

Japan's Energy policies for ensuring energy security

- perspective of cooperation with Russia- -Focusing on Natural Gas and Oil-

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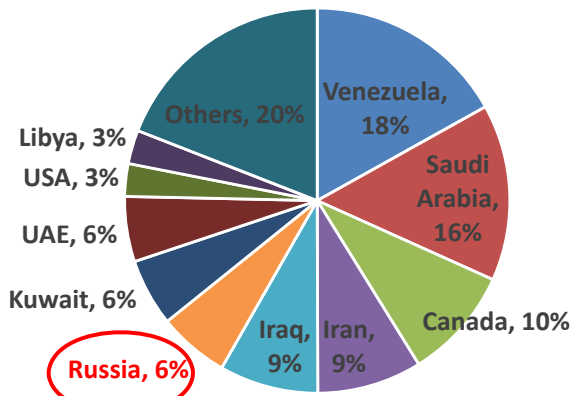
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1. Potential of Russia

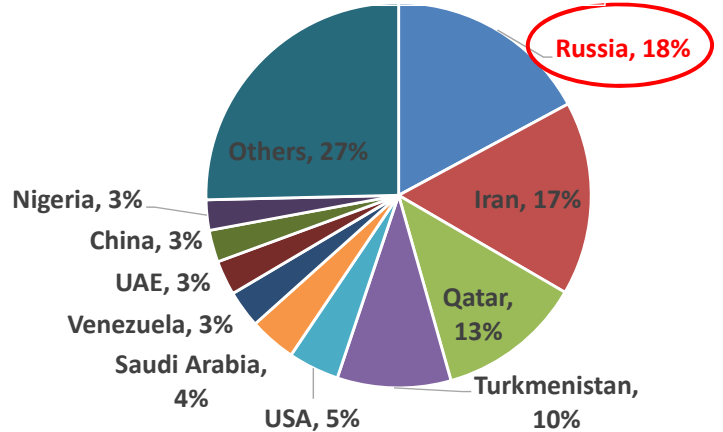
Japan – Russia Energy Cooperation

Potential of Russian Oil and Gas sector

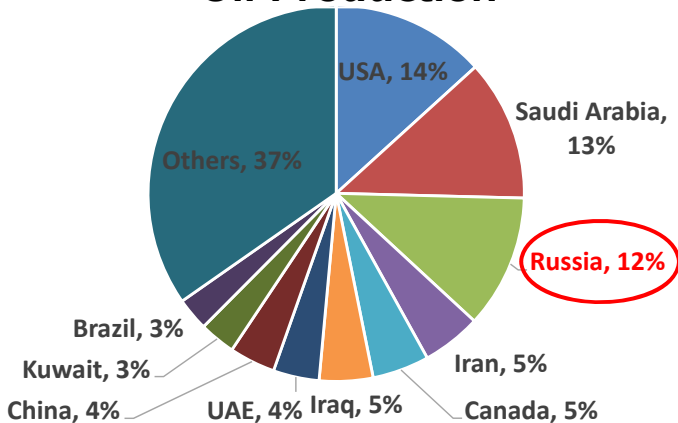
Oil Reserves



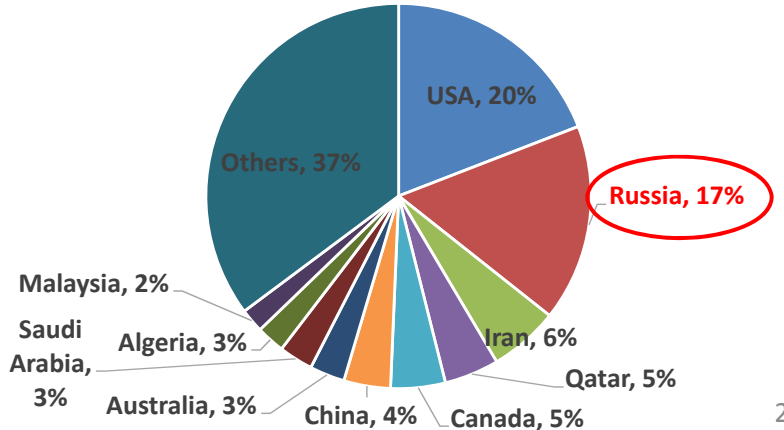
Gas Reserves



Oil Production



Gas Production



Structure of the cooperation with Russia on energy

Strong Relationship between Prime Minister Abe and President Putin

- ✓ In May 2016, PM Abe presented “Eight Points Cooperation Plan” which include the cooperation of the energy sector as a forth pillar of the plan.
- ✓ In January 2019, taking the opportunity of the summit meeting, several documents were signed under the forth pillar of the cooperation plan.

Example of documents signed in 2018

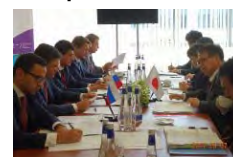
- MoU in relation to the Baltic LNG project (Mitsui, Gazprom) (Itochu, Gazprom)
- MoU on cooperation for utilizing Hibiki LNG terminal (Saibugas Novatek)



Japan-Russia Energy Initiative Council

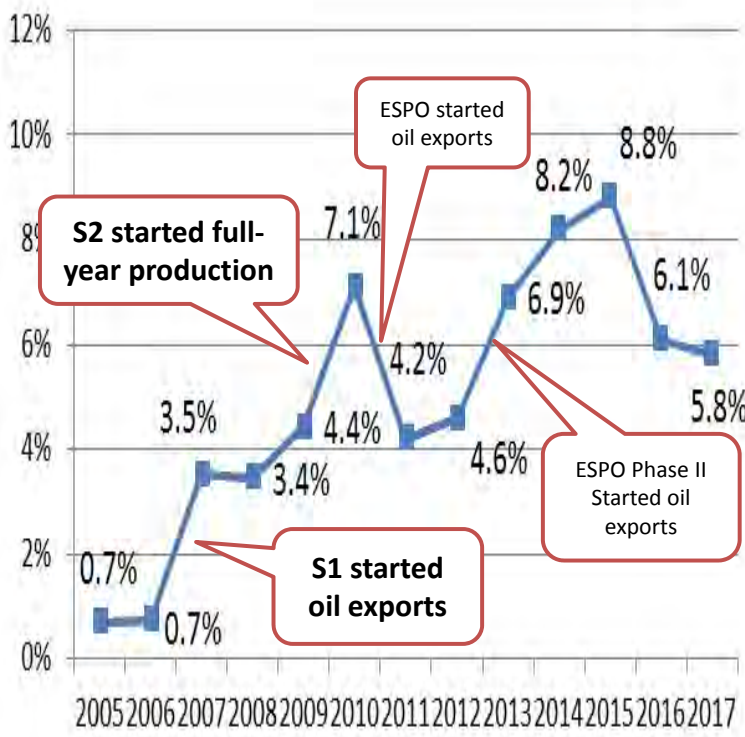
(Chaired by Minister of Economy, Trade and Industry and Minister for Economic Cooperation with Russia, Hiroshige Seko, and Minister for Energy, Alexander Novak.)

- Hydro carbon (oil, natural gas, and coal) – Upstream oil and gas, LNG projects; Construction and technological development of petrochemical plants; Cooperation toward coal purchase.
- Energy conservation & renewable energy
- Nuclear power



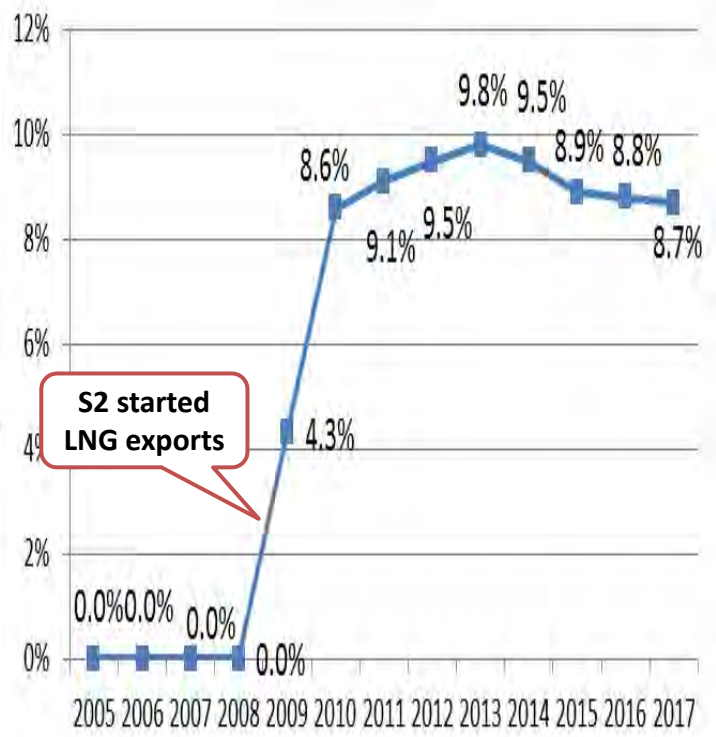
The Importance of Cooperation With Russia on Energy

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

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Japan-Russia Projects on Oil and Gas sector

Yamal LNG
Operated by Novatek
*JGC and Chiyoda undertook the construction

Arctic LNG2
Initiated by Novatek
*Under negotiation

Baltic LNG
Initiated by Gazprom
*Under negotiation

INK-Krasnoyarsk
INK-Zapad

Gas(LNG)
Oil

Sakhalin1
ENL:30%, SODECO:30%
(METI, JAPEX, ITOCHU, Marubeni, INPEX)
ONGC:20%, SMNG-Shelf:11.5% RN-Astra:8.5%

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Sakhalin2
Gazprom:50%+1, Shell:27.5%-1, Mitsui:12.5%,
Mitsubishi:10%

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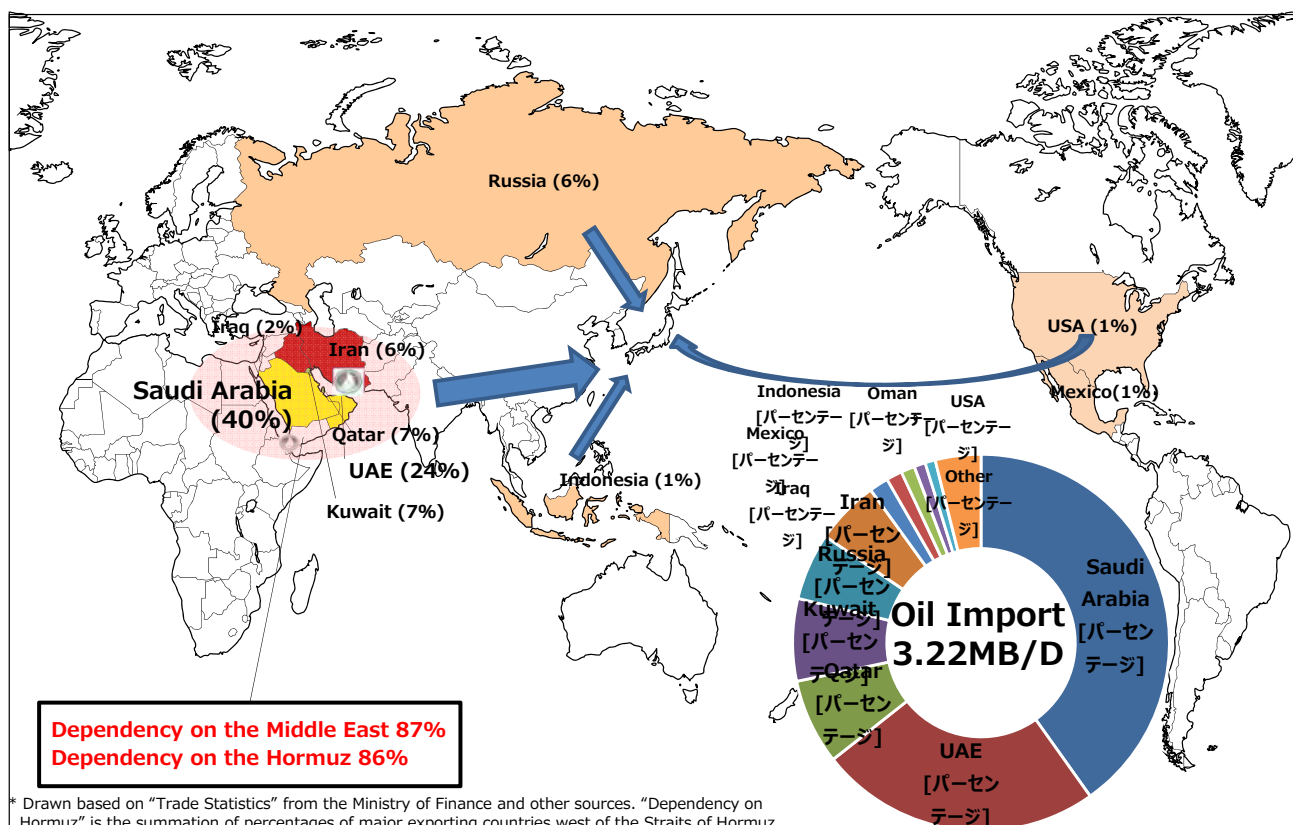
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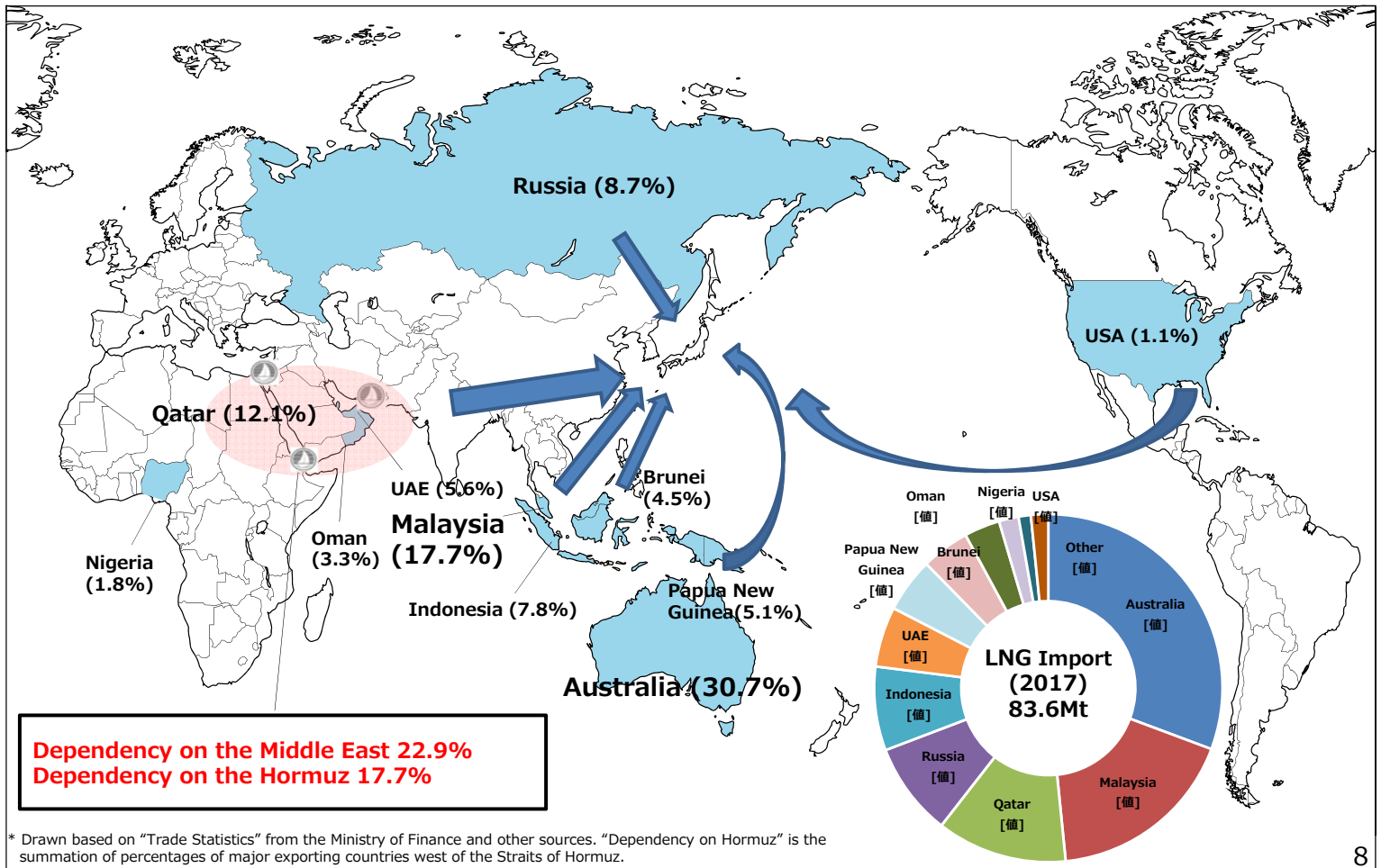
2. Japan’s Energy Situation

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Japan’s Crude Oil Procurement (2017)



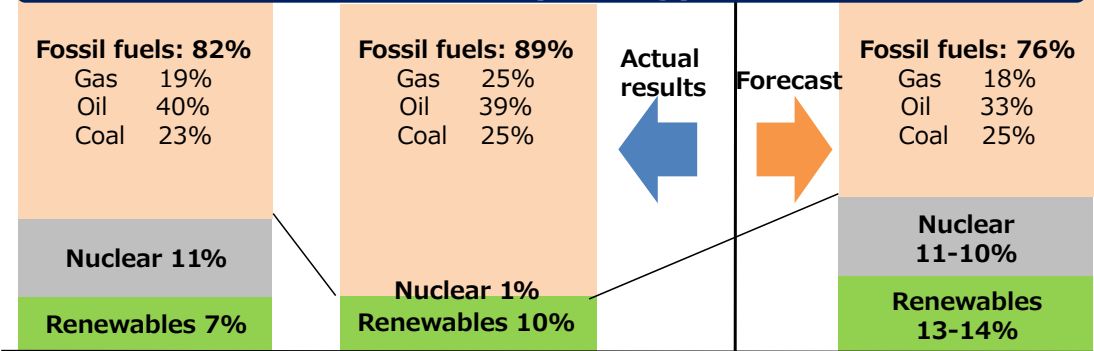
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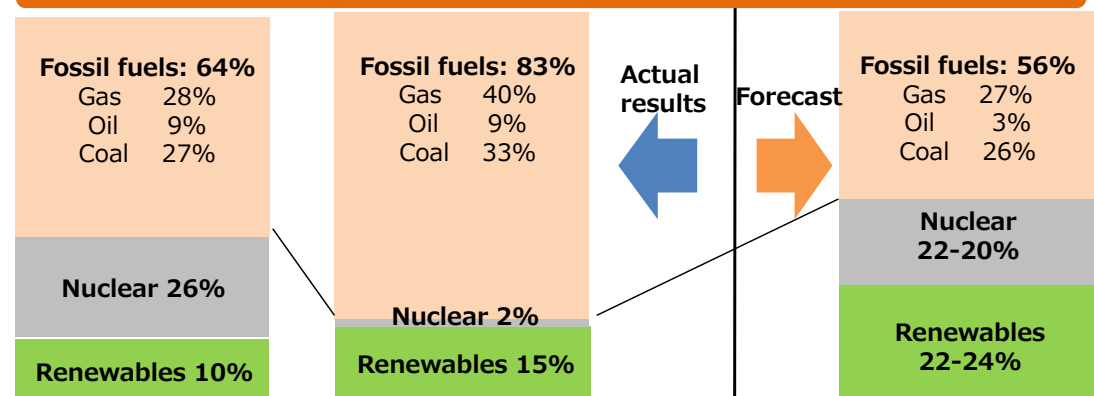
Energy Mix in Japan

- Energy Mix is a forecast and also a vision of a desired energy structure.
- the goals of "Energy security", "Economic efficiency" and "Environment" are achieved

Primary energy



Power



- Conditions;
- 1.17% energy saving
 2. Maximum install of renewable energy
 3. Install of thermal power generation reducing environmental impact and improving power generation efficiency.
 4. lower dependency on nuclear power generation

2010FY
LNG: 71MTPA

2016FY
LNG: 85MTPA

2030FY
LNG: 62MTPA

3.LNG Market and Growing Demand in Asia

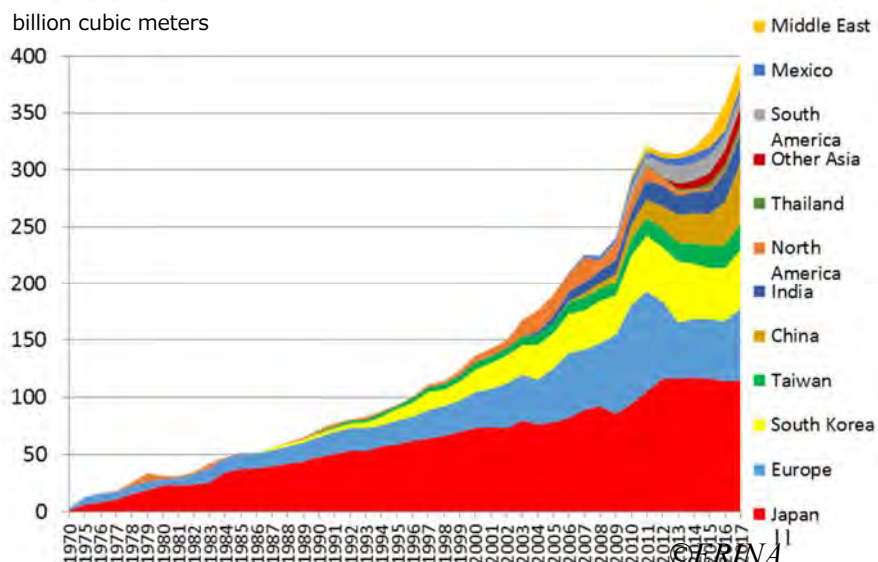
Development of LNG Market

- Natural gas has expanded at the fastest pace over the past 40 years. Particularly in Asia, the import of LNG (liquefied natural gas) has substantially increased.
- In 1969, Tokyo Gas and Tokyo Electric Power started to import LNG for the first time, and since then **Japanese electric power and gas companies have led the development of the global LNG market** (the world's largest LNG importer accounting for one-third of the total).
- Recently, countries like China and South Korea have become significant LNG importers. In 2017, China exceeded Korea to become the world's 2th largest LNG importer.

Changes in global energy supply mix

	1970	1990	2010	2017
Crude oil	46%	39 %	33%	34%
Natural gas	18%	22%	24%	23%
Coal	30%	27%	30%	28%
Nuclear power	0%	6%	5%	4%
Hydro power	5%	6%	6%	7%
Renewable energy	0%	0%	1%	4%

Changes in global LNG imports



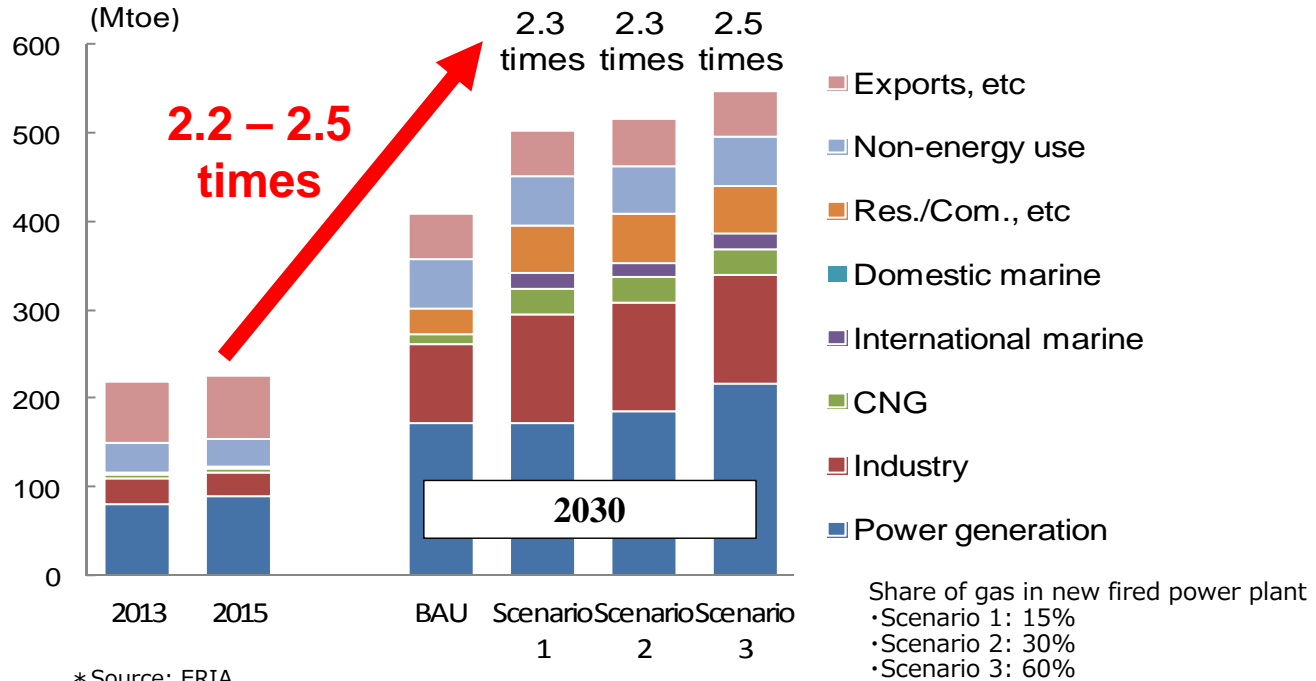
Source: BP Statistics, Cedigaz

Gas demand potential and LNG investment in Asia (ASEAN + India)

Eleventh Japan-Russia Energy and Environment Dialogue in Nigata KT SAKI

- Natural gas demand in Asia could potentially expand about **2.5 times between now and 2030**.
- Those countries require about **\$80 billion in LNG supply chain investments**.

cf: if the investment for natural gas fired power plants are included, this figure would increase significantly.



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Announcement at LNG Producer Consumer Conference (2017)

- The 6th Conference was held on October 18th, 2017 with attendance of 12 ministers from consuming and producing countries.
- Minister Seko announced Japan's contribution and commitment (**\$10 billion** financing and **500 people** capacity building) during his keynote speech, in order to further the expansion of the Asian LNG market.

JAPAN'S CONTRIBUTION/COMMITMENT

Finance
\$10 billion of investment by Japan's public and private sectors

Capacity Building
500 people In 5 years



JAPAN'S PROMISE

Liquid LNG Markets

New LNG Utilization Measures

International Consensus on the benefits of LNG



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Announcement at LNG Producer-Consumer Conference (2018) -SASAKI

- ✓ Date/ Place: October 22nd, 2018/ Hotel Nagoya Castle, Nagoya
- ✓ Participants: around 1000 people including ministers, top executives of related enterprises and international organizations from 28 countries and regions
- Mr. Hiroshige Seko, Minister of Economy, Trade and Industry, delivered a speech stating that Japan will contribute to expanding the LNG market, by **drastic expansion of financing support** and **support for LNG consumers in development of regulation, master plans etc.** and called for cooperation between producers and consumers in order to enhance the LNG supply security.

Japan's Contribution towards Market Expansion

Drastic expansion of financing support (JOGMEC/JBIC/NEXI)

Support for development of regulation, master plans etc.

= **Contributes to the creation of LNG market of 50 million tons.**

Security/Destination Clause

Global public and private network development for emergency.

Coordinate efforts on security enforcement.

Model clauses regarding destination restrictions.



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"Strategy for LNG Market Development"

(announced by METI in May 2016)

- In addition to the growth in global LNG demand, the market environment surrounding LNG is now experiencing drastic changes; the reform of the electricity and gas market in the biggest LNG market, Japan, the shale revolution, the development of LNG spot markets and rapid increase of related players in this market.
- More and more LNG buyers now seek best mixture of term contracts/short and spot trade and oil-linked price/other formula price etc.
- Taking these changes surrounding LNG into account, Japan aims to achieve a flexible and transparent LNG market to procure and trade LNG freely and reasonably.
- To meet this goal, ①enhancement of tradability, ②creation of a proper price discovery mechanism, and ③ open and sufficient infrastructure are important elements.

