enter into a PPA with one or more renewable electricity producers against a fixed price.

Romania's Funding Delays: Impacts on Renewable Energy Projects

Nevertheless, with the grants from the EU Funds and the Contracts for Difference (CfD) support scheme experiencing delays, and a significant number of projects advancing into the Ready-to-Build (RTB) phase, developers are now pursuing financial support from credit institutions. This support typically requires a developer to have secured a PPA. Although Romania's Government announced that they will launch the first CfD auction this year, it seems that more advanced projects will not be eligible for this support.

The Legislative Pack: Additional Taxes & Sanctions

Despite increasing interest from developers, traders are still assessing and recovering from the intrusive and evolving legislative pack. The legislative pack, which new renewable electricity generation capacities are exempted from, aims to lessen the impact of the high energy prices caused by the Russian aggression against Ukraine. The legislative pack introduced additional taxes on the trader's revenues that will be due until March 2025, namely:

1. **Windfall tax on revenues:** deriving from the resale of electricity purchased by means of physical PPAs if the trading price is higher than the monthly average acquisition price plus 2%, including for export.
2. **Windfall tax for financial PPAs:** This applies if the variable price is higher than RON 450/MWh and is also relevant to the partners from back-to-back hedging agreements.

In addition, the same legislation also sanctions the "successive sale" of electricity carried out by the traders with the clear aim to increase the price with a fine up to 5% of the trader's turnover (sanction also limited in time until March 2025).

Other Challenges to Corporate PPAs: Offtakers & Penalties

Although recently credit institutions have shown a preference towards corporate PPAs, developers still claim they face some difficulties in finding credit-worthy offtakers that the credit institutions accept. In addition, similar to other EU countries, Romania transposed and further detailed the EU legislation on supplier's switching, legislation that grants the corporate client the right to terminate any supply agreement at any point in time.

Termination penalties can be enforced by the developer/producer, provided such satisfy the conditions imposed by Romanian law; among such conditions we note that the penalty cannot exceed the amount of the producer's direct economic losses caused by the customer further to the early termination of the contract.

Whilst corporate PPAs are beneficial in protecting against price strike, end-consumers are still hesitant about committing to a long-term, pre-determined price, especially given the volatility and alleged abuses of electricity prices, by suppliers, that some end-consumers have reportedly witnessed over the last couple of years. However, Romania's corporates also start to commit to sustainability initiatives, notably towards achieving net zero and Economic Social Governance (ESG) strategies.

Looking Ahead: A Brighter Future for Romania's Corporate PPA Landscape

On a more positive note, Romania was included in the top 30 Corporate Power Purchase Agreement (PPA) index published by EY. Furthermore, Romania's Government is currently making efforts to join the Association of Issuing Bodies (AIB) and to update the legal regime of the guarantees of origin (GOOs), which would facilitate the trading of GOOs issued in Romania abroad.

Given the recent stabilisation of the energy prices, market participants are also optimistic that the windfall tax on the revenues from the re-sale of electricity and hedging will be repealed before March 2025.

Serbia

The signing of Serbia's first Commercial PPA marks an important milestone in the Corporate PPA landscape. This upward trajectory for Serbia's clean energy outlook seems set to continue over the coming years.

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The Evolution of Corporate PPAs in Serbia

Whilst the introduction of the Law on Use of Renewable Energy Sources (RES Law) in 2021 (later amended in 2023) established the concept of Corporate PPAs in the Serbian legal framework and generated high expectations and market buzz, Corporate PPAs have still not been implemented in Serbia, due to a number of factors.

Despite the slow uptake of Corporate PPAs in Serbia, recent market developments suggest that progress is being made towards the successful negotiation and execution of PPA deals. Although progress is slow, rising interest from various key stakeholders such as producers, consumers of electricity and commercial banks, suggests that Corporate PPAs in Serbia are on the rise.

The Benefits of Corporate PPAs to Businesses: The Global Energy Crisis

The rise of Corporate PPAs in Serbia can be attributed to Serbian businesses finally realising that their viability is highly dependent on the continuous supply of electric energy, at steady prices. For years, Serbian companies have taken a more passive stance when it comes to choosing electricity suppliers, almost exclusively relying upon the state-owned supplier (which is still the most dominant player on the supply market), Elektroprivreda Srbije (EPS). This reliance has been underpinned by the fact that, until recently, electricity prices charged by EPS have remained moderately low and non-volatile. As such, businesses were not incentivised to look into other alternatives.

Following the global energy crisis that emerged in 2021, amidst the COVID-19 pandemic and the war in Ukraine, coupled with unprecedented breakdowns in the EPS' coal facilities in December 2021, it became evident to businesses that long-term electricity supply and stable pricing can no longer be taken for granted.

Challenges in Serbia's Renewable Energy Auctions: Corporate PPAs & Wind Projects

For electricity producers, delays in the implementation of another novelty introduced by the RES Law – auctions for awarding of market premiums (tailored as contract for difference) – have further prevented power producers from successfully negotiaiting and executing Corporate PPAs. This has impacted wind projects in particular. Initially, the maximum (ceiling) price for the wind auctions was set at €55.7/MWh. With such low ceiling price and the constant increase in electric prices, eligible wind projects were not willing to participate in the auctions, which seemed like a prime opportunity to accelerate development of Corporate PPAs. However, after the Serbian Government increased the ceiling price to €105/MWh, the interest for auctions increased and the largest wind projects decided to participate. These auctions were completed in August 2023.

Although the winning bids (ranging between €64.48/MWh and €79/MWh) were not as low as some of the winning prices in the region (e.g. Albania), they were still significantly lower than the ceiling price. With the Serbian Government planning two more auction rounds in the next two years and electricity prices set to rise, it's uncertain whether stakeholders will revert their attention to Corporate PPAs, however the potential for such shift remains a possibility.

Commercial Banks & Corporate PPAs: Krivača Windfarm

Finally, commercial banks have begun to acknowledge the importance of Corporate PPAs in the renewable energy market. This was evidenced by the successful conclusion of Serbia's first project financing based on a commercial PPA in 2022. The deal related to the Krivača windfarm, developed by the MK Group and the Slovenian ALFI Green Energy Fund, and consisted of a €155 million financing arranged by Erste Group Bank. Swiss electricity producer and trader Axpo acted as offtaker in a 10-year PPA structure which involved both physical and virtual (financial) PPAs.

This pioneering transaction was a major milestone and confirmed the readiness of banks to finance commercial PPAs. Although Corporate PPAs might represent a higher risk from a financing perspective compared to commercial PPAs, the financing of Krivača windfarm presents a positive outlook for Corporate PPAs, as such projects should still be considered bankable if certain conditions are met.
These conditions include adequate credit standing of the buyer, establishment of adequate collateral package and coverage of a significant portion of the production (e.g. 70%.) with the PPA for the majority of the term of the loan.

Singapore

Singapore Green Plan 2030 charts ambitious and concrete targets to advance Singapore's national agenda on sustainable development.

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Singapore Green Plan 2030

On 25 October 2022, Singapore announced that it would raise its national climate target to achieve net zero emissions by 2050 as part of its Long-Term Low-Emissions Development Strategy (LEDS). Singapore will also reduce emissions to around 60 MtCO2e in 2030 after peaking emissions earlier, as part of its revised 2030 Nationally Determined Contribution (NDC).

Achieving Net-Zero: The Demand for Corporate PPAs

To achieve net-zero emissions by 2050, Singapore's electricity supply mix will need to evolve over the coming decades towards the "four switches" of natural gas, solar power, regional power grids and electricity imports, and low-carbon alternatives. The Government will work with companies, researchers and the public to deploy at least 2 GWp of solar by 2030 – enough to meet the annual power needs of around 350,000 households in Singapore or around 3% of Singapore's 2030 projected electricity demand. This has triggered a healthy demand for Corporate PPAs in Singapore involving solar energy.

Types of Corporate PPAs: Onsite & Offsite

The corporates and industries in Singapore favour precise contracting frameworks for green energy, driven by financial, regulatory and sustainability objectives. There are mainly two types of corporate PPAs in the market: onsite PPA and offsite PPA.

Onsite PPA

The onsite PPA is currently the most prevalent contracting model in Singapore. Smaller projects are sometimes referred to as "behind the meter" PPAs as the solar energy is produced and consumed onsite in a private distribution agreement separate from the national grid without going through a meter. In terms of the documentation, the major areas of contention typically centre on the termination rights and termination payments, curtailment scenarios, and in some cases, the ownership of the green attributes (including renewable energy certificates or RECs).

There are also options for excess power to be sold to the national grid. The energy regulator (EMA) has helpfully simplified the regulations for a consumer to sell excess solar generated electricity back to the national grid.

Offsite PPA

In the offsite PPAs, no physical energy exchange is involved, but there is a contract for difference between the fluctuating spot price and the PPA's predetermined strike price. Such PPAs operate as a hedge against future spot price fluctuations.

The offsite PPA could be somewhat more complex as there are no standard contracting terms and many of the commercial arrangements are variable and designed to suit the consumer's specific needs. The offsite PPA is sometimes referred to as a VPPA or virtual PPA (rather confusing as VPPAs are also used for demand management curtailment) or used interchangeably with corporate PPA. The negotiations for an offsite PPA usually centre around the stability of the green power supply and the consequences of any shortfall in supply as well as the need for valid creation, registration and transfer of green attributes to the consumer. Obviously, in this case, metering is also key as the consumer pays based on metered offtake and many consumers require audits and contractual mechanisms to deal with metering inaccuracies. Termination rights and termination payments are also highly negotiated in most offsite PPAs.

Power Import Projects

Power import projects, where renewable power is produced offshore (e.g. Malaysia and Indonesia) and transmitted to Singapore via subsea cables, have spurred a healthy growth of VPPAs in Singapore. The force majeure and change of law provisions in such VPPAs are usually highly negotiated as power import projects are susceptible to foreign law and operational risks.

The Power of the Sun

Singapore is one of the most solar-dense cities in the world today. Presently, Singapore has a solar capacity of over 820MWp in end 2022. That is more than the halfway mark to meet Singapore's 2025 target of 1.5GWp. There is also a whole government approach to systematically aggregate the renewable energy needs of all public agencies and to regularly put this out to the market on PPA tender.

Slovakia

Market liberalisation and general support of more free market mechanisms declare a clear path for renewable energy sources in Slovakia.

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The Shift in Slovakia's RES Landscape

Since 2009, Slovakia has promoted electricity from renewable energy sources (RES) through a state subsidy system to RES known as the feed-in tariff ("FIT") state subsidy. For several years, Slovak RES producers have been selling the electricity to the distribution system operator. The option of a direct sell through Corporate PPAs was relatively underused in practice. However, legislative changes introduced in January 2019 marked a shift in the RES landscape. While these changes did not explicitly address Corporate PPAs, they aimed to make the regulated RES environment in Slovakia more free-market oriented.

The Electricity Market Operator - OKTE, a.s., in its role of providing feed-in tariffs to RES producers, introduced a significant amendment for larger renewable entities. This amendment transitioned the sale of electricity from the feed-in tariff (FIT) system to a feed-in premium (FIP) system for those successful in auctions. This allowed the state to principally grant the FIP subsidy to those RES producers which were chosen in the new auction system, i.e., these producers would receive a premium on top of the market price of their electricity production.

The smaller RES producers under 500 KW would be still receiving subsidy under the previous system of FIT.

Additionally, the amendment to the RES Act has established a new option for businesses to operate their own "local RES" under 500 KW for their own use, which would be free of (often demanding) fees, such as grid connection charges, etc.

Changes in Guarantees of Origin

What is a Guarantee of Origin?

The guarantee of origin is a document proving that the produced electricity originates from renewable energy sources and serve also as proof for the final consumers. The guarantee of origin issued to the RES producer can be traded, i.e., transferred from one RES producer to another market participant, in return for payment.

What are the changes?

As of January 2020, a new amendment to the Act on RES came into force which, amongst other changes, directly impacted the regulation of guarantees of origin of electricity.

The amendment to RES Act has transferred the responsibilities for these guarantees from the Slovak Regulatory Office to the Short-Term Electricity Market Organizer (OKTE). It also introduced stricter conditions for issuing guarantees of origin, particularly when RES producers had already applied for subsidies by means of a supplement or surcharge. In such cases, guarantees of origin would be issued in the RES producer's account (name), but held in a separate OKTE account and offered in auctions. The proceeds from these activities were intended to reduce the tariff for operating the RES system.

Addressing Greenhouse Gas Reduction & Gas from Renewable Sources

A further amendment to the RES Act in January 2023 focused on effectively reducing greenhouse gas emissions associated with biomass fuels, used in electricity generation. It also established a new regulatory framework for issuing certificates of origin for gas from renewable sources.

Outlook for Corporate PPAs

Currently, the Slovak Ministry of Economy anticipates calls for applications to support the development of new renewable electricity sources and investments to increase the flexibility of electricity systems, through subsidies for the construction of pumped storage hydroelectric power plants and battery systems.

One of the important conditions for participation in the auction and purchasing guarantees is to conclude a respective Agreement with OKTE on activities related to the issuance and use of guarantees. While the system of non-subsidy RES projects and the Corporate PPA option itself is not a widely discussed topic in Slovakia currently, the nation's commitment to liberalisation and support for more free market mechanisms suggests that Corporate PPAs are likely to receive support and legal implementation in the coming years.

Spain

The Spanish PPA market remains extremely active.

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Recent Market Conditions: Impacts on PPAs

Since Q3 2021, electricity prices in the Spanish wholesale market have experienced an unprecedented increase with day-ahead prices exceeding €540/MWh (representing interannual increases over 400% as compared to previous year). This is namely due to:

- Scarcity of natural gas supplies in international markets;
- Diplomatic disputes among the Kingdom of Morocco and the Republic of Algeria, resulting in the close-out of the EMPL natural gas pipeline supplying gas from Algeria to Spain;
- Certain coal power plants in Spain being dismantled and newly built renewable energy power plants being unable to cover power demand (which has been constantly recovering after COVID pandemic); and
- Renewable energy projects being hugely delayed in the administrative authorisation due to high volume of projects under development.

Market conditions and volatility have worsened following the Ukraine invasion, because EU sanctions and restrictions affected the supply of oil and gas from Russian companies.

Recent Market Conditions: Government Response

To mitigate the effects of increasing power prices, the Spanish Government has adopted a significant number of new regulations and/or amendments to existing regulations, including (among others):

- **Royal Decree-Law 17/2021, of 14 September 2021** (as subsequently amended): required renewable energy generators to return, to the Spanish Power System, the portion of the wholesale price received which was attributable to the gas-based technologies (i.e., excess remuneration). This new obligation was subject to certain exclusions for generators that had entered into long-term PPAs for a fixed or hedged price, provided that the PPA was (i) entered for a term longer than one year; and (ii) fixed or hedged price does not exceed €67/MWh.
- **Royal Decree 29/2021, of 21 December 2021** (amending Royal Decree Law 23/2020): this provided a nine-month extension on obtaining the environmental permits and administrative authorisations, to ensure that renewable projects were not discarded or abandoned due to the public authorities' delay in the granting of permits;
- **Royal Decree 6/2022, of 29 March 2022:** setting forth an accelerated procedure for obtaining administrative authorisations of renewable projects (as a mean to accelerate the incorporation of renewable power plants to the generation mix and replace gas-fuelled projects). Such accelerated procedure (which implied reduction of deadlines by half) only applied to (i) projects subject to the Spanish State competence (i.e. not regional); (ii) located in areas of low and moderate environmental sensitivity; (ii) with an installed capacity of 75 MW or less (for wind farms) or 150 MW or less (for PV projects); and (iv) without implying the construction of aerial lines longer than 15km.
- **Royal Decree 10/2022, of 13 May 2022:** established a mechanism for the adjustment of the wholesale price by imposing a cap on the price offered by installations using natural gas. According to such mechanism, prices for power plants using gas will be capped at an average of €48.8/MWh during the duration of the measure – during the first six months of the application of the mechanism, the actual price cap will be set at €40/MWh, being such cap increased in €5/MWh/month until the twelfth month). Any deficit (based on the gas prices) generated by the application of the cap shall be compensated to the power generator by the Spanish Energy System.

Through this mechanism, the Government ensures that only installations using gas – representing less than 20% of the overall power volume consumed – receive compensation for the gas price increase. It also ensures that the remaining power generators (representing 80% of the power offered) do not unfairly benefit from an increase in gas prices (completely unlinked to the cost of generation of their power). This mechanism has been further developed by **Ministerial Order TED/517/2022, of 8 June 2022** and has been validated on 8 June 2022 by the EU Commission under the EU State aid rules, approving a €8.4 billion Spanish and Portuguese measure. The measure will apply from 14 June 2022 until 31 May 2023.

- **Law 38/2022, of December 27:** imposed a temporary and extraordinary tax levied at 1.2% on the sales of energy companies with revenues in excess of 1 billion euros per year. The tax will be in force during 2023 and 2024.

Furthermore, it is worth mentioning that **Royal Decree-Law 20/2018**, of 7 December, **Royal Decree-Law 24/2020**, of 26 June, and **Royal Decree 1106/2020**, of 15 December have established a series of criteria, measures and specific governmental aids for those electro-intensive industries and sectors that are highly dependent on local energy costs, issuing guarantees in favour of sellers of electric energy covering the risk of default of electric intensive consumers under a medium-long term PPA. The guarantees provide coverage for up to 80% of the losses incurred by the seller due to the buyer's failure to fulfil its payment obligations under the PPA. These guarantees are granted by FERGEI (Fondo Español de Reserva para Garantías de Entidades Electrointensivas) through CESCE (Compañía Española de Seguros de Crédito a la Exportación).

Regulatory Changes: Impact on PPAs

As many the new enacted regulations specifically exclude bilateral PPAs (either physically delivered or virtual PPAs) and the volatility levels experienced during the year, corporates and companies are still very interested in entering into power purchase agreements.

In relation to price structures, PPAs are being commonly entered into for fixed prices or market following with a floor fixed price.

Market Trends: What to Expect

Spain is still attracting a significant number of sellers and buyers, with a total volume of 3.2GW and 31 contracts signed in 2022 (out of 8.4GW overall EU contracted capacity). Alcoa, with two PPAs with Greenalia and Endesa of more than 1.8GW, accounted for 20% of the yearly disclosed volumes in MW. Corporate offtakers take over 70% of the top 10 Buyers rankings. Greenalia was the top seller followed by Endesa. Information Technology companies like Meta (Facebook), Amazon, Equinix, Google, and Microsoft, with a total of 1.9GW disclosed capacity across 14 deals, accounted the largest procurement volumes in MW. Metals & Mining observed the largest year-on-year growth.[61]

Additionally, we will see new structures and procedures for organising the execution of bilateral PPAs, with electro-intensive industrial consumers in Spain being encouraged by the Spanish Government to continue entering into bilateral PPAs to reduce their participation in the wholesale market and, therefore, reduce volatility of power prices.

Therefore, the corporate PPA market is expected to continue to be very active in Spain during 2023, at similar levels to previous years.

[61]Source: European PPA Market Outlook 2023

Sweden

Corporate PPAs have been used for some time in Sweden and continue to grow for solar and onshore wind in particular - further advancing an already appealing market.

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Corporate PPAs in the Swedish Energy Market

Corporate PPAs in the Swedish energy market should be viewed in the context of the integration of the Swedish energy market with neighbours in the Nordics, and an increased demand and willingness to enter long-term Corporate PPAs in recent years. In particular, the integrated Nordic whole-sale energy market, Nord Pool, and the Swedish and Norwegian support scheme for renewable energy, are important to understand the current Swedish PPA energy market.

Following the background of the integrated whole-sale energy market and the Swedish and Norwegian support scheme, the following discussion will revolve around recent developments and current trends, before looking towards the future of the Swedish energy market.

Integrated Markets & Cheapest Average Prices for Wind PPAs in Europe

Nord Pool facilitates price visibility and cross-border sale of power between Sweden and the other Nordic countries. Sweden has had PPAs in place for many years, however, more recently, large corporates are entering into Corporate PPAs where they are buying power directly from the renewable energy generator. There are also more long-term Corporate PPAs being entered into in the Swedish market, and large-scale renewable production facilities within wind and solar are increasingly common.

The Certificate System

Sweden remains a competitive market for wind PPAs, boasting the cheapest average onshore wind PPA prices in Europe. The joint Swedish and Norwegian support scheme for renewable energy, a market-based electricity certificate system, has been in place since May 2003 with the intention of increasing the production of renewable electricity and to make the production more cost-efficient. The scheme has had a positive effect on renewable energy production in the two countries however, plants must be commissioned before 1 January 2022 to be eligible for electricity certificates making future plants non-eligible.

As the certificate system is a market-based system, it does not guarantee the owner of the renewable installation a specific price for the power generated. As the power generator takes a price risk related to the sale of the electricity from the renewable installation, and as there may be a continued surplus of power production, many financers, such as banks, require that the price risk is hedged. One way to hedge the price risk is to sign a long term corporate PPA with an off taker. The PPA may be the enabler of the project and provides a “green” profile to the corporate buyer. While they are interested in having a predictable price for their energy over a longer period, many corporates also want to show that they are acting sustainably and are contributing to put additional renewable capacity onto the electricity system.

Recent Developments & Current Trends

In recent years more long term corporate PPAs have been entered into in the Swedish market. Large corporations such as IKEA, Google, Facebook, Norwegian aluminium corporates Alcoa and Norsk Hydro, Amazon, and Swedish mining corporate Boliden have all signed corporate PPAs, and the trend is increasing.

Wind Power

In late 2019, Amazon and BP announced that they will power Amazon Web Services data centres with 122 MW of onshore wind power based in Västernorrland which is expected to enter commercial operation in 2023. Microsoft has signed a corporate PPA with energy firm NTR for wind energy in Sweden.

Microsoft will draw energy from the 86 MW Norra Vedbo wind project owned by NTR and Reichmuth Infrastructure, which came into commercial operations in Q4 2022. The long-term PPA assists Microsoft in its plans to offset its Sweden datacentre region (Sweden Central Azure cloud region) energy consumption with 100% renewable energy. However, the wind projects are arousing strong local opposition. As wind power grows in Sweden, so does resistance from citizens who are opposing wind farms on the grounds of habitat disruption and spoiled views.

Solar Power

Furthermore, there is an increase of solar PPAs on the Swedish market for varied industries such as hotels, retailers, and grocery stores as they seek to proactively achieve lower emissions. Nordic Choice Hotel's Japanese-themed hotel and bathhouse Yasuragi have, together with Alight, rolled out a rooftop solar PPA. In addition, as of this year, several amusement parks run by Parks and Resorts will be powered by a solar PPA with energy provided by Svea Solar as their Fjällskär location initiates operations.

Two additional solar PPAs have been announced during 2023, both claiming to be the largest solar projects in Sweden at the time of announcement. In June 2023, Alight and Axfood (prominent food retailer) announced a corporate PPA and the construction of Sweden's (at the time) largest solar plant with a capacity of 64 MW. A couple of months later, in August 2023, Alight together with Neon signed an even larger PPA with H&M for a facility with a capacity of 90 MWp. As record after record is broken for solar PPAs, we are seeing a shift in feasibility of large-scale solar in Sweden.

The Future of Investments in Renewables

As aforementioned, solar and wind power investments in Sweden have been built at record pace in recent years, and according to the Swedish Wind Energy Association (SWEA), the electricity certificate system has already reached the 2030 target of 46.4 TWh, almost 10 years in advance. Sweden also saw more than 26% of total electricity use being produced by wind for the first time in January and February of 2023 – further showcasing the scale of investments into wind power.

Sweden has a target to achieve 100% fossil-free energy production by 2040 and net zero emissions by 2045. This should be viewed in conjunction with EU-wide goals of 42.5% renewables by 2050. As offshore wind has historically been more expensive, it is mainly onshore wind that has been developed in Sweden. Although production and installed capacity is set to double in the coming years, the number of installed turbines will remain around 5,000 and is expected to peak in 2027. SWEA explains that the complicated and uncertain permitting process is a serious obstacle to the development of new wind power.

While the current government has scrapped the proposal of the previous government, which sought to subsidise the cost for grid connections for offshore wind, the government has instead launched an investigation seeking to minimise permitting times for offshore wind. A development which is in line with EU wide efforts to shorten permitting times for renewable energy sources. Given the recent developments and trends we are seeing, the PPA market is expanding.

The Netherlands

Corporate PPAs are gaining popularity now that the subsidy amounts for renewable energy are declining.

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The Dutch Regulatory Environment

The EU has set targets for renewable energy generation and the reduction of CO2 emissions to halt global warming for its member states. The climate goal targets for the Netherlands are extremely ambitious and until now the Netherlands has struggled to meet these targets. After failing to reach its (inter)national goals for renewable energy production, The Netherlands had to strike a deal with the Danish Government as it failed to reach.

Supporting Investment in Renewable Energy Projects

The Dutch Government has implemented a variety of measures and regulations to support investment in renewable energy projects such as an updated SDE++ (Stimulation of Sustainable Energy Production) regulation and the EIA (Energy Investment Tax- reduction). The introduction of the new SDE++ from the 1 January 2020, replaces the earlier SDE+ system. Subsidies under the SDE++ system are calculated against reduced emissions rather than, as is the case for the SDE+ system, per generated kWh electricity. In addition to the SDE++, companies investing in renewable energy and energy-efficient technology may also be entitled to the EIA, which allows companies to deduct 55% of investment costs from fiscal profits, on top of any permitted depreciation.

Despite these regulatory changes and a favourable investment climate, the Netherlands is still behind in achieving its climate targets. However, this may be about to change, as large quantities of PV panels are being installed in dedicated ground-mounted solar parks as well as on rooftops, and, both onshore and offshore wind parks and significant investments in hydrogen facilities are underway.

Mandatory Unbundling

The Netherlands has implemented EU unbundling requirements in the most restrictive way possible,

prohibiting electricity and gas network operators from being part of a corporate group that includes companies generating, supplying or trading in energy in the Netherlands (the “group prohibition”). The group prohibition has adversely affected the credit worthiness of the traditional offtakers, i.e., utilities, stripping the grids of their balance sheet and taking away security for financing. Long-term Corporate PPAs with corporate offtakers with a high(er) credit rating provide an alternative way for generators in attracting cheaper finance and meeting their bankability requirements.

PPAs Cornerstone in Project Finance

Increasing the deployment of renewable generation assets is capital intensive and, as with any project finance structure, large amounts of funds need to be committed before any revenue is generated by the project company. Typically for project finance structures, the security for the lenders sits in the long-term projected cash flows of the project, rather than the company’s assets or balance sheet. A solid (Corporate) PPA is crucial to ascertain this, and it helps making a project “bankable”.

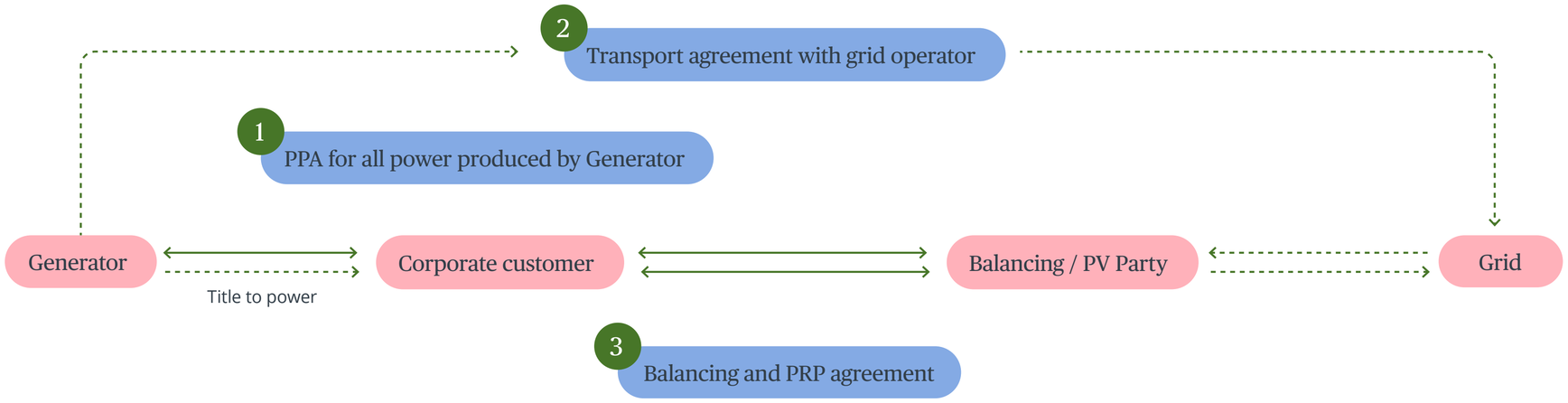
Well-structured Corporate PPAs help to fill this void. A long-term PPA with a credit-worthy corporate counterparty that has a stable pre-agreed price formula, ideally containing cap and floor mechanisms to mitigate the volatility of the electricity prices, could secure a steady revenue for the project to repay its debt and be the difference between the project being “bankable” or not.

The Rise of Corporate PPA Structures in The Netherlands

Mandatory unbundling requirements in the Netherlands means that it is possible for a generator and a corporate consumer to enter a Corporate PPA, without needing a utility to enter into a “back-to-back” PPA with the corporate consumer. This is because the “sleeving” of the electricity is done by the grid operator, rather than by the utility. Rather than entering a “back-to-back” PPA with a utility, the corporate consumer can transfer its program responsibility to a trading or balancing party, thereby reducing costs of its energy consumption.

Introduction of the Guarantee Fund

The Dutch market is still in its infant stage as most of the PPAs are concluded by big market players with a solid credit worthiness. The mid- and small market players are however also hungry to take part in the PPA market. Invest-NI has recently tasked Rebel with the research on whether a guarantee fund would increase and mature the market for corporate PPAs in the Netherlands. Given that the SDE subsidy is reducing over time, there is the need to secure cash flows for projects. Rebel concluded that under the proposed guarantee structure (which is still to be further developed) developers can conclude a guarantee covering the income loss in case a corporate goes bankrupt. The fund would step in for (part of) the income loss if the agreed PPA price is lower than the market price at the time of bankruptcy of the corporate. The costs for such guarantee are covered by a premium paid by the developers. As such the researchers conclude that a guarantee fund not only improves the bankability of projects but also opens up the PPA market to more parties. Details of the guarantee structure can be negotiated to adapt to the PPA structure and to optimise the desired risk profile.



Corporate PPA Benefits for Consumers & Generators

As subsidy amounts are declining, market parties are getting more and more familiar with the corporate PPA structure and are increasingly exploring such structures to solidify business cases for the development of renewable energy projects. On the one hand they provide corporate consumers with the ability to accurately forecast their cost of energy over a long term and increase their sustainability profiles, while on the other hand, unlocking lower financing costs for renewable generators. In addition to this, utilities are becoming increasingly active in the renewable market. They co-invest in renewable energy projects and/or contract large quantities of renewable electricity and on sell this to their customers. These structures provide the utilities with the economic certainty to keep re-investing in new renewable energy projects.

In terms of the PPAs concluded in the Netherlands, the most well-known is the club PPA, concluded by Philips, DSM, Akzo Nobel and Google, and two onshore wind parks. As part of their tender bid, new wind parks are also including the offtakers of the electricity generated by the park to make the business case work, but we also see the midmarket becoming active and concluding sleeved PPAs either with local parks or onsite projects.

United Kingdom

An established contractual model and safe regulatory environment has made the UK an attractive, albeit comparatively expensive market, for Corporate PPAs.

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Corporate PPA Market in the UK

The UK Government has made a series of commitments to renewables in recent years. This has included the Ten Point Plan for a Green Industrial Revolution (November 2020), the Energy White Paper (December 2020), the UK Government's Net Zero Strategy (October 2021) , the British Energy Security Strategy (April 2022) and most recently, the Carbon Reduction Policy (2023). The Carbon Reduction Plan sets clear goals for reducing Greenhouse Gas emissions over a certain timeframe and lists several projects which aim to ensure carbon net zero is achieved by 2050. The Policy aims to reduced GHG emissions by 78% by 2035. The Electricity Generator Levy was also introduced in January 2023 and introduced a temporary 45% charge on wholesale electricity sold above the benchmark price of £75/MWh. The levy will cease on 31 March 2028 and will apply to a generator is it's in-scope generation output exceed 50GWh a year and exceeds £10 million in an accounting period.

The Growth of the Corporate PPA Market

Corporate PPAs have been around in the UK for some time. However, it is only in more recent years that they have become more prominent. The availability of fiscal incentives, such as FiTs and ROCs, meant there was little commercial imperative to explore alternative arrangements. Generators would typically enter into shorter term utility PPAs with a licensed supplier, often on standard forms, for the offtake of all of their power as the support payments were sufficient to demonstrate the long term fixed/floor income stream to lenders.

The closure of the ROC scheme to new participants from 31 March 2017 meant that utility scale generators have been seeking alternative routes to market. This, combined with the rise of wind and solar in the UK and the convergence of a number of market conditions, created the perfect environment for the growth of Corporate PPAs.

A long term PPA with a credit-worthy corporate offtaker could be the difference between a bankable and non-bankable project.

In addition, the ever-decreasing cost of generating renewable energy means that a project can be viable without subsidy. In 2019 we saw that Corporate PPA prices were in some cases beating wholesale electricity prices, and indeed, Corporate PPA prices for wind and solar have risen up to 16.7% across Europe in 2021.[60] During 2022, wind and prices have continued to rise and have increase by 35%,[61] whilst solar prices have increased by 30%.[62]

Incentivising Renewable Energy Projects

During 2022, solar projects participated in the Governments Contract for Difference (CfD) auctions for the first time since 2015.[63] A Contract for Difference represents a long-term contract between a low carbon electricity generator and the government-owned Low Carbon Contracts Company. This scheme incentivises investment in renewable energy by ensuring upfront costs in long-term contracts. This protects consumers and developers from volatile wholesale prices. In July 2023, the biggest and most diverse CfD auction took place, with 66 solar projects winning contracts, with a total capacity of 2.2GW. [64]

[60] Bloomberg op. cit., p.4

[61] reNews.Biz (2023, April 18). European PPA prices 'rise 35% in last six months'. https://renews.biz/85140/european-ppa-prices-rise-35-in-last-six-months/

[62] Solar Power Portal (2023, February 7). PPA prices jump 30% in the UK, biggest increase in Europe. https://www.solarpowerportal.co.uk/ppa_prices_jump_30_in_the_uk_biggest_increase_in_europe/#:~:text=PPA%20prices%20in%20Q4%20increased,Q4%202022%2C%20jumping%2030%25.

[63] Ibid.

[64] Ibid.

As the market continues to re-stabilize following COVID-19 and the current energy crisis, we would expect that from a corporate perspective, Corporate PPAs will continue to be an attractive prospect to companies who increasingly want to be seen to be acting sustainably and who want to protect against highly volatile electricity prices. This has been drawn into sharp focus with the energy crisis resulting from the invasion of Ukraine, which has caused major volatility and uncertainty in the UK energy market.

Corporate Players in the PPA Market

Major corporates playing in the UK Corporate PPA market now include Shell, BT, M&S, EE, Unilever, Sainsbury's, McDonalds, and many others. Many more corporates with operations in the UK (including companies such as Unilever, Tesco and Sky) are also members of RE 100; the group of companies who have pledged to work towards meeting 100% of their energy requirements from renewable sources.

Resurgence of Corporate PPAs & Notable Deals

In 2019 and 2020 the UK saw a somewhat slower rate of deals being signed. This was attributed to an uncertain UK investment environment due to Brexit, the market shock caused by COVID-19 and the fact that PPA pricing in the UK is expensive when compared with other countries (meaning corporates prioritise other markets). However, in 2022, a total of 952 MW of renewable power was contracted through corporate PPA in the UK and a total of 14 contracts were signed.[65] In January 2022, Octopus Renewables signed three new offtake agreements covering more than 3,000 GWh of wind power to three corporate clients. And, in April 2022, Vodafone and Centrica agreed a 10-year PPA for solar energy from farms across the Midlands. In June 2022, BayWa r.e and BT Group signed one of the first Virtual Power Purchase Agreement in the UK, in which BT will purchase approximately 90 GWh of wind energy per year, at a fixed price for a period of 10 years. And, in early 2023, TRIG entered into a corporate Power Purchase Agreement with BT Group on pay-as-produced terms, for a period of 10 years. Lastly, in June 2023, Voltalia entered a corporate PPA with the City of London Corporation for a 49.9MW solar park.[66]

Corporate PPA Structures in the UK

The aggregated nature of the electricity grid and the regulatory framework has meant that the large majority of Corporate PPAs in the United Kingdom have been concluded using the "sleeved" structure. While Marks & Spencer was an early pioneer of the "synthetic" model using a contract for difference type structure across 20 sites, this structure has only become more popular in recent years, with corporates attracted to its comparative simplicity to the sleeved model.

We are also seeing a number of new models emerging within the market, or at least being discussed. These include:

- The "hybrid PPA" model which covers both a power project and a battery storage system. In July 2023, DIF announced the UK's first unsubsidized and bankable co-located PPA and optimisation agreement.[67]
- Building on the "mini-utility" model, Octopus Investments, the UKs largest investor in solar farms, set up its own arms-length licensed supply company, Octopus Energy, offering a range of 100% renewable tariffs to business and domestic customers. Octopus Energy may well be able to procure the power from its own generating assets, disrupting the role of the utilities. This will enable asset owners to offer a simple integrated service to corporate customers.

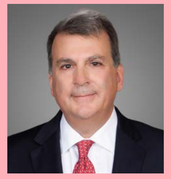
[65]Statista (2023, March 30). Corporate renewable power purchase agreements (PPAs) contracted capacity in the United Kingdom from 2014 to 2022. www.statista.com/statistics/1375760/renewable-ppa-annual-capacity-uk/

[66]Solar Power Portal (2023, June 20). 'First of its kind' 50MW solar park inaugurated via Corporate PPA with City of London Corporation. www.solarpowerportal.co.uk/first_of_its_kind_50mw_solar_park_inaugurated_via_corporate_ppa_with_city_o

[67]reNews.Biz (2023, July 10). Market-first UK hybrid PPA announced. renews.biz/86881/market-first-uk-hybrid-ppa-announced/

USA

2022 saw record commitments to renewable generation by commercial and industrial customers in the U.S., reaching tens of gigawatts, with growth expectations extending into terawatts for 2023. While investigations into tariff avoidance, storm responses, supply chain disruptions and importation issues slow the execution of PPAs in the U.S., the growth outlook remains promising for 2023, as corporate purchasers continue to drive the U.S. renewable markets.



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Regulatory & Market Structure: Retail & Wholesale Markets

Any overview of the U.S. market would be lacking if it did not first address the regulatory and market structure of the U.S. market.

The U.S. energy market is split between retail (i.e., direct sales to the end-user) and wholesale (i.e., sales for resale) markets. Retail markets are strictly governed by state law and are subject to state regulatory commissions. There are fifty states in the U.S. and thus, in a sense, fifty separate retail markets.

Wholesale sales outside of the state of Texas are regulated by the Federal Energy Regulatory Commission ("FERC"). While a small portion of the wholesale sales in Texas are regulated by FERC, the substantially larger portion of wholesale sales are subject to the rules, regulations and market practices of the Electric Reliability Council of Texas ("ERCOT") and the Public Utility Commission of Texas.

Broadly speaking, FERC regulates wholesale markets through its review of the tariffs, business practices and policies of the numerous public and private bodies that control the transmission systems serving customers within their respective control areas. These wholesale markets fall into two basic categories: (1) "Organised Markets" controlled by independent system operators, such as the California Independent System Operator ("CAISO") and New York Independent System Operator ("NYISO"), and regional transmission organizations, such as the PJM Interconnection and Midcontinent Independent System Operator, Inc. ("MISO") and (2) "Bilateral Markets" such as those in the Western Electricity Coordinating Council ("WECC") and SERC Reliability Council ("SERC"). While not regulated by FERC, ERCOT falls into the Organized Market category.

This web of markets and regulations means that corporate off-take arrangements take a variety of different forms. For the sake convenience, we'll refer to them as:

- "Direct Sale PPAs"
- "Community Solar PPAs"
- "Sleeved" Corporate PPAs
- "Behind the Meter" PPAs

“Direct Sale PPAs”

In states that allow a customer to choose its retail electricity supplier, such as Texas, California, Illinois, Massachusetts, Michigan, Ohio, Pennsylvania, New Jersey and New York, a retail energy supplier can contract directly with the customer to provide renewable energy. Direct Sale PPAs are subject to various state regulatory policies and limitations that include customer size limits, and in California, a market limit only allows Direct Sales up to an overall historical maximum load amount set for each regulated utility. Direct Sale providers are generally required to register with the state regulatory commission, although regulation of retail providers that service larger commercial and industrial loads is light.

Community Solar PPAs

Community Solar PPAs are found in states in which state law and regulation permit “community solar projects”. Community solar programs differ from state-to-state, but generally involve two separate agreements. First, the project owner enters into a contract with the participating utility, pursuant to which the owner sells, and the utility purchases, energy and RECs from the community solar project.

Second, the project owner enters into a contract with a customer (the “Subscriber”) pursuant to which the project owner passes through “billing credits” to the Subscriber that are generated under the program and the Subscriber pays the project owner a fee.

The programs generally limit concentration (i.e., the project’s offtake must be made available to “community” of offtakers). For example, Minnesota’s community solar program requires that no single Subscriber be entitled to more than 40% of the offtake from any one project. Subscriber contracts generally impose some limitations on the Subscriber’s flexibility to materially modify its load, assign the contract, or otherwise change the basic structure of the supply relationship embedded in the Subscription contract. These limits are imposed as the project owner has to maintain a certain level of commitment from Subscribers or risk losing the right to serve its Subscribers (and the associated economic benefit of receiving payments from the Subscribers).

“Sleeved” PPAs

This form of offtake agreement is found in states where a direct sale to retail customers is either prohibited by state law or permitted only in limited, expressly approved circumstances. Cooperative and municipal utilities will, at times, agree to sleeve a sale to a large customer. Investor-owned utilities may also agree to sleeve power from a renewable generator – although this is the exception, rather than the rule, and at all times requires some level of approval by the state regulatory commission.

Rocky Mountain Power’s Schedule 34

One example of an approved sleeve is Rocky Mountain Power’s Schedule 34, which is applicable to the utility’s Utah customers. Under Schedule 34, Rocky Mountain Power executes a PPA with its retail customer and a second back-to-back PPA with the renewable generator. The PPA with the renewable generator terminates at Rocky Mountain Power’s election if the retail customer defaults or terminates its contract with the utility.

“Behind the Meter” PPAs

“Behind the Meter” PPAs are also found at the retail level. The “Behind the Meter” nomenclature refers to generation that directly serves a retail customer, by directly offsetting the electricity load otherwise served by a utility. Behind the Meter PPAs are subject to state regulation and are generally limited to relatively small renewable generators and combined heat and power applications. State regulation will often limit the total amount of electricity load served by behind the meter generators.

“Synthetic” or Virtual PPAs

If a corporate offtaker cannot receive service at the retail level through one of the structures identified above, the corporate offtaker will look to the “Synthetic” Corporate PPA (or in the parlance of the U.S., a “Virtual PPA” or “VPPA”). While retail sales, and independent renewable credit sales still occur, it is safe to say that the VPPA is now the predominant model for sales from renewable generation.

For the most part, the covenants found in a VPPA match those found in a traditional wholesale PPA with a utility. However, VPPAs differ from utility PPAs in certain key areas.

Given the general restrictions and limitations placed on direct retail sales, the VPPA will expressly disclaim any physical sale or delivery of energy. Instead, the VPPA will follows the form of a contract for differences. The VPPA includes a "Fixed Price" (which is set in the VPPA and, ironically, can be either fixed or escalating) and a "Floating Price" based on the market price (usually the locational marginal price, "LMP") at a market "hub"). If the Floating Price exceeds the Fixed Price, the renewable generator pays the corporate offtaker the difference between the Floating Price and Fixed Price. If the Fixed Price exceeds the Floating Price, the corporate offtaker pays the renewable generator the difference between the Fixed Price and the Floating Price. The VPPA contemplates, and may expressly require, the sale of physical energy by the renewable generator in the real-time or day ahead LMP at the renewable generator's point of interconnection.

Virtual PPAs: The Challenges

VPPAs raise a number of issues, the first of which is credit support. Corporate offtakers may or may not have adequate credit to cover the market exposure faced by the renewable generator. (The renewable generator will also be subject to credit requirements.) In contrast to utilities, that are thought to have relatively stable credit ratings, corporate credit ratings can be volatile.

The second issue that arises from VPPAs is the pricing structure. Neither the corporate offtaker nor the renewable generator will want the Floating Price (or the price at the point of interconnection) to be easily manipulated or subject to large, unpredictable, price swings. Thus, VPPAs are generally associated with renewable generation located in liquid Organized Markets such as ERCOT, SPP and PJM.

A third, related, issue, is basis differential. Both Parties will want to minimize the difference between the Floating Price to which it is subject in the VPPA and the price at which the sponsor sells its physical electrons. Depending on the market, and more importantly the LMP at the project's physical location, this means that the Parties will want to negotiate whether the Floating Price is to be set at the market hub or the physical point of the project's interconnection (the "node").

Fourth, price floors will often be a subject of negotiation. The corporate offtaker may not want to be exposed to a Floating Price below zero. In contrast, the renewable generator (if it is a wind project) will want to keep generating to get the benefit of the production tax credit ("PTC"). The PTC is the primary incentive for wind generation development in the U.S. In contrast, solar generation receives the investment tax credit, a benefit not tied to capital investment and not production.

Distinct Features of VPPAs

While the pricing structure of a VPPA shares features with a pure financial hedge from a bank or other hedge provider, it differs from a financial hedge in a few key respects. In contrast to many financial hedges, the energy quantity in a corporate VPPA is not fixed.

Energy deliveries under a VPPA are generally on an "as-available" basis – subject to the availability or performance guaranty mentioned below. Second, the VPPA will always involve a commitment of the renewable credits ("RECs" or "Green Tags", in the parlance of VPPAs) and other attributes produced by the renewable generator.

Evolution of REC Requirements in VPPAs

The REC requirements in VPPAs have evolved. While in the past, VPPAs may not have required delivery of RECs produced by the specific generator built and operated by the VPPA counterparty, current VPPAs tend to include a commitment of RECs from the renewable generator's facility. Corporate offtakers want to tie the RECs to a specific renewable generator's facility.

Reputation, Confidentiality & Publicity in VPPAs

Another unique feature of the VPPA is the importance of reputation, confidentiality and publicity to the corporate offtaker. Corporate offtakers may want the specifics of the VPPA held strictly confidential and will want strict controls over publicity around the VPPA and the facility. Many corporate offtakers will insist upon naming rights to the facility and control over signage.

Other Notable Features of VPPAs

Two other elements of VPPAs that distinguish these agreements from other PPAs require mention. Given the pricing structure, the reporting requirements of the Dodd-Frank statute must be considered.

In almost all cases, the corporate offtaker will place the reporting obligation under the Dodd-Frank Act on the renewable generator. The timing and content of the reporting obligations should be considered and understood by the renewable generator.

While corporate offtakers may commit to large amounts of capacity, they are often seeking a commitment that will be less than the ideal size of a renewable generator. Thus, the corporate offtakers often commit to a prorated fraction of the total energy generation and REC production of a renewable generator. This factor requires that consideration be given to how multiple corporate VPPAs work together in terms of the commitments to commercial operation, curtailment and dispatch, liquidated damages and events of default.

VPPAs & Traditional Wholesale PPAs: Similarities

As noted above, many of the provisions in a VPPA raise the same commercial considerations present in a traditional wholesale PPA.

Thus, a VPPA will include: (a) requirements for establishing commercial operation and liquidated damages if commercial operation is delayed; (b) provisions requiring operation and maintenance consistent with prudent industry practices; (c) guaranties of mechanical availability and, at times, performance; (d) termination and damages provisions for default; and (e) provisions addressing force majeure events. (With respect to force majeure events, we note that COVID-19 and its effects are a key topic of discussion in all PPAs and VPPAs).

U.S. Markets: Challenges & Disruptions

There have been three major disruptions to U.S. markets in 2022. First, are the trade investigations on tariff circumvention (the negative pricing effects of which have been suspended as of this writing by President Biden). Second, are rulemakings relating to U.S. statutes that prohibit the use of forced labour – a potential issue for Chinese photovoltaic module suppliers. Third, are the various supply chain disruptions arising from, and related to, the COVID-19 pandemic.

While we expected these market disruptions to normalize in 2022 and early 2023, uncertainty about both pricing and supply remains a major concern. In 2022 and early 2023, there were a number of pricing adjustments designed to address cost volatility and change in law. With respect to change in law, generators in Texas were particularly sensitive about the potential regulatory and legislative backlash arising from “Winter Storm Uri”, which caused severe winter weather in Texas and other South Central parts of the United States. The severe winter weather resulted large scale power outages due to lack of winter preparedness.

Each of these issues raises commercial and legal issues that should be carefully considered.

Our Energy & Utilities Group

Bird & Bird LLP is an international law firm. We combine exceptional legal expertise with deep industry knowledge and refreshingly creative thinking. We have over 1600 lawyers in 32 offices across Europe, the Middle East and Asia-Pac, as well as close ties with firms in other parts of the world.

Our Energy and Utilities team of over 225 lawyers spread across our network advise on Energy and Utilities matters across all of our practice areas. As an international team, our sector-led approach is focused on sub-groups that specialise in particular aspects of the Energy and Utilities sector.

Key Focus Areas: Renewable Energy

A key focus area for us is renewable energy, covering solar, wind, biomass, anaerobic digestion, energy from waste and energy efficiency.

We have been at the forefront of legal advice in the renewable energy industry for over a decade.

Our lawyers have advised developers, landowners, EPC contractors, off-takers, regulators, banks and investors across a number of jurisdictions.

Leading the Charge in Renewable Energy

We believe we have one of the leading international renewable energy practices in the world and have been ranked as the number one law firm by volume of deals in M&A and project finance transactions in the in the 'Clean Energy Legal League Tables 2022'. The league tables produced by Clean Energy Pipeline, a sister publication of The Lawyer Magazine, relate to 2022. This is the sixth year in a row that the firm has achieved a top rank for the number of M&A transactions.

We are a cohesive and expert team who understand how to work together to complete renewables projects to international investor standards.

This industry experience has meant we have closely tracked the emergence of Corporate PPAs, where global multinational corporations are buying electricity directly from the developers of wind and solar parks. The emergence of Corporate PPAs completely revolutionises the market for renewable power from subsidy and utility driven to market-demand driven.

We are at the forefront of this market, having developed and negotiated innovative contract and business PPA structures, from physical PPAs to synthetic/virtual PPAs, for a number of years.

Number one law firm for clean energy M&A and Project Finance deals globally by volume

Source: Clean Energy Pipeline 2023

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