



**German-Japanese Energy Transition Council**

**Implications of war in Ukraine  
for the Japan's energy security and climate strategy**

November 2022

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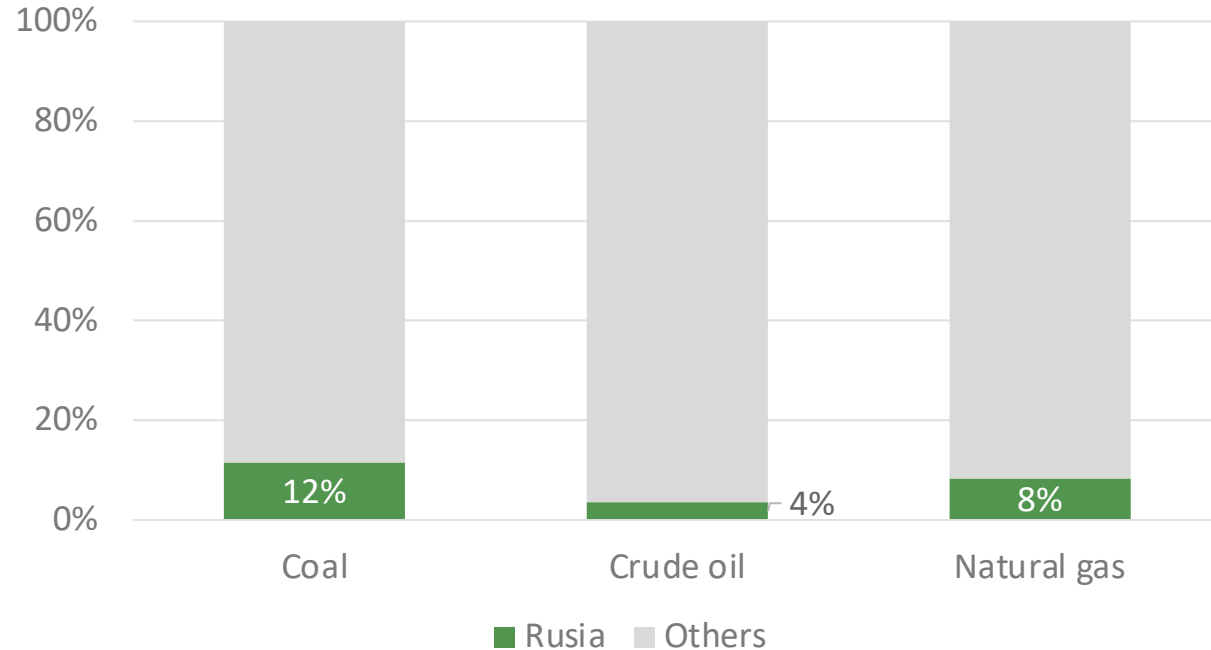
Chairman and CEO

The Institute of Energy Economics, Japan

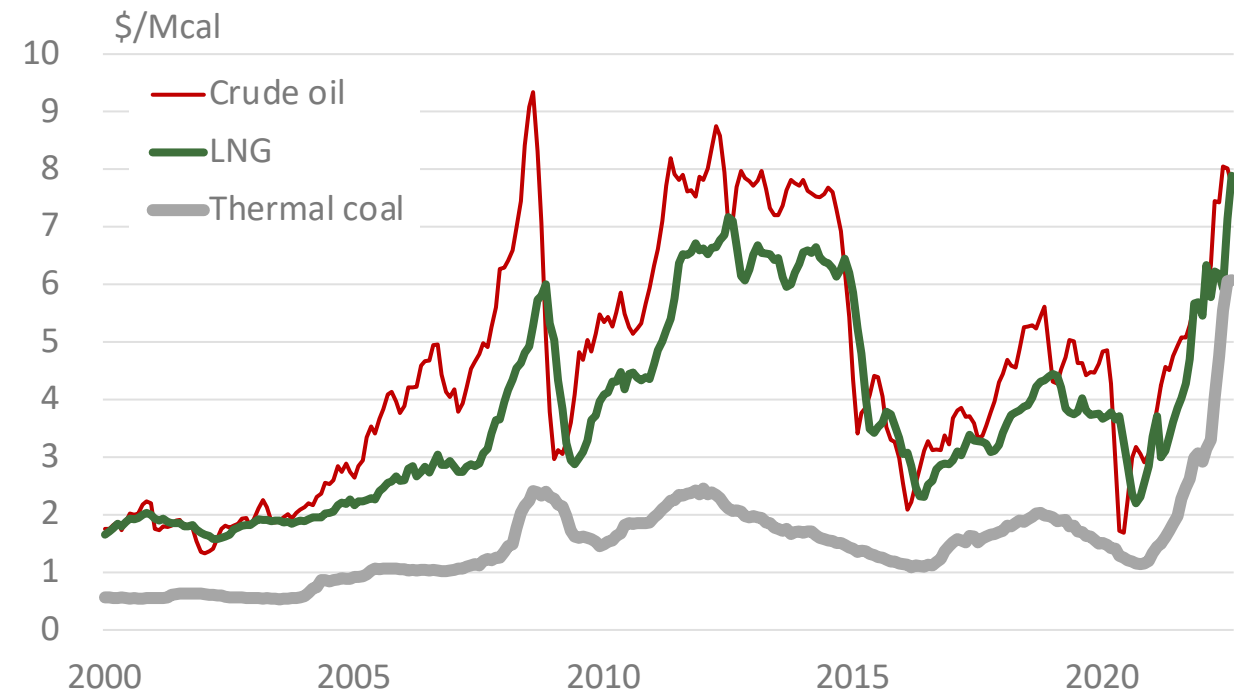
# Smaller dependence, but not small impact

- **Japan's dependence of fossil fuel import from Russia is relatively small.**
- **But, impact of losing LNG import from Russia (6.39mton in 2021) is not small under very tight global/domestic market condition.**
  - Tight global LNG market due to increasing demand from Europe with extremely high price.
  - Tight domestic power market due to reduced reserve capacity which reveals increasing needs for gas power generation.

Russia dependence of fossil fuel import in Japan (2020)

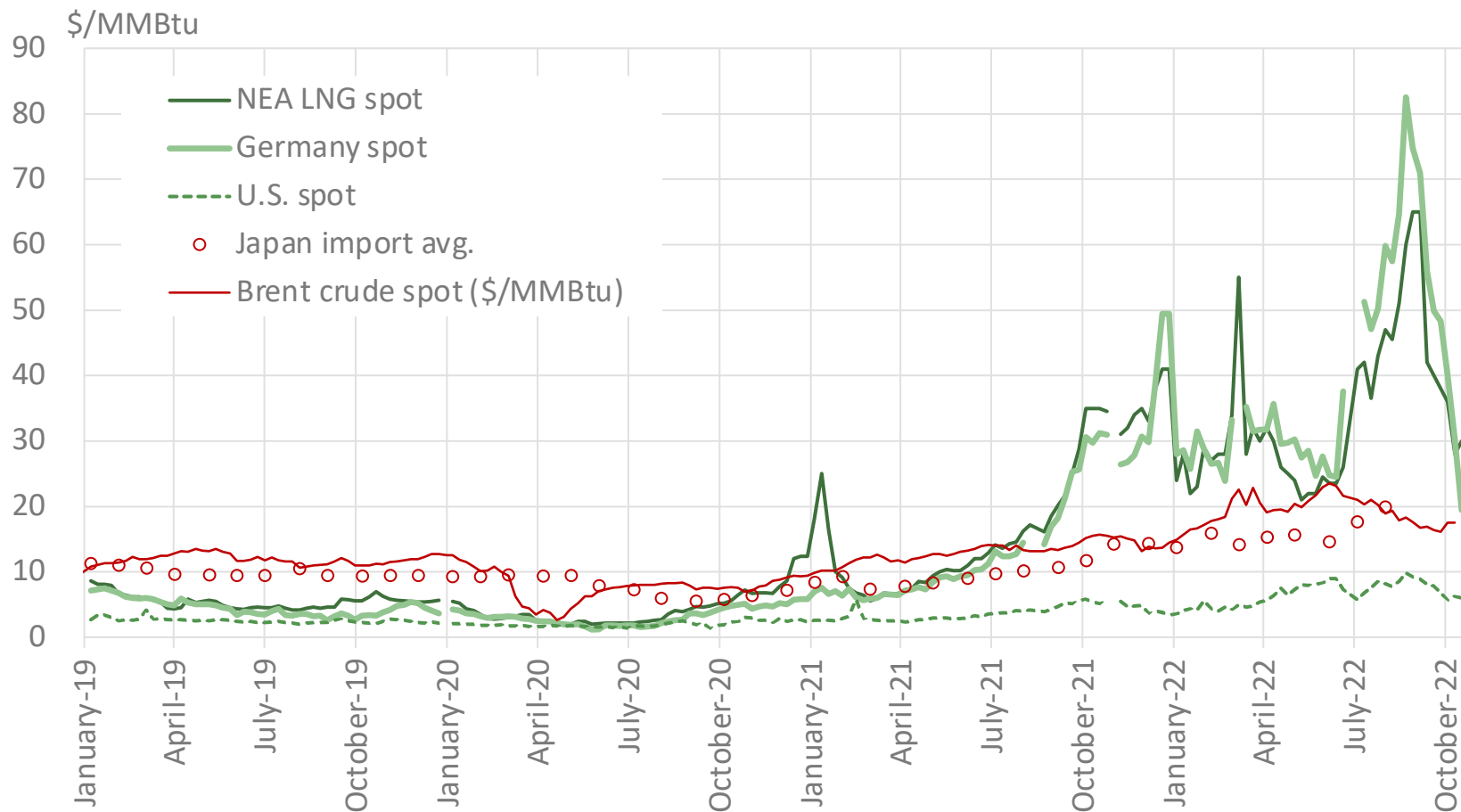


Fossil fuel import price in Japan



# Term-contract protects Japan

- **In LNG imports, Japan has been relatively less-affected by having many term contracts whose prices are linked to crude oil.**
  - Share of short-term (less than 3 years) and spot contracts is 22% in 2021. (Remaining 78% comes from long- to mid-term contracts)
  - Traditionally, and ironically, this type of contracts has often been criticized as it undermines market flexibility and lead to high import price.
- **This implies importance of holding contract portfolio.**

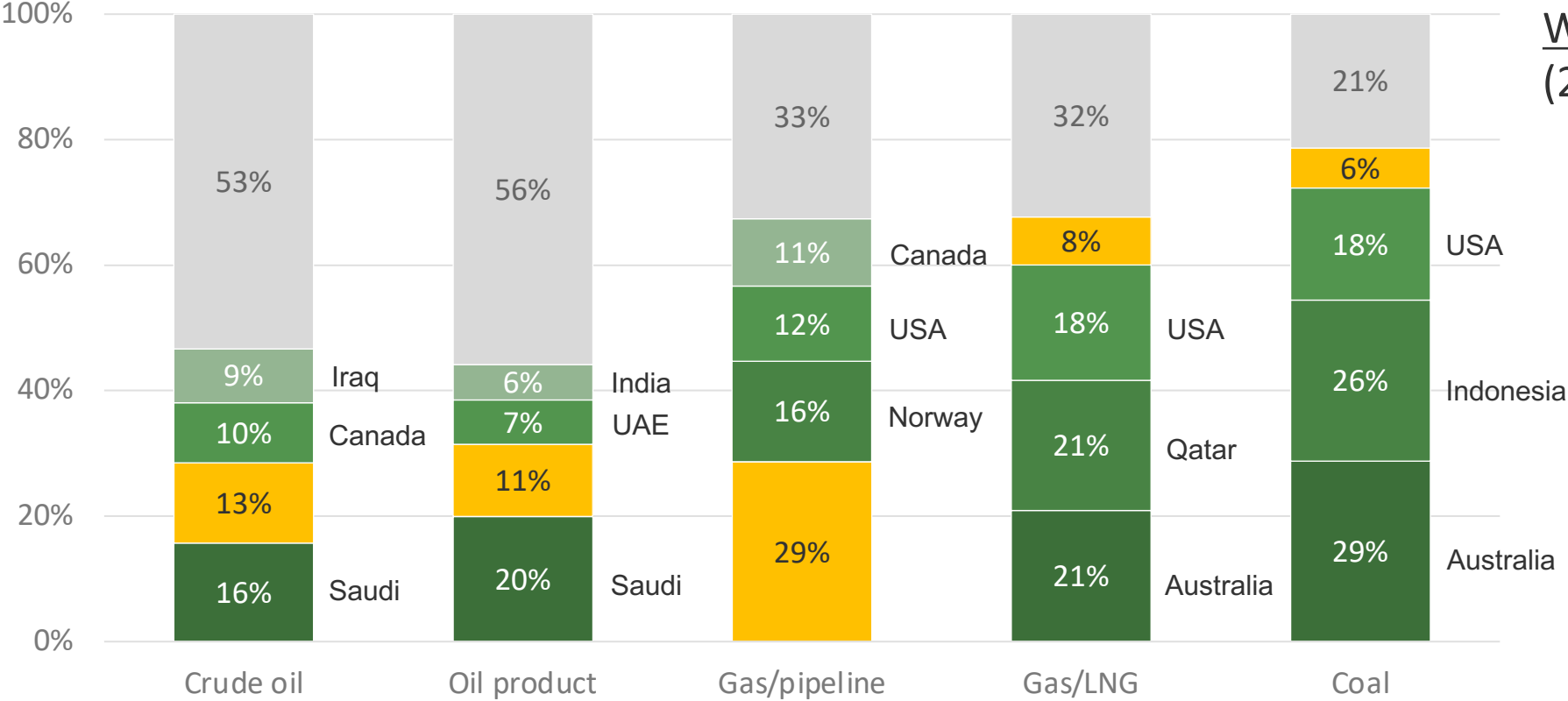


Natural gas spot price  
and Japan's average LNG import price

# Need investments to replace Russian gas



- Russia’s share in fossil fuel export is large, particularly in gas export.
  - Total 241 Bcm (177 million ton-LNG equivalent) of Russian gas export account for 20% of global gas export in 2021.
- **World needs investment throughout the natural gas supply chain to meet worlds’ energy needs.**
  - e.g. New fields, liquefaction, LNG receiving
- **However, commitment of buyers to underwrite financing becomes an issue.**



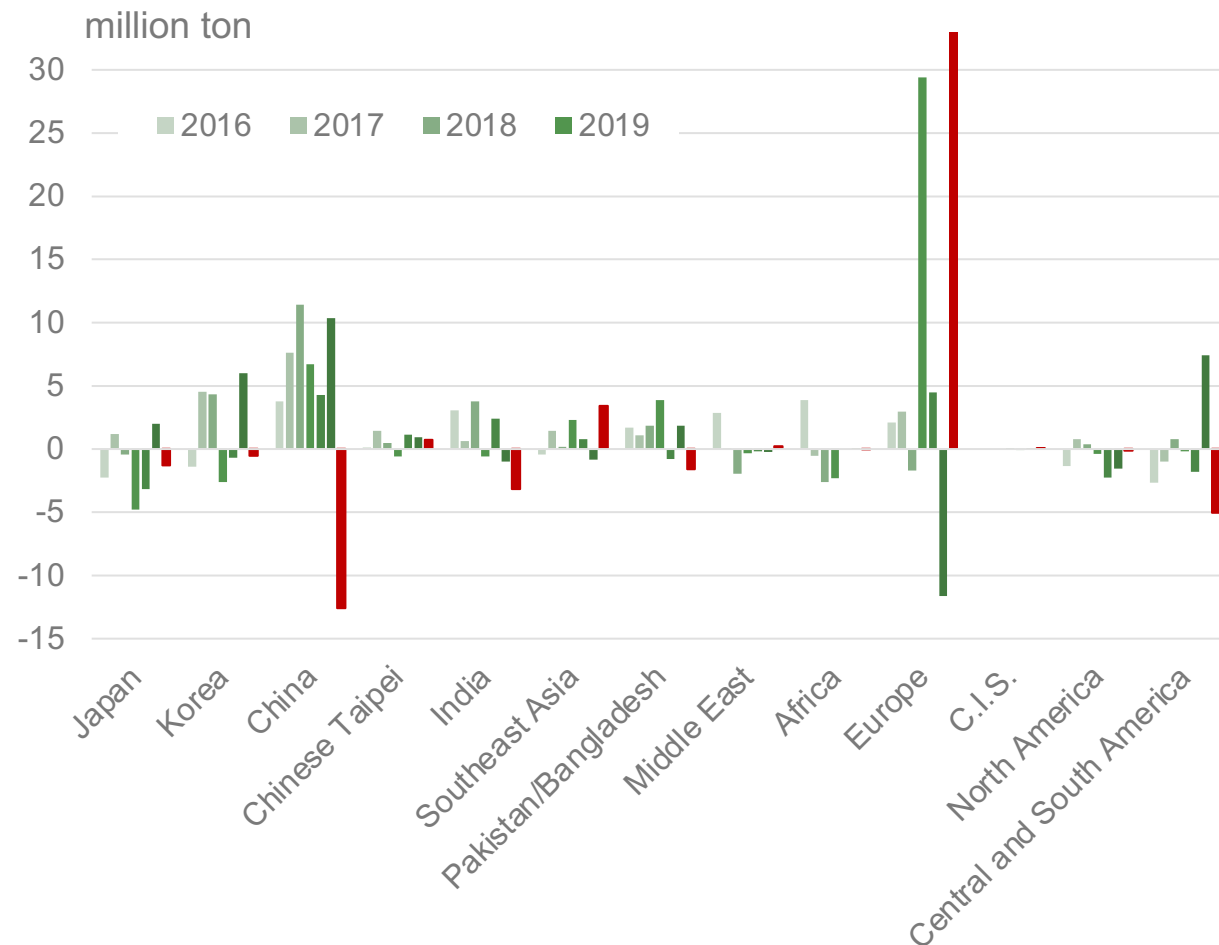
World’s top 4 fossil fuel exporting countries (2021)

Source: BP 2022

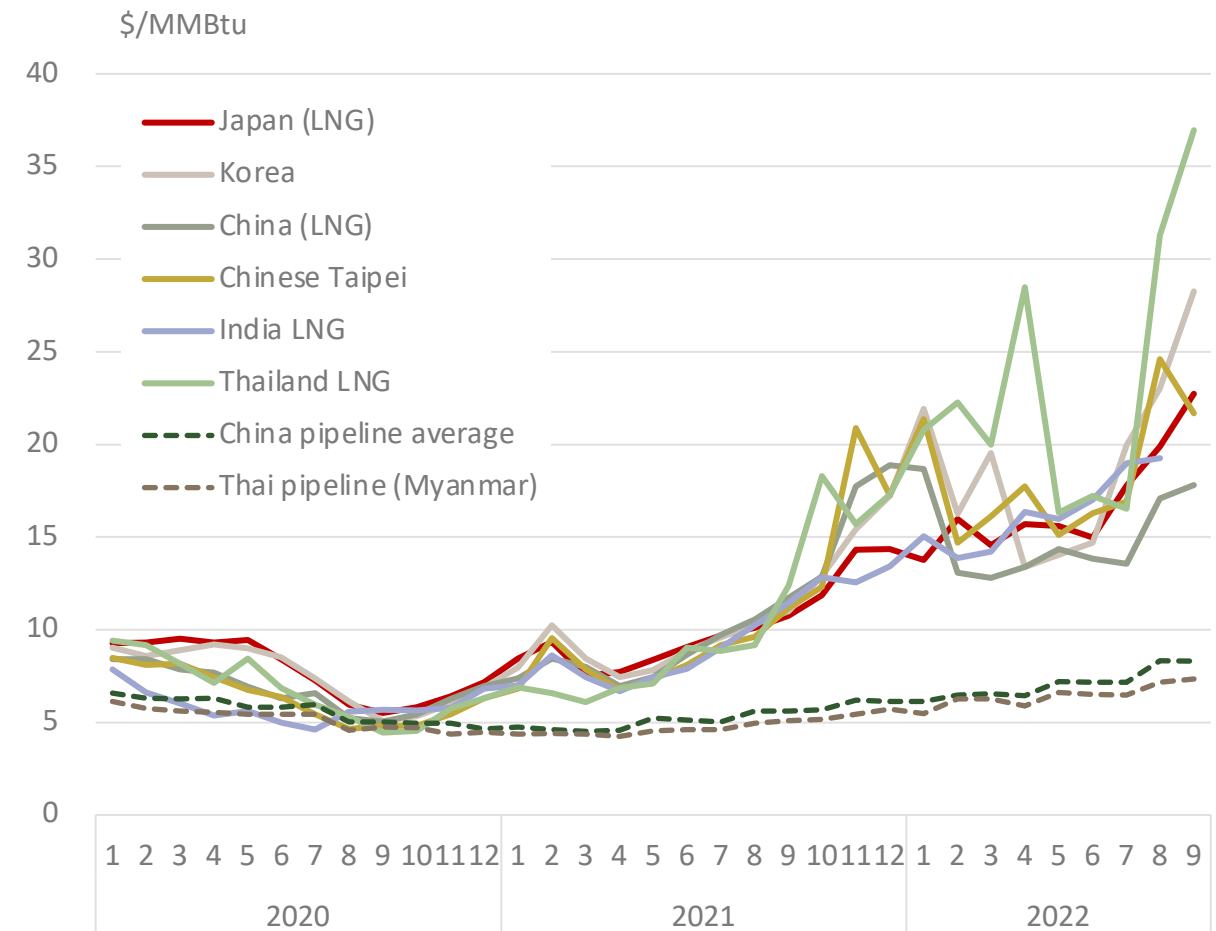
# World sees a new LNG flow and price range

- World's LNG dried up as many cargos being diverted to natural gas hungry Europe.
- Many Asian LNG importers are experiencing high LNG price.

Y-on-Y change of LNG import amount



Trajectory of natural gas import price



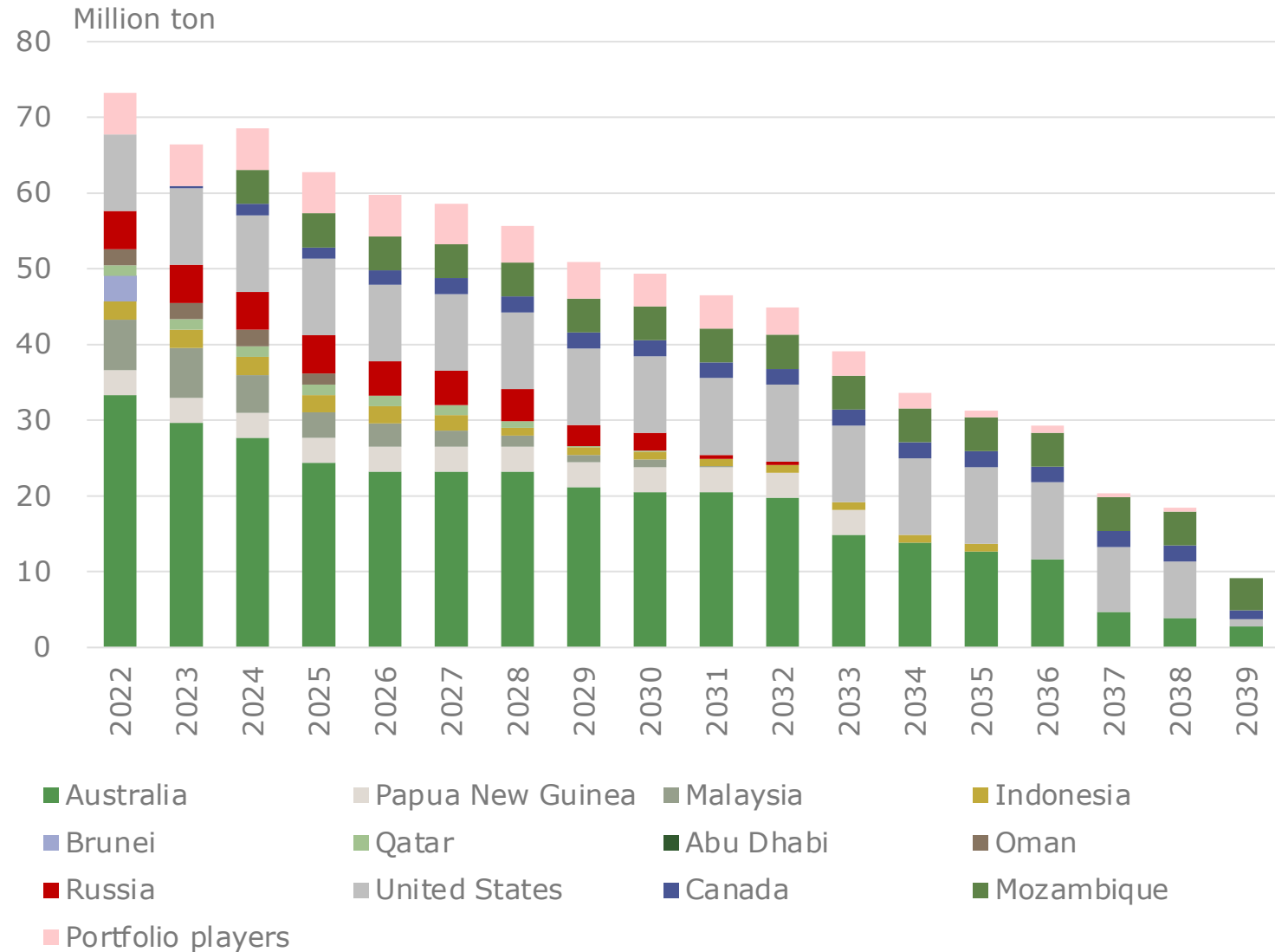
Source: Cedigaz, from 1st to 3rd quarter in each year

Source: Trade statistics in each country

# How to fulfill LNG needs in Japan?

- Japan needs to ensure additional LNG import along with a gap between demand and term-contracts.
  - Russian contract will be reduced by 1.5 mton in 2029 and 1.8mton in 2031.
- Until 2025, expect to secure supplies from other projects and portfolio players.
- From 2026 onward when large-scale LNG export addition will come on line, vital to secure new long-term contracts from these sources.
- **But Japan alone cannot give credibility for investors to support natural gas investments.**
  - Uncertainty in Japan’s market includes;
    - Declining energy demand
    - Climate policy to reduce fossil power
    - Operation of nuclear power
    - Competition in the power and city gas market
- **Japan needs to develop long-term usage for the additional natural gas.**
  - Decarbonize natural gas by applying technologies (e.g. H<sub>2</sub>, CCS)

Prospect of existing LNG term contracts by Japanese companies



# Needs of natural gas in Asia

- Carbon neutrality goal in developing Asia will pose significant challenges to change their carbon intensive energy system within the limited time frame.

Challenge 1	Need stable supply of large amounts of energy to meet the growing demand.
Challenge 2	<b>Need cheap energy to protect low-income people as well as to develop industry in harmony with climate issue</b>
Challenge 3	Renewable energy alone cannot meet their energy needs. <ul style="list-style-type: none"> <li>- Lacks scale to supply the fast-growing energy demand.</li> <li>- Some countries have limited availability.</li> <li>- Cost of integrating variable renewable energy will become an issue.</li> </ul>

- 2-stage structural change using natural gas can support energy security and energy transition in Asia.

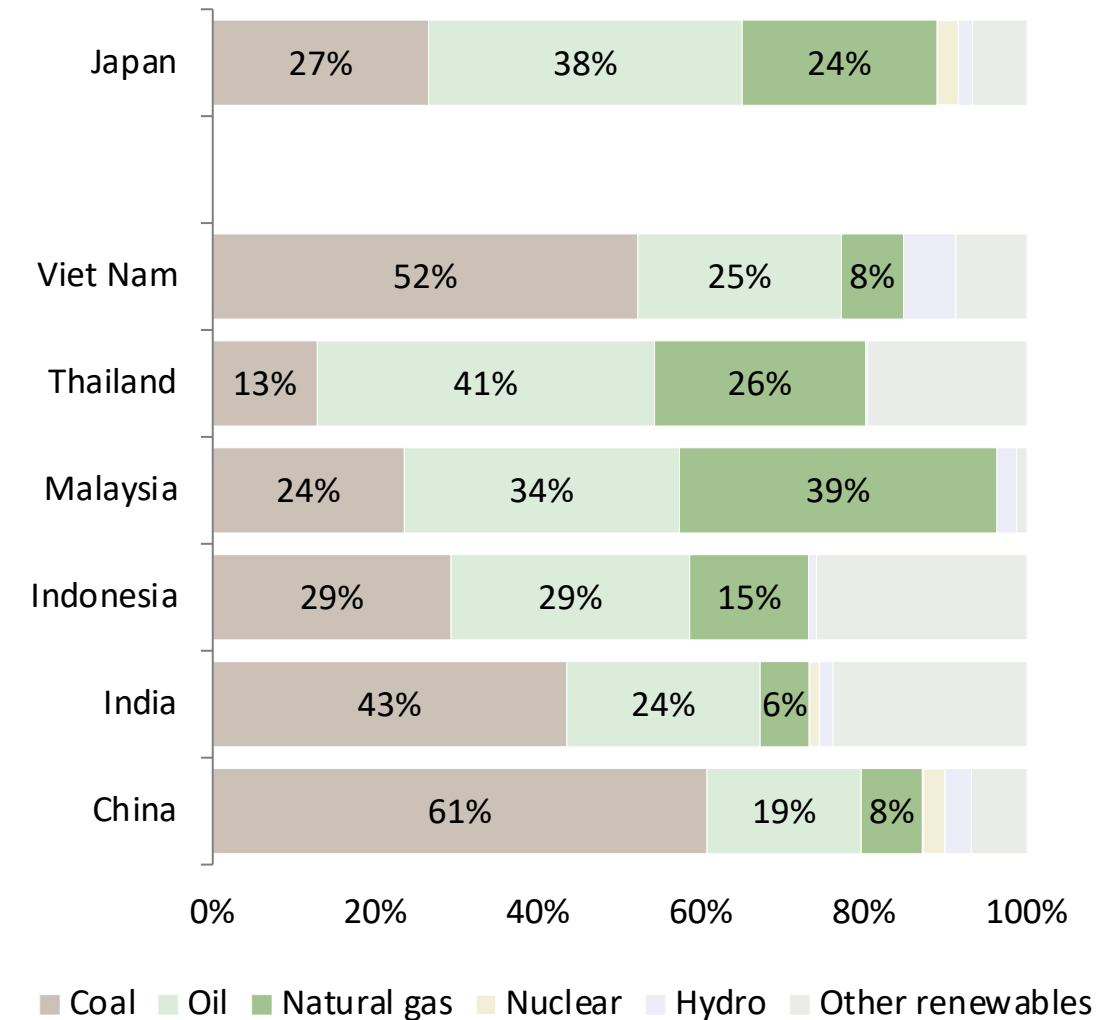
**Step 1: Lower carbon emission by shifting energy use from coal to natural gas**

**Step 2: Decarbonize natural gas by applying new technologies (e.g. H2, CCS)**

- We need to pursue stabilizing global natural gas market that can support both the energy security and the energy transition in Asia while preventing expanded/extended use of coal.**

- It will also help create tangible natural gas demand which can underwrite natural gas financing.

Energy mix of major Asian countries



# Japan should aim for;

- Support natural gas investment to achieve energy system away from Russia and to reduce burden of high energy price.
- Send clear message to domestic/global society that natural gas can play a role in the energy transition.
- Work together with emerging and developing Asia to ensure natural gas demand that can underwrite financing for necessary investments.  
This will benefit emerging and developing Asia by presenting realistic decarbonization path.
- Support technological development that can decarbonize natural gas, so that to prepare for carbon neutral future and to avoid making natural gas assets stranded.  
This will also support creation of hydrogen market.