

European electricity Renewables-based PPAs transform sector



Long-term contracts, known as power purchase agreements (PPAs), are transforming how companies buy and sell renewables-based electricity in Europe with profound implications for the sector: Not only are energy suppliers seeking to procure electricity from renewables with mid-to-long-term PPAs, but off-takers – as buyers are known – from outside the energy sector are signing such contracts directly with developers of renewables projects or generators with solar- and wind-power capacity. Scope has looked at the benefits as well as the threats and challenges for sellers and off-takers, from a corporate credit-rating perspective.

Figure 1: Major benefits and challenges for sellers and off-takers using PPAs

	Seller	Off-taker
Benefits	Reduction of merchant risks	Reduction of merchant risks
	Improved bankability	Reputation (guarantees of origin)
	Margin stabilisation	Stabilisation/improvement of margins and growth opportunities for energy suppliers
Risks and challenges	Counterparty risks	
	Volume, performance and balancing risks	Shape/profile risk
	Complexity and Forecasting risks	

Source: Scope

Surging demand for renewables-based PPAs represents a profound shift in risk-bearing in the sector: from operators of renewable energy power plants (utilities, independent power producers and financial investors like ‘yieldcos’), on the one hand, to the so-called off-takers (consumers or energy suppliers), on the other.

For the seller of electricity under a PPA, the agreement can be considered a tool of risk transformation. For the off-takers, the long-term visibility and potential for profit associated with PPAs can be worth the extra risk they take on. We believe the overall impact of PPAs for sellers and off-takers is credit-positive compared with selling/buying electricity on the open market.

PPAs do, however, introduce significant counterparty and forecasting risk because the contracts are complex, non-standardised agreements unlike hedging transactions for conventional sources of electricity which typically take place on power exchanges or through short-term contracts.

The primary catalysts for PPA take-up in Europe are the phasing out of subsidies for newly installed wind and solar assets and the achievement of “grid parity” in many countries whereby solar- and wind-powered electricity generation has become competitive on price with coal, gas and nuclear power.

Another catalyst for PPAs is demand not just from energy suppliers but also from other corporate consumers, particularly energy-intensive companies, for environmentally friendly power which they can use to burnish their “green” credentials. Aluminium supplier Alcoa, steelmaker ArcelorMittal and railway companies Deutsche Bahn and SNCF are among those with PPAs in Europe with different off-takers.

Another shift related to the rise in use of PPAs is the growing competition that the trading/supply businesses of incumbent European utilities face from new entrants and smaller energy suppliers. They can source electricity using PPAs struck with individual renewable-energy projects without necessarily having generating assets of their own and thereby compete effectively with the trading and even retail operations of the incumbents.

Analysts

Sebastian Zank, CFA
+49 30 27891 225
s.zank@scoperatings.com

Media

André Fischer
+49 30 27891 147
a.fischer@scopegroup.com

Matthew Curtin
+33 6 22763078
m.curtin@scopegroup.com

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Scope Ratings GmbH

Lennéstraße 5
10785 Berlin

Phone +49 30 27891 0
Fax +49 30 27891 100

info@scoperatings.com
www.scoperatings.com

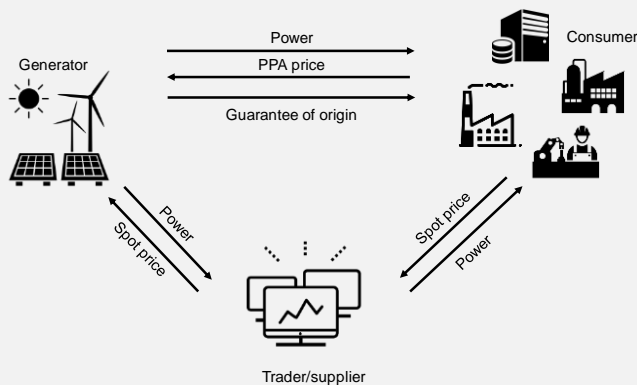
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Excursus: What is a power purchase agreement?

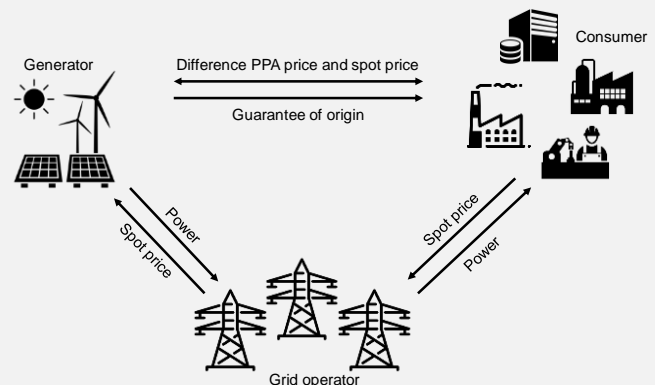
A corporate power purchase agreement (PPA) is a mid-to-long-term contract under which a business agrees to purchase electricity directly from an energy generator. The generator can sell electricity directly to the off-taker using a “physical” PPA or indirectly via a grid operator, using a “virtual” PPA. Pricing can be in the form of a monthly baseload on-system price, fixed pricing throughout the whole contract term or a pay-as-produced price.

There are different groups of off-takers which use PPAs: utilities, aggregators/power traders as well as corporates mostly from energy-intensive industries such as technology firms (data centres), metals producers, paper companies, chemicals suppliers and railway companies. Utilities can be on both sides of a PPA – as seller and off-taker.

Physical PPA



Virtual PPA



Source: Scope illustration

Renewables PPAs expected to play a key role for meeting long-term renewables targets

Power companies are established off-takers

Other non-energy off-takers helping to meet Europe's renewables targets

PPAs to become the new normal for new utility-scale renewable assets in Europe

Europe is ready for renewables-based PPAs

Generators and renewable-energy project owners have a natural interest in long-term hedging of the sale of unregulated electricity generation after the phasing out of subsidies for newly installed renewable energy assets. Such companies include independent power producers – for example, Encavis ([rated BBB-/Stable by Scope](#)), Energiekontor, Enerparc, Neoen, Akuo Energy – the renewables divisions of European utilities and financial investors which own renewable energy assets.

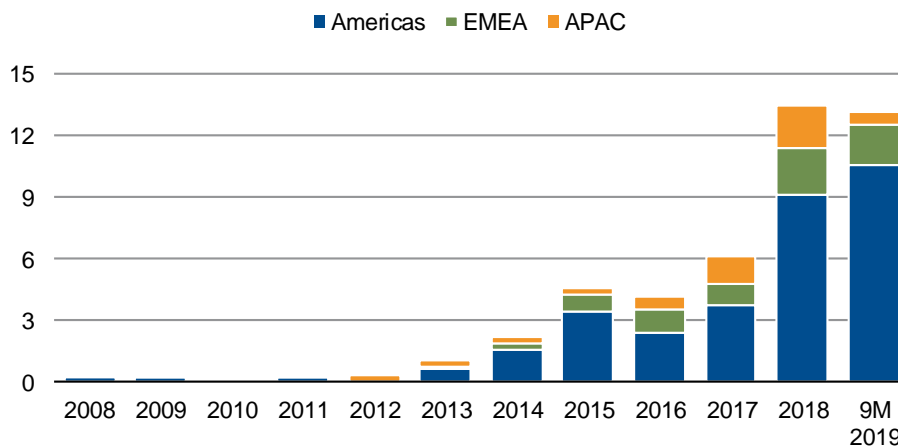
Power utilities themselves – such as Uniper ([rated BBB+/Stable by Scope](#)), Axpo, Alpiq, Vattenfall, EnBW, RWE, Engie among others – are already active users of PPAs to procure renewable energy.

Extra demand for such contracts is now coming from energy-intensive corporates (non-energy corporates¹) which also want to hedge energy procurement and demonstrate their sensitivity to environmental concerns over how they source electricity. Corporates as varied as aluminium suppliers Alcoa and Norsk Hydro, electronics firm Philips, railways companies Deutsche Bahn and SNCF, Amsterdam's Schiphol Airport and technology companies Facebook, Google and Microsoft are increasingly resorting to PPAs. In the back of their minds is the pressure they are under to help meet the European Union's 32% renewables target by 2030 under the EU's “2030 climate and energy framework”.

As displayed in Figure 2, the American market for renewables PPAs between generators and non-energy corporates as off-takers is much more mature given a different history of regulation and energy-sector incentives. US authorities have provided tax breaks to ensure the commercial viability of renewable-energy projects without which there would have been insufficient demand from off-takers regarding competitive pricing. In contrast, Europe's preference for guaranteed feed-in of generated electricity from renewables, fixed remuneration or subsidies using green certificates left little room for such specific PPAs to play a role in the market for renewable energy.

¹ Non-energy corporates: Off-takers which use electricity in their production processes but are not utilities or energy suppliers.

Figure 2: Global corporate PPAs for renewable capacities (in GW) – only PPAs with non-energy off-takers

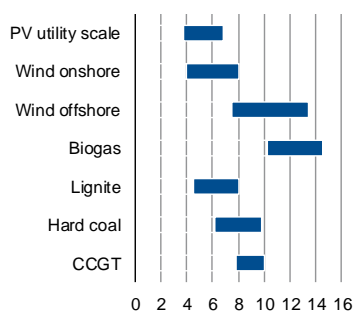


Source: Bloomberg New Energy Finance, Scope

Potential of around 3 GW coming from non-energy PPA off-takers in Europe

Renewables capacity contracted under PPAs between owners of renewable energy capacities and non-energy off-takers is set for a new high this year, with the 13 GW contracted globally in the first nine months of the year already at the level of mid-to-long-term PPAs signed for all of 2018 which was a record year. Much of the activity has come from new PPAs in the Americas, according to Bloomberg New Energy Finance. However, we expect a boost in Europe judging by the increasing frequency of newly struck PPAs. PPAs in EMEA, primarily Europe, will likely cover a renewables capacity of around 3 GW of electricity this year, up 30% from 2018. And this volume comes on top of the PPA signed between sellers and energy suppliers which is estimated at a volume of between 7 and 10 GW per annum (source: Pexapark).

Figure 3: Comparison of LCOEs for different power generation technologies 2018 (EURcent/kWh)



Source: Fraunhofer ISE, Scope

We see several forces driving growth of renewables-based PPAs over the next months and years:

- Less favourable political environment for regulated renewable power generation as well as the elimination of barriers to PPAs in some markets;
- Grid parity for renewables in more European markets allowing the roll-out of PPAs beyond Scandinavia to Central and Southern Europe;
- Increasing volatility of power prices in line with commodity prices;
- Changing merit orders in some markets: the mothballing of coal-fuelled power stations, the phasing out of nuclear power, and continued expansion of renewables will ensure a growing role for solar and wind in the energy mix;
- Risk management for electricity suppliers: generators – whether they are long-established utilities or IPPs, project finance companies and financial investors – will increasingly favour PPAs to mitigate risk and improve bankability;
- Financial and reputational risk management for off-takers eager to keep control of energy-related costs and enhance their “green” credentials.

Figure 4: Recent PPA landmark deals in Europe (utilities, energy suppliers and non-energy off-takers)

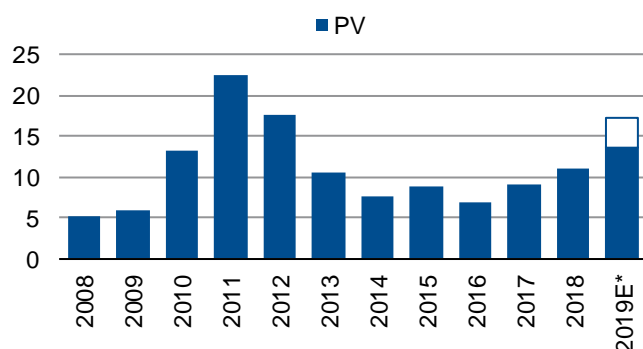
Period	Generator/Seller	Off-taker	Contract length	Capacity	Type of generation asset
10 2019	OX2	Axpo	n/a	60 MW	Wind park in FI
10 2019	Statkraft	20 universities in the UK (club deal)	10 years	n/a	Wind parks in the UK
10 2019	Ardian Infrastructure	Skellefteå Kraft	10 years	1/3 of 280 MW	Wind park in SE
09 2019	Neoen	Google	n/a	130 MW	Wind park in FI
09 2019	Encavis	Not disclosed	10 years	300 MW	Solar park in ES
07 2019	Fryslân Wind Farm	Eneco	15 years	383 MW	Near-shore wind park in NL
07 2019	Engie	Norsk Hydro	25 years	208 MW	Wind park in NO
07 2019	Sheringham Shoal	Danske Commodities	15 years	126 MW	Offshore wind park in the UK
07 2019	Luxcara	Alpiq	n/a	121 MW	Solar park in ES
05 2019	Windpark Krammer	Philips, DSM, Google and Nouryon	15 years	102 MW	Near-shore wind park in NL
04 2019	E.ON/Equinor JV	Engie	4 years	385 MW	Offshore wind park in DE
04 2019	Aquila Capital	Axpo	n/a	133 MW	Onshore wind parks in SE
04 2019	Zeewolde Wind farm	Vattenfall	15 years	320 MW	Onshore wind park in NL
03 2019	Trina Solar	Audax Renovables	20 years	Up to 300 MW	Solar parks in ES and PT
03 2019	Eolus Vind	Alcoa	15 years	330 MW	Onshore wind park in NO
02 2019	Ørsted	Northumbrian Water	10 years	573 MW	Offshore wind park in the UK
02 2019	Welink	Audax Renovables	20 years	219 MW	Solar parks in ES and PT
02 2019	Parkwind	RWE	15 years	219 MW	Offshore wind park in BE

Source: Scope

No more 'boom and bust' renewables expansion in Europe?

A side effect of the growing importance of renewables-based corporate PPAs will be smoother development of wind and solar capacity in Europe in the future, in contrast with previous 'boom-and-bust' phases in certain markets when an ever-changing regulatory framework determined investment and profitability. The additional direct demand stemming from energy procurement for energy suppliers and other energy-intensive corporates should underpin growth in annual renewable-energy installations in Europe over and above new assets either developed under contract-for-difference schemes or which intend to sell generated electricity in the open market.

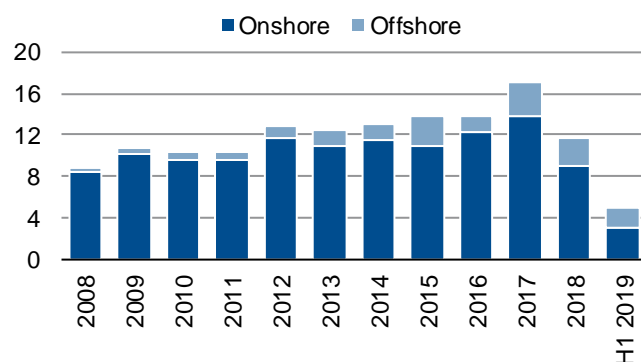
Figure 5: Gross annual solar installations in Europe (GW)



* 2019E forecasts relate to a range

Source: SolarPower Europe, Scope

Figure 6: Gross annual wind installations in Europe (GW)



Source: WindEurope, Scope

PPAs are a tool for risk transformation...

... but involve a much greater degree of complexity

PPA exposure not seen as off-balance sheet debt for off-takers

Case by case assessment crucial, particularly considering overall exposure to generation portfolio and energy procurement

Scope's positive stance from a corporate credit-risk perspective: risk mitigation and other benefits outweigh challenges from PPAs

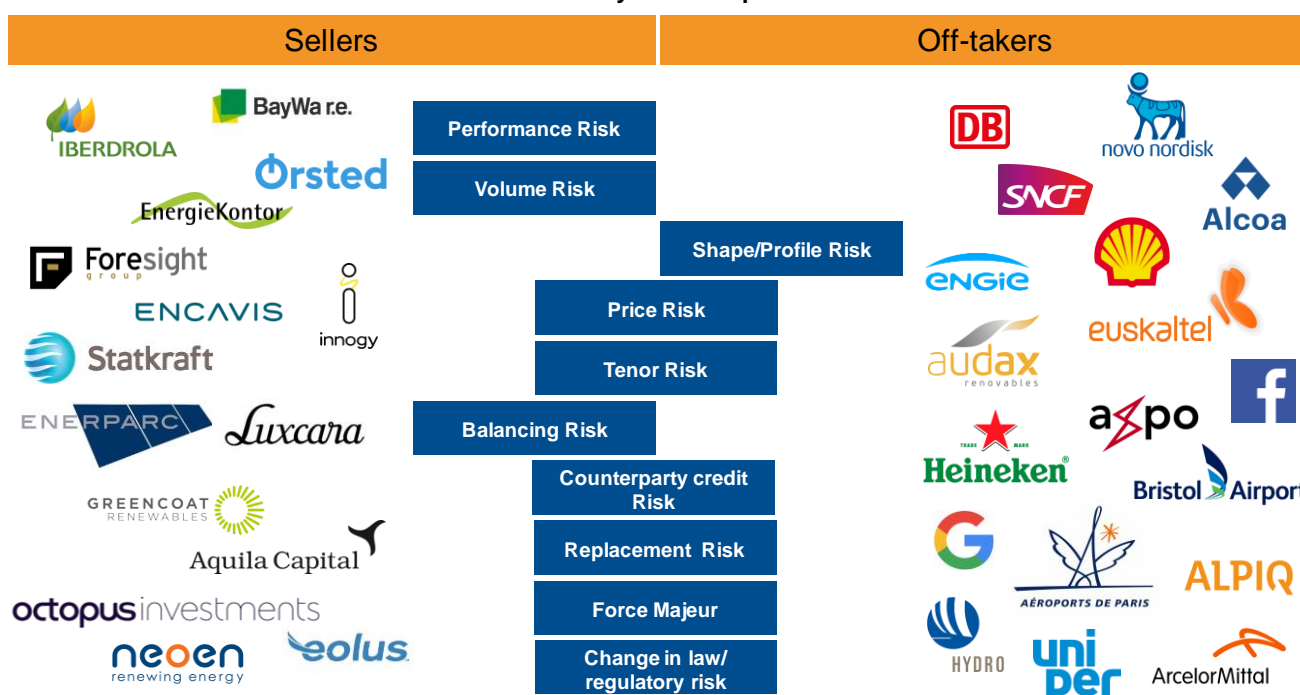
A credit rating agency looks at how credit risks related to PPAs are allocated to the different parties on the seller's and the buyer's side. From a corporate credit-risk perspective, we look at the general risk exposure for the generator or off-taker. From a project-finance vantage point, we look at an individual project's credit risks, typically from the perspective of a project developer or generator who seeks financing.

From the corporate perspective, we assess how PPAs affect a corporate's counterparty risk exposure, margin profile, cash-flow volatility and visibility, and its environmental footprint.

Scope does not consider an off-taker's exposure to a PPA as capitalised debt like off-balance-sheet-debt. While the PPA is regarded as a mid-to-long-term commitment of the off-taker to pay for a pre-determined volume of electricity or generation capacity, electricity procurement under a PPA is not much different from any other contracted procurement of input factors such as raw materials. While the fixed payment obligations can create risk for the off-takers, electricity procurement (in-)directly leads cash inflows when processed goods or services are sold to customers of the PPA off-takers. However, contracting electricity procurement through PPAs is not seen as a substitute for a debt-financed investment in own power generation capacity as generating power usually does not belong to the business nature of off-takers. Therefore, Scope rather looks at the impact of PPA usage on an off-taker's profitability and the overall effect on energy procurement.

As PPAs are negotiated individually, contract by contract, unlike the standardised hedging contracts for conventionally generated electricity (thermal, nuclear and hydro), Scope's credit analysis of a corporate PPA seller or off-taker centres on an assessment on how risks are allocated between the different counterparties. On the one hand, risks can be reduced for both contract parties by setting prices and volumes over a long-time horizon. On the other hand, forecasting risks involved in a long-term PPA are greater compared with the more short-term financial hedging which is typically used by conventional power generators.

Figure 7: Common risk allocation between sellers and buyers of Corporate renewable PPAs



Source: Scope

Long-term hedge

PPAs provide continued expansion for renewable energy generators

Regulated renewables operated under feed-in tariffs/premiums over the past decade offered investment security to a large extent, as the counterparty risk on the off-taker's side was inexistent. Today, credit analysis for a seller of a PPA revolves around the counterparty assessment of the off-taker. Whereas PPAs provide security in the form of hedging merchant risks, owners of renewable energy assets are now exposed to risks related to the off-taker, particularly when the PPA is agreed on for a period of more than 10 years. Counterparty credit risks under PPAs are usually significantly higher than they were under previous regimes. However, sellers of electricity still have the chance to similarly protect cash flow streams if signed with a strong counterparty.

Merchant risks significantly diminished compared to unhedged strategies

PPAs do allow sellers to mitigate merchant risks. These include exposure to fluctuations in power prices which usually can be hedged only for up to three years or so using market-based hedging contracts given the underlying volatility of prices for coal, gas and CO₂ which determine the cost of conventionally produced electricity. Operational/performance/volume risks usually remain with the generator, though significant risk exposure can be transferred to or shared with the off-taker depending on the features of the specific agreement. Overall, we regard PPAs as being credit-supporting.

Residual market risk for off-takers

PPAs offer off-takers economic and reputational benefits

Scope differentiates between two groups of buyers as off-takers in PPAs: 1) other power companies, primarily energy suppliers and 2) corporates typically from energy-intensive industries which need to procure electricity for their own operations.

For both off-taker categories, it is comparatively easy to procure required electricity volumes in the open market or through bilateral short-term contracts with generators and suppliers. However, a mid-to-long term PPA can significantly reduce procurement and pricing risks without eliminating them entirely. Off-takers can still be wrong-footed by unexpected movements in market prices. Off-takers also take on so-called shape or profile risks: the danger that contracted power-generation assets do not supply enough electricity when needed, forcing the off-taker to procure the missing electricity volumes in the open market at disadvantageous prices.

Long-term visibility on cash flows is a big advantage

We believe that the advantages of PPAs outnumber the risks, primarily because they offer a way for buyers and sellers to stabilise their profit margins. This could particularly be credit-enhancing for off-takers like power traders - such as Audax Renewables, Axpo, Alpiq, Factorenergia – which can lock in better margins by directly hedging the acquired electricity volumes with their own customers. Consequently, PPAs will help smaller energy suppliers, independent power producers or financial investors which intend to establish an energy-supply division – the U.K.'s Octopus Investments with its Octopus Energy unit is a good example - to gain market share from larger utilities.

Off-takers can club together and improve energy procurement

Corporate off-takers can also benefit from club deals in which they team up with other companies to optimise power procurement. Recent examples include twenty UK universities which struck a PPA with an operator of British windfarms; and Philips, Google and two chemicals suppliers, DSM and Nouryon, which together closed a deal with the operator of a wind farm in the Netherlands.



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Scope Ratings GmbH

Headquarters Berlin

Lennéstraße 5
D-10785 Berlin

Phone +49 30 27891 0

London

Suite 301
2 Angel Square
London EC1V 1NY

Phone +44 20 3457 0444

Oslo

Haakon VII's gate 6
N-0161 Oslo

Phone +47 21 62 31 42

Frankfurt am Main

Neue Mainzer Straße 66-68
D-60311 Frankfurt am Main

Phone +49 69 66 77 389 0

Madrid

Paseo de la Castellana 95
Edificio Torre Europa
E-28046 Madrid

Phone +34 914 186 973

Paris

1 Cour du Havre
F-75008 Paris

Phone +33 1 8288 5557

Milan

Via Paleocapa 7
IT-20121 Milan

Phone +39 02 30315 814

info@scoperatings.com

www.scoperatings.com

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Scope Ratings GmbH, Lennéstraße 5, 10785 Berlin, District Court for Berlin (Charlottenburg) HRB 192993 B, Managing Directors: Torsten Hinrichs and Guillaume Jolivet.