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Strategic Advisory Report

Industrial Impact of Natural Gas Supply Cut

Focus: Glass Manufacturers

March 2026

India’s Import Landscape

HS271111 corresponds to Liquefied Natural Gas (LNG) under the broader category of petroleum gases and other gaseous hydrocarbons. LNG is a critical energy input for several sectors in India, including fertilizers, petrochemicals, chemicals, ceramics, glass, textiles, and steel (particularly Direct Reduced Iron units). As domestic natural gas production remains insufficient to meet demand, India relies heavily on imports to ensure energy security and industrial continuity.

Over the past five years, India’s imports of HS271111 have shown significant fluctuations, reflecting global energy market volatility, demand recovery after the pandemic, and geopolitical developments affecting LNG supply chains.

Table: India’s import value of HS271111 (in US\$ billions)

India’s Top Importers 2024	2020	2021	2022	2023	2024
Qatar	3.34	4.76	8.54	6.53	6.50 (43%)
United States of America	0.83	2.07	1.75	1.43	2.57 (17%)
United Arab Emirates	0.79	1.50	2.85	2.23	1.74 (11%)
Angola	0.60	0.63	0.56	0.45	1.07 (7%)
Oman	0.38	0.74	1.03	0.45	0.81 (5%)
Nigeria	0.90	0.85	1.00	0.42	0.81 (5%)
India’s Total Imports of HS2711	7.91	12.08	17.77	13.26	15.21

Source: International Trade Centre

India’s LNG import basket is moderately concentrated, with Qatar accounting for around 43% of imports in 2024, making it the dominant supplier. Other important suppliers include the United States, United Arab Emirates, Angola, Oman, and Nigeria.

Two structural patterns emerge from the data:

- Strong Dependence on Middle Eastern Suppliers: A substantial share of LNG imports originates from the Middle East (Qatar, UAE, and Oman). This increases exposure to geopolitical tensions in the region.
- Growing Diversification: Imports from the United States and African suppliers such as Angola and Nigeria have increased, reflecting efforts to diversify sourcing and reduce regional concentration risk.

Despite diversification efforts, the Middle East remains a crucial node in India’s LNG supply chain due to geographic proximity, established long-term contracts, and competitive pricing.

Given the scale of LNG imports and the concentration of suppliers in the Middle East, a prolonged regional conflict could have several consequences for India:

- Short-term price increases due to market uncertainty and higher freight costs
- Supply disruptions or shipment delays, particularly from Qatar and other Gulf suppliers
- Greater reliance on alternative suppliers, such as the United States and African exporters
- Increased volatility in domestic gas availability, affecting energy-intensive industries

Impact Assessment

Glass manufacturing is another highly energy-intensive process where natural gas is used in furnaces for melting raw materials.

Why will disruption occur?

- Glass manufacturing assets, including float, container, and fiberglass furnaces, operate at extremely high temperatures of 1,400–1,600°C, and are engineered for continuous, uninterrupted operation. Any forced shutdown can lead to irreversible structural damage to the furnace. Even marginal reductions in gas supply destabilize melt temperature, triggering viscosity shifts that compromise product quality and increase the risk of defects, refractory stress, and production loss.

Where technical bottlenecks appear

- Industrial glass furnaces—across float, container, and fiberglass operations—are designed to run on high-calorific, stable natural gas to maintain precise thermal profiles throughout the melt tank and combustion zones. Consistent calorific value and pressure are essential for sustaining controlled melt temperature, combustion efficiency, and refractory longevity.
- While alternative fuels such as LPG or heavy fuel oil (HFO) may be technically deployable, their effective use requires burner system recalibration to accommodate different flame characteristics, combustion behaviour, and energy density.
- Even minor fluctuations in natural gas pressure can destabilize thermal conditions within the furnace. The doghouse region, where batch material is charged into the furnace—is particularly vulnerable.

Expected disruption intensity

- Lower furnace throughput due to fuel shortages.
- Operational challenges because glass furnaces are designed for continuous operation and cannot easily be shut down without risking equipment damage.
- Increased costs if alternative fuels are used.

Analytical Approach

The analysis considers four natural gas disruption scenarios—10%, 20%, 30%, and 40% reductions in gas supply. The glass sector is assumed to have 90% gas dependency, reflecting the dominant role of natural gas in industrial glass furnaces.

Production impact is estimated using a proportional dependency model, where a reduction in gas supply affects the share of production dependent on natural gas. The resulting production loss percentage is then applied to the sector's revenue baseline to estimate potential financial losses.

The estimated average revenue of the glass manufacturing sector used in this assessment is ₹3,25,13,08,874.06.

Scenario Analysis

Under a 10% gas supply disruption, the glass manufacturing sector would experience an estimated 9% production impact, leading to revenue losses of approximately ₹29.26 crore. At this level, manufacturers may continue operations with limited capacity adjustments.

If gas supply declines by 20%, production impact increases to 18%, resulting in estimated revenue losses of approximately ₹58.52 crore. At this stage, furnace operations may need to be optimized, or production schedules adjusted to manage fuel constraints.

In the case of a 30% gas supply reduction, production impact rises to 27%, translating into revenue losses of approximately ₹87.78 crore. Such disruptions may lead to partial shutdowns of furnace lines, particularly in smaller or energy-intensive glass manufacturing units.

Under a severe disruption scenario of 40%, production impact could reach 36%, resulting in estimated revenue losses of approximately ₹117.04 crore. Due to the continuous nature of glass furnace operations, prolonged supply disruptions at this level could lead to furnace instability and significant operational challenges.

Scenario	Gas Supply Cut	Gas Dependency	Production Impact	Revenue (₹)	Estimated Revenue Loss (₹)
Scenario 1	10%	90%	9%	325.13 crores	29.26 crores
Scenario 2	20%		18%		58.52 crores
Scenario 3	30%		27%		87.78 crores
Scenario 4	40%		36%		117.04 crores

Strategic Implications

The analysis indicates that the glass manufacturing sector has very high operational sensitivity to natural gas supply disruptions due to its heavy reliance on gas-fired furnaces. Unlike some other manufacturing sectors, glass production processes often require continuous high-temperature operations, limiting the flexibility to rapidly adjust production levels.

Significant gas supply constraints could therefore lead to capacity underutilization, furnace shutdown risks, and increased operational costs, particularly for small and medium-sized manufacturers.

Conclusions

A structured impact assessment reveals the following insights:

- Glass manufacturing, operating with 90% dependency and continuous furnace operations, exhibits severe vulnerability. Production losses under supply cuts range from 9% to 36%, corresponding to revenue impacts of ₹29 crore to ₹117 crore. Extended disruptions pose additional technical risks, including furnace damage.

MFS Offerings

Following our sectoral engagements, we invite industry leaders to connect with MFS for a customised impact assessment report tailored to their specific operations. Our assessment provides clear, actionable intelligence to support urgent decision-making during the ongoing gas supply constraints. Your customised report will answer:

- **What proportion of your production is at risk?** Quantified impact based on your plant configuration, dependency levels, and process sensitivity.
- **What is the estimated revenue loss?** Data-driven financial analysis under multiple supply-cut scenarios.
- **What is the potential loss in export value?** Insight into downstream trade implications and implications for global commitments.

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