Japan’s Biomass Market Overview

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Louis du Plessis
Energy & Environment Specialist
JETRO London
Japan Power Market Snapshot

- World’s third largest economy and second largest electricity market in the OECD.

- Prior to the Fukushima Daiichi Nuclear Accident – power generation was dominated by fossil fuels (c.60%) and nuclear (c.30%).

- Post Fukushima Daiichi Nuclear Accident – big increase in fossil fuel imports for thermal generation, causing:
  - Increasing electricity prices
  - High dependency on imports
  - Increase in Japan’s greenhouse gas emissions

- Energy policy has shifted – to reduce fossil fuel dependency:
  - **Changing power generation mix:** Shift away from nuclear and thermal power generation towards renewable energy, and expanding the mix of renewable power sources
  - **Market liberalization:** Liberalization of power generation, liberalization of retail supply, ensuring independence / fairness of transmission and distribution
  - **Rising awareness of energy conservation:** Efforts towards increased efficient energy usage.
A Changing Generation Mix

- Japan is looking to expand its renewable energy use to reduce its dependency on fossil fuels and secure energy supply.

**Pre-Fukushima energy mix**
- LNG 29%
- Nuclear 29%
- Coal 25%
- Renewables 10%
- Oil 7%

**Govt. base case energy mix by 2030**
- LNG 27%
- Nuclear 20 - 22%
- Coal 26%
- Renewables 22 - 24%
- Oil 3%

Source: Ministry for Economy, Trade and Industry (METI), Japan’s Electricity Market Reform and Beyond, July 7, 2015
The Role of Biomass in the Generation Mix

- Japan has the 5th largest biomass market in the world - government aims to double biomass generation to 32.8 TWh in 2030.
- By 2030 Biomass is expected to comprise c.20% of renewables generation and attract c.20% of government incentives for renewable generation.

2030 JAPAN ELECTRICITY GENERATION MIX

Source: Ministry for Economy, Trade and Industry (METI)
Biomass Market Trends

- Stable feed in tariffs (FITs)
  - FITs for biomass projects remain comparatively attractive compared to other countries e.g. Germany, France and Spain.
  - FITs have remained stable across all biomass technologies, a positive signal when compared to other renewable energy technologies e.g. solar.

Biomass Market Trends

- **Government** sees the biomass as a key renewable energy source and has introduced a range of support measures
  - start-up grants to biomass-power producers
  - policies to assist in raw material procurement to boost the domestic biomass-power market

- **Supply and demand of timber for wood based technologies**
  - Japan has an abundance of unused timber. In the East, the supply of unused timber exceeds demand.

- **Methane Fermentation Plants**
  - Feedstock trends are shifting from the traditional livestock excreta and sewage sludge, to a composite of sewage sludge and food waste including industrial waste and food scraps.
  - High-rise buildings with “urban biogas systems” that recycle food waste are being implemented → this is seen as a potential growth market within the sector.
## Biomass Market Trends

- **Market liberalization** - encouraging new entrants by opening up the power market to competition
  - **2016**
    - Retail competition introduced to the residential sector in 2016
    - Consumers will likely drive demand for renewable energy
  - **2018**
    - Abolishment of rate regulations
    - Retail tariffs subject to market forces
  - **2020**
    - Large power companies transmission and distribution operations unbundled
    - Enhanced neutrality and transparency of transmission and distribution

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Biomass Market Barriers to Entry

- Local market knowledge
- Securing stable feedstock supply
- Technology adaptation to local feedstocks
- Permitting and regulatory approvals

Result
- Delays to projects
- Delays to achieving installed capacity targets
- Foreign players cautious to enter the market

Government Action
- Addressing barriers through regulatory reform
- Biomass commercialization strategy
- A variety of tax, and other, incentives to promote biomass generation
Accessing the Market through Partnership

- Given the unique characteristics of the Japanese market, many of foreign companies overcome barriers to entry by partnering with domestic players.

- There are a number of potential partners for foreign companies looking to expand their business in Japan.

- Partnership can take a myriad number of forms e.g. feedstock arrangements, technology alliances, joint ventures, value chain alliances.

- Success cases include:
  - General Electric Corp. — supplied gas engines to 15 domestic biomass power plants so far, and has also announced plans to pursue EPC (engineering, procurement and construction) for wood biomass pyrolysis gasification power plants.
  - Cornes & Company - designs, develops, and deploys livestock excreta-fueled methane fermentation plants. Its customers mainly consist of livestock farmers in Hokkaido.
How Can JETRO Help?

- Japan’s core organization for promoting foreign direct investment (FDI) into Japan,
- Identifies companies interested in investing into Japan and supports them from the stage of business development to that of corporate establishment.
- Range of services to facilitate establishing a corporate presence in Japan
- No charge for assisting our registered clients