

# Renewable Electricity Procurement Guidebook

- Digest Edition, January 2020 -

---



Renewable Energy Institute

# Objective and Background

- “Renewable Electricity Procurement Guidebook” is compiled for helping corporate energy users and local governments 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 with referring international standards and guidelines.
- The content covers the latest information of Onsite Generation, Green Product, Renewable Energy Certificate and Long-term Investment (Power Purchase Agreement), presenting typical examples of the leading corporate energy users.
- There are several barriers for increasing renewable electricity procurement in Japan, but the situation has been continuously improving in terms of cost and availability.

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

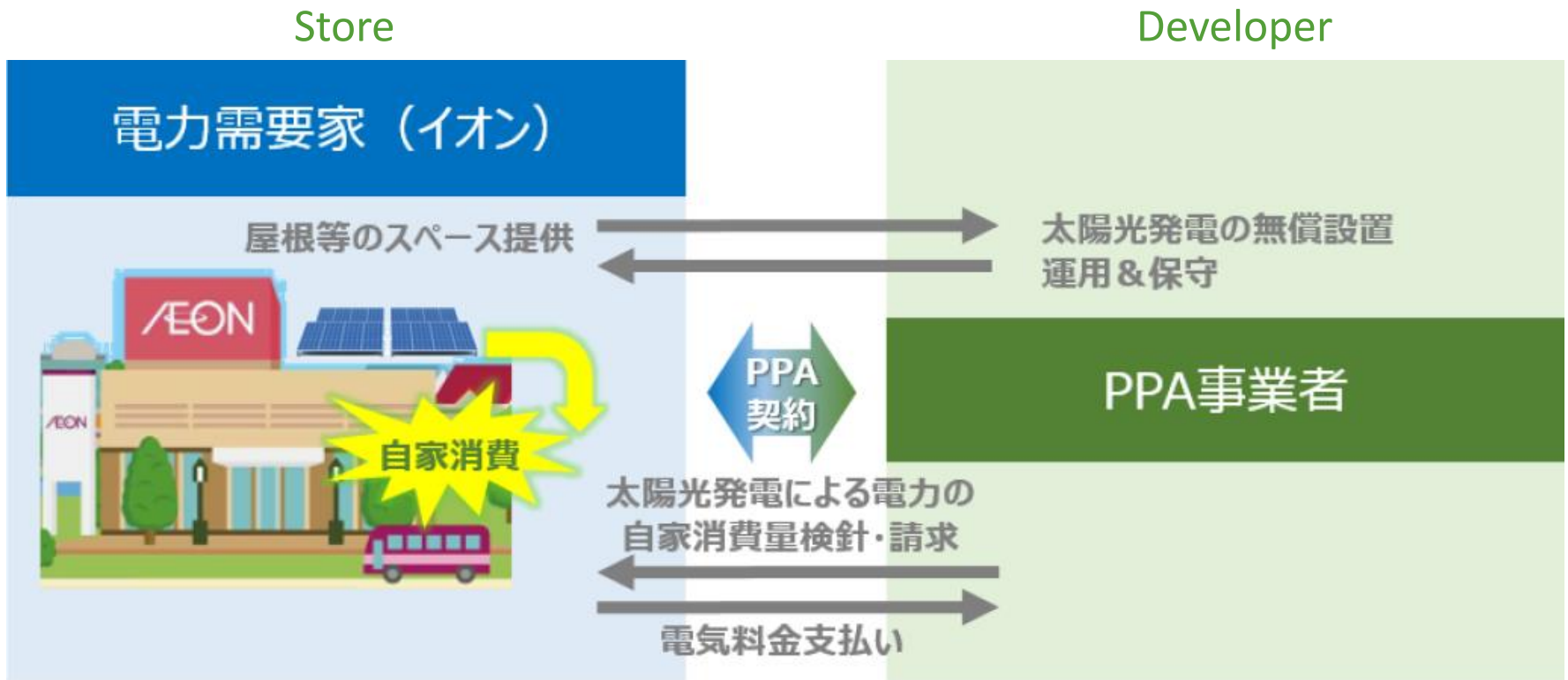
# Onsite Generation by Solar



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

Source: IKEA Japan

# Onsite PPA by Solar

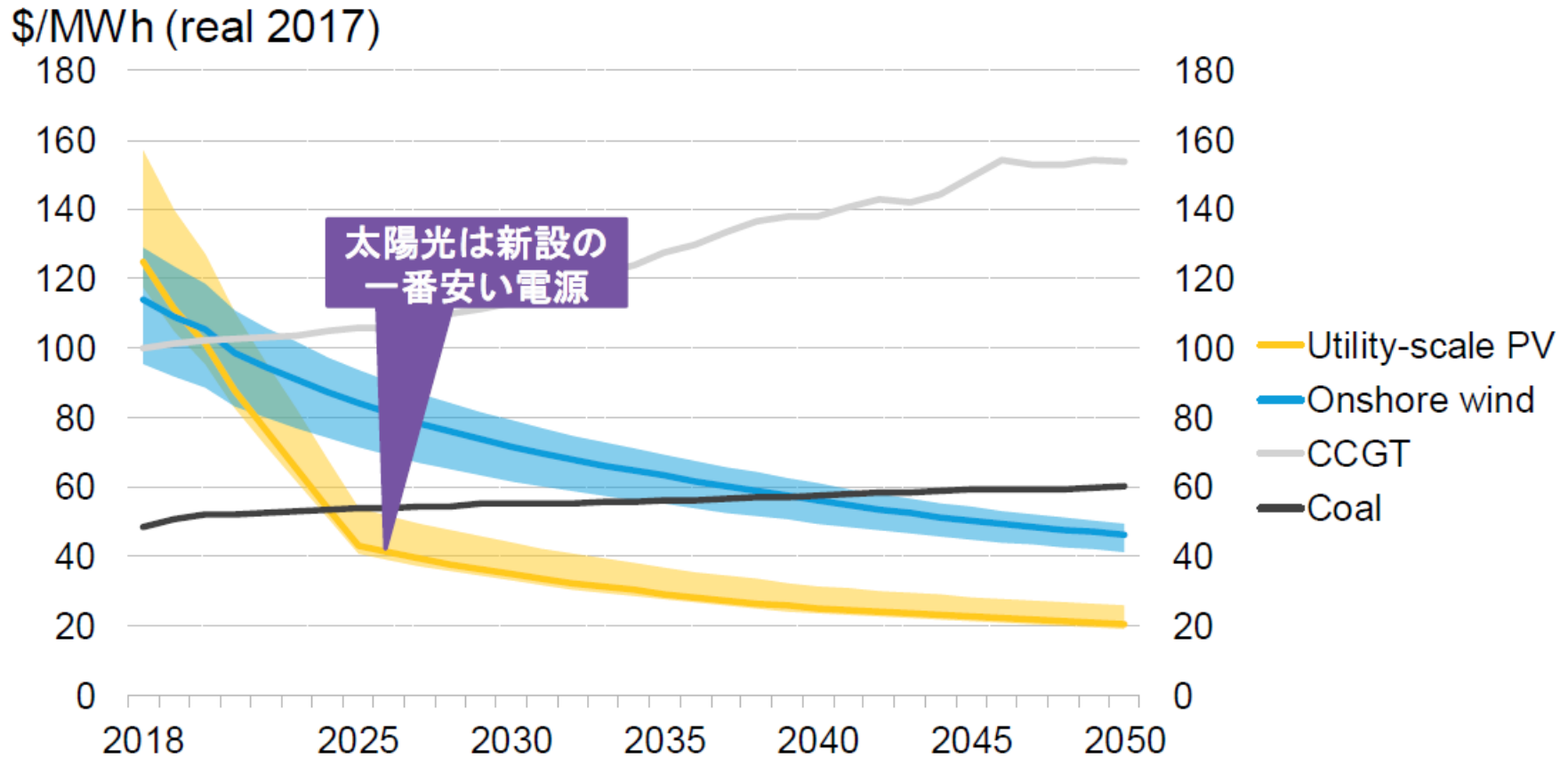


Aeon, Japan's largest electricity user, is planning to expand onsite PPA contracts to 200 locations nationwide from 2019.

Source: Aeon



# Generation Cost by sources in Japan



Average electricity tariffs for corporate users are \$130/MWh.

Source: BloombergNEF

# Onsite Generation by Wind



Toyota Tahara Plant, Aichi Pref. --- 28MW, self consumption, operation from 2020

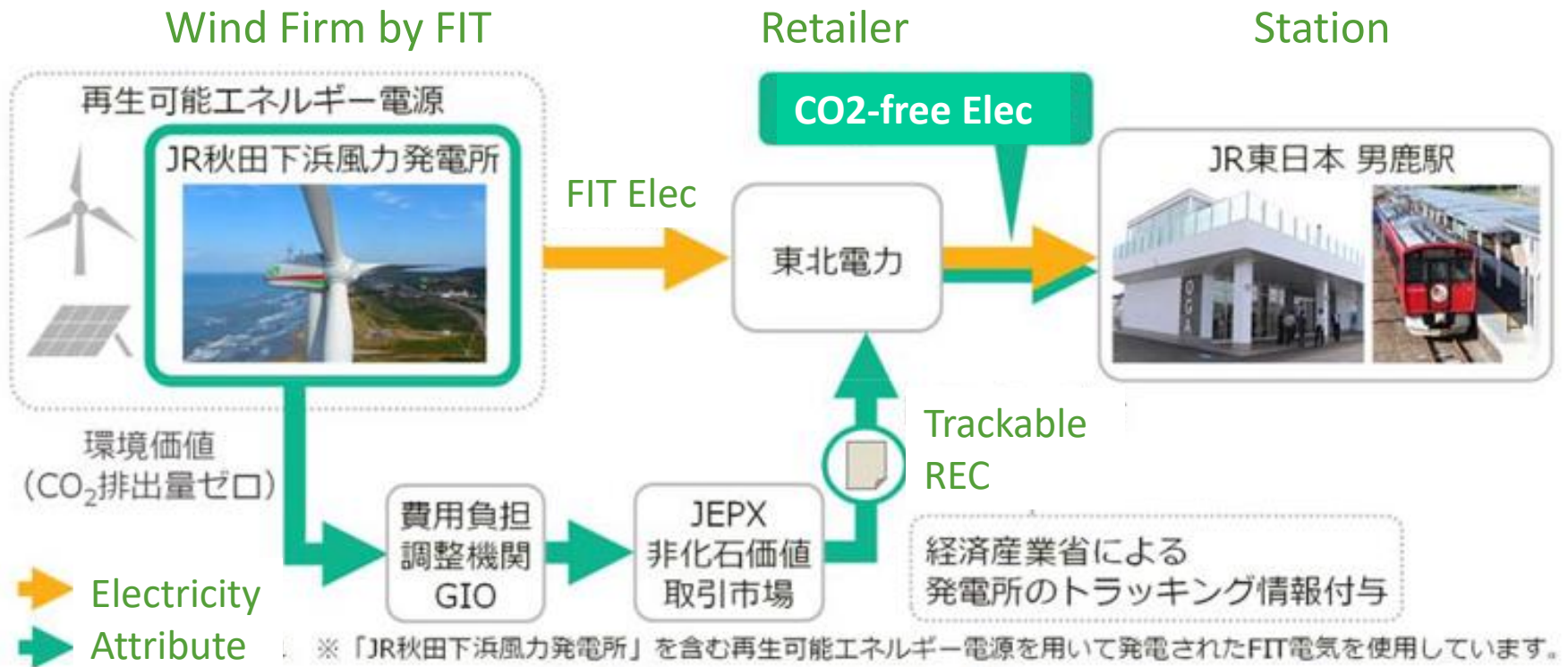
Source: Toyota Motor

# Green Product

	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	National average or Zero with REC	Zero	Zero
RE100 Criteria	Complied only with trackable REC	Complied	Complied
Available Amount	80 TWh (FY 2018)	16 TWh (FY 2018)	81 TWh (FY 2018)
Additional Price	JPY 1-1.5/kWh with REC (typical case)	JPY 1-1.5/kWh (typical case)	JPY 0-4.0/kWh (discount by volume)



# FIT Electricity with Trackable REC



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

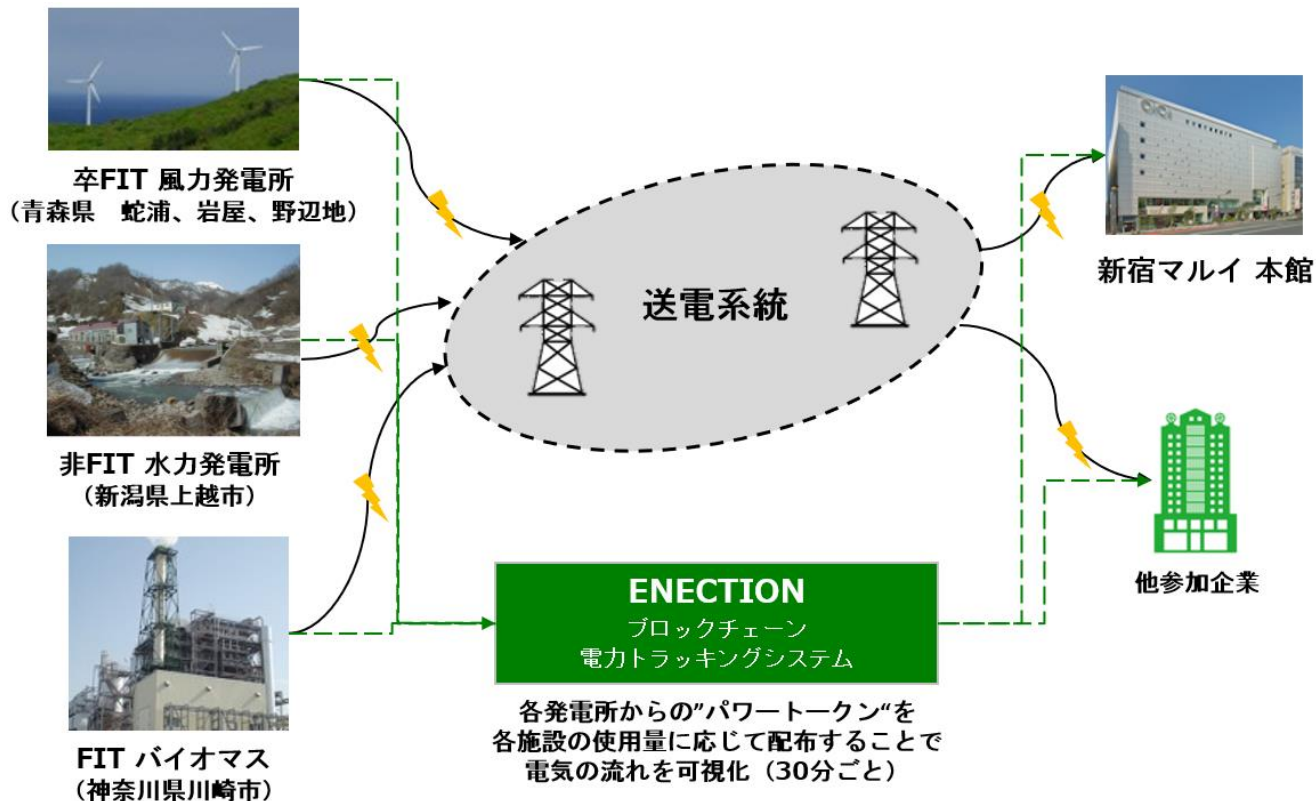
Source: JR East

# Non-FIT Electricity by Blockchain

Non-FIT generators

Retailer/Grid

Store



Marui Group, department store franchise, procures Non- FIT Electricity from 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 regional utility.

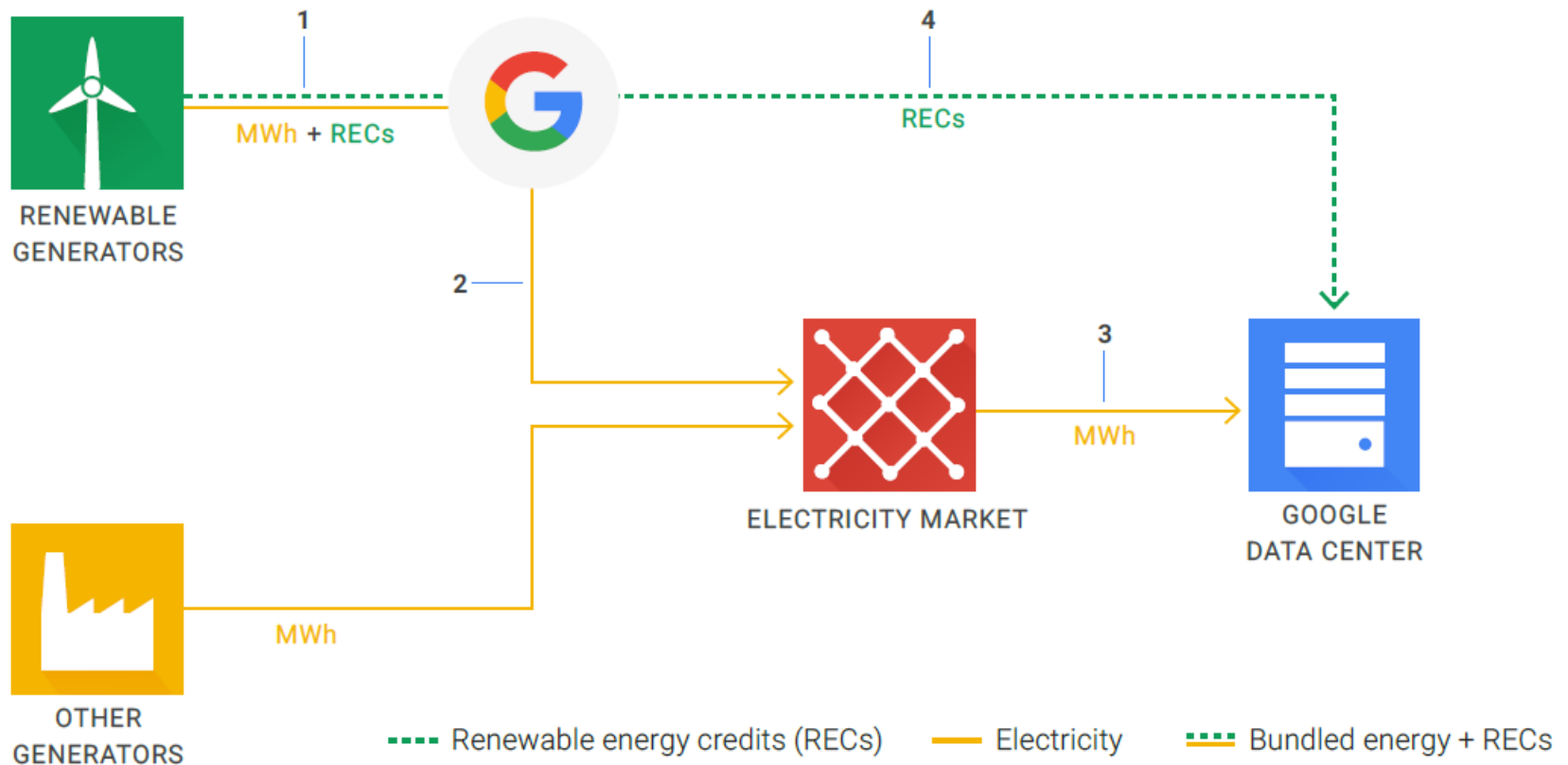
Source: Sony, Aeon

# Renewable Electricity Certificate

	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 (FY 2018)	1.2 TWh (FY 2018)	80 TWh (FY2018)
Price	JPY 3-4/kWh for bulk purchase	JPY 0.9/kWh (auction in Apr 2019)	JPY 1.3-4.0/kWh

\* Non-Fossil Certificate (Non-FIT) is available from April 2020.

# Long-term Investment (Corporate PPA)



Virtual PPA can be made in Japan if registered retailer works as an intermediary (“G” in this case) by 3-way contract between generator, retailer and energy user.

Source: Google



# Comparison of CO2 emission etc.

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	Zero or Nearly Zero	Depending on electricity	Depending on power plant
Hydro Electricity	Zero	Not low (large hydro included)	No
Green Electricity Certificate	national average reducible	Low	Depending on power plant
J-Credit	national average reducible	Low	Yes

\* Additionality is described based on experts' opinions.

# Criteria of Renewable Electricity

	Requirement	Examples	Global Recommendation
Class 3	Generated by renewable energy	▪ FIT Electricity	-
	Zero emission	▪ Electricity with Non-Fossil Certificate ▪ Hydro Electricity	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.

[Contact]

Renewable Energy Institute

DLX Building, 1-13-1 Nishi-Shimbashi, Minato-ku,  
Tokyo 105-0003

TEL: +81-3-6866-1020 FAX: +81-3-6866-1021

E-mail: [info@renewable-ei.org](mailto:info@renewable-ei.org)



Renewable Energy Institute