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Economic and Energy Outlook of Japan for FY2024

Despite an improvement in energy intensity per unit of GDP and progress towards decarbonization, the CO_2 reduction pace lags behind the target

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World economy

2023: Growth is slowing down due to the Ukraine war, inflation, and interest rate rises implemented by the U.S. and Europe as measures to combat inflation (+3.0%^{*1}) Until April 2024 fuel oil will be subsidized 100% when more than 17 yen higher than 168 yen/L and 60% when higher by 17 yen or less. C gas subsidies will be 15 yen/m³ for households and for companies w

2024: Growth will slow down due to the escalation of the real estate crisis in China in addition to the prolonged monetary tightening by the U.S. and Europe (+2.9%). For the second year in a row, it will be much lower than the average value of +3.8% from 2000 to 2019, before the COVID-19 pandemic
 annual contract amounts of less than 10 million m³. Electricity will be subsidized at 3.5 yen/kWh for low voltage and 1.8 yen/kWh for high voltage
 From May 2024 onward, the subsidy rate for fuel oil will be phased of the pandemic

Import CIF prices of fossil fuels^{*2} and the foreign exchange rate

 $\begin{array}{c} {\sf FY2022} \rightarrow {\sf FY2023} \rightarrow {\sf FY2024} \\ {\sf Crude \ oil: \$103/bbl} \rightarrow 85 \rightarrow 91 \\ {\sf LNG: \$18.0/Mbtu} \rightarrow 12.2 \rightarrow 12.2 \\ \qquad (\$931/t \rightarrow 632 \rightarrow 633) \\ {\sf Steam \ coal: \$361/t} \rightarrow 204 \rightarrow 167 \\ {\sf Foreign \ exchange \ rate: $\$135.0/\$ \rightarrow 144.8 \rightarrow 140.0 \\ \end{array}$

*1 On a purchasing power parity basis

*2 ("International Oil Market Outlook for 2024" by Morikawa, "Gas Market Outlook for 2024" by Hashimoto, and "Coal Market Outlook for 2024" by Takahashi, IEEJ

Subsidies to curb excessive price increases

Until April 2024 fuel oil will be subsidized 100% when more than 17 yen higher than 168 yen/L and 60% when higher by 17 yen or less. City gas subsidies will be 15 yen/m³ for households and for companies with annual contract amounts of less than 10 million m³. Electricity will be subsidized at 3.5 yen/kWh for low voltage and 1.8 yen/kWh for high voltage

From May 2024 onward, the subsidy rate for fuel oil will be phased out by three—tenths each month. City gas and electricity will be reduced to half price from May to September

Nuclear power

In FY2023, three new nuclear plants gradually restarted and operated for an average of nine months, generating 82.8 TWh (+54.6% from the previous year)

In FY2024, three new nuclear power plants will gradually restart, bringing the number of restarted plants after the Great East Japan Earthquake to 16. They will operate for an average of 11 months, generating 113.7 TWh (+37.5% from the previous year)

Temperature

According to the Japan Meteorological Agency's 3-month forecast, this winter will be warmer than an average year and colder compared to the previous year (-0.6 $^{\circ}$ C)

FY2024 will be an average year. Summer will be cooler (-2.1°C) and winter will be colder (-0.3°C) compared to the previous year

- Although price rises will continue, personal consumption will increase, centered on automobiles and the face-to-face service business. Capital investment will also increase as company revenues improve, and will increase centered on private sector demand
- Despite the increase of inbound business demand and auto exports, foreign demand will post a negative contribution caused by an increase in imports due to the recovery of domestic demand

Real GDP



- Regarding the consumer price index, due to the rise in personnel expenses and logistics costs and tightening of demand, among other factors, higher prices will continue to be passed on to consumers, particularly for food products, and the rate of the rise will be higher than 2% for the third year in a row
- As a consequence of the subsidy program to curb excessive price increases ending, energy will contribute to the rise in the consumer price index

Consumer price index change rate and contribution



Slight decreases in energy demand will continue

- Domestic primary energy supply will decrease for the third year in a row due to the contribution of a fall in ethylene production and due to energy wholesale sales and retail price rises caused by the subsidies to curb excessive price increases ending
- However, the rate of decrease will be less than 1% for the second year in a row
- In addition to improving energy efficiency, the increase in activity by non-energy-intensive industries and tertiary industries will grow relatively, so energy intensity per unit of GDP will improve and decrease for the third year in a row
- It will go lower than 80% of the FY2013 ratio and the decoupling of the economy and energy consumption will make progress



Domestic primary energy supply

Energy intensity per unit of GDP



LNG imports will be 30 Mt lower than the record high of 89 Mt reached ten years ago in FY2014

- Coal supply will increase due to higher iron and steel production and the three coal-fired thermal plants which started operations during FY2023 and will generate electricity during the fiscal year
- Oil supply will decrease as energy savings make progress due to the decrease in naphtha with the decrease in ethylene production and due to the rise in oil product prices as a consequence of the subsidies to curb excessive price increases ending

Domestic primary energy supply changes



- Natural gas supply will decrease chiefly for power generation, due to the ongoing starting of operations by coal-fired and solar power plants and the restart of nuclear power plants
- LNG imports will decrease to 50 Mt for the first time since FY2005, meaning that the large increase since the Great Earthquake has been largely eliminated

LNG imports





CO₂ will continue to decrease but the progress of reduction will still lag behind the target

- CO₂ will decrease three years in a row as a consequence of the increase in nuclear power, etc.
- However, at a 26.4% decrease compared with FY2013, there is more CO_2 than the FY2024 target value (29.2% reduction) shown on the straight line to the FY2030 energy-related CO_2 reduction target (45% reduction compared to FY2013), so the progress of reduction continues to lag behind the target

Energy-related CO₂ emissions



- GDP and the substitution among fossil fuels will contribute to increases
- The contribution of renewables to reductions will be limited but energy intensity per unit of GDP and nuclear power will make a large contribution to reductions
- Going forward, as economic growth is expected, effective reductions with just one measure will be difficult

CO₂ emissions change and reduction contribution



2013 2021 2022 2023 2024

Non-fossil power sources will continue to grow and will go above FY2010 for the first time since the Great East Japan Earthquake



- The ratio of non-fossil power sources (renewables + nuclear power) will expand to 39% in FY2024 as the restarting of nuclear power plants continues, and will go above FY2010 for the first time since the Great East Japan Earthquake
- Coal will go above LNG for the first time since the Great East Japan Earthquake due to the continuous opening of new coal-fired thermal plants since FY2019
- Nuclear power will rise as the restart progress
- Coal will rise as the coal-fired thermal plants which started operations in the previous fiscal year operate during the fiscal year
- Oil, etc. will fall as the tight supply and demand eases
- LNG will fall substantially due to the impact of the increase in other power sources



Electricity businesses' power mix

Power mix ratio changes



Note 1: Figures for FY2010 are for the former general electricity businesses, and discontinuous with other values. Note 2: Hydro includes pumped, and oil, etc. includes city gas, coal products and others.

Electricity sales and city gas sales will both increase slightly

- Even though energy savings will make progress, electricity will increase due to the recovery of iron and steel production, increased production of automobiles, and an increase in activity in the service business
- Sales for lighting will decrease slightly. Although the winter will be colder, there will be progress in energy saving and continued awareness of power saving due to electricity price rises, in addition, the summer will be cooler,

TWh 837 822 822 821 821 +2.0% -0.1% Y-0-Y 0.2% -1.8% -1.8% 2020 2021 2022 2023 2024

Electricity sales

- Sales to industry will increase due to increased production of automobiles and iron and steel
- Sales to households will increase slightly. Although there will be progress in energy savings and continued awareness of gas saving due to gas price rises, the winter will be cold
- Sales to the commercial sector will decrease. Although activity will increase, there will be progress in energy savings as a consequence of price rises and in addition, the summer will be cooler than the previous fiscal year

City gas sales



Fuel oil sales will be less than 60% of the record high in FY1999

- Fuel oil sales will decrease for three years in a row. Sales of fuel oil as feedstock for ethylene and for power generation will decrease, and in addition, there will be switching and energy savings due to
- higher prices
 Gasoline sales will decrease. Although the amount of passenger vehicles transported will increase, there will be fuel efficiency.
- vehicles transported will increase, there will be fuel efficiency improvements and an increase in the number of hybrid vehicles

Fuel oil sales



- Sales of light oil will decrease as the amount transported is pushed down by logistics problems in 2024
- Sales of kerosene will decrease. Even though 2024 will be colder than the previous fiscal year, fuel conversion will make progress
- Sales of jet fuel oil will increase due to an increase in the amount transported

Fuel oil sales changes





Impact of subsidy program of energy bills

- Supposing the subsidy program of energy bills is continued until the end of the fiscal year and the fall in energy prices is greater than the fall in the Reference Scenario, commodity prices will fall and the economy will be boosted
- On the other hand, energy consumption will grow and imports of fossil fuel and CO₂ emissions will increase. Moreover, there will be negative aspects such as increased spending on fiscal stimulus, etc.
- The issue going forward is to secure an exit strategy while monitoring the changes in the fossil fuel import prices which have emerged recently
- In the short term, it is important to support the installation of energy-saving equipment and encourage energy savings, for example by changing the subsidy rate based on the income status of each household, and in the medium to long term it is important to develop domestic production of energy

Impact of Subsidy Program on Energy Bills (compared with the Reference Scenario) [FY2024]



Subsidy amount [FY2024]



Impact of progress in restarting plants on the 3E Principle

Nuclear power boosts the economy through the reduction of the costs of fossil fuel imports and electricity. It provides energy security as well, as LNG imports decrease and the energy self-sufficiency rate improves. CO₂ also decreases, contributing to climate change mitigation

In the GX and Decarbonized Power Sources Act established in May 2023, the government confirmed a policy of utilizing the existing nuclear power plants as decarbonized power sources as much as possible. Smooth restarts through appropriate reviews based on the situations of individual plants are important for the 3Es of Japan.

Effect of the nuclear power generation (FY2024, compared with the Reference Scenario)



Note: High Case: the case in which the assessments of two plants finish and they restart in FY2024.

Low Case: the case in which the risks of delays in assessment and construction materialize before FY2024 and the three plants cannot be restarted. Highest Case: the case in which 80% of the 27 plants that have applied for assessment based on the new regulation standards will be restarted