Impact of Ukraine Crisis on CN goal

➢ **Visible impact of Ukraine crisis on energy & economy**

- More need for energy security and stable supply
- Re-focus on nuclear power
- Hyper inflation of fossil fuels & food

⇒ USFR and ECB Changed monetary policy⇒Cheaper yen⇒higher import price

(Japan's trade deficit in August was ¥ 2.8 T, which is biggest since 1979)

- Risk of global economic downturn

➢ **Impact on CN goal**

a. High fossil fuel price may accelerate investment to renewable energy projects and introduction of EVs

b. In shorter term, use of fossil fuels and nuclear power will increase to cope with sharp cut of Russian gas and oil

c. Transition path and policy toward 2030 may be changed. Transition to gas from coal using cheap Russian gas is no longer an option, and nuclear power will be an important alternative

d. CN goal in 2050 will stay

e. Dependence on cheaper Russian gas and oil in emerging economies will increase, which may slow down their CN efforts.

Japan's energy constraints

- Self sufficiency % in 2020

USA 106, UK 75, France 55, Germany 35, Japan 11

- Dependency on Russian energy in 2020 (%)

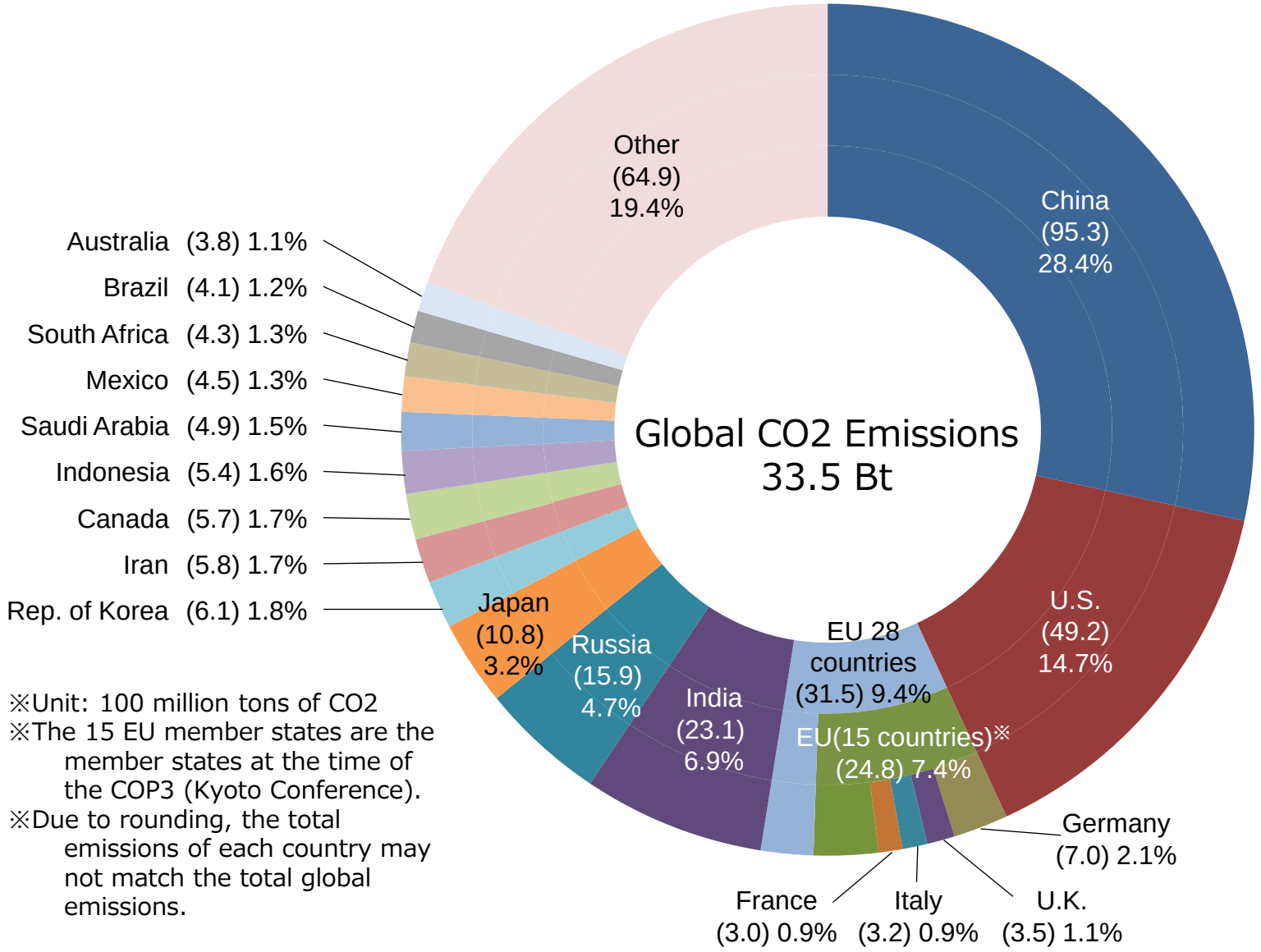
	Oil	Natural gas	Coal
Japan	4	9	11
France	0	27	29
Germany	34	43	48
UK	11	5	36

- No connecting power grid and pipeline with other nations
- Top 4 cumulative capacity of PVP in 2021 (IEA)

Country	Total Capacity (GW)	Capacity per km2 (KW)
China	308.5	32.1
EU	178.7	42.2
USA	123	12.5
Japan	78.2	206.9

CO2 emissions in each country

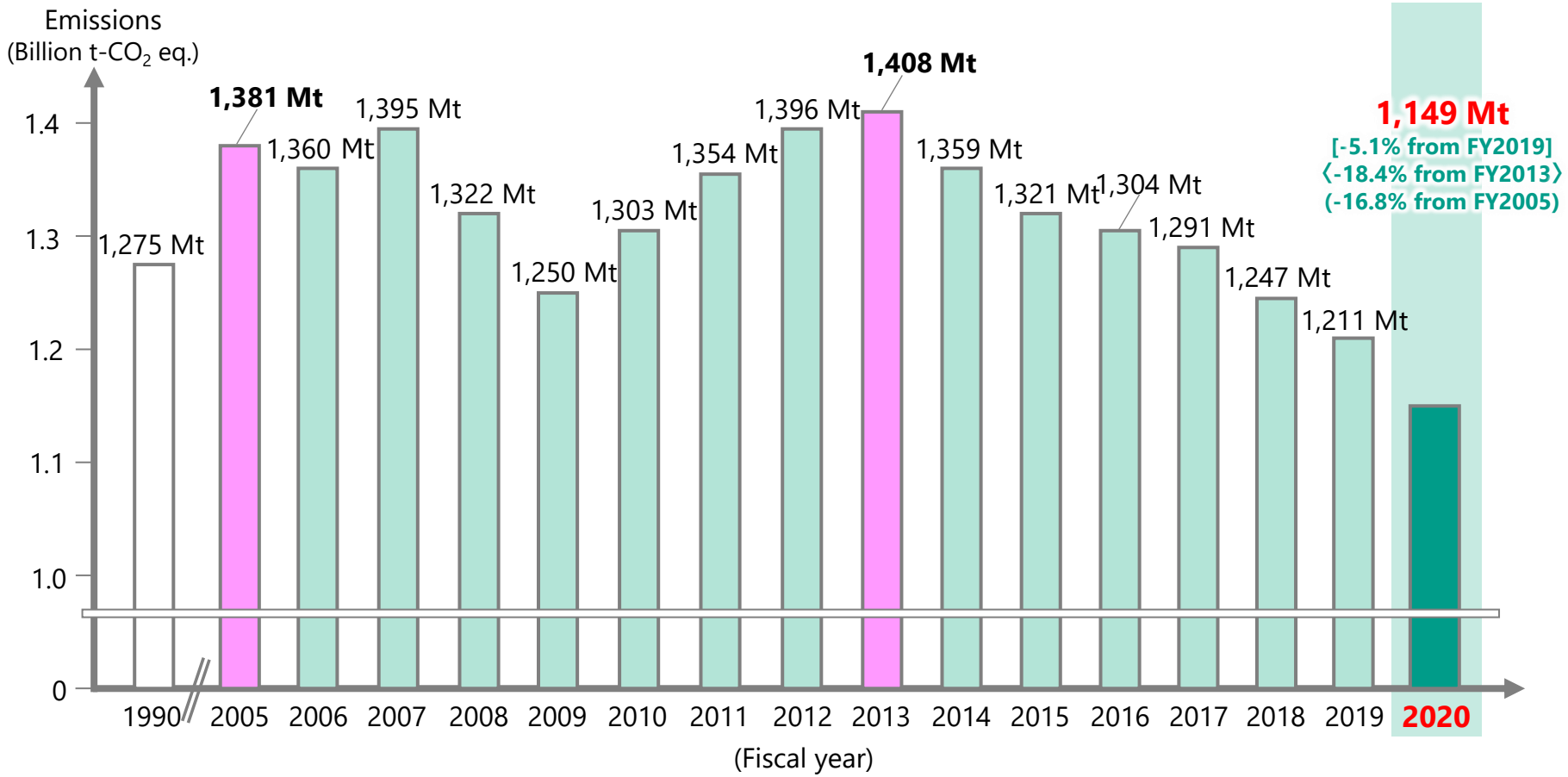
Global CO2 Emissions from Energy Consumption（2018）



※Unit: 100 million tons of CO2
※The 15 EU member states are the member states at the time of the COP3 (Kyoto Conference).
※Due to rounding, the total emissions of each country may not match the total global emissions.

Source : Created by Minister of the Environment based on IEA「CO_2 EMISSIONS FROM FUEL COMBUSTION」2020 EDITION

Greenhouse Gas Emissions in Japan



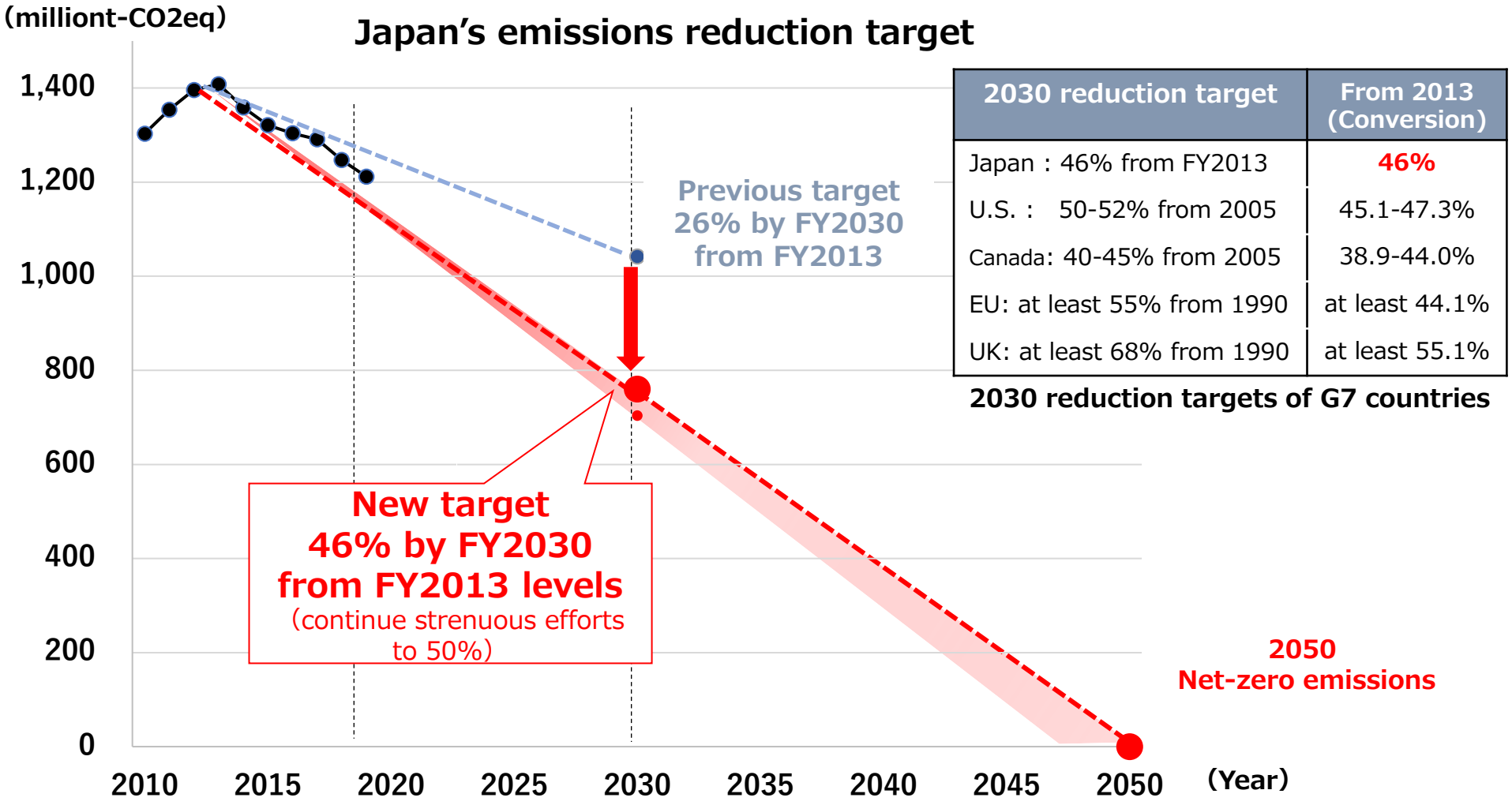
1. These preliminary figures for FY2020 were estimated based on annual figures in various statistics. Some annual figures from FY2019 were temporarily used in place of FY2020 figures that have yet to be released. Moreover, some estimation methodologies are currently being reconsidered in order to make more accurate estimations of emissions for the final figures. As such, the final figures to be released in April 2022 may differ from the preliminary figures in this summary. Removals by measures for forests and other carbon sinks will also be estimated and announced at the time of the release of the final figures.The figures in this summary differ from the preliminary figures for FY2019 due to the recalculation of emissions based on annual reported data of various statistics that have become available since the calculation of the preliminary figures for FY2019 (released on December 8, 2020) and future revisions of calculation methods.
2. Total GHG emissions for each FY and percentage changes from previous years do not include removals by measures for forests and other carbon sinks.

Source: Ministry of Environment
Japan's total greenhouse gas emissions in fiscal year (FY) 2020 (preliminary figures)

Japan's new 2030 emissions reduction target

Japan aims to reduce its GHG emissions by 46% in FY2030 from FY2013 levels, setting an ambitious target which is aligned with the long-term goal of achieving net-zero by 2050. Furthermore, Japan will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%.

(Announced by the Prime Minister SUGA at 45th meeting of the Global Warming Prevention Headquarters on 22 April 2021)

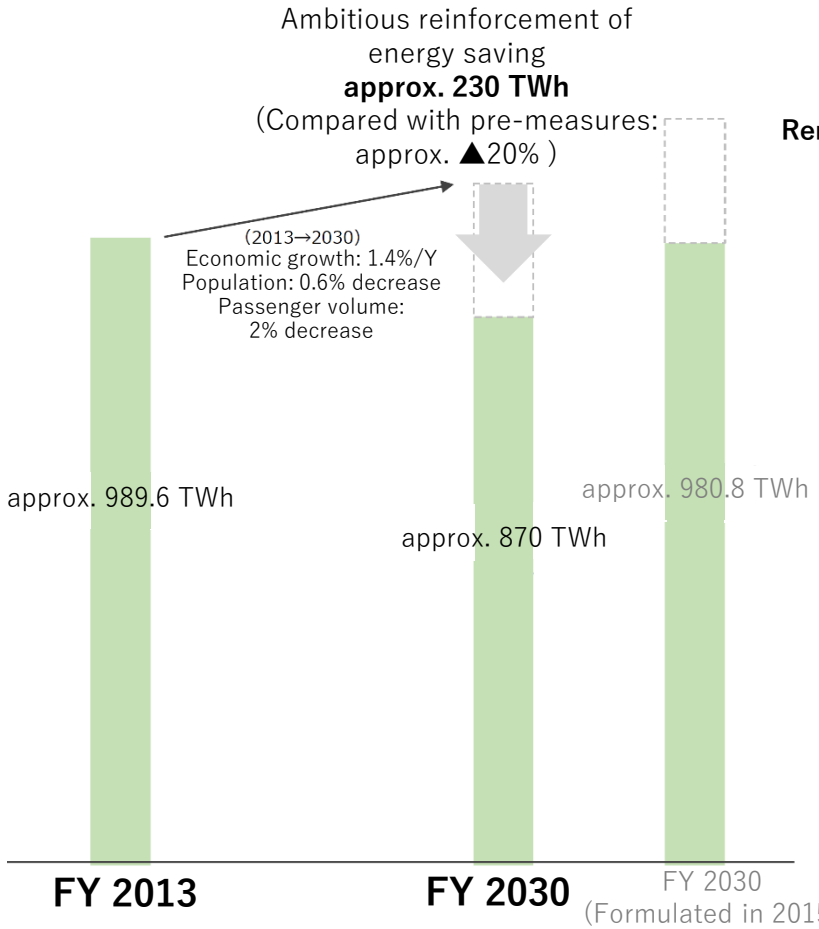


2030 reduction target	From 2013 (Conversion)
Japan : 46% from FY2013	**46%**
U.S. : 50-52% from 2005	45.1-47.3%
Canada: 40-45% from 2005	38.9-44.0%
EU: at least 55% from 1990	at least 44.1%
UK: at least 68% from 1990	at least 55.1%

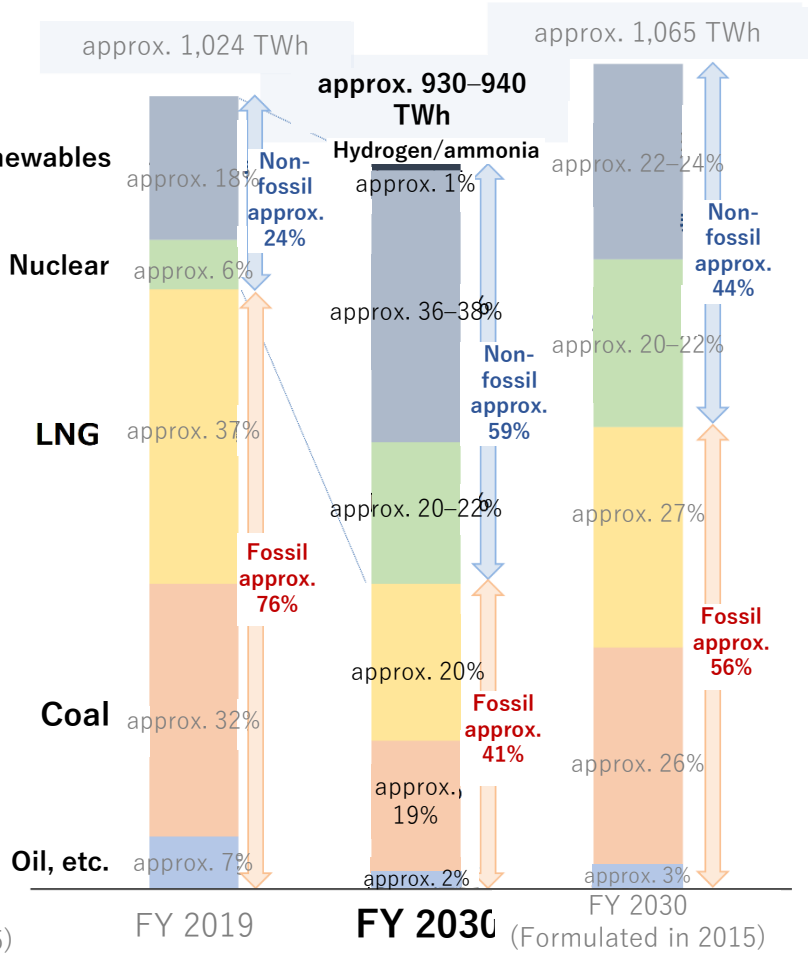
2030 reduction targets of G7 countries

<Reference> 2030 energy mix ： Demand for Power and Power Mix

Power Mix



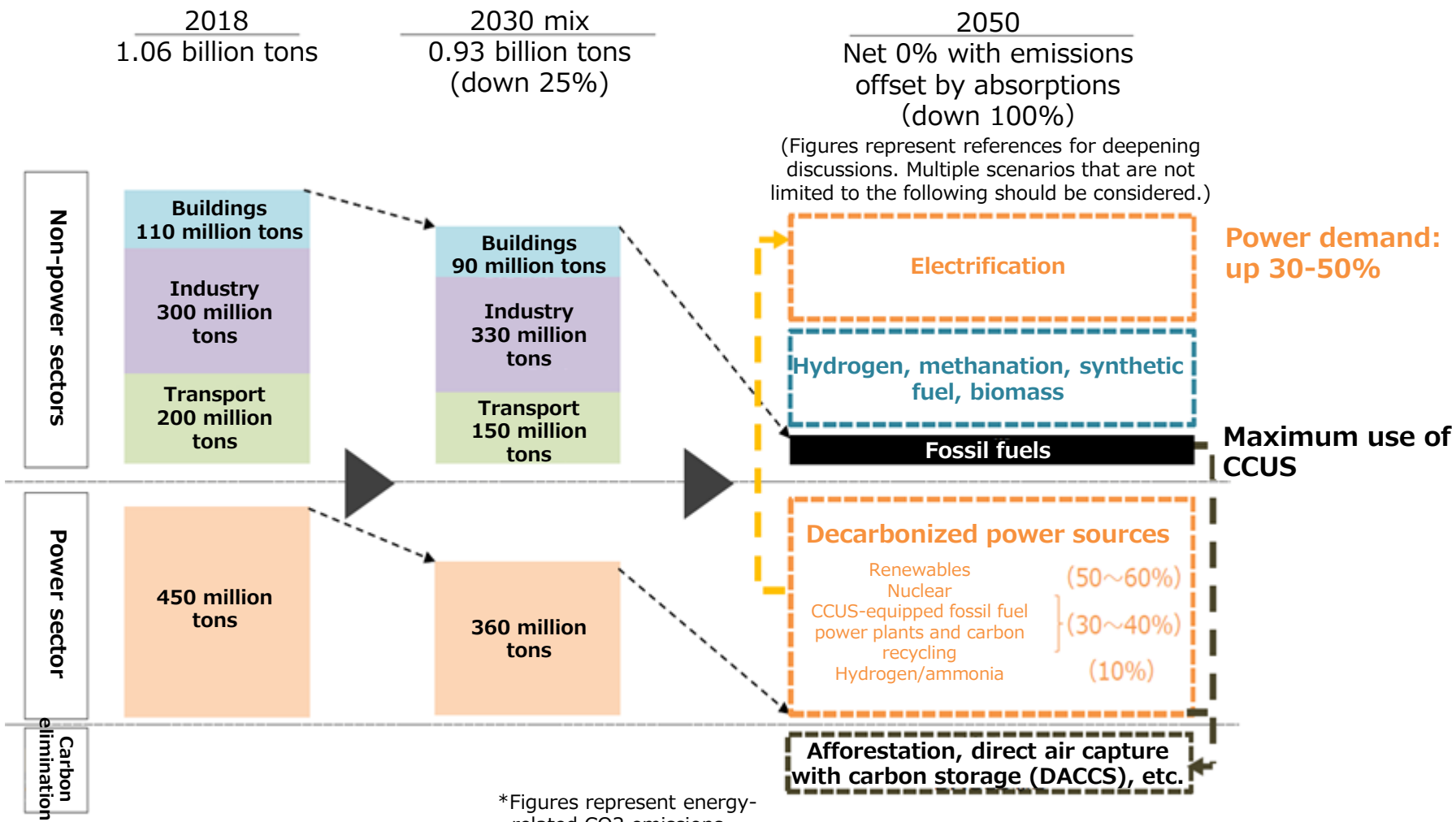
Demand for Power



(Source) METI “Strategic Energy Plan (draft)” (Document 2) p.18, for the 46th meeting of the Strategic Policy Committee of the Advisory Committee for Natural Resources and Energy, July 21, 2021

<Reference>

2050 Energy Mix
Image of Power Mix toward carbon neutrality



(Source) Secretariat of the Committee on the Growth Strategy, Cabinet Secretariat "Green Growth Strategy through Achieving Carbon Neutrality" (Document 1) p.6, for the sixth meeting of the Committee on the Growth Strategy, December 25, 2020

GHG Emission Reduction Targets for Major Countries

Comparison of major countries' emission reduction targets		From 1990	From 2005	From 2013	2019 results	2030 projections
					GHG emissions per GDP (kg/dollar GDP)	
Japan	(GHG emission reduction target) (Base Year **2013**) (Target Year **2030**)	▲40%	▲45%	**▲46%**	0.19	**0.11**
U.S.	(GHG emission reduction target) (Base Year **2005**) (Target Year **2030**)	▲40%	**▲50%**	▲44%	0.32	0.15
EU	(GHG emission reduction target) (Base Year **1990**) (Target Year **2030**)	**▲55%**	▲51%	▲43%	0.25	0.13
					CO_2 emissions per GDP (kg/dollar GDP)	
China	(CO_2/GDP: intensity target) → **Converted into CO_2 emissions** (Base Year **2005**) (Target Year **2030**)	+409～482%	**+97～125%**	+16～32%	0.86	0.53～0.61
India	(GHG/GDP: intensity target) → **Converted into GHG emissions** (Base Year **2005**) (Target Year **2030**)	+581～602%	**+236～246%**	+94～100%	0.78	0.59～0.61

(Note 1) The United States submitted a target for cutting emissions from 2005 and the European Union gave a target for reducing emissions from 1990.
(Note 2) India submitted a target of cutting GHG emission intensity (GHG/GDP) in 2030 by 33-35% from 2005.
China submitted a target of leading CO_2 emissions to peak out in 2030 and cutting CO_2 emission intensity (CO_2/GDP) in 2030 by 60-65% from 2005.
(Note 3) Changes in China's CO_2 emissions and India's GHG emissions from 1990, 2005 and 2013 in the table were estimated by the IEEJ.
(China: The CO_2/GDP target was converted into CO_2 emissions. India: The GHG/GDP target was converted into GHG emissions.)

Clean energy Strategy (May 2022)(1)

➢ **Energy Security**

- Response to the Ukraine Crisis and tight supply/demand of electricity

➢ **Future of Energy Policy**

- Stable supply of electricity
- Energy efficiency
- Nuclear :promote restarting, back-end, enhance R&D
- Maximum introduction of renewable energy
- Hydrogen/ammonia
- Carbon-neutral industrial complex ports
- Promotion of CCUS

Clean Energy Strategy (May 2022)(2)

- **Reform of the economy, society & industrial structure**
- **Industrial GX**

- Hydrogen/ammonia
- Offshore wind power
- Batteries
- Nuclear power
- Carbon recycling: CC & synthetic fuels etc
- Steelmaking: development and implementation of innovative technologies (H2 reduction etc)
- Automobile: all new passenger vehicle sales will be electrically driven by 2035
- Transport: CN by 2050 in shipping, R&D of hydrogen aircraft, renewable energy for railways
- Houses/buildings, infrastructure
- Food/ Agriculture, forestry and fishery
- CCS
- Negative emission

- **Transition of energy supply/demand structure in industry**

Clean Energy Strategy (May 2022)(3)

➢ Development of social system and infrastructure for GX

- Decabonization X Economic growth/development : 5 pillars

1.**National Budgetary measures (support)**

Unprecedented scale(20T yen) and period(10y) of government support for private investment financed by green national bond

2. **Regulation/systems**

Regulatory measures will be established to create a new market and boost private investment

3. **Financial package**

Financial systems will be enhanced in transition, innovation and green

4. **GX League**

Creation of emissions trading system, pro-growth carbon pricing

5. **Global Strategy**

Creation of Asia zero emission community

Prime Minister Kishida’s Key Instructions

(at the second meeting of the GX Implementation Council on August 24, 2022)

- The Russian invasion of Ukraine has totally changed the world’s energy situation and caused a major upheaval in the global energy supply-demand structure. Against this backdrop, Japan must strike a good balance between overcoming the current crisis and promoting GX, while bearing future crisis scenarios in mind. Positioning it as its highest priority issue, the Kishida Cabinet will take all possible measures in advance to minimize the impact of any contingencies in the world on the lives of people.
- **Regarding nuclear power plants in particular, the Government will stand at the forefront of every effort toward the restart of nuclear power stations**
- **drastically accelerating the development of power systems, speeding up the installation of fixed storage batteries, and promoting offshore wind power and other electricity sources.**
- concerning **nuclear power**, to **resume operations, maximum utilization of existing nuclear power plants including the extension of their operation period** with ensuring their safety being a major precondition, **and development and construction of next-generation advanced reactors** that incorporate new safety mechanisms.
- **renewable energy and nuclear power are indispensable decarbonized energy sources in advancing GX**. I ask you to speed up discussions, so that we can reach a specific conclusion on all the measures, including institutional frameworks for enhancing these energy sources to keep them as options available into the future and how the concerned parties should make efforts to further deepen public understanding, by the end of the year.
- In the next meeting and onward, we will accelerate discussions toward speeding up and front-loading GX implementation, such as **a basic framework of growth-oriented carbon pricing, transformation of industrial structure, and a global strategy, and formulate concrete GX and growth strategies by the end of the year.”**