Outlook for the Japanese Economy and Energy up to the Year 2030

Background

Under growing concern of global warming, extending the prediction period of our long-term outlook becomes an urgent issue. In the field of economic policies, an age of fiscal reconstruction will come because of the worsening fiscal crisis. It is important to analyze future trends of Japanese economy and energy by various simulations under the growing uncertainties.

Objectives

This study aims to clarify the long-term economy and energy situation up to the year 2030 including the effects of population decrease and fiscal reform by the CRIEPI long-term forecasting system. Also, implications on energy policies will be provided by various simulation analyses.

Principal Results

Three cases were set according to the speed of enlarging domestic demand and fiscal reform by the government. In "Low growth case," only fiscal reform will be enforced. In "Medium growth case," enlarging domestic demand and fiscal reform will be consistently enforced. In "High growth case," still more enlargement of domestic demand is assumed. Main results of the outlook are summarized below.

1. Outlook for economy and supply and demand of energy and electricity

(1) The average annual growth rate of real GDP will remain in 0.3~1.3% (low growth case ~ high growth case) of low level during 2000~2030 due to consumption tax increase and population decrease and so forth. The rate of outstanding government bond to nominal GDP will reach 129~74% in the year 2030 (Table 1, Fig.1).

(2) The demand for primary energy will remain low growth with an annual rate of -0.1%~0.4% during 2000~2030, reflecting low economic growth and progress in energy conservation. Even in the High growth case, it will reach the peak in 2025 (Fig.2).

(3) Demand for grid electricity will grow annually by 0.3~0.9% and the shift to electricity will continue to progress on account of the changes in industrial structure and the decrease in the price of electricity (Table 1, Fig.3).

(4) CO_2 emissions in 2010 will remain at the 1990 level (287.1 Mt-C) in the Low growth case, however, increase 16.5~21.5 Mt-C (1.3~7.5% of 1990 level) in the Medium and High growth cases. In particular, it will continue to increase until 2025 in the High growth case (Table 1, Fig.3).

2. Implications for energy policy

This study revealed the width of annual growth rate of real GDP and primary energy demand toward 2030 will be 1% and 0.5% respectively. The outlook by the government assumed 0.5% difference will arise in energy demand under the 1.2% width of GDP growth rate. But the factors of the difference in GDP or the effects of policies were not mentioned. As pointed out in this study, the possibility of downturn in growth rate by population decrease and fiscal reform is expected to be high, and the effects of it should be analyzed quantitatively and be reflected in future outlook of energy supply and demand and energy policies.

Future Developments

Simulations will be performed and the outlook will be revised timely according to changes in the situation on economy and energy, such as international oil price and Chinese economy, and governmental policies.

Main Researchers:

Yutaka Nagata, Ph.D., Senior Research Scientist and Tsuneaki Hattori, Associate Vice President, Socio-economic Research Center

Reference

T. Hattori, et.al., 2005, "Outlook for the Japanese Economy and Energy Up To the Year 2030", CRIEPI Report Y04015 (in Japanese)

Table 1 Outlook of economy and energy supply and demand up to the year 2030

	Low growth case	Medium growth case	High growth case
Annual growth rate of real GDP	0.3%	0.9%	1.3%
Annual growth rate of energy	-0.1%	0.2%	0.4%
Annual growth rate of grid electricity	0.3%	0.7%	0.9%
CO_2 emission (Mt-C, in 2010)	290.9	303.6	308.6
Rate of consumption tax (after 2020)	20%	15%	12%
Crude oil price ($/bbl, in 2030)	47.8	47.8	47.8

Note) Annual growth rate is average during 2000~2030.
Growth rate of GDP does not reach 1.5% per year even in High growth case because of population decrease and fiscal reform. Primary energy levels off. Growth rate of GDP has a width between the simulation cases.

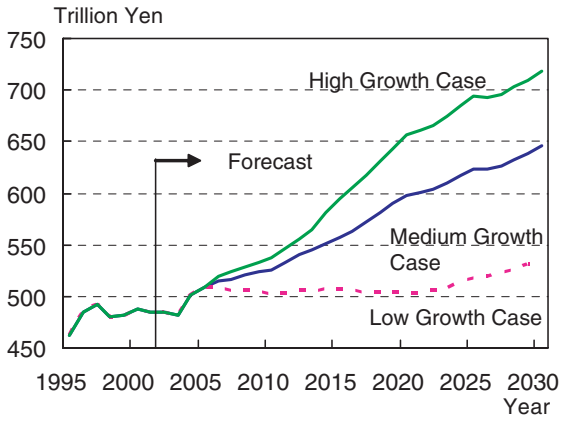

Fig.1 Real GDP (3 cases)

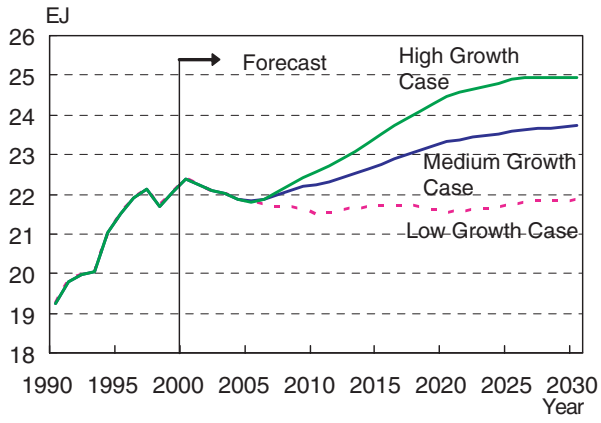

Fig.2 Primary energy demand (3 cases)

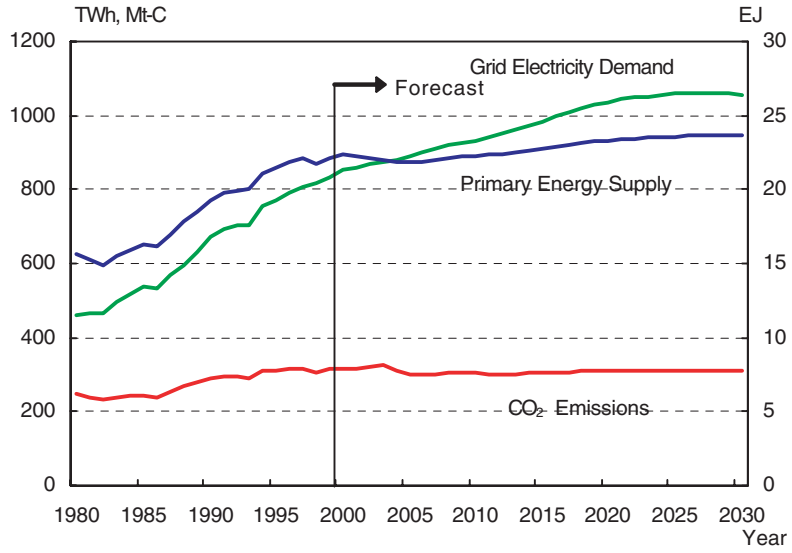

Fig.3 Energy supply, grid electricity demand, and CO_2 emissions (Medium growth case)

Electricity demand will increase due to the progress in electrification, however, it will level off after the year 2020. Reduction of CO_2 emission is necessary to achieve the Kyoto Protocol Target Attainment Plan by the government.