



# A brief guide to valuation for virtual power purchase agreements

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Virtual power purchase agreements (VPPAs) have become increasingly common in the world of renewable energy (think wind or solar). But they're not the easiest transactions to value or account for.

To understand why, consider what makes VPPAs unique. VPPAs allow organizations to buy electricity and renewable energy certificates (RECs) from a renewable energy project over a long term at a fixed price. Unlike a traditional power purchase agreement, though, the buyer doesn't physically receive the electricity that the renewable project produces.

## How does a VPPA work?

VPPAs are an important mechanism for renewable energy projects to secure funding by fixing the sales price for each unit of generated electricity. For the buyer, VPPAs are a way to meet environmental requirements or voluntary goals while hedging market price risk associated with electricity usage.

The renewable project physically sells the electricity into the grid at market price and the buyer receives the RECs produced by the renewable project.

For settlement of the VPPA, if the market price is more than the fixed price in the VPPA, the renewable project pays the buyer the difference. If the market price is less than the fixed price, the buyer pays the project the difference.

## When does a VPPA need to be valued?

Accounting for VPPAs can be challenging, especially when a VPPA needs to be fair valued for financial accounting and reporting. A VPPA needs to be valued if it meets the criteria of a derivative or contains an embedded derivative. Under US Generally Accepted Accounting Principles (US GAAP), many VPPAs (thus far) aren't derivatives because they lack a determinable notional amount. This is an area to monitor as the VPPAs (and PPAs) needed to meet data center demand are evolving and some may have determinable notionals.

In contrast to US GAAP, International Financial Reporting Standards (IFRS) rules don't have a notional criterion. So, most VPPAs are a derivative under IFRS and need to be fair valued.

# Why are VPPA valuations challenging?

One reason is contract duration. A VPPA may stay in effect for up to 20 years. The longer the tenure, the harder it is to estimate future market prices, not to mention changes in technology and market dynamics.

Beyond that, VPPAs tend to have large volumes (2 million to 8 million megawatt hours are common). Even modest power price swings over a reporting period often result in large fair value swings. These swings tend to attract scrutiny from investors, auditors, and other stakeholders, raising the stakes to get the valuations right.

Then there's a catalog of VPPA-specific issues that cause modeling complexities, including:

1

## **Volume forecasts**

Volume depends on the characteristics of the asset and its type, and accurate forecasts require familiarity with asset specifications, weather data, and suitable modeling methods. Volume forecasts should be detailed enough to support time-of-day calibration (see below).

2

## **Time-of-day calibration**

Power forward curves are quoted in block format (such as 5x16), whereas asset production (VPPA volume) typically varies. Forward curves need to be adjusted to match the asset's expected generation profile.

3

## **Nodal basis**

Some VPPAs are settled at hub prices, while others may use nodal prices. Since nodal prices aren't quoted, a basis curve can be hard to build, particularly for nodes that don't yet exist.

4

## **Curve extension**

VPPAs typically last 10–20 years, exceeding the duration of most forward price curves, so a curve extension method is often required.

5

## **Embedded options**

Certain VPPAs include options such as term extensions, price floors, or sharing above a price ceiling. All of these necessitate an option model.

# Can hedge accounting be applied to reduce potential income statement volatility caused by VPPA valuation?

If a VPPA is accounted for and valued as a derivative, the fair value changes from period to period are recognized as unrealized gains or losses during each reporting period. This may result in income statement volatility unless hedge accounting is applied and the VPPA is designated as the hedging instrument.

Previously, applying hedge accounting to VPPAs was complex due to the intermittent output of renewable projects and the resulting variability in VPPA volumes. In December 2024, the International Accounting Standards Board introduced amendments to IFRS 9. These amendments allow entities to designate a variable amount of electricity as the hedged item when applying hedge accounting requirements in IFRS 9 and designating contracts referencing nature-dependent, variable amounts—such as VPPAs—as the hedging instrument. This amendment has made hedge accounting under IFRS 9 more accessible. However, entities are required to still meet hedge accounting requirements, including effectiveness assessment, measurement of ineffectiveness, and disclosure.



## Whom should I contact to learn more?

If you have any questions about VPPA valuation and accounting, or would like to discuss your own situation, please don't hesitate to reach out.



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