

# ***IEEJ e-NEWSLETTER***

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## Summary

### 1. Recent Developments in the LNG Market

The slumping demand for LNG in Europe and the U.S. is causing vast inflows of LNG into Asian markets from the Atlantic market. Japan depends on the Middle East and Africa for its soaring volume of LNG imports, and the sharp increase in the cost is hurting the Japanese economy.

### 2. Demand Response in the U.S.

In response to the diversifying forms of business in the country, the U.S. is developing new mechanisms such as demand response that curbs electricity consumption in response to electricity wholesale prices and tight supply and demand. Two different mechanisms are being used: the market mechanism, and direct control of a public corporation. It will be interesting to see the different results of these two approaches.

### 3. EUETS Market Improvement Measures and Issues

Measures for raising the current low EUA price levels of EUETS will reportedly be announced this November. Measures currently being considered include a greater GHG reduction goal and modification of the EUA price adjustment rules, but both of these have issues and the direction of the discussion remains uncertain.

### 4. Limitations in Introducing Mega Solar Power Generation and Expectations for Rooftops

The pace of licensing of mega solar facilities, which has remained robust since the Renewable Energy Act was enforced in July, is likely to ease once most idle land has been licensed. Interestingly, local governments are focusing on using rooftops for solar power generation. Japan has limited suitable land for solar power, and so rooftops are another source of renewable energy.

### 5. China Watching: Accelerating the Construction of Gas Transport Infrastructure

The construction of the West-East Gas Pipeline III, which has a total length of 7,378 km, capacity of 30 billion m<sup>3</sup> and will cost 125 billion yuan (approx. 1.6 trillion yen) of investment, was launched in October and is due for completion by the end of 2014. There are growing expectations for accelerated construction of infrastructure including city gas grids as a stimulus to the economy.

### 6. ME Watching: Syrian Conflict Spreading to Its Neighbors

As the situation in Syria becomes increasingly volatile, the tension and adverse effects of the armed conflict are spreading to surrounding countries such as Turkey and Lebanon. In Iran, the economic sanctions have destabilized the Iranian currency and sparked inflation. The situations in Libya and Egypt demonstrate the difficulty of a transition of power.

### 7. Russia Watching: Perspectives on Far East Development following APEC 2012 in Vladivostok

Following the end of APEC 2012 in Vladivostok, the development of the Russian Far East is entering a new stage. The key points to monitor are: (1) whether the government can maintain priority policies concerning economic development of the Far Eastern region. (2) the outcome and impact of power struggle among the ministries concerned, and (3) the measures and outcomes of attracting foreign investment and their outcome.

## 1. Recent Developments in the LNG Market

**Tetsuo Morikawa**, Manager  
Gas Group, Oil and Gas Unit

As reported in the July issue, global LNG demand for the first half of this year dropped by 3% to 117 million tonnes due to sluggish demand in Europe and the U.S. Although detailed statistics are yet to be released, the LNG demand of Europe and the U.S. has remained slow in the third quarter of 2012.

Although natural gas prices rose in the U.S. from about \$2/MMBtu this spring to over \$3/MMBtu with the steady increase in gas demand mainly for power generation, the U.S. still simply does not need to import LNG. In Europe, LNG demand is likely to fall by more than 10 million tonnes from last year, mainly in the U.K. and Spain. This is due to the shrinking demand for gas for power generation resulting from the increased use of coal-fired thermal plants driven by the drop in coal and emission credit prices, and the expansion of renewable energy, in addition to the sluggish economy. In Europe, the low demand for gas is the cause of the low LNG demand. Interestingly, one of the reasons for the fall in the international coal price is that gas-shift in U.S. is hold down coal demand. As a result, Europe is re-exporting LNG to Asia.

With the slow LNG demand in Europe and the U.S., LNG supplies from old and new LNG projects continue to flow into Asia. A substantial portion of the output from the Angola LNG project (capacity: 5.2 million tonnes/year), which is due to start production early next year, is also expected to be supplied to Asia, as with many other LNG projects for the Atlantic market.

Japan's LNG import from January to September 2012 was 66.22 million tonnes, up 14% year-on-year. If imports remain at this level, the total for 2012 will be approximately 88 million tonnes. As Southeast Asian countries reduce their exports to Japan due to the decrease in feed gas for LNG plants and to prioritize domestic supply, exports from the Middle East and Africa and re-exports from Europe and the U.S. are growing at a remarkable pace. In particular, imports from Qatar, Nigeria and Equatorial Guinea from January to August 2012 have increased by 7.8 million tonnes year-on-year.

Even more important than the increase in volume is the value of imports, which rose 35% year-on-year to 4.6 trillion yen during the same period of January to August 2012. As discussed during the LNG Producer-Consumer Conference in September, there is an urgent need to lower the LNG price and reduce the Asia premium, not only for the importing companies but also in view of the macro economy.

## 2. Demand Response in the U.S.

**Junichi Ogasawara**, Senior Economist, Manager  
Electric Power Group, Electric Power & Coal Unit

From September 26 to 28, I had the opportunity to visit a number of electric utility and renewable energy officials in Washington DC and California, U.S., and wish to report the key points here. As we all know, the United States is a federal state, where issues related to regional facilities such as electric utilities, renewable energy and energy conservation are typically controlled by local governments such as the states. The scope of regulatory enforcement of the federal government is limited to interstate transmission lines and electricity wholesale transactions, as well as the promotion of technological development through subsidies, taxes and tax exemptions.

The U.S. started building a competitive electricity wholesale market at an early stage. Electricity is an industry to which it is relatively easy to apply the market mechanism in the event that a network constraint threatens the transmission capacity. As the frequent surges in electricity wholesale prices caused by the market mechanism push up the cost of electricity supply, demand response is attracting more attention as a demand-side effort. In the demand response, the level of electricity consumption is controlled directly by consumers or remotely by electric power companies “in response to” an alert about electricity wholesale prices and a tight supply-demand situation. The type of demand response that is now spreading throughout the country is a mechanism to remotely control air-conditioning, in which air-conditioners are switched off for 15 minutes during peak hours when the electricity supply is tight, thus lowering the overall electricity consumption in tandem with the wholesale market without sacrificing comfort.

In Sacramento, California, electricity supply is exclusively controlled by Sacramento city’s public company. With a relatively small demand of approximately 3,300 MW, the public company gained fame when, together with its citizens, it opted for renewable energy and energy conservation instead of nuclear power. The residents can participate in the selection of power sources and energy conservation efforts of the public company through its board members who are elected by a poll of residents. Having a public company in charge of its electricity excludes Sacramento from electricity liberalization, and the entire city is working together on various tests toward introducing the smart grid. The remote control of air-conditioning in Sacramento started in the 1970s, and the city has already introduced some of the most innovative systems in the country, such as the temperature-indexed tariff system. With the installation of smart meters almost complete, the city is now searching for new and highly cost-efficient mechanisms for smart systems.

There are currently two distinctly different approaches for smart systems in the U.S. running in parallel: using the pricing mechanism of the electricity wholesaling market and using a public company involving the residents, like the case in Sacramento. We need to closely monitor the differences in functions and effects of these two entirely different decision-making frameworks.

### 3. EUETS Market Improvement Measures and Issues

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

The trading price of EUA (EUETS emissions allowance; delivered in December 2012) of EUETS was over 30 Euros/tonne (CO<sub>2</sub>-equivalent) in mid 2008 when Phase 2 of EUETS was started, dropped to one fifth (approximately 6 Euros/tonne) in April 2012, and remains at a low level of around 8 Euros/tonne. The main reason for this slump is the slowdown of the European economy and the global economic recession following Lehman's collapse, which reduced GHG emissions from the facilities under the EUETS and thus a dramatic easing of the supply-demand balance of EUA (oversupply).

The EU considers that this slump in EUA price will make it harder to achieve its GHG emissions reduction target for 2020 (20% lower than 1990 levels) and discourage long-term investment for further reduction of GHG emissions, and is therefore considering improving the EUETS to support prices. Reportedly, the EU will present some options in November and then discuss specific measures to be taken.

One possible measure is to raise its emission target for 2020 to 30%, and to limit the allocation of EUAs. Another suggestion is to give a regulatory agency the authority to limit the amount of EUAs on auction depending on the market price, thereby controlling the supply and demand and hence the price. One recent idea is to invalidate, among the ERU (offset credits from the JI Project) that can officially be used to achieve the targets for 2013 onwards, those issued by countries that have not committed to the Second Commitment Period of the Kyoto Protocol. This would specifically target Russia whose ERU issue has recently become a major issue.

Regarding strengthening the mid-term reduction target to 30%, there is persistent opposition from some member states. There is also concern that granting a regulatory agency the power to control market prices would distort the market mechanism and might not function effectively. Further, a sudden change in the system could cause serious economic damage to those companies that were purchasing ERUs to use them to achieve targets after 2013. It remains uncertain which of the options will be adopted. However, the measures that the EU eventually decides on to tackle the crisis of the plunging coal price of EUETS, the world's first emissions trading system, will provide important indications on how to tackle climate change measures.

#### 4. Limitations in Introducing Mega Solar Power Generation and Expectations for Rooftops

**Hisashi Hoshi**, Board Member, Director

New and Renewable Energy & International Cooperation Unit

Closed golf courses, industrial parks that have failed to attract companies, and land for future factory expansion and the sites of former factories. Following the start of the feed-in tariff (FIT) system for electricity from renewable energy sources in July, many large-scale solar power generation (Mega Solar) projects have been launched. Mega Solar power plants are usually built on land that has been idle for a long time, land that was purchased and prepared expecting business growth, but became unnecessary as the economy cooled and have since remained idle.

In just 3 months since its enforcement, solar power generation plants worth 1,500 MW have been licensed for the FIT system, a huge rise from the cumulative capacity of just 4,800 MW at the end of 2011. Mega Solar projects (those with an output capacity of 1 MW or more) account for 730 MW, around half of the newly licensed capacity. The new system has caused an obvious concentration on Mega Solar, since 80% of conventional solar power facilities has been for residential use.

One major reason behind this trend, in addition to probably the world's most generous purchase prices of 42 Yen/kWh, is idle land. Having already been prepared but with no other usage, and with electricity transmission lines nearby, such land is ideal for solar power. However, the amount of such land is limited and will be used up sooner or later. Thus, the robust pace of introduction of Mega Solar in Japan is unlikely to last long..

Solar power generation is described as a "surface area" energy. It takes a piece of flat land as big as a baseball field to generate 1 MW of electricity. Securing a large piece of land is essential, even more so than the sunshine conditions and the conversion efficiency of sunlight to electricity. In this respect, Japan's potential is clearly limited, since it has one of the smallest land areas among the major countries in comparison to its electricity demand, and 67% of its land area is forested. The land that can be used for renewable energy is fundamentally limited. What should we do?

Rooftops are the solution. Even considering detached houses alone, the roofs of 27 million houses have a potential to generate about 100,000 MW of electricity. However, there are practical limitations: about half of these houses are not suitable for installing solar panels due to inadequate earthquake resistance. Furthermore, while 400,000 new houses are built each year, which is the best stage at which to install solar panels, the total capacity of these houses would be only 1600 MW even if solar panels were installed on all of them. Regardless, this market is likely to grow as the cost and weight of solar panels are reduced and as the designs are improved, as well as the remodeling and rebuilding of houses. The recently talked-about "roof rental" business could also lower the initial investment hurdle. Moves by local governments to use public buildings for rooftop solar panels, and the Tokyo government's service to match building owners with solar power project companies may also boost this business.

Not being gifted with a lot of suitable land, Japan needs to develop rooftops as an energy resource.

## 5. China Watching: Accelerating the Construction of Gas Transport Infrastructure

**Li Zhidong**, Visiting Researcher  
Professor at Nagaoka University of Technology

On October 16, the groundbreaking ceremony for the West-East Gas Pipeline III was held in Beijing. Li Keqiang, First Vice Premier of China and the likely next premier among the next generation of leaders, praised the West-East Gas Pipeline III as a main energy artery of strategic significance, which will contribute not only to ensuring stable supply of natural gas but also to the reduction of pollutant emissions as well as to the local economy. He also emphasized that construction of the pipeline will help sustain economic growth by expanding domestic demand.

The West-East Gas Pipeline project is a scheme for transporting natural gas from the west, mainly the Xinjiang Uyghur Autonomous Region, and imported natural gas from Central Asia to the centers of demand in the east of the country. Pipeline I, which opened in 2004, runs from Xinjiang to Shanghai with a total length of 4,200 km and a capacity of 17 billion m<sup>3</sup>, and Pipeline II, which opened in 2011, covers a total length of 8,704 km to Guangdong Province and has a capacity of 30 billion m<sup>3</sup>. Together with the Shaanxi pipeline that runs from Shaanxi Province to Beijing and Sichuan to the East China Gas Pipeline that runs from Sichuan Province to Shanghai, the pipelines cover a total distance of 48,000 km as of 2011. Meanwhile, the total length of the urban gas grids that carry gas to the end-users in homes, factories and offices reached 355,000 km in 2010. With these enhancements in transportation infrastructure, natural gas consumption soared from 27.4 billion m<sup>3</sup> ten years ago to 130.7 billion m<sup>3</sup> in 2011.

The 12th Five-Year Energy Development Plan adopted by the State Council on October 24 and “China's Energy Policy 2012” issued on the same day both announced China's policy to increase the proportion of natural gas in the primary energy consumption to help create a low carbon society. Construction of the pipelines and city gas grids is a crucial part of this policy.

The recently launched West-East Gas Pipeline III is a mega project planned for completion by the end of 2014, consisting of the construction of a trunk line that runs to Fujian Province and eight branch lines that cross ten regions, with a total length of 7,378 km and a total investment of 125 billion yuan (approx. 1.6 trillion yen). It has a capacity of 30 billion m<sup>3</sup>, and will carry 25 billion m<sup>3</sup> of imported natural gas from Central Asia and 5 billion m<sup>3</sup> of coal-gasification gas from the Xinjiang Uyghur Autonomous Region. The pipeline will connect to the Central Asia Pipeline C, construction of which began last December and is planned for completion in January 2014. A pipeline connecting from the coal gasification plant of Yili in the Xinjiang region was completed in August this year.

As for future construction plans, Jiang Jiemin, President of China National Petroleum Corporation (CNPC), announced at the groundbreaking ceremony plans to construct West-East Gas Pipeline IV and V, eventually building a pipeline network spanning 31 regions of mainland China as well as Hong Kong. “The 12th Five-Year Plan for the Nationwide Development of City Gas” issued in June this year announced plans to extend the total length of the city gas grid to 600,000 km by 2015. Construction of gas transport infrastructure is expected to accelerate as it is also an effective way to boost the economy.

## 6. ME Watching: Syrian Conflict Spreading to Its Neighbors

**Koichiro Tanaka**, Managing Director &  
Head of JIME Center

The civil war in Syria is beginning to affect surrounding countries.

As the armed conflict between Assad's military and the rebel forces continues to escalate in northern Syria, Turkey launched a military strike against Syria in retaliation for artillery shells that landed in its territory and caused casualties. The U.N. Security Council issued a press statement condemning Syria, but this does not mean that the differences within and deadlock of the Security Council due to confrontation between Europe and the U.S. on the one hand and China and Russia on the other, over the possible sanctions have been solved. The subsequent forced landing and inspection of a civilian Syrian aircraft by Turkey for allegedly shipping arms exacerbated the situation and the two countries have now closed their airspace to each other.

As Syria loses control over its borders including the one with Lebanon, the rebel forces are expanding territory. A Western media have confirmed that ammunition exported from Ukraine to Saudi Arabia has reached the hands of Syrian rebels, backing up rumors that Saudi Arabia has been supplying weapons. However, Western countries are divided as to whether they should support the rebel forces, due to the participation of al-Qaeda fighters in the Free Syrian Army, which is one of the main rebel forces. Meanwhile, the U.S. is apparently preparing for contingencies such as the inflow of refugees, by secretly sending experts and troops to Jordan.

In Lebanon, which is vulnerable to the situation in Syria, intelligence chief Brigadier General Wissam al-Hassan was killed in a car bomb attack. The assassination of a major anti-Assad figure in Beirut suggests Syrian involvement, causing a serious split amongst the Lebanese political parties. Meanwhile, Syrian troops started a four-day ceasefire from October 26 for the belligerents to mark the Islamic holiday of Eid al-Adha, at the suggestion of Ambassador Lakhdar Brahimi, Joint UN-Arab League Envoy, but the ceasefire was broken immediately as clashes continued.

The risk of a military attack on Iran has receded for the moment, but the plunge in the value of the currency Rial has triggered protests in the country, and the government is facing rising criticism for its inability to deal with the worsening inflation and supply shortages caused by the comprehensive economic sanctions. Iran faces even tighter conditions as European countries have decided to impose further economic sanctions including a virtual ban on financial dealings with Iran and a ban on gas imports from the country.

In Libya, Ali Zeidan was elected as the new prime minister following the dismissal of Mustafa Abushagur over cabinet choices. Although supporters of the ousted regime have been wiped out in the northwestern city of Bani Walid, causing many deaths and injuries, it will not be easy to lead this country due to the widespread regional rivalries and deep-rooted tribal animosities. In Egypt, differences in views have emerged between the Muslim Brotherhood and the Salafist Group (an ultra-orthodox Islam group) over the draft new Constitution, demonstrating the complexity of the transition of power.

7. Russia Watching: Perspectives on Far East Development following APEC 2012 in Vladivostok

**Shoichi Itoh**, Manager, Senior Analyst  
Global Energy Group 2, Strategy Research Unit

With the closing of the APEC Vladivostok Summit organized at the personal initiative of President Putin to strengthen Russia's presence in the Asia Pacific, discussions on the development of the Russian Far East have entered a new stage. President Putin has rebutted domestic criticisms for spending more than 20 billion U.S. dollars of federal funds for such a short event by arguing that the spending was necessary for the construction of the Sakhalin-Khabarovsk-Vladivostok (SKV) gas pipeline in time for the historical meeting and for the economic development of Vladivostok. Can the Russian Far East continue to develop without losing momentum? Three key points that will determine the course of development are outlined below.

The first point is whether the current prioritization of the Far Eastern region can be maintained according to President Putin's preference. There has already emerged criticism in Moscow against the Ministry for Development of the Russian Far East, which was newly established in May 2012, as an independent ministry from the Ministry of Regional Development. With regard to the special funding arrangements for developing the Russian Far East, the Ministry of Finance has emphasized the importance of maintaining fiscal discipline. After all, the future scale of federal financial commitment will be largely affected by the national revenue depending on fluctuations in international crude oil and gas prices.

Second, the consequences of power struggle over vested interests among various ministries for the overall investment climate should be noted. At present, different federal organizations, including the Ministry of Economic Development, the Ministry for Development of the Russian Far East, the Ministry of Regional Development and the Ministry of Energy, are all hastily revising their Far Eastern development programs. However, with vast amounts of federal funds planned for the regional investment, the bidding and awarding processes of a number of related projects may likely entail a variety of confusion. The impact on the investment climate, including the transparency of the flow of funds and the relationship between the federal government and the local governments, should be closely monitored

Third, the new energy projects, which are indispensable for the economic development of the Russian Far East, need to attract a considerable amount of foreign capital. The only real option for the regional economic development is to boost its oil and natural gas projects, including those in the adjacent East Siberia, which is almost impossible without large-scale foreign funds. It is necessary to speed up the development of new oilfields in order to secure the steadily increase in crude oil volumes to transport by the East Siberia - the Pacific Ocean (ESPO) pipeline whose entire route will finally open by the end of this year. As for natural gas, plans for developing major gas fields, particularly the far inland Chayanda and Kovykta fields, have still remained undecided.

While there are many challenges facing the economic development of the Far East, Russia is likely to try to woo Japan. Japan must clarify its own needs based on past experiences and keep close watch over the above uncertainties in view of promoting future-oriented constructive talks with Russia.

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