

The Next Phase in Japan- Russia Oil & Gas Cooperation

November 2013

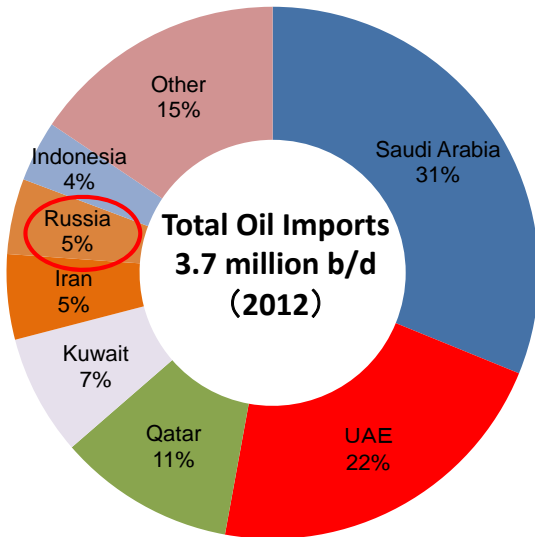
Ministry of Economy, Trade and
Industry of Japan

1. Japan-Russia Cooperation

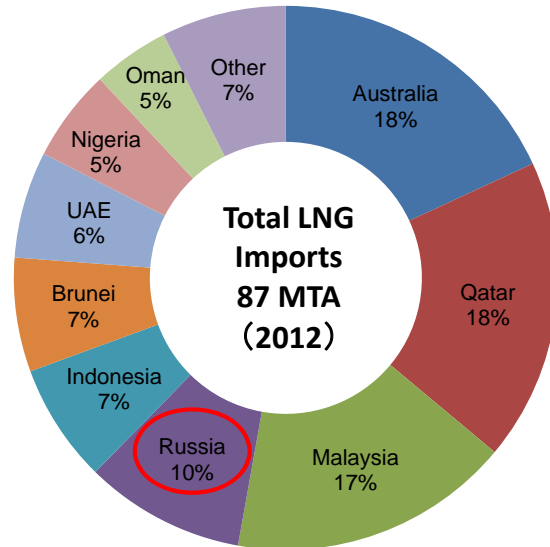
Importance of Russia to Japan

- Russia is one of the world’s top resource-rich countries for both oil and gas.
- Japan imports over 80% of its oil from the Middle East. In this regard, Russia is very important in our mission to reduce our dependency on the Middle East.
- The geological proximity to Japan also makes Russia an attractive source of supply.

Japan’s Oil Import (2012)



Japan’s LNG Import (2012)

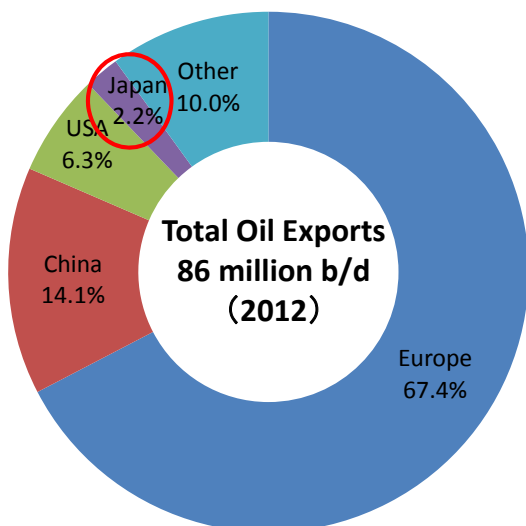


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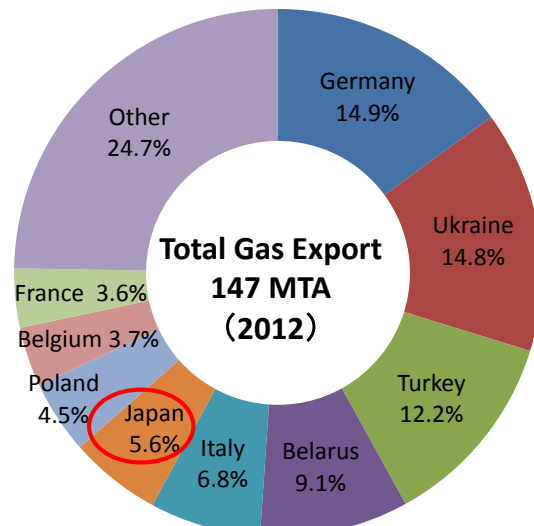
Importance of Russia to Japan

- Due to the dramatic production increase of shale gas in North America, substantial amount of LNG from countries like Qatar have changed their destination from the US to Europe. This has led to the recent decline in LNG spot prices in Europe.
- Although, Europe still remains as the main market for Russian export, Russia now faces price reduction negotiations and market share decrease in Europe.
- Considering this situation, expanding exports to the Asian market is a very strategic and important option for Russia.

Russia’s Oil exports (2012)



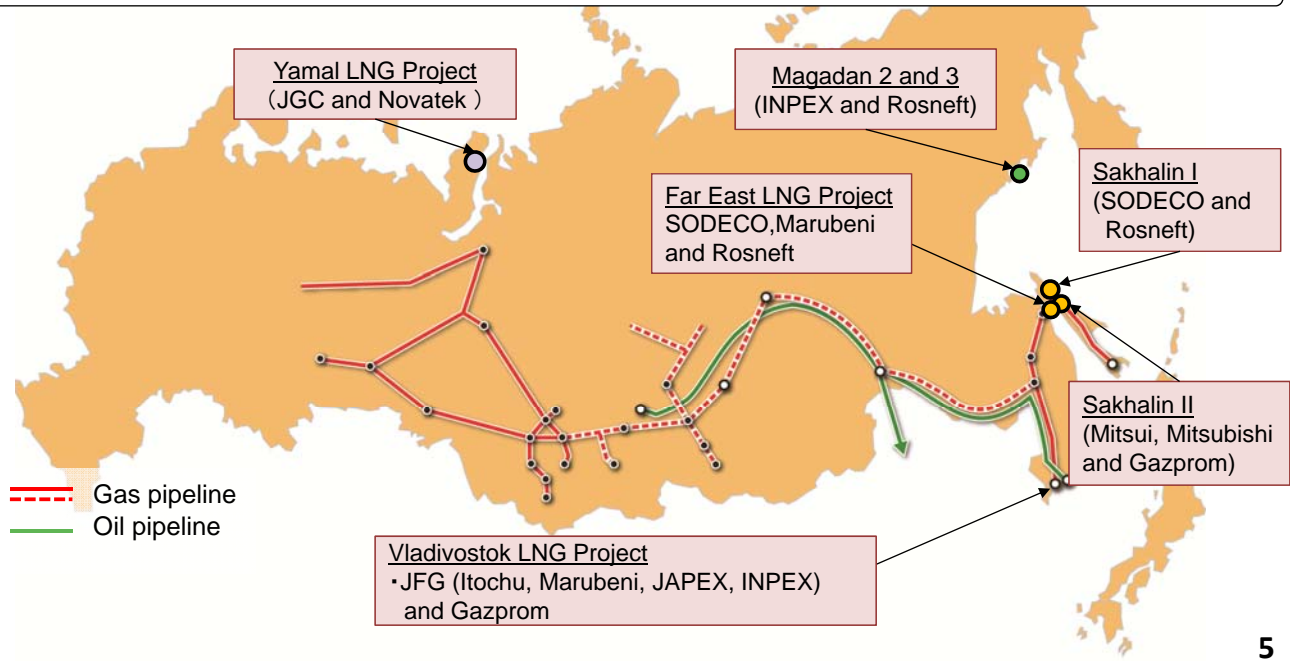
Russia’s Gas Export (2012)



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Russian Oil and Gas Projects

- Japanese firms have played an active and important role in projects such as the Sakhalin I and II. This has definitely led to the enhancement of the relationship between our countries.
- There are many oil and LNG projects currently underway that will involve Japanese firms.



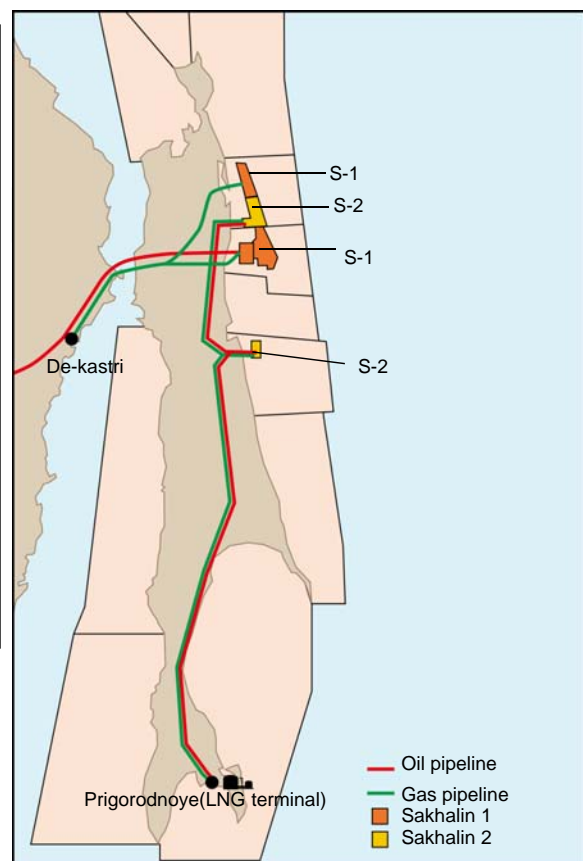
Sakhalin Projects

【Sakhalin I】

- **SODECO*30%, Rosneft 20%, Exxon Mobil 30%, ONGC 20%**
*METI 50%, Itochu 16%, JAPEX 15%, etc.
- Oil has been produced since 2005. 20% of total production(15,000 b/d) is exported to Japan.

【Sakhalin II】

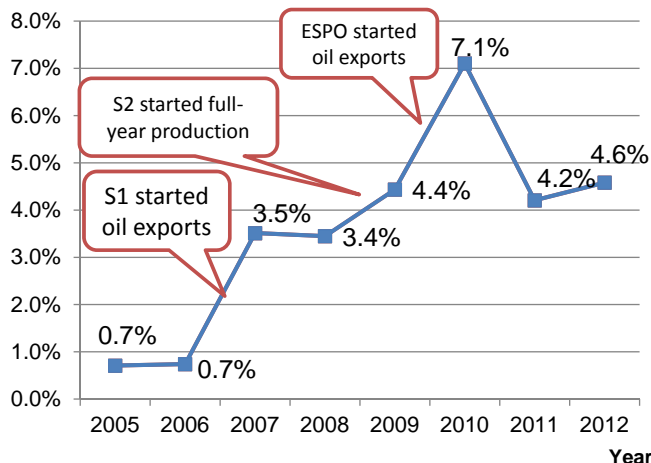
- **Mitsui 12.5%, Mitsubishi 10%, Gasprom 50%+1 share, Shell 27.5% - 1 share**
- Oil has been produced since 1999. 30% of total production (11,000b/d) is exported to Japan.
- LNG export began in March 2009. 80% of total production (11MTA) is exported to Japan. This accounts for 10% of Japan's annual LNG imports.



Increase in Oil/LNG imports from Russia

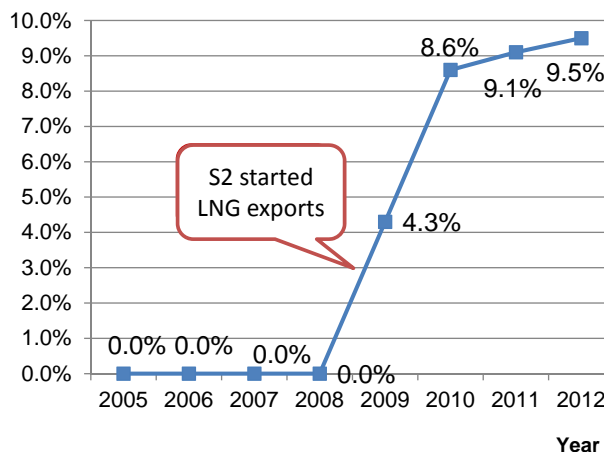
- Due to the progress of Sakhalin I, Sakhalin II and ESPO, exports of both oil and gas from Russia to Japan have increased over the years.
- Considering the geographical proximity, we hope that this will increase even more through the development of not only currently existing projects but new projects.

Russian shares in Japan's total oil imports



Source : Natural Resources and Energy Statistics

Russian shares in Japan's total LNG imports



Source : MOF Trade Statistics

New LNG Projects in Russia

Vladivostok LNG Project (Gasprom)

- LNG project that will gather gas using the SKV pipeline constructed by Gasprom, and liquefy it in Vladivostok.
- The project was started after an agreement between Prime Minister Aso and President Putin in May 2009.
- In June 2013, JFG (Itochu, JAPEX, INPEX, Marubeni) and Gasprom signed a MOU on joint marketing.
- Production: Max 15MTA, Scheduled start: 2018

Far East LNG Project (Rosneft)

- LNG project expected to be constructed near the Island of Sakhalin. Discussions have accelerated after President Putin's announcement to re-examine Gasprom's LNG export monopoly in Feb 2013.
- Rosneft and Exxon have started a joint study from Feb 2013.
- In June 2013, Marubeni and SODECO separately signed a HoA for sale and purchase of LNG with Rosneft.
- Production: 5MTA, Scheduled Start: 2018

Yamal LNG Project (Novatek)

- LNG project scheduled to be constructed in Yamal Peninsula using the gas from the Tambey field.
- In April 2013, JFG made a successful bid for the Front-end Engineering Design (FEED) of the LNG plant.
- Production: Max. 16.5 MTA, Scheduled Start: 2017

2. Japan’s New LNG Strategy

- 1. Paradigm Shift caused by the Shale Gas Revolution**
 - => Emergence of New Suppliers and Abundant Supply**
 - => New Price Formula and Competitive Pricing**

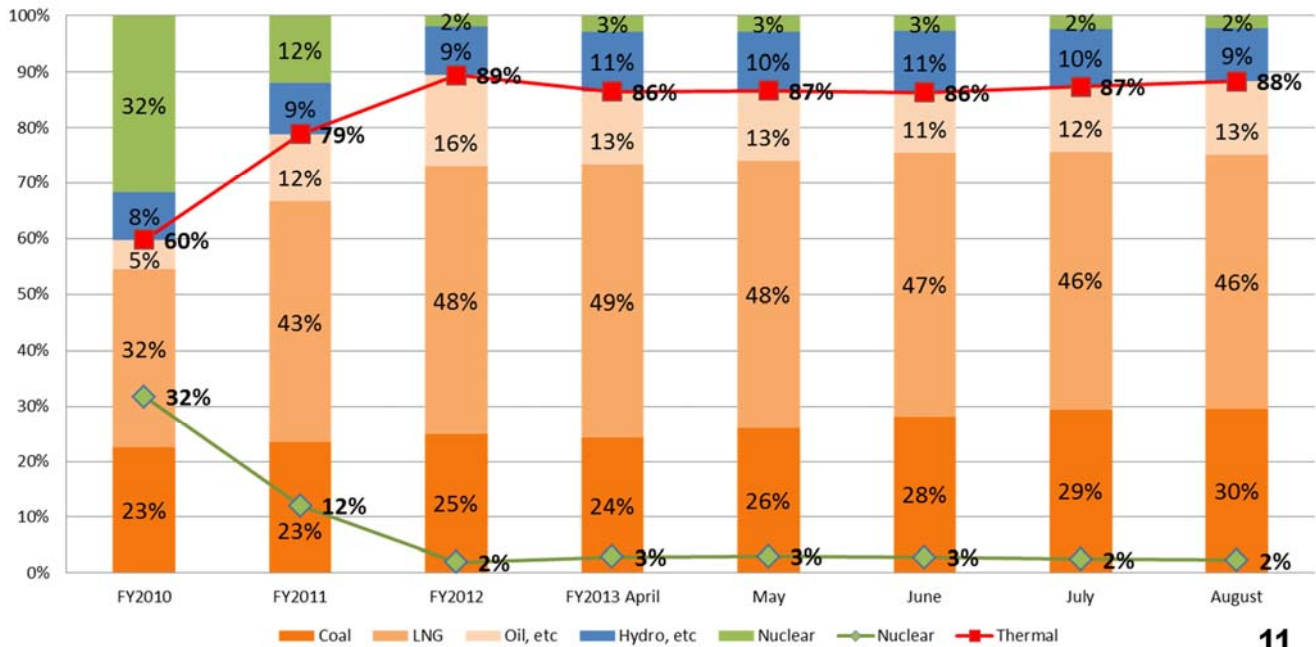
- 2. Dramatic Change in Japan’s Energy Situation after 3.11**



- 3. These two issues have changed Japan’s LNG Strategy**
 - => New Projects and Supply Source**
 - => Procurement of “Competitive LNG”**

- The nuclear power ratio in domestic power generation has decreased after the Great East Japan Earthquake due to the long-term shutdown of nuclear power plants .
- On the other hand, the thermal power ratio has increased to 90%. Currently, LNG thermal power alone accounts for nearly 50% of domestic power generation.

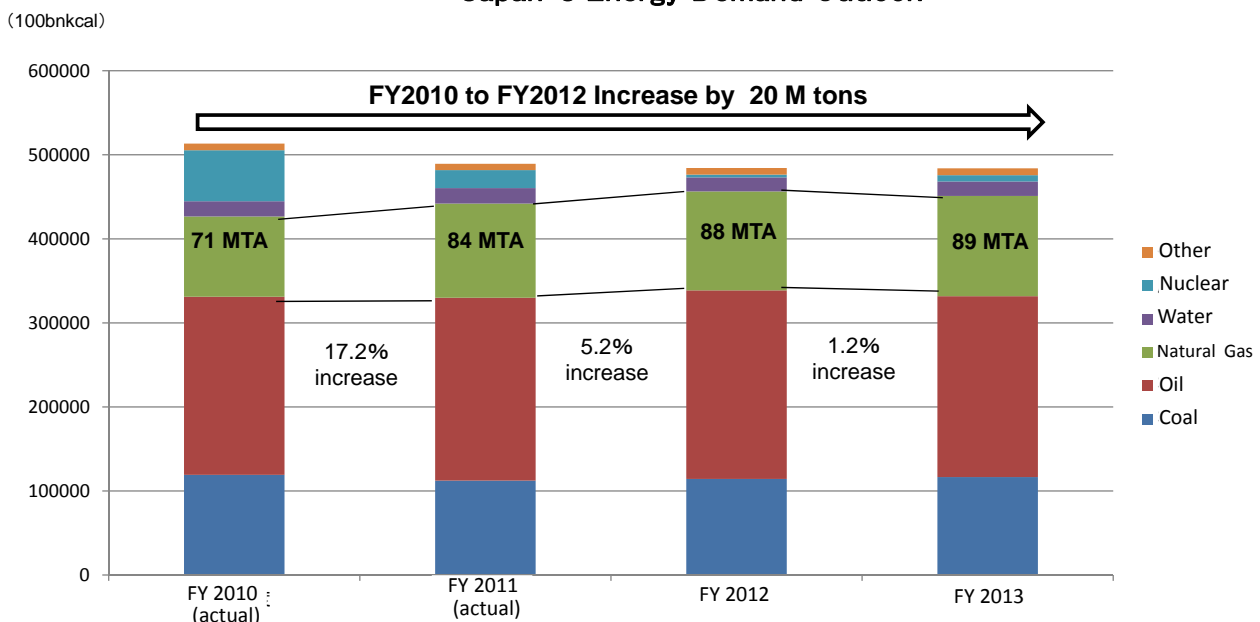
Trend in Domestic Power Generation Ratio



Japanese LNG Costs Nearly Doubled After Fukushima

After the Great East Japan Earthquake, Japan's LNG demand increased by 30% due to the shutdown of nuclear power plants. (2010fy 70M tons → 2012fy 90M tons)

Japan's Energy Demand Outlook

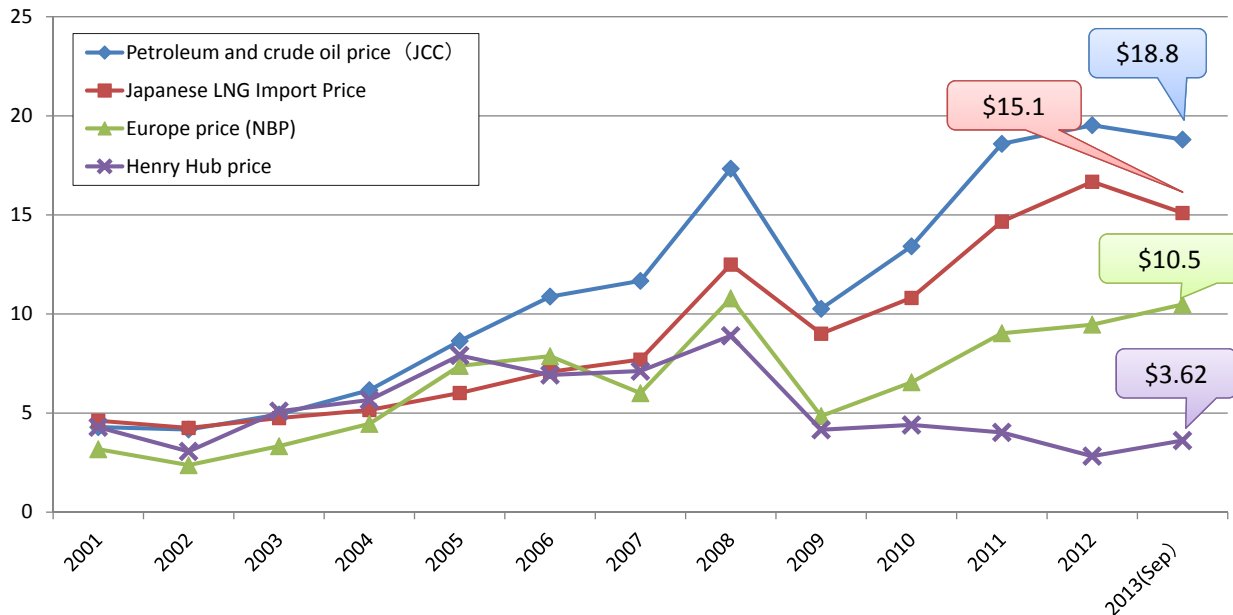


※Assuming that 9 nuclear power plants will resume generation by 2013
 Source: The Institute of Energy Economics, Japan

Japanese LNG Costs Nearly Doubled After Fukushima

- In addition, Japan’s LNG import price, linked to crude oil import price, has soared due to the increase in oil prices.
- As a result, the overall cost of LNG imports to Japan has increased from 3.5 trillion yen/year to 6 trillion yen/year. ※ 1 trillion yen = \$10 billion

Natural Gas price trend (unit: US dollar/MMBTU)



Fuel Import Cost Hitting Japanese Economy Hard

- In 2011, due to the increase in fuel import costs, Japan recorded its 1st trade deficit in the last 31 years. The trade deficit for FY2012 is **8.2 trillion yen**.
- Lowering fuel import costs is an urgent task for the Japanese government.

Trade balance: -13.6trillion yen (2010→2012)

Increase in net imports of fossil fuels :

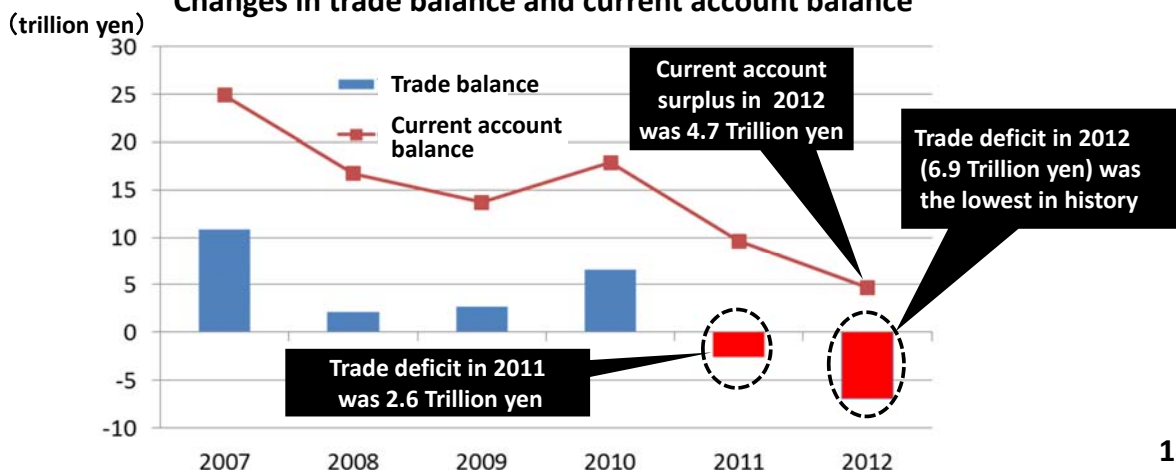
+6.7 trillion yen (17.4→24.1)

➤ Crude oil : 2.9 trillion yen , LNG: 2.5 trillion yen, Petroleum products : 1.1 trillion yen, Coal : 0.2 trillion yen

Net reduction of exports in transportation equipment : 0.6 trillion yen

Other factors : 0.7 trillion yen

Changes in trade balance and current account balance



Japan’s strategy to secure more competitive gas

Supply Side Strategy

1. Early realization of LNG imports from the US
2. Diversification of supply source
 - Russia (Vladivostok LNG Project, Far East LNG Project),
 - Mozambique (Rovuma Offshore Gas Field Area 1 Project),
 - Canada (LNG Canada, Pacific Northwest LNG, Aurora LNG , Triton LNG)
3. Accelerate projects operated by Japanese firms
 - Ichthys LNG Project in Australia

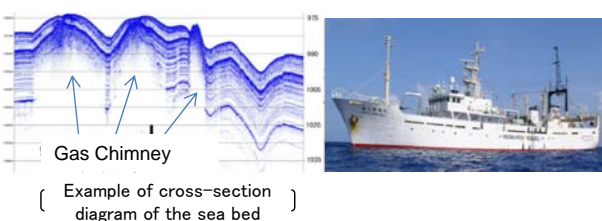
Demand Side Strategy

1. Review applications to restart nuclear power plants
2. Stringent assessment on raising electricity tariff
 - Top-runner approach
3. Re-evaluation of coal power plants
4. Accelerate domestic resource development
 - Methane Hydrate
5. Relaxation of Destination Clauses

Domestic resource development (Methane Hydrate)

1. Shallow Methane Hydrate

1. Actions to understand resource reserves
 - Shallow methane hydrates mainly exists in the Sea of Japan side
 - Will conduct research starting in 2013 to 2016 in order to understand the resource reserve
 - Conducted geological research in 2013 and discovered 225 areas where gas chimneys may exist. Currently, analyzing data
2. Future Plans
 - Conduct detailed and wide-area geological research and also gather shallow methane hydrate samples in 2014



2. Deep Methane Hydrate

1. Offshore Production Test
 - From March 12-18, 2013
 - World’s first experiment of methane hydrate gas production in a sea area using the depressurization method
 - Total output: 120,000 cubic meters
Ave. daily output: 20,000 cubic meters
2. Future plans
 - Improve technologies for commercialization by 2018
3. Cooperation with Other Countries
 - US: Signed Statement of Intent in 2008. Have continued cooperation including an on-shore production test.
 - India: Announced Joint Statement of cooperation in Sep, 2013.



[Flare from offshore production test]