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LNG AT A GLANCE: KEY INSIGHTS TO STAY INFORMED

WHAT IS LNG?

Liquefied Natural Gas (LNG) has emerged as a critical player in the global energy landscape. It offers a cleaner-burning alternative to coal and oil, making it a pivotal component of the energy transition. However, the LNG sector faces challenges such as price volatility, competition from renewables, and uncertainties in future demand. This report explores these dynamics and identifies actionable steps for governments, companies, and individuals to optimize LNG's benefits.



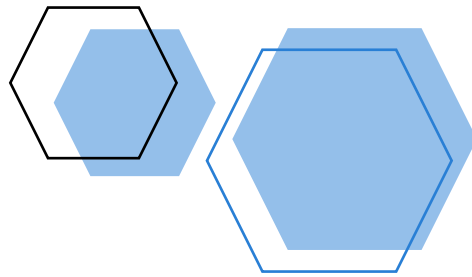
PRICE VOLATILITY AND IT'S IMPACT ON LNG CONTRACTS

(spot vs. long-term contracts)

Price volatility is a defining feature of the LNG market, driven by geopolitical tensions, supply disruptions, and demand fluctuations

Spot Contracts: Spot markets allow flexibility but come with high exposure to price volatility. For example, during the 2022 energy crisis fueled by the Russia-Ukraine war, European spot LNG prices exceeded \$70/MMBtu, severely impacting affordability.¹

Long-term Contracts: These agreements provide price stability, which is vital for energy security in importing nations. However, they limit flexibility, locking parties into potentially unfavorable pricing as market conditions change. Countries like India and China have adopted a balanced approach, relying on both spot and long-term contracts to manage risks.²



COMPETITION FROM RENEWABLES AND BATTERY STORAGE

Renewables and energy storage are rapidly transforming the global energy market, presenting stiff competition for LNG.

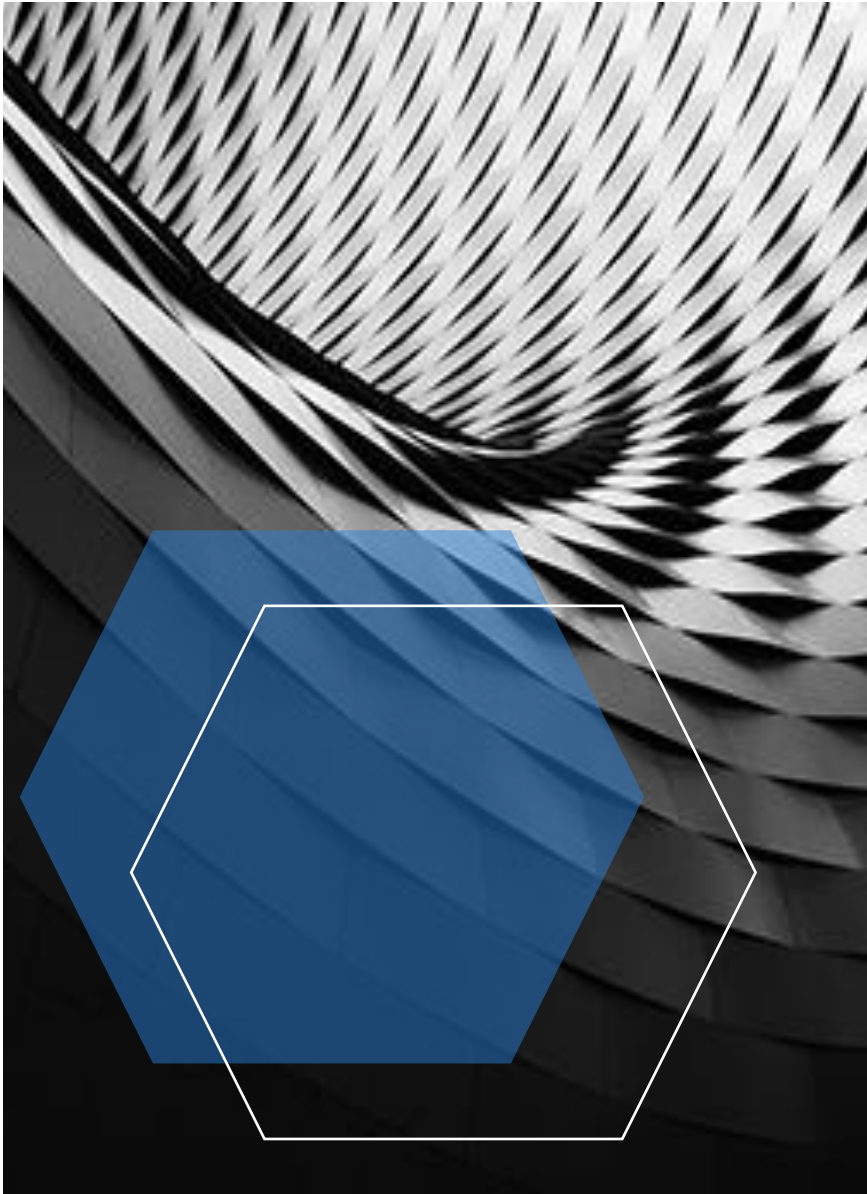
The levelized cost of electricity (LCOE) for renewables has plummeted. Solar PV and onshore wind are now among the cheapest energy sources globally, with solar costs declining rapidly from 2010.

Advancements in energy storage technology reduce reliance on LNG for grid stability. Countries like Australia and Germany are already utilizing large-scale battery storage to integrate renewables effectively.

Despite these challenges, LNG remains a critical backup energy source in regions with less developed renewable infrastructure.

¹ <https://www.igu.org/resources/world-lng-report-2022/>

² <https://www.bp.com/en/global/corporate/energy-economics/energy-outlook.html>



ROLE OF LNG IN TRANSITIONING TO CLEANER ENERGY

LNG is often seen as a "bridge fuel" due to its relatively low carbon footprint compared to coal and oil.

Cleaner Combustion: Burning natural gas emits 50-60% less CO₂ than coal for electricity generation (IEA). LNG also has lower sulfur dioxide and nitrogen oxide emissions, making it a cleaner alternative for urban areas.

LNG complements intermittent renewable energy sources like wind and solar by providing baseload power during low renewable generation periods.

Methane leaks during production and transportation reduce its environmental benefits. Methane is over 25 times more potent as a greenhouse gas than CO₂ over a 100-year period (EDF).

PREDICTIONS FOR LNG DEMAND IN 2030, 2050

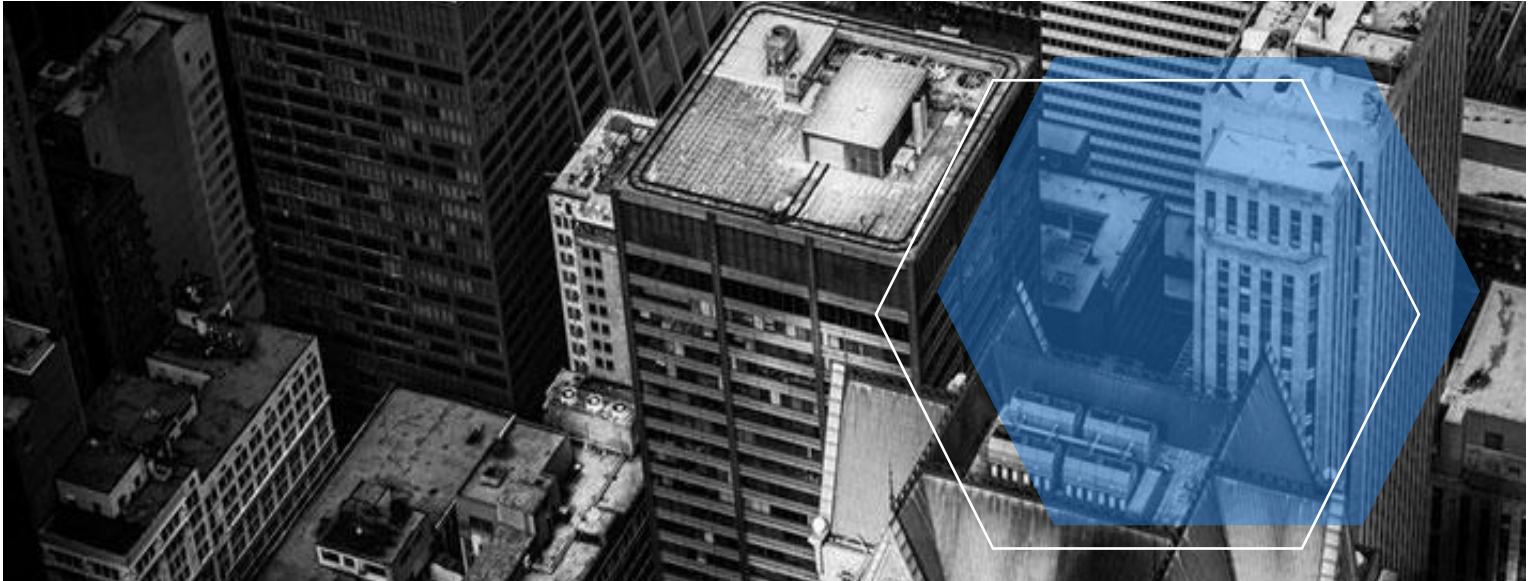
LNG demand is expected to grow in the short term but faces uncertainty in the long run as global energy systems shift toward net-zero emissions.³

By 2030: The Asia-Pacific region will drive demand, as countries like China and India replace coal with LNG for power generation. The International Energy Agency (IEA) forecasts annual demand growth of 1.5% through 2030 under its Stated Policies Scenario.

By 2050: Demand is projected to decline significantly as hydrogen and renewables dominate energy systems. In IEA's Net Zero by 2050 Scenario, LNG demand peaks around 2035 before tapering off.⁴

³ <https://www.iea.org/reports/net-zero-by-2050>

⁴ <https://www.shell.com/what-we-do/oil-and-natural-gas/liquefied-natural-gas-lng/lng-outlook-2023.html>



WHAT GOVERNMENTS, COMPANIES, OR INDIVIDUALS CAN DO TO OPTIMIZE LNG'S BENEFITS

To maximize LNG's potential while addressing its challenges, collaborative efforts across governments, companies, and individuals are essential. Governments can support investments in carbon capture and storage (CCS) technologies to reduce LNG's lifecycle emissions and enforce stringent methane leakage regulations, aligning with initiatives like the Global Methane Pledge. Companies should diversify their portfolios to include renewables alongside LNG, adopt best practices to minimize methane leaks, and work toward developing carbon-neutral LNG solutions. On an individual level, people can advocate for policies that promote cleaner energy and energy efficiency while adopting energy-saving practices to reduce overall demand for fossil fuels.⁵

⁵ <https://www.mckinsey.com/industries/oil-and-gas/our-insights/the-future-of-liquefied-natural-gas-opportunities-for-growth>