

Renewable Power Purchase Agreements:

What are the accounting considerations for a buyer?



Sustainability and climate change are rapidly becoming critical considerations for all businesses around the world and in New Zealand. As the impending challenge of achieving a low carbon economy comes more sharply into focus, we have seen an uptake in companies becoming more conscious of the sources of their energy consumption. As a result we believe it would be useful to explore various accounting implications relevant to the buyers of 'green' energy.

Common areas of complexity or contention

Power Purchase Agreements or PPAs may come in a number of shapes and forms, as a result the accounting outcomes may vary quite significantly from one party to the next in content and complexity.

From a buyer's perspective there are a number of questions to consider and in our publication we have attempted to provide guidance and a framework to find answers to these questions:

- **Does the PPA arrangement give rise to control as defined within NZ IFRS 10/11?**
- **Does the PPA contain a lease as defined within NZ IFRS 16?**
- **Are there any embedded derivatives or is the contract itself a derivative? Is the PPA an executory contract?**

Depending on the outcomes of the accounting analysis above, there may be a financial instrument (a derivative or an embedded derivative) that will need to be assigned a fair value.

In our experience valuation of such instruments may also be quite tricky. For example valuations of PPAs often require unobservable inputs and significant judgements. These can include:

- An estimated long-term price path for electricity. Often a calibration will need to be performed as at the transaction date to ensure a nil day-one value
- Adjustments to the price path to reflect tailored contractual requirements or specific market conditions, such as grid exit points, seasonality, peaking factors etc
- Quantifying the valuation impact of counterparty credit risk.

Considering that there are a number of both accounting and valuation aspects to work through we recommend engaging with your accounting and valuation advisers during the negotiation process to avoid any surprises.

What can be viewed as 'sustainable electricity'?

As entities plan to reduce their carbon footprint, they are often seeking to use 'green' or 'sustainable' electricity. Electricity is a unique product, because it is not easily storable at scale, and often entities are connected to the electricity 'grid' rather than being directly connected to generators. The connection to a grid means that electricity generated from sustainable sources is mixed with conventional electricity, and the resulting electricity itself does not have distinguishable characteristics based on its source.

There are several ways in which an entity can demonstrate that it has 'used' sustainable electricity:

1. Purchase of renewable energy certificates ('RECs') on a stand-alone basis in the market. RECs are created for each megawatt hour of electricity that is generated from a renewable energy resource, and they can be purchased by an entity in the market and then 'used' (that is, cancelled or retired) by the entity to offset energy usage from non-renewable sources.
2. Physical power purchase agreements ('PPAs') for green electricity. The entity takes physical delivery of electricity (that is, title) under the contract from a particular generation facility at some point after the generation process. This is often at the interconnection point between the generation facility and the grid or transmission system. The entity also purchases RECs based on the electricity produced by the generation facility that can be 'used' (that is, cancelled or retired) to offset energy usage from non-renewable sources.
3. Financial settlement of green electricity through a virtual power purchase agreement ('VPPA') and purchase of RECs from a generator. In this type of arrangement, an entity obtains RECs and notionally purchases electricity through the VPPA. VPPAs are sometimes called a 'financial power purchase agreement' or 'contract for differences' ('CFD'). The RECs received can then be 'used' (that is, cancelled or retired) to offset energy usage from non-renewable sources.

Theoretically, all of the sustainable electricity generated in a particular market can be earmarked to be used by entities under these arrangements. The power consumed by entities that do not have RECs is sometimes called 'grey power', because it might or might not have been generated by a sustainable source, and so it is often presumed to be conventional electricity.

As noted above, RECs can be bought and sold together with (or separately from) the related energy, but only the entity that retires (that is, cancels) RECs is considered to have actually consumed the sustainable electricity. In other words, RECs can change hands between various market participants, but taking RECs out of the market is fundamentally the 'consumption' of the green power. RECs are colloquially referred to as being obtained 'physically' although, in reality, they are generally intangible in nature, and they can be transmitted electronically rather than on a physical piece of paper.

The uniqueness of the electricity market and the agreements that entities are entering into give rise to a number of complex accounting issues, and this In depth discusses some common issues encountered by entities that enter into these types of arrangement, to demonstrate the consumption of green energy.

Considering the type of arrangement

Types of arrangement – physical versus virtual PPAs

Because of the unique nature of the electricity market and the lack of economic storage options, sometimes it is difficult to determine whether a contract is for the physical purchase of electricity or is a VPPA. It is important to understand the nature of the contractual agreement, because the ultimate accounting might often depend on whether the arrangement is a physical PPA or a VPPA.

Meaning of delivery – physical versus virtual PPAs

The structure of power markets varies from country to country, and sometimes within a country there can be differences in markets between provinces or states and even between cities. Accordingly, it is important to have a good understanding of the local power market and the related rules and regulations to determine how 'physical power' is transacted.

The IFRS Interpretations Committee (IFRIC) finalised an agenda decision in August 2005 concerning the 'meaning of delivery' under IAS 39 (which continues to be relevant under IFRS 9), and this is often considered in evaluating whether a contract is 'physical' or 'financial'.

The IFRIC noted that delivery is not necessarily restricted to physical delivery of an underlying (in this case, electricity) to a customer, but that allocation to a customer's account could be considered delivery.

The IFRIC also noted that a synthetic arrangement that results from the linking of a non-deliverable contract entered into with a customer to fix the price of a commodity with a transaction to buy or sell the commodity through an intermediary would not be considered delivery to the customer.

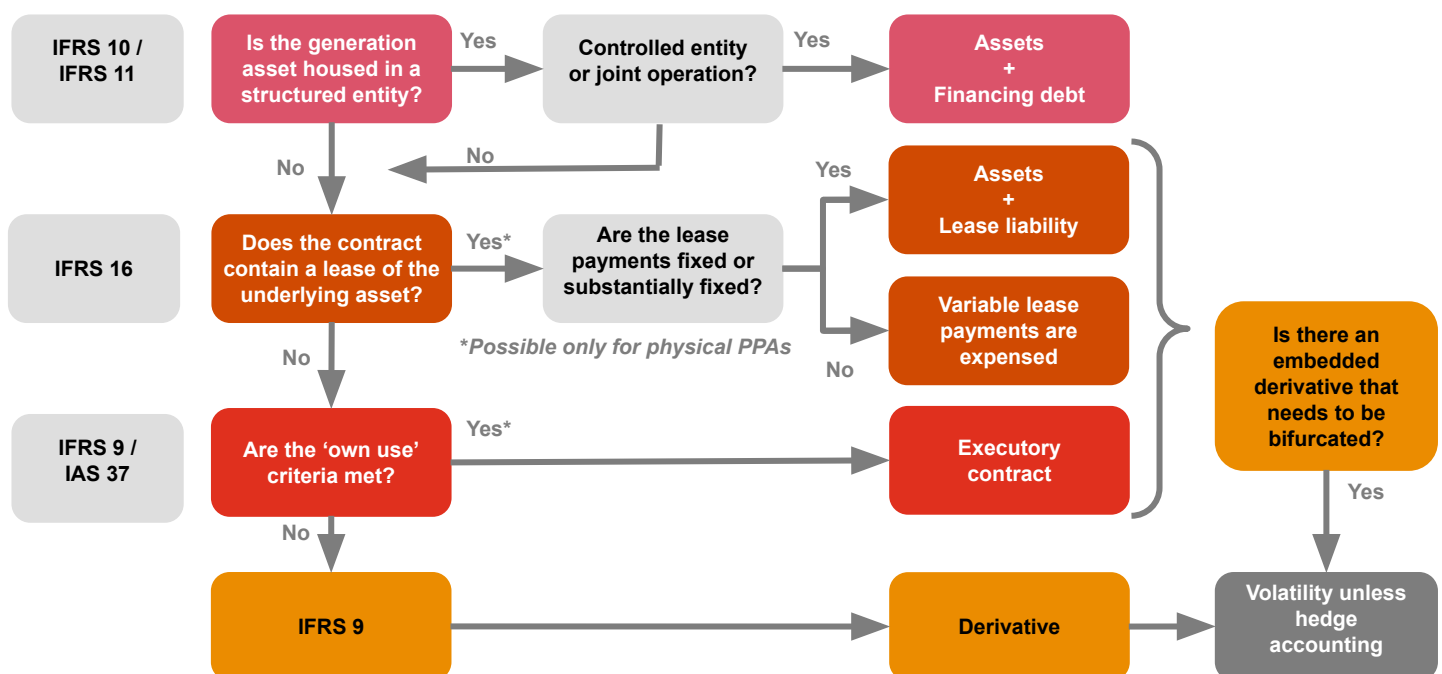
Often, power is bought and sold through a power grid – that is, all power producers contribute power into a power grid, and all consumers purchase the power through that grid. In many cases, the grid operator arranges to buy and sell all power at a 'spot' price.

In such markets, there are various ways in which physical electricity purchases could be arranged. For example:

- A customer might contractually purchase the power at the point of generation (that is, at an interconnection point to a grid or transmission system) and sell the power into the grid at that point at a spot price and instantaneously re-purchase at least the same quantity of power at the site where it requires electricity at the spot price. Where the customer is obligated under the contract to instantaneously re-purchase at least the same quantity of electricity from the grid in which the electricity was contributed, this would be considered physical delivery through an intermediary.
- A generator might arrange to have the power delivered to the customer's account on the grid. Effectively, the customer is considered by the grid to have physically contributed electricity to the grid and does not have to pay the grid operator for that quantity of electricity consumed. This would also be considered physical delivery.

On the other hand, a contract might 'net settle' the difference between a fixed power price specified in the agreement and the spot price for the sale of electricity. In these cases, the generator sells the power into the electricity grid as a principal, and the physical power is not 'delivered' to the customer. The customer might consider that they are notionally purchasing electricity but, because it is not 'delivered' to the customer, it would be considered a financial contract.

Accounting considerations



Consolidation/associate/joint arrangement/service concession arrangement considerations

A customer entering into a contract for the purchase of green electricity should consider whether the counterparty is a special purpose vehicle ('SPV') that it controls, or that it has significant influence or joint control over.

Often, the generator puts each power project (for example, a single windfarm) into a separate legal entity. If a customer is exposed, or has rights, to the variable returns from that legal entity, the customer's relationship with the entity must also be carefully assessed, to determine whether the customer has power over the relevant activities.

In most cases, customers are not exposed, and do not have rights, to variable returns of the entity and do not have power over the relevant activities of the entity. However, if the customer were to determine that it should consolidate the SPV, this would mean that the generation assets of the entity and the related debt would be recorded on the balance sheet of the customer. If the entity represented an associate or joint venture, it would be accounted for as such under the relevant standards.

Additionally, in circumstances where a contract is granted by a governmental body, an entity would also need to consider whether the arrangement would fall under IFRIC 12, 'Service concession arrangements'. However, facts and circumstances relevant to such arrangements often mean that they are not within the scope of IFRIC 12.

For further information on consolidation, associates, joint arrangements and service concession arrangements, please refer to our Manual of Accounting and the related IFRS.

Leasing considerations

Considerations for physical PPAs

A customer should consider whether a contract to purchase electricity is a lease, or contains a lease, to be accounted for under IFRS 16. A lease is defined by IFRS 16 as a "contract or part of a contract that conveys the right to use an asset for a period of time in exchange for consideration".

Where a customer is not physically purchasing substantially all of the output from an identified asset, the contract is unlikely to constitute a lease. Indeed, in practice, customers are often purchasing only a percentage of the output of power produced (for example, 30%).

However, where a customer is physically purchasing substantially all of the economic output of the asset during the contract period (for example, where the aggregate fair value of power and the RECs being purchased during that period constitute substantially all of the fair value output of the facility), a careful assessment of all contractual terms would need to be performed to determine whether the contract needs to be accounted for as a lease under IFRS 16. For further considerations on the definition of a lease, please refer to our Manual of Accounting and to IFRS 16.

Considerations for VPPAs

A VPPA does not result in delivery of electricity 2. The customer of a VPPA is therefore not 'purchasing' substantially all of the output from an identified asset.

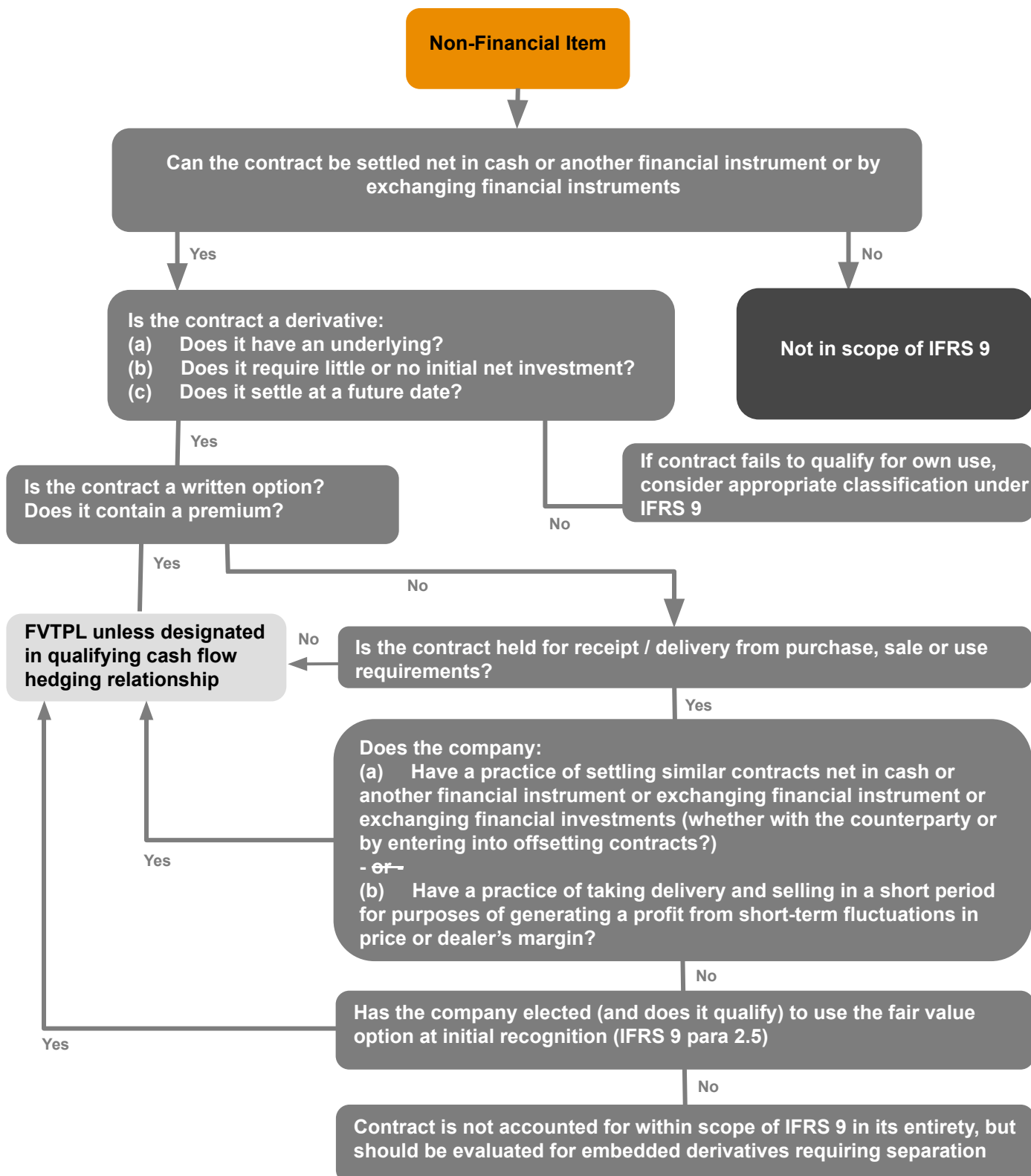
The IFRIC recently considered this issue in its agenda decision, 'Economic Benefits from Use of a Windfarm'.

The issue considered by the IFRIC was an agreement whereby the customer settles with the generator the difference between the fixed price and the spot prices per MW of electricity that the generator supplies to the grid, based on 100% of the volume of power produced by a specified windfarm over a 20-year period. Under the agreement, the customer has neither the right nor the obligation to purchase an equivalent amount of electricity from the grid.

Since the customer had neither the right nor the obligation to take delivery of the electricity (see the discussion under 'Types of arrangement – physical versus virtual PPAs' above), the customer did not have the right to obtain substantially all of the economic benefits from the use of the windfarm. Accordingly, the IFRIC concluded that the agreement did not contain a lease.

IFRS 9 considerations for physical PPAs

If it is determined that a physical PPA does not give rise to consolidation, associate, joint arrangement or leasing issues, the guidance under IFRS 9 must be further considered. If the contract to buy or sell a financial asset is not net settleable, the contract as a whole will be outside the scope of IFRS 9. However, the contract must be further evaluated to determine whether it contains embedded derivatives that require bifurcation. The following flowchart provides a framework for evaluating such arrangements under IFRS 9:



Net settlement considerations under IFRS 9 for physical PPAs

There are various ways in which a contract to buy or sell a non-financial asset can be settled net in cash ('a net settleable contract'), including:

Where the terms of the contract permit either party to settle net in cash or another financial instrument or by exchanging financial instruments. Net settlement means that the entity will pay or receive cash (or an equivalent value in other financial assets), to and from the counterparty, equal to the net gain or loss on the contract on exercise or settlement. Where the ability to settle the contract net is not explicitly stated in the contract, but the entity has a practice of settling similar contracts net in cash (whether with the counterparty, by entering into offsetting contracts, or by selling the contract before its exercise or lapse). For example, a futures exchange permits an entity to enter into offsetting contracts that relieve the entity of its obligation to make or receive delivery of the non-financial asset. Where, for similar contracts, the entity has a practice of taking delivery of the underlying and selling it, within a short period after delivery, to generate a profit from short-term fluctuations in price or dealer's margin. An example is an exchange that offers a ready opportunity to sell the contract. Where the non-financial asset that is the subject of the contract is readily convertible into cash.

In many cases, the power in a physical PPA will be delivered at a point where the underlying power is readily convertible to cash. For example, power delivered at a grid interconnection point or to a customer's grid account can often be readily converted to cash by selling immediately in the spot market. Where a power agreement requires physical delivery at a site where the electricity is not readily convertible to cash (such as a remote customer site), the other conditions for net settlement would still need to be considered.

Net settleable PPAs that have a fixed-price component (that is, they are not solely priced at spot when power is delivered) will generally meet the definition of a derivative in IFRS 9, because their value changes in response to an underlying (that is, electricity prices), the contract requires an initial investment smaller than would otherwise be required (that is, they are not fully prepaid), and they would be settled at a future date.

The definition of a derivative does contain an exception where the underlying is a non-financial variable specific to a party to a contract. However, a contract that contains both a financial variable and a non-financial variable would not meet this exception.

For example, where a contract calls for the purchase of 30% of the output for a windfarm, the volume of power to be delivered will be a non-financial variable specific to a party to a contract, but the value of the contract will be driven both by the volume (a non-financial variable specific to a party) and a financial variable (the forward price of electricity). Accordingly, the non-financial variable exception cannot be used (for further details, see FAQ 40.34.2).

Where it is determined that a contract is a net settleable PPA which meets the definition of a derivative, the entity must consider whether the contract meets the conditions for 'own use'. If the contract does not meet the conditions for 'own use', it will be recorded as a derivative at fair value through profit or loss (FVTPL).

'Own use' considerations for physical PPAs

The first step is to consider whether the contract is entered into, and continues to be held, for the purpose of the receipt of the electricity for the entity's expected purchase, sale or usage requirements.

In considering whether the contract is for 'own use' the entity must also consider the following conditions:

Where the ability to settle the contract net is not explicitly stated in the contract, but the entity has a practice of settling similar contracts net in cash (whether with the counterparty, by entering into offsetting contracts, or by selling the contract before its exercise or lapse). For example, a futures exchange permits an entity to enter into offsetting contracts that relieve the entity of its obligation to make or receive delivery of the non-financial asset. Where, for similar contracts, the entity has a practice of taking delivery of the underlying and selling it, within a short period after delivery, to generate a profit from short-term fluctuations in price or dealer's margin. An example is an exchange that offers a ready opportunity to sell the contract.

Such conditions prevent the 'own use' criteria from being satisfied.

Because electricity is not readily storable, it is often priced in short increments. For example, some markets might price power by the minute or hour.

Often, the entity entering into a physical PPA will not have a need to use the power generated in these increments. For example, consider a manufacturer that enters into a 24-hour-a-day / 7-day-a-week contract to buy 30% of the power produced by a windfarm. The manufacturer only operates on day shifts from 08:00 to 20:00 each day of the week.

Hedge accounting considerations for failed 'own use' contract

Where a physical PPA fails to meet the 'own use' criteria, it would be accounted for at FVTPL unless it qualifies in an effective hedging relationship. A special type of hedge designation called 'all-in-one' hedging might be applicable in such cases.

An 'all-in-one' hedge is the designation of a gross-settled derivative (that is, an instrument which is settled gross by delivery of the underlying asset and the payment of the price specified in the contract, rather than by net settlement of the difference between the two legs) as the hedging instrument in a cash flow hedge of the variability of the consideration to be paid or received in the future transaction that will occur on gross settlement of the derivative contract itself. For further information, see FAQ 46.133.1).

In this case, the hedging instrument would be the failed 'own use' contract, and the hedged item would be the 'purchases' of power under the contract. In a perfectly effective 'all-in-one' hedging relationship of a failed 'own use' contract, the result would be that the contract is recorded at fair value on the balance sheet, but unrealised gains/losses are recorded in other comprehensive income rather than through the income statement. The power purchases would be recorded in the income statement at the fixed purchase price under the forward contract.

Where the purchase is in a different currency from the functional currency of the entity, but would be considered a closely related embedded derivative, all-in-one hedging could fix cash flows in that foreign currency, or the entity might later layer on a foreign exchange derivative, to attempt to fix the cash flows in the entity's functional currency.

However, additional complications might arise in finding a derivative that matches the volumetric variability of the purchase contract. For further information, see FAQ 46.133.3 in our Manual of Accounting.

In March 2019, IFRIC released an agenda decision, 'Application of the Highly Probable Requirement when a Specific Derivative is Designated as a Hedging Instrument'. This agenda decision highlighted that the hedged item must be highly probable in all cases, even where the hedging instrument is designed to perfectly mimic the hedged item.

For example, an entity that obtains a contract to purchase a proportion of the output from a windfarm will be subject to variability in the quantity of power that it is required to purchase under the contract. Although the contract economically represents a perfect cash flow hedge of the power to be purchased (that is, because the contract itself is subject to the same variability as the physical power), the IFRIC decision highlights that only the highly probable volume of purchases expected under the contract can be designated. Accordingly, generation in excess of the quantity designated will give rise to ineffectiveness.

For further information concerning the IFRIC decision on the application of the highly probable criteria, see FAQ 46.83.9.

Hedging can be a complex area, and entities should consider consulting further with their professional advisors if they are contemplating designating an 'all-in-one' hedging relationship.

Example

An entity enters into a fixed-price contract for the purchase of electricity that fails to qualify as 'own use', and it is accounted for as a derivative because power for certain hours is expected to be in excess of consumption needs and will be sold in the spot market.

In this case, the entity could designate the derivative contract as a hedging instrument in a cash flow hedging relationship of the highly probable forecast physical purchases under the contract.

Note that the sale in the spot market does not prevent the designation in a cash flow hedge, because the entity is meeting its hedging objective to fix the cash flows of the purchases of electricity, and the actual sale or usage is not a factor within the scope of the hedging relationship.

Assuming that all of the other qualifying criteria for hedge accounting are met, this will usually result in the majority of fair value gains and losses during the life of the contract being recorded in other comprehensive income, and the net fair value gain/loss being recognised as an adjustment to the cost of the power purchased.

However, because only the highly probable purchases of power can be designated as part of the hedged item, some ineffectiveness will arise.

IFRS 9 accounting considerations for VPPAs

Many VPPAs are more properly considered 'mixed PPAs', because the entity purchases 'physical' RECs (that is, it obtains the actual certificates that it can resell or retire/cancel) and it financially settles the 'electricity'. A VPPA should still be evaluated to determine if it qualifies for consolidation, associate or joint venture accounting or for lease accounting, but generally the conditions to qualify for such accounting will not be met.

VPPAs require careful determination of the host contract and assessment of embedded derivatives.

Host contract determination

The host contract is for the purchase of a non-financial item: the RECs. Where the RECs are considered readily convertible to cash, or the host contract is otherwise net settleable, that host contract will need to be evaluated to determine if it qualifies for the 'own use' exception. For further information on net settlement and derivative considerations, see '3. IFRS 9 considerations for physical PPAs' above.

Generally, if the RECs are being purchased by the entity for cancellation, the host REC contract is likely to be an 'own use' contract under IFRS 9. On the other hand, if the entity is engaging in trading of RECs (that is, it is purchasing for resale on a short-term basis or otherwise net settling in cash), the host REC contract will likely not qualify for 'own use' under IFRS 9.

Once it is determined that the host contract is not accounted for as a derivative (that is, it is not net settleable, or it is net settleable but qualifies for 'own use'), the pricing formula for the purchase of RECs must be evaluated to determine if it contains embedded derivatives that require separation.

Some contracts outside the scope of IFRS 9 might contain price clauses that modify the contract's cash flows. It is necessary to establish whether the underlying in a price adjustment feature is related or unrelated to the cost or fair value of the goods or services being sold or purchased in assessing the 'closely related' criterion.

In this case, although the entity is only taking delivery of RECs, the pricing formula is based on the exposure to power prices that the entity is not consuming. A non-closely related embedded derivative, related to a floating-for-fixed electricity swap, is therefore bifurcated and measured at FVTPL. The embedded derivative is not closely related, because the entity is creating leverage for the purchase price of RECs with the risk of the underlying electricity generation.

Put another way, if an entity were to hypothetically purchase RECs separately from the electricity on a stand-alone basis, the gross exposure to electricity prices would not be present in that contract. The generator might sell RECs on a stand-alone basis to one counterparty and enter into a separate stand-alone contract with a different counterparty to fix the price of electricity generated. Hence, the pricing formula for the RECs purchased that references electricity is 'leveraged', in the sense that there is exposure to electricity in the contract where no electricity is being delivered under the mixed PPA.

As an alternative to separating the embedded derivative, an entity could elect, in accordance with paragraph 4.3.5 of IFRS 9, to account for the hybrid contract in its entirety at FVTPL.

Example

Company A, with three other parties, enters into a VPPA with an energy producer which is building a new windfarm in Finland at a fixed rate of €25/MWh. Company A and the three other parties have no significant influence, joint control or control over the energy producer. Company A's main production location is in the Netherlands. Company A and the three other parties each take 25% of the output of the windfarm individually. Company A receives RECs for its share of the output, and it has determined that it does not take physical delivery of the power. The power produced by the windfarm is sold directly by the generator to Finland's local electrical grid. Company A enters into this agreement in order to utilise the RECs, to meet its newly adopted climate change objectives. The contract is settled monthly, based on the Nordpool region FI energy price. When the Nordpool region FI energy price is below €25, company A will have to pay the difference; when it is above the strike price, company A will receive the difference.

It is determined that the average forward price of generated power from the windfarm without RECs would be €20. Accordingly, the contract is viewed as a host contract for the purchase of RECs at €5 per MWh, and an embedded derivative is bifurcated for the forward contract settling the difference between €20 and the spot price of generated electricity.

Hedging considerations for VPPAs

An embedded derivative that is separated from a contract might qualify as an eligible hedging instrument. Therefore, where the embedded electricity swap is separated from the 'own use' (or non-net settleable) host contract for RECs, the embedded derivative could be designated in a cash flow hedging relationship. However, the usual sources of ineffectiveness might arise for such contracts, such as location/basis differences and timing differences.

In addition, because of the March 2019 IFRIC agenda decision, 'Application of the Highly Probable Requirement when a Specific Derivative is Designated as a Hedging Instrument', only highly probable purchases of physical electricity can be designated as the hedged item. Therefore, if there is variability in the highly probable quantity of electricity purchased for operational needs, compared to what is required to be settled under the embedded derivative (which will vary, for example, based on wind production), ineffectiveness can arise. The unit of account for the 'highly probable' test needs to be carefully considered, and should be reasonable in relation to the electricity pricing mechanism.

In some cases, sources of ineffectiveness might be so great that the hedge will not qualify for designation or will have to be de-designated.

To the extent that the entity designates the hybrid contract at FVTPL rather than separating the embedded derivative, or to the extent that the host contract does not meet the conditions for 'own use', hedge accounting (if achievable) will be more complex to apply, because the fair value of the hybrid contract measured at FVTPL contract will contain exposure to both power prices and REC prices.

Accounting for purchased RECs

'Physically purchased RECs' on hand are intangible assets under IAS 38, although they fall within the scope of IAS 2 where the definition of 'inventory' is met. Where the RECs are held for resale or consumed in the process of production of inventories (for example, an input cost in the manufacturing of a product), they are more likely to meet the definition of 'inventory'.

RECs accounted for under IAS 2 or IAS 38 will be recorded at cost on initial recognition. In a physical PPA, the purchase price being paid will need to be allocated between electricity and RECs. In a VPPA where the host contract for RECs is accounted for as 'own use', the initial cost will be determined based on the host contract.

When the RECs are used by the entity (for example, cancelled), they are derecognised and recognised as a cost of purchased electricity – or another appropriate line item, depending on the policies adopted for the entity's income statement presentation in accordance with IAS 1.



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