



# ACER



European Union Agency for the Cooperation  
of Energy Regulators

## Session 2: Energy price volatility and energy sources in Europe

ECB Forum on Central Banking 2022: 'Challenges for  
monetary policy in a rapidly changing world'

Sintra, Portugal, 27-29 June 2022

Christian Zinglensen, ACER Director

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## Dash for gas stumbles on policy doubts



Sylvia Pfeifer NOVEMBER 6 2012

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Opinion **Climate change**

## Climate change and the myth of stranded assets



NICK BUTLER [+ Add to myFT](#)

The energy business is entirely familiar with the concept of stranded assets. Now, however, a new concept has been introduced: the idea that some assets, specifically hydrocarbons, will inevitably be stranded and left undeveloped as the world reduces its hydrocarbon consumption in order to avoid the risks of climate change. The question is whether investors and companies should be worried by that concept.

**Nick Butler** SEPTEMBER 28 2015





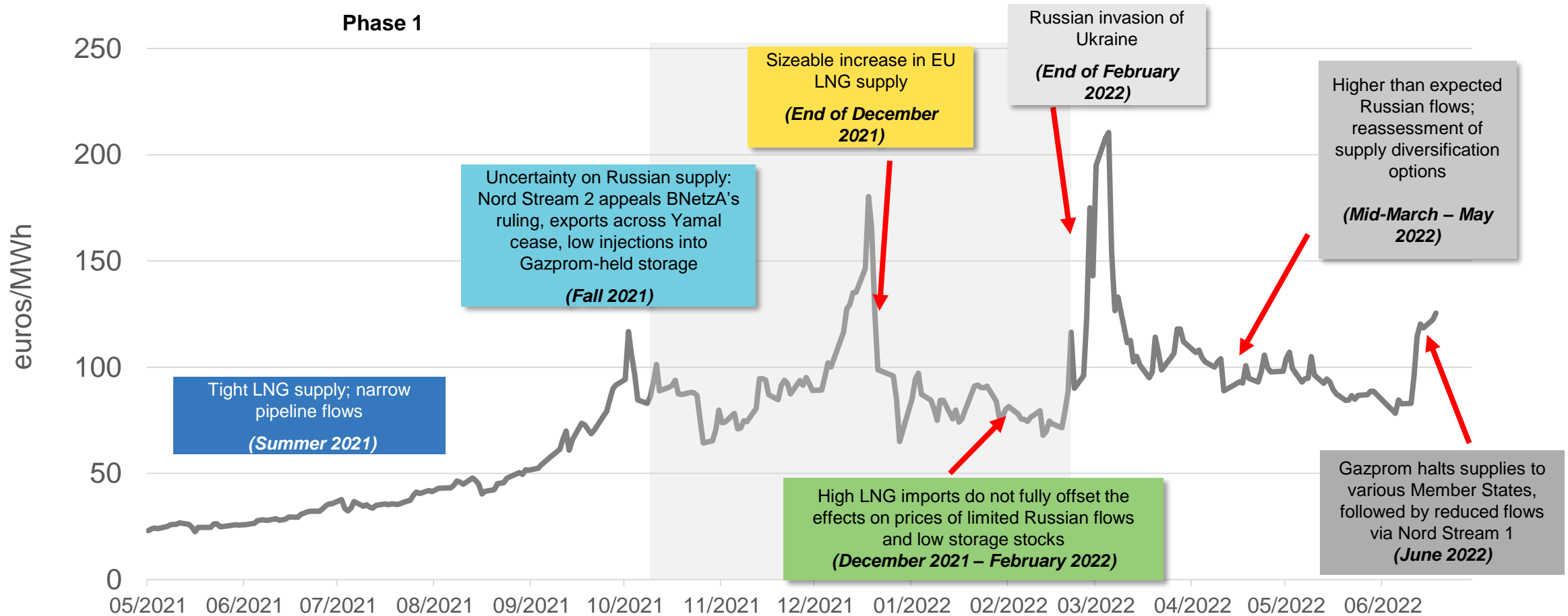
- Current energy shock is gas driven. This has near-term implications.
- The stubborn resilience of gas. Why it is unlikely to go away.
- For the medium term, gas market tightness is likely here to stay.
- Initial ‘no-regrets’ & early lessons for energy transition policies.

# Current energy shock is gas driven, with near-term implications

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# Three phases, each with different dynamics

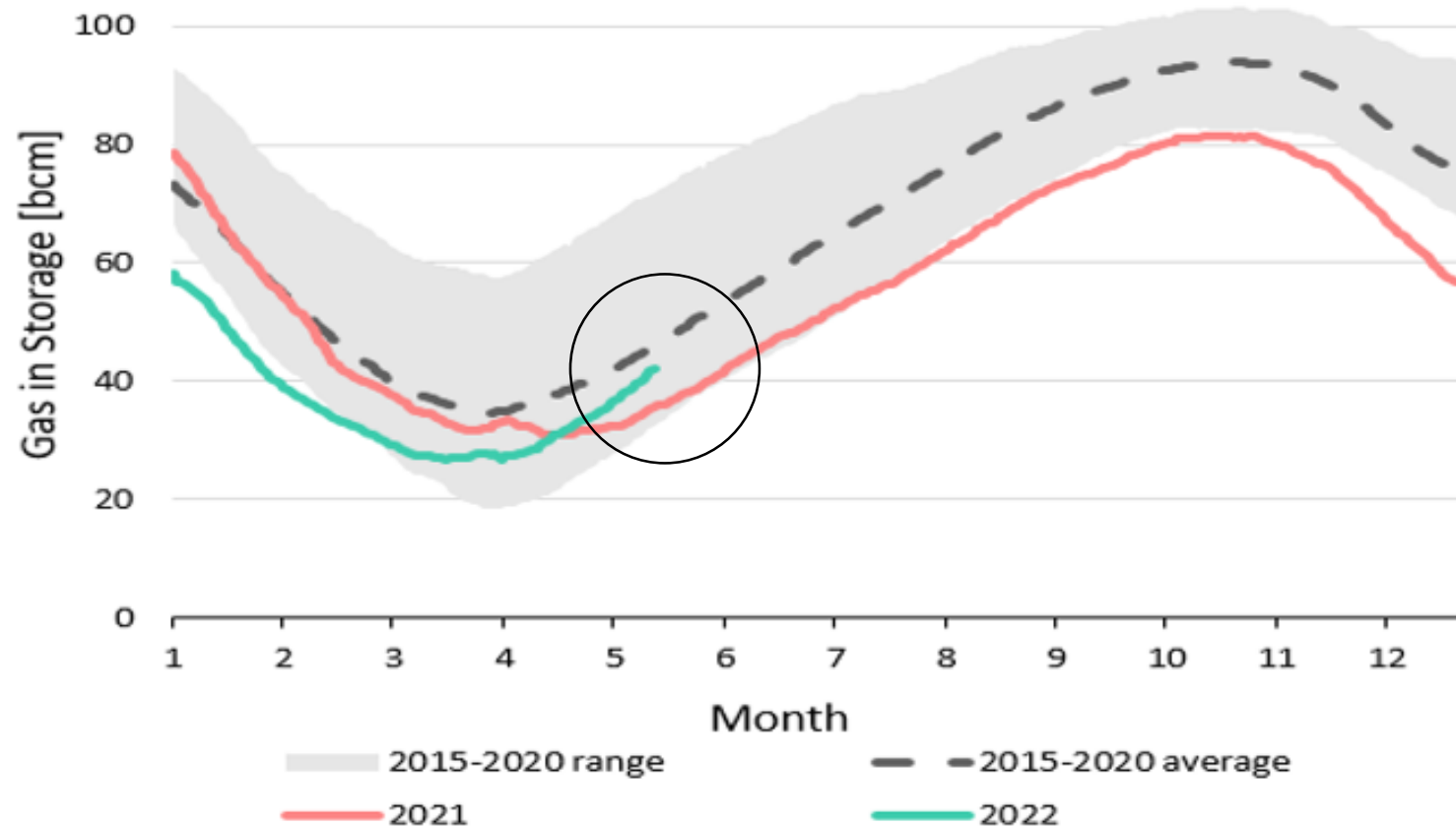
Overview of events and market fundamentals driving EU gas prices - TTF month-ahead contract (EUR/MWh) - May 2021 - June 2022



The gas price surge can be split into three distinct phases. In the latest phase, price developments were first affected by the extreme near-term uncertainty, very recently also by scarcity risk.

# Filling gas storages for upcoming winter is crucial

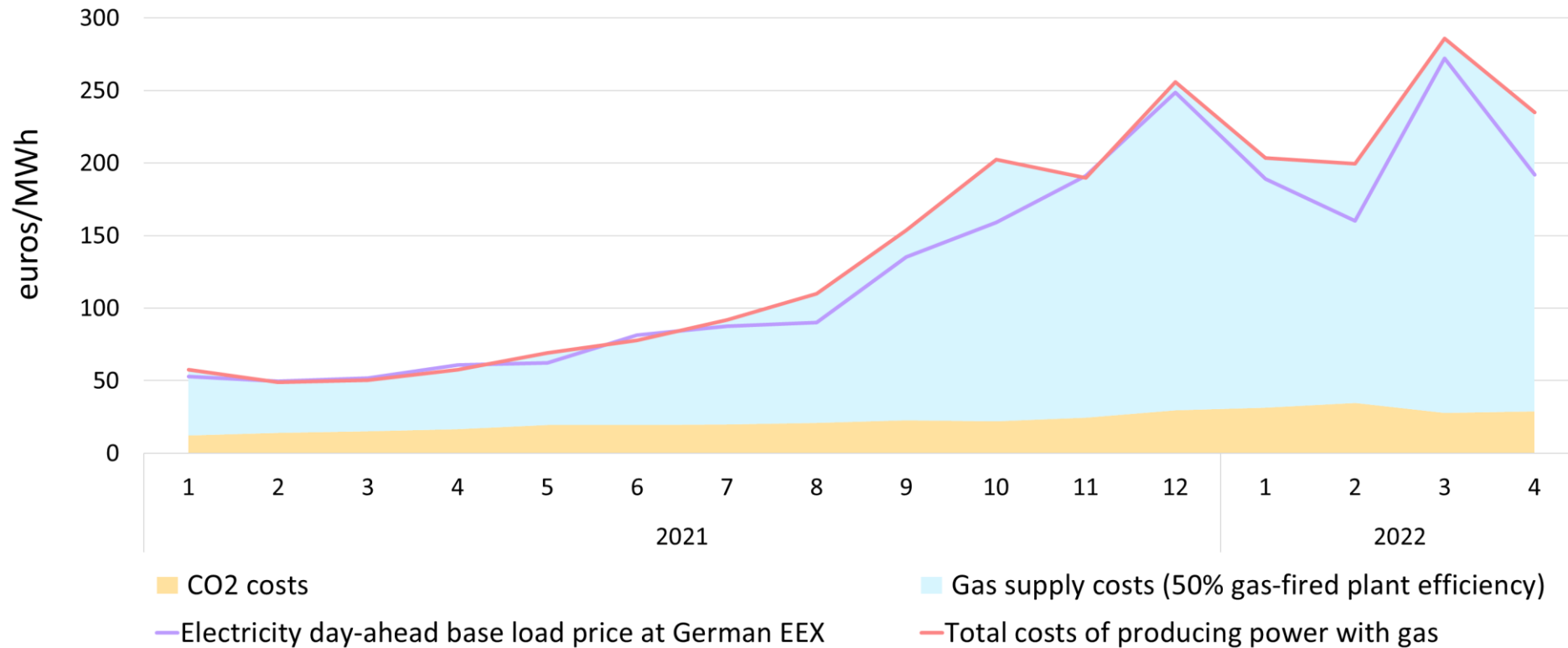
Evolution of EU storage site levels – 2015 to May 2022 – bcm



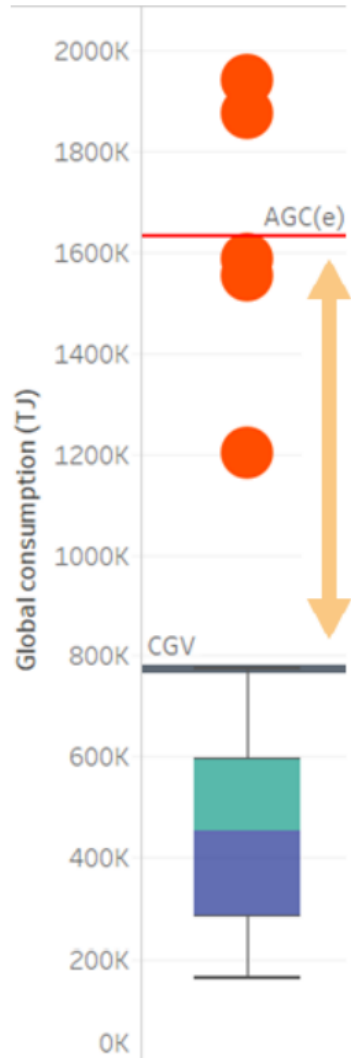
**Storages filled at ~50%, roughly on track to meet the target of 80% by 1 November 2022. However, uncertainty as to continued gas delivery from Russia is increasing. Storage remains key for winter resilience.**

# Gas often drives electricity prices

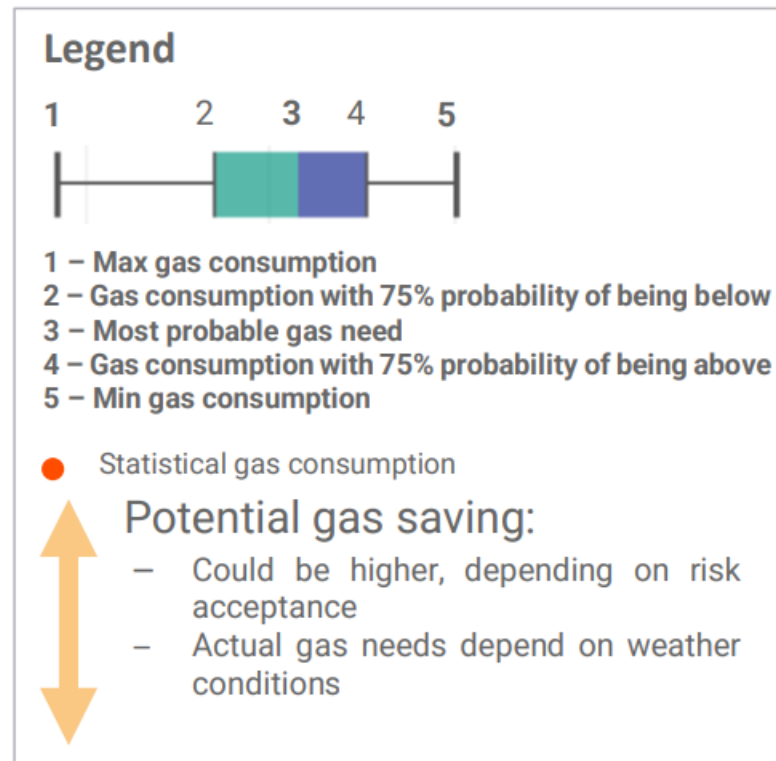
**Electricity price development in Germany and breakdown of the costs of producing electricity from gas (May 2021 - April 2022) - (EUR/MWh)**



# Beyond pricing, electricity adequacy may be affected



**Historical gas consumption for electricity (AGC(e)) compared to the critical gas volume required (CGV) to meet demand**



- Significant gas volume is needed for electricity adequacy
- By pushing gas to the end of the merit order, some gas demand could be saved while still covering the demand for electricity generation

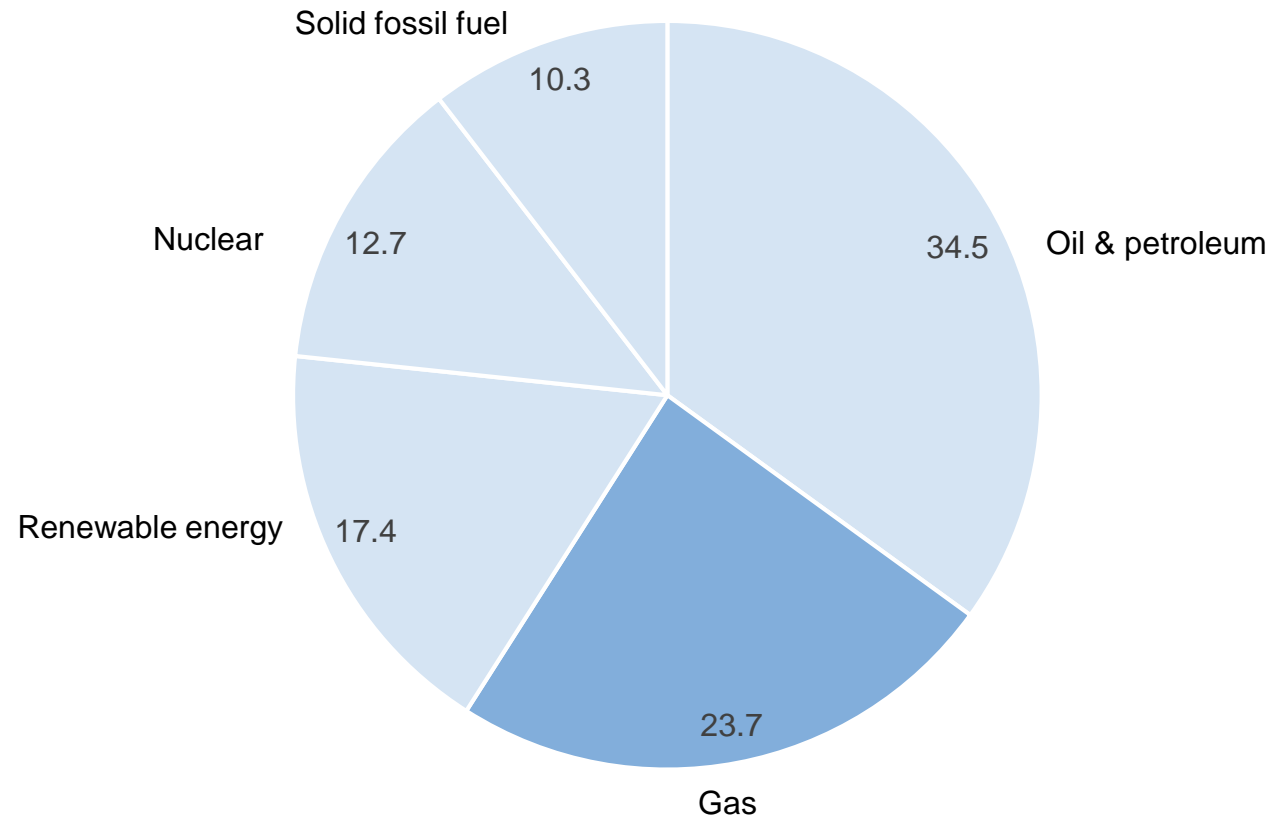


# The stubborn resilience of gas: Why it is unlikely to go away

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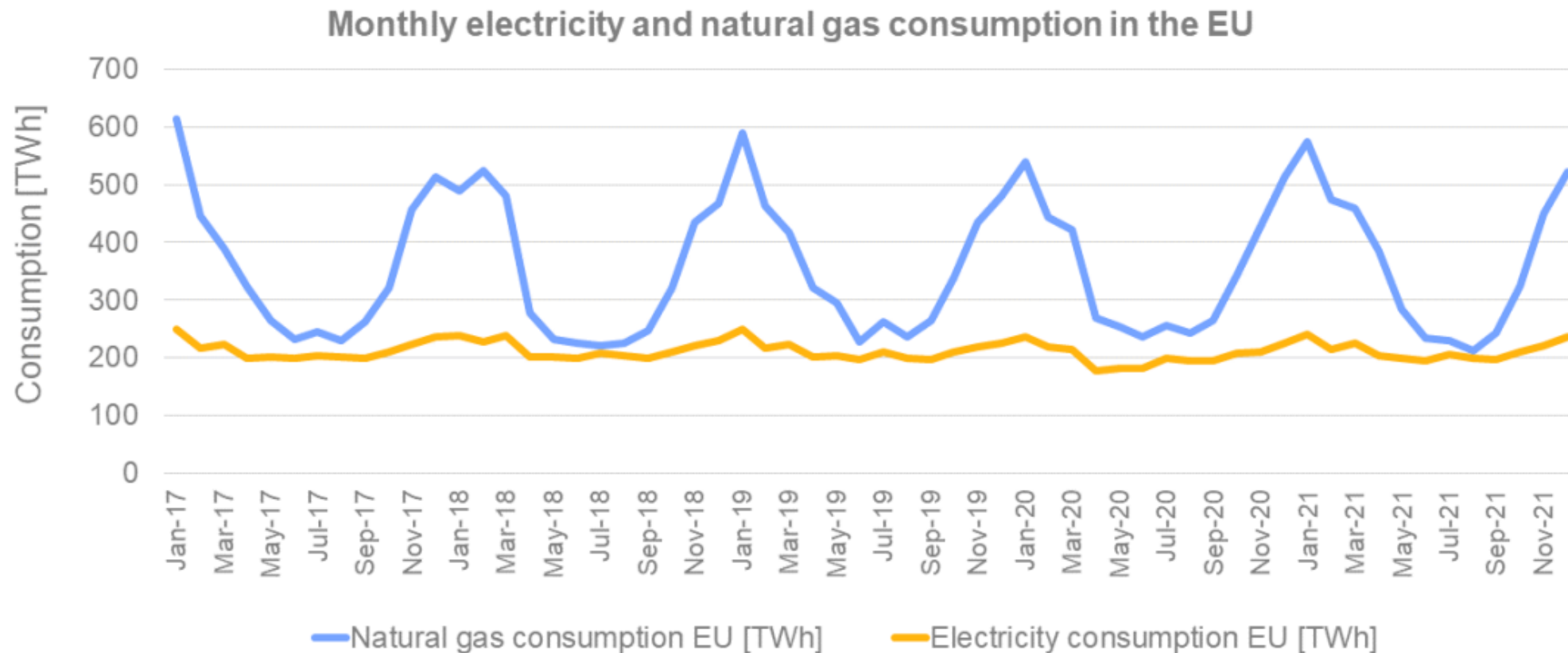
# Gas is a critical fuel in overall EU energy supply

**Gross available energy by fuel**  
**100% = 57,767 PJ**



# Even more so for seasonal flexibility needs

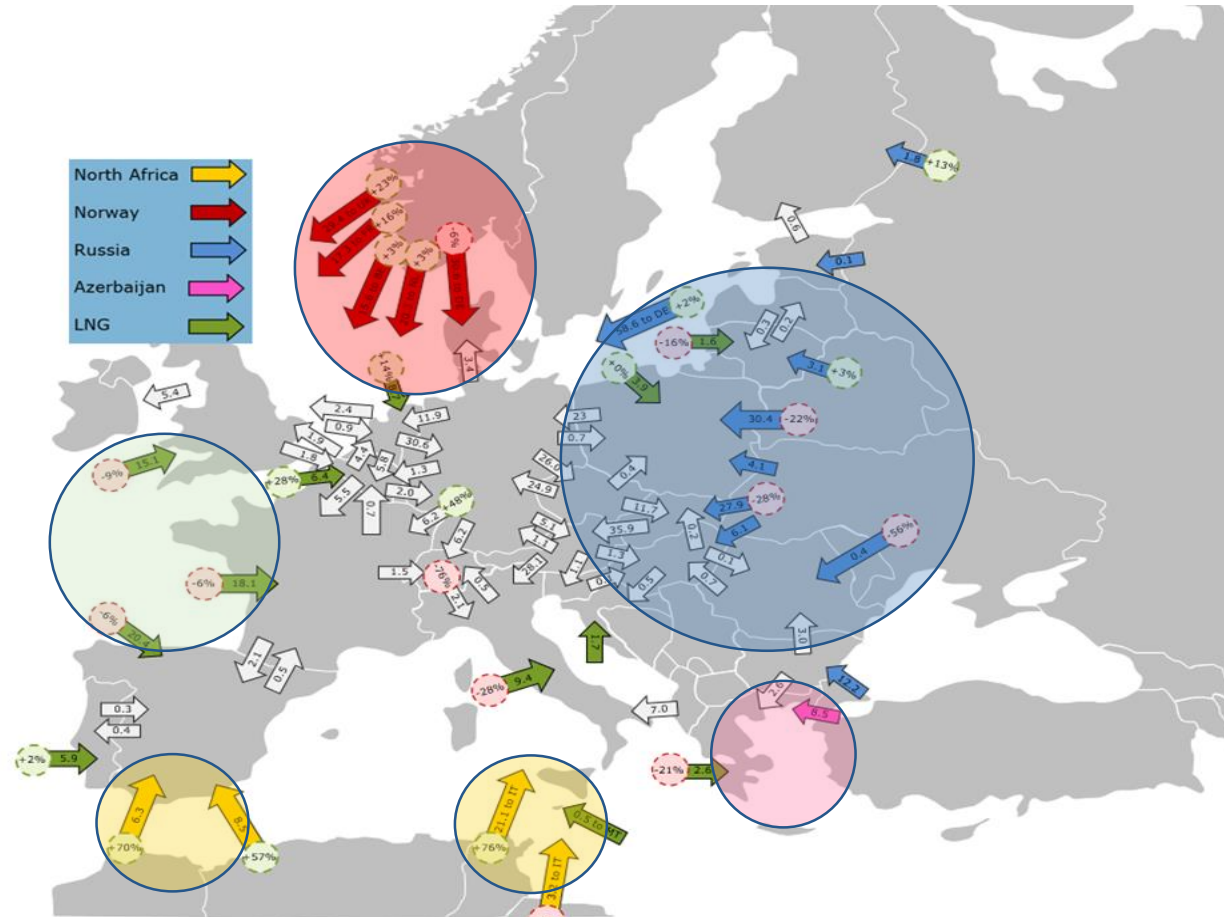
Comparing seasonal swings in electricity and natural gas demand in the EU from January 2017 to July 2021



**Natural gas is a key provider of seasonal flexibility energy needs. Further electrification of heating, whilst reducing overall gas demand, may shift seasonal swings from the gas system to the electricity system, thereby significantly increasing seasonal flexibility needs in the electricity system.**

# Geography matters: ‘East-to-West’ pipelines dominate

EU and Energy Community countries cross-border gas flows (2021, bcm/year)



**The gas system has so far accommodated flows in response to price signals (greater volumes from East to West). New emphasis on West to East flows requires new investment.**

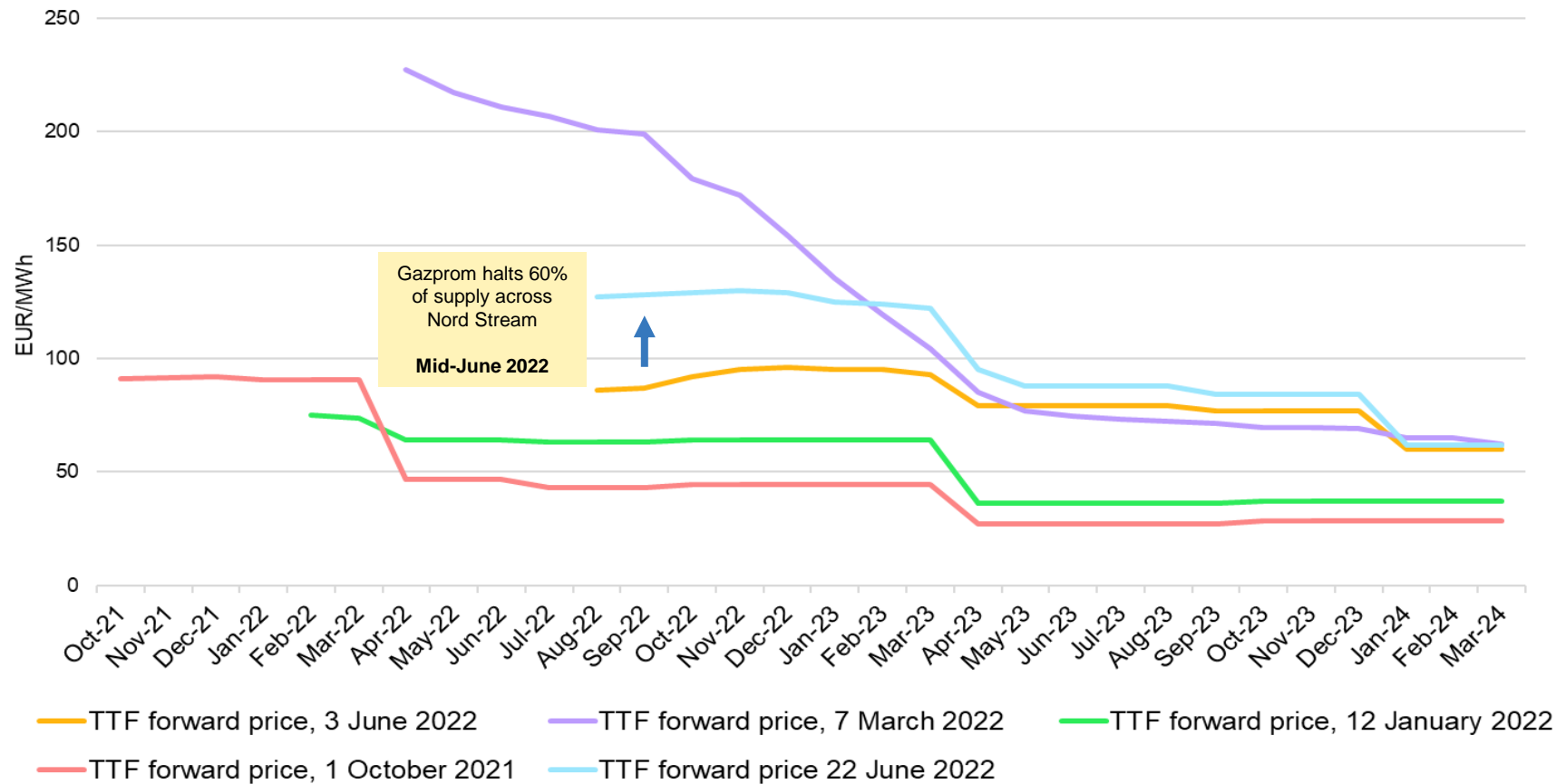


**Over the medium term, gas market tightness  
is likely here to stay**

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# Current forward prices indicate price expectations

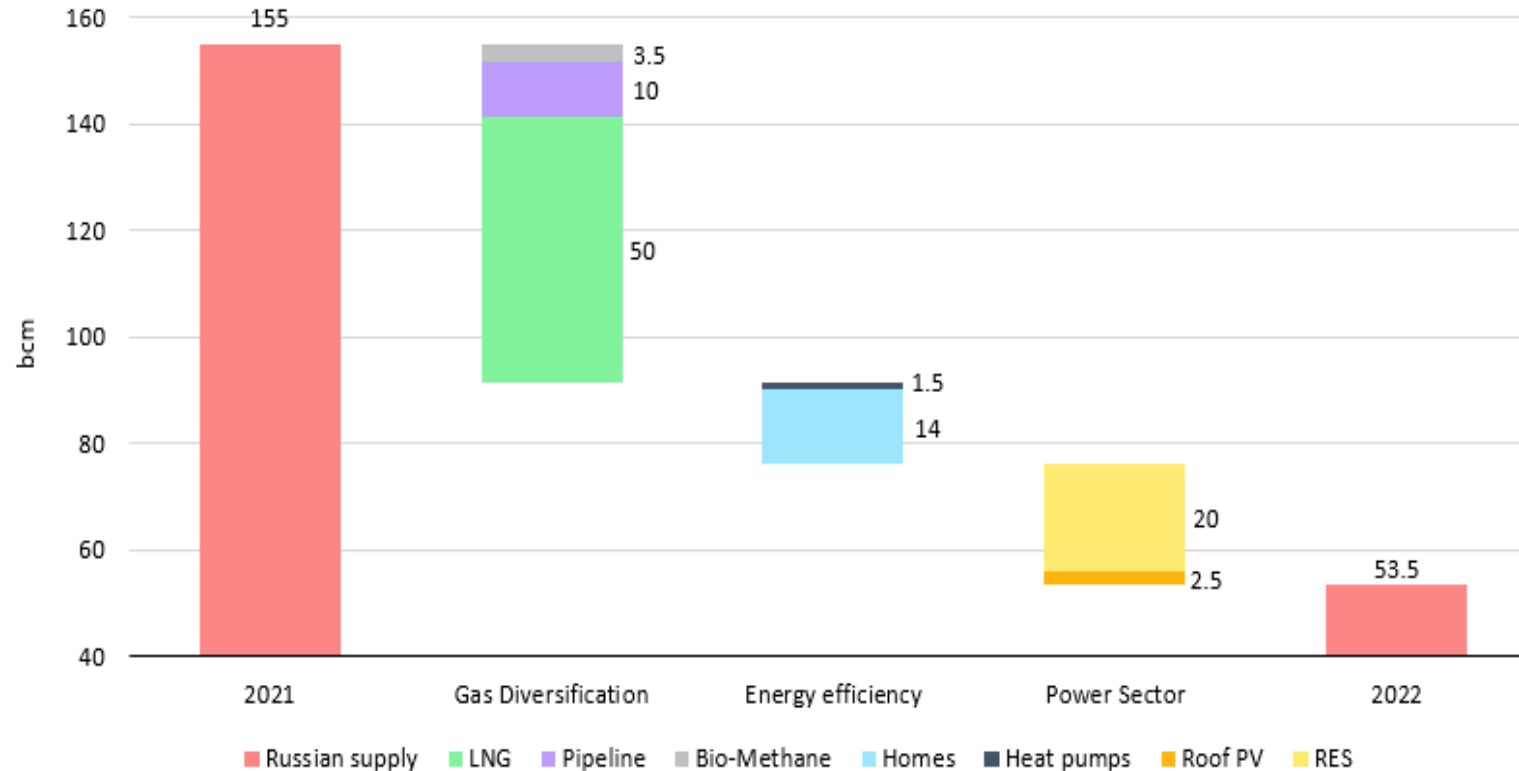
## Evolution of gas (TTF) forward prices comparing the contractual outlook (October 2021 - June 2022)



**Whilst Russia’s invasion of Ukraine led to high price spikes, these subsequently eased somewhat. Now, forward prices rise again due to reduced gas deliveries, in particular via Nord Stream 1.**

# Future LNG needs for the EU are significant

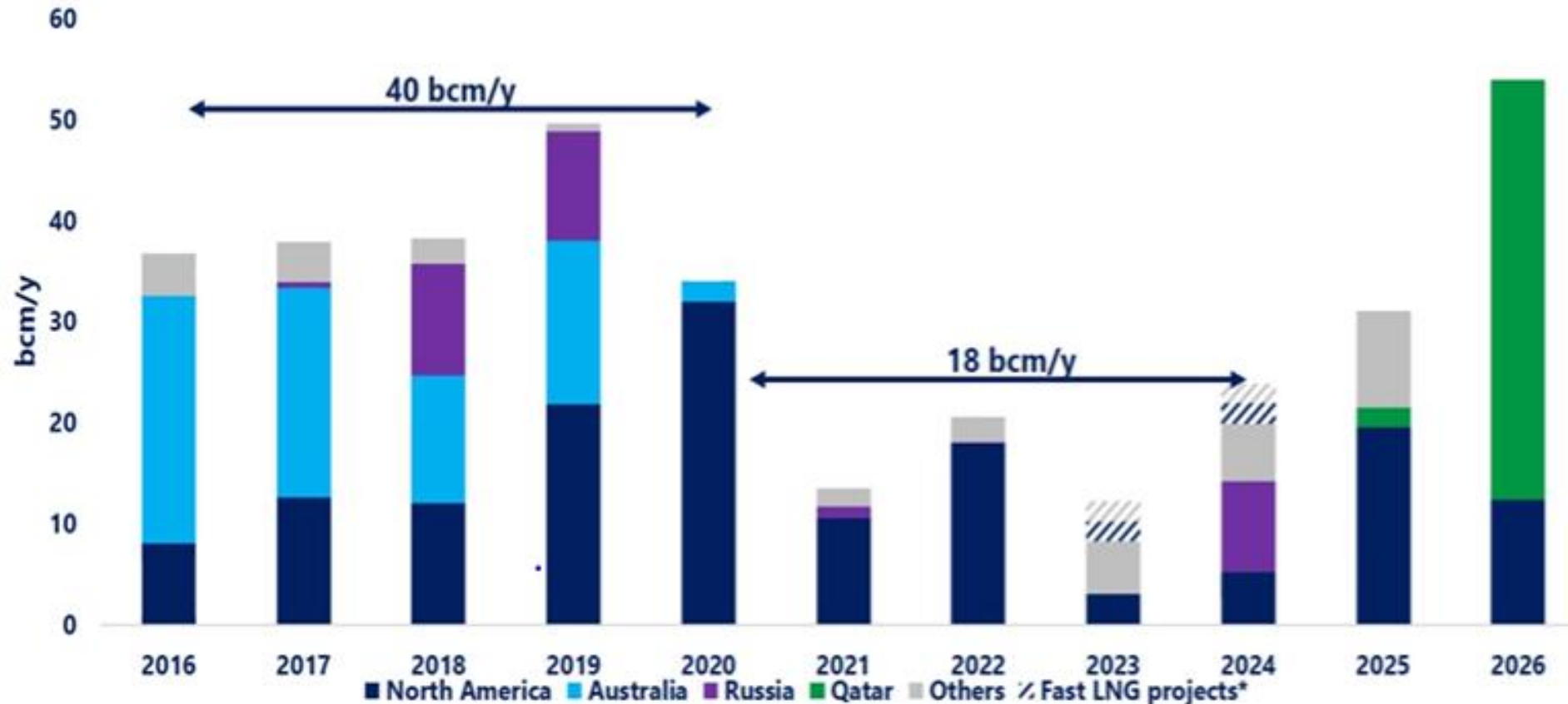
## RePowerEU gas supply diversification and Russian supply reduction efforts in 2022 – bcm



**RePowerEU targets to replace up to 50 bcm of Russian gas per year via extended procurement of LNG. This is more than 10% of EU 2021 gas demand and ~10% of global 2021 LNG trade.**

# LNG capacity remains tight in the coming years

Global LNG liquefaction capacity additions by regions by start-up year – 2016-2026

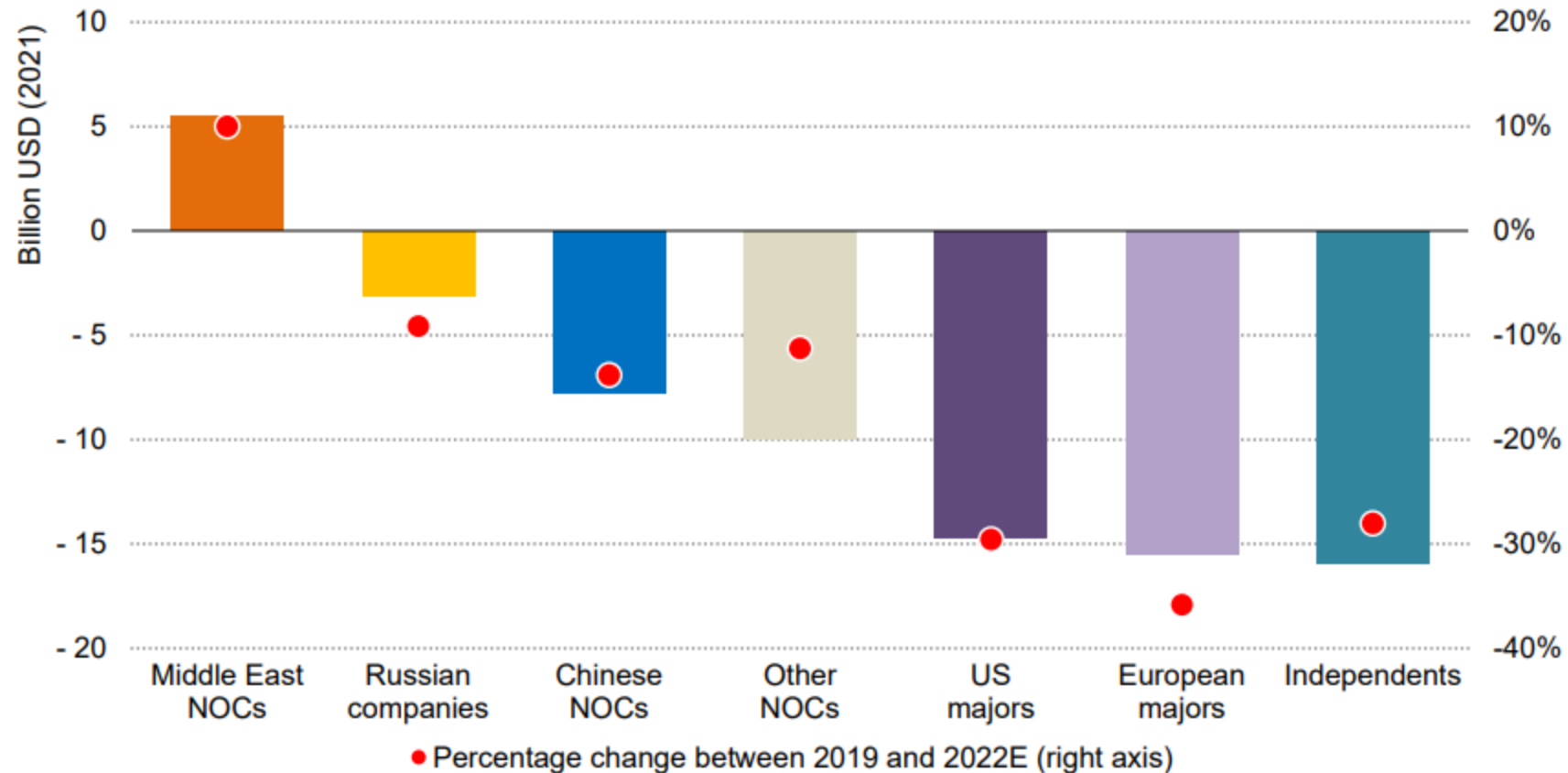


The EU will compete for extra volumes with Asia which will see growing demand, partly for overall economic growth, partly for lowering coal usage.



# So cyclically, new investments will be coming - right?

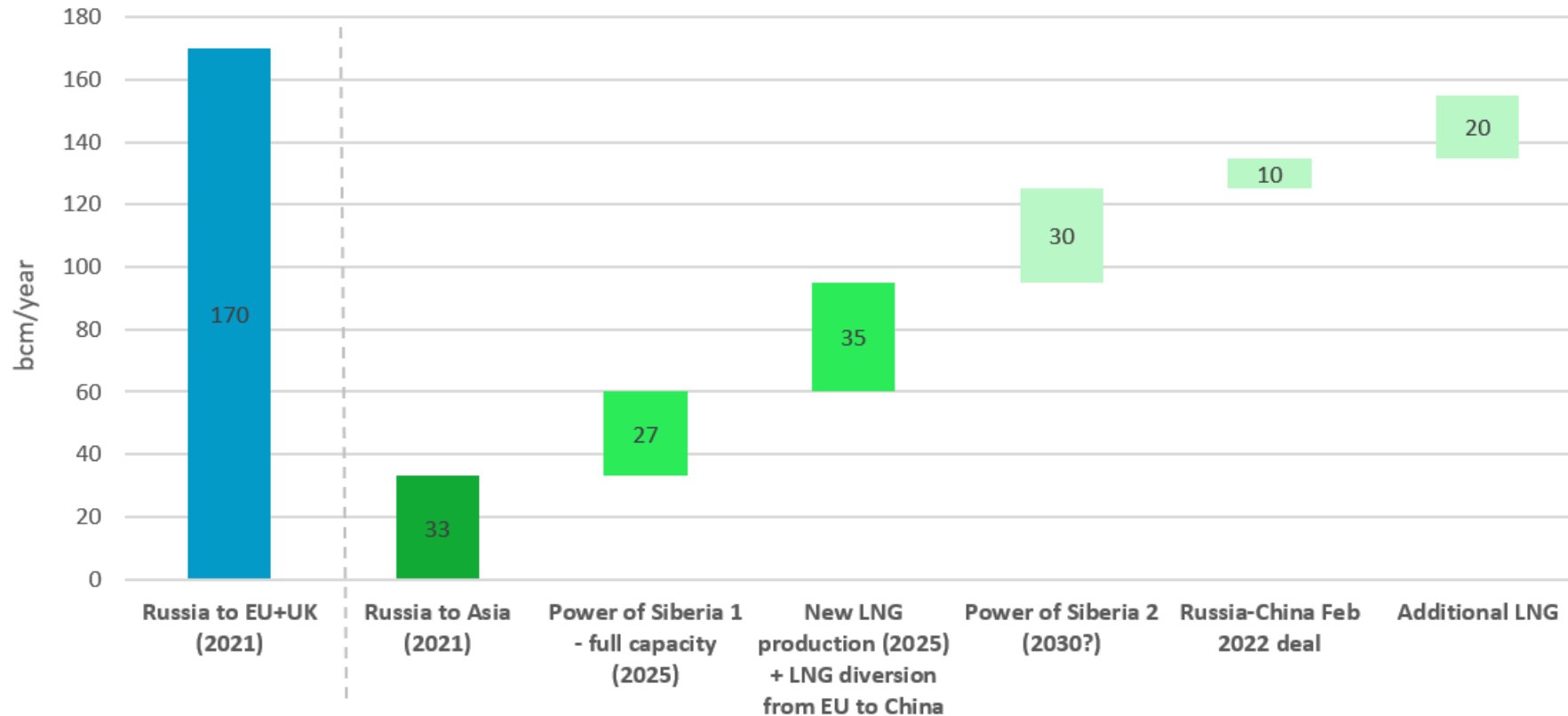
Estimated change in upstream oil and gas spending by selected company types (2019-2022E)



**Upstream oil and gas investment is changing, with only the spending by Middle East national energy companies above pre-pandemic levels. This raises the question whether past ‘cyclical dynamics’ still apply.**

# Current Russian gas supply cannot just ‘go elsewhere’

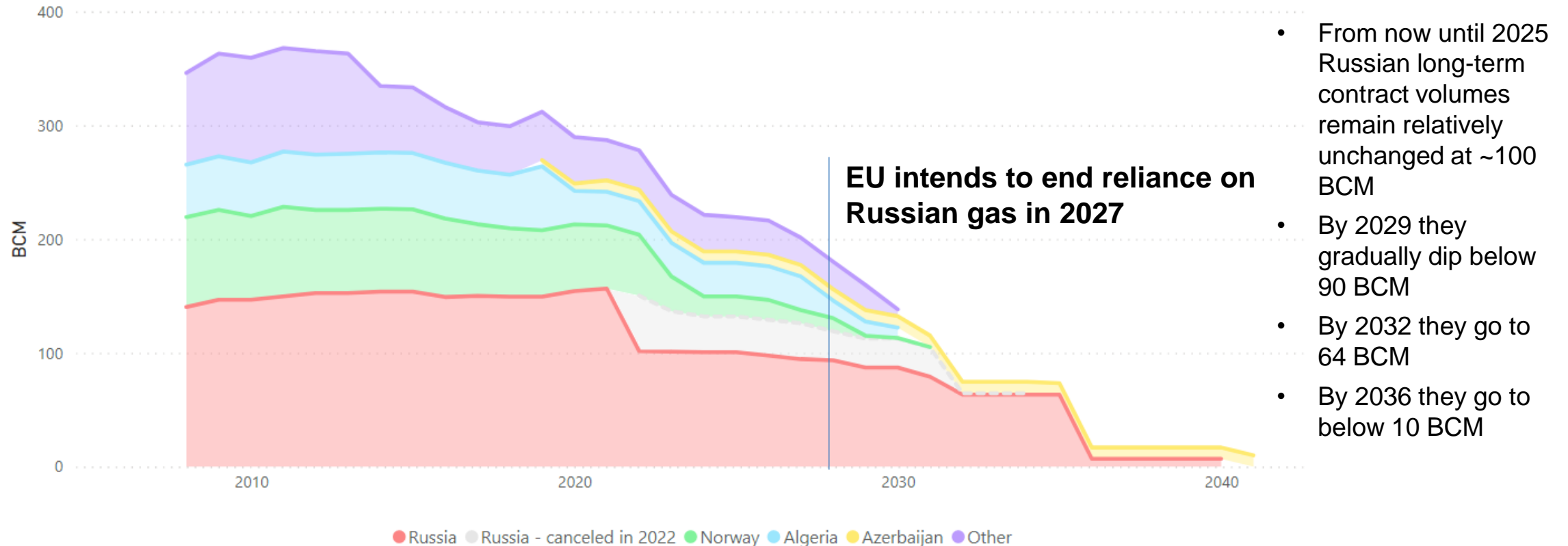
**Existing and potential Russian gas exports to Asia vs Russian export to EU + UK**



**Russia expected to prioritise new export capacity, in particular towards China. This will involve significant investment and price concessions. Volumes are highly unlikely to make up for current EU + UK exports.**

# On top, Russian long-term contracts hold resilience

## Evolution of the nominal capacity of pipeline long-term supply contracts prevailing in the EU and expiration calendar – bcm/year



**Russian long-term contracts towards EU markets last significantly beyond 2027. This adds complexity to current considerations.**

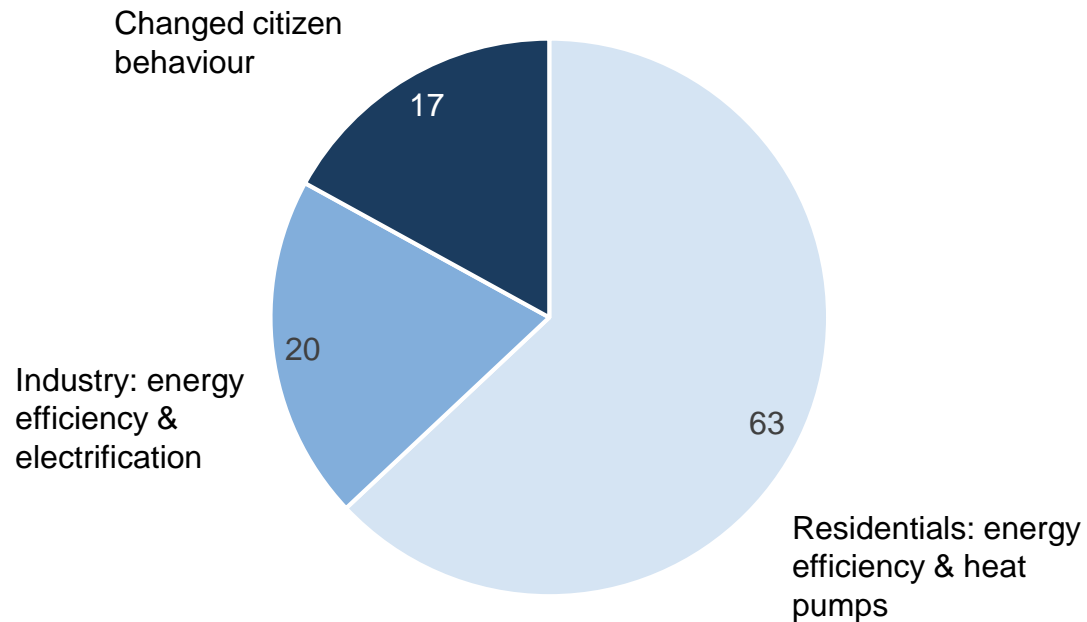
# Turning to ‘no-regrets’

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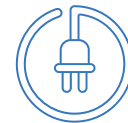


# Aggressive demand reductions will be necessary

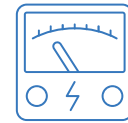
## REPowerEU gas demand savings; what is being targeted 100% = 59 BCM



## Example: buildings energy consumption



Buildings represent 40% of energy consumption



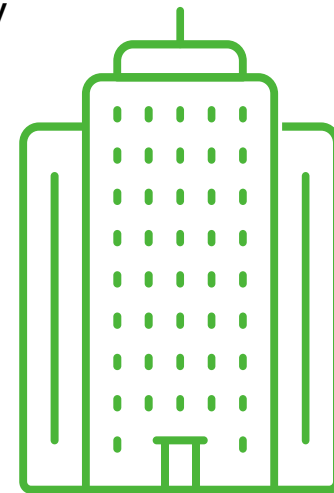
75% of buildings are energy inefficient



Only ~1% of building stock renovated yearly, getting to 1.7% a year would save an extra 1 BCM/year

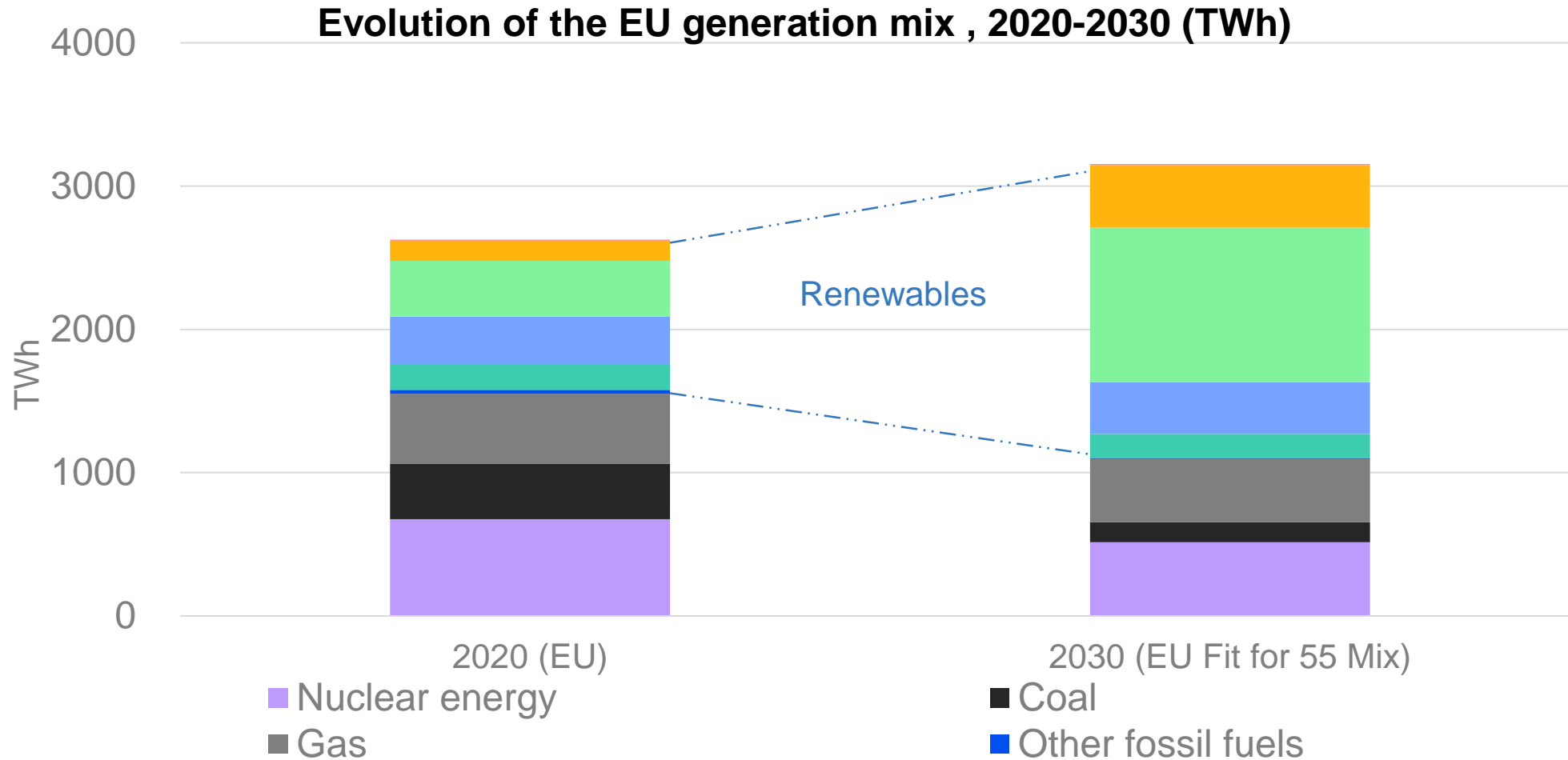


More investment and support needed to speed up renovations



**Targeting demand-side measures is key. Price signals are not ‘the full story’ (current incentives being a case in point). Institutional and behavioural barriers persist. In addition, some interventions have long lead times.**

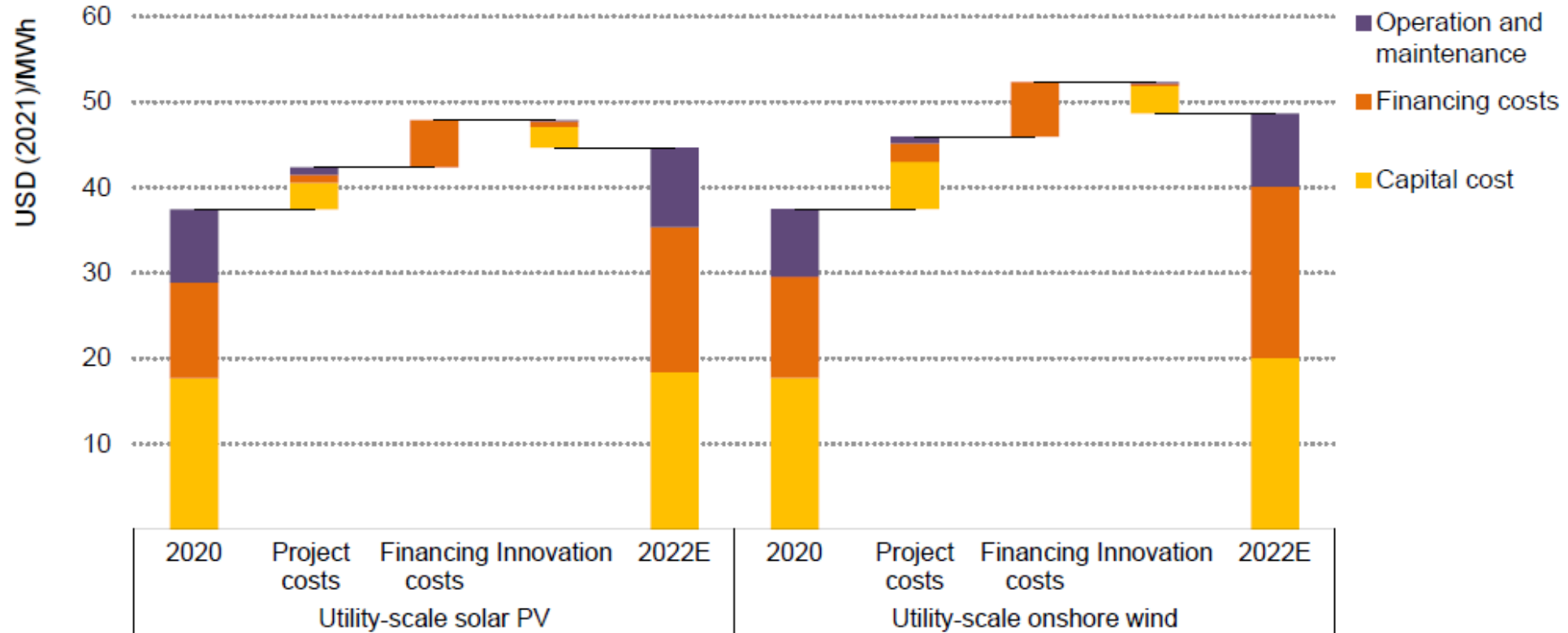
# Clean energy supply needs to ramp up



**Barriers exist, related more to permitting and lack of facilitating infrastructure (grids) than to capital availability.**

# Though here, supply chain challenges loom

**Changes in levelised cost of energy for a benchmark project in Europe and North America with revenue support mechanism – 2020-2022E**



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**Costs for renewable generation are going up due to a mix of supply chain constraints and higher cost of materials, thereby reversing a previous downward trend.**

# Early lessons for energy transition policies up ahead

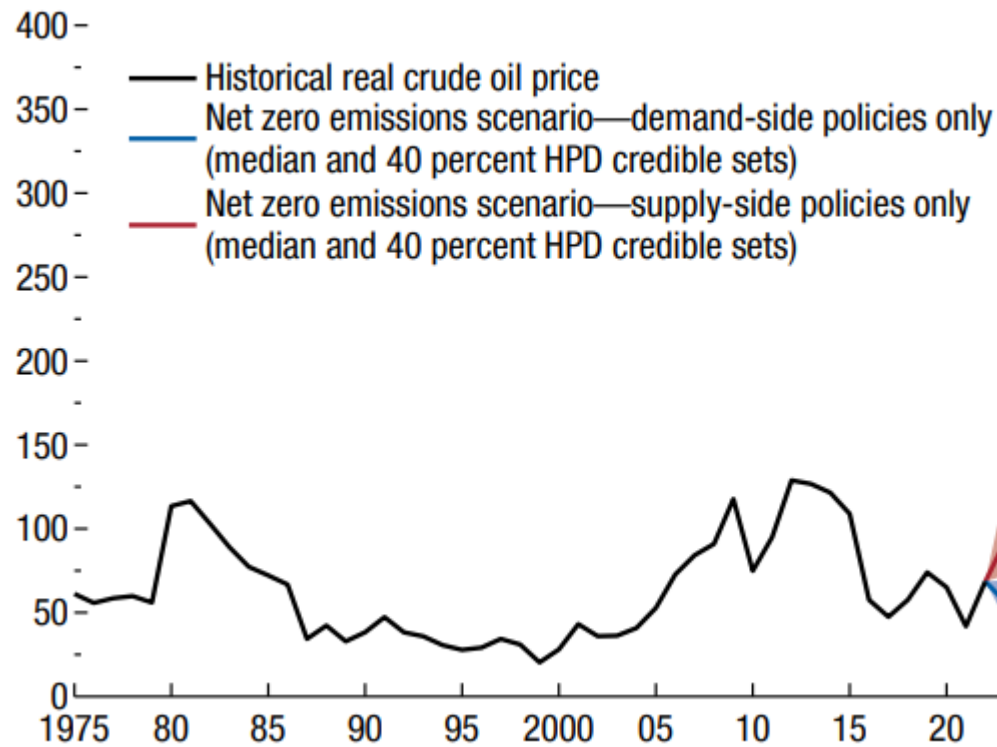
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**It's the supply. No, it's the demand. No, it's the ...**

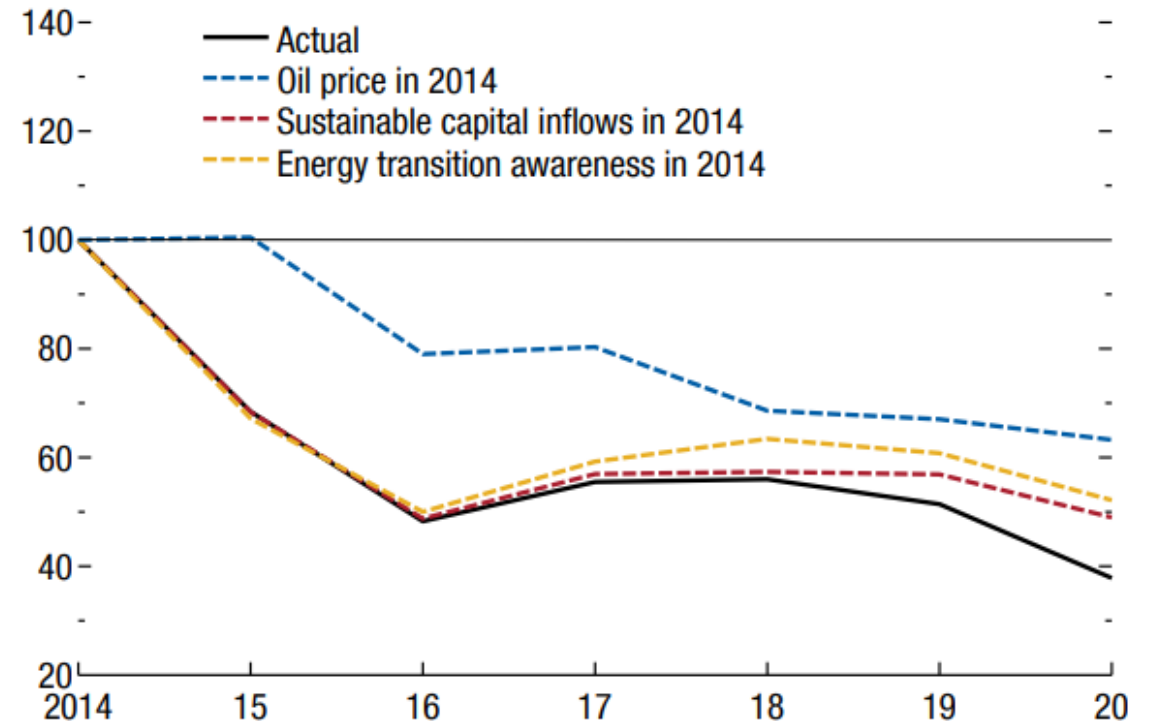


# One-sided focus on the supply-side holds risks

**Oil prices rise in a net zero emissions scenario driven by supply policies vs. decline when driven by demand policies** (*US dollars a barrel*)

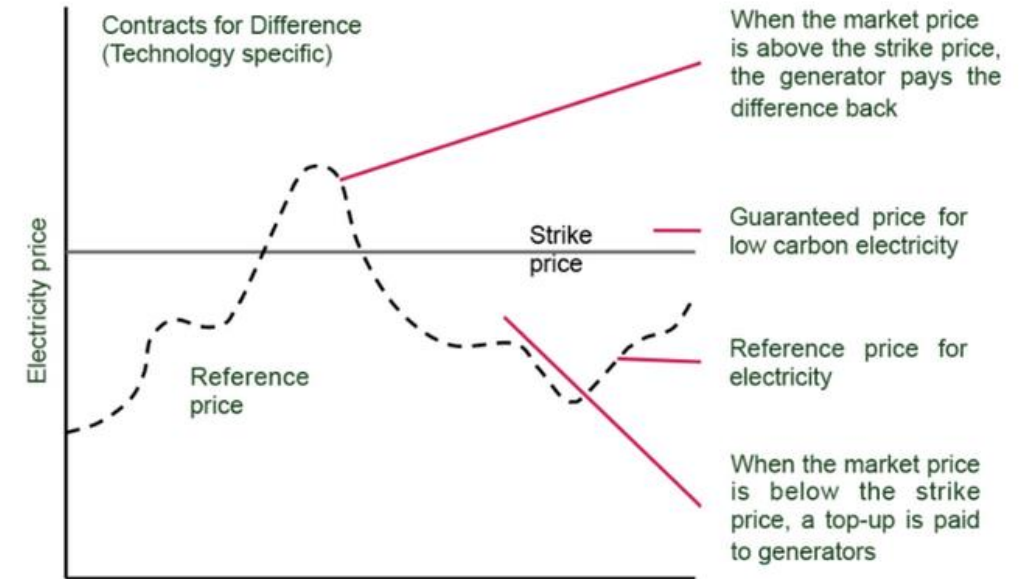
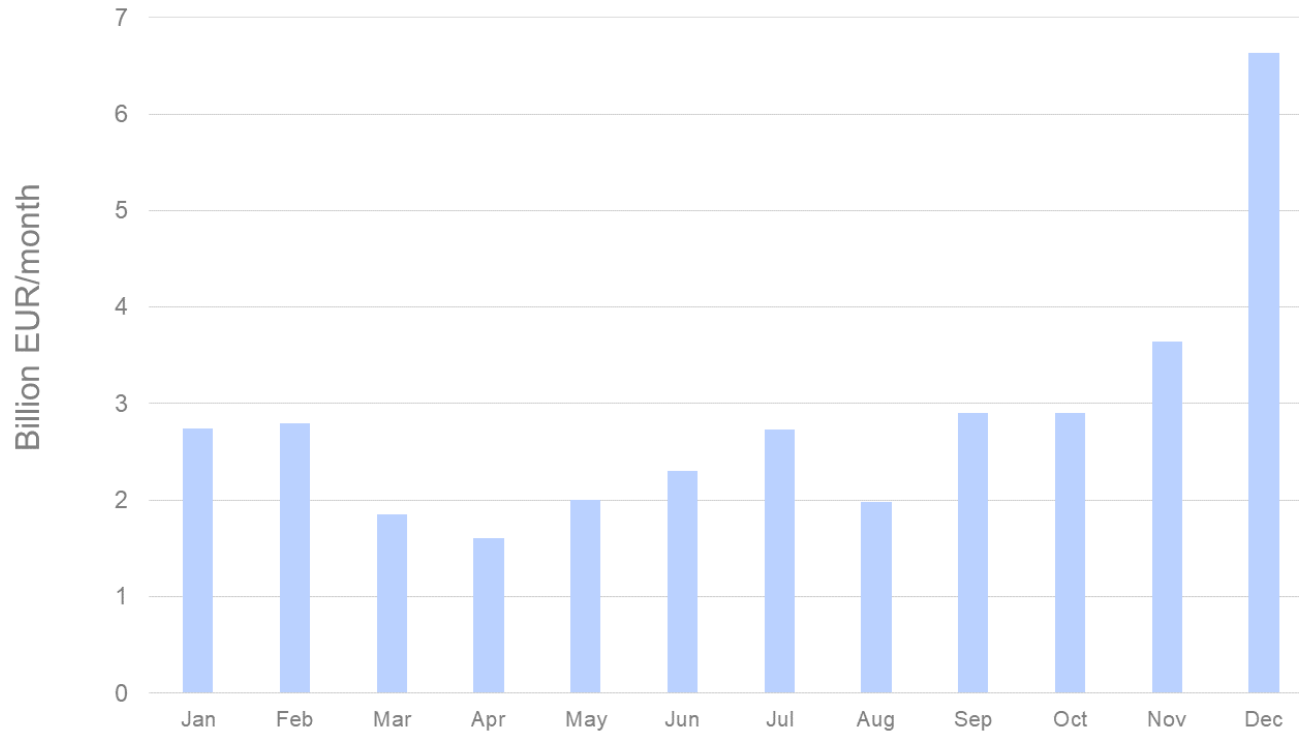


**Counterfactuals for oil and gas capital expenditure**



**Focusing on supply-side restrictive measures as opposed to (also) focusing on demand-side measures may bring strong upward pressure on prices. Also, targets do not constitute results. Recent history holds lessons.**

**Estimated monthly welfare benefits (Billion EUR) from cross-border EU electricity trade in 2021**



**In 2021, EU electricity cross-border trade delivered an estimated EUR 34 billion of benefits. Keeping market functioning and thus efficient electricity trade in place seems key. Attention may turn towards redistribution-oriented measures, targeting perceived excessive producer rents for the benefit of consumers.**



# The EU has advantages. Will these be leveraged?

*“... whilst increased energy independence vis-à-vis (particular) third-countries is a policy objective of growing importance, realising this may well depend on enhanced energy inter-dependence amongst EU Member States.”*



**Further strengthening a ‘shared resources’ model across the EU requires investment; in infrastructure, rules, institutions and governance. Importantly, it also requires political investment in the ‘comfort levels’ of being more (inter-)dependent on other Member States for one’s energy needs.**

**Thank you.  
Looking forward to the discussion.**



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# Back-up slides

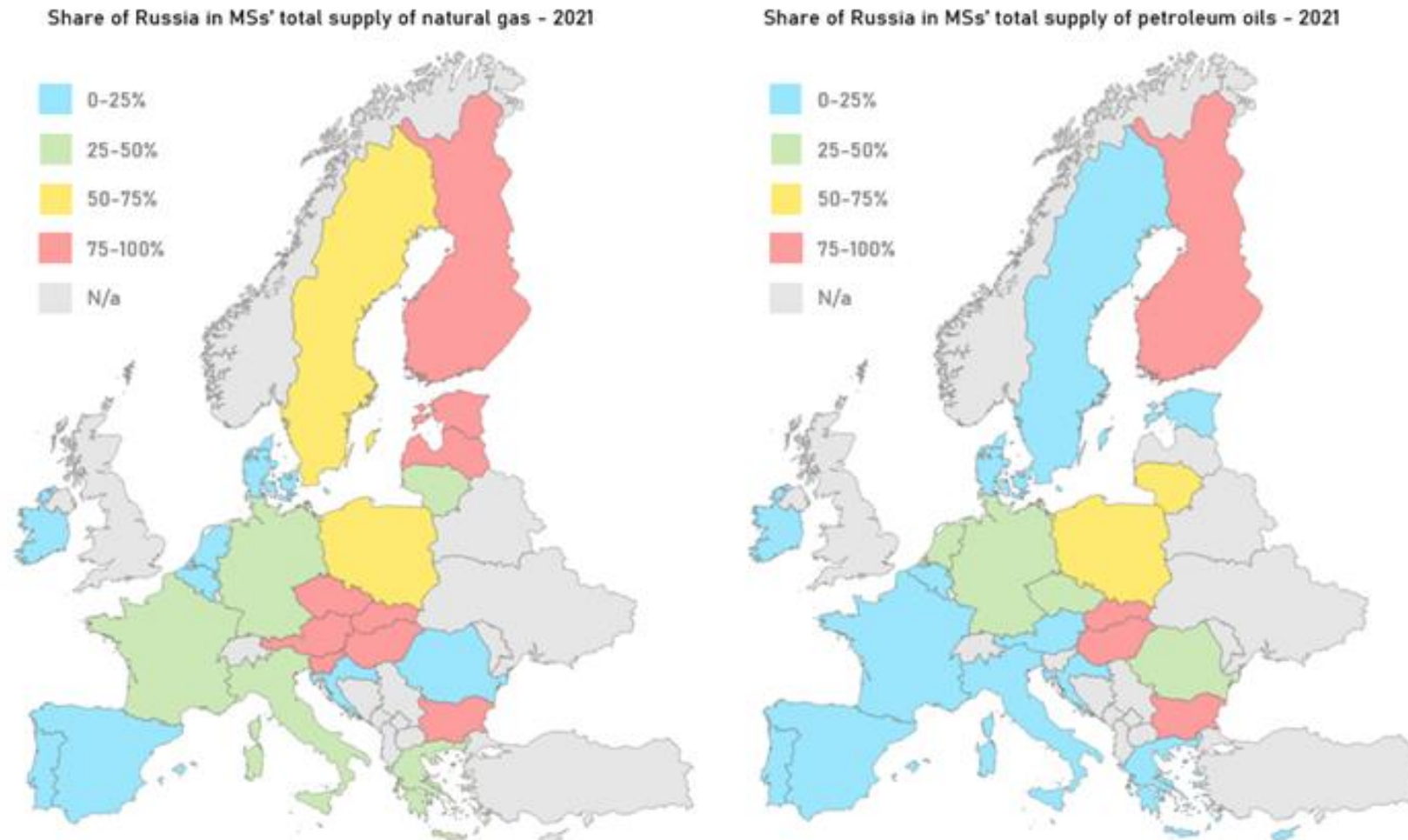
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- **Supporting the integration of energy markets in the EU** (by common rules at EU level). Primarily directed towards transmission system operators and power exchanges.
- **Contributing to efficient trans-European energy infrastructure**, ensuring alignment with EU priorities.
- Monitoring the well-functioning and transparency of energy markets, **detering market manipulation and abusive behaviour**.
- Where necessary, **coordinating cross-national regulatory action**.
- Governance: **Regulatory oversight is shared** with national regulators. **Decision-making** within ACER is collaborative and joint (formal decisions requiring 2/3 majority of national regulators). **Decentralised enforcement** at national level.

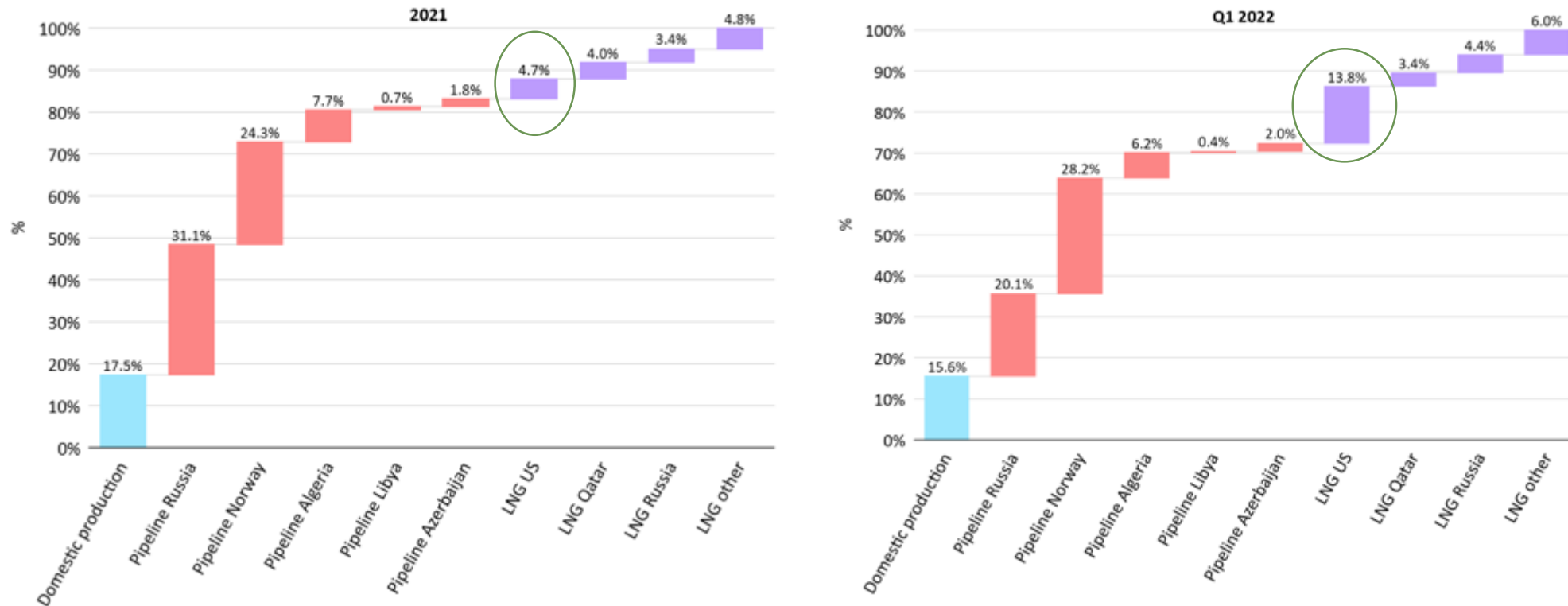
# Energy dependence on Russia is significant

## Share of Russian physical gas and oil in total supply of individual MSs – 2021 - % ranges



# US LNG coming to the rescue; will it suffice?

EU and UK gas supply portfolio by origin – 2021 (100% = 480 bcm) vs Q1 2022



**While LNG supply is rising significantly (+70% in Q1 2022), mostly coming from the US, it will be a challenge to meet the targeted two thirds reduction of Russian supply.**

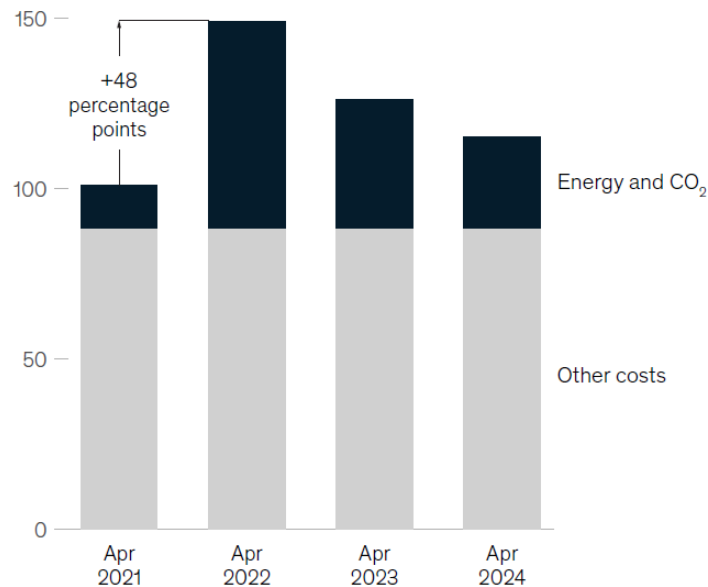


# Rising energy costs in industry lead to demand cuts

Exhibit 1

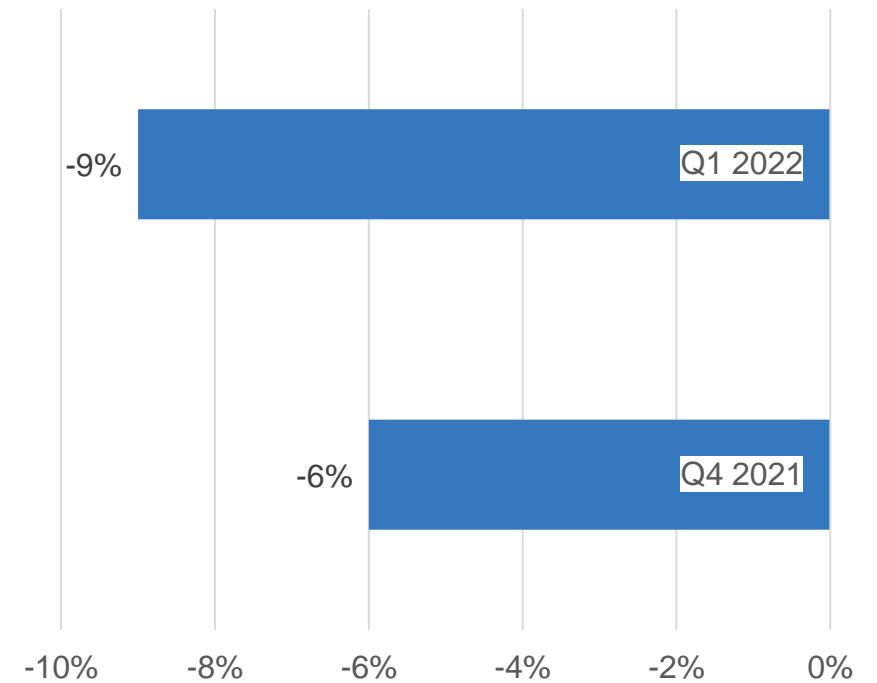
For some process industry players, rising energy prices have increased production costs by almost 50 percent.

Typical production cost structure, process industry player,<sup>1</sup> index (Apr 2021 = 100)



<sup>1</sup>Fraction of total cost in 2021 for electricity 5% (€60/MWh), gas 5% (€20/MWh), CO<sub>2</sub> 2.5% (€50/MWh). Prices for gas futures based on EEX Futures, TTF (title transfer facility) as of Mar 14, 2022. Electricity price assumed double of natural gas price including CO<sub>2</sub>. CO<sub>2</sub> price evolving to €100/ton for future years.

## EU industrial gas demand



**Industry is likely to be further encouraged or forced to increase efficiency oriented investments.**