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Senior Analyst: Chendwa Chintu

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CONTACT

Chendwa Chintu
Senior Analyst
c.chintu@inspiratia.com

Viola Caon
Head of Content
v.caon@inspiratia.com

Nicholas Davies
Managing Director
n.davies@inspiratia.com

Vikas Makwana
Head of Product and Data
v.makwana@inspiratia.com

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Introduction

This report provides an in-depth analysis of the Power Purchase Agreement (PPA) market from 1 January to 30 June 2023, shedding light on market trends, regulatory changes, and key players. With a focus on the European market, this report highlights the significant growth in PPA volume, driven by regulatory advancements and the adoption of renewable energy.

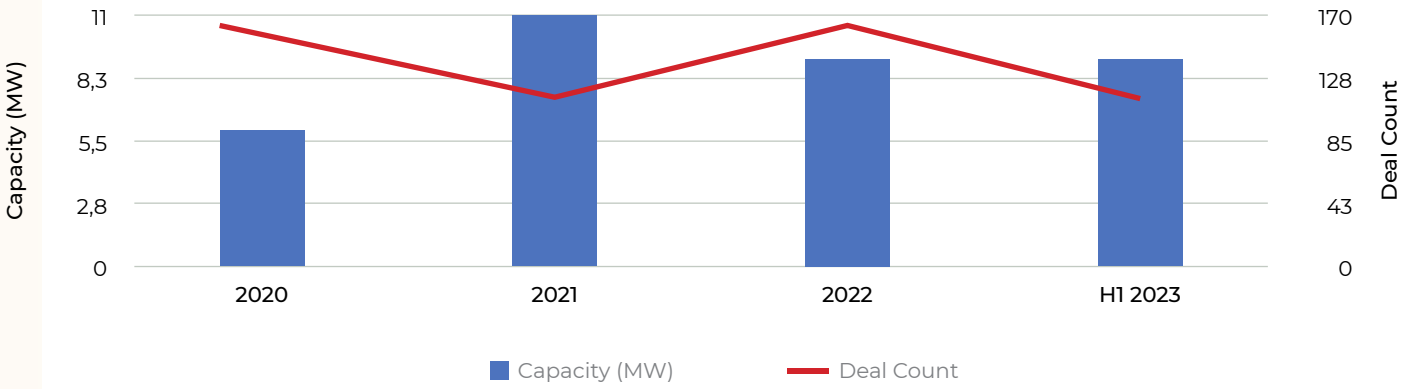
The European Union's proposed reform of the EU electricity market is a significant development discussed in this report. The reform aims to protect consumers from volatile energy prices, enhance cost predictability, and boost investments in renewable energy. The proposal emphasises the importance of PPAs in decarbonisation efforts, highlights the need for reduced financial risks and barriers, and encourages the development of forward markets and storage solutions. This report also examines the impact of the UK's Electricity Generator Levy, which introduces taxes on renewable and nuclear generators producing over 100GWh per year. Additionally, it explores the growing role of baseload PPAs, the rise of hydrogen PPAs, and the changing dynamics of the PPA market in specific countries such as Italy.

This report will serve as a valuable resource for industry professionals seeking to navigate the complexities and seize opportunities in the dynamic world of PPAs.

Market review

In H1 of 2023, the PPA market exploded in scale. *inspiratia* has tracked a total disclosed volume of 9.1GW contracted under PPAs across 123 deals. This already surpasses the 2022 full year contracted volume by 100MW. The EU has experienced several material and regulatory changes which have influenced this growth in PPAs. At this pace, the full-year volume should exceed 15GW.

PPA Deal Flow, 2020 to H1 2023



Source: *inspiratia* PPA Database, 2023

A key contributor to the rapid rise in PPA volume has been the European Union's temporary framework to speed up permit granting for renewables, which was adopted in December 2022. The regulation will be active until June 2024, with the option to extend.

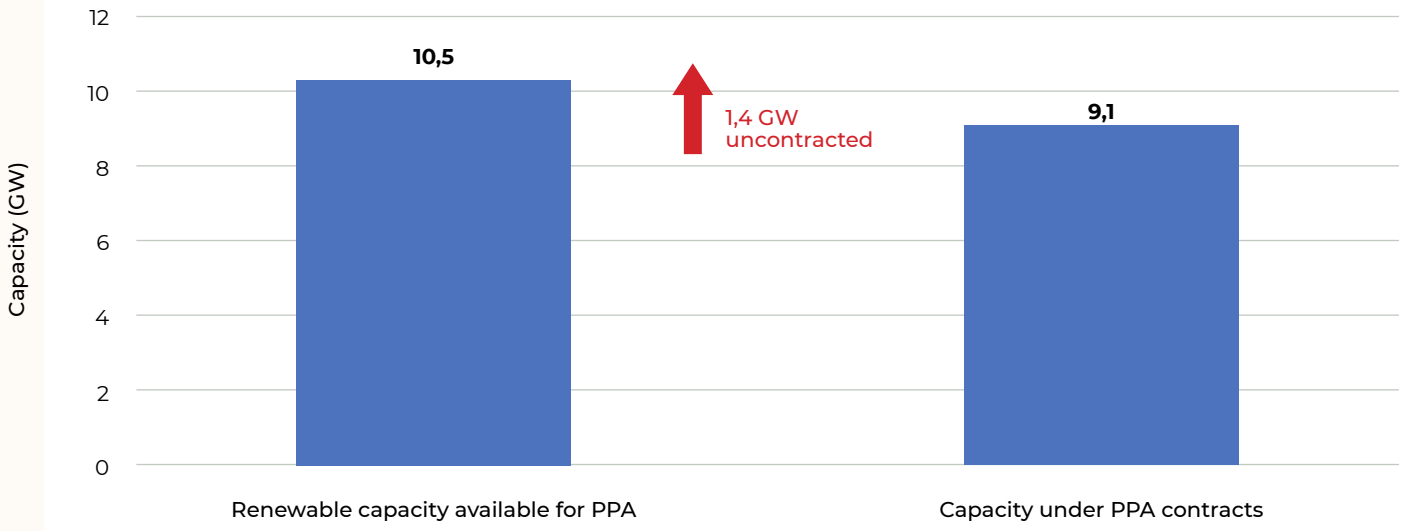
The new regulation sets the permit-granting process to three months for solar and onshore wind projects, or six months for repowering projects.

The regulation also introduced a presumption of overriding public interest for renewable energy projects. This will allow renewable energy projects to benefit from a simplified assessment for some environmental obligations included in specific EU directives. It is possible for member states to restrict the application of these provisions to certain parts of their territory, types of technologies or projects. Where there have been permitted projects, PPAs have followed. This is particularly evident in Spain, which has permitted several solar projects, as well as newly permitted offshore wind projects in Germany.

Furthermore, revenue caps set across Europe and the UK, coupled with the cooling of electricity prices, have certainly made contracting power more of a priority. This is particularly evident for greenfield offshore wind projects that are completing development during the recent period of high interest rates.

Good examples of this are Iberdola's Windanker and Baltic Eagle offshore wind farms, which effectively have their full output contracted under PPAs with a consortium of offtakers. There is also EnBW's He Dreiht offshore wind farm, which recently reached final investment decision and has currently signed PPAs covering 335MW of the total 960MW. However, EnBW is currently in talks with more companies to contract the remaining capacity.

Total H1 2023 available and contracted capacity



Source: *inspiratia* PPA Database, 2023

We ended 2022 with several projects and developers prioritising flexible offtake through merchant heads or tails coupled with short-term PPAs, in the five to 10 year range, to capture the upside of high energy prices while also having the security of cash flow through PPAs.

In the current turbulent economic climate, and with PPAs competing with several government-run auctions, the idea of 'business as usual' is always changing.

PPA vs Merchant

Projects capable of signing PPAs and establishing cashflow certainty tend to command a lower weighted average cost of capital (WACC). This is exemplified by PPA projects that often operate with leverage of around 70-80%, coupled with a relatively robust equity IRR. In contrast, merchant projects, entailing higher price and operational risks, face challenges in securing debt financing, leading to higher equity IRR and, subsequently, a higher WACC.

PPA vs merchant projects' financial characteristics

	PPA	Merchant
Revenue	Lower	Higher, especially in the short term
NPV (Net Present Value)	Lower	Higher
Tenor	5-25 years	N/A
Cashflow certainty	Medium - High	Low - Medium
Equity capital at risk	Low – Medium	High
Risk transfer to offtaker	Medium – High	None
Payback period	10+ years	<7 years
Ability to leverage	Relatively easy	Relatively difficult
Investor equity IRR	Lower	Higher - Risk due to revenue uncertainty
Investor Pool	Lower	Smaller but growing, particularly in mature European markets

A disparity between PPAs and future wholesale price forecasts is common. The retail offtake market has developed over time to set PPA prices based on the future wholesale price outlook and on the levelised cost of energy (LCOE) of projects in a competitive environment. To obtain the lowest LCOE and be able to offer competitive PPA prices, a project must introduce debt.

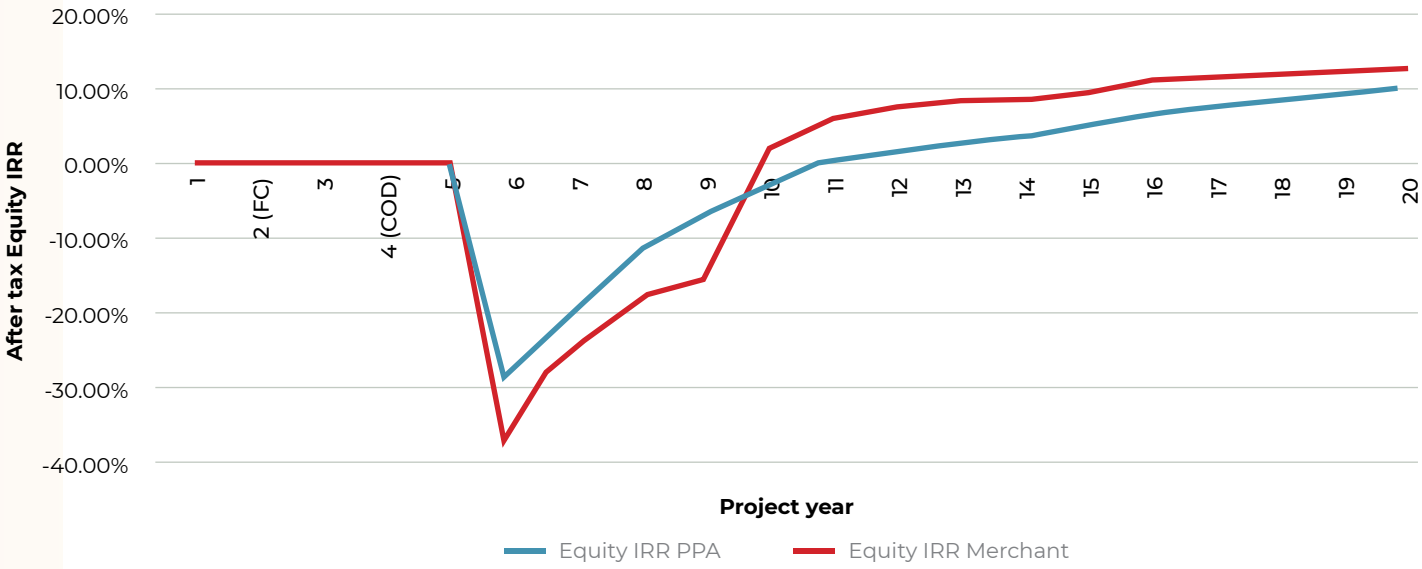
Implications of debt financing

The current landscape of the renewable energy market brings forth intriguing implications for equity investors when it comes to introducing debt into projects, particularly in the context of PPA projects versus merchant projects.

These are:

- The breakeven point (0% IRR) is further out due to the impact of debt repayment
- A significant amount of the gain in the project occurs during merchant cashflow periods, after the end of the PPA. In the case below, that is after the end of an four-year PPA in project year 10.

PPA vs merchant projects possible IRR profiles



Source: *inspiratia* PPA vs Merchant project analysis

In the example above, the merchant project attains a breakeven point of 0% Equity IRR by the tenth project year, whereas the PPA project reaches the same milestone three years later, in the 12th year of the project.

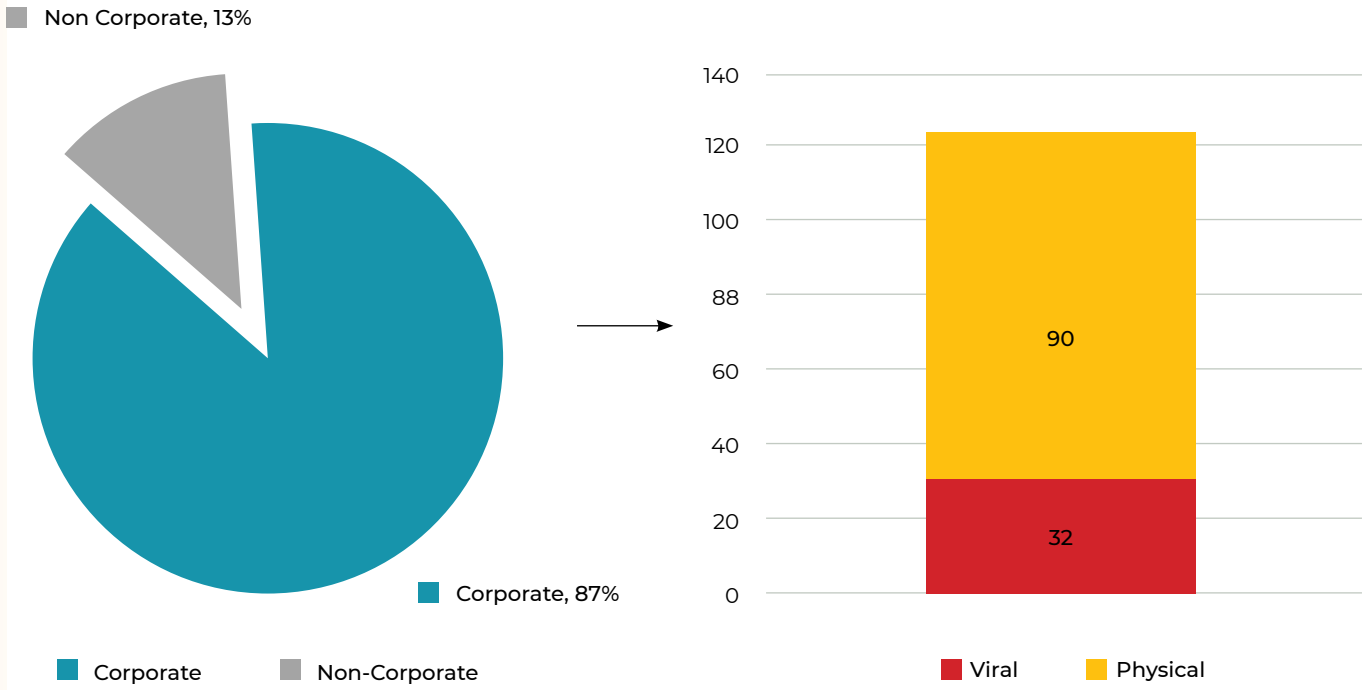
This time disparity in achieving a 0% Equity IRR for the PPA project is attributed to the lower price received per MWh and the deferral of equity distributions resulting from the introduction of debt.

So, merchant or PPA? There will never be one answer. When considering the revenue regime of a project, it is important to understand that there is a risk/reward trade-off. This trade-off cannot be assessed in isolation from a view of future wholesale prices. Running assumptions on the future can be particularly challenging with policy reform ongoing, and the outcome is likely to be material to future price directions.

In the UK, the progression of the Review of Electricity Market Arrangements (REMA) will have an effect on future price assumptions. On the European mainland, confidence in gas availability has caused price backwardation in the electricity markets. For now, it appears that power prices will continue a sharp decline until electricity markets become much more illiquid from about 2028.

PPA structure breakdown

The Corporate PPA remains dominant in Europe, growing in market share since our last report. Overall, 87% of all PPA deals were corporate PPAs, up from 75% across all of 2022.



Source: *inspiratia* PPA Database, 2023

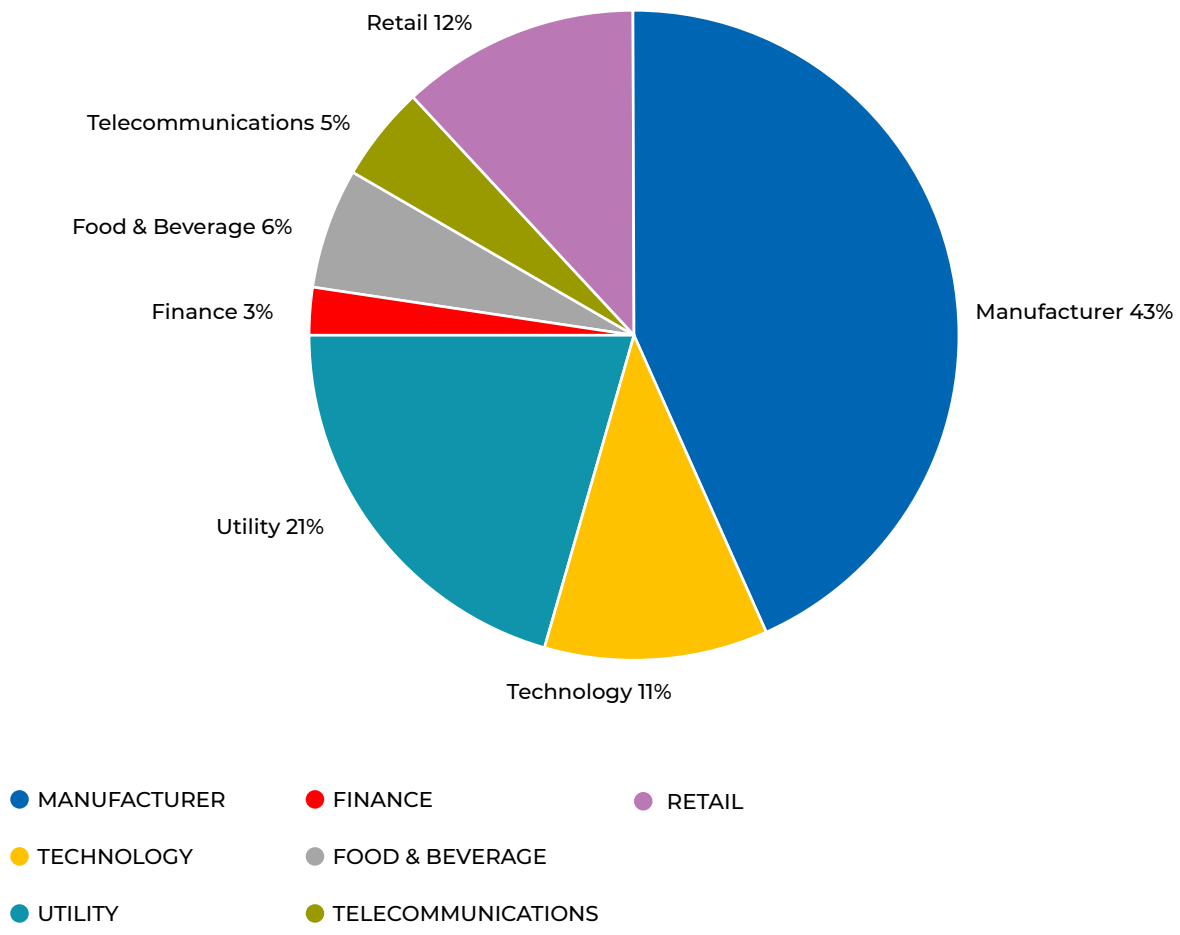
In order for renewable PPAs to remain available and affordable to more offtakers in the EU, there are three barriers to overcome:

- Making it easier for buyers and sellers to sign multiple PPAs at once.
- Expanding opportunities for PPAs to SMEs in all member states – including by addressing the financing risks through public guarantees.
- Supporting the development of both virtual and cross-border PPAs, including additional transmission options for cross-border capacity.

With the continued success of the European Network of Transmission System Operators' (ENTSO-E) Flow-Based Market Coupling design, cross-border and virtual PPAs (VPPAs) are becoming even more attractive, taking up a larger share of PPA deals. As seen in the figure above, 32 (35%) deals were virtual, compared to the end of 2022, when 25% of deals were virtual, as the system was being rolled out. VPPAs are particularly prevalent in Eastern Europe.

inspiratia has also noticed such developments, particularly in The Netherlands, where Rabobank has developed PPAssurance, a product that decreases the credit risk and enable the financing of renewable projects. By placing a bank guarantee on the corporate PPA of the customer, the contract is made creditworthy. With the guarantee, the credit risk of the customer moves to Rabobank's strong credit profile. This gives the seller access to a larger pool of offtakers that can be utilised for multi-PPA deals.

PPA buyer demographic



Source: *inspiratia* PPA Database, 2023

Since our 2022 full year report, the demographic of buyers remains largely unchanged, with energy hungry manufacturers sourcing renewable power to reduce scope 2 emissions. This is followed by utilities and energy trading companies taking on baseload and route-to-market PPAs.

The biggest change in renewable power procurement is the surge in retailors such as Mondelez in Poland and Pam Panorama in Italy. Technology companies and data centres are now synonymous with PPAs, and as such, a good proportion of PPAs were sourced to power data centres.

European PPA market themes

On March 14 2023, the European Union published a proposal to reform the EU electricity market. This is a major step forward as, while permitting obstacles have not been addressed, the proposal confirms the EU's views on market design are structurally favourable to renewables.
The proposal encompasses three areas of action:

- Protecting consumers from volatile energy prices
- Enhancing stability and predictability of the cost of energy, thereby contributing to the competitiveness of the EU economy.
- Boosting investments in renewable energy.

To boost liquidity and optimise the functioning of short-term markets, the proposal aims to reduce the minimum bid size for intraday and day-ahead markets to 100kW. At the same time, the proposal aims to increase access to long-term PPA and CfD contracts.

A barrier to the growth of this market is the credit risk that a consumer will not always be able to buy the electricity over the whole period. To address this, Member States should ensure that instruments to reduce the financial risks associated to off-taker payment default in the framework of PPAs, including guarantee schemes at market prices, are accessible to companies that face entry barriers to the PPA market and are not in financial difficulty.

To further encourage the growth of the market for such agreements, renewable and low-carbon energy project developers participating in a public support tender should be allowed to reserve a share of the generation for sale through a PPA. In addition, Member States should endeavour to apply some of these tenders' evaluation criteria to incentivise the access to the PPA market for customers that face entry barriers.

Also, to stabilise prices, investment support should be structured as a "two-way" contract for difference, which sets a minimum price but also a maximum price, so any revenues above the ceiling are paid back.

Positive considerations of the proposal

Marginal market maintained	Short-term markets and the pricing mechanism based on marginal pricing should be preserved, as they function well and provide the right price signals. Short-term (day-ahead and intraday) markets are well-developed, and they result from years of implementation of EU energy legislation.
Two-way Contracts for Difference (CfD)	The proposal will apply to new investments for the generation of electricity, which include investments in new power-generating facilities, investments aimed at repowering existing power-generating facilities, investments aimed at extending existing power-generating facilities or at prolonging their lifetime.

Promoting PPAs and reducing barriers	**PPAs should continue to play an important role in decarbonisation efforts, price hedging and deployment of renewable hydrogen while meeting EU Net Zero targets.**
Development of forward markets	**The establishment of regional virtual hubs with a view to overcome the existing market fragmentation and the low liquidity experienced in many bidding zones.**
Protecting consumers	**Member States will have an obligation to establish suppliers of last resort. Energy sharing among customers. Member states to extend regulated retail prices to households and SMEs.**
Active participation of storage in the market	Member States to assess their need for power system flexibility and allow the introduction of new support schemes for demand response and storage. The proposal also introduces extra possibilities for renewables to trade closer to real time at cross-border and national level. Thus, the market can better support the integration of renewables and strengthen the business case for flexibility solutions.

Baseload PPA

Under baseload PPAs, shape risk lies primarily with the asset owners. Shape risk works against owners of renewable asset owners. When production is high, and consequently part of the production needs to be sold in the spot markets, power prices are low and the other way around. Thus, the more volatile a power market is - which often correlates with a higher integration of renewable electricity into a power market - the higher the captured price risk for the owner of the shape risk.

However, as energy markets trend towards stable prices and as renewable procurement becomes even more mature, baseload PPAs encompassing several assets offloading power on a pay-as-produced basis become more popular.

This is exemplified by Italian Energy company ERG SpA signing a baseload PPA with Telecom Italia. Telecom Italia will receive a baseload volume of 200GWh from an ERG solar portfolio in Italy.

Storage also has a key role to play, particularly for co-located projects. With Germany's sole solar PPA this year, ENERPARC AG will supply baseload power to Axpo from its co-located 39MW solar pant. Axpo will then market the energy.

Hydrogen PPAs

As discussed in inspiratia's European PPA Outlook, The EU published the Delegated Act on 10th February, clarifying what constitutes green hydrogen production.

PPAs can be sourced from anywhere within the EU member states that share a grid network, so long as the production and generation take place within the same calendar month.

The first instance of this is the Statkraft and Air Liquide PPA, through which Statkraft will provide renewable power to Air Liquid's 20MW electrolyser in Oberhausen, Germany, to produce renewable hydrogen at an industrial scale for industry and transport applications.

Top players of the PPA market

Top buyers

At the mid-year mark of 2023, Oslo-based renewables developer and operator, Statkraft, procured 504MW of green electricity via PPAs. This ranks Statkraft first in our list of offtakers since the turn of the year. The utility signed six PPAs across Europe, with a partiality for the up-and-coming Italian solar market.

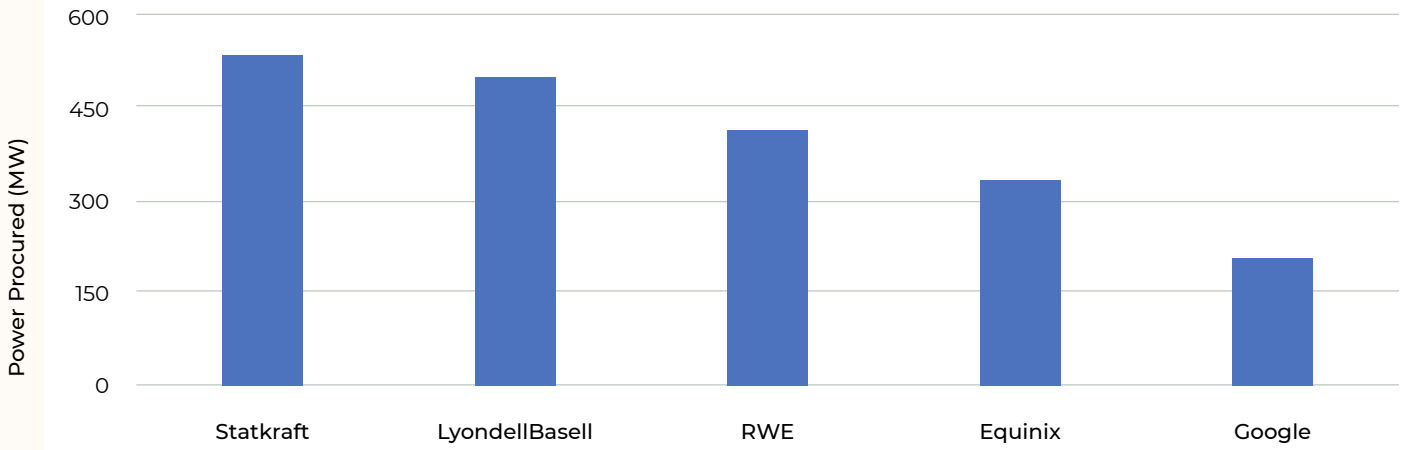
Deals of interest include:

- The 112MW PPA signed in January with US-based renewables developer, Enfinity Global.

  The PPA encompasses three solar projects with a total capacity of 112MW. The portfolio reached financial close in December 2022 at a cost of €142 million (£121m $156m), provided by Santander Corporate and Investment Bank, Bayern LB and Nomura. The tenor of this PPA is ten years. Since permitting issuances have sped up in Italy in recent months, the country's solar potential and PPA market have grown in tandem.

- The 201MW PPA signed with NextEnergy Capital in April. Once again this involves a solar portfolio. Statkraft will purchase the electricity from three solar farms under the NextPower III ESG fund and market the energy once the portfolio is energised between Q4 2024 and the middle of 2025 Statkraft will market the energy for eight years

Top buyers, H1 2023



Source: *inspiratia* PPA Database, 2023

In Second place comes LyondellBasell as it ambitiously aims to reduce scope two emission. Signing PPAs for a total of 494MW.

In third place, operating with similar strategies to Statkraft, is German energy company RWE. RWE acted as offtaker for the entire output of the 400MW BARD offshore wind farm beginning in April 2023. At which point, the wind farm switched to a fixed price regime, and RWE Supply & Trading commenced marketing the clean energy generated by the facility under a direct marketing scheme.

The project will also be used to produce green hydrogen by means of electrolysers currently under development by RWE. The two firms also intend to use the wind farm to offer flexibility in the form of balancing energy to stabilise the power grid.

In fourth place is American data centre company, Equinix, after signing six solar PPAs in Spain. The 10-year pay-as-produced 150MW PPA signed with Sonnedix in March is the largest it has signed to date. This is linked to a portfolio of projects whose output will be funnelled to Equinix's data centres in Spain.

This also marks Sonnedix's largest signed in Europe to date.

Following this, Equinnix signed five PPAs totalling 225MW with power sourced from Ignis projects in Spain.

Selected Statkraft PPAs, H1 2023

Country	Technology Type	Project Name	Month	Contracted Capacity (MW)	Seller	Buyer	Length of PPA (Years)
UK	Onshore Wind	Dalquhandy Wind Farm	May	33.6	BayWa	Statkraft	10
Italy	Solar	Sonnedix and Statkraft Lazio Solar PPA	May	34	Sonnedix	Statkraft	10
Italy	Solar	Mytilineos Italian solar portfolio	January	63	Mytilineos	Statkraft	10
Portugal	Solar	NextEnergy Portugal Solar Portfolio	April	199	NextEnergy Capital	Statkraft	
Italy	Solar	Enfinity Italian Solar Portfolio	January	112	Enfinity Global	Statkraft	10

Source: *inspiratia* PPA Database, 2023

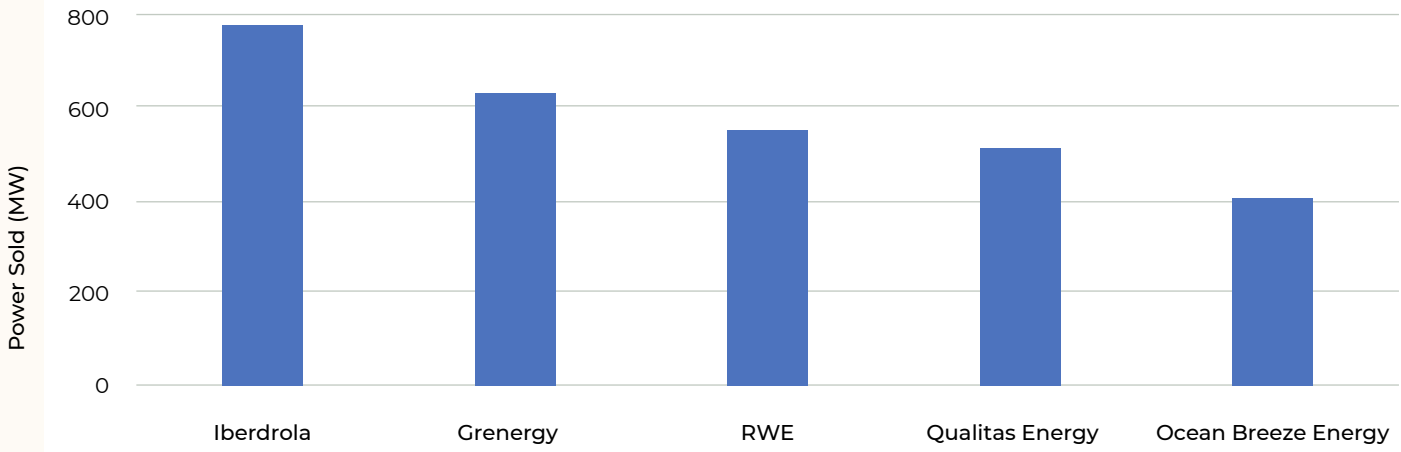
Top sellers

Prolific sellers as of June 2023 contracted power mainly through offshore wind projects located in Germany.

Spanish utility, Iberdrola, has sourced approximately 90% of its contracted power from its two offshore wind farms in the Baltic Sea. That is the 476MW Baltic Eagle and the 308MW Windanker wind farms, which are expected to be operational in Q2 2024 and 2026 respectively.
Iberdrola signed PPAs with several offtakers:

- German auto-maker, Mercedez Benz, will be supplied with at least 140MW from Windanker starting in 2027
- Amazon will purchase a total of 303MW, sourced from both Windanker and Baltic Eagle
- Steel producer, Salzgitter AG, will receive 114MW from Baltic Eagle to produce carbon-neutral steel
- Another German steel producer, Stahl Holding Saar, will receive 50MW from Baltic Eagle for its steel production
- Construction company, Holcim, signed off on about 70MW from Baltic Eagle
  These PPAs were signed for an average of 15 years and, including the 496 St Brieuc (France), Vineyard Wind (US), and East Anglia (UK), Iberdrola has invested €11 billion and achieved the weighted average cost of capital (WACC) of 150-200 basis points.

Top sellers, H1 2023



Source: *inspiratia* PPA Database, 2023

Spanish developer, Grenergy, is second via two solar PPAs with technology giant Amazon and chemical producer LyondellBasell.

Amazon will receive energy from three solar farms in Spain, the 250MW Tabernas in Almería, the 27MW Jose Cabrera in Guadalajara, and the 172MW Ayora solar farm in Valencia, which will be operational in 2024.

LyondellBasell purchased 259MW from Grenergy's 575MW Clara Campoamor solar project to aid with its scope three emissions.

Rounding up the top three places, with a similar strategy to Iberdrola, is German energy giant, RWE. RWE signed a consortium PPA with a group of 12 industrial companies, including big players like Badischen Stahlwerken, Bosch, Freudenberg Gruppe, Infraserv Hoechst, Messer, Schott, Telefonica, Verallia, Vodafone, Wacker, and ZF, alongside Frankfurt-based utility Mainova.

The PPA begins in 2025, with power sourced from its 295MW Nordsee Ost and 288MW Amrumbank West offshore wind farms. These wind farms currently benefit from Germany's Renewables Act, which provides funding until 2025. Following these recent deals, both Nordsee Ost and Amrumbank West will be fully contracted from 2026 onwards.

Selected Grenergy PPAs, H1 2023

Country	Technology Type	Project Name	Month	Contracted Capacity (MW)	Sponsor/ Seller	Offtaker	Length of PPA (Years)	Comments
Spain	Solar	Grenergy Portfolio	April	354	Grenergy	Amazon	15	all 3 PPAs Pay-As-Produced at 75%
Spain	Solar	La Cereal Solar Project	March	259	Grenergy	LyondellBasell	15	Pay-As-Produced at 75%

Source: *inspiratia* PPA Database 2023

Legal advisers

PPAs are complex transactions and require legal advisors to represent client's best interests with fair pricing and structures for these long-term deals. *Inpiratia* highlights

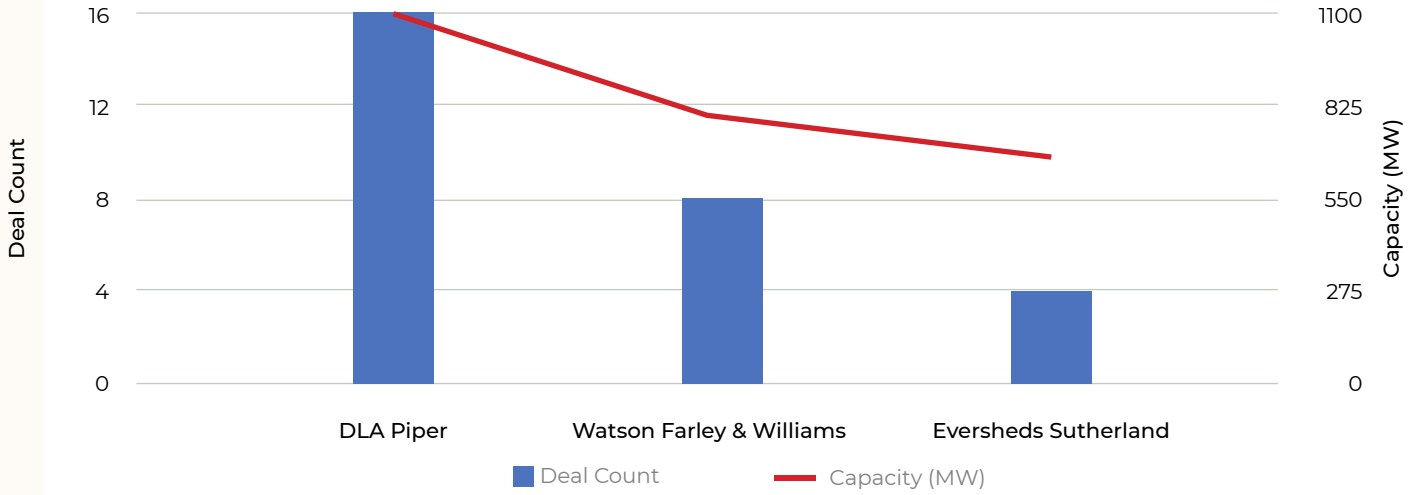
DLA Piper ranks highest for disclosed deal volume at the halfway point of 2023 with the most deals advised, 16, and the largest sum of megawatts advised on, 1096.5MW. DLA Piper has been active across Europe in top markets such as the UK, Germany and The Netherlands.

Most notably, DLA Piper has advised the Canary Wharf Group (CWG) as offtaker on a sleeved physical corporate power purchase agreement (PPA) with Brookfield, one of the world's largest investors in renewable power. The deal will meet over 70% of Canary Wharf Group's electricity demand. Brookfield, one of the world's largest renewable energy providers, will provide the power by growing its renewables portfolio with the development of a new 60 MW windfarm in the UK, due to be commissioned by 2026.

The landmark 15-year PPA is expected to provide renewable power to some of the UK's biggest corporates occupying office space in Canary Wharf's 150 acres, effectively cutting their greenhouse gas emissions and reducing their energy costs.

DLA Piper also advised on the 400MW RWE and Ocean Breeze Energy PPA for power from the BARD offshore wind farm. This on top of several significant PPAs across the European continent.

Top Legal Advisers by deal volume, H1 2023



Source: *inspiratia* PPA Database 2023

Watson Farley & Williams' PPA activity was largely focused on the Spanish Solar market, continuing their strong presence in the Iberian region.

Most significantly, Watson Farley & Williams advised Qualitas Energy on its PPA deal with an undisclosed offtaker which will purchase the entire output of a 494MW solar plant. The PPA is active and will carry on for the next 10 years.

Also Watson Farley & Williams was Sonnedix's preferred advisor for four of its offtake deals in the region.

Selected Watson & Farley Spanish PPAs, H1 2023

Country	Technology Type	Project Name	Year	Month	Contracted Capacity (MW)	Sponsor/ Seller	Offtaker	Legal Adviser	Length of PPA (Years)
Spain	Solar	Sonnedix Solar Portfolio	2023	May	124	Sonnedix	Equinix	Watson Farley & Williams	10
Spain	Solar	Mula Solar farm	2023	February	494	Qualitas Energy	Undisclosed	Pay-As-Produced at 75%	
Spain	Solar	Sonnedix Solar Portfolio	2023	May	50	Sonnedix	Undisclosed	Watson Farley & Williams	11
Spain	Solar	Sonnedix Fraile Solar Plant	2023	April	30	Sonnedix	Sidenor Aceros Especiales	Watson Farley & Williams	12
Spain	Solar	Sonnedix Portfolio	2023	March	77	Sonnedix	Endesa	Watson Farley & Williams	12

Source: *inspiratia* PPA Database 2023

Eversheds Sutherland has had good presence in the PPA market on the European mainland. By advising on several of GoldenPeaks Capital's Polish PPAs, Eversheds Sutherland has advised on several crucial VPPAs as the market further matures.

This year, Eversheds Sutherland advised on the 12-year 109MW GoldenPeaks Capital and Mondelēz International VPPA. For GoldenPeaks Capital, this is the fourth VPPA in Poland. With close to 500 GWh of solar PPAs contracted in 2022 and more than double volume planned in 2023.

Notable mention is Orrick, for being highly active in the PPA market in the Americas. Orrick advised on 10 deals across Canada, USA and Brazil. This accounts for 1,239MW.

Top markets

Germany

Germany has climbed to top the top spot with the most deals and volume, thanks to the multiple offshore wind-related PPAs signed in the first half of the year. However, these projects were permitted many years ago.

For example, the Baltic Eagle Windanker offshore wind farms were permitted in 2018 and 2021 respectively. By Iberdrola contracting 90% of power from these wind turbines, Germany first. In terms of offtake, Germany has several manufacturing firms seeking renewable power. Developers would not find it difficult to find offtakers.

However, is it investable? There is great potential for development but very long grid connection queues are holding investment back and this is evidenced by various undersubscribed onshore wind and solar auctions.

Top country overview, H1 2023

Country	PPA Capacity (MW)	Deal Count	Movement
Germany	1974	27	↑ +3
Spain	1189	20	↓ -1
Italy	439	10	↑ +5
UK	358	14	↓ -2
Poland	275	13	↓ -1

Source: *inspiratia* PPA Database 2023

Spain

Spanish PPAs are dominated by solar deals and mostly consist of large manufacturers offtakig power through portfolio projects. This is facilitated mainly through Independent Power Producers and their ability to provide baseload power through portfolio projects.

The virtual PPA played a major role in facilitating baseload contracts in the region. 25% of PPAs concluded were baseload PPAs that were offered synthetically.

In the current market, the risks of a baseload PPA are two pronged.From the Sellers perspective, disparity from production forecasts causes losses due to large cash outflows. On the other hand, buyers are growing increasingly concerned over price cannibalisation risk as the solar buildout accelerates.

Italy

Italy's solar market has faced challenges with permitting, but it appears to have reaped benefits from the European Union's efforts to expedite the permitting processes. Italian solar power purchase agreements (PPAs) are highly sought after.

However, a potential obstacle to the ongoing expansion of the Italian market is its zonal pricing system. The Italian power market is divided into six price zones, which reflect the energy costs in each zone. Prices are determined by considering various factors, including transmission capacity, supply, and demand.

The zonal pricing structure has resulted in significant variations in electricity prices across different regions. This variability poses difficulties for PPA offtakers, who struggle to mitigate their exposure to energy price fluctuations and ensure stable electricity delivery at a fixed price over the long term. Despite the expectation that PPAs should be based on zonal prices, in practice, the price of a long-term PPA is determined using the single national power price, known as PUN. Traders are unable to hedge this type of risk directly. Instead, they hedge the difference between the local zonal price and the PUN.

Currently, the Italian Transmission System Operator (TSO), Terna, conducts auctions for the spread between zonal prices and the PUN, with a duration of up to one year. However, Terna has plans to extend these auctions to cover multiple years, which would serve as a valuable hedging tool for traders.

The UK Market

At present, the UK will not follow the EU with scrapping its 'generation tax'. This tax is the Electricity Generator Levy. This was passed in November last year [2022]. The regulation concerns renewable generation and could impact offtake in the coming months and years.

This is effectively a windfall tax placed on renewable and nuclear generators, excluding generators with CfD contracts, who generate more than 100GWh a year.

The windfall tax will be calculated as: (Generation Receipts – Electricity Generation * Benchmark Price – Allowance) * Tax rate where:

- Generation Receipts total receipts of a group from in-scope UK electricity generation.
- Electricity Generation means electricity generated in the UK from in-scope generation in Megawatt-hours (MWh).
- **The Benchmark Price is set at £75/MWh (€85/MWh US$91/MWh).** For the purposes of the tax, this represents the average price above which generator returns are considered to be exceptional. The portion of generators' earnings below this level will not be subject to the levy. The benchmark price is set at £75 (€85 US$91) per 10 MWh – considerably higher than the average wholesale electricity price in the decade up to 2021.
- An Allowance is set at £10m (€11.3m US$12.1m) per annum for the group.

This tax took effect on 1st January 2023 and will remain in force until 31st March 2028, when reforms from REMA are expected to come into effect. The government has forecast that it will raise around £14.2 billion (€16.1bn US$17.3bn) through this enforcement period.

This tax took effect on 1st January 2023 and will remain in force until 31st March 2028, when reforms from REMA are expected to come into effect. The government has forecast that it will raise around £14.2 billion (€16.1bn US$17.3bn) through this enforcement period.

As such, wind and solar generators with large portfolios in the UK will be expecting multimillion-pound tax bills on excess profits. This is a shift away from the previous Cost-Plus Revenue Limit proposal, which was a tax at 90-100% above the cap, although the cap level was never announced.

These changes will trigger further redevelopment of PPAs in the UK. At present, entering a longer-term PPA at a lower price than a short-term PPA above the £75/MWh (€85/MWh US$91/MWh) threshold would reduce tax payments.

Poland

The Polish market remains very attractive, with GoldenPeaks Capital taking advantage of VPPA opportunities in the region.

Numerous regulatory changes have emerged, casting uncertainty and reducing attractiveness in the current circumstances. Until 30 December 2023, a revenue cap has been implemented, set significantly below the EU's €180/MWh (£154/MWh $202/MWh).

Introduced in November 2022, there is now a revenue cap of PLN 355/MWh ($83.50/MWh £63.8/MWh €74.4/MWh) for PV installations exceeding 1 MW capacity. Consequently, any installations that sell electricity through PPAs above the auction reference price, plus an additional PLN 50, must pay taxes on earnings surpassing this threshold. This measure has drawn criticism due to its substantial impact on the profitability of solar plants.

Interventions have occurred in the balancing market, leading to price regulation, while the obligation to participate in the exchange for day-ahead volumes has been abolished. These changes may decrease liquidity in the day-ahead market and diminish pricing transparency. Consequently, both utility off-takers and investors may exhibit reduced long-term interest.

Anticipate further regulations in the Polish PPA domain over the next few months, which could potentially include permits for constructing direct lines in connection with energy supply under PPAs.