

Update on Oil and Gas Security in Japan

The 6th APEC Oil and Gas Security Network Forum

21 April 2023

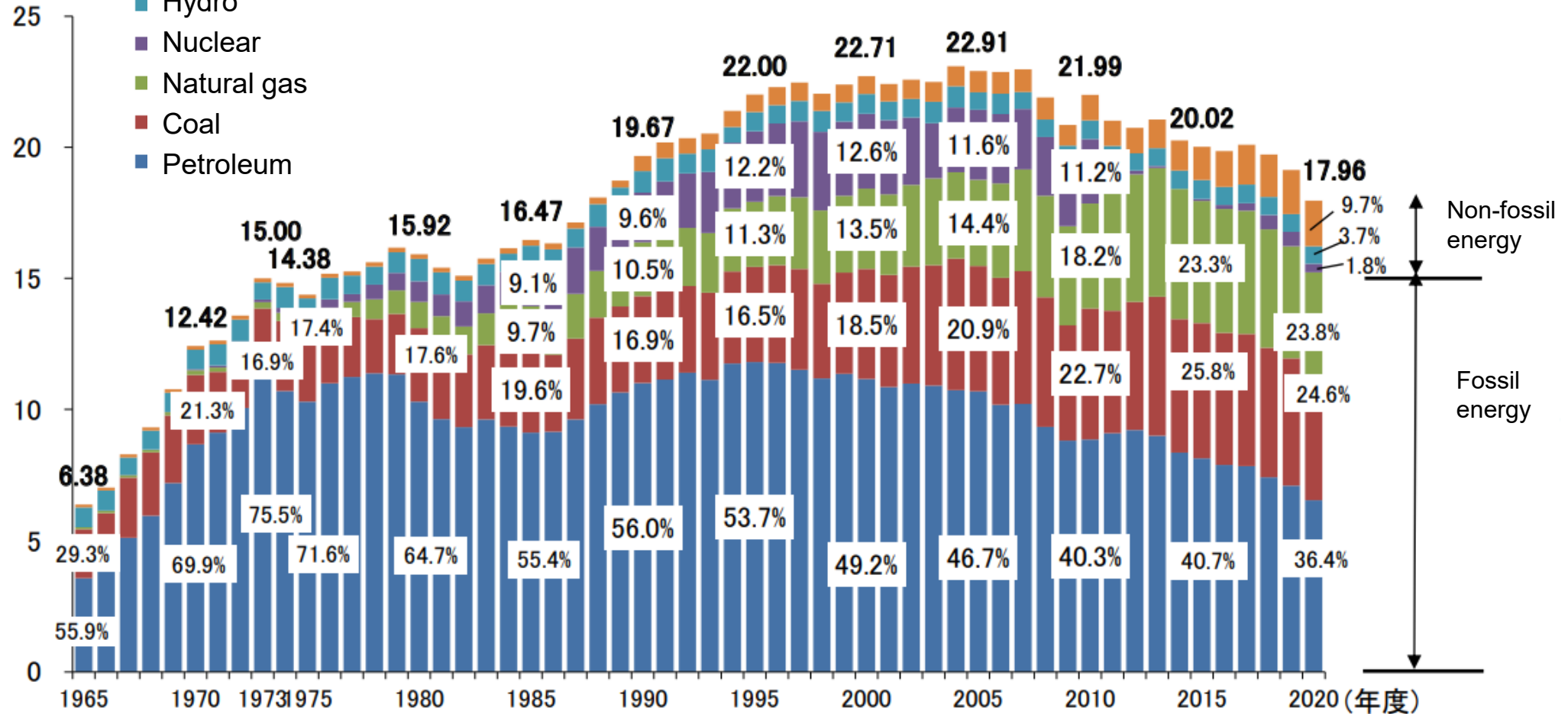
Agency for Natural Resources and Energy
Ministry of Economy, Trade and Industry, Japan

Japan's Energy Supply Structure

Change in domestic supply of primary energy

(EJ)

- Renewables excluding Hydro
- Hydro
- Nuclear
- Natural gas
- Coal
- Petroleum



(Note 1) Calculation method changed in FY1990 and following years in General Energy Statistics of Japan.

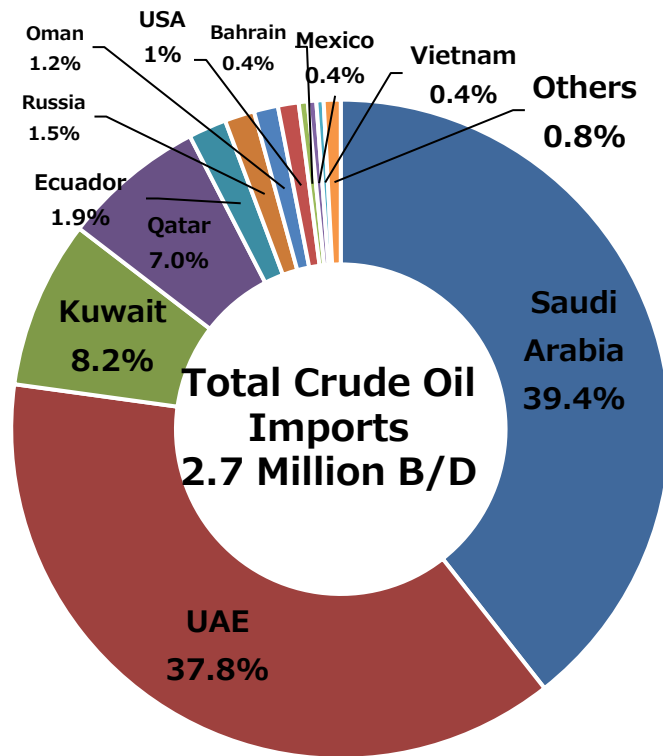
(Note 2) New energy, geothermal, etc. include solar power, wind, biomass, geothermal, etc. (the same hereinafter).

Reference: Created on the basis of Agency for Natural Resources and Energy "General Energy Statistics of Japan."

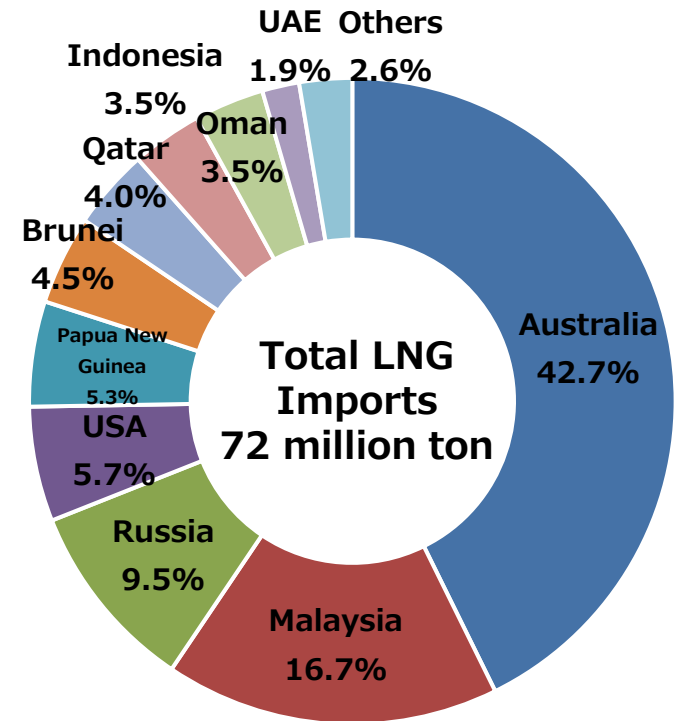
Low Self Sufficiency Rate

Country	Self-sufficiency rate of primary energy (2020)
Japan	11% (Oil:0% LNG:3% Coal:0%)
USA	106% (Oil:103% LNG:110% Coal:115%)
Canada	179% (Oil:276% LNG:13% Coal:232%)
UK	75% (Oil:101% LNG:53% Coal:20%)
France	55% (Oil:1% LNG:0% Coal:5%)
Germany	35% (Oil:3% LNG:5% Coal:54%)
Italy	25% (Oil:13% LNG:6% Coal:0%)

Fossil fuel import destinations in Japan (2022)



Middle East 94.1%



Middle East 9.4%

Japan's Oil Stockpiling System at a Glance

1) Government oil stockpiling:

The Government of Japan owns oil stocks and JOGMEC manages the stocks in accordance with the Oil Stockpiling Act.

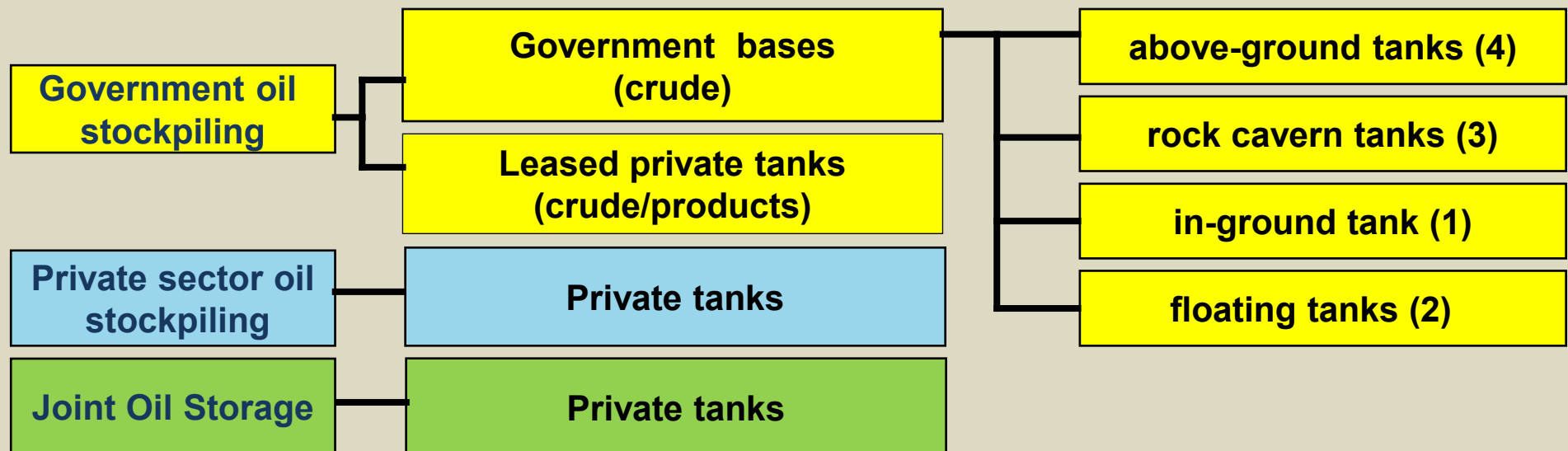
2) Private sector oil stockpiling:

Private companies such as oil refiners, distributors, and importers are obligated to maintain a certain amount of oil stocks in their tanks in accordance with the Act.

3) Joint Oil Storage projects with Oil producing countries:

The projects have been carried out with Saudi Arabia, UAE and Kuwait.

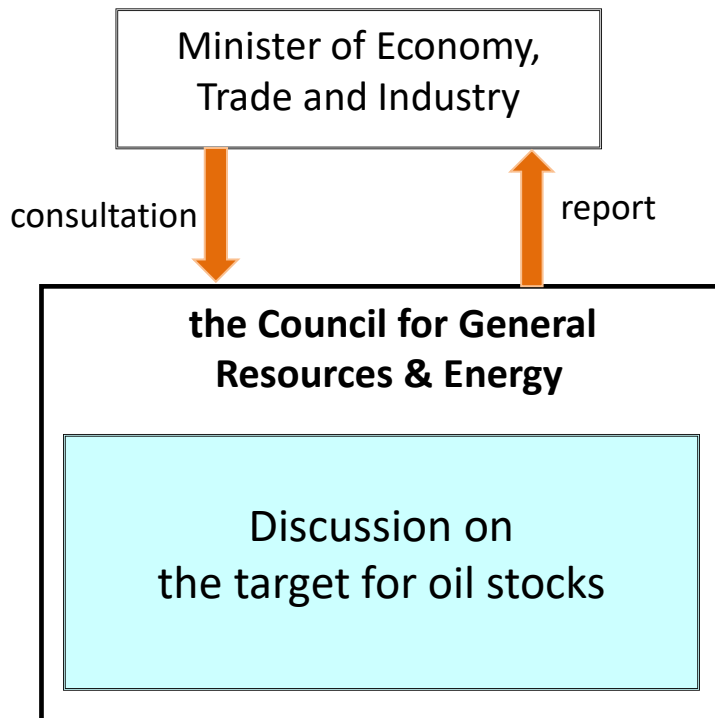
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Current Oil Stockpiling Targets

- Oil Stockpiling Act requires the Minister of METI to set a 5-year target for oil stocks based on the council's report every year.
- Since FY2015, the target account has been changed from quantity-base to day-base. This change allows us to have more flexibility on our stockpiling, to some extent, while keeping it at a certain level.

Process for setting the target



The Target of FY2022 – FY2026

- **Each oil reserve shall not be less than the following amounts**
 - **Government stocks**
about a 90-day equivalent of import volume, including one-half of Joint Oil Storage
 - **Private stocks**
70-day equivalent of domestic demand

Current Status of Stockpiling in Japan

As of December 2022, the amount of stocks is as follows:

Total : **222 days of net imports** (approx. 460 million barrels) >> IEA obligation (90 days)

1) Government oil stockpiling:

129 days of net imports (approx. 270 million barrels)

2) Private sector oil stockpiling:

87 days of net imports (approx. 180 million barrels)

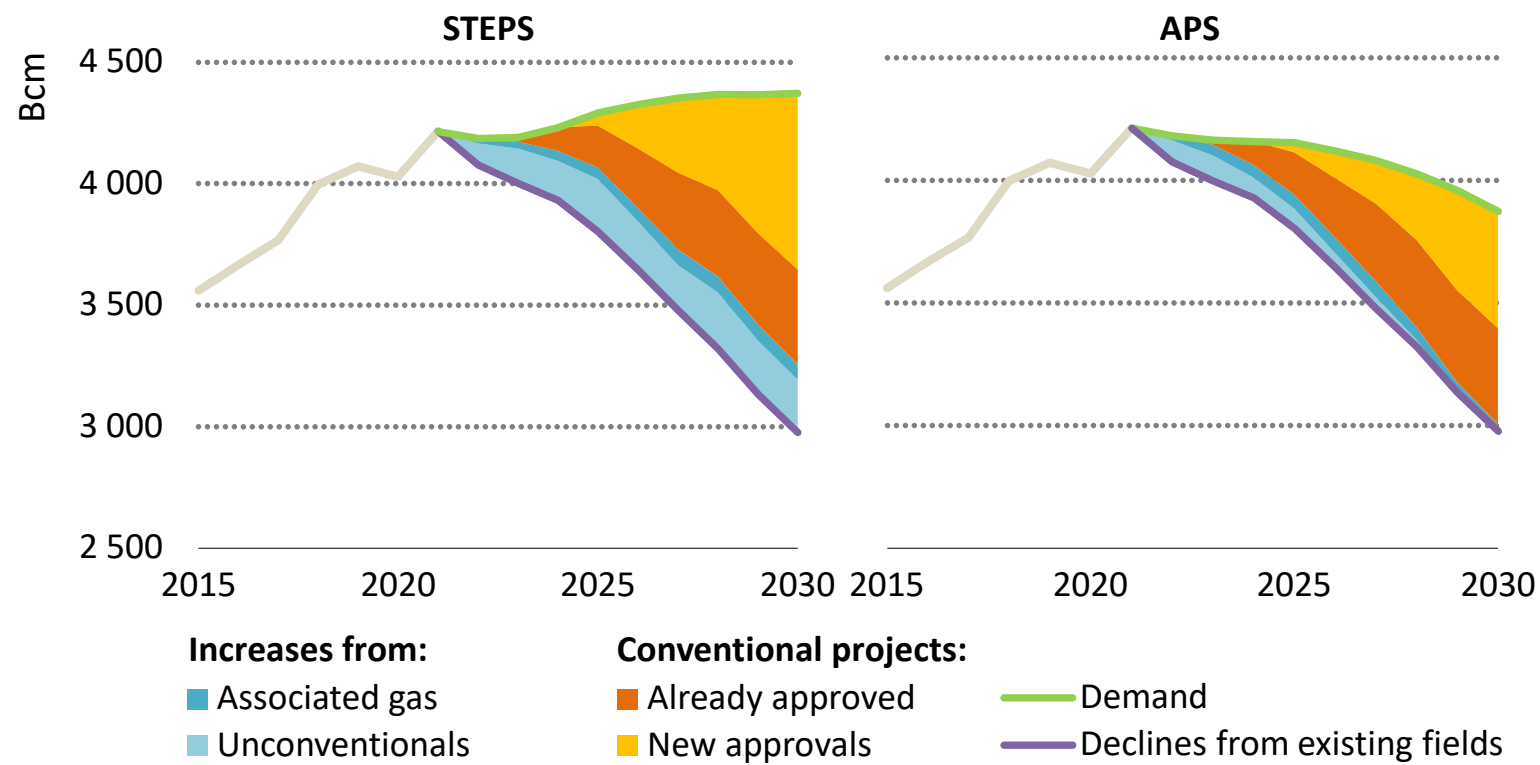
3) Joint Oil Stocks with Oil producing countries:

3 days of net imports (approx. 6 million barrels)

New supplies are needed in the IEA's STEPS and APS scenarios

● Despite flat or declining natural gas demand in the IEA's STEPS, the most probable scenario, and IEA's APS, more ambitious scenario, additional upstream investment is nonetheless required to offset declines from existing fields.

Additional gas supply in the STEPS and APS, 2015-2030

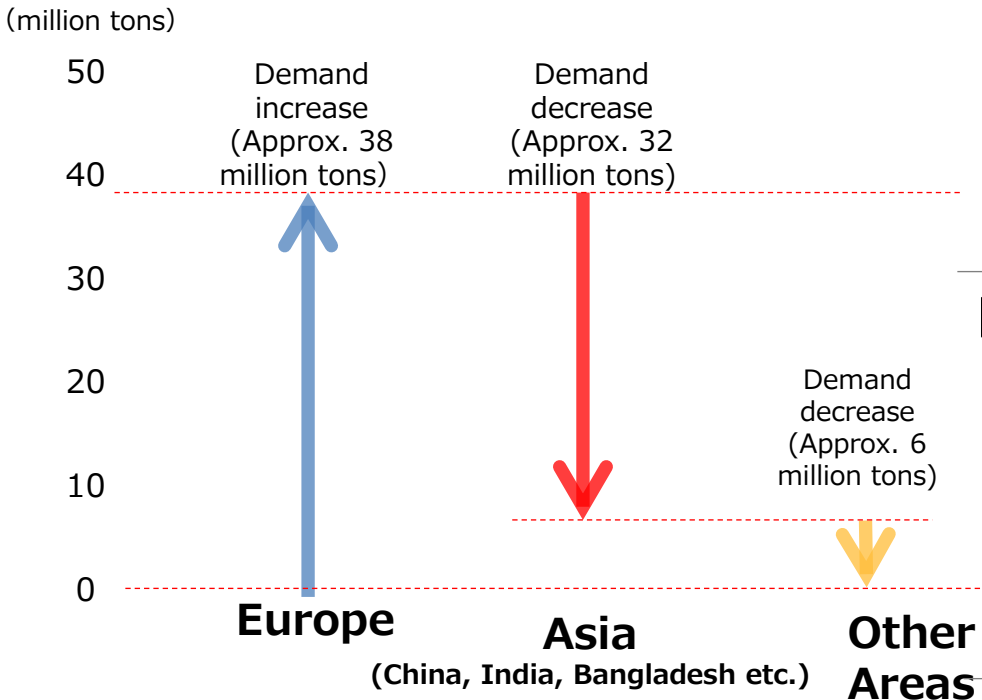


The Stated Policies Scenario (STEPS) shows the trajectory implied by today's policy settings.
The Announced Pledges Scenario (APS) assumes that all aspirational targets announced by governments are met on time and in full, including their long-term net zero and energy access goals.

Severe LNG shortages in Asian countries

- Due to strong demand for LNG in Europe, LNG, which is originally supplied to the Asian market, has shifted its destination to Europe.
- This has resulted in serious LNG shortages and price hikes especially in Asia, and some Asian countries have abandoned purchasing LNG and have restarted coal power plants and oil power plants, despite of their carbon neutrality goal.

Global LNG Procurement Compared to 2021



(Sources) Prepared by JOGMEC based on available data

Recent Thermal Power Plant Trends in Asia

Pakistan Severe natural gas shortages are looming for the winter as foreign currency runs out and Western sanctions on Russia limit options, but the upheaval caused by the war in Ukraine is making the necessary LNG purchases very expensive. -NIKKEI (Nov-23)
Pakistan and Bangladesh have been forced to seek emergency financial assistance from the International Monetary Fund (IMF) due to the burden of expensive fuel imports. -tribune (Sep-05)

Bangladesh As price-sensitive regions such as South Asia were forced to surrender LNG to Europe; nationwide power outages since early July, restricting commercial building operating hours; and a new LNG market in the U.S., which is expected to be the largest in the world by the end of 2012. -ANADOLU AGENCY (Aug-26)
 Half of Bangladesh's floating storage and vaporization facilities remain unused as LNG imports are halted due to high LNG prices. -NGI (Aug-17)

Viet Nam LNG import plans delayed due to pandemic and high LNG prices. Negotiations with LNG suppliers are also difficult. -PV Gas (Mar-08)

11th LNG Producer-Consumer Conference

- Amidst the drastic changes in the international energy situation, we deepened our discussions on the future market **prospects for LNG, which is attracting increasing attention** not only as a response to climate change but also from **the perspective of a stable energy supply**, and the measures required from the public and private sectors.
- Japan communicated the message that **LNG is an indispensable resource for energy transition and stable supply in Asia**, and that Japan hopes that all countries and international organizations will join the circle of cooperation that Japan is promoting. He also said that LNG is an indispensable resource for both energy transitions and a stable supply in Asia.

1. Outline

- Date and time: from 7:00 PM to 10:00 PM, September 29 (Thu.), 2022
- Venue: Online
- Number of participating people, countries and regions: **About 1,600**
- Program
 - Session 1: Opening remarks and Keynote Speeches
 - Special Session
 - (1) MOC Signing Ceremony METI – PETRONAS
 - (2) Special Message from the Singapore Government about LNG Cooperation with Japan
 - (3) Speeches from JERA and Uniper about LNG and H2/Ammonia Cooperation
 - Session 2: One-on-One Dialogue “Divide or Cooperate”
Mr. Hosaka Commissioner of ANRE and Dr. Daniel Yergin Vice Chairman, S&P Global
 - Session 3 : Keynote Speeches by Private Companies



2. Major participants

- Mr. Yasutoshi Nishimura, Minister of Economy, Trade and Industry (Video message)
- Mr. Shin Hosaka, Commissioner of Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry
- H.E. Saad Sherida Al-Kaabi, Minister of State for Energy Affairs, State of Qatar
- Dr. Fatih Birol, Executive Director, International Energy Agency (IEA), etc.

(Ministers and representatives from 27 countries and international organizations and 53 leading companies attended.)

3. Outcomes

- METI Minister Nishimura stated that public finance will accelerate the consideration of support for LNG procurement including trading.
- Mr. Hosaka, Commissioner of ANRE, and H.E. Tengku Mohammad Taufik, President and Group CEO of Petronas, signed an MOC regarding cooperation of LNG field.

Thank you!