



# MARKET OPPORTUNITY

## Japan



GREEN  
ENERGY  
TECHNOLOGIES

€ 31.7 billion.

Investment in small equipment (>1MW)

€ 33.5 billion.

2015 investment in renewable energy

 World's 3<sup>rd</sup> largest

Geothermal reserves, with less than 4% developed

Nearly 70% forest

cover. A strong political drive to develop forestry industries, including energy from biomass.



Funded by the European Union

### OVERVIEW

- Japan ranks 8th in the World Global Competitiveness Report 2016-2017.
- Plans to reduce greenhouse gas emissions by 26% by 2030, and 80% by 2050 (compared to 2013). From 2021, Japan will promote the introduction and development of renewable energies and energy conservation equipment through research and financial incentives.
- The Japanese government plans to increase the share of renewables, currently at 14%, to take up to 24% of the country's energy needs by 2030.
- Renewable energy capacity in Japan is heavily concentrated in large-scale photovoltaics (PV). Wind, biomass, geothermal, and small / medium scale hydro also contribute.

### Top Business Opportunities for EU Companies

- Offering cost-reduction technologies and products related to self-sustaining power generation facilities:** solar-related technologies (maintenance of high-efficiency power generation, recycling); wind power (long-term stable power generation); technology related to biomass power generation; next generation power generation (marine power, etc.).
- Open to partnerships with Japanese companies for Zero Energy Building (ZEB) technologies:** cost-efficient energy-saving equipment; cogeneration (engines, turbines, fuel cells); 50 - 80°C hot water utilisation technology; energy saving retrofitting technologies.
- Open to collaboration with local companies on Zero Energy House (ZEH) technologies:** Home Energy Management Systems, smart meters, home solar power systems, electric vehicles, plug-in hybrid charge/discharge devices.
- Offering high-efficiency lighting:** the Japanese government aims to replace 100% of lighting with highly efficient lights, including LED and organic electroluminescent (EL) lighting, on a flow basis by 2020 and on a stock basis by 2030.
- Renovation of ageing thermal power plants** to improve efficiency, heightening efficiency in logistics (ship, aviation, rail, truck, transportation systems) also present opportunities for greening the energy sector.

### Market Characteristics

- **Deregulation of the power market** in 2016 is driving competition amongst utilities.
- **Applications using the feed-in-tariff system** total 88GW output (approximately 91% solar, 3% wind, 3% biomass, and 1% of small to medium hydropower), 36% of which is already operational. Due to issues in the power grid, restrictions are placed on renewable energy connections with large output fluctuations.
- **Subsidies totalling over €1 billion per year are available** to meet GHG emission reduction targets, promote net Zero Energy Building (ZEB) and Zero Energy Housing (ZEH) through retrofitting and energy conservation measures.
- **Mandatory energy-efficient standards** are set for various products under the 'Top Runner Approach' which aims to develop the world's most energy-efficient products.
- **In 2016, national targets were set for equipment installation:**
  - Household fuel cells: 1.4m units by 2020, 5.3m units by 2030 (2013 status: 50,000 units).
  - High-efficiency lighting (LED, etc.): 760m units by 2020, 420m units by 2030 (2013 status: 110m units).
  - Cogeneration: 11.34 GW by 2020, 13.2 GW by 2030 (2013 status: 10.04 GW).

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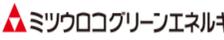


### Drivers (\*1)

- Popular opposition to nuclear energy in the aftermath of the Fukushima Daiichi nuclear disaster, coupled with the recent opening up of the residential power market, will drive the growing demand for renewables.
- Japan is the 4<sup>th</sup> largest photovoltaic (PV) market in the world.
- The feed-in-tariff (FIT) system is under review with the broader goal of reducing FIT and possible shift to a bidding system to promote market competition.

### Barriers

- Cultural customs and norms that are unique to doing business in Japan such as language, business etiquette, and demanding customers.
- Requirements for meeting Japan's legal standards with regard to environment and safety.
- The low cost of fossil fuels may also dampen the appetite for investment.

Sector	Sub Sector	Possible Needs		
Japan Green Energy Technologies Market Map	Manufacturing Renewable Energy  NEC  CORONA  TOYOTA (*2)  CanadianSolar	<b>Solar Power</b> • Maintenance • High quality construction technology • Power generation forecast, Construction evaluation  <b>Wind Power</b> Power generation equipment with high ROI	<b>Biomass Power</b> • Cost-effective biomass power generating equipment • Biomass generated fuel • Biomass fuel procurement technology (e.g. Forest management) • New technologies (e.g. Fermented methane power generation)	<b>Geothermal Power</b> Cost effective low-temperature difference power generation system  <b>Others</b> Next generation power generation technology Clean energy utilization technology
	Highly efficient machines  東京都市サービス株式会社	• Cost-effective, energy-saving equipment • Unique green equipment such as cogeneration • Technology for utilising waste hot water; middle temperature (40°C-60°C) to high temperature (60°C-80°C)		
	Measuring equipment  azbil	Ultrasonic flow meter, etc.		
	Operation Highly efficient machines  MITSUBISHI	Energy saving solution for buildings		
	Measuring equipment  MITSUBISHI	• Cost-effective and high accuracy measuring equipment • Measuring technology which has high usage even if it is expensive (such as ultrasonic flowmeters) • Measure and control equipment that link to saving energy, especially equipment that can be controlled automatically are high in demand		
	Household Electricity and gas supply  OSAKI	Electricity deregulation; opportunity to choose green energy, sales opportunity (such as smart meter, etc.)		
Highly efficient machines  ミツウロコグリーンエネルギー	Biomass utilization such as by using wood stove and products using natural energy haven't been popular yet; further room for expansion in the future.			
Measuring equipment  Panasonic Homes & Living	Expanded use of HEMS (Home Energy Management System), BEMS (Building Energy Management System), and Demand Response (economic merit can be enjoyed by suppressing the amount of electricity used during daytime with a high load time period), etc. are encouraged, also incorporated in government planning.			

(\*1) [http://www.meti.go.jp/english/press/2016/pdf/0517\\_01.pdf](http://www.meti.go.jp/english/press/2016/pdf/0517_01.pdf) (\*2) [http://www.kanto.meti.go.jp/seisaku/suiso/data/20160719fc\\_seminar3\\_toyota.pdf](http://www.kanto.meti.go.jp/seisaku/suiso/data/20160719fc_seminar3_toyota.pdf)