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Can we predict Global Oil Price? The Implications of Energy Security in East Asia

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"The views and interpretations are of presenter's view, and it may not reflect the position of the organization"

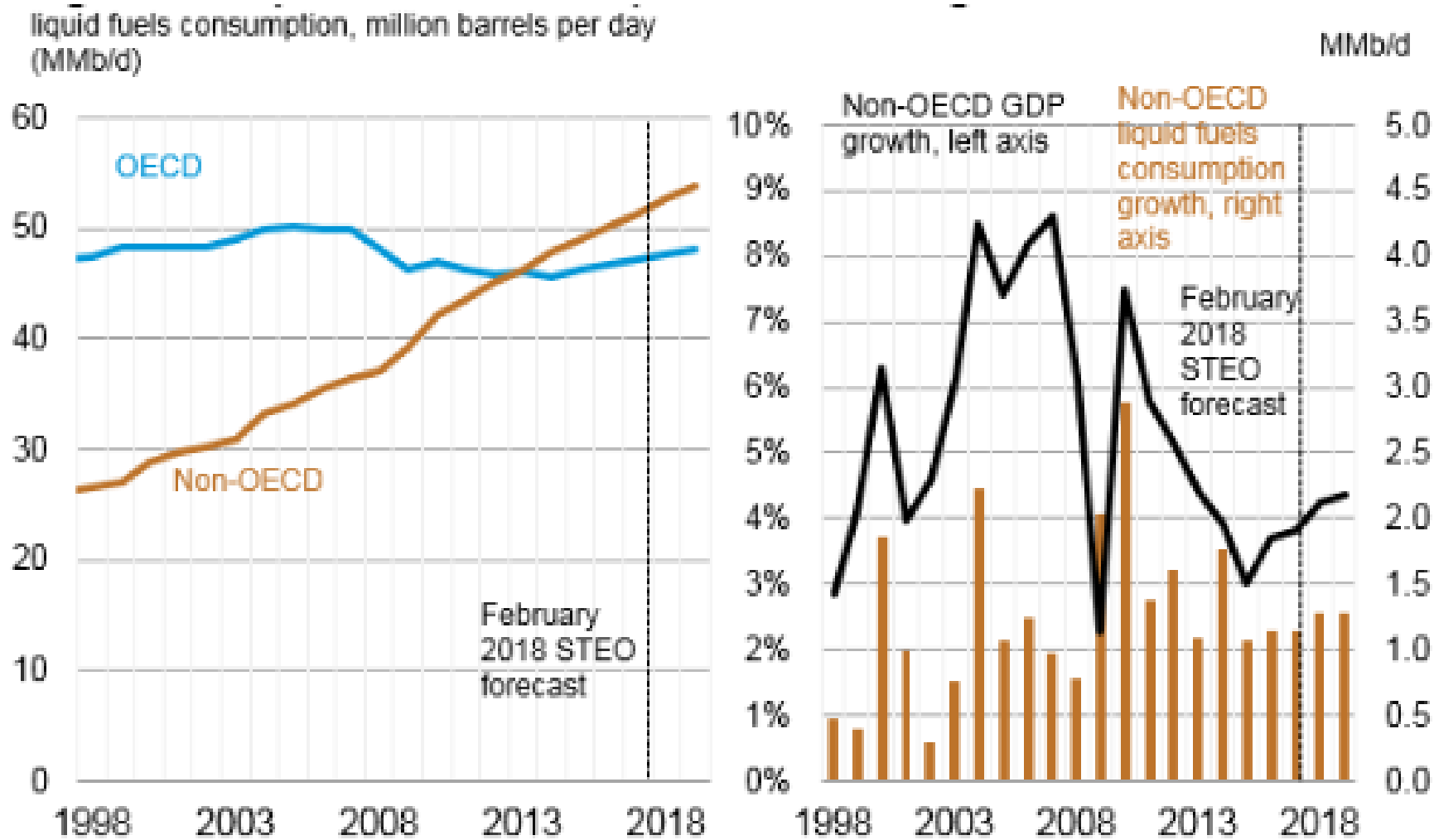
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OUTLINE OF PRESENTATION

- I. OVERVIEW OF ENERGY DEMAND**
- II. OIL PRICE AND DEVELOPMENT**
- III. GAS PRICE AND DEVELOPMENT**
- IV. ENERGY SECURITY CONCEPT & RESPONSE MEASURES**
- V. CONCLUSION**

I. Global energy demand: Economic Activities and Petroleum Demand

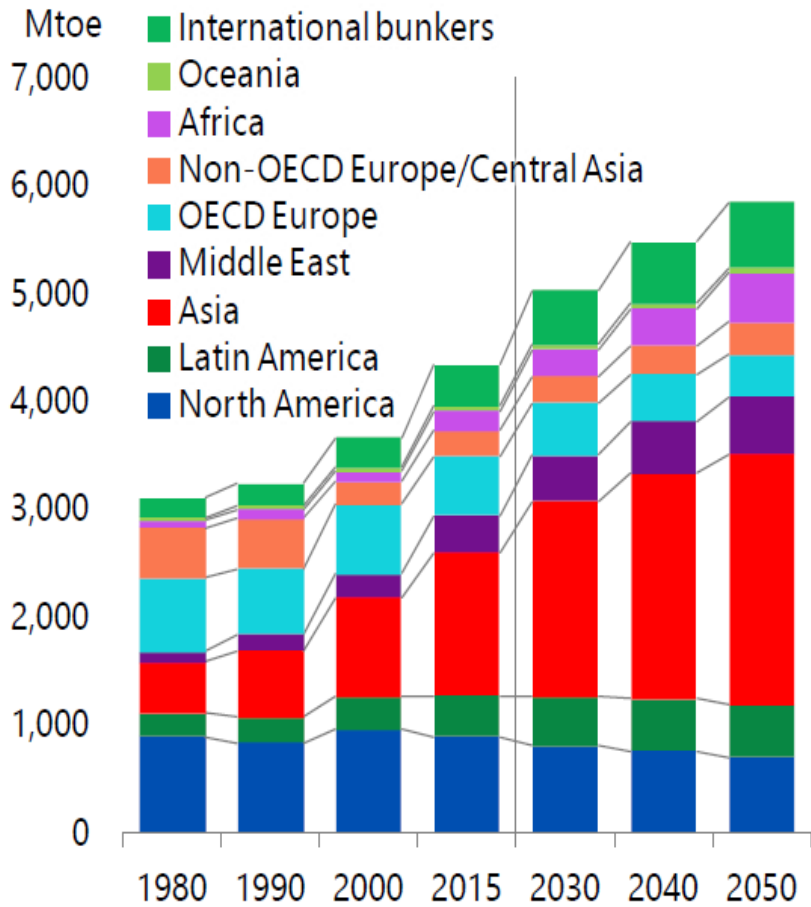


Source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, February 2018.

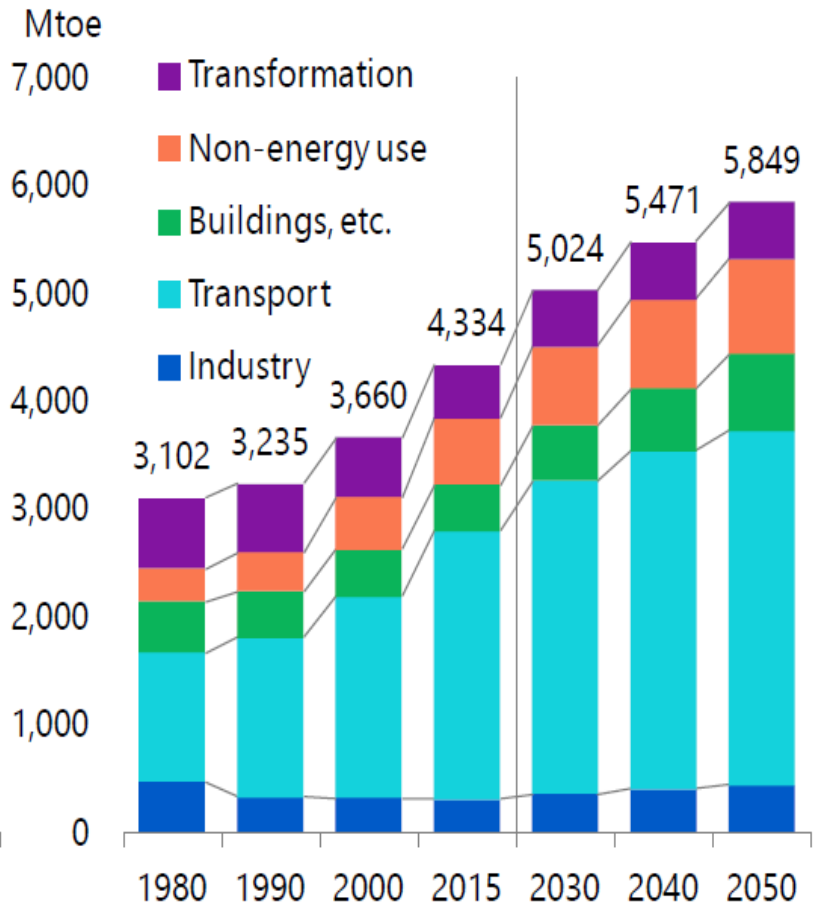


✓ World Oil Demand Outlook

By region



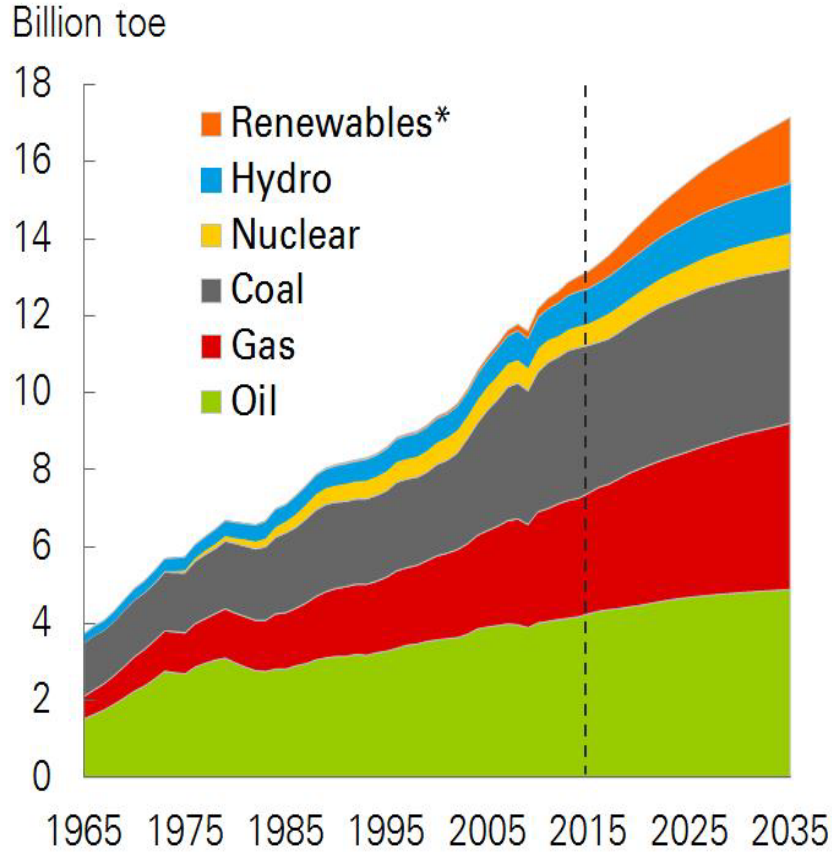
By sector



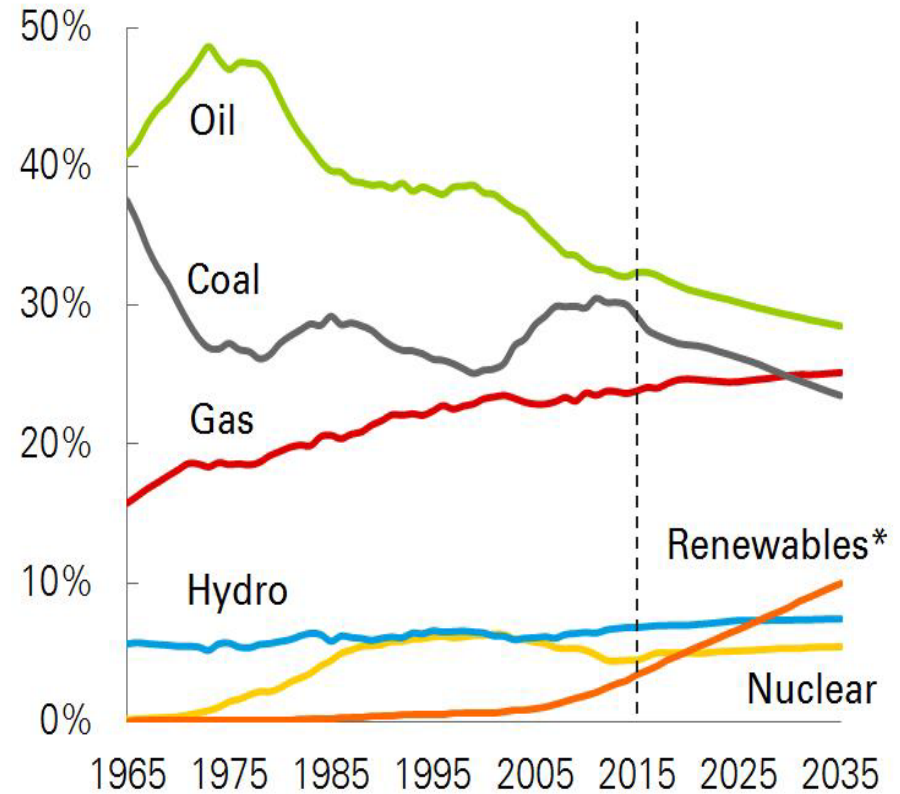
Source: IEEJ, Asia/World energy outlook 2017

✓ Fuel Mix

Primary energy consumption by fuel



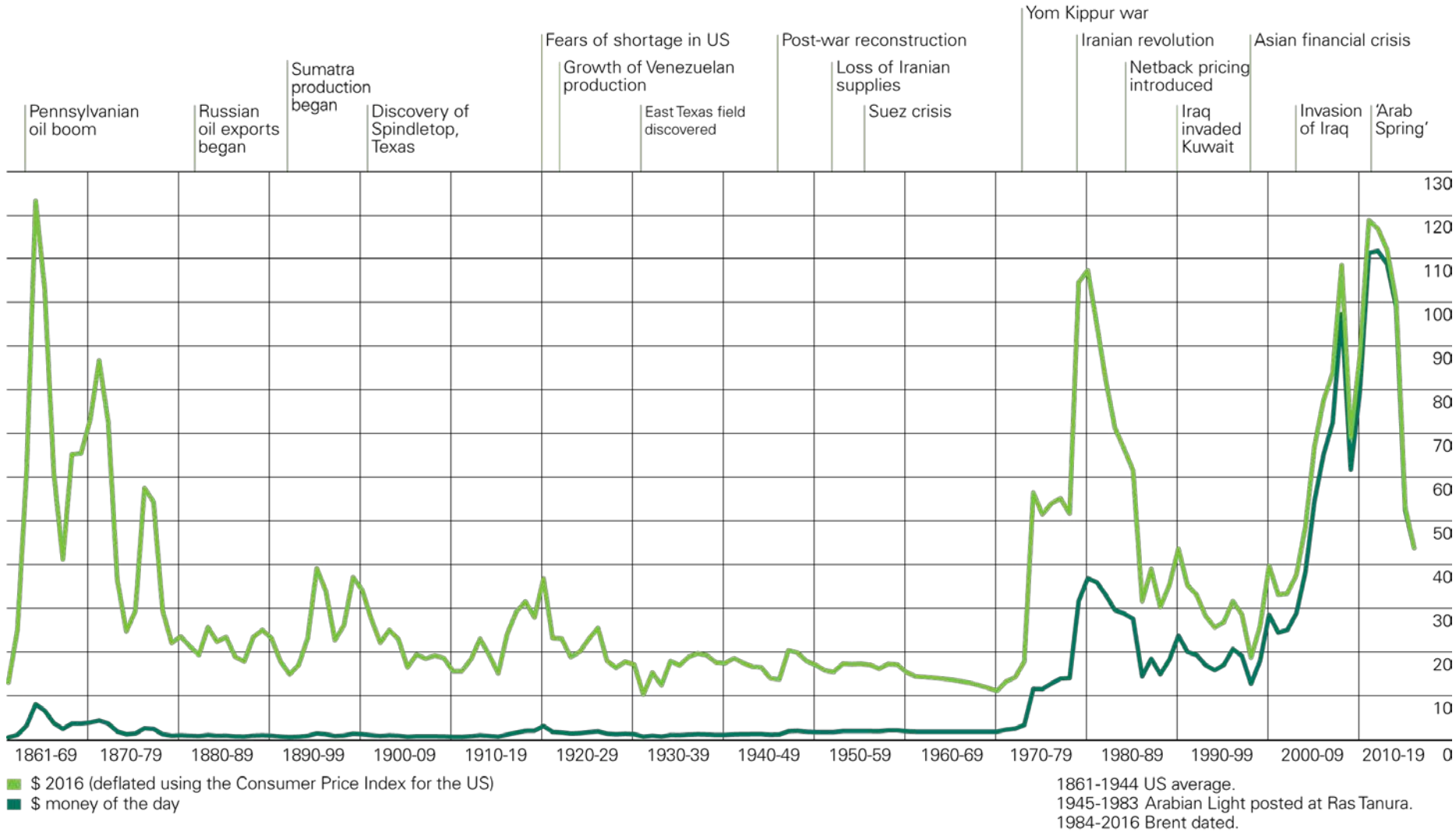
Shares of primary energy



*Renewables includes wind, solar, geothermal, biomass, and biofuels

II. Oil Price & Development-Historical Crude oil prices

US dollars per barrel



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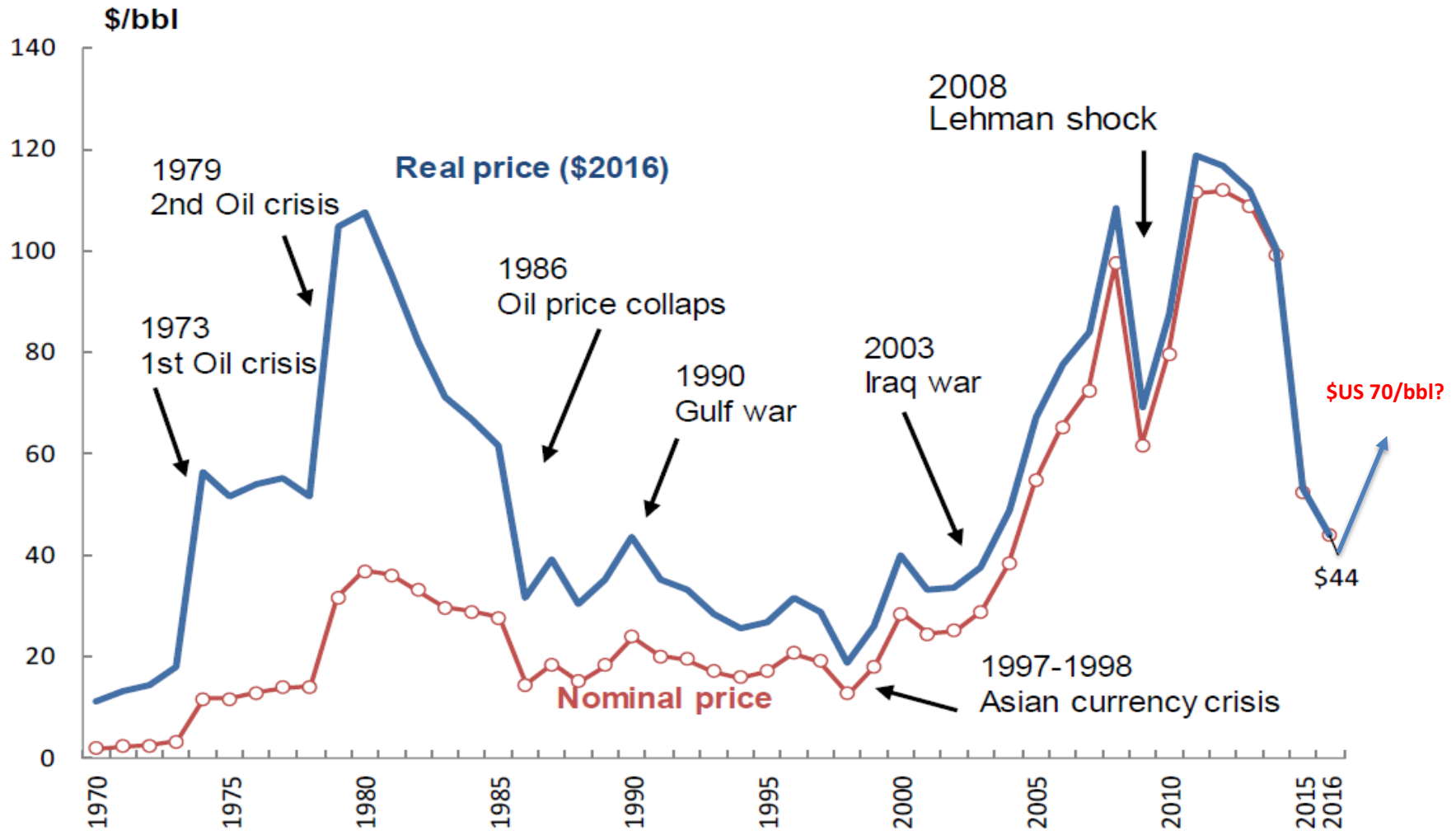


✓ Can OPEC's Collective Decision Affect Global Oil Price?

- Crude oil production by the OPEC is an important factor that affects oil prices.
- OPEC organization seeks to actively manage oil production in its member countries by setting production targets. Historically, crude oil prices have seen increases in times when OPEC production targets are reduced.
- OPEC member countries produce about 40 percent of the world's crude oil. Equally important to global prices, OPEC's oil exports represent about 60 percent of the total petroleum traded internationally.
- Because of market share, OPEC's actions can, and do, influence international oil prices. In particular, indications of changes in crude oil production from Saudi Arabia, OPEC's largest producer, frequently affect oil prices.

✓ Can we predict oil price?

US dollars per barrel



✓ What push the price high to \$US70/bbl?

Price per barrel of Brent Crude



Source: Bloomberg

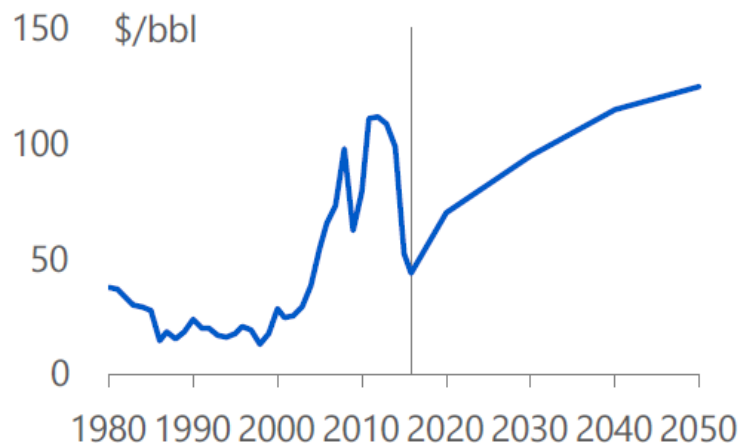
BBC

- OPEC + Russia extended production cuts throughout 2018;
- OPEC closely monitors the inventory stock
- US shale oil product is expected to increase to 10.2 mbbbl/day;
- However, it observed that inventories fell by almost five million barrels to 419.5 million barrels in the week to 5 January. US production also fell by 290,000 barrels per day to 9.5 million (EIA)

✓ Assumption of oil and natural gas price

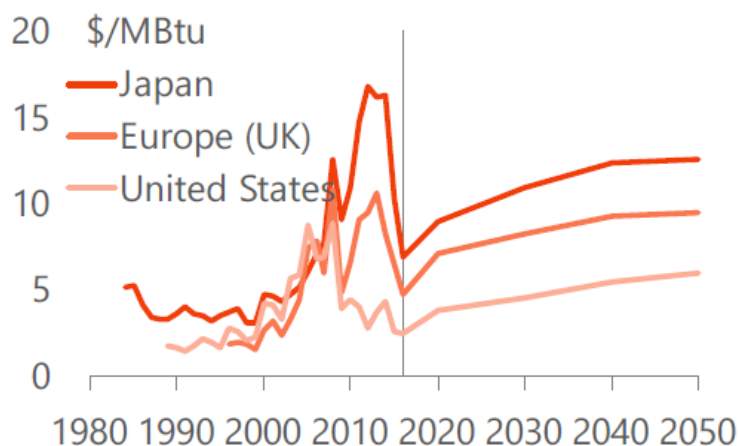
Crude oil

- Healthy growth of demand.
- Supply need to rely on risky OPEC production.
- Marginal production cost will gradually increase.
- In flow of speculative money will maintain high volatility.



Natural gas

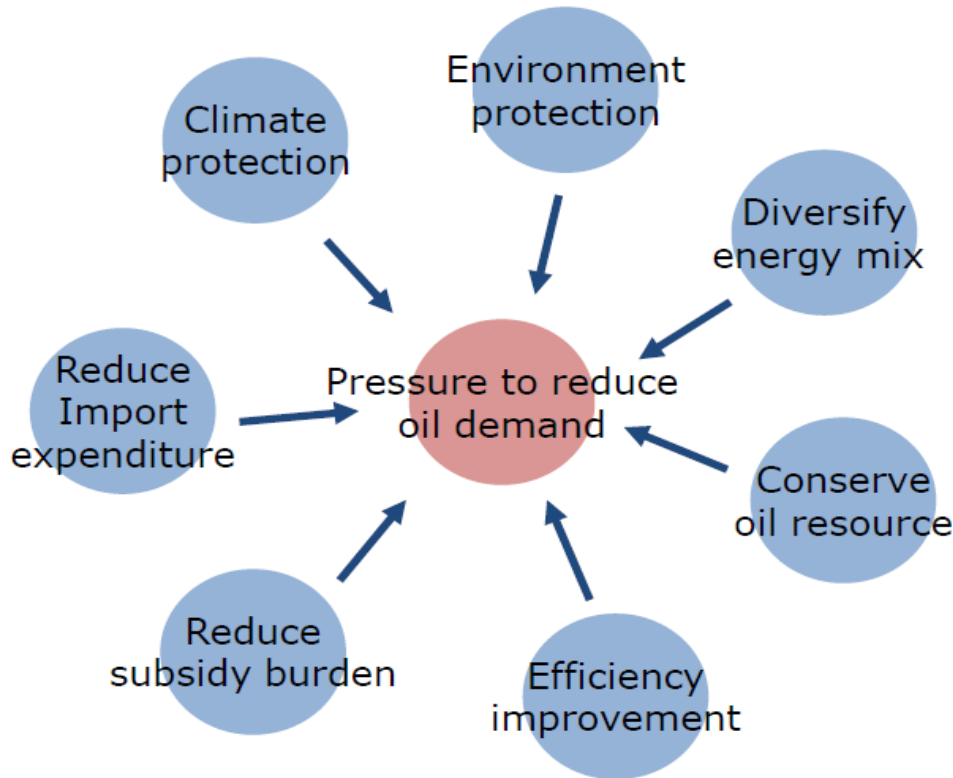
- US will enjoy low price, while marginal production cost will gradually increase.
- Continue to be affected by oil price.
- LNG import from US has limited effect to reduce price in Asia.



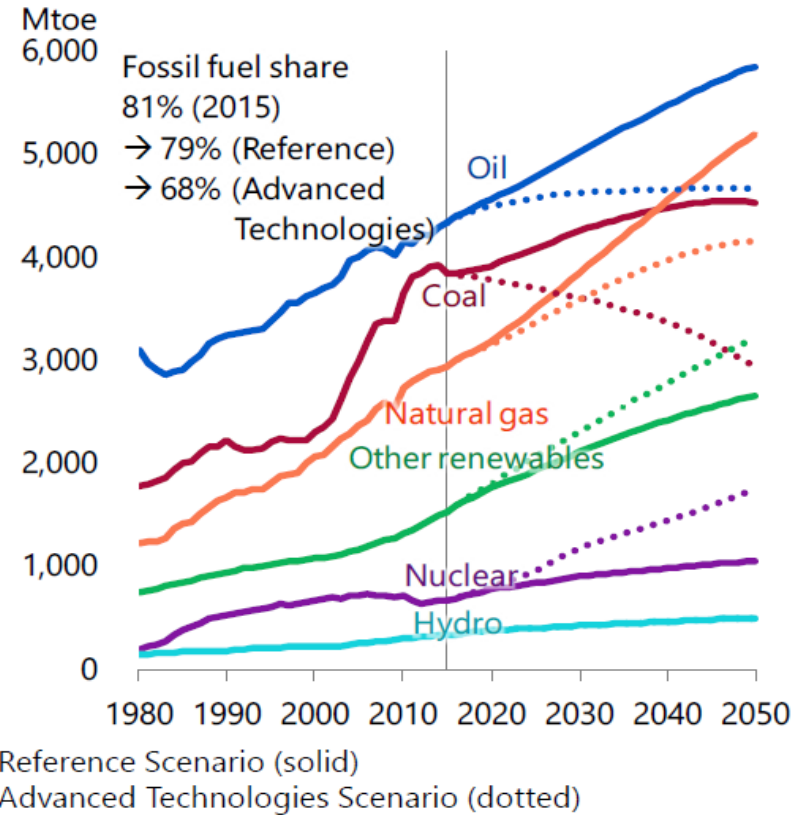
* Historical prices are nominal price. Assumed future prices are real price in \$2016.

✓ Factors to constrain oil demand growth

- Advanced policy and technology would curb oil demand.
 - Efficiency improvement.
 - Switch to lower carbon fuels.

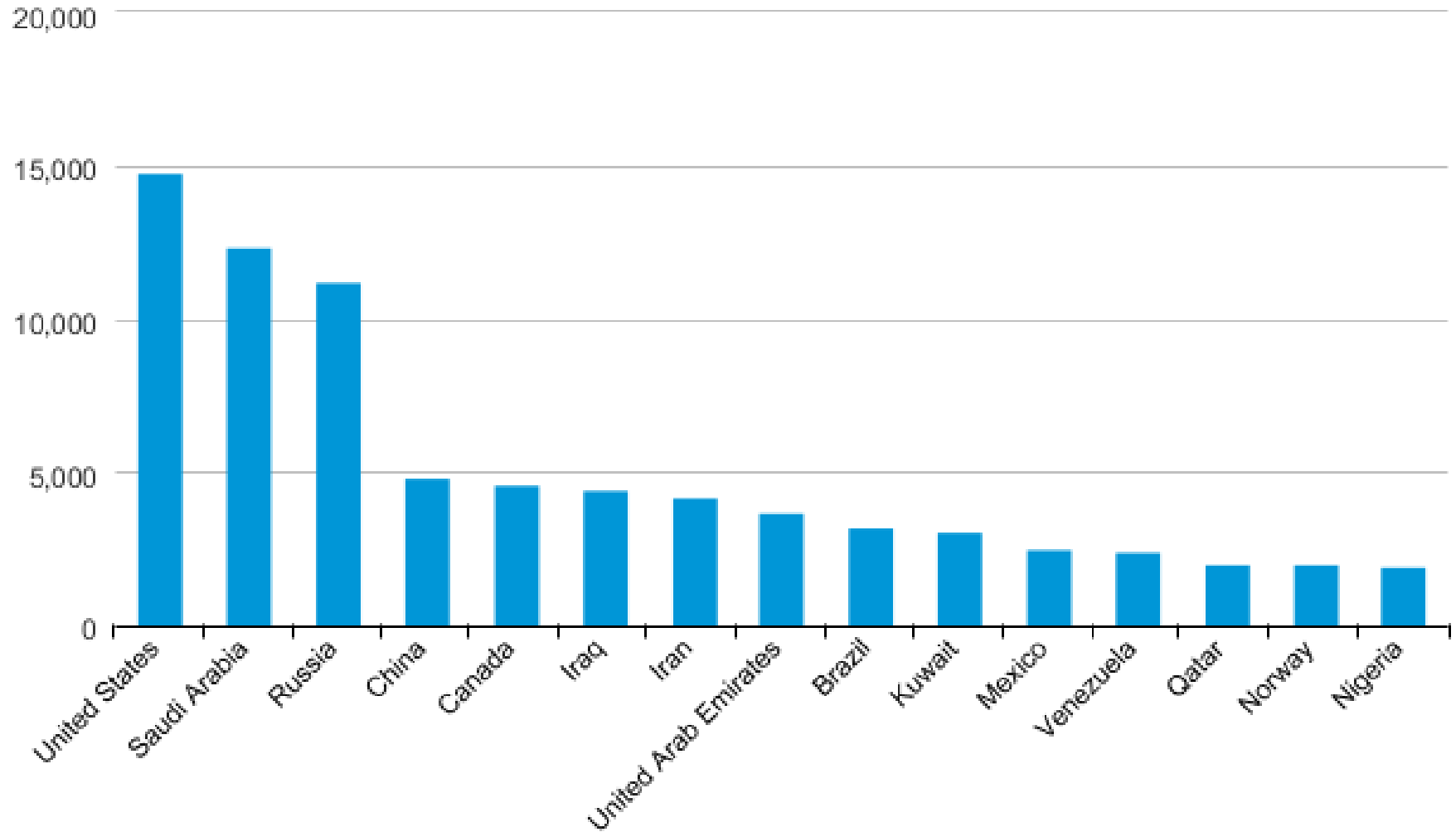


Outlook of world's TPES by scenario



Total Petroleum and Other Liquids Production - 2016

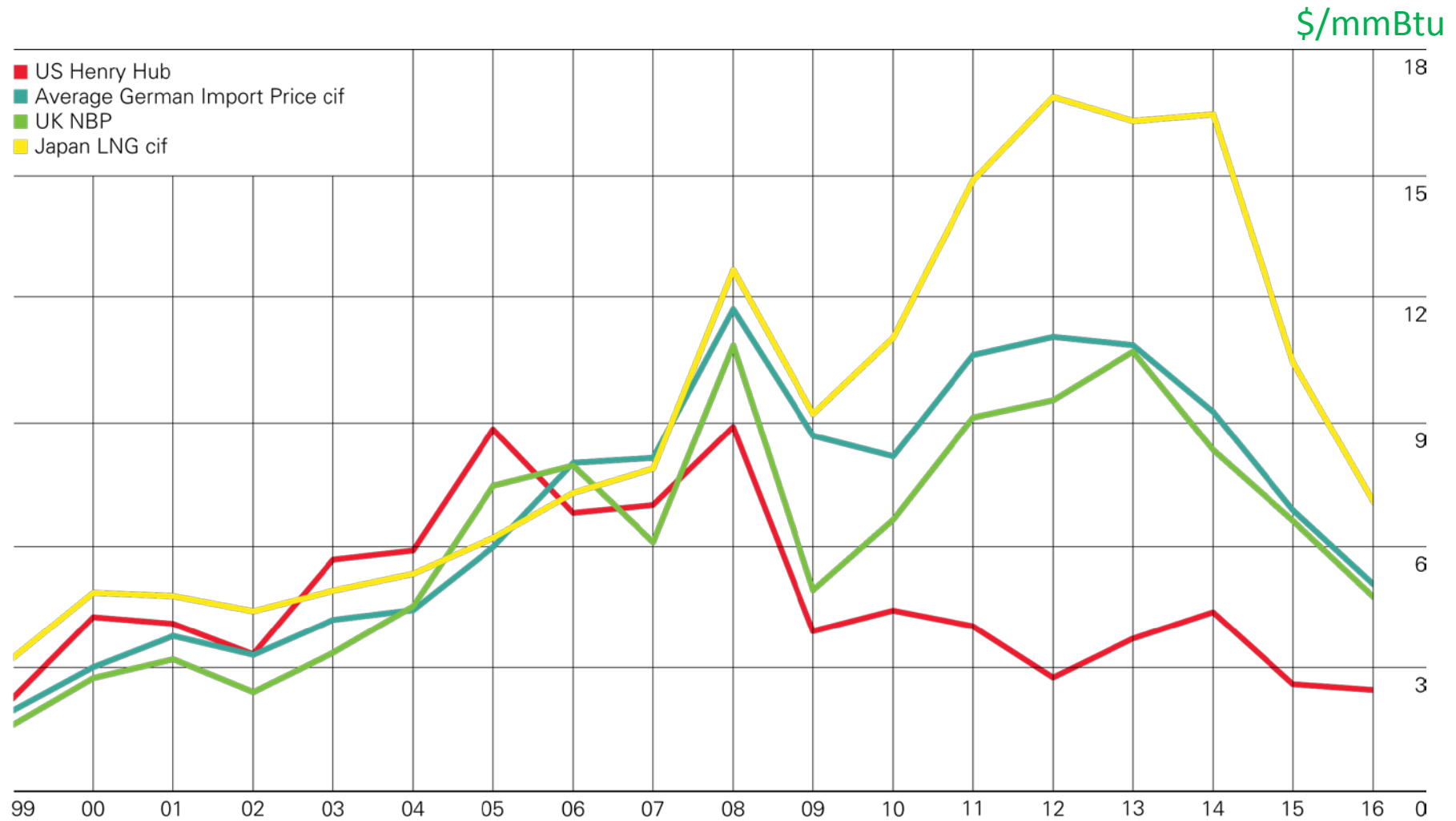
Thousand Barrels Per Day



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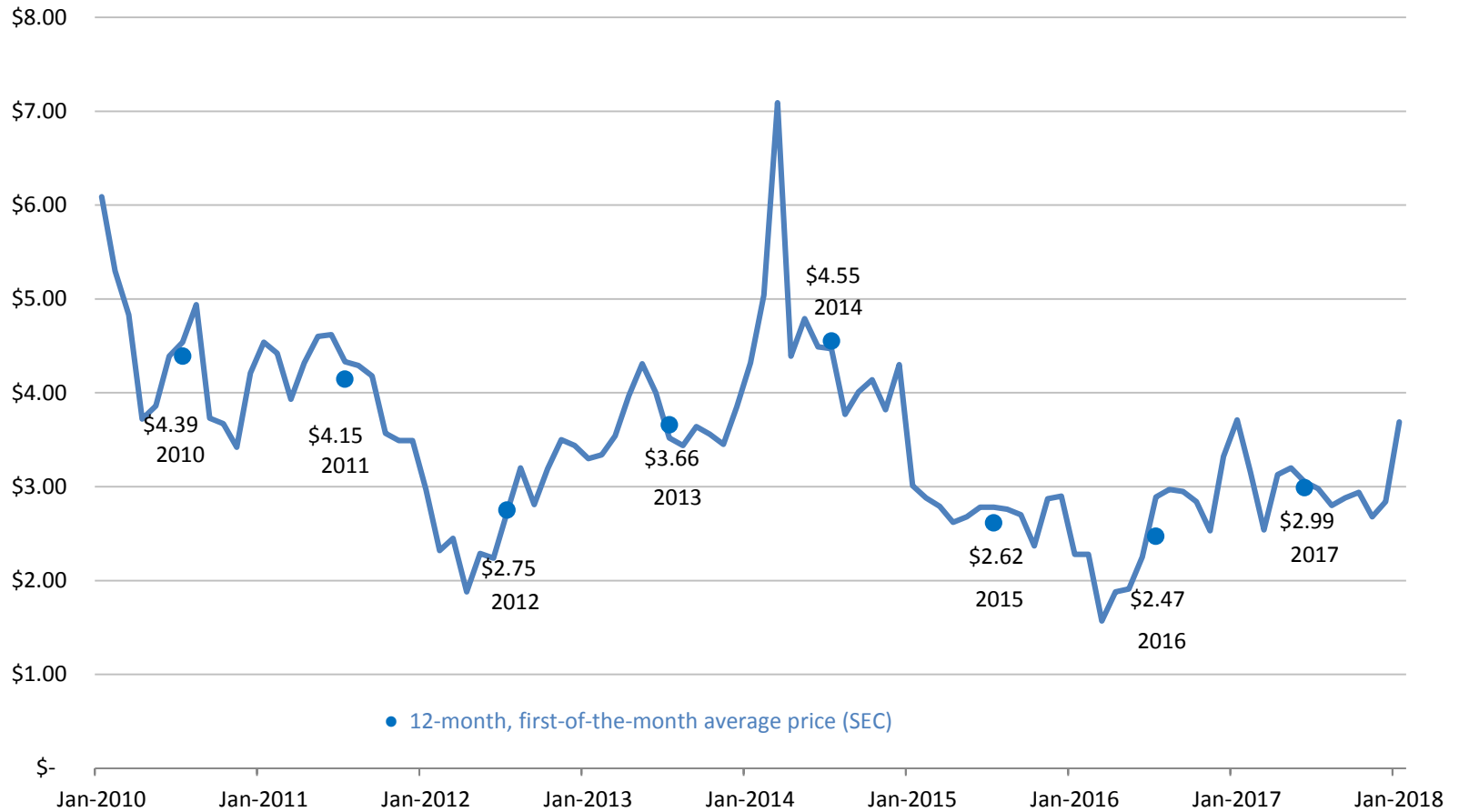


III. Gas Prices and Development



✓ Henry Hub natural gas spot prices, first day of the month, 2010–17

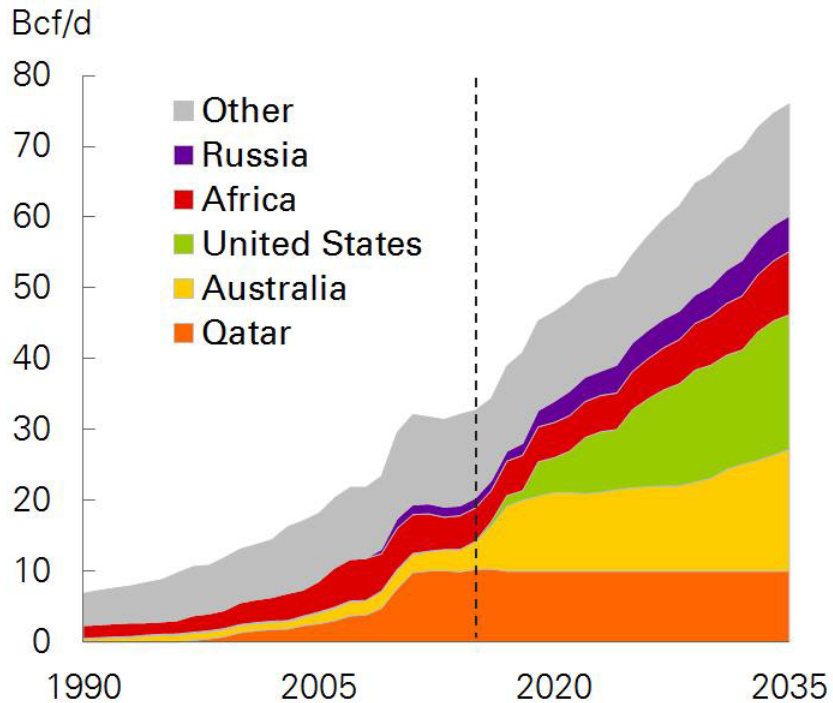
dollars per MMBtu (Louisiana Henry Hub)



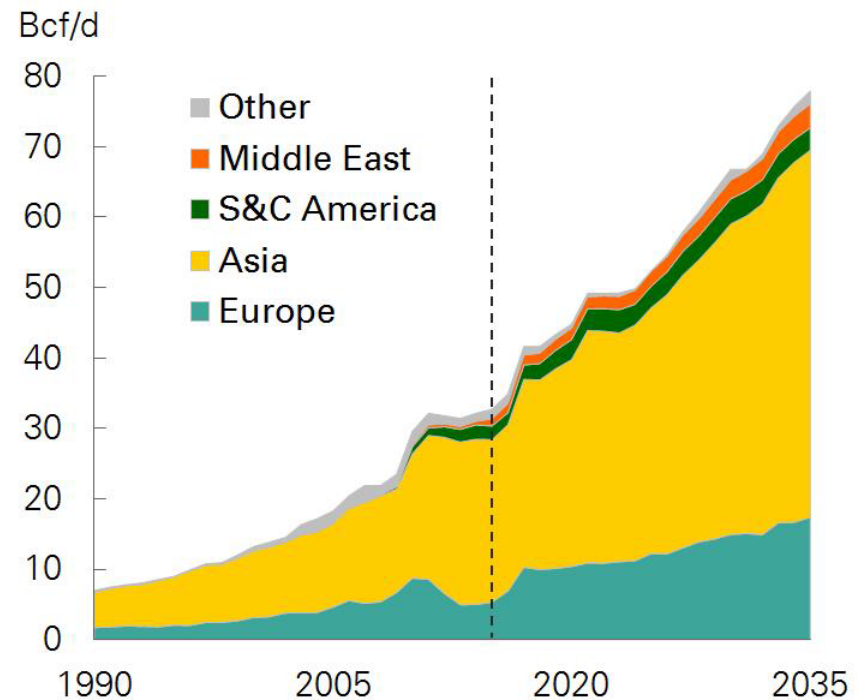
Source: EIA, 2018

✓ Growth of LNG Demand in Asia

LNG supply

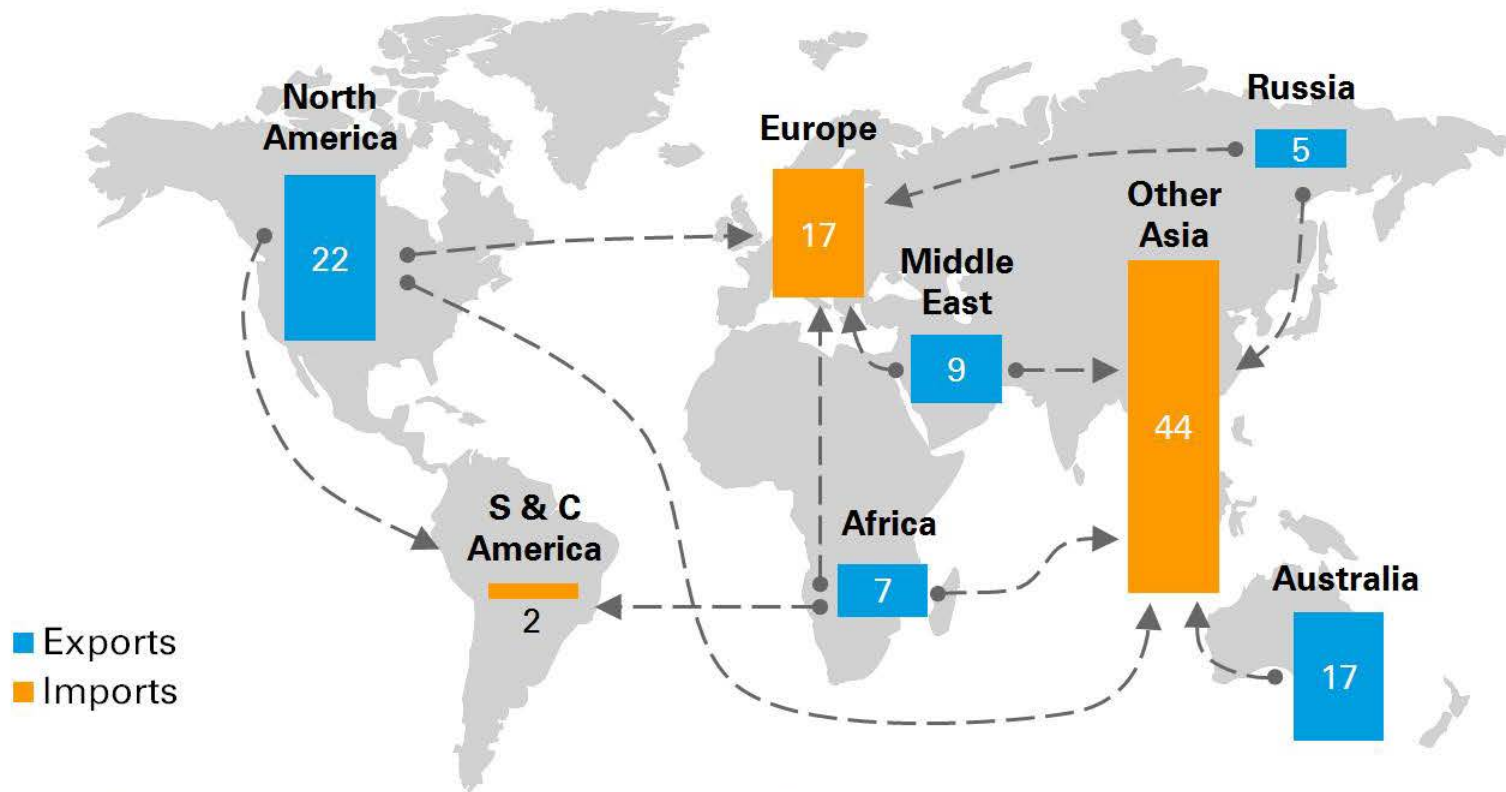


LNG demand



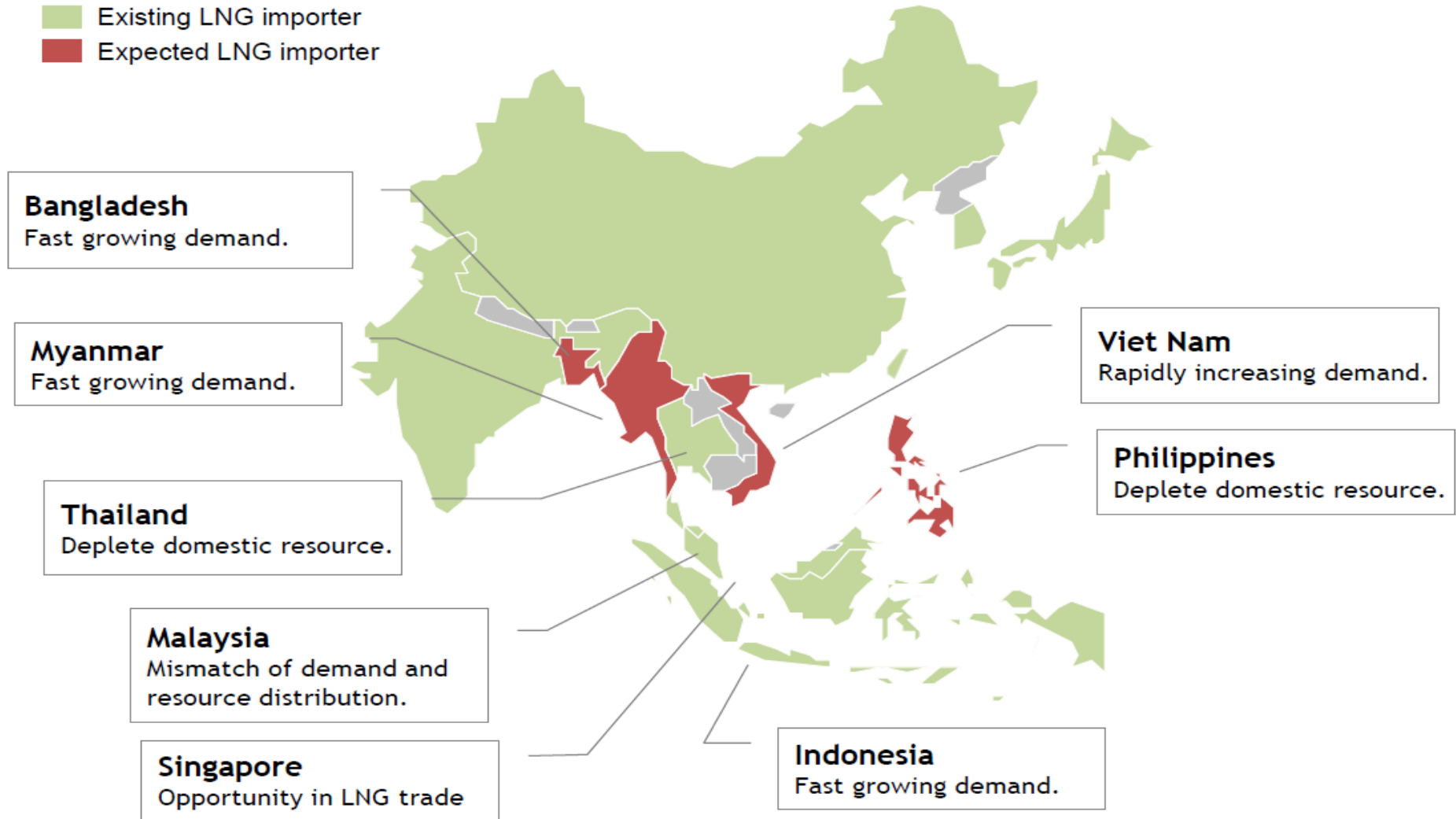
✓ LNG Trade Flow by 2035 (Net amount)

Net LNG exports and imports in 2035 (Bcf/d)



Increasing LNG import in ASEAN

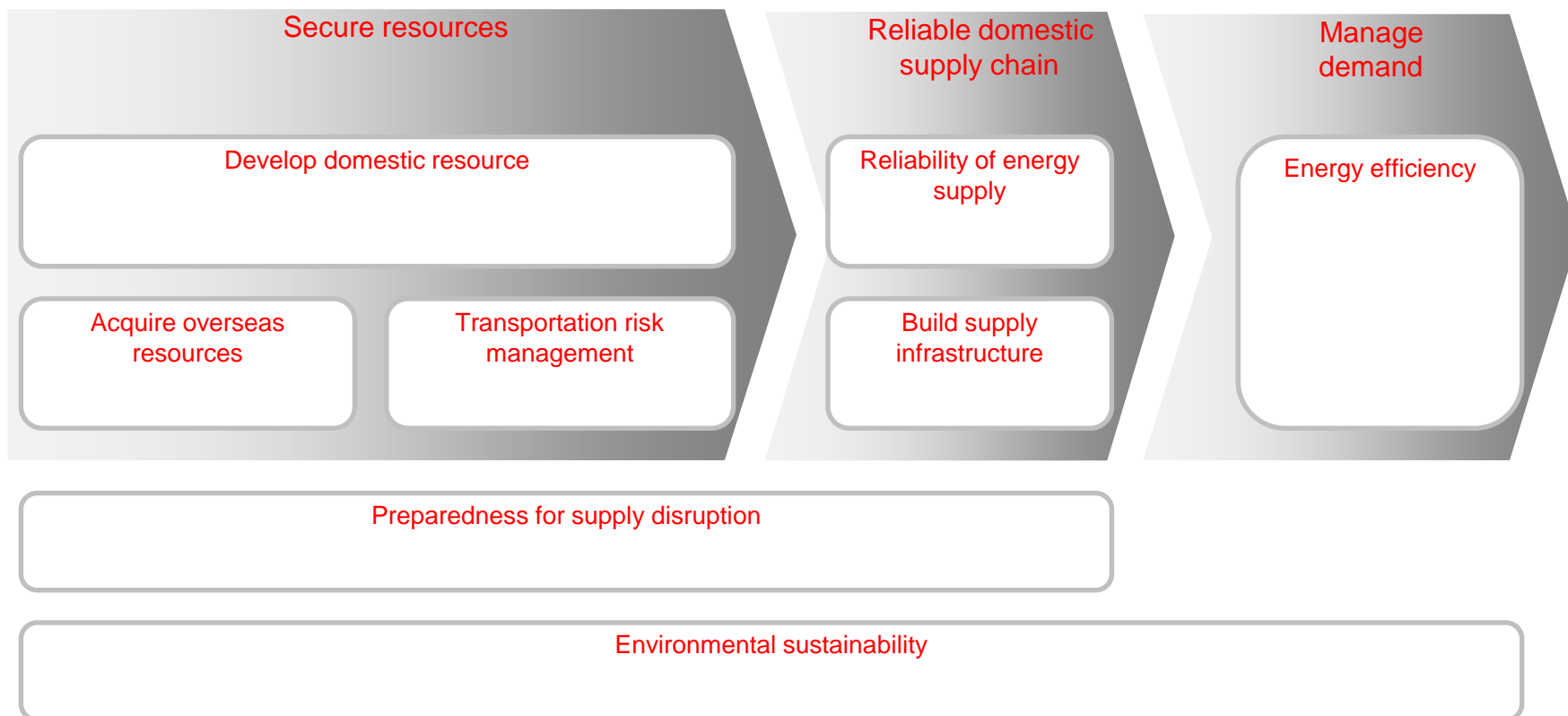
- Existing LNG importer
- Expected LNG importer



IV. The Implications of Energy Security

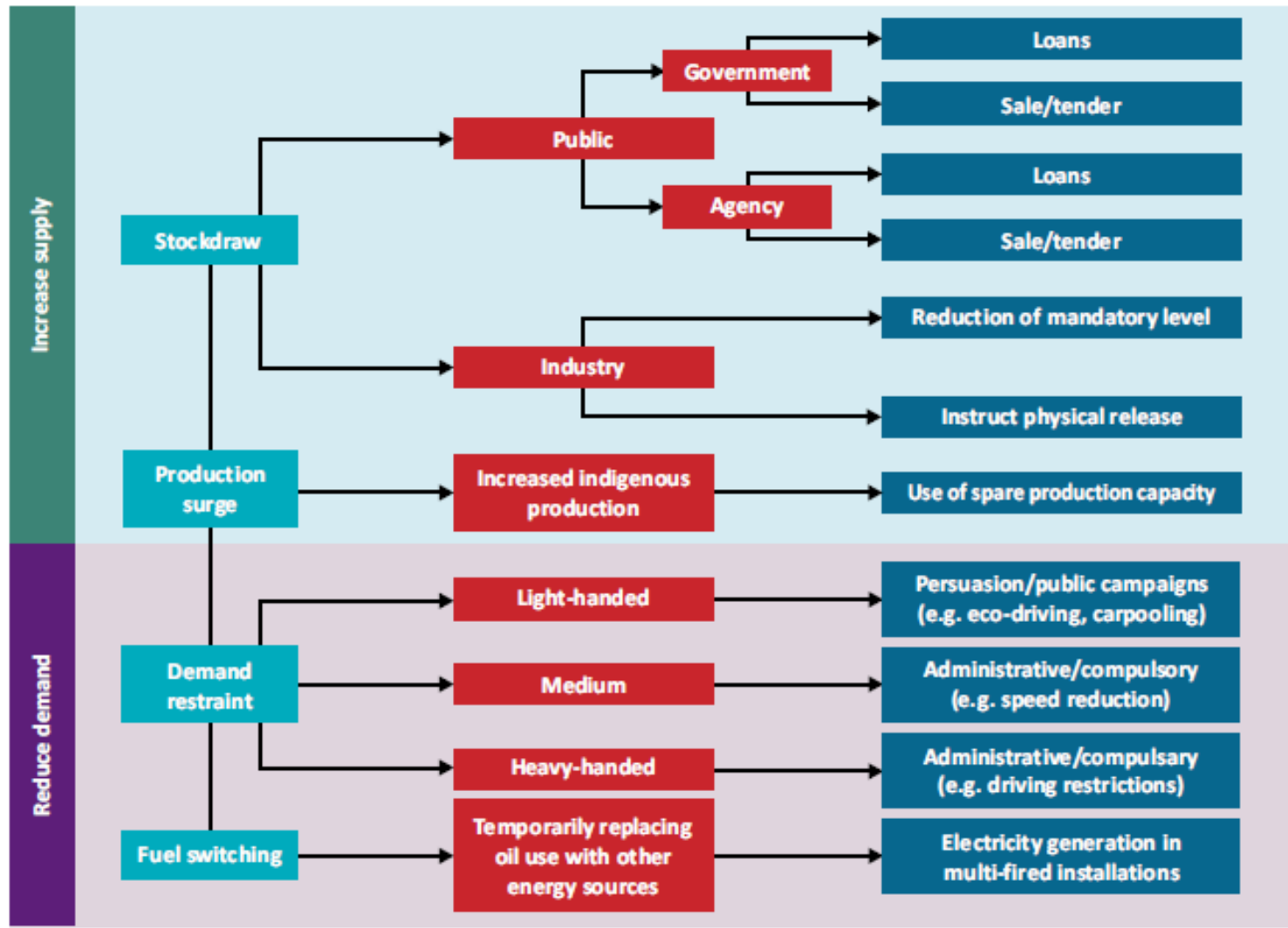
- The higher oil/gas price (how high?) affect the affordability of consumers and also affect the production cost;
- Oil price is one of the important signal for every country to safeguard their supply shock, however, the cause of higher oil price is the most important;
- If a shortfall of supply due to security issues/middle transport route or disaster hit oil facilities, thus energy security response is necessary; otherwise oil price should be left for the market to play;
- All countries may need some kind of energy security to protect economies and some important sectors when needed in the case of oil supply disruption.

✓ The Implications of Energy Security- The Concept



- Having high energy security mean having high energy resiliency.
- Oil & gas resiliency is a state in which "if oil & gas disruption" the state could restore the situation back to normal situation as quick as possible either by its own ability or by the help of others (ASEAN body-APSA, or Japan, Korea or EAS framework)

✓ Response Measures



✓ Do your country have legal and institutional framework to deal with emergency energy response?

– Legislation:

- Law or regulations to deal with oil & gas energy emergency response?

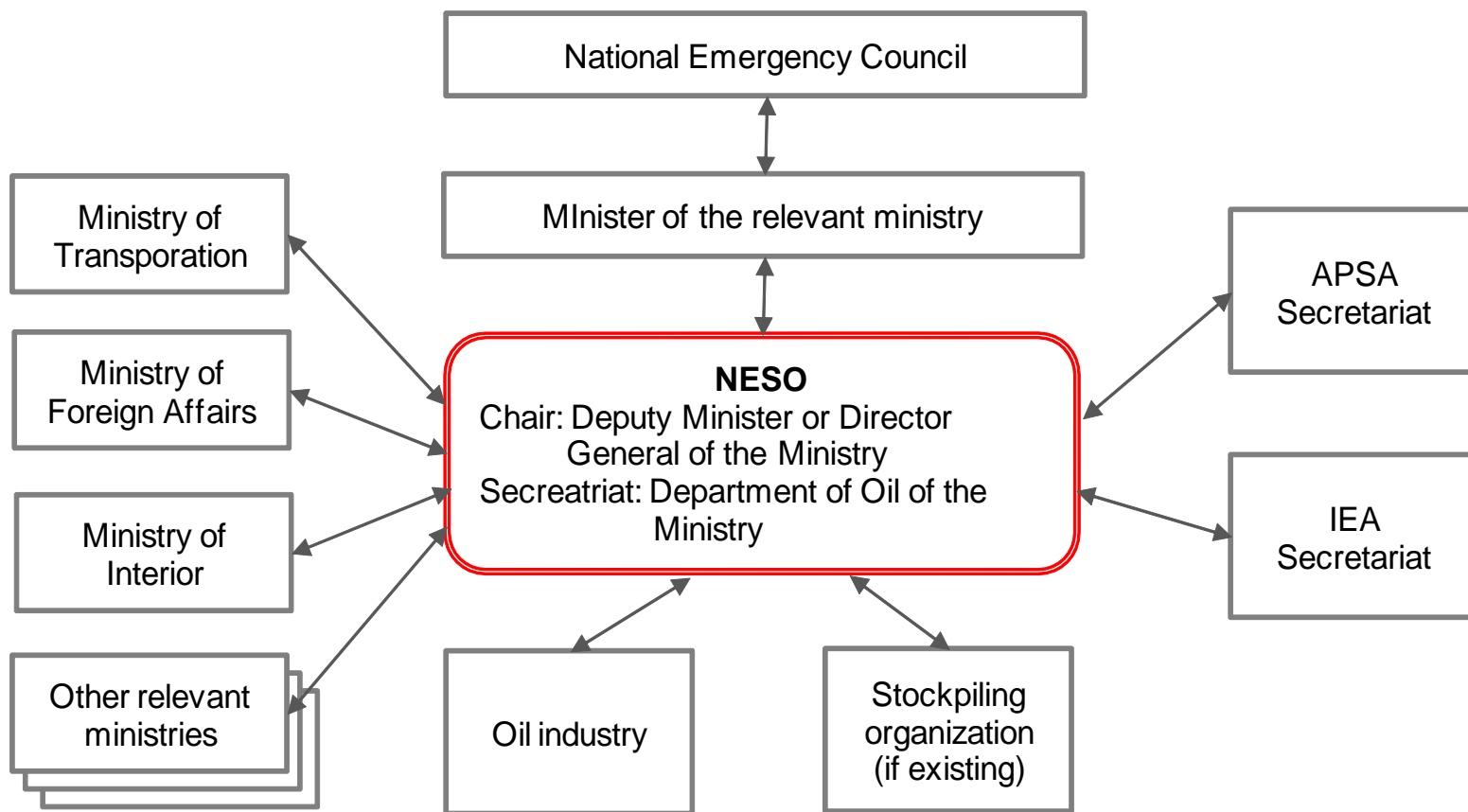
– National Emergency Strategy Organisation (NESO)

- Any assigned body or institution?

– Data collection

- Monthly Oil & Gas Statistics?
- Emergency questionnaire?

✓ National Emergency Strategy Organization (NESO) to deal with energy emergency response



✓ Supply-side measures

- Stock-draw
 - Most commonly used & most effective measure
 - IEA countries obligated to hold at least 90 days net-imports
 - ASEAN Petroleum Security Agreement (APSA) similar to IEA, CERM, but APSA does not function.
- Production Surge
 - Cambodia does not have fossil fuel domestic production yet
 - ASEAN as a group are net energy import/ dependent
- Stock holding system
 - Strategic oil stock
 - Most ASEAN Member States hold about 15-20 days of operational stocks at the oil imported company level, although the regulation require them to hold about 30 days

V. Conclusions

- It is not impossible, but very hard to predict the oil price, although we know factors contributing to oil price;
- Oil price plays significant role in politics and energy security; Thus knowing the sources/reasons causing oil price high is important to take appropriate action;
- Pressures to curb oil demand growth are likely taking place such as EV, EEC, Climate Change...etc, and technologies & innovation will shape oil consumption pattern in the near future;
- Energy infrastructure resiliency, energy cooperation remain importance for the region's energy security;
- Physical oil & LNG stock is the most important part for each country in the region to make response to disruption of oil & gas.
- Specific organization like NESO should be considered for the oil and gas supply disruption.