





Paul Hickin,
Editor-in-chief
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Gas has 'unique' dual role to play in world energy, says GECF

Secretary General Hamel warns on gas underinvestment, and highlights the energy source as playing a transitional role in the West and being a destination fuel in the Global South

Natural gas is abundant, versatile, flexible and the cleanest of hydrocarbons—making it essential for supporting just and equitable energy transitions—according to Mohamed Hamel, secretary general of the Gas Exporting Countries Forum (GECF).

In an exclusive interview with *Petroleum Economist*, Hamel explained that gas' adaptability means it can act as both a transitional fuel in places such as Europe, which is clearly on the path to building out renewables, and also as a destination energy source that acts as a building block for economic growth in places such as Africa.

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Hamel also pointed out that the GECF projects gas demand will grow by 34% over the next three decades. By 2050, gas is expected to become the leading energy source, accounting for 26% of the global energy mix compared with today's 23%. The GECF is an intergovernmental organisation that provides a framework for exchanging experience and information among its member countries.

How have gas markets evolved in the recent past, and what is the GECF gas outlook in the short term?

Hamel: Over the past few years, the gas sector has shown remarkable resilience, maintaining a positive growth trajectory, despite the Covid-19 pandemic and extreme energy market volatility.

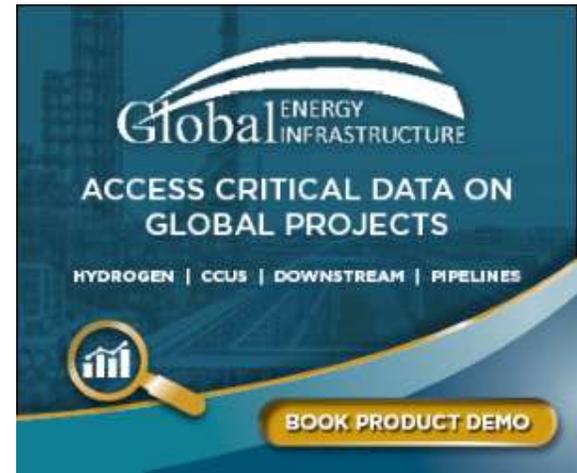
Firstly, global gas consumption is on track to rise by 2.2% in 2024, reaching a record high of 4.2tcm, driven primarily by rising demand in Asia, in particular China and India. This increase is supported by greater gas use in electricity generation, with substantial contributions from coal-to-gas switching and stronger electricity demand from datacentres, as well as expanding use in transport—particularly with the growing number of LNG-fuelled trucks in China.

"[Gas] is abundant, versatile, flexible and the cleanest of hydrocarbons, making it essential for supporting just and equitable energy transitions"

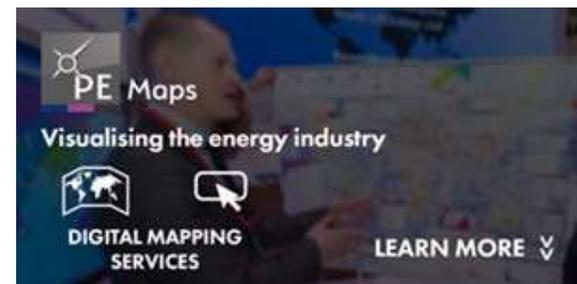
Another demand centre set to expand is that of gas being used to fuel power-hungry artificial intelligence datacentres. Looking ahead, by 2025, global gas consumption is expected to rise by another 2%, and the market will continue to be relatively tight.

Secondly, global gas trade continues its steady growth. New players in the LNG market have diversified trade dynamics, while rapid expansion of import and export capacity—currently at 1,000mt/yr and 485mt/yr, respectively—has boosted LNG trade. Moreover, 220mt/yr of new liquefaction capacity is expected to come onstream between 2025 and 2029, further bolstering global trade.

Thirdly, spot gas prices have stabilised after four years of extreme volatility, from record lows in 2020 and record highs in 2022. We expect prices to average around \$11/m Btu in 2024. Concerns about price volatility and security of supply have prompted gas



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importers to prioritise long-term, oil-indexed contracts. These contracts provide steady revenue streams, enabling gas exporters to support continuous upstream investments.

In this context, gas is solidifying its role as a pivotal resource for equitable energy transitions, energy security and sustainable development.

What is gas/LNG's role in the energy trilemma? How much is gas a transition fuel and how much is it a fuel that can be a solution to the energy trilemma? What is the long-term role of gas?

Hamel: Energy is essential to every aspect of modern life—powering our homes, transportation and industries. It is crucial for sustainable development. The global energy system is vast and complex, delivering the equivalent of 3,500b/d of oil every second, with hydrocarbons still accounting for 80% of this supply. Yet, despite this immense scale, energy poverty remains widespread: around 2.3b people lack access to clean cooking fuels and nearly 1b still live without access to reliable electricity.

Looking ahead, as the world's population grows—expected to increase by 1.7b by 2050—and economies expand, particularly in regions such as Africa and developing Asia, primary energy demand is forecast to increase by 20%.

A key issue is how to reduce greenhouse gas emissions while ensuring reliable and affordable energy.

Natural gas plays a unique role here. It is abundant, versatile, flexible and the cleanest of hydrocarbons, making it essential for supporting just and equitable energy transitions. For example, switching from coal to gas in power generation significantly cuts carbon dioxide and pollutant emissions. Replacing traditional biomass with LPG for cooking and heating improves indoor air quality and curbs deforestation, thus benefiting health, the economy and the environment. Gas provides reliable backup for variable and intermittent renewables—such as solar, wind and hydro during droughts.

Additionally, it is an ideal candidate to meet the dispatchable power demands of AI datacentres due to its reliability, scalability, lower emissions and higher efficiency compared with coal, and relatively easier permitting, lower upfront costs and shorter lead times compared with nuclear.

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Finally, gas is more than just an energy source. It is a key feedstock for chemicals and fertilisers, playing a vital role in food security and the fight against hunger.

This adaptable role of gas varies by region. In developed countries, it often serves as a 'transitional fuel', bridging towards more renewables. But in developing countries, it is a 'destination fuel'—crucial for economic growth, energy access, cleaner air and social progress.

The GECF projects gas demand to grow by 34% over the next three decades. By 2050, gas is expected to become the leading energy source, accounting for 26% of the global energy mix, up from today's 23%. In Europe, gas demand will continue to decline, due to energy policies and deindustrialisation. In the US, demand will continue to grow before reaching an elongated plateau. In all other regions, gas demand is projected to increase in the period to 2050.

The IEA called to stop investing in fossil fuels, including gas. What is your view?

Hamel: We see this differently. Without new investments, we anticipate a growing supply-demand gap to likely emerge in 2030, driven by rising demand and a natural production decline of 3–4%/yr on average. Our forecasts indicate that meeting future needs will require more than \$9t in global investments in upstream and midstream gas sectors by 2050.

The IEA's call to halt investment in fossil fuels, including gas, could have profound consequences for global energy security, economic stability and sustainable development.

'Gas, alongside renewables, can help bridge the global divide in energy access and economic prospects'

Take Africa as a case in point: while responsible for just 3% of historical emissions, the continent holds 8% of global gas reserves. Harnessing these resources could greatly alleviate energy poverty, drive industrialisation and improve living standards. Reliance on traditional biomass for cooking has

detrimental effects on health, on the environment, on economic progress, and on women and children. For African countries, gas provides a viable and ethical path to

equitable development, supporting growth and reducing poverty while lowering emissions. In regions such as these, the choice is not between renewables and gas, it is often a choice between poverty and opportunity. Gas, alongside renewables, can help bridge the global divide in energy access and economic prospects.

What is the role of technology in making gas even more environmentally friendly? Is it part of the solution?

Hamel: Gas is clean: its combustion produces about 50–60% less carbon dioxide than coal and emits minimal particulates and sulphur dioxide. It is also more efficient in modern power plants.

However, technology could indeed contribute to making gas even cleaner and to reducing the carbon footprint of its operations. Priorities include eliminating routine gas flaring and venting in production and aggressively reducing methane emissions.

Technologies such as infrared cameras, drones and satellite monitoring support leak detection and repair, while scaling up CCUS is essential to cut emissions throughout the supply chain. CCUS also offers benefits to other high emission industries, such as steel and cement, especially through the use of blue hydrogen. Should the cost of capture for low concentration carbon dioxide streams be reduced, direct air capture could become a key tool in climate change mitigation. We project CCUS capacity requirements to exceed 4gt by 2050.

Digital innovations such as internet-of-things sensors and AI-driven monitoring systems allow operators to monitor pipelines in real time, making it easier to detect and repair leaks promptly. This tech-enabled approach, from predictive maintenance to real-time emissions control, is enhancing the environmental performance of the gas industry.

End-use applications also benefit from technological advancements. In power generation, combined-cycle gas turbine technology has reached efficiency rates of more than 60%, requiring less gas and resulting in lower emissions. High-efficiency boilers, combined-heat-and-power units, and smart energy systems are similarly improving emissions control in heating and industry.

Finally, digitalisation, through AI, machine learning and data analytics, optimises processes and emissions management, enhancing environmental performance across the gas supply chain. By integrating innovations in gas flare reduction, CCUS, leak detection, efficiency and digitalisation, gas is becoming a cleaner energy source that supports the transformation towards a sustainable energy future.

Ensuring these technologies reach developing countries is essential to support their mitigation plans and win the battle against poverty and climate change

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