Japan’s need for Russian oil and gas: A shift in energy flows to the Far East

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HIGHLIGHTS

- Russia’s oil export will gain a 10% share in Japan.
- Russian companies are accelerating several LNG projects in NE Asia.
- Japan’s exploration activity in East Siberia has reached the investment stage.

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ABSTRACT

This article examines the choices of Japan’s governmental institutions vis-à-vis Russian supplies of oil and gas. First, there is a perceived need to diversify the sources of crude oil in order to avoid too much reliance on the Middle East. Following the inauguration of the Sakhalin oil projects and completion of the ESPO pipeline, Russian crude oil is nearing a 10% share in the Japanese market. It is suggested that Russian crude oil supplies have been chosen due to their proximity, safety and flexibility, and their positive effect on Japan’s bargaining power in relation to crude suppliers in the Middle East. Second, Japan’s shift from nuclear to LNG in power generation after the Fukushima accident in March 2011 increased LNG imports by 25% in just two years. While Qatar expanded its market share the most, Russia also gained, even though it only had one operational LNG project in Sakhalin-2. Russian companies are now working on several LNG projects in Northeast Asia and the Arctic region. However, the resumption of nuclear power in Japan might have a negative impact on new Russian LNG projects.

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1. Introduction—A big change in the transportation of crude in the Eurasian continent

This paper describes the current situation of Russian oil and gas flows to Japan and discusses their significance in Japanese energy policy.

Fig. 1 shows how Russia’s oil pipeline system has changed dramatically in the last decade. Until around 2000, most oil flowed in the direction of Europe. In 2010, several new flows toward Asia-Pacific market were created, totaling one million barrels per day. These are from offshore Sakhalin and the East Siberia-Pacific Ocean (ESPO) pipeline, including the spur to Daqing in northeast China.

This shift was promoted by President Putin’s clear policy on energy exports. In May 26, 2004, he gave his annual address to the Federal Assembly after being elected for the second time in March and stressed the importance of Eurasian trunk pipelined, saying:

When we take into account the size of Russia and the geographic remoteness of certain territories from the political and economic centers of the country, I would say that the development of infrastructure is more than an economic task. Solving it will not just directly affect the state of affairs in the economy, but ensure the unity of the country as a whole whether people feel they are citizens of a united, large nation, and whether they can make use of its advantages. ... At the same time, a modern, well-developed transport infrastructure is capable of turning Russia’s geographical features into a real competitive advantage for the country. (Putin, 2004)

Mr. Putin went on to specify five oil pipeline projects and among them two trunk pipelines were realized: i.e., the Baltic pipeline from Yaroslavl’ to Primorsk, Leningrad Oblast’ (State) and the ESPO (East Siberia-Pacific Ocean) pipeline from Taishet at East Siberia to Kozmino near Nakhodka.

This shift has significantly altered the energy situation in Northeast Asia, impacting positively on Japan’s energy trade by...
further source diversification. Japanese industry has realized that this neighboring country’s influence is growing, not only via an expansion in supply capacity, but also by offering opportunities for participation in various aspects of the energy business.

This paper describes how Russian oil and gas were welcomed in the Japanese market, contributing its diversification of energy sources, and examined their competitiveness. In addition to that the development of the cross-border oil and gas pipelines is also discussed. Finally, Japanese policy toward East Siberia and its actual activity are introduced, which are to strengthen Japan’s energy tie with Russia.

Russia’s energy policy focusing the Pacific market has previously been discussed in a number of papers, including: Motomura (2008), which commented on the relationship between new oil flows from Russia and the emerging market in East Asia and was a kind of prototype of this paper; Tabata and Liu (2012), from which the author became aware of Russia’s “eastward shift” policy in oil and gas development and how China, Japan and Korea improved their energy security by reducing excessive dependence on the Middle East; and Paik (2012), which showed how successful Sino-Russia oil cooperation has been created by China's imperative need to increase oil imports. These works raised awareness of Russian and Japanese energy policies.

2. Material and method

As a case study of Japan–Russia cooperation in the energy field, this paper focuses on the developments in Japan’s relationship with Russia, especially regarding oil and gas. The author has collated publically available information from industry journals, including International Oil Daily, Nefte Transport (2002), Argus FSU Energy and Interfax, as well as general newspapers, such as Russia’s Vedomosti, and press releases from JOGMEC, the Ministry of Foreign Affairs of Japan, the Russian Federation and Gazprom.

Data on transported and export/import volumes of oil and gas (LNG) etc. were collected from the above-mentioned publications. Statistics on the energy trade also include data from BP’s Statistical Review of World Energy.

Most of the figures were created by the author by synthesizing facts and figures published in the publications above.

3. Results

3.1. New Russian energy flows to NE Asia

3.1.1. Impact of Russian crude oil and gas on the Japanese market

Fig. 2 shows oil and gas pipelines, as well as new oil and gas sources from Russia aimed at new markets in Northeast Asia. In October 2006, Sakhalin-1 started exports of a crude oil designated “Sokol” from the DeKastri terminal in Khabarovsk Krai (Territory). According to Interfax, Jan. 17, 2014, Sokol is now being exported at a rate of 140 thousand bbl/day in 2013.

At the end of 2008, with the completion of the Trans-Sakhalin oil and gas pipeline, the “Vityaz” crude of Sakhalin-2 started year-round exports from the Prigorodnoye terminal at the southernmost tip of Sakhalin Island. These exports stood at 87 thousand bbl/day in 2013 (Sakhalin Energy, 2014).

Regarding LNG, exports from the Sakhalin-2 Project started in March 2009, also from the Prigorodnoye terminal, and reached its designed capacity of 9.6 million tons/year in 2010. This was the first Russian LNG supplied to the Asian market, under contract with R/D Shell, and using facilities constructed by Japanese engineering firms Chiyoda and Toyo Engineering Company (TEC).

At the end of 2009, after the completion of Phase 1 (or ESPO-1), the section from Tayshet to Skovorodino, ESPO started transporting 300 thousand bbl/day (or 15 million tons/year) of Siberian crude from the Kozmino Terminal. Construction of the Daqing Spur from Skovorodino to the banks of the Amur River in Russia, and from Amur River to Daqing in China, was also completed, and the Spur began transporting a further 300 thousand bbl/day of Siberian crude on January 1, 2011.

At the end of 2012, with the completion of ESPO-2, i.e. the section from Skovorodino to Kozmino, ESPO’s capacity expanded, and ESPO crude exports of 420,000 bbl/d of ESPO started in 2013. This will rise to 600,000 bbl/d in 2015, which is double the throughput of the early stages.
Within five years, the Far East gained a number of new crude oil sources, their capacity reaching around 1 million bbl/day, as well LNG capacity of 10 million tons/year. Most are supplied by the new fields of offshore Sakhalin and East Siberia, as well from historical West Siberia via the ESPO pipeline, which accounts for almost half the additional transported oil volumes. This represents a significant change in energy flows in the Far East.

The ESPO pipeline will receive additional crude oil supplies from two sources by 2016: (1) from the Arctic region through the Zapolyarye-Purpe pipeline, where the Messoyakhinskoye crude will start production; and (2) from the Kuyumbinskoye–Yurubcheno-Tokhomskoye oilfield, which is located in the central part of the Krasnoyarsk Krai (Territory) (see Fig. 2). Finally, by 2020 ESPO-1’s capacity should rise to 1.6 million bbl/day, and ESPO-2 to 1 million bbl/day. Most of them are being supplied from the Verkhechonskoye field in the Irkutsk Republic, and the Vankor field in the Krasnoyarsk Krai. From 2016, production from the Yurubcheno-Tokhomskoye field in the Krasnoyarsk Krai will start.

3.1.2. How ESPO crude is welcomed by Japanese market

Fig. 3 shows the level of monthly exports of ESPO crude, especially to Japan, including how the premium to Dubai has developed by month. This figure was made by JOGMEC using data from Argus FSU Energy.

In 2010, Japanese refiners received 4.5 million tons (or 90,000 bbl/d) of ESPO crude oil, that is to say 30% of total shipments from the Kozmino Terminal. At first, no details of the crude except its gravity and sulfur content were disclosed and uptake of ESPO crude was slow among Japanese refiners. However, following greater disclosure of information, Japanese buyers became more aggressive in signing purchase contracts.

In 2011, the share of cargoes to Japan decreased to 22% due to shrinking energy demand caused by the Northeast Japan Earthquake on March 11. At that time, demand for total crude oil in Japan shrank by 8%, though the total amount of ESPO crude imported to Japan fell by 23%. Under these circumstances, spot-based crude, like ESPO, was temporarily cut to fulfill existing long-term contracts.

In 2011, the United States became the No. 1 importer of ESPO, as its share rose as high as 30%. This was to replace shrinking volumes of Alaskan crude oil, especially to Hawaii and the US West Coast. The markets for ESPO crude expanded across the Pacific Ocean.

In 2012, as Japan’s economy gradually recovered, Japan’s share in ESPO again climbed to 31%.

ESPO throughput averaged 1.3 million tons/month, or 13 cargos of 100 thousand tons capacity each from 2010 to October 2012. This expanded to 1.8 million tons/month from November 2012, following completion of ESPO-2. Japan’s share soared to 36% in 2013 and ESPO crude now occupies an important position in Japan’s energy market. The amount of exported crude from Kozmino will nearly double to 500,000 bbl/d by 2015, and Japan’s imports of ESPO crude is also expected to double.

Early on, ESPO crude was sold at a discount to Dubai, during the first half of 2010. ESPO crude was less popular among refiners in East Asia, due to the lack of data on its composition. However, during its second year of export, ESPO’s premium to Dubai rose as high as $6/bbl. ESPO became a very popular crude oil in the Pacific Ocean.
market, because there was a demand in eastern Asia for this sweet crude with 0.6% sulfur content and gravity of 35 degrees API (see Table 1). In 2013, the premium once more achieved around $6/bbl.

3.2 LNG in Northeast Asia and its implication for the Japanese energy market

3.2.1 Japan’s LNG demand after the 2011 Fukushima accident

After the March 11, 2011 earthquake in Japan, the role of LNG expanded significantly in Japan, since the most of nuclear power stopped and had to be replaced by LNG thermal power generation. To cope with the situation, Russia wanted to accelerate new LNG projects aiming the gas starving Japanese market.

LNG was thought to be the most reliable and flexible fuel to fill the power shortfall. Japan’s LNG imports soared to 78 million tons in 2011, 87.3 million tons in 2012 and 86.9 million tons in 2013, which represents a 25% increase from 2010 (BP, 2011, 2012, 2014).

Both Russia and Qatar expanded their share of LNG into Japan to capitalize on the shortfall from nuclear power. Qatar increased its LNG exports to Japan by 8 million tons in 2012 compared with 2010, dramatically boosting its share to 18%, and becoming the No. 2 LNG supplier after Australia. In the short term, Qatar has plentiful volumes of spot LNG available and was well placed to raise its export volumes.

Russia increased exports by 2.3 million tons, expanding its share in Japan by only 1%, since it runs only one LNG project: Sakhalin-2. Russia was not ready to boost LNG exports, but was eager to make an announcement to the Japanese market (Fig. 4).

3.2.2 Russia’s new LNG projects

3.2.2.1 Russian LNG to Japan. Though Russia is one of the world’s largest gas-producing countries, Japan only imports LNG from the Sakhalin 2 project, in which Japanese companies are involved: i.e. Mitsui (12.5% share) and Mitsubishi (10%).

The role of LNG in Japan expanded significantly after the March 11 earthquake in 2011 and the nuclear accident which followed in Fukushima. LNG was thought to be the only fuel which could replace nuclear power generation.

Just after the earthquake, Mr. Putin ordered his deputy prime minister for energy to increase export volumes of Sakhalin 2 LNG to Japan, saying “Japan is our neighbor, and our friend. We must show how Russia is reliable as an energy supplier” (Interfax, March, 12, 2011).

This order was made on March 12, just a day after the devastating earthquake. The eastern part of Japan was in serious straits at that time. After the Fukushima accident, all except two of Japan’s nuclear power stations were forced to stop operations, and had to be replaced by LNG power generation. Mr. Putin understood this within a day by observing the situation from Moscow. Russian state gas company Gazprom, a 50% shareholder of Sakhalin 2, may have paid an important role in diverting additional LNG to the Japanese market.

However, compared with Qatari LNG, which successfully expand its share from 11% in 2010 to 18% in 2012 and 2013, Russian LNG still only accounts for a minor share, 9% in 2010 and 10% in 2012 and 2013 (see Fig. 4). As mentioned in Section 3, Russia has only one LNG project, Sakhalin 2, and there was no room to dramatically expand LNG production, and no way to shift LNG from other projects. This was unfortunate for Gazprom.

To improve the situation, Russian companies focused on the mid- to longer-term market in Japan, and have tried to inaugurate a couple of LNG projects in Sakhalin and Far East. Russia is still thought to have a competitive edge against other countries due to its relative proximity, safety and large resource potential.

Table 1

<table>
<thead>
<tr>
<th>Crude oil</th>
<th>API gravity</th>
<th>Sulfur (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPO</td>
<td>35.0</td>
<td>0.60</td>
</tr>
<tr>
<td>Dubai</td>
<td>31.0</td>
<td>2.04</td>
</tr>
<tr>
<td>Brent</td>
<td>37.5</td>
<td>0.46</td>
</tr>
<tr>
<td>Urals (Baltic Sea)</td>
<td>31.8</td>
<td>1.40</td>
</tr>
<tr>
<td>Minas</td>
<td>35.0</td>
<td>0.08</td>
</tr>
<tr>
<td>Sokol (Sakhalin-1)</td>
<td>37.9</td>
<td>0.23</td>
</tr>
<tr>
<td>Vityaz (Sakhalin-2)</td>
<td>38.0</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Fig. 3. Shipment of ESPO Crude (JOGMEC). The pale columns on this graph show total crude oil exports from the Kozmino terminal by month, while the dark columns show imported crude under contract to Japanese traders or refiners. At the top, premiums or discounts to Dubai crude are shown.

Fig. 4. Shipment from Kozmino (JOGMEC).
However, new LNG projects shown in Fig. 5 may compete each other in a disorderly way in the Northeast Asian market. There will be a competition between Russian LNG projects and those of the Asia-Pacific region.

Japan continues to suffer from high LNG import costs, and needs to find cheaper gas. The first task is to move away from a purely oil-indexed gas price. However, this will take time. Building a gas pipeline to import Sakhalin gas is an alternative solution. Bringing pipeline gas into Japan would boost competition with LNG, which should have a positive impact on gas pricing in the Japanese gas market.

At the same time, we must give consideration to what will happen when a certain proportion of nuclear power stations in Japan resume operation in the near future, as demand for LNG will fall dramatically.

3.2.2.2. Russia’s future plans for LNG. In June 2013, Russian Energy Minister Novak talked about Russian LNG policy as follows: “We plan to have four or five projects by 2020 with production of 40 million-50 million tons of LNG. In other words, our share in the world in general should increase from 4% to at least 10% by 2020” (Interfax, June 7, 2013).

Fig. 5 shows the location of new LNG plants in Russia. Among them the following projects are targeting gas-starved Japanese and Northeast Asian markets: Rosneft’s Sakhalin LNG (or Far East LNG), Sakhalin Energy’s third train at Sakhalin 2 LNG, Gazprom’s Vladivostok LNG and Novatek’s Yamal LNG in the Arctic Sea.

3.2.2.3. Liberalization of LNG exports from Russia. President Putin signed into law amendments to the legislation on December 1, 2013, allowing two more companies, Novatek and Rosneft, to ship LNG to world markets. According to the amendments, LNG export rights could be granted to state-controlled companies producing gas on Russia’s shelf, as well as to companies that have a clause in their licenses allowing them to build LNG plants.
This made possible for Novatek and Rosneft to tackle the Yamal LNG and Sakhalin LNG projects respectively. Yamal LNG declared its final investment decision (FID) in December 2013 and seems to be progressing relatively well, while Rosneft’s Sakhalin LNG project still has to tackle the issues of liquefaction plant location and gas pipeline.

3.2.2.4. Rosneft’s Sakhalin LNG. Rosneft and ExxonMobil are seeking to develop an LNG project using gas from the Chaivo and the Odoptu fields of the Sakhalin 1 project on the shelf of the Sakhalin Island, which remained stranded even after the inauguration of oil production in Oct. 2005. Mr. Khoroshavin, the Governor of Sakhalin Oblast* (State), has requested that the LNG plant is located in the territory of Sakhalin.

The partners plan a preliminary capacity of 5 million tons/year of LNG, of which Japanese SODECO, 30% shareholder of Sakhalin 1, will take 1 million tons/year, Marubeni (a Japanese trading firm) will take 1.25 million tons/year, and Vitol will take 2.75 million tons/year. This deal was agreed in June 2013. However, the location of the LNG facility is not yet decided.

3.2.2.5. Sakhalin energy’s third train at Sakhalin 2 LNG. Creating a third train at Sakhalin 2 appears to be the most feasible project since there is open space and gas pipelines for the third liquefaction plant at the Prigorodnoye terminal of Sakhalin 2 in Sakhalin’s southernmost point. The capacity of the third plant would be 5 million tons/year, compared to the first and second trains, which have a capacity of 4.8 million tons each.

Shell, the former operator of Sakhalin 2 and a 27.5% shareholder, still has a strong influence on Sakhalin 2’s technology and marketing policies. Shell had proposed this project but it was rejected by Gazprom for two reasons: Sakhalin 2 does not have sufficient reserves for a third train, and gas from other Gazprom blocks, like Kirinsky, should be supplied with priority to Vladivostok LNG. However, this project is thought to be the cheapest. Shell will continue discussions with Gazprom in early 2014 on the possibility of its implementation.

3.2.2.6. Gazprom’s Vladivostok LNG. In 2005, Japan’s Agency for Natural Resources and Energy (ANRE), a branch of the Japanese Ministry of Economy, Trade and Industry, signed a Framework Cooperation Agreement with Gazprom. This agreement set out cooperation in the gas sector. In January 2011, the two parties signed a Cooperation Agreement to prepare a feasibility study on the details of LNG plant construction near Vladivostok and the options for natural gas use in the Primorsk Krai.

In 2011, Japan Far East Gas C., Ltd. (JFG) conducted a preliminary feasibility study on Vladivostok LNG together with Gazprom and ANRE. JFG consists of five Japanese trading firms and energy companies, namely Itochu, Marubeni, Inpex, Japex and Cieco. During APEC (the Asia-Pacific Economic Cooperation Conference) in Vladivostok on September 8, 2012, the Memorandum of the Vladivostok-LNG project was signed by ANRE and Gazprom in the presence of Japanese then-Premier Noda and President Putin, who both expressed full support for Japan-Russia energy cooperation.

Gazprom’s Vladivostok LNG is considering its investment rationale, which is the last step towards taking a final investment decision (FID) in February 2013. The planned capacity of the LNG facility is 15 million tons/year and the source gas will be supplied from the Chayanda gas field in the Sakha Republic via Yakutia–Khabarovsk–Vladivostok (YKV) pipeline or “Power of Siberia”.

JFG signed a memorandum of understanding with Gazprom on participation in the Vladivostok LNG in June 2013. However, on 16 April 2013, the gas supply source changed to the Kirinsky and South Kirinsky gas field in the Kirinsky block of the Sakhalin 3 at a meeting between Gazprom and Japan’s ANRE (Interfax, April 22, 2013). There is an existing pipeline running from offshore Sakhalin via Khabarovsk to Vladivostok (SKV), which was inaugurated in September 2011. This route was judged the most practical since there is still uncertainty over the construction of the YKV pipeline, given ongoing negotiations with CNPC.

A meeting between Gazprom and Japanese potential buyers of Vladivostok LNG was held in Russky Island at Vladivostok on October 22 (Gazprom’s Website, 2014). The following day, Sakhalin 3’s Kirinsky gas field started production after completion of its subsea production system designed by American FMC Technologies and installed by the Russian firm Mezhegirontruboprovodstroi (MRTS) at a water depth of 90 m. This was its first successful implementation and a landmark event for Russian offshore technology.

Though the source gas for the Vladivostok LNG has been secured, Gazprom has to rush in developing the Kirinsky and the South Kirinsky fields to be in time for 2018, when first delivery of LNG is scheduled.

3.2.2.7. Arctic Yamal LNG and Japan’s interest. Though Japanese companies are not involved in the Yamal LNG project, which consists of Novatek (60%), Total (20%) and CNPC (20%), JGC of Japan and Technip of France have signed an Engineering and Procurement Contract (EPC) with Novatek. JGC and Technip will construct three LNG trains with a total capacity of 16.5 million tons/year at the Yamal Peninsula on the Kara Sea. The role of JGC and Technip is not to acquire stakes in the project, but to act as contractors for the construction of LNG facilities.

China National Petroleum Corporation (CNPC) will purchase 3 million tons/year of LNG, or slightly more, and 2.5 million tons/year will be supplied to Spanish Gas Natural Fenosa. It is reported that the price of LNG is JCC (Japan Crude Cocktail) linked. However, this is not important for the Chinese company, since the volume which CNPC will import is equity LNG in proportion to its share, which should be secured on a production cost basis.

LNG will be supplied to Spain year round, but for China, LNG will be shipped during a four- to five-month window in the summer season, when the Northern Sea Route (NSR) via the Arctic Sea is passable and through the Suez Canal during the winter season.

It is uncertain whether the Japanese users will sign a long-term contract for Yamal LNG. However, Arctic LNG was transported to Japan for the first time through the Northern Sea Route at the end of the melt season in 2012 (Motomura, 2013).

On November 7, 2012, Gazprom Marketing & Trading’s LNG cargo “Ob River” left Hammerfest, at Northern Norway, to ship the first Arctic LNG on a spot basis from the Statoil-operated Snohvit gas field offshore Norway. The ship reached Kyushu Electric Company’s LNG regasification plant at Tobata City, in the south of Japan on December 5 after a 29-day voyage (Fig. 6).

This was just a test case for a Japanese power company to verify if Arctic LNG is technically and economically available, but illustrates how this new source could interest Japanese users.

3.3. Gas pipelines in the Far East

3.3.1. Gas pipeline from East Siberia to the Far East market

On October 30, 2012, Gazprom took FID on the development of the Chayanda gas field and construction of the Yakutia–Khabarovsk–Vladivostok (YKV) pipeline, renamed “Power of Siberia” (Fig. 2).

The development cost of the Chayanda gas field is estimated to be $13.7 B. Gas production will start in 2019 at the level of 25 Bcm/yr. Gas reserves stand at 1.3 Trn3 or 46 Tcf, second only to the Kovyktinski gas field in East Siberia. Gas transportation is scheduled to start in the
early 2020s, via the 61 Bm3/year-capacity “Power of Siberia” pipeline, whose construction cost is $24.2 B.

In 2006, Russia agreed to supply China with 38 Bm3/yr of gas. However, although pipeline construction was planned to start in October 2013, there has been no activity as gas export negotiations with China have not yet been concluded. This may be one of the reasons why the source gas for Vladivostok LNG was suddenly altered in April 2013. Gas will also be supplied to Vladivostok LNG, whose targeted capacity is 15 million tons/year or 21 Bm3.

Recently, Sales and Purchase Agreement with CNPC and Gazprom was agreed on May, 21, 2014, after eight years’ negotiation. Construction of pipeline is to start in September 2014.

3.3.2. SKV pipeline

The Sakhalin–Khabarovsk–Vladivostok (SKV) pipeline (Fig. 2) was proposed in order to transport gas from Sakhalin 1 and 3 to Primorsk Krai, where local gasification was lagging. The city of Vladivostok still used coal for power generation and local heating.

Construction started on July 31, 2009 near Khabarovsk, and the pipeline was then extended southwards. It reached Vladivostok in September 2011 on schedule, and in time for the APEC meeting held the following year. Mr. Putin attended the inauguration ceremony at Russky Island, Vladivostok, on September 8, 2011, just two days after the inauguration ceremony of Nord Stream at Vyborg in the Leningrad oblast. This meant that two gas trunk lines were constructed at almost the same time on each side of Russia.

The tentative capacity of the SKV pipeline is 6 Bm3, and 4 Bm3 of gas from Sakhalin 1 was due to be transported to Khabarovsk. However, in early 2012, plugging occurred in the pipe due to the generation of gas hydrates. Gas power generation and accompanying heating systems in the city of Vladivostok had to shut down, and switch to back-up generation from fuel oil. During the period from September 2011 to May 2012, only 828 million cubic metre of gas was transported through the SKV pipeline.

In the Kirinsky block’s Kirinsky gas field, Sakhalin 3 completed its subsea production system and started gas production on October 23, 2013. This was the first time a Russian success had been due to imported technology from the USA’s FMC Technologies. Of six wells in the Kirinsky field, only one well was completed in 2013, one year behind schedule. The remaining five wells are to be completed in 2014 and 2015.

3.3.3. Possibility of a gas pipeline to Japan

Around a decade ago, the Sakhalin-1 consortium made plans to construct a gas pipeline crossing the northern border (the Soya Strait) to the Japanese archipelago, but this plan was abandoned in 2004 due to a lack of consumers (Fig. 7). At that time, power utilities were eager to expand nuclear power to more than 50% of total power generation by the 2030s, and opposed gas
pipeline projects, because gas could be a strong competitor to nuclear power.

At the same time, the Japanese government hammered out a liberalization policy for power utilities. This caused them to increase their opposition to construction of a gas pipeline network, since such a network was expected to encourage distributed power generation by micro gas turbines (MGT) along the pipeline route, thus strengthening the position of another strong competitor to power companies.

A further concern for most gas users was that pipeline construction might face unexpected obstacles from regulation or environmental issues, causing project delays. This was the first time construction of such a large-scale pipeline had been planned in Japan, and there were no guarantees that it would stick to schedule. Since the government’s power generation plan accepts no delays in maintaining a stable power supply for the region, no power company would take the risk. This was perhaps the most significant reason that proposals for a gas trunk line were not welcomed in Japan.

However, the earthquake on March 11, 2011 and the subsequent Fukushima accident changed this situation dramatically. Gas was recognized as the most viable way to replace nuclear power and overcome Japan’s energy crisis.

In September 2011, at the Conference of Sakhalin Oil and Gas in Yuzhnosakhalinsk, Sakhalin-1 operator Exxon Neftegas commented positively on a plan to supply gas via pipeline, depending on Japanese interest. In May 2012, Mr. Maehara, a politician in Japan’s DPJ (Democratic Party of Japan) party, agreed with Gazprom to examine proposals for a gas pipeline project to Japan.

3.4. Japan’s participation for East Siberia development

3.4.1. Action program by Mr. Koizumi

So far, two projects in offshore Sakhalin, which Japanese companies have joined, are performing successfully. Now East Siberia is seen as the new frontier to be tackled by Japan. Strong will was expressed on both sides in support of projects in East Siberia. It is Japanese policy to foster the development of oil projects located within a short distance of its borders.

The Japanese government has been highly supportive of oil and gas development in East Siberia. In January 2003, Japan’s then-Premier Koizumi and President Putin signed the “Japan-Russia...
Action Plan (Ministry of Foreign Affairs of Japan (MOFA), 2003), which was to promote cooperation in oil and gas development in Siberia and the Russian Far East. The main points are as follows:

- To promote pipeline projects in Siberia and the Russian Far East for transportation of energy.
- To support private companies of both countries in cooperative oil and gas development in Siberia and the Russian Far East.
- To execute Sakhalin 1 & 2 projects smoothly.
- To maintain a dialogue regarding energy cooperation.

3.4.2. G8 Summit Heiligendam, June 2007

In June 2007, at the G8 Summit at Heiligendam, then-Premier Abe, now the Premier of Japan once again, signed the “Initiative for the Strengthening of Japan-Russia cooperation in Far East Russia and Eastern Siberia” with President Putin. The aim was to secure stable energy supplies to Asia-Pacific countries. The first part of this document is as follows:

“Energy: We would promote cooperation between the private commercial entities of Japan and Russia in Far East Russia and East Siberia by utilizing Japan’s advanced technologies, for example, in the areas of oil, natural gas, and the peaceful use of atomic energy, and Russia’s business base in a complementary way to secure stable energy supply for mid- and long-term energy security for the Asia-Pacific countries and development of Far East Russia and East Siberia” (Ministry of Foreign Affairs of Japan (MOFA), 2007).

3.4.3. JOGMEC’s activity in East Siberia

Japan Oil, Gas and Metals National Corporation (JOGMEC), one of whose main functions is to conduct geological surveys in frontier regions to form the basis for exploration and development projects, is fostering a dialogue on finding investment opportunities in East Siberia.

In 2008, JOGMEC successfully established a joint venture with a Russian oil company named Irkutsk Neft Company (INK). Two JVs were established, with Irkutsk Oil Company taking a 51% share, and JOGMEC 49%. “INK Sever” will survey the Severo Mogdinsky block, while “INK Zapad” will explore in the Zapadno-Yarakhtinsky and Bolschetirsksy Blocks. These blocks are located in the Irkutsk Oblast’ (State) in East Siberia.

In 2012, JOGMEC established another Joint Venture with GazpromNeft (51%) and JOGMEC (49%). JOGMEC is to carry out exploration work on the Ignyalinsky Block near Verkhnechonskoye, the largest oil field in East Siberia (JOGMEC, 2012).

These blocks are close to the ESPO Pipeline, and in the near future, several oilfields may become ESPO sources (Fig. 8).

More than 10 wells have been drilled and most of them have been geologically successful. Some results were released in October 2010, stating: In the “Severo-Mogdinsky” block, which is located 1,000km north of Irkutsk, SM302 well flowed 1,585bbl/d (214t/d) and estimated reserves of the block are 108 MMbbl (14.8MMt). ZY311 well in Zapadno Yarakhtinsky block flowed 117Km3/d gas and 243bbl/d condensate JV will be transferred to the Japanese private sector (JOGMEC, 2010).

In line with JOGMEC’s purpose, the JVs were transferred to the Japanese private sector, namely to Itochu and Inpex, in 2013 (JOGMEC, 2013).

4. Discussion

4.1. Japan’s attempt to establish energy tie with Russia

The main point of discussion in this section is the ways in which Japan has attempted to secure energy supply through the diversification of energy sources, as well as direct investment in oil and gas exploration and development. Russia is thought to be one of the most important areas for Japanese participation due
to its proximity, huge potential and a large number of business opportunities.

However, it has not been a simple process. For instance, Japan’s offshore Sakhalin project was launched in 1974, yet production from Sakhalin 1 did not start until 2005. In the intervening three decades, the collapse of the Soviet Union severely affected the investment climate for a time.

Now Japan is enjoying success in its offshore Sakhalin projects and has initiated exploration projects in East Siberia, as well as raising import volumes of East Siberian oil from the Kozmino terminal, which received an unexpected welcome in the Japanese market.

4.2. Why Is Russian crude welcomed?

Japan imports Russian crude from two sources: offshore Sakhalin and East Siberia. Crude from Sakhalin 1 and Sakhalin 2 is imported as “profit oil” under the PSAs, while ESPO crude is purchased via auction, which means that ESPO oil has become a preferred crude for Japanese industry.

Despite ESPO crude’s relatively high price, related to its higher quality, low sulfur content of 0.6% and medium API gravity of 35 degree (Vedomosti, January 26, 2010, see Table 1), it was welcomed in Japan for reasons of its supply security and flexibility. The Sea of Japan contains no choke points like the Hormuz or Malacca Straits. As a result, it represents the safest route for energy transportation, from the point of view of energy security.

Furthermore, no destination clause is imposed on ESPO crude, which is quite different from the situation with Middle Eastern crude. Traders and refiners can resell crude, and this flexibility in distribution is extremely important for consuming countries. Finally, while it takes almost 20 days to ship Middle East crude to Japan, Sakhalin and ESPO crude to be brought into the Japanese market in just two to three days. This means that refiners can adjust to short-term fluctuations in demand due to changes in the weather or market trends etc.

Japanese refiners have realized that proximity and flexibility of an energy source are crucial elements of energy security, and compensate for its comparatively high price. From another perspective, there have been no guidelines issued by public institutions on the appropriate share of Russian crude oil in the Japanese market.

4.3. Prospect of crude imports to Japan

Diversification of energy sources, especially of crude oil, is the pivotal issue for Japan’s energy security (ANRE, 2013). However, the reality is that there has been too much concentration on the Middle East.

4.4. Japan’s participation for East Siberia

It goes without saying that Japan’s direct investment in East Siberia and Far East Russia, including Sakhalin, would be the most tangible way to secure the energy supply from the nearest regions. As mentioned earlier, Japan’s participation in offshore Sakhalin started in 1974 as a loan project to Russia. After almost thirty years, including a long period of stagnation at the end of Soviet era, full-scale oil production started in 2005 at Sakhalin 1 and in 2008 at Sakhalin 2.

Now is the time to expand efforts into East Siberia, since this is both the nearest and safest oil and gas source next to offshore Sakhalin for Japan. The ESPO pipeline will be a tool to transport Japanese asset oil when commercial production commences. This will strongly contribute towards the diversification of Japan’s crude oil sources.

In the Japanese private sector, Itochu and Inpex will start further exploration work to ascertain the economic viability of this area. Their participation in project development will be significant in terms of access to hydrocarbon assets, particularly from the perspective of energy security.
4.5. Political implication of new relationship of Japan and Russia

The energy relationship between Japan and Russia is expanding especially in this decade, though the political relationship between the two is not firm enough. Almost 70 years have passed since the end of the WW II, no Peace Treaty has yet agreed between both countries and the issue of southern Kurile Islands/Northern Territories remains unsolved. Though the Abe administration is eager to tackle this issue, elder people of Japan still have strong feeling of distrust against Russia. Will the new energy tie between both countries create new political circumstance?

Japan launched the Sakhalin loan project in 1974, which was the first substantial cooperation of finance with the Soviet Union among the western countries and brought the discovery of the Odoptu and Chaivo fields successfully.

Recently, two Sakhalin projects started production and new oil from East Siberia was on the track and exported from the Kozmino terminal through the ESPO pipeline. In 2013, 7% of Japan’s oil and 10% of LNG were imported from Russia. Russia is now No. 5 crude oil exporter (Sekiyushiryougeppou, 2007) and No. 4 LNG exporter to Japan (BP, 2014). Now a close economic relationship between both countries has been established through trade of oil and gas. Russia recognized Japan as a lucrative market, while Japan understood Russia as a stable supplier of oil and gas. Now the relationship between the two is somewhat reciprocal and promises mutual benefits, or so-called win–win situation.

There is quite a limited concern about energy security among the Japanese public, as the seaborne routes from Sakhalin and Kozmino to Japan are quite safe, on the contrary threats from the unforeseen situation in the Hormuz and Malacca straights are always aware of among the Japanese industry and society.

This situation contributes for the energy security not only of Japan but of Northeast Asia. The situation of stable energy supply will secure the long-term stability for the demander, at the same time this will pledge long-term investment for the supplier. This will create a virtuous circle of investment and recovery in Northeast Asia, which will make the energy industries in this region sustainable for a long period. As the Japanese market welcomed the Russian crude oil and LNG, this relationship may not change in a short term.

The change of energy situation in this decade may offer an opportunity of better circumstances for political dialogue between Japan and Russia.

5. Conclusion and policy implications

Japan’s location far from the energy center of the world, and its lack of domestic oil and gas resources, has created unease within the country over stable energy supplies. As China and Indonesia became net oil importers in the 1990s and 2000s respectively, Japan’s dependence on Middle Eastern crude sources rose to 90%. Concerns exist over the two choke points of the Hormuz and Malacca Straits, as potential obstacles to secure energy transportation. Thus, diversification of energy sources has become a pivotal issue for Japan.

A partial counterbalance has come from the start of full-scale crude oil exports from Sakhalin 1 in October 2006, and from Sakhalin 2 in December 2008, as well as the inauguration of the ESPO (East Siberia–Pacific Ocean) pipeline at the end of 2009. These new sources brought a sudden influx of oil to the Far East, where Russian crude has been welcomed into the Japanese market more for reasons of supply security than its high quality and low sulfur content.

Russia is considered the most appropriate additional crude oil supplier to Japan due to its proximity, safety and flexibility, and will help Japan gain a stronger position in relation to its traditional Middle Eastern oil suppliers.

After completion of the ESPO 2 pipeline at the end of 2012, Russia’s capacity to supply crude oil will double in three years, and the country is expected to gain a 10% share in the Japanese market in the near future. This will promote diversification of energy sources, positively impacting on Japan’s energy security.

It should be emphasized that part of this shift was achieved by Japanese direct investment in the offshore Sakhalin projects 1 and 2. In addition, exploration activity with a Russian firm named Irkutsk Oil Company (INK) in East Siberia, led by Japanese government agency JOGMEC, which provides financial and technical support to the Japanese private sector, has now reached an evaluation stage.

JOGMEC and the Japanese private sectors, Itochu and Imex, are now evaluating the field’s potential, which will contribute to Japanese energy security in a long term. This is an important step to secure crude oil not only from Sakhalin but also from East Siberia and to establish cooperation with the Russian oil companies. Japan has been striving to find equity crude oil globally; however, Sakhalin and East Siberia are the nearest regions to supply oil and gas.

The LNG situation in Japan changed dramatically after the earthquake on March 11, 2011 and resultant nuclear accident in Fukushima. Japan’s nuclear power stations were forced to stop operations and had to be replaced by LNG power generation. Japan’s LNG imports soared in 2011 and 2012, and became stable in 2013, increasing by 25% from 2010. This abrupt hike in demand was predominantly filled by additional supplies from Qatar. Russia was also able to slightly expand its LNG share in Japan, although supply was somewhat constrained as only one LNG project, Sakhalin 2, was in operation at the time.

Russian companies are now accelerating the development of several LNG projects in Northeast Asia and the Arctic region, aiming at Far Eastern markets. The Vladivostok LNG is considering the investment rationale and the project should be inaugurated towards the end of this decade. However, concerns remain that these projects may compete with each other in a disorderly way in the Northeast Asian market.

Expanding energy tie with Russia will surely contribute to Japan’s energy security. Russia recognized Japan as a lucrative market, while Japan understood Russia as a stable supplier of oil and gas. Now the relationship between the two is somewhat reciprocal and promises mutual benefits, or so-called win–win situation. As the Japanese market welcomed the Russian crude oil and LNG, this relationship may not change in a short term. This situation contributes to the energy security not only of Japan but of Northeast Asia.

The situation of stable energy supply will secure the long-term stability for the demander, at the same time this will pledge long-term investment for the supplier. This will create a virtuous circle of investment and recovery in Northeast Asia, which will make the energy industries in this region sustainable for a long period. The change of energy situation in this decade may offer an opportunity of better circumstances for political dialogue between Japan and Russia.

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