# **RENEWABLE FINANCE**



With technologies evolving and costs coming down, corporations are less skittish about sourcing renewable energy to power their operations. The security of a power purchase agreement (PPA) can also sweeten the deal, reports *Mark Rowe*.

# PPAs offer certainty for companies seeking green power

s national and international legislation nudges the world away from its reliance on fossil fuels, corporations are increasingly sourcing renewable energy through the mechanism of green power purchase agreements (PPAs). Under these contracts, companies and utilities act as 'off takers' by making commitments for future renewable energy payments. European companies have signed nearly 5 GW in PPAs with wind farms since the contracts were first awarded in 2013, according to industry group WindEurope.

A similar picture is emerging in the United States, where companies signed PPAs to purchase 8.5 GW of clean energy last year – nearly triple the amount signed in 2017, according to research group BloombergNEF. The group also reports that some 13 GW of clean energy contracts were signed by 121 corporations in 21 different countries worldwide in 2018. This was up from 6.1 GW in 2017, and positions companies alongside utilities as the biggest buyers of clean energy globally.

Corporate purchase figures will be higher still for 2019, thanks in part to Google, which last autumn announced it had completed 'the biggest corporate deal on green energy in history.' The tech giant signed 18 different PPAs for wind and solar across three continents, bringing its renewable energy portfolio alone to more than 5 GW of energy. The deals enable Google to match 100% of its electricity use with renewable energy, according to the company.

Paula Olexiuk, a partner and analyst at the Canadian law firm Osler's energy practice group, says long-term certainty is a key consideration when inking these agreements. 'Although entering into a PPA is not a purely financial decision, a key benefit for the seller is to provide revenue certainty over the life of a project, which can be a requirement for it to obtain financing,' she explains. 'And a key benefit for the purchaser is to provide long-term cost certainty for its electricity needs.'

### **Certainty of supply**

Other drivers are even more fundamental – the first and most obvious of which is the fact that the costs of renewable assets and energy are coming down. 'Economics have changed the picture and made contracts, once dominated by utilities, more appealing to private investors,' says Kyle Harrison, a Corporate Sustainability Analyst at BloombergNEF. 'Every new solar or wind farm now produces electricity more cheaply than a coal or gas-fired power station. That's a game changer and it's led to an onslaught of demand for PPAs from corporates.'

According to the Abu Dhabibased International Renewable Energy Agency (IRENA), the typical duration of a PPA is 10 years or more. Green PPAs take two forms: a 'sleeved' PPA is a contract under which the developer sells the electricity and associated attributes directly to a corporate off taker. In a 'virtual' PPA, the developer sells its electricity in the spot market and then settles the difference between the variable market price and the strike price with the corporate off taker that receives the generated electricity certificates.

Some purchasers use the renewable energy credits (RECs) acquired along with the power purchased under a PPA as emission offsets for other aspects of its business, while others may retire the RECs rather than using or selling them. 'Most deals in North America are virtual in nature,' notes Harrison. 'You have this dynamic wholesale market where power can be bought and sold all the time. You have customers who need power all day and night but who are not energy buyers.'

Globally, sleeved PPAs are proving more popular. 'You work with a retailer who services the middleman, who takes care of the intermittency [when the wind does not blow, or the sun does not shine],' says Harrison.

## Wind in charge

Wind and solar are by some distance the most attractive renewable technologies for

This major solar power plant in Telangana, India shows how green energy can thrive in emerging markets Photo: Thomas Lloyd Group PPAs. 'Wind energy is very well placed due to its scale, costcompetitiveness and risk profile,' says a spokesperson for trade association WindEurope. 'PPAs offer a feasible model with which to control costs over up to 20 years – to diversify energy sources and meet sustainability targets. Benefits for generators include price visibility over a long period of time and a guaranteed off taker.'

Wind energy dominated PPAs in Europe in both 2018 and 2019, accounting for 85% of all such deals. In 2019, however, the Danish wind and solar farm developer European Energy entered a long-term framework agreement with Swiss utility Axpo for the sale of electricity, generated by its industrial solar photovoltaic (PV) farms in Italy that have a combined capacity of nearly 300 MW.

In late 2019, Axpo concluded a 10-year PPA for a wind farm in Poland. The corresponding route-to-market PPA with the owner of the wind farm, the Scotland-based Green Investment Group (GIG), also includes price hedging of a significant proportion of green certificates generated by the project.

A spokesperson for Axpo said the move was driven by the shift in energy generation emerging in Poland. While coal-fired power plants still dominate, the country has a target for 20% of gross final energy consumed to come from renewable sources by 2030. This ambition will primarily be met with onshore wind.

Despite the appeal of PPAs, long-term price commitments and financial viability are two pitfalls around which companies should tread warily, warns Olexiuk. 'PPAs are generally long-term agreements so sellers assume the risk of locking into pricing under a PPA below market rates over the term, but purchasers similarly face the risk of locking into pricing above market rates,' she says. 'Parties also need to assess the risks and liabilities they assume under the PPA and, whether based on the financial capability of the other party, performance security will be required.'

#### The global picture

Where regulatory barriers do exist, there is a usually a need to work with mechanisms such as green feed-in tariffs that subsidise consumers of renewable energy. WindEurope reports that it has been challenging to find the value proposition for PPAs in feed-in tariff jurisdictions.

However, with renewables

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becoming more commercially competitive, and as feed-in-tariff support schemes across Europe end, 'market-drivers will likely see the volume of corporate renewable PPAs increase,' predicts a note from the industry group. WindEurope believes that, in the absence of support schemes, financing will need a replacement, such as additional revenue stabilisation through corporate renewable PPAs and other hedging instruments.

Regulation is not so much of a hurdle in the US, where power markets are mostly deregulated. According to BloombergNEF's Harrison, the picture is similar in Australia, where there is less demand for wholesale power. In Japan, corporations are not allowed to be involved in green PPAs, so they are dominated by utilities. However, US companies are awaiting policy signals from the federal Department of Energy in regard to tax credits.

If they are removed altogether, Harrison believes difficult questions will be asked about 'what is going to fund the production of clean energy.' The uncertainty could see a rush to sign PPAs, he suggests, that lock corporates into favourable rates.

Neighbouring Canada has seen several green PPAs, including a deal this year in which IKEA committed to purchasing energy from the 46 MW Oldman 2 Windfarm. Other notable contracts include the Rattlesnake Ridge Wind 118 MW wind project in Alberta, where an unnamed large Canadian corporate customer has entered into a PPA for a majority of the energy output.

#### **Corporate demand expands**

PPAs are dominated by major energy users. Aluminium producer Norsk Hydro – which is also an energy company – and Alcoa Corp purchased the most-clean energy in Europe in 2018, according to BloombergNEF. Many other PPA deals have been struck by IT companies that have placed data centres in northern Europe to save on equipment cooling costs.

Further afield, PPAs in India are used both by multinational corporations such as Adobe – which signed a 3 MW PPA with CleanMax Solar in 2017 to supply 100% of its Bangalore campus –and national companies, such as the Chennai Metro. The light railway operator signed a 25-year PPA with CleanMax in 2017 to provide 6 MW of rooftop solar energy.

In Chile, IRENA reports, copper miners have identified renewable PPAs as a cost-competitive way to source electricity. In March 2018, state-owned mining company ENAMI signed a solar PPA with Spanish developer Acciona to supply 100% of its electricity consumption from renewables. Acciona already operates a 246 MW solar plant, of which Google receives 80 MW through a PPA.

IRENA also forecasts that in Argentina, PPAs will prove popular with corporations looking to meet mandates (corporate customers must meet renewable quotas – which are set to rise from 8% in 2017 to 20% in 2025).

Such PPAs, however, reflect the reality that renewable energy is far from ubiquitous and that virtual agreements are essential for companies to achieve their zero-emissions targets. Intermittency risks undermining a company's claims in relation to their investments in green energy.

'A lot of companies, such as Google and Amazon, feel they have to be seen to be conducting business sustainably, they consider it an asset when hiring talent,' said Harrison. 'It also makes them look good to investors. But their power demand is incredibly high, their data centres are hyper-scale, they use as much energy as a small country.'

In practice, grids will continue to contain energy from baseload sources, such as coal and gas. 'A lot of companies get flak – even if they invest in renewables it may be that they do not use much green energy even on an hourly basis, because it's just not possible,' says Harrison.

Olexiuk warned against the temptation to use PPAs as a form of greenwashing. Increased scrutiny around climate change impacts by the public and shareholders and the increased risk of climate change litigation, she said, 'make it imperative for companies to be proactive in developing a climate change strategy.'

As the rollout of renewables continues, and the sector matures, more firms will undoubtedly seek out PPAs to improve their environmental credentials. Renewable developers must be prepared to meet this demand.