Is the Virtual Power Purchase Agreement the best path to achieving your sustainability goals?

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Green Power

When designing a strategy to achieve corporate sustainability goals, it is typically separated into three phases. First, to reduce energy use and find efficiencies. Second, to replace existing energy sources with cleaner or more efficient sources. And finally, to offset any emissions that remain. As a corporation, you should be considering how to incorporate the benefits of renewable energy into your strategy to help achieve your sustainability goals.

We believe that market conditions are changing rapidly to enable a massive shift towards renewables. The reasons for this shift can vary from company to company, but generally it's for one or more of the following reasons:

- Customers are asking for – and buying – environmentally conscious products.
- Employees are asking employers to deploy sustainability initiatives because they can impact the communities they work and live in.
- Last and certainly not least, shareholders are investing with sustainability in mind.

Companies are getting the message, as evidenced by the growth in the number of companies actively working on climate change through reporting entities like CDP, RE100, and the Science Based Targets Initiative.

In this article we will explore the different ways you can add renewable energy to your energy management strategy. Our methodology for evaluating the different options will be based on these three criteria:

1. **Sustainability impact:** We will consider how impactful each of the options are from a sustainability perspective.
2. **Management effort:** We will evaluate how much effort will be required to manage each of these options.
3. **Financial impact:** The cost of these options will vary. Some are low cost with short term commitments, others require long-term contracts. Like any long-term contract, these will require a degree of commitment with financial risk that needs to be understood.

As we explore the options below, please consider that you will need to find the right balance between impact, cost, and effort to arrive at the right solution for your company.

For most organizations, your choices to add renewable energy benefits into your sustainability strategy will fall into one - or some combination - of the four options on the next pages.

Choosing the best option for your company won't be easy due to the trade-offs that need to be managed. A good strategy will provide you with a couple of short-term quick wins that can be implemented today, but will also support your long-term strategy.

T-Mobile

A member of the RE100, T-Mobile's goal is to use 100% renewable energy by 2021. This wireless operator partnered with Enel Green Power in 2017. The agreement is a VPPA for 160 MW from Enel's Red Dirt wind project. This was T-Mobile's first wind project, spanning 60,000 acres (94 square miles) near Hennessey, Oklahoma. The company was faced with a widespread footprint of stores and limited space for onsite projects. So, the VPPA became a key part of the company's strategy. By leveraging the flexibility of VPPAs, T-Mobile has been able to make rapid progress towards being 100% renewable.

Four Paths to Renewables

1. Renewable Energy Certificates

The easiest way to integrate renewable energy benefits is to simply purchase Renewable Energy Certificates, or RECs. A REC documents that at some time, somewhere, a megawatt hour of renewable energy was generated and delivered to the grid. The owner of the REC owns the sustainability claims linked to that megawatt hour of energy. RECs can be easily procured, no energy is bought or sold.

The advantages of a REC are that anyone can buy one, they are low cost, and they are easy to manage. But, if your sustainability strategy is measuring environmental impact, buying RECs is considered the least impactful. That's because typically you are not adding new renewable supply to the system. Consider that a REC is created from a renewable resource that may have been operating for years. In the critical race to decarbonize the planet, RECs from established sources can be less impactful compared to new supply.

With that said, RECs should be considered as an option in your overall strategy because you can buy them wherever you are located. RECs are recognized by governmental agencies, regional electricity authorities, non-governmental organizations (NGOs), and trade associations. And with these REC purchases you can make certain green energy claims. For example, to support the energy usage of events – including the biggest night in football - REC purchases are a strong option.

2. On-site Renewables

Building a wind or solar project on company property is a strong option for some organizations. From a sustainability perspective it is impactful, although it is limited by the amount of controlled space available to build the project. Unfortunately for most enterprises, only a fraction of the energy needed to run their facility will be met by the energy produced by the on-site renewable project. That energy is delivered directly to your facility, reducing your dependence on your utility and hopefully resulting in a lower utility bill.

However, unlike conventional electricity procurement, this path can be capital intensive - capital that may be better employed to help grow your business. There's also a sizeable project risk – and a hefty time commitment to manage those risks. Having an on-site facility would also require a budget to maintain the facility so that it stays in good condition to maximize output. Ultimately, this option works for a limited company profile: One with a large, consolidated energy load, with enough space and capital available.

Consequently, on-site renewables are often obtained through a physical power purchase agreement, or Physical PPA. In this case, the company enters a long-term agreement with a renewable energy specialist who will build, own, and operate the plant. That reduces the capital required and can also reduce the risk of project failure. What it cannot do – in many cases – is make a company's electricity consumption 100% renewable.

Mondelēz International

Mondelez International began its partnership with Enel Green Power in 2019. Known for brands like Oreo and Toblerone, the 12-year contract was for 65 MW of a Texas solar plant. A member of the Science Based Targets initiative, the company is committed to cutting greenhouse gas emissions by 10% by 2025. By procuring 65 MW from Enel Green Power's 497 MW Roadrunner solar plant, Mondelez is able to reduce CO2 emissions by 80,000 metrics tons.

3. Green Tariff

Green tariff programs allow companies to tap into large renewable energy projects through their local utility. Not all utilities offer green tariff options, but if your local utility has a green tariff option, you can coordinate with them and switch to that tariff. From a management effort perspective, it is relatively easy.

Green tariffs are only available in a small number of US states and there are complexities, because the buyer's load, the utility, and renewable energy project all need to be in the same region. That's not always easy, as some states are far more suitable for large scale renewable projects than others.

When signing up for a green tariff, keep in mind that you have no say in what energy the utility purchases, or where they purchase it from. Which also means that you have no control over the cost. The cost of energy can change over time because it will be based on a blend of different contracts. If your sustainability strategy is measuring environmental impact it's most likely that this is not going to be impactful, because the energy and RECs are coming from a portfolio of existing renewable assets.

4. Virtual Power Purchase Agreement

A virtual power purchase agreement (VPPA) is purely a financial transaction and the way the company powers its facilities does not change. In addition, its relationship with its local utility does not change. With this agreement, the electricity generated by a renewable energy project is never owned by, or delivered to the customer - but the benefits of the renewable energy project are. So, the company's load doesn't need to be near the renewable energy project. Decoupling the load from the renewable energy resource like this provides a world of possibilities that are difficult to achieve with other solutions.

For example, companies with facilities that are geographically widespread – such as retailers with thousands of locations – can meet the energy needs of those locations with a single VPPA contract. With one carefully crafted contract, your company can deliver sustainability benefits to your customers, your employees, your investors, and our planet because you are helping to add a new renewable resource to the grid.

Further, renewable energy projects supported by VPPAs are abundant, ensuring competitive choices and competitive prices for buyers. The flexible terms in these agreements provide better opportunities for companies large and small to buy a fraction of the benefits created by a large renewable energy project. So, what's the catch? A VPPA is a complex financial transaction that requires attention to detail with a high level of effort to manage both the expectations of internal stakeholders as well as financial impact.

Managing Risk in a VPPA

Think about a mortgage. Some people choose a fixed rate that will make their payments predictable. Others prefer an interest rate structure that is more variable. Either option could turn out to be financially lucrative, or overly costly. That, greatly simplified example, is the risk that needs to be assessed and managed with a VPPA contract. There are four essential parts to a VPPA solution.

1. The Renewable Plant Owner-Operator

Ideally, the owner-operator of the renewable energy plant develops, builds and operates the plant for the long term, as this can help eliminate some risk. Since the energy from the renewable facility is not physically delivered to the buyer, the plant can be built in the optimal location to maximize the renewable resource. Besides the renewable resource (wind or solar), project siting factors include the weather, community support, access to open electricity markets, and physical space. Currently, that's luring many renewable project developers to Texas, Oklahoma, and Kansas. It's worth remembering that large open spaces allow larger solar or wind farms to be built. Larger plants bring greater economies of scale, with lower construction and operating costs. All other things being equal, that means lower prices for customers too.

Table 1: Renewable Energy Contracts Executed in 2018/2019	# VPPA	# GREEN TARIFF	TOTAL MW
Facebook	8	22	3,413
Google	6	7	1,833
Microsoft	7	0	1,171
Amazon	4	0	399
Apple	3	1	314

Source: Bloomberg New Energy Finance

2. The Wholesale Power Market

As mentioned earlier, the electricity generated under a VPPA contract isn't physically delivered to the buyer. Instead, it's sold into the regional wholesale electricity market. Fortunately, many of the Mid-West states and some Southern states that have strong wind and solar resources also have open wholesale markets. These markets include ERCOT (covering most of Texas), and the Southwest Power Pool (including all or part of 14 Mid-West states).

3. The Buyer

In the past, the virtual power purchase agreement was a tool used exclusively by large tech companies to buy renewable energy. As the market has grown and matured, you can see that the use of green tariff has increased. Table 1 shows the type of the renewable energy contacts executed in 2018 and 2019.

In recent years, companies from other industries have begun using VPPAs to achieve their sustainability goals. T-Mobile and Mondelez are two of many companies that have worked with Enel Green Power to create partnerships which have led to new renewable energy projects being developed and constructed (see sidebars on pages 1 and 2). Partly this reflects a growing focus on sustainability at more corporations. Not only is sustainability good for the planet, it's good for business too. Harvard Business Review noted in 2019 that sales of sustainable products grew faster than those that were not sustainable. It also reflects a growing maturity of renewable energy suppliers – including Enel Green Power – to offer a broader range of solutions. For example, solutions with different financial terms, solutions more suitable for smaller loads, or solutions that are a better fit for companies with hundreds or thousands of locations.

The composition of the buyer's procurement teams has also changed. Both the chief financial officer and the chief sustainability officer are involved in the transaction - which makes sense, because of the nuances of the agreement. Many companies are no longer focused exclusively on the short-term P&L impacts of the agreement. There are overarching

Environmental, Social, and Governance (ESG) factors that are recognized as being the foundation of a healthy long-term business. Buying renewables through a VPPA isn't just about adding new renewable energy to the grid. It's about making a bold commitment to sustainability that reflects upon your brand and business values.

4. The Contract

As noted earlier, a VPPA is a financial contract, and sometimes it's also referred to as a contract for differences (CFD). That's because the flow of money from the settlement depends on the difference between a fixed strike price and a variable market price. Here's how it works:

1. The buyer and plant owner agree on a fixed price per megawatt hour (MWh). Say $15 per megawatt hour for this example.

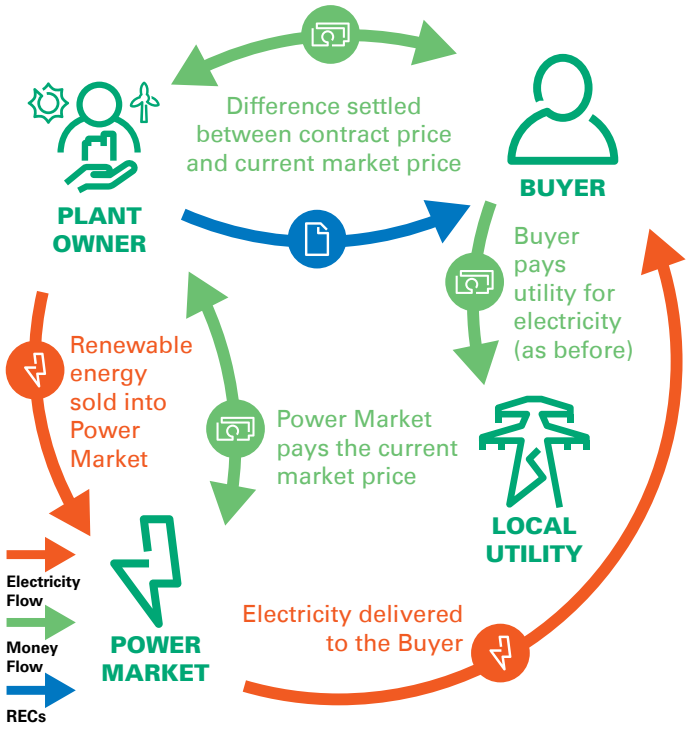
2. The plant owner sells the electricity into the wholesale electricity market as it's generated. That market is open, transparent, and competitive. So, the price received per MWh will vary. During times of high electricity demand, the price received per megawatt hour will be high. When demand is low, the price will drop. Market prices are determined by classic economic supply and demand. Just like the stock market, or real estate.

3. The contract for differences guarantees that the plant owner will always receive $15 per megawatt hour (in this example). So, if the market is only paying $14 per megawatt hour, the buyer owes the plant owner a dollar. Conversely, if the market is paying $16 per megawatt hour, the plant owner owes the buyer a dollar.

4. The RECs associated with the energy produced are transferred to the buyer.

That's it – in its simplest form. The renewable electricity, money, and REC flows are illustrated conceptually in Figure 1.

Figure 1: Flows in a Contract for Differences

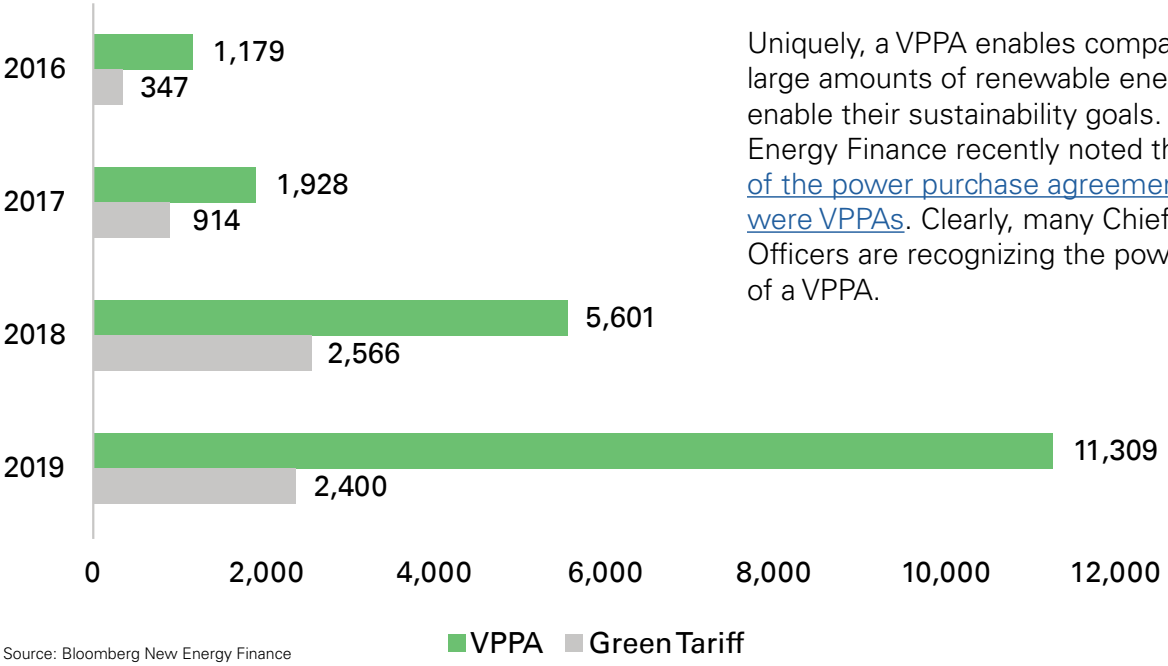


In practice, an experienced renewable energy supplier can offer many forms of a virtual power purchase agreement. Each buyer has unique needs and the VPPA contract is flexible enough to be customized for each buyer. Some examples include: volumes can be as generated or fixed with a shape; price can be fixed, escalating or de-escalating. In summary, renewable energy purchases can be made simple if the buyer chooses the right partner and contract structure.

What's Next?

Businesses are increasingly seeing the long-term value of integrating sustainability into their operations. Membership in the Science Based Targets initiative has roughly doubled every year since it was founded in 2015. Currently, there are over 900 member companies. Likewise, use of VPPA contracts is growing dramatically too (Figure 3).

Figure 3: Total MW Contracted by Type (North America)



Source: Bloomberg New Energy Finance

In practice, enterprises typically follow a similar journey to cut their greenhouse gas (GHG) emissions. First, they look for energy efficiencies. LED lighting, upgraded air conditioning, or more modern industrial processes, for example. That helps, but you can only get so far. Once efficient gains have been made, strategies turn to renewables. At that point, the popularity of virtual power purchase agreements reflects their suitability for many organizations (Table 2).

Uniquely, a VPPA enables companies to quickly add large amounts of renewable energy to the grid and enable their sustainability goals. Bloomberg New Energy Finance recently noted that more than 80% of the power purchase agreements signed in 2019 were VPPAs. Clearly, many Chief Sustainability Officers are recognizing the powerful benefits of a VPPA.

Table 2: Assessing Your Renewable Options	REC	GREEN TARIFF	ONSITE PPA	VPPA
Strength of Additionality	Low	Medium	High	High
Project Choice	High	Low	Medium	High
Management Resources Needed	Low	Medium	Medium	High
Sustainabilty Claims	Low	Medium	Medium	High

Why Not Join Them?

If you're interested in learning more how Enel Green Power can deliver a VPPA solution for your organization, please reach out to commercial@enel.com.

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