

## Exporting liquefied natural gas (LNG): America's emerging energy arsenal

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**Liquefied natural gas (LNG) has an important and strategic role to play in global energy production. The United States has rapidly emerged as a major player in this arena. With abundant supply from the shale revolution, the US has transitioned from an importer of oil and natural gas to an exporter in less than a decade. This research note explains the basics of LNG, the evolution of the US export market, its impact on global energy security, and several ways institutional investors may be able to access opportunities in this growing market.**

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### Key takeaways

- The United States has rapidly transitioned from an LNG importer to a leading exporter. Driven by the shale gas revolution and regulatory changes, the US now plays a crucial role in global LNG supply, providing flexibility and energy security for importing countries.
- LNG offers increased flexibility over pipeline gas, enabling suppliers to respond efficiently to global price fluctuations. In addition, LNG enhances geopolitical resilience by allowing importing nations to diversify supply sources and decrease reliance on a single producer.
- There are currently eight major operational LNG export terminals in the US, primarily along the Gulf Coast. These facilities operate near peak capacity, indicating near-maximum utilization and potential for continued expansion.
- Investors have multiple avenues for gaining exposure to the LNG sector, including public market investments, private funds, and direct investments. These opportunities span a wide range of strategies, assets, and risk-return profiles, allowing institutions to tailor their exposure.

## What is LNG?

Liquefied natural gas is natural gas cooled to approximately -260°F (-162°C). This liquefaction process reduces its volume by about 600 times, making it more efficient for storage and transport.<sup>1</sup> The process occurs at export terminals equipped with specialized cryogenic technology. The global LNG trade is facilitated by a fleet of over 800 LNG vessels (i.e., tankers), connecting producers in North America and the Middle East to high-demand regions like Asia and Europe.<sup>2</sup> LNG is then re-gasified at terminals located near demand centers, which convert LNG back into a gaseous state for injection into local pipeline networks.

<sup>1</sup> Source: EIA, "Natural Gas Explained: Liquefied Natural Gas," June 21, 2024.

<sup>2</sup> Source: International Group of Liquefied Natural Gas Importers, 2025 Annual Report.

Compared to pipeline natural gas, LNG provides greater flexibility, allowing suppliers to respond quickly to global price signals and reroute shipments as market conditions change. It also provides geopolitical resilience, enabling importing countries to diversify their supply sources and reduce dependence on any single producer. Additionally, the process of liquefaction and transport allows for monetization of gas reserves that would otherwise be stranded due to lack of local pipeline infrastructure.

## From prohibition to prominence

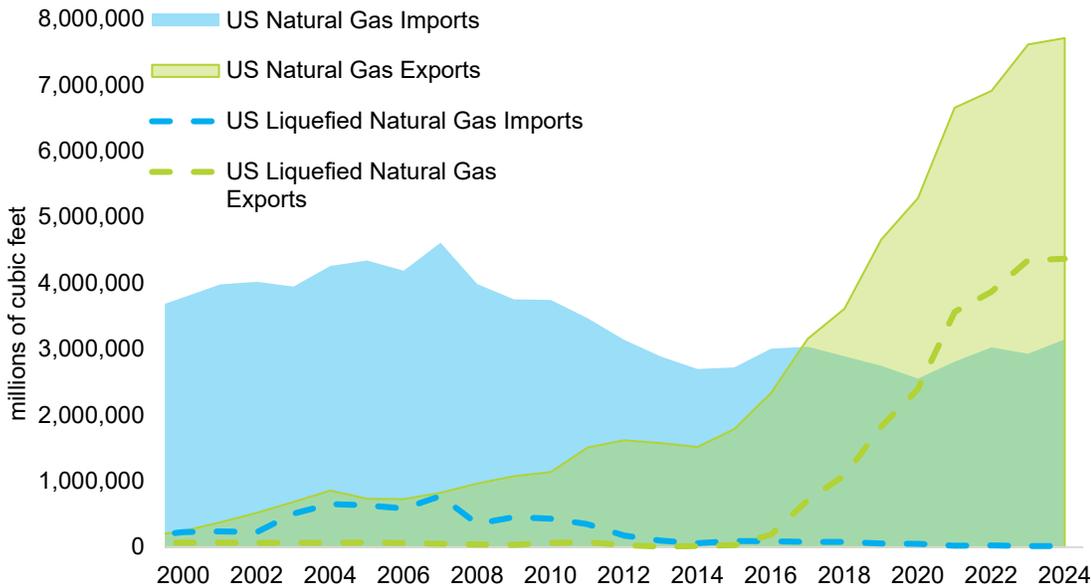
US LNG exports were effectively prohibited until the early 2000s, when changing market dynamics and regulations began to open the sector. The Energy Policy Act of 2005 was crucial for LNG's development as it streamlined the permitting process for export terminals and transferred terminal approval authority to the Federal Energy Regulatory Commission (FERC).<sup>3</sup> Though not a direct "Act", in recent years, federal policy has trended toward expedited permitting for export terminals, especially when exports are deemed in the national interest.

<sup>3</sup> Source: US House of Representatives, Energy Policy Act of 2005, H.R. 6, 109th Cong. (2005).

<sup>4</sup> Source: EIA, "Natural Gas Explained: Where our natural gas comes from" December 21, 2023.

The shale gas revolution of the mid-2000s, driven by technological advancements in hydraulic fracturing and horizontal drilling, enabled producers to economically access vast reserves of natural gas from shale formations and increase domestic production.<sup>4</sup> This breakthrough, along with continued operational improvements and efficiencies, and natural gas export-friendly legislation (discussed above), paved the way for the US to fully capitalize on the global natural gas market. US natural gas exports have grown rapidly over the past two decades as imports have declined, largely driven by the development and expansion of liquefied natural gas facilities in the US (see Figure 1). As of 2024, liquefied natural gas comprised just over 50% of all US natural gas exports, a substantial increase from nearly 0% prior to the first LNG terminal opening in 2016.<sup>5</sup>

<sup>5</sup> The US also exports natural gas in non-LNG form, primarily as pipeline gas, and almost all of that goes to Canada and Mexico.



**FIGURE 1**  
Annual US Natural Gas Exports and Imports (MCF)

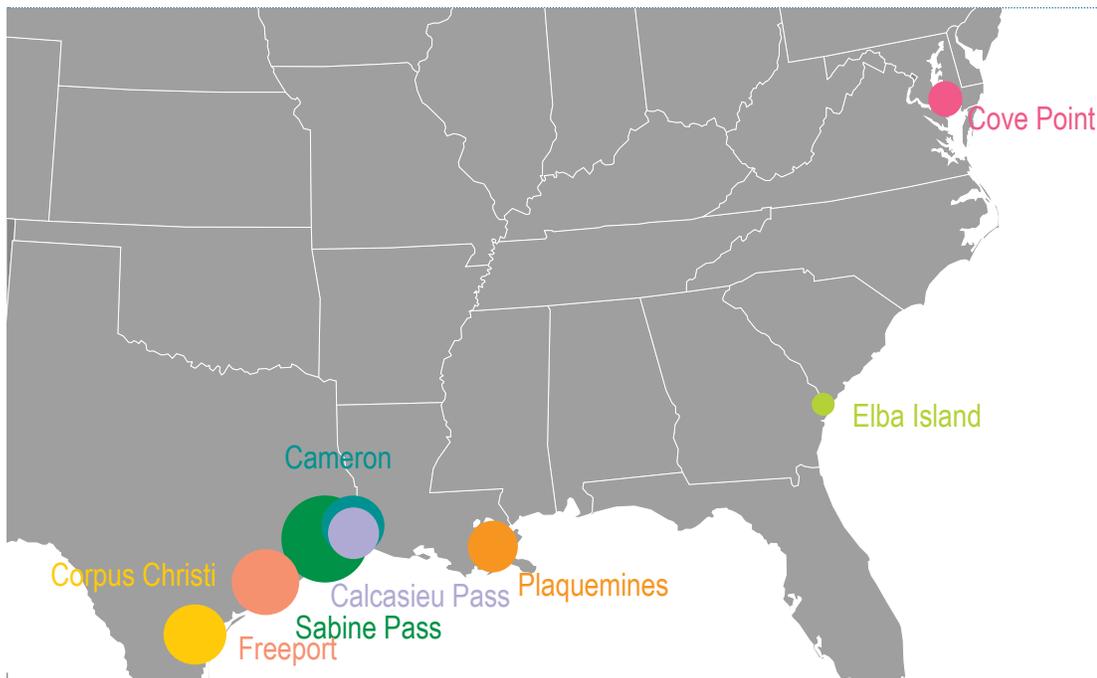
Source: US Energy Information Administration, US Natural Gas Exports and Imports by Country, as of December 31, 2024. Data pulled in July 2025.

## US export capacity and destinations

As of June 2025, there were eight major operational LNG export terminals in the US, concentrated primarily along the Gulf Coast (see Figure 2).<sup>6</sup> These eight facilities averaged a total combined output of roughly 12.0 billion cubic feet per day (Bcf/d) in 2024, representing just over 10% of total natural gas production in the US.<sup>7</sup> It is worth noting that the newest export terminal, Plaquemines, only began services in December 2024 and thus did not contribute substantially to the total annual output. The total peak capacity of these facilities was 14.0 Bcf/d prior to Plaquemines and, with its addition, is now roughly 15.6 Bcf/d, indicating these export terminals are operating at near-peak levels.

<sup>6</sup> Source: US Energy Information Administration, US LNG Export Volume, June 30, 2025.

<sup>7</sup> Source: US Energy Information Administration, US Liquefaction Capacity, June 30, 2025. In 2024, the United States produced an average of 113 Bcf/d of marketed natural gas.



**FIGURE 2**  
Major US LNG Terminals Currently Active

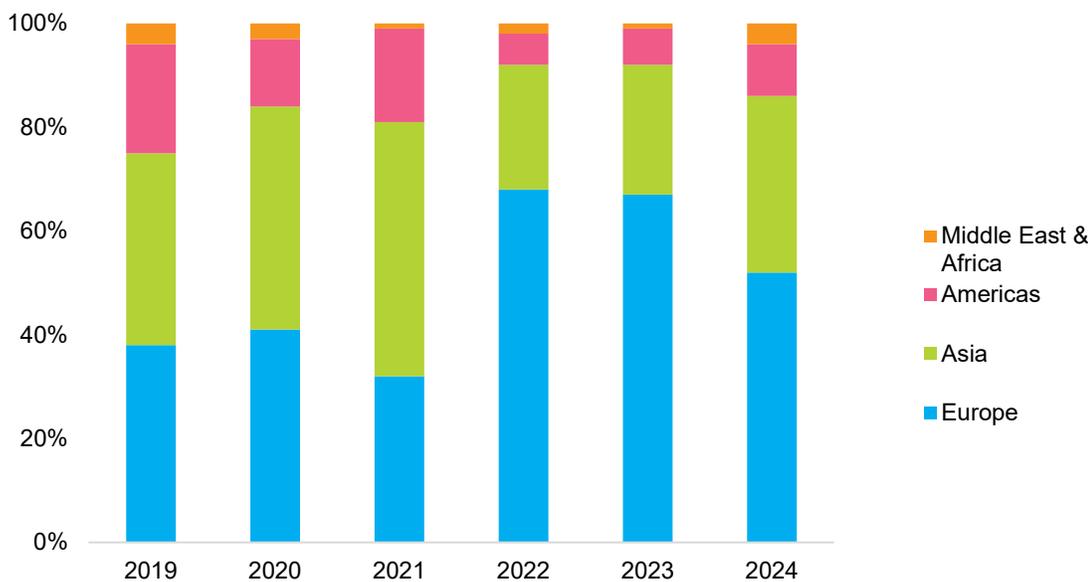
Source: US Energy Information Administration, US Liquefaction Capacity, June 30, 2025. Bubble size is each terminal's peak capacity output potential as of January 2025.

The United States has taken the global LNG market by storm, overtaking the previous top LNG exporters, Qatar and Australia, in 2023 and maintaining its lead in 2024.<sup>8</sup> This is even more impressive considering Qatar and Australia have been jostling back and forth over largest LNG exporter since before the first US terminal opened in 2016. The next largest producers have historically been Russia and Malaysia, though their export volumes remain well below those of the top three.

<sup>8</sup> Source: US Energy Information Administration, "The United States remained the world's largest liquefied natural gas exporter in 2024," March 27, 2025.

The Russian invasion of Ukraine in 2022 had a significant impact on LNG exports from the US (see Figure 3). Europe has been the primary destination for US LNG exports since then, accounting for ~53% of US total LNG exports (6.3 Bcf/d) in 2024, followed by Asia at ~33% (4.0 Bcf/d) and a multitude of other regions such as the Middle East, North Africa, and Latin America that accounted for a combined ~14% (1.6 Bcf/d).<sup>9</sup>

<sup>9</sup> Ibid.



**FIGURE 3**  
**US LNG Destinations**

Source: International Group of Liquefied Natural Gas Importers, 2025 Annual Report.

## Energy security

LNG provides the flexibility to deliver natural gas to regions not connected by physical pipelines as well as the ability to respond quickly and redirect shipments in response to geopolitical events or price signals. Additionally, LNG contracts tend to be long term in nature, which helps provide stability to both producers and end-use customers. These qualities position it as a critical tool for enhancing global energy security, balancing supply-demand mismatches, and providing resilience in times of market disruption or crisis.

Strategically, LNG allows the US to buffer global supply shocks and provide allies with alternatives to politically unstable or adversarial sources, such as Russia or Iran. For example, in the aftermath of the 2022 invasion of Ukraine and sabotage of the underwater Nord Stream pipeline, US LNG became crucial to European energy

security, replacing lost pipeline volumes and preventing severe energy shortages. Several European countries, including Germany, the Netherlands, Italy, and France, have fast-tracked LNG import and regasification terminals. LNG exports from the US to Europe more than doubled between 2021 and 2023, meeting the spike in demand from Europe over this period.<sup>10</sup>

<sup>10</sup> Source: US Energy Information Administration, "The United States remained the largest liquefied natural gas supplier to Europe in 2023," February 29, 2024.

On the domestic front, LNG export growth supports robust natural gas production, stabilizing prices and encouraging long-term investment in infrastructure and domestic energy production. This contributes to energy reliability during peak demand periods, especially in the power generation and industrial sectors. Furthermore, LNG terminals along the Gulf Coast create regional economic resilience through job creation, state revenue, and local development initiatives. However, it is important to recognize that many of these facilities are vulnerable to disruptions caused by severe weather events, such as hurricanes and storm surges, which pose ongoing risks to operational continuity and supply reliability.

## Opportunities for institutional investors

Institutional investors have multiple avenues for gaining exposure to the natural gas and liquefied natural gas sectors. These investment opportunities span a wide range of strategies, asset classes, and risk-return profiles, allowing institutions to tailor their exposure based on their mandates, time horizons, and liquidity preferences.

### Public Markets

One of the most accessible ways for institutions to participate in the LNG value chain is through investments in publicly traded companies. These firms may be involved in:

- The development and operation of LNG export and import terminals, which are vital infrastructure assets in the global energy system,
- Exploration and production of natural gas, particularly in regions with abundant shale or conventional gas reserves, and
- Transportation and distribution of natural gas, either via interstate pipeline networks or through LNG shipping vessels.

Public equities offer the advantage of high liquidity and market transparency, as they are traded on major stock exchanges and subject to regulatory reporting standards. This makes them a practical entry point for investors seeking flexible exposure with relatively lower transaction costs. Moreover, listed energy companies often provide diversified revenue streams, global footprints, and the potential for dividend income.

## Private Funds

For institutions with a long-term investment horizon and a higher tolerance for illiquidity, private infrastructure and energy-focused private equity funds offer deeper and potentially more focused exposure to the sector. These commingled vehicles typically invest in capital-intensive assets such as:

- LNG terminals and storage facilities,
- Midstream infrastructure (e.g., pipelines, compression stations),
- Upstream natural gas exploration and production activities, and
- Shipping fleets used for LNG transport.

In 2012, a private fund helped convert and develop an existing LNG import terminal into the US' first LNG export terminal, Sabine Pass LNG, in Louisiana.<sup>11</sup> Currently, there are several private fund managers that are investors in LNG export facilities at various stages of development and operations. Private funds are often structured with multi-year lock-up periods and are designed to offer the potential for higher returns in exchange for limited near-term liquidity. They are often well-suited for institutional investors that prioritize long-term capital growth.

<sup>11</sup> Source: Cheniere Energy.  
<https://cheniere.com/about/history>

It is important to note that private fund investments typically involve higher fees and expenses compared to public equities, including management and performance fees. However, these funds may offer attractive co-investment opportunities, potentially allowing institutional investors to deploy capital directly into specific deals at lower or no additional fees. These co-investments can help increase exposure to high-conviction assets while enhancing fee efficiency.

## Direct and Co-Investments

Large and sophisticated institutional investors may also pursue direct investments or co-invest alongside private fund managers in LNG infrastructure projects. These investments may target greenfield development opportunities or the acquisition of existing assets, such as:

- LNG export terminals under construction or expansion,
- Joint ventures with national oil companies (NOCs) or global energy majors, and
- Strategic partnerships in emerging markets with high energy demand.

Direct participation allows institutions to exercise greater control over investment decisions, influence project governance, and potentially capture a larger share of project economics. However, these investments require specialized expertise, extensive due diligence, and the capacity to manage regulatory, geopolitical, and construction risks.

## Debt Instruments

In addition to equity participation, institutional investors can gain exposure to the LNG sector through credit strategies. Given the capital-intensive nature of LNG projects, developers often raise substantial amounts of debt to finance construction and operations. Investors can participate by investing in project finance loans, investment grade or high yield corporate bonds, or originating new debt. These debt instruments allow investors to target specific assets and locations in the capital structure that align with their return objectives and risk appetite. Fixed income investments can provide predictable cash flows, and in many cases, are supported by long-term off-take agreements or take-or-pay contracts that reduce default risk.

## Looking ahead

There are several key factors to consider when looking into LNG's future, specifically: global supply, global demand, prices, and technological advancement.

Numerous new LNG export terminal projects are slated for completion prior to 2030, with the United States and Qatar dominating the anticipated build-out.<sup>12</sup> In the US, five major terminals and one addition to an existing terminal are currently under construction and expected to become operational within the next five years. Once these facilities are active, they are projected to nearly double the US' peak production capacity, though this may vary depending on completion timing.<sup>13</sup> Overall, global LNG projects are set to add almost 50% to available export capacity by 2030.<sup>14</sup>

The question then becomes whether demand will keep up or if there will be a surplus in the market. According to the International Energy Agency (IEA), global demand is expected to continue growing by more than 2.5% per year to 2035.<sup>15</sup> This equates to a roughly 30% overall increase in global demand by 2035. China, India, and Southeast Asia are expected to drive nearly all of the increase, while Europe and Japan are expected to have stable or declining demand.<sup>16</sup> However, it is important to note that these are estimates that can be influenced by a multitude of factors such as geopolitics and trade policies, natural disasters, weather, and climate change, among others.

A related question is whether the US upstream and midstream energy sectors will be able to meet this increase in demand (and do so without stoking an increase in domestic natural gas prices). LNG prices have historically traded at a premium to domestic natural gas prices due to liquefaction, transport, and regasification costs.<sup>17</sup> However, the gap between liquefied natural gas and traditional natural gas may narrow as LNG's supply increases and infrastructure improves, though this remains to be seen. As of June 2025, the US has 104 planned or under-construction transmission pipelines, with a combined additional capacity of around 99 Bcf/d, almost the equivalent of total US gas production in 2024.<sup>18</sup> Many of these pipelines are expected to be operational by 2030, helping to alleviate takeaway constraints and support growing LNG export, industrial, and power demand.

<sup>12</sup> Source: International Group of Liquefied Natural Gas Importers, 2025 Annual Report.

<sup>13</sup> Source: US Energy Information Administration, US Liquefaction Capacity, June 30, 2025.

<sup>14</sup> Source: IEA, 2024 World Energy Outlook, October 2024.

<sup>15</sup> Source: IEA, 2024 World Energy Outlook, October 2024. The Stated Policies Scenario (STEPS) reflects a trajectory based on current policies and measures that have already been enacted or officially announced by governments as of mid-2024, without assuming further policy advancements. See the IEA for more information.

<sup>16</sup> Source: IEA, 2024 World Energy Outlook, October 2024.

<sup>17</sup> Source: EIA, "EIA explores effects of liquefied natural gas exports on the U.S. natural gas market," May 24, 2023.

<sup>18</sup> Source: "Tidal Wave" report by the Center for Energy, Environment, and Accountability (CEEA), June 2, 2025. The report underscores that 80% of these pipelines are aimed at supporting LNG export terminals. Bcf/d refers to billions of cubic feet per day.

Finally, technological advances are reshaping LNG logistics and economics. Modular liquefaction units, floating LNG platforms, and digitalization in asset operations are making projects more scalable, efficient, and faster to deploy. The future of LNG may also be shaped by its integration with clean energy solutions. Terminal developers are exploring carbon capture and storage (CCS) to reduce emissions by capturing and storing CO<sub>2</sub> from LNG operations. Some are also pursuing blue hydrogen, which uses natural gas to produce hydrogen while applying CCS to lower the carbon footprint. These strategies are designed to help ensure LNG's role in the global energy market remains viable amid growing decarbonization goals.

## Conclusion

The liquefied natural gas industry is of growing importance in the global energy market. The process of turning natural gas into LNG allows for easier storage and transport, connecting producers in places like North America and the Middle East with high-demand regions such as Asia and Europe. This flexibility helps suppliers respond quickly to market changes and supports energy security by diversifying supply sources. The US has become a major player in the global LNG market, surpassing traditional exporters like Qatar and Australia.

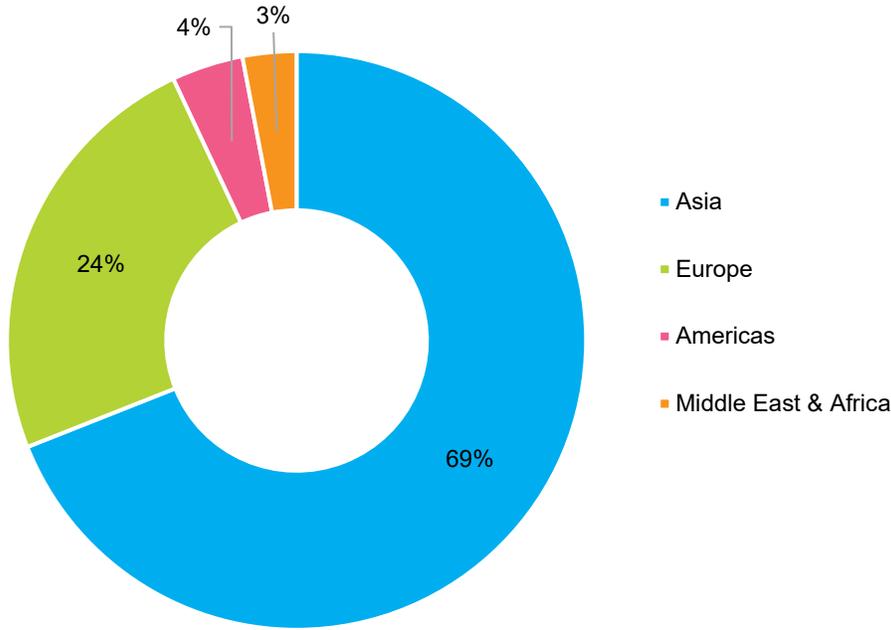
The global LNG landscape is poised for significant expansion, with major export capacity increases expected by 2030. However, the ability of demand to keep pace with supply remains uncertain, influenced by evolving geopolitical, economic, and environmental factors. Technological advancements, such as modular liquefaction units and the integration of carbon capture solutions, are set to make LNG projects more efficient and environmentally sustainable. As global demand for LNG continues to rise, the US is well-positioned to meet this demand and contribute to global energy security and economic resilience.

LNG's future will be shaped by dynamic market forces, technological innovation, and the industry's ability to adapt to shifting energy demands and sustainability goals. The LNG sector presents investors with a broad spectrum of opportunities, ranging from public market investments to private funds and direct investments. Investors considering exposure to this sector must balance the potential for attractive returns with the inherent risks and complexities of large-scale energy infrastructure. Careful due diligence and ongoing evaluation will be essential for navigating the evolving LNG market and capitalizing on its growth potential.

## Appendix: global LNG imports

Despite accounting for a third of US LNG exports in 2024, Asia was by far the largest global consumer of LNG, accounting for 69% of total global imports (see Figure 4).<sup>19</sup> The discrepancy is largely attributable to China, who was the largest country importer of LNG in 2024 but only received ~6% of its supply from the US, exemplifying the role geopolitics play in the liquefied natural gas market.

<sup>19</sup> Source: International Group of Liquefied Natural Gas Importers, 2025 Annual Report.



**FIGURE 4**  
2024 Global Imports by Region

Source: International Group of Liquefied Natural Gas Importers, 2025 Annual Report.

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