



PIIE PETERSON INSTITUTE FOR
INTERNATIONAL ECONOMICS

Energy aspects

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April 12, 2022

Global Economic Prospects: Spring 2022

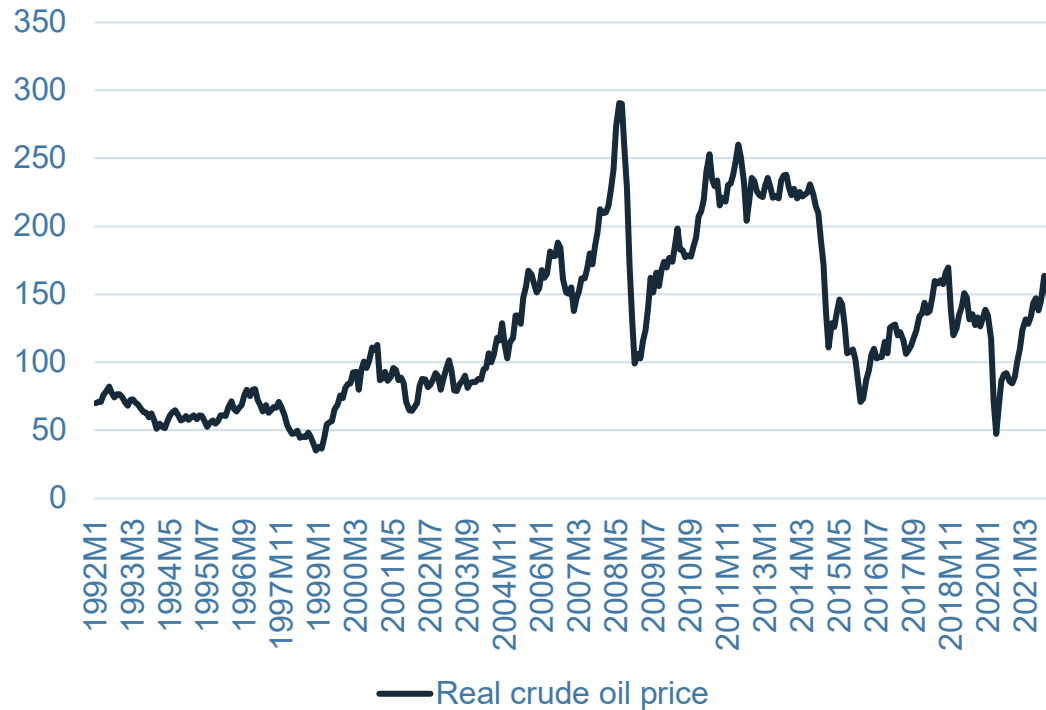
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Key energy aspects to the global outlook

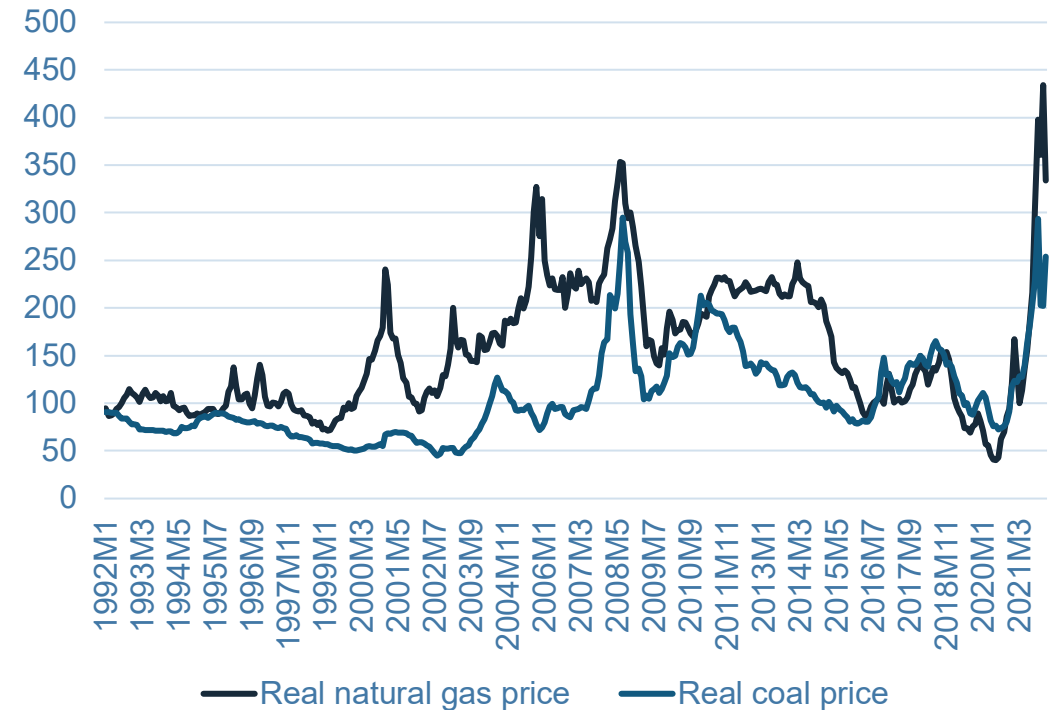
1. Tight global energy markets just prior to the Russian invasion of Ukraine
2. Energy market dislocations amid the war and Russia-Europe energy bind
3. War-related energy market inevitabilities
4. Short- to medium-term implications for global economic prospects

Tight energy markets to start 2022 ...

Real crude oil price (2016=100)



Real thermal fuel prices (2016=100)

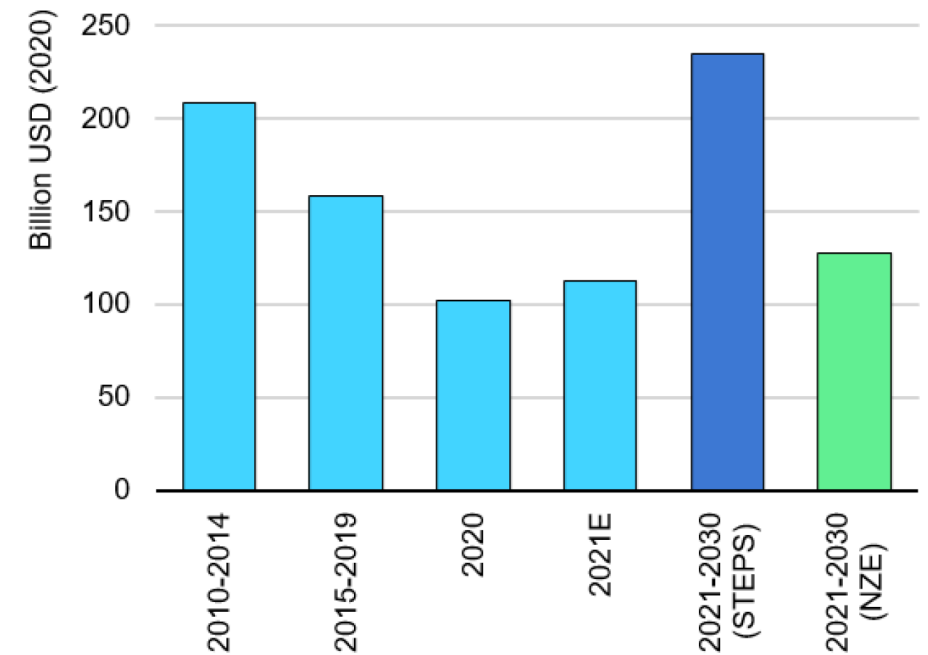


Sources: IMF, Commodity Price System, and Federal Reserve Bank of St. Louis, FRED

... especially for natural gas

- ❑ Record hub prices in Europe and Asia (\$20-30/mmbtu)
- ❑ North American Henry-Hub price doubles (\$4-5/mmbtu)
- ❑ Strong economic rebounds and cold winters in 2020–21
- ❑ Unplanned outages and under-investment

Annual investment in upstream natural gas supply

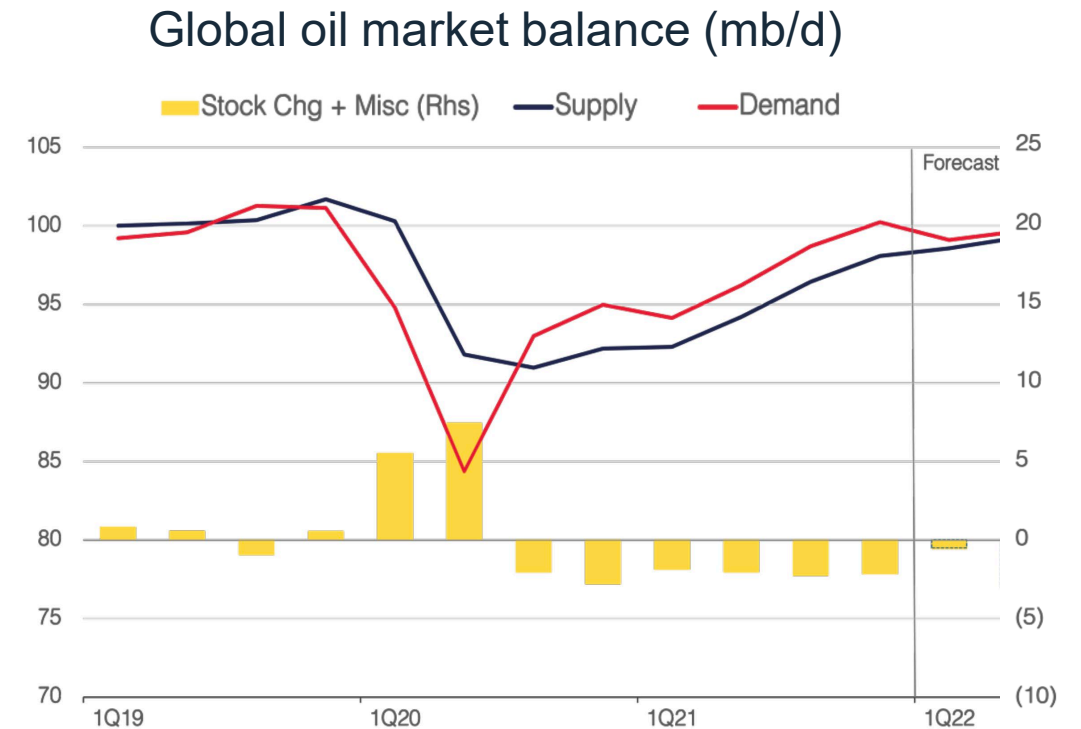


■ Historical ■ Stated Policies Scenario (STEPS) ■ Net Zero Emissions by 2050 Scenario (NZE)

Source: IEA, Gas Market Report, Q1-2022

Tight oil market amid OPEC+ supply curbs

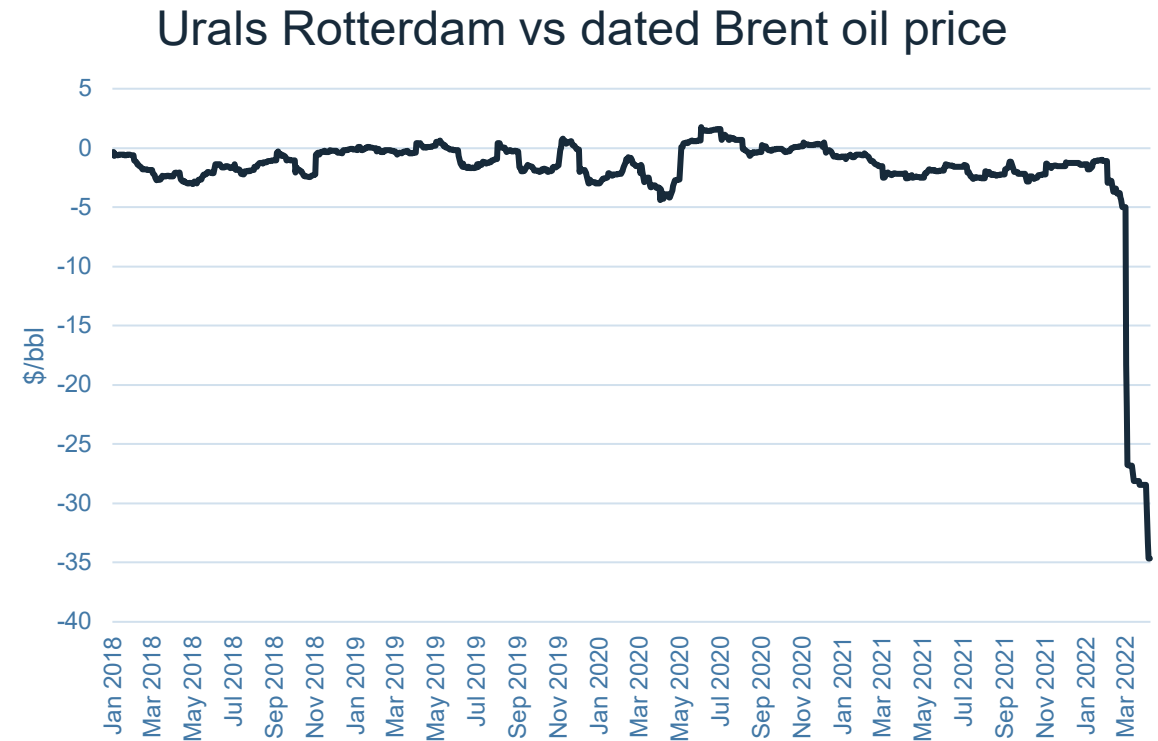
- ❑ **OPEC+ production cuts**
 - ❑ 9.7mb/d in May 2020
 - ❑ 5.8mb/d July 2021
 - ❑ 0.4mb/d monthly taper
- ❑ **Some OPEC shortfalls**
 - ❑ Angola, Nigeria (0.5mb/d)
- ❑ **Steady non-OPEC recovery**
- ❑ **OECD stocks below Q4 2019**



Source: Oxford Institute for Energy Studies, OIES Oil Market Monthly, March 2022

Heavy sanctions on heels of Russian attack

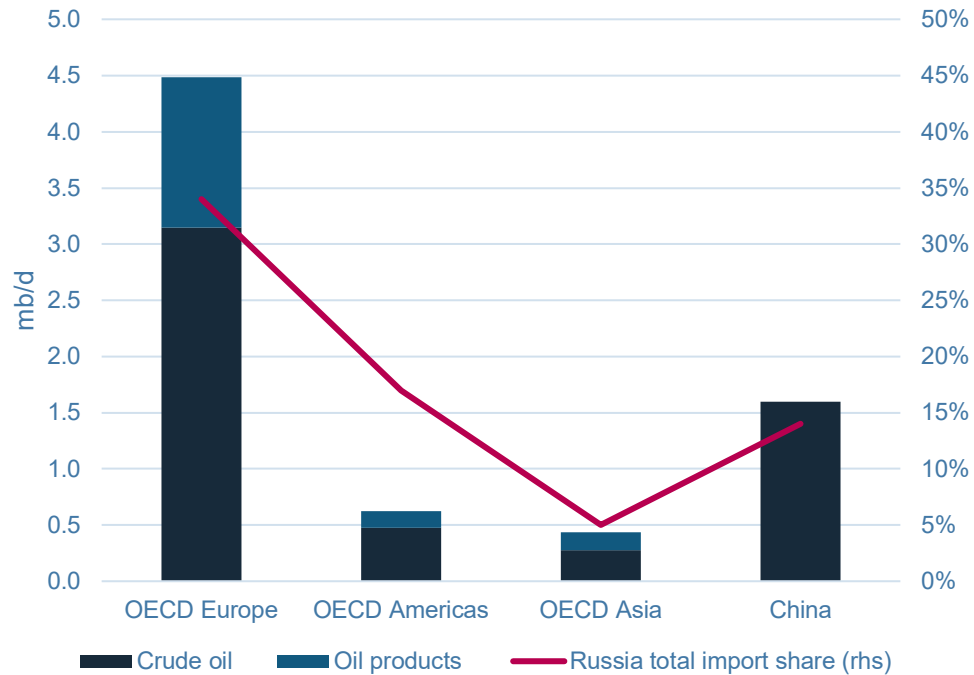
- ❑ Maximize economic costs to Russia; minimize costs to West
- ❑ Sweeping financial sanctions / tech export bans / asset freezes
- ❑ But energy largely excluded
 - ❑ Energy 40% of RU gov't revenue
 - ❑ 80% of which from oil
- ❑ Russian seaborne oil shunned



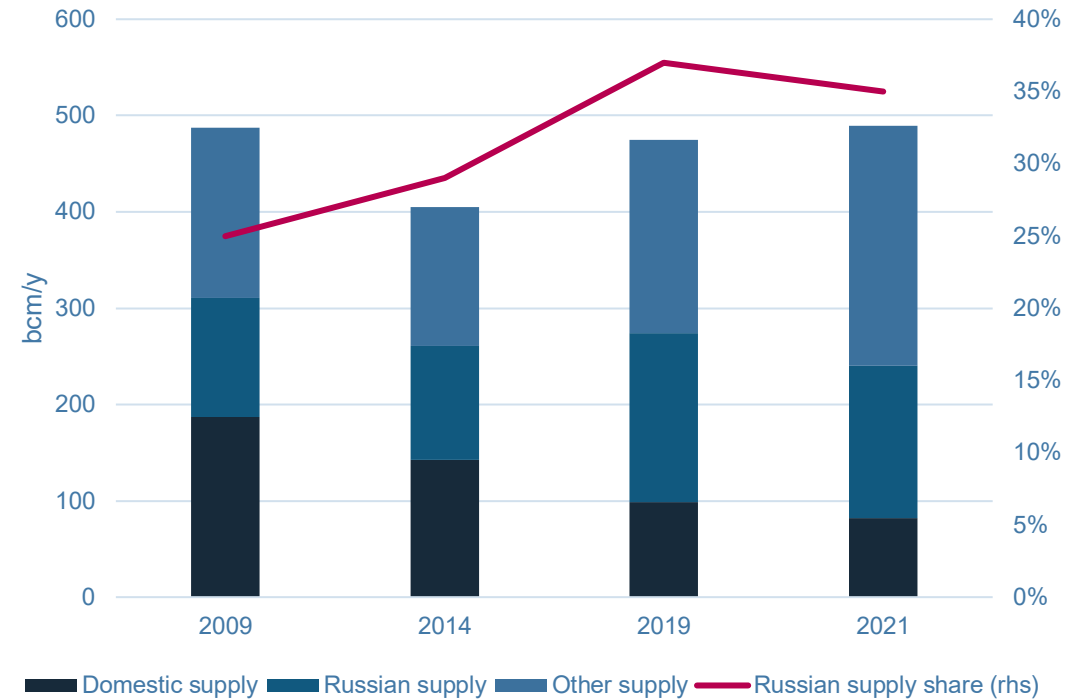
Source: ICE via Macrobond.

Russia-Europe energy bind

Russian oil imports and import share
(November 2021)



Russian share of EU/UK natural gas



Source: IEA, Russian Supplies to Global Energy Markets, February 2022

Oil 'fungible' and search for more supply

❑ Asymmetric vulnerabilities

- ❑ Russia oil / EU natural gas

❑ Overtures to OPEC rebuffed

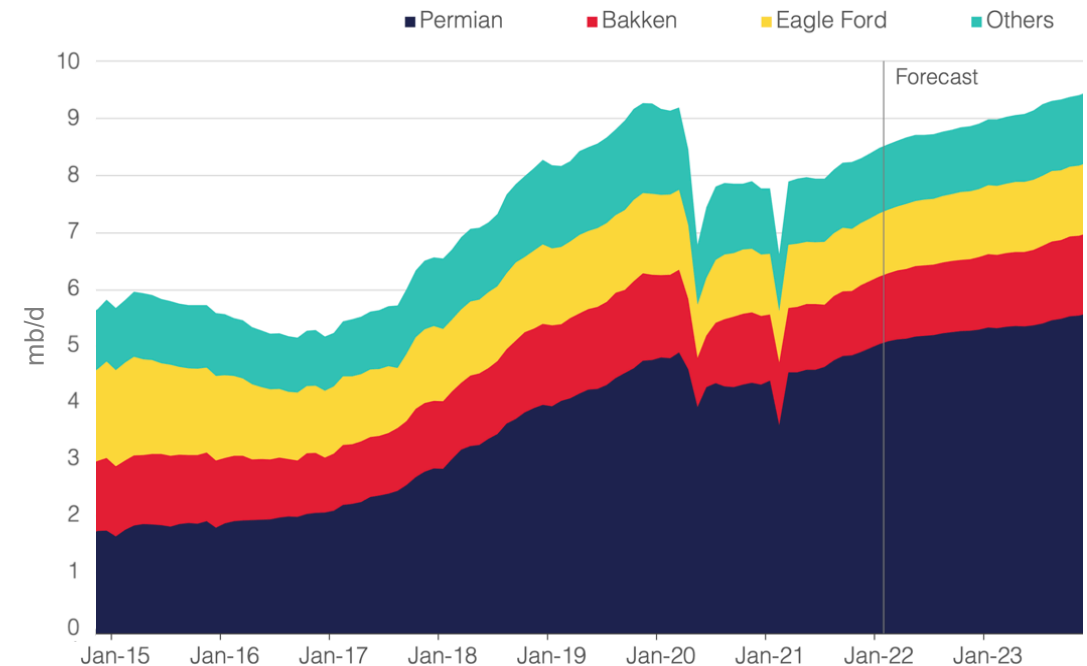
- ❑ Saudi-Russian cooperation on oil
- ❑ Regional security – Iran, Yemen

❑ Revival of Iran nuclear deal

- ❑ IRGC sanctions
- ❑ Russian agreement needed

❑ Non-OPEC production

US shale oil production growth



Source: Oxford Institute for Energy Studies, OIES Oil Market Monthly, March 2022

European shift from Russian energy

❑ Russian natural gas to Europe

- ❑ ~150bcm/y total supply
- ❑ 15bcm/y contracts end 2022
- ❑ 40bcm/y contracts by 2030

❑ Short-term options (~40bcm/y)

- ❑ Norway, Algeria and Azerbaijan via spare pipeline capacity
- ❑ Groningen (temporary)
- ❑ Diverted LNG cargoes
- ❑ Lower thermostats

❑ Medium-term low-carbon options

- ❑ Accelerate wind/solar PV (6bcm/y)
- ❑ Biomass / nuclear (13bcm/y)
- ❑ Efficiency / heat pumps (12bcm/y)

❑ Larger EU call on global LNG

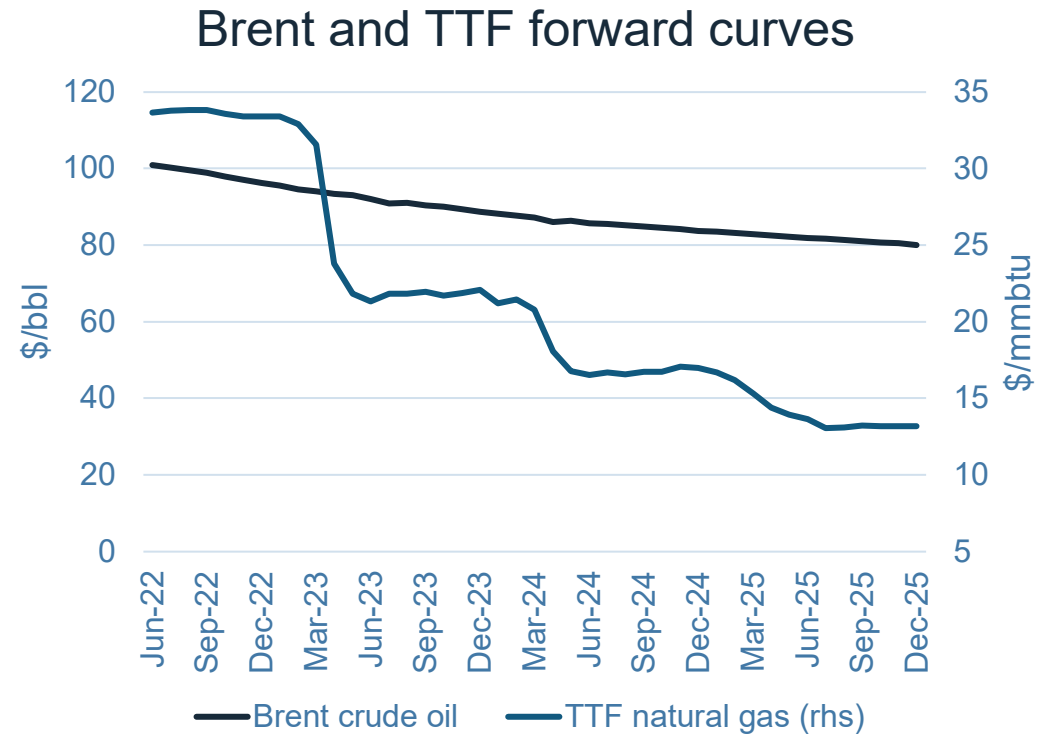
- ❑ 100 bcm/y supply growth to 2025
- ❑ China largest off-taker

❑ Coal replaces some Russian gas

Sources: IEA, A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas, March 2022, and Shell, Shell LNG Outlook 2022, February 2022.

Key energy aspects to global prospects

1. **Energy / commodity shocks**
 - a. 1-2%pt off global growth baseline
2. **Large European natural gas and electricity price shocks**
 - a. Significant drag on EU/UK growth
3. **Faster low-carbon energy pivot**
4. **Moderate oil shock ... so far**
 - a. ST dislocations; high volatility

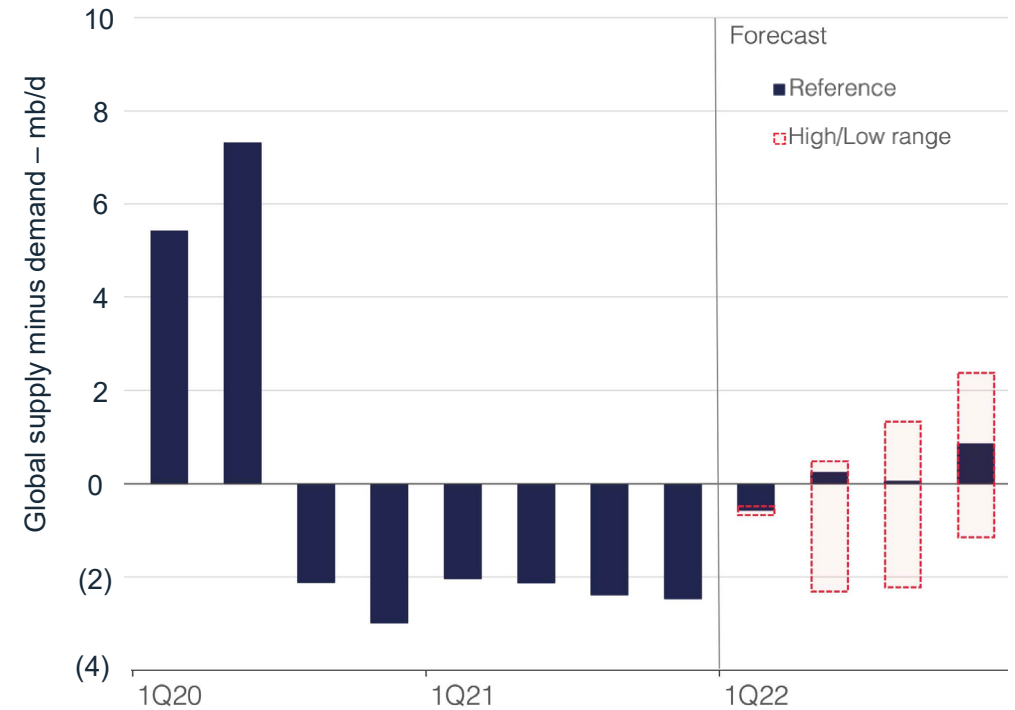


Source: ICE and CME, April 8, 2022

Key energy-related risks to global prospects

1. **Protracted war and Russian oil**
 - a. Curtailment risk up to ~4mb/d
2. **Iran nuclear deal / market return**
 - a. Phase in of +1mb/d
3. **OPEC quota phase outs**
 - a. ~3mb/d v. 1.5mb/d potential
 - b. SA/UAE spare capacity ~2mb/d
4. **Non-OPEC supply +1–2mb/d**
 - a. US SPR release 1mb/d (6 months)

Risks to global oil market balance



Source: B. Fattouh and A. Economou, Russia's invasion of Ukraine and global oil market scenarios, OIES, April 2022



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