

Renewable Electricity Procurement Guidebook Digest Edition

Ver. 4, January 2021



Renewable Energy Institute

Objective and Background

- “Renewable Electricity Procurement Guidebook” is revised every year for helping corporate energy users to procure renewable electricity in efficient ways in Japan.
- This Digest Edition is prepared in English for global corporate energy users to understand procurement methods available in Japan and find criteria of selection.
- The content covers the latest trends of Onsite Generation, Green Products, Renewable Energy Certificates and Long-term Investment (Corporate PPA) with typical examples of the leading corporate energy users.
- There are issues for procuring renewable electricity in terms of cost and availability, but the situation has been improving and accelerating corporate actions.

Major Procurement Methods in Japan

Method	Description	Features
Onsite Generation	Construct renewable energy power plant and consume generated electricity internally	<ul style="list-style-type: none"> ▪ Initial investment necessary or 3rd party owned ▪ Low-cost renewable electricity secured ▪ Environmental aspects of power plant identified ▪ Risks of trouble in operation
Green Product	Purchase renewable electricity from registered retailer	<ul style="list-style-type: none"> ▪ Short-time contract available ▪ Specific power sources unidentifiable (some cases) ▪ Higher tariff than standard products (many cases)
Renewable Energy Certificate	Purchase certificate derived from renewable electricity	<ul style="list-style-type: none"> ▪ Separated from physical procurement ▪ Specific power sources unidentifiable (some cases) ▪ Additional cost on top of electricity procurement
Long-term Investment (PPA)	Invest renewable energy development and receive electricity and/or attribute	<ul style="list-style-type: none"> ▪ New renewable electricity added ▪ Retailer involved in 3-way contract for PPA ▪ Environmental aspects of power plant identified ▪ Business risks of long-term investment

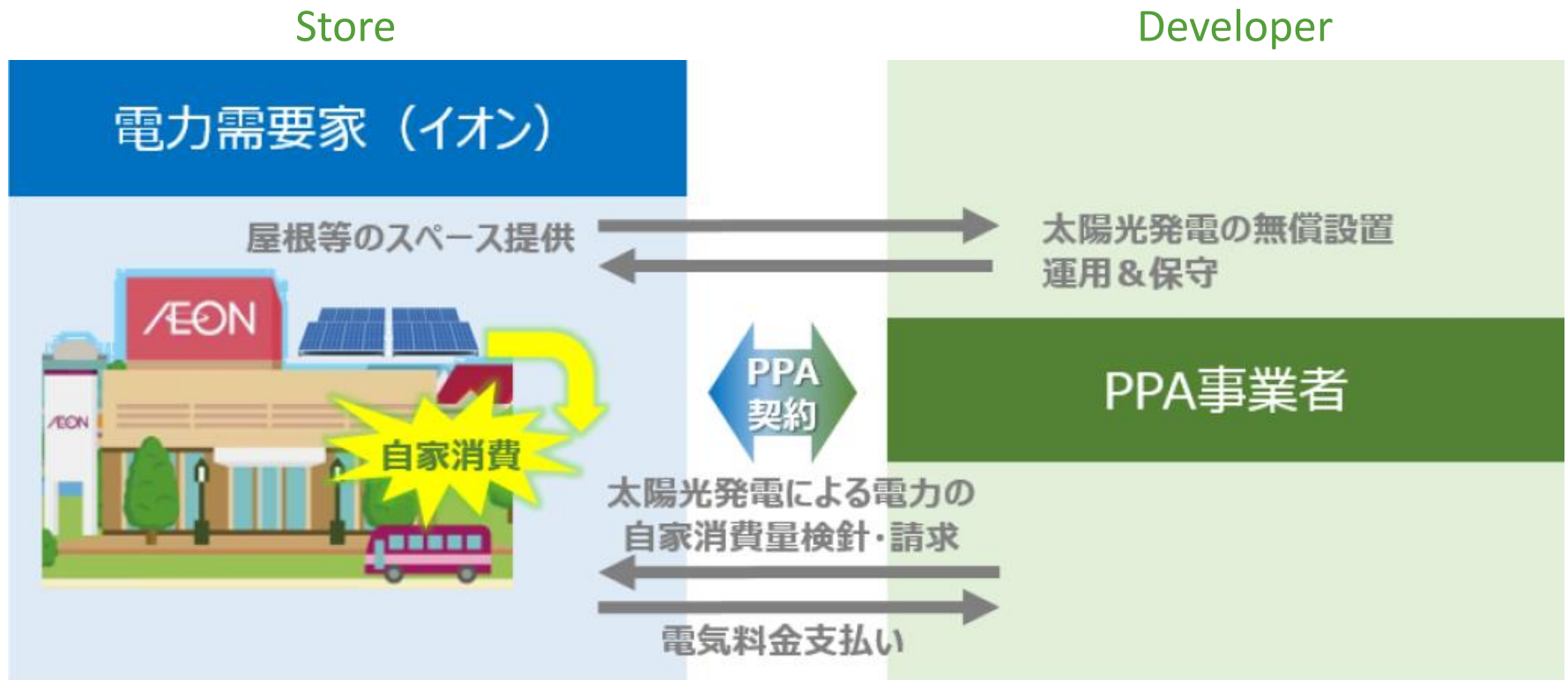
Onsite Generation by Solar



IKEA Nagakute Store, Aichi Pref. --- 1.3MW, self consumption

Source: IKEA Japan

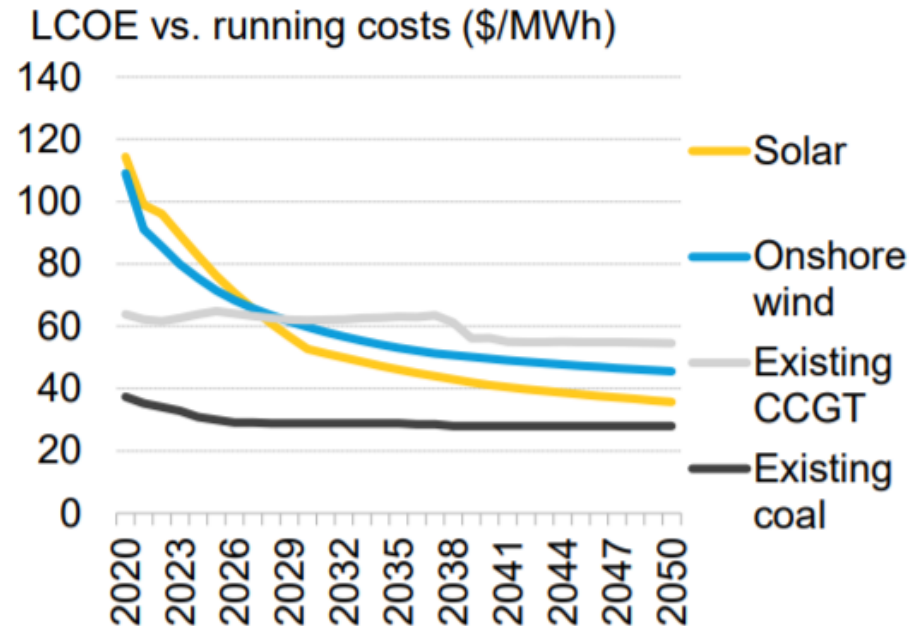
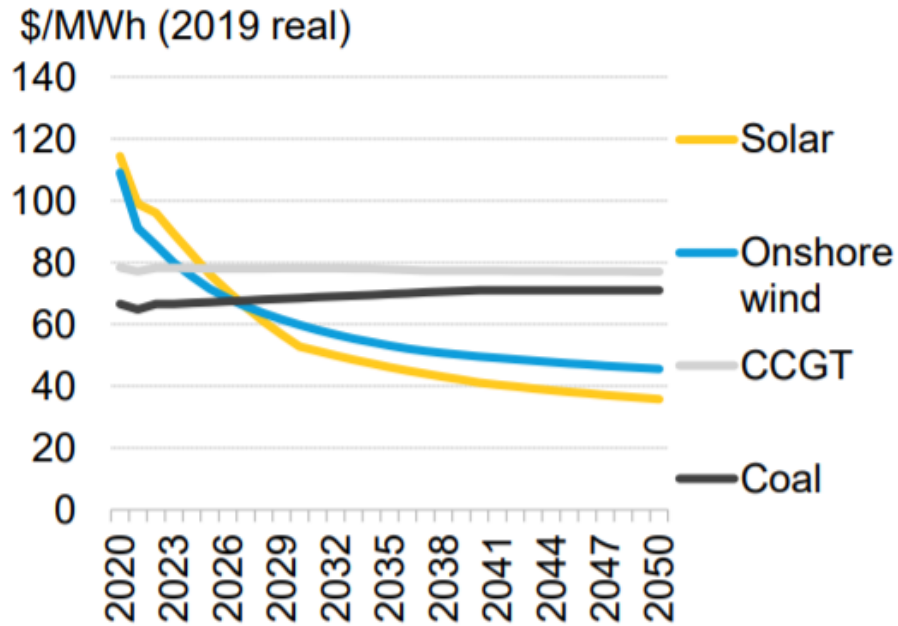
Onsite PPA by Solar



Aeon, Japan's largest electricity user, is planning to expand onsite PPA contracts to 200 locations nationwide since 2019.

Source: Aeon

Generation Cost by Sources



Average electricity tariffs for corporate are around \$170/MWh.

Source: BloombergNEF

Onsite Generation by Wind

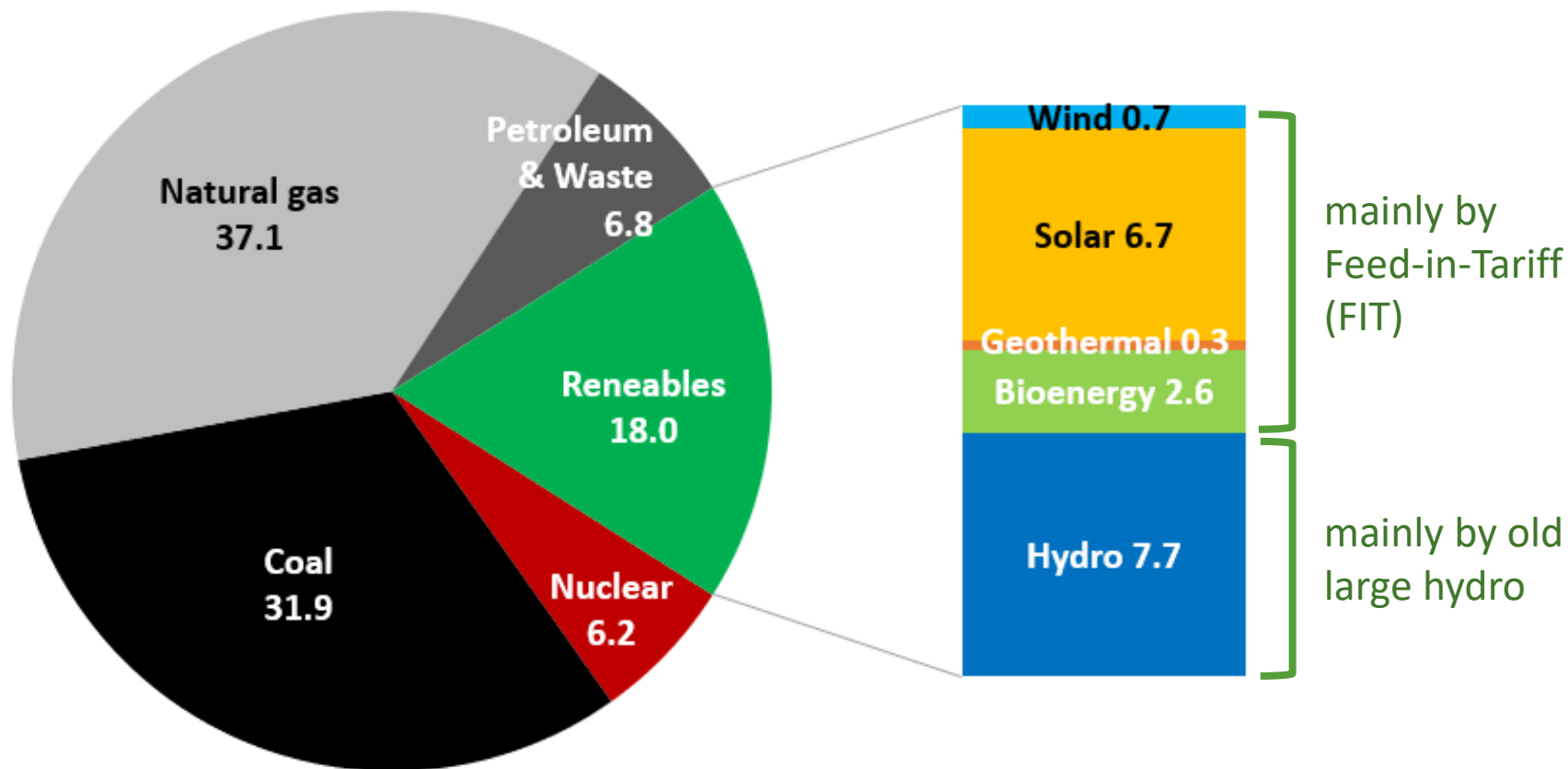


Toyota Tahara Plant, Aichi Pref. --- 26MW, self consumption, to operate in 2021

Source: Toyota Motor Japan

Electricity Generation by Sources

(FY2019, Apr2019-Mar2020)

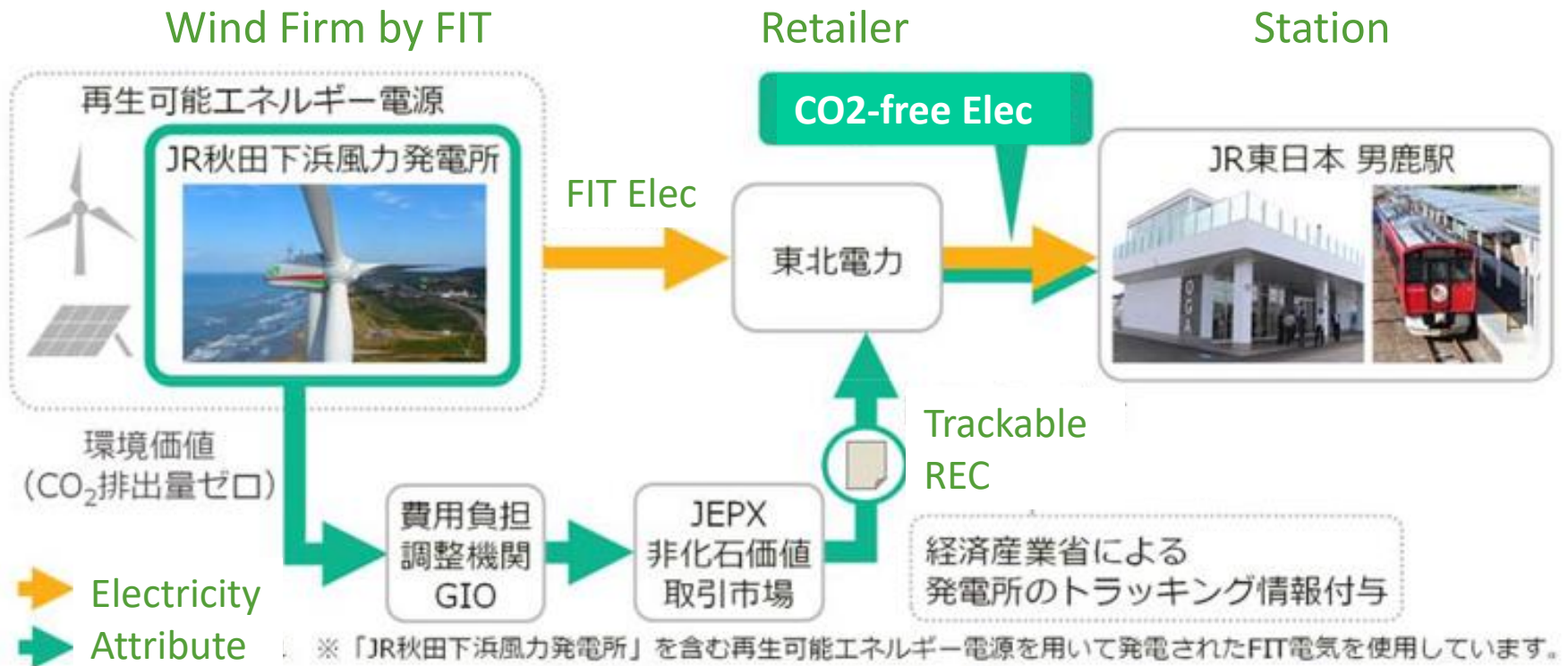


Source: METI

Green Products

	FIT Electricity	Non-FIT Electricity	Hydro Electricity
Source	Renewables certified by Feed-in-Tariff (FIT)	Renewables not certified by FIT	Mainly old large hydro
Provider	Registered retailer	Registered retailer	Regional utility
CO2 Emission	Zero with REC	Zero	Zero
RE100 Criteria	Complied only with trackable REC	Complied	Complied
Available Amount	90 TWh (FY 2019)	14 TWh (FY 2019)	88 TWh (FY 2019)
Additional Price	JPY 1-1.5/kWh with REC (typical case)	JPY 1-1.5/kWh with REC (typical case)	JPY 1-4/kWh with REC (list price)

FIT Electricity with Trackable REC



JR East, Japan's largest railway company, procures FIT Electricity with trackable REC (FIT-NFC) from a retailer to consume CO2 free renewable electricity.

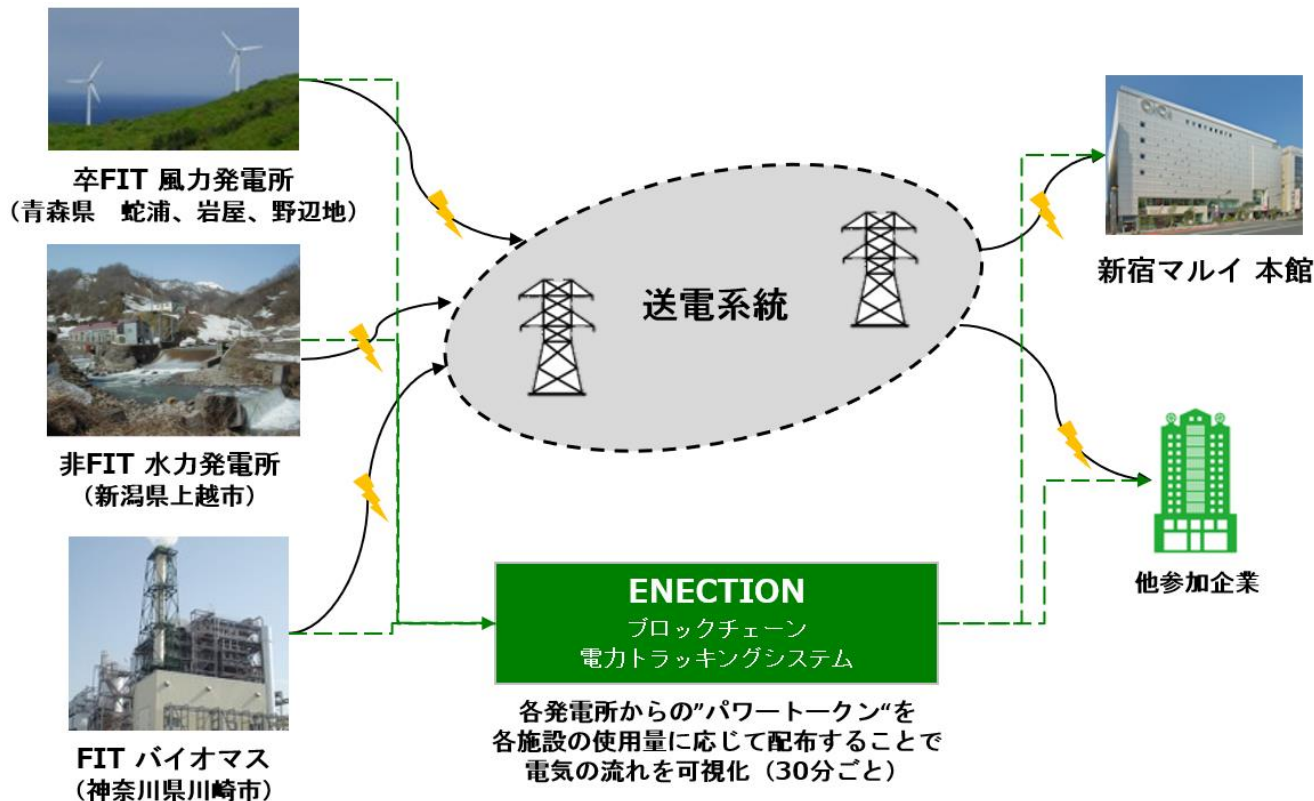
Source: JR East

Non-FIT Electricity by Blockchain

Non-FIT generators

Retailer/Grid

Store



Marui Group, department store franchise, procures Non- FIT Electricity from a retailer with blockchain-based tracking system.

Source: Marui Group

Hydro Electricity from Utility



Sony (left) and Aeon (right) procure Hydro Electricity for the headquarter buildings from a regional utility.

Source: Sony, Aeon

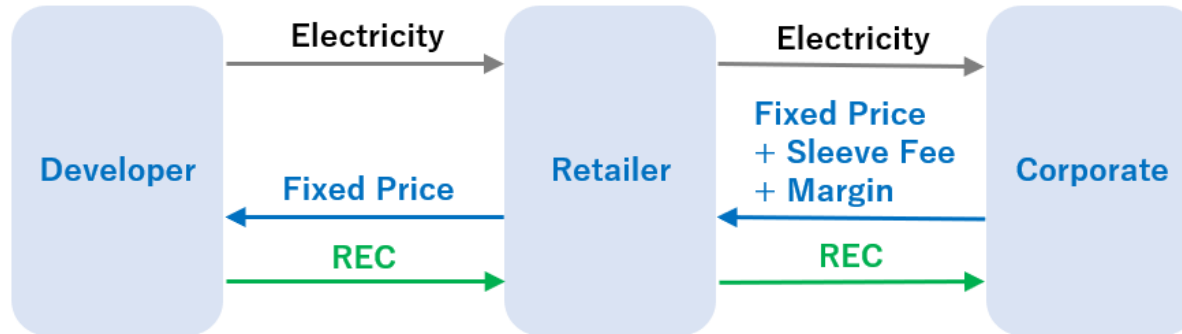
Renewable Energy Certificates

	Green Electricity Certificate	J-Credit (renewable-origin)	Non-Fossil Certificate (Feed-in-tariff)
Issuer	Green Electricity Certificate Issuer	Government	Green Investment Promotion Organization
Source	Solar, Wind, Hydro, Geothermal, Bio (mostly bio)	Solar, Wind, Hydro, Geothermal, Bio (mostly solar)	Solar, Wind, Hydro, Geothermal, Bio (mostly solar)
Purchaser	Any Entity	Any Entity	Only Registered Retailer
Purchasing Method	Direct from Issuer	Auction or from credit owner/broker	Auction at Non-fossil Value Trading Market
Issue Amount	0.3 TWh (Apr 2019 – Mar 2020)	1.1 TWh (Apr 2019 – Mar 2020)	88 TWh (Jan – Dec 2019)
Price	usually JPY 2-4/kWh for bulk purchase	JPY 0.84/kWh (auction in Jun 2020)	JPY 1.3-4.0/kWh

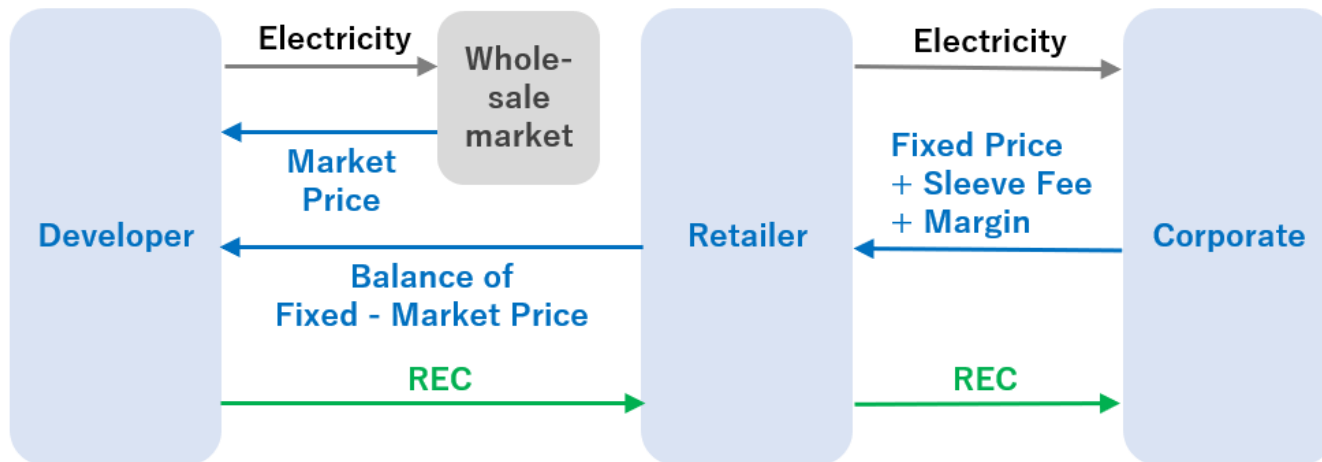
* Non-Fossil Certificate (Non-FIT) is also available from April 2020 including large hydro.

Long-term Investment (Corporate PPA)

[Corporate PPA in Japan - Physical]

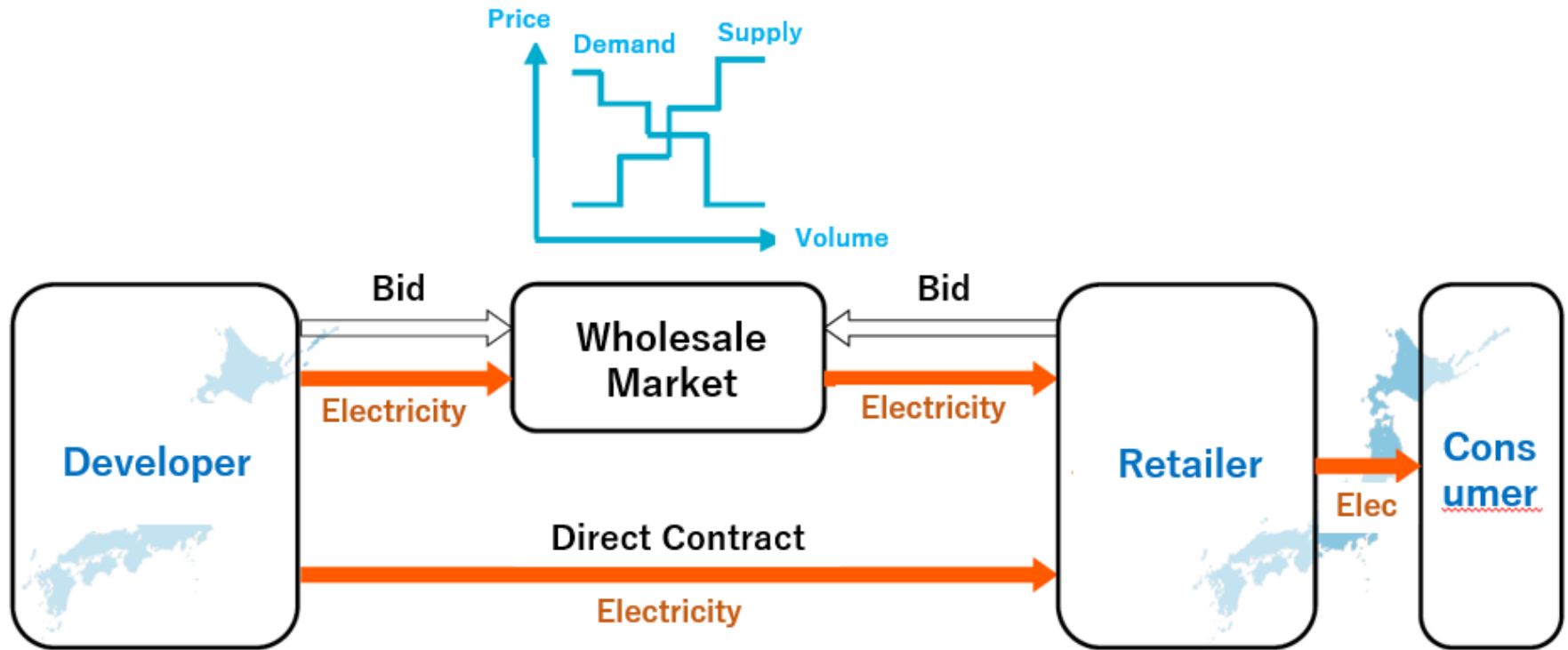


[Corporate PPA in Japan - Virtual]



Corporate PPAs can be made in Japan if a registered retailer works as an intermediary by 3-way contract between generator, retailer and corporate.

Feed-in-Premium from April 2022



Feed-in-Premium will be introduced in April 2022 replacing Feed-in-Tariff for large scale renewable projects. Developers can sell electricity with environmental attributes through the wholesale market or retailers. It will accelerate Corporate PPAs by 3-way contracts.

Source: METI

Key Criteria and Evaluation

Electricity/Certificate purchased	CO2 emission (by Japanese law)	Environmental Impact	Additionality
FIT Electricity	National average	Low	Yes
FIT Electricity with Non-Fossil Certificate	Zero	Low	Yes
Non-FIT Electricity	Zero	Depending on power plant	Depending on power plant
Post-FIT Electricity by household solar	Zero	Very Low	No
Electricity with Non-Fossil Certificate	National average reducible	Depending on power source	Depending on certificate
Hydro Electricity	Zero	Not low (large hydro included)	No
Green Electricity Certificate	National average reducible	Low	Depending on power plant
J-Credit (renewable)	National average reducible	Low	Yes

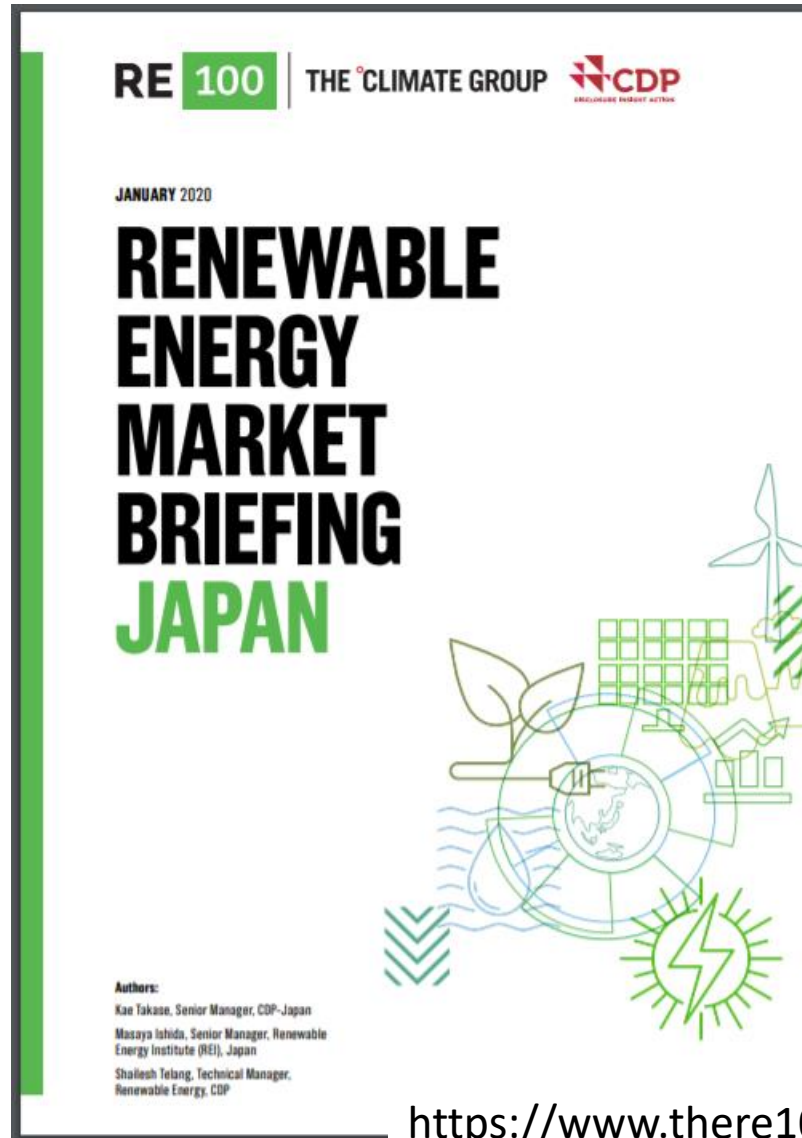
* Additionality is described based on experts' opinions.

Class of Renewable Electricity

	Requirement	Examples	Global Recommendation
Class 3	Generated by renewable energy	▪ FIT Electricity	-
	Zero emission	▪ Electricity with Non-Fossil Certificate	CDP
Class 2	Power plant identifiable	▪ Non-FIT Electricity ▪ Post-FIT Electricity	RE100
	Environmental attribute certified	▪ Green Electricity Certificate ▪ J-Credit ▪ Non-Fossil Certificate with tracking	
Class 1	Additionality	▪ Green Electricity Certificate (new project) ▪ J-Credit (new project) ▪ Non-Fossil Certificate (new project)	Green-e Energy (North America)
	CO2 emission reduced physically	▪ Onsite Generation/Consumption ▪ Long-term Investment (Corporate PPA)	

* Class 1 is most desirable for corporate procurement.

Reference #1



<https://www.there100.org/reports-briefings>

Reference #2

Corporate PPA Guidebook - Japan Section Digest -

October 2020



Renewable Energy Institute

https://www.renewable-ei.org/pdfdownload/activities/REI_GuidebookCorporatePPA_EN.pdf

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