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Economic and Energy Outlook of Japan towards FY2015 ❖ *Overview*

– Energy risk casts a shadow over the recovery of the Japanese economy –

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◆ Executive summary of topics

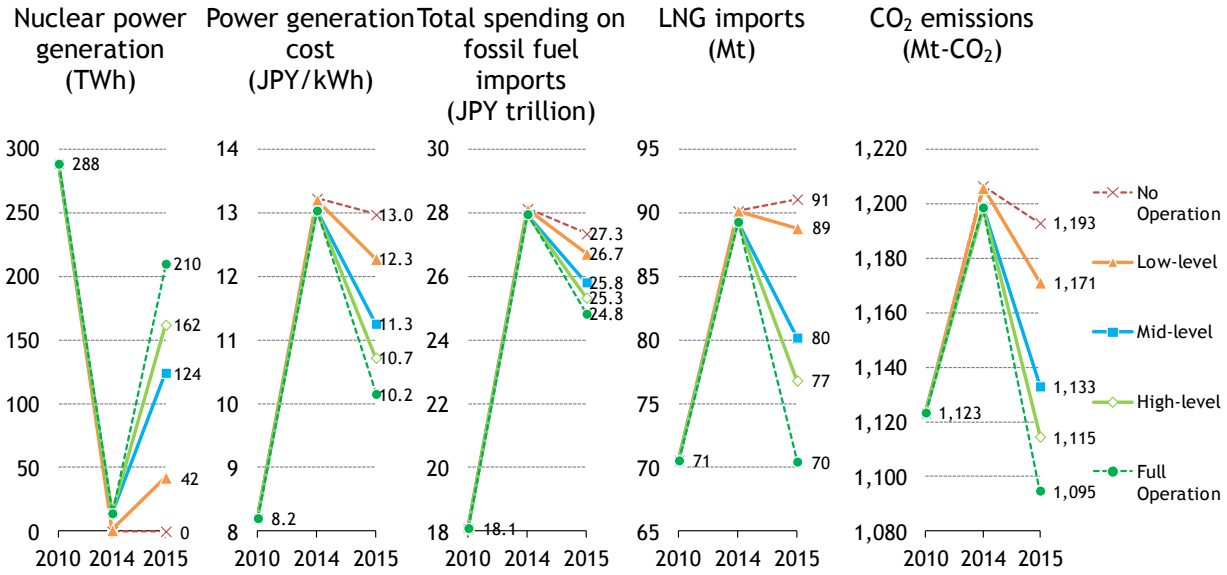
1. Impacts of restarting nuclear power plants – big advantages are expected from a swift completion of the rigorous assessment

- Despite the request for priority treatment, the nuclear safety assessment process remains behind its expected schedule, with the first restart not to occur until early autumn. Following that first approval, the assumptions are that three teams will be provided for the assessment and consideration of the observed developments, the necessity for large-scale construction, the order of the applications, etc… Based on those assumptions, only a total of seven (7) units can be approved by the end of FY2014, operating on average for three months. By the end of FY2015, 19 units, which had already filed applications, can be restarted, for an average operating period of nine months [Nuclear Mid-level Case].
- Under the Mid-level Case, the electricity generated using nuclear power for FY2015 is still less than half of its FY2010 level, raising the average power generation cost by about JPY3,000/MWh compared to FY2010; that's equivalent to an increase in power tariff of 17% for industry and 13% for households. Relative to FY2010, total spending on fossil fuel imports increases by JPY7.7 trillion, of which the LNG additional imports of 9.6 Mt will account for JPY2.8 trillion. Under this scenario, the energy-related carbon dioxide (CO_2) emissions increase by 10 Mt-CO_2, or by 0.9%, while the self-sufficiency rate decreases by 4.6% point.
- If the assessment period turns out to be longer than the one assumed in the Nuclear Mid-level Case, only nine plants (instead of 19) would be allowed to restart by the end of FY2015, generating electricity on average for seven months during FY2015 [Low-level Case]. If the Authorities were able to increase their staff and if more applications were submitted, up to thirty-two (32) plants could restart and operate on average for seven months during FY2015 [High-level Case]. The hypothetical "Full Operation Case," assumes that the 32 plants of the High-level Case do generate electricity throughout the period (rather than just for seven months on average) with an operating rate of 80%. The "No Operation Case" assumes no restart by the end of FY2015.
- 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 No Operation Case is

This outlook is based on the relevant information available at the time of estimation.

JPY2,800/MWh more expensive than under the Full Operation Case. In the No Operation Case the additional spending on fossil fuel imports reaches as much as JPY2.5 trillion. The Full Operation Case accelerates GDP by 0.26% while decreasing CO_2 emissions by 98 Mt-CO_2 and improving the self-sufficiency rate by 9.0% point. The difference in LNG import volume between the two cases would reach 20.6 Mt. The resulting significant decrease in Japan's LNG imports, combined with the anticipated LNG exports from the United States, beginning in 2016, would contribute to a more balanced supply-demand of the international LNG markets in the future.

Impacts by nuclear power plants' restart



2. **Risk of higher energy prices** – higher risk to be expected with higher dependence on thermal power generation

- International energy prices are highly dependent on the development of the Middle East and Ukrainian situations and may continue to increase. If oil prices increase by $10/bbl and LNG price goes up by $50/t, the value of imported fossil fuels into Japan would increase by JPY1.9 trillion. The resulting domestic energy price hike and reduction of wage and profits would decrease real GDP by 0.2% and gross national income would diminish by 0.3%.
- A slowing down of the economic activity would also decrease total primary energy supply. Fuel oil sales would suffer the biggest decrease due to bigger influence on the domestic prices. City gas and electricity would each experience 0.2% sales reduction respectively because of the reduced production activities, income reduction and price hikes.

3. **Impact of the Yen depreciation** – Higher economic growth induces slight demand increase for city gas and electricity while export's increase effect diminishes

- The Yen depreciation of JPY10/$ increases real GDP by 0.4% and expands the value of exports by more than 7%. It also increases the value of imports by a similar amount owing to the price hike. Consumer prices should increase by 0.3%, more as the result of the "cost-push" than the "demand-pull."
- Economic expansion induces an increase in energy demand while the JPY-based energy price hike has a cancelling effect and thus total primary energy supply remains relatively unchanged. LNG import volume increases by 0.3%. City gas and electricity sales increase by 0.2% respectively due to production activity expansion while on the other hand, fossil fuel sales, mainly gasoline, decrease by 0.5%.

◆ Executive summary of economic and energy outlook for FY2015 (Base Scenario)

1. **Macro economy** – sharp growth recovery as raised consumption tax effects reach saturation

- Despite some downward influence from the consumption tax increase, Japan economy grows by 0.9% in FY2014 due to active private non-residential investments and increases in external demand. The trade deficit diminishes to JPY12.1 trillion. For FY2015, the economy grows at 1.6%, higher than the potential growth rate. This is due to higher exports and private non-residential investments as well as to the recovery of private consumption pushed by an improved labour environment.

2. **Energy supply and demand** – after marking a record high in FY2014, natural gas demand is expected to decrease

- Total primary energy supply in FY2014 slightly decreases for the first time in two years due to a mixed influence of economic, energy conservation and weather factors and remains substantially almost the same in FY2015. With the assumed return of nuclear power plants as in the "Nuclear Mid-Level Case," Japan's self-sufficiency rate regains 13%. Fossil fuels decrease, with oil reaching levels lower than the 200 Mtoe recorded in FY1969.
- Total final energy consumption drops slightly in FY2014 and remains the same in FY2015. Industrial sector's energy consumption increases due to more production activities while consumption in residential and commercial sectors shows sign that the fall is ending, after decreases for four consecutive years since the Great East Japan Earthquake. Transport energy consumption continues the near 1% annual decrease due to fuel efficiency and transport efficiency improvement.

3. **Energy sales** – city gas goes strong while electricity regains. Tougher situation for fuel oil

- Electricity sales by utilities increase for three consecutive years, led by large industrial users in manufacturing sector. Even the sales for lighting contract mainly for the residential sector grow after the third quarter in 2015, and for the first time since the earthquake.
- City gas sales by general gas utilities increase, recording a historical high for the fifth year in a row. Sales for industrial use show steady growth, remaining to be a key driver. Except for the rebound from the hot summer, the residential sales keep a long downward trend.
- Fuel oil sales show a clear downward trend and may fall below 180 GL for the first time in half a century by FY2016. Gasoline drops to 53 GL, which is the lowest level since FY1996, immediately after the abolishment of Special Petroleum Act[1].

4. **Renewable Power Generation** – operational capacities will soon be 55 GW. If all the authorised 89 GW become operational, the accumulated cost burden could be JPY44 trillion

- Supported by high fixed prices under FIT contracts, renewable power generation will continue to expand. The capacities expected to be in operation by the end of FY2015, mainly Mega-solar, will reach 55 GW. By the end of March 2014, 89 GW (of which 71 GW is solar PV) had been authorised. If all of this capacity becomes operational, consumers' cumulative burdens for the 20 years will reach JPY44 trillion.

5. **CO_2 emissions** – decrease in FY2014 after recording new high in FY2013

- Energy-related CO_2 emissions in FY2014 will be less than 1,200 Mt, decreasing for the first time in five years despite the new high consumption of natural gas. The decrease in oil and coal consumption reduces the emissions. It is a decrease of 0.3% compared to the FY2005 emissions while an increase of 13.2% compared to the FY1990 emissions. The CO_2 emissions will decrease even further in FY2015 due to the restart of nuclear power plants. Energy consumption will be less than before the earthquake but the level of CO_2 emissions will remain high.

[1] Act on Interim Measures concerning the Importation of Designated Petroleum Products

Summary (Base Scenario)

		Historical				Projections		Year-to-year changes		
		FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Energy	Primary energy supply (Mtoe)[1]	514.3	491.1	484.6	486.4	485.0	486.8	0.4%	-0.3%	0.4%
	Oil[2] (GL)	232.4	238.4	242.4	234.6	225.0	214.6	-3.2%	-4.1%	-4.6%
	Natural gas[2] (Mt)	73.2	85.8	89.4	90.1	92.4	83.2	0.8%	2.6%	-10.0%
	LNG imports (Mt)	70.6	83.2	86.9	87.7	89.3	80.2	1.0%	1.8%	-10.2%
	Coal[2] (Mt)	184.6	175.1	183.3	194.2	193.4	188.0	6.0%	-0.4%	-2.7%
	Nuclear[3] (TWh)	288.2	101.7	15.9	9.3	14.1	124.3	-41.6%	51.9%	779.4%
	Final energy consumption[6] (Mtoe)	343.6	334.4	329.9	331.5	330.5	330.7	0.5%	-0.3%	0.1%
	Industry[4]	162.9	159.0	156.0	158.2	158.2	159.2	1.4%	0.0%	0.6%
	Buildings	97.3	93.8	92.5	91.5	91.3	91.2	-1.1%	-0.3%	-0.1%
	Transport	83.4	81.7	81.4	81.7	80.9	80.2	0.4%	-0.9%	-0.8%
	Petroleum products	178.1	172.1	168.8	169.2	167.6	166.4	0.2%	-0.9%	-0.8%
	Natural gas and city gas	35.0	36.3	36.3	37.6	38.3	39.2	3.6%	1.9%	2.4%
	Coal and coal products	38.0	37.8	37.7	38.5	38.3	38.6	2.2%	-0.4%	0.8%
	Electricity	88.9	84.8	83.9	83.0	83.0	83.3	-1.1%	0.1%	0.3%
	Electricity sales (TWh)	926.6	879.5	870.9	871.5	873.0	876.8	0.1%	0.2%	0.4%
	City gas sales[5] (Billion m^3)	35.28	35.91	36.32	36.69	37.48	38.05	1.0%	2.1%	1.5%
	Fuel oil sales (GL)	196.0	196.3	197.8	193.5	187.9	181.7	-2.1%	-2.9%	-3.3%
	Energy-related CO_2 emissions[6] (Mt-CO_2)	1,123	1,173	1,207	1,218	1,199	1,133	0.9%	-1.6%	-5.5%
	(FY2005=100)	93.4	97.6	100.3	101.2	99.7	94.2	..	..	..
Prices	Crude oil, import, CIF ($/bbl)	84	114	114	110	110	108	-3.6%	0.2%	-2.1%
	LNG, import, CIF ($/t)	584	823	866	837	821	776	-3.3%	-2.0%	-5.5%
	Steam coal, import, CIF ($/t)	114	144	127	108	101	110	-15.1%	-6.1%	8.6%
Economy	Nominal GDP (JPY trillion)	480.2	473.7	472.6	481.7	492.8	505.7	1.9%	2.3%	2.6%
	Real GDP (JPY2005 trillion)	512.4	514.1	517.5	529.4	534.4	542.8	2.3%	0.9%	1.6%
	Industrial production index (CY2010=100)	99.4	98.8	95.8	99.0	100.1	102.2	3.3%	1.1%	2.1%
	Exchange rate (JPY/$)	86.1	79.0	82.6	99.7	102.0	102.0	20.6%	2.3%	-0.0%

Notes:

1. Mtoe = 10^{13} 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
3. The Mid-level Case
4. Industry includes non-energy use.
5. Conversion factors; 1 m^3 = 10,000 kcal
6. Final energy consumption and CO_2 emissions in FY2013 are estimation.

◆ Tables and figures

Table 1: Macroeconomic indicators

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Real GDP (JPY2005 trillion)	512.4	514.1	517.5	529.4	534.4	542.8	2.3%	0.9%	1.6%
Private demand	377.1	383.3	388.7	397.4	400.0	404.8	2.2%	0.7%	1.2%
Private consumption	299.7	303.9	308.4	316.2	314.1	316.6	2.5%	-0.7%	0.8%
Private residential investment	12.5	12.9	13.6	14.9	13.8	13.8	9.5%	-7.6%	0.2%
Private non-residential investment	64.9	68.0	68.5	69.7	72.6	74.7	1.7%	4.2%	2.8%
Public demand	118.5	119.2	120.9	126.1	126.8	126.8	4.3%	0.5%	-0.0%
Government consumption	97.9	99.1	100.6	102.7	103.7	104.8	2.1%	1.0%	1.0%
Public investment	20.7	20.1	20.3	23.4	23.1	22.0	15.3%	-1.4%	-4.7%
Net exports of goods and services	16.8	12.0	8.4	7.1	8.7	12.4	-15.5%	23.0%	42.6%
Exports of goods and services	83.6	82.3	81.3	85.2	89.7	95.5	4.7%	5.3%	6.5%
Imports of goods and services	66.8	70.3	72.9	78.1	81.0	83.1	7.1%	3.7%	2.7%
Nominal GDP (JPY trillion)	480.2	473.7	472.6	481.7	492.8	505.7	1.9%	2.3%	2.6%
Balance of trade (JPY trillion)	5.3	-4.4	-8.2	-13.8	-12.1	-7.2	68.6%	-12.2%	-40.2%
Exports	67.8	65.3	63.9	70.9	77.5	83.9	10.8%	9.4%	8.3%
Imports	62.5	69.7	72.1	84.6	89.6	91.2	17.4%	5.9%	1.8%
Fossil fuels	18.1	23.1	24.6	28.3	27.9	25.8	15.0%	-1.4%	-7.7%
Domestic corporate goods price index (CY2010=100)	100.2	101.6	100.6	102.3	106.4	108.3	1.8%	3.9%	1.8%
Consumer price index (CY2010=100)	99.9	99.8	99.5	100.4	103.2	104.9	0.9%	2.8%	1.7%
GDP deflator (CY2005=100)	93.7	92.1	91.3	91.0	92.2	93.2	-0.4%	1.3%	1.0%

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

Table 2: 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	110.8	111.4	3.9%	-0.7%	0.5%
	Ethylene (Mt)	7.00	6.47	6.26	6.76	6.72	6.75	8.0%	-0.6%	0.5%
	Cement (Mt)	56.1	57.6	59.5	62.4	62.3	62.5	4.9%	-0.1%	0.3%
	Paper and paperboard (Mt)	27.3	26.5	25.7	26.7	26.3	26.2	3.6%	-1.5%	-0.3%
	Automobiles (Million units)	8.99	9.27	9.55	9.91	9.42	9.57	3.8%	-5.0%	1.5%
Production indices	Mining and manufacturing (CY2010=100)	99.4	98.8	95.8	99.0	100.1	102.2	3.3%	1.1%	2.1%
	Food	98.1	97.3	96.7	97.7	99.1	99.4	1.0%	1.4%	0.3%
	Chemicals	99.8	98.3	96.5	98.4	99.0	100.5	2.0%	0.6%	1.4%
	Non-ferrous metals	98.9	97.5	96.6	97.9	98.5	99.5	1.4%	0.6%	1.0%
	General and electrical machinery, etc.	101.3	100.3	93.1	97.4	99.8	103.0	4.6%	2.4%	3.2%
Tertiary industry activity index (CY2005=100)		97.8	98.4	99.2	100.4	101.3	102.3	1.2%	0.8%	1.1%

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 3: Primary energy supply

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Primary energy supply (Mtoe)	514.3	491.1	484.6	486.4	485.0	486.8	0.4%	-0.3%	0.4%
Coal	119.1	112.8	117.7	125.4	124.9	121.6	6.6%	-0.4%	-2.6%
Oil	212.0	217.6	221.2	214.1	205.3	195.8	-3.2%	-4.1%	-4.6%
Natural gas	95.5	112.0	116.6	117.5	120.5	108.5	0.8%	2.6%	-10.0%
Hydro	18.2	18.5	16.7	17.2	18.3	18.2	2.7%	6.4%	-0.4%
Nuclear	60.7	21.4	3.4	2.0	3.0	26.2	-41.6%	51.9%	779.4%
Others	8.7	8.8	9.1	10.3	13.0	16.5	13.6%	26.5%	26.6%
Self-sufficiency	18%	11%	7%	7%	8%	13%	..	..	..
Energy intensity (FY2005=100)	94.1	89.6	87.8	86.1	85.1	84.1	-1.9%	-1.2%	-1.2%
Energy-related CO_2 emissions (Mt)	1,123	1,173	1,207	1,218	1,199	1,133	0.9%	-1.6%	-5.5%
(FY2005=100)	93.4	97.6	100.3	101.2	99.7	94.2	..	..	..

Note: “Others” include geothermal, new energies, etc.

Table 4: Final energy consumption

	Historical			Estimated	Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Final energy consumption (Mtoe)	343.6	334.4	329.9	331.5	330.5	330.7	0.5%	-0.3%	0.1%
Industry	162.9	159.0	156.0	158.2	158.2	159.2	1.4%	0.0%	0.6%
Buildings	97.3	93.8	92.5	91.5	91.3	91.2	-1.1%	-0.3%	-0.1%
Residential	54.6	52.8	52.0	51.2	51.1	51.0	-1.5%	-0.2%	-0.2%
Commercial	42.7	41.0	40.5	40.3	40.1	40.2	-0.6%	-0.4%	0.1%
Transport	83.4	81.7	81.4	81.7	80.9	80.2	0.4%	-0.9%	-0.8%
Coal and coal products	38.0	37.8	37.7	38.5	38.3	38.6	2.2%	-0.4%	0.8%
Petroleum products	178.1	172.1	168.8	169.2	167.6	166.4	0.2%	-0.9%	-0.8%
City gas and natural gas	35.0	36.3	36.3	37.6	38.3	39.2	3.6%	1.9%	2.4%
Electricity	88.9	84.8	83.9	83.0	83.0	83.3	-1.1%	0.1%	0.3%
Others	3.7	3.4	3.3	3.2	3.2	3.2	-0.5%	-0.4%	-0.1%

Note: Industry includes non-energy use.

Table 5: 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	873.0	876.8	0.1%	0.2%	0.4%
Lighting contracts	304.2	288.9	286.2	284.3	282.6	282.7	-0.7%	-0.6%	0.0%
Power contracts	622.4	590.5	584.7	587.2	590.4	594.1	0.4%	0.6%	0.6%
of which: Large-scale industrial users	283.2	274.1	267.4	269.3	272.0	275.3	0.7%	1.0%	1.2%
Mining and manufacturing	234.4	227.9	221.3	222.8	225.3	228.2	0.7%	1.1%	1.3%
Chemicals	28.1	27.2	26.3	26.6	26.8	27.1	0.9%	0.9%	0.9%
Iron and steel	36.3	36.5	36.0	37.3	37.7	38.1	3.8%	1.1%	1.1%
Machinery	74.6	71.6	69.0	69.2	70.5	71.9	0.4%	1.8%	2.1%

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

Table 6: Power generation mix (electric utilities)

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Electricity generation (TWh)	918.2	857.4	822.0	823.7	822.3	821.0	0.2%	-0.2%	-0.2%
Share							Year-to-year changes		
Hydro	8%	9%	8%	8%	9%	9%	+0.1p	+0.6p	-0.0p
Fossil fuel-fired thermal	60%	79%	90%	90%	89%	76%	+0.7p	-1.2p	-13.4p
Coal	23%	24%	25%	28%	29%	27%	+3.5p	+0.1p	-1.6p
Natural gas and city gas	32%	43%	48%	49%	50%	42%	+0.7p	+1.6p	-7.9p
Oil, etc.	6%	13%	17%	13%	10%	6%	-3.5p	-2.8p	-3.9p
Nuclear	31%	12%	2%	1%	2%	15%	-0.8p	+0.6p	+13.4p
Others	0%	0%	0%	0%	0%	0%	-0.0p	+0.0p	+0.0p

Note: Electricity purchased is not included.

Table 7: City gas sales (general city gas utilities)

	Historical				Projections		Year-to-year changes		
	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
Total (Billion m^3)	35.28	35.91	36.32	36.69	37.48	38.05	1.0%	2.1%	1.5%
Residential	9.79	9.79	9.80	9.55	9.66	9.65	-2.5%	1.1%	-0.1%
Commercial	4.74	4.48	4.50	4.47	4.41	4.52	-0.6%	-1.3%	2.5%
Industrial	17.63	18.67	19.03	19.63	20.40	20.81	3.2%	3.9%	2.0%
Others	3.13	2.97	3.00	3.04	3.00	3.06	1.3%	-1.1%	2.0%

Notes: Converted at 1 m^3 = 41.8605 MJ (10,000 kcal)

Table 8: Fuel oil 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	187.9	181.7	-2.1%	-2.9%	-3.3%
Gasoline	58.2	57.2	56.2	55.4	54.6	53.8	-1.4%	-1.4%	-1.4%
Naphtha	46.7	43.7	43.2	45.7	45.5	45.7	6.0%	-0.6%	0.5%
Jet fuel	5.2	4.2	4.0	5.1	5.0	5.0	27.1%	-0.4%	-0.4%
Kerosene	20.4	19.6	18.9	17.9	17.3	16.8	-5.2%	-3.2%	-2.9%
Diesel oil	32.9	32.9	33.4	34.1	34.1	34.0	2.1%	0.0%	-0.1%
Heavy fuel oil A	15.4	14.7	13.8	13.4	12.8	12.2	-2.3%	-4.8%	-4.7%
Heavy fuel oil B and C	17.3	24.0	28.4	21.9	18.6	14.1	-22.9%	-15.1%	-24.2%
For electric utilities	7.7	14.9	19.4	14.4	12.1	8.4	-25.7%	-16.1%	-30.5%
For other users	9.7	9.1	9.0	7.5	6.5	5.7	-16.8%	-13.0%	-12.6%
LPG (Mt)	16.5	16.4	16.6	15.5	15.8	15.8	-6.5%	1.9%	0.0%

Table 9: Impacts of nuclear power plants' restart (FY2015)

		FY2010 Historical	FY2015 No Operation Case	FY2015 Low-level Case	FY2015 Mid-level Case	FY2015 High-level Case	FY2015 Full Operation Case
Cumulative number of restarted nuclear reactors[1]	[FY2014]	-	[0]	[2]	[7]	[7]	[7]
	FY2015	-	0	9	19	32	32
Average period for operation (months)		-	-	7	9	7	10
Electricity generation by nuclear (TWh)		288.2	0.0	42.2	124.3	162.0	209.8

			FY2010 Historical	FY2015 (Changes from FY2010) No Operation Case	Low-level Case	Mid-level Case	High-level Case	Full Operation Case
Economy	Power generation cost[2] (JPY/kWh)		8.2	+4.8	+4.1	+3.0	+2.5	+1.9
	Primary energy supply							
	Oil (GL)		232.4	-9.5	-15.2	-17.8	-20.5	-20.5
	Natural gas (Mt of LNG equivalent)		73.2	+21.0	+18.7	+9.9	+6.5	+0.0
	LNG imports (Mt)		70.6	+20.5	+18.2	+9.6	+6.3	-0.1
	Total fossil fuel imports (JPY trillion)		18.1	+9.2	+8.6	+7.7	+7.2	+6.7
	Oil		12.3	+5.5	+5.0	+4.8	+4.6	+4.6
	LNG		3.5	+3.7	+3.5	+2.8	+2.5	+2.0
	Balance of trade (JPY trillion)		5.3	-13.9	-13.3	-12.6	-12.1	-11.7
	Real GDP (JPY2005 trillion)		512.4	+29.6	+29.9	+30.4	+30.7	+31.0
	Gross national income (JPY trillion)		493.5	+28.5	+29.0	+29.8	+30.2	+30.6
Environment	Energy-related CO_2 emissions (Mt-CO_2)		1,123	+69	+48	+10	-9	-29
	Changes from FY2005		-6.6%	-0.8%	-2.6%	-5.8%	-7.3%	-9.0%
	Local pollutants by electric utilities[3] (kt)	NO_x	151	+54	+27	+8	-7	-12
		SO_x	137	+57	+24	+7	-9	-10
		PM	3.8	+1.0	+0.5	+0.2	-0.0	-0.0
Security	Self-sufficiency rates		18.0%	-10.0p	-8.1p	-4.6p	-3.0p	-1.0p
	Recurrence interval of loss of power generation fuel[4] (years)		50	35	35	42	53	62

No Operation Case <for reference>: Hypothetical case where no re-start of nuclear plant until the end of FY2015 is assumed.

Low-level Case: Re-start of the plants with prioritized assessment to be delayed until the end of FY2014. Other re-starts would follow at six months' intervals.

Mid-level Case: Sendai plant starts in early autumn. Other plants which had submitted application would re-start under the current assessment scheme and condition.

High-level Case: More efficient assessment process and more applications than in the Mid-level Case. 32 re-starts by the end of FY2015.

Full Operation Case <for reference>: Hypothetical case where 32 units as defined in the High-level Case would operate throughout FY2015 at 80% operating rate.

Note: 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_x, SO_x and PM emissions factors of Japanese stationary sources," National Institutes for Environmental Studies.

4. Probability of loss of 2% or more fuel for power generation due to country risks such as wars of import origin.

Table 10: Impacts of high energy prices (FY2015)

		Base Scenario	High Prices Case	
				Changes
Prices	Oil ($/bbl)	108	118	+9.3%
	LNG ($/t)	776	826	+6.5%
Economy	Real GDP (JPY2005 trillion)	542.8	541.8	-0.2%
	GNP per capita (JPY thousand)	4,118	4,106	-0.3%
	Industrial production index (CY2010=100)	102.2	101.9	-0.3%
	Balance of trade (JPY trillion)	-7.2	-8.8	+21.2%
	Fossil fuel imports	25.8	27.7	+7.2%
	Consumer price index (CY2010=100)	104.9	105.2	+0.2%
Energy	Primary energy supply (Mtoe)	486.8	485.0	-0.4%
	Oil (GL)	214.6	213.0	-0.8%
	Natural gas (Mt of LNG equivalent)	83.2	83.0	-0.2%
	Coal (Mt)	188.0	187.9	-0.0%
	Final energy consumption (Mtoe)	330.7	329.2	-0.5%
	Industry	159.2	158.6	-0.4%
	Buildings	91.2	90.9	-0.3%
	Transport	80.2	79.6	-0.8%
	Electricity sales (TWh)	876.8	875.5	-0.2%
	City gas sales (Billion m^3)	38.05	37.96	-0.2%
	Fuel oil sales (GL)	181.7	180.2	-0.8%
	Energy-related CO_2 emissions (Mt-CO_2)	1,133	1,128	-0.4%

Note: Industry includes non-energy use.

Table 11: Impacts of depreciation of the yen (FY2015)

		Base Scenario	Depreciation of the Yen Case	
		JPY102/$	JPY112/$	Changes
Economy	Real GDP (JPY2005 trillion)	542.8	545.0	+0.4%
	Industrial production index (CY2010=100)	102.2	102.9	+0.7%
	Balance of trade (JPY trillion)	-7.2	-7.6	+5.8%
	Exports	83.9	90.3	+7.6%
	Imports	91.2	97.9	+7.4%
	Consumer price index (CY2010=100)	104.9	105.2	+0.3%
Energy	Primary energy supply (Mtoe)	486.8	486.9	+0.0%
	Oil (GL)	214.6	213.8	-0.4%
	Natural gas (Mt of LNG equivalent)	83.2	83.4	+0.3%
	Coal (Mt)	188.0	188.7	+0.4%
	Electricity sales (TWh)	876.8	878.4	+0.2%
	City gas sales (Billion m^3)	38.05	38.11	+0.2%
	Fuel oil sales (GL)	181.7	180.9	-0.5%

Figure 1: Installed capacity of renewable power generation
(Operation start basis)

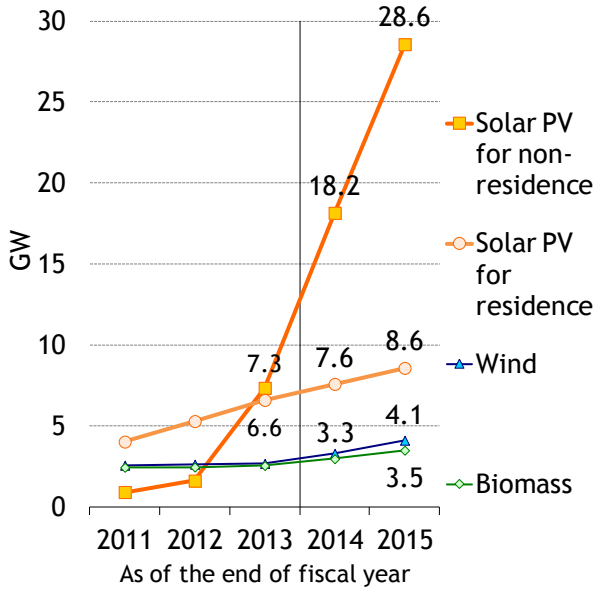


Figure 2: Cumulative burden of FIT over 20 years
(As of March 2014)

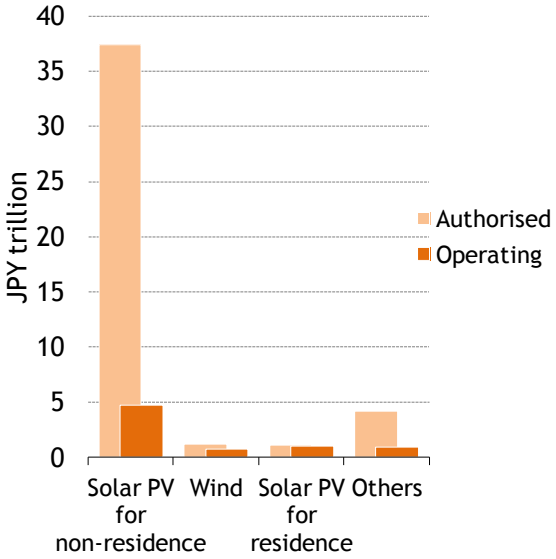


Figure 3: Cumulative costs for power grid over 20 years for authorised capacity
(As of March 2014)

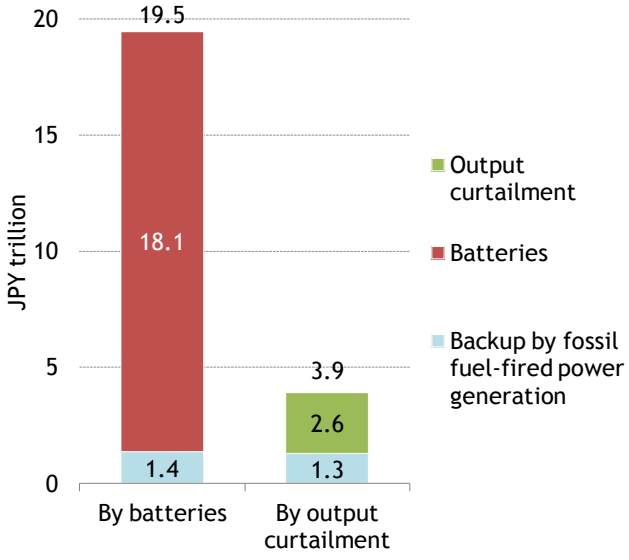
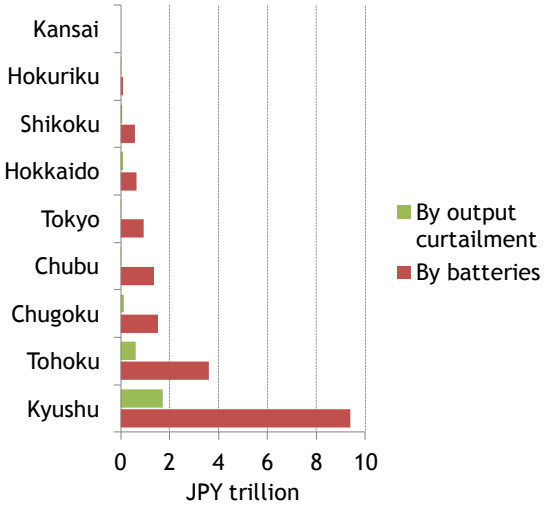


Figure 4: Cumulative costs for power grid over
20 years for authorised capacity by region
(As of March 2014)



Note: Excludes costs for backup by fossil fuel-fired power generation

Figure 5 and Figure 6

Omitted

Full report will be available soon.

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