

Contents

1. Message from Chairman
2. Mid-term goal for Japan should be realistic and practical
3. EU is able to achieve the 20% reduction goal
4. SC on Japan's mid-term goal discusses six options
5. Nuclear SC discussed draft of Nuclear Promotion Plan
6. Japan's oil demand will decrease 16.4% by 2013
7. Weekend toll discount stimulates driving
8. No.7 reactor at Kashiwazaki nuclear station restarted

Message from Chairman



Dr. Masahisa Naitoh,
Chairman & CEO

As the priority for every country for the moment is to weather the present economic crisis, the underlying current remains the same - the energy security and the climate change issues are increasing importance for sustainable development of the world. To ride over the crisis, it is essential to structure a new system of global governance that encompasses not only advanced nations but also developing economies as its core members. The world is shifting from an era of the mono-polar American rule to a multi-polar era where much more influential roles are being played by regional powers such as the EU, Japan, or BRICs. These significant changes are beginning to exert serious impacts on energy and climate change issues.

For example, prompted by the changeable oil prices, investment decisions for oil and gas as well as alternative energy development are being deferred on a global basis. In the EU, which has so far led the world climate change programs, there are an increasing number of voices calling for relaxation of the regulatory policies. The new Obama administration in the United States is attempting to press forward the so-called "Green New Deal" to promote energy efficiency and alternative energy as a part of a large-scale economic stimulus measure. In the climate change negotiations on the Post-Kyoto framework after 2013, while the participation of major emitting countries such as China or India is indispensable, there is a possibility that the trends in new international collaboration, engendered by the economic crisis, would propel the world in a favorable direction.

Given these circumstances, we have decided to launch "Japan Energy Brief" as our English Newsletter. With this publication we, at the *Institute of Energy Economics, Japan* or IEEJ, wish to strengthen our link with the world in pursuit of sustainable development, proactively discussing the energy-environmental issues of Japan and Asia from a global perspective. I ask for your continued support in our endeavors.

Mid-term goal for Japan should be realistic and practical.

Late last year, the Cabinet Office of Japan started a sub-committee under the “Advisory Committee on the Global Warming Issue” with a mission to prepare multiple options on the goal of the GHG emission reduction through scientific and theoretical study. Various discussions were developed during seven meetings held to date around model analysis conducted by selected research institutions. Optional scenarios on the GHG emission for 2020 have been narrowed down to the following six.

- (1) Efforts assumed under the “Long-term Energy Outlook of Japan” announced last year will be continued. The goal will be in the same line with the United States and the EU. (Japan’s goal will be +4% against 1990 and -4% against 2005.)
- (2) The advanced countries as a whole should achieve -25% against 1990, applying an equal marginal reduction cost. (+0% ~ -3% and -6% ~ -11%)
- (3) The efforts assumed under the “Long-term Energy Outlook” shall be implemented to the maximum extent, reinforcing measures on control of energy flow. (-7% and -14%)
- (4) The advanced countries as a whole should achieve -25% against 1990 based on equal cost per GDP. (No indication of reduction rate)
- (5) Control on stock and flow should be reinforced with mandatory obligations. (-15 ~ -16% and -21 ~ -22%)
- (6) All advanced countries should achieve -25% against 1990 across the board. (-25% and -30%)

In these analyses, there are great gaps in opinions, for example, between IEEJ and the National Institute of Environmental Studies (NIES). Dr. Naitoh, the Chairman and CEO of IEEJ, a member of the committee, explains as below.

- The 25% reduction against 1990 under scenario (6) requires, as NIES admits, shrinkage of economy and production activities via measures such as the introduction of a carbon tax. Then, Japan would not be able to maintain its strength of industrial and trade structure. Consequently, the goal could not be achieved and it is not realistic. Furthermore, it would not lead to a global solution, only succeeding at hustling industries to relocate abroad.
- Differences of views of IEEJ and NIES on scenarios (5) and (6) may be classified half-and-half into the difference of posture on industry enhollowment and the difference of technology selection to implement emission reduction.
- Although NIES insists that it would be possible to achieve scenario (5), building up technologies within an extent that does not affect economic activities, it is extremely difficult to achieve the goals of individual items as assumed. For example, as NIES places emphasis on wind power and hydro power, the proposed supply amount looks excessive considering the coordination required among various rights and regional residents.
- With regard to power supply that shares 45% of the primary energy supply, including IPPs, it is necessary to take account of the following points in considering the possibility of changing the electric power supply structure in 2020 under scenario (3) Maximum Efforts Introduction Case and scenario (5) “-15 ~ -16% case”:

- 1) As it is necessary to expand LNG import in order to increase gas-fired power generation greatly, it looks very difficult to satisfy the request within 10 years from now, considering that it is quite time-consuming to make LNG contracts.
 - 2) Cutback in coal-fired power, replacing it with gas-fired ones with LNG, would seriously deteriorate Japan's energy security.
 - 3) Incremental potential of hydro power has a natural limit and it is not realistic to put excessive expectations on it.
 - 4) On the biomass power generation, the assumption slated in the Maximum Efforts Introduction Case is extremely challenging.
 - 5) When solar power generation is greatly introduced, various problems would be incurred to require, for example, output adjustment of PV and/or bulk installation of batteries for stabilization of the power system.
 - 6) In order to raise the operation rate of nuclear power stations to 90% as IEEJ recommends, it is necessary to obtain strong commitment and support by the central and local governments and relevant public bodies.
- Considering the available time span up to 2020, scenario (3) "Maximum Introduction Case" should be deemed as the maximum possible case for CO₂ reduction. Even in this case, applying persuasive soft regulation as the policy measure, the goal would not be achieved in a straight forward way. Compared with scenario (3), scenario (5) "15% reduction" requires substantial bearing such as the introduction of carbon-pricing, severer regulative measures, and tax increases; and it is questionable if the national consensus would be obtained on them.
 - Setting the Mid-term goal, we should not lean too far toward idealistic discussion. Any international agreement based on such reasoning, with legally binding obligations via convention, would leave a heavy burden on the next generation. Based on a realistic and practicable outlook, we should carefully plan not to leave too heavy bills for future generations. The responsibility of the current generation is great in this regard.

Consequently, he asserts as follows.

1. It is important to secure an appropriate balance of the 3Es (Energy Security, Environment preservation and Economy) as the basis of the energy policy.

It is important to consider energy and environment in a consolidated and comprehensive manner. We should avoid serious deterioration of energy security and a huge economic burden on the industry and peoples' lives to be incurred by placing excessive importance on environment.

2. The level of the goal should maintain international equity.

Japan should aim at a goal common for all advanced countries, considering equitable balance with those pursued by the EU and the United States applying fair and appropriate indicators. If Japan were to set extremely ambitious goals on its own, its industry, already world's most energy efficient, would be devastated. Such action, however, would not necessarily reduce the global emission while inviting increased industrial production in CO₂ intensive countries. Japan should rather strengthen its advanced industries and aim at international contribution through dissemination of innovative technologies.

3. The goal should be set considering the time frame for developing technologies.
 - Development of innovative technologies will play the most important role in preventing global warming, but a long lead-time is necessary for them to reach the commercialization stage. For the moment, the goal should be set at a level achievable with technologies that will become practically usable within the time frame up to 2020.
 - Innovative technologies such as CCS, innovative PV, next generation nuclear reactor, etc., are expected to become practicable and commercial around 2025 - 2030. Coincidentally, with the depletion of easy oil, low carbon technologies will begin to bloom then. When such background is ripe, we should accelerate actions toward a low-carbon society.

The Cabinet Office will carry out hearings of public comments on the six candidate options as above before the final decision of the Prime Minister in June.

(Note) Materials in Japanese presented by Dr. Naitoh during the seven subcommittee meetings are available on IEEJ's homepage.

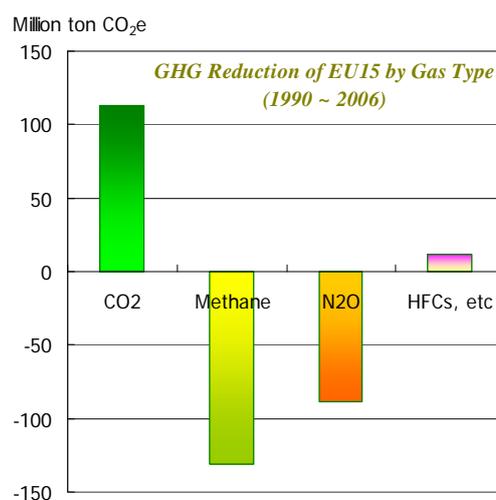
EU is able to achieve the 20% reduction goal without additional efforts.

On April 15, IEEJ disclosed an analysis on the mid-term goal of the EU on GHG emission reduction. There are various discussions in Japan on the global warming issues, some insisting that Japan should pursue a bold goal like the EU, while others say that the 20% reduction goal of the EU is merely a political slogan that could not be achieved. Under the circumstance, it is necessary to make a cool and firm analysis on the mid-term goal of the EU.

IEEJ's analysis shows that the EU is able to achieve the 20% reduction goal without any additional efforts. The circumstances around the EU are totally different from those for Japan. Hence, IEEJ proposes that Japanese efforts of setting counter measures and the mid-term goal of emission reduction should be based on full and precise recognition of the position of other regions such as the EU, and ensure equity with the rest of the world. The gist of the IEEJ's analysis is as follows.

1. Result of 2006

The GHG emission of the EU15 in 2006 was 2.2% lower than 1990 reflecting a substantial decrease of methane and N₂O emissions while CO₂ emission recorded a 3.2% increase during the same period. On the other hand, the new EU 12 (Poland, Czech, etc., see the table below) have decreased GHG emission substantially, amounting to 337 million tonne CO₂ equivalent, demolishing the inefficient production and power-generation facilities built under the old regime. Expanding to EU27, the EU is able to consolidate this substantial reduction, which is as big as the 7.7% emission reduction in the EU as a whole according to the EU Inventory Report.



2. Future Reduction of Non-CO₂ Emissions such as Methane and N₂O

Even today, a considerable quantity of waste is directly landfilled in the EU. Taking

measures on methane leakage from landfills and coal mines, the latter is also huge, the EU is able to materialize the emission reduction potential in these sectors. According to its plan, the EU says that it is possible to materialize an 8.5% emission reduction of GHGs other than CO₂. The cost is lower than 40 Euros per tonne CO₂ equivalent, according to the EU Report SEC2008 (85). Deducting the quantity already reduced by 2006, there still remains room to reduce 3.2% by 2020.

3. Carry-over of the Excess Achievement during the First Commitment Period to the Second

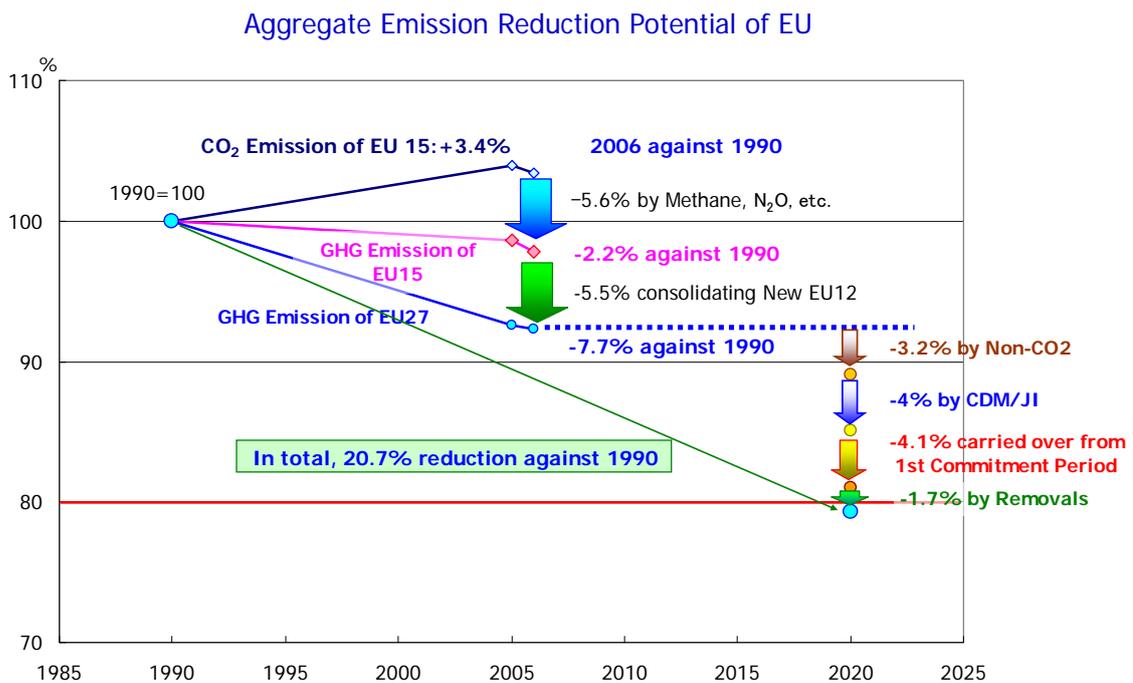
Among the newly participated EU12, reduction targets under the Kyoto Protocol are set for 10 countries excluding Cyprus and Malta, and the aggregate excess achievement of them exceeded 400 million tons CO₂ equivalent in 2006. Suppose that the current pace will be maintained for another five years during the first commitment period, the total excess achievement may inflate to 2 billion tonnes CO₂e. This may deflate slightly by any emission increase in the EU10 and sale to others via GIS, and yet a substantial quantity would be carried over to the second commitment period; it may amount to 1.8 billion tonnes CO₂e. Allocating the quantity equally to the eight years from 2013 through 2020, it makes an annual 4.1% reduction.

Excess Reduction by EU10 (Million ton CO₂e)

	1990	Emission in Base Year	Target under KP	Actual in 2006	Excess Reduction
Bulgaria	116.7	132.6	122.0	71.3	-50.7
Czech	194.2	194.2	178.7	148.2	-30.5
Estonia	41.6	42.6	39.2	18.9	-20.3
Hungary	98.2	115.4	108.5	78.6	-29.9
Latvia	26.5	25.9	23.8	11.6	-12.2
Lithuania	49.4	49.4	45.4	23.2	-22.2
Poland	453.6	563.4	529.6	400.5	-129.1
Romania	247.7	278.2	255.9	156.7	-99.2
Slovakia	73.7	72.1	66.3	48.9	-17.4
Slovenia	18.6	20.4	18.8	20.6	1.8
Total	1320.2	1494.2	1388.2	978.5	-409.7

4. Expansion of the KP Mechanism Application

The Climate and Energy legislative package adopted by the European Parliament and the Council in April 2009 has expanded the limit of CDM/JI utilization. Should the Mid-term Goal be expanded to a 30% emission reduction, utilization of CDM/JI may amount to 9%.



5. Removals by Sinks

Last February, the EU announced in the Annex to its Communication that it will apply the land-based approach on removals by sinks. Applying this, the removals by sinks of the EU during the second commitment period becomes a 1.7% reduction annually, according to the estimation by IEEJ.

6. Total Emission Reduction in 2020

All in all, according to the calculation of IEEJ, the aggregate emission reduction of the EU in 2020 amounts to 20.7% compared to 1990 as shown in the chart. Thus, the EU is able to achieve the Mid-term Goal of 20% emission reduction quite easily without any additional reduction efforts.

Committee Highlights

SC on Japan's mid-term goal discussed on six options

Following the discussion at the 6th meeting on the six options for the mid-term goal for 2020, the 7th subcommittee, held on April 14, discussed the consistency of the long-term goal and the options for the mid-term goal. In the "Action Plan to Create a Low-carbon Society" (approved by the Japanese Cabinet in July 2008), three conditions are set out as the long-term goal, namely, 1) to reduce the global emission in 2050 to half of the present, 2) to peak out the global emission within 10 - 20 years, and 3) to reduce the Japanese emission by 60 - 80 % in 2050. It is reported that these three conditions could be achieved via any of the six options proposed as the mid-term goal.

The National Institute of Environmental Studies (NIES) reported its analysis that 1) Japan would be affected by global warming widely in water resources, ecology, food, natural disaster and health, and 2) even with the severest case of IPCC stabilizing the GHG concentration at 450 ppm in CO₂e, disasters such as flooding, deforestation and beach loss could not be avoided.

Dr. Naitoh, the Chairman and CEO of IEEJ, commented along the lines explained in the article on page 2 of this issue, and said that 1) an excessive goal and ambiguous policy would confuse the market and hamper efficient achievement of the goal and thus 2) it is essential to set out a practicable and clear goal and to apply a clear policy to achieve it.

Nuclear SC discussed draft of Nuclear Promotion Plan

The nuclear subcommittee, held on April 22, discussed a draft of the Nuclear Generation Promotion Plan, to be finalized by METI in June. With regard to the core concerns on "new construction, smooth replacement and high utilization of the existing nuclear reactors," METI made a presentation of how the Plan should be formulated, particularly on the three discussion points; position of nuclear power in the future power supply plan, high time of replacement anticipated around 2030, and upgrading of operation and maintenance work.

The gist of the comments by SC members was as follows.

It is essential to structure a system that nuclear power could exert all its potential under any condition. To this end, raising the plant operation rate is important, and all experience and knowhow accumulated in operation of the Japanese nuclear power station should be fully mobilized. It is also necessary to look into possibilities of operation lower than the design

capacity, necessity of a second waste reprocessing facility, and importance of proliferation viewpoint in international deployment of nuclear business.

Dr. Masahisa Naitoh, the Chairman and CEO of IEEJ, commented as follows. The government should lay stress on the industrial policy to develop the nuclear industry as one of the core industries of Japan. With the current dispersed formation, Japan may fall behind France, Germany and the United States. It is important (1) to enhance the linkage between public and private, manufacturers and power companies, (2) to establish a domestic organization that could handle all the activities consistently from the frontend-through-backend of nuclear fuel, and (3) to efficiently organize the limited workforce for establishment of a full-fledged technology development system.

Energy in Japan & Asia

Japan's oil demand will decrease 16.4% by 2013

METI announced the "2009 Petroleum Products Demand Outlook" approved by the Petroleum Committee, the Advisory Committee for Natural Resources and Energy (ACNRE). It covers five years up to 2013 and predicts that the demand for petroleum products in Japan, being estimated at 201 million kl for FY2008 (ending March 2009), may reduce to 168 million kl for FY2013, at an annual rate of -3.5% or a total rate of -16.4%.

The present worldwide economic downturn will depress industrial activities as well as personal consumption, while earthquake-affected nuclear plants at Kashiwazaki will resume operation one-by-one. The demand for petroleum products will decrease across the board, reflecting elements such as improvement in fuel mileage of motor vehicles, higher awareness of energy conservation, fuel conversion to reduce CO₂ emission, reducing freight cargo, impact of newly starting petrochemical plants in overseas markets, decline of oil-fired power generation in the electric power supply structure, etc. The demand projection is as shown below.

Fiscal Year	Actual	Trend	Forecast					2008 to 2013	Composition	
	2007	2008	2009	2010	2011	2012	2013		2008	2013
Gasoline	<i>Tousand kl</i> 59,076 -2.4%	<i>Tousand kl</i> 57,658 -2.4%	<i>Tousand kl</i> 55,949 -3.0%	<i>Tousand kl</i> 54,090 -3.3%	<i>Tousand kl</i> 52,466 -3.0%	<i>Tousand kl</i> 50,561 -3.6%	<i>Tousand kl</i> 48,862 -3.4%	84.7% -3.3%	28.7%	29.0%
Naphtha	48,548 -3.1%	42,567 -12.3%	44,066 3.4%	45,431 3.2%	44,668 -1.7%	44,174 -1.1%	43,957 -0.5%	103.3% 0.1%	21.2%	26.1%
Jet Fuel	5,916 9.8%	5,758 -2.7%	5,684 -1.3%	5,680 -0.1%	5,709 0.5%	5,769 1.1%	5,861 1.6%	101.8% 0.4%	2.9%	3.5%
Kerosene	22,672 -7.5%	19,979 -11.9%	18,901 -5.4%	17,923 -5.2%	17,120 -4.5%	16,375 -4.4%	15,848 -3.2%	79.3% -4.5%	9.9%	9.4%
Gas Oil	35,557 -2.9%	33,951 -4.5%	32,593 -4.0%	31,634 -2.9%	30,880 -2.4%	30,156 -2.3%	29,532 -2.1%	87.0% -2.8%	16.9%	17.6%
Fuel Oil A	21,369 -10.8%	18,597 -13.0%	16,673 -10.3%	15,689 -5.9%	14,840 -5.4%	14,050 -5.3%	13,361 -4.9%	71.8% -6.4%	9.2%	7.9%
Fuel Oil B&C	25,341 11.7%	22,699 -10.4%	17,320 -23.7%	16,117 -6.9%	15,284 -5.2%	12,105 -20.8%	10,784 -10.9%	47.5% -13.8%	11.3%	6.4%
EP	14256 52.5%	13118 -8.0%	8964 -31.7%	8575 -4.3%	8402 -2.0%	5801 -31.0%	4964 -14.4%	37.8% -17.7%	6.5%	3.0%
General	11,084 -17.0%	9,581 -13.6%	8,356 -12.8%	7,542 -9.7%	6,882 -8.8%	6,304 -8.4%	5,820 -7.7%	60.7% -9.5%	4.8%	3.5%
Fuel Oil total	46710 0.1%	41296 -11.6%	33993 -17.7%	31806 -6.4%	30124 -5.3%	26155 -13.2%	24145 -7.7%	58.5% -10.2%	20.5%	14.4%
Fuel Type Total	218,479 -2.4%	201,209 -7.9%	191,126 -5.0%	186,564 -2.4%	180,967 -3.5%	173,190 -4.3%	168,205 -2.9%	83.6% -3.3%	100.0%	100.0%
LPG	<i>Tousand ton</i> 18,298 -2.4%	<i>Tousand ton</i> 17,255 -5.1%	<i>Tousand ton</i> 16,492 -4.4%	<i>Tousand ton</i> 16,396 -0.6%	<i>Tousand ton</i> 16,515 0.7%	<i>Tousand ton</i> 16,393 -0.7%	<i>Tousand ton</i> 16,321 -0.4%	94.6% -1.1%		

Weekend toll discount stimulates driving

Weekend discounts on highway tolls started on March 28 all over Japan upon approval of the second supplemental budget at the National Diet. Highway tolls will be discounted to only 1,000 yen irrespective of the driving distance for ETC card holders (ETC is short for “Electronic Traffic Control” system) on Saturday, Sunday and national holidays, with some exceptional application for metropolitan areas.

Japanese highway toll is relatively expensive. The normal weekday tolls for a passenger car traveling between Tokyo and Gotenba near Mt. Fuji (85km) is 2,500 yen for one way while it is discounted to 1,450 yen on weekends. Likewise, the weekday toll between Tokyo and Osaka (580km) is 13,600 yen, and is discounted to 2,650 yen. Highway traffic increased 30% in rural areas and 10% in metropolitan areas on weekends, during the first month according to expressway companies. With this system, stagnant gasoline consumption may bottom out. Tourist resorts were busy during the Golden Week holidays in early May as holiday drivers increased 20 - 80% compared to last year according to expressway companies. Gasoline retail price increased 3.9 yen per litre in one month up to May 11 according to IEEJ's survey.

The discount is scheduled to continue for two years to promote use of the ETC card as well as to stimulate the economy. The government makes good of the cost for the expressway operating companies, which amounts to 500 billion yen annually.

No.7 reactor at Kashiwazaki nuclear station restarted

On May 9, Tokyo Electric Co., Ltd. restarted the No.7 reactor at the Kashiwazaki-Kariwa nuclear station upon approval of the local government. All seven nuclear reactors at the power station with total capacity of 8.21 GW have been stopped since July 2007 when the region was hit by a severe earthquake. The No.7 reactor (1.36 GW) will undergo 40 - 50 days of test operations before reaching commercial operation sometime in June.

Efforts to restart the No.6 reactor are continued, aiming to resume operation in 2 - 3 months time. However, no definite work plan is slated yet for the more seriously affected No.1 - 5 reactors at the moment. LNG and fuel oil consumption for power generation that recorded a substantial increase since the earthquake will decrease this year substantially, coupled with the effect of the worldwide economic downturn.

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