

## Provisional Translation



# **table of contents**

- 1 . Overview of Japan .....3**
- 2 . Initiatives for the Realization of GX .....11**
- 3 . Overview of Japan Climate Transition Bonds •23**
- 4 . Overview of Transition Finance .....28**

# **Overview of Japan**

# About Japan

## Population

**125,284,630**

(as of June 1, 2021 Statistics Bureau,  
Ministry of Internal Affairs and  
Communications)



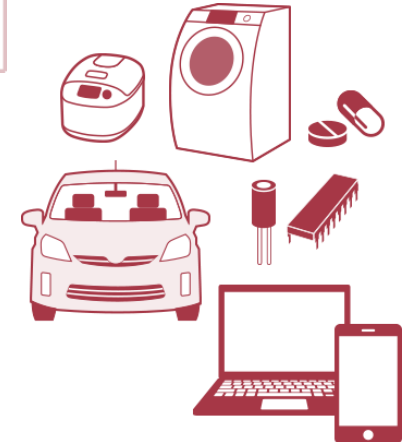
## GDP

**US\$4,975 trillion**  
as of 2020 (World Bank)

## GDP per capita

**US\$34,366**  
as of 2020 (World Bank)

Japan is the world third-largest economy  
by nominal GDP



## Main Industries

Automobiles, consumer electronics,  
computers, other electronics

# Japan's goals and strategies (Carbon Neutrality)

■ Speech by Prime Minister KISHIDA Fumio at the Guildhall in London (2022.5.5)

## 【Goals】

- ✓ Japan will achieve its international commitments to carbon neutrality by 2050 and to reduce greenhouse gas emissions by 46% by 2030, while ensuring a stable energy supply.
- ✓ To achieve these goals, 150 trillion yen in new investments will be raised over the next decade through public-private collaboration, including 17 trillion yen in fiscal 2030.



# 【Ref】 Increasing Worldwide Government Support toward GX

- Economies are implementing **large-scale, long-term measures to promote investment.**
  - The **EU** has set a goal of achieving **1 trillion euros of investment in 10 years.**
  - The **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

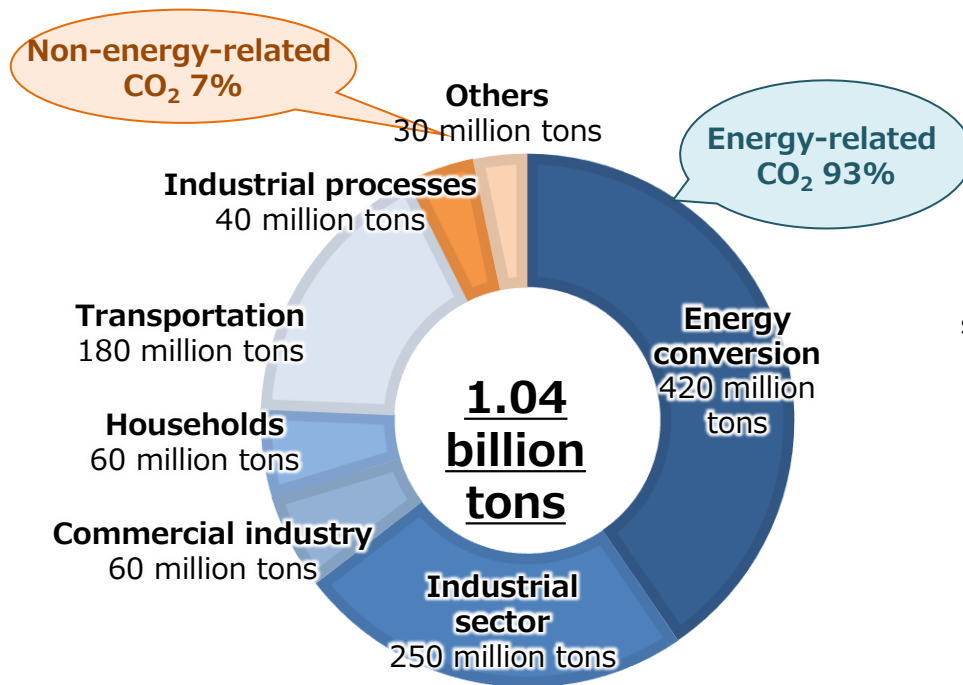
Area	Goals/Measures	Reduction Target	GDP
<b>EU</b> 2020.1.14	<b>1 Trillion Euros</b> of public and private investments in 10 years	<b>▲55%</b> in 2030 (base year: 1990)	\$17.9 Trillion
<b>US</b> 2022.8.16	<b>369 Billion Dollars</b> of government support in 10 year (Inflation Reduction Act)	<b>▲50-52%</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

# Japan's CO2 emissions

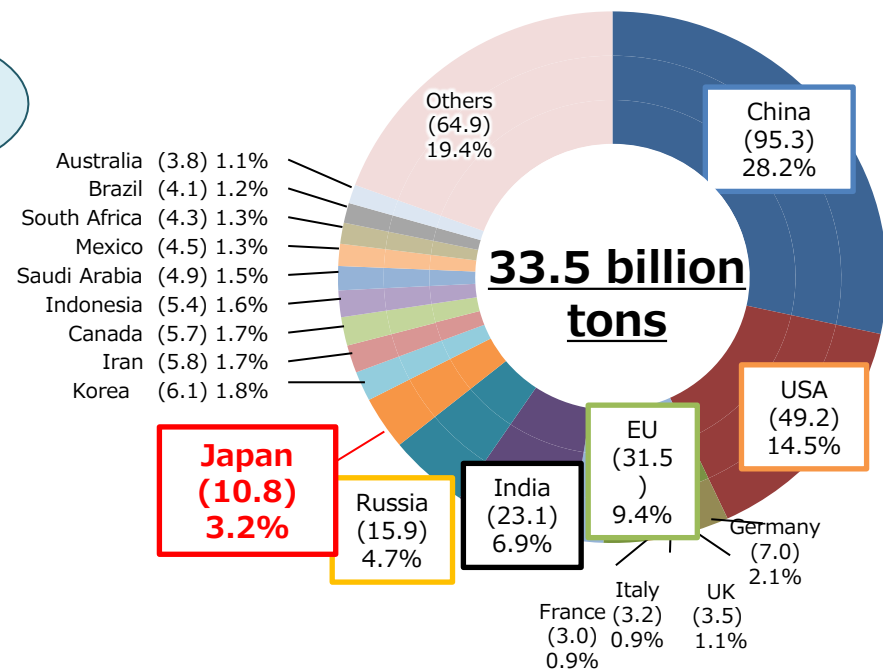
- In Japan, CO2 emissions from **power sector accounts for 40%**. Emission reduction from Industrial and other sectors are crucial towards carbon neutral.
- Japan will contribute to global emission reduction by providing solution for ourselves and beyond.

## Japan's CO<sub>2</sub> emissions (2020)



(Source)  
Created from Greenhouse Gas Inventory Office  
"Japanese greenhouse gas emission data"

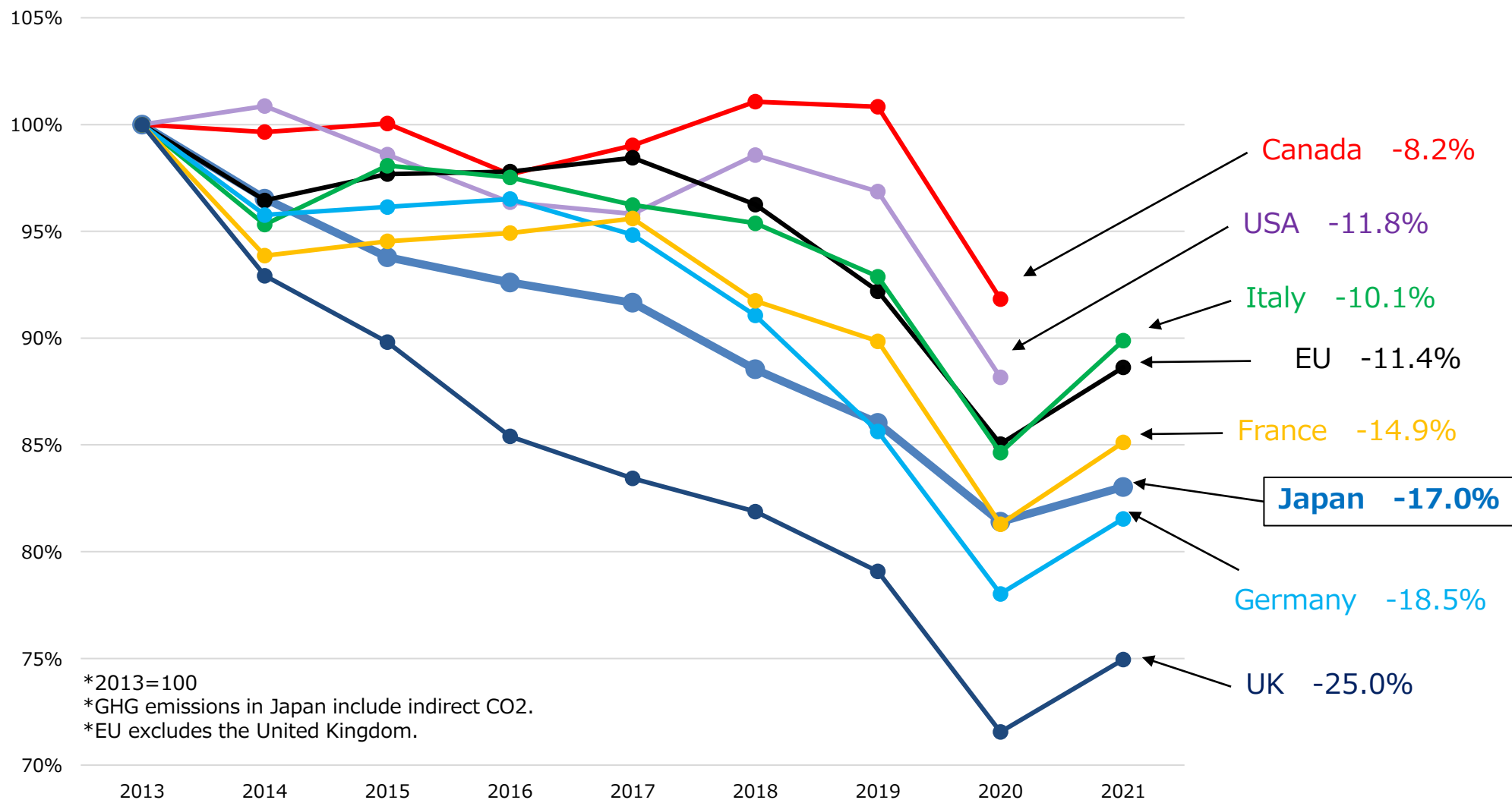
## Global energy-related CO<sub>2</sub> emissions (2020)



(Source) IEA, CO<sub>2</sub> Emissions from Fuel Combustion Highlights 2020

# 【Ref】 Changes in greenhouse gas emissions in G7

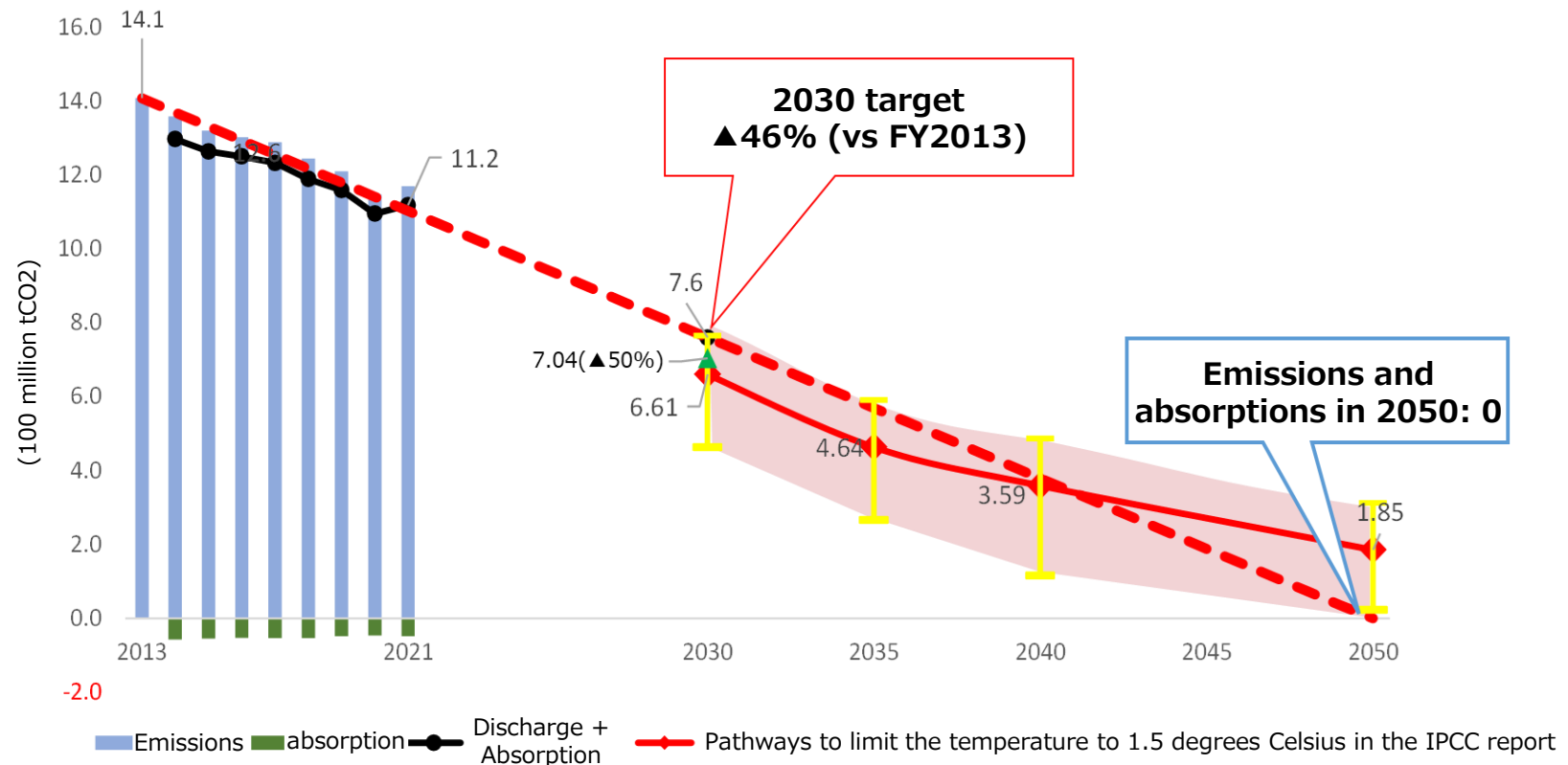
■ Due to the rebound due to the impact of the covid-19, Japan increased by +2.0% from the previous year, and decreased by 17% compared to FY2013.





# Japan's Progress Toward Net Zero by 2050

- In line with the 1.5°C target, Japan is continuing to challenge itself to reduce emissions by 46% in FY2030 compared to FY2013 and to achieve a higher level of 50%.
- Approximately 20% reduction so far. **Japan is steadily reducing emissions toward the 2050 target.**



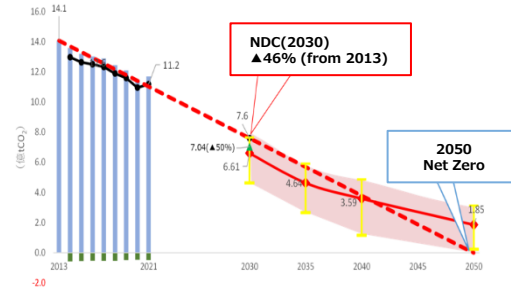
\*1: The range of red bands in the figure above is a hypothetical allocation of the global greenhouse gas emission reduction (%) to Japan in the 1.5°C pathway indicated in the Integrated Report of the IPCC Sixth Assessment Report released in March 2023.

\*2: In this report, the path to limit the temperature to 1.5° C is shown as a wide path, taking into account the uncertainty of the model, so emissions as of 2030, 2035, 2040, and 2050 are indicated by the yellow line. In addition, the representative values are shown as solid red lines.

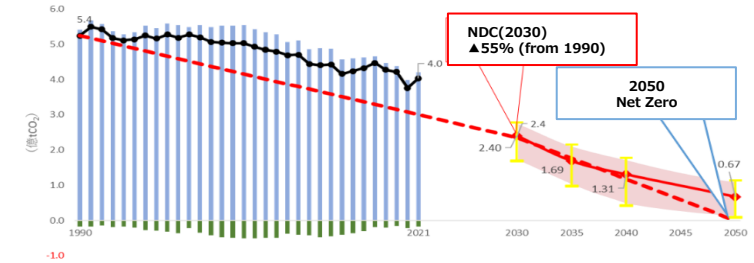
# 【Ref】 Progress of emissions reductions of G7 members

■ Japan's emissions reduction is on track with its NDC.

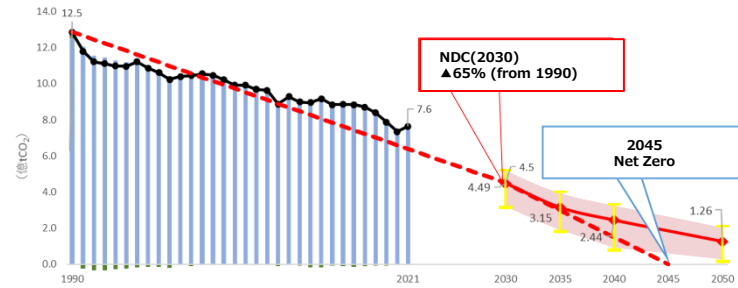
Japan



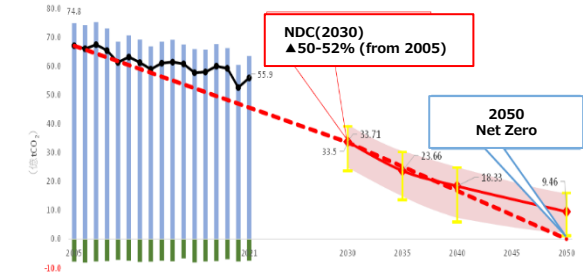
France



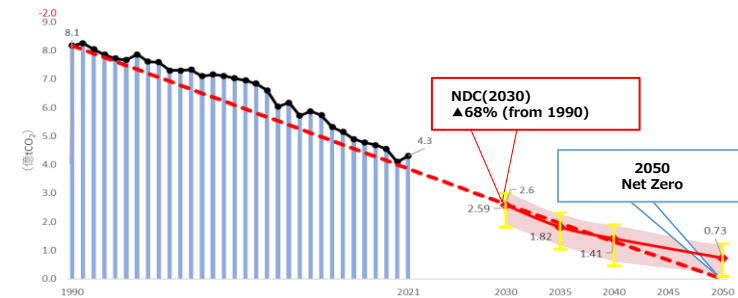
Germany



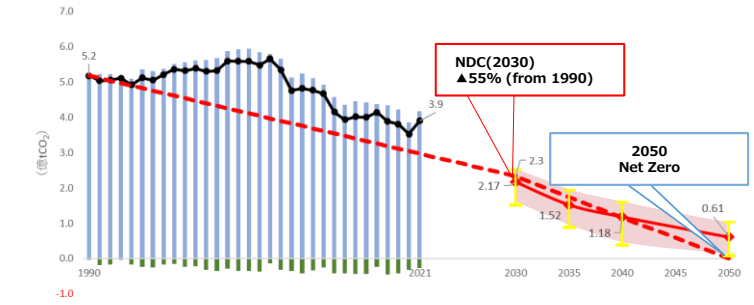
US



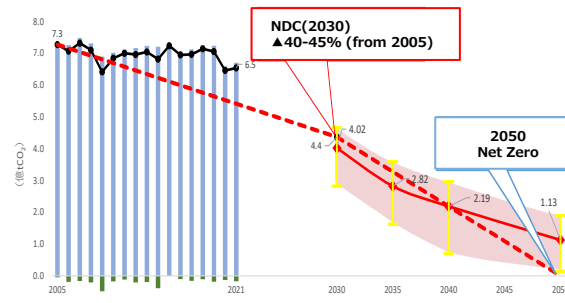
UK



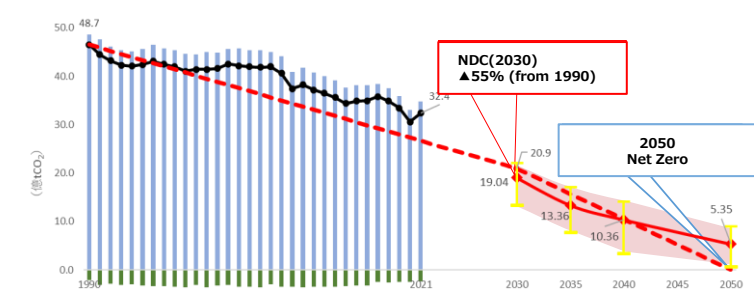
Italy



Canada



EU



emissions

removal

emissions - removal

One of 1.5 IPCC modeled pathways (representative point)

Range of IPCC 1.5 pathways

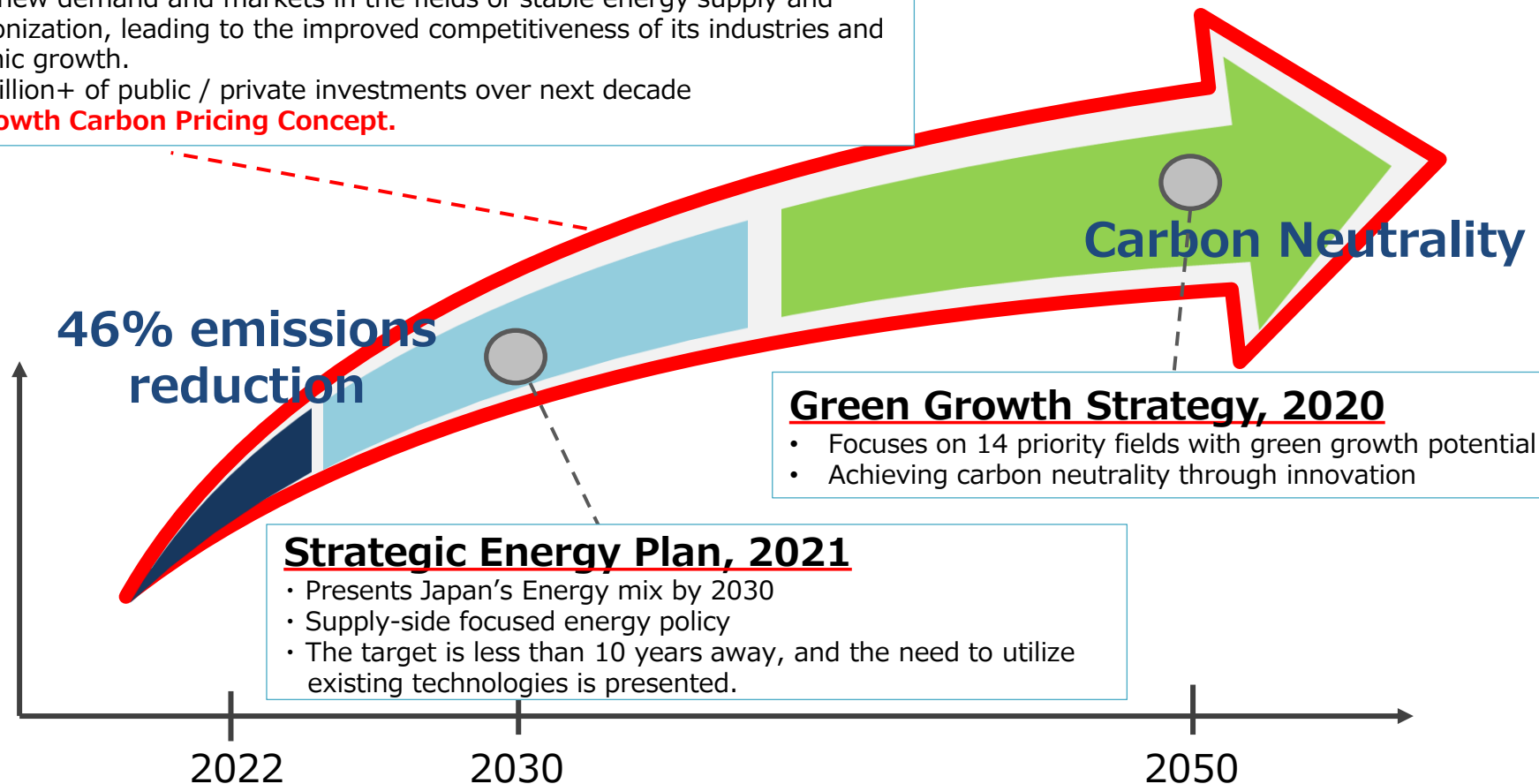
# **Initiatives for the Realization of GX**

# Japan's Major Energy-Climate Policy packages

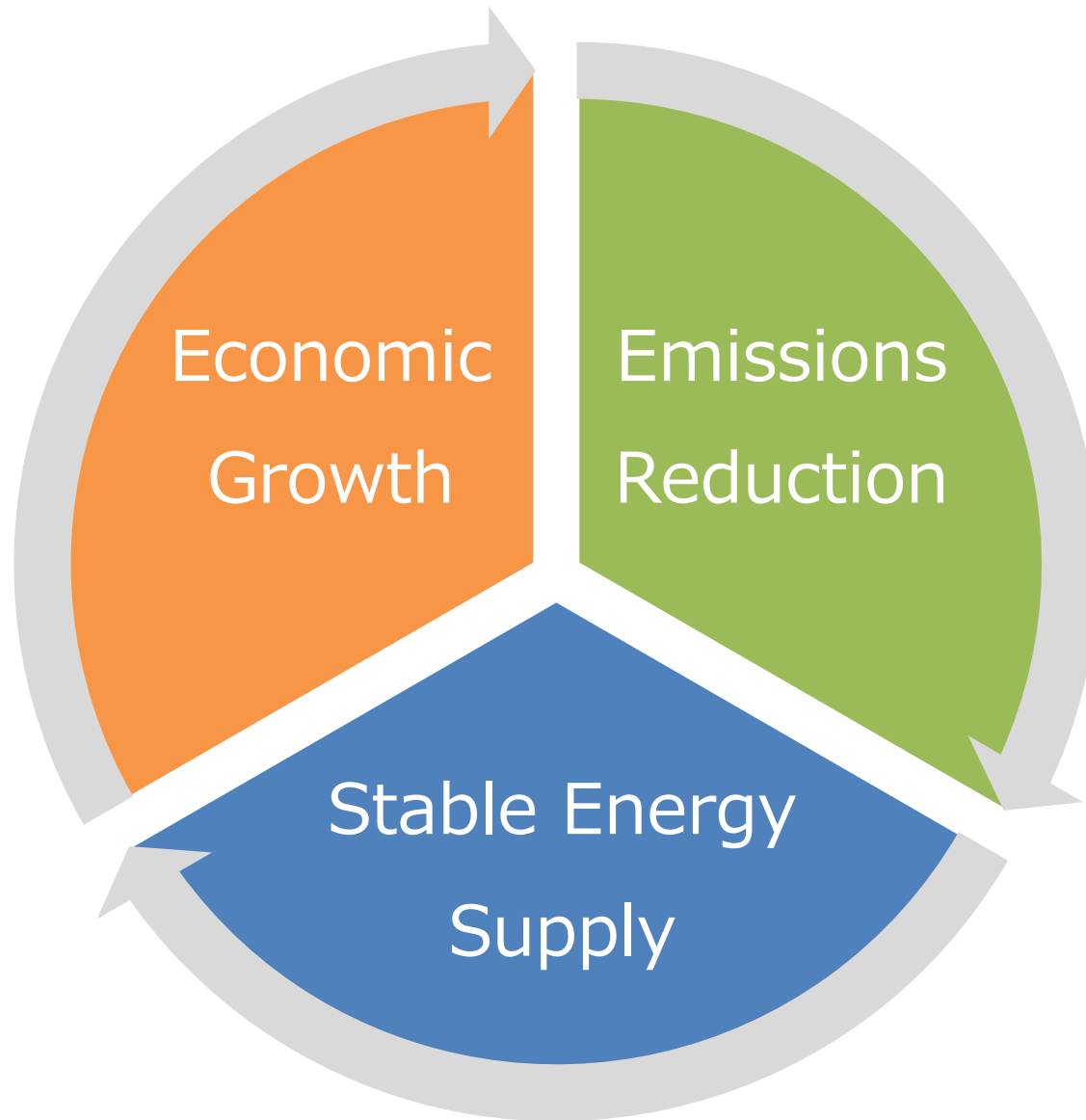
- Government of Japan announced the Basic Policy for the Realization of GX in February 2023. Relevant bills passed the Diet session in May.
- Green Transformation (GX) delivers both **emission reduction** and **economic growth**. Successful GX initiatives enhance competitiveness of companies and nations.

## Basic Policy for the Realization of GX, 2023

- Create new demand and markets in the fields of stable energy supply and decarbonization, leading to the improved competitiveness of its industries and economic growth.
- ¥150 trillion+ of public / private investments over next decade
- **Pro Growth Carbon Pricing Concept.**



# GX (Green Transformation)



# 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

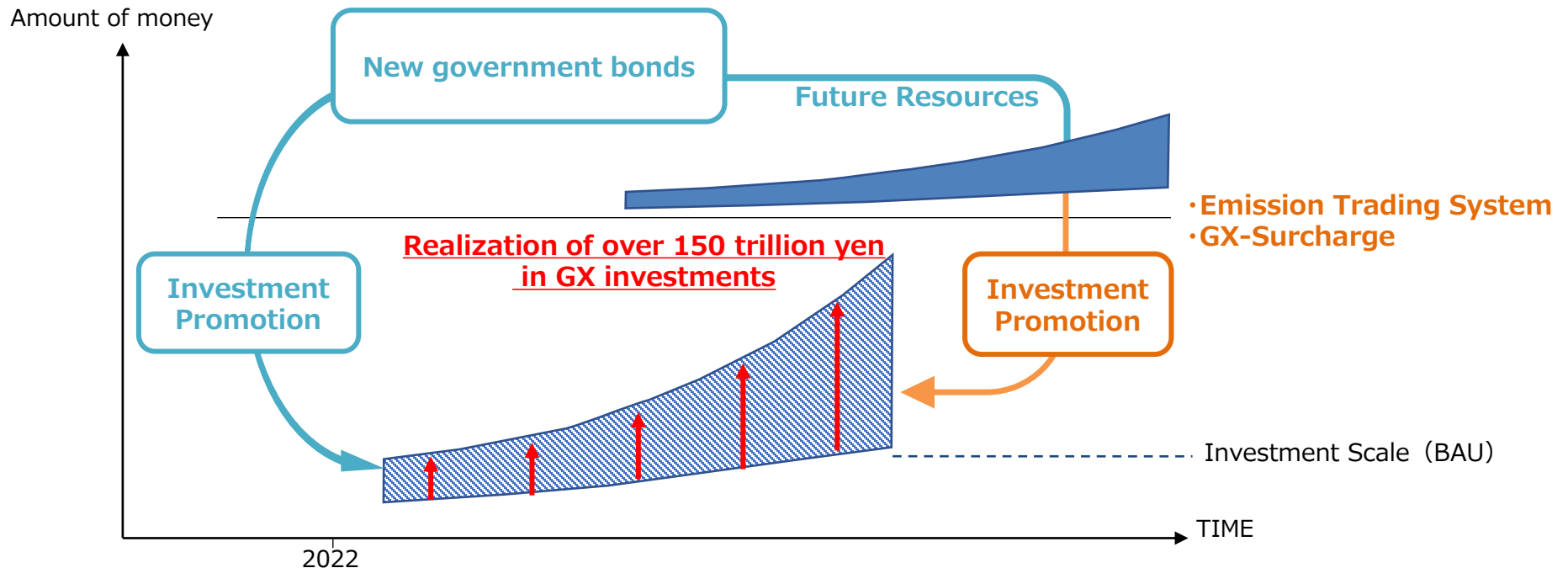
- ① **Efforts to promote energy saving**
- ② **Renewable energy as a major source**
  - Grid development
  - Next generation solar panels and offshore wind
- ③ **Utilization of nuclear energy**
  - Replacement to next generation plants
  - Extension of operation periods of existing plants with safety as a premise and under specific terms
- ④ **Other efforts**
  - Support towards hydrogen and ammonia
  - Research & development, investment promotion and demand creation in carbon recycle fuel, batteries and other areas

## 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

- To promote the GX investment as described above, a "Pro-Growth Carbon Pricing Concept" will be embodied and implemented as soon as possible.
- ① **Government support for advance investment by issuing new government bonds (Japan Climate Transition Bonds)**
- 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)



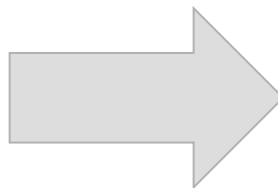
# Approaches for investment promotion measures of 20 trillion yen

- The contents of the 20 trillion yen "investment promotion measures" utilizing the GX Economy Transition Bonds (/Japan Climate Transition Bond) will be determined based on the following five principles, utilizing objective indicators and the knowledge of experts.

## Principles for investment promotion measures

1. Basic principles: **a) investment decisions by the private sector alone are truly difficult, b) contribute to industrial competitiveness and economic growth, and c) emission reductions**
2. Addressing **high emission sectors**
3. Brush up and finalize **"Sector-specific investment strategies (roadmap)"** and decide on "investment promotion measures" in line with the strategies
4. **Analyze emission reduction effects (eg: marginal abatement cost analysis) , and economic impacts** (eg: profit analysis)
5. Detail measures will be decided by the GX Implementation Council drawing on the expertise of experts

20 Trillion Yen  
Investment promotion  
measures



150 Trillion Yen  
Public Private investment for  
decarbonization

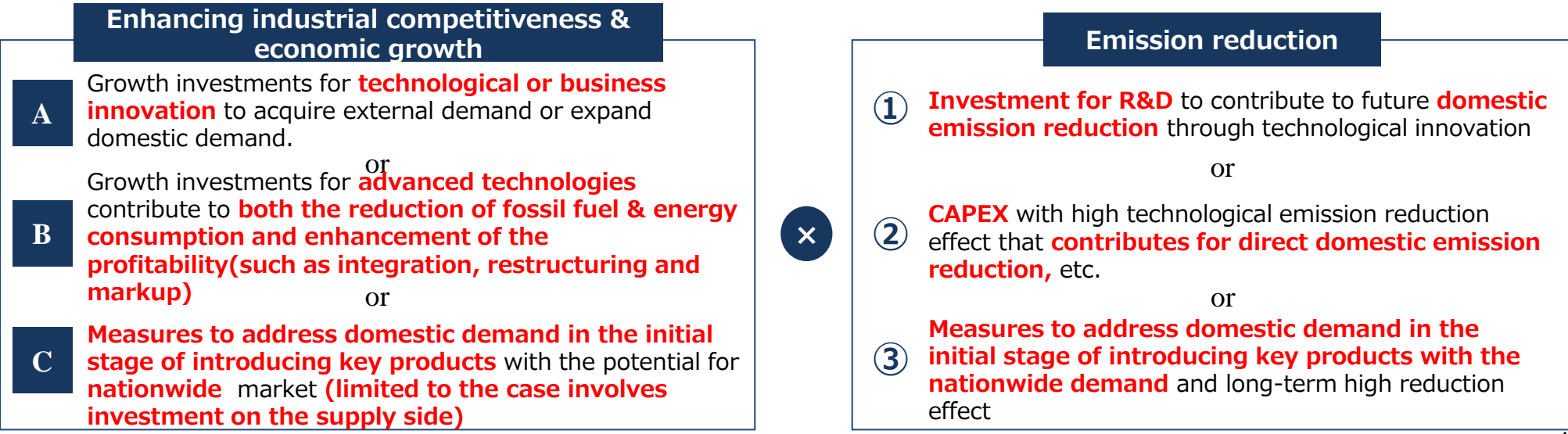


# 【Ref】 Basic principles for “Investment Promotion Measures”

## 【Fundamental Requirements】

- I . With the primary premise that companies commit to business innovation including funding methods, **Target projects that are truly challenging for private companies to make investment decisions alone** due to the innovativeness of technologies and the nature of the projects.
- II . Prioritize projects **contribute to both enhancing industrial competitiveness & economic growth and emission reduction** taking into consideration the total consideration of the size of the market, the amount of the reduction and the necessity of domestic supply integral for achieving GX. **Provide supports starting from the projects with higher priority.**
- III . **Take regulatory and institutional measures integrally** that lead to changes in corporate investment and demand-side behavior.
- IV . Target projects **lead to enhance investment in human resources and business in Japan\***. Exclude projects which are not effective for domestic emission reduction such as CAPEX completes only in foreign countries, nor those are just effective for achieving reduction target such as carbon credit.

## 【Examples】



# Breakdown of “Investment Promotion Measures”

- To enhance the predictability for businesses and maximize GX investments:
  - 1) At the end of last year, government compiled a sectoral investment strategy for the next 10 years.
  - 2) Within these strategies, **develop a “5-year Action Plan” focusing on achieving carbon neutrality by 2050.**
- The GX Implementation Council and the expertise of specialists will be utilized to compile these plans and implement specific measures based on them.

## Energy Supply Side:

Approx. 50 trillion yen~

### <GX in the Energy Transformation Sectors>

- Renewable Energy\*<sup>1</sup> : Approx. 20tn yen~
- Next-generation Networks\*<sup>1</sup>: Approx. 11tn yen~  
(Grid and balancing capabilities)
- Next-generation innovative reactors: Approx. 1tn yen~
- Hydrogen and ammonia: Approx. 7tn yen~
- Carbon recycling fuels: Approx. 3tn yen~
- CCS: Approx. 4tn yen~

And more

Long-term decarbonized power source auctions will be newly established to promote investment in decarbonized power sources.

## Energy Demand Side:

Approx. 100 trillion yen~

### <GX in Sectors related to people's lives>

Approximately 60 trillion yen~

- Housing and buildings: Approx. 14tn yen~
- Automobiles and energy storage batteries: Approx. 34tn yen~
- Digital investments for decarbonization purposes: Approx. 12tn yen~

### <GX in Industrial Sectors> Approx. 70 trillion yen~

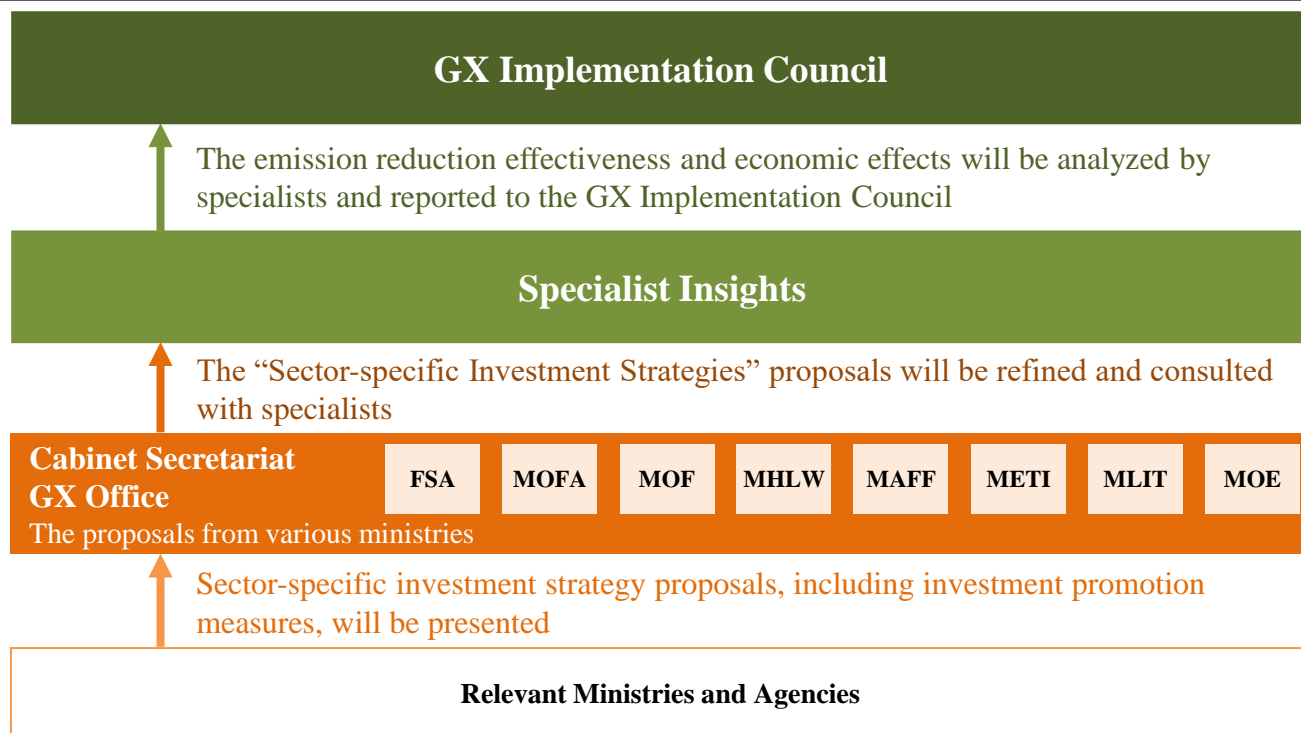
- Materials (Iron and steel, chemical, cement and paper): Approx. 8tn yen~
- Automobiles and energy storage batteries: Approx. 34tn yen~ (repeated)
- Digital investments for decarbonization purposes: Approx. 12tn yen~ (repeated)
- Zero-emission ships (Maritime): Approx. 3tn yen~

And more

Note: The amounts provided are provisional values and have been mechanically calculated based on certain assumptions. They may change in the future, and there may be increases or decreases depending on the progress of projects, etc.

# Process for finalizing “Investment Promotion Measures” utilizing specialist insights

- The evaluation and discussion of “Investment Promotion Measures” to be incorporated in the “Sector-specific Investment Strategies” will be centered around:
  - **Emission reduction effectiveness based on marginal abatement cost analysis** considering technology development trends.
  - **Economic effects based on investment return analysis** considering market trends**The results will be reported to the GX Implementation Council for the specific determination of investment promotion measures.**
- **To facilitate in-depth discussions at the GX Implementation Council, the following specialist insights will be utilized:**
  - 1) Technology trends
  - 2) Market trends
  - 3) Overseas information and others



FSA : Financial Services Agency  
MOFA : Ministry of Foreign Affairs  
MOF : Ministry of Finance  
MHLW : Ministry of Health, Labour and Welfare  
MAFF : Ministry of Agriculture, Forestry and Fisheries  
METI : Ministry of Economy, Trade and Industry  
MLIT : Ministry of Land, Infrastructure, Transport and Tourism  
MOE : Ministry of the Environment

**[Ref] Measures to Promote Investment through GX Economy Transition Bonds** \*currency: yen

		Amount of investment	Major Investment Promotion Measures	Actioned	Estimated amount of support (Under scrutiny)	remarks
manufacturing industry	iron and steel chemistry Pulp & Paper cement	3 trillion	•Capital Investment Support for Manufacturing Process Transformation (Innovative electric arc furnace, etc.)		5 years: 480 bill	•Total support for capital investment in the four fields (iron, chemicals, paper, and cement) is on the order of 1.3 trillion yen over 10 years
		3 trillion				
		1 trillion				
		1 trillion				
transport	automobile	34 trillion	•Support for the introduction of electrified vehicles	273.6 bill		•Tax deductions based on production volumes of EVs, etc.
	battery	7 trillion	•Support for the introduction of production equipment	597.4 bill	230.0 bill	•R&D support for all-solid batteries, etc
			•Support for the introduction of stationary storage batteries		3 years: 40 bill	
	aircraft	4 trillion	•Technological development of next-generation aircraft			•Consideration based on the "Next-Generation Aircraft Strategy" to be formulated by the end of the fiscal year
	SAF	1 trillion	•Support for SAF manufacturing and supply chain development		5 years: 340 bill	
	shipping	3 trillion	•Support for the introduction of production facilities for zero-emission vessels, etc.		5 years: 60 bill	•Measures to support R&D for ammonia carriers, etc.
Lifestyle, etc.	Life	14 trillion	•Renovation to insulated windows in the home •Introduction of high-efficiency water heaters •Renovation support for educational facilities, etc	235 billion 58 billion 33.9 billion		•Support measures on the scale of 2 trillion yen during 3years
	Resource circulation	2 trillion	•Support for building a recycling-oriented business model		3 years: 30 bill	•Including R&D on pyrolysis technology, etc.
	semiconductor	2 trillion	•Support for the introduction of power semiconductor production facilities •AI semiconductors, optoelectronic fusion, etc	432.9 billion 103.1 billion		•Including R&D support for power semiconductors, etc.
energy	Hydrogen, etc.	7 trillion	•Support focusing on the price difference between raw materials and fuels		5 years: 460 bill	•Price differential support is on the scale of 3 trillion yen over 15 years •R&D support for supply chains ,etc
	Next-Generation Renewable Energy	31 trillion	•Establishment of hydrogen supply bases			•Facility investment, etc., 1 trillion yen in 10 years •Including R&D support for perovskites
			•Support for the construction of supply chains such as floating offshore wind farms and support for the introduction of perovskites		5 years: 420 bill	
	nuclear energy	1 trillion	•Development and construction of next-generation innovative reactors	89.1 billion	3 years: 160 bill	
CCS	4 trillion	•CCS Value Chain Construction Support			•Examination based on the results of business surveys	
	Cross-sectoral measures		•Energy-saving subsidies, etc.	340 billion		•700 billion yen over 3 years
			•Support for fostering deep tech startups		40 bill	•Assistance on the scale of 200 billion yen over five years
			•R&D through GI Fund, etc.	806 billion		•2 trillion yen measures in 2021
			•Financial support by the GX Organization		120 bill	•Assuming financing support through debt guarantees
			•Regional Decarbonization Grants	3 billion	6 bill	
	Tax Measures	•Establishment of new tax credits based on production volumes of green steel, green chemicals, SAF, EVs, etc.				

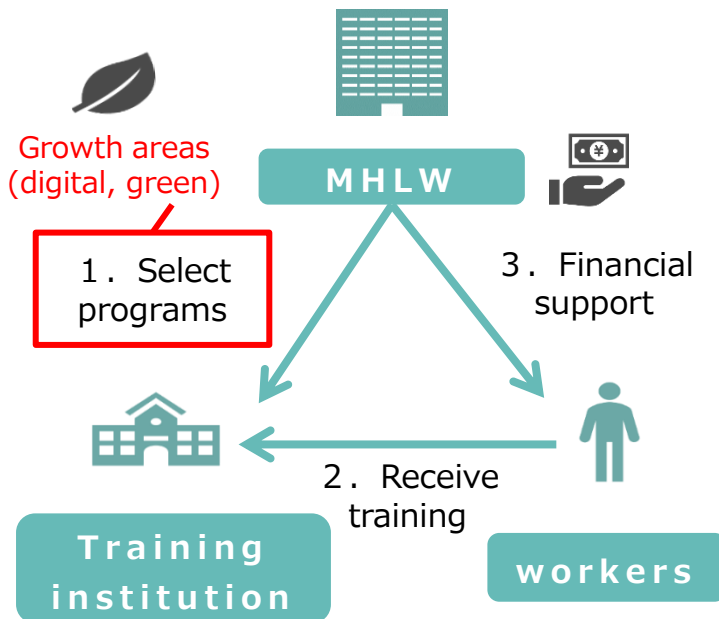
**Amount of support since R6FY: Approx. 2.4 trillion円 (赤の合計)**

# 【Ref】 Just Transition

- **“Just Transition”**: A concept to adapt to climate change in a sustainable manner
- The concept was proposed by the ITUC (International Trade Union Confederation) at COP15 in 2009. In order to expedite GX, **it is imperative to facilitate adequate labor transfer to newly born industries** from Just Transition perspective.
- **Policy support for Just Transition** will be backed by a **1-trillion-yen investment in human resources over 5 years** to promote **new skill acquisition and labor transfer to green growth areas**: increasing labor mobility to growth areas, support for career change, corporate re-skilling of employees.  
※Just Transition is provided for in GX Promotion Act as one of the basic principles

## Expanding job training

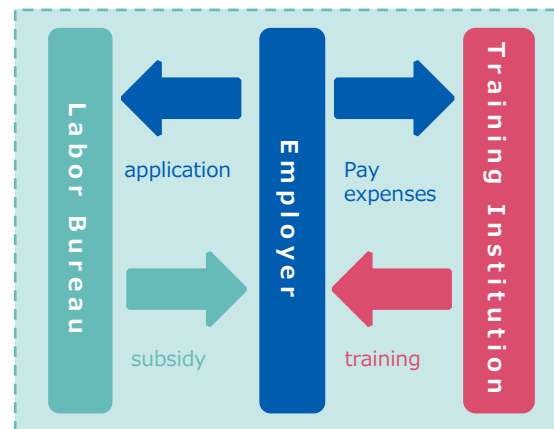
- Expand training programs in green and other growth areas



## Corporate support for skill development

- Strong support for employers who conducted job trainings on green businesses for business development

(image)



## Career change through re-skilling

- Financial support for re-skilling and career change services by private sector experts



# [Ref] Contributing to the Realization of Asia's "Transition"

- In order to address global climate change issues and achieve economic growth, it is extremely important to realize GX in Asia. Social stability, including energy security, is also important. On the other hand, Asia faces **challenges such as limited renewable energy reserves and a surge in electricity demand** in the future.
- Therefore, **it is important to utilize "transition finance" to support the gradual transition to CN as well as green finances.**
- Specifically, it is important to (1) **disseminate transition-related technologies**, (2) support the formulation of rules related to transition finance, and (3) provide transition funds.

## The Importance of Transition in Asia

potential

Asia's emissions are higher than the rest of the world's occupies more than half

By 2050  
The size of **the economy is about 3 times\***

subject

Compared to Europe and Africa, **the amount of renewable energy available is small**

Population growth and economic growth will **increase electricity demand by approximately tripling by 2050\***

### Taxonomy

(Limited to those that are already green, etc.)



**Facts in Asian countries  
Based on the Transition Path**

## Examples of Initiatives to Promote the Use of "Transition Finance"

Technology  
is  
widespread

- Expanding the results of GX investment in Japan to Asia
  - Compiled a list of technologies to make it easier for financial institutions to provide funding
  - Joint demonstration of transition technology

Rule  
formation

- Establishment of rules for the Asian version of transition finance
  - Bringing in global funds for GX (It is estimated that the cumulative total will be 40 trillion \$ by 2050.)

Fund  
Provisioning

- Expand the provision of funds by the Japanese government and private financial institutions for transition technologies and projects such as ammonia, LNG, and CCUS.

⇒ **Achieving economic growth and decarbonization together with Asia**

Source: Created based on IEA's World Energy Outlook 2021, etc.

\*Outlook for Southeast Asia

# **Overview of Japan Climate Transition Bonds**

# About the Climate Transition Bond Framework

- When issuing transition bonds that have received a third-party SPO, it is important to formulate a "framework" that summarizes Japan's transition strategy and the use of funds based on it, and to demonstrate to the market the eligibility and reliability of transition bonds.
- **On November 7, the government released the Climate Transition Bond Framework.**

## (1) Items in the framework (based on ICMA Standards)

- ✓ **Issuer's transition strategy**
- ✓ **Use of proceeds**
- ✓ **Management of proceeds**
- ✓ **Reporting** (Allocation reporting + Impact reporting)

### <Japanese>



### <English>



## (2) Decision making process for the formulation of the framework

- **Ministries and Agencies Liaison Conference on GX Economy Transition Bond Issuance**
  - Chaired by the Director of the Cabinet Office's GX Promotion Office with participation from FSA, MOF, METI and MOE.
  - The intergovernmental committee discusses policies of Japan climate transition bond, and create the draft framework
- **GX Implementation Council**
  - Chaired by Prime Minister with participation of relevant ministers and experts to discuss and confirm the content of the framework



# Overview of the Climate Transition Bond Framework ①

- For the alignment with international standards such as the Green Bond Principles and Climate Transition Finance Handbook, **the framework clarifies the climate transition strategy, use of proceeds, reporting, etc.**
- The framework prioritizes investments in **sectors that contribute to reducing GHG emission and enhancing industrial competitiveness and economic growth**, focusing on **projects that are truly difficult for the private sector alone to make investment decisions**, as described in the “GX Promotion Strategy”.

## Overview of the Framework

### ✓ Climate Transition Strategy :

To achieve the international commitment of the 46% reduction in GHG emission by 2030 (compared to 2013 levels) and carbon neutrality by 2050, and to enhance industrial competitiveness and promote economic growth in our country, the “Green Transformation Promotion Strategy” was formulated in July 2023 based on the “GX Promotion Act”.

### ✓ Use of Proceeds :







Based on the “Green Transformation Promotion Strategy”, the framework categorizes projects under “Eligibility Criteria” and “Representative Use of Proceeds” such as the promotion of energy efficiency, structural transformation of the manufacturing industry, and the mainstreaming of renewable energy. For more details, refer to the next page.

### ✓ Reporting :

After issuance, annual reporting will be conducted on ①Allocation Reporting, which summarizes the allocation status of proceeds to GX budget projects, and ②Impact Reporting, which provides information on environmental impacts and case studies. ② will be conducted within two years from issuance, as the effects and impacts of the projects may take time to become apparent.

# Overview of the Climate Transition Bond Framework ②

## <Classification of Use of Proceeds>

Major categories		Eligibility Criteria	Representative Use of Proceeds (Eligible Projects)
1	Energy efficiency 	Promotion of thorough energy efficiency improvement	- Promote the spread of energy-efficient appliances
		Houses and buildings	- Support for building new houses and buildings with high energy efficiency and retrofitting to improve energy efficiency
		Digital investment aimed at decarbonization	- Facilitating the development of and investment in energy efficient semiconductors, photonics electronics convergence technologies, etc.
		Battery industry	- Investments in plants manufacturing batteries together with their material and components
2	Renewable energy 	Making renewable energy a major power source	- Floating offshore wind - Next-generation solar cells (perovskite)
		Infrastructure	- Development of cities and communities that will help decarbonization
3	Low-carbon and Decarbonized energy 	Utilization of nuclear power	- Next-generation advanced reactors with built-in new safety mechanisms
		Establishing electricity and gas markets to achieve carbon neutrality	- Promoting zero-emission thermal power - Development of submarine DC transmission systems, etc.
4	Clean transportation 	GX in transport sector	- Support for the introduction of next-generation vehicle - Developing demonstration aircraft by 2030s and spreading the use of zero-emissions ships, etc.
		Infrastructure (repeat)	- Development of cities and communities that will help decarbonization
5	Circular economy adapted products, production technologies and processes 	Restructuring the manufacturing industry (fuel and feedstocks transition)	- Development and introduction of innovative technologies such as hydrogen reduction for steelmaking - Conversion to Carbon-Recycling production systems
		Facilitating introduction of hydrogen and ammonia	- Building supply chain both in domestically and internationally - Research and development as well as the introduction support of both production and usage of hydrogen derived from excess renewable energy sources
		Carbon Recycling and CCS	- Support for research and development of Carbon Recycling fuel
6	Environmentally sustainable management of living natural resources and land use and Circular economy 	Food, agriculture, forestry, and fisheries	- Decarbonization of agriculture, forestry and fisheries
		Resource circulation	- Investment to accelerate the resource circulation such as plastics, metals, sustainable aviation fuel (SAF), etc

# Overview of GX budget programs (2022-2023)

## 1. R&D of innovative technologies to capture the market <approx 893 billion yen>

- **Green Innovation funds:** approx 756 billion yen (addition to existing 2 trillion yen)
  - Support for R&D of innovative technologies such as hydrogen reduction steelmaking on the condition that companies commit to social implementation investment
- **Innovative GX Technology Creation Project (Gtex) :** approx 50 billion yen
  - Supporting basic research leading to GX, such as solid-state batteries, fuel cells (hydrogen-related technologies), and biomanufacturing
- Development of innovative technologies for semiconductors such as photonics-electronics convergence to drastically reduce consumption: approx 75 billion yen
- R&D support for high-temperature gas-cooled reactors and fast reactors: approx 12 billion yen

## 2. Capital investment that contributes to both reduction and growth <approx 508 billion yen>

- Support for the manufacture of **storage batteries:** approx 330 billion yen
- Support for the manufacture of **power semiconductors that contribute to improving the energy-saving performance of automobiles :** approx 150 billion yen
- Advanced **energy-saving investment** support with non-fossil conversion and disaster recovery measures : approx 25 billion yen
- Support for the construction of microgrids through private lines in collaboration between the public and private sectors : approx 3 billion yen

## 3. Nationwide demand measures that contribute to growth <approx 204 billion yen>

- **Expand support for the introduction of clean energy vehicles** a) private car: approx 90 billion yen,  
b) Commercial vehicles (trucks, taxis): approx 14 billion yen
- Support for the **introduction of extremely high-efficiency equipment that improves housing insulation performance:** approx 100 billion yen

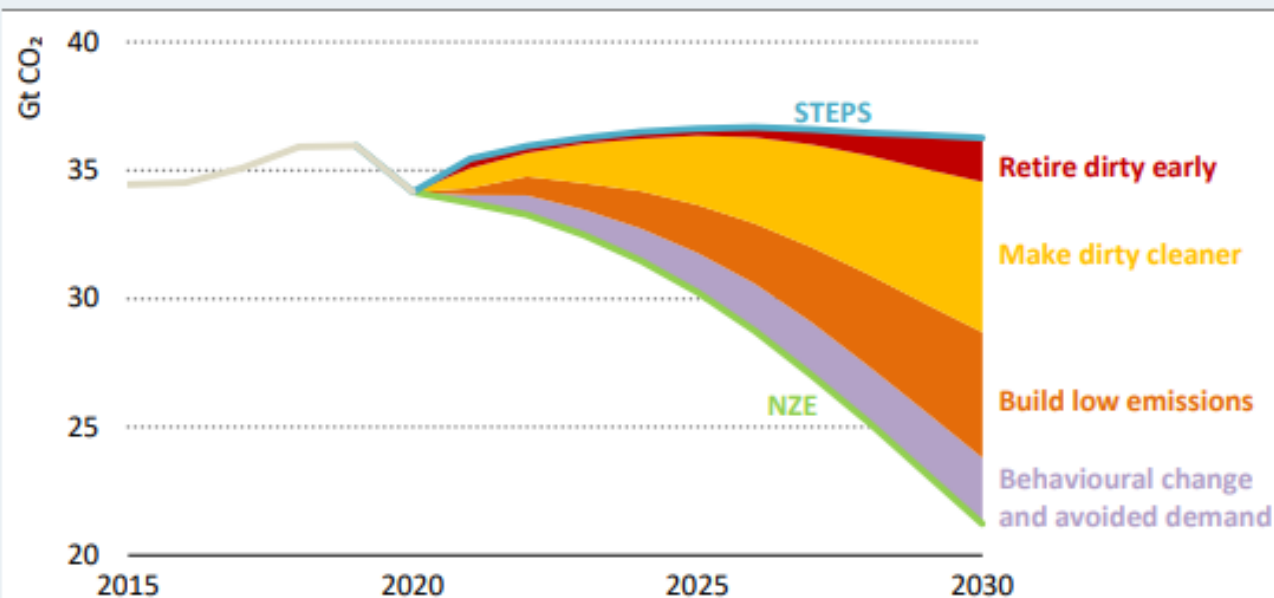
**Total about 1.6 trillion yen**

# **Overview of Transition Finance**

# Necessity of Transitional Technologies

- In the World Energy Outlook, 2021 IEA reported that the combination of *i) retiring from dirty early ii) make dirty cleaner iii) build low emissions iv) behavioral change and avoided demand* is essential for filling the gap of STEPS and Net Zero Emission trajectory.
- It is stated that the middle ground of actions that “make dirty cleaner” is crucial in determining the speed and scope of energy transitions, and delivers the largest share of emissions reductions.

**Figure 1.13** ▶ Emissions reductions in the Net Zero Emissions by 2050  
Scenario relative to the Stated Policies Scenario



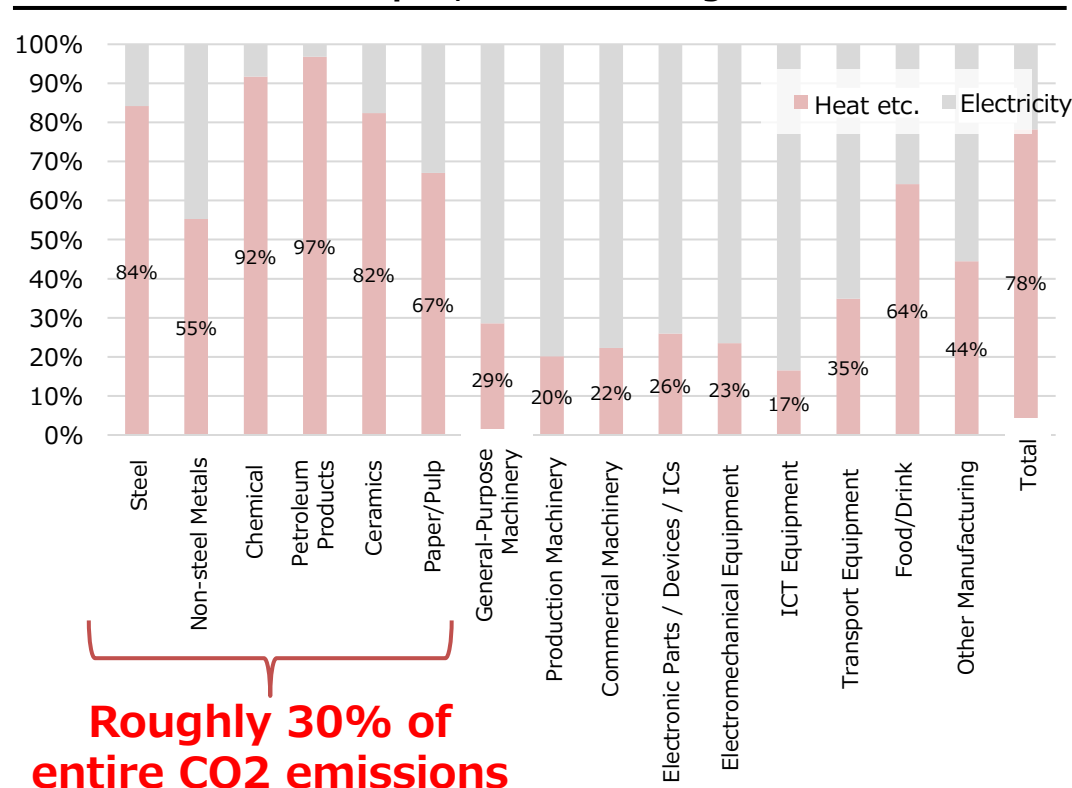
IEA. All rights reserved.

*Delivering net zero requires more than retiring dirty and building low emissions projects; there is a large middle ground that defines the speed and scope of change*

# Importance of “Transition” in the Whole-of-Economy Decarbonization

- Realizing GX requires electrification and shifting away from fossil fuels. Material manufacturing industries (accounting for 30% of CO2 emissions in Japan) have a high ratio of heat demand, indicating the need for decarbonizing heat processes.
- For that vast and long-term investments for new technologies are needed, and should be prioritized. Transition finance supporting these efforts must be promoted along with green finance.

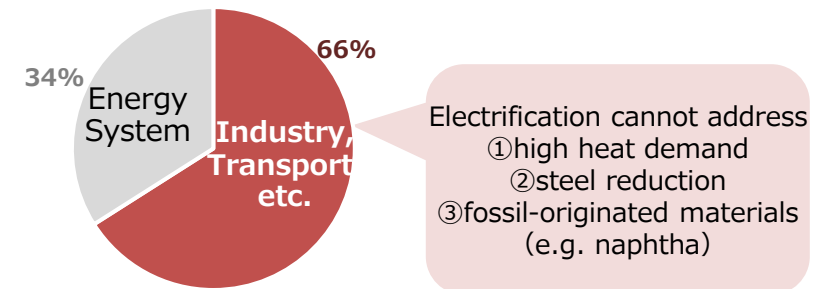
Percentage of Heat Usage in Energy Usage  
(Japan, Manufacturing)



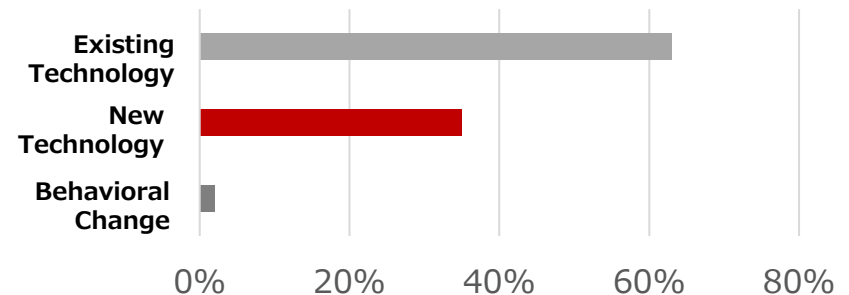
Based on ANRE Energy Statistics

## Need for Innovative Technologies

### <Global CO2 Emissions by Sector>



### <IEA's Net Zero Scenario2023>



➤ Clean energy innovation has been accelerating in the last few years, **yet more RD&D is needed to the next generation of low-emissions technologies.**

# Efforts toward decarbonization

- To realize carbon neutrality, efforts as listed below (①~④) are needed in the power and industry sectors.

① Increasing energy efficiency

② Decarbonization of electricity



**Commercialized  
Technology Available**

③ **Decarbonization of heat (fuel)**

**Hydrogen, Ammonia**, SAF, Synthetic Fuels, etc. are still under development

④ **Decarbonization of manufacturing processes and materials**

**Hydrogen reduction ironmaking**, naphtha alternatives are still under development.

**Electrifying heat processes** are candidates for technology development.



**Technology still being  
developed toward  
commercialization**

# Japan's 4 step policy tools on Climate Transition Finance

G7 Leaders Summit (May 2023, Hiroshima)

- **Transition finance**, in line with keeping a limit of 1.5°C temperature rise within reach, avoiding carbon lock-ins and based on effective emissions reduction, **has a significant role in advancing the decarbonization of the economy as a whole.**

- Although green projects have attracted investment, transition to net zero requires more.
- To encourage private finance flow for transition, Japanese government take 4-step-policy.
- Companies are expected to show their credible transition strategy. They can account for their plan by referring to the technologies and pathway of the roadmap.

## 1. Basic Guidelines

- ✓ FSA, MOE and METI formulated the Guidelines to establish transition finance in line with the ICMA transition handbook.



## 2. Sector Roadmaps

- ✓ Roadmaps with technologies for transition is formulated for 8 sectors: **iron & steel, chemical, electricity, gas, oil, cement and paper & pulp, and automobiles.**
- ✓ The roadmaps can be referred by companies to formulate their strategies and pathways, and by financial entities to evaluate those of clients

## 3. Model Projects

- ✓ 21 model projects from shipping, steel, aviation, chemical, energy and heavy industry sectors.
- ✓ **The market of transition finance has reached 1 trillion yen cumulatively.**

## 4. Follow-up Guidance

- ✓ **Guidance for financiers (especially bond issuers)** in following up after the issuance of transition finance was released in June 2023

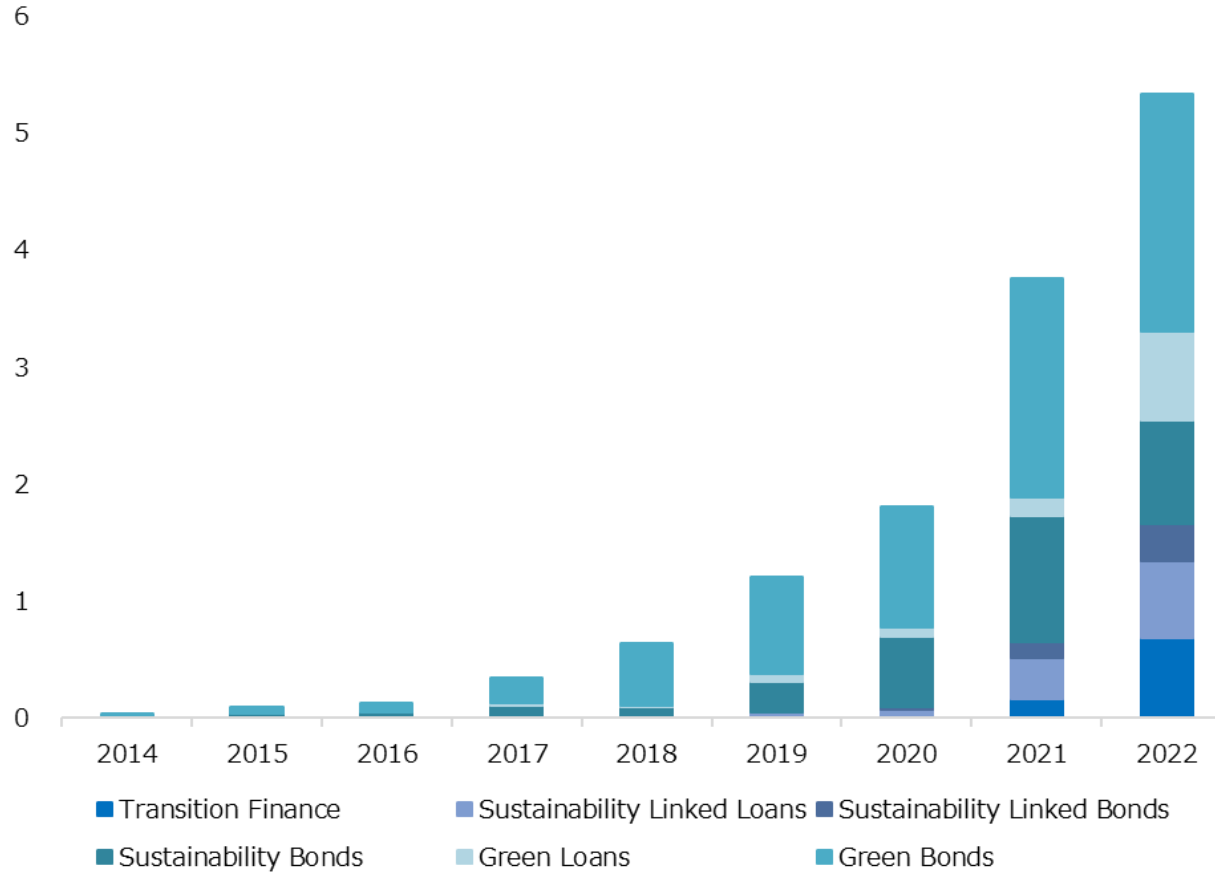




# Trends in amount of transition-labeled bonds and loans

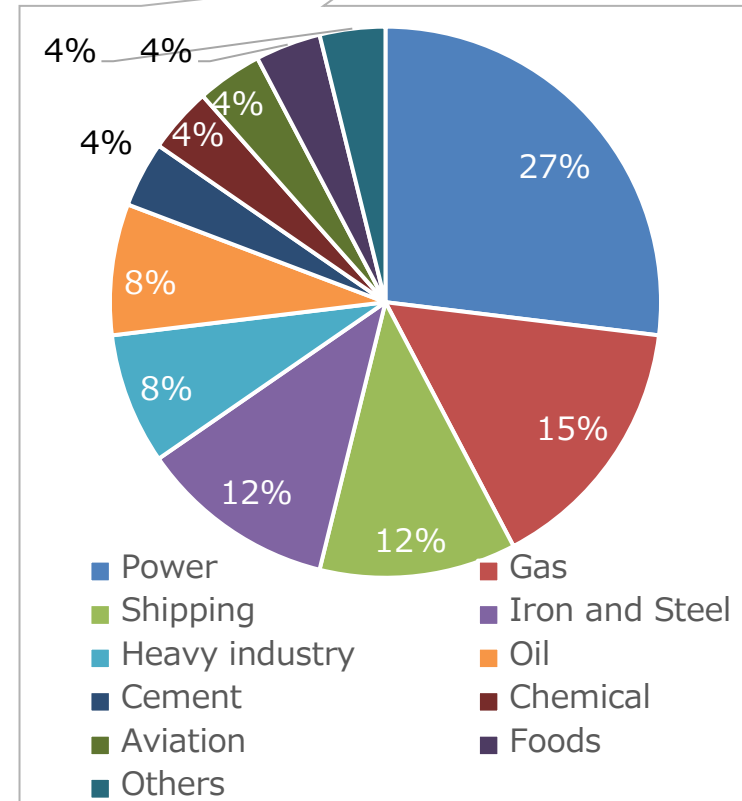
- The cumulative amount of transition-labeled bonds and loans has grown and surpassed 1 trillion JPY.

(trillion JPY)



the cumulative amount of  
transition-labeled bond and loans  
In Japan  
(Jan.2021-Mar.2023)

Apprx. **1** trillion JPY



Source) MOE "Green Finance Portal" (<https://greenfinanceportal.env.go.jp/>),  
METI "Transition Finance HP" ([https://www.meti.go.jp/policy/energy\\_environment/global\\_warming/transition\\_finance.html](https://www.meti.go.jp/policy/energy_environment/global_warming/transition_finance.html)), Other public information.

The logo features a solid blue background. Two light blue arrows originate from the bottom left and point towards the top right, with one arrow positioned slightly above and to the left of the other. Stylized green leaves are scattered on the right side of the image. The text "JAPAN CLIMATE TRANSITION BOND" is written in a bold, white, sans-serif font, centered horizontally and stacked in four lines.

# JAPAN CLIMATE TRANSITION BOND