

# **Japan's Green Transformation Policy**

**Izuru Kobayashi**

**METI**

# Development of Japan's Energy-Climate Policy Packages

## Basic Policy for the Realization of GX, 2023

- Presents comprehensive strategy to transform Japan from a fossil fuel-based economy to a clean energy-based economy, while ensuring energy security and achieving economic growth simultaneously
- ¥150 trillion+ of public / private investments over next decade
- **Investment promotion for GX financed by ¥20 trillion government bond**
- **Pro Growth Carbon Pricing Concept.**

Carbon Neutrality  
2050

46% emissions  
reduction  
2030

## Strategic Energy Plan, 2021

- Presents Japan's energy/electricity mix in 2030 consistent with new NDC

✓ **In April 2021** at the Climate Leaders' Summit, PM Suga announced, "Japan will aim for reducing its greenhouse gas emissions by 46% in FY2030 compared to FY2013." which became the revised NDC.

## Green Growth Strategy, 2020

- Focuses on 14 priority areas critical for green growth
- Established ¥2trillion (¥2.6trillion now) Green Innovation Fund
- Achieving carbon neutrality through innovation

✓ **In October 2020**, PM Suga announced, "Japan will aim to achieve carbon neutrality and a decarbonized society by 2050."



2022

2030

2050

# Achievement of Carbon Neutrality by 2050

- To achieve Carbon Neutrality by 2050, the Japanese government developed the "Green Growth Strategy" which identifies goals, challenges, and actions of 14 priority sectors.
- In line with the strategy, "Green Innovation Fund" of 2 trillion yen was developed at NEDO. Currently, there are 19 projects being implemented. (Currently total fund is expanded to 2.75 trillion yen, ca. \$21.2B)

## 14 Growth Sectors specified in Green Growth Strategy

### Energy related industries

-  01\_Offshore wind pwr.  
Solar, heat energy
-  02\_Hydrogen,  
Fuel Ammonia
-  03\_Next generation  
heat energy
-  04\_Nuclear  
power

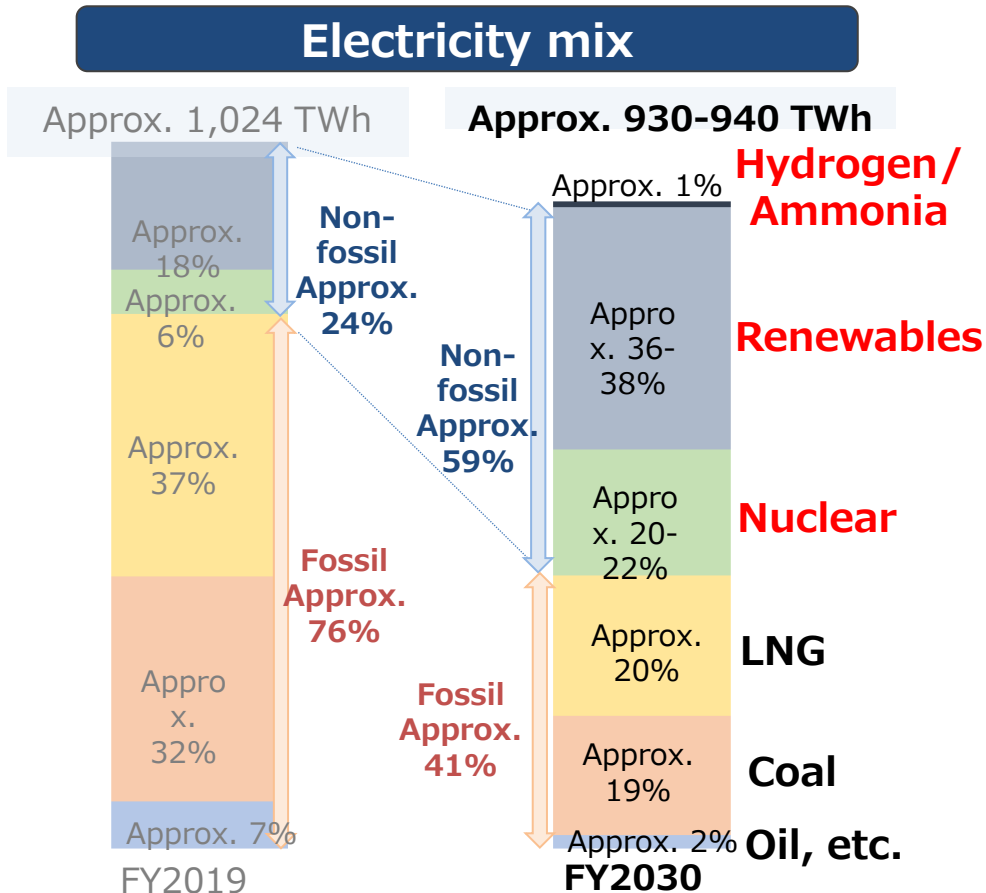
### Transport/manufacturing industries

-  05\_Automobile,  
Storage batteries
-  07\_Shipping
-  09\_Food, Agri.  
fishery, forestry
-  11\_Carbon Recycling,  
Materials
-  06\_  
Semiconductors  
Info/Com.
-  08\_Logistics,  
people flow,  
Civil eng.
-  10\_Aircraft

### Home/Office related industries

-  12\_Housing/Building  
Next gen. electric power  
management
-  13\_Resource  
circulation
-  14\_Lifestyle related

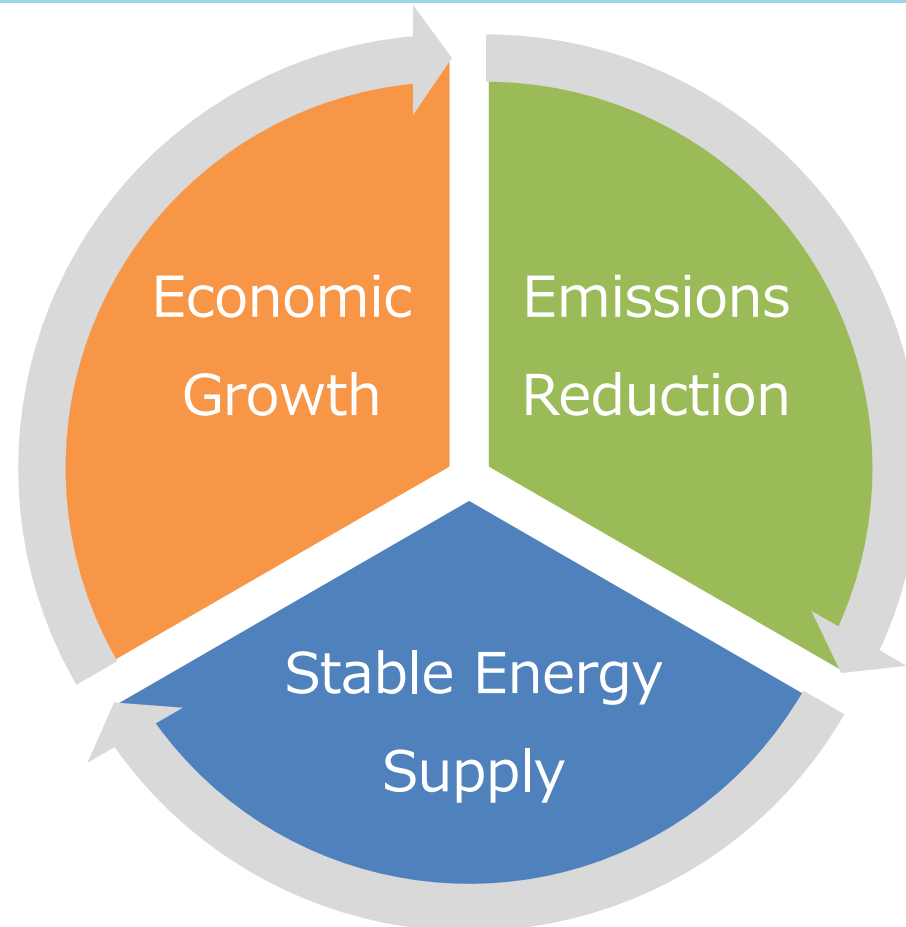
# 6<sup>th</sup> Strategic Energy Plan -Policy responses for 2030 NDC-



- Maximum introduction of renewables as primary power sources.
- Further pursuit of thorough energy efficiency
- Restart of nuclear power plants with safety as a top priority.
- On the major premise of ensuring energy security, thermal power in the electricity mix will be lowered as much as possible.
- Innovation in the thermal power by means of hydrogen /ammonia - fired power generation and CCUS/Carbon Recycling will be pursued.

# Concept of GX (Green Transformation)

- Comprehensive strategy to transform Japan from a fossil fuel-based economy to a clean energy-based economy, **while ensuring energy security and achieving economic growth simultaneously.**
- **¥150 trillion+ of public / private investments over next decade**
- **Investment promotion for GX financed by ¥20 trillion government bond**
- **Pro Growth Carbon Pricing Concept**



# Major economies expand transition policy programs.

- Economies are implementing large-scale, long-term measures to promote investment.
  - EU has set a goal of achieving 1 trillion euros of investment in 10 years.
  - US has passed the Inflation Reduction Act in August 2022 that provides 369 billion dollars of government support over the next 10 years.
- Promoting GX investment is now a decisive factor of national and business competitiveness.

## Examples of Worldwide GX Investment Promotion by Governments

Area	Goals/Measures	Reduction Target	GDP
<b>EU</b> 2020.1.14	<b>1 Trillion Euros</b> of public and private investments in 10 years	<b>▲55%</b> in 2030 (base year: 1990)	\$17.9 Trillion
<b>US</b> 2022.8.16	<b>369 Billion Dollars</b> of government support in 10 year (Inflation Reduction Act)	<b>▲50-52%</b> in 2030 (base year: 2005)	\$23.0 Trillion
<b>Germany</b> 2020.6.3	<b>50 Billion Euros</b> of government support mainly in 2 years	<b>▲55%</b> in 2030 (base year: 1990) ※EU-wide goal	\$4.2 Trillion
<b>France</b> 2020.9.3	<b>30 Billion Euros</b> of government support in 2 years	<b>▲55%</b> in 2030 (base year: 1990) ※EU-wide goal	\$2.9 Trillion
<b>UK</b> 2021.10.19	<b>26 Billion Pounds</b> of government support in 8 years	<b>▲68%</b> in 2030 (base year: 1990)	\$3.2 Trillion

(Ref) Disclosures by each government, exchange rate as of October 2022

# There Are Various GX Pathways



# GX Promotion Strategy

- Based on the **GX Promotion Act** (enacted May 2023), the Japanese government adopted the **“GX Promotion Strategy”** in July 2023. The **strategy sets forth necessary policies to be implemented to achieve 150 trillion yen of public and private investments** to realize GX (green transformation), a transition from a fossil fuel-oriented economic and industrial structure since the Industrial Revolution to a clean energy-oriented one.

## 1. Green Transformation based on the Steady Supply of Energy

- ① **Efforts to promote energy saving**
- ② **Renewable energy as a major source**
  - Substantial grid enhancement
  - Next generation solar panels, floating offshore wind
- ③ **Utilization of nuclear energy**
  - Developing next generation reactors with substantially enhanced safety features
  - Extension of operation periods of existing reactors with a premise of safety as a top priority
- ④ **Other efforts**
  - Support for RDD&D of hydrogen, ammonia, CCS/CR, E-fuel, batteries and others

## 2. Implementation and realization of “Pro-Growth Carbon Pricing Concept”

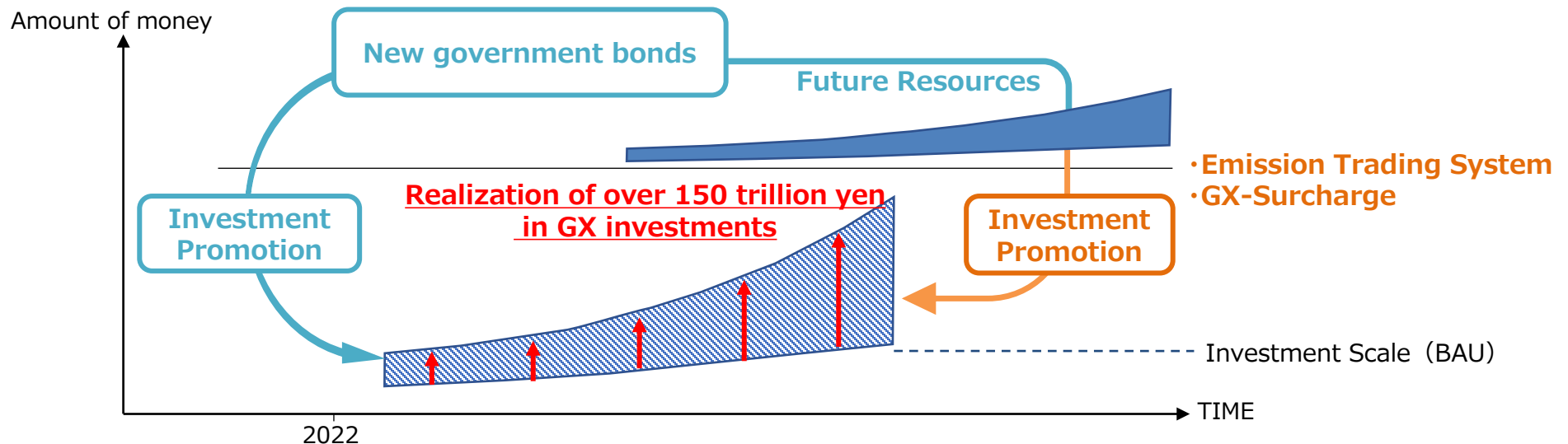
- ① **Upfront investment support provided through issuing GX Economy Transition Bonds (20 trillion yen in 10 years)**
- ② **Adoption of Pro-Growth Carbon Pricing**
  - i. Emission Trading System 【FY2026~】
  - ii. Auction of emission quotas by power producers 【FY2033~】
  - iii. Carbon surcharges for fossil fuels 【FY2028~】
- ③ **Utilization of new financial measures**
- ④ **International cooperation**
- ⑤ **Social measures to promote GX (just transition, demand creation, SMEs)**



# Pro-Growth Carbon Pricing Concept

- **Advance investment of 20 trillion yen** will be provided through issuing government bonds to realize GX, aiming for more than **150 trillion yen of public and private investment over the next 10 years.**

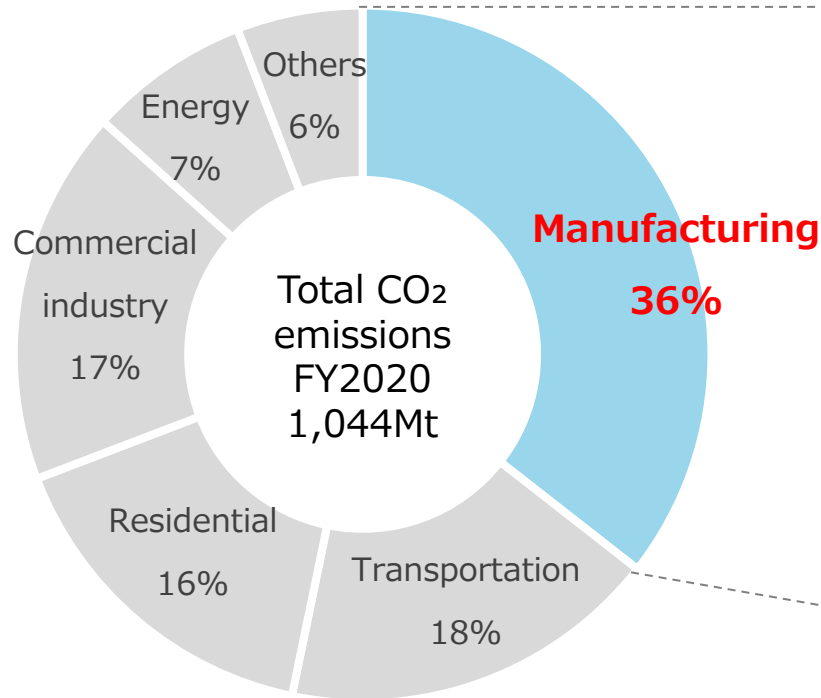
- ① **Government support for advance investment** by issuing **new government bonds (Japan Climate Transition Bonds, or JCTB)**
- ② **Introduction of carbon pricing to incentivize early GX investment**
  - (1) Full-scale operation of **emissions trading system** in high emission industries [**from FY2026**].  
+ Allowance auctioning to be phased in gradually to **power generation companies** [**from FY2033**]
  - (2) Introduction of a **GX-Surcharge** on fossil fuel supply [**from FY2028**]
- ③ Strengthen financial support through public-private partnership (e.g. blended finance with the GX Promotion Agency)



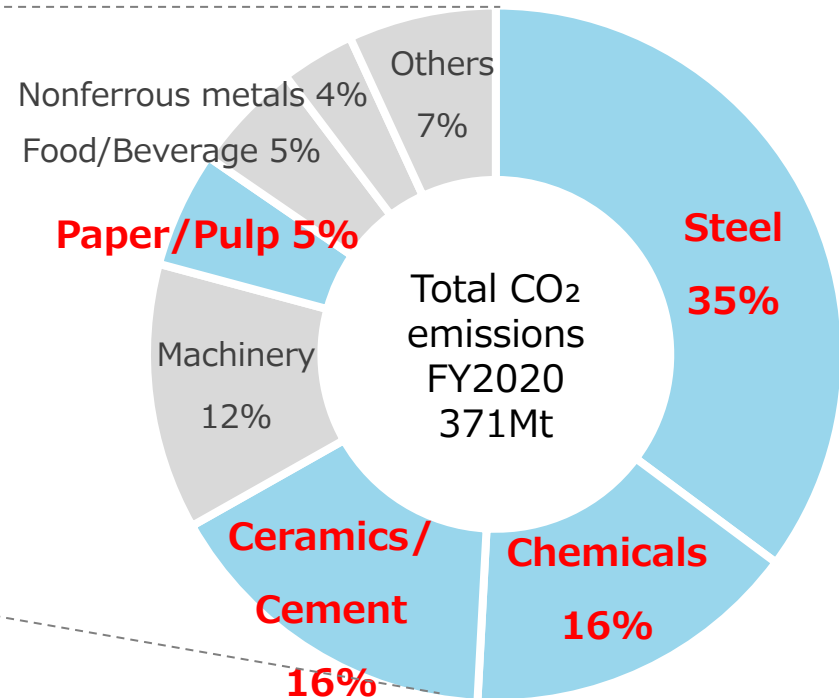
# CO<sub>2</sub> emissions status in Japanese manufacturing industry

- The manufacturing industry accounts for the highest share at 36% of CO<sub>2</sub> emissions in Japan.
- In which, material industries (steel, chemicals, ceramics /cement, paper /pulp) account for approximately 70%.

CO<sub>2</sub> emissions by domestic sector<sup>1, 2</sup>



CO<sub>2</sub> emissions by materials in manufacturing industry<sup>3</sup>



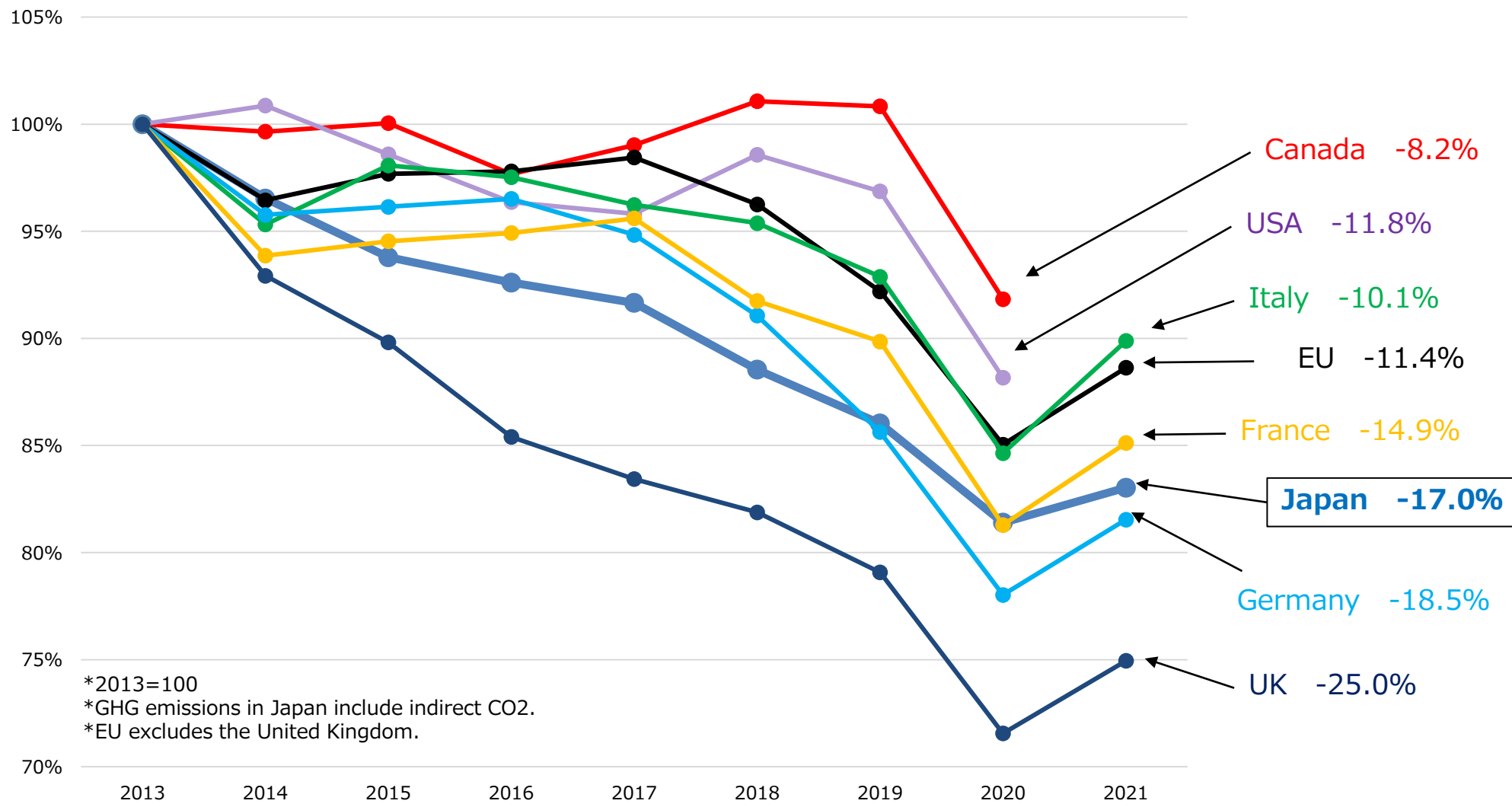
1: CO<sub>2</sub> emissions by domestic sector [electricity/heat allocated]

2: The Manufacturing sector is the sum of "Energy related CO<sub>2</sub>/Industry/Manufacturing" and "Non energy related CO<sub>2</sub>/Industrial Processes and Product Use".

3: The Chemicals is the sum of "Energy related CO<sub>2</sub>/Chemical and Allied Products, Oil and Coal Products" and "Non energy related CO<sub>2</sub>/Chemical Industry", and the Ceramics/Cement is the sum of "Energy related CO<sub>2</sub>/Ceramic, Stone and Clay Products (Cement - Kiln Use etc.)" and "Non energy related CO<sub>2</sub>/Mineral Products".

# Ref: Changes in greenhouse gas emissions in G7

● Due to the rebound due to the impact of the covid-19, Japan increased by +2.0% from the previous year, and decreased by 17% compared to FY2013.



\*2013=100  
 \*GHG emissions in Japan include indirect CO2.  
 \*EU excludes the United Kingdom.