



No 387 | MAY 2023

SEE ENERGY BRIEF

Monthly Analysis

The Rise of PPAs in SE Europe



Introduction

Despite possibly the most turbulent year in recent history for the European energy markets, the number and volume of PPAs remained impressively stable. 2022 saw disclosed contracted volumes of 8.4 GW – a 21% decrease with respect to 10.7 GW in 2021, based on data provided by Pexapark (1). Deal count increased 4.5% year-on-year, with a total of at least 161 deals in lieu of 154 the year before.

Corporate PPAs accounted for an impressive 80% of deal count (129 out of 161), and 83% of contracted volumes (7 GW out of 8.4 GW). Activity increased at least 20% by disclosed contracted volumes, which in 2022 scaled to 7 GW with respect to 5.8 GW in 2021. In terms of deal count, increase rate reached around 29%, with 129 deals in lieu of 100 in 2021.

PPAs are now common in renewable energy businesses due to the decline of government subsidies. Without subsidies, there is a lack of financial security for lending institutions, such as banks, to invest in a renewables project. As a result, lenders require a new way to secure their investment. A PPA can prove that the concerned renewable asset has already found a long-term buyer at a fixed price. PPA contracts thus enable renewable investment by providing revenue certainty to investors and lenders in unsubsidised markets. However, PPAs are complex in their structure and pricing. Overlooking or inadequately negotiating a contractual clause can impact the overall revenue of a PPA project. This necessitates a thorough understanding of energy risks, valuation, and negotiation issues.

This Monthly Analysis tries to shed light on the latest developments in terms of PPAs in SE Europe, highlighting both obstacles and challenges for their further deployment over the next years.

What is a PPA?

A power purchase agreement (PPA) is a contractual agreement between energy buyers and sellers. They come together and agree to buy and sell an amount of energy which is or will be generated by a renewable asset. PPAs are usually signed for a long-term period between 10-20 years. (2)

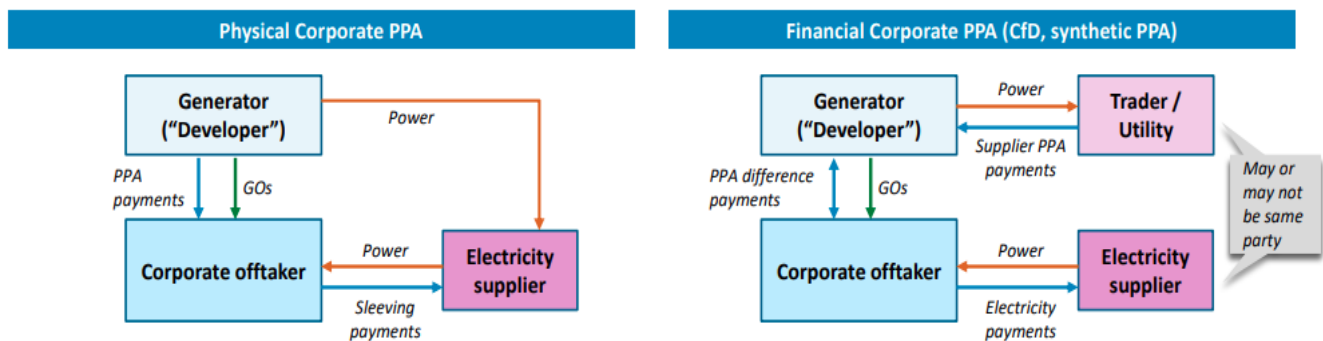
To promote renewable energy, governments initially provided financial incentives for investment such as subsidies (feed-in-tariffs, feed-in-premiums). With improved technology, renewable assets have become cheaper to build and this leads to a surge in their development. Consequently, governments begin to move away from subsidy schemes. Either they cannot keep up with the financing or they no longer see the need to provide incentives. Because the market shift from subsidised projects to open markets has drastically affected renewable investors, they now need to find alternative securities to replace government subsidies.

There are two types of PPAs:

- **Commercial PPAs:** where the producer and the counterparty to the generator is a non-governmental entity operating, such as a utility, power trader or corporation, which has a commercial interest in procuring the power output and
- **Government PPAs:** where the counterparty to the generator is a government entity offering either a competitively set contract-for-difference (CfD) or an administratively set Feed-in Tariff (FIT).

As shown in Figure 1, both structures have been deployed to date in Europe. There is the direct physical PPA between the corporate offtaker and the generator, where the offtaker pays the generator a fixed amount per unit volume (MWh) of power produced. In addition, there is a separate contracting between corporate and its supplier to manage financial risks, in particular to manage volume imbalances between project output and corporate demand. It is worth noting that corporate pays generator fixed price for output and corporate buys (or sells back) any shortfall (or excess) power to their electricity supplier via a separate ‘sleeving’ contract.

Figure 1: Typical Corporate PPA Contract Structures



Source: Baringa

Moreover, a Contract for Difference (CfD) exists between the corporate offtaker and the generator, while generator has physical PPA with a supplier/trader and the corporate’s Energy Supply Agreement with its supplier, each exposed to fluctuating market prices. Generator sells to trader at the market price, while corporate buys from electricity supplier at the market price.

- If market price > Corporate PPA’s strike price, generator makes ‘difference’ payment to corporate so each pays a net amount equal to strike price
- If market price < Corporate PPA’s strike price, corporate makes ‘difference’ payment to generator equal to Corporate PPA’s strike price

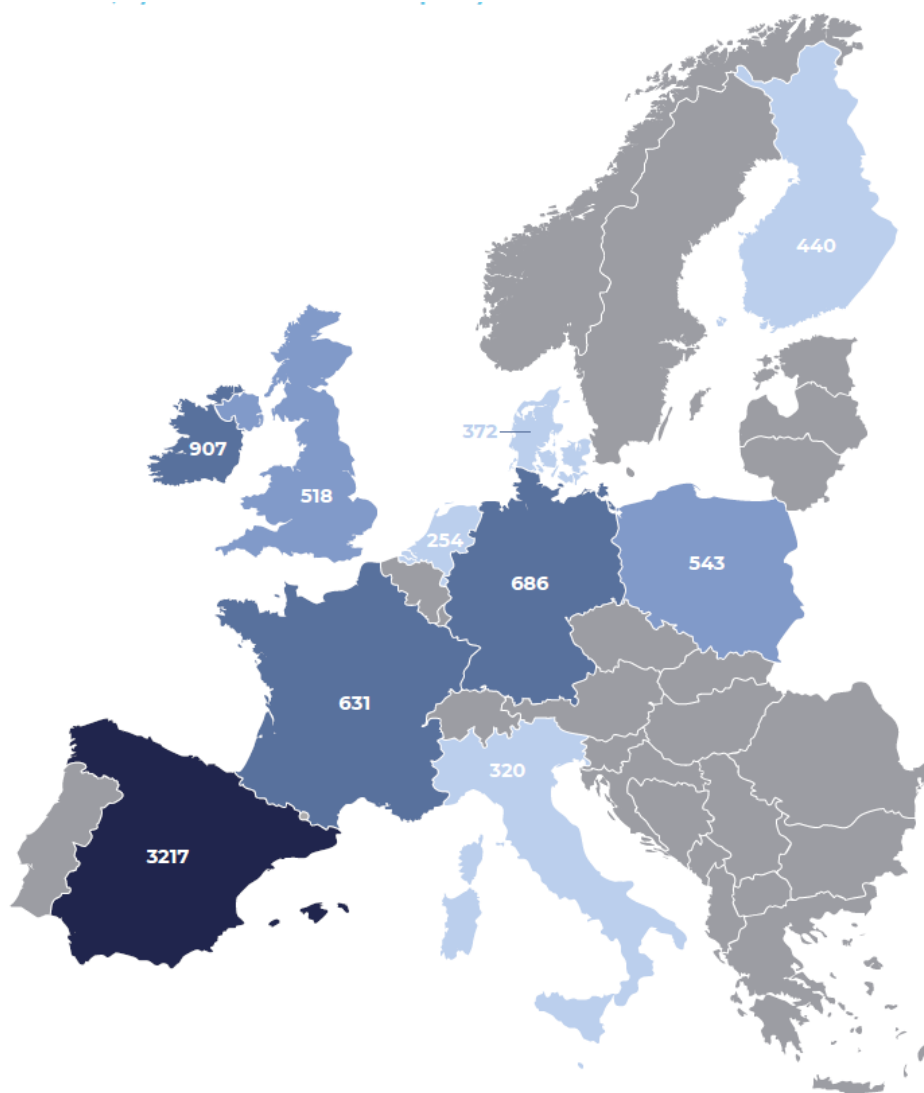
Benefits of a PPA

For a renewable asset owner/developer: A PPA allows renewables projects to increase their level of revenue certainty. Normally, this would not be possible in fluctuating energy markets in absence of a government incentive. A PPA enables the financing of their renewable project by lenders and reduces risks by efficiently allocating them among the contractual parties.

For an energy buyer: A PPA assures fixed long-term costs and enables a company to (indirectly) fund a renewables project and receive “green attributes”, such as Renewable Energy Certificates.

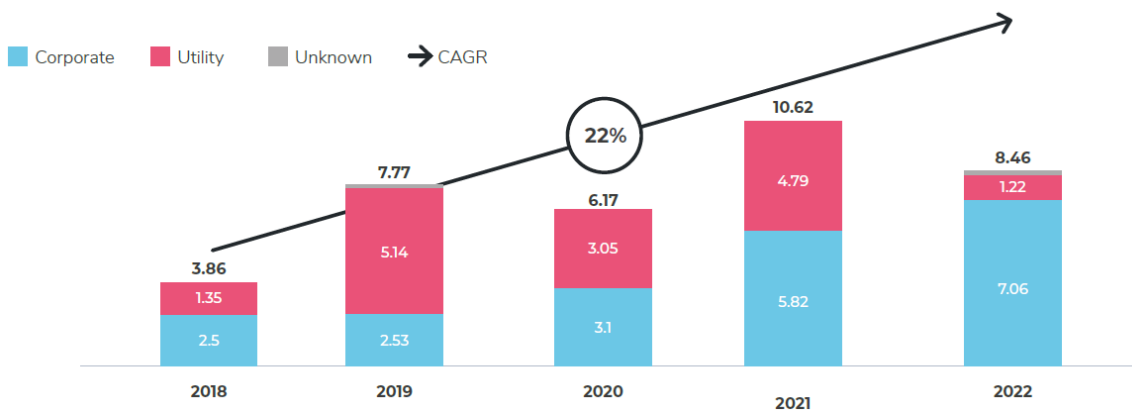
For the lender: A PPA offers revenue certainty, as an amount of energy has been sold in advance at an agreed price and allows for the claim of their contribution to the renewable industry.

Figure 2: Top10 Countries, By Disclosed Contracted Capacity in MW



Source: Pexapark

Figure 3: PPA Deal Flow By Disclosed Contracted Capacity, in GW, 2018-2022



Source: Pexapark

The Rise of PPAs in SE Europe

Although Spain and the Nordics are the most developed European PPA markets, we are expecting to see soon this trend in the SE European region. For instance, **Bulgaria** saw its two first deals concluded in 2022, with solar appearing at the heart of the country’s PPA market thus far. Both deals have 10-year duration with corporate offtakers, according to Pexapark’s database. Despite Bulgaria ramping up its renewable energy targets, the country still does not benefit from a government scheme. Therefore, bilateral PPAs appear attractive for investors looking to increase their ESG credentials.

Cyprus also saw its first publicly announced PPA, in a small-size deal which saw Svea Solar supplying local utility Everage with 5 GWh per annum for 10 years. As producers have been incentivised to sign PPAs with suppliers other than the Electricity Authority of Cyprus (EAC) for quite some time now, it is not clear whether the publicly announced PPA is actually the first one, or whether it’s the first long-term PPA. In any case, the current public debate on the absence of a robust plan to accelerate renewables deployment could indeed create an opportunity for long-term PPAs with private entities (either suppliers or corporates) to fill this gap. The country is placing its bets on solar to increase its renewables capacity, with plans to reach 1 GW. (3)

Even though **Croatia** recorded its first PPA in 2021, the deal comprised a post-subsidy utility PPA between Wpd and Dankse Commodities for a 9.6 MW onshore wind farm commissioned in 2009 (4). In 2022, Croatia hosted two deals that are worth mentioning. First, we had a statement opt-out from the national subsidy scheme, after Professio Energia decided to pursue a different business model for its 45 MW onshore wind portfolio, and sign a PPA with Dankse Commodities. Second, we had the country’s first corporate PPA which will truly enable new capacity to come online. Developer Liburana, a 100% subsidiary of Professio Energia, concluded a term sheet for a 10-year deal with Croatian Telecom to back the construction of the Mazin Gračac onshore wind farm, set to produce 50 GWh per annum from 2024 onward. (5)

Similarly to Croatia, **Greece** saw a PPA deal in 2021 between Mytilineos and Egnatia Group for a 200 MW solar portfolio (6). However, in June 2022 a utility-scale PPA underpinning the country's first merchant debt financing was announced. Cero Generation is to construct a 100 MW subsidy-free solar plant, and Axpo will offtake around 70%-80% of its production under a 10-year deal (7). In May 2023, Sofidel, one of the world's largest producers of paper for hygienic and domestic uses, signed a PPA with energy leaders RWE Renewables Europe & Australia and PPC Renewables through their joint venture company Meton Energy S.A. Under the terms of the 10-year agreement, the joint venture will provide Sofidel with around 21 GWh of green electricity per year. RWE and PPC are to build a solar farm in the Western Macedonia region in the north of Greece to supply the power. (8)

Furthermore, Greece's PPC and energy-intensive industries, most notably metal manufacturer Viohalco and building materials producer TITAN, the country's biggest energy users, appear to have hit the final stretch in negotiations for PPAs promising lower-cost green-energy supply over ten-year periods. More specifically, the deal between Viohalco and PPC has already been completed, while the deal between PPC and TITAN is expected to be finalized shortly (9). Energy-intensive industries are looking to establish PPAs as soon as possible as they remain exposed to the volatility of the wholesale electricity market, which has often increased their energy costs to loss-incurring levels. As has already been disclosed, PPC, for the first two years of these ten-year agreements, will price its PPA supply deals based on its existing lignite and natural gas-sourced energy basket, while, beyond this period, the company will price its PPAs based on the generation costs of solar and wind energy farms it plans to have developed, by then, in order to supply industrial energy users.

In addition, the Swiss renewable energy company Axpo signed a corporate PPA in February 2022 with Austrian energy company Verbund and a multinational automotive supplier for its production plants in **Romania**. Under the agreement, the plants in Romania will be supplied with 70 GWh a year from Verbund's 226 MW wind farm in Casimcea, near the Romanian Black Sea coast. (10)

Again, Axpo signed its first-ever long-term PPA in **Serbia** in February 2023. The long-term deal has been signed with IVICOM Energy doo Zagubica, a renewable energy project co-owned by Serbia's MK Group, and Slovenia's ALFI Green Energy Fund. Under the 10-year agreement, Axpo hedges will support the ongoing construction of the 105 MW wind farm in the northern village of Krivaca. The wind farm, situated approximately 150 km east of Belgrade, will produce enough green power for more than 75,000 households, saving 115,000 tonnes of carbon emissions annually. Delivery will begin in January 2024, according to Axpo's press release. (11)

In the first of the forthcoming three solar power auctions, **Albania** is offering PPAs and CfDs for 300 MW in total capacity. The call is planned to be issued by June 2023. Albania intends to add 1 GW in solar power

capacity through three competitive procedures. French company Voltalia emerged as winner in the last two auctions and last year it started to build its Karavasta photovoltaic facility of 140 MW in peak capacity. The tenders for Karavasta and Spitalle were held after the locations were determined. This time the participants will need to propose the sites within areas marked by the ministry as potentially suitable. The deadline for the proposals is expected to be in October 2023. Successful bidders will sign a 15-year support agreement consisting of a PPA for period 1 and a CfD for period 2. (12)

Moreover, **Kosovo** issued a contract notice for investors interested in building and operating a solar power plant on public land. The location in Kramovik was determined for 95 MW to 105 MW in connection capacity. Kosovo's Ministry of Economy vowed to expedite the legal procedure for a solar power plant for which it would award a 15-year PPA under its first competitive procedure in the sector. Investors can send bids until August 15, 2023 for 90 MW to 105 MW in connection capacity for a location in the municipality of Rahovec (Orahovac). (13)

Discussion

The PPA market is part of a much wider universe that is now unfolding as the energy transition gathers pace, and the realities of how clean energy players are adopting their strategy and operating models to unleash the full spectrum of possibilities for their portfolios, goes well beyond mastering the art of an asset-related PPA.

The price floor in the PPAs delivered in SE Europe is an invaluable option. Unlike the fixed price PPAs often entered into the SE European region, the floor option combined with an upward index price does not offer an attractive pricing basis for the power off taker. There are at least two good reasons for this. Firstly, the problem with the index: the two closest and at the same time liquid futures markets are in Hungary (HUPX) and Germany (EEX). Thus, in the event that physical settlement is required, more than a few cross-border capacity costs should be considered. Secondly, the problem of volatility: the annual volatility of traded power futures exceeded 100% during 2021 and 2022 and made it literally impossible for the power off taker on 10-15 years' tenure to manage the risk of the illiquid part - the far dated futures.

The SEE market is still blind to PPA price volatility as investors are rushing in to play the market open from the long side. As some analysts note, "the only "little" help they need is a hard-coded, rock-solid, guaranteed minimum hourly floor price in the PPA, and the rest is "easy". Surprisingly, the power off takers active in SE Europe still see some risks and at present and are reluctant to ignore the volume element".

The SE European market, especially the long-flexible power generation in the utility sector, is starting to consider selling optionalities. This new market of embedded options offered by utility companies and power

off takers, in the form of PPAs, comes to augment the regional renewables market and hence enhance its further expansion. Bilateral negotiation and valuation of volatility in the SE European region is becoming a new practice for the few who are in a position to offer low cost electricity and could potentially benefit from PPA type transactions. Today, PPA market is still in its infancy in SEE but could explode over a short period of time, once players familiarize themselves with the available technical tools and financial engineering techniques and as costs from RES generated power continue to slide.

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IENE SEE ENERGY BRIEF MONTHLY ANALYSIS - Issue No. 387 – ISSN:179-9163

Prepared by IENE’s Research Team

Monthly Analysis is published by the INSTITUTE OF ENERGY FOR SOUTH-EAST EUROPE (IENE)

3, Alex. Soutsou st. 106 71 Athens, Greece, T: +30-210 3628457, 3640278, F: +30 210 3646144, marketing@iene.gr, www.iene.eu

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