

## COMMUNITY ENERGY

# Solar power to the people

**Innovative approaches to purchasing and supplying PV power mean that more communities have access to renewables than ever before. Abigail Williams looks at three schemes from the US and Australia that bring clean energy to lower-income communities.**

**T**o improve sustainability – and provide lower-cost energy to residents – a growing number of public authorities, community energy groups and social housing providers are entering into purchasing and supply agreements with solar power companies. So, what are the key benefits of partnerships like this? And, looking ahead, what innovations and trends can we expect in this area in the future?

## Remote metering credits

One project in this area is a recently-announced partnership between Nautilus Solar Energy, the Public Housing Association of Rhode Island (RI) and Veolia North America/Source One to provide solar power to Rhode Island public housing residents in the US. As Alexey Cherniack, Principal Analyst at Veolia explains, the new deal is built upon the creation and purchase of what he describes as Remote Net Metering Credits (RNMCS).

As part of this process, nine public housing authorities in Rhode Island use these RNMCS instruments to purchase power from Nautilus – with SourceOne/Veolia North America acting as the buy-side agent that developed the specification, administered the

request for proposal, and brokered the transaction.

Under the terms of the agreement, Nautilus will build three new solar projects and, as they generate energy, it will also accrue bill credits with the local utility via Rhode Island (RI) net metering laws. According to Cherniack, these credits will be monetised by assignment to the Public Housing Associations (PHAs), which will effectively purchase them at approximately a 40% discount – meaning they will realise a 40% reduction in their monthly utility invoices.

In Cherniack's view, a key benefit of the deal is that the PHAs will be able to redistribute the money saved through lower operational expenditure into their budgets, which ultimately supports residents.

'The solar power companies get a reasonably predictable revenue stream for 20 years that is above the wholesale rate they would make by simply selling power to the regional transmission organisation as a merchant plant,' he says.

'All stakeholders in RI also get new renewable energy, and the government of RI benefits by not grossly overpaying for solar development, because a large and market-balanced portion of the

payments to the developer ultimately go back to the public sector – that is, the PHAs – rather than staying with the developer,' Cherniack adds.

## Regulatory support

For Cherniack, the key challenges for PHA work include finding solutions that are very low risk and high reward, managing so many counter-parties, and making sure that the US Department of Housing and Urban Development will approve it. Another important component of the deal was regulatory support for municipal purchasing. According to Cherniack, several net metering laws, including those in RI, are designed with specific designations or preferential treatment for public entities, and RI specifically includes housing authorities in this category.

'This is important because PHAs are notoriously risk-averse, slow-moving, and are a difficult segment to bring renewable energy to. The low-income sector is hard to reach but PHAs are and should be an easier way to reach,' he says.

In the long run, although many net metering programmes are approaching their administrative caps, Cherniack argues that the market for net metering can be as

California's Clean Power Alliance is allowing local communities to buy electricity from the 300 MW Desert Quartzite scheme in California

Photo: CPA

big as regional governments want it to be. However, he admits it will probably be uneven across the country based on the development of local regulations.

Cherniack adds: 'We see huge growth potential in renewable energy aggregations and structured retail solutions. There are many companies around that are quite good at bringing new renewable energy to market. The design of innovative retail products so that customers can easily contract for the offtake has been lagging – but it's a large growth area.'

### Combined solar and storage facilities

Across the US, California's Clean Power Alliance (CPA) – a not-for-profit that provides clean electricity to Los Angeles and Ventura counties – has recently inked a power purchase agreement (PPA) for a large-scale combined solar power and storage facility. As Natasha Keefer, Vice President – Power Supply at the CPA, explains, the agreement allows the Alliance to secure all the product attributes of the combined 300 MW Desert Quartzite solar farm and 150 MW/600 MWh lithium-ion battery storage facility, located on unincorporated land in Riverside County, California.

This includes energy, renewable energy credits (RECs), ancillary services and resource adequacy for the full term of the 15-year contract.

Under the terms of the agreement, CPA will pay for the output of the solar generating portion of the project at a fixed price rate per MWh, and also pay for the use of the storage portion of the project at a monthly fixed-price rate per kWmonth. The project owner, energy company EDF Renewables, is responsible for the construction, financing, ownership, and operation of the facility on CPA's behalf.

Keefer observes that the new agreement will result in a wide range of benefits for the CPA and its local residents – as well as for the solar energy generator. 'The contracting structure allows the project developer/owner to secure a financeable revenue stream to fund construction and operation of the project while allowing the off-taker – electric utilities and consumers like CPA – to secure a long-term clean energy supply at a fixed rate,' she says.

'Long-term PPAs such as those for Desert Quartzite allow CPA and its communities to secure affordable, clean energy resources

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at a low cost – enabling CPA to meet its environmental targets, offer customers competitive rates, and ensure reliability of the grid,' she adds.

However, Keefer also highlights that some challenges are facing renewable energy development. These range from the global supply chain challenges related to the COVID-19 pandemic, rising costs of equipment and construction, to the large amount of interconnection work needed over the next decade to connect clean energy resources on the grid.

Under Senate Bill 100, California has also set a state-wide goal of powering all retail electricity sold in California and state agency electricity needs with renewable and zero carbon resources by 2045. It also updates the state's Renewables Portfolio Standard to ensure that, by 2030, at least 60% of California's electricity is renewable.

'While California has already developed a robust market for solar power, this landmark policy will continue to drive the demand for the development of low-cost clean energy resources such as solar,' says Keefer.

She adds: 'Because of the high penetration of intermittent renewable resources in the state, California is also a leader in energy storage development, which will facilitate the reliable operation of a zero-carbon grid.'

### Smart energy for social housing

Another interesting initiative in this area is the Smart Energy for Social Housing (SESH) trial in Australia. As part of this scheme, Western Australia's state-owned electricity generator and retailer, Synergy, is working closely with the Department of Communities (DoC) to deliver an AUS\$6mn programme to install solar panels on public housing.

As Jason Waters, Chief Executive Officer at Synergy, explains, the SESH pilot has the potential to meaningfully address energy poverty or prevent financial hardship by providing cheaper energy using distributed energy resources such as heat pumps for hot water and solar panels.

'Synergy is managing the supply and installation of solar panels, recruiting participants and delivering an appropriate tariff. The role of DoC is to identify suitable properties and manage the installation and ongoing maintenance of heat pumps. Partnerships like this one are key to many of the programmes and pilots that Synergy is currently

leading,' he says.

For Waters, a key benefit of the scheme is that participating social housing tenants are eligible for a simple time-of-use tariff – known as Synergy's Future Communities Plan – giving them access to a discounted rate for electricity use between 9am and 3pm, set at 19 cents/kWh.

According to Waters, this will enable tenants to save more if they can shift electricity use to this time. At all other times, tenants will be charged at the standard rate – currently set at 29 cents/kWh. The heat pumps will also allow tenants to make the most of their solar panels when heating their hot water, rather than using electricity from the grid during peak times.

In Waters' view, one of the main challenges faced by SESH project partners has been recruiting enough tenants to participate in the pilot. 'The success of the pilot relies on taking customers on the journey, educating them on their energy usage and ensuring they remained engaged. This has resulted in a dedicated team being created to educate tenants on energy use to ensure they continue to maximise the benefit of the tariff,' he says.

Another challenge has been securing appropriate sites – particularly since, to be suitable, homes need to be stand-alone dwellings, allow for solar panels on their roofs and have the longevity to support the 15-year life of a standard solar panel system. To date, some 100 tenants have been recruited and 100 solar systems have been installed – with planning underway to progress the next 400.

'Learnings from this first testing phase will help inform the rollout of the remaining 400 locations,' says Waters.

### Community energy

Building renewable energy systems is one thing; designing the legal and financial arrangements that allow their use by communities is another. Pilots and trials like these will help energy companies and housing authorities to develop intelligent solutions fit for the fast-changing energy industry. In an economy run on renewable resources, fuel poverty could become a thing of the past. ●