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A Generational Opportunity: Achieving U.S. Dominance in Global LNG

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Executive Summary

The U.S. emerged as the world's top exporter of liquefied natural gas (LNG) in 2023. This did not happen overnight or by accident. It happened because American shale boosted natural gas production to record highs, mostly on state and private land. This country's electric power sector fuel-switched from coal to gas, and, to a lesser extent solar and wind. The industrial sector also increased its consumption of newfound cheap feedstock. The real game-changer, however, was trading the remaining surplus: sophisticated infrastructure originally intended to import LNG into the country was converted to even more sophisticated infrastructure designed to export LNG overseas. Customers in resource-scarce Asia and Europe deliberately sought out supply agreements with this country's liquefaction companies, for a mix of geopolitical and economic reasons, which sent a recurring signal back to oil and gas drillers to keep drilling.

Unlike crude oil, gasoline, diesel, jet fuel, propane, ethane, and other energy sources, natural gas exports are tightly regulated. The Federal Energy Regulatory Commission (FERC) is tasked with permitting export facilities under the 1970 National Environmental Policy Act (NEPA). The Department of Energy (DOE) authorizes the export of natural gas itself under the Natural Gas Act of 1938, which, with certain exceptions that must be approved automatically, provides it with a degree of discretion. Export terminals operating today that are enabling U.S. allies in Europe to reduce their dependence on Russian energy navigated an extremely complicated permitting process, compounded with increasingly divisive politicization, to reach this point.

There is no end in sight to the developing global LNG market, though political opposition to natural gas production, consumption, and exports could bring an end to U.S. dominance. Projections of greater electrification and industrialization around the world entail greater consumption of natural gas as a practical necessity. That gas will be supplied by somebody. Unfortunately, the Biden administration's "pause" of the most important category of LNG export authorizations during an election year is only the latest move that increases the political risk borne by potential investors in American energy. As the energy transition begins to suffer cracks while it faces economic and geopolitical realities, that political risk could intensify rather than relax.

This report identifies three pathways to reform, none of which is mutually exclusive. As a first-order move, the export pause should be reversed as soon as possible. Second-order considerations may include revising DOE's export authorization process to forestall future pauses or similar obstructive tactics, and could even remove the requirement to authorize the export of natural gas as a commodity while retaining

FERC's environmental responsibilities. Full-scale reform, both the most meaningful and the most difficult path, would establish FERC as a truly independent commission and limit its NEPA analysis to a review of the facility itself, rather than the more speculative exercises involving downstream and upstream greenhouse gas impacts. As policymakers increasingly explore the possibilities of industrial policy, these pathways to reform must be part of that discussion. Exports are not more desirable per se than industrial consumption, and a key question is why the latter has not kept pace with the former.

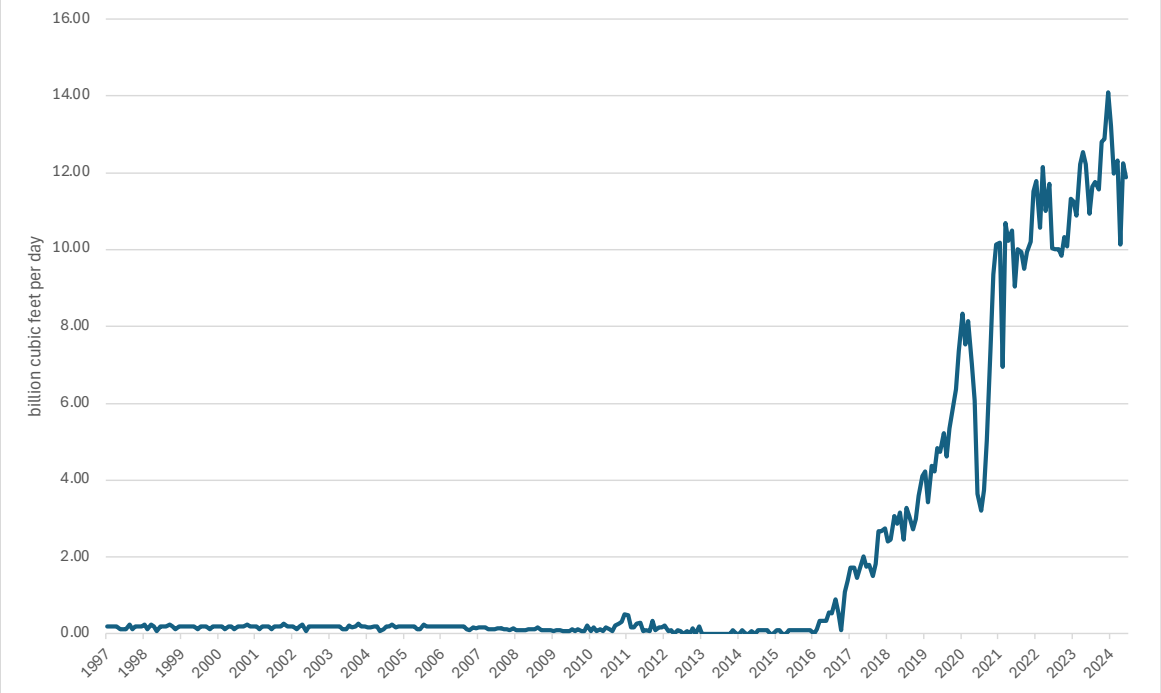
Introduction: Transformation

The drive from Anchorage, Alaska, to coastal Nikiski is one of the more pleasant three-hour journeys someone can take. It is at Nikiski that the Kenai Peninsula bumps out into Cook Inlet at its narrowest point, before the jaws of the passage open into the Pacific. For a half-century, America's first natural gas export facility called Nikiski home. Approved by the Federal Power Commission in 1967, Kenai LNG exported relatively small volumes to the Pacific Rim, until it shut down for project-specific economic reasons in 2015. These exports helped cement a bilateral energy security partnership between the United States and Japan that endures to this day. That facility's first export authorization was an incredibly brief two-and-a-half pages of text.[1]

American natural gas exports have been thoroughly transformed since those early days in Kenai, as shown in **Figure 1**. That solitary facility, the only one operating in North America for generations, could export, at most, 0.2 billion cubic feet per day (bcfd). Today a half-dozen export projects are operating in the U.S. Gulf Coast alone, each one capable of exporting about 10 times that volume, and there are two smaller facilities in Maryland and Georgia. Total U.S. gas liquefaction capacity sits at 12 bcfd, with another 9 bcfd under construction.

Figure 1

Liquefied U.S. Natural Gas Exports



Source: U.S. Energy Information Administration (EIA)

There are only two ways to export natural gas in any appreciable volume: by pipeline as a gas; and by ship as a liquid. Virtually all the 110 bcfd of natural gas that is produced in the U.S. spends time in the 3-million-mile-long domestic pipeline network. Approximately 3 bcfd crisscrosses the northern and southern borders of the U.S. by pipeline—typically, imports from Canada and exports to Mexico. Prior to the war in Ukraine, Russia's gas exports to Europe were all by pipeline. North Africa sends its gas by pipeline under the Mediterranean Sea to Italy and Spain. The Caspian Sea's gas resources are all exported by pipeline. The engineering is easy and relatively cheap, but pipelines can be only so long.

Enter LNG: liquefied natural gas. At liquefaction facilities, enormous refrigeration units cool gas to –260 degrees Fahrenheit. This both compresses the gas, so that it can be stored efficiently, and renders it safe for long-distance transport in LNG carriers, which are far more technically sophisticated and more expensive than the familiar oil tankers. When those carriers reach their destination, the LNG is regasified and pumped into a consumer pipeline. Liquefaction facilities are essentially giant refrigerators, and regasification facilities are thus giant heaters. The global gas trade requires both ends of this symbiotic operation. This also means money and time. A rule of thumb is that $5 billion in capital is needed for every bcfd of liquefaction, three to five years of construction time, and multi-decade supply contracts between producers and customers.[2]

The Genesis

The enormous investments required to build liquefaction facilities and the lengthy time required to permit and construct them add up to one conclusion: LNG export projects are a generational endeavor. In the world of American energy, they are not unique in this respect. Conventional nuclear power plants in the U.S. receive 40-year licenses (with possible extensions). The 800-mile-long Trans-Alaska Pipeline System that moves crude oil from the North Slope to Valdez required special congressional approval and expediting. Every operating petroleum refinery of significant size in the U.S. was constructed before 1977. Even some hydropower dams have been generating electricity since the nineteenth century. The critical distinction for liquefaction facilities, of course, is that they are at the very beginning of their life span, rather than enduring midlife crises or subsisting on life support.

Even if not a single additional facility is constructed, the fleet of existing sites constitutes a momentous export and economic achievement. These sites are also delivering enhanced energy security not only for the U.S. but for its allies in Europe and Asia confronting the autocratic challenge from Russia and China (see **Figure 2,** next page). With the prospect of even more export capacity coming online—including projects under construction, those mired in the regulatory process, and those at nascent stages of conception—the U.S. has an opportunity to undertake and achieve a centennial endeavor, in the grandest sense of the term.

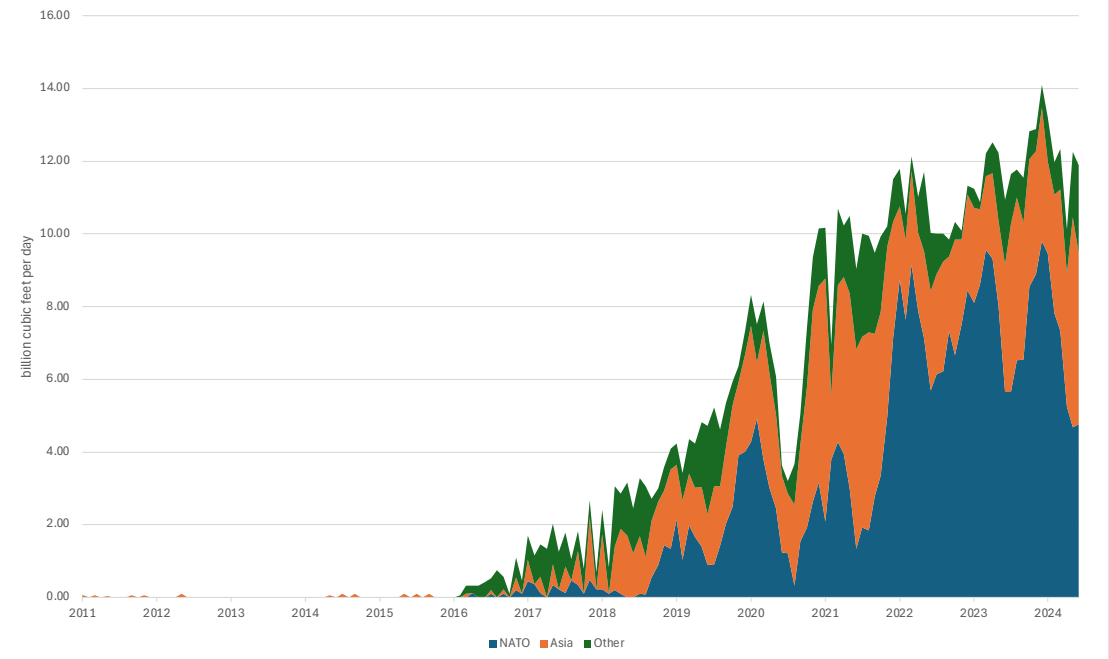
Defining the Opportunity

This generational opportunity is predicated on two facts about natural gas supply and demand. First, so-called proved reserves recorded by the Energy Information Administration (EIA) stand at a record high in the U.S.—just under 700 trillion cubic feet (tcf),[3] which should be regarded as a conservative lower limit. The more expansive (but less certain) "potential resources," as estimated by the independent Potential Gas Committee, range well above 3,300 tcf.[4] These numbers mean little to most people, but annual consumption across the entire U.S. economy of some 32 tcf, of which less than 5 tcf is exported, provides the necessary perspective.[5]

Second, the world is becoming more electrified and more industrialized, and the electricity and industrial sectors constitute two enormous markets for natural gas. Power plants, of course, burn gas to spin electric generators, and natural gas is used not only to provide heat for chemical plants but also as a feedstock to make myriad products, from fertilizer to plastics and other petrochemicals. The percentage of the global population with access to electricity has increased every year since 2004, with the (pandemic-driven) exception of 2022.[6] Global electricity demand has increased across all regions for decades (see **Figure 3,** next page). The International Energy Agency (IEA) projects consistent growth in both developed and developing regions, with

Figure 2

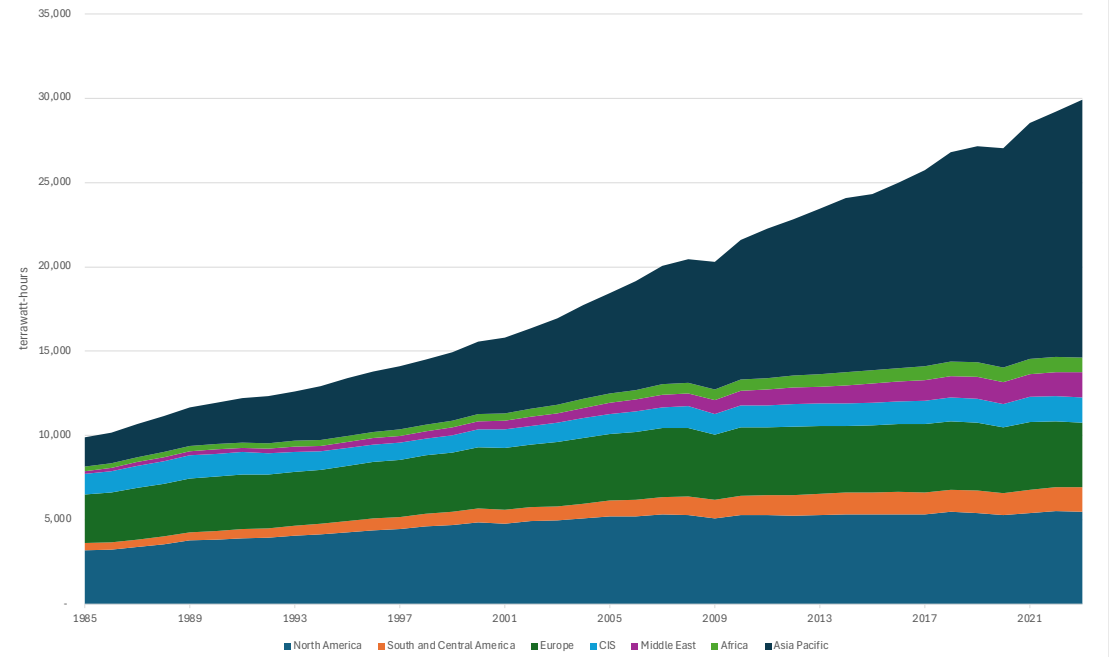
U.S. Liquefied Natural Gas Exports by Regional Destination



Source: EIA

Figure 3

Electricity Demand by Region, 1985–2023



Source: Energy Institute, Statistical Review of World Energy, 2024

no end in sight.[7] Meanwhile, the U.S. EIA projects in its reference case for *International Energy Outlook 2023* that global natural gas consumption will grow from roughly 150 tcf per year today to just under 200 tcf per year by 2050.[8] The EIA reference case includes a 32% increase in industrial-sector consumption of all types of energy over that same period.[9]

There is obvious uncertainty about the precise share of any of these categories that will be held by natural gas over the following decades, but the broad directional arrows are distinguishable: for the foreseeable future, the world will need far more electricity and more industrial energy, and a significant portion of that will require natural gas. For the sake of argument, we can make conservative assumptions and estimate the dollar magnitude of potential trade: exporting 5 tcf per year (on a net basis) at $0.002 per cf over a 20-year period yields $200 billion. More liberal assumptions—7 tcf per year at $0.006 per cf over a 30-year period—yield over $1 trillion. Prices and margins will shift over time, but this gives us a rough range of the possible. The central question is not *whether* more gas will be consumed, but *who* will supply it.

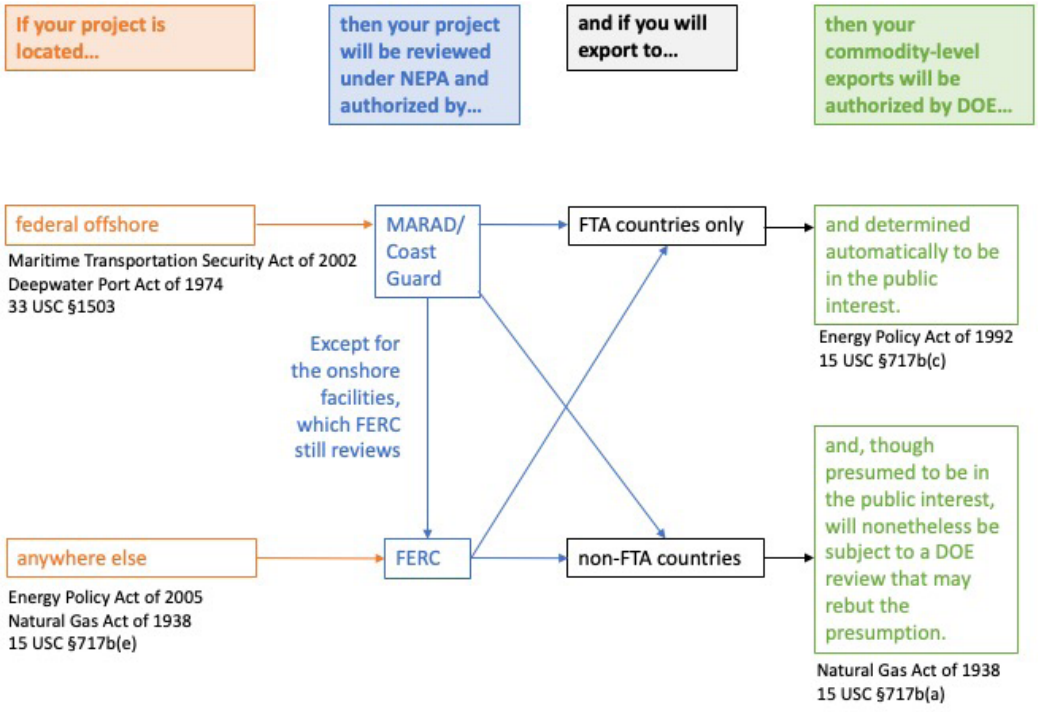
Downside Risk

The regulatory process that produced a two-and-a-half-page export authorization for Kenai LNG in the 1960s can today yield a license 50 times that page count, backed by thousands of pages in multivolume environmental assessments and economic impact studies. The complexity of this process is itself a barrier to entry, even though it does often result in final authorizations. To potential investors, this amounts to political risk. In fact, as of this writing, the process for the most important type of federal license for LNG exports is currently frozen in place by the Biden administration.

Under existing law, the Department of Energy (DOE) is the authorizing agency for all types of natural gas imports and exports (see **Figure 4**). Every molecule of methane—whether in gaseous or liquefied form, whether in a pipe

Figure 4

The Regulatory Process for LNG Exports



Source: Author's analysis

or a carrier—can move across the border only if someone in the Forrestal Building signs a license approving it. (The only exceptions are so-called *de minimis* exports to support things like science experiments.)[10] Two additional classes of LNG exports are preauthorized but still require paperwork: "small-scale" cargoes of a container-type magnitude,[11] intended for Caribbean or Latin American destinations; and LNG exports to free-trade-agreement (FTA) countries. The most critical category are LNG exports to non-FTA countries. It is this category that has become a political target of changes in policy from one administration to the next (and, in the case of the Obama and Biden DOE, *within* a single administration).

This is not a hypothetical: DOE's authority over non-FTA licenses is easily subjected to politicization and abuse. In 2011, the Obama administration paused its non-FTA authorizations until it completed a pair of macroeconomic impact studies. The more significant of the two studies was completed in June 2012 but not released publicly until December 2012—curiously, just after the election during which the stridently pro-export Mitt Romney was defeated. Although the study found net benefits from LNG exports in every case (including a scenario of "unrestricted" exports), approvals did not resume until May 2013. A decade later, the Biden administration repeated this maneuver: the White House announced a pause for non-FTA applications in January 2024, to remain in effect until the completion of additional studies due in the first quarter of 2025.

Pauses are merely one bureaucratic lever to pull in order to threaten the build-out of American LNG exports. Outright rejections would be the most expeditious method but would also quickly end up in court because the Natural Gas Act requires DOE to demonstrate that exports would hurt "the public interest" in order to reject an application. Given the number of projects already approved in the context of continued record-level domestic natural gas production, this would be difficult to demonstrate. A more cumbersome lever to pull would be to reject applications under the guise of approving them, sidestepping political and judicial challenges. One way to pursue this maneuver is to condition an export license on onerous mitigation requirements. In its most recent LNG export authorization order, the Biden administration's DOE approved exports for only a five-year term, citing market uncertainty, and referred to "an unprecedented build-out of carbon-free energy and increased policies to advance clean energy development and implementation by U.S. allies that are expected to slow global natural gas demand in some regions."[12] These same allies were able to slow imports of Russian natural gas because they could import LNG from the United States.

Paths to Reform

The stakes are exactly as high as the opportunity is generational. Qatar and Australia already have mature, large-scale LNG export capacity, some of which, in fact, was constructed with financing from the U.S. Export-Import Bank. The "global market" barely existed at the time of American entry into the competition. It is still nascent, compared with the sophistication of worldwide trade in oil, which doesn't need to be liquefied before it is transported by sea.

Gas markets lack the liquidity that characterizes oil markets, which makes it difficult for newcomers to capture LNG market share: long-term supply relationships are locked in, and expensive infrastructure must be paid off. The U.S. has already fought this battle and won, to a great extent, emerging as the world's largest LNG exporter in 2023.[13] The rescission or curtailment of existing LNG export licenses is a real possibility, as is the prohibitive conditioning or rejection of future licenses and the imposition of further pauses and solicitations for further impact studies.

What steps can be taken to forestall these obstacles and ensure that U.S. industries, as well as friendly foreign investors, will make the long-term investments to capture the opportunity? This analysis suggests three available paths to reform: resuming export approvals at DOE (easy); revising DOE's approval authority (intermediate); and modifying the permitting process (difficult). None is mutually exclusive of the others: all ascend the same mountain to varying heights, ranked by experience level.

The immediate problem is the pause on non-FTA authorizations. The path of least resistance is the voluntary resumption of their approval. A future administration could simply approve pending applications and continue to process future applications but would need to proceed very carefully. This resumption could be timed (i.e., delayed) so that licensing decisions incorporate the conclusions of the forthcoming studies in 2025. The studies could also be ignored, although that might provide fodder for litigation and jeopardize future authorizations based on alleged administrative procedure violations. As is often the case, whether the claims have any merit is almost beside the point, which is really to increase costs and impose delays. Additional studies could be commissioned without any tie-in to a pause. Congress could also compel the involuntary resumption of approvals during the Senate confirmation, budget, and appropriations processes. Incorporating any LNG export reforms into the budget reconciliation process would be difficult because of very limited linkages to federal revenue and spending, accentuated by declining natural gas production on federal lands and waters.

The larger problem is the ease with which DOE's authority can be directed to impair exports. As noted above, FTA authorizations must be approved automatically, but even these still take time and paperwork. Previous legislative efforts to expedite exports have focused on expanding the category of exports that are approved automatically to include those with customer destinations in India, Japan, and NATO allies. (The small-scale export exception also was first developed in Congress.) Such efforts would be a directionally positive step today if they were enacted, but free-trade agreements can change. Access to U.S. LNG exports could also be used as a bargaining chip in future trade negotiations, but this would require an extraordinary degree of coordination and cooperation between Congress and the White House. These efforts would also leave open the possibility for the politicization described above.

Were Congress actually in a position to enact law in this area, two statutes, in particular, should be examined: the Natural Gas Act (NGA); and the National Environmental Policy Act (NEPA). The first provides DOE with its authority and requires the Federal Energy Regulatory Commission (FERC) to conduct the environmental review of an LNG export facility. Under the current procedure (which could be changed by a future administration), DOE approves exports only after the relevant facility has received its approval to construct from FERC. The only way to guarantee that DOE's approval process is never again abused is to eliminate its authority over these exports while preserving FERC's role under NEPA to protect the environment and ensure the safety of all liquefaction facilities.

However, shifting the politicization to FERC is not a solution. The commission is already subject to enormous pressures. In the case of LNG exports, these pressures include incorporating greenhouse gas impacts from upstream natural gas production and downstream natural gas consumption in the NEPA review of a liquefaction terminal. I.e., ideological opponents of LNG would like to require FERC to consider everything from the original well where the gas is extracted to the power plant where it is burned. Until now, FERC has generally been able to resist this pressure by arguing that such impacts are not due to the facility itself, but this resistance is only as strong as the commissioners choose to be. As former commissioner James Danly recently observed, permitting reforms that don't address NEPA itself will not solve the general permitting problem.[14]

The "Nuclear" Option

The most difficult path, yet probably the most meaningful, would be amending NEPA to explicitly restrict the scope of FERC's analysis. Rather than being tempted to expand its remit or constantly resisting pressure to do so, FERC could focus on its core mission: technical reviews of energy infrastructure and stewardship of U.S. electricity grids. This would be politically challenging and would be possible only amid some kind of larger legislative bargain, but it would solve what is arguably FERC's biggest problem. Perhaps witnessing the real-world examples of American LNG rescuing

NATO allies from dependence on Russian gas and the hundreds of billions of dollars in potential revenue will be enough to prompt a conversation on Capitol Hill.

NEPA was enacted in 1970. Its legal process is already cumbersome, involving any federal, state, and local agency that could be affected by a project. Procedural errors are grounds for future litigation. Some agencies fail to make deadlines or maneuver to slow down their respective permits or analyses. Past efforts to reform NEPA have typically centered on identifying a lead agency and enforcing timelines. One risk of timeline enforcement, of course, is that applications could simply be rejected. Affirmative orders could also be issued on time but made conditional on required mitigation. FERC is not equipped to assess the climate-change impacts of individual projects, and NEPA was enacted at a time when technical reviews were far less prone to politicization.

An omnibus legislative package that included economic and energy measures could further establish FERC as a truly independent commission. This would make it separate from DOE, its current statutory parent. What, exactly, is gained by leaving FERC as an independent regulatory body within another agency? The relationship has always been unclear, and any operational benefits are impossible to discern. The Securities and Exchange Commission, for example, is not part of the Treasury Department, the Federal Trade Commission is not part of the Commerce Department, and the Commodities and Futures Trade Commission is not part of the Agriculture Department. The Nuclear Regulatory Commission is not even part of the Energy Department. Commissioners are obviously political appointees and should remain so, and as long as this is the case, the risk of politicization will remain part of the agency fabric. Given recent shifts in DOE's mission, putting as much space as possible between shifting electoral winds and FERC's quiet technical work seems wise.

Combating arbitrary and politicized restrictions on natural gas exports is not an argument for somehow prioritizing exports to the detriment of domestic industrial consumption. Exports are not a better use of natural gas per se than using it to manufacture value-added products. Why industrial consumption has not increased at a similar pace as production of other types of consumption (e.g., electricity) is an important question beyond the scope of this analysis, but one that policymakers exploring the possibilities of industrial policy should bear in mind.

Conclusion

Amid such stunning growth in natural gas production and LNG exports, making the case that anything has gone wrong along the way might be perceived as counterproductive, perplexing, or even rude. Much as love forgives a multitude of sins, successful outcomes can mask a multitude of process errors. This is as true in energy development as it is in parliamentary procedure. If we're already the world's top LNG exporter, is there even a problem to solve? Absolutely. The federal government's approach to approving LNG exports has been highly politicized for the past decade, a condition that will only worsen without corrective action to fix a mess that partisan ideology and obscurantist electioneering have joined forces to create.

An important concern arises amid growing interest in developing a U.S. industrial policy. Hypothetically, if the U.S. exported gas to an overseas petrochemical customer that manufactured a value-added product that the U.S. subsequently imported, then the presumed benefits of LNG exports would be far less clear (and might even be provably negative). The value could simply be added here, not abroad (see **box,** next page).

It is true that U.S. industrial consumption of natural gas has not increased anywhere near as quickly as U.S. production of natural gas. However, natural gas is flared in parts of the country because the infrastructure doesn't exist to capture it; so in theory, an industrial company could acquire its feedstock at a substantial discount. For policymakers focused on revitalizing American manufacturing, the question to ask is *not* how and when to block LNG exports, but why the reindustrialization of the U.S. interior has been so slow, relative to its energy supply expansion.

Answering this question, among others, may provide an opportunity in the near future for enacting sweeping changes. Despite its reputation for dysfunction, Congress is still capable of making impactful course corrections. The "energy transition" and its associated Net Zero by 2050 ambitions are beginning to face a long-overdue reckoning with economic and geopolitical realities. The federal government never decided to become the world's largest LNG exporter, but it did allow private companies to make that happen. The decision that it can make today is to preserve that achievement. ■

Domestic Impact of Natural Gas Exports

Another long-standing concern about LNG exports is their possible impact on the prices that American consumers pay for this energy. Natural gas is abundant domestically and therefore available much more cheaply here than in Europe and Asia, where customers pay for liquefaction, transportation, and regasification costs. In theory, allowing American gas to be sold overseas will increase gas prices in the U.S. and reduce the "spread" between the prices. Economic analysis commissioned by the Department of Energy has consistently projected that such increases, though non-zero, would be small (cents, not dollars) and would still benefit the nation on a net basis, reflected in higher GDP. As the past 10-plus years have unfolded, the U.S. has experienced neither shortages of natural gas due to exports (because market access has boosted production) nor harmful price spikes (because only a small fraction of this country's robust domestic supply is exported). Of course, if political opposition reverses the U.S. shale revolution and suddenly restricts supply, then economic dislocations, such as supply shortages and price spikes, would result.

Appendix: The Rise and Fall of IEA's Golden Age of Gas

In 2011, the International Energy Agency (IEA) unveiled its Golden Age of Gas Scenario.[a] The GAS Scenario—as it was mercifully, if somewhat ludicrously, termed—noted facts that were becoming increasingly undeniable as American natural gas production surged to record highs: "Gas resources are abundant, well spread across all regions and recent technological advances have supported increased global trade."[b] The case was built on "a more positive future outlook for natural gas to 2035."[c] IEA suggested that in this *intentionally optimistic* scenario, U.S. natural gas production might reach over 27,510 bcf per year by 2035.[d] In reality, this level was reached on an annualized basis no later than 2018 and hit 37,869 bcf per year in 2023.[e]

This turn of events is astounding enough by itself—but consider IEA's dismissal of what would become a true geopolitical game-changer when Russia invaded Ukraine in 2022: "North America should play only a minor role in net global LNG trade."[f] In the 2011 Golden Age of Gas Scenario, IEA downplayed the possible role of Canada and the U.S. in future gas exports. The agency reversed itself merely one year later, in 2012, when it unveiled the Golden Rules Case, referring to "the rise of North American LNG exports in the Golden Rules Case [as] a major development in global gas markets."[g] Even here, IEA's scenario featured a more bullish case of American production, with 25,638 bcfd (billion cubic feet per day) in 2015 (the actual was 27,065) and a peak of 28,993 bcfd in 2035, a volume that was also exceeded in 2018 (see **Figure 5**).

The point is not to bash IEA for publishing optimistic scenarios that proved not optimistic enough—or even pessimistic, when contrasted with the reality of what occurred in the Marcellus Shale, Permian Basin, and other American oil and gas plays. The point is that the U.S. liquefaction capacity build-out occurred much more quickly and more extensively than U.S. regulators could possibly have hoped to fathom. EIA, the chief source of data-driven energy analysis within the federal government, also largely missed the pace and depth of this sea change. EIA did not predict the U.S. ever becoming a net exporter of natural gas until the *Annual Energy Outlook 2013*, which saw this occurring by 2020. The switch from net importer to net exporter actually occurred in 2017. Again, the point is not to criticize EIA for undershooting in its reference cases over the years, but to highlight the impossibility of regulators actually getting ahead of the phenomenon as it developed.

This is reason enough to liberalize the U.S. natural gas export regime so that it is flexible enough to adapt to changing circumstances. It is also reason to raise an eyebrow when IEA, as it does today, claims that the "golden age" of natural gas is in its twilight.[h]

Figure 5

Golden Age, Golden Rules

Units: tcf	2015	2020	2025	2030	2035
Golden Age of Gas Scenario	21.471	21.824	22.849	25.038	27.51
Golden Rules Scenario	25.638				28.993
EIA	27.065	33.811	35.73	37.04	39.5

Source: Author's analysis; EIA data for 2015 and 2020 are actual.

a IEA, "Are We Entering a Golden Age of Gas?" *World Energy Outlook 2011*, 13.
b Ibid., 9.
c Ibid., 13.
d Using BP's conversion factor of 1 bcm = 35.3147 bcf.
e EIA, "U.S. Dry Natural Gas Production."
f IEA, "Are We Entering a Golden Age of Gas?" 43.
g IEA, *World Energy Outlook 2012*, "Special Report: Golden Rules for a Golden Age of Gas," 75.
h IEA, World Energy Outlook 2023, 29.

Endnotes

1 Federal Power Commission Order 37, FPC 777, Apr. 19, 1967. The Nikiski facility remained the only LNG export facility in the United States until 2016. This is not to say, however, that it was the only LNG facility constructed in this period. There was a build-out of LNG-related projects in the 1970s and 2000s, but these were for regasification to facilitate imports of natural gas. The LNG import projects formed the basis for a decade-long, multibillion-dollar process of brownfield conversion, turning these regasification units into liquefaction sites.

2 NERA Economic Consulting, "Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports" (June 7, 2018), 93.

3 Energy Information Administration (EIA), "U.S. Crude Oil and Natural Gas Proved Reserves, Year-End 2022," Apr. 29, 2024.

4 Report of the Potential Gas Committee, "Potential Supply of Natural Gas in the United States," Dec. 31, 2022.

5 EIA, *Annual Energy Outlook 2023*, table 13: "Natural Gas Supply, Disposition, and Prices."

6 World Bank Group, "Access to Electricity (% of Population), 1990–2022."

7 International Energy Agency (IEA), "Electricity Market Report 2023," 15.

8 EIA, *International Energy Outlook 2023* (October 2023), table A6: "World Natural Gas Consumption by Region, Reference Case."

9 Ibid., table K1: "Industrial Sector Energy Consumption by Region and Sector, Reference Case."

10 10 CFR 590.

11 Dept. of Energy (DOE), Small-Scale Natural Gas Exports, 83 FCR 35106, July 25, 2018.

12 DOE, Office of Fossil Energy and Carbon Management, "Order Granting Long-Term Authorization to Re-Export U.S.-Sourced Natural Gas in the Form of Liquefied Natural Gas from Mexico to Non–Free Trade Agreement Nations," DOE/FECM Order No. 5156 (Aug. 31, 2024), 26.

13 EIA, "The United States Was the World's Largest Liquefied Natural Gas Exporter in 2023," *Today in Energy*, Apr. 1, 2024. Malaysia and Russia constitute a second tier below the U.S., Qatar, and Australia in terms of market share. Canada also aims to export LNG.

14 Heritage Foundation, "Keeping the Lights On in America: Looking Ahead at Power Grid Reliability," May 17, 2023.

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