Browne Jacobson

What are the different types of Power Purchase Agreements?

06 March 2025 Conor Macaire Duncan and Zoe Stollard

1. Physical PPA (also sometimes known as 'Direct', 'Private Wire', 'Back-to-Back' or 'Corporate' PPAs)

A physical PPA is a legal contract between a Generator (typically a renewable energy developer) and a Consumer (typically a commercial or industrial consumer) that outlines the terms and conditions of the sale and purchase of renewable electricity for a specified period of time.

In a physical PPA, the Generator agrees to deliver a certain amount of electricity generated from a specific renewable energy project to the Consumer, who in turn agrees to purchase and take delivery of that electricity at a predetermined price. The physical delivery of electricity usually occurs through the transmission grid, and the Consumer is responsible for paying for the transmission and distribution of the electricity.

When in close proximity, physical PPAs can be 'private wire' or 'direct wire', which involves the Generator delivering energy directly to the Consumer via a physical connection between the two parties (i.e. a site network), instead of via the usual distribution or transmission system (e.g. the national grid), and the Consumer pays the Generator directly. Direct PPAs between a renewable electricity Generator and an electricity Consumer (i.e. a corporate customer) are becoming increasingly common.

These forms of 'private wire' or 'direct wire' PPA are also known as Corporate PPAs.

2. Virtual PPA (also known as 'Synthetic' PPA)

A virtual power purchase agreement (VPPA) is a contract between a Consumer (usually a company or organisation) and a renewable energy project developer (i.e. a Generator). Where a VPPA differs significantly to a physical PPA is that a VPPA does not involve the physical delivery of electricity. Instead, the Consumer agrees to purchase a specified amount of renewable energy generated by the project and the Generator for a pre-agreed price, while the actual electricity is sold into the grid (i.e. not to the Consumer).

Under a VPPA, the Consumer and the Generator agree on a fixed price for the renewable energy generated by the project, and this is usually coined as the “strike price”. Where the market price for electricity is less than the strike price, the Consumer, depending on the contractual details of the VPPA, typically pays the difference to the Generator, and in exchange receives Renewable Energy Credits (RECs) or Guarantee of Origin (GOs) for the renewable energy generated by the project. If the market price is greater than the strike price, the Generator receives the difference. This is why virtual PPAs are often viewed as a financial safeguard against fluctuating electricity prices.

RECs or GOs are a type of environmental attribute that represent the “green” attributes of renewable energy, such as the avoided emissions of carbon dioxide. By purchasing RECs or GOs, the power Consumer can claim to be using renewable energy and therefore reduce their carbon footprint, even if the electricity they use comes from renewable and non-renewable sources.

More and more companies are embracing VPPAs as a strategy to achieve their sustainability objectives and foster the expansion of renewable energy and better company stewardship. By opting for VPPAs, businesses can diminish their carbon emissions and contribute

to the emergence of new renewable energy initiatives, all without the necessity for tangible infrastructure or direct participation in the energy market.

3. Sleeved PPA (also known as 'Green' PPA)

The third major form of PPA is the sleeved power purchase agreement (SPPA), which is an agreement that combines physical PPA features with those of a virtual PPA.

Under an SPPA, the Consumer agrees to purchase a specified amount of renewable energy from a specific project but, like a VPPA, the electricity is not physically delivered to the Consumer's location. Instead, the renewable energy is sold into the grid, and the Consumer receives the environmental attributes, such as RECs or GOs, for the renewable energy generated by the project.

However, the key difference between a VPPA and SPPA, is that an SPPA involves the physical delivery of electricity to a third party (often a Utility that is a licensed supplier of electricity). This third-party Utility delivers the electricity to the Consumer's location, and the Consumer then pays the Utility for the transmission and distribution of the electricity. This process is often referred to as 'sleeving' the electricity through the grid.

This a fast growing PPA arrangement, with approximately 20% of large-scale corporate renewable energy deals being facilitated through sleeved PPA arrangements, illustrating the efficacy of SPPAs in delivering both the reduction in carbon emissions as well as financial security and certainty for the parties involved in this tripartite arrangement.

However, the contractual arrangements can be complex in both Physical and Sleeved PPA structures, especially with the tripartite nature of SPPAs. Below, we consider what we determine to the be the key contractual features and variations of both Physical and Sleeved PPA arrangements.

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Deep dive into key variations and considerations between a Direct PPA and a Sleeved PPA

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