

# IEEJ e-NEWSLETTER

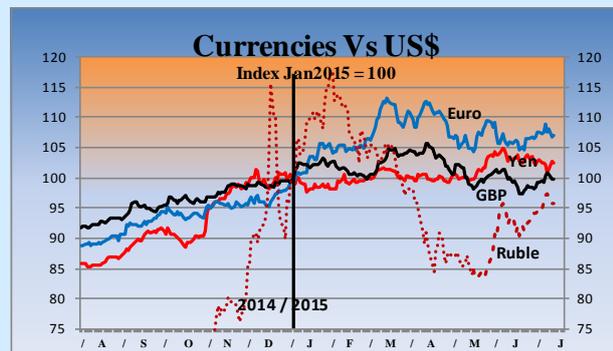
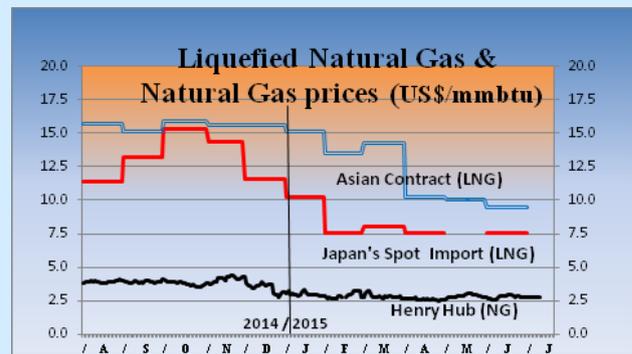
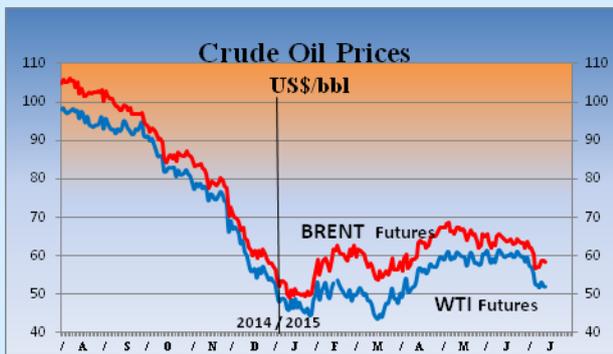
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## Summary

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

#### **1. Discussions on the Energy Mix**

On June 1, the tenth meeting of the Subcommittee on Long-term Energy Supply-demand Outlook was held to finalize the Draft Long-term Energy Supply-Demand Outlook.

#### **2. (EU) Signing of the International Energy Charter**

EDF's acquisition of the reactor business of the ailing French nuclear company Areva was followed by an agreement for cooperation with Chinese companies. The competition in global nuclear market must be closely monitored.

#### **3. Recent Developments in the Oil and LNG Market**

Reflecting the decline in demand for gas in Europe, the sense of crisis over the future of natural gas was shared at the World Gas Conference. In Tokyo, the first meeting of the 2<sup>nd</sup> Multilateral Joint Study Group on LNG was held, leading up to the policy recommendation at the 4<sup>th</sup> LNG Producer-Consumer Conference in September.

#### **4. Agenda for Substantiating the Climate Action Scheme**

With the finalization of Japan's INDC to be submitted to the UN Secretariat, the discussions are now moving on to developing specific environmental and energy policy measures for drafting the GHG reduction target roadmap.

#### **5. Expectations and Challenges for Biomass**

As expectations rise for biomass power as a stable low-carbon energy source, further efforts are needed to ensure a stable supply of domestic biomass fuels and to reduce their cost.

## 1. Discussions on the Energy Mix

**Akira Yanagisawa**, Senior Economist  
The Energy Data and Modelling Center

On June 1, the tenth meeting of the Subcommittee on Long-term Energy Supply-Demand Outlook was held. The purpose of the meeting was to finalize the Proposal for the Long-term Energy Supply-Demand Outlook.

This topic had been discussed since the ninth meeting, and the opinions continued to be divided, although not sufficiently to warrant major corrections or changes. Regarding the difference between several members over the position of "S (Safety)" in the final document, that is, whether the wording should be "S+3E" or "3E+S", a decision was made not to use an abbreviation and instead use the term "safety, stable supply, economic efficiency, and environmental compatibility". The document was made available for public comment the very next day, June 2<sup>1</sup>. Meanwhile, at the Elmau G7 Summit on June 7 and 8, Prime Minister Abe announced the goal of reducing GHG emissions including energy-related carbon dioxide (CO<sub>2</sub>) by 26% from 2013 levels by 2030<sup>2</sup>. The basic framework has thus effectively been established, and drastic changes such as in the numerical target are unlikely.

Looking back, the vision set by this Long-term Energy Supply-demand Outlook required greater effort than any vision in the past to balance out the various irreconcilable requirements. In the past, disproportionate weight had been placed on designing the path for achieving the CO<sub>2</sub> emissions reduction target; the latest Outlook clearly considers other areas too.

Paradoxically, this will create many more obstacles to be overcome in order to fulfill the vision. Not a single one of the factors—the extremely ambitious targets and forecasts for energy conservation, power generation mix, and economic growth—is easily achievable. If the reduction of electricity demand or the growth of non-thermal power generation does not proceed as expected, which type of thermal power generation will fill the gap? Setting an "ideal model" as the target could have made it harder to achieve than expected.

For example, the Proposal for the Long-term Energy Supply-demand Outlook aims to "introduce a system to curb the introduction of inefficient thermal power generation, including coal thermal, while at the same time, efforts for decarbonization should be promoted by quickly establishing a framework of voluntary efforts by the power companies." On June 12, the Environment Minister stated that he cannot approve the construction plan of a coal-fired power plant at this point. In reality, however, many projects to build coal-fired power plants are waiting to be started. This situation clearly illustrates the gulf between the target and the reality; the key to achieving the target is whether such issues can be resolved appropriately.

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<sup>1</sup> Till July 1. <http://search.e-gov.go.jp/servlet/Public?CLASSNAME=PCMMSTDETAIL&id=620215004&Mode=0>

<sup>2</sup> The Leaders Declaration included: "Accordingly, as a common vision for a global goal of greenhouse gas emissions reductions we support sharing with all parties to the UNFCCC the upper end of the latest IPCC recommendation of 40% to 70% reductions by 2050 compared to 2010".

## 2. Developments in Nuclear Power

**Tomoko Murakami**, Manager

Nuclear Energy Group, Strategy Research Unit

On June 16, Chubu Electric applied to the Nuclear Regulation Authority for a safety assessment of its Hamaoka Unit 3 in accordance with the new regulation standards. With this, there are currently 24 power plants undergoing the safety assessment. On July 10, Kyushu Electric has completed loading fuel assemblies to Sendai Unit 1. We sincerely hope that the plant will be restarted as soon as possible.

Looking at the nuclear industries overseas, there are complex negotiations particularly in Europe involving the policies and strategies of various governments and firms. On June 3, the Presidential Office of France approved the acquisition by Electricite de France (EDF) of the nuclear business of the nuclear firm Areva. The merger reflects the French government's intention to export its nuclear technology and modernize its nuclear power plants in a strategic manner. On June 30, Areva got an agreement on cooperating with Chinese nuclear vendors, CGN and CNNC, in the area of the reactor business as well as of the fuel cycle business. Areva's reactor business has been running at a loss for several years now due to delays in building a Finnish nuclear plant. Furthermore, with the Austrian government suing the EC for allowing the British government to subsidize the new Hinkley Point C nuclear plant construction project, the future looks troubled. We must closely monitor EDF's strategy toward emerging countries now that it has become the largest lender to Areva's nuclear reactor business, and the impact on the new plant projects in Turkey and Vietnam in which Japanese companies are also involved.

Some of the ever-present challenges in introducing nuclear power in emerging countries is financing and recouping investments. A meeting of the Infrastructure Development WG of the International Framework for Nuclear Energy Cooperation (IFNEC) held on June 15 saw lively debate on the desirable form of assistance that government agencies and companies in developed countries should offer to emerging countries that introduce nuclear power. The front-runners of nuclear power technology such as Russia and France were keen to cooperate, but challenges include how to improve regulatory standards to international levels, setting the financing credit line, and managing spent fuel. Securing funds and technological levels is likely to remain an important challenge requiring international efforts.

On June 11 and 16, China's Yangjiang Unit 2 and Ningde Unit 3 went into operation, respectively, raising the number of operating nuclear power plants in China to 25. Prior to the launch, on June 2, Chinese nuclear firm CGN agreed with the ASEAN Center for Energy (ACE) to assist in introducing nuclear technology in ASEAN member countries. With China becoming the world's fifth largest nuclear power producer and an increasingly indispensable presence in the international expansion and cooperation of the nuclear industry, Japan's options in supporting emerging countries, and its willingness to provide support, will be put to the test.

### 3. Recent Developments in the Oil and LNG Market

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

The World Gas Conference was held from 1 to 5 of June in Paris. According to the organizers the event attracted around 3,700 conference participants from 90 countries and over 6,000 visitors to the exhibition. During the mainstream sessions, speakers recognized dire positions of natural gas of potentially losing its market share in the global energy mix to coal and renewables especially in Europe, in the broader context of climate change discussions leading to the COP 21 conference to be held in the same city later this year. While natural gas demand is expected to grow steadily in emerging economies in Asia and the Middle West and new demand is incubated in transportation and small-scale LNG sectors, speakers called policy measures to realize full potential of natural gas under a level playing field to achieve sustainable society and the industry's own hard work to communicate with the general public.

In Tokyo, the first meeting of the 2<sup>nd</sup> Multilateral Joint Study Group on LNG was held at the IEEJ on June 1. This Study Group was established to contribute to sound market development by encouraging discussion between the research institutions of LNG importing and exporting countries, and its launch was announced by the IEEJ in September 2013 at the 2nd LNG Producer-Consumer Conference. The Study Group presented a policy recommendation at the 3rd LNG Producer-Consumer Conference last year, and 2015 marks the second year. Ensuring long-term investment in natural gas amid low oil prices, the ideal LNG price formation, and the need for flexibility in LNG contracts were discussed on June 1. Following the second meeting on July 22, the Study Group will make a policy proposal at the 4th LNG Producer-Consumer Conference on September 16.

Japan's LNG import price in May is \$9/MMBtu, down more than \$1/MMBtu month-on-month, reflecting the low oil prices at the beginning of the year. The prices of spot cargoes arriving in May were presumably between \$7-8/MMBtu. Meanwhile, the international oil price, which has swung dramatically since last summer, has been fluctuating since May in the \$60/bbl range for Brent crude as of late June. While the supply and demand gradually tighten toward the second half of the year as the surge in US shale production slows down, the price will also be affected by other factors including the expected US interest rate increase and the consequent appreciation of the US dollar which is likely to cause oil prices to drop. Thus, oil prices are still searching for a new equilibrium.

## 4. Agenda for Substantiating the Climate Action Scheme

**Hiroki Kudo**, Senior Research Fellow  
Manager, Smart Community Group  
Director, Electric Power Industry & Smart Community Research Subunit  
Fossil Fuels & Electric Power Industry Unit

Japan's intended nationally determined contributions (INDC) indicating the country's climate actions beyond 2020 were finalized at the Global Warming Prevention Headquarters on June 2, and are due to be submitted to the UNFCCC Secretariat shortly following the Prime Minister's presentation at the G7 Summit. It is not yet clear what kind of new framework will be adopted at COP21 in Paris at year-end, but Japan has started drawing up specific plans to achieve its target in FY 2030.

Following the announcement in both Japan and abroad of the country's ambitious GHG reduction target based on the energy supply-demand structure indicated by the Long-term Energy Supply-Demand Outlook, attention is turning to how to achieve the target. For example, with the share of renewable energies expected to increase in the energy mix, how will the FIT system be adjusted to ease its financial burden while achieving the quantitative target? Further, how exactly will policies be reinforced for achieving the high energy saving target? Will measures be taken to keep the construction of new coal thermal power stations compatible with the ongoing reforms of the electricity and town gas systems? Tackling these issues is like trying to solve a complex simultaneous equation in which the impact on the domestic economy and compatibility with other policy targets must all be dealt with at the same time.

Under such circumstances, the fourteenth Energy Efficiency and Conservation Subcommittee meeting of the Committee meeting of the Committee on Energy Efficiency and Renewable Energy was held on June 15. The meeting discussed the "Outline of the subcommittee proposal" which sets the direction of future measures, and also announced the establishment of a new judgment criteria working group for thermal power. The working group will be set up to (1) improve the average power generation efficiency of coal thermal power plants nationwide to match that of Ultra Super Critical (USC) power plants, and (2) to toughen the Energy Saving Act to reduce inefficient small-scale coal thermal power plants, thus improving the efficiency of thermal power. In other words, the working group will aim to keep the energy mix compatible with the CO<sub>2</sub> actions through tightening the Energy Saving Act for thermal power, while considering regulatory measures on the construction of small-scale coal thermal power plants by businesses planning to newly enter the electricity market. The specific discussions by the working group must be closely monitored as they could impact the market as the reforms of electricity and gas systems continue.

In the meeting, IEEJ CEO and Chairman Masakazu Toyoda stated that the upcoming discussions on the specific energy saving policies must include: (1) sector-specific policy support for achieving both the energy mix and the CO<sub>2</sub> reduction target, (2) establishing the definition of ZEH and ZEB and providing assistance to promote their expansion, and (3) the need to build a system for promoting energy saving through the use of IT.

## 5. Expectations and Challenges for Biomass

**Yoshiaki Shibata**, Senior Economist

Manager, New and Renewable Energy Group

New and Renewable Energy & International Cooperation Unit

Japan's Proposal for the Long-term Energy Supply-Demand Outlook adopted by the government in June set the percentage of renewable energies in the overall power output at 22–24% in 2030. Among the renewable energies, biomass capacity is estimated at 6.02–7.28 GW, accounting for 3.7–4.6% of the generation mix and ranked third in output after hydropower (including large scale) and solar PV. This is nearly triple the current additional capacity of 2.5 GW.

As for the breakdown of biomass fuels, general wood and crop residue account for a majority with an estimated capacity of 2.74–4.00 GW in 2030. The plan is to cover 80% or 3.3 GW (the median of the additional capacity) of the total increase of biomass of 4.0 GW with general wood and crop residue.

Biomass is generally a difficult fuel to secure efficiently in stable quantities, as the resources are spread thinly and widely, and uses for biomass already exist. This explains why the amount of biomass resources other than general wood and crop residue (such as methane fermentation gas and unused forest thinnings) in the Proposal Outlook is so low. The same constraints also apply to general wood and crop residue such as timber waste, chaff and rice straw. Domestic timber waste is already used for paper manufacturing and heating, and chaff and rice straw have low thermal output.

Consequently, to significantly increase the number of power plants for general wood and crop residue, it would probably be necessary to resort to imported fuels, which are cheaper than domestic resources. Indeed, most of the currently licensed power plants rely on imported wood pellets, wood chips and PKS (Palm Kernel Shell).

However, for Japan, whose energy self-sufficiency rate has dropped to around 6% since the Great East Japan earthquake, expanding renewable energies is one way to improve the rate. While temporary dependence on imports is an option for increasing the use of low-carbon biomass, Japan's energy policy should basically aim to minimize this dependence.

It so happens that various moves for promoting domestic biomass are happening in June: the completion of Nippon Paper Industries' biomass power plant fueled by forest thinnings from Kyushu, and the construction of a wood chip factory using timber from Aomori by the Oji Group. Further, a Japanese company is planning to produce wood pellets in the Philippines with a local company for export to Japan.

It is hoped that domestic biomass resources will be increased, thus improving the energy self-sufficiency rate.

Sources of Graphs on Top Page:

Oil prices (futures)	Financial Times
Natural gas	DOE-EIA
LNG contract prices	World Bank
LNG spot prices	METI
Exchange Rates	x-rates.com
Stock Exchange	Financial Times

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