



Walmart is one of the best-known examples of a leading U.S. brand enthusiastically and visibly embracing solar energy. It has been able to do so thanks to highly effective PPA models that meet its financial objectives.

Off-site, in mind

Corporate PPAs: Power purchase agreements can offer innovative solutions for the growth of off-site solar, which is an area of the PV industry that is ripe for investment, writes Benoy Thanjan from Reneu Energy.

Corporations looking to hedge long-term energy prices while accomplishing their sustainability goals should consider contracting with off-site solar projects as an attractive solution to their energy needs. Off-site solar allows businesses an opportunity to buy electricity at a fixed rate, over a period of time, through long-term contracts such as corporate power purchase agreements (PPAs).

Recently, the corporate PPA structure has been beneficial for larger organiza-

tions, but for off-site renewable energy growth to continue, creative solutions need to be developed for smaller companies to enter the market. Recently there have been many notable organizations that have utilized off-site Corporate PPAs to hedge energy prices. These companies span across the retail, technology, education, and healthcare sectors.

In retail, U.S. chains Target and Walmart are both working on becoming leaders across the country for pur-

chasing renewable energy. Target plans to increase solar usage by adding panels to roofs of 500 of its buildings by 2020; last year it added 75 MW of solar to stores rooftops. Micah Ragland, Director of Sustainability Communications at Walmart, explains: "To date, we have found the PPA to be a highly effective model for Walmart to leverage our scale and buying power to accelerate renewables. Under these arrangements, Walmart agrees to buy renewable power

from an energy provider over a period of time. Under PPAs, the energy provider also owns, installs, and operates the renewable energy systems. At the end of fiscal year [FY] 2017, we had more than 480 on-site and off-site projects in operation or under development in seven countries and 16 U.S. states, supplying over 2.3 million kWh of renewable energy to our facilities.”

Technology has been the biggest sector to use corporate PPAs. This is due to high energy usage in data centers and 100% renewable energy goals that large organizations such as Facebook, Google, and Amazon have set for themselves. In addition, these large companies have resources available to allow them to create unique energy solutions for their facilities. In 2016, Amazon partnered with Dominion Energy to expand its renewable energy generation through off-site PPAs with solar projects in Virginia totaling 260 MW. These PPAs have allowed Amazon to work towards its goal of 50% renewable power by the end of 2017.

In education, 61 universities have entered into PPAs and more than 100 MW of solar power for universities have been developed utilizing on-site and off-site PPA agreements, according to data from the Association for the Advancement of Sustainability in Higher Education.

The healthcare industry has been expanding its renewable energy portfolio through PPAs as well. The PPA structure has helped hospitals with locations throughout the country, such as Kaiser Permanente, source solar power from multiple off-site locations. Recently, Kaiser has added on-site solar to 85 hospitals in California totaling 70 MW, but this was not enough to meet its load requirements. Currently, Kaiser has two off-site PPAs totaling 143 MW of solar power, a model that other leading hospital groups could benefit from adopting.

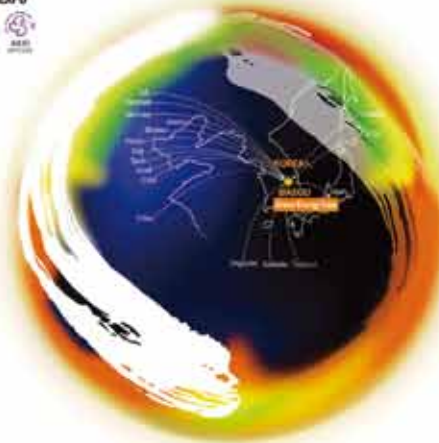
Risks

The most common structure used by these corporations for off-site corporate PPAs is the contract for difference (CfD). The CfD is a financial hedge between the buyer and the seller for an agreed-upon fixed rate for the off-site power. If any variation exists between this fixed rate and the wholesale electricity rate (the rate at which the seller sells power into the wholesale electricity markets), the difference is accounted for and refunded to either the buyer or seller at the end of each month.

The buyer would pay the difference if the wholesale electricity rate is less than the fixed rate, and the seller pays the difference when the wholesale electricity rate is greater than the fixed rate. But there are risks that corporations need to consider prior to moving forward with this structure in a PPA. Some of the risks with the CfD include basis, counterparty credit, and power price risk.

Matthew Meares, co-founder and Principal of Development at Virginia Solar notes: “Basis risk is a major consideration when the project and customer are located in PJM or one of the other Independent System Operator (ISO) markets. Simply put, a project typically delivers electrons at point X and the user takes them at point Y. The price differential between these two points is the basis differential. This price differential can be created by transmission congestion, and the location and production of other nearby generation, among other things. The basis differential can change with time. Hence, over the life of a 15 year PPA what historically may have been no difference in pricing between the points may turn into a significant price differential.”

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Major organizations such as Kaiser Permanente have been ideal candidates for corporate PPAs.

“Traditionally, the project sponsor is allocated locational basis risk, but this allocation can vary deal by deal,” said Alex Leff, a renewable energy project finance attorney with law firm Sive, Paget & Riesel P.C.

In order for the solar project to move forward, the buyer usually has to have a strong investment-grade credit rating in order to qualify as an off-taker. Counterparty credit risk is greatest when the buyer of the energy is unable or unwilling to pay for its energy bill. This risk exists for all types of PPAs since the counterparty is purchasing solar energy from the seller for a long period of time, usually from 10 - 20 years.

Currently, power prices are at an all-time low and there is the assumption that power pricing will increase over time. Companies are hedging their energy costs now to protect against this potential increase. But the risk is reversed if market prices continue to decrease or stay the same in the long term, resulting in lower prices than the fixed PPA. If this price trend continues, it would not have been beneficial for the off-taker to have entered into the PPA agreement.

Although there are risks within the CfD arrangement for corporate PPAs, the benefits that exist from the PPA structure for clean and low price energy

options generally outweigh the risks. The CfD financial transaction has allowed for additional opportunities for off-site solar projects to be developed and utilized for parties who have been constrained by on-site limitations.

Creative solutions to market

Major organizations have been ideal candidates for corporate PPAs. This is due to their strong credit backgrounds allowing them to qualify for PPAs, and significant load requirements that allow them to be the sole off-taker for the solar project.

Projects with one off-taker have been easier for the developer to finance due to lower legal fees than would accrue negotiating PPAs with multiple off-takers. But for the off-site solar market to grow, smaller companies must be more involved.

Recently, there have been innovative ways in which off-site solar projects have been structured to allow smaller organizations to benefit from solar. One way of accomplishing this has been through contracting with off-takers through multiple PPA agreements for an off-site project. Additionally, some energy companies have taken the lead to create green tariffs and supply contracts for their corporate customers to take advantage of off-site solar. The following are just a few

examples of these alternative structures that could be used to benefit smaller corporations looking to enter into an agreement with an off-site solar project.

A solar project in North Carolina totaling 60 MW is a good example of a multiple off-taker structure. The primary off-taker was Massachusetts Institute of Technology (MIT). The MIT PPA with Summit Farms Solar is one of the largest purchases of solar by an educational institution. The project provides energy to three Boston-area institutions purchase the electricity generated: MIT, Boston Medical Center, and Post Office Square Redevelopment Corporation.

SunEnergy1, LLC and the Summit Farms project were chosen for these PPAs. As the developer and EPC contractor, SunEnergy1 helped facilitate and was actively involved in the negotiation of the PPAs with the off-takers.

“We worked with a consultant representing the three organizations through the negotiation and execution of the PPAs, making the process streamlined even with multiple counterparties,” said Kenny Habul, President & CEO of SunEnergy1. All the off-takers agreed to a 25 year PPA with this project, which will account for 100% of the energy consumed by Boston Medical Center and Post Office Square Redevelopment Corporation, and

40% of the energy consumed at MIT's campus.

Another way to structure off-site solar that could benefit smaller corporations would be through a green tariff. An example of this structure is Puget Sound Energy (PSE), based in Washington State, which is starting a program called "Green Direct" where PSE acts as an intermediary between project and customer.

Under this program, PSE would enter into a PPA directly with the project and sell renewable energy at a fixed price to cover long-term service agreements. This structure will allow for companies like Starbucks, REI, and Target to have access to renewable energy without the complexity of a corporate PPA, and this structure would allow smaller corporations to purchase renewable energy off-site.

Another organization involved in a similar arrangement is WGL, the parent company of Washington Gas. WGL has offered customers supply contracts through its Solar Energy Supply Agreement (SESA) program. Recently, WGL entered into supply contracts with companies in Washington, D.C. as the off-

takers for a 10.8 MW solar project located in Frederick, Maryland. Louis J. Hutchinson III, Vice President and Chief Revenue Officer for WGL, says, "WGL Energy is in a unique position to offer customized renewable energy options from off-site projects, given our experience in both retail supply and owning and operating a vast portfolio of solar assets across the U.S.

The recent transaction with Monumental Sports & Entertainment and National Geographic Society that was discussed at SEIA's Solar Goes Corporate event in

New York City is a demonstration of this solution. These organizations are examples of forward thinkers that were interested in reaping the financial and sustainability benefits of solar, but didn't have the infrastructure to do so on-site."

There has been noteworthy progress in the off-site solar market through innovations with corporate PPAs, green tariffs, and supply contracts. But for the growth of the off-site solar market, the continued development of creative solutions in terms of financing is necessary for success. ♦

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Benoy Thanjan is the Founder and CEO of Reneu Energy, a premier solar energy consulting firm, which focuses on energy hedging, sourcing solar and due diligence of development opportunities, capital advisory, and environmental commodity brokerage. Reneu also creates customized research regarding the development of solar projects throughout different markets and consulting services for companies looking to go solar. For the last decade, Mr. Thanjan has been at the forefront of the emerging renewable energy industry having worked at a private equity firm investing in projects and then in project finance for two major solar developers.

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