

# Economic and Energy Outlook of Japan for FY2015

## – Overview –

What about benefit of oil price plunge for stagnating Japanese economy after VAT increase?

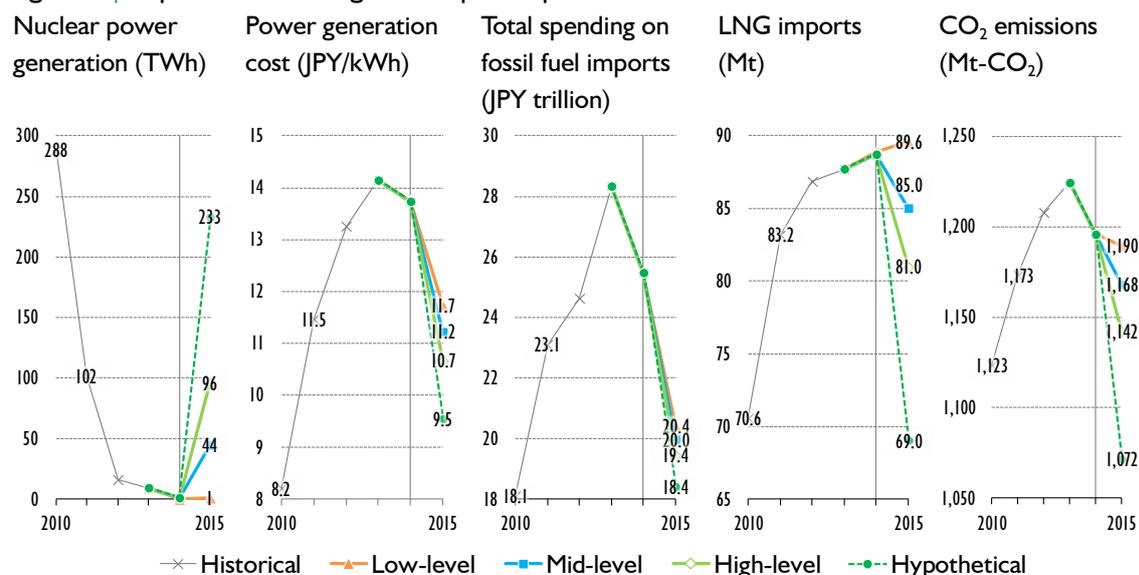
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### Executive summary of topics

#### Restart of nuclear power generation | Delayed restart may call more efficient process

- Although two units from the Sendai Nuclear Power Station were approved in September 2014 as conforming to the new regulation standards, developments toward restart takes time in general. They are assumed to be in operation by the end of FY2014 and they will be the first ones since the Great East Japan Earthquake in 2011. In the “Nuclear Mid-level Case,” the assumptions are that three review teams will be provided in FY2015, and they reflect the assessment of the observed developments, the necessity for large-scale construction, and the order of the applications, etc. Based on those assumptions, a total of nine units will restart by the end of FY2015, operating on average for six months in the Case.
- Even if nine nuclear power plants restart, the electricity generated by nuclear power for FY2015 is still less than one sixth of its FY2010 level, raising the average power generation cost by about JPY3,000/MWh compared to FY2010. Relative to FY2010, total spending on fossil fuel imports increases by JPY1.9 trillion, of which the LNG additional imports of 14.5 Mt will account for JPY1.6 trillion. Under this Case, the energy-related carbon dioxide (CO<sub>2</sub>) emissions increase by 45 Mt-CO<sub>2</sub> whilst the self-sufficiency rate decreases by 8.0% point.
- If the assessment period turns out to be longer than the one assumed in the Nuclear Mid-level Case, only the two units already approved would restart by the end of FY2015, generating electricity on average for one month during FY2015 [Low-level Case]. If the Authorities can further increase their staff and if the procedures become more efficient, 20 plants could restart and operate on average for seven months during FY2015 [High-level Case]. The “Hypothetical Case” assumes that 32 of the relatively new plants do generate electricity with a capacity factor of 80% throughout the entire year.
- The extent to which nuclear power plants can restart and operate has huge impacts on the Japanese economy, with serious implications regarding the environment and energy security. For example, the power generation cost under the Low-level Case is JPY2,200/MWh more expensive than under the Hypothetical Case, requiring an additional spending on fossil fuel imports of JPY2.0 trillion. The Hypothetical Case accelerates GDP by 0.3% while decreasing CO<sub>2</sub> emissions by 117.8 Mt, or 9.8% of the emissions in FY2005, and improving the self-sufficiency rate by 9.9 percentage point. The difference in LNG import volume between the two cases would reach 20.6 Mt meaning Japan would import less LNG in the Hypothetical Case than the country did just before the Earthquake. The resulting significant decrease in Japan's LNG imports, combined with the anticipated LNG exports from the United States, beginning in 2016, and others would contribute to a more balanced supply-demand of the international LNG markets in the future.

Figure 1 | Impacts of restarting nuclear power plants



### Impacts of lower energy prices | Exertion required for a secure energy supply and demand structure

- Oil prices have further plummeted after the OPEC decision not to cut its production at its meeting in November 2014. The decline in oil prices for the period of August to October 2014 saved JPY150 billion in income transfer from Japan to oil producing countries. Households and corporations benefit from decreases in prices of petroleum products e.g. gasoline and kerosene, and lower electricity and gas tariffs.
- A risk of re-rising international oil price remains. A rise in oil prices of \$10/bbl reduces Japanese GDP by 0.3% and worsens its trade balances by JPY2.0 trillion. While less corporate profits depress private investments, and decline income, a rise in prices also harm purchasing power impeding recovery of private consumption. The establishment of secure energy supply and demand structure is required to achieve stability in economic growth without continuously be at the mercy of international hick-ups.

### Household energy spending exceeds JPY300 thousand for the first time

- Energy burdens household with expenditures of more than JPY300 thousand in 2014 for the first time ever, raising its proportion of consumption expenditures to 8.6%, a historical high. The burdens, mainly affected by electricity prices, slip to JPY290 thousand in 2015 thanks to lower international energy prices. The amount, however, is still comparable with that in 2008 when oil price skyrocketed.
- Proportion of energy spending of household expenditures for rural households, which is higher than national average, exceeds 10% in 2014. Although it falls in 2015, the gap of the proportion between rural area and large city remains almost unchanged, burdening local economy. Hokkaido and Tohoku regions, in which kerosene-fuelled space heating is widespread, and intensive gasoline consuming regions benefit relatively more from lower oil price.

## Executive summary of outlook for FY2015 (Base Scenario)

### Macro economy | Japanese economy recovers, and grows by 1.8% due to improvements of private consumption and investments, etc. in FY2015

Japan sees 0.6% of economic contraction in FY2014, primarily due to the rise in the VAT rate. For FY2015, depreciation of the yen and lower international energy prices expand corporate profits, stimulating private non-residential investments. Private consumption is also pushed by improvement of wages. The economy grows at 1.8% led by domestic demand.

### Energy supply and demand | Whilst total energy increases in FY2015, oil and natural gas decrease

Total primary energy supply in FY2014 reduces sharply by 13 Mtoe due to dull economic and weather conditions. Economic recovery leads a 0.9% increase in energy consumption in FY2015. Oil and natural gas, however, see decreases affected by restarts of nuclear power plants, resulting in fossil fuel import spending of JPY20 trillion, the lowest since the Earthquake.

Final energy consumption decreases also in FY2014, followed by a rebound in FY2015. Whilst industry and transportation sectors see increases in energy consumption –the first time in the last five years for the transport sector – due to recovery of production and freight activities and fall of fuel prices, the decreasing trend in consumption for the buildings sector continues.

### Energy sales | City gas maintains growing tone. Electricity regains. Fuel oil is in declining trend

Electricity sales by utilities reduce in FY2014 affected by slow economic activity after the VAT raise and a chilly summer. Sales for lighting contract, mainly for household, will increase for the first time in the last five years in FY2015. Additionally, industrial uses, represented by large-scale power users and backed by the recovery of production activity, also drive increases in total sales.

Whilst temperature factor depresses city gas sales by utilities for commercial and other uses combined in FY2014, sales to electric utilities show strong growth. The increase in total sales to industry will be seen again in FY2015. Sales to industry uses will hit a historical record due to the recovery of production activities. Sales to household uses will decline slightly with penetration of efficient city gas-fuelled equipments.

Fuel oil sales show sharp decreases due to fuel switching, the economic situation and weather conditions in FY2014. In FY2015, gasoline, naphtha and diesel oil regain and total sales, except for fuel oil C for electric utilities, level off. Fuel oil C for electric utilities, however, diminishes enormously, resulting in decreases in total fuel oil sales for three straight years.

### Renewable power generation | Operational capacities will soon be 50 GW. The cumulative cost burden could be JPY46 trillion

Renewable power generation continues to expand supported by high fixed rates under FIT contracts. Five electric utilities facing excess applications to connection, which may destabilise their power grid, reserve temporarily to answer the applications. Despite such situation, the capacities expected to be in operation by the end of FY2015 will reach 50 GW. Coincidentally, the unavoidable burden expands also. The cumulative cost burden for 20 years could be JPY46 trillion if all of the authorised 93 GW (of which 75 GW is solar PVs) by the end of August 2014 become operational. This is equivalent to an increase of

JPY2,600/MWh above the rates in place just before FIT started – an increase of 11% for household and 21% for large-scale industry consumers.

## CO<sub>2</sub> emissions | Turns to reduce for the first time in the last five years but much more than before the Earthquake

Energy-related CO<sub>2</sub> emissions in FY2014 decreases for the first time in five years due to reduced consumption of oil and electricity. The emissions, which recorded a historical high in FY2013, will be less than 1,200 Mt. The emission reductions in FY2015 expand by restarts of nuclear power plants, making the emission amount 2.9% less than that in FY2005. Energy consumption will be less than before the Earthquake but CO<sub>2</sub> emissions will remain more.

**Table 1 | Summary of Base Scenario**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Primary energy supply (Mtoe) <sup>1</sup>	514.2	491.2	484.9	488.2	474.9	479.0	0.7%	-2.7%	0.9%
Oil <sup>2</sup> (GL)	232.3	238.9	242.8	234.1	221.5	215.8	-3.6%	-5.4%	-2.6%
Natural gas <sup>2</sup> (Mt of LNG equivalent)	73.3	85.7	89.2	89.7	89.8	87.0	0.6%	0.1%	-3.0%
LNG imports (Mt)	70.6	83.2	86.9	87.7	88.7	85.0	1.0%	1.1%	-4.2%
Coal <sup>2</sup> (Mt)	184.7	175.2	183.4	194.6	189.8	190.4	6.1%	-2.5%	0.3%
Nuclear <sup>3</sup> (TWh)	288.2	101.7	15.9	9.3	1.0	44.4	-41.6%	-88.8%	4148%
Final energy consumption (Mtoe)	339.4	327.2	321.8	321.0	311.7	315.6	-0.2%	-2.9%	1.2%
Industry <sup>4</sup>	158.3	152.2	148.4	150.8	146.0	148.6	1.6%	-3.2%	1.8%
Buildings	98.0	93.7	92.9	91.1	88.8	88.6	-1.9%	-2.5%	-0.3%
Transport	83.1	81.4	80.4	79.1	76.4	77.9	-1.7%	-3.4%	1.9%
Petroleum products	176.2	169.3	165.7	163.4	156.1	156.9	-1.4%	-4.4%	0.5%
Natural gas and city gas	34.3	35.1	34.7	34.1	33.8	34.8	-1.8%	-0.7%	2.7%
Coal and coal products	35.9	34.7	34.3	36.3	36.7	37.8	6.0%	1.0%	3.1%
Electricity	89.8	85.5	84.6	84.7	82.4	83.4	0.1%	-2.7%	1.2%
Electricity sales (TWh)	926.6	879.5	870.9	871.5	849.5	862.9	0.1%	-2.5%	1.6%
City gas sales <sup>5</sup> (Billion m <sup>3</sup> )	39.28	40.39	40.33	39.82	40.14	41.09	-1.3%	0.8%	2.4%
Fuel oil sales (GL)	196.0	196.3	197.8	193.5	184.1	180.5	-2.1%	-4.9%	-2.0%
Energy-related CO <sub>2</sub> emissions (Mt-CO <sub>2</sub> )	1,123	1,173	1,208	1,224	1,196	1,168	1.4%	-2.3%	-2.3%
(FY2005=100)	93.4	97.6	100.4	101.8	99.4	97.1	..	..	..
Crude oil, import, CIF (\$/bbl)	84	114	114	110	92	67	-3.6%	-16.4%	-27.1%
LNG, import, CIF (\$/t)	584	823	866	837	759	508	-3.3%	-9.4%	-33.1%
Steam coal, import, CIF (\$/t)	114	144	127	108	95	95	-15.1%	-12.3%	0.2%
Nominal GDP (JPY trillion)	480.2	473.9	474.5	483.1	489.0	500.0	1.8%	1.2%	2.2%
Real GDP (JPY2005 trillion)	512.4	514.4	519.6	530.6	527.3	536.8	2.1%	-0.6%	1.8%
Industrial production index (2010=100)	99.4	98.8	95.8	99.0	98.5	100.5	3.3%	-0.5%	2.1%
Exchange rate (JPY/\$)	86.1	79.0	82.6	100.0	111.3	120.0	20.9%	11.3%	7.8%

Notes:

1. Mtoe = 10<sup>13</sup> kcal

2. Conversion factors for Oil: 9,126 kcal/L; Natural gas: 13,043 kcal/kg; Steam coal: 6,139 kcal/kg; Coking coal: 6,928 kcal/kg until FY2012.

Conversion factors for Oil: 9,154 kcal/L; Natural gas: 13,141 kcal/kg; Steam coal: 6,203 kcal/kg; Coking coal: 6,887 kcal/kg since FY2013.

3. The Mid-level Case

4. Industry includes non-energy use.

5. Conversion factors: 1 m<sup>3</sup> = 10,000 kcal

**Table 2 | Macroeconomic indicators**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Real GDP (JPY2005 trillion)	512.4	514.4	519.6	530.6	527.3	536.8	2.1%	-0.6%	1.8%
Private demand	377.1	383.6	390.7	399.9	393.5	400.9	2.4%	-1.6%	1.9%
Private consumption	299.7	304.0	309.5	317.1	308.0	313.3	2.5%	-2.9%	1.7%
Private residential investment	12.5	12.9	13.7	14.9	13.3	13.4	9.3%	-11.0%	0.7%
Private non-residential investment	64.9	68.0	68.8	71.5	72.2	74.4	4.0%	0.9%	3.1%
Public demand	118.5	119.2	120.8	124.5	125.1	125.1	3.1%	0.4%	0.0%
Government consumption	97.9	99.1	100.6	102.2	102.6	103.6	1.6%	0.4%	1.0%
Public investment	20.7	20.1	20.3	22.4	22.5	21.5	10.3%	0.6%	-4.3%
Net exports of goods and services	16.8	12.0	8.4	7.3	10.3	12.4	-12.8%	40.3%	20.4%
Exports of goods and services	83.6	82.3	81.3	85.1	89.8	94.4	4.7%	5.5%	5.1%
Imports of goods and services	66.8	70.3	72.9	77.7	79.5	82.0	6.7%	2.2%	3.2%
Nominal GDP (JPY trillion)	480.2	473.9	474.5	483.1	489.0	500.0	1.8%	1.2%	2.2%
Balance of trade (JPY trillion)	5.3	-4.4	-8.2	-13.8	-9.8	-7.4	68.6%	-28.7%	-25.0%
Exports	67.8	65.3	63.9	70.9	74.3	79.5	10.8%	4.8%	7.1%
Imports	62.5	69.7	72.1	84.6	84.1	86.9	17.4%	-0.6%	3.4%
Fossil fuels	18.1	23.1	24.6	28.3	25.5	20.0	15.1%	-10.1%	-21.7%
Domestic corporate goods price index (2010=100)	100.2	101.6	100.5	102.4	106.0	106.5	1.8%	3.5%	0.5%
Consumer price index (2010=100)	99.9	99.8	99.5	100.4	103.4	104.1	0.9%	2.9%	0.7%
GDP deflator (2005=100)	93.7	92.1	91.3	91.1	92.7	93.2	-0.3%	1.9%	0.4%

Notes: GDP components may not add up to the total GDP due to minor data deviations.

**Table 3 | Industrial activities**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Production									
Crude steel (Mt)	110.8	106.5	107.3	111.5	110.5	111.6	3.9%	-0.9%	1.0%
Ethylene (Mt)	7.00	6.47	6.26	6.76	6.68	6.69	8.0%	-1.3%	0.2%
Cement (Mt)	56.1	57.6	59.5	62.4	62.0	62.0	4.9%	-0.6%	0.0%
Paper and paperboard (Mt)	27.3	26.5	25.7	26.7	26.5	26.4	3.6%	-0.5%	-0.6%
Automobiles (Million)	8.99	9.27	9.55	9.91	9.70	9.81	3.8%	-2.2%	1.1%
Production indices									
Mining and manufacturing (2010=100)	99.4	98.8	95.8	99.0	98.5	100.5	3.3%	-0.5%	2.1%
Food	98.1	97.3	96.7	97.7	95.9	96.5	1.0%	-1.9%	0.6%
Chemicals	99.8	98.3	96.5	98.4	98.0	99.8	2.0%	-0.4%	1.8%
Non-ferrous metals	98.9	97.5	96.6	97.9	98.1	99.5	1.4%	0.2%	1.4%
General and electrical machinery, etc.	101.3	100.3	93.1	97.4	98.0	102.8	4.6%	0.6%	5.0%
Tertiary industry activity index (2005=100)	97.8	98.4	99.2	100.4	99.1	100.4	1.2%	-1.3%	1.3%

Note: Chemicals include chemical fibre.

General and electrical machinery includes general machinery, electrical machinery, information and telecommunications equipment, electronic parts and devices, precision machinery and metal products.

**Table 4 | Primary energy supply**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Primary energy supply (Mtoe)	514.2	491.2	484.9	488.2	474.9	479.0	0.7%	-2.7%	0.9%
Coal	119.2	112.8	117.7	126.1	123.1	123.6	7.2%	-2.4%	0.4%
Oil	212.0	218.0	221.6	214.3	202.7	197.5	-3.3%	-5.4%	-2.6%
Natural gas	95.6	111.7	116.4	117.9	118.0	114.4	1.3%	0.1%	-3.0%
Hydro	18.2	18.5	16.7	16.9	17.3	17.7	1.2%	2.3%	2.3%
Nuclear	60.7	21.4	3.4	1.9	0.2	9.2	-42.5%	-88.8%	4148%
Others	8.7	8.8	9.2	11.0	13.6	16.5	19.5%	23.7%	21.5%
Self-sufficiency rate	18%	11%	7%	7%	7%	10%	..	..	..
Energy intensity (FY2005=100)	94.2	89.6	87.6	86.4	84.5	83.7	-1.4%	-2.1%	-0.9%
Energy-related CO <sub>2</sub> emissions (Mt)	1,123	1,173	1,208	1,224	1,196	1,168	1.4%	-2.3%	-2.3%
(FY2005=100)	93.4	97.6	100.4	101.8	99.4	97.1	..	..	..

Note: "Others" include geothermal, new energies, etc.  
Heat contents have been revised since FY2013.

**Table 5 | Final energy consumption**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Final energy consumption (Mtoe)	339.4	327.2	321.8	321.0	311.7	315.6	-0.2%	-2.9%	1.2%
Industry	158.3	152.2	148.4	150.8	146.0	148.6	1.6%	-3.2%	1.8%
Buildings	98.0	93.7	92.9	91.1	88.8	88.6	-1.9%	-2.5%	-0.3%
Residential	54.6	52.8	51.8	50.5	49.7	49.1	-2.6%	-1.6%	-1.0%
Commercial	43.4	40.9	41.1	40.6	39.2	39.4	-1.2%	-3.6%	0.7%
Transport	83.1	81.4	80.4	79.1	76.4	77.9	-1.7%	-3.4%	1.9%
Coal and coal products	35.9	34.7	34.3	36.3	36.7	37.8	6.0%	1.0%	3.1%
Petroleum products	176.2	169.3	165.7	163.4	156.1	156.9	-1.4%	-4.4%	0.5%
City and natural gases	34.3	35.1	34.7	34.1	33.8	34.8	-1.8%	-0.7%	2.7%
Electricity	89.8	85.5	84.6	84.7	82.4	83.4	0.1%	-2.7%	1.2%
Others	3.2	2.7	2.5	2.6	2.7	2.7	1.1%	3.3%	0.3%

Note: Industry includes non-energy use.

**Table 6 | Electricity sales (electric utilities)**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Total (TWh)	926.6	879.5	870.9	871.5	849.5	862.9	0.1%	-2.5%	1.6%
Lighting contracts	304.2	288.9	286.2	284.3	274.6	276.1	-0.7%	-3.4%	0.5%
Power contracts	622.4	590.5	584.7	587.2	574.9	586.8	0.4%	-2.1%	2.1%
of which: Large-scale industrial users	283.2	274.1	267.4	269.3	267.9	273.1	0.7%	-0.5%	2.0%
Mining and manufacturing	234.4	227.9	221.3	222.8	222.0	227.3	0.7%	-0.4%	2.4%
Chemicals	28.1	27.2	26.3	26.6	26.4	26.8	0.9%	-0.8%	1.5%
Iron and steel	36.3	36.5	36.0	37.3	37.7	38.1	3.8%	0.9%	1.1%
Machinery	74.6	71.6	69.0	69.2	68.6	71.3	0.4%	-0.9%	4.0%

Note: Power contracts and total include specified-scale demand.

**Table 7 | Power generation mix (electric utilities)**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Electricity generated and purchased (TWh)	1,028	976.2	962.7	963.5	935.7	950.2	0.1%	-2.9%	1.6%
Share							Year-to-year changes		
Hydro	(8%)	(9%)	(8%)	8%	9%	9%	-0.0p	+0.4p	+0.0p
Fossil fuel-fired thermal	(60%)	(79%)	(90%)	88%	87%	81%	-1.6p	-1.0p	-5.9p
Coal	(23%)	(24%)	(25%)	30%	30%	30%	+4.9p	-0.1p	-0.2p
Natural and city gases	(32%)	(43%)	(48%)	44%	46%	42%	-4.1p	+1.8p	-3.2p
Oil, etc.	(6%)	(13%)	(17%)	14%	12%	9%	-2.4p	-2.7p	-2.5p
Nuclear	(31%)	(12%)	(2%)	1%	0%	5%	-1.0p	-0.8p	+4.5p
Others	(0%)	(0%)	(0%)	3%	4%	6%	+2.6p	+1.4p	+1.4p

Note: Only for general electric utilities until FY2012.

**Table 8 | City gas sales (city gas utilities)**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Total (Billion m <sup>3</sup> )	39.28	40.39	40.33	39.82	40.14	41.09	-1.3%	0.8%	2.4%
Residential	9.79	9.79	9.80	9.55	9.66	9.64	-2.5%	1.1%	-0.1%
Commercial	4.75	4.50	4.52	4.49	4.32	4.44	-0.6%	-3.7%	2.7%
Industrial	21.61	23.12	22.92	22.20	22.72	23.49	-3.2%	2.4%	3.4%
For electric utilities	1.43	1.53	1.89	1.94	2.75	2.89	2.6%	41.7%	4.9%
For other users	20.18	21.59	21.03	20.26	19.97	20.61	-3.7%	-1.4%	3.2%
Others	3.13	2.97	3.09	3.58	3.43	3.51	15.6%	-4.0%	2.3%

Notes: Converted at 1 m<sup>3</sup> = 41.8605 MJ (10,000 kcal)

**Table 9 | Fuel oils and LPG sales**

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Fuel oils (GL)	196.0	196.3	197.8	193.5	184.1	180.5	-2.1%	-4.9%	-2.0%
Gasoline	58.2	57.2	56.2	55.4	53.4	54.2	-1.4%	-3.6%	1.5%
Naphtha	46.7	43.7	43.2	45.7	43.8	44.4	6.0%	-4.3%	1.3%
Jet fuel	5.2	4.2	4.0	5.1	5.1	5.1	27.1%	0.9%	-0.3%
Kerosene	20.4	19.6	18.9	17.9	16.9	16.6	-5.2%	-5.6%	-1.5%
Diesel oil	32.9	32.9	33.4	34.1	33.9	33.9	2.1%	-0.6%	0.2%
Heavy fuel oil A	15.4	14.7	13.8	13.4	12.8	12.1	-2.3%	-4.4%	-5.5%
Heavy fuel oil B and C	17.3	24.0	28.4	21.9	18.1	14.1	-22.9%	-17.1%	-22.3%
For electric utilities	7.7	14.9	19.4	14.4	11.0	7.4	-25.7%	-23.6%	-32.7%
For other users	9.7	9.1	9.0	7.5	7.1	6.7	-16.8%	-4.6%	-6.3%
LPG (Mt)	16.5	16.4	16.6	15.5	15.6	15.4	-6.5%	0.4%	-0.8%

**Table 10 | Impacts of restarting nuclear power plants**

		FY2010	FY2015			
			Low-level	Mid-level	High-level	Hypothetical
Cumulative number of restarted nuclear reactors <sup>1</sup>	[FY2014]	-	[0]	[2]	[2]	[2]
	FY2015	-	2	9	20	32
Average period for operation (months)		-	1	6	7	10
Electricity generation by nuclear (TWh)		288.2	1.0	44.4	95.8	233.0

		FY2010	FY2015 (Changes from FY2010)			
			Low-level	Mid-level	High-level	Hypothetical
Economy	Power generation cost <sup>2</sup> (JPY/kWh)	8.2	+3.5	+3.0	+2.5	+1.3
	Total fossil fuel imports (JPY trillion)	18.1	+2.3	+1.9	+1.3	+0.3
	Oil	12.3	+0.4	+0.2	-0.0	-0.2
	LNG	3.5	+1.9	+1.6	+1.4	+0.7
	Trade balance (JPY trillion)	5.3	-13.1	-12.7	-12.2	-11.4
	Real GDP (JPY2005 trillion)	512.4	+24.0	+24.4	+24.7	+25.5
	Gross national income (JPY trillion)	493.5	+24.3	+24.7	+25.2	+26.0
Energy	Primary energy supply					
	Oil (GL)	232.3	-13.0	-16.5	-21.4	-25.1
	Natural gas (Mt of LNG equivalent)	73.3	+18.4	+13.8	+9.7	-2.3
	LNG imports (Mt)	70.6	+19.0	+14.5	+10.4	-1.5
Self-sufficiency rate		18.0%	-9.9p	-8.0p	-5.8p	+0.1p
Environment	Energy-related CO <sub>2</sub> emissions (Mt-CO <sub>2</sub> )	1,123	+66	+45	+19	-52
	Changes from FY2005	-6.6%	-1.1%	-2.9%	-5.0%	-10.9%
	Local pollutants by electric utilities <sup>3</sup> (kt)					
	NO <sub>x</sub>	151	+38	+21	-3	-36
	SO <sub>x</sub>	137	+33	+17	-9	-39
PM	3.84	+0.65	+0.44	+0.05	-0.69	

Low-level Case: Only two plants in Sendai Nuclear Power Station restart by the end of FY2015.

Mid-level Case: Two plants in Sendai Nuclear Power Station restart by around the end of FY2014, followed by other plants under the current assessment system and condition.

High-level Case: A case in which the assessment system is enhanced and procedures become more efficient.

Hypothetical Case: A hypothetical case in which relatively new 32 plants generate electricity with 80% of capacity factor.

1. Thirty-nine reactors operated at the end of 2010.
2. Power generation cost in FY2010 is for the general electric utilities, estimated based on their profit-and-loss statements.
3. Local pollutants are estimated based on emission intensity by Keisuke Nansai and Yuichi Moriguchi (2012), "NO<sub>x</sub>, SO<sub>x</sub> and PM emissions factors of Japanese stationary sources," National Institute for Environmental Studies.

Table 11 | Impacts of changes in oil price (FY2015)

	Base Scenario (\$67/bbl)	High prices (\$77/bbl)		Low prices (\$57/bbl)		
			Changes from Base		Changes from Base	
Economy	Real GDP (JPY2005 trillion)	536.8	535.1	-0.3%	538.5	+0.3%
	Gross national income per capita (JPY million)	4.08	4.06	-0.5%	4.10	+0.5%
	Balance of trade (JPY trillion)	-7.4	-9.4	+28.2%	-5.3	-28.3%
	Fossil fuels	20.0	22.4	+12.4%	17.5	-12.4%
Energy	Primary energy supply (Mtoe)	479.0	476.6	-0.5%	481.8	+0.6%
	Oil (GL)	215.8	214.1	-0.8%	217.7	+0.9%
	Natural gas (Mt of LNG equivalent)	87.0	86.6	-0.5%	87.7	+0.7%

Figure 2 | Cumulative burden of FIT over 20 years (as of August 2014)

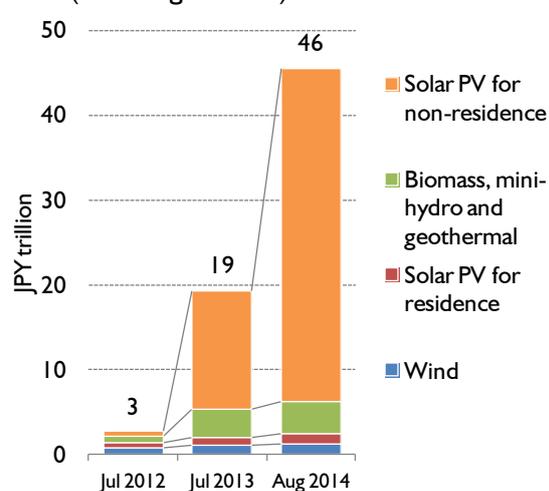


Figure 3 | Installed capacity of renewable power generation (operation start basis)

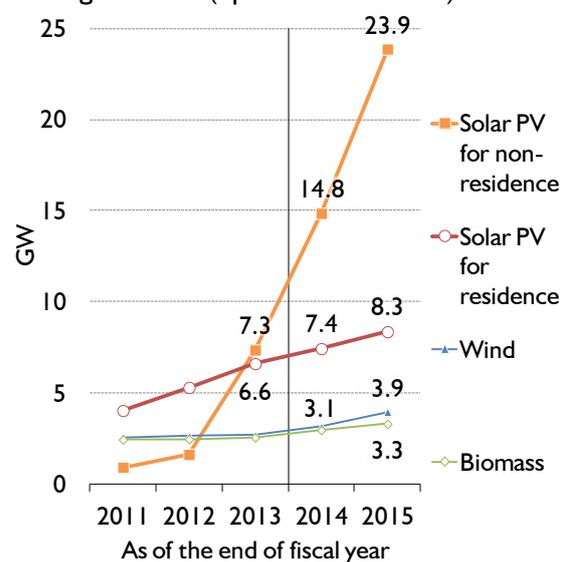
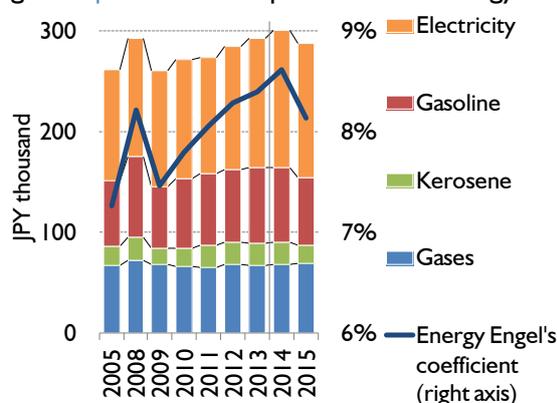


Figure 4 | (Omitted)

Figure 5 | Household expenditures for energy and “Energy Engel’s coefficient”



Source: Compiled and estimated by Statistical Bureau “Family Income and Expenditure Survey”

Full report will be available soon.

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