

Global Energy Markets and Northeast Asia

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The International Energy Forum (IEF) is an intergovernmental organization with 72 member countries, including Japan, the ROK, Russia and China. Eighteen G20 nations are members of the IEF. Today I'd like to focus on Global Energy Markets and Northeast Asia. Three areas will be covered; first, a comparison of global trends with the projections compared. Next, I'll highlight three key market challenges, and finally, I'll delve into energy market prospects in Northeast Asia.

Each year guests from the Organization of Petroleum Exporting Countries (OPEC), the International Energy Agency (IEA) and other related international think tanks and international oil companies such as BP, Shell, Exxon, Aramco, and CNPC come together in Riyadh to look at research and studies. A similar event is scheduled for February 27 this year.

Global Trends and Projections Compared

Looking at the world energy demand 2017–2040, you will see that fossil fuels will still provide the major supply for the primary energy structure to 2040 (Figure 1). According to the general studies of the IEA, OPEC, the IEF and others, oil takes a major share by 2040; however, in a different scenario, we can see that gas will make progress in the future.

Many countries have announced plans to shut down their coal mines; however, at the global level, we can see that coal still plays a very important role. A key issue is how to use it cleanly. This will be

a major challenge for Japan, China, India, the ROK and Russia which use a lot of coal. According to the analyses, renewable energy is the most important energy. Many studies show that renewable energy will increase greatly by 2040; however, there are different scenarios and different policies according to the IEA and OPEC (Figure 2). Oil demand outlooks vary more sharply over time. There is a big difference between IEA current policies and IEA sustainable development policy: 46.9 Mb a day in 2040. OPEC, however, predicts the difference is largely dependent on the use of electric vehicles. There are great challenges in the use of renewable energy and further study is required to resolve the uncertainty.

Disorderly transitions erode strategic partnerships. Enhanced producer–consumer dialogue is needed to manage change.

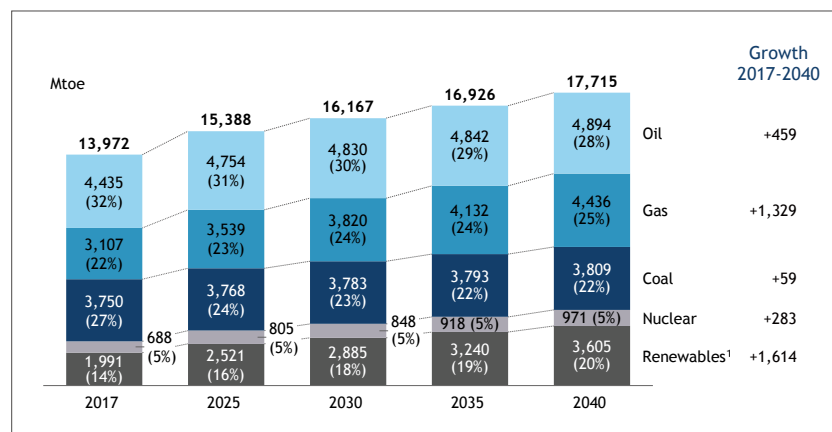
3 Key Energy Market Challenges

1. Premiums

There are three regions for the LNG market in the world; America, Europe, and Asia (Figure 3). When compared to liberalized and interconnected markets, the premium for Asia, including Japan, China and the ROK, is great.

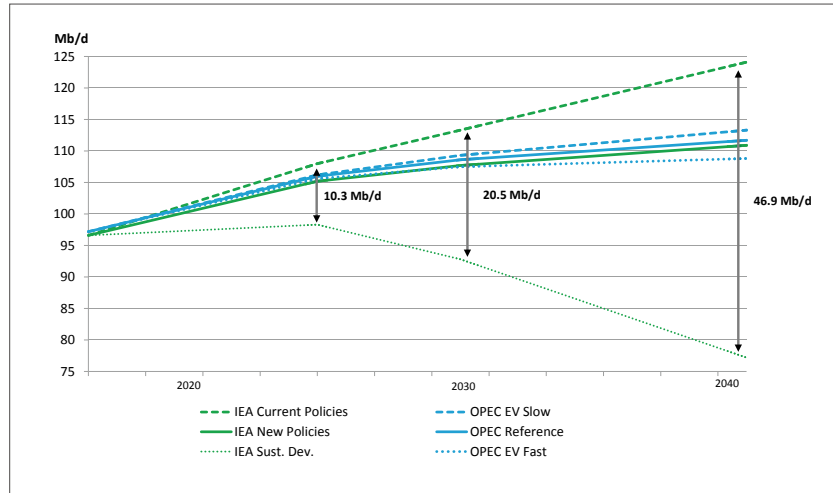
Hubs have come to govern the world's most liquid markets and become more important. Single players and long-term contracts and spots take 35%, while long-term oil-linked contracts take 20% and the Henry hub-indexed flexible destination tolling model is 45%. Downturn leaves the oil market without a clear direction.

Figure 1 World Energy Demand (2017-2040)



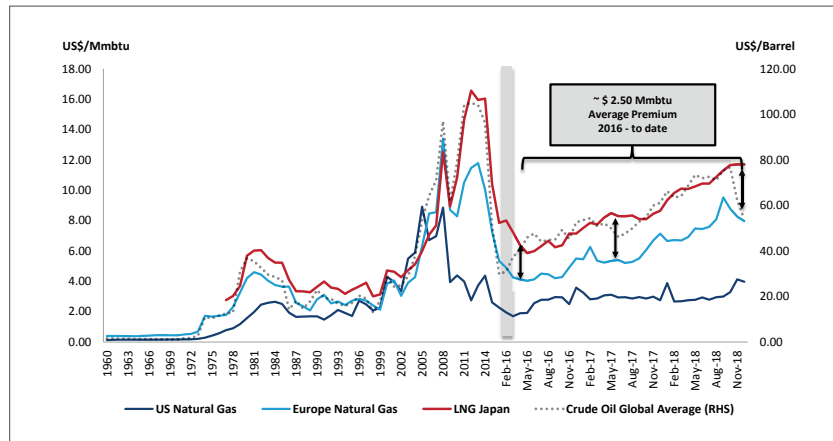
Source : IEA Energy Outlook 2018(New Policies scenario)
 1 : Hydropower, Bioenergy, Geothermal, PV, CSP, Wind and Marine

Figure 2 Differences in oil demand outlooks



Source : IEF-RFF Based on IEA and OPEC 2018 data

Figure 3 Asian LNG imports retain premium



Source : World Bank Average Annual Commodity Prices to 1960-2015, and Average Monthly Commodity Prices from January 2016 to December 2018

Unconventional production mainly in the US and Canada, mostly shale, has clearly impacted markets. Because US shale production increased and changed a lot, the US has become a net importer of crude and also reduced imports from the Persian Gulf region. Accordingly, production centers and commercial centers have changed.

2. Volatility

OPEC nations first participated in an IEF meeting in September 2016. With Russia also joining, OPEC countries now have cooperation in an expanded setting. The IEF is set to have an important role in the global market and prices. So volatility is set to increase up to the non-OPEC and unconventional oil production plateaus. Non-OPEC production countries are the US, Canada, Kazakhstan, China, Australia and other countries. The US’s unconventional shale gas production increases greatly, and China makes great effort on its part.

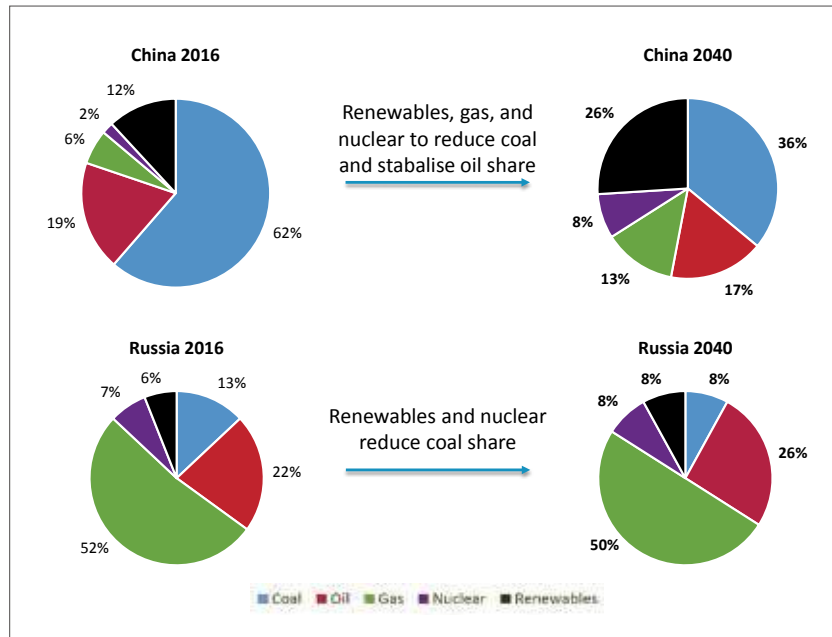
3. Investment

Robust oil demand may face a supply gap. For the past three years, investment and exploration for oil and gas have decreased, while oil demand continues to increase along with population increase and as the economy, transportation and industry develop. However, there are geopolitical issues, such as trade conflict between the US and China. In this climate, we can see that upstream investment in conventional oil remains low, which gradually increases, but still does not reach the high of 2014.

Energy Market Prospects in Northeast Asia

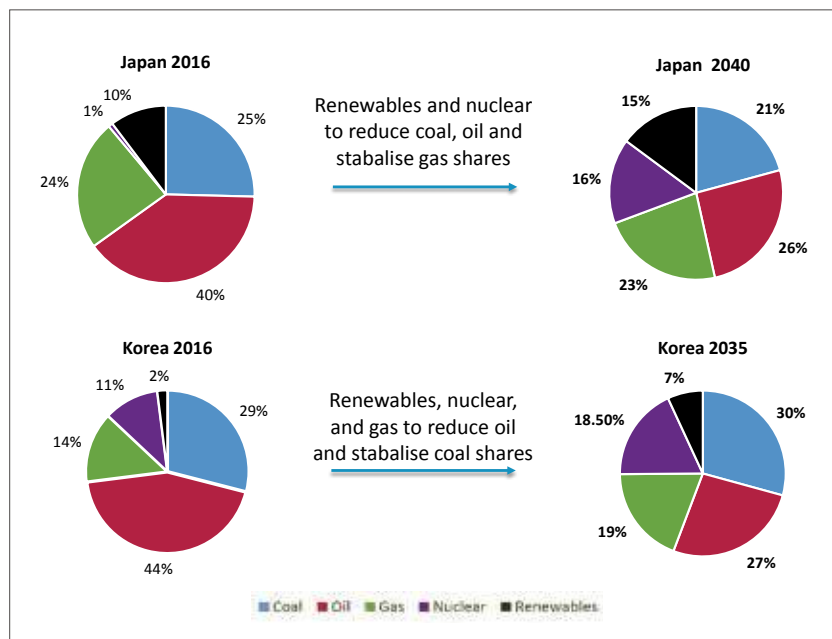
Let’s take a look at the long-term energy consumption trends in major Northeast Asian countries, including China, Russia, Japan and the ROK (Figure 4, Figure 5). By 2016, we can see that a major issue for global climate change is coal. By 2040, coal consumption in China will largely be reduced, but still stand at 36%. Gas and renewable energy are forecast to be the main sources of increase. Gas will play an important role in the future in the longer term. Wind, solar, hydrogen and nuclear power will largely increase, and especially solar and wind will outpace the rest of the world, as well as nuclear.

Figure 4 Long-term energy consumption trends (China and Russia)



Source : BP Energy Outlook 2018

Figure 5 Long-term energy consumption trends (Japan and the ROK)



Source : METI, IEEJ, IEA, MOTIE

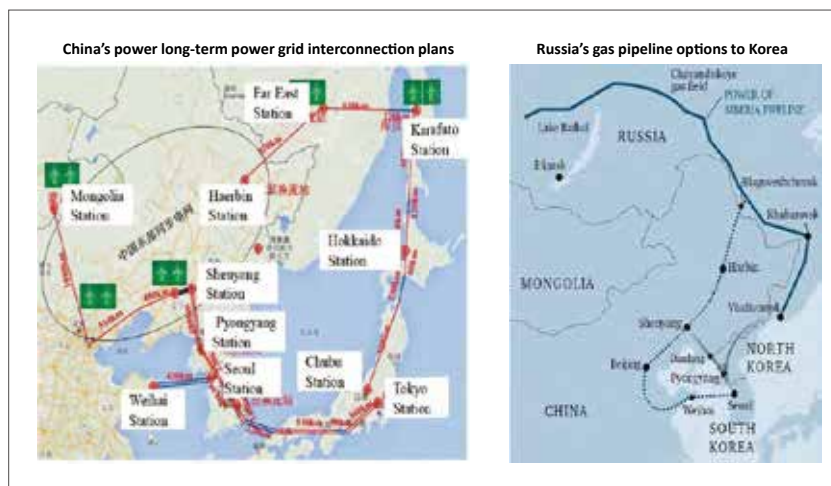
Gas constitutes half of Russia’s energy consumption, and oil will increase slightly. Renewable and other energy sources are forecast to experience minor adjustments.

In Japan, consumption of coal and oil is expected to fall between 2016 and 2040, from 25% to 21% and 40% to 26%, respectively. Gas usage will plateau, while renewable energy is forecast to increase from 10% to 15%.

The ROK will experience major changes in oil consumption, dropping from 44% to 27%. Figures for coal will change insignificantly, and gas will increase from 14% to 19%. Consumption of renewable energy is forecast to grow from 2% to 7%.

China and India will continue to have increasing oil imports. At the end of last year, China was the world’s leading importer, bringing in more than 10 million barrels a day. China’s LNG imports have surged for increased sustainability, and because of the climate change issue and the pressure of the Chinese government with its commitment to the Paris Agreement, China will increase LNG imports. Furthermore, China is cooperating and investing with Russia; a partnership in upstream development is currently in place so that China can realize a direct supply line from Russia. Japan is currently the largest importer for LNG, but China will become the largest gas importer overtaking Japan and the ROK.

Figure 6 Regional cooperation in North East Asia



Source : State Grid Corporation of China 2016 and OIES 2018

China's air quality measures stimulate demand. China's gas policy is based on two grounds; first, to meet demand for its economic development, and second, to affirm its commitment to mitigating climate change. China must do more to reduce its CO₂ and PM_{2.5} emissions.

Next, I will discuss regional cooperation in Northeast Asia. Electric, grid and gas pipeline networks are developing in China thanks to progress in smart cities, smart grids and AI. In Northeast Asia, it is essential for Russia, China, Japan and the ROK to connect with one another. Plans are in place to interconnect the region with a gas pipeline and power grid (Figure 6). Thus, regional cooperation is becoming more and more important.

Conclusion

To conclude, I'd like to make two points. First, the outlooks of oil supply and demand vary sharply over time. On top of that, the opacity of plans to shift to a low-carbon society has thwarted the stabilization of investment within the markets. Continued research in this field is very important, so think tanks and international organizations need to get together for research.

Second, Northeast Asia relies heavily on imports from the Middle East, so any distraction resulting in losing such contracts would have devastating impacts on the region. Mr. TOYOTA Masakazu, the chairman of the IEEJ, made a speech in Riyadh and announced similar results via a simulation. Thus, cooperation within Northeast Asia has become extremely important.

How can Northeast Asia be more secure and stable for sustainable energy in the future? I believe think tanks, governments and international organizations bear responsibility for this outcome, and each must respond to pressing issues such as global population growth, urbanization and climate change. In addition, they must carefully consider the kind of energy policies or technologies best suited to countries in Northeast Asia.

These issues will be discussed at the 9th IEA, IEF, and OPEC Symposium to be held in Riyadh on February 27. The 5th IEF and KAPSARC Leaders Meeting will convene the following day, also in Riyadh. Also, the 4th IEF and PFID symposium will be held on May 7 and 8 in South Africa and the 8th Asia Ministerial Energy Roundtable will meet in Abu Dhabi on September 9 and 10. Finally, the 17th IEF Ministerial Consultation will be held in China next year.