POWER PROCUREMENT

New models for renewable energy procurement are opening up a world of opportunity for firms that had previously been left out of such agreements. *Andrew Williams* assesses the growing importance of these 'virtual' deals.



Virtual PPAs level the purchasing playing field

n the early days of corporate renewable energy procurement, buyers were typically large industrial firms with significant energy demands. These were companies which are both accustomed to managing their energy usage and aware of their environmental footprint. Physical power purchase agreements (PPAs) allowed them to source clean energy simply and in significant quantities. Now, a new type of energy transaction is opening up renewable power procurement to a more diverse range of organisations.

Virtual power purchasing agreements (VPPAs) have understandably increased in popularity as organisations look to prove their carbon-cutting credentials. Under a traditional PPA, in which buyers assume physical ownership of the electricity generated by a renewable asset and take responsibility for selling it, typically via the wholesale market. But, with a VPPA buyers do not own, and are not responsible for, the electrons produced by a given project.

The VPPA is purely a financial transaction, which exchanges a fixed-price cash flow for a variablepriced cash flow and renewable energy certificates (RECs) as part of what is commonly known as a 'fixed-for-floating' swap. This means renewable energy companies commence development of a project, sell the power generated on the wholesale market and deliver energy to the grid.

The buyer guarantees that the project developer obtains a fixed

price – the PPA price – for every megawatt hour of energy sold at the floating market price by committing to pay the difference if the market price is below the PPA price. Conversely, the developer pays the difference when the market price is above the PPA price.

As part of the deal, purchasers receive the RECs generated by the facility and, because of the purely financial nature of the transaction, continue to meet their electricity load through existing channels. This guarantees that existing relationships with utility providers remain the same at the retail level. A key advantage of VPPAs is their capacity to allow smaller buyers and companies without energy trading expertise to participate enabling them to make rapid and substantial progress towards renewable energy targets.

Managing price risk

One of most notable recent arrangements of this kind is a VPPA signed by specialist medical device manufacturer Boston Scientific, which has inked a 42 MW solar energy deal with Clearway Energy Group. The agreement equates to around 120 GWh of renewable electricity each year – a figure that represents 45% of the company's total carbon footprint. As part of the deal, viewed internally as the largest single step taken towards its goal of carbon neutral manufacturing and distribution by 2030, the company claims it will offset 100% of its electricity use in the US with renewable energy.

Alongside the VPPA, the Massachusetts outfit has also agreed to support part of a 13 MW local community solar project. The scheme was recently set up by Clearway Energy in an effort to drive demand for energy generated from renewable sources and boost access to local green electricity.

'To reach our goal of carbon neutrality by 2030, our aim is to cut consumption and convert to recycled energy where we can, and to compensate where we absolutely cannot cut or convert,' said Brad Sorenson, Senior Vice President of Global Manufacturing and Supply Chain at Boston Scientific. 'The VPPA is a major step forward for us to convert and

US conglomerate Cargill sources some of its power from the Crocker Wind Farm in South Dakota compensate. This is about half of our footprint globally and puts our 2030 plans within reach.'

Elsewhere in the US, Minnesotabased conglomerate Cargill has recently announced a VPPA with wind and solar energy developer Geronimo Energy for the Prairie Wolf Solar Project in Coles County, Illinois. As part of the deal, billed as a 'single project VPPA,' Cargill will purchase all energy produced at the 200 MW solar energy project, located in the Midcontinent Independent System Operator (MISO) market. Once operational at the end of next year, the Prairie Wolf facility is set to become the single largest solar investment in Illinois and one of the largest solar developments east of the Mississippi.

As Eric Hoegger, Global Renewable Energy Manager at Cargill, explains, the company has set a goal of reducing absolute greenhouse gas emissions across its operations by 10% by 2025, as measured against a 2017 baseline. This is an ambition Hoegger describes as a 'science-based target in line with the Paris Agreement and the UN Sustainable Development Goals.'

To deliver on the target, the company is primarily focused on operating more efficiently, advancing onsite renewables, and investing in offsite renewables through initiatives like the Prairie Wolf Solar Project VPPA, which will reduce the company's Scope 2 carbon footprint by an estimated 285,000mn tonnes of CO2. As part of the agreement, Cargill guarantees a fixed energy price for 100% of the clean solar power produced by the project – enabling the initiative to obtain financing and become a reality.

Cargill completed its first VPPA with Geronimo in 2018 as a 25% offtake agreement from the Crocker Wind Farm in South Dakota. According to Hoegger, the positive results of that project encouraged the company to consider entering into another VPPA, but this time 'bigger and in the MISO market,' which accounts for the single largest concentration of its electricity load in the US.

After conducting a review of over three dozen possible VPPA projects, Cargill ranked them based on economics, carbon reduction and interconnection risk and selected the Prairie Wolf Solar Project because it provides the best balance between the three selection criteria.

'The advantage for Geronimo Energy, the project developer, is the ability to manage its energy market price risk with a fixed energy price for all power produced by the project paid by Cargill,' Hoegger explained.

Looking ahead, Hoegger also revealed that renewable energy now represents a vital component of the company's expanding energy portfolio and confirms that it is constantly exploring opportunities to participate in new renewable energy markets.

'Offsite projects such as VPPAs allow us to participate with utility scale economics. We've already completed two large VPPAs in the US and are open to additional projects if we are able to find the right project offerings. Prospects must provide favourable economics, significant carbon reductions and be located in a market such as MISO, where we have significant plant operations,' he said. 'We are also considering options for additional VPPAs in Europe and China, should the financial structure become more available in Asia.'

Economically attractive

Dutch multinational chemicals firm Royal DSM recently entered into a VPPA with EDPR, one of the world's largest wind energy producers. As part of the deal, DSM will source renewable electricity from one wind farm and two solar power plants in Spain with a total capacity of 76 MW. The company has also signed up to a further substantial PPA in the USA with Origis Energy, a global solar company, for a solar plant with a total capacity of 78 MW.

According to Lieke de Jong-Tops, Senior Communications Manager at Royal DSM, sustainability is not just DSM's core value, but is also an important business driver engrained in its purpose, strategy and operations. De Jong-Tops also stresses that the signing of these latest PPAs means that the company is now set on a course to significantly improve the environmental footprint of its operations and is well on track to achieve an ambitious target of purchasing 75% of its electricity from renewable sources by 2030.

'With these long-term agreements, DSM enables the owners to secure financing for the construction of their new renewable energy parks and ensures additional renewable electricity capacity for the planet,' she said.

In terms of the broader general advantages, de Jong-Tops observes that VPPAs like these provide Royal DSM with the scale to make significant steps in realising its A key advantage of VPPAs is their capacity to allow smaller buyers and companies without energy trading expertise to participate – enabling them to make rapid and substantial progress towards renewable energy targets targets with economically attractive conditions. They also provide renewable energy companies with the long-term customer commitment necessary to secure financing and other project requirements – a mutually beneficial combination that enables new additional renewable electricity to be realised.

Moving forward, she confirms that DSM will continue to investigate the possibility of concluding more PPAs that fit its requirements – but that exactly when and where will depend on the opportunities that present themselves in the markets where the company is active.

'Key innovations and trends that we envisage are increasing scale, improving efficiencies and lowering costs for renewable electricity due to the learning curve of various technologies. This will go hand in hand with more and more interest by consumers in electricity from renewable sources,' she added.

Manufacturers and heavy industrial firms aren't the only ones interested in sourcing renewable energy for their operations. Cosmetics giant Estée Lauder recently entered into a VPPA for the Ponderosa wind farm in Beaver County, Oklahoma. As part of the deal – the company's largest ever renewable energy contract – the Ponderosa site will cover more than half of the US outfit's global electricity footprint with renewable energy technologies, ensuring it remains on target to meet its global 2020 Net Zero carbon emissions commitment.

Under the terms of the Oklahoma VPPA deal, the firm has agreed to buy the energy generated by 22 MW of the underconstruction Ponderosa facility – owned and run by a subsidiary of NextEra Energy Resources – an amount equivalent to the output of some ten wind turbines.

For VPPAs to become commonplace across all global markets, renewable developers must be ambitious in entering new regions. It's now clear that 'going green' is not merely a good PR move for companies of all sizes – it also makes good business sense.