PPA’s in Japan

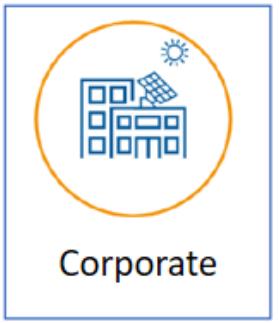
X-ELIO

PPAs – Key concepts

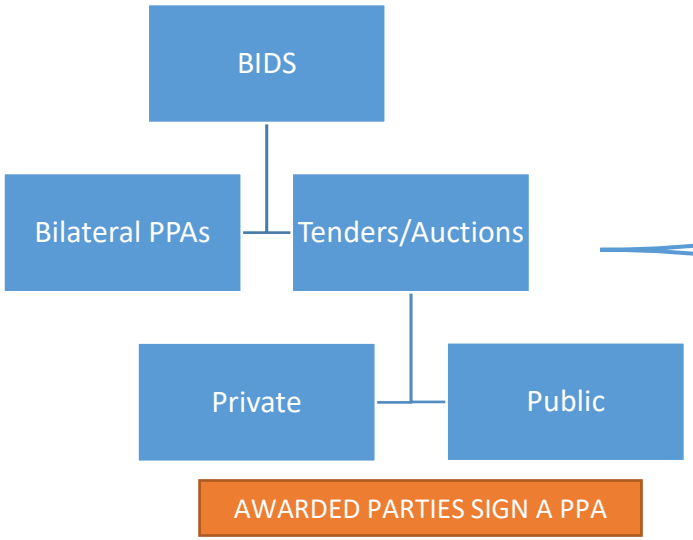
What's a PPA?

A power purchase agreement (PPA) is a contractual agreement between energy buyers and sellers. They come together and agree to buy and sell an amount of energy which is or will be generated by a specific renewable project. PPAs are usually signed for a long-term period between 10-20 years.

Who's the buyer?



How can I sign a PPA?



Tender phases:

- EOI (Expression of interest)
- RFQ (Request for Qualification)
- RFP (Request for Proposal)
- PPA execution

PPA Key Drivers

For a renewable asset owner/developer:

A PPA allows renewables projects to increase their level of revenue certainty. Normally, this would not be possible in fluctuating energy markets in absence of a government incentive.

A PPA:

- **Enables the financing of their renewable project by lenders.** Banks request renewable energy developers to close a long term PPA (>10 years), securing revenue, for at least a 75% of the generation of the plant.
- Reduces risks by efficiently allocating them among the contractual parties

For an energy buyer:

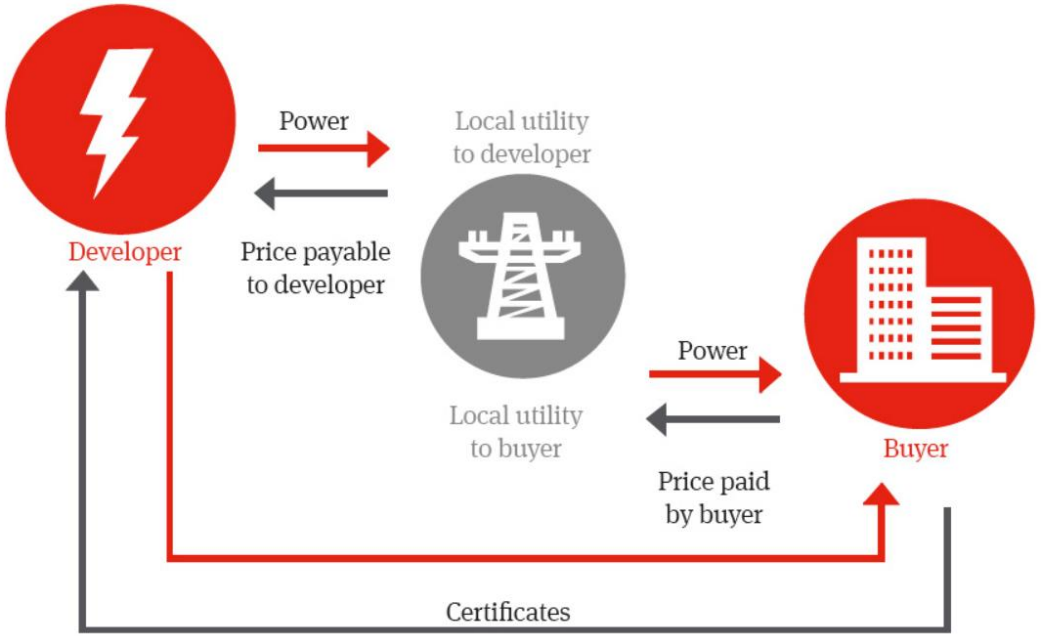
- Assures fixed long-term costs – discount in respect of the forward electricity price
- ESG targets or % renewable energy obligations – off-site renewable help Buyer's to achieve ambitious targets by the purchase of environmental attributes.
- Improves their brand or social license by supporting new renewable energy.

For the lender:

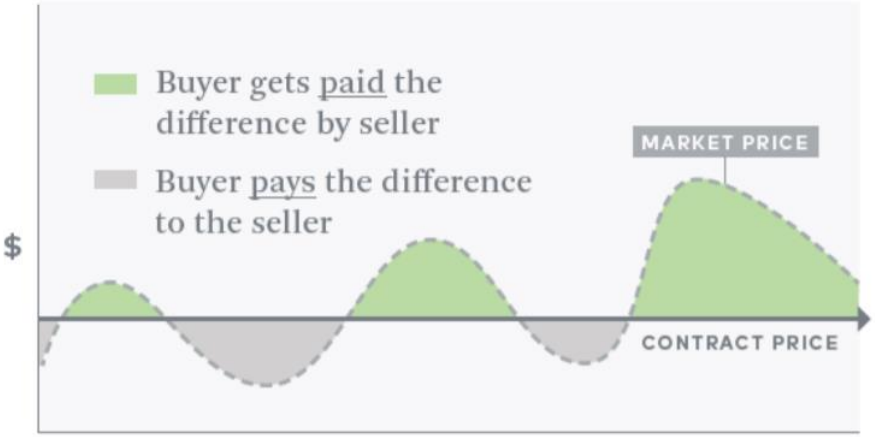
- Offers revenue certainty, as an amount of energy has been sold in advance at an agreed price
- Allow for the claim of their contribution to the renewable industry

Typical PPA in other regions - example

Virtual/ Financial PPA



PPA price incl. certificate price minus price payable to developer



	Hour 1	Hour 2	Hour 3
VPPA Price	$30.00	$30.00	$30.00
Market Price	$35.00	$28.00	$32.00
Difference	+$5.00	($2.00)	+$2.00
Project Output	100 MWh	115 MWh	200 MWh
Settlement	+$500	($230)	+$400
Payment	Seller Pays	Buyer Pays	Seller Pays
Net Settlement: Seller Pays Buyer $670			

- They do not involve the physical delivery of output to the Buyer.
- Buyer guarantees fixed price for renewable energy and receives Environmental Attributes from Seller
- The PPA is financially settled - the parties agree a strike price, with payment flows being determined by comparing that strike price against a market reference price. Please refer to the table for an example

Typical PPA in other regions - example

Key PPA points of a standard PPA (examples)

- PPA type: Virtual PPA (VPPA) between Buyer and Seller for the purchase of energy + green certificates during [10-20] years.
- PPA Start Date: Commercial Operation Date. Seller shall use reasonable efforts to achieve COD by the Target COD, extended up to [ ] days due to FM.
- Delay Damages: Seller to pay Delay Damages until the earlier of COD and termination of the agreement. Delay Damages = [ ] /day, with a cap of [ ].
- Products:
    - Generated production: for each Calculation Interval (eg: 1 h), [ ]% of all sent out electric Energy generation from the Facility, as determined by the relevant certified meter located at the Facility, during such Calculation Interval (expressed in MWh)
    - Green certificates associated to Generated Production
- VPPA Price: [ ] /MWh escalated at [ ]% on each COD anniversary
- Minimum Volume: The "Minimum Generated Production" for each calendar year during the PPA Term will be [ ] MWh. The Minimum Generated Production will be reduced to the extent generation is limited due to the effects of Force Majeure events. If there is a shortfall in the Minimum Generated Production, the Seller will pay to the Buyer liquidated damages calculated as the difference between the PPA price and the market price, multiplied by the shortfall.
- Transfer of Green Certificates: subject to the creation and transfer process in each country
- Invoicing and Payment: Seller to deliver an invoice to Buyer within [ ] days after the end of each calendar month, reflecting the amounts due. Within [ ] days after receipt of invoice, by electronic funds transfer, or by wire transfer, as designated by the owed Party.
- Operations and maintenance: standard requirements about non emergency maintenance shutdowns and reporting obligations

Typical PPA in other regions - example

Key PPA points of a standard PPA (examples)

- Negative Pricing Event: define what happens in case the market price is below 0 $ (eg: settlement considering a market price of 0)
- Seller/Buyer Credit support: if a Party doesn't have an acceptable credit rating (usually Investment Grade), such Party should issue a bank guarantee in amount of one year of revenue under the PPA, or a Parent Company Guarantee from an Investment Grade company. Usually credit amount is higher before the plant achieves COD, to be replaced once the plant enters into operation.
- Default events / Early termination: some examples of Events of Default that may result in the PPA termination:
    - If the plant doesn't achieve COD by a certain date (to be agreed between the parties), the Buyer will be able to terminate the PPA
    - If the Seller doesn't meet minimum volume requirements [ ] years in a row
    - Financial defauls: the required credit support is not in place, non payment of an owed amount
- Termination payment: in case of early termination, the Non Defaulting party would have to pay an Early Termination Amount, to be agreed between the parties. As an example, it could be calculated as the mark to market for the remaining term (i.e, the difference between the PPA price and the market price forecast).
- Other relevant clauses to be considered:
    - Notices and Formal Communications
    - Assignment – permitted assignments under the PPA
    - Change of Control – permitted Change of Control under the PPA
    - Market disruption event and Change in Law – mechanisms in place to balance original parties position
    - Force Majeure – usually affected party excused from obligations
    - Taxes

PPAs – key points

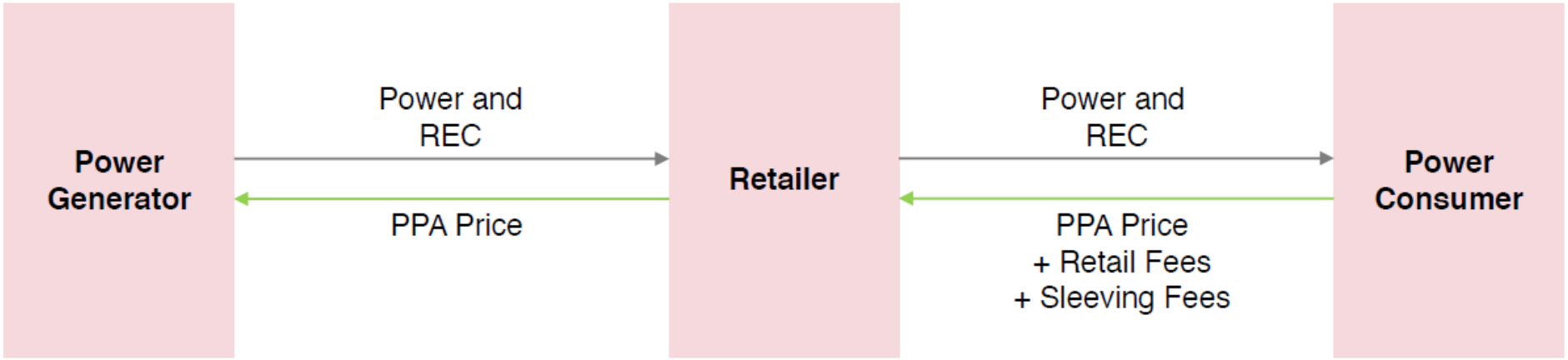
	Key aspects
PPA Price	• There are different price structures – fixed price, floor, collar, hybrid structure (fixed price + collar), etc
Counterparty	• Credit rating / Financial strenght of the Buyer (bankability)
PPA Term	• Long term PPAs > 10 years
PPA Volume	• As produced/ Fixed volume
Products	• Bundled PPA (electricity + Green certificates)
PPA Start Date	• Generator preference is that the PPA starts at Commercial Operation Date
PPA Term	• Minimum 10 years so the PPA is bankable
Annual Minimum	• Between 80 - 90% of the project output
Events of default	• Each party can terminate the PPA if the other party doesn't meet its obligations. Examples: - Supplying less than the 50% of the annual PPA volume - Non payment of the settlement amount
PPA Termination	• In case of Event of Default, the Non defaulting party can terminate the contract and the Defaulting party has to pay a Termination Amount
Other key clauses	• Force Majeure, Change in Law, O&M, Reporting,…
Typical clauses in Japan	• Offtakers are usually covering wheeling charges and sleeving fees in their contracts • Market access is assumed to be at the cost of the generator • No reference for curtailment treatment in Japan; however, market price during curtailment is often 0¥/kWh, which limits the impact on CPPA

PPA's trend

- While virtual CPPAs are starting to attract attention, physical CPPAs are currently prevalent in the Japanese market.
- The Japanese government started providing subsidies to promote CPPAs: the Ministry of Environment secured an 18.6-billion-yen budget to subsidize installation cost of power plants, EMS, private grids, etc. related to onsite and offsite CPPAs. For offsite CPPAs, the government will subsidize 1/3 of the hardware costs with an upper limit of 150 million yen/project; before applying, an offtaker needs to be secured.
- Japanese corporations are increasingly pledging to carbon neutrality and looking into ways to procure CO2-free power for their activities
- Physical corporate PPAs are being signed, with onsite PPAs being the most common; those deals can also be packaged with power retail, offering a one-stop shop for the consumer's power needs without the need for initial investment
- Virtual PPAs have not picked up yet; but some corporates are already actively looking for such deal.

Physical vs Financial CPPA's Japan I

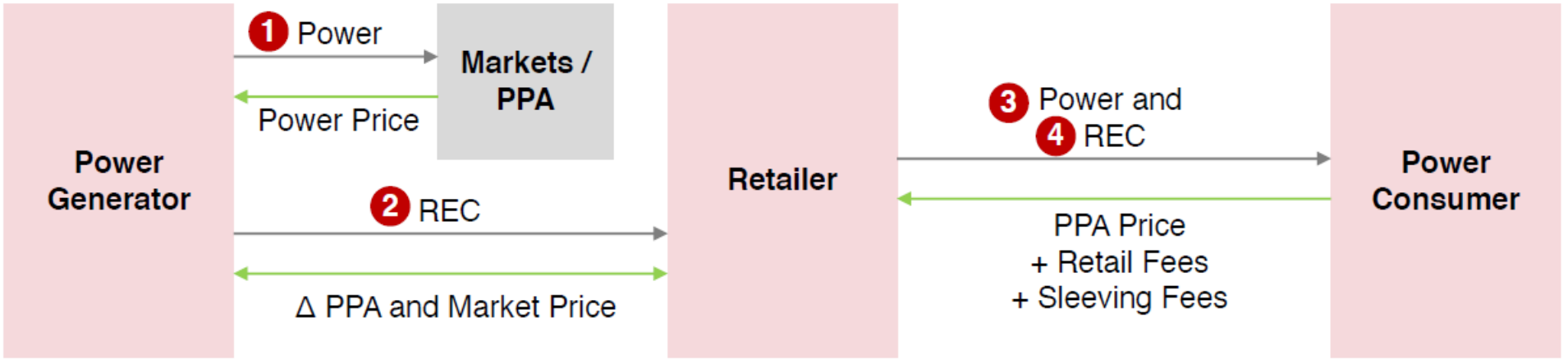
Physical CPPA:



- In an offsite physical corporate PPA, a power generator sells its power and RECs to a power consumer; a retailer needs to be involved.
- The Retailer is necessary to sleeve the power and to provide the Consumer with power during periods when the Generator's generation is insufficient
- The Consumer pays the Retailer the PPA price plus retail and sleeving fees and the Retailer pays the PPA price to the Generator.
- The key benefits is that it's relatively simple to execute deal structure, well understood by most Japanese market players.

Physical vs Financial CPPA's Japan II

Virtual/ Financial CPPA



- The Power Generator sells its power on the market (JEPX, PPA,…) and its RECs to the Retailer
- The Retailer provides power and the RECs to the Consumer
- The Consumer pays the Retailer the PPA price plus retail and sleeving fees; the Retailer in turn pays (or gets paid) the difference between the PPA price and the power market price
- Key benefits: The Power Generator has more flexibility in selling its power, the power consumer can continue on its existing retail contract scheme, and Cross-regional transactions are easier to implement.

Thank you

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