

Impact and Current Status of the Accident at Fukushima Daiichi Nuclear Power Plant and Future Challenges

----- Part 1 -----

Japan's Energy Situation and the Basic Energy Plan

Table of Contents

Introduction

- < Three years after the Fukushima accident >
- < Backgrounds to the formulation of the new Basic Energy Plan
– a “twist an turns” process reflecting the social situation >
- < Acknowledgment of Support and Cooperation from foreign countries >

1. Social Situation Surrounding Nuclear Energy

(1) Current Status: Severe Impact of the Fukushima Accident

(i) Social Situation

- < All nuclear power plants, which together accounted for more than 30% of electricity generation before the accident, remain shut. >
- < Around 140 thousand people are still living away from home after evacuation
— Public skepticism about nuclear energy is pervasive >
- < Growing burden of the nuclear shutdown >
- < February 2014: Defeat of anti-nuclear forces in the Tokyo gubernatorial election >

(ii) Economic impact

1) Micro-level impact

- < Nuclear shutdown not causing major disruptions to electricity supply >
- < A steep rise in the cost of fuel for power generation leading to electricity rate hikes >

2) Macro-level impact

- < Payments for fuel imports rising steeply, plunging Japan into a trade deficit
---21 straight months of trade deficit >

3) Environmental impact

- < Increased CO2 emissions >

2. New Energy policy under the Basic Energy Plan

< Reconfirming

: The role of nuclear power generation: important as a base power source, while calling for reduction of dependence on nuclear energy in the long term.

The need to maintain the nuclear fuel cycle featuring reprocessing of spent fuels and use of plutonium >

(1) Outline of the Plan

(i) Chapter 1: Assessment of the current status

< Explanation of 10 challenges related to the current energy situation:

vulnerability, increased economic burden, GHG emission growth, reduced trust in the government and business operators, etc. >

(2) Specific policies and positioning of energy sources

<Numerical targets for the energy mix will be determined after the prospect for the restart of shutdown nuclear reactors becomes clear>

<The Plan describes both ideals and pragmatic arguments>

(i) Renewable energy

: Photovoltaic, wind, geothermal, hydroelectric, biomass and biofuel

<The new Basic Energy Plan envisions a higher share for renewable energy than previous plans : 13.5% by 2020 and 20% by 2030>

<Feed-in tariff (FIT) program: Taking into account the merits and demerits of FIT>

<Promotion of renewable energy development may be widening social inequality, by "FIT" >

(ii) Nuclear power generation

<Positioned as a low-carbon, semi-domestic energy source as well as an important base load power source>

<Dependence on nuclear energy set to be reduced in light of the status of other energy sources>

<Shutdown reactors to be restarted after safety is confirmed>

<Medium- to long-term policy: Rebuilding the nuclear energy policy – steadily promoting the nuclear fuel cycle>

(iii) Coal

<Using coal while reducing the environmental impact; research for commercialization of CCS>

(iv) Natural gas

(v) Oil

(vi) Energy conservation

<The energy conservation policy will move on to the second stage>

(3) Mass media divided over nuclear energy

<Editorial of Yomiuri Shimbun, the largest daily

: Praising the decision to use nuclear energy as a pragmatic strategy>

<Editorial of Asahi Shimbun, the second largest daily

: “The Plan lacks a message.”

3. Conclusion of Part 1

Impact and Current Status of the Accident at Fukushima Daiichi Nuclear Power Plant and Future Challenges ----- Part 1.

Japan's Energy Situation and the Basic Energy Plan

(As this report discusses a wide range of topics, readers may choose to read only the portions that interest them in light of the headings.)

Introduction

<Three years after the Fukushima accident>

On March 11, 2011, a huge earthquake and tsunami devastated the coastal areas of northeastern Japan. The disaster killed nearly 20,000 people and caused economic damage worth 19 trillion yen (as estimated by the World Bank) to 25 trillion yen.

Fukushima Daiichi Nuclear Power Plant (installed with six reactors with a combined output capacity of 4,696MW), operated by Tokyo Electric Power Company (TEPCO) and which is located in a Pacific Coast area 230 kilometers north of Tokyo, was struck by the earthquake and tsunami. The power plant's three reactors that were in operation at the time lost all power sources, three reactors (Unit No.1, 2, 3) resulting in a meltdown and one (Unit No.4) was heavily damaged.

Around three years have passed since the accident.

<Backgrounds to the formulation of the new Basic Energy Plan – a “twist an turns” process reflecting the social situation>

Due to the impact of the Fukushima accident and the government's mishandling of it, Japan's energy situation has continued to be muddy. Although the muddle remains, the government under Prime Minister Shinzo Abe (the previous government that was led by the Democratic Party of Japan [DPJ] suffered a series of crushing defeats in the elections to the House of Representatives in late 2012 and the House of Councillors last year; the current Abe government is a coalition of the Liberal Democratic Party [LDP] led by Mr. Abe and New Komeito) formulated a new Basic Energy Plan in April, three years after the Fukushima accident.

In December 2013, an advisory panel to the Minister of Economy, Trade and Industry worked out a draft of the plan after holding 13 times meetings and spending a total of more than 26 hours on debate. The government invited public comments on the draft, and the ruling parties, the LDP and New Komeito, subsequently held deliberations. The coordination of views within the ruling coalition took a long time because New Komeito in particular is wary about promoting nuclear power development (New Komeito made it an election campaign pledge to minimize Japan's energy dependence on nuclear power under its coalition government agreement with the LDP).

After these deliberations and coordination work of four months, the new Basic Energy Plan was finalized and announced in April 11.

This Fukushima Report is comprised of two parts.

The first part describes the social situation surrounding nuclear energy and the contents of the new Basic Energy Plan. The second part summarizes the current status of the Fukushima accident and future challenges.

<Acknowledgment of Support and Cooperation from foreign countries>

Japan has received and is receiving various forms of support and words of encouragement from people and organizations in the nuclear power industry and the wider energy industry in the United States and other countries around the world.

I would like to use this occasion to express our heartfelt appreciation for their/your kindness. I would also like to express regret at the impact that the accident might have produced on various countries' energy policies and the inconvenience that may have caused directly and/or indirectly to relevant people.

1. Social Situation Surrounding Nuclear Energy

(1) Current Status: Severe Impact of the Fukushima Accident

(i) Social Situation

<All nuclear power plants, which together accounted for more than 30% of electricity generation before the accident, remain shut.>

Japan's energy situation and the government's energy policy have been in a muddle for three years in the aftermath of the Fukushima accident. The muddle grew worse after the previous DPJ-led government shifted to a policy of abolishing nuclear power generation. In the meantime, the blanket shutdown of all nuclear reactors, which resulted from a political decision, still continues this spring and supposedly summer. During the three years, Japan has managed to go through peak power demand seasons (three summers and winters) without experiencing any major power outage thanks in part to consumers' energy-saving efforts. However, Japan has been on a tightrope as it has tried to maintain the power supply-demand balance by dusting off aged fossil fuel-fired thermal power plants in order to make up for the loss of nuclear power generation.

Consequently, the consumption of fossil fuels has expanded, resulting in a huge increase in the fuel import cost. This has forced electric power companies to raise their electricity rates. The loss of nuclear power generation has imposed a heavy burden on Japanese society.

<Around 140 thousand people are still living away from home after evacuation — Public skepticism about nuclear energy is pervasive>

Meanwhile, in Fukushima Prefecture, there are still areas where the radiation level is higher than evacuation order level due to the radioactive fallout from the nuclear accident. As a result, around 140 thousand people are living away from home as evacuees.

According to media polls, a slight majority of Japanese people are hostile or negative toward nuclear energy. As politicians are sensitive to public opinion, opposition to or cautiousness about nuclear energy is growing within the ruling parties.

This is the reality of Japan's energy situation.

<Growing burden of the nuclear shutdown >

Among the general public, concerns over such risks as the effects of radiation on human health and food safety remain. Public trust in nuclear energy experts (including people in the nuclear industry and at electric power companies as well as government officials and academicians) has yet to be restored. With such background, the growing burden of the nuclear shutdown – the loss of nuclear energy caused by the blanket shutdown of all nuclear reactors – is raising awareness about the usefulness of nuclear power generation, paradoxically.

<February 2014: Defeat of anti-nuclear forces in the Tokyo gubernatorial election>

In February, a major event providing the opportunity for public discussions on nuclear energy took place against this social background. The event, the Tokyo gubernatorial election,

was joined by a prominent nuclear energy opponent, former Prime Minister Mr. Morihiro Hosokawa (who served as Prime Minister from August 1993 to April 1994), who was supported by Mr. Junichiro Koizumi, another former Prime Minister (whose term of office was from April 2001 to September 2006) who became an anti-nuclear campaigner recently. The abrupt arrival of an eminent candidate opposing nuclear energy and calling for the abolition of nuclear power generation spurred mass media to cast the election as a vote on nuclear energy. The view was widespread that the outcome of the gubernatorial election would be sure to affect the national government's energy policy, because of Tokyo; the capital of Japan with more than 13 million population.

On February 9, Tokyo voters cast their ballots, braving the heaviest snowfall in four decades.

The upshot of the election was a victory for Mr. Yoichi Masuzoe, a former Minister of Health, Labour and Welfare who stressed the need for the restart of nuclear reactors while calling for reduction of the dependence on nuclear energy in the medium to long term. Mr. Masuzoe won 43% of all the votes, easily defeating other candidates, including Mr. Hosokawa and another prominent anti-nuclear candidate.

This outcome appears to suggest this: whereas concerns over nuclear energy are persistent, the nuclear issue was not a major point of contention in relation to how Tokyo should be governed. We may say that there is little support for immediate abolition of nuclear power generation. After his election victory, the new Tokyo governor stated that the energy issue is a matter that should be addressed by the national government.

Outcome of the Tokyo gubernatorial election (number of eligible voters: 10,685,000)

Candidate	Party affiliation	Position on nuclear energy	Number of votes won	Share of Votes (%)
Mr. Yoichi Masuzoe	Recommended by the LDP and New Komeito	Considers energy to be the prerogative of the national government.	2,112,979	43.4
Mr. Kenji Utsunomiya	Recommended by the Communist Party and the Social Democratic Party	Anti-nuclear	982,595	20.2
Mr. Morihiro Hosokawa	Supported by the DPJ	Anti-nuclear	956,063	19.6
Mr. Toshio Tamogami	Supported by a former Tokyo governor (Mr. Tamogami is a former chief of staff of the Air Self-Defense Force)	Pro-nuclear	610,865	12.5

Let me add that there are many people, particularly in nuclear host communities, who recognize the need for and who support the development nuclear power generation.

(ii) Economic impact

1) Micro-level impact

<Nuclear shutdown not causing major disruptions to electricity supply>

As I mentioned earlier, nuclear power plants were gradually shut down starting in May 2011. In September 2013, the last operating nuclear reactor was shut down, and since then, the nuclear shutdown has continued. In the meantime, an order for restriction on electricity use was issued in some regions in the summer of 2011. However, electricity shortage has not become a social problem, thanks to consumers' energy-saving efforts and electric power companies' efforts, including dusting off aged fossil fuel-fired thermal power plants and making emergency fuel procurements. Unfortunately, the seemingly calm situation coupled with media reports which writes that without nuclear power, stable supply of electricity could be enjoyed, has created the misguided impression among the general public that nuclear power shutdown would not cause any electricity supply problem.

Electric power companies' patient efforts that ensure stable supply have rarely been mentioned by mass media and have drawn little public attention.

On the other hand, the economic burden of fuel costs has grown very heavy as a result of an increase in fuel consumption through thermal power generation intended to make up for the loss of nuclear energy.

<A steep rise in the cost of fuel for power generation leading to electricity rate hikes>

Now that all nuclear power plants have been shut down, electric power companies are making efforts for securing supply capacity by operating fossil fuel-fired thermal power plants at full throttle, including aged plants that have been hastily dusted off. They also made emergency procurements of necessary fuels. Since the fuel cost of fossil fuel-fired thermal power generation is far higher than the nuclear fuel cost, the power generation cost rose steeply, throwing electricity companies into a state of balance of payment deficit. This eventually forced them to raise their electricity rates. As the yen's depreciation added to the problem, the electricity rates were raised by 15-17% for large-lot users in industry and commercial sectors, and by around 20% for a typical household (with monthly electricity consumption of 260-300 kWh).

As for the consumption of fuels for power generation, an annual consumed volume has increased by about 9 million tons for coal (about 17% up), by 13 million kls (more than 100% up) for oil and by around 17 million tons (over 40% up) for LNG ; comparing FY2013 with FY2010.

Consequently, the payment for fuels for fossil fuel-fired power generation has more than doubled. Japan's 10 major electric power companies (which together account for around 80% of overall electricity supply in Japan) made combined payments for fuels of 7.8 trillion yen in FY2014(April 2013~March 2014), more than double the 3.7 trillion yen paid in FY2010.

2) Macro-level impact

<Payments for fuel imports rising steeply, plunging Japan into a trade deficit ---21straight months of trade deficit>

As for the macroeconomic impact of the nuclear shutdown, the value of Japan's overall fuel imports in 2013 FY has increased by over 10trillion yen(\$880 billion) comparing 2010FY:18.1trillion yen (\$ 206.2 billion) as a result of the increased use of fossil fuels for

power generation and the yen's depreciation.

In 2013FY, payments for fuel imports totaled 28.4 trillion yen, accounting for 33.6% of the overall value of imports. Given that the export value of automobiles, Japan's largest export commodity, was about 14.9trillion yen, you can see that the fuel import value is quite huge.

As a result, Japan faces a formidable challenge as it has recorded a trade deficit for 21 straight months.

3) Environmental impact

<Increased CO2 emissions>

The increased consumption of fossil fuels has naturally resulted in an expansion of CO2 emissions. Overall CO2 emissions in Japan grew from 1,316 million tons in 2010 to 1,409 million tons in 2012, representing an increase of 93 million tons, a figure almost equal to the combined annual emissions in Sweden and Denmark.

2. New Energy policy under the Basic Energy Plan

<Reconfirming: The role of nuclear power generation : important as a base power source, while calling for reduction of dependence on nuclear energy in the long term.

The need to maintain the nuclear fuel cycle featuring reprocessing of spent fuels and use of plutonium <Web: <http://www.enecho.meti.go.jp/en/>>>

As I mentioned at the beginning, the Basic Energy Plan (hereinafter referred to as the "Plan") was announced on April 11 after a laborious process, including 100 days of debate. The plan pays meticulous attention to the various arguments making the rounds within the ruling coalition and elsewhere, reflecting the trouble and pains taken by its authors.

The key points of the Plan are as follows.

(1) Outline of the Plan

(i) Chapter 1: Assessment of the current status

<Explanation of 10 challenges related to the current energy situation : vulnerability, increased economic burden, GHG emission growth, reduced trust in the government and business operators, etc.>

First, the Plan identifies and explains in detail 10 challenges faced by Japan in relation to energy supply and demand.

Challenge 1

: The Plan points out the continuing damage and effects of the Fukushima nuclear accident that was triggered by a huge earthquake and tsunami three years ago and stresses that the future of all operations related to nuclear energy, including the securing of safety and decommissioning of damaged reactors, depends on the resolution of this challenge.

Challenge 2

: The Plan recognizes anew Japan's energy self-sufficiency rate (5.5% in 2012), the lowest among developed countries, as a fundamental vulnerability. As a problem, the Plan points out that Japan's dependence on fossil fuels as a power generation energy source has risen to an extremely high level, 88%, as a result of the blanket shutdown of nuclear power plants. It argues that this problem is increasing the economic burden and is a growing source of

concern from the perspective of energy security.

Challenge 3

: The Plan points out that electricity rate hikes caused by the factors described in “Challenge 2” above are putting Japan at a disadvantage in terms of energy cost compared with other countries and are adding to the impact of the shutdown of nuclear power plants on Japanese industries and households.

Challenge 4

: The increased dependence on fossil fuels has led to rapid growth of GHG emissions.

The Plan cites six other challenges, for a total of 10 challenges. In particular, I must point to Challenge 6 “Damaged trust in government agencies, business operators and nuclear experts” as an issue relevant to this report.

(ii) The contents of the following chapters are as follows:

Chapter 2: Basic Policy for Measures

Chapter 3: Long-Term Measures to be implemented in a Comprehensive and Systematic Manner

Chapter 4: Promotion of Strategic Technology Development

Chapter 5: Communications with People and Deepening of Understanding on Energy

(2) Specific policies and positioning of energy sources

<Numerical targets for the energy mix will be determined after the prospect for the restart of shutdown nuclear reactors becomes clear>

For that, the following explanation is given:

“We will indicate the energy mix at an early date in light of the position of each energy source while taking into consideration the restart of nuclear power generation, the introduction of renewable energy based on the feed-in tariff program and the status of international debates on global warming, including discussions at the Conference of the Parties to the U.N. Framework Convention on Climate Change.”

<The Plan describes both ideals and pragmatic arguments>

First, I will cite the descriptions of five major energy sources, which are contained in different chapters of the Plan.

(i) Renewable energy

: Photovoltaic, wind, geothermal, hydroelectric, biomass and biofuel

1) Regarding renewable energy, the Plan makes clear the government’s intention to actively promote it as an important domestic low-carbon energy source that is promising and diverse. In particular, the Plan states that the introduction of renewable energy will be accelerated as much as possible, especially in recent three years.

As for wind and geothermal power, the Plan points out that “ensuring economic viability may be possible depending on the scale of development” and states that the government will strengthen medium- and long-term initiatives while resolving challenges. Regarding wind power in particular, the Plan calls for strengthening efforts to commercialize fixed offshore wind power, for which data is being collected through facilities already installed, as well as floating offshore wind power which is in the demonstration research stage.

<The new Basic Energy Plan envisions a higher share for renewable energy than previous plans : 13.5% by 2020 and 20% by 2030>

2) The Plan refers to specific numerical targets only with regard to renewable energy, which I will describe below.

Regarding the target for the promotion of renewable energy development in relation to the overall energy mix, the Plan states that “the government aims to increase the installed capacity to a level above the targets indicated on the basis of the previous plans” (Chapter 3, Section 3 “Acceleration of Introduction of Renewable Energy”).

“The previous plans” referred to here are “Long-Term Outlook on Energy Supply and Demand” published in 2009 and “Energy Supply and Demand in 2030” published in 2010. These plans set forth the goal of increasing the share of renewable energy in overall electricity generation to 13.5% by 2020 and to around 20% by 2030.

The Plan aims for a higher share than these figures.

In this report, I would like to mention two points regarding the policy for promoting renewable energy development.

3) Point 1

: The Plan calls for establishing Fukushima, the epicenter of the nuclear accident, as a R&D center of the renewable energy industry by opening a renewable energy research facility of the National Institute of Advanced Industrial Science and Technology (AIST).

<Feed-in tariff (FIT) program: Taking into account the merits and demerits of FIT in the plan>

4) Point 2

: Regarding the feed-in tariff (FIT) program, which is the centerpiece of the policy for supporting renewable energy, the Plan states that the government will consider using a combination of various measures that will simultaneously maximize utilization of renewable energy and curb the burden on the people in the best possible way.

As I see it, this statement reaffirms the presence of both merits and demerits of FIT, which have already materialized.

The following data: reference will give you an idea of what the current utilization status of renewable energy is like.

(Reference)

A. Current status of renewable energy installations

a. Status as of the end of June 2012, before the introduction of FIT

Installed capacities of renewable energy (cumulative basis) totaled approximately 20,600MW, of which photovoltaic power accounted for 5,300MW, around a quarter.

b. Status as of the end of 2013, after the introduction of FIT

The introduction of FIT produced significant results, with the total installed capacities increasing 34% in one and a half years. In particular, the installed capacities of photovoltaic power for non-residential use grew more than six-fold. The amount of combined capacities of installations which have been approved but which have yet to start operation is nearly six times as large as the amount of existing installed capacities as of the end of 2013.

(Unit : MW)

	End of June 2012; before FIT introduction	Increase between July 2012 and December 2013	Cumulative installed capacities as of the end of 2013	Rate of increase(%)
Total installed capacities	20,600	7,044	27,644	+ 34%
Photovoltaic	5,600	6,845	12,445	2.2-fold growth
Residential	4,700	2,016	6,716	+43%
Non-residential	900	4,829	5,729	6.4-fold growth
Wind	2,600	74	2,674	+3%
Small hydro	9,600	5	9,605	+0%
Biomass	2,300	119	2,419	+5%
Geothermal	500	1	501	+0%

B. An upsurge in renewable energy surcharges

Naturally, the total amount of surcharges associated with FIT has increased steeply. The total amount of surcharges grew from 190 billion yen in fiscal 2012 to 350 billion yen in fiscal 2013. In fiscal 2014, the amount is expected to reach 650 billion yen.

For a typical household consuming 300 kWh of electricity per month on average, the surcharge payment in fiscal 2014 comes to 225 yen/month, up from 80 yen/month when FIT started.

Table suggests that relatively large photovoltaic power generation installations for non-residential use are used for the business of selling electricity in many cases.

C. Purchase price of renewable energy-derived electricity set to decline

Against this backdrop, the government is reviewing the purchase price of renewable energy-derived electricity in order to reflect a decline in the installation cost.

The purchase price of photovoltaic power-derived electricity fell from 42 yen/kWh to 37 yen/kWh in the case of an installation with capacity of less than 10kW (purchase period: 10 years) and to 32 yen/kWh in the case of an installation with capacity of 10kW or more (purchase period: 20 years).

The purchase price of wind power-derived electricity fell from 57.75 yen/kWh to 55 yen/kWh in the case of an installation with capacity of less than 20kW and from 23.1 yen/kWh to 22 yen/kWh in the case of an installation with capacity of 20kW or more (the purchase period is 20 years in either case).

<Promotion of renewable energy development may be widening social inequality, by "FIT">

I have much about FIT to criticize.

In Japan, there are an estimated 2.1 million households receiving public livelihood assistance. It is all but impossible for such low-income households to install photovoltaic

power generation equipment. They have to bear the burden of renewable energy surcharges added to their electricity bills with no option available to offset the cost by generating electricity themselves.

Meanwhile, in just one and a half years, the amount of installed capacities of photovoltaic power for non-residential use has grown 6.4-fold. Most of those capacities are intended to generate commercial profits by selling electricity.

We must say that FIT is a socially unfair program that promotes regressive income redistribution under the pretext of promoting renewable energy development.

Even in development of renewable energy, cost effectiveness must be considered properly.

(ii) Nuclear power generation

<Positioned as a low-carbon, semi-domestic energy source as well as an important base load power source>

i. The Plan praises nuclear energy as “superior in supply stability and efficiency” and also cites other advantages, including a low operational cost, a lack of output fluctuations and the absence of GHG emissions during plant operation. On the premise of safety assurance, the Plan positions nuclear energy as an important base load power source.

<Dependence on nuclear energy set to be reduced in light of the status of other energy sources>

ii. The Plan calls for minimizing dependence on nuclear energy by promoting energy conservation, introducing renewable energy and improving the efficiency of fossil fuel-fired thermal power generation. It states that the government will consider how much of the nuclear power generation capacity to retain under this policy.

<Shutdown reactors to be restarted after safety is confirmed>

iii. Nuclear reactors recognized by the Nuclear Regulation Authority as meeting the regulatory requirements will be restarted. The government will seek to obtain understanding and cooperation from nuclear host communities.

<Medium- to long-term policy: Rebuilding the nuclear energy policy – steadily promoting the nuclear fuel cycle>

The Plan spends eight pages describing “Rebuilding of the Nuclear Energy Policy” as a comprehensive medium- to long-term policy.

The following are the key points of the description.

- i) Declares an intention to achieve the recovery and reconstruction of Fukushima based on the lessons of the Fukushima nuclear accident.
- ii) Nuclear power generation: Constant effort to enhance safety and establishment of a stable business environment
 - Specifically, the government will consider how to create a business environment that contributes to smooth decommissioning.
 - The government will consider reviewing the nuclear damage compensation program in light of the actual status of damage payments in the case of the Fukushima nuclear accident by taking comprehensive account of various factors.
 - In this respect, the government places priority on participating in the establishment of an international program for nuclear damage compensation and will accelerate efforts toward concluding the Convention on Supplementary Compensation for Nuclear Damage (CSC).

- The government will strengthen countermeasures against nuclear disasters and will support enhancement of the evacuation plans of relevant local governments.
- iii) High-level radioactive waste and the nuclear fuel cycle:
 - The government will steadily – without procrastination – proceed with measures related to high-level radioactive waste and the nuclear fuel cycle.
 - Final disposal of high-level radioactive waste:
 - The government will propose a suitable site for final disposal based on scientific evidence. It will promote a disposal method that ensures reversibility and recoverability.
 - This may be taken as an indication that the government will learn from the experience of France, which is ahead in final disposal.
 - Nuclear fuel cycle:
 - The Plan reaffirms the importance of promoting the reprocessing of uranium fuels and the use of plutonium in light-water reactors while maintaining the principle of not possessing surplus plutonium.
 - The plan writes that "GOJ remains committed to the policy of not possessing reserves of plutonium of which use is undetermined on the premise of peaceful use of plutonium. In order to achieve this policy effectively, GOJ will conduct an appropriate management and utilization of plutonium while paying due consideration to an appropriate balance between separation and utilization of plutonium."
 - Fast breeder reactor "Monju":
 - The Plan calls for developing conditions for establishing Monju as an international research center for reduction of the volume and toxicity of wastes and improvement of technologies related to nuclear nonproliferation.
- iv) Rebuilding relationships of trust with the general public and nuclear host communities.
- v) Building relationships of trust with the international community and contributing to nuclear nonproliferation.

(iii) Coal

<Using coal while reducing the environmental impact; research for commercialization of CCS>

Although coal emits a large amount of GHG, the Plan positions it as a base load power source superior in supply stability and cost. Japan will make effective use of coal while reducing the environmental impact by further promoting the development of technology to improve the efficiency of coal-fired thermal power generation.

Specifically, Japan will introduce new technologies when old power plants are replaced. It will promote the introduction of highly efficient power generation technologies, including IGCC not only in Japan but also abroad.

Japan will conduct R&D with a view to commercializing carbon capture and storage (CCS) technology around 2020.

(iv) Natural gas

The use of natural gas as a heat source will grow.

Natural gas will also play the central role as a middle load power source. The role of natural gas will continue to expand in the future.

(v) Oil

Oil is important as an energy source and raw material for the transport and commercial sectors. It also plays some role as a peak load power source. Japan will continue to use oil as an energy source.

If the domestic oil industry is to become more profitable, it needs to develop into a comprehensive energy industry by strengthening such businesses as resource development, power generation, gas supply and water supply as well as continuing to serve the shrinking domestic gasoline market.

(vi) Energy conservation

<The energy conservation policy will move on to the second stage>

Japan has made progress in energy conservation thanks to a unique energy efficiency improvement initiative called the Top Runner program.

Under the future energy conservation policy as envisioned by the Plan, the scope of the Top Runner program will be expanded and sector-by-sector energy conservation measures will be promoted in order to achieve energy conservation for the whole society. We may describe this as the second stage of the Top Runner program.

In the second stage, energy conservation measures carefully tailored to individual sectors will be implemented with the aim of achieving further energy conservation on a society-wide basis.

It is expected that the development and use of smart energy technologies will be promoted in light of the results of the experimental “Low carbon city” project. Energy conservation and environment-friendly initiatives reflecting Japanese lifestyles will be promoted.

(3) Mass media divided over nuclear energy

Finally, I will mention how and what the mass media, as represented by the two largest Japanese daily newspapers, have been reporting about Japan’s new energy policy.

<Editorial of Yomiuri Shimbun, the largest daily

: Praising the decision to use nuclear energy as a pragmatic strategy>

-”It is very risky to overly depend on fossil fuel-fired thermal power generation that relies on imported fuels” while refraining from restarting nuclear power generation.

-”The problem is that there is not a clear path to the restart of nuclear power generation. The government should accelerate efforts toward restarting nuclear power generation, including persuading nuclear host communities to accept the restart.”

-”The government calls for increasing the share of renewable energy to more than 20% by fiscal 2030, up from around 10% in fiscal 2012 under the plan. This reflects the position of New Komeito and other forces that place emphasis on renewable energy. It is questionable to set specific numerical targets only with regard to renewable energy before deciding the overall vision of the ideal power source mix.” “If the share is to rise to 20%, new renewable energy power generation capacity equivalent to the combined capacities of 10 fully operational nuclear power plants will have to be secured. In terms of photovoltaic power, creating that amount of capacity will require the building of power generation facilities that would occupy land 10 times as large as the area surrounded by the Yamanote line (railway loop line in central Tokyo:63km²). In terms of wind power, it will require the construction of around 20,000 wind turbines. This is not a feasible goal at the moment.”

·”The important thing to do is to quickly set power source mix targets, including the target for the share of nuclear power, and to present a roadmap for achieving them.”

-”In order to maintain nuclear energy technology and train personnel, the government should make clear a policy of building new nuclear power plants.”

- ”The government and TEPCO should make efforts to quickly bring the Fukushima accident (the problem of contaminated water) under control.”
- ”The government should make tangible progress in selecting the site for final disposal of radioactive waste.”
- ”Exporting Japanese nuclear power plants with a high level of safety to emerging countries will represent a contribution to the international community and will also help to enhance Japan’s national security.

< Editorial of Asahi Shimbun, the second largest daily: “The Plan lacks a message.”

- ”Although the plan is wide-ranging, it lacks a message for a new energy society.”
- ”The plan presents a false objective for the Monju fast breeder reactor and stresses the flexibility of the government’s medium-term policy while clearly calling for the promotion of the nuclear fuel cycle, thereby deflecting criticism. The plan represents an attempt to avoid revealing the government’s true intention and inviting public criticism. It is an example of the strategy of obfuscation that the Abe government has continued as it pursues its energy policy.”
- ”Three years have passed since the accident. Electric power companies surely know that they can no longer depend on nuclear power plants. Why doesn’t the government make practical preparations to do away with nuclear power generation?”

3. Conclusion of Part 1

The new Basic Energy Plan reflects a policy-making process swayed by public opinion, media reports and various arguments made by political leaders. Many people are still living away from home as evacuees after being displaced by the Fukushima nuclear accident. The progress in decontamination has been slow. Meanwhile, controlling radiation-contaminated water has become a serious challenge, as such water continues to increase on the premises of the Fukushima nuclear power plant. Media reports are critical of the promotion of nuclear power. Energy security is seldom discussed. There is no doubt that the political situation and policies reflect public opinions.

Over and over again, I come back to the notion that the greatest cause of the muddle that is Japan’s energy policy is a lack of appropriate understanding of energy issues. People who have first-hand knowledge and experience of the oil crises that struck Japan four decades ago are few and far between nowadays. In the political world as well, old hands have been replaced by younger generations. Although Japan is a natural resource-poor country, there is little debate or understanding concerning energy issues as viewed from the perspective of national security.

Part 2 of the Fukushima Report will describe the current status of the Fukushima nuclear plant and the surrounding region as well as the situation of TEPCO.

Thank you for your kind reading!