

# ***IEEJ e-NEWSLETTER***

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## Summary

### 【 Energy Market and Policy Trends 】

#### 1. Discussions on the Review of the Energy Policies in the Basic Policy Subcommittee

The sixth and seventh meetings of the Basic Policy Subcommittee were held. The themes of the meetings were “the desirable direction of energy policies regarding consumption and demand” at the sixth meeting, and “the future nuclear policy” at the seventh meeting.

#### 2. Asia/World Energy Outlook 2013

The IEEJ published the “Asia/World Energy Outlook 2013”, which analyzes the supply and demand of energy and the reduction of carbon emissions by 2040, as well as the scenario for maximum progress in developing non-conventional oil and natural gas resources.

#### 3. IPCC’s Fifth Assessment Report and Future Countermeasures against Climate Change

In September, the IPCC released a report on the latest scientific evidence for climate change. The parties to the discussions on the future framework for preventing climate change must understand and incorporate the latest scientific knowledge accordingly.

### 【 Global Watch 】

#### 4. ME Watching: Concerns Emerge as the US-Iran Relationship Improves

Although hopes for progress in the nuclear talks were high, differences among the P5+1 blocked a possible deal at the last minute. While the US’s relationships with Egypt and Turkey are also cooling, Saudi Arabia is tacitly showing its displeasure at the improving relations between Iran and the US.

#### 5. US Watching: Problems of the Renewable Fuels Program

Due to delays in the development of cellulosic ethanol, the biofuel quota of the EPA is facing various problems such as the expiration of credits sold to refiners to make it easier to meet the quota, and the lowering of the quota itself.

## 1. Discussions on the Review of the Energy Policies in the Basic Policy Subcommittee

Akira Yanagisawa, Senior Economist  
Energy Data and Modelling Center

On October 2 and 14, the sixth and seventh meetings of the Basic Policy Subcommittee were held. The themes of the meetings were “the desirable direction of energy policies regarding consumption and demand” at the sixth meeting, and “the future nuclear policy” at the seventh meeting.

The sixth meeting mainly discussed energy conservation, CO<sub>2</sub> emissions reduction and the rise in electricity tariffs. Regarding energy conservation and CO<sub>2</sub> emissions reduction, the members emphasized the importance of regional efforts and overseas transfer, while cautioning against excessive optimism about energy saving and suggesting that a realistic speed of expansion should be determined. Regarding the rise in electricity tariffs, concerns were expressed about the economic and environmental impacts of using low-quality coal to reduce costs.

The discussions at the seventh meeting were so heated that it ran about thirty minutes over schedule. Various topics were discussed, including the contaminated water problem at the Fukushima Daiichi Nuclear Power Station, the appropriate form of safety agreements with local communities, the scope of damages to be borne by power companies in the event of an accident, the problems of a private company run under government policy, the role of nuclear energy in the energy mix, interim storage of spent fuel, the role of the Monju FBR, and exporting nuclear power plants.

IEEJ CEO and Chairman Masakazu Toyoda commented in the meeting as follows:

- Both short- and medium-term measures are needed for dealing with the Fukushima Daiichi accident. Seventy percent of the IAEA’s safety measures are preventive measures, while the remaining thirty percent are to be taken after an accident occurs. This should be taken into consideration when developing safety measures for Japan. The government should take the lead in dealing with the contaminated water issue.
- It is unacceptable that power companies currently have only two choices for compensating for a nuclear accident: unlimited liability or exemption. It is important to consider limited liability, which is adopted in the US and France.
- Some suggest that the nuclear power industry should be placed under state control, but Japan has had no success with this system in the past. It is necessary to redefine the appropriate balance between the government and the private sector in running a private company under government policy.
- Three elements are needed for regaining trust: safety technologies, safety schemes and safety culture. Safety technologies are already at the top level. The safety scheme of Japan was aligned with the international standard by setting up an individual regulation authority. Regarding the safety culture, although the JANSI was established following the US model, economic incentives should be provided to encourage further voluntary efforts by the power companies to improve safety. It is also important for the public to learn more about risk science and risk communication through discussions with nuclear power industry officials. Regarding technology, a wide range of options should be considered, and a roadmap covering all technological options should be reviewed.

- The government should promote the export of nuclear power technologies, aiming at exporting safer nuclear power from Japan by strengthening the safety scheme and safety culture of nuclear power in the country. Furthermore, there should only be a single contact point or organization in charge. The organization should be a unified team of the public and private sectors, with the government taking the lead when necessary.
- Assuming that safety has been secured, nuclear is the best option under the 3E principle and should be positioned as the base load power source. To keep the share of nuclear at a certain level, the new Basic Energy Plan should enable the construction and expansion of nuclear power plants to replace existing ones. Like the UK which builds new nuclear power plants while reforming the electric power system, Japan too should secure the investment needed for nuclear by adopting ideas such as the CFD (Contracts for Difference).

## 2. Asia/World Energy Outlook 2013

Yuji Matsuo, Senior Economist  
Energy Data and Modelling Center

On October 21, IEEJ released the Asia/World Energy Outlook 2013. This extends the forecast period from 2035 to 2040, and analyzes the impact of the increased supply of non-conventional fossil fuels, particularly shale gas and shale oil.

In the “Enhanced Development Scenario”, which assumes the maximum speed of development of non-conventional resources compared to the “Reference Scenario” which assumes that the current trends will continue, the global natural gas output will reach 6.2 Tcm (1.8 times the current level), much higher than the Reference Scenario output of 5.4 Tcm. Non-conventional resources will account for two thirds of the increase from 2011, and production will increase in China, Latin America, Australia and other regions. The production of non-conventional resources will also increase for oil, from 0.8 Mb/d in 2011 to 26 Mb/d in 2040.

Increased development of non-conventional resources will drastically change the supply-demand structure of energy and boost the global economy. In the Enhanced Development Scenario, GDP will increase by 1.4% in 2040 in the US where oil and natural gas exports will expand (up to 4% more than the scenario entirely without the Shale Gas Revolution), and by 1.9% in China where imports will decrease. As a result of falling prices and expansion of the global economy, Japan’s GDP will also increase by 1.1%. In contrast, for the Middle East and the former Soviet countries whose net oil and gas exports will fall below the Reference Scenario, the GDP in 2040 will drop by 4.1% and 2.3%, respectively, partly due to lower export prices. Meanwhile, the expansion of non-conventional gas output will have only a limited effect on reducing CO<sub>2</sub> emissions, as it will accelerate the shift in electricity generation from coal to natural gas, while delaying the introduction of low-carbon power sources and boosting demand by lowering the price of energy.

To deal with climate change and ensure energy security, energy conservation and carbon reduction will be strengthened. In the “Advanced Technology Scenario”, which assumes the maximum success of such efforts, the global primary energy consumption in 2040 will be 14% lower than the Reference Scenario. However, this is still a 29% increase from 2011 levels, due particularly to growth in Asia. While renewable energies and nuclear power are also expected to grow significantly, the share of fossil fuels in the primary energy of Asia will decrease from approximately 80% in 2011 to 70% in 2040 at most, indicating that Asia and the world will continue to depend on fossil fuels.

Even under the “Advanced Technology Scenario”, the current global GHG reduction target of limiting the increase in global temperature to within 2°C by halving CO<sub>2</sub> emissions from current levels by 2050 will not be met. In terms of the Representative Concentration Pathways (RCP) presented in the Working Group 1 contribution to the IPCC Fifth Assessment Report (WG1 AR5), the CO<sub>2</sub> emissions of the “Advanced Technology Scenario” are halfway between RCP2.6 (the average temperature increase from pre-industrial to the end of the 21st century of  $1.6 \pm 0.4^{\circ}\text{C}$ ) and RCP4.5 ( $2.4 \pm 0.5^{\circ}\text{C}$ ), and somewhat closer to the RCP2.6 path. It is necessary to make maximum efforts to save energy and reduce carbon emissions over the long term in order to achieve the global common goal of preventing climate change, and hence R&D and the use of advanced technologies will become increasingly important for all countries.

### 3. IPCC's Fifth Assessment Report and Future Countermeasures against Climate Change

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

At the 36th Plenary Session of the Intergovernmental Panel on Climate Change (IPCC) and the 12th meeting of Working Group I (WG I) held from September 23, the Summary for Policymakers (SPM) for the Fifth Assessment Report (AR5) WG1 was approved and released, and the WG I report itself was accepted. The AR5 is based on the achievements of research worldwide published during the six years since the release of the Fourth Assessment Report. WG I compiled the latest Report focusing on the scientific evidence of climate change.

The key points of the latest WG I report are that it states that global warming is indisputably increasing, on the basis of cumulative scientific knowledge and progress in climate science, and that the main cause of the warming observed since the mid twentieth century is almost certainly human activity. Furthermore, the Report adopts the Representative Concentration Pathways (RCP) method and sets multiple GHG concentration scenarios for the atmosphere, evaluating the impact of each scenario on the climate system. Each of the four RCP scenarios represents a level of stability of GHG concentration in the atmosphere resulting from the efforts made by each country to alleviate warming. Thus, the information can be used as an input for planning measures to combat global climate change in the future. However, the relationship between GHG concentrations in the atmosphere and the temperature increase represented by the scenarios may need to be evaluated differently from conventional understanding. Looking ahead, the WG II report (assessment of the impact of climate change and measures for adaptation; March 2014), WG III report (assessment of climate change countermeasures; April 2014) and the Synthesis Report (October 2014) will be published using this scenario assessment as a reference, and will be used as an input for considering domestic and international climate change countermeasures.

The recently-released AR5 is particularly important in view of the schedule for international negotiations on the future framework of climate change countermeasures. With COP21 set for 2015 as the deadline for deciding the international framework beyond 2020, AR5 provides updated scientific knowledge just as the negotiations are deepening. Thus, AR5 provides useful insights on the issues for international negotiations, such as how far the measures must be taken worldwide, what policy measures are appropriate, and how to deal with the impact of climate change.

Going forward, the international community must digest the scientific views presented by the AR5, and agree on the measures to be implemented. The climate change negotiations so far have not managed to build a sustainable and effective long-term framework due to the confrontation between developed and developing countries. In international negotiations in the future, it is essential to share scientific knowledge and appropriately use its achievements. In particular, the parties to the negotiations must better understand the scientific knowledge on climate change, taking into account the problems and uncertainties in the relationship between GHG concentration and temperature increase described above, and select the most effective measures.

#### 4. ME Watching: Concerns Emerge as the US-Iran Relationship Improves

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

The dialogs at various levels between the US and Iran which started during the UN General Assembly in September are stirring up the situation in the Middle East which has been extremely volatile since the “Arab Spring.”

At the latest nuclear talks in Geneva, following the previous round of negotiations the US Undersecretary of State evaluated as “detailed, substantive discussion with a candor,” details of a framework for moving towards a comprehensive agreement was negotiated in an extensive manner. Although the details of the discussions are yet to be disclosed, the suspension of construction works at Arak Heavy Water Research Reactor, and the dismantling of enriched uranium stocks at the level of 20% appear to be the key issues of dispute, but not between Iran and its interlocutors, but amongst the P5+1 countries. The US and its allies will need to work hard to sort out the differences with France, which cited Israel’s security concerns when it blocked the agreement. President Obama will need to persuade the Congress not to invoke legislations to strengthen sanctions against Iran at this sensitive and delicate juncture.

Saudi Arabia surprised everyone when it rejected a seat as a non-permanent member of the UN Security Council, which it had volunteered for, citing the failure of the Council to properly deal with the Syrian crisis and the stagnation of the Middle East peace process. This decision is presumably the reflection of the Saudi royal family’s distrust towards the improving US-Iran relationship. Meanwhile, the Saudi government is persistently refusing to receive Lakhdar Brahimi, United Nations and Arab League’s Joint Special Envoy to Syria, who is in charge of the Syrian issue which is developing into a surrogate war between Saudi Arabia and its old foe Iran. This illogical foreign policy could erode its own influence in the region. The country is also facing a “revolt” by a female driver who is appealing for the right to drive.

Regarding Syria, the world’s interest in bringing an end to the civil war is waning as the chemical weapons destruction program agreed upon by the US and Russia proceeds without major hindrance. The Geneva II Conference has yet to be convened, due to the constant in-fighting between the subgroups of armed rebels, as well as their objection for Iran to take part. As the number of non-combatants affected by the war rapidly increases, more refugees are fleeing to neighboring countries. In Iraq, where political confrontation is intensifying in the run-up to the parliamentary election next spring, the terrorist attacks continue with high casualties. The deterioration in security is undoubtedly related to the situation in Syria.

President Obama has decided to withdraw part of the 1.5 billion dollar annual US aid to Egypt, citing the crackdown on the Muslim Brotherhood. This decision will worsen the Arab community’s distrust of the US. Prime Minister Abe visited Turkey again after his visit in May to follow up on the nuclear plant export talks. The US and Europe are urging Turkey, a NATO partner, not to cooperate with China in developing its long-distance missile and missile-defense systems.

## 5. US Watching: Problems of the Renewable Fuels Program

Ayako Sugino, Senior Researcher  
Coal & Gas Subunit

Negotiations between the Environmental Protection Agency (EPA) and the oil industry are continuing regarding the biofuel quota which the EPA is due to release soon. The Energy Independence and Security Act (EISA) of 2007 requires that annual sale of renewable fuel in the US be raised to 36 billion gallons by 2022. Each year, by December 1, EPA, which is responsible to implement the Renewable Fuel Standard (RFS), sets the volume of renewable fuel required to be blended into transportation fuel next year. The minimum volume required by the law for 2014 is 18.15 billion gallons.

Many problems have been pointed out concerning the RFS. First, while a quota is set for each type of alternative fuels such as corn-ethanol, cellulosic-ethanol and biodiesel etc., cellulosic ethanol has not yet reached the stage of commercial production. The Renewable Identification Number (RIN) credits, which the fuel suppliers buy from the EPA to make up for the unfulfilled quota, can be carried over only for five years. With no prospect in sight for the commercial production of cellulosic ethanol, there are concerns that the RIN may expire, inflicting losses on the suppliers. In 2012, due partially to the undersupply of corn ethanol due to drought, the oil industry requested that the RFS mandate be eased. In August 2013, the EPA permitted the RFS requirement for cellulosic fuel for that year to be lowered from 1 billion gallons to 6 million gallons. This caused RIN prices to soar, as the overall alternative fuels volume was kept at 16.55 billion gallons.

Second, the 10% threshold of ethanol-mixed gasoline could be making it harder to achieve the mandate. Originally, EPA set the maximum 10% ethanol content so as not to cause damage to engines, while the overall demand for auto fuels has been slipping due to improvements in fuel efficiency. To deal with this situation, the EPA allowed the mixing ratio to be raised to 15% for cars later than model-year 2001. However, fuel suppliers are reluctant to sell E-15, as it is not clear who is responsible for safety.

Under such circumstances, on October 24, it was leaked that the draft 2014 RFS rule will lower the legal quota by 3 billion gallons to 15.21 billion gallons (23 million for cellulosic ethanol, 1.28 billion for biodiesel fuel, and 2.21 billion for next-generation fuels) to reflect the actual state of alternative fuels supply. This came closer to an acceptable volume for petroleum industry, as the EPA expects a supply of 13.0 billion gallons for conventional (corn-derived) ethanol, while the industry expects 12.9 billion gallons.

A more serious concern for the fuel suppliers is that the RIN credits that they have been purchasing since the launch of the RFS system in 2008 may expire and incur full losses, so the suppliers are demanding Congress to repeal the RFS. This issue reveals the inconsistency between the fuel policy under the EISA of 2007 and the increased fuel economy standards, the lynchpin of the Obama administration's energy policy. It also affect the evaluation for public support for the development of next-generation biofuel.

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