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# DEVELOPING GEORGIA'S LNG MARKET: PROSPECTS AND IMPLICATIONS FOR ENERGY SECURITY

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## ABSTRACT

Liquefied natural gas (LNG) is becoming increasingly vital for energy security, supply diversification, and global energy competition. In response to recent developments, several EU member states have expanded LNG infrastructure to reduce reliance on Russian gas and improve the sustainability of Europe's gas system. This report explores the potential for developing Georgia's LNG market, covering LNG fundamentals, liquefaction and regasification technologies, the current EU LNG landscape, opportunities for LNG exports to the Black Sea through the Bosphorus, and Georgia's share of LNG in overall natural gas demand.

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## KEYWORDS

Liquefied Natural Gas, LNG, Black Sea, Georgia, Energy Diversification, Energy Security

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## Introduction.

Diversifying natural gas sources has become a priority for many countries, particularly within the European Union, to reduce reliance on Russian gas. In recent years, the EU has invested in LNG infrastructure to bolster energy security. Global LNG trade has grown substantially: LNG is a competitive option for countries lacking pipeline access or those geographically distant from gas suppliers. Over the past three decades, LNG trade has expanded significantly. By the end of 2022, global LNG regasification capacity reached 1,068 million tonnes per year. In 2022, nine new regasification terminals began operation, adding 3.4 million tonnes of annual capacity. EU LNG imports increased by 60% year-on-year, totaling 44.7 million tonnes, and EU countries accounted for about 31% of global LNG imports. The growth reflects a strategic shift away from dependence on Russian gas. LNG's growing reliability as an alternative to pipeline gas has increased regional dependence on LNG. LNG imports come from roughly 20 exporting countries, with Australia, Qatar, and the United States accounting for a substantial share of global production; these suppliers collectively serve substantial portions of EU demand. European and regional LNG infrastructure development highlights the ongoing diversification trend.<sup>1</sup>

## LNG Technology

LNG is natural gas cooled to approximately  $-161^{\circ}\text{C}$ , reducing its volume about 600-fold. The liquefaction process comprises three stages: (1) initial cooling to  $-30$  to  $-50^{\circ}\text{C}$  using propane or a propane/ethane mix; (2) further cooling to around  $-100$  to  $-135^{\circ}\text{C}$  using methane, ethane, and related gases; (3) final conditioning to  $-161^{\circ}\text{C}$  with methane and nitrogen to achieve liquefaction. LNG's high density enables transport by tanker, rail, or road, and critically, it reduces or eliminates the need for pipeline corridors. LNG is typically regasified at coastal regasification terminals and delivered to consumers via gas networks. LNG tankers are specialized vessels designed to maintain cryogenic temperatures.<sup>2</sup>

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<sup>1</sup> The Influence of New LNG Terminals on the Future of EU Energy Market, Council of European Energy Regulators, 16 February 2024;

<sup>2</sup> „Extraction, transport, process and utilization of Oil and Gas”, Teimuraz Gochitashvili, Tbilisi, 2024

## Natural Gas Sector of Georgia

Azerbaijan remains Georgia's primary natural gas supplier. In 2024, Georgia's natural gas consumption reached 3,011 million cubic meters, slightly above the previous year. In 2024 about 99.5% of demand was met through imports; domestic production provided the remainder. At the wholesale level, the Herfindahl-Hirschman Index (HHI) stood at 6,212, indicating a highly concentrated market, with concentration arising from limited import sources rather than structural competitive failure. The market structure suggests that wholesale competition would require targeted policy measures. In the long term, diversifying sources to include LNG imports could enhance competition, subject to regulatory reforms and supplier interest.<sup>1</sup>

## LNG prospects for Georgia

Assessing LNG imports via the Bosphorus to the Black Sea requires consideration of bottlenecks in straits and regional infrastructure. The Bosphorus is strategically narrow (with 31 km length and 3.7 km width at the widest parts. At some parts, however width is 700 meters and the depth ranges from 36.5 meters to 125 meters) that limits capacity for large-scale LNG imports. Consequently, Georgia's LNG strategy may prioritize smaller LNG carrier vessels (20,000–45,000 m<sup>3</sup>) capable of navigating constrained straits. Smaller vessels (e.g. YUAN HE<sup>2</sup> with the technical characteristics – length - 181 meters, width - 28 metres, capacity - 26,000 tonnes) illustrate the transport potential in the area. If regasified upon arrival, such volumes could contribute a meaningful share of Georgia's annual demand; for a representative calculation, 73,580 m<sup>3</sup> of LNG equates to roughly 44.15 million m<sup>3</sup> of gas after regasification<sup>3</sup>, representing about 1.5% of annual consumption. While incremental, this could augment supply diversity and security, particularly in concert with pipeline gas and domestic production.

## Summary

Developing Georgia's natural gas infrastructure, including LNG facilities, could diversify supply and strengthen energy security. If Georgia proceeds with LNG infrastructure investment, it could emerge as a regional player. Given Bosphorus capacity constraints, any LNG import strategy should be evaluated with a rigorous cost–benefit analysis to determine whether projected LNG volumes would meaningfully contribute to annual consumption.

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<sup>1</sup> Report on Activities of 2024 of Georgian National Energy and Water Supply Regulatory Commission, [www.gnerc.org](http://www.gnerc.org)

<sup>2</sup> YUAN HE 1 | Oceanjoin

<sup>3</sup> 1 tonnes =2.83 cub.meters, [www.unitconverters.com](http://www.unitconverters.com)