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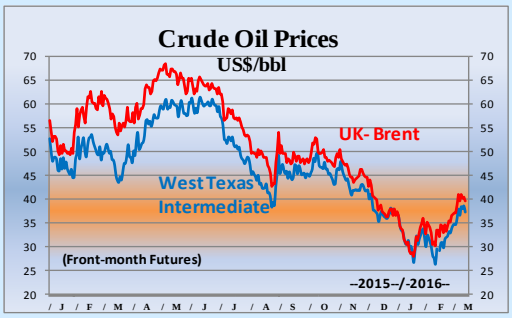
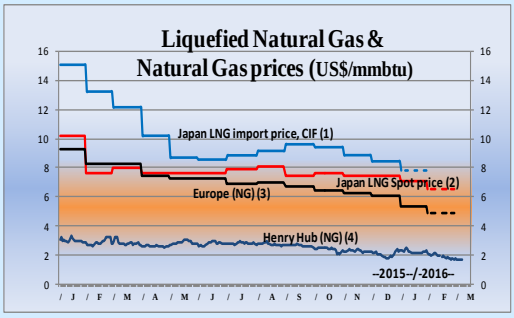
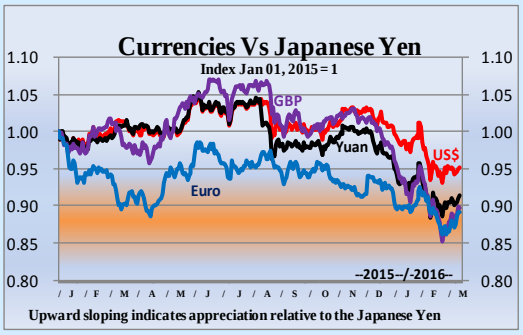


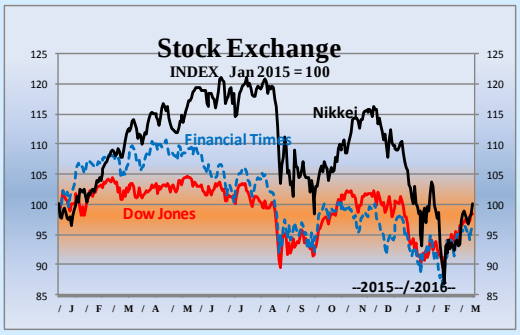
Source: Financial Times



Sources:
(1) Ministry of Finance "Japan Trade Statistics"
(2) Ministry of Economy, Trade and Industry
(contract month basis)
(3) Estimated by World Bank and World Gas Intelligence
(4) DOE-EIA, NYMEX (Front-month Futures)



Source: x-rates.com



Source: Financial Times

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Announcement

Message from the CEO and Chairman of the IEEJ

I am very proud to report that our Institute was recently ranked first among all energy and resource policy think tanks in the world. The survey results for the *Global Go To Think Tank Index*, developed by the University of Pennsylvania, were released on January 29. The Index is designed to identify and recognize centers of excellence in areas of public policy research.

I am convinced that such achievement is primarily due to the unstinting support IEEJ receives from people like you. Without you, the Institute would not be what it is today.

The Institute celebrates its 50th anniversary in June this year, and this achievement reflects the outstanding contributions and efforts of all our staff. We will continue to conduct high-quality studies concerning energy and the environment for the benefit of Japan, Asia, and the whole world.

Masakazu Toyoda

Chairman and CEO, IEEJ

University of Pennsylvania (January 29, 2016), 2015 Global Go To Think Tank Index Report, p.83

Top Energy and Resource Policy Think Tanks

Table 17

1.	Institute of Energy Economics, Japan (IEEJ) (Japan)
2.	James A. Baker III Institute for Public Policy (United States)
3.	World Resources Institute (WRI) (United States)
4.	Oxford Institute for Energy Studies (OIES) (United Kingdom)
5.	Center for Science of Environment, Resources and Energy (Japan)
6.	Energy and Resources Institute (TERI) (India)
7.	Center for Energy and Environmental Policy Research (CEEPR) (United States)
8.	Energy Studies Institute (ESI) (Singapore)
9.	Center for Strategic and International Studies (CSIS) (United States)
10.	Korea Energy Economics Institute (KEEI) (Republic of Korea)
11.	Resources for the Future (RFF) (United States)
12.	RAND Corporation (United States)

For details, see:
http://repository.upenn.edu/cgi/viewcontent.cgi?article=1009&context=think_tanks

* The IEEJ is the first Japanese think tank to be ranked first in this category since the survey was started in 2006 (the Energy and Resource Policy Department was established in 2012).
In 2014, the Institute was ranked third in the world and first in Asia.

Summary

【Energy Market and Policy Trends】

1. Developments in Electricity Retail Liberalization

With full liberalization of electricity retailing due to start in April 2016, 54,600 users have already switched to new retailers as of February. Amendment of the FIT law to keep the liberalization compatible with climate action will be a challenge in future.

2. Developments in Nuclear Power

China is steadily constructing new plants, including the Taishan Nuclear Power Station. Meanwhile, due to business viability considerations, an increasing number of aging plants in developed countries are facing the choice of extending their operation or decommissioning.

3. Recent Developments in the Oil and LNG Markets

Shell's acquisition of BG has created an LNG market player handling 45 million tonnes. With the liberalization, restart of nuclear power plants, and expansion of renewable power sources, the importance of supply flexibility and market liquidity for LNG is increasing.

4. Update on Climate Policies

In Japan, a climate policy framework for the power industry for 2030 was agreed. Meanwhile, in the US, the Supreme Court ordered the suspension of the Clean Power Plan.

5. Developments in Renewable Energies

On February 9, the Cabinet approved draft revisions to the Act on Special Measures on Renewable Energies. The revisions will allow the FIT purchase price to be decided by bidding; accordingly, the detailed design and efficient operation of the system are now required.

1. Developments in Electricity Retail Liberalization

Junichi Ogasawara, Senior Economics, Manager
Electric Power Group
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With full liberalization of electricity retailing due to start in April 2016, companies are busy releasing electricity tariff plans and ramping up promotions and advertisements to attract consumers. On February 5, the Organization for Cross-regional Coordination of Transmission Operators, Japan (OCCTO) published its Status of Applications for Switching, announcing the number of switchovers to new electricity companies by region. There were 54,600 applications in total, of which 60.8% were in Tokyo Electric's service area and 38.3% in that of Kansai Electric, together accounting for 99.1% of all applications. The figures for Tokyo Electric's area include switches to Tokyo Electric's deregulated tariff plan. As of December 2015, there are potentially 85.57 million consumers nationwide who could switch, meaning that just 0.06% of consumers have switched so far. This low ratio does not signify a lack of competition; rather, many consumers are waiting to see what happens. Their moves must be watched closely.

In September 2015, the Electricity Market Surveillance Commission was established as a new regulator of the electricity business. Since its establishment, the Commission has held 21 Commission meetings, eleven meetings of the Expert Committee for Reviewing Electricity Rates, four meetings of the Expert Committee for System Design, and two expert meetings on bidding for thermal power sources. Holding approximately seven meetings a month, the Commission is actively discussing the procedures needed before full liberalization starts, such as permission for commissioning transmission and the licensing of electricity retailers. Concurrently, the expert meetings on system design are actively discussing the guidelines on fair and proper retail sales transactions (Guidelines Concerning the Management of the Electricity Retail Business), the policy on unfair trading in the wholesale electricity market, and the principles for leased transmission fees in the future. The discussions on the retail sales guidelines were prolonged due to differences over disclosure of the generation mix. As a result, the guidelines were not finalized until January 29, 2016, just two months before full liberalization starts, presumably affecting advertising by the companies.

In addition to the liberalization, regarding coal thermal and low-carbon power sources, a new policy was established for addressing global warming and achieving the optimum generation mix set forth in the Long-term Energy Supply-Demand Outlook by regulating the supply side through the Energy Conservation Act and by the Act on Sophisticated Methods of Energy Supply Structures on the retail side. This policy could affect the competitiveness of new players depending on how it is run; keeping the liberalization compatible with global warming countermeasures in the electricity business is a challenge going forward. Further, considering that a law amendment is scheduled for the feed-in-tariff program for renewable electricity but its detailed system design is still undecided, in 2016 there will be much attention on ensuring compatibility between competition, the environment, and supply security. In Europe, as fuel prices drop and renewable capacity increases, new moves such as Germany's Electricity Market 2.0 are emerging in the comprehensive review of the reforms of the electric power system, which includes the demand side, power generation, and transmission. Japan must consider this issue from a broad perspective while closely studying the developments in other countries.

2. Developments in Nuclear Power

Tomoko Murakami, Manager
Nuclear Energy Group, Strategy Research Unit

On March 9, Ohtsu District Court ordered Kansai Electric Power Co. to halt operations at Takahama unit 3 and 4, and Kansai Electric immediately shut the Unit 3 which restarted in January. This is the first injunction issued in Japan to halt a nuclear plant that is under operation. Kansai Electric quickly appealed the injunction, but it could mean months of delays and extra costs for oil, gas or coal to replace the nuclear power generation.

Regarding Taishan Unit 1 which is currently under construction in China, on February 1, the owner, Taishan Nuclear Power Joint Venture of the China General Nuclear Power Group, announced that the functional test prior to fuel loading had been completed on January 27. A third-generation plus European Pressurized Water Reactor (EPR) manufactured by Areva, the plant is scheduled to commence operation in the first half of 2017. Combined with several other plants that will be completed in 2016, China is likely to surpass Japan to become the third largest owner of nuclear power generation capacity in 2017 when Taishan Unit 1 goes into operation.

In developed countries which are struggling with low electricity prices and rising long-term repair costs, nuclear operators are being forced to decide between operating their plants beyond 40 years after launch or decommissioning them. On February 16, the UK's EDF Energy announced the decision to push back the planned closure of its eight advanced gas furnaces and continue their operation. This was made possible only through the company's steady backfit efforts and the long-term safety reviews every ten years. In France, where 58 units will reach replacement age in the near future, the problem of who will shoulder the repair cost is emerging. In Japan, Kansai Electric has filed an application to operate Takahama Units 1 and 2 and Mihama Unit 3 beyond 40 years, which is currently under review. In both cases, whether it is economically rational to extend the operation period depends on the situation of each reactor and operator.

In the US, new construction plans continue to face difficulties. On February 9, the Nuclear Regulatory Commission (NRC) announced the decision to issue a combined construction and operating license (COL) for South Texas Project Units 3 and 4 of Nuclear Innovations North America (NINA). The plants are advanced boiling water reactors (ABWR) designed and supplied by Toshiba, and are the fifth and sixth plants to be awarded a COL after Vogtle Units 3 and 4 in February 2012 and Virgil C. Summer Units 2 and 3 in March the same year. Although receiving a COL is an important milestone for starting construction and operation, the investment environment has not improved. Toshiba, which owns an 88% stake in NINA, stated that it will "solicit partner companies while cautiously monitoring the electricity market, and discuss with NINA (the other stakeholders) to decide on starting construction at an appropriate timing," suggesting that construction may not start at all unless investors come forward. Further, on February 17, Tennessee Valley Authority (TVA), the owner of Bellefonte Units 1 and 2 whose construction is currently suspended, also announced that it may sell off the plants. If more plants are decommissioned based on the operators' assessment of business viability and new construction remains stagnant, it will be difficult to maintain the current installed capacity of approximately 100 GW. Accordingly, America's GHG reduction target could become even harder to achieve.

In Japan, it is still unclear when the 22 plants currently undergoing safety assessments can receive licenses. Three years have passed since the start of the safety assessments under the new regulation standards, and there is growing demand for a more rational execution of the assessments and greater progress.

3. Recent Developments in the Oil and LNG Markets

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

On February 15, Shell's acquisition of the BG Group was completed. As a result, Shell's LNG sales jumped from 24 million tomes before the acquisition to 45 million tonnes, giving the company huge supply sources and sales outlets of LNG. The aim of the acquisition is to overcome the low oil and gas prices since the latter half of 2014 and to reinforce gas reserves. As with LNG Canada's decision to delay FID, in the short term Shell may also optimize new project investments. However, in the medium to long term, the company is likely to exert an even greater presence as an investor in new projects.

Meanwhile, exports of LNG from the US Sabine Pass Project began on February 24. Going forward, Cameron, Cove Point, Freeport, and Corpus Christi are scheduled to open one after another by 2020 in the US, pushing America's LNG output to 62 million tonnes, behind only Australia and Qatar. American LNG epitomizes the shale gas revolution and will be the engine of expanding supplies in future. For Asian importers, American LNG is important for diversifying supply sources and pricing mechanisms. Without the restrictions of the Destination Clause, American LNG should also help improve the liquidity of the Asian LNG market.

Japan's LNG import price as of January 2015 was $7.8/MMBtu. As of February, the prices of spot cargoes arriving in April have reportedly fallen to the $4/MMBtu range. Further, due to the fall in oil prices in the latter half of 2015, LNG prices under long-term contracts are also expected to drop, after a time lag, to $5-6/MMBtu in Q2 this year. In 2016, approximately 30 million tonnes of new supplies will be launched. Japan's imports are certain to fall again this year from 85.04 million tonnes in 2015, which was already 3.46 million tonnes less than the year before. Demand for LNG will continue to grow globally in 2016, but the growth will be mainly caused by a supply push, or a major increase in supply capacity. In Japan, the electricity market will be fully liberalized from this April, and the gas market from April next year. Further, the restarting of nuclear power plants is expected to pick up speed and more renewable power sources will be introduced. These factors will cause greater fluctuations in LNG demand, making it critical for LNG importers to purchase competitively while improving supply flexibility. It is important to seize the opportunity of the current supply glut to resolve the structural problems of inadequate supply flexibility and market liquidity of the Asian LNG market.

Internationally, oil prices remained around $30/barrel in February but with greater fluctuation. On February 16, Saudi Arabia, Russia and others agreed to freeze their outputs at the January level. However, they are unlikely to be joined by Iran, which has already signed agreements to restart oil exports to several European refineries, and thus the effect of this agreement is very limited at present. As the period of winter demand approaches the end, the international oil market is likely to remain weak and volatile.

4. Update on Climate Policies

Takahiko Tagami, Senior Coordinator, Manager
Climate Change Policy Research Group
Global Environment and Sustainable Development Unit

There were contrasting moves in Japan and the US regarding climate policies for thermal power plants.

In the US, on February 9, the Supreme Court ordered the suspension of the Clean Power Plan (CPP), which regulates the CO_2 emissions of existing thermal power plants. This comes after the lower court, the U.S. Court of Appeals for the D.C. Circuit, denied the request of 27 states to halt the implementation of the CPP this January, following which the claimant took the case to the Supreme Court. With this Supreme Court order, the implementation plans for the states may not be drawn up in time for 2022 when the CPP will go into effect.

Meanwhile, on the same day (February 9) in Japan, the Minister of Economy, Trade and Industry and the Minister of the Environment announced that their ministries had agreed on the climate policy framework for the power industry to achieve the 2030 target. This framework is based on the voluntary framework of the power industry, and comprises improving power generation efficiency by the Energy Conservation Act and decarbonizing electricity sales by the Act on Sophisticated Methods of Energy Supply Structures.

For improving power generation efficiency through the Energy Conservation Act, a conclusion was reached on February 9 by the Working Group on the Judgment Criteria concerning Thermal Power of the Advisory Committee for Natural Resources and Energy. For all electricity producers that generate electricity mainly for sale, a plant efficiency standard (coal: USC level, LNG: combined cycle level) for newly constructed plants and an operator efficiency standard which also applies to existing plants (overall thermal generation efficiency of 44.3% or higher) were established.

Further, regarding decarbonizing electricity sales through the Act on Sophisticated Methods of Energy Supply Structures, a conclusion was reached on the same day by the Subcommittee on the Basic Policy on Electricity of the Advisory Committee for Natural Resources and Energy. Electricity retailers supplying 500 GW or more per year are required to aim for a target non-fossil power source ratio of 44% in FY2030, which may be achieved jointly with other retailers, and even beyond 44% to make up for those that cannot meet the target so that the 44% target will be achieved collectively.

These two schemes will be stipulated as judgment criteria of the respective applicable Acts, based on which criteria the METI minister will provide guidance/advice or recommendations/orders as appropriate taking into account the progress.

As for the voluntary framework of the power industry, on the previous day (February 8) the Electricity Business Council for a Low-Carbon Society was established, with the participation of 36 companies (together accounting for over 99% of electricity sales). The Council will receive an action plan from each member company, and check the progress and revise the plan as necessary, thus operating a PDCA (Plan, Do, Check, Action) cycle.

Regarding compatibility with the national target and plan under the environmental impact assessment, a company is deemed as compatible if it participates in the above framework, and works under the framework to reduce carbon dioxide emissions. However, if the collective target of 0.37 kg-CO_2/kWh is judged as unlikely to be met, a revision of policies may be considered.

5. Developments in Renewable Energies

Yoshiaki Shibata, Senior Economist
Manager, New and Renewable Energy Group
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On February 9, the Cabinet approved draft revisions to the Act on Special Measures on Renewable Energies (the Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities), which defines the Feed-in-Tariff (FIT) system. The revisions will be submitted to the Diet during the ordinary session and deliberated for implementation from April 1, 2017. These draft revisions are based on the discussions in the Subcommittee for Reforming Systems Related to the Introduction of Renewable Energy held since last September to address the problems of the current FIT system. The goal of the revisions is to introduce renewable energies to the maximum extent possible while minimizing the public burden.

The current FIT system has the following specific problems: (1) Approx. 90% of licensed capacity consists of commercial solar electricity, and there is an imbalance between the renewable electricity sources; (2) the purchase cost is almost 1.8 trillion yen per year, and cost efficiency must be considered when introducing additional capacity to minimize the public burden; (3) the FIT system must be kept compatible with the efficient transmission and distribution of electricity enabled by the reforms of the electric power system. To address these issues, the draft revisions include: (1) establishment of a new licensing system, (2) revising the method for setting purchase prices, (3) changes in required purchasers, and (4) revising the surcharge discount and exemption system.

For (1) establishment of a new licensing system, a new system will be established to award licenses only after confirming that a project has secured a plot of land and grid connection and that it would be executed appropriately, to rule out those companies that obtain licenses but do not commence operations.

For (2) revising the method for setting purchase prices, bidding will be introduced as an option in the purchase price setting system. Further, it will be possible to set the purchase price beforehand for multiple years to ensure the predictability of the profitability of renewable power sources such as wind and geothermal which require a long development period.

For (3) changes in required purchasers, whereas under the current FIT system, each electricity retailer will become required purchasers after full retail liberalization in April, under the draft revision, general transmission and distribution companies will be obligated to purchase the entire amount of electricity at the FIT price and supply it to the wholesale electricity market, to ensure the efficiency of grid operation and promote the cross-regional exchange of electricity.

For (4) revising the surcharge discount and exemption system, electricity-intensive industries will not be subject to unconditional exemption but their exemption rates will be determined based on energy-saving efforts, to resolve any imbalance between these and other industries.

Among these major changes, the most important is probably the method for setting purchase prices. Bidding is planned to be launched first for large-scale commercial solar power. Detailed system design and efficient operation are required, drawing on the experiences of Europe.

Past IEEJ Events

Energy Indicators of Japan

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