MERCADO IBÉRICO DE ELETRICIDADE

CMVM COMISSÃO DO MERCADO DE VALORES MOBILIÁRIOS | CNMC COMISIÓN NACIONAL DE LOS MERCADOS Y LA COMPETENCIA | CNMV | ERSE ENTIDADE REGULADORA DOS SERVIÇOS ENERGÉTICOS

POWER PURCHASE AGREEMENTS

(PPAs)

Board of Regulators of MIBEL

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1. INTRODUCTION

The unprecedented situation of increase and volatility in the price of electricity caused, among other reasons, by the rise in gas prices and the war in Ukraine, in a context of massive integration of renewable energies and the process for decarbonisation of the economy, has rekindled the debate on whether the current design of the European electricity market continues being that which is most appropriate.

In this sense, the European Commission (hereinafter EC) entrusted the Agency for Cooperation of Energy Regulators (hereinafter ACER) to draft a report on the design of the electricity market, published in April 2022, which included a series of recommendations for its improvement. Among the measures proposed, ACER recommends enabling long-term electricity contracts, through instruments such as Power Purchase Agreements (PPAs), within the actions to encourage the liquidity of forward markets and of hedging instruments, while also to boost decarbonisation, as they are contracts linked to the development of projects for energy generation from renewable sources.

On 14 March 2023, after a public consultation, the EC published a draft to reform the European electricity market[1] to boost renewable energies, better protect consumers and improve industrial competitiveness, which includes among its measures incentivising the use of PPAs as forward contracting instruments that allow for mitigating the impact of short-term markets on the price faced by final consumers.

In this context, the MIBEL Board of Regulators (hereinafter CR MIBEL) considers it relevant to contribute to the promotion of greater knowledge on this type of forward contracts. Therefore, apart from a brief reference to the regulatory context to boost renewable energies, this study includes the main characteristics and contractual structures under which a PPA can be traded, their advantages and risks, together with the regulatory framework applicable for the supervision of these electricity derivative contracts.

This initiative, together with others promoted by the CR MIBEL relating to the liquidity of the MIBEL forward market, is expected to contribute towards a greater knowledge about forward instruments available to market participants to more efficiently manage the electricity price risk in their activities and, therefore, to a greater participation in forward markets.

[1] https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1591

2. REGULATORY CONTEXT

The Paris Agreement, Directive on Renewables and National Integrated Energy and Climate Plans (2016-2020)

The commitments regarding climate change made at the Paris Agreement[2], adopted in 2015 at the UN Climate Change Conference (COP21), have determined the later development of the European energy and climate policy, making the deployment of renewable energies one of the key pillars to achieve the ultimate aim of decarbonising the economy.

Since this agreement was ratified in 2016 by the European Union (hereinafter EU), the successive European strategic plans and the accompanying regulatory packages (such as the Clean Energy for all Europeans package[3] or the European Green Deal[4)] have been reinforcing and increasing the climate targets and, with these, those regarding sustainable development.

Thus, Directive 2018/2001[5] of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, establishes a binding target for the EU as a whole of reaching a share of at least 32% of renewable energy by 2030, with the possibility of this target being increased[6].

Likewise, in accordance with the governance process established in Regulation 2018/1999[7] of the European Parliament and of the Council, Member States should contribute to achieving this target by establishing their own national objectives and the corresponding policies and measures to attain these, which will be included in their integrated national energy and climate plans.

For this purpose, Spain and Portugal sent to the EC their respective Integrated National Energy and Climate Plans (Spanish PNIEC and Portuguese PNEC), corresponding to the 2021-2030 period.

According to the target scenario included in the Spanish PNIEC[8], the installed capacity from renewable energy sources will increase by 108% from 2020 to 2030. This involves reaching by 2025 an installed renewable generation capacity of 82,363 MW (27.6% of the total installed capacity) and of 112,914 MW by 2030 (29.8% of the total installed

[2] https://unfccc.int/sites/default/files/spanish_paris_agreement.pdf

[3] https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en

[4] https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001

[6] On 14 July 2021, the European Commission published its proposal to reform Directive 2018/2001 including, among other measures, the increase in the renewable generation target up to 42.5%. After being adopted by the Council on 9 October 2023, new Directive 2023/2413 was published in the OJEU on 31 October 2023, in such a way it will come into force on 20 November 2023.

[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R1999

[8] https://www.boe.es/boe/dias/2021/03/31/pdfs/BOE-A-2021-5106.pdf

capacity[9]).

Table 1. Electric power generation facilities in the target scenario of the PNIEC

RENEWABLE POWER (MW)	Year 2015	Year 2020*	Year 2025*	Year 2030*
Wind power (onshore and offshore)	22.925	28.033	40.633	50.333
Solar photovoltaic	4.854	9.071	21.713	39.181
Solar thermal	2.300	2.303	4.803	7.303
Hydraulics	14.104	14.109	14.359	14.609
Mixed pumping	2.687	2.687	2.687	2.687
Pure pumping	3.337	3.337	4.212	6.837
Biogas	223	211	241	241
Other renewables	0	0	40	80
Biomass	677	613	815	1.408
Coal	11.311	7.897	2.165	0
Combined cycle	26.612	26.612	26.612	26.612
Cogeneration	6.143	5.239	4.373	3.670
Fuel and Fuel/Gas (Non-Peninsular Territories)	3.708	3.708	2.781	1.854
Waste and other	893	610	470	341
Nuclear	7.399	7.399	7.399	3.181
Storage	0	0	500	2.500
Total	**107.173**	**111.829**	**133.802**	**160.837**
*Data for 2020, 2025 and 2030 are estimates from the PNIEC Target Scenario.				

Source: Ministry for Ecological Transition and Demographic Challenge, 2019.

For its part, in accordance with the Portuguese PNEC[10] in force[11], the installed capacity from renewable energy sources will have increased around 85% by 2030 with regard to the installed capacity from renewable energy sources in 2020. This means reaching a renewable capacity of around 22.2 GW (84% of the total installed capacity) by 2025 and around 27.4 GW (around 87% of the total installed capacity) by 2030.

[9] However, it should be taken into account that the Council of Ministers of the Spanish Government, at the request of the Ministry for Ecological Transition and Demographic Challenge (MITECO), agreed on 27 June 2023 to send to the European Commission the draft of the first update of the National Integrated Energy and Climate Plan 2021-2030 (PNIEC). In turn, the draft is submitted for public hearing and information up until 4 September. As a result, the installed capacity objectives foreseen could be altered.

[10] https://www.dgeg.gov.pt/media/go2fm4fb/pnec-2030-rcm-53_2020.pdf

[11] Similarly to the Spanish case, it should be considered that the new version of the Portuguese PNEC was sent to the European Commission in June 2023 and is pending approval, in accordance with that provided in Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action.

Table 2. Electric power generation facilities of the PNEC

Renewable Power (MW)	Year 2020	Year 2025	Year 2030	Year(2020 vs 2030)
Hydraulics	7.000	8.200	8.200	1.200
Pumping	2.700	3.600	3.600	900
Wind power	5.430	6.800	9.300	3.900
Onshore	5.400	6.700	9.000	3.600
Offshore	30	100	300	270
Solar photovoltaic	2.000	6.600	9.000	7.000
Centralized	1.500	5.800	7.000	5.500
Decentralized	500	800	2000	1500
Solar thermal	0	100	300	300
Biomass	400	400	500	100
Other renewable	30	60	100	70
Geothermal	30	30	60	30
Wave power	1	30	70	69
Coal	1.800	0	0	-1.800
Natural gas	3.800	3.800	3.800	0
Fuel/diesel	400	300	300	-100
Total	**20.800**	**26.300**	**31.500**	**10.700**

Source: Ministry of the Environment and Energy Transition, 2019.

REPowerEU Plan and ACER report (2021-2022)

The upturn of the world economy after the COVID-19 pandemic and the reductions in the supply of Russian gas led to the increase in energy prices during 2021. Within this context of high prices, in October 2021 the EC published a package of measures known as "Toolbox" to face this high-price situation with recommendations for Member States[12]. In this document, the EC stated that the current design of the European electricity market was not the cause for the high prices, that the harmonised marginal system guaranteed an efficient assignation of resources and, therefore, that its reform was not considered necessary. Also, it insisted that there was no alternative market model that would guarantee a price reduction under the circumstances at the time. In this sense, the EC entrusted ACER to draft a report on the design of the electricity market, this being published in April 2022.

The start of the Russia-Ukraine war, on 24 February 2022, and the shortage in the hydraulic and nuclear production at the time led to an unprecedented increase in and volatility of the price of electricity in Europe, aggravating the worries regarding energy security and highlighting the excessive dependence of the EU on Russian fossil fuels.

In response to this situation and to advance speedily in the energy transition process, the EC presented the REPowerEU plan[13] on 18 May 2022, which included, among others, a proposal to increase the renewable energy target of the EU up to 45% by 2030.

[12] https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5204

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0230

Likewise, in parallel to the accelerating energy transition process and within the context of high energy prices, the debate was reignited on whether the current design of the European electrical market was still the most appropriate. As already mentioned, following the order of the EC, ACER published its report on the design of the electricity market in April 2022[14]. In the aforementioned report, although the Agency stated that the current design guarantees an efficient and secure electricity supply under "normal" market conditions and, therefore, that it should be maintained, it also included a series of recommendations to prepare the design of the electricity market for the future, in order to attain the decarbonisation targets. For this purpose, among other measures, ACER recommended promoting the liquidity of forward markets and the hedging instruments as a means to boost the investment foreseen within the energy transition process, enabling the access of small market participants to long-term power purchase agreements, better known as PPAs.

Electricity market reform process, public consultation and regulatory proposal of the EC (2023)

As a result of the recommendations presented by ACER in its report, the EC carried out a public consultation on the electricity market design, from 23 January to 13 February 2023, seeking the opinion of the actors regarding certain regulatory aspects that could help supplement the operation of the current short-term electricity markets. In the consultation, the EC acknowledges that, although the current design of the electricity market has allowed for the development of a properly integrated market at the European level, which guarantees a secure supply and promotes the decarbonisation process, this has shown a series of inefficiencies within the current energy context. One of the deficiencies observed has been the excessive focus on short-term markets of the current European electricity market design, in such a way the fluctuations observed in the prices and the high level of volatility have been directly transferred to the final consumers who, in turn, have not felt a correct reflection of the impact of renewable energies on their electricity bills. Therefore, the EC considers it necessary to supplement the regulatory framework for these short-term markets with additional instruments and tools that serve as an incentive for the use of long-term contracts, allowing final consumers to benefit from the lower costs derived from renewable generation and to be less affected by the fluctuations more befitting the short term. In this sense, the public consultation posed specific questions on the possible barriers at present to the development of PPAs and their effect on the markets, together with possible actions that may be implemented to encourage their use.

After the consultation, on 14 March the EC published a proposal for the reform of the European electricity market design to promote renewable energies, better protect consumers and improve industrial competitiveness. The reform proposed foresees the revision of several legislative acts of the EU, such as Regulation (EU) 2019/943 on the internal market for electricity, Directive 2018/2001 for the promotion of the use of energy

[14] https://www.acer.europa.eu/Publications/Final_Assessment_EU_Wholesale_Electricity_Market_Design.pdf

from renewable sources, Directive 2019/944 on common rules for the internal market for electricity, or Regulation (EU) 1227/2011 on wholesale energy market integrity and transparency (REMIT).

By means of this regulatory proposal, the EC intends to optimise the configuration of the electricity market supplementing short-term markets, by awarding a more important role to instruments with a longer term, with PPAs among these. This greater focus on the long term intends to minimise the impact of the characteristic volatility of short-term markets in the price perceived by final consumers, more so taking into account that the greatest integration of renewables will be reflected in a reduction of the daily market price, while also, foreseeably, in an increase of its volatility. Thus, in said proposal, the EC urges Member States to promote the market for PPAs, eliminating unjustified obstacles that hinder the entry to this.

3. CONCEPTUALISATION OF POWER PURCHASE AGREEMENTS (PPAS)

3.1. POWER PURCHASE AGREEMENTS (PPAS)

Power Purchase Agreements (PPAs) are long-term bilateral contracts for a buyer to acquire electricity from a producer, that partly or fully cover the production of its renewable generation installation with these contracts. In PPAs, the price, or pricing formula, and the energy delivery time horizon are previously agreed between the counterparties and include de assignment of green certificates or guarantees of origin[15] (hereinafter GoOs) of the renewable energy from the producer to the purchaser.

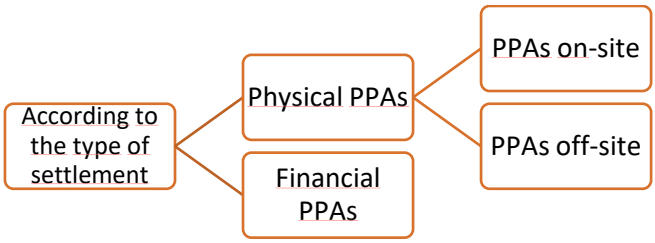
The buying counterparty may be a utility that acquires the electricity from the renewable producer to balance its own portfolio and sell it to its clients, or it may be a final consumer that enters the contract to cover its electricity consumption needs partly or fully. In the latter case, the term used for said contracts is corporate PPAs.

3.2. TYPES OF PPAS

The most common classification of PPAs is that distinguishing in terms of the type of contract settlement, differentiating between physical PPAs and financial PPAs (also known as virtual or synthetic).

[15] Guarantees of origin are certificates that attests to the volume of energy generated from renewable sources or high-efficiency cogeneration, for a specific time period. The regulation of the system of guarantees of origin in Spain is set out in Circular 1/2018 of the Spanish National Markets and Competition Commission (CNMC). In the case of Portugal, this is set out in Directive no 17/2023, of 31 August, which approves the Manual on Procedures of the Entity Issuing Guarantees of Origin provided in the basic law on the electricity sector and the gas sector.

Graph 1. Types of PPA according to the type of settlement



Source: Prepared by the author

Physical PPAs are those in which a physical settlement of the contract is carried out, i.e., there is a physical exchange of electricity between the generator and the consumer. However, in financial PPAs there is no physical exchange of electricity, but one of monetary flows via a financial settlement.

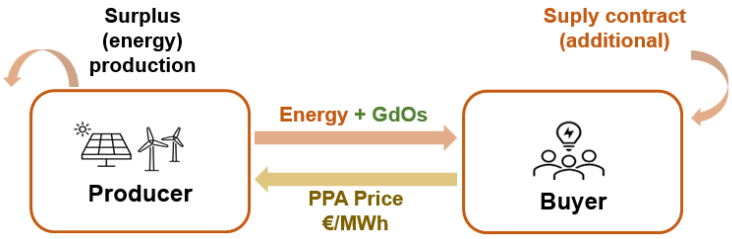
Physical PPAs

Depending on whether or not there is a physical connection between the generator and the consumer, physical PPAs may, in turn, be classified as on-site PPAs and off-site PPAs.

- *Physical on-site PPAs*: this is the simplest configuration, as the geographical proximity of the generator and the consumer allow them to share a physical connection. In this case, the consumer enters the PPA directly with the generator for the supply of electricity.

In addition, to guarantee the supply of its demand profile not covered by the PPA (or at times when the generator is not producing), the consumer could, where applicable, sign a contract with a utility or acquire the energy from the wholesale market (in the case of being a direct consumer in the electricity market). For its part, any generation not committed to in the PPA or excess production will be sold by the generator either at market price or via a bilateral contract or another PPA with a utility.

Graph 2. On-site physical PPA

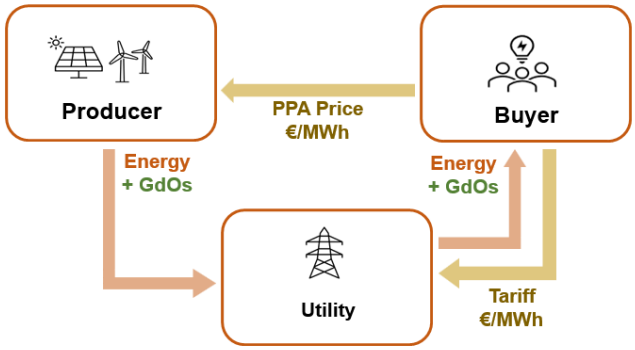


Source: Prepared by the author

- *Physical off-site or sleeved PPAs*: in this case there is no possibility of establishing a physical connection between the generator and the consumer, but a physical electricity exchange is possible as they are both connected to the same network. This configuration requires the participation of a utility that acts as intermediary between both counterparties of the PPA, performing the physical supply of electricity to the buyer, together with the delivery of the GoOs. This intermediation action is called "sleeving".

Likewise, if the entire demand of the buyer cannot be covered by the production of the generator's installation, either the utility will supply the necessary additional electricity at the price set by the tariff agreed on, or the buyer will directly acquire the energy necessary from the wholesale market (in the case of being a direct consumer in the electricity market).

Graph 3. Off-site physical PPA



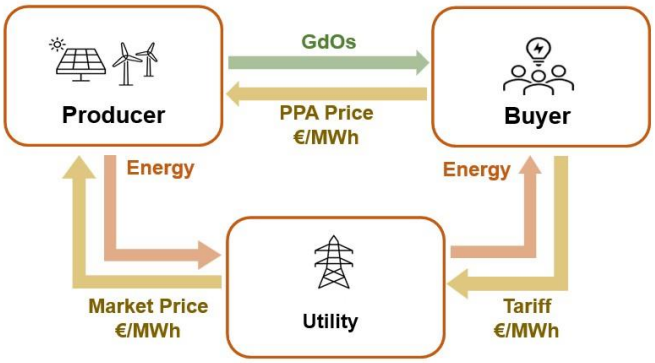
Source: Prepared by the author

Financial PPAs

This contract type is a purely financial hedging instrument, one that does not require the connection of both counterparties to the same network as there is no physical electricity exchange. However, it does involve the transfer of GoOs from the seller to the buyer and the latter to sign a contract with a utility to guarantee the supply of its electricity demand (or for this to be acquired from the market in the case of being a direct consumer in the electricity market).

Financial or virtual PPAs (VPPAs) are settled by differences between the fixed price agreed by the counterparties in the contract (strike price) and the spot price. In the case that the spot price was lower than the PPA price, the buyer will compensate the seller for the price spread; conversely, when the spot price exceeds the price set in the PPA, the seller will compensate the buyer for the price spread.

Graph 4. Financial PPA



Source: Prepared by the author

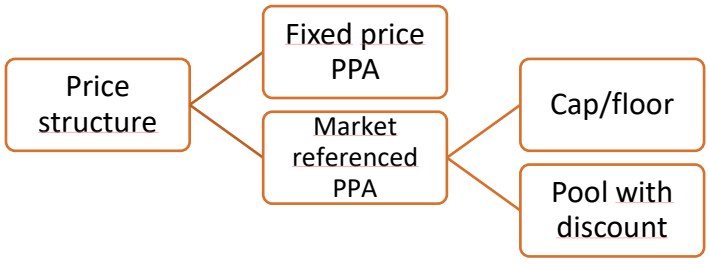
Financial PPAs eliminate any kind of geographical obstacle or restriction, even allowing for the counterparties to be in different markets without physical interconnection. In this manner, when the supply of electricity agreed in the PPA occurs in a different country from that of the location of the generation installation in the contract, it its specifically referred to as cross-border PPA.

3.3. PRICE STRUCTURES

The price structure (price per unit of energy generated throughout the life of the contract) is one of the PPA negotiation aspects and is established taking into consideration future electricity price expectations, the risks to be taken or, in the specific case of the generator, the profitability necessary to ensure the bankability or financing of the project.

The most common types of price structures in PPAs are those based on a fixed price and those established with a market indexation or another price index.

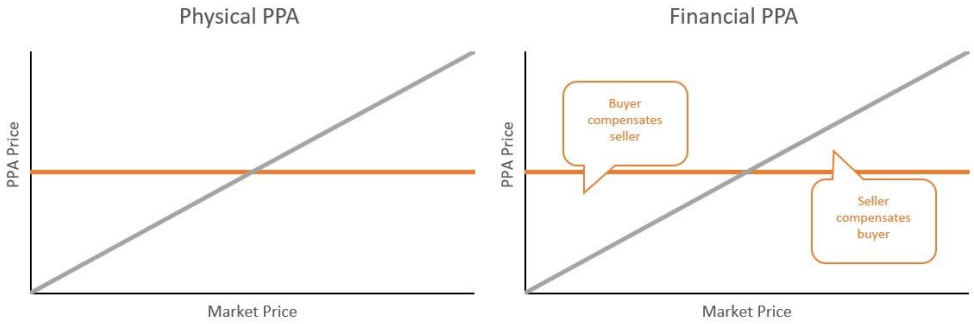
Graph 5. Price structures



Source: Prepared by the author

In structures based on a fixed price, the price remains constant throughout the life of the contract, with the possibility of establishing correction clauses based on inflation or on some kind of update (upwards or downwards, with a previously agreed magnitude and duration).

Graph 6. Fixed price PPA

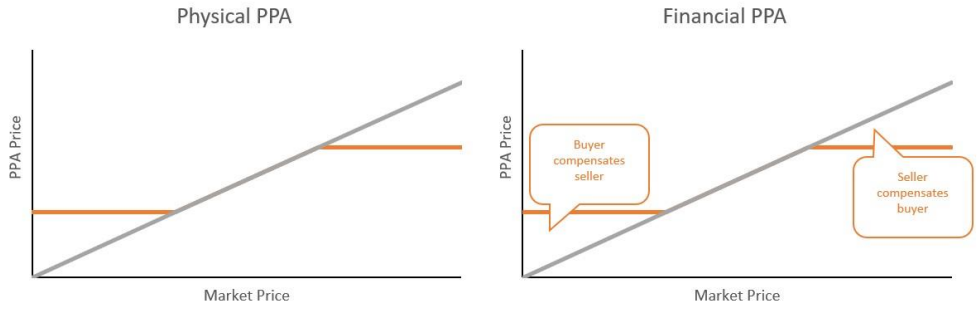


Source: Prepared by the author

In structures established with market indexation or another price index:

- Maximum and minimum price limits (cap and floor respectively) that serve as protection mechanisms can be agreed. In this type of structure, the PPA price will coincide with the market price whenever this is between the limits set. Nevertheless, if the spot price goes below the price floor, the price of the physical PPA will be equal to said lower limit. In the same situation but with a financial PPA, the buyer will compensate the seller for the spread between the floor and the market price. On the other hand, if the market price exceeds the price cap set in the contract, the price of the physical PPA will coincide with said maximum limit, while in the financial PPA it will be the seller which will compensate the buyer for the spread between the market price and the price cap.

Graph 7. Market index linked PPA: cap/floor

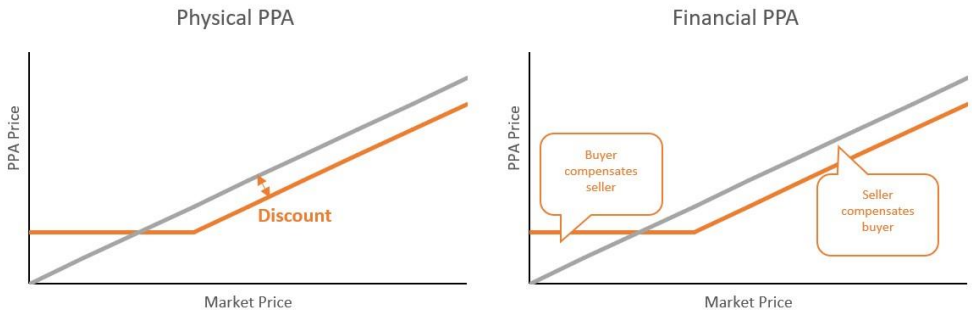


Source: Prepared by the author.

- Establishing an indexation at market price at a discount: in this price structure, the counterparties agree that the price of the contract will be the spot price minus a certain discount percentage. Similarly, lower and/or higher price limits (cap and

floor respectively) may be established, giving rise to different configurations: spot price with a discount, spot price with a discount and floor, spot price with a discount and cap, etc.

Graph 8. Market index linked PPA: pool with discount and floor



Source: Prepared by the author.

3.4. RISKS OF PPAs

Despite the benefits signing a PPA has for both counterparties, there are also a series of risks that should be taken into account during its negotiation process. These risks should be defined and stated in the contract, together with the appropriate measures, where applicable, to attempt to mitigate them and with the criteria for distribution, sharing or transfer of such risks, in case they should finally occur.

The main risks to be taken into account when negotiating PPAs are as follows:

Regulatory risk: the risk deriving from any regulatory change that may affect the PPA throughout the life of the contract, or even during the stage of building the generation installation linked to it, having an impact on the income expected from the project (changes in the functioning of the electricity market, in the building or operating licence regime that affect the generation installation, in the regime for access to the transport or distribution networks, or changes in taxation). As far as possible, it is necessary to anticipate the potential impact of this regulatory risk, defining mechanisms that allow for its distribution, sharing or transfer should it occur. For instance, clauses could be established to, exceptionally, consider revising the conditions of the PPA price structure, in the case such regulatory risk should materialise.

Risk of force majeure: the risk of situations of an extreme nature occurring that escape the control of both the seller and the buyer (e.g., climate conditions), and which may affect the generation installation building process, or its generation capacity once started up. In order to avoid or reduce this risk, the contract usually contains clauses with the generator's commitment to minimise the impact of this risk, even including a termination of contract clause in the case that the cause of force majeure continued for a considerable period of time.

Operational risk: the risk that the generation installation does not fulfil the performance expected in terms of the level of availability, the coefficient of performance (in the case of solar photovoltaic installations) or the guaranteed power curve (for wind power plants). To mitigate this risk, the generator should perform an analysis that allows it to estimate the project's energy production, considering the climate variability and potential technological failures of the installation.

Development risk: the risk that the development of the renewable energy installation linked to the contract does not take place in the time and manner initially foreseen or, even, that it does not take place at all.

Credit risk or counterparty risk: the default risk of a counterparty. Taking into account the link between the income generated via the PPA and the access to the financing of the generation project, the credit risk may have greater impact on the selling counterparty. However, this is not a static risk but one that diminishes throughout the life of the contract, being at its highest at the start as it could lead to the non-completion of the construction in the generation project. Therefore, it is essential to perform an assessment of the counterparty's financial strength, before signing the contract, as it will be required by the financial institution when negotiating the generation project. Likewise, the seller should assess the maximum volumes that may be associated with a specific counterparty. In this sense, an alternative to share the default risk of the buyer is to choose structures with multiple buyers, in which the buying counterparty represents the aggregate demand of several buyers, known as a consortium or "club". In turn, this type of aggregate purchase allows companies with lower energy consumption but wishing to benefit from the advantages associated with this type of contract, to access PPAs.

Price or market risk: the risk deriving from the market price moving in an opposite sense to the price set in the contract. As mentioned previously, price structures that guarantee the risk is shared between both counterparties can be defined.

Imbalances risk: the probability that the real production of the generation installation differs from the estimated production, generating deviation costs due to the imbalance in the installation. This risk could be mitigated by contracting a third party that guarantees the supply to the purchaser of the difference between the expected and the real generation.

Volume and profile risk: the probability that, due to the variability in the production of the generation installation, this does not adapt to the hourly demand profile of the consumer (profile risk) or to its consumption during a longer time period, such as a quarter or a whole year (volume risk). In an attempt to mitigate both risks, it is necessary for the counterparties to define the energy delivery volume and profile that best adapt to the supply needs of the consumer and/or, additionally, for both counterparties to enter into contracts with third parties (producer and utility). Two types of PPA can be distinguished in terms of the profile and the volume of energy to be delivered:

- Fixed (baseload) PPAs: appropriate for buying counterparties that are going to have a stable energy consumption throughout the life of the contract (e.g., for

certain industrial consumers whose production is constant, independently from the time of day or season of the year).

- Variable PPAs: recommended for buyers with a variable demand profile in terms of the season or the working timetable. Within this contract typology PPAs as generated, where the volume of energy supplied to the buyer depends on the production of the generation installation, should be differentiated from PPAs as produced, where the volume of energy supplied adapts to the consumption profile of the buyer.

4. REASONS FOR ESTABLISHING PPAS AND RECENT DEVELOPMENTS

The promotion of the decarbonisation of the economy by the common policy of the EU, by means of integrating greater generation power of renewable energy sources, has meant the penetration into the market of technologies with lower costs to those based on fossil fuels, while also the development towards a forward market with more volatile prices due to the intermittent nature of such technologies.

In this context, the development of PPA-type agreements becomes relevant, for being long-term contracts that allow market price risk hedging for both counterparties (with a stable and foreseeable price horizon in the medium to long term), enabling the bankability or financing of the projects for the development of renewable energy generation power plants, by allowing the assurance of stability in their cash flows and, therefore, a target return.

On the other hand, the commitment of the different production sectors towards environmental sustainability is ever-increasing within the decarbonisation of the economy framework, setting targets such as partially or totally covering their electricity consumption using renewable energy resources. In this sense, apart from ensuring a stable and predictable future price, signing PPAs is becoming a path to deliver on the commitments made by companies in their sustainability plans, while also being instruments that favour the development of said renewable energies.

As a summary, Table 3 shows the main reasons of generators (sellers) and consumers (buyers) to sign PPAs.

Table 3. Reasons for signing PPAs

Producer motivations		Buyer motivations	
Price risk mitigation	Stable and predictable price horizon in the medium to long term	**Volume and price risk mitigation**	Stabilization of power delivery at a given price and time horizon
			Hedging against the volatility of fuel and electricity prices
Project bankability	Stable and long-term revenue stream, facilitates financial leverage with banking institutions (makes their asset bankable)		Reduction of the risk of variations in the price of CO2 emission allowances
Business development	Increases the variety of potential buyers	**Sustainability**	Facilitates compliance with the environmental sustainability commitments set by the company
			Reduces carbon footprint
	Can facilitate geographic expansion into new markets	**Competitive position improvement**	Improved corporate image through the use of electricity from renewable sources
	Reduces development cost by enabling standardization of terms and conditions		Compared to acquisition of generation assets, the signing of PPAs avoids having to develop activities outside the company's core business

Source: Prepared by the author

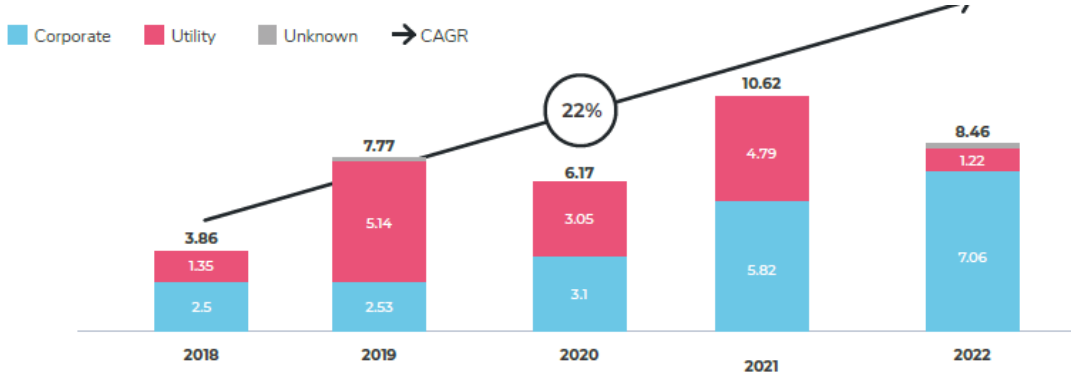
4.1. DEVELOPMENT OF PPAS: VOLUMES

In the past few years, the negotiation of bilateral long-term PPA-type contracts has been increasing progressively. Thus, in accordance with the study on the European market by PEXAPARK[16], the negotiation of PPAs has seen a 22% increase between 2018 and 2022. In this last year, PPAs for a total volume commitment of around 8.5 GW[17], corresponding to 161 contracts, have been signed. However, this figure means a 21.4% reduction with regard to the volume committed in this type of contracts in 2021 (10.7 GWh), although with a 4.5% increase in the number of contracts signed regarding the previous year (154 contracts). According to the participant profile, final consumers have been increasing their percentage of participation in the negotiation and signing of this type of long-term contracts (to the detriment of the energy companies), with the so called “corporate PPAs” coming to represent 82% of the total power commitment in 2022 in this type of contracts (80% of all contracts).

[16] “European PPA Market Outlook 2023”

[17] This figure corresponds to the sum of the volume committed in 161 contracts and not including the data corresponding to another 65 contracts in which the volume is not specified, for which reason the total power committed in PPAs in the European market could be between 9 GW and 9.5 GW.

Graph 9. Development of the power commitment through PPAs in the European market (MW)

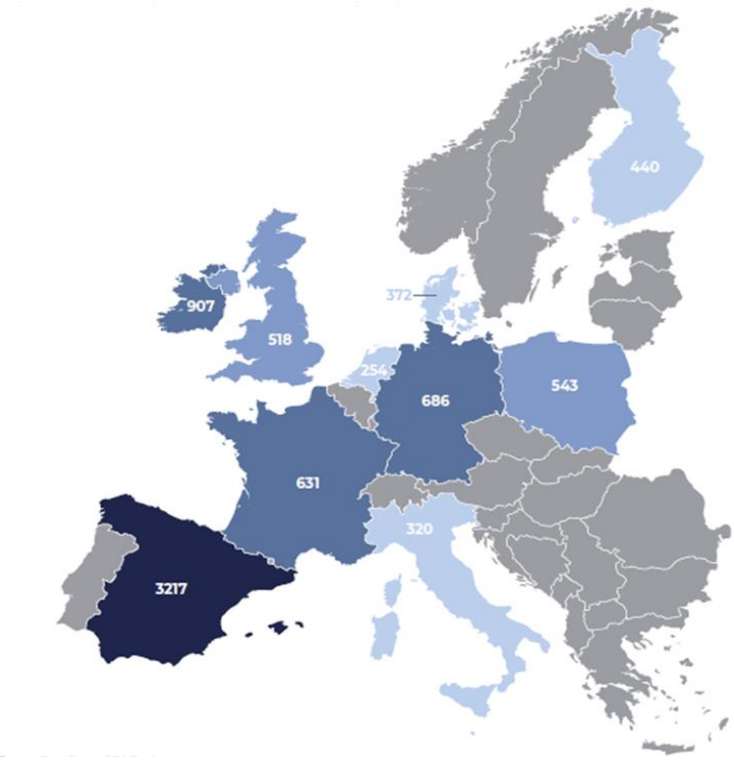


Source: "European PPA Market Outlook 2023" PEXAPARK Report

Technological companies (Microsoft, Amazon, Google and Meta) continued standing out in 2022 as counterparties in PPAs, amount to 22.4% of the total power committed. However, that year the Alcoa corporation was the greatest PPA purchaser in the European market, with 21.5% of the total power commitment through this type of long-term contracts.

According to countries, the Spanish market was the most active regarding PPA negotiation with a total of 3,717 MW, followed by Ireland with 907 MW.

Graph 10. Power commitment through PPAs per country (MW)



Source: "European PPA Market Outlook 2023" PEXAPARK Report

Table 4. Examples of PPAs signed in Spain and Portugal. Period 2020-2022

YEAR	COUNTRY	MODALITY	COUNTERPARTS	SUPPLY	DURATION
2020	Spain	Producer-corporate client VPPA	Baywa r.e.-AB InBev	250 GWh/year	10 years
		Producer-utility	Fortia-Engie	400 GWh/year	11 years
		Producer-corporate client Physical Off-site	Iberdrola-Orange	200 GWh/year	12 years
		Producer-corporate client Physical Off-site	Acciona-Telefónica	100 GWh/year	10 years
		Producer-corporative client	Sonnedix-Statkraft	100 GWh/year	10 years
		Producer-corporative client Physical On-site	Iberdrola-Makro	6 MW	15 years
		Producer-corporate client VPPA	EDP Renovables-Novartis	63 MW	15 years
		Producer-corporate client VPPA	Acciona-Novartis	135 MW	10 years
		Producer-corporate client VPPA	Enel Green-Novartis	78 MW	10 years
		Producer-corporate client	Endesa-Cellnex	300 GWh/year	10 years
		Producer-corporate client VPPA	EDP Renovables-Royal DSM	59 MW	not available
2021	Spain	Producer-corporate client Physical Off-site	Iberdrola-Danone	73 GWh/year	10 years
		Producer-corporate client VPPA	Solaria-Shell	300 MW	10 years
	Portugal	Producer-corporate client Physical Off-site	EDP Renovables-NOS	62 GWh/year	10 years
2022	Spain	Producer-corporate client Physical	ALCOA-Greenalia	183 MW	10 years
		Producer-corporate client Physical	ALCOA-Endesa	1.151 GWh/year	10 years

Source: Prepared by the author using information from the companies and the "Bird & Bird & Corporate PPAs. An International Perspective. 2020/2021 Edition" report.

5. PPAS AND FORWARD MARKETS

5.1. RELATIONSHIP WITH ORGANISED FORWARD MARKETS

As mentioned previously, among the measures proposed by the EC to reform the European electricity market is that of incentivising the use of PPAs as forward contracting instruments that allow for mitigating the impact of short-term markets on the price faced by final consumers.

In this context, an analysis should be made of the relationship between this type of forward contracts and those negotiated through organised forward markets, in order to identify situations of potential complementarity or substitutability.

In the first place, it should be indicated that PPAs and hedging instruments negotiated in organised forward markets have different characteristics, making it difficult for these to be perceived as being perfect substitutes. Specifically, most PPAs are complex contractual structures that are negotiated bilaterally between the actors, including specific clauses and characteristics providing them with greater flexibility and adaptation to the concrete needs of the actors. This contrasts with the negotiated instruments in organised forward or futures markets, whose characteristics are standardised.

Obviously, these specific characteristics to each of the two types of contracts, i.e., standardisation in the case of forward contracts negotiated in organised markets and custom clauses[18] in the case of PPAs, have both advantages and disadvantages. For instance, as mentioned, the bilateral negotiation of PPAs allows for better adaptation to the specific needs of both counterparties while, at the same time, making their negotiation much more complex and requiring a long period of time, thus being exposed to potential market changes that may occur during their negotiation period. This contrasts with the immediate execution of standard contracts negotiated in organised forward markets.

Similarly, the counterparty risk management should be highlighted as a differential aspect between both types of contracts. Thus, while in PPAs the counterparty risk requires a specific bilateral management, in forward contracts negotiated in an organised market this counterparty risk is eliminated with the novation of the contracts in the central counterparty (hereinafter CCP) of such market. Therefore, the fact that CCPs admit PPAs for clearing, to mitigate the counterparty risk of said contracts, has a positive impact on their financing.

In addition to the differences mentioned regarding their structural characteristics, there are other factors that significantly differentiate both types of contracts:

- PPAs are a hedging instrument of the electricity price risk in the very long term (with an impact on the financing of the generation project), as opposed to contracts negotiated in organised markets, whose liquidity is mainly concentrated in short- to medium-term hedging, since futures markets often fail to offer

[18] For example, the buyer obtaining the energy from a specific asset, as in the case of on-site PPAs.

products with such long-term maturities, or there is no liquidity in their negotiation.

- The reasons for companies to sign PPAs or negotiate in organised forward markets may differ. Thus, while the negotiation in forward markets is mainly based on hedging or speculative positions, independently from the production source, many PPAs are associated to compliance with the commitments of companies with environmental sustainability and their link with their brand image (additionally to the price risk hedging which, likewise, these contracts allow for).
- In PPAs the energy buyer is usually required to have a very high credit rating, which restricts the access to such contracts and underlines the importance of forward markets as an alternative for actors that do not have said rating, that are not interested or cannot enter such long-term hedging commitments.

Despite the different characteristics and reasons for choosing between contracts negotiated in forward markets and PPAs, it is important to highlight that there are, however, externalities (spillover effects) between both types of contracts. As an example, the energy price agreed in PPAs, one of the basic aspects in the negotiation of such contracts, may be determining when choosing between signing a PPA or negotiating in forward markets. Likewise, as PPAs are long-term contracts, the price expectations of counterparties for the time period of the contract are relevant in the negotiation, with the price development of prices in forward markets being one of the possible inputs in the formation of such expectations.

Finally, it should be indicated that, although both types of contracts are not perfect substitutes, when an entity negotiates a PPA, it potentially reduces its need to take positions in forward markets, in this manner having an impact on the liquidity of such markets. However, situations could arise in which an energy buyer wishes to have certain exposure to the market price, in order to benefit from the moments at which the prices are lower than that of the PPA. In addition, depending on the actual characteristics of the PPA, the futures market could serve to hedge eventual risks associated with the contract (volume/profile, deviations, possible delays, among others), while also to hedge certain price risks associated with financial PPAs.

5.2. MARKET MONITORING AND SUPERVISION

In the context of market monitoring and supervision, the following sections show, in a general manner, the regulatory obligations related to PPAs within the scope of application of:

- Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency (REMIT).
- Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (MiFID II); and

- Regulation (EU) No 648/2012 on OTC derivatives, central counterparties and trade repositories (EMIR).

5.2.1. IMPLICATIONS RELATED TO THE MONITORING AND SUPERVISION OF THE ELECTRICITY MARKET

For the purposes of supervision, REMIT has an integrated view of the European wholesale energy markets, these understood as the set of electricity and natural gas spot and forward markets, with physical or financial settlement, in each of the Member States, among others including regulated markets, multilateral trading platforms, transactions in OTC markets, and bilateral contracts, direct contracts or contracts through intermediaries.

PPAs, as long-term bilateral electricity contracts (electricity derivatives contracts), independently from the type of settlement, are considered wholesale energy products, in accordance with Article 2(4) REMIT, for which reason they are subject to that provided in such Regulation and its implementing regulations. In particular, PPAs are subject to the obligation to report data to ACER, pursuant to that established in Article 8(1) REMIT and in Article 3(1) of Implementing Regulation No 1348/2014[19].

Additionally, in the case of contracts with financial settlement, that established in Article 6(5) of Implementing Regulation No 1348/2014 shall be considered. In this way, when the transaction data have already been reported in accordance with the financial regulations, it will be considered that the reporting obligations regarding such data have been complied with, according to the provisions of Article 8(1) REMIT.

However, it should be noted that Article 6(6) adds that “In line with the second subparagraph of Article 8(3) of Regulation (EU) No 1227/2011 and without prejudice to paragraph 5 of this Article, organised markets, trade matching or reporting systems shall be able to provide the information referred to in paragraph 1 of this Article directly to the Agency”.

On the other hand, for the purposes of reporting PPAs with physical settlement, Article 4(1) of Implementing Regulation No 1348/2014 will likewise be considered, according to which, “Unless concluded on organised market places, the following contracts and details of transactions in relation to those contracts shall be reportable only upon reasoned request of the Agency and on an ad-hoc basis: […](b) Contracts for the physical delivery of electricity produced by a single production unit with a capacity equal to or less than 10 MW or by production units with a combined capacity equal to or less than 10 MW;”.

[19] Commission Implementing Regulation (EU) No 1348/2014 of 17 December 2014 on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.

5.2.2. IMPLICATIONS RELATED TO THE MONITORING AND SUPERVISION OF THE FINANCIAL MARKETS

With regard to financial regulations, if a PPA corresponds to any of the financial derivatives instruments listed in points 4 to 10, Section C of Annex I to MiFID II and those defined in Article 4(1)(44)(c) of such Directive, it will be subject to the requirements established in it and in its implementing regulations. Likewise, it should be argued that, by being included in the previously identified points of the scope of MiFID II, the PPA will be considered a derivatives contract under the terms of Article 2(5) of EMIR, also applying the requirements foreseen in the aforementioned Regulation and implementing regulations.

Regarding MiFID II, this directive is applicable to the entities regularly providing investment services and/or regularly carry out professional investment activities relating to financial instruments. Therefore, its scope will not include the persons developing a different professional activity than that mentioned above. For this purpose, MiFID II foresees a set of exemptions that will be considered by the entities negotiating PPAs[20].

In general terms, the requirements established in EMIR are the following:

- The obligation to report the information related to derivatives instruments to a Trade Repository.
- The clearing obligation via a central counterparty (CCP), applicable to OTC transactions on the different derivatives defined by ESMA.
- The obligation to implement risk mitigation techniques for non-centrally cleared OTC derivatives via a CCP.

It should be indicated that, by means of EMIR REFIT[21]which came into force on 17 June 2019, changes were made to EMIR in order to simplify and give a more proportional approach to certain requirements established in said regulation[22].

[20] In this respect see the "Financial regulations and derivatives contracts in MIBEL" document by CR MIBEL, of July 2022.

[21] Regulation (UE) 2019/834 of the European Parliament and of the Council, of 20 May 2019, which amends EMIR with regard to the clearing obligation, the suspension of the clearing obligation, reporting requirements, risk mitigation techniques for OTC derivative contracts not cleared through central counterparties, the recording and supervision of trade repositories and requirements for trade repositories.

[22] Also see the "Financial regulations and derivatives contracts in MIBEL" document by CR MIBEL, of July 2022.