

U.S. LNG-related studies examining GHG emissions, Global Demand, and Domestic Impacts

Below is a list of recent studies examining the climate, economic, and geopolitical benefits of U.S. LNG exports.

- 2024 report by Energy Futures Initiative, “[The Future of Natural Gas in a Low-Carbon World](#)”. It found that the combination of current market conditions, energy security needs, longer-range global and regional forecasts, technology needs and limitations, and national policies analyzed suggest that natural gas and LNG will be a mainstay in the energy systems for the near and midterm - and, depending on the country/region, in the longer term.
- 2024 report by Energy Ventures Analysis, “[Impact Analysis of U.S. Natural Gas Exports on Domestic Natural Gas Prices](#)”. It found that that exports have had little to no impact on domestic prices, and further argues that the ability to build pipeline infrastructure is a key driver of continued access to low-cost natural gas.
- 2024 report by ICF, “[Lifecycle GHG Emissions of U.S. LNG Exports](#)”. It found that US LNG exports have lower lifecycle GHG emissions compared to using the expected mix of alternative fuels that would most likely replace imported US LNG. Without US LNG exported abroad, that energy would be replaced with 54% coal, 34% fuel oil, 16% domestic natural gas, and 7.8% renewable sources.
- 2024 report by Rystad Energy, “[US LNG to Asia for Power Generation Expected to Cut emission Versus Coal](#)”. It found that value-chain emissions of LNG are lower on average than for coal-fired power generation, even when the fuel is shipped over long distances.
- 2024 report by Ceres and Clean Air Task Force, “[Benchmarking Methane and Other Greenhouse Gas Emissions Of Oil & Natural Gas Production in the United States](#)”. It found that methane and GHG intensity declined 31% and 17%, respectively, between 2020 and 2022 due to a reduction in methane and total GHG emissions reported to EPA and an increase in natural gas and total hydrocarbon.
- 2024 report by Berkely Research Group, “[Comparative GHG Footprint Analysis for European and Asian Supplies of USLNG, Pipeline Gas, and Coal](#)”. It found that GHG emissions intensity of U.S. LNG in 2022 was less than 50% of coal in both Europe and Asia and lower than pipeline gas imported from Algeria, Russia, and Turkmenistan.
- 2024 report by the Breakthrough Institute, “[A Major Paper on Liquefied Natural Gas Exports is Riddled with Errors](#)”. It found that in his study, Howarth used incorrect data

regarding the source of natural gas exported as LNG, leakage rates, and shipping distances, and an “incontrovertibly flawed methodology” to calculate the climate impact of U.S. LNG.

- 2023 report by Rystad Energy, “[Rebalancing European Gas Supplies](#)”. It found that beginning in the late 2020s, Europe could face an even larger supply gap of roughly 18 BCF/D, and U.S. LNG remains among the most competitive options to fill it.
- 2023 report by Rystad Energy, “[Asian Energy Security](#)”. It found that insufficient access to natural gas (LNG) likely will drive Asian countries towards coal.
- 2022 report by U.S. National Energy Technology Laboratory (NETL), “[Life Cycle GHG Perspective on U.S. Natural Gas Delivery Pathways](#)”. It found that production emissions account for most emissions from some scenarios, while midstream (processing and transmission) emissions account for most emissions from other scenarios, highlighting that CH₄ emission rate should not be the sole metric for GHG emission.
- 2021 report by ACS Sustainable Chemistry & Engineering, “[LNG Supply Chains: A Supplier-Specific Life-Cycle Assessment for Improved Emission Accounting](#)”. It found that the Cheniere’s LCA resulted in a lower GHG intensity than other study estimates, when using real world data on emissions reductions techniques implemented by Cheniere and its supply chain.
- 2020 report by ICF, “[Update to the \(NETL\) Life-Cycle Analysis of GHG Emissions for US LNG Exports](#)”. It found that LNG and NG cases exhibit lower emissions in every scenario in comparison to coal. The highest emission impact LNG/NG scenario does not surpass the lowest impact coal scenario in any market.
- 2020 report in Nature Communications, “[Carbon footprint of global natural gas supplies to China](#)”. This report found that LNG imports into China’s population hubs with access to LNG import terminals had dramatically lower GHG intensity than Chinese customers served by pipeline from Russia.
- 2019 report by the U.S. National Energy Technology Laboratory (NETL), “[Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update](#)”. It found that U.S. LNG exports for power production in European and Asian markets will not increase GHG emissions from a life cycle perspective, when compared to regional coal extraction and consumption for power production.