

# IEEJ e-NEWSLETTER

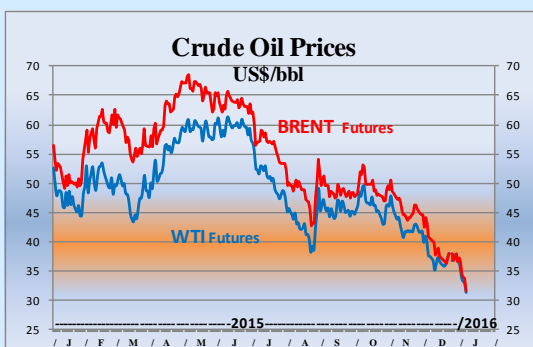
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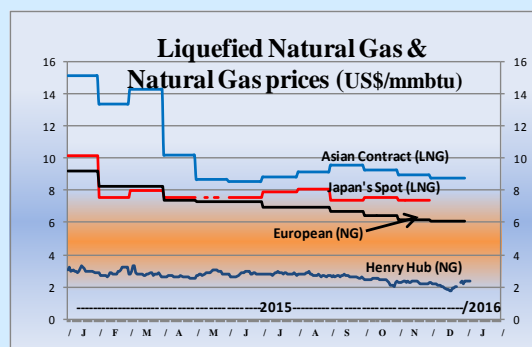
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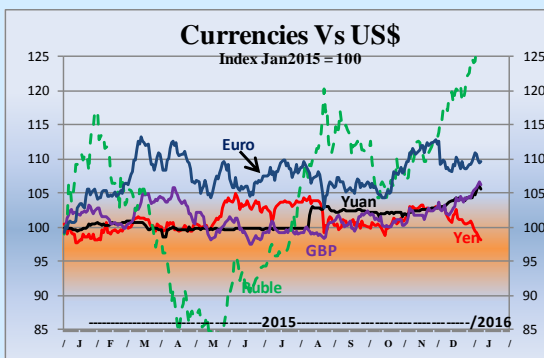
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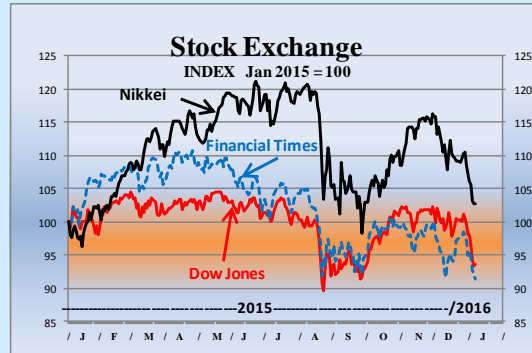
Source: Financial Times



Sources: Henry Hub NG/DOE-EIA, European NG/WB LNG spot/METI, LNG contract/WB



Source: x-rates.com



Source: Financial Times

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## Summary

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

#### **1. Overall Energy Policy**

2016 will be the year when work will actually start on achieving the goals set out in the Strategic Energy Plan in 2014 and the Long-term Energy Supply-Demand Outlook in 2015, rather than merely reviewing the policies.

#### **2. International Oil Situation**

Under the global glut of oil, the international oil market will remain weak during the first half of 2016, but will gradually pick up through the latter half. Average oil prices for 2016 are estimated at \$40 to \$50/barrel for Brent and \$38 to \$48/barrel for Dubai.

#### **3. Domestic Oil Situation**

Japan's oil demand will decline in the long term, and as oil prices fall, the oil industry will continue to consolidate. The transformation into a robust industry that can help stabilize the oil supply must be closely monitored.

#### **4. International and Domestic Natural Gas Situation**

The key points for 2016 include the accelerating buyer's market of LNG and greater supply flexibility and market liquidity, investment decisions on new LNG project, and gas market liberalization in Japan and the response of the gas companies.

#### **5. Developments in the Coal Market**

In 2015, the coal market continued to face an oversupply as import demand shrank, and so coal prices declined. Coal prices are expected to remain low for both steam and coking coals at least in the first half of 2016.

#### **6. Challenges of the Electric Power Business**

From April 2016, the second phase of the reforms of the electric power system will start with the launch of full retail liberalization and the shift of business regulation to a business function-based licensing system. Disclosure of the tariff information of new retailers to customers and securing competitive supply sources will be the main issues to be solved.

#### **7. Nuclear Power**

To achieve the target ratio of nuclear power by FY 2030, it is hoped that the plants that have completed the safety assessment in accordance with the new regulation standards will be restarted, and extension of the service life of power plants will be permitted. The nuclear fuel cycle business must also be closely monitored.

## 1. Overall Energy Policy

**Akira Yanagisawa**, Senior Economist

Energy Demand, Supply and Forecast Analysis Group

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Up to 2015, the overall energy policy had focused on conducting reviews. In contrast, 2016 will be the year when work will actually start on achieving the goals set by the Strategic Energy Plan in 2014 and the Long-term Energy Supply-Demand Outlook in 2015.

This is the “conservative outlook“ for 2016. However, will the work on achieving the goals actually go ahead in 2016? A huge amount of time was spent on formulating the Strategic Energy Plan and it took over a year thereafter to finalize the Long-term Energy Supply-Demand Outlook. The work will not actually get underway until after the turn of the year. The entire process is simply too slow.

But there has been some progress. Key studies and discussions on implementing the policies are being conducted. These include the Strategic Policy Committee meeting held on December 21, where progress on drawing up the energy innovation strategy was reported, as well as a draft report by the Subcommittee for Reforming Systems Related to the Introduction of Renewable Energy.

However, the private sector, which is the key player for implementing the policies, is moving much faster. Even as the necessary laws and system are being prepared, the energy system of Japan continues to evolve thanks to the efforts and investment of the private sector. An example is the construction of new coal-fired power plants with an eye on the liberalization of electricity retailing. Such moves may not always proceed in accordance with the government’s plans. They may exploit loopholes in the system or take advantage of the government’s mistakes, and may cause the market itself to malfunction. But, regardless of the method, energy infrastructure, once built, will have a lasting impact on the supply-demand structure and even on the Japanese economy due to the long lifetime of such infrastructure. In a modern democracy like Japan, it is difficult if not impossible for the government to single-handedly eliminate existing infrastructure that does not suit its policy.

Careful planning is essential, but plans must be timely and based on the PDCA cycle (Plan - Do - Check - Act) to be realistic. Recently, Donald Tusk, president of the European Council, remarked that “All the elements of a strategy are there, but there is still a delivery deficit.” He was talking about the influx of migrants into the EU, but the same is true for the implementation of Japan’s energy policies. It is strongly hoped that 2016 will be the year when words are quickly put into action.

## 2. International Oil Situation

**Yoshikazu Kobayashi**, Senior Economics, Manager  
Oil Group, Oil Subunit  
Fossil Fuels & Electric Power Industry Unit

In 2016, the international supply and demand of oil will continue to see the oversupply shrink as demand grows and supply falls due to the low oil prices, but production hikes by OPEC will delay the supply-demand adjustment.

On the demand side, oil demand is growing steadily worldwide, particularly in the US and China. Demand increased by 1.68 million barrels/day in 2015, and the growth is expected to exceed 1 million in 2016 at 1.29 million barrels/day. The demand stimulus of falling oil prices is the main driver of this increase in demand.

On the supply side, more non-OPEC producers are cutting production due to the low oil prices. In 2015, non-OPEC production added an average of 1.08 million barrels/day year-on-year, but is expected to lose 360 thousand barrels/day year-on-year in 2016. The greatest contributor to the decline is the production cuts in the US, which are likely to continue if oil prices remain below \$50/barrel. On the other hand, US output could rise if oil prices top \$60/barrel in view of the many shale oil wells that have been drilled but not yet started production, and the improving efficiency and falling cost of shale development.

This supply and demand adjustment, or elimination of oversupply, was the strategy originally envisaged by OPEC, but ironically OPEC's increase in production is now delaying the adjustment. The battle for market share among OPEC producers could intensify as Iraq and Saudi Arabia aggressively expand exports to Europe as well as the Asian market, and as the contention between Iran and Saudi Arabia could further escalate such competition. Further, the expected lifting of the 40-year ban on US oil exports is likely to depress oil prices.

As the market focuses on the supply and demand factors, geopolitical and monetary factors become less important. Although the geopolitical risks remain high, including the expansion of IS's activities outside the Middle East and North Africa, the deepening turmoil in Syria, and the civil wars in Yemen and Libya, the oil market is currently focused on the oversupply and so geopolitical factors are not key predictors. Regarding financial factors, the US's decision in December to raise interest rates should cause the dollar to appreciate and players to avoid risk, placing further downward pressure on oil prices.

Based on these factors, the oil prices (annual average) for 2016 are estimated at around \$50/barrel for Brent, \$48/barrel for Dubai and \$46/barrel for WTI. However, the market could soften further depending on factors such as the return of Iran to the market, increased production by OPEC, slowing demand in China and other emerging countries, and US shale oil's tolerance of low oil prices. Thus, oil prices could fall another \$10/barrel or so from these levels.

### 3. Domestic Oil Situation

**Ikuo Hamabayashi**, Secretary General  
The Oil Information Center

The Long-Term Energy Supply-Demand Outlook up to FY 2030 released in July 2015, otherwise known as the Energy Mix, sets the share of oil at around 30%, which translates into an estimated 15 to 20% decrease in oil demand from current levels based on the overall energy demand. Thus, the demand for oil will continue to decline.

Under such circumstances, based on the first stage public notice of the Act on Sophisticated Methods of Energy Supply Structures released in March 2014, Japan's refining capacity was cut to 3.95 million barrels/day. In addition, the second stage public notice of the Act issued in July 2014 sets a goal of reducing capacity by an additional 400 thousand barrels/day by the end of March 2017. However, a comparison with the levels projected by the Energy Mix suggests that even greater capacity cuts will be necessary in the long run.

With the fall of oil prices since the summer of 2014, the price of domestic petroleum products continued to fall in 2015. The average national price of regular gasoline, which reached its second highest level in July 2014 at 169.9 yen/liter, fell to 145.2 yen/liter in 2015 and has continued falling, reaching a six-year low of 120 yen/liter in December. The decline in gasoline and other prices fueled hopes that the demand for oil would pick up, but in 2015, demand barely avoided a third consecutive year of decline. Oil demand is likely to start falling again this year with the growth of high-mileage vehicles such as hybrids.

In 2015, several major restructuring plans were announced in the oil industry. These plans aim to reorganize, through integration and rationalization, facilities that are approaching the limit under the current framework of existing corporations, and to downsize companies in line with declining demand and falling prices. Meanwhile, corporate restructuring may lead to more robust oil companies which are capable of building integrated end-to-end systems by acquiring overseas oil fields and expanding overseas. These moves may help stabilize the oil supply while enabling the Japanese oil industry to make good progress.

However, oil plays a crucial role as the "energy of last resort" in the event of a disaster. The Strategic Energy Plan defines it as "an important energy source with high portability, a nationwide supply network, and abundant stockpiles which will continue to be used for purposes including offsetting the loss of other electricity sources". To reinforce this role, full-scale studies and efforts began last year on maintaining the network of service stations in rural areas. Maintaining the oil supply chain in this way is an important challenge for the oil industry as well.

## 4. International and Domestic Natural Gas Situation

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

The key points regarding natural gas in 2016 include natural gas demand in Europe and China, the accelerating buyer's market of LNG and improvement in supply flexibility and market liquidity, investment decisions on new LNG project, and gas market liberalization in Japan and the response of the gas companies.

demand in 2016 are Europe and China. Europe's demand, although bottoming out in 2015, still has a significant downside risk due to continuing macroeconomic risks and weak competitiveness especially for power generation. China also has risks such as slower economic growth under the "New Normal" and the low price competitiveness of natural gas against coal and petroleum products; it will be interesting to see how the environment-focused policy of the new 5-Year Plan helps boost the use of natural gas.

2016 will see 30 million tonnes of additional LNG supply enter the market from a series of new projects in Australia (GLNG, Australia Pacific, and Gorgon) and the US (Sabine Pass). As demand will not grow as much as supply, the LNG market will increasingly become a buyer's market, and the supply-demand situation will put greater downward pressure on LNG prices. The question is the extent to which the buyer's market and low prices can improve supply flexibility and market liquidity. The private and public sectors must work together for the sustainable development of the market.

The demand for natural gas is expected to grow significantly in the medium to long term particularly in Asia, though with occasional short-term dips in demand. Meanwhile, the present fall in oil and natural gas prices will, to varying degrees, lead to delays and cancellations of new LNG and pipeline gas export projects. Final investment decisions on new LNG projects are expected in 2016 in Canada, Mozambique, Equatorial Guinea, and the US. Not only the seller and buyer companies but also the governments of importing and exporting countries should cooperate in launching as many projects as possible to ensure medium- to long-term supply security, by signing more flexible long-term contracts and by financing projects.

In Japan, the energy companies are formulating and implementing various strategies in the run-up to full liberalization of the electricity market in 2016 and the gas market in 2017. The gas companies are increasingly participating in the electricity market and entering overseas markets. In the process, many partnerships often with non-energy firms are being formed in the areas of power plant construction, electricity and city gas sales, and LNG procurement. In 2016, gas companies will be major players in such partnerships, and their moves must be closely monitored. With its high dependence on energy imports and no international transmission lines or pipelines, Japan must carefully consider and take action to ensure that the liberalization and resulting change in industrial structure do not compromise supply stability.

## 5. Developments in the Coal Market

**Atsuo Sagawa**, Senior Research Fellow, Manager  
Coal Group, Coal & Gas Subunit  
Fossil Fuels & Electric Power Industry Unit

In 2015, the coal market continued to face an oversupply as import demand shrank, and so coal prices declined. The spot price for steam coal (FOB, shipped from Port of Newcastle, Australia) temporarily surpassed \$70/tonne in late February due to the unusual weather in New South Wales and the cyclone that hit Queensland, Australia, but stayed at around \$60/tonne until August. Thereafter, the price slowly fell to \$52/tonne, and has remained just over \$50/tonne since December. Meanwhile, the spot price of coking coal (FOB, Australian heavy coking coal) fell from \$114/tonne at the beginning of the year to \$90/tonne in May and below \$80/tonne in late November, and is currently around \$76/tonne.

The demand for coal imports grew in some areas such as ASEAN and South America, but declined in major importing countries (regions). To summarize the import situation in 2015, China's coal demand remained weak from 2014, and imports for January-October 2015 dropped year-on-year by 43.9 million tonnes (38.8%) for steam coal and 10.4 million tonnes (20.8%) for coking coal. This reduction is similar to 2014 for coking coal, but is triple that of 2014 for steam coal. India has so far steadily increased imports, but imports for the first half of FY 2015 (April-September) dropped from the second half of FY 2014 (October-March) by 16.6 million tonnes (22.1%) for steam coal and remained flat for coking coal. The combined coal imports of Japan and South Korea for January-October increased by 2.3 million tonnes (1.6%) year-on-year for steam coal and decreased by 0.9 million tonnes (1.1%) for coking coal. In the European market, imports for January-June decreased by 3.6 million tonnes (5.0%) year-on-year for steam coal and slightly for coking coal.

In coal exporting countries, coal mines are being forced to close temporarily or permanently, and production is being adjusted to meet the lower import demand. To summarize the export situation of key countries in 2015, exports decreased in countries other than Australia and Russia. Australia's exports for January-October rose 2.8 million tonnes (1.7%) year-on-year for steam coal and 1.3 million tonnes (1.2%) for coking coal, while Russia's exports for January-September increased by 3 million tonnes (3.1%) for steam coal but decreased 2.9 million tonnes (18.0%) for coking coal. For Indonesia, which exports mainly to China and India, exports dropped by 6.5 million tonnes (2.4%) year-on-year for January-October. For the US and Colombia, which exports mainly to Europe, US exports dropped by 12 million tonnes (24.7%) for coking coal and 4.7 million tonnes (17.8%) for steam coal, while Colombia's exports declined by 13.7 million tonnes (18.1%), both for January-October.

In 2016, China and India's imports will continue to greatly affect the coal market. China's imports are expected to fall less as domestic production adjustment accelerates. India's imports are likely to increase despite its efforts to ramp up domestic supply by boosting production capacity and building infrastructure, as the country's growing demand cannot be met entirely with domestic coal. Imports are expected to fall in Europe due to environmental measures but to grow in ASEAN and South America, and overall, global imports are expected to slightly increase. Coal prices are likely to remain low in the first half of 2016 for both coking and steam coals, but to show signs of improvement as coal demand gradually expands.

## 6. Challenges of the Electric Power Business

**Junichi Ogasawara**, Senior Economics, Manager

Electric Power Group

Electric Power Industry & Smart Community Research Subunit

Fossil Fuels & Electric Power Industry Unit

From April 2016, the electric power business will enter a new phase with the start of the second phase of the reforms of the electric power system: the launch of full retail liberalization and the shift of business regulation to a business function-based licensing system (such as retail electricity and power generation).

The situation of electricity retailers at the start of full retail liberalization is as follows. Under partial liberalization, 793 power producers and suppliers (PPSs) were registered. However, as of December 7, 2015, only 73 companies had obtained a retailer license, which will be effective from April 2016. With as many as 93 PPSs actually engaged in electricity retail in the first half of 2015, it is not clear how many retailers will start business in April 2016, and in which regions.

In conducting business, the retailers will be required to follow the electricity retail guidelines currently being formulated by the Electricity Market Surveillance Commission. Regarding electricity tariffs, which is the primary concern for many consumers, the guidelines encourage retailers to release their standard menus and typical monthly tariffs, but do not require them to publicize the tariff menus. In the US and Europe where the market has already been fully liberalized, in cases where it is not mandatory to publish electricity tariffs, consumers must struggle to compare the tariffs of power companies by entering their post code, address and electricity consumption. How much information the companies will release in Japan must be closely monitored.

Meanwhile, the purchase of renewable electricity under the Feed-in-Tariff system (so-called FIT electricity) is expected to be a promising supply source for the PPSs newly entering the market. However, as fuel prices fall, even under the current FIT system, the gap in the avoidable cost<sup>1</sup> of purchased electricity owing to the different fuel mixes of the PPSs is closing, as is the gap in power generation cost between the PPSs and the general electric utilities. Unless the market environment changes, it will be difficult for PPSs to offer discount tariff menus in April 2016 when retail liberalization starts. Accordingly, only some high income households with high power consumption are likely to be able to reduce their electricity bills. The review of avoidable cost and its impact must also be closely monitored.

Currently, the FIT system is being reviewed and fundamental issues are being discussed, including revision of the purchase method under the FIT system. The discussion includes changing the required purchasers to transmission and distribution companies, as is the case in Europe. However, in Europe, the introduction of purchased electricity into the spot market is causing problems such as negative prices; Japan must learn from the lessons of the region. Further, to ensure supply stability and stable market operation, careful discussions are needed on how the transmission and distribution companies purchasing the

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<sup>1</sup> The cost of power generation that does not include the generation cost that a power company could avoid by purchasing renewable energies. Equivalent to the weighted average power generation cost of a general electric utility. The difference between this cost and the purchase price is the surcharge.





electricity will actually handle FIT electricity in their business, as most of it is not measured in real-time.

## 7. Nuclear Power

**Tomoko Murakami**, Manager

Nuclear Energy Group, Strategy Research Unit

As of January 2016, the safety assessment by the Nuclear Regulation Authority (NRA) has been completed for three plants, namely Kansai Electric's Takahama Units 3 and 4 and Shikoku Electric's Ikata Unit 3, aside from Sendai Units 1 and 2 of Kyushu Electric which resumed commercial operation in 2015. In addition, twenty existing plants and J-Power's new Oma Nuclear Power Plant are undergoing safety assessments. The NRA's principle is not to start a safety assessment of a plant whose seismic ground motion has not been set, and thus assessments will be performed on those plants whose seismic ground motions have been approved. By the end of FY 2016, around 6 to 12 plants are expected to resume commercial operation.

The views of the hosting community are also an important factor for restarting a plant. In that regard, for Takahama Units 3 and 4, on December 22, 2015 Kansai Electric obtained approval from Fukui's prefectural governor for restarting, and has received the Fukui District Court's decision to revoke the provisional ruling preventing the operation of the plants on December 24 before it began to prepare to operate the plants. In 2016, the electric utilities sincerely hope that the NRA will further rationalize, speed up and improve the efficiency of the safety assessments.

The Long-Term Energy Supply-Demand Outlook finalized in July 2015 sets the share of nuclear power in the Energy Mix in FY 2030 at 20-22%. If the service life of nuclear power plants is limited to 40 years, only around 20GW will be left in FY 2030. However, around 30-35GW of nuclear capacity is needed to meet the 20-22% share, though this depends on the capacity factor. In 2016, both the NRA and the plant operators are expected to make efforts to allow operators to operate plants beyond 40 years provided that they take measures for meeting the requirements.

2016 is likely to be a key year also for the nuclear fuel cycle policy. For Japan, steadily maintaining the backend business and R&D on spent fuel storage, reprocessing and disposal even amid the increasingly competitive market environment is an important policy. It will be important to monitor any developments in issues such as the new licensee of the reprocessing business to replace Japan Nuclear Fuel Limited, the selection of a site for a geological repository for high-level wastes, and the operator of the Monju fast breeder reactor.

Regarding overseas expansion of the nuclear business, 2015 saw closer ties between the Chinese nuclear industry and France and the UK. In June 2015, Chinese nuclear firms CNNC and CGN agreed to work with the French nuclear firm Areva and the French electric utility EDF in various areas of nuclear power, and in October, CGN decided to invest in the new Hinkley Point C construction project in the UK. Building large-scale nuclear power plants back home, China is also likely to ramp up its presence in the global nuclear power generation market.

The main battleground for global plant vendors including the three from Japan is the sale of medium-sized 1000-1200 MW reactors in Asian countries such as India and Vietnam, and in the emerging countries of East Europe, South America and the Middle East. The Japanese nuclear industry is expected to develop strategies and proposals that adequately meet the needs of emerging countries and thus win orders and steadily execute the projects.



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