



# The Gas Crisis – latest developments

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# Our presenters



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# The Gas Crisis – latest developments

## 1. Recent market developments

### 2. The impact of a Russian interruption

- focussing on Germany
- focussing on Italy

### 3. How has the outlook for European gas supply changed since the Invasion?

- AFRY's Q2 2022 central projection
- EU's stated aims



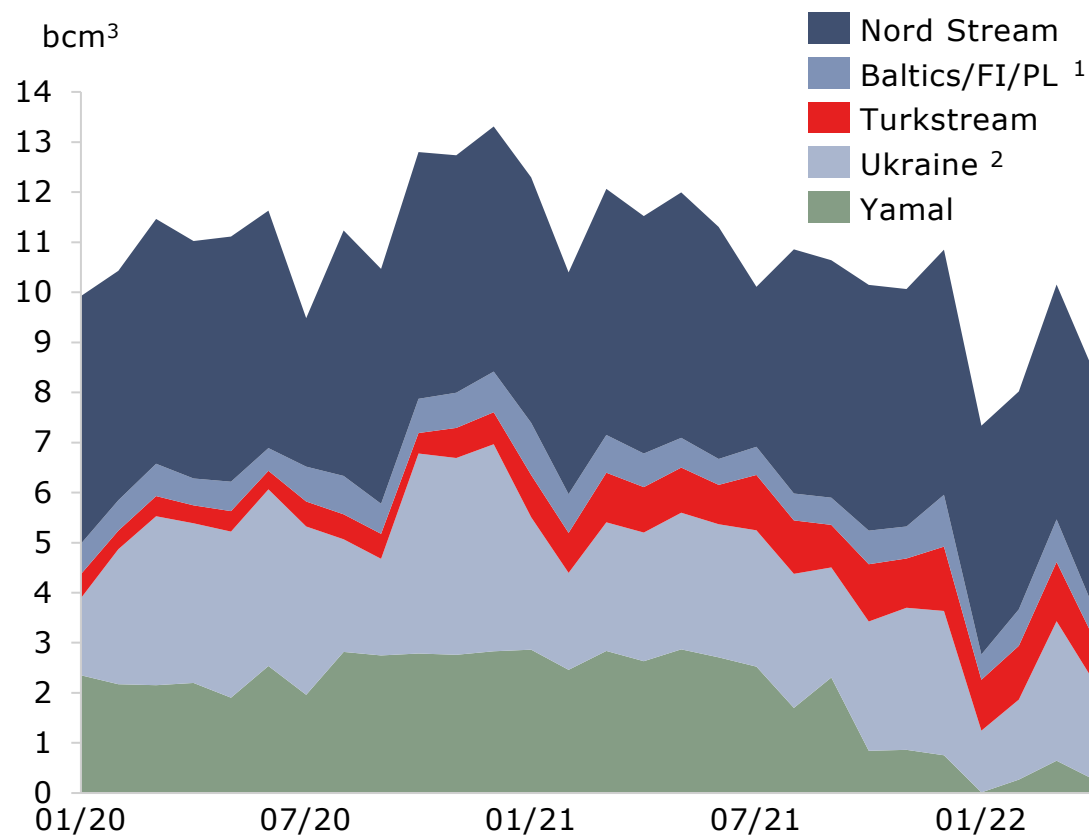
RECENT MARKET DEVELOPMENTS

As spot prices soared following the invasion of Ukraine, greater volumes of Russian contract gas were imported, but these have now fallen back

- Russian gas flows recovered in February and March somewhat, and fell again in April 2022
- Additional flows through Turkstream can flow back into Bulgaria



RUSSIAN GAS FLOWS TO THE EU JAN 2020- APR 2022



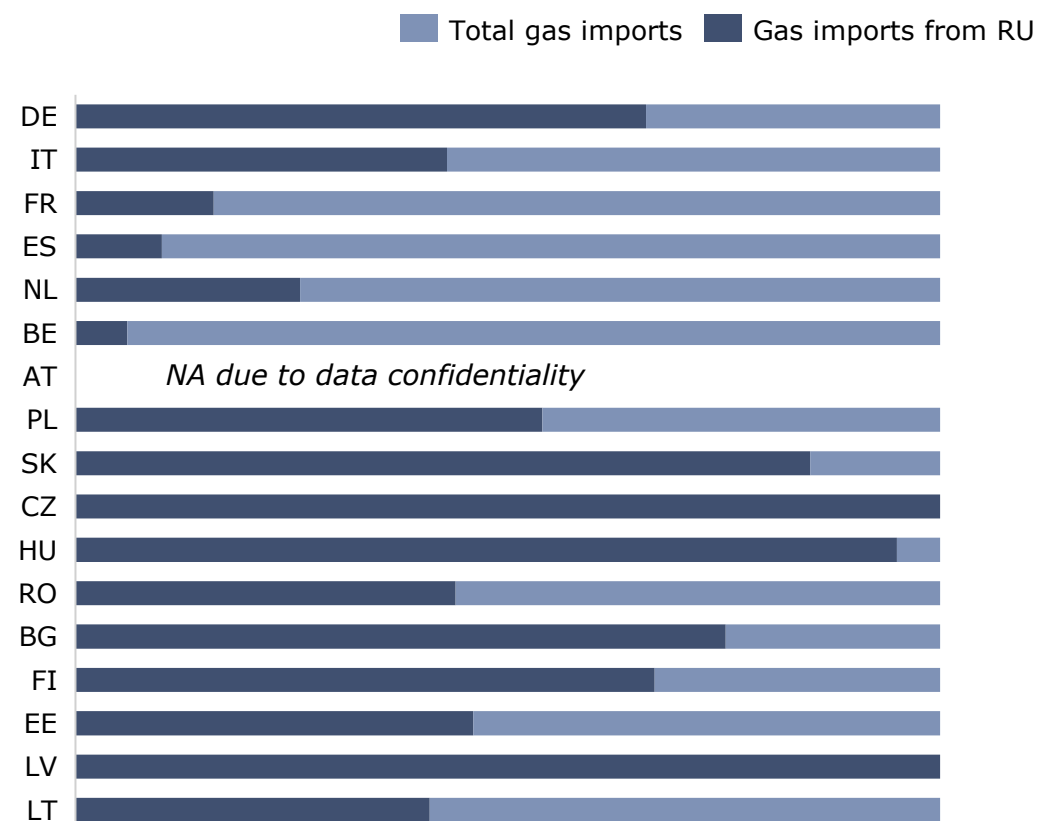
1 Comprises entry at Imatra, Narva, Varska, Kotlovka, Tietarowka and Wysokoje 2 Comprises entry at Velke Kapusany, Beregradaroc and Isaccea 3 Converted to standard European measurement 40 MJ/scm Sources: IEA WDS, ENTSOG, S&P

# Gazprom's requirement to receive payment in roubles challenged the EU sanctions and has led to a halt in supplies to Poland, Bulgaria and Finland

## DEPENDENCY ON RUSSIAN GAS AND DEMAND VOLUMES

- In a decree on 31.03.2022, Putin ordered gas payments from "unfriendly" countries (incl. EU) to be made in Russian roubles instead of euros or dollars
- The decree created confusion in the EU regarding the legal implications vis a vis contract obligations and sanctions
- Some countries such as Finland, the NL, Poland and Bulgaria refused to comply, which caused Gazprom to halt in supplies to Finland, Poland and Bulgaria
- However, the EU has confirmed payment in roubles is possible despite its sanctions, through opening an account in Gazprombank
  
- The EU also recently announced its target to reduce gas demand overall by one third by 2030
- And, Germany, Italy and Austria have announced their plans to be independent of Russian gas by 2024, 2025 and 2027 respectively

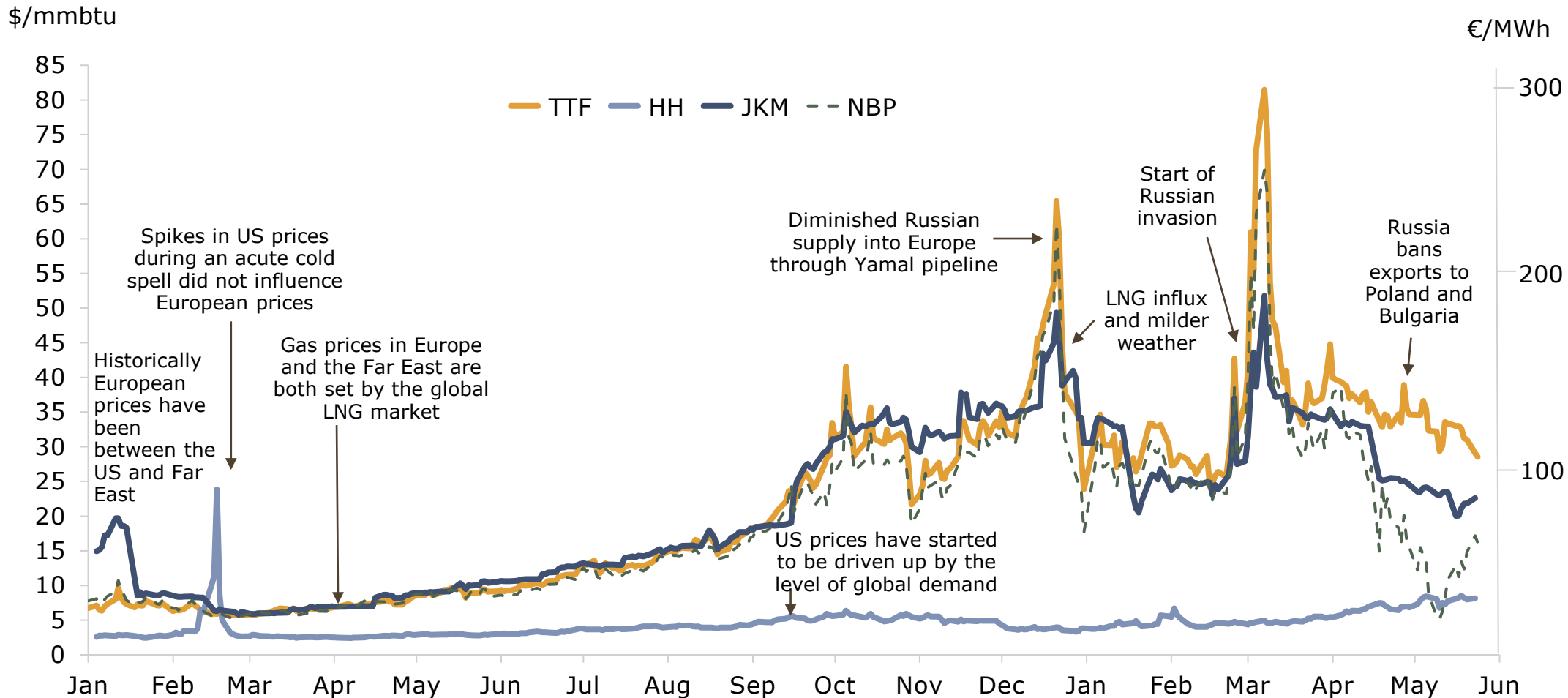
## SHARE OF GAS IMPORTS FROM RUSSIA IN TOTAL IMPORTS IN SELECTED EU COUNTRIES IN 2020



Source: Eurostat, The Economist, Bloomberg, Tagesschau, Reuters, Financial Times, Il Fatto Quotidiano, Guardian

RECENT MARKET DEVELOPMENTS

Most recently the US gas price has come up and the UK price has gone down



Source: Refinitiv



## Germany has also made considerable progress since February, developing four new regas terminals

| Terminal                  | Type    | Developers                                  | Capacity (BCM/A)                | Proposed start                             | FID  | Open season  | General comments   |
|---------------------------|---------|---|---------------------------------|--|------|--|--|
| Stade (Hanseatic)         | Onshore | Hanseatic Energy Hub, Fluxys                | 12                              | 2026 but looking to accelerate if possible | No   | Non binding phase complete, binding phase ongoing                                  | Lots of interest (including EnBW, 3bcm/a) in terminals capacity in non binding phase of open season  |
| Brunsbuettel (German LNG) | Onshore | German LNG, Oiltanking GmbH, Vopak, Gasunie | 8                               | 2023                                       | No   | Negotiations with potential buyers ongoing   | Aiming to begin construction this year (MoU signed by Gasunie & KfW). Shell signed MoU for "substantial" part of the terminals capacity  |
| Wilhelmshaven             | FSRU    | Uniper, TES                                 | 10 (could increase to 20)       | 2025, possibly 2024                        | No   | Non binding ongoing as of April 25 <sup>th</sup> , to be followed by binding phase | Previously switched to Hydrogen but Uniper have now announced they will turn back to LNG with close links to the "green energy hub". OGE to build pipeline link to terminal                              |
| Other FSRUs               | FSRU    | Uniper, RWE                                 | 7.5 winter 2022/23 rising to 27 | Late 2022, early 2023                      | Yes? | N/A  | 3 billion euros made available by German government for lease of FSRUs. 3 or 4 FSRUs planned in North or Baltic sea ports. Uniper and RWE have secured three units and are examining potential locations |

Other new LNG regasification capacity proposed in NW Europe includes:

- The Netherlands has a planned expansion to GATE, and two new FSRUs proposed at Eemshaven
- The Baltics have proposed new FSRUs at Paldiski in Estonia and Skulte in Latvia



# Italy is also taking steps to contribute to energy security by diversifying its gas supplies



## Regasification Capacity Expansion

- Currently has three LNG terminals with 15 bcm/a combined capacity
- Looking to procure 2 FSRUs (10 bcm/a), on top of the FSRU already contracted with Golar LNG on 18 May for Sardinia
- Potentially, 2 others LNG terminals at Gioia Tauro and Porto Empedocle, as speculative LNG projects ( $\approx 20\text{bcm/a}$ )



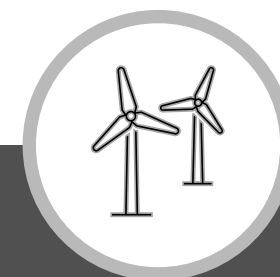
## Boost pipeline supplies

- Aim to reach full capacity in existing pipelines with new contracts
- Reached deals with Algeria, Azerbaijan, Angola, Egypt and Congo for gas supplies
- Agreed deal to increase Algerian imports via Transmed, reaching an +3bcm from 2022 and +6 bcm by 2024
- Trans Adriatic pipeline could double its capacity by 2027



## New pipeline with Spain?

- Italy's Snam has signed a memorandum with Spain's Enagas on undertaking a feasibility study into the construction of a gas pipeline to link the two countries.
- 67bcm of regasification capacity in Spain is underutilized as the amount of gas it can pump to France is limited by bottlenecks at the border

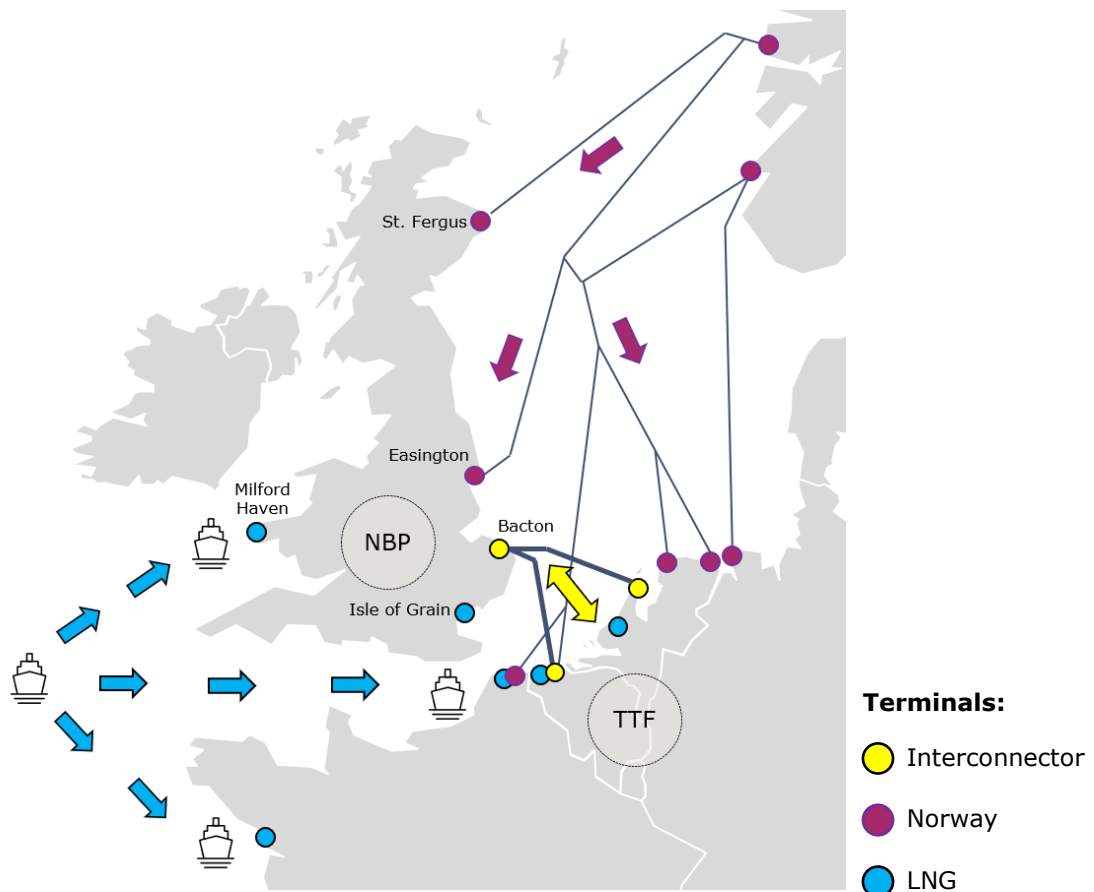


## Boost renewable energy

- Aiming to “destroy bureaucratic barriers to investment” by simplifying the permitting process
- Providing incentives for offshore wind, biomethane and H2
- Developing new auctions for RES and large scale storage
- Looking to develop partnerships with India in sectors such as green hydrogen, biofuels and energy storage

# Europe's two largest traded gas hubs, the NBP and TTF, are normally well correlated

## IMPORT INFRASTRUCTURE IN UK & NW EUROPE



– The British NBP hub is closely linked to the TTF hub which reflects the market situation in North-West Europe

**1** – The UK is connected to Netherlands and Belgium via two bi-directional interconnectors

– Available capacity in the interconnectors enables shippers to trade gas in both hubs as long as the price spread covers the transportation cost

**2** – Sellers of flexible Norwegian gas enjoy optionality in the volume, destination and sourcing of gas to supply the UK and the continent

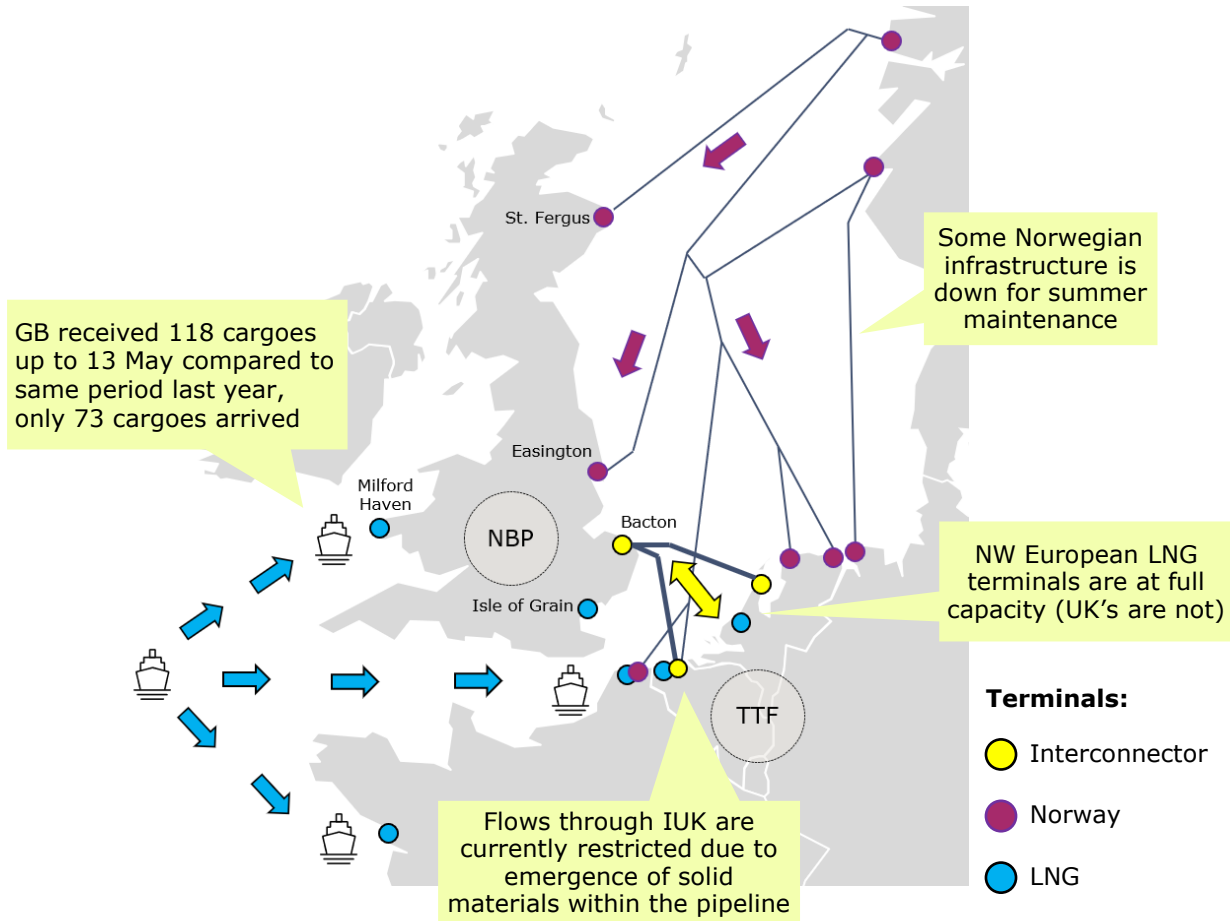
– Flows to Europe may be prioritised over the UK during periods of high price premiums at TTF

**3** – Cargoes under term contracts have optionality in where they may be delivered and may be re-directed in response to price movements between the hubs

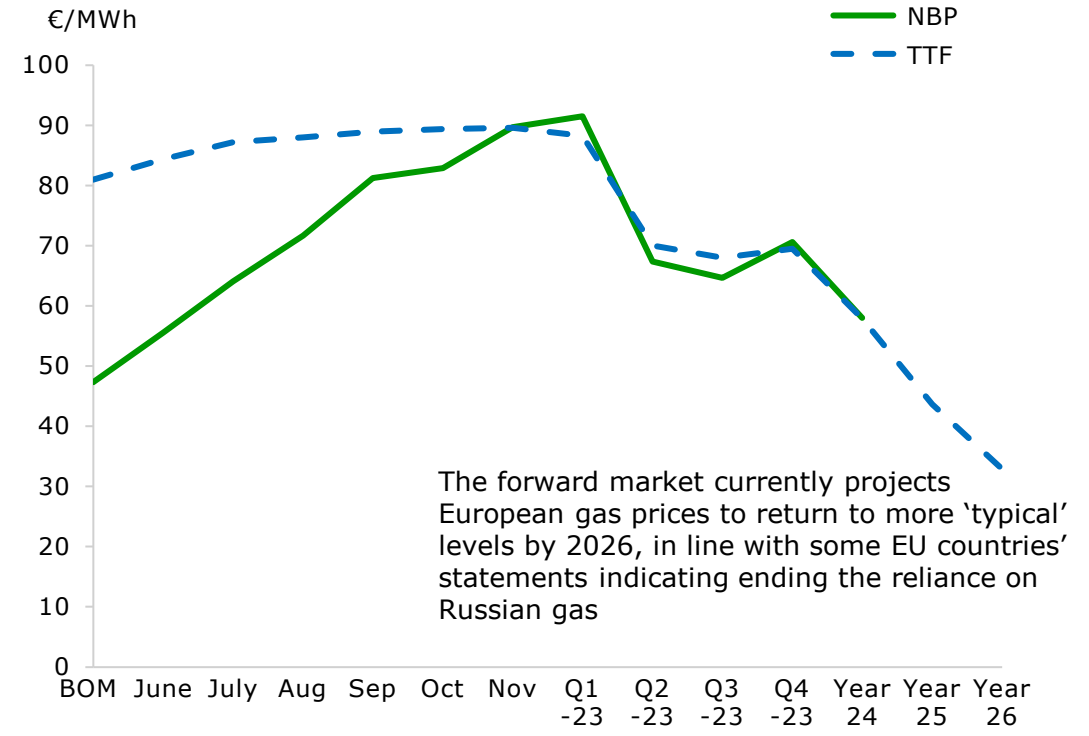
– Spot LNG cargoes will also prioritise delivery to the one hub over the other in response to hub price movements

However, a considerable differential the NBP and TTF has built up for various reasons

**IMPORT INFRASTRUCTURE IN UK & NW EUROPE**



**NBP PRICES ARE EXPECTED TO REMAIN BELOW TTF UNTIL NEXT WINTER**



Source: ICIS 23 May 2022

# The Gas Crisis – latest developments

## 1. Recent market developments

## **2. The impact of a Russian interruption**

- focussing on Germany
- focussing on Italy

## 3. How has the outlook for European gas supply changed since the Invasion?

- AFRY's Q2 2022 central projection
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# What could cause Gazprom to interrupt some/all of its exports to the EU?



## Failure to pay in roubles

Gazprom halted gas supplies to Poland, Bulgaria and Finland citing failure to pay for gas in roubles and threatened a similar fate to other EU Nations.

Further curtailments for this reason seem unlikely now



## Ukraine interrupts the transit gas

Ukraine declared force majeure on Russian flows to Europe via the Sokhranivka transit pipeline and halted flows on 11 May, blaming theft of gas by pro-Russian separatists in occupied territories.

Further events in Ukraine could interrupt flows to Europe



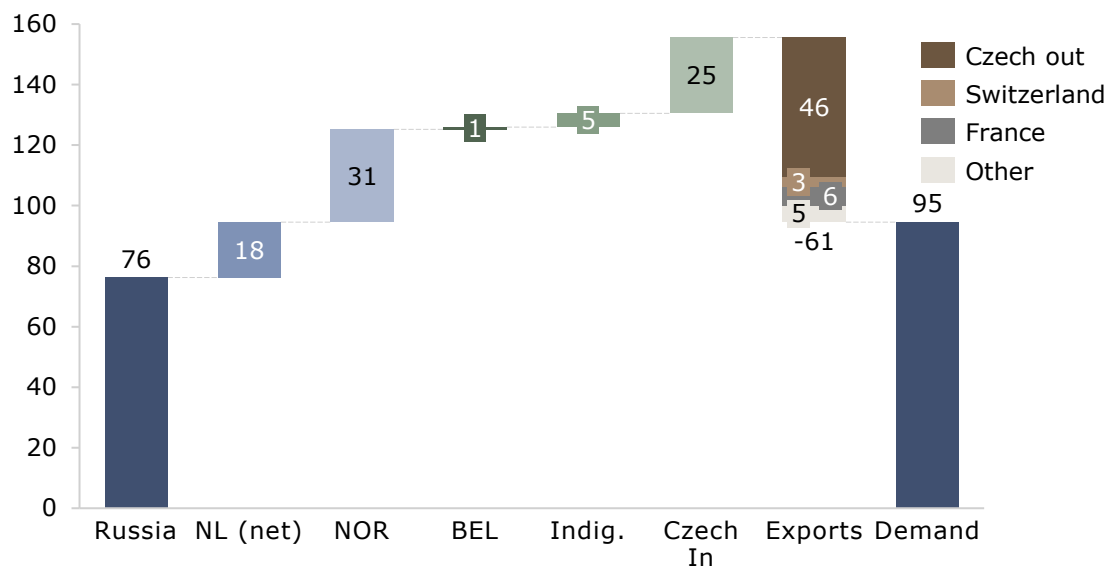
## The expropriation of Gazprom's former subsidiaries

Gazprom Germania (which owns Wingas and Astoria) has been controlled by the Federal Network Agency since the beginning of April. The Gazprom-Wingas contract was due to last to 2031, however, Gazprom will not now be supplying Wingas

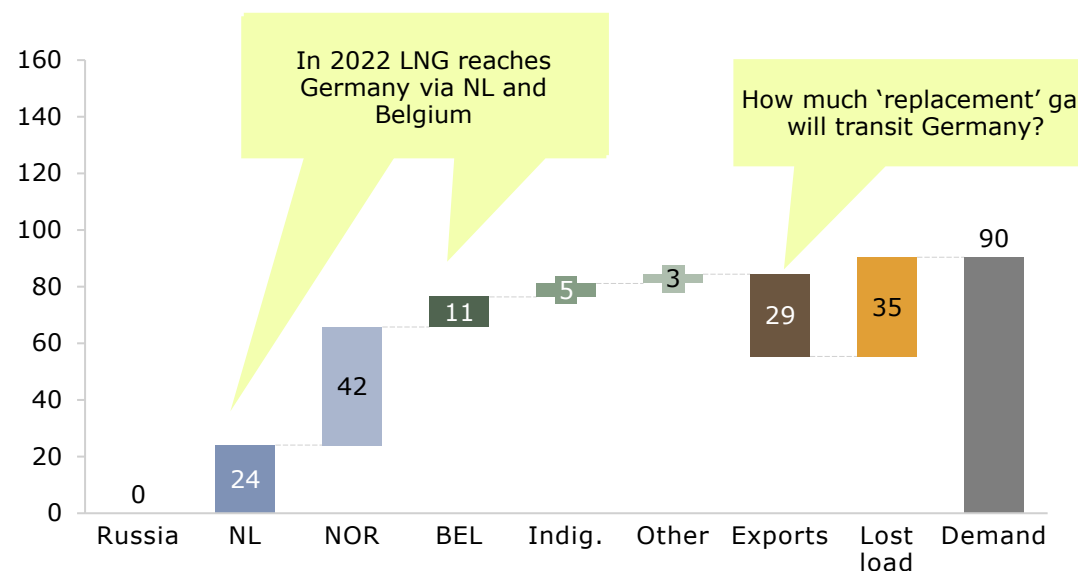
IF RUSSIA INTERRUPTED GAS TO EUROPE – IMPACT ON GERMANY

If Russian gas were interrupted, Germany would receive more gas via ICs and Norway at first; and new LNG imports could be substantial by 2025/26

**FLOWS IN/OUT GERMANY IN 2021 (CALENDAR YEAR)**



**PROJECTED ANNUAL FLOWS IN/OUT GERMANY IF RUSSIA IS INTERRUPTED FOR 12 MONTHS (COMMENCING 2022)**

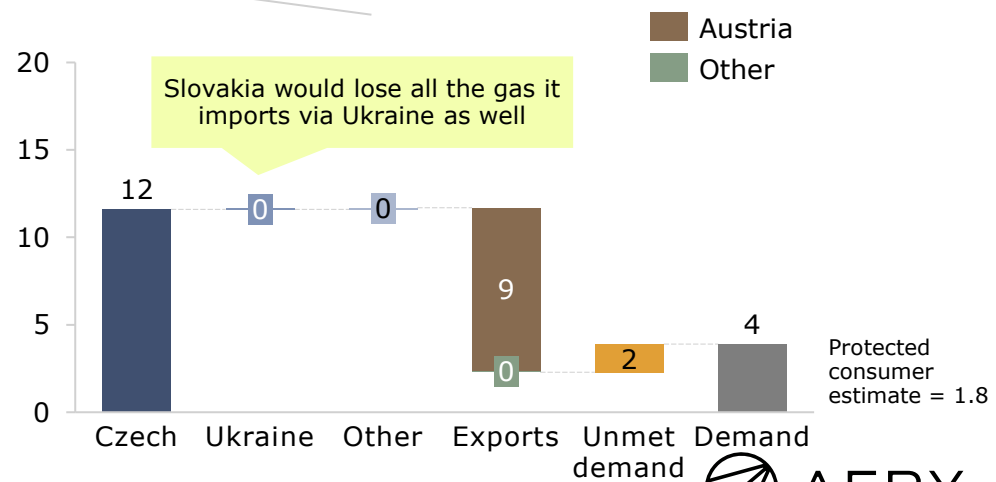
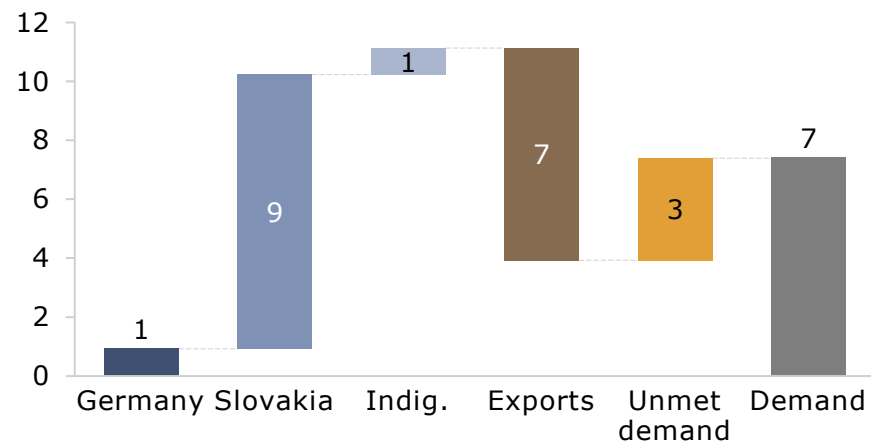
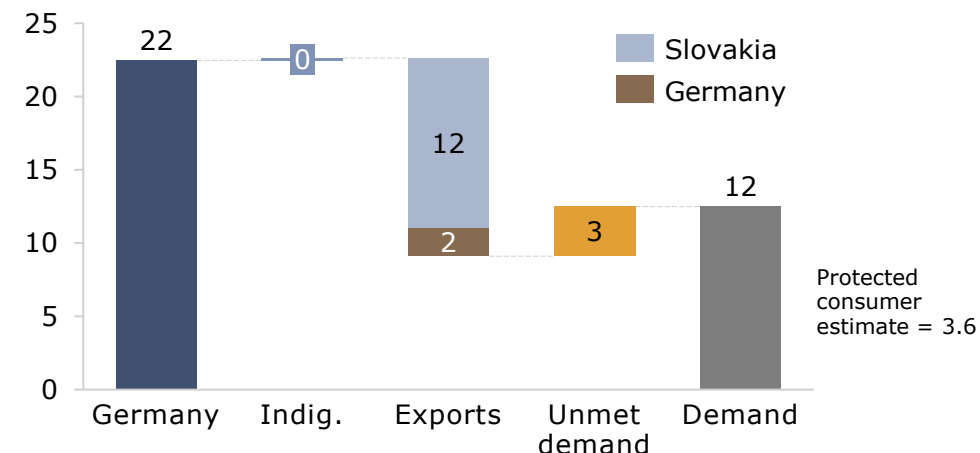
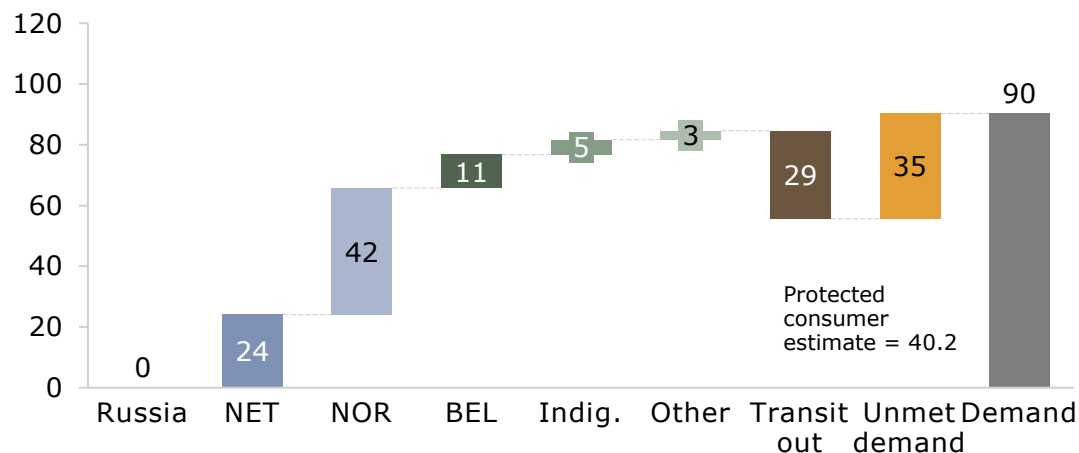


- LNG could enter Germany directly by 2023
- In AFRY’s Central Q2 2022 scenario, LNG imports to Germany, are :
  - Gas year 2022 – 7.5 bcm
  - Gas year 2023 – 30 bcm
  - Gas year 2024 – 38 bcm
  - Gas year 2025 – 45 bcm

Source: Pipeline flows from ENTSOG transparency platform

Note: Gas years commence in October

# The EU concept of Energy Solidarity will require that available gas transits to countries where it is needed to supply "protected consumers"

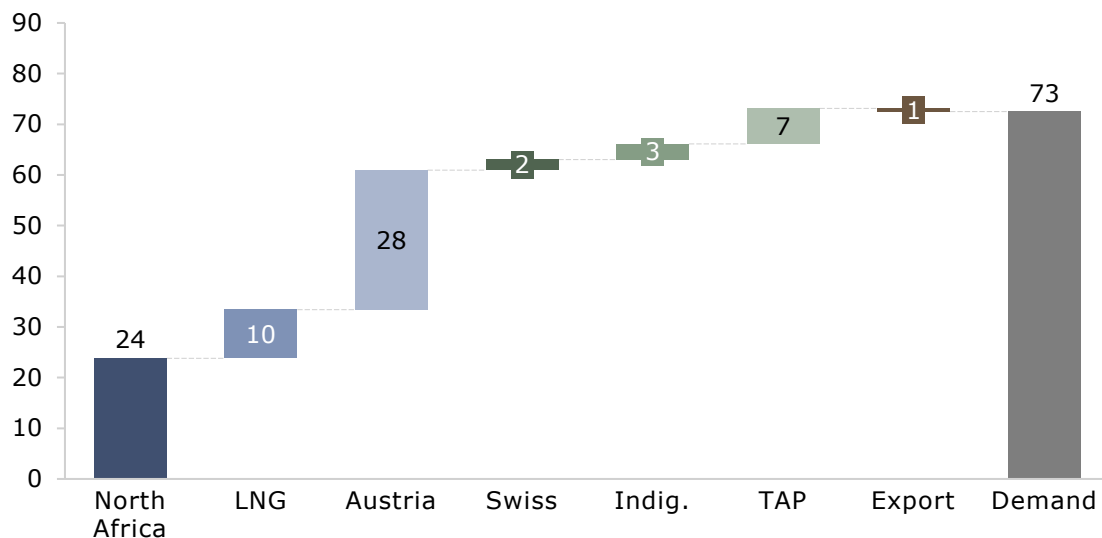


'Protected customers' are assumed to residential, commercial and public services (source: IEA, 2019)

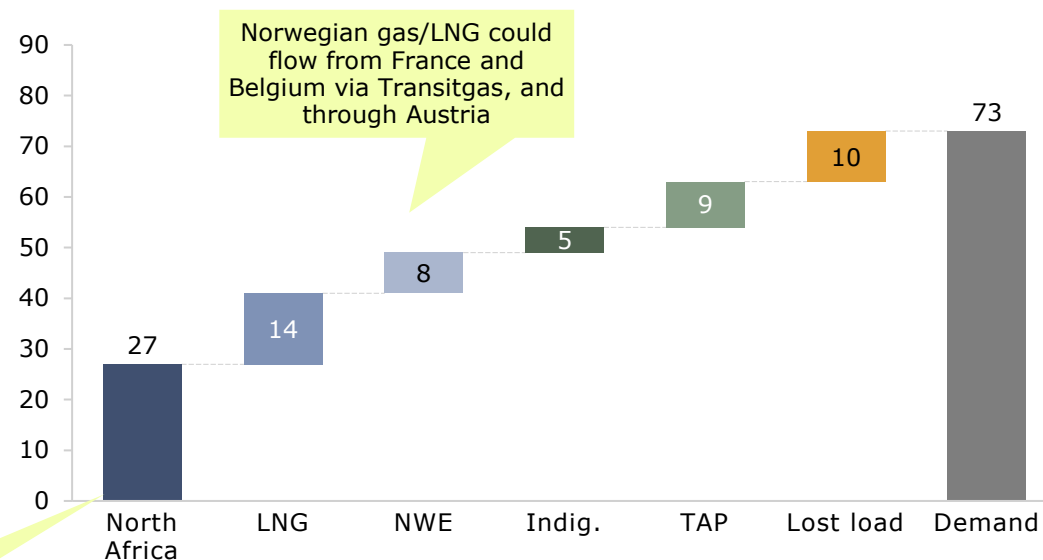


# If Russian gas were interrupted, Italy would receive more Algerian gas, Norwegian gas (NWE), more LNG and more imports via TAP

**FLOWS IN/OUT OF ITALY IN 2021 (CALENDAR YEAR) (BCM)**



**PROJECTED ANNUAL FLOWS IN/OUT ITALY IF RUSSIA IS INTERRUPTED FOR 12 MONTHS (COMMENCING 2022) (BCM)**



Step up of Algerian gas due to the recent negotiation (+3 Bcm potentially available)

- In AFRY's Central Q2 2022 scenario,
  - imports from North Africa increase to 34bcm in 2023
  - capacity of TAP is doubled in GY 2027
  - more LNG import capacity is added in GY 2027

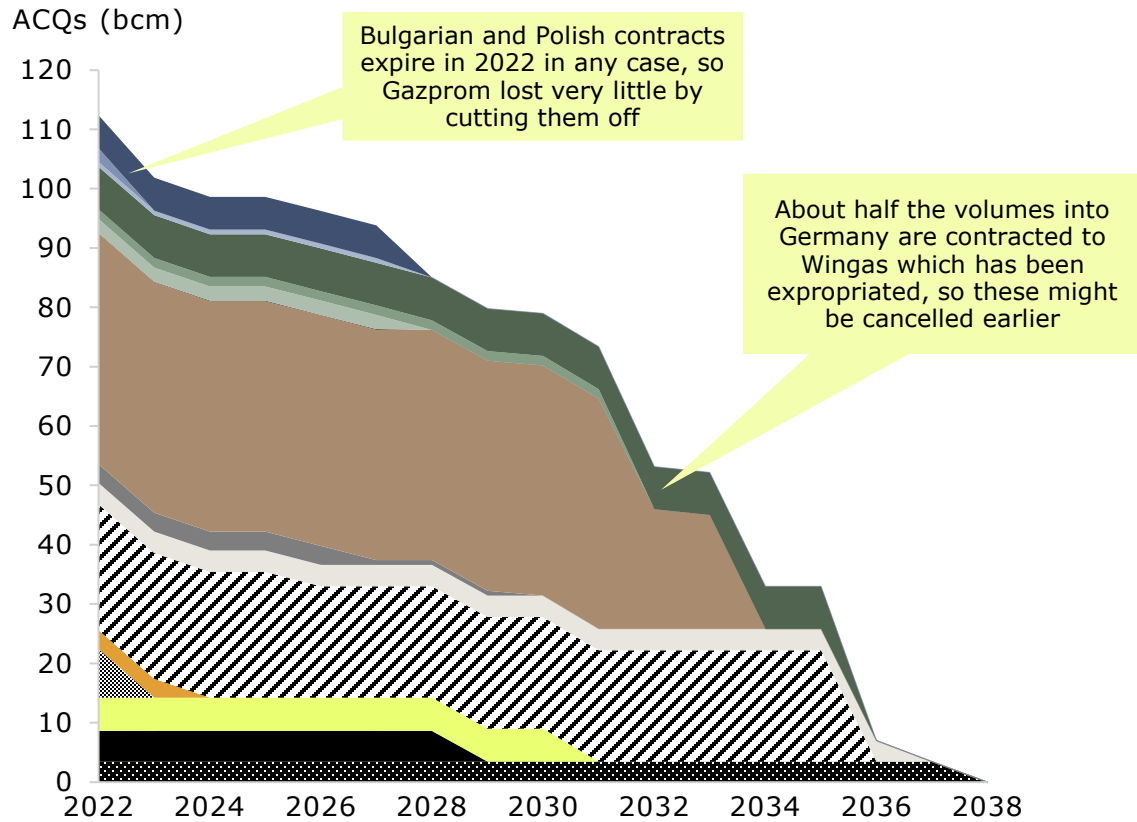
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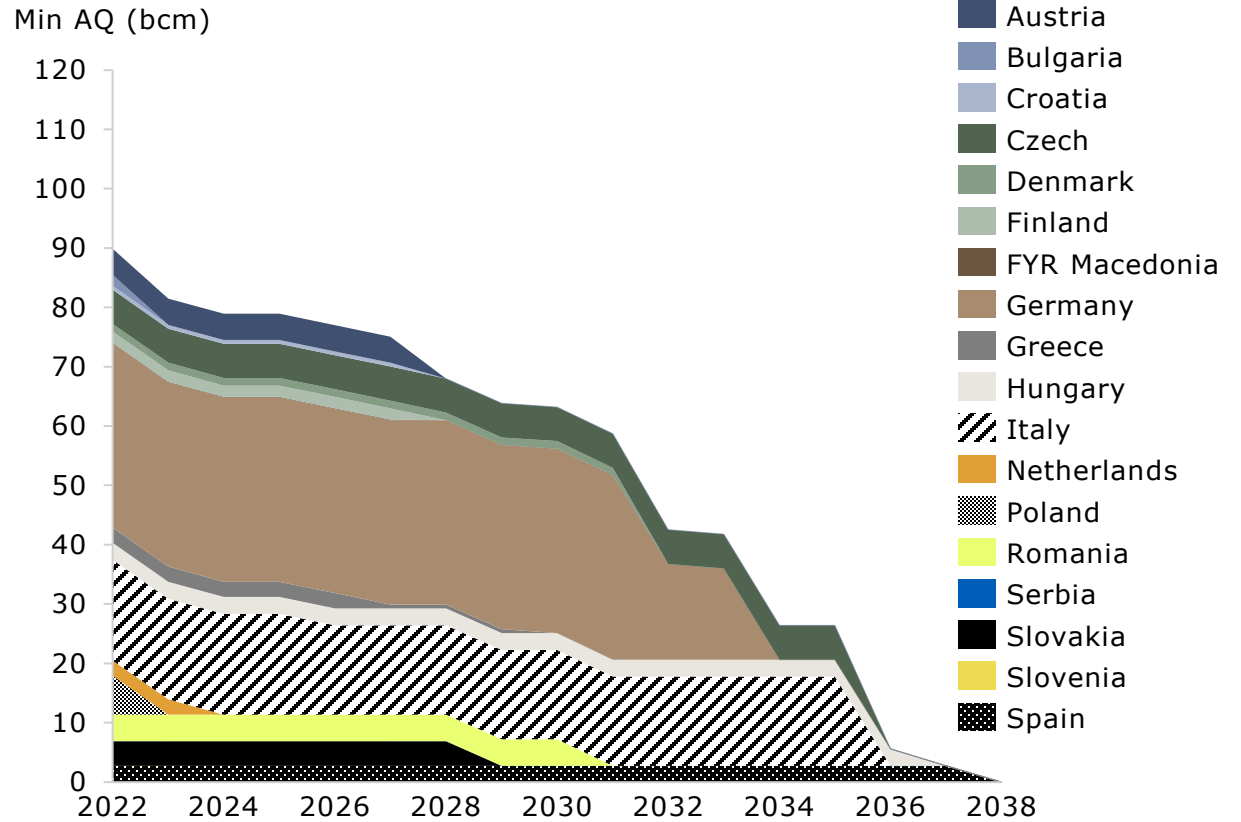


# AFRY's central view is that no Russian gas contracts into Europe will be renewed and many new LNG re-gas terminals will be built

**THE EXPIRY OF EXISTING RUSSIAN GAS CONTRACTS TO EUROPE**



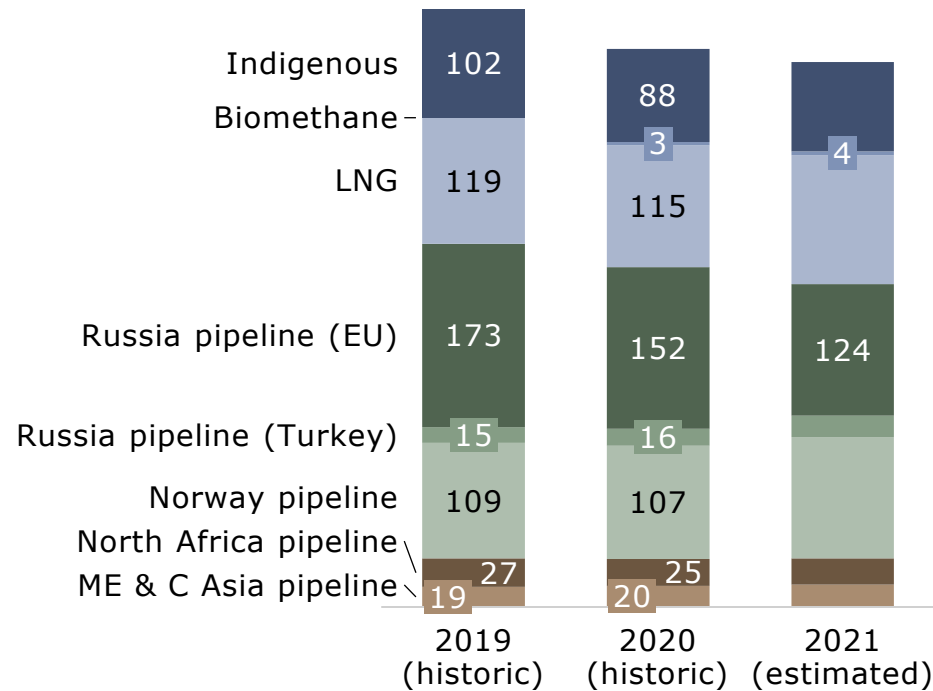
**AFRY ASSUME MINIMUM VOLUMES ARE TAKEN (80%)**



Source: Cedigaz and AFRY database

By 2021 Russian gas imports to the EU were around the minimum take-or-pay level, and demand was low due to the very high prices

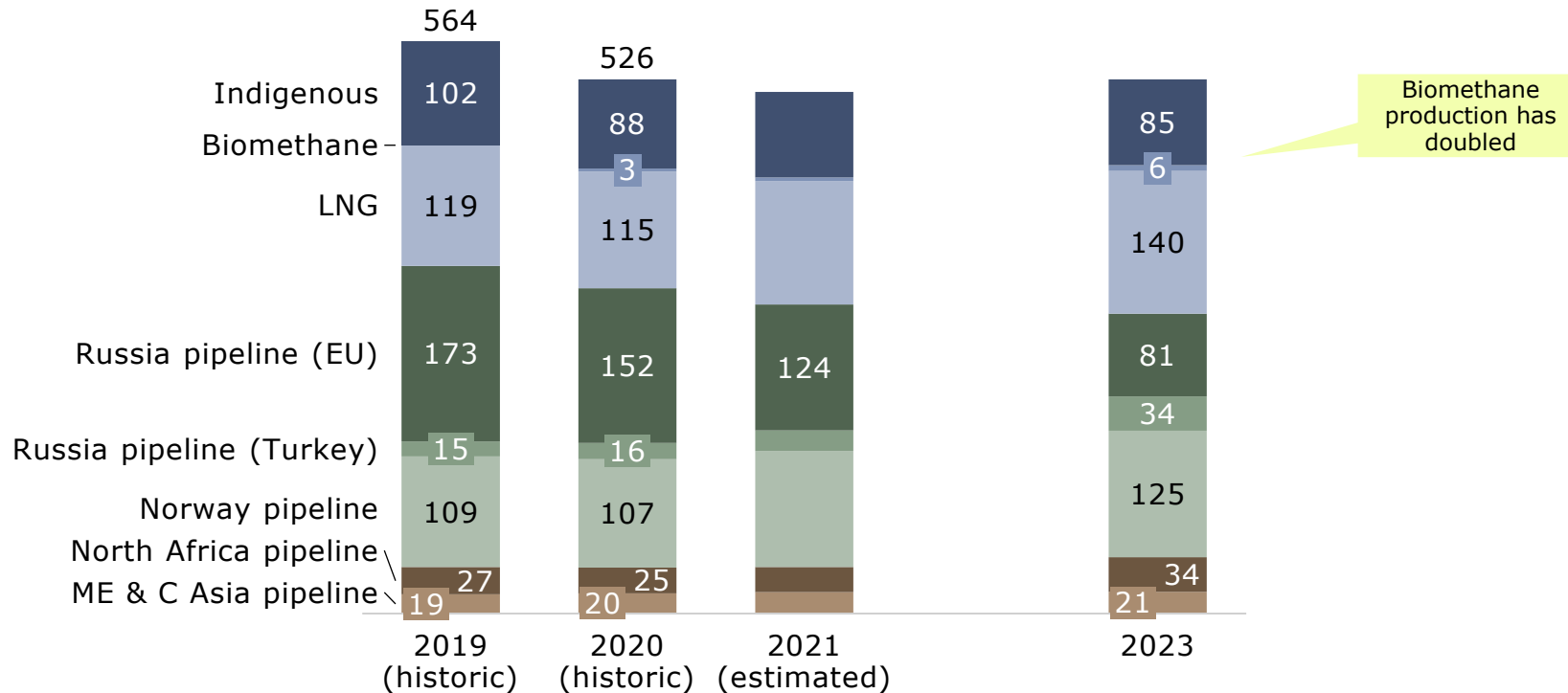
**IMPORTS TO EUROPE INCLUDING TURKEY (BCM)**



Sources: BP Energy Statistics, ENTSOG transparency, AFRY analysis; Pegasus projections  
 Note: Europe includes EU, Switzerland, UK and Turkey

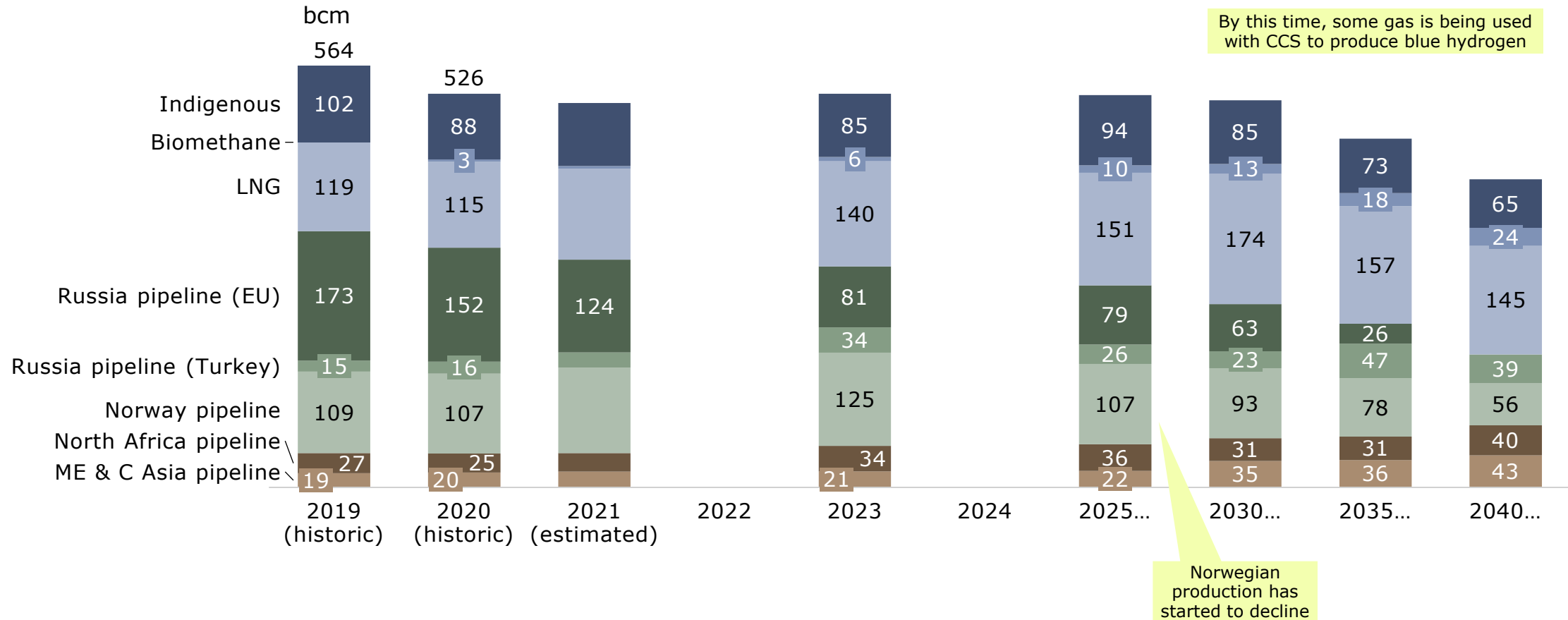
Demand is about the same level in 2023 but Russian-EU contracts will be minimised – LNG, Norwegian and North African gas make up the difference

**IMPORTS TO EUROPE INCLUDING TURKEY (BCM)**



Sources: BP Energy Statistics, ENTSOG transparency, AFRY analysis; Pegasus projections  
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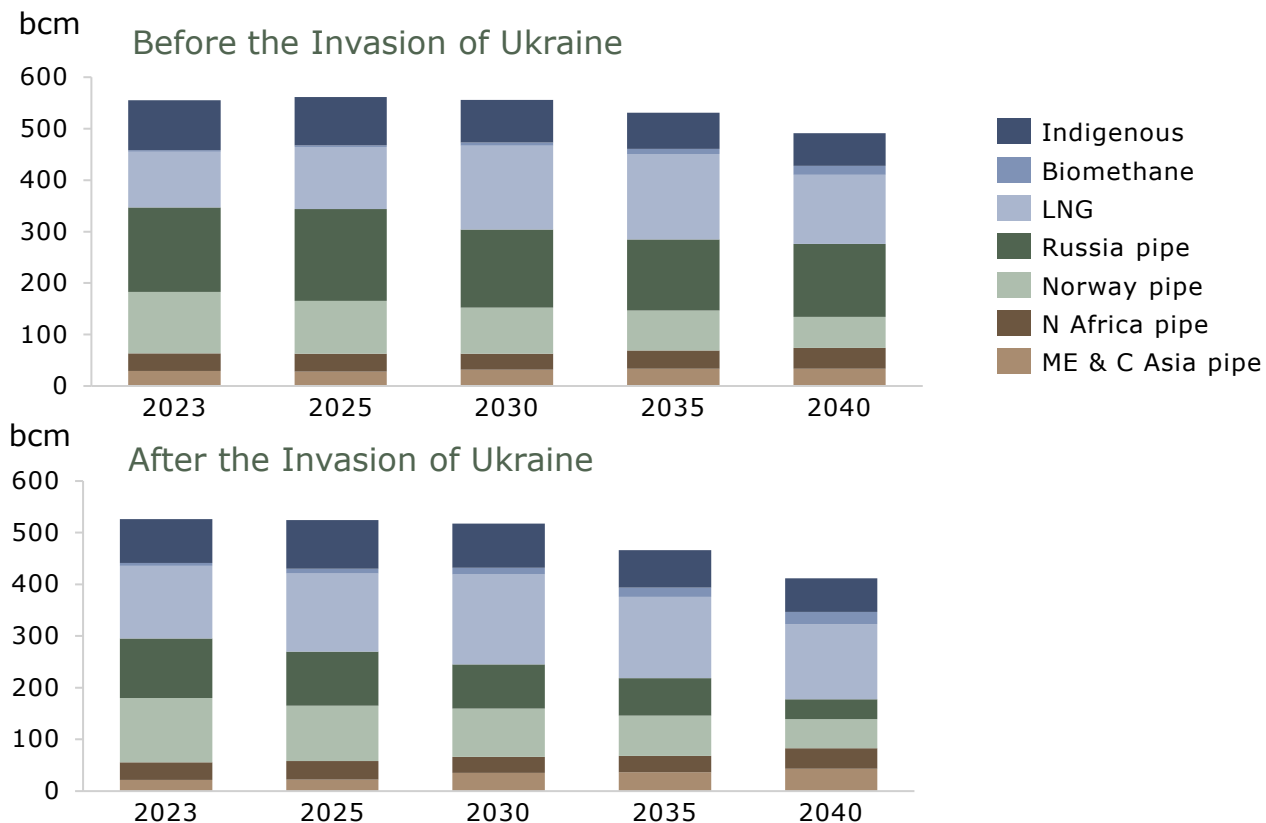
# European gas demand took a step down due to Covid, and is projected to stay at this low level until 2025 – larger falls only start after 2030



Sources: BP Energy Statistics, ENTSOG transparency, AFRY analysis; Pegasus projections  
 Note: Europe includes EU, Switzerland, UK and Turkey

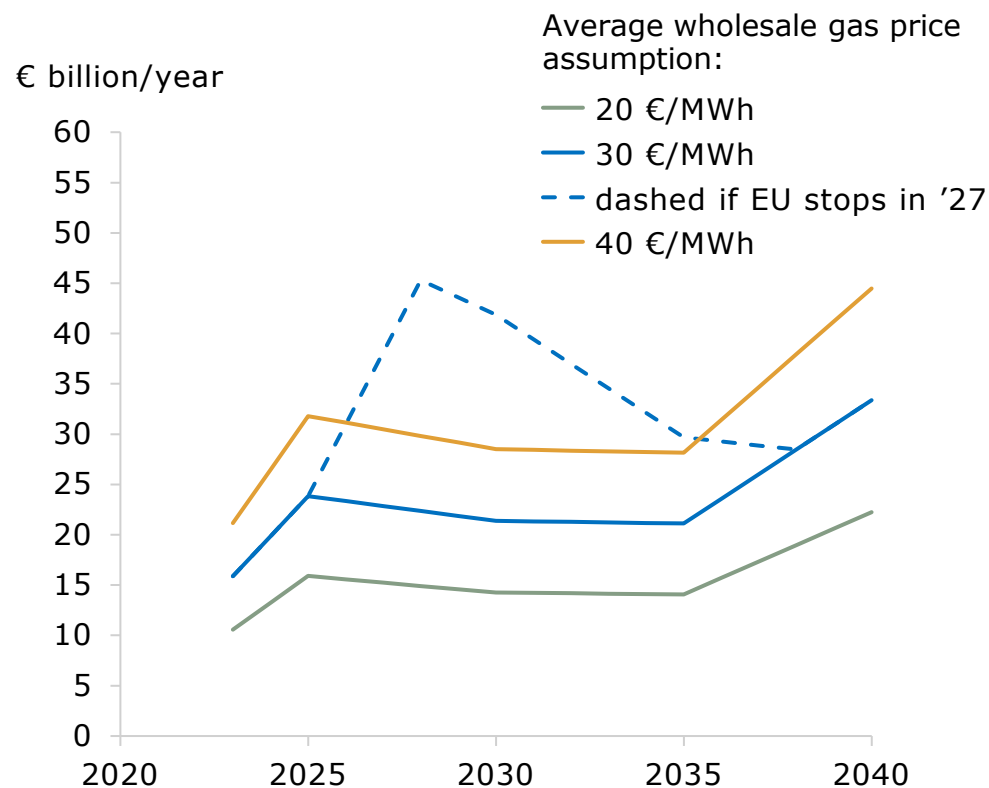
# Following the Invasion our projections of reduced revenues to Gazprom are in the region of €420 billion out to 2040

## PROJECTED EUROPEAN SOURCES OF GAS SUPPLY



Note: Includes Turkey, where contracts are projected to be renewed

## REDUCTION IN REVENUES TO GAZPROM EACH YEAR RESULTING FROM THE INVASION



If the EU ends Russian gas imports by the end of 2027 then the total loss of revenues to Gazprom rises to about €580 billion by 2040



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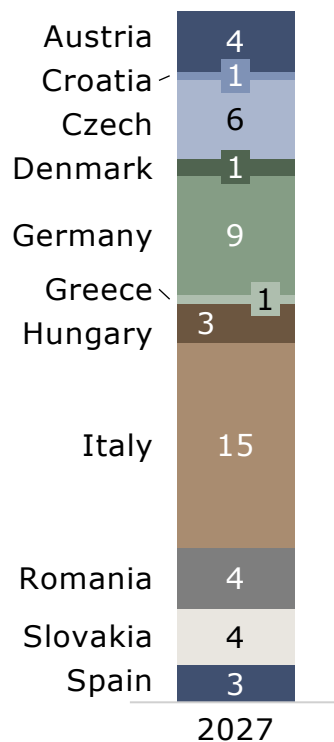


## STATED AIMS AND STUMBLING BLOCKS

The EC's originally stated aim was to end all Russian gas imports in 2027, but what will happen to the remaining contracted minimum ~50bcm

### VOLUMES WITH MIN AQS AND SOME CANCELLED CONTRACTS

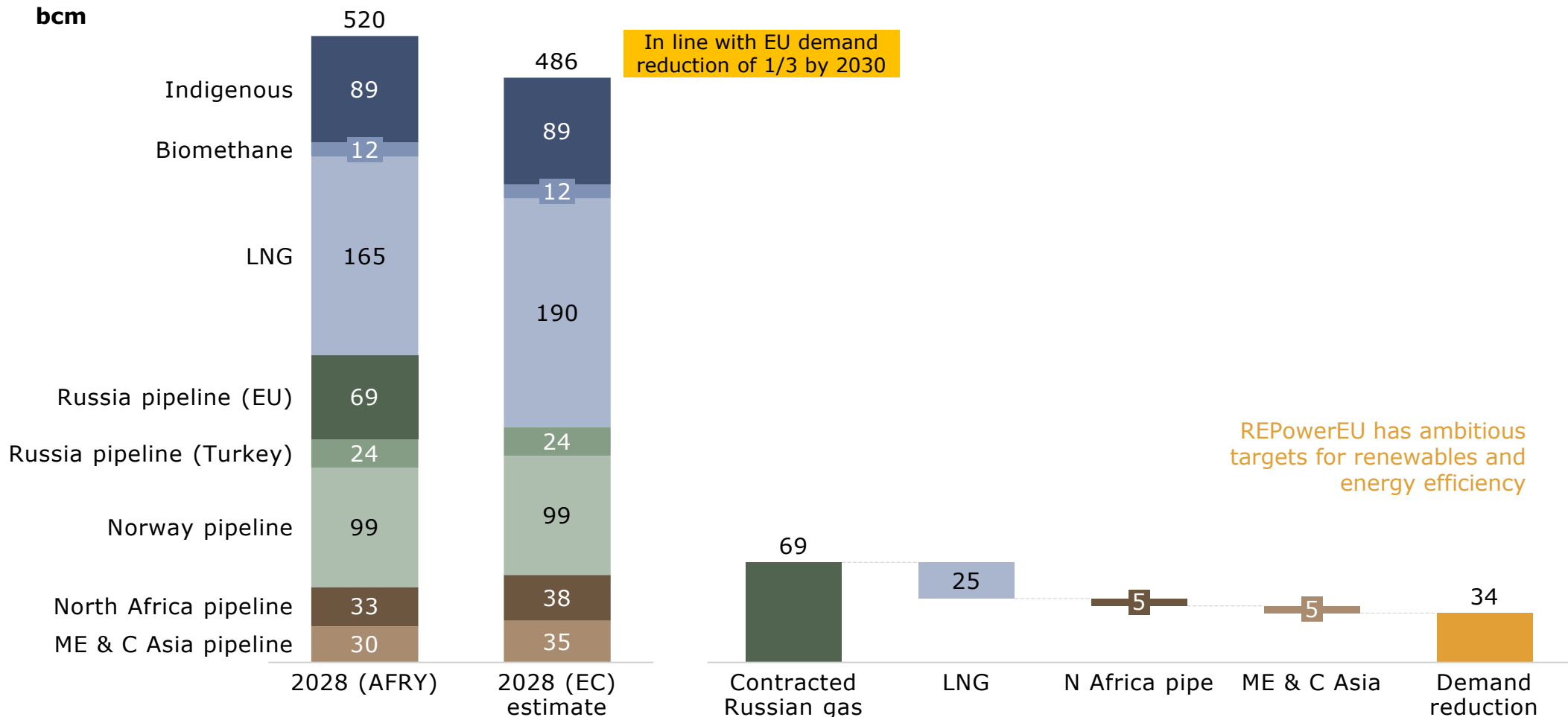
bcm



- Assuming all contracts are at minimum contracted ToP levels, and
- Excluding the Gazprom-Gasum contract (won't pay in roubles) and the Gazprom-Wingas contract (expropriation)
- The minimum contracted quantity of Russian gas into Europe in 2027 is about 50 bcm
- At the moment, the EC's plan is to end all Russian gas imports by 2027; but this would need to be passed by the European Parliament to become law, then the contracts could be declared illegal
- Then, force majeure would need to be called on these contracts
- Gazprom would take the EU companies to arbitration; and
- There will be plenty of work for lawyers

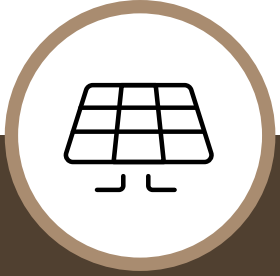

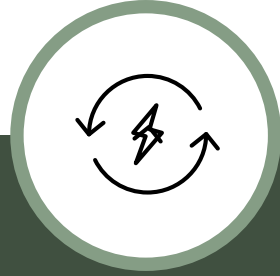

STATED AIMS AND STUMBLING BLOCKS

The difference in AFRY's 2028 projection and the EC's stated aim needs to be closed with more ambitious LNG imports and fast gas demand reduction



Note: Europe includes EU, Switzerland, UK and Turkey

# The REpowerEU plan involves €210b in extra investments to reduce reliance on Russian fuels and to achieve its decarbonisation targets faster

|   |    |    |    |
|--|--|---|---|
| Renewables   | Gas  | Energy efficiency   | Other   |
| <ul style="list-style-type: none"><li>• At least <b>45%</b> by 2030 instead of 40% in gross consumption</li><li>• Rooftop solar in all commercial and public buildings from <b>2026</b> &amp; in new residential buildings from <b>2029</b></li><li>• <b>Go-to areas</b> with fast-tracked licensing</li><li>• Projects of “<b>overriding public interest</b>”</li></ul> | <ul style="list-style-type: none"><li>• <b>Import</b> more gas from countries including Nigeria, Israel and Egypt</li><li>• Cut gas demand by <b>1/3</b> by 2030</li><li>• Sanctions on Russia do not prevent <b>gas payments</b> in roubles</li><li>• <b>€10b</b> on gas infrastructure and <b>EU wide platform</b> for gas, LNG and H<sub>2</sub> trades</li></ul> | <ul style="list-style-type: none"><li>• At least <b>13%</b> by 2030 instead of 9% reduction in energy consumption (2020 reference scenario)</li><li>• Short-term: residential and commercial energy savings through more <b>efficient device</b> funding</li><li>• Medium-term: <b>national targets</b>, tighter requirements of <b>new buildings</b></li></ul> | <ul style="list-style-type: none"><li>• Gas and electricity <b>market intervention options</b> to member states</li><li>• Recover <b>windfall profits</b> from generators and support consumers</li><li>• <b>Emergency toolbox</b> in case of an interruption in the Russian gas supply</li></ul> |

# Germany and Italy have made good progress diversifying away from Russian gas but reducing gas demand and cancelling contracts are harder

## Reduce Gas demand by one third by 2030

- Will all blue hydrogen (hydrogen produced from gas with CCS) plans be abandoned?

## End all Russian imports to EU by end 2027

- How binding is a contract in a conflict scenario?

## Germany to be independent of Russian gas by 2024

- Perhaps if none of the new LNG imports transit to CEE

## Italy to be independent of Russian gas by 2025

- Quite possibly, with new FSRUs and pipeline capacity from N Africa

## Austria to be independent of Russian gas 2027

- Again, dependent on the final destination of new LNG imports to Germany

## Where will all the Russian gas go?

- Building a new pipeline to China will be very expensive and take time – the Chinese won't pay EU prices
- See LinkedIn post: [helgebarlen\\_gas-energytransition-energysecurity](#)
- Could EU companies receive spot gas at competitive prices, after contracts end?

CONCLUDING REMARKS

## Contact us

- **Reach out** to us for more information:
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- In Italy
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### Next webinar

*'What are the common mistakes made in evaluating renewable energy assets and how can they be avoided?'*

In our next webinar, we will explore how these mistakes can be resolved in order to maximise revenue.

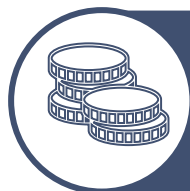


# Russia's invasion of Ukraine has revived talks about the prospective Eastmed pipeline

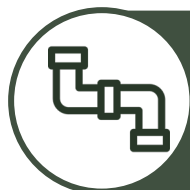
## BACKGROUND



It is a European project of common interest (PCI)



Currently undergoing financial feasibility study, FID expected to be taken this year



The pipeline will connect the Leviathan (Israel) and Aphrodite (Cyprus) gas fields in the Eastern Mediterranean to Europe.



US support uncertain; admitted that the Eastern Mediterranean will be important role in reducing reliance on Russian energy

## MAP OF PROPOSED ROUTE



- In AFRY Q2 2022 scenarios, Eastmed has been added to Pegasus
- Online in 2026, providing 12 bcm of gas per year.