October 2024

Purva Jain || Energy Specialist, Gas & International Advocacy

Conflict Exposes Natural Gas to Price Volatility

- *The sensitivity of liquefied natural gas (LNG) prices to geopolitical crises casts doubt on its suitability as a bridge fuel for countries increasingly dependent on imported LNG.*
- *LNG prices have fluctuated widely in months of relative stability for other commodities, such as oil and gold, highlighting the inherently volatile nature of gas markets.*
- *India needs to diversify its fuel sources and increase the share of renewable energy in the energy mix to insulate the economy from LNG price volatility.*

Introduction

Commodity price fluctuations have again highlighted the global market's susceptibility to conflict and crisis. Various factors govern commodity prices, but geopolitics has been the dominant driver of volatility in recent years. After the commodities market crashed during the COVID-19 pandemic in 2020, prices started to stabilise as the global economy recovered. In 2022, commodity prices spiked sharply due to the energy crisis sparked by Russia's invasion of Ukraine. After another period of stability, the escalating Middle East conflict is again inflating prices amid fears of looming economic instability. At the beginning of October 2024, oil prices increased by 5% amid escalating tensions, while gold prices are expected to reach an all-time high.

Of all commodities, liquefied natural gas (LNG) is most sensitive to geopolitical disturbances, with conflict magnifying the market's inherent volatility. This raises concerns about natural gas's suitability as a bridge fuel and undermines its long-held status as a low-cost alternative. Global disturbances have created demand-supply imbalances, and the emergence of new trade flows is causing structural shifts in LNG markets. Price volatility is likely to be the new normal. Extreme weather conditions, such as heat, rains and milder-than-expected winters worldwide, further entrench this volatility.

LNG Shows Maximum Volatility

The immediate impact of geopolitical disturbances is visible in increasing prices of commodities such as oil and gold, as well as falling stock market indices. These fluctuations might be short-lived, with commodities and indices historically showing resilience in the longer term, but the economic impact tends to be medium to long-term.

Gold prices are a key economic indicator in times of crisis. As gold is perceived as a safe haven investment, demand increases during geopolitical disturbances. In recent months, gold purchases by central banks have already elevated gold prices, but global tensions have further increased demand. On 18 October 2024, spot gold prices touched a record high of US$2,696.78 per ounce (or Rs80,970.27 per 10 grams).

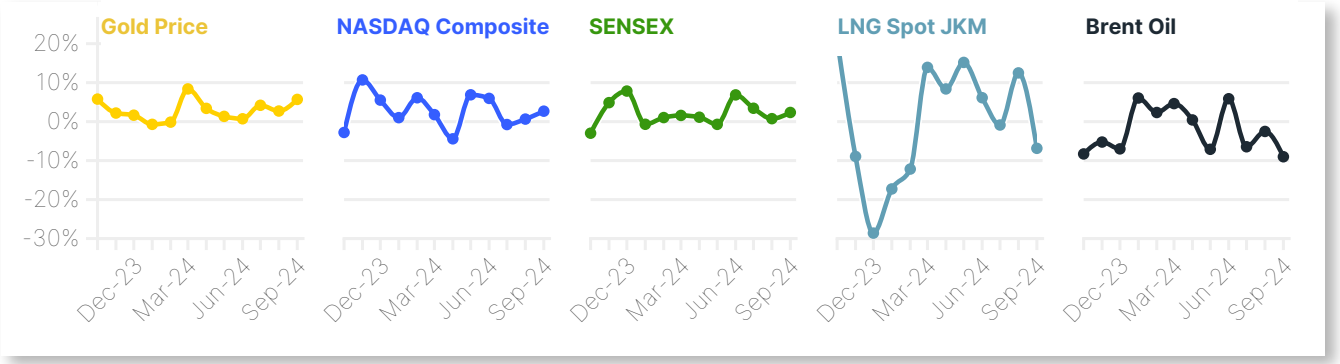
Similarly, oil prices have shown signs of stress as geopolitical tensions increase, reaching US$90 per barrel (bbl) on 4 April 2024, before easing over the northern summer months due to the subsiding of geopolitical tensions. The price went as low as US$69/bbl on 10 September 2024 before spiking to US$81/bbl on 8 October amid rising Middle East tensions.

A comparison of LNG price variations with oil and gold and indices such as the NASDAQ and SENSEX shows that despite their long-term resilience, they are the first to feel the impact of a crisis. In March 2024, when the Middle East conflict was expected to intensify, oil and gold showed an immediate increase but stabilised once the situation eased, albeit temporarily.

Comparing these commodities and indices over the past year shows that LNG prices have had the maximum variability (Figure 1). This highlights the volatile nature of the LNG market. LNG price fluctuations have been extreme in months of minimum variability for other commodities, such as in October 2023 when LNG price jumped by 21%, only to drop by 29% in December 2023.

Figure 1: LNG price vs oil, gold and selected indices

Monthly % Changes in Prices (October 2023 to September 20024)



Source: IEEFA Analysis based on data from Investing.com

LNG futures for 2025 are already at US$13 (Rs1,093) per million British thermal units (MMBtu), which raises major affordability concerns. If realised, US$13/MMBtu would be double the regulated domestic gas price and well above India's general affordable threshold of US$10/MMBtu. Recent increases in oil and gold prices, which progressively impact LNG prices, point to further increases. These fluctuations affect price-sensitive buyers the most.

Plans by India, a price-sensitive country, to increase its LNG dependence will be affected by this volatility. The high prices due to the Russia-Ukraine crisis resulted in demand destruction and fuel switching in the country's industrial and city gas distribution (CGD) sectors. The excessive

prices also resulted in an exorbitant fiscal subsidy burden on the government, with regasified LNG used in the highly subsidised fertiliser sector. The subsidy burden has exceeded Rs1 trillion (US$11.9 billion) for three consecutive years, and the government has budgeted Rs1.19 trillion (US$14.15 billion) for FY2024-25.

LNG Dependence has Many Challenges

LNG is likely to form part of a proposed increase in gas use in India's energy mix. However, ongoing changes in global gas demand and supply structures due to geopolitical disturbances and resultant volatility have eroded any economic advantage provided by the fossil fuel. It can no longer be considered a cheaper alternative.

Energy Security at Risk

India has set a target of 500 million metric standard cubic metres per day (MMSCMD) of gas consumption by 2030. On the other hand, gas production is expected to peak at 113MMSCMD in 2026 and fall to 90MMSCMD by 2030. This would translate to India importing more than 80% of its gas in 2030 if the country meets that consumption target. One argument favouring transitioning to natural gas is to lower India's dependence on imported oil and coal. However, even if gas could meet the country's energy needs, is it really the best bridge fuel for India?

Affordability Under Question

The energy crisis following Russia's invasion of Ukraine offers insight into the affordability challenge of LNG dependence. For instance, the gas-based power tariff in India was so high after the global price spike in 2022 that the government introduced a high-price day ahead market (HP-DAM) for gas-based and imported coal-based electricity. It was capped at Rs50 (US$0.59) per kilowatt-hour (kWh), which was lowered to Rs20 (US$0.24) per kWh as there were no takers. In contrast, the ceiling price for power exchanges was kept at Rs12 (US$0.14) per kWh. Even for compressed natural gas (CNG), affordability is a concern. Since May 2023, there has been a decline in domestic gas supply to city gas retailers, which is more affordable, resulting in dependence on expensive LNG imports. In response, CNG retailers have increased prices for consumers. The price for October 2024 is already 4% higher than October 2023 and will likely increase by another 5-8% in the coming months as LNG becomes pricier.

Impact on Industrial Output

High gas prices and inadequate supplies during the 2022 Russia-Ukraine crisis affected India's power and industrial sectors, casting doubts on LNG being a reliable fuel. While the industrial use of gas, especially for small- to medium-scale industries, is on the rise in India, domestic sources supply the majority. Gas consumers outside the fertiliser sector quickly switch fuels when prices are high. IEEFA analysis found that, "The move back to gas is sluggish, even with favourable prices. In 2022, when spot prices reached new highs, LNG imports fell 17%, but the recovery in 2023, when rates eased, was only 9%."

High Subsidy Burden

LNG imports have placed a high fiscal subsidy burden on some countries. In India, this subsidy burden was Rs1.65 trillion (US$20 billion) for the fertiliser sector alone in FY2022-23 due to the high cost of LNG imports that year. For FY2023-24, about 86% of the gas consumed by the fertiliser sector was imported LNG with a subsidy burden of about Rs1.28 trillion (US$15.29 billion).

In addition, the domestic gas price has been capped at US$6.50/MMBtu (Rs546.45/MMBtu) since April 2023. However, the actual calculated gas price has been consistently higher. For instance, in October 2024, the actual price of domestic gas was calculated at US$7.48/MMBtu (Rs628.84/MMBtu). Gas-producing companies or the government budget will have to meet the gap between the ceiling and actual prices.

Stranded Asset Risk

High LNG prices also pose a major stranded asset risk for gas-based sectors. Gas-based power plants are running at a low plant load factor (PLF). They reached a four-year high PLF of just 21.4% during the peak demand of April 2024. On average, the PLF for operating plants has been under 15%. Notably, more than half of India's gas-based power plants are either stranded or operating at suboptimal levels due to the lack of affordable fuel.

The CGD sector also faces stranded asset risks as the rapid expansion of CNG stations outstrips consumption. The number of CNG stations and piped natural gas (PNG) connections increased by 38% from March 2022 to March 2024, while gas consumption in the CGD sector increased by only 12% over that period.

Fuel Diversification could be the Right Strategy

India should re-evaluate its strategy of increasing reliance on LNG as a fuel amid persistent market volatility. Not only are LNG trade flows disrupted by geopolitical disturbances, but prices appear sensitive to many other factors, as the large swings in monthly prices over the past year demonstrate. This does not augur well for a price-sensitive country such as India, leading to economic and environmental harm. Gas demand is price elastic, but downstream gas assets are capital-intensive. Therefore, investments need to be clearly evaluated as volatile prices result in miscalculations in project returns and hamper profitability.

A wiser strategy for India would be to invest in diversifying fuel sources and increasing the share of renewable energy in the energy mix to insulate the economy from entrenched LNG price volatility.

India's focus on new technologies and inclination to gain global leadership in producing and exporting greener fuels could help it move away from LNG dependence. Green hydrogen and green ammonia, along with the increasing awareness of natural fertilisers, could lower the dependence on gas in the fertiliser sector, which has few alternatives. For the other sectors, gas is already competing with other, cheaper traditional fuels and new fuels that are becoming increasingly competitive. Gas use must be limited to sectors with no other competitive alternatives to help lower high prices and ensure India's energy security.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

About the Author

Purva Jain is an Energy Specialist, Gas & International Advocacy at IEEFA. She has more than eight years' experience in the energy and development sectors. Her areas of policy interest include renewable energy, climate change, energy subsidies, electric vehicles and sustainable development. pjain@ieefa.org