Energy aspects

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Global Economic Prospects: Spring 2022
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

Source: IEA, Gas Market Report, Q1-2022
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

Urals Rotterdam vs dated Brent oil price

Source: ICE via Macrobond.
Russia-Europe energy bind

Russian oil imports and import share
(November 2021)

- OECD Europe
- OECD Americas
- OECD Asia
- China

- Crude oil
- Oil products
- Russia total import share (rhs)

Russian share of EU/UK natural gas

- Domestic supply
- Russian supply
- Other supply
- Russian supply share (rhs)

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

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

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

Brent and TTF forward curves

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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