

# ***IEEJ e-NEWSLETTER***

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**IEEJ e-Newsletter Editor: Yukari Yamashita, Director**

**IEEJ Newsletter Editor: Ken Koyama, Managing Director**

**Inui Bldg. Kachidoki, 13-1 Kachidoki 1-chome, Chuo-ku, Tokyo 104-0054**

**Tel: +81-3-5547-0211 Fax: +81-3-5547-0223**

## **Contents**

### **Summary**

#### **【Energy Market and Policy Trends】**

- 1. Discussions on the Energy Mix**
- 2. Developments in Nuclear Power**
- 3. Recent Developments in the LNG Market**
- 4. UK's Three Main Parties Agree to Work Together on Climate Actions**
- 5. Fundamental Issues of Renewable Energy Introduction Policy Shown by the Curtailment of PV Output**

## Summary

### 1. Discussions on the Energy Mix

On February 13, the second meeting of the Subcommittee on Long-term Energy Supply-demand Outlook was held. The meeting covered, in addition to a recap on the previous meeting: (1) energy demand, (2) a hearing on companies tackling energy conservation, and (3) the intermediate report of the Energy Efficiency and Conservation Subcommittee.

### 2. Developments in Nuclear Power

In addition to Takahama Units 3 and 4 which were approved following Sendai Units 1 and 2, the discussions on the conditions for the review of the various electricity sources by the Power Generation Cost Verification Working Group must be closely monitored.

### 3. Recent Developments in the LNG Market

With the recent oil price drop, the lowering LNG price and the increase in spot transactions by market players will not only improve the liquidity of the LNG market, but will also help establish a natural gas benchmark price for Asia.

### 4. UK's Three Main Parties Agree to Work Together on Climate Actions

The UK's three main parties, the ruling coalition and the opposition, released a joint pledge to tackle climate change across party lines. Which measures will be taken under this agreement, including replacing existing coal power, must be closely monitored.

### 5. Fundamental Issues of Renewable Energy Introduction Policy Shown by the Curtailment of PV Output

Detailed discussions are underway on the rules for reducing the output of renewable energies. Curtailing output is essentially a last resort, revealing the considerable lack of coordination between promoting renewable energies and optimizing the grid, although the two should be tackled together consistently.

## 1. Discussions on the Energy Mix

Akira Yanagisawa, Senior Economist  
Energy Data and Modelling Center

On February 13, the second meeting of the Subcommittee on Long-term Energy Supply-demand Outlook was held. The meeting covered, in addition to a recap on the previous meeting: (1) energy demand, (2) a hearing on companies tackling energy conservation, and (3) the intermediate report of the Energy Efficiency and Conservation Subcommittee.

The meeting focused on energy conservation and much time was spent on the subject. In the wrap-up prior to closing, Chairman Sakane revealed, at the members' request, the success of his plant in considerably reducing electricity purchases, while also commenting: "We also have a casting plant, but are not interested in saving electricity there. When electricity tariffs are this high, overseas becomes the preferred destination for new investments. Higher electricity tariffs act as a great incentive and driver up to a certain point, but above a certain limit, we suddenly find that electricity-intensive industries such as ours cannot operate in Japan. So I urge the subcommittee to intensively study ways for electricity-intensive industries to conserve energy, though these will differ for large companies and smaller ones. With firsthand experience, I concluded that it is almost impossible to keep the electricity-intensive casting industry in Japan under the current high electricity tariffs. Electricity tariffs will probably affect the extent to which electricity-intensive industries and medium to small companies can pursue energy saving."

Comments by other members included: "Estimating the amount of energy conservation achieved by technological development is excellent. In the past, too challenging targets that were described as ambitious were sometimes imposed on us from the top. I ask the subcommittee to thoroughly consider the barriers to energy saving such as cost, and to set achievable energy saving targets," and "energy saving targets for medium- and small-sized companies, which are less strong, need to be based on realistic time and cost."

IEEJ Chief Economist, Ken Koyama, commented that "energy conservation is an important element that is effective for all the 3 Es. Its total cost should be fully examined, and the scope of facilities should be clarified." "The IEEJ has created scenarios with the maximum energy saving possible (additional 7% energy saving to trending levels of improvements in energy intensity). These are very ambitious scenarios of energy saving (improvement of energy intensity), equivalent in speed to that between 1970 to 1990, when Japan was actively tackling energy saving," he added, emphasizing the scale of energy saving postulated and the difficulty of achieving it.

For Japan with limited fossil fuel resources, energy saving is a valuable effort that is equivalent to acquiring a source of energy. However, it is inappropriate to draft an energy supply-demand outlook that relies on extensive implementation of energy conservation programs that lack technological validity, adequacy of the cases, and economic rationality. The expert group should conduct more appropriate studies.

## 2. Developments in Nuclear Power

**Tomoko Murakami**, Manager  
Nuclear Energy Group, Strategy Research Unit

On February 12, the Nuclear Regulation Authority approved the safety assessment report in accordance with the new regulation standards for Kansai Electric's Takahama Units 3 and 4. Together with Sendai Units 1 and 2 approved in September 2014, the construction plans and operational manuals of the plant will be reviewed by the NRA. In order to restart, the plants need to pass a pre-startup test after all the reviews have been completed, and so it is still not clear when they can be restarted.

Also, each of the remaining 16 plants that have applied for a safety assessment has its own challenge. Among them, for Tohoku Electric's Higashi-dori Nuclear Power Station, a peer review meeting by the expert group on on-site fracture zones held on February 18 decided to adopt almost without change the draft assessment report, which states that the possibility of activity of the plant's on-site fracture zones cannot be denied. In response to the decision, Tohoku Electric announced on the same day that "Tohoku Electric understands that the fracture zone will continue to be reviewed for activity as part of the safety assessment, and we will make utmost efforts to explain based on investigation data, so that a comprehensive and rational assessment can be made." At this stage, it is not at all clear whether the NRA will consider the expert group's conclusion in the compliance reviews, or whether a new review will be carried out from scratch.

As the shutdown of the nuclear power plants continues and the economic situation of the power companies worsens, there has been media coverage on the management and institutional aspects of nuclear power in the past few months. One typical example is an article on February 14 by several media that "all nuclear power plants will be divided into east and west Japan, and placed under a new holding company set up by The Japan Atomic Power Company (JAPC), which will lead the decommissioning business." However, the relevant power company commented that "no such decision has been made". Matters such as major reorganization and asset transfer would have a grave impact on the companies themselves and all stakeholders including shareholders. In view of the importance of the issue, naturally the relevant parties must seriously consider all possibilities. However, announcements and press coverage of any such decision must be done cautiously in an orderly manner, based on the facts.

On February 18, the Power Generation Cost Verification Working Group (WG), an expert meeting set up under the Subcommittee on Long-term Energy Supply-demand Outlook, held its first meeting on reviewing the cost of each electricity source proposed by the Cost Verification Committee in 2011. At the first meeting, there was a comment that the handling of accident risk costs and R&D costs that are added only onto nuclear power, and the handling of the FIT purchase price of renewable energies, need to be revised to compare all electricity sources on an equal footing. In the WG, IEEJ Senior Economist Yuhji Matsuo presented a document authored by experts from international organizations on "methods for assessing power generation costs and their issues", and pointed out that the first task is to define the scope of generation costs, and that initial investments should be included in the construction phase. As power generation costs greatly affect the optimum combination of power sources, cool and scientific discussions are required.

### 3. Recent Developments in the LNG Market

**Tetsuo Morikawa**, Senior Economist, Manager  
Gas Group, Coal & Gas Subunit  
Fossil Fuels & Electric Power Industry Unit

According to trade statistics, Japan's LNG imports reached 88.5 million tonnes (7.8 trillion yen) in 2014, up from 87.5 million tonnes (7.1 trillion yen) in 2013 and marking another record high. The importance of natural gas in Japan's energy mix, particularly for power generation, has never been higher, and therefore stable procurement at competitive prices is essential for both importing companies and the government of Japan.

Meanwhile, the spot price of LNG is continuing to slide. JKM, a spot assessment price by Platts, was around \$10/MMBtu last December for January-February delivery and is just below \$7/MMBtu in February for March-April delivery. In contrast, Japan's average LNG import price was at \$15/MMBtu in December. As pure spot purchases of LNG is assumed to account about 5% of Japan's total LNG imports, the average LNG import price should be close to the average price of many long-term contracts. This means that the spot price is significantly lower than the average price of many of those term contracts.

This price gap naturally reflects easing demand in the LNG market. Considering the uncertainty of the global economy, restarting of Japan's nuclear power plants and the series of new LNG projects planned for operation, this market trend will surely accelerate. The drop of LNG prices, in addition to that of oil, is good news not only for existing importers but also for emerging countries such as Vietnam and the Philippines, which so far have not imported LNG mainly due to high LNG prices.

Should the gap between the term and the spot prices widen further, there will be greater incentive for buyers to shift to spot procurement. The increase in sales bids by sellers from the latter half of 2014 is a result of lesser cargo liftings by buyers. There have also been reports that power companies are taking a positive stance towards spot LNG bids.

However, the unclear future of oil prices is a major uncertainty for the LNG market. After plummeting to the \$40/bbl range in January, the Brent price is now back up to around \$60/bbl. It is not clear if prices have indeed reversed or they are headed for a double dip. However, some think that the prices will rise again in the latter half of this year as the supply from high-cost oil fields gradually falls. While the Asia premium has shrunk thanks to the oil price drop, the irrationality about oil-indexation remains. An increase in spot transactions would not only improve the liquidity of the LNG market, but also help establish a more rational natural gas benchmark price for Asia. It is important to take advantage of the easing LNG market and seek to abolish the Destination Clause and establish a new LNG benchmark price in Asia.

## 4. UK's Three Main Parties Agree to Work Together on Climate Actions

Hiroki Kudo, Assistant to Managing Director  
Global Environment and Sustainable Development Unit

On February 14, Conservative Party leader and Prime Minister David Cameron, Deputy Prime Minister Nick Clegg of the Liberal Democrats in the ruling coalition, and leader of the opposition Labour Party Ed Miliband released a joint climate pledge declaring to tackle climate change.

The agreement, regarded as "highly unusual" by the media, features three ways of accelerating climate actions: (1) To seek a fair, strong, legally binding, global climate deal which limits temperature rises to below 2°C, (2) To work together, across party lines, to agree carbon budgets until 2050 in accordance with the Climate Change Act 2008, and (3) To accelerate the transition to a competitive, energy efficient low carbon economy and to end the use of unabated coal for power generation.

Sir Nicholas Stern, who published the Stern Review, commented on the agreement that a key part will be to end emissions from coal. It is necessary to bring a speedy end to coal-burning by existing power stations and switch to alternative fuels and new coal-fired power stations equipped with CCS technology, promote investments in a low-carbon economy and transfer overseas the technologies achieved through the investments.

The agreement could mean that the parties have agreed on a strategy for clarifying the policy on the use of coal-fired thermal power, encouraging the establishment of a legally binding international framework to firmly maintain that stance, and spreading domestic technologies to other countries. However, expanding the capacity of power stations equipped with CCS, renewable energies and nuclear power stations still has technological and economic risks and will require much time and money. We must closely monitor which specific policies will be implemented and what approaches will be taken in international negotiations under this "highly unusual" collaboration across party lines.

In Japan, discussions are underway to draw up the outlook for the long-term supply and demand of energy and on the policies on energy conservation, new energies and nuclear power, for finalizing the optimum combination of energy sources. In parallel, the contents of the draft voluntary commitment are being discussed in the run-up to UNFCCC. Under such circumstances, on February 17, the tenth meeting of the Energy Efficiency and Conservation Subcommittee of the Committee on Energy Efficiency and Renewable Energy (the Advisory Committee for Natural Resources and Energy) was held. The meeting included the progress of studies on energy conservation measures and the outlook for supply and demand of energy in industry (energy conversion sectors), as well as energy conservation indexes, setting goals based on those indexes, and estimating the amount of energy conservation in the future. IEEJ Chairman and CEO Masakazu Toyoda suggested the need to thoroughly review the energy conservation measures and their effects when setting the energy conservation measures, to avoid the loss of corporate competitiveness and the consequent impact on employment, and also the need for assistance such as subsidies to promote investment in facility renovation which would boost the economic cycle.

## 5. Fundamental Issues of Renewable Energy Introduction Policy Shown by the Curtailment of PV Output

Hisashi Hoshi, Board Member, Director  
New and Renewable Energy & International Cooperation Unit

Government committees are discussing the curtailment of output from variable renewable electricity sources.

Since last September, the power companies have stopped accepting grid connection applications for solar electricity. In response, a decision was made to revise the rules on the curtailment (January 26 revised ministerial order), ensuring a certain amount of new capacity for grid connection. However, the details on the application of the new rules are undecided, and are left up to the committee discussions currently underway.

The revised ministerial order (1) expands the scope of curtailment, currently set at a minimum of 500 kW, to include facilities smaller than 500 kW, and (2) shifts from day-based (up to 30 days per year) to hour-based management (up to 360 hours/year for PV and 720 hours/year for wind power), to expand the scope of application and improve the flexibility of curtailment, thereby making room for additional capacity. The revised order also categorizes those power companies that have reached full connection capacity as "designated electric utilities", and allows them to award contracts with unlimited curtailment of output without compensation. This, however, resulted in electricity producers with different curtailment conditions, raising a new and complex issue of how curtailment should be allocated among them.

The New and Renewable Energy Subcommittee meeting on February 3 discussed how to apply the output curtailment rules, and the secretariat commented that in practice, differences in the number of days for curtailment between electricity producers will have to be tolerated, while "ensuring fairness" remains the fundamental principle. Some members said that "it is impossible to achieve fairness while minimizing curtailment", revealing the difficulty of setting the rule. The implementation of output curtailment was also discussed in the Electricity Systems WG on February 17, in which Kyushu Electric proposed an approach that would prevent significant differences in the conditions for curtailment between the electricity producers, from 30 days based on the old rule to unlimited uncompensated curtailment.

The curtailment of output, currently under intensive discussion, is an effective way of stabilizing the electricity system when large amounts of fluctuating renewable energies are introduced. However, we must not forget that it is essentially a last resort. Curtailing output would be a backup plan if more advanced adjustment methods for absorbing the fluctuation of renewable energies were in place, such as demand response, battery technologies and nationwide management by reinforcing inter-area connection lines. The fact that Japan must rely first on output curtailment reveals the considerable lack of coordination between promoting renewable energies and enhancing our grids' capabilities of harnessing them, which should be tackled together consistently. This is a consequence of adopting the FIT system without setting a target capacity for renewables and a scenario to achieve it, and without having a means to control the pace of introduction.

Japan's policy for promoting renewables may need to go back to basics, and set a renewables introduction target based on discussions on the optimum combination of electricity sources.

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**IEEJ Homepage Top**

**Back Numbers of *IEEJ e-Newsletter***

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