

The Japanese Policy on Climate Change and Renewable Energy



**EMBAIXADA
DO JAPÃO**

NO BRASIL

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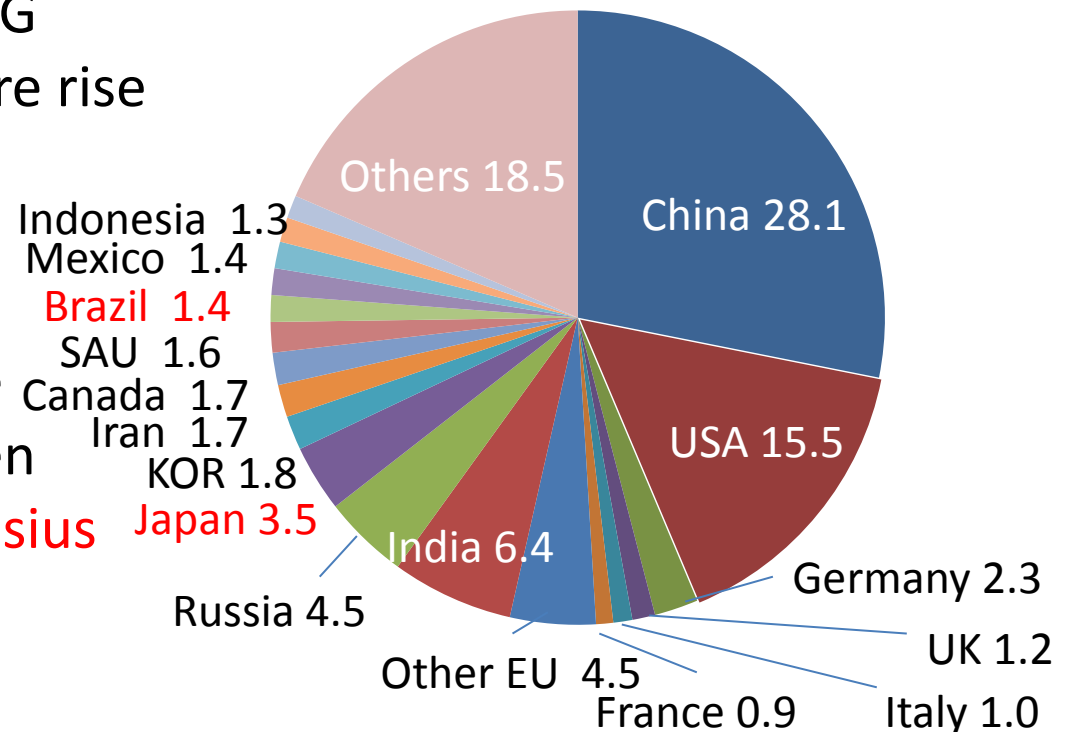
The Paris Agreement

- Adopted at COP21 in December 2015, it entered into force in November 2016
- For the First time - **all nations** undertake ambitious efforts to combat climate change and adapt to its effects

cf: Kyoto Protocol: **Only developed countries** have an obligation to reduce GHG

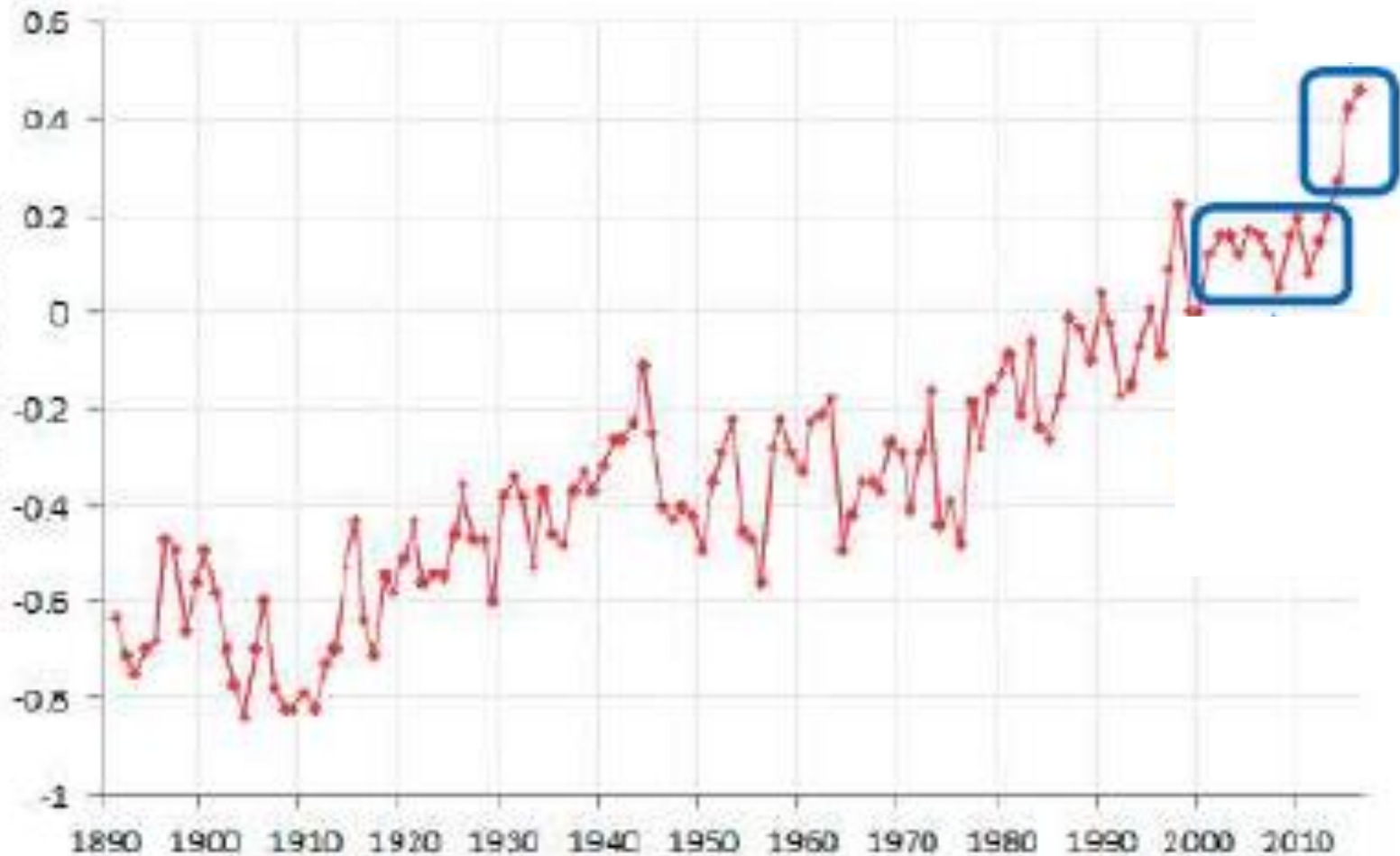
- Keep a global temperature rise this century well below

2 degrees Celsius above pre-industrial level and pursue efforts to limit the temperature increase even further to **1.5 degrees Celsius**



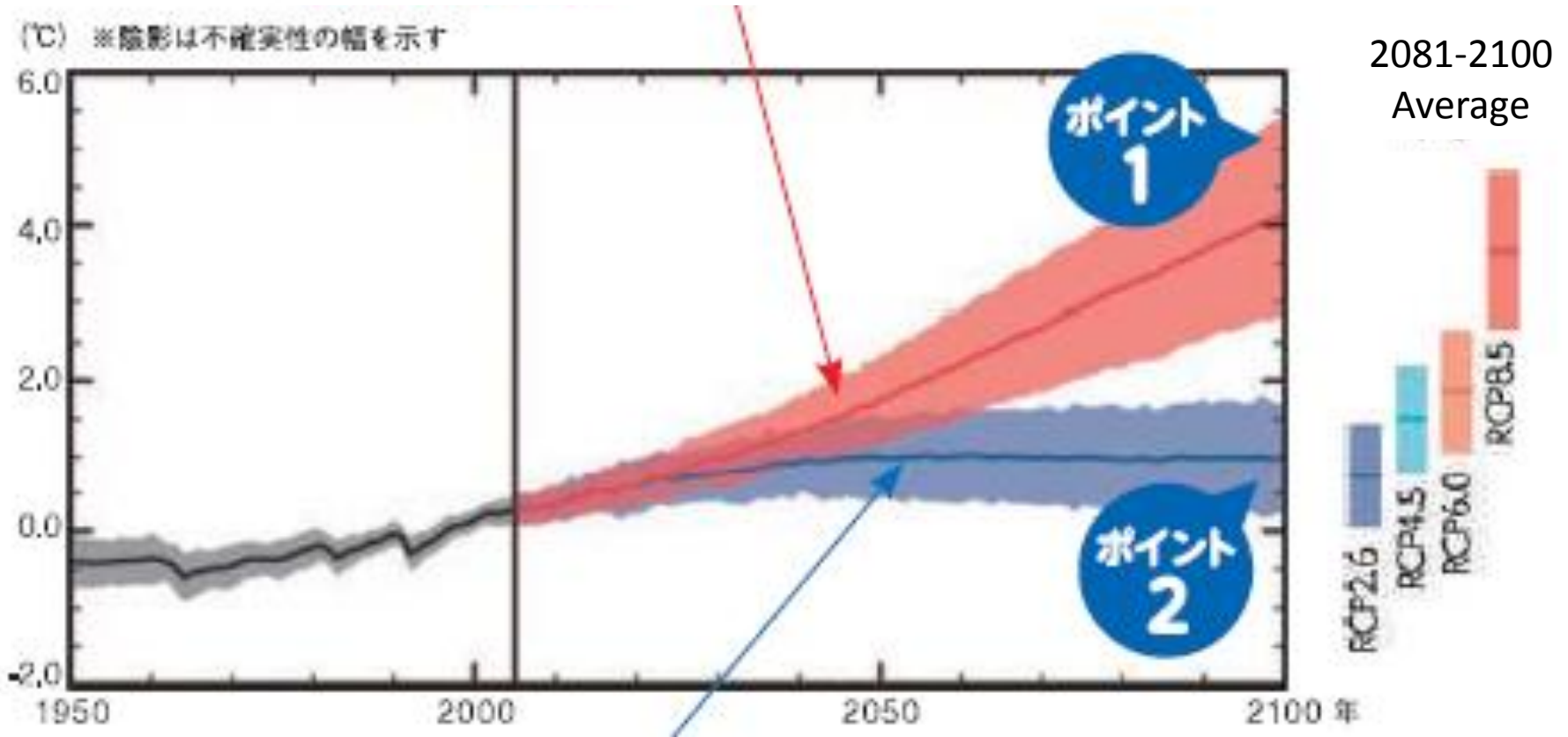
The fluctuation of the global temperature

The shift of the average temperature from 1981 to 2010(°C)



The shift of the average temperature from 1986 to 2005(°C)

RCP8.5 = the emission of GHG will be doubled by the end of this century → leading to a drastic increase of temperature:



RCP2.6 = the emission of GHG will be almost 0 by the end of this century → leading to a small rise of temperature

Brazil's NDC in the Paris Agreement

Contribution: Brazil intends to commit to reduce greenhouse gas emissions by 37% below 2005 levels by 2025.

Subsequent indicative contribution: reduce greenhouse gas emissions by 43% below 2005 levels in 2030.

Measures

i) increasing the share of sustainable biofuels in the Brazilian energy mix to approximately 18% by 2030, by expanding biofuel consumption, increasing ethanol supply, including by increasing the share of advanced biofuels (second generation), and increasing the share of biodiesel in the diesel mix;

ii) in land use change and forests:

- strengthening and enforcing the implementation of the Forest Code, at federal, state and municipal levels;
- strengthening policies and measures with a view to achieve, in the Brazilian Amazonia, zero illegal deforestation by 2030 and compensating for greenhouse gas emissions from legal suppression of vegetation by 2030;
- restoring and reforesting 12 million hectares of forests by 2030, for multiple purposes;
- enhancing sustainable native forest management systems, through georeferencing and tracking systems applicable to native forest management, with a view to curbing illegal and unsustainable practices;

iii) in the energy sector, achieving 45% of renewables in the energy mix by 2030, including:

- expanding the use of renewable energy sources other than hydropower in the total energy mix to between 28% and 33% by 2030;
- expanding the use of non-fossil fuel energy sources domestically, increasing the share of renewables (other than hydropower) in the power supply to at least 23% by 2030, including by raising the share of wind, biomass and solar;
- achieving 10% efficiency gains in the electricity sector by 2030.

iv) in the agriculture sector, strengthen the Low Carbon Emission Agriculture Program (ABC) as the main strategy for sustainable agriculture development, including by restoring an additional 15 million hectares of degraded pasturelands by 2030 and enhancing 5 million hectares of integrated cropland-livestock-forestry systems (ICLFS) by 2030;

v) in the industry sector, promote new standards of clean technology and further enhance energy efficiency measures and low carbon infrastructure;

vi) in the transportation sector, further promote efficiency measures, and improve infrastructure for transport and public transportation in urban areas.

Japan's NDC in the Paris Agreement

- NDC

Japan's NDC towards post-2020 GHG emission reductions is at the level of a reduction of 26.0% by fiscal year (FY) 2030 compared to FY 2013 (25.4% reduction compared to FY 2005)

- Plan on Measures against Global Warming (Cabinet Decision: 2016. May)

to reduce GHG emissions by 80% by 2050

A meeting to establish a long-term strategy based on the Paris Agreement

- Members of this meeting
 - ✓ Takeshi Uchiyamada, Chairman of the Board of Directors, Toyota Motor Corporation
 - ✓ Junko Edahiro, Professor, Graduate School of Leadership and Innovation, Shizenkan University
 - ✓ Shinichi Kitaoka, President, the Japan International Cooperation Agency
 - ✓ Kousei Shindou, President, Nippon Steel & Sumitomo Metal Corporation
 - ✓ Shuzo Sumi, Chairman of the Board, Tokio Marine Holdings, Inc.
 - ✓ Yukari Takamura, Professor of International Law, the Graduate School of Environmental Studies, Nagoya University
 - ✓ Hiroaki Nakanishi, Chairman, the Japan Business Federation
 - ✓ Hiromichi Mizuno, Executive Managing Director and Chief Investment Officer, Government Pension Investment Fund (GPIF)
 - ✓ Masashi Mori, mayor, Toyama City
 - ✓ Itaru Yasui, Former Vice-Rector, United Nations University
- 1st meeting : 03. 08. 2018
2nd meeting : 04. 09. 2018
- The Japanese government plans to decide on the long-term strategy before the G20 meeting in 2019

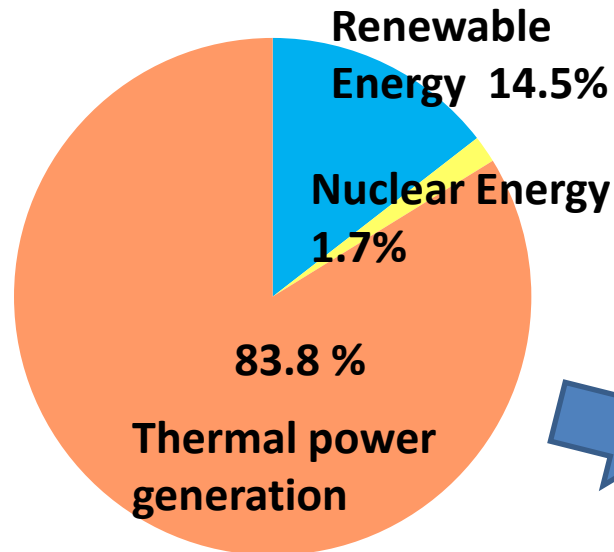
Measures to realize long-term substantial CO2 reduction

Energy saving, Utilization of low-carbon power sources with renewable energy as Japan's main strength, and shifts of energy such as electrification and low carbon fuel.

In addition to innovation in technology, it is important to bring about innovation in the socio-economic system in order to disseminate the technology to counter climate change drastically, which has already been introduced.

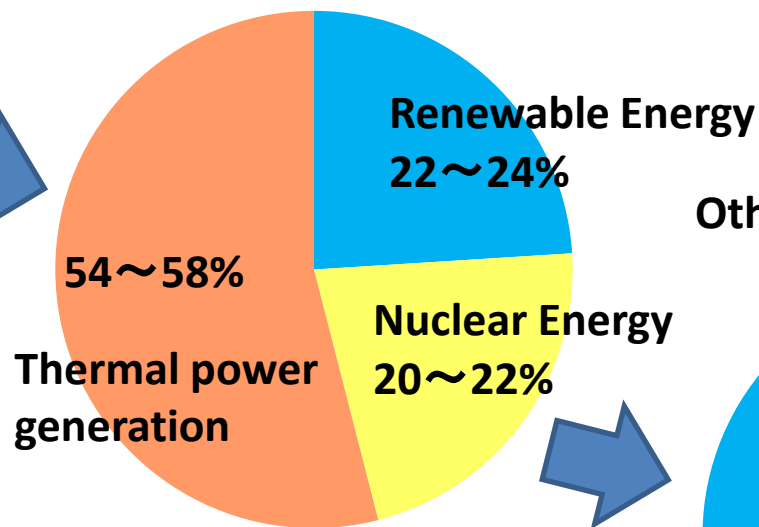
(the Long-Term Vision for Low-Carbon Society: the Ministry of the Environment)

Mass introduction of renewable energy



2016: 1.052 trillion kWh

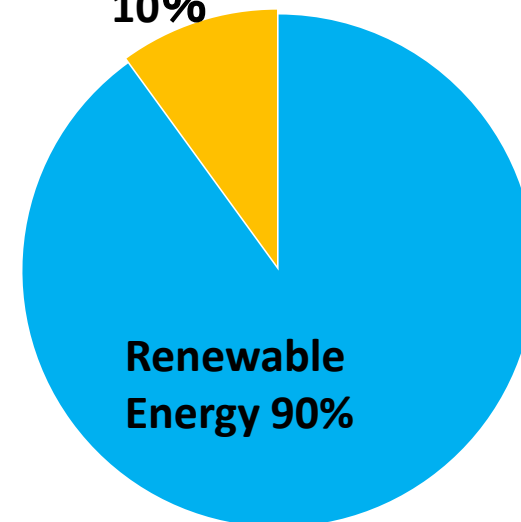
Generation of electricity of Japan



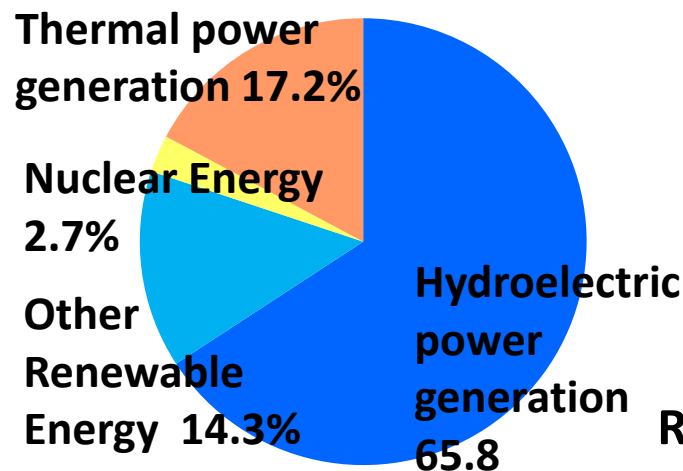
2030: 1.065 trillion kWh
(The 5th Basic Energy Plan)

Ref: Brazil in 2016

Other Energy

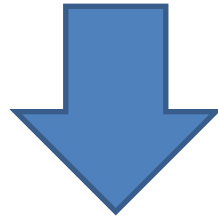


2050 (Long-term vision for low-carbon society)



The fluctuation of the generating cost of Renewable Energy

Increasing economies of large-scale, more competitive supply chains and further technological improvements



By 2025, reducing production cost of

- **Onshore wind 26% ↓**
- **Offshore wind 35% ↓**
- **Solar Photovoltaics(PC) 59% ↓**



Feed-in Tariff (FIT) System

- The Japanese government adopted the “**Feed in Tariff System**” in July, 2012.
- The “Feed in Tariff System” is a system by which the country promises that electricity generated by renewable energy will be purchased by power companies for a certain period at a fixed price. The expenses incurred by the power companies will be defrayed by increasing the consumption rates for electricity users from everyone who uses electricity

Price for 1kWh (FY 2018)		
type	price	duration
Solar Power (10kW to 2,000 kW)	18 yen + tax	10 years
Onshore wind	20 yen + tax	20 years
Offshore wind	36 yen + tax	20 years

Innovation in the Socio-economic system 1

- The Fuel-Cell Vehicle(FCV)

The basic structure of the FCV (Fuel Cell Vehicle) incorporates oxygen and hydrogen into the fuel cell and moves the motor with electric energy from its chemical reaction. Because fuel cell vehicles require hydrogen, we will replenish hydrogen at a hydrogen station like a regular gasoline station.

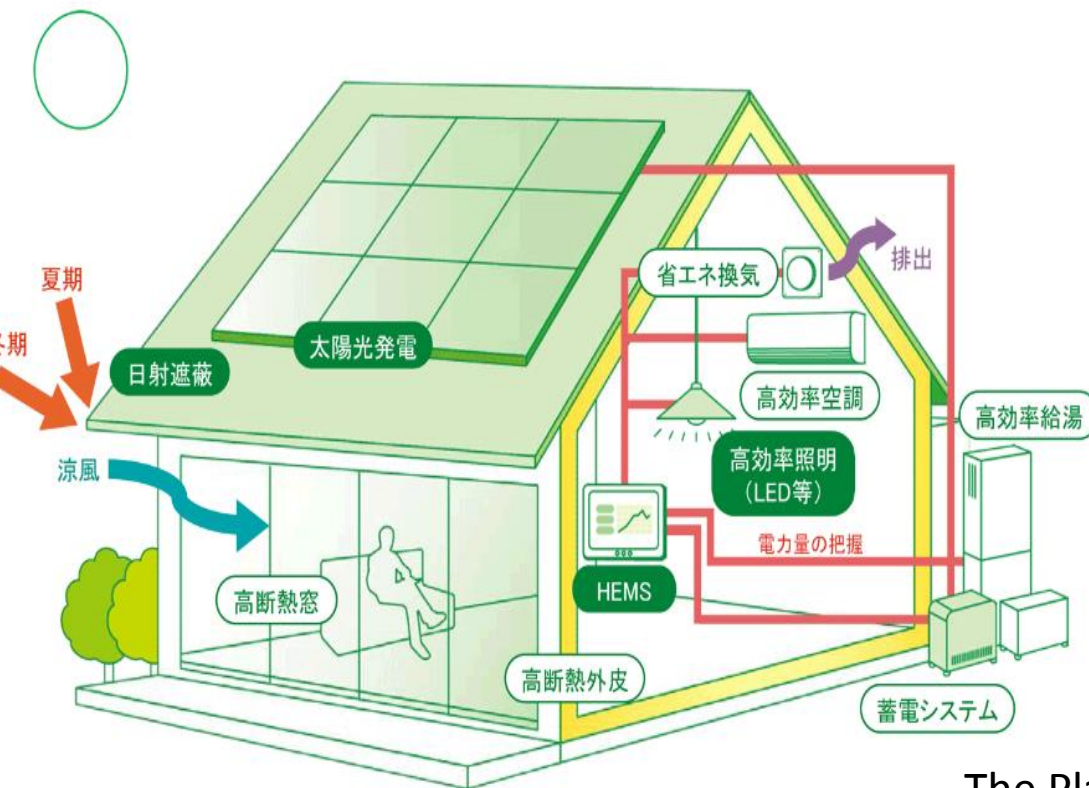


MIRAI (TOYOTA)

2017	2020	2030
<u>FCV</u>		
2,000	⇒ 40,000	⇒ 800,000
<u>Hydrogen Station</u>		
100	⇒ 160	⇒ 900

Innovation in the Socio-economic system 2

- ZEH (Net Zero Energy House)



A House which aims at zero balance of energy consumption by greatly improving the insulation performance of walls and roofs, introducing renewable energy and a highly efficient facility system and realizing significant energy saving while maintaining the quality of the indoor environment.

The Plan for Measures against Global Warming
Aims to make ZEH more than half of new ordered houses built by house construction companies by 2020

Japanese Contribution to combat against Climate change 1

GOSAT (the **G**reenhouse gases **O**bservation **S**atellite) has been measuring a concentration distribution and the fluctuation of greenhouse gases all over the world, aiming at contributing to further promotion of global warming countermeasures.

GOSAT II will be launched on 29th, October this year

GOSAT

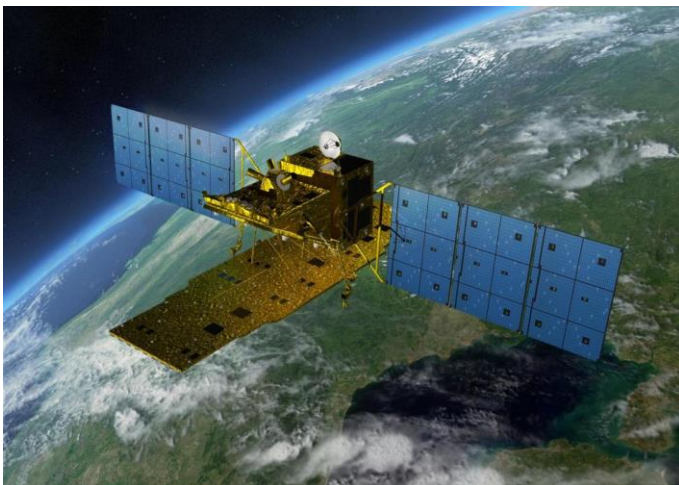


Japanese Contribution to combat Climate change 2

JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)

- JJ-FAST is a web-based system using JAXA's **ALOS-2** (Advanced Land Observing Satellite 2) to monitor tropical forests in 77 countries (including **Brazil**) every 1.5 months and release deforestation data, even in the rainy season.
- Users can easily access the data for deforested areas from PCs and mobile devices and download the data.
- **IBAMA utilizes this data to crack down on illegal forest lumbering activities.**

ALOS-2



Target Countries



Thank you all for your attention!



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