

Japan's Achievement on Climate Change

A scenic view of Mount Fuji at sunset. The mountain is covered in snow and is reflected in a calm lake. The sky is a mix of orange, yellow, and blue, with some clouds. The foreground shows the dark silhouettes of trees and the water's surface.

31 July 2019

MOEJ

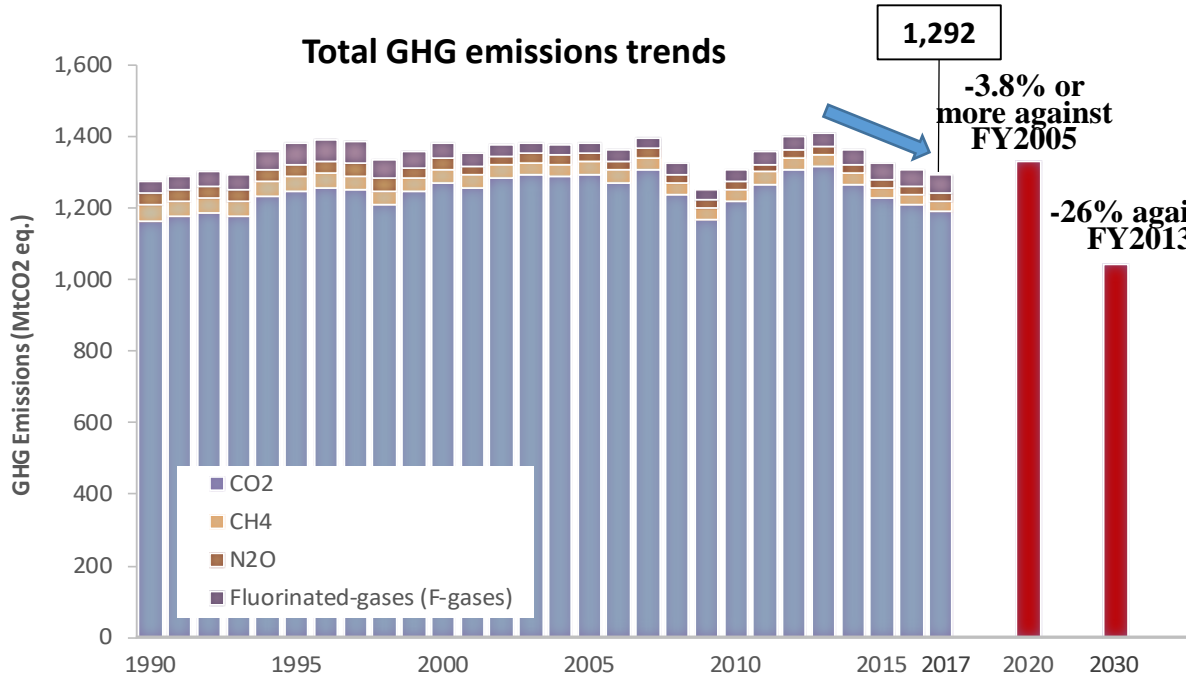
Outline of the Presentation

- GHG Emissions and Trends
- Policies and Measures
- Japan's Long-Term Strategy
- Summary

GHG Emissions and Trends

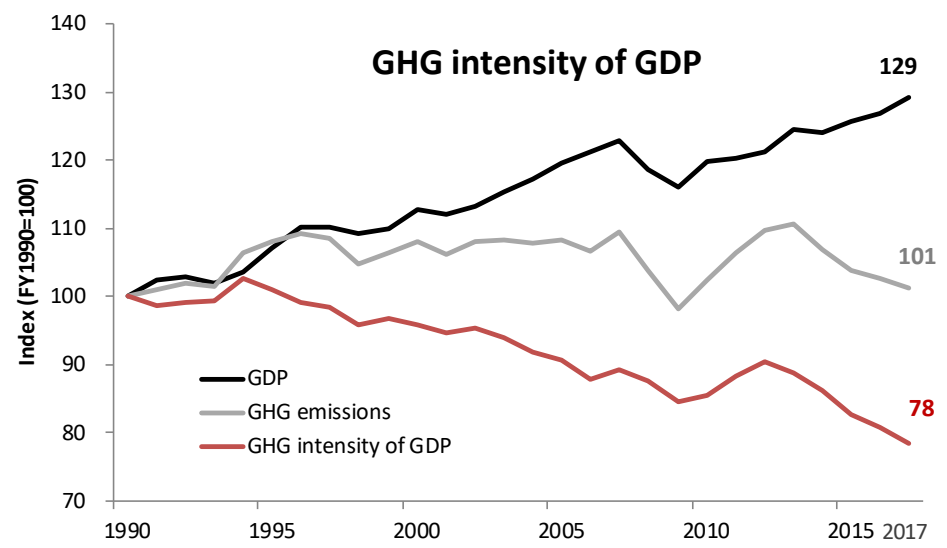


GHG Emissions Trends (1990-2017)



● Japan's **GHG emissions** in FY2017 are **1,292 million tons-CO₂**:

- ✓ GHG emissions have been **decreasing** for four consecutive years.
- ✓ Returning to levels before **the Great East Japan Earthquake** that caused a **nuclear power plant accident in 2011**.



● **The decoupling** has been observed between GHG emissions and economic growth:

- ✓ GHG intensity of GDP has been **decreasing** for five consecutive years.

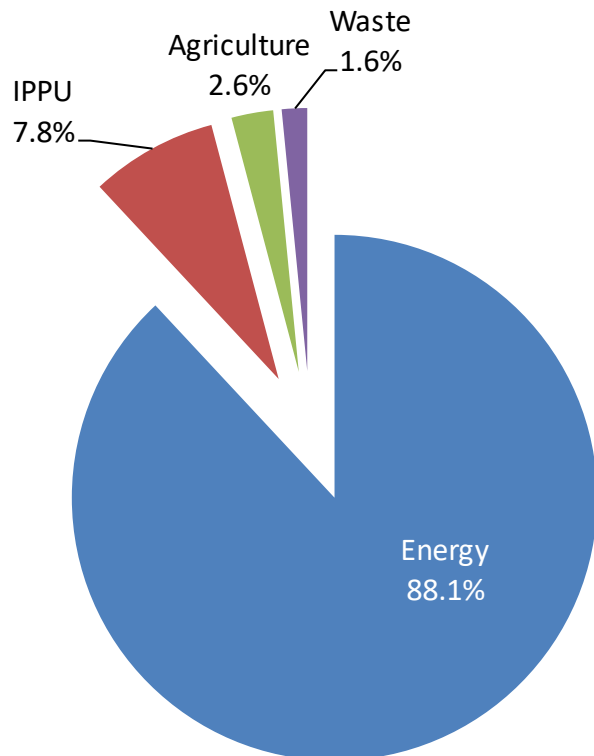
(Source) National Greenhouse Gas Inventory Report of Japan (April, 2019), Global Warming Countermeasures Plan

Note: The values of GHG emissions are based on the 2019 GHG inventory submission, which were revised from the values reported in the BR3.

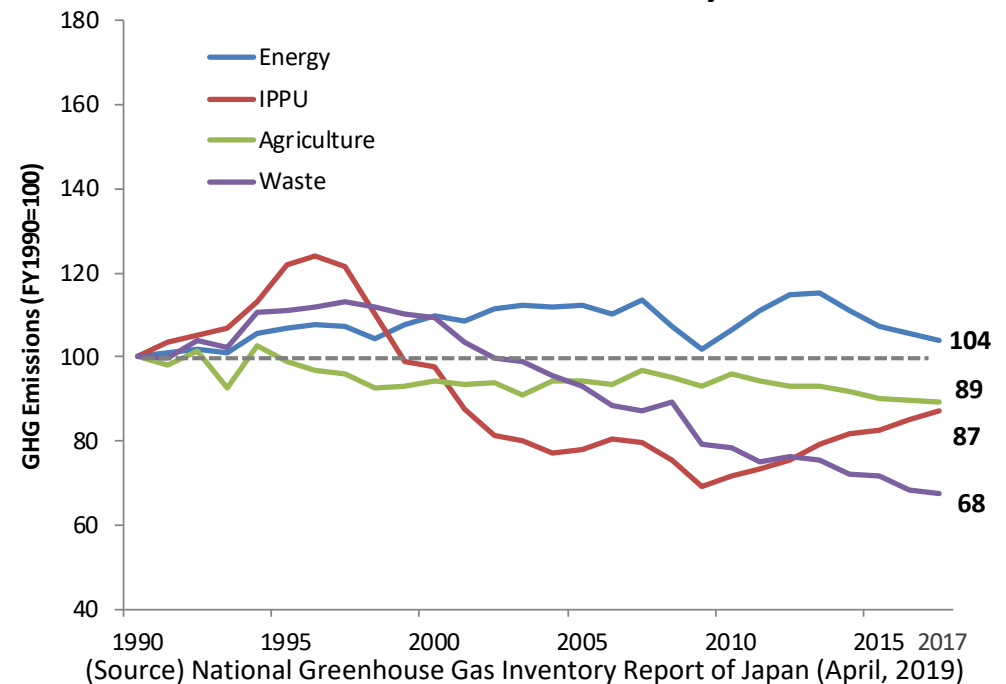
GHG Emissions by Sector (1990-2017)

- The largest emission source is the energy sector, which covers around 90% of total GHG emissions.
- Since 2014, CO₂ emissions from the energy sector have decreased due to the progress in energy saving activities and the decrease in thermal power generation.

**Emissions by sector in FY 2017
(excluding LULUCF)**



Emissions trends by sector

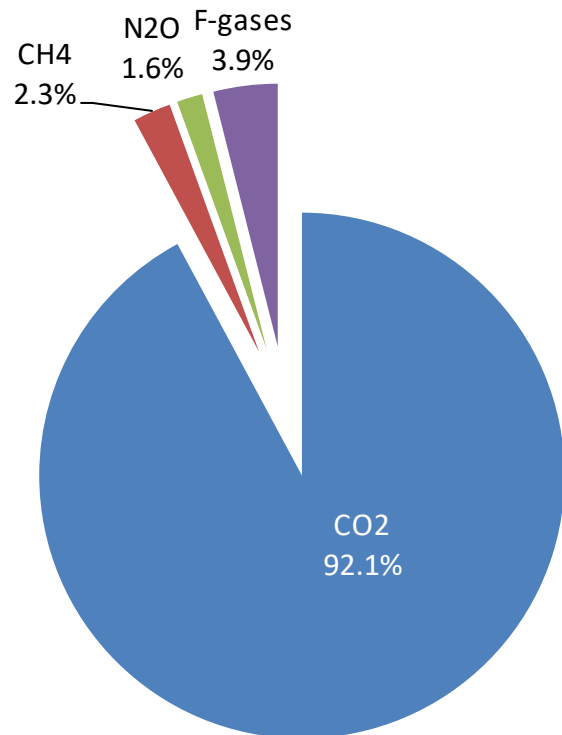


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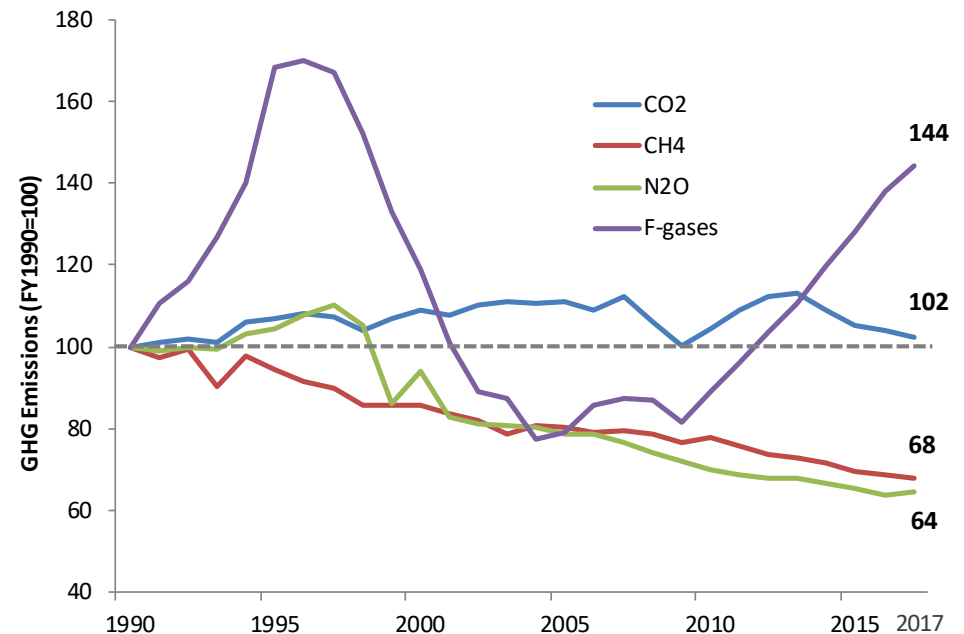
GHG Emissions by Gas (1990-2017)

- In emissions trends by gas, CO₂ covers over 90% of total GHG emissions.
- Methane (CH₄) and Nitrous oxide (N₂O) emissions have decreased as a result of implementation of policies and measures.
- In recent years, the increase in fluorocarbon emissions is a issue to be resolved.

**Emissions by gas in FY 2017
(excluding LULUCF)**



Emissions trends by gas



(Source) National Greenhouse Gas Inventory Report of Japan (April, 2019)

Note: The values of GHG emissions are based on the 2019 GHG inventory submission, which were revised from the values reported in the BR3.

Current Progress Status on Japan's Emission Reduction Target

- **2020 target: 3.8% or more emission reduction against FY2005**
- **2030 target (Japan's 1st NDC): 26.0% reduction against FY2013**
(25.4% reduction against FY2005)

	2020	2030
*Current status (FY2017)	-10.6% (excluding LULUCF:-6.5%) against <u>FY2005</u>	-12.4% (excluding LULUCF : -8.4%) against <u>FY2013</u>
Emission reduction target	<u>3.8% or more</u> reduction against <u>FY2005</u>	<u>26.0%</u> reduction against <u>FY2013</u> (25.4% reduction against FY2005)
Covered gases	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ and NF ₃	
GWP	IPCC AR4	
Covered sectors	Energy, Transport, IPPU, Agriculture, LULUCF and Waste	
Removals from the LULUCF	Included (Activity-based approach) * Forest-related activities (Afforestation, Reforestation, Deforestation and Forest Management): gross-net basis compared with 1990 - Cropland management, Grassland management and Revegetation: net-net basis compared with 1990	

Policies and Measures



Plan for Global Warming Countermeasures (May 2016)

- **Japan's official general plan for global warming prevention**; in order to promote global warming countermeasures comprehensively and strategically.
- **Decided by the Cabinet on May 13, 2016**
- Prescribes the targets of emissions reduction and removal of GHG, the basic matters on measures to be taken by businesses and the public etc., and policies to be implemented by the National Government and Local Government.

■ Contents

✓ Direction to pursue:

- **Actions to achieve mid-term target** (26% reduction by FY 2030)
- Strategic actions towards long-term goal (80% reduction by 2050)
- Actions toward global GHG reduction

✓ Basic concept:

Integrated improvements of the environment, economy and society

Steady implementation of measures listed in Japan's NDC

Response to Paris Agreement (consideration of long-term and strategic actions)

Enhancement of R&D and contribution to global GHG emissions reduction through Japan's leading technologies

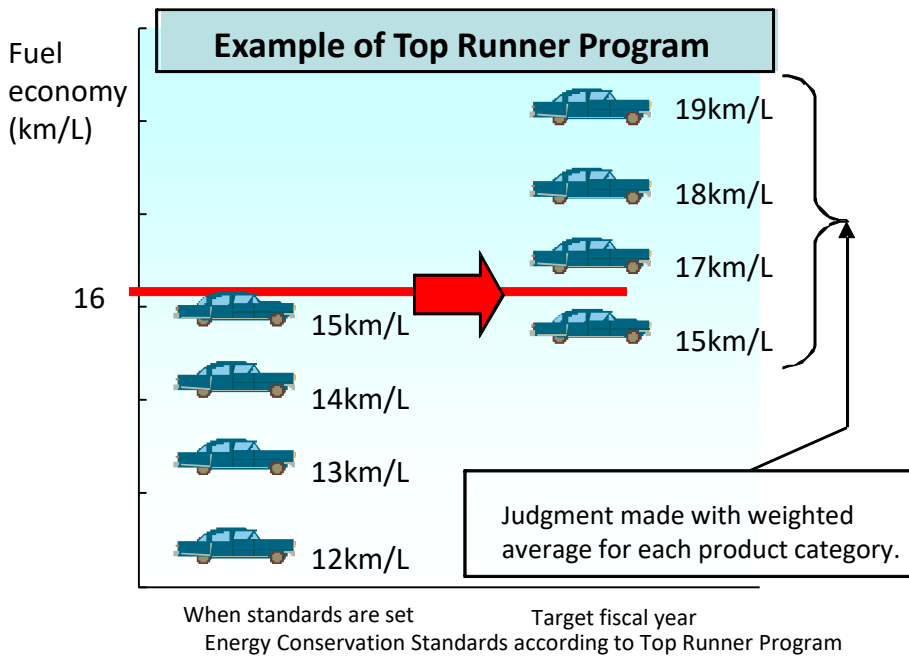
Transformation in consciousness of all actors, evocation of action and enhancement of collaboration

Importance of PDCA cycle

Japan's policies and measures (1) Top Runner Program

- Energy conservation standards according to the Top Runner Program have been implemented for automobiles and household electrical appliances according to Act on the Rational Use of Energy as amended in 1998.
- 32 equipment and materials are subject to these standards.

<Equipment subject to Top Runner Program according to Act on the Rational Use of Energy>



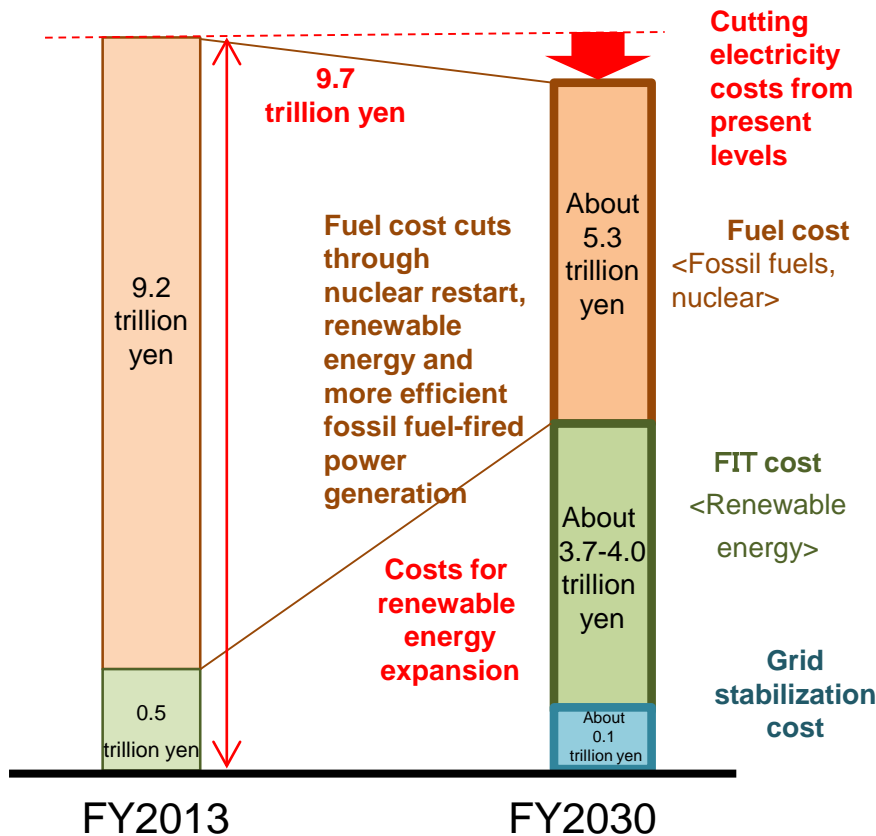
32equipment and materials

1. Passenger vehicles
2. Air conditioners
3. Lighting equipment
4. TV sets
5. Copying machines
6. Computers
7. Magnetic disk units
8. Freight Vehicles
9. Video cassette recorders
10. Electrical refrigerators
11. Electrical freezers
12. Space heaters
13. Gas cooking appliances
14. Gas water heaters
15. Oil water heaters
16. Electric toilet seats
17. Vending machines
18. Transformers
19. Electric rice cookers
20. Microwave ovens
21. DVD recorders
22. Routers
23. Switching units
24. Multifunction devices
25. Printers
26. Electric water heaters
27. AC motors
28. Lamps
29. Showcase
30. Insulation materials
31. Sashes
32. Multi-paned glazing

Efficient renewable energy expansion giving consideration to surcharges

- In considering the target energy mix, the government estimates the **Feed-In Tariff (FIT)** cost at 3.7 – 4.0 trillion yen for expanding renewable energy after cutting electricity costs from present levels.
- After the FIT introduction, the FIT cost in FY2019 already reached about 3.6 trillion yen (with FIT surcharges totaling about 2.4 trillion yen). Cost-efficient renewable energy expansion is required for achieving both the maximum expansion of renewable energy and the containment of FIT surcharges.

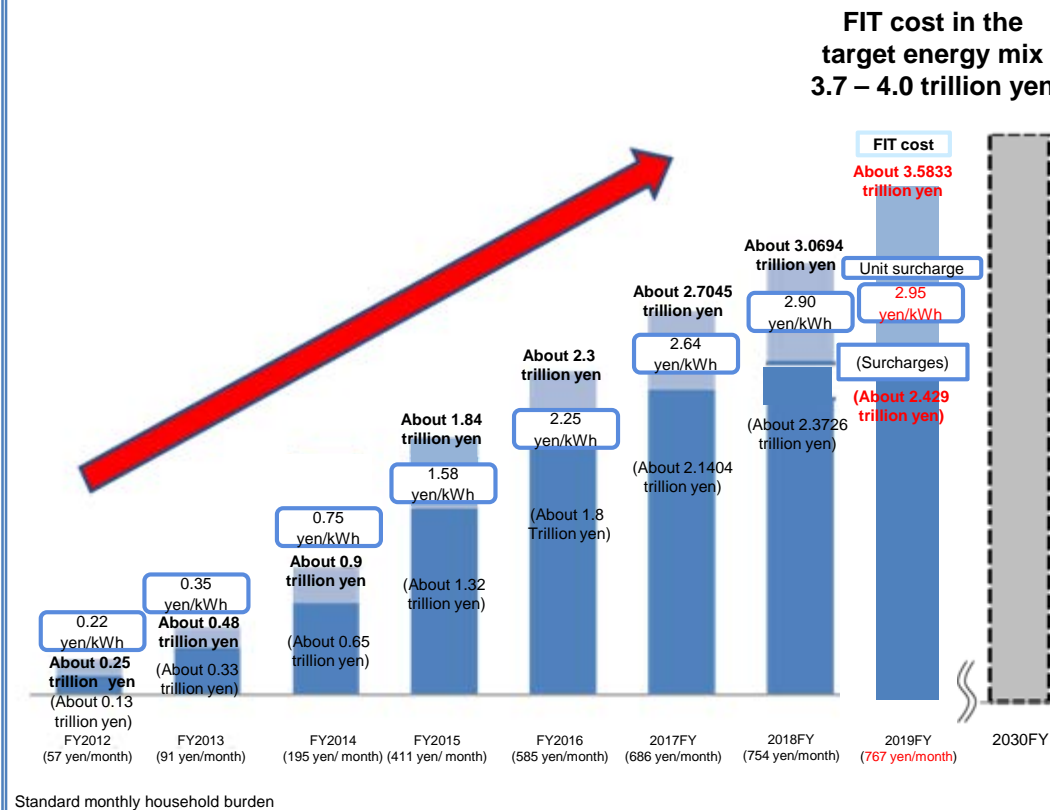
Concept of electricity costs in the target energy mix



(Note) The FIT cost represents the cost accompanying renewable energy introduction and expansion. The cost includes some avoidable costs equal to fuel cost cuts.

Source: "Long-term Energy Supply and Demand Outlook Appendix"

Surcharge trend after FIT system introduction



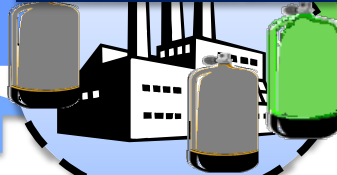
Legislations and Regulations for Fluorocarbons

- **Act on the Protection of the Ozone Layer Through the Control of Specified Substances and Other Measures (Ozone Layer Protection Law):** enacted in 1988. In order to implement obligation to reduce production and consumption of fluorocarbons based on Montreal Protocol, manufactures and imports of fluorocarbons are controlled. Pursuant to the Kigali amendment, HFCs become among those subject to be controlled from 2019.
- **Act on Rational Use and Proper Management of Fluorocarbons (Fluorocarbons Emission Restraining Law):** Aiming for restraining emission of fluorocarbons, the Act provides comprehensive approaches throughout the lifecycle of fluorocarbons, including periodical inspection of commercial refrigeration and air-conditioning equipment using fluorocarbons, in addition to recovery of fluorocarbons from these equipment at the time of disposal. The Act was amended on May 2019 for further improvement of the system of the recovery at the disposal.

Ozone Layer Protection Law (Amended in 2018)

- Control over Manufacture and Imports of Fluorocarbons (CFCs, HCFCs and HFCs)

Fluorocarbons
Manufacturer



Product Manufacturers Using
Fluorocarbons



Refrigerator and Air
Conditioner Users



Recovery of
Fluorocarbons at
Equipment Disposal

Periodical
Inspection

Report Leakage
Amount

Fluorocarbons Emission Restraining Law

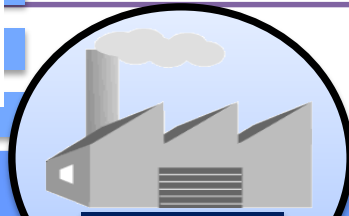
- Comprehensive Approaches throughout the Lifecycle of Fluorocarbons

- Reduction of Environmental Impact of Fluorocarbons Used to Designated Products
- Periodical Inspection of Equipment and Report of Leakage Amount
- Recovery of Refrigerant Fluorocarbons at Equipment Disposal
- Appropriate Destruction or Recycle of Recovered Refrigerant Fluorocarbons

and Others

Recycle

Destruction/Recycling
Operator



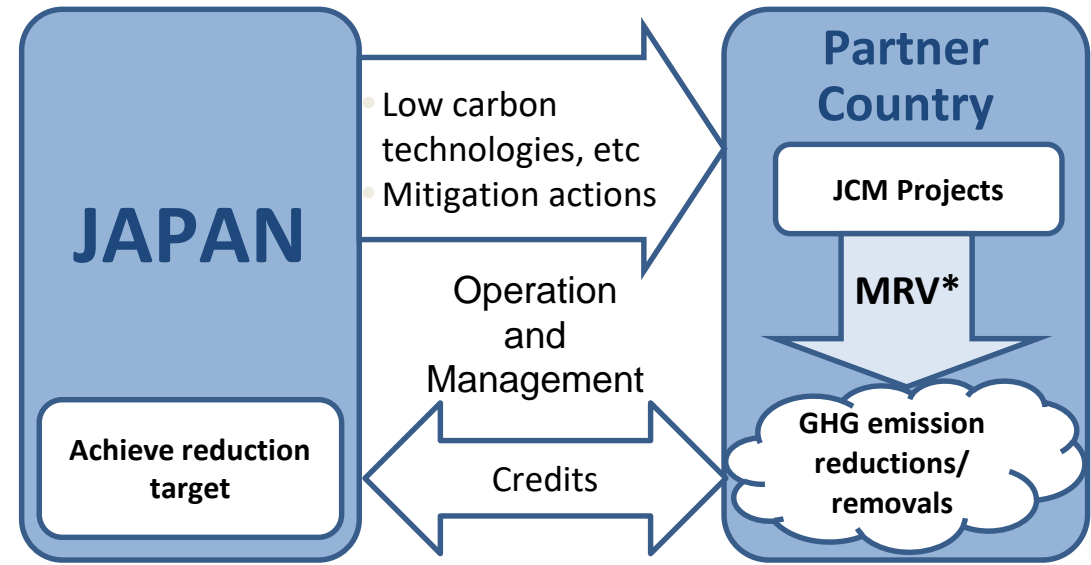
Filling/Recovery
Operator



Japan's policies and measures (4) Joint Crediting Mechanism (JCM)

Progress:

- 17 partner countries with 146 projects in the pipeline
- Credits already issued from 21 projects
- 69 MRV* methodologies



MRV: measurement, reporting and verification

(Example of pipeline projects)



【Waste heat recovery in cement industry】
(Indonesia)
149,063tCO₂/y.
Start operation: Jun. 2018.



【Waste to Energy plant】
(Myanmar)
4,125tCO₂/y.
Start operation: Jun. 2017



【Operation Optimization in Utility Facility】
(Indonesia)
34,956t
Start operation Dec. 2017



【Low carbonization of mobile communication station】
(Indonesia)
146t
Start operation: Apr. 2017

Japan's Long-Term Strategy



Chapter 1: Basic Concept

Vision: Proclaiming a “**decarbonized society**” as the ultimate goal and aiming to accomplish it ambitiously **as early as possible in the second half of this century**, while boldly taking measures towards the reduction of GHGs emissions by 80% by 2050

* an unconventional vision of an “ideal future model”

* contributing to the achievement of the long-term goals of the Paris Agreement, including efforts to limit the temperature increase to 1.5°C

Basic Principles of Policy:

Realizing “a virtuous cycle of environment and growth” towards the vision with business-led disruptive innovation, Swift implementation of actions from now, contributing to the world, **Action Towards a bright Society with Hope for the Future**

[Factors: Achievement of SDGs, Co-creation, Society5.0, the Circulating and Ecological Economy, leading country in solving problems]

Chapter 2: The Vision of Each Sector and the Direction of Measures



1. Energy

Pursuing every option for promoting **energy transitions and decarbonization**



2. Industry

Decarbonized manufacturing



3. Transport

Contribution to the challenge of **“Well-to-Wheel Zero Emission”**



4. Community and Living

Realizing **carbon neutrality**, resilient and comfortable **communities and lives** by 2050/ creating the **“Circulating and Ecological Economy”**



5. Measures for Carbon Sinks

Conserving the natural environment and creating sustainable new values in agriculture, forestry and fisheries industries to secure **sufficient carbon sink** for decarbonized society

Chapter 3: Cross-sectoral Measures to realize “a virtuous cycle of environment and growth”

1. Promotion of Innovation

Promoting innovation for practical application and wider usage of cross-sectoral decarbonization technologies that lead to drastic reduction of GHG, achieving cost that allows commercialization

- (1) Progressive environment innovation strategy
- (2) Innovation in economic and social systems/Lifestyle innovation

2. Promotion of Green Finance

Appropriate “visualization” of innovation, and mobilization of finance for the innovation by financial institutions

- (1) Mobilizing green finance through TCFD* disclosures and dialogues
* Task Force on Climate-related Financial Disclosures
- (2) Promoting initiatives to expand ESG finance

3. Business-led International Application and International Cooperation

Promoting environmental technologies and products that excel/
Promoting “Co-innovation” that benefits both sides in collaboration with partner countries

- (1) International application of decarbonization technologies linked to policy / institution building and international rule-making
- (2) Increasing infrastructure development and investment that contributes to CO₂ emissions reduction
- (3) Building platforms for decarbonized societies on a global scale



Fuel Cell Bus



CO₂ Capture Plant



TCFD Consortium



ESG Finance High-Level Panel



JCM Partner Countries Meeting

Chapter 4: Other Measures

- Human resource development
- Just transition
- Government-led initiatives
- Integrative promotion in collaboration with development of a resilient society by adaptation to climate change
- Carbon pricing (expert-driven technical debate is necessary)

Chapter 5: Review and Implementation of Long Term Strategy

- **Review:** Flexibly considering of the long-term strategy taking circumstances into account and as necessary reviewing it, about every 6 years
- **Implementation:** Analysis that takes future change in situation into account/Partnerships/Dialogue

Summary



Summary

- Japan succeeded in reducing GHG emissions in the recent four years, and GHG intensity of GDP have been decreasing for five consecutive years.
- Current status on Japan's GHG emissions is 12.4% reduction against FY2013. (Japan's NDC: 26.0% reduction by FY2030 against FY2013)
- Japan aims to achieve the FY2030 target by implementing policies and measures based on “the Plan for Global Warming Countermeasures”. Every year, the government strictly reviews the progress of the plan.
- Japan formulated a long-term strategy with a vision that proclaims a “decarbonized society” as the ultimate goal and aims to accomplish it ambitiously as early as possible in the second half of this century.

Thank you for your attention.