



March 20, 2025

Office of Regulation, Analysis, and Engagement
Office of Fossil Energy and Carbon Management
Forrestal Building, Room 3E-056
1000 Independence Avenue SW
Washington, DC 20585

Re: Docket Nos. 13-69-LNG, 14-88-LNG, 15-25-LNG, 16-28-LNG, 19-134-LNG, 20-23-LNG, 21-131-LNG, 22-39-LNG, 22-167-LNG, 23-34-LNG, 23-46-LNG, 23-87-LNG, 23-109-LNG, 23-137-LNG, 24-27-LNG, and 24-87-LNG, 2024 LNG Export Study: Energy, Economic, and Environmental Assessment of U.S. LNG Exports

Dear Secretary Wright,

Clean Air Council (the Council) submits the following comments in response to the U.S. Department of Energy's (DOE) 2024 liquefied natural gas (*LNG Export Study: Energy, Economic, and Environmental Assessment of U.S. LNG Exports*). Clean Air Council is a nonprofit environmental health organization headquartered in Philadelphia, Pennsylvania, where it has worked to protect everyone's right to a clean and healthy environment for over 50 years. The Council works closely with frontline communities and has thousands of members throughout Pennsylvania and the Mid-Atlantic region who support its mission.

Introduction

The Council thanks the DOE for finalizing the 2024 LNG Export Study (LNG Study), which provides evidence that approving additional LNG exports to non-free trade agreement (NFTA) countries is *not* in the public's interest. For a variety of reasons including increased costs for domestic consumers, harms to health, and worsening climate impacts, the Council urges DOE to uphold these findings and incorporate this new analysis into all pending and future LNG export proposals.

The United States became the world's largest exporter of LNG in 2023 and will likely continue to dominate the global LNG market.¹ The DOE is tasked with ensuring proposed LNG export

¹ Victoria Zaretskaya. (2024, April 1). *The United States was the world's largest liquefied natural gas exporter in 2023*. U.S. Energy Information Administration. <https://www.eia.gov/todayinenergy/detail.php?id=61683>

projects to NFTA countries are in the public's interest before proceeding with the permitting process. The DOE relies on economic and environmental analyses as frameworks to make this determination. Before the 2024 LNG Export Study, the most recent studies were conducted in 2018 and 2019. These studies are now outdated and the U.S. LNG export landscape has changed dramatically in the intervening years, with the United States seeing a 200% growth in LNG exports since then.² This most recent LNG Study aims to update the analysis framework to meet the most up-to-date evidence and ensure future LNG export projects prioritize the health and wellbeing of Americans.

1. Increased LNG exports will drive up costs for domestic consumers because exports will outpace LNG demand.

Exporting U.S. LNG to the global market will increase domestic energy prices and price volatility. Expanding U.S. LNG exports and the LNG marketplace will force American residential and commercial consumers to compete with consumers from other countries; consequently, higher consumer competition for gas will result in higher costs for Americans. This increase in gas prices will also impact electricity rates for the average American family. The United States' reliance on gas-fire electric generation facilities made up over 43% of the nation's utility-scale generation in 2023, and there will likely be a continued dependence on gas-fired electric generating plants for the near future.³ No doubt, low-income households will experience the worst impacts from these price increases.

Domestic gas prices are already subject to climate and geopolitical influences, and the LNG Study only confirmed that further expansion would exacerbate domestic gas price volatility. First, more frequent mild winters resulting from climate change reduce heating demands for gas and put downward pressure on gas prices, with costs ultimately falling on consumers. For example, gas utility companies like Philadelphia Gas Works (PGW) tack on "weather normalization" fees to customers' bills when the winter months are warmer than usual and there is a surplus of gas. PGW uses a formula that accounts for a customer's gas usage as well as previous years' temperature fluctuations compared over the same billing period, which does not account for a baseline upward trend in average winter temperatures.⁴ Most recently, as of March

² U.S. Natural Gas Exports and Re-Exports by Country. (2025, January 31). U.S. Energy Information Administration. https://www.eia.gov/dnav/ng/ng_move_expc_sl_a.htm

³ What is U.S. electricity generation by energy source? (2024, February 29). U.S. Energy Information Administration. <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>

⁴ Erin McCarthy. (2023, September 26). PGW can no longer adjust customers' May bills due to weather fluctuations. The Philadelphia Inquirer. <https://www.inquirer.com/business/energy/puc-pa-gas-bill-weather-normalization-adjustment-20230926.html#loaded>

17, 2025, U.S. gas futures hit a two-week low as a result of mild weather and record levels of output.⁵

Second, geopolitical factors have for decades swayed gas prices, most recently seen with the 2022 Russian invasion of Ukraine. But even before the Ukrainian invasion, Russia prompted a bidding war that brought a surge in European demand for American LNG and led to some of the highest LNG prices in history.⁶ But like all bubbles, this one soon burst. U.S. LNG exporters bought all the gas they could to meet the sudden demand from Europe; however, Europe's shift to use renewable energy left LNG exporters with a gas surplus. The result was American consumers paid the tab of an extra \$111 billion for gas over the coming year.⁷

DOE's LNG Study confirmed that higher levels of LNG exports will increase costs for Americans across the board. The Study and then-Secretary Jennifer Granholm highlighted the "triple-cost increase" for U.S. consumers resulting from increased gas prices, increased electricity prices, and increased consumer prices passed on from U.S. manufacturers.⁸ Residential gas prices were expected to rise as modeled LNG export amounts grew.⁹ Increased LNG exports assumed under existing policies (i.e. Bipartisan Infrastructure Law, Inflation Reduction Act, and Environmental Protection Agency New Source Performance Standards) and expected U.S. oil and gas supply were estimated to drive up costs for the average American household by over \$122 a year and increase wholesale gas prices by over 30% by 2050.¹⁰ Under the same modeled scenario, the Study estimated that industrial sector costs resulting from increased LNG exports would grow by \$125 billion from 2022 to 2050.¹¹

The unfettered pursuit of increasing LNG exports contradicts the Trump Administration's prerogative to lower daily living costs for Americans. Even though the Trump Administration has made clear their intention to expand oil and gas development, grow LNG exports, and repeal climate policies, this clearly contradicts the Administration's platform to lower expenses for Americans. As such, the Council urges DOE to prioritize affordability for Americans by limiting LNG exports abroad.

⁵ Scott Disavino. (2025, March 17). *US natgas prices slide 2% to 2-week low on record output, Waha turns negative*. Reuters.

<https://www.reuters.com/business/energy/us-natural-gas-prices-ease-2-week-low-record-output-negative-waha-price-s-2025-03-17/>

⁶ Clark Williams-Derry. (2024, January 29). *Gas exports cost U.S. consumers more than \$100 billion over 16-month period*. Institute for Energy Economics and Financial Analysis.

<https://ieefa.org/resources/gas-exports-cost-us-consumers-more-100-billion-over-16-month-period>

⁷ *Id.*

⁸ *Id.*

⁹ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability. (2024). *Energy, Economic, and Environmental Assessment of U.S. LNG Exports: Summary Report* (p. 4).

https://www.energy.gov/sites/default/files/2024-12/LNGUpdate_SummaryReport_Dec2024_230pm.pdf

¹⁰ *Id.*, p. 4-5

¹¹ *Id.*, p. 5

2. U.S. LNG exports rely on uncertain global demand

Continuing to invest in LNG export infrastructure and buildout is not economically prudent or sound considering the United States' existing export capacity and the global outlook on future LNG demand. The DOE Study determined that four out of the five modeled scenarios found currently-authorized LNG exports to be more than enough to meet global demand for LNG.¹² In fact, the International Energy Agency's (IEA) 2024 World Energy Outlook estimated that LNG supply would likely outpace demand within the next decade, meaning a significant amount of new LNG demand would be needed to absorb this supply.¹³

Unlike the United States and its staunch reliance on fossil fuels, other countries have shifted their energy portfolios to reduce fossil fuel usage, including U.S. LNG. Europe has historically been one of the largest importers of U.S. LNG, but that is likely to change given the European Union's commitment to renewable energy and energy efficiency measures with the aim of achieving energy independence. Members of the European Parliament and national parliaments authored a letter in support of President Biden's LNG export facility pause and urged the United States to fully consider LNG's climate, cumulative, and economic impacts.¹⁴

Japan and Korea are also major dependents of U.S. LNG who now express policies to reduce LNG usage: Japan is set to decrease LNG usage in energy supply by 20% by 2030 and Korea is set to decrease LNG usage from 28% in 2022 to 9.3% in 2036.¹⁵ China, one of the world's largest LNG importers, and one that the DOE expects to be the largest importer of LNG in the future, is currently displacing coal use in electricity generation with cheaper, renewable energy.¹⁶

In fact, renewable energy is a low-cost alternative to LNG that further complicates the global LNG market outlook. Historically, LNG has helped countries diversify their energy supplies and provide more energy security in the process.¹⁷ However, renewables such as solar and wind are affordable sources of energy that also promote energy independence. The proliferation of

¹² Statement from U.S. Secretary of Energy Jennifer M. Granholm on Updated Final Analyses. (2024, December 17). U.S. Department of Energy.

<https://www.energy.gov/articles/statement-us-secretary-energy-jennifer-m-granholm-updated-final-analyses>

¹³ Josh Runciman. (2024, November 15). *Risks mount as World Energy Outlook confirms LNG supply glut looms*. Institute for Energy Economics and Financial Analysis.

https://ieefa.org/resources/risks-mount-world-energy-outlook-confirms-lng-supply-glut-looms?utm_campaign

¹⁴ *La lettre de 60 parlementaires de toute l'Europe à Joe Biden*. (January 25). Justice Le Site Web De Marie Toussaint. <https://www.marietoussaint.eu/actualites/lettre-joe-biden>

¹⁵ Ministry of Economy, Trade and Industry: Agency for Natural Resources and Energy. (2021, October). *Outline of Strategic Energy Plan*. https://www.enecho.meti.go.jp/en/category/others/basic_plan/pdf/6th_outline.pdf and *10th Basic Electricity Supply and Demand Plan (2022-2036)*. (2023). https://www.kier.re.kr/resources/download/tpp/policy_230113_data.pdf

¹⁶ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 6, and Runciman, *supra* note 13.

¹⁷ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 6

renewable energy will likely cool global demand for U.S. LNG as countries once reliant on LNG turn to cleaner and more reliable energy sources to diversify their supply.

3. LNG infrastructure buildout will harm communities more than it will benefit them

LNG export facilities are often concentrated in areas already overly-burdened by industrial pollution and suffering from pollution and climate change. These communities tend to be communities of color and low-income communities.¹⁸ Buildout of LNG export infrastructure will likely lead to increased rates of chronic illnesses, such as cancer, asthma, and cardiovascular disease among frontline residents. LNG export terminals are particularly harmful to human health, as currently-operating LNG export terminals are estimated to cause 60 premature deaths each year and over \$950 million in annual healthcare costs.¹⁹ These numbers could increase to nearly 150 premature deaths each year and \$2.33 billion in annual healthcare costs if all planned LNG export terminals and expansion projects are built.²⁰

The DOE expects the greatest impacts to gas prices and health outcomes to be felt in areas where LNG export facilities are located: primarily in the Gulf Coast and Southwest regions.²¹ These regions not only house five fully operational LNG export facilities with many more proposed, but they also are located near extractive oil and gas operations that support these LNG export projects.²² Residents of the Gulf Coast already experience public health risks resulting from social, environmental, and natural-hazard-related factors. An assessment of health indicators among the Gulf States found disproportionately higher rates of morbidity and mortality among residents when compared to the rest of the United States: all ten studied indicators of mortality were higher in the Gulf States than the rest of the U.S., and five out of eight morbidity indicators, such as diabetes, obesity, and cancer, were higher in the Gulf States than the rest of the nation.²³ Increased LNG buildout in already-burdened communities in the Gulf Coast will only worsen these health outcomes.

¹⁸ Donaghy, T. Q., Healy, N., Jiang, C. Y., & Battle, C. P. (2023). Fossil fuel racism in the United States: How phasing out coal, oil, and gas can protect communities. *Energy Research & Social Science*, 100, 103104. <https://doi.org/10.1016/j.erss.2023.103104>

¹⁹ Johanna Heaureaux-Torres, Andres Chang, and Tim Donaghy. (August 2024). *Permit to Kill: Potential Health and Economic Impacts from U.S. LNG Export Terminal Permitted Emissions* (p.4), Sierra Club and Greenpeace USA. <https://www.greenpeace.org/static/planet4-usa-stateless/2024/11/47b90812-permit-to-kill.pdf>

²⁰ *Id.*

²¹ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 4

²² *U.S. LNG Export Terminals – Existing, Approved not Yet Built, and Proposed*. (2025, March 18). Federal Energy Regulatory Commission. <https://www.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed>

²³ Kelsey Gleason, ScD & Maryann Makosiej, MPH. (2023). Commissioned Paper Current State of Health, Community Resilience, and Cohesion in the Gulf of Mexico Region. In *Advancing Health and Resilience in the Gulf of Mexico Region: A Roadmap for Progress*. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK600389/>

Increased LNG exports will require increased gas production, which the DOE correctly determines will compound the health harms associated with LNG. Methane gas extraction, production, and transportation are highly-polluting processes that are also known to leak gas. Methane itself is an extremely potent greenhouse gas that has 80 times the warming potential of carbon dioxide (CO₂) over a 20 year period, and other harmful pollutants, such as volatile organic compounds (VOCs), are leaked alongside methane.

Furthermore, LNG expansion will harm the economic prospects and workforce development opportunities of communities that house this infrastructure. A common, but largely debunked, argument in favor of LNG export infrastructure buildout is that it will provide new employment opportunities for residents. The DOE Study determined that while new LNG export terminals will likely produce new jobs, these jobs tend to go to people who move into the area or commute, instead of long term residents.²⁴ Indeed, the Environmental Impact Statement for the Calcasieu Pass (CP) 2 and CP Express LNG projects show that the LNG workforce is not expected to be from the local area.²⁵

4. Increased LNG exports will lock in worsening climate impacts

LNG is often touted as “clean energy” and a climate solution. However, LNG is extremely harmful throughout its lifecycle and LNG production is energy intensive. As such, climate and health pollutants associated with LNG exports can do more harm than good. Some of the largest projects, such as CP2, are expected to release more climate pollution from one facility than 141 of the world’s countries’ 2023 emissions.²⁶ The DOE Study compared modeled LNG export levels to existing and permitted LNG facilities by 2050: the total social cost of greenhouse gas (GHG) impact, which estimates the costs that GHG emissions create for society, was determined to range from \$84 billion to \$250 billion depending on the discount rate used.²⁷

The DOE study may still underestimate actual scope of GHG pollution from LNG production despite finding significant impacts. It is largely known that actual upstream methane leakage rates are higher than industry-reported rates. A frequently-cited study by Dr. Robert Howarth (2024) used a 2.8% leakage rate and empirical satellite measurements of major oil and gas basins

²⁴ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 8

²⁵ Final Environmental Impact Statement: CP2 LNG and CP Express Project, FERC, Docket Nos. CP22-21, CP22-22 (July 2023), p. 4-263

²⁶ *Statement from U.S. Secretary of Energy Jennifer M. Granholm on Updated Final Analyses*, *supra* note 12.

²⁷ *The Social Cost of Greenhouse Gases (Carbon Dioxide, Methane, Nitrous Oxide)*. (2025, March 12). Harvard Law School Environmental & Energy Law Program. <https://eelp.law.harvard.edu/tracker/the-social-cost-of-carbon/> and U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 7.

in the United States found methane loss rates between 0.9% and 7.9%.²⁸ The Study instead assumed a baseline upstream methane leakage rate of 0.56%.²⁹ Actual GHG emissions from LNG that can be attributed to upstream sources will likely be higher than what DOE concluded.

LNG pollutes throughout its lifecycle and leaks climate-warming methane at every stage, from production of fracked gas, transportation, liquefaction, shipping, and combustion. The aforementioned Howarth (2024) study found CO₂ emissions from end-use LNG combustion only accounted for about 34% of the total GHG footprint of LNG over a 20 year period.³⁰ Upstream and midstream methane were the largest contributors to total GHG emissions attributable to LNG, making up 47% of the footprint after accounting for energy used during LNG production.³¹

Another false assumption is that LNG will be a bridge fuel for moving off of dirtier energy sources, such as coal. Multiple studies have shown that accounting for lifecycle GHG emissions from LNG makes it worse for the climate than coal.³² LNG requires the buildout of new infrastructure, and methane emissions from LNG have a significantly greater warming potential than carbon dioxide emissions from burning coal.³³ The GHG footprint of LNG is estimated to be 33% higher than coal over a 20 year period.³⁴ Additionally, LNG's detrimental effects on climate are likely to offset all domestic efforts to reduce emissions.³⁵ Even at a global level, LNG will likely further hinder broader efforts to reduce climate-warming emissions. The DOE Study found that 25% of modeled increased LNG exports would compete with and displace renewable energy in the rest of the world.³⁶

²⁸ Robert Howarth. (2024). Howarth_LNG_assessment_preprint_archived_2023-1103.pdf. *Energy Science & Engineering*, 1(17). <https://doi.org/10.1002/ese3.1934>, and Methane loss rate is eight times greater than industry target. (2024, July 31). MethaneSAT. <https://www.methanesat.org/project-updates/new-data-show-us-oil-and-gas-methane-emissions-over-four-times-higher-epa-estimates>

²⁹ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability. (2024). *Appendix C: Consequential Greenhouse Gas Analysis of U.S. LNG Exports*. (p. 36) https://www.energy.gov/sites/default/files/2024-12/LNGUpdate_AppendixC_Dec2024.pdf.

³⁰ Howarth, *supra* note 28

³¹ *Id.*

³² Deborah Gordon et al, Evaluating net life-cycle greenhouse gas emissions intensities from gas and coal at varying methane leakage rates, *Env'tl. Research Letters* (July 17, 2023), <https://iopscience.iop.org/article/10.1088/1748-9326/ace3db>, and Howarth, *supra* note 28.

³³ Howarth, *supra* note 28.

³⁴ *Id.*

³⁵ Jeremy Symons. (2023). *Exporting Carbon: Assessing the Greenhouse Gas Impacts of U.S. Fossil Fuel Exports* (p. 19). <https://www.symonspa.com/post/new-study-finds-rising-exports-of-oil-and-gas-undermines-u-s-action-to-reduce-emissions>

³⁶ U.S. Department of Energy, Office of Fossil Energy and Carbon Management, & Office of Resource Sustainability, *supra* note 9, at 24, and Memo to U.S. DOE from Jeremy Symons (Nov. 29, 2023), <https://www.energy.gov/sites/default/files/2023-12/Ex.%202028.%20Memo%20-%20Updating%20DOE%E2%80%99s%20Technical%20Analyses%20of%20GHG%20emissions%20from%20US%20LNG%20-%20Nov%202023.pdf>.

Conclusion

This Study makes clear that investing in LNG export is economic folly, especially considering LNG expansion will unduly burden Americans with higher daily living expenses and negative health impacts, and because the LNG market is unstable. The Study's economic analysis is not novel when highlighting the adverse economic and health impacts LNG exports will have. Namely, the uncertain and wavering global demand on methane gas makes LNG export ventures a poor bet that is short-sighted and grounded in antiquated reliance on fossil fuel as the main source of energy. Furthermore, to increase fossil fuel development will exacerbate climate change and its damaging impacts through extreme weather, as well as harm public health. These costs will ultimately fall on American consumers, who are currently experiencing unprecedentedly high housing, utility, and food costs. We strongly urge DOE to incorporate the recommendations in this Study into its decisions on pending and future LNG development and exports, and to refrain from further LNG development for the sake of Americans' economic and physical well-being.

Sincerely,

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