Short-Term Energy Supply and Demand Outlook

- Forecast and Scenario Analysis Up to FY2003 -

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[Objectives]

Since the beginning of the year, Japan's GDP has recorded a positive growth in real terms for three consecutive quarters, but future moves of the economy remain unclear. Furthermore, due to the problem of Iraq and other factors, uncertainty is growing with regard to the crude oil price. With such conditions in the background, this report discusses the energy supply and demand outlooks for FY2002 and FY2003. Given the above-mentioned uncertainties, FY2003 energy supply and demand are projected by subjecting base-case simulation results, which must be obtained first, to sensitivity analysis and/or assessment of impacts from varying key factors the crude oil price and real GDP growth.

[Summary]

1. Outlook for major economic indicators in FY2002-2003

In FY2002, thanks to favorable exports to Asia and other regions, GDP in real terms will pick up by 0.8% over a year ago for the first time in two years. In FY2003, real GDP growth will remain at 0.5% over the previous year due to decline foreign demand and continuously stringent private demand. On the other hand, in view of consumer prices that have been tumbling for the fifth straight year, deflation will persist. In our study, the crude oil price (import price, CIF) is predicted to stay at around $22/bbl during FY2003 with account taken of the "Iraq Stabilization Scenario" (military action is over quickly and confusion in the oil market is brief) published by IEEJ in October 2002.

2. Energy supply and demand outlook for FY2002-2003

In FY2002, domestic primary energy supply will be up 1.0% and final energy consumption up 1.0% over the previous year. These rises reflect a 1.3% growth in the industrial sector with machinery and steel manufacturers recovering their production activity, as well as a 1.7% growth in the residential & commercial sectors due in part to atmospheric temperatures.

In FY2003, domestic primary energy supply will be down 0.3% and final energy consumption down 0.5% from the previous year. These falls can be attributed to a 1.1% drop in the industrial sector that accounts for nearly half of final consumption, and the mere 0.2% growth in the residential & commercial sectors as a reactionary effect from the previous year.

Electricity: In FY2002, electricity demand will grow by 1.2% over the previous year on account of an upturn in the industrial sector, particularly machinery. In FY2003, its demand growth will remain at 0.7% over the previous year due to a slowdown in industrial activity and other factors.

Town gas: In FY2002, town gas demand will increase by 5.9% over the previous year in reflection of a greater demand for power generation and space heating. Despite the effects of atmospheric temperature, FY2003 will record a 3.2% rise over the previous year, particularly in the industrial sector.

Petroleum products: In FY2002, Petroleum products demand will mark its first upturn in three years and will be up 1.0% over the previous year. The upturn can be attributed to soaring use of heavy fuel oil C in power generation to cover prolonged shutdowns of nuclear plants. FY2003 will end in a 3.0% slide from the previous year.

3. Assessment of impacts of variables on energy supply and demand -FY2003

Sensitivity analysis

If the crude oil price is $27/bbl, higher by $5 than in the base case, real GDP growth will be 0.3 points lower than in the base case and final energy consumption 0.4 points lower than in the base case, falling by 0.9% from the previous year. If real GDP growth remains unchanged (0.0%) from the previous year, or 0.5 points lower than in the base case, final energy consumption, 0.3 points lower, will decline by 0.8% from the previous year.

Scenario analysis

If the crude oil price stays high ($32/bbl, $10 higher than in the base case) and the world economy is in stagnation due to escalation of the Middle East conflicts, real GDP growth will be 0.8 points lower than in the base case and will drop 0.3% from the previous year. Final energy consumption will be 1.0 point lower than in the base case and will fall by 1.5% from the previous year.

		Base Case Simulation Results				Changes from the base case (FY2003)		
						Sensitivity analysis		Escalating
		FY2000 (actual)	FY2001 (actual / estimated)	FY2002 (forecast)	FY2003 (forecast)	High price 27$/bbl	Low growth GDP:0.0%	Scenario 32$/bbl
Real GDP growth	(%)	3.2	-1.4	0.8	0.5	-0.3	-0.5	-0.8
Crude oil CIF price	$/bbl	28.3	23.9	26.1	* 22.0	+5.0	-	+10.0
Primary energy supply	(%)	0.2	-2.0	1.0	-0.3	-0.3	-0.2	-0.9
Final energy consumption	(%)	0.7	-2.1	1.0	-0.5	-0.4	-0.3	-1.0
Electricity demand	(%)	2.6	-1.6	1.2	0.7	-0.1	-0.1	-0.4
Town gas demand	(%)	4.5	1.6	5.9	3.2	-0.3	-0.3	-0.8
Petroleum products demand	(%)	-1.1	-2.9	1.0	-3.0	-0.5	-0.4	-1.5

*The assumed crude oil price is calculated by referring to “the Iraq Stabilization Scenario” prepared by IEEJ.

Introduction

This report is designed to project the energy supply and demand for FY2002, still suffering the effects of an unstable economy, and for FY2003. However, the existence of many uncertainties at home and abroad makes it impossible to forecast the energy supply and demand for FY2003. As a result, we have first simulated the base case, which describes the most likely outcome. Then, we forecast additional cases by varying each of two factors (crude oil price, real GDP growth rate), and the results are compared with those of the base case in order to ascertain the impacts of varying factors on energy supply and demand.

This report is structured as follows. First, in Chapter 1, we consider the general shape of the Japanese economy up to FY2003, which provides the premises of our energy supply and demand forecast. In Chapter 2, we explain our forecast results, drawn from the economic and production trends described in the preceding chapter, with regard to domestic primary energy supply and final consumption (based on energy balance table) and by energy source (based on industrial statistics). Chapter 2 thus describes the base case. Lastly, in Chapter 3, we present sensitivity analysis results obtained by varying the two parameters, as well as the results of impact assessment made on the basis of a scenario that assumes crude oil price spikes and a stagnating world economy due to escalation of the Middle East conflicts.

1. Major Economic Indicators in FY2002-2003

1.1 Framework of short-term outlook

In our present work, we surveyed the trends of the principal factors that determined energy supply and demand in qualitative terms, at the same time employing two econometric models (macroeconomic and energy supply-demand models).

The major parameters, which provide the foundations of our forecast, are assumed as follows. The crude oil price (import price, CIF) is assumed on the basis of "the Iraq Stabilization Scenario" published in October 2002 by IEEJ*. Namely, despite a temporary spike to around $28/bbl in the first quarter of 2003 triggered by US strikes on Iraq, the price will stay at $22/bbl on average throughout FY2003. This is because the objective of the military operations against Iraq will be met earlier than expected, in addition to recent international oil market conditions such as the slackening supply and demand balance.

The exchange rate is assumed to stay at around 125yen/$. As for atmospheric temperatures, which have massive impacts on energy demand, both heating and cooling degree days are assumed to the average of the past decade in and after December 2002.

*On the Middle East War Scenario, see IEEJ, "Middle East Crisis Scenario Following a Potential U.S. Attack on Iraq" on IEEJ website: http://eneken.ieej.or.jp (October 2002).

1.2 Macro economic outlook

In FY2002, Japan's real GDP, which ended in decline in FY2001, will pick up by 0.8% over the previous year. However, with the consumer price index falling for the fourth straight year, deflationary conditions will persist. Private final consumption will grow by 0.8% over the

previous year in reflection of factors such as more generous spending trends and favorable sales of small passenger cars. Nevertheless, the job environment will remain severe and residential (housing) investment will continue in decline. Despite partially restored production activities, non-residential (private equipment) investment will drop 4.3% from the previous year for the second straight year due to prudent stances being taken by companies. As a result, the contribution to GDP by total domestic private demand will decline by 0.1%. Given the belt-tightening budget now being compiled, public investment is likely to shrink by 3.1% from the previous year even with account taken of a supplementary budget. Given the strong likelihood that tax revenue shortages will be offset by a supplementary budget, government final consumption will rise by 2.6% over the previous year and the contribution to GDP by overall public demand will increase by 0.3%. As for foreign demand, total exports will be boosted sharply by 8.0% over the previous year because shipments to Asia, particularly to China, record a two-digit increase over the previous year. Imports will rise as well in parallel with domestic demand, and then the contribution to GDP by overall foreign demand (net exports) will increase by 0.6%.

In FY2003, with the severe economic environment still persisting, Japan is unable to get out of deflation. Due to the declining nominal income and heavier social insurance burdens, private consumption will grow by only 0.3% over the previous year. Although the corporate mindset is still austere, private equipment investment will mark its first upturn in three years with a rise of 0.8% over the previous year, thanks to improvements such as in corporate earnings. Though bolstered by the supplementary budget in FY2002, public investment will remain stringent, ending with a 4.7% fall from the previous year. The contribution to GDP by overall foreign demand (net exports) will decrease by 0.1% because the hitherto burgeoning exports to Asia have begun to decelerate. As a result, FY2003 is projected to record a rise in the real GDP for the second straight year and to be up 0.5% over the previous year.

1.3 Outlook for various industrial production activities

In FY2002, there will be scattered moves toward recovery but the overall momentum will remain weak. Because favorable steel exports to Asia continue, and because domestic demand from carmakers is growing, crude steel production will amount to around 108 million tons, up 5.8% over the previous year. In the field of petrochemicals, synthetic rubber production, notably for tires, will be relatively strong, but ethylene output will remain at around 7.2 million tons, about the same level as the previous year, due to a downturn in hitherto favorable exports to Asia. Cement production will slump by 5.5% from the previous year due to the decrease of private equipment and residential (housing) investments alike as well as public investment cuts. The industrial production level as a whole is likely to mark its first increase in two years and to be up 2.5% over the previous year. This upturn can best be explained by the recovery of IT- and car-related production.

In FY2003, the recovery will hit its ceiling and a downturning phase will set in during the second half of the year. Crude steel production will remain at around 103 million tons, down 4.2% from the previous year, for the reasons that exports will slump due to officially invoked safeguards by China and that sluggishness in domestic demand, particularly of construction, will

persist. Ethylene production will end at around 6.9 million tons, down 3.3% from the previous year, in reflection of flagging domestic demand due in part to moves overseas by domestic manufacturing centers. Cement production will decrease by 3.9% from the previous year due to further declines in public investment, which more than offset the upturn in non-residential (private equipment) investment. Though driven by machinery, the recovery will hit its ceiling and the industrial production level overall is projected to rise by a mere 0.8% over the previous year.

2. Energy Supply and Demand Outlook for FY2002-2003

2.1 Domestic primary energy supply outlook

In FY2002, domestic primary energy supply will grow 1.0% over the previous year due to reflects an economic recovery. By energy source, coal will be up 5.0% over the previous year, because industrial use particularly in crude steel production will increase and because power generation uses will also increase due to newly commissioned coal-fired power sources. Oil will record its first increase in three years and will be up 1.6% over the previous year because of upturns in power generation, industrial and residential & commercial uses. Natural gas will rise by 2.4% over a year earlier as a consequence of an upturn in power generation use. Despite water shortage, water flow rate is expected to be roughly the same as in previous year and hydropower will show a slight rise, up 0.1% over the previous year. Nuclear power will plunge sharply by 8.1% from the previous year due to a lowered capacity utilization rate resulting from prolonged shutdowns, etc.

In FY2003, in consequence of the shrinking production of crude steel and cement, coal will register its first fall in five years and will be down 1.0% from the previous year. Oil will also decline by 4.3% from the previous year, because industrial, residential & commercial and power generation uses will turn downward. The decline of oil supply reflects reactionary effects by atmospheric temperatures and long shutdowns of nuclear power plants in the previous year, in addition to the economic slowdown. Natural gas will slide by 0.5% from the previous year, because gas-fired generated output will fall below the FY2002 level despite favorable town gas use. With water flow rate assumed to be virtually the same as in ordinary years, hydropower will mark a reactionary rise over FY2002, up by 7.2%. Nuclear power will surge by 15.5%, partly on account of a rise in utilization rate in reaction to the previous year's lows. For these reasons, total domestic primary energy supply is projected to drop by 0.3% from the previous year.

2.2 Final energy consumption outlook

In FY2002, final energy consumption will increase by 1.0% over the previous year. The industrial sector will consume 1.3% more than in the previous year due to increased crude steel production to meet Asia-bound exports, in addition to a recovery in production, particularly of cars and in the IT-related sectors. The residential sector will mark an upturn, and will be up by 1.7% over the previous year. This is because the summer temperatures that are higher than in the previous year will cause the cooling demand to rise, and the severer winter than a year earlier will push up the heating demand. The commercial sector will record growth of 1.6%. Beside a mild

economic recovery, larger demand from air-conditioning is responsible for the growth. The transport sector will be down 0.3% from the previous year, because dull freight moves will lead to stagnation in freight transport.

In FY2003, despite positive GDP growth, the industrial sector will mark a downturn of 1.1% from the previous year due to falling production levels of crude steel, ethylene, etc. The residential sector will consume 0.4% less than the previous year due partly to a reactionary fall in the heating demand. Growth in the commercial sector will remain at 0.9% over the previous year. Although passenger transport will continue strong, the transport sector will end in a decline for the second straight year, down 0.2% from the previous year due to sluggishness in freight transport. As a result, total final energy consumption is projected to fall by 0.5% from the previous year.

2.3 Energy demand outlooks by energy industry

(1) Electricity

In FY2002, electricity demand (for electric utilities) will increase by 1.2% over the previous year. This is because atmospheric temperatures, as well as other factors, will send lighting use up by 1.6% and commercial power use up by 1.3% over the previous year. Electricity demand eligible for specified contracts will increase by 1.7% over the previous year as a result of an upturn by industrial use, typically machinery.

In FY2003, growth in lighting use will remain low due to atmospheric temperatures. Though still on the rise, commercial power use will increase only by 1.6% over the previous year due to factors such as the sluggish economy. Specified-contracts demand will show an increase of only 0.2% over the previous year due to flagging production activities. As a consequence, total electricity demand is projected to increase for the second straight year, up 0.7% over the previous year.

(2) Town gas

In FY2002, town gas demand will grow by as much as 5.9% over the previous year. Residential use will be 2.3% more than the previous year because larger water heating and space heating demand is likely in reflection of lower atmospheric temperatures. Industrial use will increase 10.8% over the previous year, backed by favorable power generation use (by both cogeneration and electric utilities). Commercial and other uses will increase by 3.2% and 4.9%, respectively, in reflection of factors such as greater air-conditioning demand.

In FY2003, power generation use will remain favorable and industrial use will grow by 6.9% over the previous year. Residential use will mark a reactionary fall of 0.2% from the previous year. Commercial and other uses will remain on the increase given the growing popularity of gas-powered space cooling, etc. As a result, total gas demand is projected to increase by 3.2% over the previous year.

(3) Petroleum products

In FY2002, Petroleum products demand will mark a rise for the first time in three years and

will be up 1.0% over the previous year. By product, gasoline will maintain its strong growth, up 1.3% over the previous year. Kerosene and heavy fuel oil A will increase 3.0% and 2.0%, respectively, over the previous year, reflecting a severer winter than in the previous year. Given the lingering sluggishness in freight transport, diesel will register a fall as in the previous year. Despite shrinking industrial use, surging power generation use, attributable to long shutdowns of nuclear plants, will help heavy fuel oils B/C rise by 2.2% over the previous year, the first upturn in eight years since FY1994, which recorded intense-heat water shortage.

In FY2003, gasoline will grow steadily as in the past, but diesel will continue its plunge. Due to uncertainties in the petrochemical industry, naphtha will register a fall, while heavy fuel oils B/C will plunge in reaction to the previous year. As a result, total Petroleum products demand is projected to slump by 3.0% from the previous year.

3. Assessment of Impact of Variables on Energy Supply and Demand - FY2003

3.1 Sensitivity analysis

To ascertain the impacts of variables on energy supply and demand, we made a sensitivity analysis on FY2003.

Made by varying only one of the exogenous variables (assumptions) of the "base case" with all else unchanged, a sensitivity analysis is designed to show how forecast results change from the "base case," thus making it possible to measure the impacts of a given variable in quantitative terms. This time, we selected the crude oil price and real GDP, both of which are highly uncertain in the short term, as the factors subject to the analysis. By varying these factors, we assessed and analyzed the impacts that their variations could have on economic activity as well as energy supply and demand.

(1) Higher Crude Oil Price Case

First, in the higher oil price case, the crude oil price in FY2003 is assumed to stay at $27/bbl, higher by $5 than in the base case. Analysis results show that the real GDP would be up 0.2% over the previous year, which is 0.3 points lower than in the base case. Given that the Japanese economy today is less dependent on oil than at the time of the last two oil crises, the impact of rising crude oil prices would probably be not so severe.

With regard to the impact on energy consumption in this case, domestic primary energy supply would be 0.3 points less than in the base case and down 0.6% from the previous year. Final energy consumption would fall by 0.4 points from the base case and be down 0.9% from the previous year.

(2) Lower GDP Growth Case

In the lower GDP growth case, real GDP growth in FY2003 is assumed to be 0.5 points lower than in the base case, namely unchanged (0.0%) from the previous year's level. The grounds for assuming the 0.5 points lower growth are that, in addition to the diminished quantity of exports resulting from the slowing down of U.S. and Asian economies, domestic demand could fall further with private equipment investment as the centerpiece.

In this case, the domestic primary energy supply would be 0.2 points lower than in the base case, down 0.5% from the previous year. Final energy consumption would fall by 0.3 points from the base case and be down by 0.8% from the previous year.

3.2 Scenario analysis (Escalation of Middle East Conflicts Scenario)

In addition, we assessed and analyzed the case in which the U.S. strikes on Iraq would escalate into region-wide conflicts in the Middle East by assuming the crude oil price, the world economic trend, etc. in reference to "the Middle East Crisis Scenario" prepared by IEEJ (mentioned above).

In FY2003, the crude oil price is assumed to stay at $32/bbl, higher by $10 on average than in the base case. It is also assumed that the world economy would be damaged by the escalating conflicts. If so, Japan's real GDP growth would be lower by 0.8 points than in the base case and down 0.3% from the previous year.

In this case, domestic primary energy supply would be 0.9 points less than in the base case and down 1.2% from the previous year. Final energy consumption would decline by 1.0 point from the base case and be down by 1.5% from the previous year.

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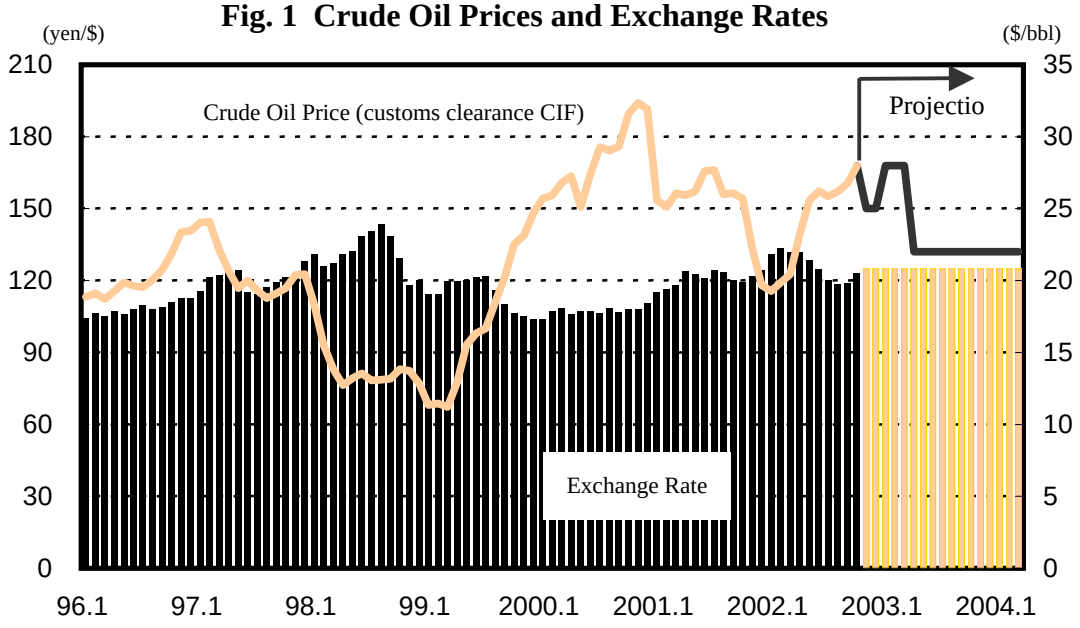
Table 1 Outlook for Major Economic Indicators (Base Case)

	FY2000 (Actual)	FY2001 (Actual) 1st. half	FY2001 (Actual) 2nd. half	FY2001 (Actual) Total	FY2002 (Partially estimated) 1st. half	FY2002 (Partially estimated) 2nd. half	FY2002 (Partially estimated) Total	FY2003 (Projection)
GDP (bil. yen in 1995 prices)	**539,215** (3.2)	**264,061** (0.2)	**267,508** (-3.0)	**531,569** (-1.4)	**265,087** (0.4)	**270,648** (1.2)	**535,735** (0.8)	**538,555** (0.5)
Private demand	**401,722** (3.7)	**199,849** (1.5)	**196,930** (-3.9)	**396,779** (-1.2)	**198,617** (-0.6)	**197,711** (0.4)	**396,328** (-0.1)	**397,775** (0.4)
Public demand	**124,526** (0.9)	**59,253** (-0.6)	**65,061** (0.2)	**124,314** (-0.2)	**59,614** (0.6)	**66,077** (1.6)	**125,691** (1.1)	**127,453** (1.4)
Foreign demand (net exports)	**12,968** (10.7)	**4,960** (-30.1)	**5,517** (-6.1)	**10,476** (-19.2)	**6,856** (38.2)	**6,861** (24.4)	**13,717** (30.9)	**13,327** (-2.8)
Wholesale price index (1995=100)	**96.0** (-0.1)	**95.4** (-0.9)	**94.5** (-1.4)	**94.9** (-1.1)	**94.4** (-1.1)	**94.2** (-0.3)	**94.3** (-0.7)	**93.6** (-0.7)
Consumer price index (2000=100)	**99.9** (-0.6)	**99.3** (-0.7)	**98.5** (-1.2)	**98.9** (-1.0)	**98.5** (-0.9)	**98.4** (-0.1)	**98.4** (-0.5)	**98.0** (-0.4)
Exchange rate (yen/US$)	**110.5** (-0.9)	**122.2** (14.1)	**128.1** (12.4)	**125.1** (13.2)	**123.1** (0.8)	**125.0** (-2.4)	**124.1** (-0.9)	**125.0** (0.8)
Crude oil price, CIF (US$/bbl)	**28.3** (36.5)	**26.6** (-4.7)	**21.2** (-26.3)	**23.9** (-15.7)	**25.6** (-3.6)	**26.5** (24.9)	**26.1** (9.1)	**22.0** (-15.6)
Indices of industrial production (1995=100)	**104.7** (4.0)	**95.3** (-8.2)	**92.8** (-12.2)	**94.0** (-10.2)	**95.3** (0.0)	**97.6** (5.1)	**96.4** (2.5)	**97.2** (0.8)
Crude steel production (1,000 t)	**106,901** (9.1)	**52,202** (-2.7)	**49,863** (-6.3)	**102,065** (-4.5)	**54,630** (4.7)	**53,323** (6.9)	**107,953** (5.8)	**103,380** (-4.2)
Ethylene production (1,000 t)	**7,567** (-2.0)	**3,552** (-4.4)	**3,653** (-5.1)	**7,205** (-4.8)	**3,504** (-1.4)	**3,664** (0.3)	**7,168** (-0.5)	**6,931** (-3.3)
Heating degree days	**1,035** (2.6)	**44** (3.5)	**858** (-13.6)	**902** (-12.9)	**22** (-49.9)	**1,009** (17.7)	**1,031** (14.4)	**997** (-3.3)
Cooling degree days	**469** (6.2)	**410** (-12.7)	**0** -	**410** (-12.7)	**420** (2.6)	**2** -	**422** (3.1)	**395** (-6.5)

(Note) Shown in parentheses are ups/downs (%) from previous corresponding periods.

Fig. 1 Crude Oil Prices and Exchange Rates



(Source) Ministry of Finance, "Japanese Trade Monthly Table." Forecast by IEEJ.

Table 2 Outlook for Macro-economic Indicators (Base Case)

(Unit: billion yen in 1995 prices)

	FY2000	FY2001 (Actual)			FY2002 (Partially estimated)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Real GDP	**539,215** (3.2)	**264,061** (0.2)	**267,508** (-3.0)	**531,569** (-1.4)	**265,087** (0.4)	**270,648** (1.2)	**535,735** (0.8)	**538,555** (0.5)
Private demand:	**401,722** (3.7)	**199,849** (1.5)	**196,930** (-3.9)	**396,779** (-1.2)	**198,617** (-0.6)	**197,711** (0.4)	**396,328** (-0.1)	**397,775** (0.4)
Private consumption	**290,563** (1.1)	**145,439** (1.9)	**149,394** (1.1)	**294,833** (1.5)	**147,883** (1.7)	**149,451** (0.0)	**297,334** (0.8)	**298,342** (0.3)
Residential investment	**20,580** (-0.2)	**9,670** (-7.3)	**9,232** (-9.0)	**18,902** (-8.2)	**9,370** (-3.1)	**9,096** (-1.5)	**18,466** (-2.3)	**18,381** (-0.5)
Non-residential investment	**89,507** (10.0)	**42,897** (3.2)	**42,341** (-11.7)	**85,238** (-4.8)	**40,084** (-6.6)	**41,529** (-1.9)	**81,613** (-4.3)	**82,306** (0.8)
Public demand:	**124,526** (0.9)	**59,253** (-0.6)	**65,061** (0.2)	**124,314** (-0.2)	**59,614** (0.6)	**66,077** (1.6)	**125,691** (1.1)	**127,453** (1.4)
Government consumption	**87,509** (4.8)	**44,107** (2.0)	**45,333** (2.4)	**89,439** (2.2)	**45,043** (2.1)	**46,707** (3.0)	**91,750** (2.6)	**95,112** (3.7)
Public investment	**36,897** (-7.4)	**15,236** (-6.9)	**19,698** (-4.1)	**34,933** (-5.3)	**14,561** (-4.4)	**19,281** (-2.1)	**33,842** (-3.1)	**32,244** (-4.7)
Net exports of goods & services:	**12,968** (10.7)	**4,960** (-30.1)	**5,517** (-6.1)	**10,476** (-19.2)	**6,856** (38.2)	**6,861** (24.4)	**13,717** (30.9)	**13,327** (-2.8)
Exports	**59,950** (9.5)	**27,632** (-7.8)	**27,581** (-8.0)	**55,213** (-7.9)	**29,778** (7.8)	**29,833** (8.2)	**59,610** (8.0)	**60,240** (1.1)
Imports	**46,982** (9.1)	**22,673** (-0.9)	**22,064** (-8.5)	**44,737** (-4.8)	**22,922** (1.1)	**22,972** (4.1)	**45,894** (2.6)	**46,913** (2.2)
Nominal GDP	**515,478** (1.1)	**249,284** (-1.3)	**253,318** (-3.6)	**502,602** (-2.5)	**247,040** (-0.9)	**252,257** (-0.4)	**499,297** (-0.7)	**497,447** (-0.4)
Indices of industrial production(1995=100)	**104.7** (4.0)	**95.3** (-8.2)	**92.8** (-12.2)	**94.0** (-10.2)	**95.3** (0.0)	**97.6** (5.1)	**96.4** (2.5)	**97.2** (0.8)
Wholesale price index (1995=100)	**96.0** (-0.1)	**95.4** (-0.9)	**94.5** (-1.4)	**94.9** (-1.1)	**94.4** (-1.1)	**94.2** (-0.3)	**94.3** (-0.7)	**93.6** (-0.7)
Consumer price index (2000=100)	**99.9** (-0.6)	**99.3** (-0.7)	**98.5** (-1.2)	**98.9** (-1.0)	**98.5** (-0.9)	**98.4** (-0.1)	**98.4** (-0.5)	**98.0** (-0.4)
Exchange rate (yen/US$)	**110.5** (-0.9)	**122.2** (14.1)	**128.1** (12.4)	**125.1** (13.2)	**123.1** (0.8)	**125.0** (-2.4)	**124.1** (-0.9)	**125.0** (0.8)
Crude oil price, CIF ($/bbl)	**28.3** (36.5)	**26.6** (-4.7)	**21.2** (-26.3)	**23.9** (-15.7)	**25.6** (-3.6)	**26.5** (24.9)	**26.1** (9.1)	**22.0** (-15.6)
Crude oil price, CIF (yen/KL)	**19,563** (35.5)	**20,492** (9.1)	**16,883** (-17.0)	**18,688** (-4.5)	**19,933** (-2.7)	**20,661** (22.4)	**20,297** (8.6)	**17,271** (-14.9)

(Source) Cabinet Office, "National Income Statistics Prompt Report," etc. Forecast by IEEJ.

(Note) Shown in parentheses are ups/downs (%) from previous corresponding periods.

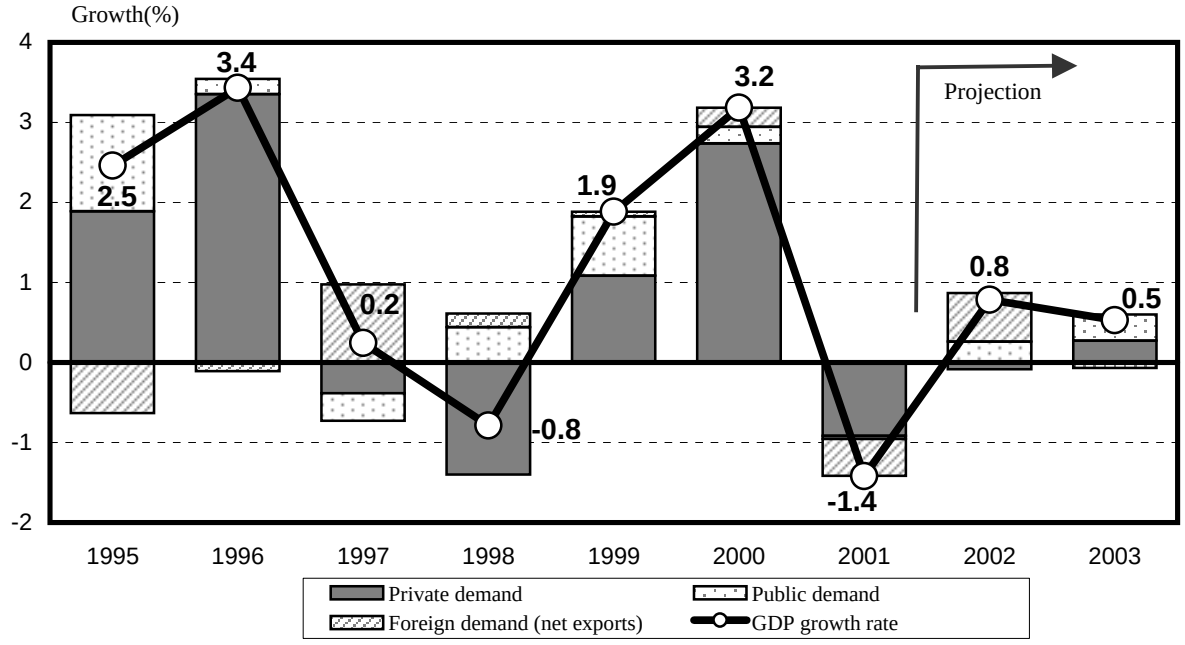
Table 3 Outlook for Industrial Production Activities

		FY2000 (Actual)	FY2001 (Actual)			FY2002 (Partially estimated)			FY2003 (Projection)
			1st. half	2nd. half	Total	1st. half	2nd. half	Total	
Production of major raw materials (1,000 t)	Crude steel	**106,901** (9.1)	**52,202** (-2.7)	**49,863** (-6.3)	**102,065** (-4.5)	**54,630** (4.7)	**53,323** (6.9)	**107,953** (5.8)	**103,380** (-4.2)
	Paper / paperboard	**31,742** (2.3)	**15,265** (-3.6)	**15,087** (-5.2)	**30,352** (-4.4)	**15,377** (0.7)	**15,262** (1.2)	**30,639** (0.9)	**30,819** (0.6)
	Cement	**80,068** (-0.5)	**36,608** (-6.0)	**39,300** (-4.5)	**75,908** (-5.2)	**33,840** (-7.6)	**37,871** (-3.6)	**71,711** (-5.5)	**68,894** (-3.9)
	Ethylene	**7,567** (-2.0)	**3,552** (-4.4)	**3,653** (-5.1)	**7,205** (-4.8)	**3,504** (-1.4)	**3,664** (0.3)	**7,168** (-0.5)	**6,931** (-3.3)
Indices of Industrial Production (1995=100)	Foodstuffs	**99.0** (-0.1)	**98.2** (-2.0)	**94.9** (-3.0)	**96.5** (-2.5)	**97.3** (-0.9)	**95.0** (0.2)	**96.1** (-0.4)	**96.0** (-0.2)
	Textiles	**70.7** (-8.1)	**66.4** (-8.9)	**61.9** (-9.7)	**64.1** (-9.3)	**59.4** (-10.6)	**57.0** (-7.9)	**58.2** (-9.3)	**56.5** (-2.8)
	Non-ferrous metals	**105.9** (6.8)	**103.0** (0.0)	**106.5** (-2.2)	**104.7** (-1.1)	**100.7** (-2.2)	**107.0** (0.5)	**103.8** (-0.8)	**103.4** (-0.4)
	Metals / machinery	**113.0** (7.3)	**98.1** (-11.8)	**94.6** (-17.6)	**96.4** (-14.7)	**99.0** (0.9)	**104.0** (9.9)	**101.5** (5.3)	**104.8** (3.3)
	Other manufacturing	**92.1** (-2.3)	**86.9** (-5.5)	**85.3** (-7.6)	**86.1** (-6.5)	**84.0** (-3.3)	**83.6** (-1.9)	**83.8** (-2.6)	**81.6** (-2.6)

(Source) Actual figures are quoted from various materials. Forecast by IEEJ.

(Note) Shown in parentheses are ups/downs (%) from previous corresponding periods.

Fig. 2 Domestic and Foreign Demand's Contribution to Real GDP Growth Rate



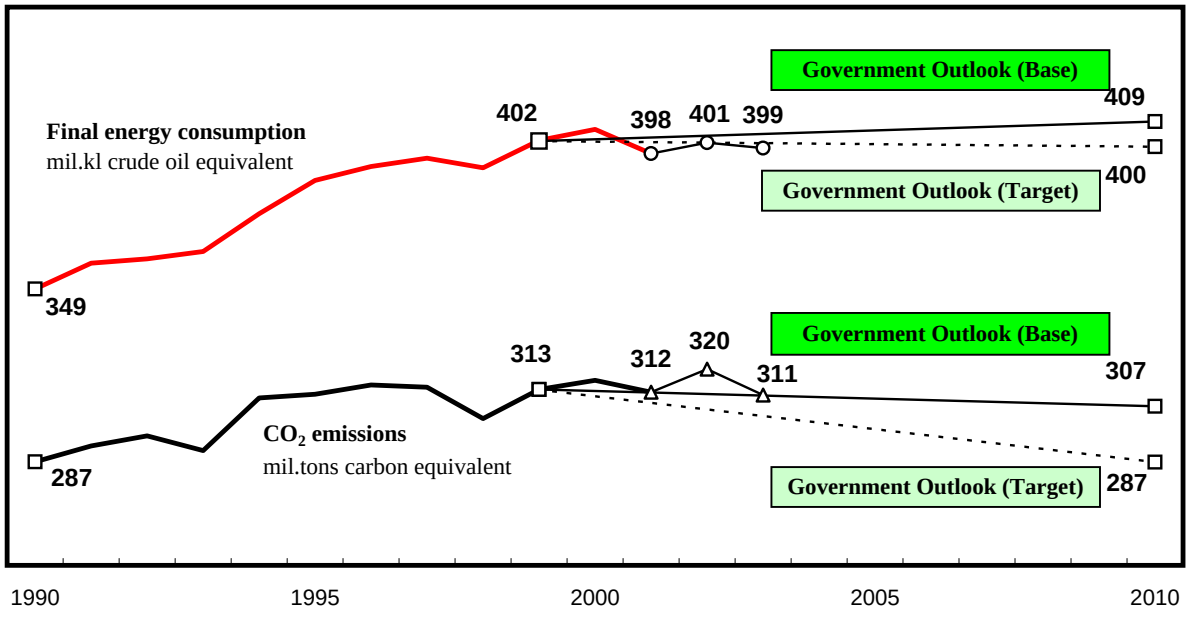
(Source) Cabinet Office, "National Income Statistics Prompt Report," etc. Forecast by IEEJ.

Table 4 Energy Supply and Demand Outlook (Base Case)

	FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Domestic primary energy supply (10^{10}kcal=1,000TOE)	**535,025** (0.2)	**257,426** (-0.3)	**267,051** (-3.5)	**524,477** (-2.0)	**257,524** (0.0)	**272,442** (2.0)	**529,966** (1.0)	**528,528** (-0.3)
Oil's share (%)	49.9%			49.3%			49.6%	47.6%
Final energy consumption: (10^{10}kcal=1,000TOE)	**375,732** (0.7)	**175,003** (-2.3)	**192,694** (-2.0)	**367,697** (-2.1)	**175,330** (0.2)	**195,991** (1.7)	**371,321** (1.0)	**369,525** (-0.5)
Industrial sector	**178,085** (1.5)	**82,791** (-4.6)	**88,266** (-3.3)	**171,057** (-3.9)	**83,365** (0.7)	**89,860** (1.8)	**173,225** (1.3)	**171,368** (-1.1)
Residential & commercial sectors	**99,745** (2.4)	**43,226** (0.1)	**55,520** (-1.8)	**98,746** (-1.0)	**43,174** (-0.1)	**57,225** (3.1)	**100,399** (1.7)	**100,606** (0.2)
Transport sector	**90,739** (-2.2)	**45,844** (-0.2)	**45,170** (0.8)	**91,013** (0.3)	**45,667** (-0.4)	**45,110** (-0.1)	**90,777** (-0.3)	**90,618** (-0.2)
Electricity demand (GWh)	**858,083** (2.6)	**430,674** (-1.0)	**413,700** (-2.2)	**844,374** (-1.6)	**431,270** (0.1)	**423,337** (2.3)	**854,607** (1.2)	**860,755** (0.7)
Town gas demand (mil. m^3/10,000 kcal)	**25,017** (4.5)	**11,628** (1.5)	**13,778** (1.6)	**25,406** (1.6)	**12,212** (5.0)	**14,702** (6.7)	**26,914** (5.9)	**27,782** (3.2)
Petroleum products demand (1,000 kl)	**243,211** (-1.1)	**109,890** (-3.2)	**126,310** (-2.6)	**236,199** (-2.9)	**108,076** (-1.7)	**130,603** (3.4)	**238,679** (1.0)	**231,590** (-3.0)
GDP (bil. yen in 1995 prices)	**539,215** (3.2)	**264,061** (0.2)	**267,508** (-3.0)	**531,569** (-1.4)	**265,087** (0.4)	**270,648** (1.2)	**535,735** (0.8)	**538,555** (0.5)
Energy intensity (FY1995=100 (Domestic supply per GDP)	**97.4** (-2.9)			**96.8** (-0.6)			**97.1** (0.3)	**96.3** (-0.8)
CO_2 emissions (MtC) (FY1990=100)	**316** **110.2** (1.1)			**312** **108.7** (-1.3)			**320** **111.6** (2.6)	**311** **108.3** (-2.9)

(Note) Shown in parentheses are ups/downs (%) from previous corresponding periods.

Fig. 3 Short-term Outlook and Government Target



(Source) The Advisory Committee for Resource and Energy, "Long-term Energy Supply and Demand Outlook"(July 2002)

Table 5 Domestic Primary Energy Supply Outlook (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

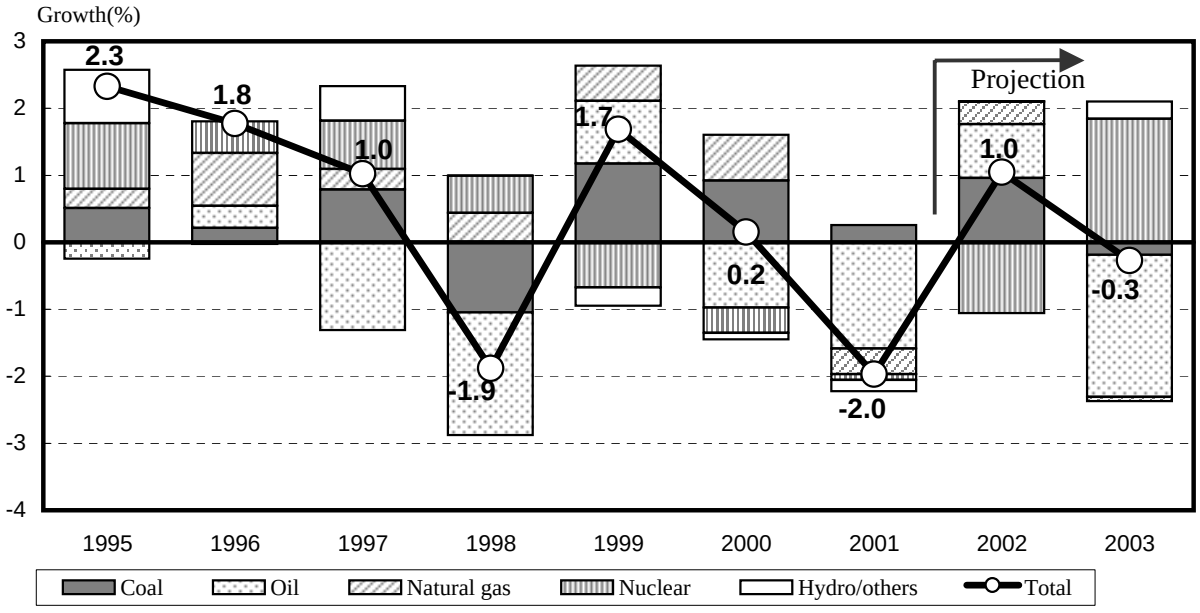
	FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Coal	**98,607** (5.3)	**50,831** (4.6)	**49,154** (-1.7)	**99,985** (1.4)	**52,423** (3.1)	**52,608** (7.0)	**105,031** (5.0)	**104,031** (-1.0)
Oil	**267,187** (-1.9)	**121,174** (-3.3)	**137,513** (-3.1)	**258,687** (-3.2)	**117,857** (-2.7)	**145,034** (5.5)	**262,890** (1.6)	**251,657** (-4.3)
Natural gas	**73,401** (5.2)	**37,024** (6.3)	**34,349** (-10.9)	**71,373** (-2.8)	**36,353** (-1.8)	**36,763** (7.0)	**73,116** (2.4)	**72,772** (-0.5)
Hydropower	**19,254** (-3.1)	**10,679** (-4.4)	**7,959** (-1.5)	**18,638** (-3.2)	**10,968** (2.7)	**7,691** (-3.4)	**18,659** (0.1)	**19,997** (7.2)
Nuclear power	**69,242** (-2.8)	**34,189** (-1.3)	**34,581** (-0.0)	**68,770** (-0.7)	**36,385** (6.4)	**26,814** (-22.5)	**63,199** (-8.1)	**72,965** (15.5)
Others	**7,334** (1.1)	**3,529** (-3.1)	**3,495** (-5.3)	**7,024** (-4.2)	**3,539** (0.3)	**3,532** (1.1)	**7,071** (0.7)	**7,106** (0.5)
Total	**535,025** (0.2)	**257,426** (-0.3)	**267,051** (-3.5)	**524,477** (-2.0)	**257,524** (0.0)	**272,442** (2.0)	**529,966** (1.0)	**528,528** (-0.3)
GDP (billion yen in 1995 prices)	**539,215** (3.2)	**264,061** (0.2)	**267,508** (-3.0)	**531,569** (-1.4)	**265,087** (0.4)	**270,648** (1.2)	**535,735** (0.8)	**538,555** (0.5)
Energy intensity (FY1995=100) (Domestic supply per GDP)	**97.4** (-2.9)			**96.8** (-0.6)			**97.1** (0.3)	**96.3** (-0.8)

(Source) METI,"General Energy Statistics," etc. Forecast by IEEJ.

(Notes) 1. Shown in parentheses are ups/downs (%) from previous corresponding periods.

2. "Others" include geothermal power generation and new energies/others.

Fig. 4 Changes in Domestic Primary Energy Supply (Contribution by Energy Source)



(Source) Same as the above

Table 5-1 Outlook for Fuel Requirement by Electric Utilities (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

	FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Thermal	**111,653** (3.2)	**55,629** (-0.5)	**52,540** (-5.8)	**108,169** (-3.1)	**52,005** (-6.5)	**62,640** (19.2)	**114,645** (6.0)	**106,301** (-7.3)
Coal/others	**41,364** (12.7)	**22,075** (11.7)	**22,120** (2.4)	**44,195** (6.8)	**23,125** (4.8)	**24,787** (12.1)	**47,912** (8.4)	**47,966** (0.1)
Oil	**19,435** (-11.8)	**7,913** (-26.4)	**5,408** (-37.8)	**13,321** (-31.5)	**4,231** (-46.5)	**11,003** (103.5)	**15,235** (14.4)	**7,422** (-51.3)
Crude oil	**7,109** (-16.8)	**2,632** (-38.4)	**1,670** (-41.1)	**4,302** (-39.5)	**901** (-65.8)	**4,258** (155.0)	**5,159** (19.9)	**2,173** (-57.9)
Fuel oils B/C	**11,565** (-9.9)	**4,880** (-19.5)	**3,473** (-36.9)	**8,353** (-27.8)	**2,930** (-40.0)	**6,473** (86.4)	**9,402** (12.6)	**4,625** (-50.8)
Natural Gas	**50,854** (2.8)	**25,641** (1.0)	**25,012** (-1.8)	**50,653** (-0.4)	**24,649** (-3.9)	**26,849** (7.3)	**51,498** (1.7)	**50,913** (-1.1)
Hydro	**18,174** (-3.2)	**10,074** (-4.6)	**7,491** (-1.6)	**17,565** (-3.4)	**10,363** (2.9)	**7,224** (-3.6)	**17,587** (0.1)	**18,925** (7.6)
Nuclear	**69,087** (-2.8)	**34,144** (-1.2)	**34,581** (0.2)	**68,725** (-0.5)	**36,385** (6.6)	**26,814** (-22.5)	**63,199** (-8.0)	**72,965** (15.5)
Others	**1,134** (-3.0)	**582** (3.6)	**591** (3.3)	**1,173** (3.4)	**582** (0.0)	**591** (-0.0)	**1,173** (-0.0)	**1,173** (0.0)
Input total	**200,048** (0.4)	**100,429** (-1.1)	**95,203** (-3.3)	**195,632** (-2.2)	**99,335** (-1.1)	**97,269** (2.2)	**196,604** (0.5)	**199,364** (1.4)
Power generation	**80,654** (2.1)	**40,253** (-1.4)	**38,837** (-2.5)	**79,090** (-1.9)	**40,132** (-0.3)	**39,687** (2.2)	**79,819** (0.9)	**80,446** (0.8)

(Source) METI,"General Energy Statistics," etc. Forecast by IEEJ.

(Notes) 1. Shown in parentheses are ups/downs (%) from previous corresponding periods.

2. “Coal/others” include coke, etc.

3. “Others” include geothermal power generation and new energies/others.

Table 6 Final Energy Consumption Outlook (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

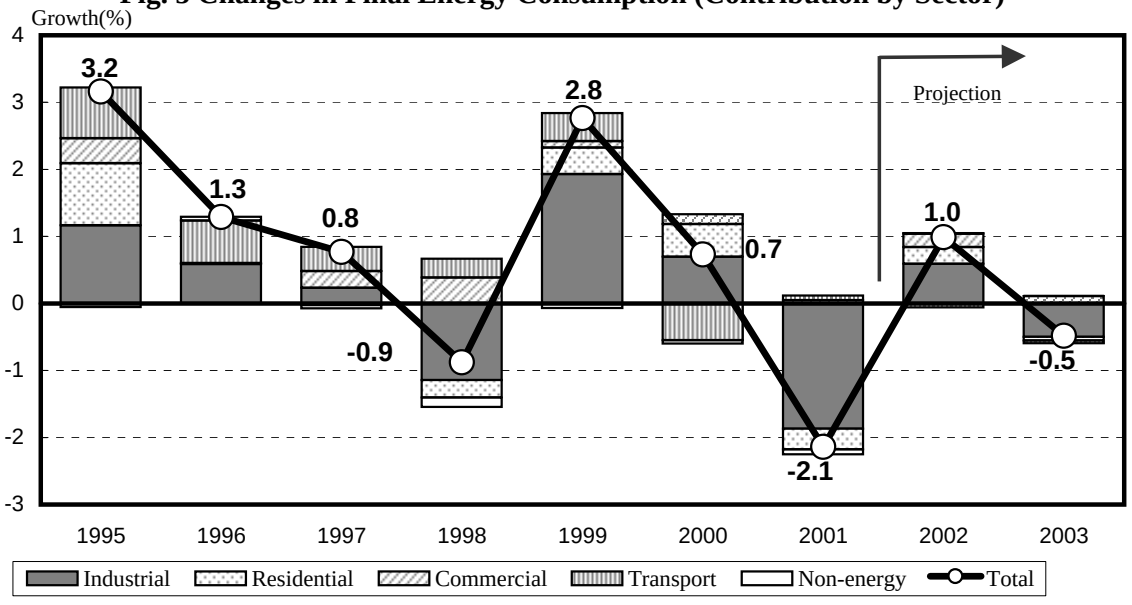
		FY2000 (Actual)	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003 (Projection)
			1st. half	2nd. half	Total	1st. half	2nd. half	Total	
Breakdown by sector:	Industrial sector	**178,085** (1.5)	**82,791** (-4.6)	**88,266** (-3.3)	**171,057** (-3.9)	**83,365** (0.7)	**89,860** (1.8)	**173,225** (1.3)	**171,368** (-1.1)
	Residential & commercial sectors	**99,745** (2.4)	**43,226** (0.1)	**55,520** (-1.8)	**98,746** (-1.0)	**43,174** (-0.1)	**57,225** (3.1)	**100,399** (1.7)	**100,606** (0.2)
	Residential sector	**53,392** (3.5)	**20,621** (-0.3)	**31,605** (-3.4)	**52,226** (-2.2)	**20,502** (-0.6)	**32,636** (3.3)	**53,138** (1.7)	**52,937** (-0.4)
	Commercial sector	**46,353** (1.2)	**22,605** (0.5)	**23,915** (0.3)	**46,520** (0.4)	**22,672** (0.3)	**24,589** (2.8)	**47,261** (1.6)	**47,669** (0.9)
	Transport sector	**90,739** (-2.2)	**45,844** (-0.2)	**45,170** (0.8)	**91,013** (0.3)	**45,667** (-0.4)	**45,110** (-0.1)	**90,777** (-0.3)	**90,618** (-0.2)
	Non-energy sector	**7,165** (-2.7)	**3,141** (-4.3)	**3,738** (-3.8)	**6,879** (-4.0)	**3,123** (-0.6)	**3,797** (1.6)	**6,920** (0.6)	**6,934** (0.2)
Breakdown by energy source:	Coal / others	**41,358** (3.5)	**19,741** (-6.3)	**19,371** (-4.5)	**39,112** (-5.4)	**20,017** (1.4)	**19,844** (2.4)	**39,861** (1.9)	**38,634** (-3.1)
	Oil	**221,908** (-0.9)	**100,088** (-2.3)	**117,556** (-1.6)	**217,644** (-1.9)	**99,804** (-0.3)	**118,881** (1.1)	**218,685** (0.5)	**217,233** (-0.7)
	Town gas	**24,658** (4.4)	**11,327** (0.4)	**13,358** (-0.2)	**24,685** (0.1)	**11,651** (2.9)	**13,942** (4.4)	**25,593** (3.7)	**25,917** (1.3)
	Electric power	**83,223** (2.6)	**41,712** (-0.9)	**40,276** (-2.0)	**81,988** (-1.5)	**41,782** (0.2)	**41,205** (2.3)	**82,988** (1.2)	**83,600** (0.7)
	Others	**4,585** (6.0)	**2,128** (-5.8)	**2,131** (-8.3)	**4,259** (-7.1)	**2,075** (-2.5)	**2,121** (-0.5)	**4,196** (-1.5)	**4,142** (-1.3)
Total		**375,732** (0.7)	**175,003** (-2.3)	**192,694** (-2.0)	**367,697** (-2.1)	**175,330** (0.2)	**195,991** (1.7)	**371,321** (1.0)	**369,525** (-0.5)

(Source) METI,"General Energy Statistics," etc. Forecast by IEEJ.

(Notes) 1. Shown in parenthesis are ups/downs (%) from previous corresponding periods.

2. “Coal/others” include coke, coke-oven gas, blast furnace gas and briquettes.

Fig. 5 Changes in Final Energy Consumption (Contribution by Sector)



(Source) Same as the above

Table 6-1 Outlook for Final Energy Consumptionin in the Indutrial (Manufacturing) Sector (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

		FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
	Coal	**16,471** (-1.5)	**8,259** (-0.7)	**8,265** (1.4)	**16,524** (0.3)	**8,238** (-0.3)	**8,323** (0.7)	**16,561** (0.2)	**16,017** (-3.3)
	Coke/others	**23,916** (7.3)	**10,972** (-10.8)	**10,612** (-8.7)	**21,584** (-9.8)	**11,269** (2.7)	**11,027** (3.9)	**22,296** (3.3)	**21,612** (-3.1)
Petroleum products	Naphtha	**38,393** (1.4)	**17,595** (-7.1)	**18,482** (-5.0)	**36,077** (-6.0)	**18,011** (2.4)	**18,532** (0.3)	**36,543** (1.3)	**35,471** (-2.9)
Petroleum products	Heavy fuel oil	**15,421** (-3.2)	**7,239** (-1.9)	**8,147** (1.3)	**15,386** (-0.2)	**7,047** (-2.7)	**8,162** (0.2)	**15,209** (-1.2)	**15,109** (-0.7)
Petroleum products	LPG	**8,712** (-7.4)	**4,102** (-2.2)	**4,368** (-3.3)	**8,470** (-2.8)	**4,147** (1.1)	**4,432** (1.5)	**8,579** (1.3)	**8,673** (1.1)
Petroleum products	Others	**11,454** (2.1)	**4,630** (-4.8)	**6,808** (3.3)	**11,438** (-0.1)	**4,615** (-0.3)	**7,035** (3.3)	**11,650** (1.9)	**11,808** (1.4)
	Sub-total	**73,980** (-0.6)	**33,566** (-5.1)	**37,805** (-2.1)	**71,371** (-3.5)	**33,819** (0.8)	**38,161** (0.9)	**71,981** (0.9)	**71,061** (-1.3)
	Town gas	**9,218** (5.3)	**4,599** (0.5)	**4,682** (0.9)	**9,281** (0.7)	**4,845** (5.4)	**4,909** (4.8)	**9,754** (5.1)	**9,984** (2.4)
	Electric power	**35,998** (2.7)	**17,742** (-2.7)	**16,910** (-4.8)	**34,652** (-3.7)	**17,740** (-0.0)	**17,301** (2.3)	**35,041** (1.1)	**35,143** (0.3)
	Total	**162,545** (1.6)	**76,497** (-4.7)	**79,618** (-3.2)	**156,115** (-4.0)	**77,254** (1.0)	**81,087** (1.8)	**158,341** (1.4)	**156,531** (-1.1)
	Indices of industrial production (1995=100)	**104.8** (4.0)	**95.3** (-8.2)	**92.8** (-12.2)	**94.1** (-10.2)	**95.3** (0.0)	**97.5** (5.1)	**96.4** (2.5)	**97.2** (0.8)
	Energy intensity (1995=100) (Final demand per IIP)	**103.1** (-2.3)			**110.4** (7.0)			**109.2** (-1.1)	**107.1** (-1.9)
	Energy-IIP elasticity	**0.40**			**0.39**			**0.57**	**-1.47**

(Notes) 1. Shown in parentheses are ups/downs (%) from previous corresponding periods.

2. “Coke/others” include coke oven gas, blast furnace gas and converter gas.

Table 6-2 Outlook for Final Energy Consumption in the Residential & Commercial Sectors (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

		FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Petroleum products	Kerosene	**16,771** (-3.5)	**3,642** (-9.1)	**11,935** (-6.5)	**15,577** (-7.1)	**3,539** (-2.8)	**12,430** (4.1)	**15,969** (2.5)	**15,745** (-1.4)
	Heavy fuel oil	**11,027** (5.8)	**4,806** (1.2)	**6,170** (-1.7)	**10,976** (-0.5)	**4,777** (-0.6)	**6,389** (3.6)	**11,166** (1.7)	**11,153** (-0.1)
	LPG	**9,196** (6.5)	**4,101** (5.2)	**5,246** (-0.9)	**9,347** (1.6)	**4,046** (-1.3)	**5,383** (2.6)	**9,429** (0.9)	**9,352** (-0.8)
	Sub-total	**37,094** (1.5)	**12,607** (-0.8)	**23,423** (-4.0)	**36,030** (-2.9)	**12,422** (-1.5)	**24,274** (3.6)	**36,696** (1.8)	**36,381** (-0.9)
	Town gas	**15,440** (3.9)	**6,728** (0.4)	**8,676** (-0.7)	**15,404** (-0.2)	**6,806** (1.2)	**9,033** (4.1)	**15,839** (2.8)	**15,934** (0.6)
	Electric power	**44,707** (2.7)	**22,660** (0.5)	**22,188** (0.2)	**44,848** (0.3)	**22,751** (0.4)	**22,716** (2.4)	**45,467** (1.4)	**45,952** (1.1)
	Total	**99,745** (2.4)	**43,226** (0.1)	**55,520** (-1.8)	**98,745** (-1.0)	**43,174** (-0.1)	**57,225** (3.1)	**100,399** (1.7)	**100,606** (0.2)
Private consumption (billion yen in 1995 prices)		**290,563** (1.1)	**145,439** (1.9)	**149,394** (1.1)	**294,833** (1.5)	**147,883** (1.7)	**149,451** (0.0)	**297,334** (0.8)	**298,342** (0.3)
Energy intensity (1995=100) (Final demand per Priv.consump.)		**101.3** (1.4)			**98.8** (-2.4)			**99.6** (0.8)	**99.5** (-0.1)

(Notes) 1. Shown in parenthesis are ups/downs from previous corresponding periods.

2. Without inclusion of "others", the sum of the broken down figures for demand does not accord either with the sub-total or the total.

Fig.5-1 Cooling/Heating Degree Days and Average Atmospheric Temperature

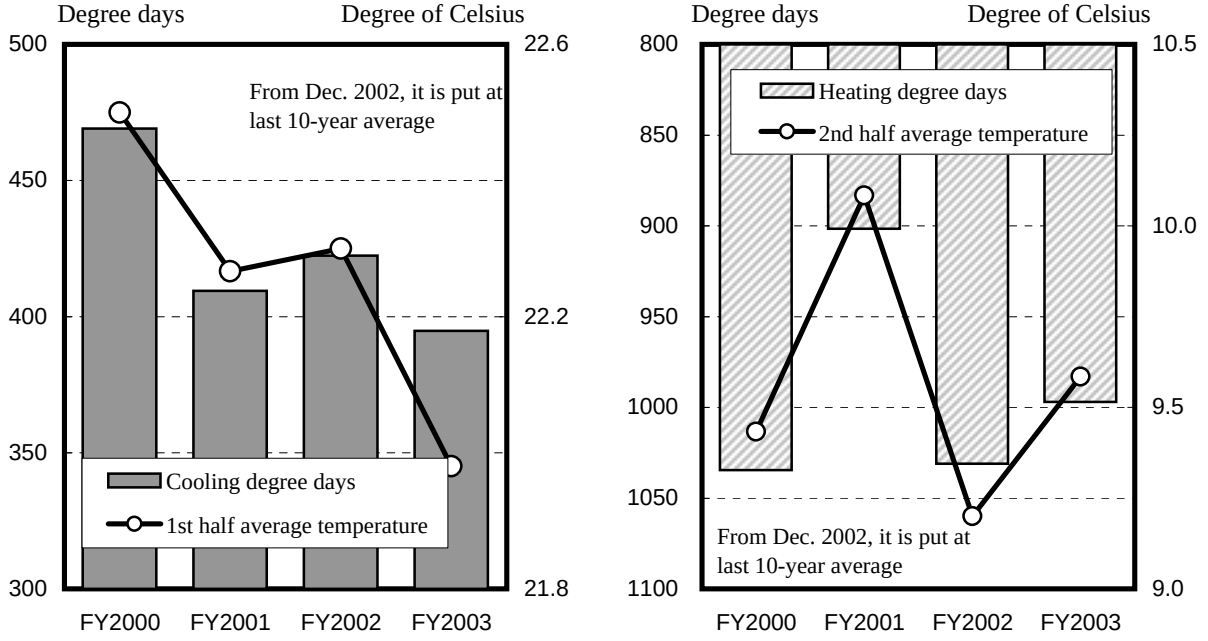


Table 6-2-1 Outlook for Final Energy Consumption in the Residential Sector (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

		FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Petroleum products	Kerosene	**13,896** (4.2)	**2,817** (-0.6)	**10,109** (-8.6)	**12,926** (-7.0)	**2,727** (-3.2)	**10,572** (4.6)	**13,299** (2.9)	**13,132** (-1.3)
	LPG	**6,306** (8.2)	**2,755** (6.3)	**3,618** (-2.6)	**6,373** (1.1)	**2,680** (-2.7)	**3,718** (2.8)	**6,398** (0.4)	**6,304** (-1.5)
	Sub-total	**20,202** (5.4)	**5,572** (2.7)	**13,727** (-7.1)	**19,299** (-4.5)	**5,407** (-3.0)	**14,291** (4.1)	**19,698** (2.1)	**19,436** (-1.3)
	Town gas	**9,491** (2.3)	**3,646** (-2.5)	**5,710** (-0.7)	**9,356** (-1.4)	**3,633** (-0.4)	**5,941** (4.0)	**9,574** (2.3)	**9,557** (-0.2)
	Electric power	**22,805** (2.4)	**11,005** (-0.7)	**11,747** (0.2)	**22,752** (-0.2)	**11,100** (0.9)	**12,016** (2.3)	**23,116** (1.6)	**23,254** (0.6)
	Total	**53,392** (3.5)	**20,621** (-0.3)	**31,605** (-3.4)	**52,226** (-2.2)	**20,502** (-0.6)	**32,636** (3.3)	**53,138** (1.7)	**52,937** (-0.4)
Heating degree days		**1,035** (2.6)	**44** (3.5)	**858** (-13.6)	**902** (-12.9)	**22** (-49.9)	**1,009** (17.7)	**1,031** (14.4)	**997** (-3.3)
Cooling degree days		**469** (6.2)	**410** (-12.7)	**0** -	**410** (-12.7)	**420** (2.6)	**2** -	**422** (3.1)	**395** (-6.5)

(Notes) 1. Shown in parenthesis are ups/downs from previous corresponding periods.

2. Without inclusion of "others", the sum of the broken down figures for demand does not accord either with the sub-total or the total.

Table 6-2-2 Outlook for Final Energy Consumption in the Commercial Sector (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

		FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Petroleum products	Kerosene	**2,875** (-29.1)	**825** (-29.7)	**1,826** (7.3)	**2,651** (-7.8)	**813** (-1.5)	**1,857** (1.7)	**2,670** (0.7)	**2,613** (-2.1)
	Heavy fuel oil	**11,027** (5.8)	**4,806** (1.2)	**6,170** (-1.7)	**10,976** (-0.5)	**4,777** (-0.6)	**6,389** (3.6)	**11,166** (1.7)	**11,153** (-0.1)
	LPG	**2,890** (2.8)	**1,346** (2.8)	**1,628** (3.0)	**2,974** (2.9)	**1,366** (1.5)	**1,665** (2.3)	**3,031** (1.9)	**3,049** (0.6)
	Sub-total	**16,892** (-2.9)	**7,035** (-3.4)	**9,696** (0.9)	**16,731** (-1.0)	**7,015** (-0.3)	**9,983** (3.0)	**16,998** (1.6)	**16,945** (-0.3)
	Town gas	**5,949** (6.6)	**3,082** (4.1)	**2,966** (-0.7)	**6,048** (1.7)	**3,173** (3.0)	**3,092** (4.2)	**6,265** (3.6)	**6,377** (1.8)
	Electric power	**21,902** (2.9)	**11,655** (1.6)	**10,441** (0.2)	**22,096** (0.9)	**11,650** (-0.0)	**10,700** (2.5)	**22,351** (1.2)	**22,698** (1.6)
	Total	**46,353** (1.2)	**22,605** (0.5)	**23,915** (0.3)	**46,520** (0.4)	**22,672** (0.3)	**24,589** (2.8)	**47,261** (1.6)	**47,669** (0.9)

(Notes) 1. Shown in parenthesis are ups/downs from previous corresponding periods.

2. Without inclusion of "others", the sum of the broken down figures for demand does not accord either with the sub-total or the total.

Table 6-3 Outlook for Final Energy Consumption in the Transport Sector (Base Case)

(Unit: 10^{10}kcal = 1,000 TOE)

		FY2000	FY2001 (Partially estimated)			FY2002 (Projection)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Petroleum products	Gasoline	**48,058** (0.3)	**24,705** (-0.1)	**23,732** (1.7)	**48,437** (0.8)	**25,159** (1.8)	**23,919** (0.8)	**49,078** (1.3)	**49,549** (1.0)
	Jet fuel	**4,039** (0.1)	**2,140** (10.9)	**2,239** (6.1)	**4,379** (8.4)	**2,026** (-5.3)	**2,191** (-2.1)	**4,218** (-3.7)	**4,300** (1.9)
	Gas oil	**30,066** (-4.9)	**14,713** (-2.5)	**14,919** (-0.4)	**29,632** (-1.4)	**14,215** (-3.4)	**14,654** (-1.8)	**28,869** (-2.6)	**28,151** (-2.5)
	LPG/others	**6,703** (-8.7)	**3,351** (2.8)	**3,363** (-2.3)	**6,714** (0.2)	**3,340** (-0.3)	**3,417** (1.6)	**6,757** (0.6)	**6,745** (-0.2)
	Sub-total	**88,866** (-2.2)	**44,909** (-0.2)	**44,253** (0.9)	**89,162** (0.3)	**44,741** (-0.4)	**44,181** (-0.2)	**88,922** (-0.3)	**88,745** (-0.2)
	Electric power	**1,873** (-0.4)	**935** (-0.3)	**917** (-1.9)	**1,852** (-1.1)	**927** (-0.9)	**928** (1.2)	**1,855** (0.1)	**1,873** (1.0)
	Total	**90,739** (-2.2)	**45,844** (-0.2)	**45,170** (0.8)	**91,014** (0.3)	**45,667** (-0.4)	**45,110** (-0.1)	**90,777** (-0.3)	**90,618** (-0.2)

(Notes) Shown in parenthesis are ups/downs from previous corresponding periods.

Table 7 Electricity Demand Outlook for Electric Utilities (Base Case)

(Unit: GWh)

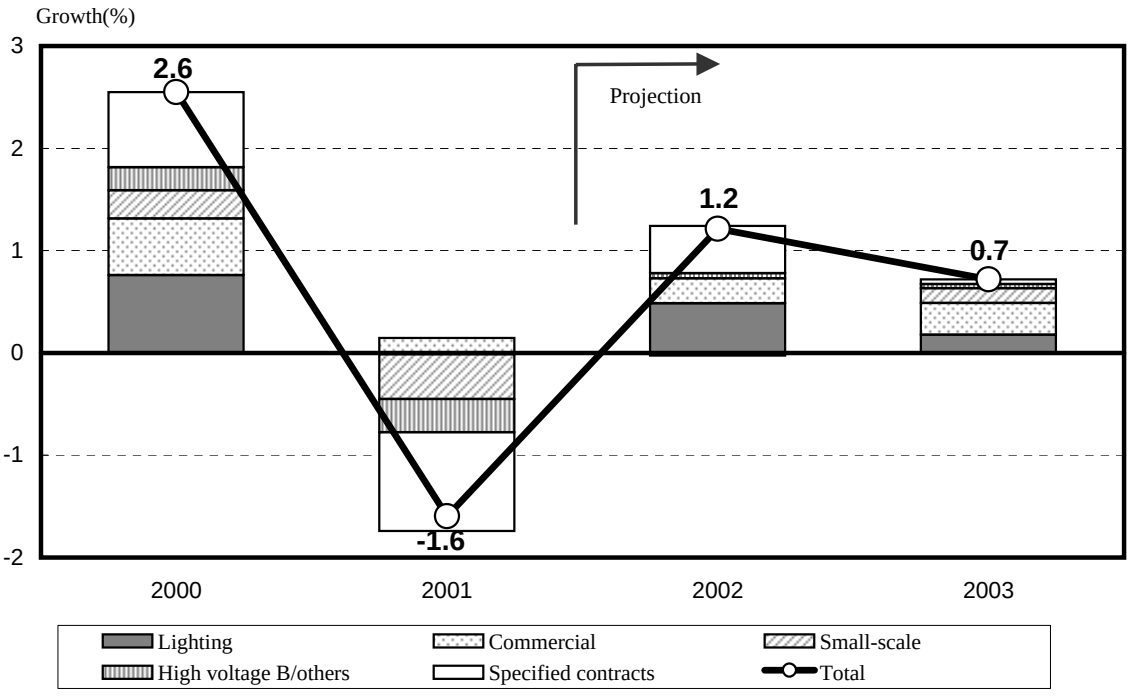
		FY2000	FY2001 (Actual)			FY2002 (Partially estimated)			FY2003
		(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Demand for use not under specified contracts:	Lighting use (a)	**254,592** (2.6)	**123,557** (-0.5)	**130,913** (0.4)	**254,470** (-0.0)	**124,662** (0.9)	**133,910** (2.3)	**258,572** (1.6)	**260,094** (0.6)
	Power use: (b)	**363,595** (2.5)	**187,400** (-0.5)	**170,902** (-2.5)	**358,302** (-1.5)	**185,942** (-0.8)	**174,588** (2.2)	**360,530** (0.6)	**364,753** (1.2)
	Commercial use	**157,951** (3.0)	**83,785** (1.7)	**75,412** (-0.2)	**159,197** (0.8)	**84,042** (0.3)	**77,202** (2.4)	**161,244** (1.3)	**163,895** (1.6)
	Small-scale use	**115,802** (2.0)	**59,203** (-2.5)	**52,846** (-4.0)	**112,049** (-3.2)	**58,057** (-1.9)	**53,740** (1.7)	**111,797** (-0.2)	**113,009** (1.1)
	High power supply voltage B & other uses	**89,842** (2.1)	**44,412** (-1.6)	**42,644** (-4.6)	**87,056** (-3.1)	**43,843** (-1.3)	**43,646** (2.3)	**87,489** (0.5)	**87,850** (0.4)
	Total (a + b)	**618,187** (2.5)	**310,957** (-0.5)	**301,815** (-1.3)	**612,772** (-0.9)	**310,604** (-0.1)	**308,498** (2.2)	**619,102** (1.0)	**624,847** (0.9)
Demand for use under specified of 2,000 kW or more (c)		**239,896** (2.6)	**119,717** (-2.3)	**111,885** (-4.6)	**231,602** (-3.5)	**120,666** (0.8)	**114,839** (2.6)	**235,505** (1.7)	**235,908** (0.2)
Total demand (a + b + c)		**858,083** (2.6)	**430,674** (-1.0)	**413,700** (-2.2)	**844,374** (-1.6)	**431,270** (0.1)	**423,337** (2.3)	**854,607** (1.2)	**860,755** (0.7)

(Notes) Shown in parenthesis are ups/downs from previous corresponding periods.

(Source) METI, "Electricity Survey Statistics Monthly Reports". Forecast by IEEJ.

All figures for FY1999 actual records except those for lighting use, small-scale use and electricity total demad were estimated by IEEJ from the "Electricity Survey Statistics Monthly Reports" and the Federation of Electric Power Companies' "Electricity Demand Records (Definite Report)."

Fig. 6 Changes in Electricity Demand for Electric Utilities (Contribution by Use)



(Source) Same as the above

Table 8 Town Gas Demand Outlook (Base Case)

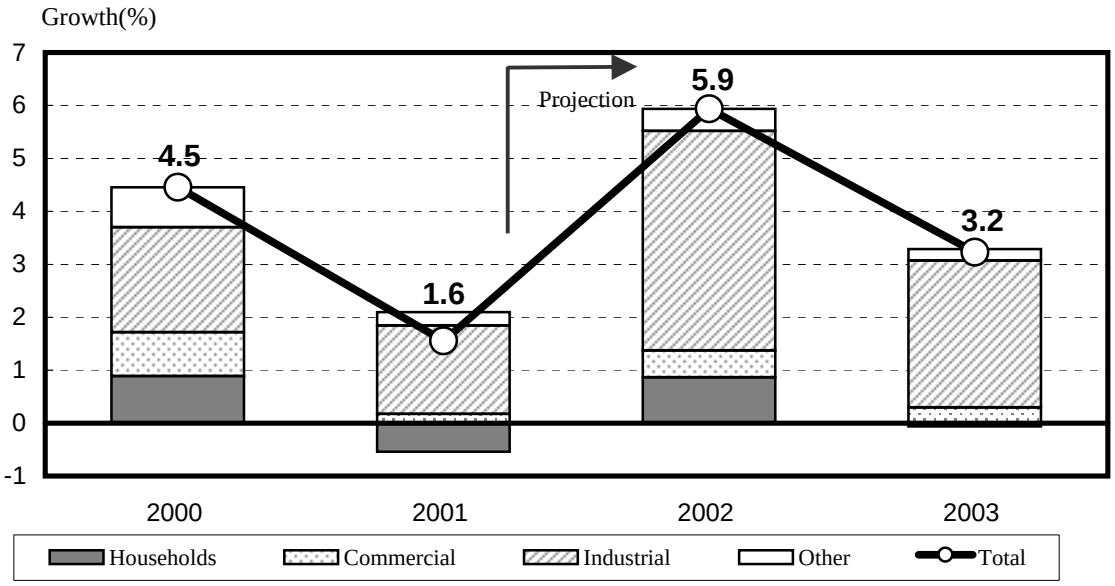
(Unit: Million m^3/10,000 kcal)

	FY2000	FY2001 (Actual)			FY2002 (Partially estimated)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Households use	**9,491** (2.3)	**3,646** (-2.5)	**5,710** (-0.7)	**9,355** (-1.4)	**3,632** (-0.4)	**5,941** (4.1)	**9,574** (2.3)	**9,557** (-0.2)
Commercial use	**4,061** (5.1)	**2,145** (3.4)	**1,960** (-1.4)	**4,104** (1.1)	**2,194** (2.3)	**2,040** (4.1)	**4,234** (3.2)	**4,314** (1.9)
Industrial use	**9,344** (5.4)	**4,778** (3.0)	**4,985** (5.9)	**9,763** (4.5)	**5,282** (10.5)	**5,535** (11.0)	**10,816** (10.8)	**11,562** (6.9)
Other uses	**2,121** (9.3)	**1,060** (5.4)	**1,124** (0.8)	**2,183** (3.0)	**1,104** (4.1)	**1,186** (5.6)	**2,290** (4.9)	**2,349** (2.6)
Total	**25,017** (4.5)	**11,628** (1.5)	**13,778** (1.6)	**25,406** (1.6)	**12,212** (5.0)	**14,702** (6.7)	**26,914** (5.9)	**27,782** (3.2)

(Notes) Shown in parenthesis are ups/downs from previous corresponding periods.

(Source) METI, "Gas Utilities Statistics Monthly Report," etc. Forecast by IEEJ.

Fig. 7 Changes in Town Gas Demand (Contribution by Use)



(Source) Same as the above

Table 9 Petroleum Products Domestic Demand Outlook (Base Case)

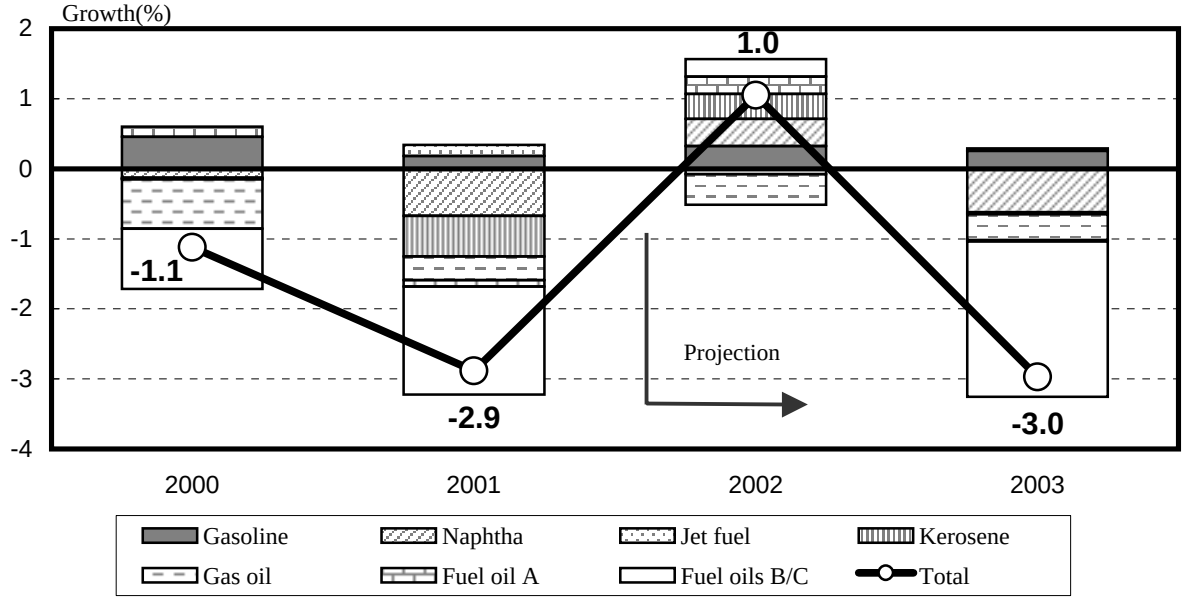
(Unit: 1,000 kl)

	FY2000	FY2001 (Actual)			FY2002 (Partially estimated)			FY2003
	(Actual)	1st. half	2nd. half	Total	1st. half	2nd. half	Total	(Projection)
Gasoline	**58,372** (2.0)	**30,004** (-0.1)	**28,812** (1.7)	**58,817** (0.8)	**30,538** (1.8)	**29,043** (0.8)	**59,581** (1.3)	**60,184** (1.0)
Naphtha	**47,686** (-0.7)	**22,207** (-4.9)	**23,838** (-2.0)	**46,046** (-3.4)	**23,054** (3.8)	**23,902** (0.3)	**46,956** (2.0)	**45,473** (-3.2)
Jet fuel	**4,608** (-0.7)	**2,445** (11.1)	**2,553** (6.1)	**4,998** (8.5)	**2,316** (-5.3)	**2,499** (-2.1)	**4,815** (-3.7)	**4,908** (1.9)
Kerosene	**29,917** (-0.1)	**7,597** (-6.1)	**20,908** (-4.2)	**28,505** (-4.7)	**7,474** (-1.6)	**21,877** (4.6)	**29,351** (3.0)	**29,284** (-0.2)
Gas oil	**41,745** (-4.0)	**20,365** (-2.8)	**20,559** (-1.1)	**40,925** (-2.0)	**19,657** (-3.5)	**20,230** (-1.6)	**39,887** (-2.5)	**38,996** (-2.2)
Fuel oil A	**29,510** (1.2)	**12,876** (-1.0)	**16,419** (-0.5)	**29,295** (-0.7)	**13,018** (1.1)	**16,863** (2.7)	**29,880** (2.0)	**29,847** (-0.1)
Fuel oils B/C	**31,372** (-6.4)	**14,395** (-9.6)	**13,220** (-14.4)	**27,615** (-12.0)	**12,019** (-16.5)	**16,190** (22.5)	**28,209** (2.2)	**22,899** (-18.8)
Fuel oil C for power generation	**11,642** (-10.0)	**5,180** (-16.0)	**3,506** (-36.0)	**8,686** (-25.4)	**3,151** (-39.2)	**6,589** (87.9)	**9,740** (12.1)	**5,007** (-48.6)
Total	**243,211** (-1.1)	**109,890** (-3.2)	**126,310** (-2.6)	**236,199** (-2.9)	**108,076** (-1.7)	**130,603** (3.4)	**238,679** (1.0)	**231,590** (-3.0)

(Notes) Shown in parenthesis are ups/downs from previous corresponding periods.

(Source) METI, "Energy Production, Supply and Demand Statistics Monthly Reports," etc. Forecast by IEEJ.

Fig. 8 Changes in Petroleum Products Domestic Demand (Contribution by Product)



(Source) Same as the above

Fig.9 Impact Assessment of Changing External Variables

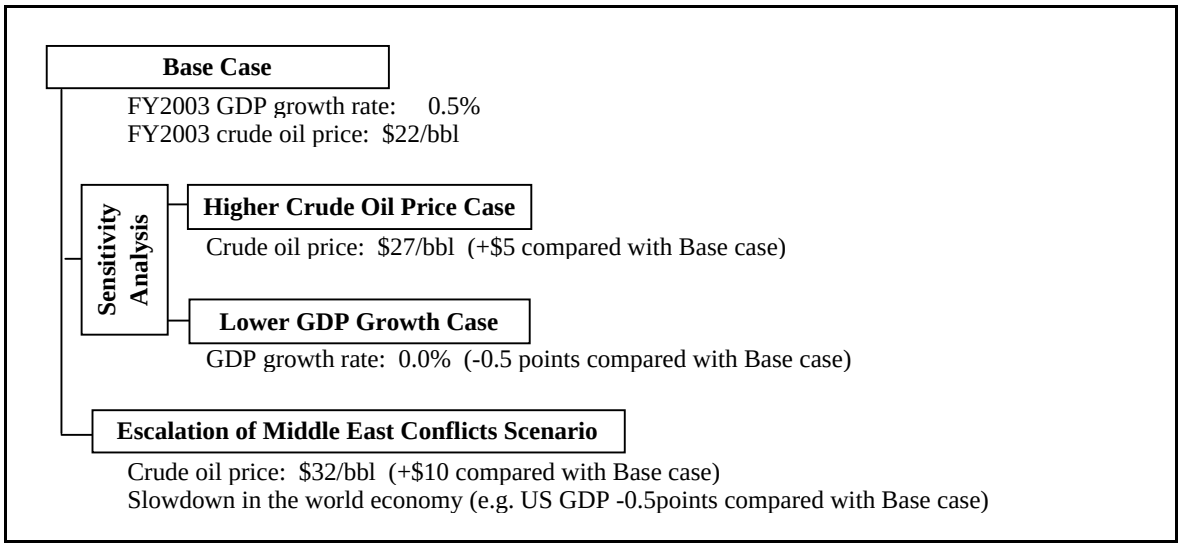


Table 10 Sensitivity Analysis Results

	Case/ Scenario	FY2002	FY2003		Changes from Base Case	
				Up/down from a year ago (%)	Level	Growth (points)
Real GDP (in 1995 price, trillion yen)	Base	535.7	538.6	(0.5)		
	High Price		537.0	(0.2)	-1.5	(-0.3)
	Low Growth		535.9	(0.0)	-2.7	(-0.5)
	Escalating		534.3	(-0.3)	-4.2	(-0.8)
Wholesale price (1995 = 100)	Base	94.3	93.6	(-0.7)		
	High Price		94.2	(-0.1)	0.6	(0.6)
	Low Growth		93.4	(-0.9)	-0.2	(-0.2)
	Escalating		94.9	(0.7)	1.3	(1.4)
Consumer price (2000 = 100)	Base	98.4	98.0	(-0.4)		
	High Price		98.1	(-0.4)	0.1	(0.1)
	Low Growth		98.0	(-0.5)	-0.0	(-0.0)
	Escalating		98.3	(-0.2)	0.3	(0.3)
Indices of industrial production (1995 = 100)	Base	96.4	97.2	(0.8)		
	High Price		96.8	(0.5)	-0.4	(-0.4)
	Low Growth		96.6	(0.2)	-0.6	(-0.6)
	Escalating		96.2	(-0.2)	-1.0	(-1.0)
Domestic primary energy supply (million kl crude oil equivalent)	Base	572.9	571.4	(-0.3)		
	High Price		569.5	(-0.6)	-1.9	(-0.3)
	Low Growth		570.1	(-0.5)	-1.3	(-0.2)
	Escalating		566.3	(-1.2)	-5.1	(-0.9)
Final energy consumption (million kl crude oil equivalent)	Base	401.4	399.5	(-0.5)		
	High Price		398.0	(-0.9)	-1.5	(-0.4)
	Low Growth		398.4	(-0.8)	-1.1	(-0.3)
	Escalating		395.5	(-1.5)	-4.0	(-1.0)
Electric power demand (100 GWh)	Base	8,546	8,608	(0.7)		
	High Price		8,598	(0.6)	-9.9	(-0.1)
	Low Growth		8,603	(0.7)	-4.8	(-0.1)
	Escalating		8,577	(0.4)	-30.6	(-0.4)
Town gas demand (million m^3 /10,000 kcal)	Base	26,914	27,782	(3.2)		
	High Price		27,712	(3.0)	-70.0	(-0.3)
	Low Growth		27,701	(2.9)	-81.6	(-0.3)
	Escalating		27,569	(2.4)	-213.6	(-0.8)
Petroleum products demand (10,000 kl)	Base	23,868	23,159	(-3.0)		
	High Price		23,036	(-3.5)	-123.4	(-0.5)
	Low Growth		23,073	(-3.3)	-86.1	(-0.4)
	Escalating		22,808	(-4.4)	-351.5	(-1.5)

Fig.9-1 Higher Crude Oil Price Case (Changes in growth rate from the base case)

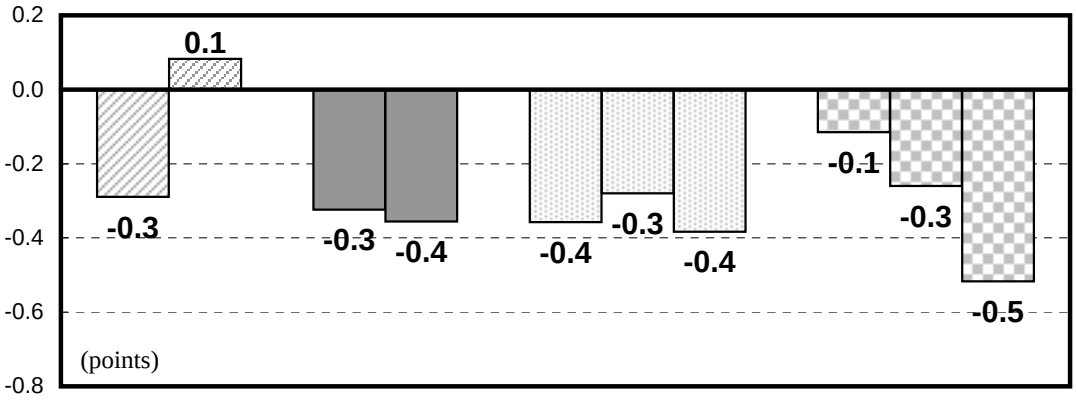


Fig.9-2 Lower GDP Growth Case (Changes in growth rate from the base case)

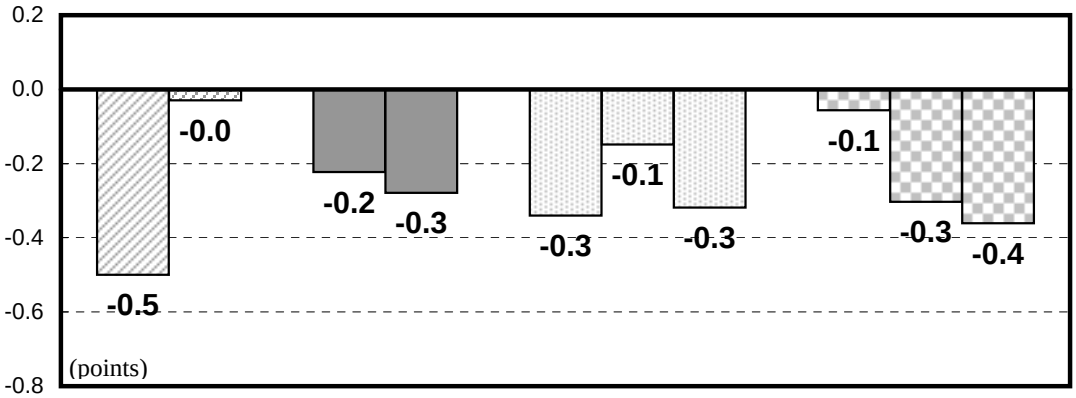


Fig.9-3 Escalation of Middle East Conflicts Scenario (Changes in growth rate from the base case)