RYSTAD ENERGY

# REBALANCING EUROPE'S GAS SUPPLY

## OPPORTUNITIES IN A NEW ERA

[redacted]

**Co-sponsors**

International Association of Oil & Gas Producers

American Petroleum Institute

**Technical input from**

entsog

Gas Infrastructure Europe

*Rebalancing Europe's gas supply – September 2022*

# Purpose of the study

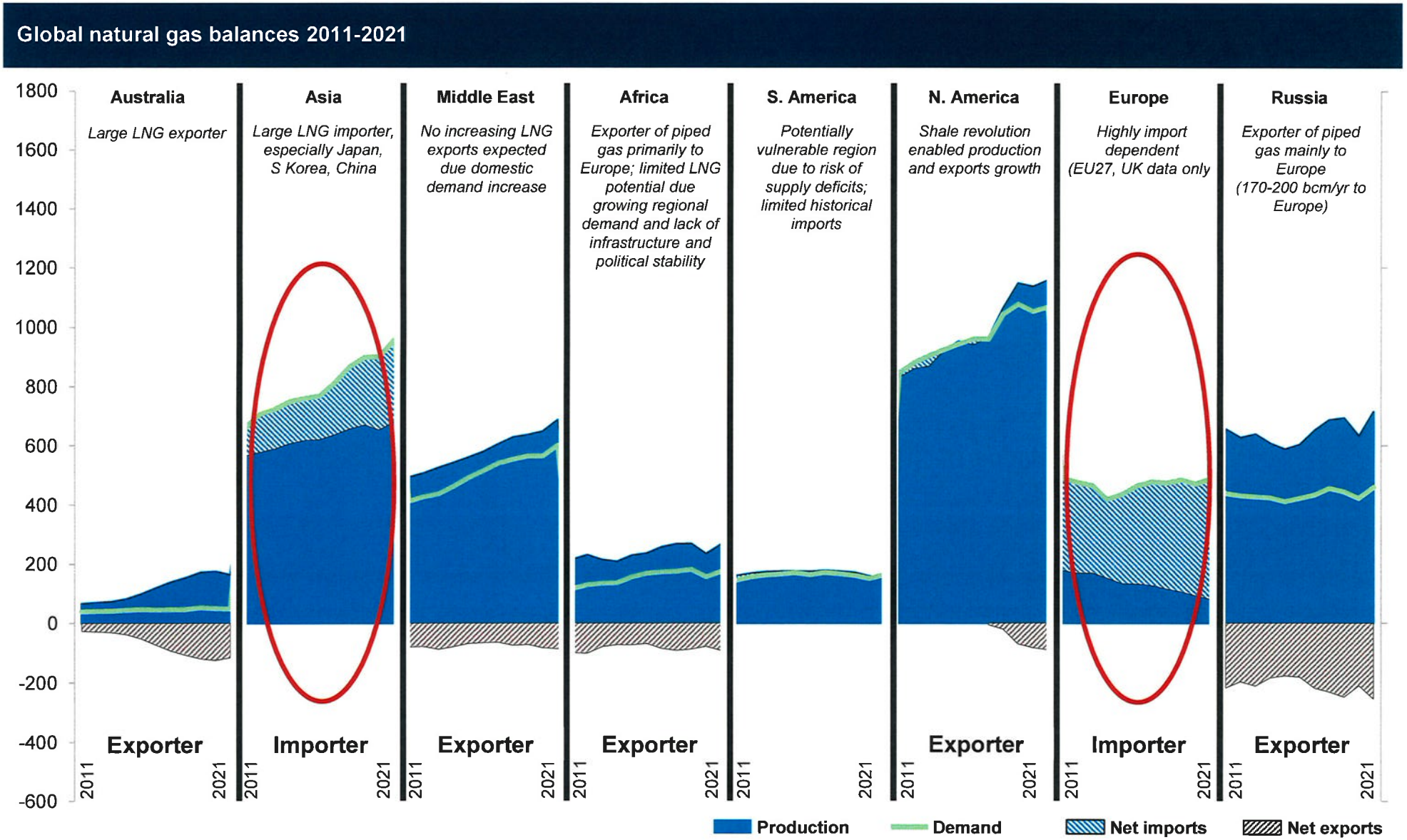
Versailles Declaration and its response RepowerEU plan call for **phase out of coal, oil, gas supplies from Russia** as soon as possible; and Russia threatens to **stop supplies.**

**How to do it?**

- **Study scope** covers supplies to Europe (EU27 plus UK, NO, UA, CH, Balkan) in 2023 – 2040
- Study assesses:
  - ✓ **supply sources available to Europe in short and longer term, and their cost of supply**
  - ✓ **infrastructure capabilities**
  - ✓ **annual** and **peak-day demand / supply** balances (including by **region)**
- For information, we mapped out different EU demand forecasts

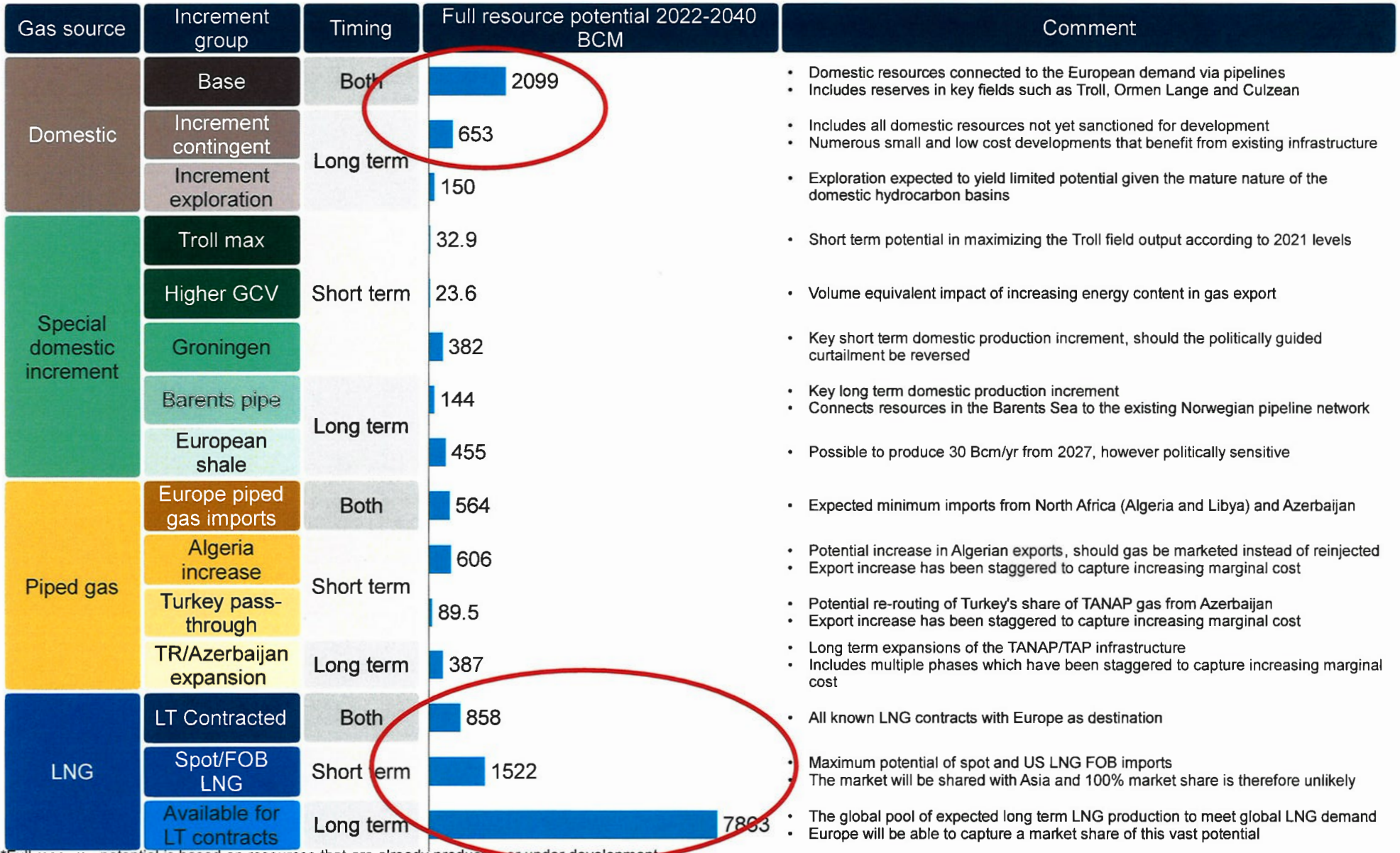
**NB:** Supply cost and price assessments are exclusively developed by Rystad Energy and were not discussed as part of the study

# Europe and Asia compete for LNG supplies from global sources




Source: Rystad Energy research and analysis; Rystad Energy GasMarketCube

# The study groups supplies by source, increment and timing

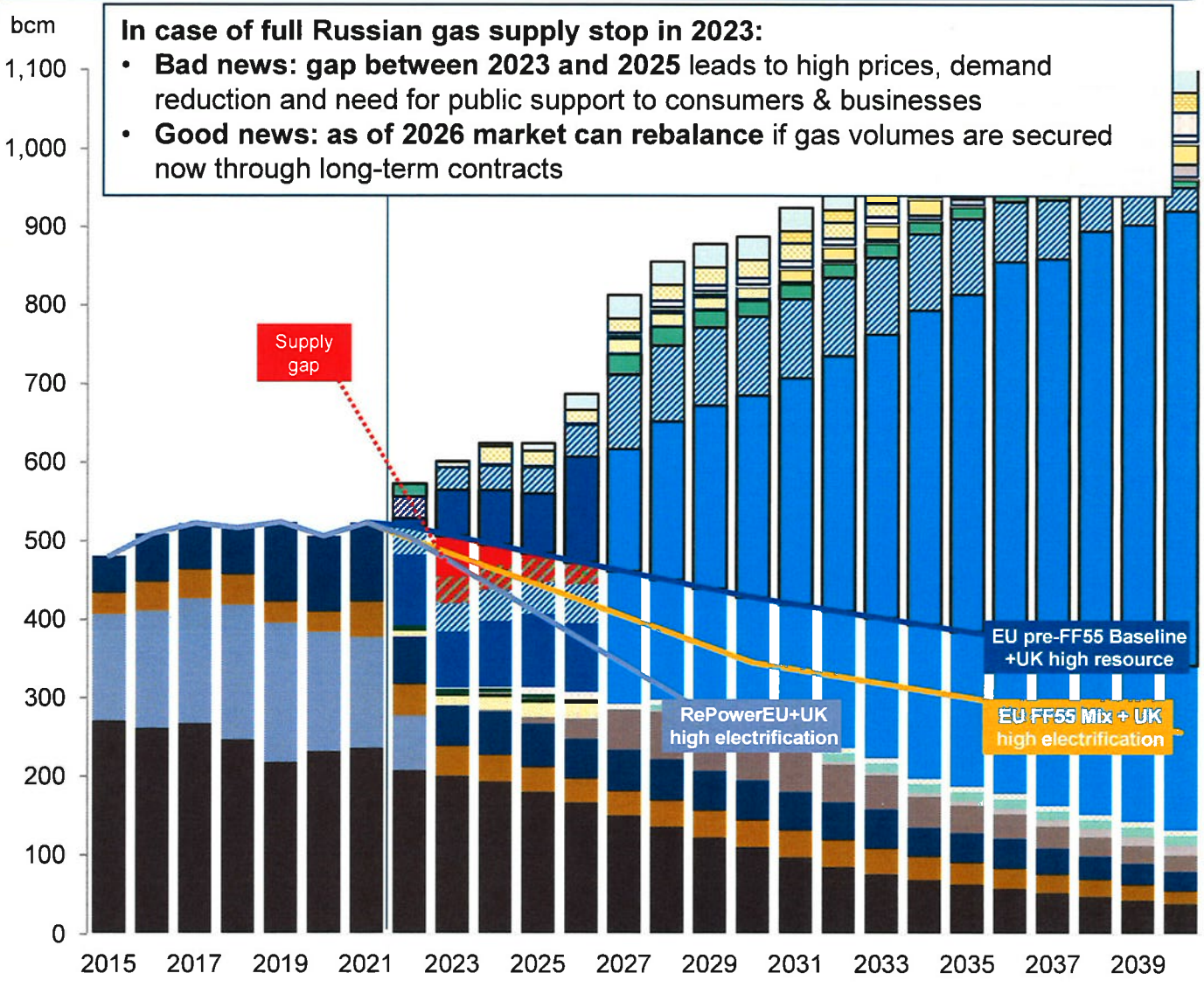



*Full resource potential is based on resources that are already producing or under development
Source: Rystad Energy research and analysis

# Bad news, good news…

| Gas source | Increment group | Timing |
|---|---|---|
| Domestic | Base | Both |
| | Increment contingent | Long term |
| | Increment exploration | |
| Special domestic increment | Troll max | Short term |
| | Higher GCV | |
| | Groningen | |
| | Barents pipe | Long term |
| | European shale | |
| Russia | Russian piped gas | Short term |
| Piped gas | Europe piped gas imports | Both |
| | Algeria increase | Short term |
| | Turkey pass-through | |
| | TR/Azerbaijan expansion | Long term |
| LNG | LT Contracted | Both |
| | Spot/FOB LNG | Short term |
| | Available for LT contracts | Long term |

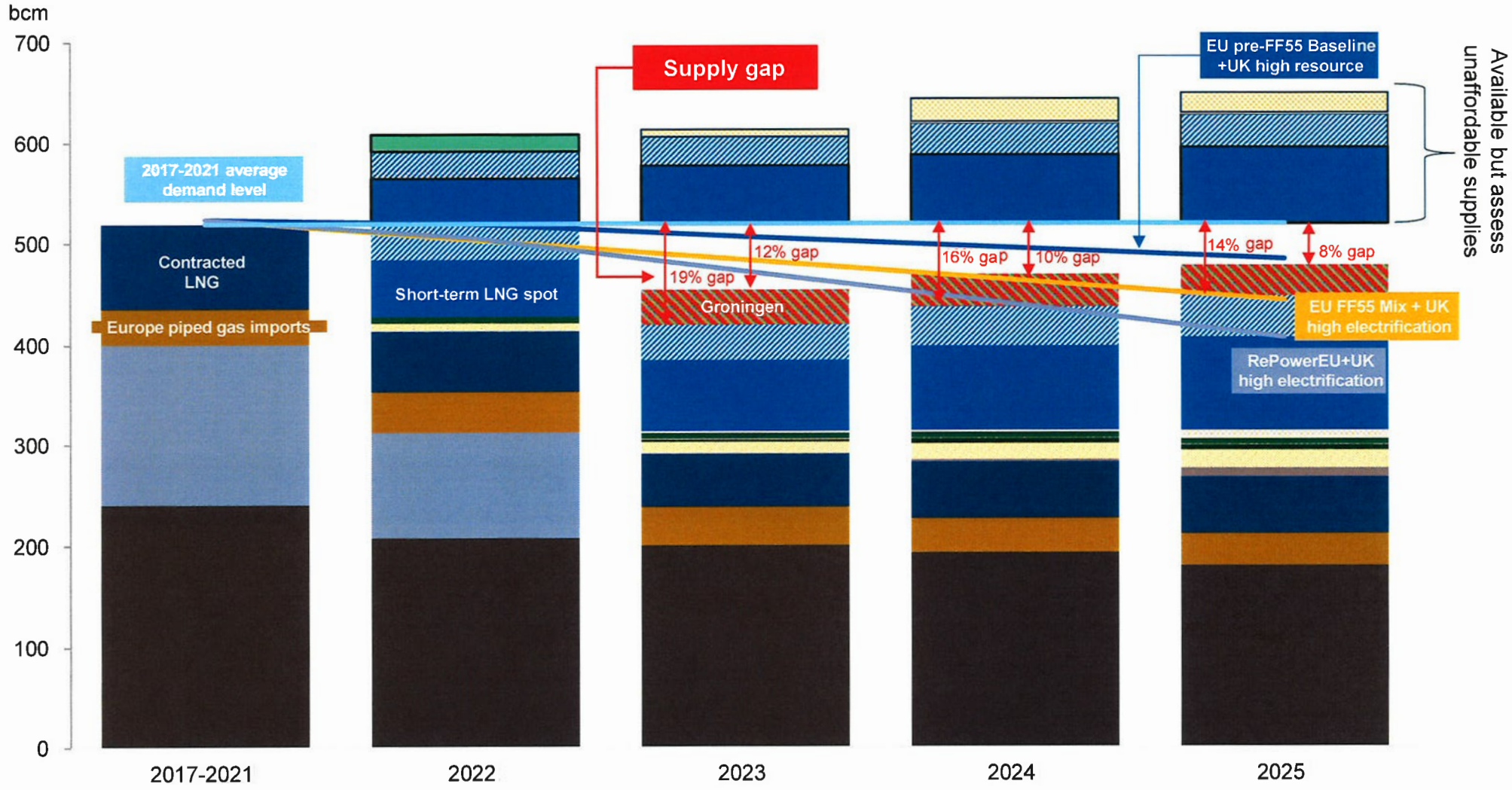
Production by increment group




Source: Rystad Energy research and analysis, Rystad Energy GasMarketCube, European Commission, UK Department for Business, Energy & Industrial Strategy

# Supply gap versus 2017-2021 average demand: gap of up to 19%

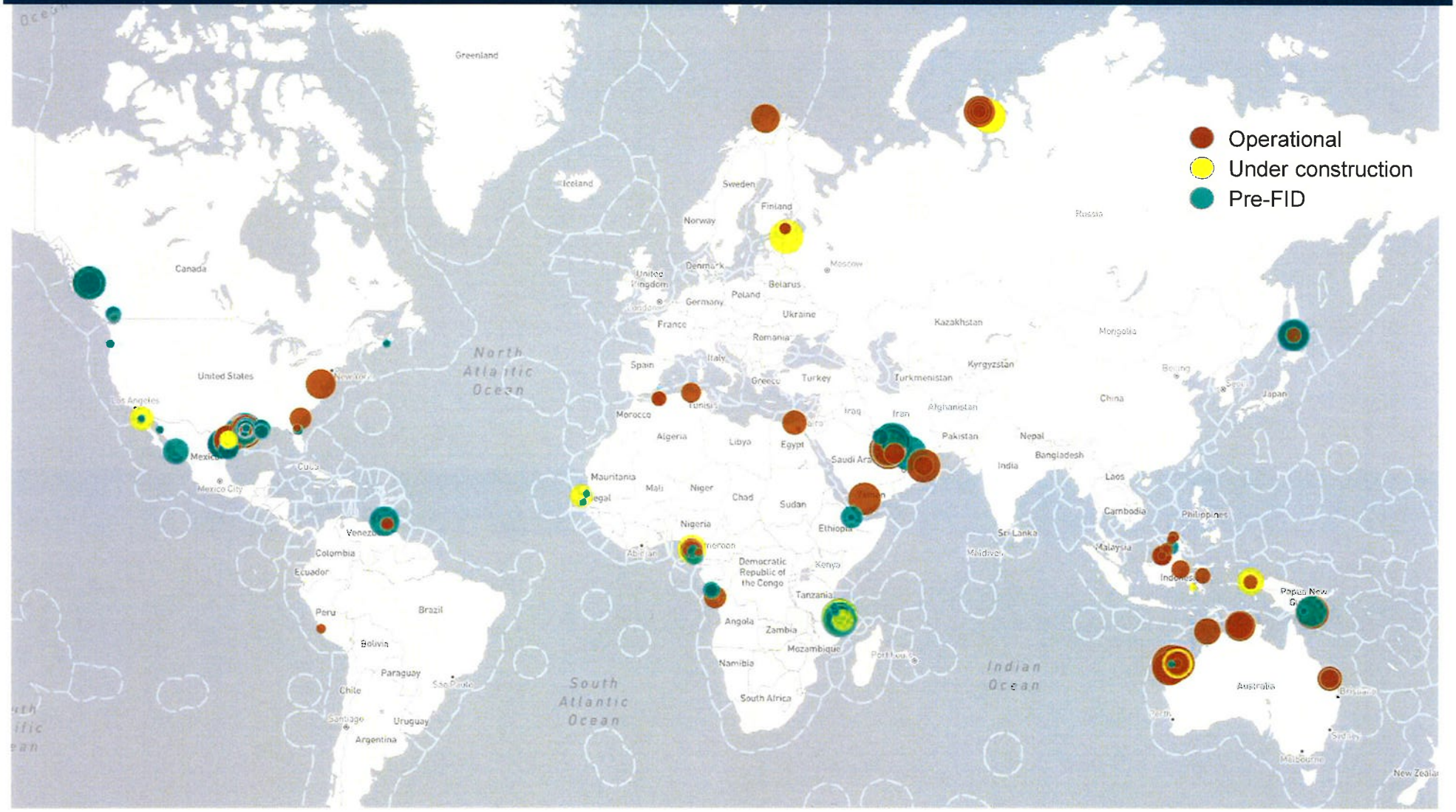
**Short-term supply with high-cost / non-affordable gas filtered out, and without Russia from 2023**




Source: RystadEnergy research and a nalysis, Rystad EnergyGasMarketCube, European Commission, UK Departmentfor Business, Energy & Industrial Strategy

# Atlantic basin LNG projects are the most likely LNG suppliers to Europe

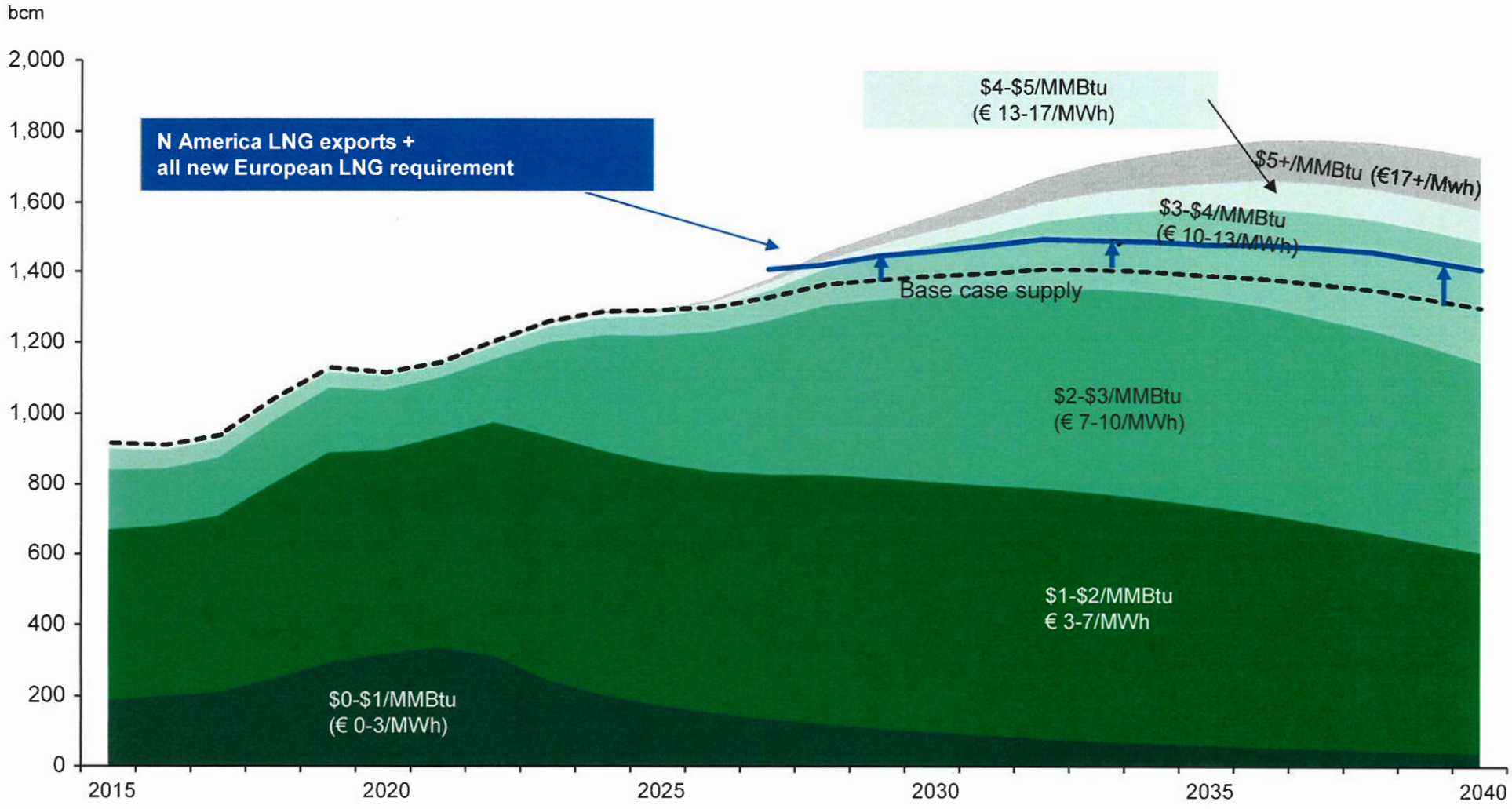
**Global potential LNG supply in 2040 split on LNG project and life cycle status**




Source: GasMarketCube

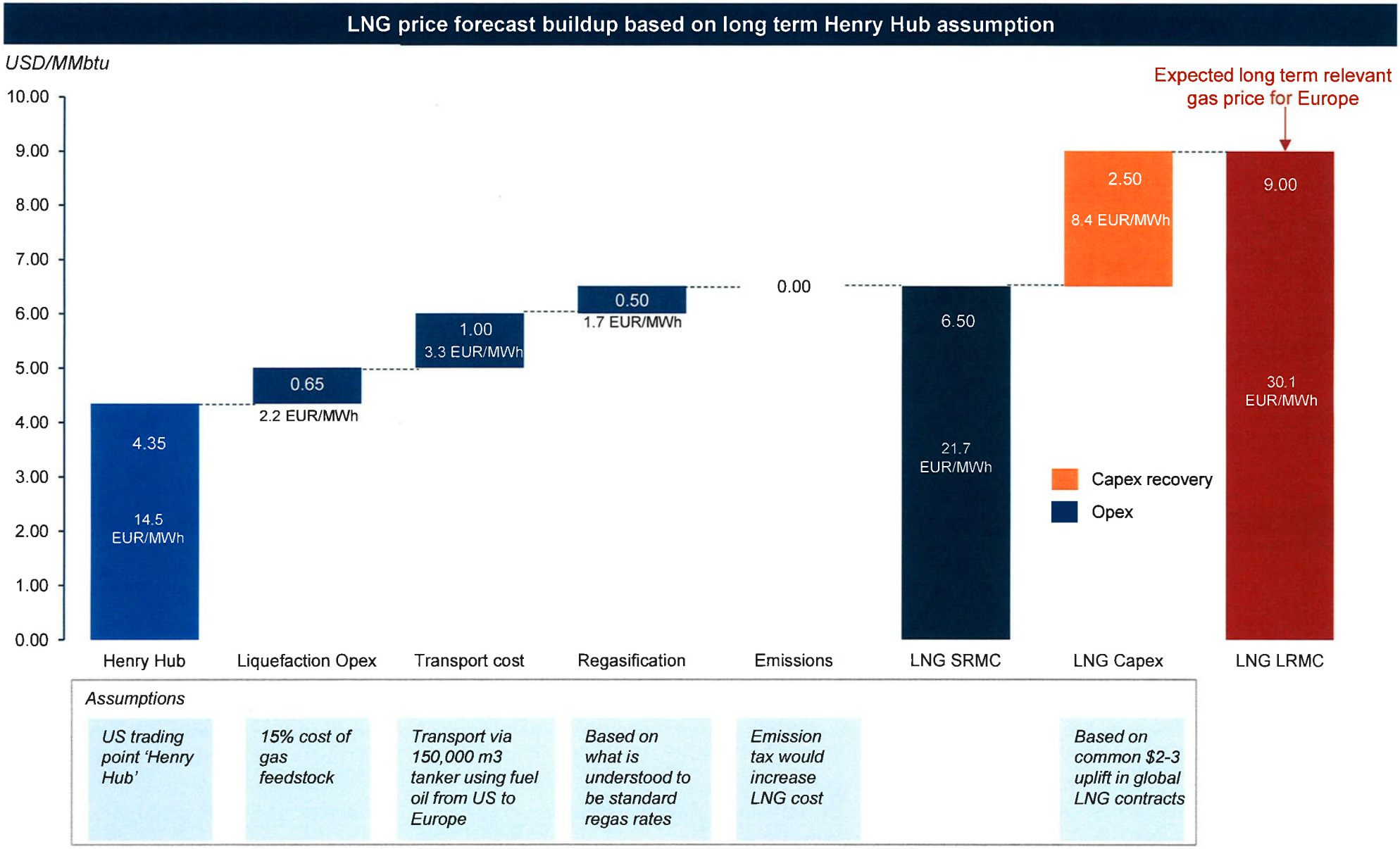
# Low-cost supplies in N America; new European demand ~7% production increase

## US and Canada natural gas supply potential by lifecycle and breakeven price




Note: Breakeven based on a 7.5% real hurdle rate. Prices are in real terms. Assumed exchange rate: 1 EUR = 1.02 USD
Source: Rystad Energy GasMarketCube

# Long-term European LNG supply cost expectations compare with pre-crisis levels once market distressed




Prices are in real terms. Assumed exchange rate: 1 EUR = 1.02 USD Source: Rystad Energy research and analysis

# European LNG regas/import capacity can grow by 120 bcm to reach 330 bcm per year

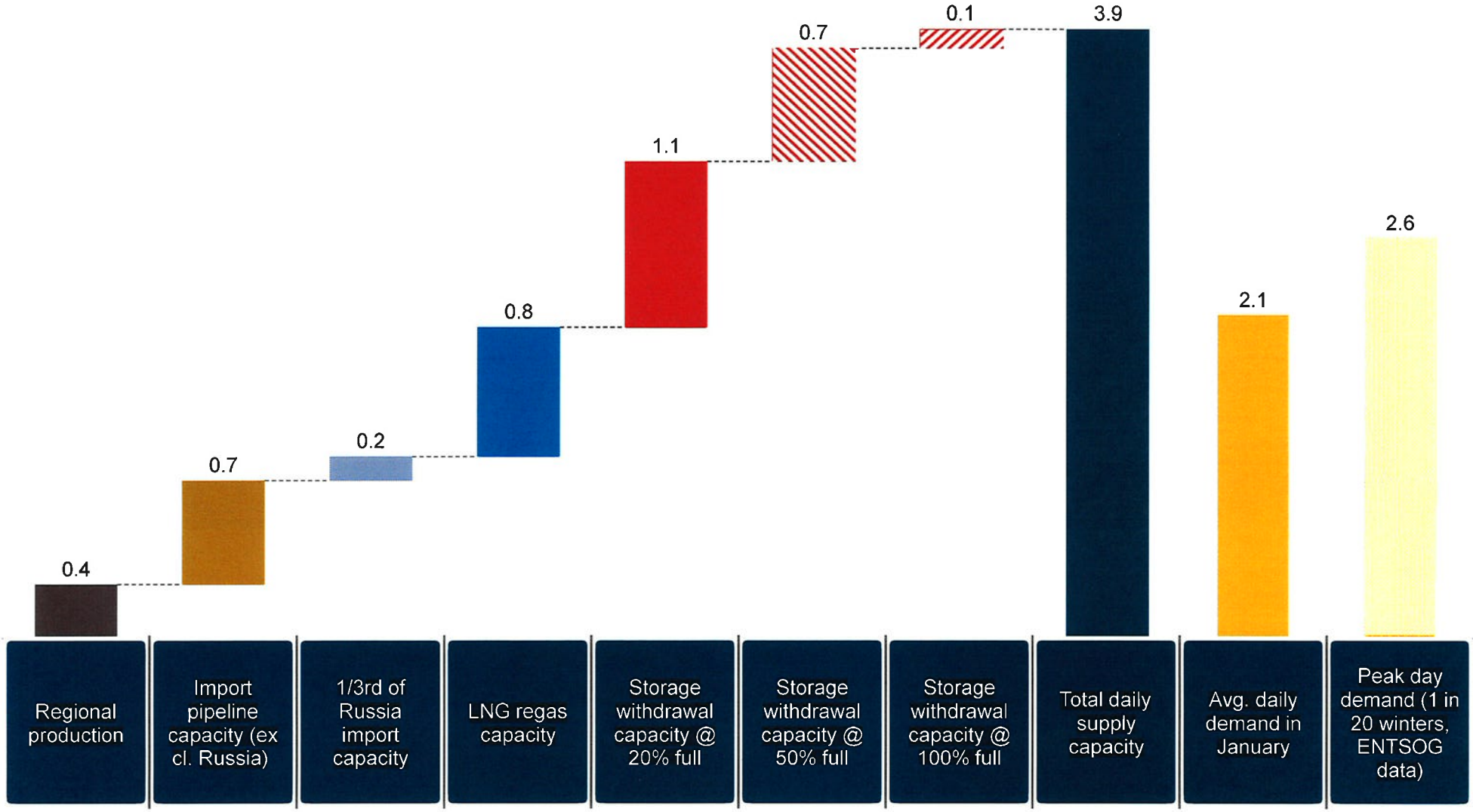
## Future LNG regasification capacity in Europe between 2022 and 2040

| Country | Plant name | Capacity Mtpa | |
|---|---|---|---|
| Albania | Albania LNG terminal (Port of Vlora) | 2.5 | 1 |
| Belgium | Zeebrugge 2 Expansion Step 1 | 4.7 | 2 |
| Belgium | Zeebrugge 2 Expansion Step 2 | 1.3 | 2 |
| Cyprus | Cyprus FSRU | 0.6 | 3 |
| Estonia | Paldiski LNG | 1.8 | 4 |
| Finland | Hamina FSRU | 3.7 | 5 |
| Finland | Hamina LNG | 0.6 | 5 |
| France | Fos Cavaou 2 | 6.2 | 6 |
| Germany | Brunsbuettel LNG Terminal | 5.9 | 7 |
| Germany | Rostock LNG | 6.0 | 8 |
| Germany | Stade LNG | 9.8 | 9 |
| Germany | Wilhelmshaven FSRU | 7.4 | 10 |
| Greece | Alexandroupolis LNG | 4.0 | 11 |
| Greece | Argo FSRU | 3.4 | 12 |
| Greece | Thrace INGS FSRU | 4.0 | 13 |
| Italy | ENI FSRU, location pending | 3.7 | |
| Italy | FSRU near Sardinia | 3.7 | 14 |
| Lithuania | Klaipedos Nafta FSRU 2 | 3.0 | 15 |
| Netherlands | Eemshaven FSRU | 5.9 | 16 |
| Netherlands | Gate LNG terminal (LNG Rotterdam) expansion 1 | 1.1 | 17 |
| Netherlands | Gate LNG terminal (LNG Rotterdam) expansion 2 | 4.8 | 17 |
| Poland | Gaz-System Gdansk FSRU | 3.2 | 18 |
| Poland | Swinoujscie | 4.3 | 19 |
| Slovakia | Bratislava LNG terminal | 0.6 | 20 |
| United Kingdom | Port Meridian LNG | 5.0 | 21 |
| United Kingdom | Teesside GasPort - Trafigura | 5.5 | 22 |


*The Turkish Gulf of Saros FSRU has been added despite Turkey being out of the study's scope as the investment may provide additional supply to southeast Europe
Source: Rystad Energy research and analysis; Rystad Energy GasMarketCube

# Europe has significant gas infrastructure capacity to supply peak day demand

**Peak day supply capacity build-up, Jan 2023 (unit: bcm/day)**




Source: Rystad Energy research and analysis

# Main findings of the study

## 2023-2025

**It will not be possible to substitute Russian imports *(155 Bcm in 2021)* with alternative supplies; the shortage will be progressively reduced as new supplies are made available.**

1. **The shortage will lead to high prices**, which attract LNG cargoes *(from 100 Bcm in 2021 to 160 Bcm in 2023),* incentivize the full production of existing fields in Europe and maximize pipeline imports from neighboring countries *(increasing supplies from 280 Bcm in 2021 to 300 Bcm in 2023, i.e. plus 20 Bcm).*
2. **Europe's interconnected gas infrastructure and integrated gas market** make a significant contribution to energy resilience by rebalancing flows within the region (especially West-to-East).
3. **However, the necessary demand reduction is expected to be significant** *(a 15% reduction vs. prior years reduces demand by 75 Bcm)*, as households and industry reduce consumption and switch to alternative energies.

# Main findings of the study

## 2026 onwards

**New long-term supplies from abundant and low-cost global resources can fully substitute Russian supplies** and rebalance the market.

1. **Long-term contracts are needed** to underpin the necessary LNG projects while some adjustments to the European gas infrastructure are needed
2. **in addition domestic resources and pipeline imports** are important complements
3. The cost of developing and supplying these alternative volumes to Europe is expected to let European gas prices drop to pre-Crisis expectation levels.

# Policy Recommendations

## In a nutshell

1. For Europe to rebalance its gas supply market, **LNG projects and domestic production need to be incentivized through long term contracts,** stable fiscal regime, and a favorable regulatory framework allowing investments in E&P activities (reflected in NECPs)
2. The **abundance of natural gas at affordable prices after 2026, reaffirm its role in the energy transition**, as a reliable source of energy able to rebalance the energy mix compensating the intermittency of renewable energies, while underpinning the development of the Hydrogen economy in Europe (through blue hydrogen/CCS)
3. **Any delay in making the right decisions will prolong the period of suffering** and risk to permanently damage Europe's industrial base
4. Europe can decide what happens next: **we need a vision that is grounded in reality** protecting the European citizens and the European economy