GaffneyCline™
energy advisory

EU gas supply future

Thoughts on Russian gas phase out from the EU

GCea

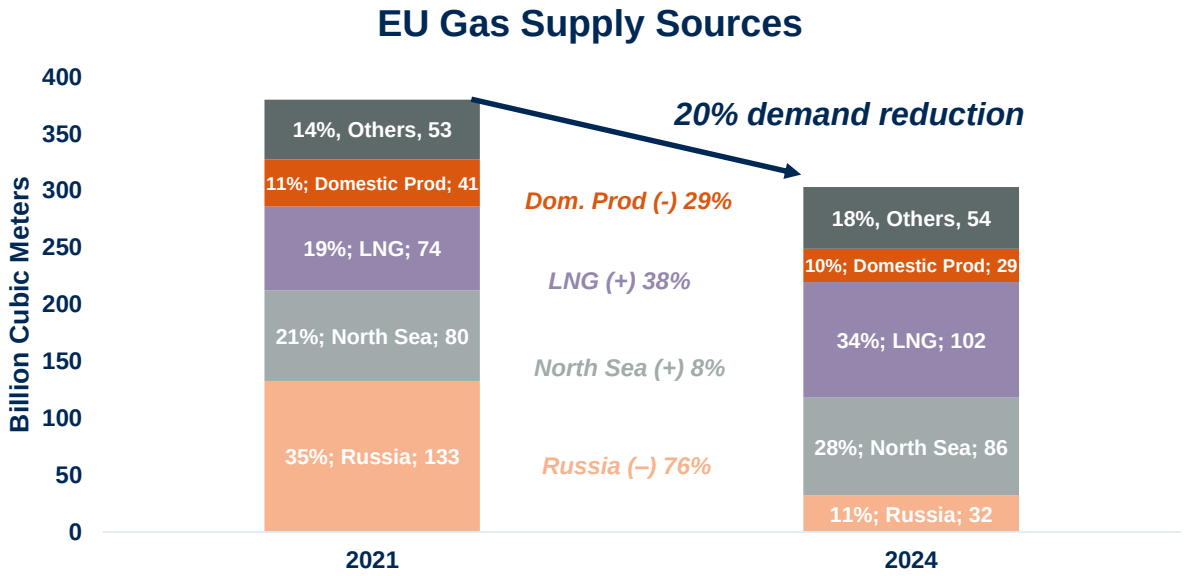
The Future

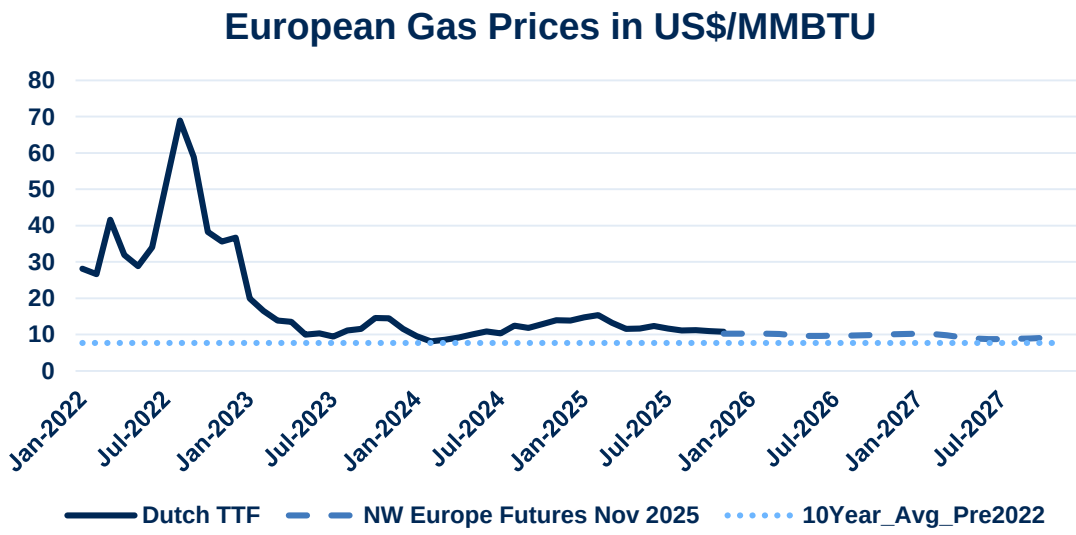
Confidentiality and Disclaimer Statement

This document is confidential and has been prepared for the exclusive use of the Client or parties named herein. It may not be distributed or made available, in whole or in part, to any other company or person without the prior knowledge and written consent of GaffneyCline™ energy advisory (GCea). No person or company other than those for whom it is intended may directly or indirectly rely upon its contents. GCea is acting in an advisory capacity only and, to the fullest extent permitted by law, disclaims all liability for actions or losses derived from any actual or purported reliance on this document (or any other statements or opinions of GCea) by the Client or by any other person or entity.

From Dependency to Redesign: 2027 Russian Gas Exit

- Where Europe is coming from
  - In 2021, ~35% of EU gas imports came from Russia; by 2025, that dependence was structurally broken and is below 6% (plus LNG).
  - The 2027 ban is not a one-off political decision – it is the end-point of a rapid redesign of Europe's gas system.
- Three main levers driving the phase-out
  - Demand: efficiency, fuel switching and mild winters cut gas use by nearly 20%, making the exit physically possible.
  - Supply: Increases from Norway, Azerbaijan and especially US LNG turned Europe into the world's premium gas buyer.
  - Structure: Russian gas exit accelerated ongoing switching to renewables and electrification, shrinking the role of gas in heating and power long before 2027.
- Global repercussions
  - Sanctions did not just impact Russia's revenues – they rewired LNG trade flows, price formation and investment signals worldwide.
  - Russia is pivoting volumes and pipelines toward Asia.
  - Europe's gas exit is therefore not a regional adjustment – it is a structural shift for the global

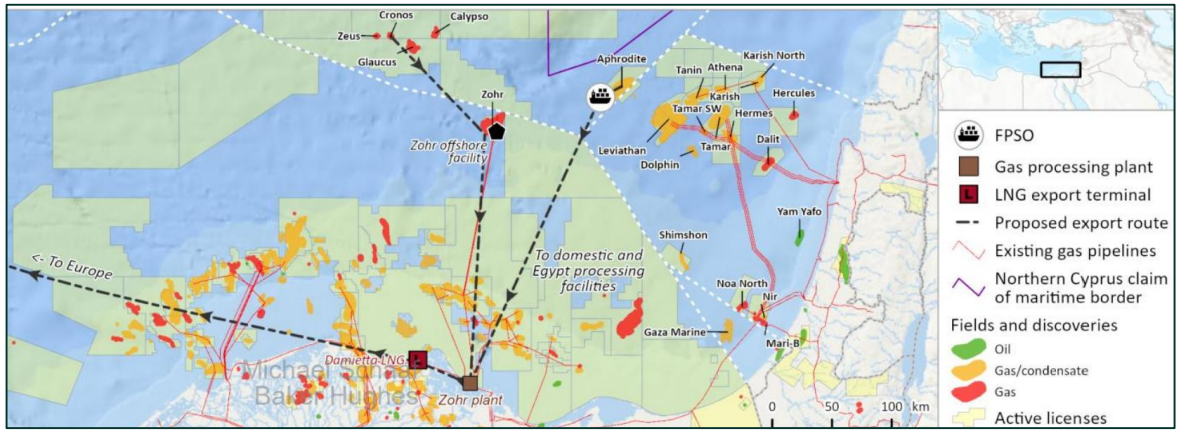




Regional Supply Option: East Med

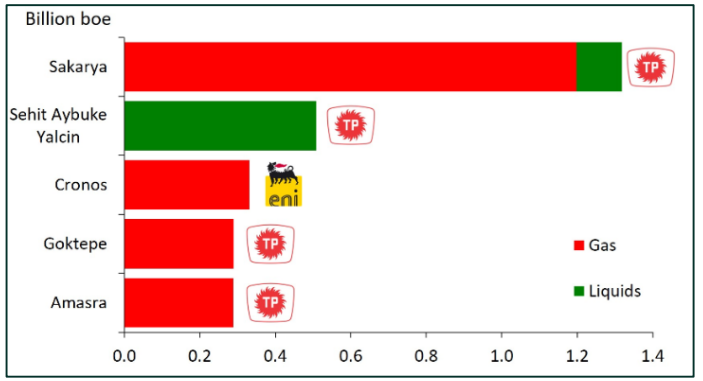
- Gas Exploration and Developments in the East Med
  - Emerging gas hub, with output projected to grow from about 76 bcm per annum currently to about 124 bcm per annum by 2035.
  - Growth from new development phases in Israel and startup of Cyprus's developments, notably Aphrodite and Cronos, by the end of this decade.
- Recent Activity
  - Since 2020, the East Med, particularly Türkiye and Cyprus, has added approximately 3.65 billion barrels of oil equivalent (boe) in conventional discoveries, with natural gas accounting for nearly 75% of these volumes.
- Development Plans and Investments
  - Cyprus offshore developments kick-started with approval of the Chevron-led Aphrodite development and agreement to fast-track development of Eni's Cronos field.
  - Cyprus developments have been enabled by access to ullage in Zohr Egypt offshore pipelines and in Egyptian LNG facilities.
- Potential for East Med Gas to Supply Europe
  - Proximity and scale of gas developments make the East Med a viable mid- to long-term supply option for Europe.
  - East Med gas production is expected to reach 55 bcm by the end of the decade (excl. Egypt), from Turkey, Israel and start-ups in Cyprus.
- Conclusion
  - The East Mediterranean is part of the mix to replace Russian gas in Europe, driven by growing output, new development phases, and exploration activity.
  - The most likely export route from the East Med to Europe is via Egyptian LNG facilities.

Cyprus discoveries and planned development routes



Source: Rystad Energy

East Med top 5 discoveries (2020-2025) and Gas production forecast



Country	2021	2025	2030
Israel	19 bcm	30 bcm	40 bcm
Turkey	1 bcm	5 bcm	10 bcm
Cyprus	0 bcm	2 bcm	5 bcm
Egypt	61 bcm	45 bcm	34 bcm
Total	81 bcm	82 bcm	89 bcm

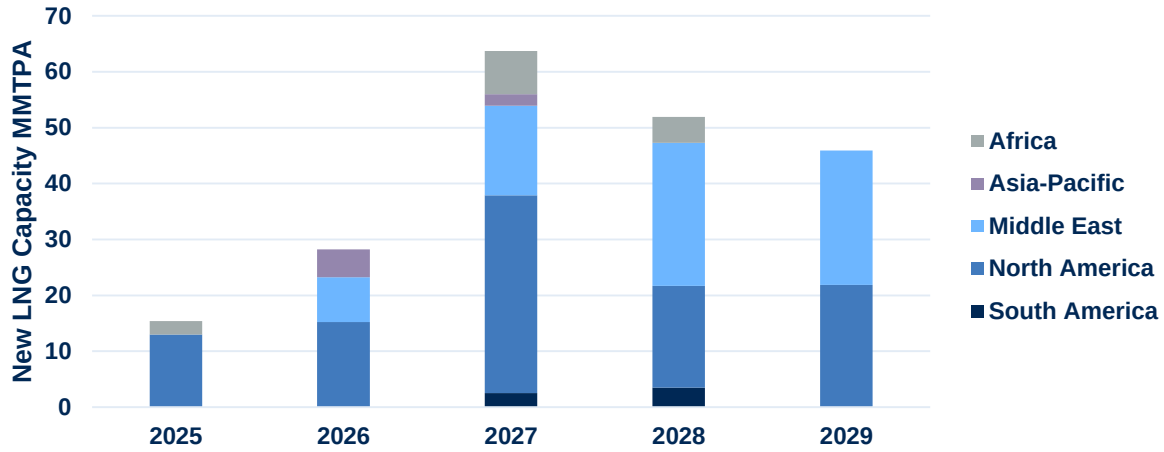
Source: Rystad Energy

GaffneyCline energy advisory

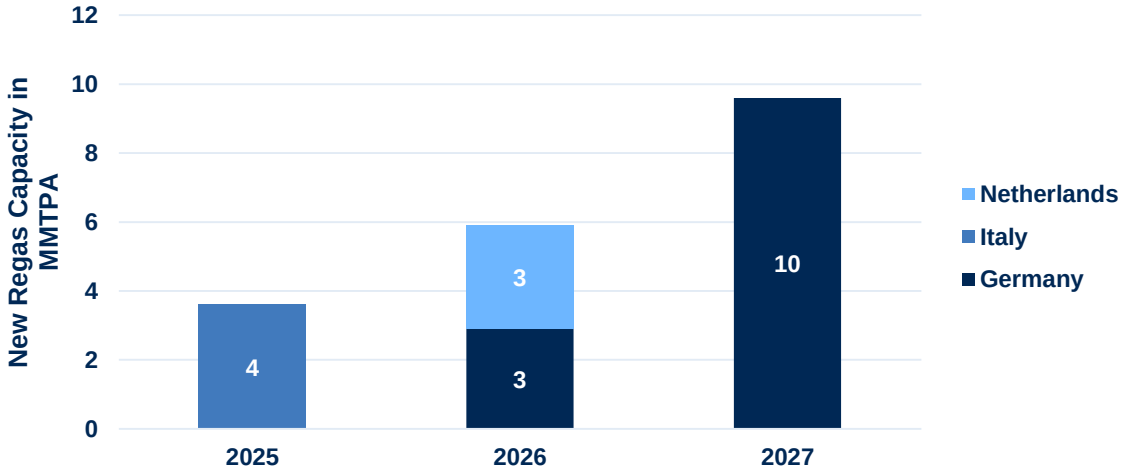
What Alternatives Can Replace Russian Gas

- Norway and the North Sea: high reliability, no spare capacity, finite runway
  - Norway is now Europe's largest gas supplier (~30% of EU imports), running its fields and export system at full capacity.
  - The North Sea is a mature basin – new exploration can slow decline but cannot recreate sustainable new supply.
  - Norwegian gas can bridge the 2020s but is unlikely to backstop European demand well into the 2030s.
- North Africa & Caspian: constrained but important
  - Algeria faces a double bind, flat production and fast-rising domestic demand cap export upside despite significant remaining resources.
  - Azerbaijan's Southern Gas Corridor can grow, but full expansion to ~20 bcm/year is only a fraction of Russian supply to the EU.
  - Increased contribution from these theaters helps diversify risk and add resilience but remain volume-constrained as replacements for Russian gas.
- LNG (e.g. U.S., Qatar): high availability, infrastructure and market issues
  - New LNG projects coming online mid-decade will add 200 bcm/year of supply – equal to 50% of global LNG demand.
  - The "replacement" for Russian pipeline gas is not another pipeline –Europe competes on a global market (e.g., with Asia) for LNG, which must be actively managed.

>200 MMTPA new LNG to come onstream 2026-2034



20 MMTPA new LNG Regas capacity under construction, taking total EU capacity to 227 MMTPA



GaffneyCline energy advisory

Baker Hughes Confidential

LNG: Security Dividend or Carbon Detour?

- How "clean" is U.S. LNG?
  - Versus coal: LNG used in European power cuts lifecycle emissions by well over a third compared with coal-fired generation.
  - Versus pipeline gas: LNG is significantly higher-carbon intensity than Norwegian or Azeri pipeline gas due to liquefaction and shipping.
  - Versus Russian gas: some analyses suggest that LNG is similar intensity, once methane leakage in Russia's system is included.
- The U.S. gas balance behind the cargoes
  - Shale has turned the U.S. into the world's largest LNG exporter, with capacity set to roughly double again over the next few years.
  - Europe already absorbs the majority of U.S. LNG; exports plus record domestic demand tightened the U.S. gas market short-term, but mid term the global LNG market is over supplied.
  - LNG offers abundant, cost-effective supplies, but creates new dependencies on MRH gas-price dynamics and regulatory risk.
- Strategic question for Europe
  - With LNG an essential part of the energy mix for Europe,

Type	Carbon Intensity (kg CO_2/boe)
US LNG	~60
Qatar LNG	~70
Norway pipeline	~7
Azerbaijan pipeline	~15

Type (power generation)	Carbon Intensity (kg CO_2/MWh)
Coal	1000-2000
Gas (average)	300-500
Nuclear	<10
Wind	<10
Solar	<10
Biomethane	60-80

Estimates based on Rystad Energy research

Renewables v Gas: Cheaper Electrons-New Dependencies

- Comparison of Renewables and Gas for European Power Generation
  - The European power generation landscape is undergoing a significant transformation, with renewables and gas playing increasingly important roles.
  - The share of renewable energy in Europe's power mix has surpassed the share of fossil fuel and is expected to continue to grow to >60% by 2030.
- Levelized Prices of Renewables and Gas
  - The levelized prices of renewables and gas are critical factors in determining their competitiveness in the European power market.
  - Levelized cost of solar in Europe is around €30-70 per megawatt-hour (MWh) and wind around €30-80 per MWh.
  - In contrast, the levelized cost of gas-fired power generation is around €40-100+ per MWh.
- Potential Risks of Chinese Renewable Technology Dependency
  - The EUs energy transition has led to a surge in demand for alternative energy sources. This shift poses potential risks of dependence on Chinese renewable energy technologies, potential supply chain disruptions and possible intellectual property protection disputes.
- Conclusion
  - The comparison of renewables and gas for European power generation highlights the increasing competitiveness of renewables in the European power market.
  - The risks of swapping Russian gas dependency for Chinese renewable technology dependency is real and must be carefully considered when managing the European Energy System.

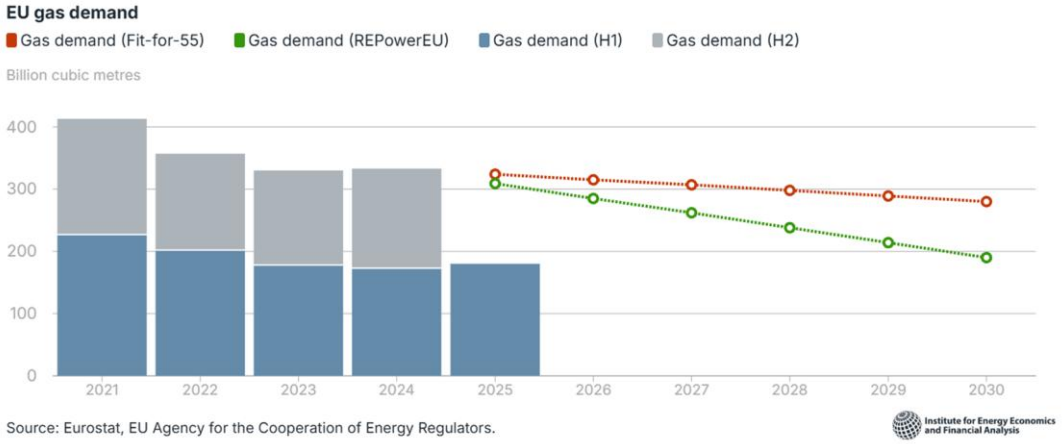


Table: European Power Generation Mix

Technology	Share of Power Generation (%)*
Nuclear	21.8%
Hydropower	17.1%
Wind	16.8%
Natural Gas	15.9%
Coal	9.9%
Solar	9.4%

Comparison of Levelized Prices

Technology	Levelized Cost (€/MWh)
Solar	30 - 70
Wind	30 - 80
Gas	40 – 100+

*remainder of energy from other sources, e.g. biomass, oil, etc

Note: The data in this table is based on information from 'Europe Renewables & Power Trends Report – November 2025' (1).

GaffneyCline™ energy advisory

GaffneyCline™

energy advisory