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Summary

1. Energy security

With regard to energy security, IEEJ Chairman & CEO Masakazu Toyoda commented: "Japan's energy security remains vulnerable while risks are rising. The market mechanism alone is not sufficient to ensure energy security; nuclear power helps to ensure energy security."

2. Reform of the electric power system

Reforming the electric power system to handle distributed energy sources is extremely difficult. Japan must thoroughly discuss the issues and examine the facts, while collaborating with other countries.

3. Energy conservation

The Energy Efficiency and Conservation Subcommittee released its draft interim report, covering countermeasures for peak electricity consumption, legal requirement for houses and buildings to comply with energy conservation standards, and introduction of the Top Runner Standard.

4. Recent Developments in the LNG Markets

Japan's LNG imports in 2011 grew significantly - by 12% in volumes and by 38% in paid amounts. The global LNG markets have a lot of uncertain factors for the period between 2012 and 2015. Longer-term outlook depends on timely implementation of those export projects that took final investment decisions (FIDs) in 2011.

5. The FIT system in Germany and Japan

Germany will significantly reduce the purchase price of photovoltaic power. Setting a suitable purchase price is difficult. In the Japanese system to be launched this July, it is important to be able to modify the structure as needed, and to set and achieve appropriate goals.

6. IAEE conference in Kyoto

The Asian Conference of the International Association of Energy Economics (IAEE) was held at the University of Kyoto from February 20 to 22. The conference gathered approximately 180 participants from Japan and abroad, and mainly discussed energy issues in Asia.

7. Gas thermal power development in China

The Chinese government has embarked on the development of gas thermal power, including CHP and CCHP, to deal with its shortage of electricity. The challenge is how to improve the cost competitiveness of gas thermal power, such as including proper costs in the sales price of electricity from coal-fired power, raising the coal resource tax and imposing carbon-emission tax.

8. Uncertainties surrounding Syria and Iran

The turmoil in Syria has deepened since the UN Security Council draft resolution on Syria was vetoed by China and Russia. The situation remains bleak with the serious division among the P5 states as well as the Syrian opposition. Additional unilateral measures against Iran's oil exports will affect the oil market.

1. Energy security

The Fundamental Issues Subcommittee, which is currently deliberating the revision of the Basic Energy Plan, held its 10th to 13th meetings between February 1 and February 22. At the 10th meeting, the Independent Investigation Commission of the Fukushima Nuclear Accident and other committees delivered interim reports on the causes and countermeasures. Energy conservation was discussed at the 11th meeting, and renewable energy at the 12th meeting.

The 11th meeting focused on energy demand. Many stated that numerical goals for energy conservation should be set, while some pointed out the difficulty of selecting the criteria. Regarding energy conservation, the participants suggested many approaches including legal requirements, visualization, education, cost incentives, shorter time to recover investments, and taxation, but did not manage to reach a consensus.

The 12th meeting started with hearings for energy supply companies. In particular, the Federation of Electric Power Companies (FEPC) was asked many questions regarding such issues as the competitive situation, consumers' choice and nuclear safety. The Chairman of the FEPC answered: "FEPC does not oppose further competition and deregulation, though there are some issues such as electric power security that cannot be left totally to the market mechanism. The government and the electric power companies have separate roles to play in the energy policy." The hearings were followed by presentations by six commission members including the Chairman of the IEEJ on such issues as self-sufficiency, geopolitics, nuclear deterrence and national defense, and technology. Some members commented that energy security must be thoroughly discussed based on concrete risks and their countermeasures.

Regarding energy security, Masakazu Toyoda, Chairman & CEO of the IEEJ, commented that Japan's energy security remains vulnerable while risks are rising. The market mechanism alone is not sufficient to ensure energy security, and actions such as R&D, subsidies, resource diplomacy and safety regulations are required. Nuclear power boosts energy security by providing large amounts of power at low cost.

The 13th meeting discussed renewable energy. In response to the opinion that "no one is opposed to more renewable energy, but to what extent can it be introduced?", views included: "the will of the government is important", "the key is not goal-setting but how to develop renewable energy into a business", "renewable energy should be promoted in line with the local community", "the strategy should consider international competition". The discussions are thus still mainly on individual topics, and a consensus has yet to be reached.

(Shigeru Suehiro, Manager, Energy Demand, Supply and Forecast Analysis Group

Energy Data and Modelling Center)

2. Reform of the electric power system

On February 2, the Expert Committee on Electric Power System Reforms held its first meeting to discuss the future direction of the electric power utility system. Professor Motoshige Ito, Graduate School of Economics of the University of Tokyo, served as chairman, and the members expressed their opinions on the agenda which had been set by the Electric Power System Reform Task Force, the predecessor of this committee, based on the discussions in the Task Force. From the second meeting, discussions will examine the following issues set by the Task Force: a) greater efforts by consumers, b) diversification of supply and use of distributed energy power systems, c) promotion and regional expansion of competition, and d) comprehensive studies.

As none of the members opposed the agenda set by the Task Force during the first meeting, the discussions are expected to proceed as planned. As a member of this Expert Committee, I summarize my key views below.

Reform of the electric power system will continue to be studied in line with the goals set by the Energy and Environment Council and the Basic Energy Policy Subcommittee, namely minimizing the risk of planned power outages and reducing electricity tariffs. Specifically, the Committee will discuss a distributed electric power utility system that meets the following: a) active participation by consumers in the electricity market, b) promotion of renewable energy, c) efficient use of fossil fuels, and d) review of the dependency on nuclear power.

However, there is no such electricity system in the world that meets all of these requirements. This is because reforms have so far focused on a) introduction of competition, b) promotion of renewable energy, and c) involvement of consumers including the development of the smart grid. Differences in the choice of system to achieve a) have significantly affected the progress of b) and c). For example, in Europe, b) advanced while c) stagnated, whereas in the US, c) progressed while b) did not.

In a distributed energy system, it is important how to allocate different roles, including supply responsibility, between the conventional, centralized power system and the new, distributed system in view of efficiency and supply stability, and similarly the allocation between the public and private sectors. I believe that the decisive factor for the former is the timing of price decision (day before or on the day) and the grid connection requirements of the distributed system, while that for the latter is the siting of renewable energy facilities.

Various challenges lie ahead, and therefore thorough discussions based on facts, rather than assumptions or weak theories, are required. As a Committee member, I will continue to provide materials and objective data.

(Junichi Ogasawara, Manager, Electric Power Group, Electric Power & Coal Unit)

3. Energy conservation

Since the Great East Japan Earthquake last year, the importance of energy conservation by energy users has increased. During the energy saving period last summer, consumers were asked to cut back on both the peak power (kW) as well as the overall electricity consumption (kWh). This has resulted in excessive energy saving that has hindered economic activities, and some consumers have endured to the extent that their health was affected.

The Energy Efficiency and Conservation Subcommittee of the Advisory Committee for Natural Resources and Energy was therefore resumed on November 7 last year. The Subcommittee had held five meetings by February 13 this year, and released a draft interim report, for public comment from February 15 to 23.

This report includes such proposals as evaluation of the peak electricity consumption countermeasures, legal requirement for compliance by houses and buildings with energy conservation standards, and introduction of the Top Runner Standard for building materials.

One suggested approach for evaluating peak electricity consumption countermeasures is to incorporate the countermeasures into the calculation of the specific energy consumption. The report also includes suggestions such as the diversification of electricity tariff menus that power companies provide to consumers and the introduction of smart meters.

Creating a roadmap for the early establishment of legal compliance by houses and buildings with energy conservation standards is given highest priority. To improve the energy efficiency of building materials as they benefit both new and existing buildings, the report calls for the introduction of the Top Runner System for building materials. However, there was some opposition to simplifying the reporting system, which might lessen the burden on power companies.

IEEJ Chairman & CEO Masakazu Toyoda is a member of this Energy Efficiency and Conservation Subcommittee. His comments during the meeting can be summarized as follows: In view of the economic situation facing Japan, continuing to place excessive demands on industry which has long been committed to energy conservation and has already made significant cuts could cause hollowing out of the sector. Thus, the efforts should focus on the civilian sector which has a larger reduction potential. In particular, since Japanese building performance standards are relatively lax compared to other countries, both regulatory measures, including the requirement of compliance with performance standards, and subsidies should be strengthened, considering the requirements of the Building Standards Law. It is important to indicate quantitatively how far the measures from this Energy Efficiency and Conservation Subcommittee have been taken into account by the measures indicated at the Fundamental Issues Subcommittee, and which measures have been newly added. This would help clarify the progress toward energy conservation.

(Koichi Sasaki, Manager, Energy Conservation Research Group

Global Environment & Sustainable Development Unit)

4. Recent Developments in the LNG Markets

Japan's LNG imports grew by 12% in 2011, according to the official customs statistics, in line with expectations by industry executives. As well as the increased volumes, higher prices inflated amounts paid for the imports. Japan paid JPY 4.8 trillion for its LNG imports in 2011, an eye-popping 38% jump from JPY 3.5 trillion in 2010. Hence, it is quite likely that the total amount for LNG purchases surpassed 1% of the nation's gross domestic product (GDP) for the first time.

The largest portion of those incremental LNG volumes to Japan came from Qatar, which supplied nearly 12 million tonnes - an increase of more than 4 million tonnes year-on-year. Supply from the Atlantic region exporters, including West Africa, also grew significantly from 3 million tonnes in 2010 to 4.7 million tonnes in 2011. Global LNG trades continued remarkable growth in 2011, reaching 240 million tonnes, an 8% increase from the previous year. The growth was driven by Qatar in exports and Japan in imports.

Looking ahead at the global LNG markets from 2012 to 2015, emergence of new LNG markets in Southeast Asia and other regions, as well as steady growth of demand in existing importing countries in Asia, is expected. On the other hand, as anticipated LNG export capacity addition in the period is expected to be relatively small - from the Pluto project in Western Australia and Angola LNG in 2012 and two units in Algeria in 2012 and 2013 - some experts argue that the supply-demand balance will be tight in the period. However, slumping energy demand as a whole caused by the economic downturn in Europe and other regions, in addition to ongoing uncertainty over nuclear operations in Japan, casts a shadow over the outlook of the LNG and natural gas markets.

The year 2011 witnessed several significant final investment decisions (FIDs) on LNG exporting facilities in the Pacific Region, which are due to commence operations in 2015 or later. Timely implementation - without major delays - of those projects will hold the key to long-term stability of the market. Including the Ichthys project that took an FID in early 2012, Australia's LNG production capacity is likely to reach 80 million tonnes per year around 2018, making the country the largest exporter of LNG in the world. Ichthys is a brand-new example of a "Japan, Inc." project - that is operated by Inpex and will supply majority of the planned output to Japan - and present a renewed purchasing model for buyers as some buyers have formed a consortium to arrange their purchases from the project.

Planned LNG export projects in North America are expected to be a new major source of LNG in the next generation - after 2015. The Sabine Pass export project is leading the pack in advancing to realization by concluding long-term sales contracts of 16 million tonnes per year in the past several months. Among those deals, 7 million tonnes per year is committed to buyers in India and Korea. This may trigger changes to contract pricing in projects in the Asia Pacific region, including projects in other countries. However, it may be too early to be optimistic over LNG supply from the United States, as oppositions against LNG exports are emerging in the country, citing possible negative economic impacts of LNG exports on the domestic economy, especially higher domestic gas prices. East Africa is another new region that could be a promising new source of LNG supply in the future.

(Hiroshi Hashimoto, Senior Researcher, Gas Group, Oil & Gas Unit)

5. The FIT system in Germany and Japan

On February 24, the German government announced a plan to significantly reduce the Feed-in Tariff (FIT), which means the purchasing price for photovoltaic power. This announcement caused alarm, coming within two months of the amended Renewable Energy Sources Act (EEG2012) coming into force in January.

Germany first introduced a scheme for fixed-price purchasing under the Power Supply Act (1991) and later redefined it under the Renewable Energy Sources Act (EEG) of 2000. The EEG was then amended several times due to political changes.

These amendments were intended to reduce the photovoltaic power purchasing price (tariff) in view of the falling price of photovoltaic panels. If the tariff could be reduced based on reliable forecasts of panel prices, the burden on society of purchasing photovoltaic power at high prices could be reduced while securing reasonable profits for the suppliers of renewable power. In reality, however, the scheme required repeated readjustments because the reduction rate was fixed while panel prices fell faster. The tariff reduction rate has changed as follows in Germany: 5% per year in 2000 when the purchasing scheme was introduced, 9% per year after the amendment in 2009, and as much as 13% per year after another amendment in July 2010. Another amendment in 2012 reduced the initial tariff by 15% from the previous year. The most recent amendment will lower the initial tariff even further by 20-30% (from March) and the tariff will be reduced by 9% per year from this initial level.

Such frequent amendments show the difficulty of capturing changes in panel prices by a photovoltaic power purchasing scheme that is based on a predetermined price. Panel prices tend to change quickly because they have become market-sensitive commodities, with prices determined more by the supply-demand balance than by the manufacturing cost. Last year, market prices collapsed due to a supply-demand imbalance such that many panel manufacturers had to sell at a loss. It is not easy to design a scheme that can anticipate such a situation.

What can Japan learn from Germany as it is going to introduce a renewable power purchasing scheme in July this year? We should be ready to modify the scheme flexibly, irrespective of how it is designed, as the way Germany changed its incentive schemes they established in January just two months later. On the other hand, setting clear targets for renewable power deployment and holding them are also important for a successful renewable power policy. Why is the government promoting renewable energy in spite of the economic burden? What is its significance for Japan? Numerical targets should be indicative of the answers. During the recent review of the scheme in Germany, the Minister of Economy proposed limiting the gross deployment of photovoltaic power to 1 GW per year, but then Germany will not be able to achieve the target of 52 GW (2020). It was very significant for Germany's renewable energy policy that the government finally decided to maintain the present target of 3 GW per year.

No country has achieved a perfect FIT system. While learning from the experience of other countries, Japan should design a scheme that suits the reality in Japan.

(Hisashi Hoshi, Director in Charge of New and Renewable Energy & International Cooperation Unit)

6. IAEE conference in Kyoto

The International Association for Energy Economics (IAEE) and the Institute for Energy Economics, Japan (IEEJ) jointly organized the Third Asian Conference of IAEE at Kyoto University from February 20 to 22. The conference was attended by about 180 energy specialists, including scholars, researchers, businesspeople and members of governmental and international organizations.

On the first day, at the beginning of the general meeting, Mr. Fatih Birol, Chief Economist at the International Energy Agency (IEA), summarized the outlook:

- The growth of energy demand will be driven mostly by non-OECD countries, particularly by India, China and other developing countries of Asia.
- Natural gas and renewable energy will mainly support this growth.
- In these regions, demand for petroleum will grow due to the increase in automobiles.
- Limits to nuclear power after Fukushima will seriously affect the energy supply-demand situation and energy economics.

He also outlined recent trends:

- CO₂ emissions rose to record-breaking levels worldwide in 2010 and 2011.
- In the last two years, the energy consumption per GDP increased at the annual rate of about 1%, whereas it had been decreasing by about 1% in preceding years.
- The value of oil imports is almost at record highs.

Dr. R. Malik, representative in Japan of the Tata Energy and Resources Institute of India, commented that existing international energy organizations will neither be able to meet the increased energy demand in non-OECD countries nor handle the problem of energy poverty, and emphasized the need for a new global order in energy. Mr. Nobuo Tanaka, Global Associate for Energy Security and Sustainability of the IEEJ and former Secretary General of the IEA, said that India and China should be invited to join the IEA.

Leaders in the energy industry delivered important messages on the various energy options in which they specialize. Mr. Yagi, President of Kansai Electric Power, emphasized the importance of “S+3E” (energy security, environmental conservation and economic efficiency premised on safety) as he spoke about the post-Fukushima scheme of electric power supply. Addressing similar topics, representatives from Hitachi-GE Nuclear Energy, AREVA Japan and the U.S. Department of Energy’s Tokyo Attache spoke about the importance of nuclear power.

Mr. Ozaki, President of Osaka Gas, pointed out the potential and importance of natural gas in Asia and expressed his expectations for natural gas infrastructure in Asia, attracting much attention from the general audience. Representatives from companies such as INPEX and Chevron International Gas gave their views from the supply side.

With regard the supply and demand for coal, which is the largest source of energy in Asia, Prof. Ying Fan from the Science Academy of China and others emphasized the importance of R&D on CCS technologies to enable the efficient use of coal in the future. Regarding renewable energy, Mr. Sioshansi, President of Menlo Energy Economics, spoke about a case in California and emphasized the importance of governmental policy in promoting renewable energy. Thus, the IAEE conference in Kyoto witnessed presentations of reports and active discussions on topics of concern to Japan, as the host country, and to Asia.

(Kenichi Matsui, Councilor, Energy Data and Modelling Center)

7. Gas thermal power development in China

China is making rapid progress in gas-fired power generation as well as clean energy technologies such as wind turbines and photovoltaic generation. According to the Preliminary Statistics on China's Power Industry in 2011 published by the China Electricity Council, the total installed capacity for electric power generation at utilities is 1056 GW: 707 GW (66.9%) from coal-fired power, 231 GW (21.8%) from hydropower, 45.05 GW (4.3%) from wind turbines, 32.65 GW (3.2%) from gas-fired power, 26.14 GW (2.5%) from oil-fired power, 12.57 GW (1.2%) from nuclear power, and 2.14 GW (0.2%) from photovoltaic power. The total electricity generation is 4722 TWh: 3691 TWh (78.2%) from coal, 662.6 TWh (14.0%) from hydro, 104.8 TWh (2.2%) from gas, 101.4 TWh (2.1%) from oil, 87.4 TWh (1.9%) from nuclear, 73.2 TWh (1.6%) from wind turbines, and 0.9 TWh from photovoltaic power. The contribution of gas-fired generation to both installed capacity and electricity generation has increased by 0.4 points from 2010.

To help create a low carbon society, the Chinese government is discussing the proposed 12th Five Year Plan that seeks to increase the proportion of natural gas in the total primary energy consumption to 7.5% or more by 2015 from 4.3% in 2010. To achieve this, gas demand needs to increase to 230-260 bcm by 2015 from 110 bcm in 2010. This requires greater use of gas-fired power generation technology including CHP (combined heat and power) and CCHP (combined cooling, heat and power). On the other hand, due to the rapid increase in wind turbine and photovoltaic systems, the outputs of which fluctuate with the weather, China must urgently add other types of power generating systems that allow flexible load-following operation. Moreover, the Fukushima nuclear accident on March 11 has raised awareness about the advantages of distributed generating systems. As to gas supply, China expects to be able to steadily procure gas by 2015 through domestic projects to develop gas resources including non-conventional resources such as coal bed methane and shale gas and by importing gas from Central Asia and Myanmar using pipelines and importing LNG from Australia, the Middle East, etc. Thus, gas-fired power generation is accelerating rapidly in China.

In October last year, government administrations including National Development and Reform Commission (NDRC) and National Energy Administration (NEA) announced a policy to accelerate the use of natural gas with distributed systems such as CCHP to raise overall energy efficiency to more than 70%. As targets, they plan to launch pilot projects at 10 places and 1,000 construction projects by 2015 and to expand the installed capacity of gas-fired power generation systems to 50 GW by 2020. In the same month, Beijing Municipality announced a plan to replace, by 2014, the four existing coal-fired CHP plants by 14 gas-fired CHP plants, each with a capacity of 350 MW. Similarly, in February this year, Jiangsu Province announced a plan to start, by the end of this year, the construction of gas-fired power plants at three locations (combined capacity of 2.4 GW). There are now plans to construct gas-fired power plants at many places in China, particularly in metropolitan and coastal areas.

A major challenge is to improve the cost competitiveness. The sales price (per kWh) of electricity from gas-fired generation ranges from 0.57 yuan (Beijing, fueled by pipeline gas) to 0.72 yuan (coastal area, fueled by LNG), which are much higher than the price of coal-fired electricity at around 0.46 yuan. China will need to reduce the cost of gas-fired power generation through domestic procurement of core technologies and by large-scale development projects, as well as correcting the sales prices of electricity from coal-fired generation, which has been kept intentionally low by government policy, to fairly reflect the generation cost, in addition to other measures such as raising the coal resource tax and imposing carbon tax.

(Li Zhidong, Visiting Researcher, Professor at Nagaoka University of Technology)

8. Uncertainties surrounding Syria and Iran

Syria and Iran are being driven over the edge by other countries, both in and out of the Middle East. With its controversial past, Syria has been treated as a pariah state even by conservative Arab states which have managed to see off recent uprisings calling for political change.

The draft resolution of the United Nations Security Council calling for Syrian President Bashar al-Assad to step down was shelved, vetoed by Russia and China. The resolution was backed by the Arab League which wants to stop the violence being committed by the Syrian regime. As reasons for their vetoes, China and Russia argued that the UN resolution was a violation of sovereignty that could serve as a pretext for military intervention. Led by Qatar, the Gulf countries wishing to put pressure on the Assad regime have succeeded in persuading the United Nations General Assembly to adopt a non-binding resolution instead. The Security Council, however, remains deeply divided and is no longer functioning.

China and Russia are both searching for a solution. Criticized for its veto, China received representatives of an opposition group, the Syrian National Council, while Russia sent its foreign minister Sergei Lavrov to Syria to work out remedial measures. Although President Assad promised to curb violence and to hold a national referendum on a new draft constitution and parliamentary elections before long, few take him seriously. Meanwhile, violence has surged all over Syria, and terrorist bomb attacks attributed to Al-Qaeda pose an additional threat, rendering the entire region liable to increasingly uncertain security.

The Arab League has withdrawn its observers and violence in Homs in central Syria has intensified. The Friends of Syria meeting attended mainly by the US, the EU and Arab countries, issued an ultimatum demanding an immediate ceasefire from the Assad regime, and has begun the process of recognizing the opposition forces and considering arming them. This strategy resembles the recent series of political horse-trading that led to the downfall of the Gaddafi regime in Libya, and is thus likely to be rebuffed by China and Russia. Meanwhile, division among the Syrian opposition remains strong, adding to the uncertainties of the country's future.

The crisis over Iran's nuclear ambitions is also becoming more serious. Recent IAEA reports confirm that Iran is steadily moving ahead in developing nuclear technology. The reports also reveal IAEA's dissatisfaction with Teheran which refuses access to suspicious facilities. Increasingly anxious, Israel is openly talking about a preemptive military strike on Iran, asking for support from Obama in the US. However, President Obama remains cautious, knowing it could deepen the confusion in the Middle East. The paradox is that although sanctions on Iran are being encouraged and tightened in order to persuade Israel to refrain from any illegal military action, eventually it is preparing the ground for one. Following the EU embargo of Iranian crude oil that takes effect from this summer, Iran counteracted it by immediately suspending crude oil exports to Britain and France. Stimulated by the strengthening of EU and US unilateral sanctions and its allies' move to follow suit, the crude oil market will continue to fluctuate in the face of uncertainties.

(Koichiro Tanaka, Board Member

Director of the JIME <Japanese Institute of Middle Eastern Economies>Center)