# Natural Gas DA-NWG-2024

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## 1NC

### 1NC NG DA Shell

#### Cheap US LNG exports checks russia and global energy volatility, solidifying alliances (also solves Coal usage in developing countries)

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The Biden administration has announced a temporary pause on new liquefied natural gas (LNG) export authorizations for proposed projects. This decision will not affect current exports or projects that are under construction, but a longer-term policy shift would have implications for both markets and geopolitics. This commentary addresses some geopolitical concerns associated with the pause in LNG export approvals.

Shifting Geopolitical Role of U.S. LNG

When Russia’s war on Ukraine in 2022 created a scramble for alternative gas supplies, U.S. LNG featured heavily in the transatlantic response. The United States and the European Union formed the U.S.-EU Task Force on Energy Security to help reduce EU reliance on Russian energy, diversify EU gas supplies, and accelerate the transition away from imported fossil fuels in Europe. The Biden administration pledged in March 2022 to ensure at least 15 billion cubic meters (bcm) of U.S. LNG supply to Europe that year, and the European Commission agreed to work with member states to ensure “stable demand for additional U.S. LNG until at least 2030 of approximately 50 bcm/annum.” The market delivered. LNG exports to Europe far exceeded targets for 2022 and 2023, reaching 56 bcm and 63 bcm, respectively. Today, about 50 percent of Europe’s LNG imports come from the United States.

Image

U.S. LNG as well as Norwegian pipeline gas helped Europe withstand the economic shock of Russia’s weaponization of gas supplies and kept solidarity behind Ukraine. Mild weather and prudent stockpiling have calmed immediate concerns in Europe about lost supplies. Russian imports still constitute 20 percent of Europe’s gas supply, but Ukraine’s last remaining contract for transit volumes from Russia is due to end in 2024 and governments across Europe have no intention to resume larger gas imports from Russia. However, as European buyers seek a full divorce from Russian gas, the pause on new LNG project approvals will raise some longer-term concerns. Scarcer supplies from the United States after 2030 could make this more challenging.

The Biden administration has argued that Europe, which is trying to reduce gas imports by investing heavily in renewables and electrification, has been able to secure sufficient supplies through short-term buying, and that additional LNG export capacity after 2030 would be of limited geopolitical value. But other regions are more central to the long-term outlook. Asia rather than Europe will account for most post-2030 LNG demand growth, and U.S. allies and trade partners in Asia are concerned about signs of long-term supply constraints from the United States. Current and under-construction LNG projects should meet most of the demand in this decade, but as Asian demand grows, more projects could be necessary to offset declines from existing suppliers.

Remote Visualization

Security of supply is a concern for Asian LNG buyers. Australia is a dominant supplier to the region, but it may institute its own export controls due to domestic supply constraints. Northeast Asian buyers are long-standing buyers of gas from Indonesia, Malaysia, and Brunei, but their supplies are depleting fast. Asian buyers previously considered Russian LNG a potential supply source, due to its proximity and the lack of sea lane choke points, but the Ukrainian crisis and subsequent sanctions have dimmed that prospect. This leaves the United States and the Middle East. Qatar and other Middle Eastern countries already account for 15 percent of imports to Japan and over 21 percent of supplies to South Korea, and the Middle East supplies more than 90 percent of Japan’s and 60 percent of South Korea’s crude oil imports. Further dependence on the Middle East is a concern for policymakers. Without additional U.S. volumes, LNG buyers in Asia face limited options and the United States could be leaving both export value and political ties on the table.

Buyer Perspectives on the Value of U.S. LNG

The U.S. LNG industry has several distinguishing factors that elevate its geopolitical and market significance. U.S. LNG adds significant volumes to the global market, helps mitigate supply risks from other sources around the world, and offers unique flexibility and pricing mechanisms that are important to buyers. U.S. LNG also helps allies cope with energy sanctions on other hydrocarbon exporters.

U.S. LNG volumes grew quickly at a time when the market needed new supplies. Last year, the United States became the world’s largest LNG exporter after the return to normal operations at Freeport LNG and the ramp-up of Calcasieu Pass. Growth in U.S. exports helped buyers in Europe avoid a much worse scenario when Russia curtailed its gas supplies. Following the extreme price increases and volatility of 2021 and 2022, the global LNG market has cooled in recent months. However, the market is still finely balanced. With utilization rates at liquefaction facilities remaining quite high, unexpected outages or sudden demand increases could change things quickly.

U.S. volumes help alleviate supply risks. For Europe, cargoes from the Middle East and Australia typically transit through the Persian Gulf and the Suez Canal. These critical choke points are vulnerable to security threats, as seen with the Houthi attacks on commercial vessels in the Red Sea. In the Pacific, Most LNG shipments to Asia must pass through the Taiwan Strait and the South and East China Seas. Japan is deeply concerned about maritime transit risk, especially if geopolitical tensions grow in the South China Sea. U.S. LNG shipping avoids some of these risks as it can transverse the Atlantic to reach Europe as well as the Pacific for East Asia (Russian LNG also avoids traversing the South China Sea to get to Japan or Korea). North American supplies are not immune to risks and unexpected events, as seen in recent problems with Panama Canal transit, but it is valuable for buyers to avoid over-exposure to volatile regions.

U.S. LNG offers unique commercial benefits for importing companies and countries. Traditionally, LNG sales agreements included extensive contract periods and stringent delivery terms that prohibit selling to other terminals. Volumes were typically delivered ex-ship, meaning that the seller delivers the LNG to the buyer’s terminal. While buyers enjoyed security of supply, there were some drawbacks to these contractual arrangements. LNG buyers had difficulty changing from one supplier to another, and the short-term market remained relatively small since there was limited liquidity. In this regard, U.S. LNG has been a game changer. Ample domestic gas supply, extensive gas infrastructure, and relatively low supply costs helped facilitate export projects led by new sellers. Prospective LNG sellers could access volumes from the grid, as long as they could find a suitable port for a liquefaction facility. Lower up-front costs and less stringent contract terms allowed buyers to arrange their own shipping and leverage free on board (FOB) terms, enabling more flexibility on the ultimate destination of cargoes. And since cargoes can ship either to the Atlantic or Pacific, U.S. LNG volumes act as a balancing force between markets. The result has been greater convergence between LNG prices in Europe and Asia. U.S. LNG also created a new pricing mechanism since volumes are typically sold at Henry Hub-linked prices, allowing greater stability for sellers who avoid market risk between their feed gas purchase price and the FOB price. U.S. LNG helps buyers diversify their price portfolio, which in turn allows for greater optimisation of their fleet of cargoes.

U.S. exports add security in a sanctions-constrained world, creating more options for allies and trade partners. Sanctions on energy exporting countries naturally create some challenges for oil and gas importers, and restricting U.S. energy exports makes it more difficult for importers to adapt. The United States has recently announced additional sanctions on new Russian LNG projects that have contracts with Western and Japanese companies. These actions followed earlier sanctions and embargoes on Russian crude oil and petroleum products by various countries—as well as price caps that were carefully designed to avoid major supply disruptions. Many energy-importing countries are still deeply concerned about security of supply. Suggestions that the United States will restrict future LNG export capacity may not sit well with such countries. Buyers in Japan and China may now look to either fully permitted U.S. projects or to other suppliers for alternatives.

LNG as a Transition Fuel

At the 28th UN Conference of the Parties (COP28), countries agreed to work toward “transitioning away from fossil fuels in energy systems . . .in a just, orderly, and equitable manner.” The final text also noted that “transitional fuels can play a role in facilitating the energy transition while ensuring energy security,” which seemed to recognize natural gas as a bridge fuel. The Biden administration’s pause on new LNG project approvals shows the difficulty of determining what role U.S. fossil fuel exports should play in this longer-term future, especially given the uncertainty about decarbonization pathways in various regions.

The assertion by environmental campaigners that future natural gas exports will compete only with renewable energy and not with coal in Asia is unfounded. Gas price increases in the immediate aftermath of Russia’s war on Ukraine created some suboptimal emissions outcomes, including the fact that countries like Pakistan were priced out of the market and turned to coal consumption for power generation. Naturally, the long-term role of gas in each market will vary. But all things being equal, constricting natural gas supply over the long term could make it harder for gas to replace many thermal coal applications. The net emissions impact of expanding or reducing U.S. LNG exports on emissions of other countries depends on many factors including their economic growth rates, the prices and availability of different fuels, the value chain emissions of those alternative fuels, existence of infrastructure to accommodate gas, and so on. This issue belies simple conclusions.

U.S. LNG and Energy Transitions

Beneath the analytical debates about the further expansion of U.S. LNG export capacity is a deeper question of how the United States wants to engage with the world during the energy transition. Like any other country, it seeks broad—and sometimes conflicting—objectives including global decarbonization and geopolitical influence. Which tools will the United States bring to bear and how can it use them to maximize its goals?

Europe’s 2021–2022 energy crisis showed the importance of the U.S. LNG industry to maintaining global energy security, but this could be a short-lived chapter of the energy transition. As European gas demand is likely to decline in the 2030s, the planned expansion of global LNG export capacity will principally aim to meet the anticipated rise in demand in South Asia and Southeast Asia. Energy policy decisions in these countries, many of which are quite dependent on coal, cannot be made in the United States. China, Vietnam, the Philippines, and India are willing consumers for LNG, whether from the United States or other suppliers. With a strong policy push to drive down emissions from domestic gas production, transportation, liquefaction, and shipping, U.S. LNG will be well positioned to supply these markets.

#### Baker-Shultz will hinder US LNG exports

Arsalan Eftekhar 2020, University of Texas School of Law with a J.D. in May 2020. Baker Botts L.L.P. associate in, Arsalan spent two years consulting energy companies in Houston. May, 2020, Reporter 15 Tex. J. Oil Gas & Energy L. 163, “NOTE: Choppy Waters for LNG? The Transition of Liquified Natural Gas from Transition Fuel to Destination Fuel” NexisUni accessed 8-9-24//DeLo-IU

 4. Border Carbon Adjustment

 Carbon fees have the potential to make domestic oil and gas companies less competitive in the international marketplace. To enhance the competitiveness of the more energy-efficient American-based firms, "carbon-intensive exports to countries without comparable carbon pricing systems will receive rebates for carbon fees paid, while carbon-intensive imports from such countries will face fees on the carbon content of their products." 104The Border Carbon Adjustment prevents free-riding by other nations, positions America as the leader of global climate policy, and encourages other large emitters to adopt a carbon pricing system of their own. 105

 5. Analysis

 The Baker-Shultz plan provides a powerful market signal that incentivizes businesses and consumers to change their behaviors. The plan encourages and rewards companies that implement new technologies and serves as a catalyst for technological innovation. 106In a sense, the plan includes a strict liability mechanism - companies can pollute, but are strictly liable for their pollution and must pay accordingly. Shifting the burden in this way forces companies to take a hard look at their business models, especially since the plan is designed to impose a higher fee on those who emit the most CO<2>. Market forces will likely push multiple companies out of business, while other companies will decide to invest in new technologies to reduce CO<2> emissions. As the main offenders leave the scene and the remaining oil and gas companies reduce emissions, the plan's Emissions Assurance Mechanism may provide a concrete method to pave the road for LNG's transition into a destination fuel.

 Consumers may be concerned that the carbon fee is a cost that will simply be passed on to end consumers; gas companies may increase the price at which they sell natural gas to power companies, and power companies may attempt to recover these additional costs from their consumers through rate cases. If this occurs, there remains the potential that American families end up paying more of the carbon fee than they receive in carbon dividends. As this is likely an unintended consequence of the plan, local governmental agencies may need to [\*180] intervene to prevent power companies from pushing the carbon fee on to end consumers. This would likely incentivize power companies to enter into long-term contracts with cleaner energy companies that have identified efficiencies and invested in new technologies to reduce their share of the CO<2> emissions. In this way, local government initiatives will help support the plan's objectives.

 On the other hand, passing the carbon fee on to end consumers may be desirable; "wealthier [people] tend to pollute more, and would therefore face higher costs." 107The majority of end consumers would now have a monetary incentive to change their energy consumption behavior. Since "everyone is rewarded equally for reducing their collective carbon footprint," 108these induced behavioral changes may enhance the feasibility of the plan. With that said, the U.S. Department of Treasury has indicated that "the vast majority of American families will receive more in carbon dividends than they pay in increased energy costs." 109

 Oil and gas companies may be concerned that the carbon fee will make them less competitive internationally. The Border Carbon Adjustment component 110of the plan may make it more difficult for oil and gas companies to compete internationally early on due to the lag time before other countries create an adequate pricing system of their own. The U.S. will need seamless cooperation with other countries to ensure that oil and gas companies are not taxed twice for their carbon production and subsequent exportation to a country that taxes carbon imports. Moreover, adequate consideration should be given to companies that have long-term contracts with overseas purchasers - a phasing out approach should be employed to provide adequate time for oil and gas companies to renegotiate their contracts if necessary. The Border Carbon Adjustment component may also make it more difficult for American oil and gas companies to compete for bids in a country without a comparable pricing system. American oil and gas companies may need to account for increased infrastructure costs in their bids to reduce the carbon content of their products, which may make these American bids less attractive to the host nation. Companies may be less successful in their negotiations for coveted Production Sharing Contracts, 111as host nations may be less inclined to let them recover these increased infrastructure costs before the host nation begins to profit.

#### Loss of cohesion greenlights Russian expansionism. They’ll exploit NATO’s weak points.

Brauß & Rácz ‘21 –Senior Associate Fellow, Center for Security and Defense; Senior Research Fellow at the Center for Order and Governance in Eastern Europe, Russia and Central Asia, PhD in modern history from the Eötvös Loránd University. (Heinrich Brauß & Dr. András Rácz; “Russia’s Strategic Interests and Actions in the Baltic Region”; https://dgap.org/en/research/publications/russias-strategic-interests-and-actions-baltic-region; 2021; NC)

As a consequence, Moscow’s actions in foreign, security and defense policy have been designed to restore Russia’s great power status while at the same time re-establishing the cordon sanitaire it enjoyed until the end of the Cold War. In particular, it wants to regain control of Russia’s “near abroad,” making demands for an allegedly historically justified “zone of privileged interest.” This would come at the expense of the sovereignty and security of neighboring states. While Russia’s actions may have defensive origins, these insecurities are manifested in an aggressive and unpredictable manner.

Standing in the way of Russia’s expansionist ambitions are the EU and NATO, and above all the U.S. military presence in Europe. If NATO unity were sufficiently undermined, its decision-making capability paralyzed, its ability to defend itself undercut, the organization itself could collapse. Were that to happen, Russia would gain control over an open field; the expansion of Russian control over Europe would be almost automatic. This is why Russia is seeking to undermine the Euro-Atlantic security order that emerged after the Cold War: its goal is to weaken NATO and the European Union (EU), disrupting Western initiatives and regional and global arrangements.

In terms of a strategy to pursue its goals, the Russian government knows it cannot win a long-running war with the West, nor any strategic confrontation with NATO in the near future. So instead it focuses on undermining NATO’s capability and it willingness to defend itself. To this end, Moscow has adopted a policy of permanent confrontation with the West. Its “Strategy of Active Defense” is designed as a long-term multi-domain campaign to de-stabilize individual NATO members and the alliance as a whole from within: to intimidate them from outside, compromise their decision-making and deny NATO effective military options for defense. For that purpose, Moscow applies a broad range of overt and covert, non-military and military instruments in an orchestrated way, measures tailored for peacetime, crisis and war. In peacetime, these “hybrid” operations remain below the threshold of direct military confrontation with NATO, blurring the boundaries between peace and conflict so as to create ambiguity, uncertainty and confusion. In this way, it can undermine effective responses.

#### NATO-Russia war causes extinction.

Kulesa ’18 [Lukasz; February 2018; Research Director at the European Leadership Network; European Leadership Network, “Envisioning a Russia-NATO Conflict: Implications for Deterrence Stability,” http://www.jstor.com/stable/resrep17437]

Escalation: Can a NATO - Russia conflict be managed?

Once a conflict was under way, the “fog of war” and rising unpredictability would inevitably set in, complicating the implementation of any predetermined theories of escalation, deescalation and inter-conflict management. The actual dynamics of a conflict and the perceptions of the stakes involved are extremely difficult to predict. Simulations and table-top exercises can give only limited insights into the actual decision-making processes and interactions.

Still, Russian military theorists and practitioners seem to assume that a conflict with NATO can be managed and controlled in a way that would bring it to a swift end consistent with Russian aims. The Russian theory of victory would seek to exploit weak points in an Alliance war effort. Based on the conviction that democracies are weak and their leaders and populations are risk-averse, Russia may assume that its threats of horizontal or vertical escalation could be particularly effective. It would also try to bring home the notion that it has much higher stakes in the conflict (regime survival) than a majority of the NATO members involved, and thus will be ready to push the boundaries of the conflict further. It would most likely try to test and exploit potential divisions within the Alliance, combining selective diplomacy and activation of its intelligence assets in some NATO states with a degree of selectivity in terms of targets of particular attacks.

Any NATO-Russia conflict would inevitably have a nuclear dimension. The role of nuclear weapons as a tool for escalation control for Russia has been thoroughly debated by experts, but when and how Russia might use (and not merely showcase or activate) nuclear weapons in a conflict remains an open question. Beyond catch phrases such as “escalate to de-escalate” or “escalate to win” there are a wider range of options for Russian nuclear weapon use. For example, a single nuclear warning shot could be lethal or non-lethal. It could be directed against a purely military target or a military-civilian one. Detonation could be configured for an EMP effect. A “false flag” attack is also conceivable. These options might be used to signal escalation and could significantly complicate NATO’s responses.

Neither NATO nor its member states have developed a similar theory of victory. Public NATO documents stipulate the general goals for the Alliance: defend against any armed attack and, as needed, restore the full sovereignty and territorial integrity of member states. It is less clear how far the Alliance would be willing to escalate the conflict to achieve these goals, and what mechanisms and means it would use while trying to maintain some degree of control over the conflict.

The goals and methods of waging a conflict with Russia would probably have to be limited in order to avoid a massive nuclear exchange. Such limitations would also involve restrictions on striking back against targets on Russian territory. But too narrow an approach could put too much restraint on NATO’s operations: the Russian regime’s stability may ultimately need to be threatened in order to force the leadership into terminating the conflict. NATO would thus need to establish what a proportional self-defence response to Russian actions would involve, and to what extent cyber operations or attacks against military targets in quite different parts of Russia would be useful as tools of escalation to signal NATO’s resolve. Moreover, individual NATO Allies, especially those directly affected by Russia’s actions, might pursue their individual strategies of escalation.

With regards to the nuclear dimension in NATO escalation plans, given the stakes involved, this element would most likely be handled by the three nuclear-weapon members of the Alliance, with the US taking the lead. The existence of three independent centres of nuclear decision-making could be exploited to complicate Russian planning and introduce uncertainty into the Russian strategic calculus, but some degree of “P3” dialogue and coordination would be beneficial. This coordination would not necessarily focus on nuclear targeting, but rather on designing coordinated operations to demonstrate resolve in order to keep the conflict below the nuclear threshold, or bring it back under the threshold after first use.

Relying on concepts of escalation control and on lessons from the Cold War confrontation might be misleading. The circumstances in which a Russia-NATO conflict would play out would be radically different from the 20th century screenplay. Moreover, instead of gradual (linear) escalation or salami tactics escalation, it is possible to imagine surprizing “leap frog” escalation, possibly connected with actions in different domains (e.g. a cyberattack against critical infrastructure). Flexibility, good intelligence and inventiveness in responding to such developments would be crucial.

Conflict termination

Russian and NATO assumptions regarding conflict termination would most likely not survive the first hours of an actual conflict. Both sides are capable of underestimating the resolve of the other side to prevail in a conflict and the other side’s willingness to commit the necessary resources and endure the costs, especially once both sides start committing their political capital and resources and the casualties accumulate.

## Uniqueness

### U: Gas Production High

#### Gas production high now

Forbes 2024, 6-26-2024, Robert Rapier, Senior Contributor chemical engineer covering the energy sector, “U.S. Oil And Gas Production Are Ahead Of Last Year’s Record Pace” <https://www.forbes.com/sites/rrapier/2024/04/26/us-oil-and-gas-production-are-ahead-of-last-years-record-pace/> accessed 8-9-2024//DeLo-IU

Last year marked a record for U.S. oil production with an average daily production of 12.93 million barrels per day (BPD). That record was 5% greater than the previous record of 12.31 million bpd set in 2019.

However, current data from the Energy Information Administration (EIA) shows that average daily production thus far in 2024 is 13.12 million bpd — 7.1% ahead of the production level of a year ago and 1.4% higher than last year’s record pace.

U.S. natural gas production tells a similar tale. The EIA recently confirmed that 2023 marked a record for U.S. natural gas production at 125 billion cubic feet per day (CFD). That was 4% ahead of the previous record set in 2022.

PROMOTED

Natural gas data isn’t reported as often as petroleum data, but January’s natural gas production level was 124.6 billion CFD. That followed a monthly production record in December 2023. It was slightly behind last year’s record level, but there are some seasonal effects in natural gas production. If we compare January 2024 to January 2023, this year’s production level was 1.1% higher than a year ago.

The price of West Texas Intermediate (WTI) crude is currently hovering around $85 per barrel, which is about 7% higher than a year ago. That should help keep U.S. oil production levels elevated. The number of rigs drilling for oil and gas in the U.S. is nearly 20% lower than a year ago, although the rig count has been relatively stable from the previous quarter (down 1%).

However, the decline in rig count is more pronounced in the number of rigs drilling for natural gas (down 35%) than for oil (down 14%).

In summary, the U.S. oil and natural gas production have continued their upward trajectory, with both ahead of year-ago levels. Despite a slight decline in rig count, elevated crude oil prices are expected to support continued production growth.

#### No headwinds on gas production now, Biden’s energy policies are big tent

**Lefebvre 2024**, Ben, Politico Contributor who has covered energy industry and policy issues for nearly a decade. 3-27-2024 “The ‘all of the above’ energy success that’s causing Biden headaches” Politico, <https://www.politico.com/news/2024/03/27/bidens-uneasy-energy-empire-00147449> accessed 8-9-24//DeLo-IU

President Joe Biden is presiding over a historic boom in U.S. energy production, with oil, natural gas and renewable power all setting records that would have seemed unfathomable two decades ago.

And almost no one is happy about it.

Republicans are angry about the hundreds of billions of dollars Biden is pouring into incentives for green energy, and his decision to place a temporary cap on the explosive growth of U.S. natural gas exports.

Climate-minded Democrats and environmental advocates, meanwhile, say Biden’s approvals of pipelines and other fossil fuel projects violate his pledges to take on climate change — with some warning he’s demoralizing the young voters he needs to win reelection.

All the same, the once-unimaginable milestones keep coming: The U.S. set an all-time record for crude oil production in 2023, outstripping what any country — even Saudi Arabia — has ever produced in one year. Its natural gas exports also lead the world, providing a growing fuel lifeline to Europe and Asia. Wind and solar have emerged as the nation’s fastest-growing source of power, and now contribute nearly 15 percent of the country’s electricity, up from nearly zero 20 years ago.

This abundance, the result of technological advances in drilling, energy tax policy tweaks across multiple administrations, state-level renewable energy production targets and the falling prices of wind and solar energy, means Biden has gotten the closest to an “all of the above” energy economy since presidential candidates from both parties started using the phrase in the 2000s.

But the result has hardly been an era of untroubled bliss for the president. Instead, he faces continued unhappiness among many voters about gasoline prices, which spiked to record highs two years ago. And his administration must make tough decisions about whether, and how, to rein in fossil fuels that drive climate change.

“We are an ‘all of the above’ country in many ways,” said Sen. John Hickenlooper, a Colorado Democrat whose state is one of the country’s largest oil producers. “But is that sufficient? Ultimately we’re going to have to figure out how we get to a clean energy future.”

In addition, some rising energy sources, such as gas and wind, are growing at the expense of other traditional sources, such as coal — adding to Democrats’ electoral woes in coal-producing states like West Virginia.

The term “all of the above,” embraced by past politicians as varied as Barack Obama and former vice presidential nominee Sarah Palin, is built on the notion that an abundance of every type of energy will generate jobs, keep costs low for consumers and power the economy forward.

For most lawmakers, though, “all of the above” usually means policy support for the type of energy they prefer. That’s wind and solar power for green-minded Democrats who want to tackle the growing ravages of climate change, and fossil fuels for Republicans who say the U.S. must keep tapping the vast oil and gas reserves that provide the lion’s share of energy for the country.

And since output of nearly every type of energy has jumped over the past 15 years — except coal, whose use has slid dramatically despite abundant supplies — it’s given politicians of all stripes plenty of ammunition.

Republicans say energy supply under Biden may have reached the “all of the above” ideal, but only because Democrats have put their thumb on the scale to favor renewable energy with massive government subsidies.

Biden’s energy policy is “not evidence-based — it’s based more on ideology and politics,” Republican Sen. John Cornyn of Texas said in an interview. Cornyn’s state is the country’s largest producer of oil and natural gas, as well as wind power, and is the home to the headquarters for the electric car giant Tesla.

Cornyn, one of the Republicans aiming to succeed outgoing GOP Senate leader Mitch McConnell, said he considered Biden’s signature climate policies in the Inflation Reduction Act “wasted money” — and he would be happy to revisit the law if former President Donald Trump retakes the White House in November’s election.

After all the lip service that politicians have given to an “all of the above” energy policy for two decades, the U.S. appears to have gotten as close to it as it has ever been. For example, it became a net fuel exporter in 2011, the world’s top oil producer in 2018 and the top gas exporter just last year.

“We’re moving on all fronts at the same time,” said Dan Yergin, a Pulitzer-winning energy historian and vice president of the analytics firm S&P Global.

“There’s this huge shift that I don’t think is very well appreciated in the United States itself in terms of the U.S. role in global energy,” Yergin said. “So many other countries just wish they could be in the position of the United States when it comes to energy, being able to do all these things at the same time.”

Biden’s policies — both the clean energy ones he’s publicly touted and fossil fuel moves that his administration prefers to keep quiet — have played a role in driving growth in both renewables as well as oil and gas production.

The Inflation Reduction Act and the bipartisan infrastructure law’s hundreds of billions of dollars in incentives are driving a wave of clean energy projects for wind, solar, geothermal, batteries and electric vehicles. And they’ve raised hopes that the country’s aging fleet of nuclear reactors will be replaced with new plants that are smaller and safer.

Meanwhile, Biden’s Interior Department has approved a steady flow of permits to drill on public land and greenlit some massive oil drilling and pipeline projects. That contributed to making last year’s U.S. crude oil output of 12.9 million barrels per day the highest of any country in history, according to the Energy Information Administration, the Energy Department’s independent statistical arm.

But that hasn’t stopped Republicans from hitting Biden for blocking some pipelines and slowing new lease sales to drill on public lands. The Energy Department also announced it would pause the process for issuing new liquefied natural gas export permits.

House Majority Leader Steve Scalise derided Biden in a release this month, accusing him of “shutting down American energy while [he] flies to Saudi Arabia and begs them to produce more energy.” That was a reference to a diplomatic trip Biden took to the kingdom in 2022 after Russia’s invasion of Ukraine caused oil prices to spike.

Nearly two years after Congress enacted Biden’s mammoth climate law, the Inflation Reduction Act, that signature legislation remains politically divisive. But even Republicans acknowledge it is having an impact on the energy landscape.

Sen. Cynthia Lummis, a Wyoming Republican who sits on the Senate Energy and Natural Resources Committee, said the country’s energy mix was increasingly diverse, though only because of the “massive subsidies” the government is handing to the renewable energy industry.

“The policy of the United States was to pick winners and losers, and pick wind and solar as a winner through tax credit programs,” she said. “They have advanced under our massive subsidies for those industries.”

The White House did not respond to multiple requests for comment.

The boom in renewable power is borne out in the data. Solar power has grown more than tenfold in just over a decade, and its power output is forecast to jump 75 percent over 2023 levels in the next two years. Wind power capacity has tripled in the past decade, with its power production projected to climb more than 10 percent by the end of 2025. Both sources are closing the gap with natural gas, the United States’ largest source of electric power.

Growth of large-scale battery capacity — critical for storing power from wind and solar — is growing exponentially, having gone from nearly zero in 2015 to an expected 30 gigawatts in 2025, or about the capacity of 30 nuclear reactors, according to the the EIA. Output from geothermal and nuclear power, stable for years, is expected to increase amid major investments.

While climate advocates cheer these gains, they say any move by the administration that benefits fossil fuels violates Biden’s pledge to put the fight against climate change at the center of his energy policy.

Oregon Sen. Jeff Merkley, one of the Senate’s strongest climate advocates, said Biden’s embrace of “all of the above” energy policies is hurting him with young voters worried about climate change.

“Our young folks are like: ‘You’re all going to be dead. You old folks are going to be dead, but we’re going to have to live with these stronger storms, bigger forest fires, more smoke, more rising sea levels,’” he told the POLITICO Energy podcast earlier this month.

Like oil production, U.S. natural gas production has also soared to record levels because of advances in drilling technology, hitting 43 trillion cubic feet in 2022, up by half since 2012. That has eroded coal’s dominance in power production.

#### The IRA bolsters the natural gas industry while creating a sustainable shift

Webster 22 The Inflation Reduction Act’s impact on the US oil and gas industry By Joseph Webster Senior Fellow, Global Energy Center Nonresident Senior Fellow, Indo-Pacific Security Initiative October 31 2022 https://www.atlanticcouncil.org/blogs/energysource/the-inflation-reduction-acts-impact-on-the-us-oil-and-gas-industry/

The Inflation Reduction Act (IRA) will have sizable—and perhaps counterintuitive—effects on the US oil and gas complex. Natural gas power sector demand will face increasingly stiff competition from clean energy sources amid greater fiscal support for wind, solar, and nuclear electricity generation. Similarly, long-duration storage provided by batteries and, potentially, clean hydrogen will further reduce demand for “peaker” plants, such as combustion turbines, which provide electricity generation during periods of maximum demand. Industrial sector natural gas demand could also take a hit from clean hydrogen, at least for certain use cases.

On the other hand, lower domestic natural gas demand, could, all things being equal, incentivize greater liquefied natural gas (LNG) exports, due to lower feed gas costs. Finally, the IRA could enable US oil majors to embrace key elements of the energy transition, substantially reduce emissions, and re-brand themselves as among the cleanest in the world. Hydrogen and hydrogen-related provisions in the IRA, such as support for carbon storage, could enable the oil and gas complex to become a cleaner, more export-oriented industry that enjoys a robust social license to operate.

Natural gas and LNG

US long-term domestic natural gas consumption has very likely moved lower in the wake of the IRA. With the bill likely to increase amounts of clean energy generation, batteries, and long-duration hydrogen storage, natural gas use for baseload and peak electricity generation is facing severe challenges. Similarly, the bill’s support for hydrogen could also replace natural gas consumption in several industrial sectors, including refineries, steel, cement, and more, while [funding for energy efficiency programs and heat pumps](https://www.politico.com/news/2022/08/21/consumers-climate-law-inflation-reduction-act-00052963) will diminish natural gas heating demand. Indeed, [Princeton’s REPEAT Project](https://repeatproject.org/docs/REPEAT_IRA_Prelminary_Report_2022-08-12.pdf) found that 2030 US natural gas consumption will fall by nearly 9 percent relative to pre-IRA projections.

Rising overseas demand for US LNG exports will provide support for the natural gas industry even as domestic natural gas consumption faces challenges from alternative fuels. US LNG capacity is expected to [total 17.3 billion cubic feet per day](https://rbnenergy.com/blurred-lines-as-the-us-races-toward-30-bcf-lng-exports-what-could-it-mean-for-upstream-markets) (Bcf/d) by mid-decade on very strong LNG demand from Europe and Asia. To put that in perspective, the Energy Information Administration’s [August 2022 Short-Term Energy Outlook](https://www.eia.gov/outlooks/steo/#:~:text=We%20forecast%20U.S.%20dry%20natural,%25)%20more%20than%20in%202021.) that US natural gas domestic consumption would total around 85 Bcf/d in 2022. If, as seems increasingly probable, Gazprom’s pipeline exports of around 200 billion cubic meters per year, or about 19.3 Bcf/d, are [zeroed out](https://www.politico.eu/article/europes-reverse-leverage-gazprom-cant-shift-its-gas/) due to Moscow’s invasion of Ukraine, then US LNG exports will receive strong fundamental support and could double from current levels by 2030.  US LNG exports are set to comprise a growing share of total domestic natural gas demand.

US LNG exports will hinge, to a degree, on producers’ ability to limit greenhouse gas (GHG) emissions throughout the natural gas value chain. Famously, (or infamously), Engie [dropped a $7 billion contract](https://www.naturalgasintel.com/frances-engie-scraps-proposed-rio-grande-lng-deal-amid-environmental-concerns/) with the proposed Rio Grande export terminal in 2020 due to concerns about the environmental impacts of shale gas production. While Engie and Rio Grande reconnected and [executed a 1.75-million-tons-per-annum](https://investors.next-decade.com/news-releases/news-release-details/nextdecade-and-engie-execute-175-mtpa-lng-sale-and-purchase) (mtpa) contract in May 2022—amid very different circumstances in European natural gas markets—the episode illustrates how unmitigated emissions can pose commercial risks.

The impact of methane fees and ESG

Certain provisions in the IRA will penalize emissions from specific types of facilities. For the [first time in US history](https://crsreports.congress.gov/product/pdf/R/R47206), the federal government is directly imposing costs on greenhouse gas (GHG) emissions. The bill will initially impose penalties of $900 per metric ton of methane emitted, with the pollution fee rising to $1,500 per metric ton after two years.

On the other hand, the bill also contains incentives for carbon capture and [carbon removal](https://www.atlanticcouncil.org/blogs/energysource/the-inflation-reduction-act-gives-carbon-removal-a-big-boost/). The IRA’s 45Q provision, notably, will [increase tax credit values](https://www.bakerlaw.com/alerts/inflation-reduction-act-provides-boost-benefits-carbon-capture-utilization-storage-industry) for carbon capture, utilization, and storage (CCUS). US natural gas producers, particularly US LNG exporters, may be able to use 45Q and methane incentives to reduce GHG emissions, generate support for their social license to operate in the face of environmental, social, and governance (ESG) concerns, and even improve profitability.

Oil refining and green hydrogen

Green hydrogen appears set to outcompete grey hydrogen on price alone, even without accounting for carbon taxes or ESG concerns. Oil refining is a key sector to watch, as hydrogen accounts for 10-25 percent of a refinery’s variable operating expenditure, [according to some estimates](https://www.woodmac.com/news/opinion/from-grey-and-brown-to-green-and-blue-low-carbon-hydrogen-in-refining/).

Refineries accounted for about [32 mtpa](https://www.woodmac.com/press-releases/low-carbon-hydrogen-demand-in-refining-could-reach-50-mtpa-by-2050/) of world hydrogen demand in 2020. Refineries use hydrogen to lower the sulfur content of diesel, particularly at “complex” refineries that process highly sulfuric, or sour, crudes. US refineries are relatively complex and thus require a substantial amount of hydrogen.

US electrolyzer producers and refiners are already accelerating the switch from natural gas-produced grey hydrogen to clean hydrogen. Plug Power, a major US electrolyzer producer, estimates that the US refining and ammonia sectors alone [consume about 20,000 tons of hydrogen per day](https://www.energyintel.com/00000182-8ed9-d4e0-abc6-def941900000). On August 4, Plug Power signed a deal with New Fortress Energy to construct a [50 ton-per-day hydrogen plant in Beaumont](https://www.ir.plugpower.com/press-releases/news-details/2022/Plug-Selected-by-New-Fortress-Energy-for-120-MW-Green-Hydrogen-Plant-on-Gulf-Coast/default.aspx), near a regional refining hub. The deal is likely just the beginning of a flood of new green hydrogen plants serving existing refining and ammonia demand along the Gulf Coast: the region, particularly west Texas, has outstanding renewables resources and green hydrogen potential, while Texas and Louisiana [already have](https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/080522-plug-power-new-fortress-energy-to-bring-green-hydrogen-plant-to-texas-coast) a hydrogen-dedicated pipeline network. Plug Power has also signed a [memorandum of understanding with Phillips 66](https://investor.phillips66.com/financial-information/news-releases/news-release-details/2021/Phillips-66-Plug-Power-Sign-Agreement-to-Advance-Green-Hydrogen/default.aspx) on “low-carbon hydrogen business opportunities.”

Significant portions of the US refining complex are about to switch from grey hydrogen to green hydrogen due to the IRA’s incentives. The bill will likely render green hydrogen cheaper than grey hydrogen, particularly in renewables-rich regions of the country; make US refineries more efficient and competitive vis-à-vis their international competitors; and lower plant emissions, as on-purpose hydrogen production accounts for [about 10 percent of total world refinery emissions](https://www.woodmac.com/news/opinion/from-grey-and-brown-to-green-and-blue-low-carbon-hydrogen-in-refining/). While green hydrogen is not a panacea, it appears likely to reduce plant-level emissions and costs over the medium-term. The US refining sector may be able to use green hydrogen to increase profits and demonstrate to ESG-concerned parties that it is working to reduce emissions.

The Inflation Reduction Act will very likely turbocharge the energy transition, including through its support for clean energy generation and clean hydrogen. The legislation’s support for green hydrogen and, to a lesser extent, nuclear-powered pink hydrogen will likely lead to serious, and potentially dramatic, displacement of existing grey hydrogen demand. Domestic natural gas consumption is also expected to fall, particularly in the electricity sector.

While the IRA will likely sharply decrease grey hydrogen demand and domestic natural gas consumption, it also provides significant opportunities for the US oil and gas complex. Refiners may be able to reduce emissions and costs by switching to green hydrogen, while natural gas producers may be able to lower costs—and curb emissions—by capturing carbon and avoiding methane releases. These measures could ease ESG backlash against oil and gas producers. By greening their operations when possible and orienting themselves towards harder-to-decarbonize export markets, oil and gas producers may be able to secure a more sustainable license to operate.

#### The IRA massively reduces natural gas use while bolstering the industry through green hydrogen and biogas

von Loesecke and Chermak ’23 von Loesecke Emily a senior consultant in West Monroe's Energy & Utilities practice, where her expertise in sustainability assists her clients in defining and implementing their decarbonization strategies., E. and Chermak, C a consultant in the Energy and Utilities Practice at West Monroe, based out of Denver, Colorado. He has worked with electric utilities across the United States on grid telecommunications and reliability initiatives. Charlie holds a Bachelor's degree in Mechanical Engineering from the University of Wisconsin-Madison.. (2023), The Inflation Reduction Act: Impacts on Utilities and Power Producers. Climate and Energy, 39: 1-10. <https://doi.org/10.1002/gas.22328>

According to the Rhodium Group, the IRA is expected to reduce US natural gas use by 3–10 percent by 2030, significantly more than the <1 percent reduction expected for petroleum use 21 This expected slowdown in demand for natural gas raises a critical question for natural gas utilities as they must grapple with the role of existing natural gas assets in a clean energy economy, particularly in relation to hydrogen and biogas 22

For both natural gas utilities and power producers, the shift to hydrogen—especially hydrogen produced emission-free via electrolysis, known as green hydrogen—incentivized in the IRA presents a major opportunity The IRA establishes a new PTC to produce clean hydrogen from qualifying facilities for the first 10 years of operation. Both the hydrogen and the facilities must meet certain requirements to qualify for the credit The tax credit increases as the amount of CO2 e emissions associated with the hydrogen production drop, starting at 60 cents per kilogram of hydrogen mul- tiplied by a scaling factor, depending on the associ- ated CO2 e emissions, as outlined in Table 2

Hydrogen credits in the IRA present opportunities for power producers and natural gas distribu- tion utilities Given the tiered scaling factor based on associated CO2 e emissions, power producers are increasingly incentivized to generate clean hydro- gen with minimal associated emissions While there are tax credits available for hydrogen generated partially from fossil fuels, power producers can capitalize on the highest scaling factor for hydro- gen produced with less than 0 45 kg CO2 e per kg of hydrogen Therefore, power producers seeking to reap the full benefits of this tax credit must ensure they have sufficient clean generation capacity to do so While the methane charge and other provisions in the IRA discourage the use of natural gas, the hydrogen credits offer an opportunity to natural gas distribution utilities to play a role in the clean energy future by repurposing pipeline assets to transport hydrogen

In addition to clean hydrogen, the IRA presents a second notable opportunity for natural gas dis- tribution utilities: biogas By expanding the range of investments eligible for the current clean en- ergy ITC to include biogas property, the IRA will ac- celerate the rise of biogas and enable natural gas utilities to explore new revenue opportunities and use cases in the years ahead Whether through direct investments in biogas facilities or by using existing pipeline assets to transport biogas, power producers, third parties, and natural gas utilities should embrace the opportunity that biogas presents to establish a new role in America’s clean energy future Table 3 shows a summary of the provisions of the IRA related to clean hydrogen and other aforementioned energy topics

#### Natural gas is the linchpin of global energy

Usiagu et al. 2024 Usiagu, Gloria Siwe, et al. BSc Industrial Engineering, MSc Oil and Gas Engineering "LNG as a bridge fuel in the transition to renewable energy: A global perspective." *World Journal of Advanced Research and Reviews* 21.2 (2024): 742-749. https://wjarr.com/content/lng-bridge-fuel-transition-renewable-energy-global-perspective

As the global energy landscape undergoes a transformative shift towards renewable sources, Liquefied Natural Gas (LNG) emerges as a crucial bridge fuel, playing a pivotal role in the intricate dance between traditional energy and the promise of renewables. This conclusion synthesizes the multifaceted role of LNG, reflects on its implications for the global energy panorama, and contemplates the future prospects and challenges inherent in the transition to renewable energy. LNG, with its cleaner burning properties and flexibility, has assumed the role of a bridge fuel, facilitating the transition from conventional fossil fuels to renewable energy sources. Its versatility allows nations to address immediate energy needs while simultaneously paving the way for a sustainable future. Acting as a transitional element, LNG bridges the gap between the existing energy infrastructure and the evolving landscape of renewables, providing a reliable and comparatively cleaner alternative. The unique characteristics of LNG, such as its transportability and storage capabilities, make it a valuable asset in the global energy portfolio. From meeting the demands of burgeoning economies to complementing intermittent renewable sources, LNG serves as a bridge that harmonizes the present energy requirements with the aspirations of a cleaner, more sustainable future. The adoption of LNG as a bridge fuel carries profound implications for the global energy landscape. Its integration allows for enhanced energy security, providing nations with diversified sources and reducing dependence on traditional fossil fuels. Additionally, LNG trade fosters economic cooperation, as nations engage in strategic alliances through trade agreements, influencing geopolitical dynamics. The environmental implications are significant, as LNG helps reduce carbon emissions compared to traditional fuels. It aligns with global climate goals and supports efforts to transition towards a low-carbon energy future. LNG's impact on air quality, coupled with advancements in cleaner production technologies, positions it as a vital component in achieving a sustainable and environmentally conscious energy mix. Looking ahead, the future of LNG as a bridge fuel is intricately linked to the broader transition to renewable energy. As renewable technologies mature and become more economically viable, the need for LNG may gradually diminish. However, the path to a fully renewable energy landscape is fraught with challenges, ranging from intermittency issues to the scalability of technologies. The continued development of renewable energy sources, energy storage solutions, and advancements in grid infrastructure will shape the trajectory of the transition. Challenges such as the geopolitical complexities surrounding LNG trade, the need for robust regulatory frameworks, and the imperative to address environmental concerns will require concerted efforts from stakeholders. In navigating these future prospects and challenges, collaboration among nations, industries, and policymakers will be crucial. The transition to renewable energy is a collective endeavor, and LNG, as a bridge fuel, contributes to this ongoing journey towards a sustainable, resilient, and cleaner global energy landscape. In conclusion, the role of LNG as a bridge fuel is not only significant but also dynamic, adapting to the evolving needs of a world in transition. As the energy sector embraces renewables, LNG stands as a testament to the possibilities of harmonizing immediate energy needs with long- term sustainability goals. The journey towards renewable energy is underway, and LNG plays a central role in guiding us across the bridge to a cleaner and more sustainable future.

### A2: LNG Export Halt

#### **Judge struct town LNG terminal “pause”**

Farah 2024, Niina H. Farah, 07/02/2024, “Judge overturns Biden’s LNG export pause” https://www.eenews.net/articles/judge-overturns-bidens-lng-export-pause/

The ruling requires the Department of Energy to restart the process of considering gas export applications.

A federal judge reversed the Department of Energy’s freeze on new liquefied natural gas export approvals Monday, handing a win to industry and red states that had challenged the Biden administration plan.

Judge James Cain of the U.S. District Court for the Western District of Louisiana said in an order late Monday that DOE’s export pause would be “stayed in its entirety, effective immediately.”

In January, the administration halted reviews of new LNG export applications to non-free-trade-agreement countries, saying it needed to review how to account for climate risks of projects before approving exports. The pause was praised by environmentalists who had been critical of President Biden’s record on fossil fuels. Monday’s court ruling does not force DOE to now approve LNG applications, but it does require the department to restart the process of considering them.

DOE’s decision went against the language of the Natural Gas Act and was subverting “Congress’s determination that LNG exports are presumptively in the public interest,” said Cain, a Trump pick.

The ruling came in response to a lawsuit filed by coalition of 16 Republican-led states, which claimed the administration had overstepped its authority when it launched the freeze.

The department had said the pause would remain in place temporarily as it reviewed how it would account for climate risks when determining whether new gas exports were in the public interest. The freeze did not affect exports to non-free-trade agreements that had already been approved at the time.

According to Cain, the Natural Gas Act instructs DOE to ensure “expeditious completion” of reviewing export applications.

He acknowledged that DOE has previously used studies to update how it makes public interest determinations.

But “the decision to wholesale halt the process of approving applications for non-FTA countries is a complete reversal of how the DOE processed these applications in the past,” he wrote.

The pause affected exports for pending LNG projects, including Commonwealth LNG and Venture Global’s CP2 project in Louisiana, as well as the second phase of Sempra’s Port Arthur LNG project in Texas.

In a statement, DOE said that it disagreed with Monday’s ruling, adding it “continues to review the court’s order and evaluate next steps.”

DOE has noted that the United States remains the largest LNG exporter in the world, despite claims from opponents that the pause caused economic harm.

The country has an operating gas export capacity of 14 billion cubic feet per day, with projects under construction that could add 12 billion more cubic feet per day in this decade, according to the department.

DOE has also authorized another 22 billion cubic feet per day of exports from facilities that are not yet under construction and were not affected by the pause.

Craig Segall, vice president of the climate advocacy group Evergreen Action, emphasized in a statement that the court’s decision would not determine what DOE could consider in deciding whether LNG export permits are in the public interest.

“Pause or no pause, the science is clear: No sound analysis that accounts for the climate and environmental harm inflicted by LNG exports could possibly determine that these deadly facilities are in the public interest,” Segall said.

Lauren Parker, an attorney at the Center for Biological Diversity’s Climate Law Institute, said “coupled with last week’s court rulings, rolling back the LNG pause shows that Trump judges are hellbent on torching environmental safeguards, the climate and our democracy.”

West Virginia Republican Attorney General Patrick Morrisey, however, lauded the court’s decision late Monday. West Virginia was one of the 16 states backing the lawsuit.

“This is a big win for the country’s energy industry and the millions of jobs it supports against the attacks from the Biden administration to further its radical climate change agenda at the expense of our economy,” he said in a statement shortly after the decision.

“This administration’s Energy Department has no such authority to justify this ban — authority on matters like this lies with Congress and Congress alone,” he added.

Social cost of carbon echoes

This is not the first time that Cain has struck down administration policies aiming to account for climate risks and harms of pollution to vulnerable communities.

In 2022, Cain ruled that the Biden administration could not use a climate metric known as the social cost of carbon to put a price tag on carbon emissions. His injunction was later reversed by the 5th U.S. Circuit Court of Appeals.

More recently, Cain issued a preliminary injunction in January barring EPA’s efforts to beef up its civil rights enforcement of environmental laws in Louisiana.

The Trump-appointed judge has also blocked the Bureau of Ocean Energy Management’s efforts to shield Rice’s whale habitat from oil and gas development.

## Links

### Carbon Tax

#### Carbon Tax would boost prices undercutting exports

Ramseur and Leggett 2019, Jonathan L. Ramseur, Specialist in Environmental Policy, Jane A. Leggett, Specialist in Energy and Environmental Policy, March 22, 2019, Attaching a Price to Greenhouse Gas Emissions with a Carbon Tax or Emissions Fee: Considerations and Potential Impacts, <https://www.everycrsreport.com/files/20190322_R45625_5523efb5337823a36aab31532131d68b985f78bc.pdf> Accessed 8-9-2024//DeLo-IU

Many stakeholders have voiced concerns over how a U.S. carbon price system would interact with policies in other nations, particularly if the United States were to enact a carbon tax system that covers more sources or is more stringent than enacted elsewhere. A central concern is that a U.S. carbon tax could raise U.S. prices more than the prices of goods manufactured abroad, potentially creating a competitive disadvantage for some domestic businesses. businesses may become less profitable, lose market share, and reduce jobs. The industries generally expected to experience disproportionate impacts under a U.S. carbon tax are often described as “emission-intensive, trade-exposed” industries. An industry’s CO2 emission intensity is a function of both direct CO2 emissions from its manufacturing process (e.g., CO2 from cement or steel production) and indirect CO2 emissions from the inputs to the manufacturing process (e.g., electricity, natural gas). Such industries are likely to experience greater cost increases than less carbon intensive industries, all else being equal. In general, trade-exposed industries are those that face greater international competition compared to other domestic industries. A carbon tax could present a particular challenge for these industries, because they might be less able to pass along the tax in the form of higher prices, because they may lose global market share—and jobs—to competitors in countries lacking comparable carbon policies

#### Baker Shultz links

CLC 2021, Climate Leadership Council AUGUST 2021, The Baker Shultz Carbon Dividends Plan Bipartisan Climate Roadmap, <https://clcouncil.org/reports/Bipartisan-Climate-Roadmap.pdf> accessed 8-9-24//DeLo-IU

CARBON FEE DESIGN

• Fee Base: The carbon fee will cover energy and non-energy carbon dioxide (CO2) emissions.

• Initial Carbon Fee Rate: The initial fee rate will be $40 per ton CO2 (in 2017 dollars).

• Escalation Path: The fee will escalate each year at a rate of 5% above inflation, consistent with achieving a 50% CO2 emissions reduction below 2005 levels by 2035.

• Points of Assessment: The carbon fee will be implemented at the refinery exit or at the first point that fuels enter the economy, meaning the mine, well, port or local gas distribution company.

• Non-Emissive Products: Full or partial fee exemptions will be given wherever possible at the source (refineries, chemical plants, etc.) for non-emissive products.

• Carbon Capture, Utilization and Sequestration: Fee credits will be provided for defined permanent and additional CO2 utilization and storage.

#### Upstream would impact LNG exports

Joseph E. Aldy 2013, Clean Energy, Electricity And Climate Change The Case For A Us Carbon Tax, Oxford Energy Forum | February 2013, Https://scholar.harvard.edu/sites/scholar.harvard.edu/files/jaldy/files/carbon\_tax\_oies\_forum\_91.pdf

Applying the carbon tax to the carbon content of fossil fuels targets the bottleneck in the product cycle of fossil fuels. Under such an upstream approach, refineries and importers of petroleum products would pay a tax based on the carbon content of their gasoline, diesel fuel, or heating oil. Coal-mine operators would pay a tax reflecting the carbon content of the tons extracted at the mine mouth. Natural-gas companies would pay a tax reflecting the carbon content of the gas they transport or import via pipelines or liquefied natural gas (LNG) terminals. This carbon content of fuels scheme would enable the policy to capture about 98 percent of US CO2 emissions by covering only a few thousand sources as opposed to the hundreds of millions of smokestacks, tailpipes, and so on that emit CO2 under a system targeting actual emissions

#### Natural gas restrictions turns climate and the economy

Kenneth W. Costello 2022, Why Kill Natural Gas? The push for “artificial electrification” will hurt consumers and the environment. SPRING 2022 • REGULATION, <https://www.cato.org/regulation/spring-2022/why-kill-natural-gas> accessed 8-9-24//DeLo-IU

The U.S. natural gas industry has enjoyed great success over the last decade-plus. It has contributed to the economy by creating new, productive jobs and significantly reducing households’ and businesses’ energy bills. This was particularly important during the Great Recession when a boost from a major industry prevented the further downward spiral of the economy.

Natural gas also benefited the environment by accelerating the retirement of coal-fired generating plants. The shift from coal to natural gas was a major factor in lowering U.S. power industry carbon emissions by 33% between 2005 and 2019. Even after accounting for methane emissions, the most credible studies show that switching from coal to natural gas has mitigated climate change. Moreover, and possibly more important for human health, natural gas emits less air pollutants — like sulfur-dioxide, mercury, and nitrogen oxide — than coal.

Because of its abundant shale gas, the United States expects to be a net exporter of natural gas in the coming years. Until a little more than a decade ago, the worry was that the country would have to import increasing amounts of liquefied natural gas (LNG) from politically unstable parts of the world.

Overall, because of environmentally prudent development of natural gas resources using advanced technology for hydrocarbon extraction, natural gas would seem to have a bright future. About 80% of U.S. natural gas production comes from “fracking” techniques applied in shale formations, whereas just 15 years ago that percentage was virtually zero.

Natural Gas’ Foes

Until around seven years ago, most environmental groups viewed natural gas favorably as a bridge fuel in facilitating the transition to a low-carbon environment. Today, these groups and other climate activists have radically changed their position. They now see natural gas as an obstacle to achieving greenhouse gas (GHG) targets that, in their minds, will help protect against climate catastrophe. They favor phasing-out, as promptly as possible, the consumption of natural gas for various uses like electricity generation and space and water heating in new buildings. Opponents of natural gas have also attempted, with some success, to block the building of new gas-infrastructure projects (like LNG export terminals and gas pipelines). These opponents include homeowners, people who generally oppose development, and environmentalists.

Advocacy for Electrification

Given concerns over climate change, policymakers (e.g., state utility regulators), electric utilities, and environmentalists are championing the idea of “electrification.” That is, they want to phase out fossil fuels and replace them with electricity for direct energy end uses like transportation and water and space heating.

Electric vehicles and heat pumps are the “electrification” technologies that have received the most attention up to now. Other than power plants, the two largest sources of carbon emissions are motor vehicles and buildings. For buildings, the two largest emitting sources of carbon are for space and water heating.

Environmental groups and others warn that stringent climate goals are out of reach if widespread use of fossil fuels — including natural gas — continues to power home appliances and vehicles. The numbers just do not add up for deep decarbonization if fossil fuels remain a major source of energy for transportation and buildings. According to some climate activists, the safe level of carbon dioxide in the atmosphere is 350 parts per million. They argue that, to stay within that limit, it is necessary to transition the global economy away from fossil fuels immediately. This means an extremely short bridge for natural gas.

The electric industry sees electrification as an opportunity for revitalizing sales and revenues. A growing number of utilities now consider electrification an integral part of their future business plan. With smart dispatching, utilities can realize the added benefit of improving their capacity utilization from electrification of transportation and water heating.

Supporters contend that electrification should occur sooner than later, preferably over the next two or three decades, accelerated by subsidies and other governmental inducements. Some even advocate mandated electrification to avoid climate catastrophe. Others point to the less lofty goal of revitalizing the electric industry. Another group argues that electrification is already economical for end uses, like water and space heating, but it faces serious market and regulatory impediments.

The Self-Defeating “Environmentalism” of Natural Gas Bans

Political attempts to curtail gas supply and demand have met with limited success. Methane rules, drilling restrictions on public land, and opposition to new pipelines have incrementally slowed the growth of natural gas in the United States. But the anti-fossil-fuel lobby and their allies want much more: additional restrictions on natural gas production and new gas service and bans on natural gas usage and appliances as policy tools to foster “artificial electrification” (i.e., electrification induced by governmental mandates or inducements that fail a cost–benefit test).

Bans by municipal jurisdictions with (presumably) the legal authority to do so are in the news. In July 2019, Berkeley, CA prohibited the use of natural gas in new buildings. Since then, dozens of cities in other jurisdictions have adopted similar measures. In December of last year, New York City enacted a new law that mandated phasing out fossil fuels in new buildings. The law requires that new construction after 2027 use electricity for stoves, space heaters, and water boilers instead of gas or oil. Some cities have even considered banning or restricting natural gas appliances from existing homes and businesses. The main purpose of these efforts is to mitigate climate change, however infinitesimal in the whole, by supposedly making buildings zero-carbon.

Problem is, banning the direct use of natural gas by end users lowers energy efficiency when accounting for the full fuel cycle. It also may increase carbon emissions if utilities continue to rely on natural gas and other fossil fuels in electricity generation. At least half of the energy embedded in fossil fuels is lost during the generation, transmission, and distribution processes. An older, inefficient coal-fired plant may lose as much as two-thirds of its energy input in electricity generation.

As a public policy tool, a ban is much more drastic than just creating a tax to discourage consumption of a product. With a tax, consumers can still purchase the product, but they will have added incentive to economize on its use. This tax, called a Pigouvian tax, can counter a negative externality that is unaccounted for in the decisions of either suppliers or consumers. Such taxes have been used to reduce other forms of pollution and second-hand smoke. In contrast, a natural gas ban extinguishes consumer choice for meeting space and water heating needs, not to mention a flame for what experts consider a superior form of cooking.

A natural gas ban forces consumers to do something they otherwise would not do. In effect, the ban confines energy consumers to relying largely on electricity (at least in urban areas) to meet their space and water heating demands. Its intent is to accelerate electrification beyond that achieved by the market alone or by special incentives (e.g., rebates for heat pumps and electric water heaters) offered to consumers for switching or choosing electricity over natural gas.

A natural gas ban is contrary to a free market, where consumers enjoy the right to purchase a product if they so desire. Energy consumers may find natural gas cheaper, in addition to providing more heating comfort and better cooking performance than electricity. Consumers cannot go without space or water heating, which means that consumers must find some substitute energy form. Also, unlike some banned products, it would be impracticable to create a black market (e.g., illegal purchase of natural gas for homes or office buildings) for natural gas.

In economic terms, a gas ban fails miserably, with the benefits virtually zero and the costs likely more than minimal. As public policy, a ban is off the charts as being exceptionally bad. Here is why: Less than 9% of U.S. carbon emissions comes from direct use of natural gas in homes and buildings. The United States emits about 15% of world carbon emissions. Thus, converting all buildings to all-electric and assuming that all electricity is produced from “clean” sources (which won’t occur for some time) reduces worldwide emissions by less than 1.5%. According to climate models, that would not have a detectable effect on global climate, temperature, or sea level.

GHG emissions mitigation is a global public good. It can’t benefit anyone without benefiting everyone, and no matter how much one country or region benefits, there always are benefits for others. So, even if a natural gas ban has a detectable effect on climate change, the locale implementing it would receive a trivial share of the global benefits.

A ban can look good politically by giving the appearance that a severe problem is receiving immediate, absolute attention. And a ban is certainly less noticeable than a carbon tax or a budget gap from new taxpayer subsidies. But at least a carbon tax and subsidies preserve for consumers the right to choose their energy source rather than preclude them from doing so.

Strange bedfellows (akin to Baptists and Bootleggers) support government-promoted electrification: electric utilities and environmentalists who, of course, have different objectives. This is a particularly strong coalition and is likely to grow more popular in the years ahead. The problem is that vocal minorities who stand to gain economically or ideologically drive governmental action, overriding the wishes of the relatively unorganized majority who lose a lot in total but little individually.

The claim that the support for a natural gas ban derives primarily from a “religious” opposition to fossil fuels is credible given the lopsided cost–benefit calculus. Climate activists regard natural gas as a competitor for renewable energy in power generation and for electricity in end-use applications. Their position seems to be that “getting rid of the competitor” would make it easier to have more renewable energy and clean electricity. But is natural gas really bad?

The Benefits of Natural Gas Exceed the Costs

The good that comes to energy consumers and society from natural gas far exceeds the bad. Natural gas has:

abundant domestic availability

low prices for the foreseeable future

relative cleanliness compared to other fossil fuels

promising technological prospects (e.g., blue hydrogen) for a more benign environmental footprint

flexibility in electric power production, one application being a back-up to renewable energy

economic use across a wide range of consumers and energy services

It seems absurd to ban or even restrict a product that has done, and is expected in the future to do, so much good for both energy consumers and the economy.

A Sensible Policy

Is it only because of special interests that policymakers would even consider prohibiting consumers from choosing natural gas as an energy source to meet their cooking and heating needs? After all, in most parts of the country where natural gas is available, it is the most economical and desired source of energy. It is not a stretch to say that natural gas bans and other forms of artificial electrification are little more than symbolic virtue signaling. This reflects a stance of “we have to do our part,” or, perhaps more accurately, do “whatever it takes,” even if bans resoundingly fail a cost–benefit test.

Instead of artificially promoting electrification through natural gas bans, subsidies, and other out-of-market inducements, we should wait to see where the technology takes us. Technology will determine the ultimate success of electrification, not subsidies and other governmental actions that could distort the diffusion of electric appliances and vehicles with possible obstruction of their long-term viability. Technological advancements are already moving in a direction that favors electrification with its emphasis on digitization (like smart meters, appliances, and power grids) and clean energy. If these developments continue on their current path, we should see a more electrified economy with less dependence on fossil fuels to meet future energy demands.

But let’s not prematurely promote electrification or phase out natural gas. Artificially promoting electrification can be a win–win for electric utilities and environmentalists, but it is likely a loser for the rest of society. The problem of new electric technologies subsidized by utility customers and taxpayers with only a distinct minority benefiting is hard to ignore, both politically and economically. Policymakers should place more trust in markets to assure that electrification, when it occurs, will be for the good of society, not just for special interests.

If we eliminate natural gas from the energy mix too quickly, then either (1) the likely increased use of coal for electric power generation would damage public health and aggravate climate change for a longer period, or (2) expensive renewable energy would lead to higher electricity bills and a less secure and reliable electric power system. Neither outcome would be good for society.

### $50 CT Links

#### $50 carbon tax would crush NG electricity usage

**Tsafos 2021**, September 24, 2021, Nikos is interim director and senior fellow with the Energy Security and Climate Change Program at the Center for Strategic and International Studies in Washington, D.C., “The U.S. now needs a Carbon Tax to transition from Gas to Renewables” <https://energypost.eu/the-u-s-now-needs-a-carbon-tax-to-transition-from-gas-to-renewables/> accessed 8-9-24, DeLo-IU

Gas emissions must be halved (and coal eliminated) by 2030 to meet President Biden’s goal of a carbon free power sector by 2035. The problem is that gas additions are half the price of new wind and solar installations. Though the clean energy champions are still getting cheaper, so are gas additions. Nikos Tsafos at the Center for Strategic and International Studies looks at the policy options over the next decade for the U.S. The stark fact is that to drive the transition renewables must become cheaper than gas. But imposing a price on carbon or implementing a standard for emissions isn’t getting the cross-party support to make it into law. Instead, a Clean Electricity Payment Program, which rewards utilities for building renewable capacity and punishes them if they don’t, looks more likely. But designing the penalties correctly is going to prove very difficult. Tsafos says political consensus is therefore the main obstacle to the simplest and fastest way to ramping down gas, which is a carbon price. At $20 per ton of CO2, it would have raised a useful $29bn in 2020. At $50 it would make wind and solar cheaper than gas. The United States reduced carbon dioxide (CO2) emissions from the electricity sector by 40 percent between 2005 and 2020 as natural gas, wind, and solar replaced coal. President Biden wants to slash emissions further by 2030 and eliminate them by 2035. But to meet this goal, the country can no longer rely on the main lever it has deployed so far to reduce emissions—switching from coal to gas. Instead, the rate of decarbonisation will depend on new solar or wind facilities being cheaper to construct that it is to operate an existing plant on fossil fuels. Raising the cost of coal and gas There are different ways to make low-carbon energy technologies more competitive than running an existing fossil fuel plant. Imposing a price on carbon is one, although this is unlikely in the present political environment. Another path is to implement a standard for emissions (a clean electricity standard), but this idea too cannot pass Congress. Instead, the preferred path is a Clean Electricity Payment Program (CEPP), which rewards utilities for building renewable capacity and punishes them if they do not. The incentive side of the CEPP—rewarding investments in low-carbon energy—is clear enough, although the support needs to be substantial to close the gap with fossil fuels today (see below). The penalty side of the ledger will be tricker. What matters is raising the cost of running a coal or gas facility. But imposing a penalty for not building capacity will be a crude and approximate way to raise the cost of electricity generation from coal or gas. As such, success will depend on how the program is designed and implemented, and whether it produces incentives to shut down coal and gas facilities in favour of new wind and solar. Finding that right level of penalties will require extraordinary regulatory and policy finesse. The next decade will be different The 40 percent decline in electricity sector CO2 emissions between 2005 and 2020 was largely due to a 62 percent decline in coal-fired generation. Most of the decline in coal can be attributed to gas, whose output more than doubled in 15 years, and to the growth in wind and solar, which together made up 10.5 percent of total generation in 2020 (from 0.5 percent in 2005). In volume terms, the growth in gas was more than twice as big as the increase in wind and solar: 856 terawatt hours (TWh) for gas versus 410 TWh for wind and solar. Low gas prices have been an indispensable element of the U.S. success in reducing emissions. Carbon-free electricity by 2035? Therein lies a major problem for decarbonising the U.S. electricity sector. The president’s target is an electricity system that is 80 percent carbon free by 2030 and entirely carbon free by 2035. In 2020, gas provided 40 percent of the country’s power, coal 19 percent. If carbon-emitting sources can only account for 20 percent of the total in 2030, generation from coal and gas must shrink from 59 to 20 percent in 10 years. Even assuming that overall demand for electricity increases—from electric vehicles, heat pumps, economic and demographic growth, or just a recovery from Covid-19—there is no escaping the fact that meeting the president’s goal would require that emissions from coal be eliminated and that emissions from gas to be (roughly) halved by 2030. 50% from Wind and Solar? In theory, emissions could be reduced by capturing and storing the carbon from coal and gas plants. In practice, given the modest success in deploying such systems, most of the drop will come from a shift toward solar, wind, and other low-carbon sources. Since there is limited upside in nuclear and hydro, the reduction in emissions will fall on solar and wind. These sources provided 10 percent of the country’s electricity in 2020; they must grow to roughly 50 percent in 2030 (this assumes that 20 percent will be met by gas, 20 percent from nuclear, as in 2020, and 10 percent from hydro and other sources, again in line with 2020 levels). In the 2020s and 2030s, the most important economic variable driving the electricity sector will be the competition between building a new wind or solar facility versus running an existing plant on coal or gas. In simple terms, if it is cheaper to produce electricity from an existing coal or gas plant, the rate of decarbonisation will be slow, at least without some overarching policy mandate or other push (for example, pressure from shareholders on utilities). In order to phase out coal and gas, it must be cheaper for utilities to construct a new low-carbon facility than it is to operate one on fossil fuels (although some shut down of coal will also come from planned retirements). Coal and Gas additions are still much cheaper In 2020, the marginal fuel cost was roughly $21 per megawatt hour (MWh) for coal and $20/MWh for gas. By contrast, according to Lazard, the cost to build a new facility was roughly $37/MWh for solar photovoltaic and $40/MWh for onshore wind (both utility scale, and both without any subsidies). And while the cost of both wind and solar has been declining, so has the cost to run a gas power plant. The main problem for lowering emissions in the 2020s is that it costs twice as much to build a new solar or wind facility as it does to run a gas or coal plant. In such an environment, it will be hard to dislodge gas and meet the president’s 2030 target. Imposing a carbon price Change will require policy. The simplest measure to close the gap would be a federal price on carbon. A $25 per ton of CO2 price on carbon would double the cost of running a coal plant today, and it would make it cheaper, on average, to build a new solar or wind facility than to run an existing coal plant. Since gas emits less CO2 than coal, the CO2 price needed to shut down gas would be around $50 per ton—at that point, it would be cheaper, on average, to build a new solar or wind facility than to burn gas at an existing one. Without a federal tax on carbon, the United States must rely on tax credits to lower the cost of wind and solar or on mandates that drive deployment, such as renewable portfolio standards at the state level. Of course, the administration also has a target to cut the cost of solar by 60 percent over the next decade. If this goal were met, building a new solar plant would be on par with running a gas plant—but only at the end of the decade. Also, there is no such target for wind, where the cost declines have been slow in recent years, and where cost parity might be harder to reach. Gas is now the problem This is the context for thinking about the proposed CEPP, which is designed to reward utilities for adding low-carbon capacity and punish them for not adding such capacity. The details are still being worked out, and there is a lot we do not know about the program yet. But the challenge for the U.S. power sector is no longer how to shut down coal, although there is still a lot of coal being used in parts of the United States. Rather, the challenge is to phase out gas, which is cheap right now (and expected to stay cheap by most analysts). Closing the gap between existing fossil fuels and new low-carbon capacity through regulatory means will be difficult. For one, the proposed plan targets capacity additions, which means it will be a crude and imperfect proxy for what really matters: renewables needing to beat coal and gas. There is also a risk, if the program succeeds in shutting gas capacity, that system reliability is threatened, as has happened in California with the retirement of gas capacity. And, of course, a program that relies on incentives rather than carbon taxes spends money instead of raising it. (For context, a $20 per ton tax on CO2 would have raised $29 billion from the electricity sector in 2020.) No political consensus is the problem, too Yet what we can expect in the electricity sector is emblematic of the country’s decarbonisation path more broadly. In the absence of a broad political consensus to curb greenhouse gas emissions, the political system will choose fragmented, imperfect, and likely more costly solutions that are likely to undershoot the target, requiring further interventions down the line. But this is the reality of climate politics in 2021. And so electricity, which is the only sector that delivered lower emissions since 2005, shows the difficulty of achieving the next batch of CO2 reductions in the 2020s.

### $25 CT = 11% LNG price jump

Table 2 includes estimates of price increases on coal, crude oil, natural gas, home heating oil, and motor gasoline based on a carbon tax rate of $25/mtCO2 that applies CO2 emissions from fossil fuel combustion. As indicated in the table, a carbon tax would have the greatest impact on the price of coal due to coal’s relatively high CO2 emissions intensity. By comparison, a carbon tax is expected to have less of an impact on the price of gasoline, increasing its price by 8%.

[table]

Source: Prepared by CRS. CRS calculated the estimated price increases for each fuel by multiplying a carbon tax

rate by the CO2 emissions intensities for each fuel. Given that carbon prices could affect fuel prices in complex

ways, the actual price increases that result from the illustrative carbon taxes would depend on multiple factors.

CRS generated fuel-specific emission intensities from the CO2 coefficients (i.e., CO2 emissions per quadrillion

BTU) and thermal conversion factors (BTU per fuel unit) for each fuel. CO2 coefficients are from EIA, “Carbon

Dioxide Emission Coefficients,” 2016; thermal conversion factors from EIA, Monthly Energy Review, April 2018,

Appendices A2 (crude oil), A3 (home heating oil and motor gasoline), A4 (natural gas), and A5 (coal). Average

market prices (2013-2017) are from EIA, Monthly Energy Review, Table 9.1 (crude oil), Table 9.10 (natural gas),

and Table 9.4 (motor gasoline); home heating oil from EIA, “Weekly Heating Oil and Propane Prices”; coal from

EIA, Annual Coal Report, various years, Table 28. Average coal prices include data from 2012 to 2016.

Calculated emission intensities include:

Coal = 1.8 mtCO2/short ton of coal. This value represents the CO2 coefficient for coal (electric power sector)

and the thermal conversion factor for coal consumption from the electric power sector. Surface mining

accounted for 65% of total coal production in 2016. Underground mining accounted for 35%.

Crude oil = 0.43 mtCO2/barrel of oil. This value represents the CO2 coefficient for crude oil and the thermal

conversion factor for “unfinished oil.” Price reflects domestic first purchase price.

Home heating oil = 0.008 mtCO2/gallon of oil.

Natural gas = 0.055 mtCO2/thousand cubic feet (mcf) of natural gas. This value represents CO2 coefficient for

natural gas (“weighted national average”) and the thermal conversion factor for electric power sector.

Motor gasoline = 0.009 mtCO2/gallon of gasoline. This value represents the CO2 coefficient for “motor gasoline”

and the thermal conversion factor for motor gasoline (conventional).

Economic models have projected how carbon prices would impact energy use, particularly the

consumption of different fossil fuels and less carbon-intensive alternatives, such as renewables or

nuclear power. For example, the 2018 EMF 32 study, which included results from 11 modeling

groups, assessed how several carbon tax scenarios would impact energy consumption. Highlights

of these models’ results (compared to reference case scenarios) include the following:107

 Coal consumption could decline by 40% to nearly 100% by 2030 under a

$50/mtCO2 carbon tax, though one model projected an increase in coal due to the

model incorporating CCS technology.

 Natural gas consumption estimates vary across the models, with some showing

minimal change in 2030 and others showing declines ranging between 40% and

60%.

 Oil consumption estimates indicate that the largest decline (approximately 4% by

2030) would occur under the $50/mtCO2 carbon tax scenario.

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 Wind energy consumption could increase by 48% to 300% by 2030 under a

$50/mtCO2 carbon tax scenario.

### $28 CT

#### $28 price drops NG usage

Kathryne Cleary and Karen Palmer 2020, Karthyne senior research assocaite for RFF.org, Karen, Director of Electric Power Program at RFF, Carbon Pricing 201: Pricing Carbon in the Electricity Sector How can carbon pricing reduce power sector emissions, and how does it affect generation dispatch, investment choices, and electricity prices?, Aug. 20, 2020, https://www.rff.org/people/karen-l-palmer/

Investment in Low-Carbon Resources

Once carbon pricing is in place and unlikely to be retracted, it provides incentives for changes in investment that lower the carbon-intensity of electricity production over time, thus leading to larger emissions reductions.

Over time, carbon pricing provides generation companies with an incentive to invest in cleaner resources and to retire more carbon-intensive resources. As the resource mix becomes cleaner, dirtier resources are much less likely to be dispatched and thus suffer financial losses. Meanwhile, clean resources do not have to pay a carbon fee and benefit from higher energy prices in wholesale energy markets, thus enabling more investment in clean technologies.

These changes in retirement and investment include 1) retirement of coal plants in exchange for lower-carbon natural gas plants, 2) a transition away from investment in fossil fueled generators to zero-carbon resources, like investment in new renewable technologies (likely with backup energy storage), and 3) keeping existing nuclear plants online that may otherwise retire.

The price of natural gas, costs of renewable technologies, and the stringency of a carbon price influence how investments are affected by a carbon price. RFF analysis of a proposed carbon tax in the electricity sector found that, due to falling technology costs, investment in renewables is more responsive to a carbon tax now than it used to be. The analysis found that, as a result, the cost of achieving emissions reductions in the power sector is lower than it was a few years ago.

Figure 3 shows projections of how a $28-per-metric-ton carbon tax (in 2013$) would affect US electricity generation by source in 2035 versus business-as-usual (assuming policies in place as of August of 2019).

As shown in the plot above, the carbon tax leads to a shift in generation resources due to changes in dispatch and in investments and retirements over the long-term. Generation from nuclear, wind, and solar increases by 123 percent, 54 percent, and 83 percent, respectively, compared to the business-as-usual case. By contrast, coal- and natural gas-fueled generation falls by 89 percent and 16 percent, respectively, compared to the business-as-usual case. It also leads to slight drop in electricity generated.

## Impacts

### ! Alliance-NATO

#### Stable LNG contracts and cheap pricing are critical to US-NATO alliance stability

Cohen 2024, Jul 9, 2024 “America’s NATO Partners Anticipate U.S. LNG Supplies To Europe” Ariel Cohen, I cover energy, security, Europe, Russia/Eurasia & the Middle East, <https://www.forbes.com/sites/arielcohen/2024/07/09/americas-nato-partners-anticipate-us-lng-supplies-to-europe/> accessed 8-11-24//DeLo-Iu

LNG Natural Gas

The 2024 NATO Summit, to be held this week in Washington, D.C., marks the trans-Atlantic Alliance’s 75th anniversary. NATO, which came to the U.S.’s aid after 9/11 and deployed a contingent to Afghanistan, guarantees not just strategic cooperation across the Atlantic but also bolsters the economic prosperity of its member states. America’s abundant energy resources pair perfectly with Europe’s scarcity of oil and gas to create a win-win partnership, enabling Europe to avoid total energy dependence on authoritarian suppliers in Russia and the Middle East.

This partnership between American energy and European industry was placed in jeopardy after a January 2024 decision by the Biden administration placed a controversial pause on future LNG export permits. This pause was intended to secure Biden’s progressive flank within the Democratic Party in the heavily contested November 2024 presidential elections, albeit at the expense of American national priorities. It put Europe’s ability to purchase cheap and reliable American LNG in question when it was needed to replace sanctioned Russian piped natural gas and eventually not-yet-sanctioned Russian LNG. By placing the flow of US LNG to Europe at risk, Biden, who claims to bolster NATO, shook the energy security pillar of the alliance and may have jeopardized Ukraine, according to many observers.

The pause ended in early July after 16 states successfully sued the Biden administration, arguing that the export restrictions were unconstitutional. This came as a relief to European and East Asian allies, who were otherwise being torn between the necessity to decouple from Russian energy and the Administration’s domestic political play.

PROMOTED

Coincidentally, energy giant Shell signed a 10-year agreement to sell U.S. LNG to the Swiss-based energy company MET Group. The agreement will "help to ensure security of supply for its customers across Europe, ranging from its own gas-fired power plant demand to energy-intensive industrial companies, SMEs, and households,” MET announced. MET Group has one of the most geographically diversified LNG import structures in Europe. Tom Summers, Senior Vice President of Shell LNG Marketing and Trading, recognized the role agreements of this type play in bolstering security, noting, “LNG has a crucial role to play in delivering energy security, and agreements such as this are instrumental in achieving that.”

György Vargha, CEO of MET International AG, said, “The long-term FOB source fits perfectly into MET’s LNG strategy. We have a diverse European downstream position building on a regasification capacity portfolio around Europe, optimizing our downstream requirements with flexible supply sources. As a natural next step, we have entered a long-term FOB position enabling diversification to the global LNG markets.”

The long-term relationship between the United States and its European allies is enhanced and strengthened by the stability afforded by American LNG. In a Forbes interview with the veteran energy journalist Llewellyn King, Benjamin Lakatos, CEO of MET Group, remarked, “In the middle of the heavy turbulence, the U.S. had a stabilizing effect on global gas prices.” By acting as a reliable energy source, the U.S. can reinforce its reputation in Europe and support trans-Atlantic stability and cooperation with some of its most important allies.

A strong energy supply is essential for NATO’s future goals. This week’s summit will discuss deterrence, defense, and assistance to Ukraine. These depend on reliable energy flows from the U.S. to Europe, including Ukraine.

As Russia continues its invasion of Ukraine and is reportedly conducting hybrid operations in other European states as well, its role as an LNG supplier remains one of the most significant sources of leverage over NATO members and a primary source of funding for its war effort. Though the EU recently took action to begin weaning itself off Russian LNG in its 14th sanctions package, its penalties against Moscow will remain limited unless the U.S. steps up to the plate as an alternative supplier. To truly maximize NATO’s commitment to assisting Ukraine and deterring the conflicts being incited by Russia, American LNG must be able to replace Russian LNG, nullifying it as a source of influence and income.

In addition to the diplomatic advantages the U.S. gains through LNG trade with Europe, it also benefits economically. LNG projects support increased demand from Europe and create scores of American jobs.

Energy security will be at the forefront of this week's NATO summit discussions. Thankfully, renewed American LNG exports to Europe provide a stable anchor in our chaotic world, so long as American leaders have the good sense to allow them to continue.

#### Strong NATO cohesion is key to adaptability in addressing numerous emerging existential threats

Garamone 21

Jim Garamone (public affairs specialist and reporter for DOD news; formerly worked for the Armed Forces Press Service), 10-5-2021, "New Threats to NATO Demand Old Solution: Unity, Stoltenberg Says", DOD News, https://www.defense.gov/News/News-Stories/Article/Article/2801358/new-threats-to-nato-demand-old-solution-unity-stoltenberg-says/ jt

The world faces uncertainty with threats not only from nation states like China and Russia, but from climate change, cyber attacks as well as new terror groups, and NATO Secretary General Jens Stoltenberg made a compelling case that the only way to face these threats is together. Stoltenberg, who spoke at a joint Brookings Institution/Georgetown University event in Washington, emphasized that these new threats demand an old solution: Unity. The trans-Atlantic relationship may be the most important to world peace. The North Atlantic Alliance has kept the peace in Europe since the end of World War II. It faced down and deterred the Soviet Union over the course of generations. NATO is arguably the most successful alliance in history, he said. Still, new factors could end the alliance. Even after the successful NATO Summit in June, there were questions about the strength of the bond between Europe. Since then, many wonder what the Australia-United Kingdom-United States pact will mean. Others wonder what the withdrawal from Afghanistan means. Still others wonder if Europe should go it alone. "We must always take our differences seriously and address them," Stoltenberg said. "But they do not change the big picture: the importance of Europe and North America, standing together in NATO. In fact, the need for trans-Atlantic unity is greater today than at any time since the end of the Cold War. Because we are at a pivotal moment for our shared security, where we face a more dangerous and more competitive world." Russia is more aggressive abroad and more oppressive at home, the secretary general said. China is using its economic and military might to control its own people, coerce other countries and assert control over global supply chains, critical infrastructure and other assets. Cyber attacks, persistent terror threats and security fallout from climate change do not recognize borders. "None of us can face these challenges alone, no country, however big, and no continent, however rich. Neither the U.S. nor Europe can face these alone," he said. "But in NATO, we are not alone." NATO is 30 nations with a billion people. The alliance has half of the world's economic and military might. And the alliance works with like-minded partners, which increases its reach and effectiveness. "Together we are adapting to a more uncertain world," he said. "In fact, our alliance is in the midst of a fundamental shift. This started in 2014 in response to Russia's illegal annexation of Crimea." The alliance is shifting efforts and resources from large combat operations outside NATO to strengthen deterrence and defense at home and prepare for a world of greater state-to-state rivalry, he said. "All allies have increased defense spending, invested in high-end capabilities and boosted the readiness of our forces," the secretary general said. "We have increased our presence on land, at sea and in the air and deployed multinational combat units in the eastern part of the alliance in the Baltic region, and strengthened our defenses against cyber and hybrid attacks." But the alliance cannot remain static and leaders agreed in June to modernize the force and strategy and chart the course of the alliance over the next decades. "As we continue to boost our military readiness to respond to threats from any direction, we're also sharpening our technological edge by launching a new defense innovation accelerator and innovation fund to support industry, startups and academics working on cutting edge technologies," Stoltenberg said. "We are strengthening our cyber defenses and increasing resilience within our critical infrastructure and supply chains to reduce our vulnerabilities. We are stepping up to defend the rules-based international order by deepening our cooperation with like-minded countries and organizations, including in the Asia Pacific." One sharp change is the emphasis on the security effects climate change will have on the world. "For the first time in our history, we are putting climate change and security at the core of NATO's agenda," he said. "Climate change fuels and multiplies the risk of conflict and threatens our security and impacts the environment in which we operate. So NATO must play its part. We are adapting our planning installations and equipment to more extreme weather, and establishing the first ever methodology to map military missions across the alliance, so that also we can contribute to the goal of net zero emissions." All this will increase deterrence and make for a more robust defense. "We do not know what the next crisis will be," he said. "But we do know that whatever happens, we are safer when we stand together, Europe and North America, strong in NATO for more than 70 years. We must continue to stand strong together to face a more competitive world. That is good for Europe, and it's good for North America."

### ! Environment/Climate

#### LNG exports solve climate and food security

EFI Foundation 2023, April 25, “The Role of U.S. Natural Gas Exports in a Low-Carbon World” <https://efifoundation.org/topics/the-role-of-u-s-natural-gas-exports-in-a-low-carbon-world/> accessed 8-11-2024//DeLo-IU

The Role of U.S. Natural Gas Exports in a Low-Carbon World (April 2023) distills the findings of a workshop held by the EFI Foundation in Washington, D.C. on January 19, 2023. Seventy-eight senior executives and energy experts participated, including leaders in the natural gas industry, U.S. government, consulting firms, law firms, financial institutions, non-government organizations, think tanks, and foreign governments.

Participants clearly articulated that U.S. natural gas exports play a central role for achieving goals for global energy security, climate, economic development, and food security. The United States has provided energy in the form of liquefied natural gas to Europe following Russia’s invasion of Ukraine; there are, however, potential near- and long-term security and climate mitigation consequences to Asia and developing countries of increased U.S. natural gas exports to Europe in the face of its energy crisis.

Renewable energy technologies cannot currently provide the reliability, redundancy, resilience, affordability, and industrial requirements that countries need to meet their near-term energy security objectives. Natural gas can promote energy security and the transition to a low-carbon economy by serving as a cleaner alternative to coal and oil. While wealthier countries are buying more U.S. natural gas and committing to longer-term contracts, developing countries struggle to obtain reliable, affordable energy to decarbonize their economies. As the number one natural gas supplier and a global leader in climate change mitigation, the United States is at a position of continued influence.

The U.S. liquefied natural gas industry has many global opportunities for growth. To fully realize these opportunities, the industry must overcome regulatory bottlenecks around permitting infrastructure (which affect financing and timelines) and build diverse coalitions that meet the needs of multiple stakeholders. The industry should also address environmental concerns and reducing greenhouse gas emissions (including methane emissions) across the value chain, which will help create a social license to operate, and create more supply by eliminating losses that occur from venting and flaring.

If the United States can overcome these challenges, it can demonstrate its leadership and provide energy for its allies and trading partners in Europe and Asia. Though Europe may be the primary consumer in the short term, the U.S. natural gas industry should continue to engage with and provide affordable and reliable gas to both the developed and developing countries in Asia, which should be long-term consumers of natural gas for their own energy security and decarbonization goals.

Nine takeaways (below) emerged from the workshop, five of which apply to natural gas challenges in the United States (including tackling methane leakage and permitting new projects), and two of which bridge domestic and international issues by focusing on the interconnectivity of global natural gas markets and the United States’ role as the preeminent global supplier. The remaining two takeaways focus on Europe’s and Asia’s natural gas needs.

Climate goals and energy security—both affordability and availability of supply—need to be addressed in the same conversation.

Natural gas will continue to be crucial for fulfilling global goals for decarbonization, energy security, and food security.

The deployment of current technologies and additional regulations are needed for the natural gas industry to address its greenhouse gas emissions, including methane.

Federal, state, and local government permitting issues are a major challenge to meeting deep decarbonization and energy security goals.

The timelines or financing and building energy infrastructure may not be sufficient to meet global energy security and decarbonization needs.

Natural gas prices in the United States are affected by the dynamics of global energy markets, as well as domestic politics and concerns.

The United States must decide what role to play in supplying natural gas and enabling global decarbonization goals.

Although Europe needs gas in the near term, it may not be a long-term market for U.S. exports.

In Asia, developing nations are primarily concerned about the affordability of natural gas, while developed nations worry more about the reliability of supply.

### ! Global Energy Security

#### US LNG exports stabilize global energy markets from supply shocks

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Escalating Middle East conflict means North America must bolster global energy security

In recent weeks, attacks on ships in the Red Sea have significantly raised shipping costs and caused delays for traded goods, from hospital supplies to food and clothes. Though the global energy supply is so far uninterrupted, a broader conflict in the region would mean disruptive attacks on energy and transport infrastructure, whether through Iranian naval action or Iranian proxies. North America must prepare itself for a coming crisis in the global energy supply, particularly the United States—where President Biden recently announced his decision to pause the approval of new liquefied natural gas exports.

In November 2023, Houthi rebels began attacking commercial ships in the Red Sea and surrounding waters. The Houthis, a Fiver Shiite political faction and the de facto government of western Yemen, are a US-designated terrorist group closely aligned with Iran. They are targeting commercial vessels as a way to oppose Israel’s war against Hamas. In response, the United States helped launch a multinational naval coalition to safeguard navigation in the Red Sea, and it has since struck Houthi military targets several times. However, this has not yet stopped Houthi attacks.

The Red Sea conflict has forced ships to reroute around the Cape of Good Hope. This has disrupted the trade of commodities, including oil and gas, by raising freight rates, increasing shipping times, and reducing the number of ships available. Despite these disruptions, key oil prices such as the Brent benchmark have not yet spiked. Natural gas prices also remain relatively low, as overall demand is still being mitigated by full European gas stocks, a relatively warm winter in some places, and a slowdown in the Chinese economy and other economies, such as Japan and Germany. According to Reuters, US gas exports have played a key role in maintaining global price stability, especially in Europe, but also in Asia.

However, if the disruption in the Red Sea continues unabated, it will invariably drive up global costs for oil and liquefied natural gas (LNG). Freight rates for oil and petroleum product tankers continue to climb—in some cases by nearly 500 percent since November. Additionally, transport times and costs have gone up for oil and LNG shipments from the Middle East to Europe and Asia.

The near future remains uncertain. A wider conflict in the Middle East capable of physically interrupting oil or gas supply is increasingly likely. Recent press reports claim a war between Hezbollah and Israel may be “inevitable,” which in turn would force Iran to act. Iran’s military could easily disrupt the key shipping routes, forcing many countries to seek out supplies shipped via alternative means, notably from North America.

Iran’s actions will be key to the energy outlook

How Iran would respond to all-out conflict between Hezbollah and Israel remains an open question, but historical trends give no reason for optimism.

Primarily, Iran’s past actions in the Gulf mean more frequent harassment of Western-linked tankers is almost guaranteed. This strategy may have already started. In January, Iranian forces seized a Greek tanker off the coast of Oman, though they claim the seizure was reprisal for US sanctions against Iranian oil. The Iranian military is also building up its capabilities. In December, the Revolutionary Guard announced the establishment of a new, volunteer naval force intended to carry out “deep sea missions.” Iran’s navy is building a drone carrier intended for “long-range strike[s].”

There are two obvious ways for Iran to militarily act: the Iranian navy attacks or seizes commercial ships; or Iran-aligned militias attack a major Gulf energy producer, such as Saudi Arabia. Iran has previously resorted to both tactics.

During the Iran-Iraq War of the 1980s, the Iranian armed forces sank and seized tankers leaving Iraqi ports. In 2019, Iranian-led Houthi forces used drones and missiles to damage an oil processing plant in Abqaiq, Saudi Arabia. In 2021, Houthi rebels carried out a similar attack against a Saudi oil terminal in Jazan. The Houthis also attacked energy facilities in the United Arab Emirates with drones.

Broader conflict would severely impact energy supplies

To what extent Iranian military action would cut off the flow of oil and gas is beyond the scope of this analysis. But the impact on the global economy would be swift, including for major economies like China, Japan, South Korea, Taiwan, and India, who all significantly rely on crude oil, refined products, and LNG from the Gulf states. Altogether, around 25 percent of crude cargoes and 20 percent of LNG cargoes pass through the Strait of Hormuz. The EU also relies on oil imports from the Gulf states although less so than Asian countries.

Any large disruption to the Gulf states would leave North America as the most reliable, significant supply of energy. The United States alone exported 91 million tons of LNG in 2023, ahead of Australia and Qatar, which both exported about 80 million tons. Crude oil exports averaged nearly 4 million barrels per day. By one estimate, up to 40 percent of US LNG exports are destination-flexible, meaning they could be easily redirected to buyers in case of a Middle East supply disruption.

### ! PRC-Taiwan War

#### US LNG Exports build energy security deterring a protracted war with China

Kramer et al 2024, Franklin D. Kramer, Philip W. Yu, Joseph Webster, and Elizabeth Sizeland, Report, July 2, 2024, “Strengthening Taiwan’s resiliency” <https://www.atlanticcouncil.org/in-depth-research-reports/report/strengthening-taiwans-resiliency/> accessed 8-11-24//DeLo-Iu

Energy recommendations for Taiwan

Gradually raise electricity and energy prices, communicating that price hikes will persist and require significant adjustments over the medium term.

Expand the frequency of electricity price reviews from twice a year to a quarterly basis. More frequent price adjustments will allow smaller incremental increases while also enabling Taiwan to respond more quickly to potential contingencies.

Expand fiscal support for indigenous forms of energy. Demand-side management programs could include virtual power plants, building efficiency measures, two-way air conditioning units, and more. On the supply side, Taiwan should incentivize indigenous energy production, including nuclear energy, onshore wind, offshore wind, and solar.

Extend the life of Taiwan’s nuclear energy power plants and consider expanding capacity. Nuclear energy is not only Taiwan’s best option for meeting its summer generation needs but also extremely safe and reliable. In the event of a conflict, the PRC is extremely unlikely to launch highly escalatory and provocative attacks against nuclear facilities on territory it seeks to occupy.

Bolster domestic energy supplies and decarbonization objectives including by considering easing localization requirements for offshore wind projects—while ensuring that PRC components and sensors are not incorporated.

Disperse and, where possible, harden energy and electricity assets and volumes across the island for both military and civil defense needs.

Examine potential alternatives to diesel, as diesel inventories can begin to degrade after several weeks, including “long-duration diesel” solutions that, while more polluting, could extend the shelf life of its inventories, enhancing the durability of Taiwan’s military and civil defense efforts.

Deepen liquified natural gas (LNG) ties with the United States. Contracting with US LNG producers would moderately bolster Taiwan’s energy security, as the PRC would be more reluctant to interdict US cargoes than vessels from other nations.

Conduct comprehensive studies into energy contingency planning, examining how energy and electricity would be prioritized and rationed during various scenarios.

Food and water resiliency

Taiwan’s food supply needs will be significant in the event of a contingency, but pale in comparison to its energy and water requirements. Taiwan’s water security is a serious concern, as it is already suffering from water access issues in noncrisis periods. Taiwan should prioritize scarce land for electricity generation, especially onshore wind and solar, which are much less water-intensive than coal and natural gas generation. Repurposing farmland for renewables would ease Taiwan’s electricity and water needs in peacetime and during any crisis.

Taiwan’s food security challenges are serious, but manageable. The island’s self-sufficiency ratio for food stands at about 40 percent, after rising somewhat in recent years. Unlike energy, however, Taiwan can both store food, especially rice, and replenish these inventories. Meals ready to eat (MREs) can store for more than eighteen months.

Additionally, the island would likely be able to resupply itself aerially in all situations short of conflict. The PRC might well be extremely reluctant to shoot down a civilian aircraft resupplying Taiwan with food. The PRC’s shootdown of a civilian aircraft would damage external perceptions of the PRC, and strengthen global support for sanctions. While there can be no certainty, the PRC’s self-interest in managing perceptions of a confrontation would increase the likelihood of the safe transit of aerial and perhaps even maritime food deliveries to the island.

Taiwan’s water access problems are serious. Water shortages have manifested even in peacetime, as Taiwan experienced a severe drought in 2021. During a contingency with the PRC, Beijing might attempt to exploit this vulnerability.

Luckily, Taiwan’s water resiliency can be strengthened by tackling agricultural consumption and, wherever politically and technically feasible, repurposing farmland for energy generation. From 2013 to 2022, 71 percent of Taiwan’s water consumption was attributable to agriculture. Meanwhile, Taiwan’s industries comprised only 10 percent of demand during that period, with domestic (i.e., residential and commercial) consumption accounting for the remainder. Taiwan’s water needs are growing, due to “thirsty” industrial customers, but the agricultural sector is primarily responsible for the majority of the island’s consumption, although consumption and supply sources vary across the island.

Taiwan’s policymakers recognize its water problems and have begun raising water prices, especially for heavy users. Taiwan should continue to encourage efficiency by gradually but perceptibly increasing water prices. Concomitantly, it should further reduce demand by repurposing water-intensive farmland for electricity generation, when feasible. Repurposing farmland will undoubtedly prove politically difficult, but it will also improve Taiwan’s water and electricity resiliency.

Food and water security recommendations

Prioritize energy and water security needs over food production.

Secure and disperse inventories of foodstuffs, such as MREs, medicines, and water, along with water purification tablets.

Bolster the island’s cold storage supply chains and overall foodstuff inventories.

Plan and work with partners to stage food supply if a Berlin airlift-style operation becomes necessary.

Continue to encourage water conservation by increasing water prices gradually but steadily.

Ensure redundancy of water supplies and systems, especially in the more populous northern part of the island.

Ensure that drinking water and sanitation systems can operate continuously, after accounting for any electricity needs.

SOURCES

NOTE

Enhancing defense resilience

Ever since Beijing leveraged then-Speaker Nancy Pelosi’s August 2022 visit to Taiwan as an excuse to launch large-scale joint blockade military exercises, pundits have labeled the residual military situation around Taiwan as a “new normal.” Yet there is really nothing normal about a permanent presence of People’s Liberation Army (PLA) Navy warships menacingly surrounding the island along its twenty-four nautical mile contiguous zone, and nothing usual about increasing numbers of manned and unmanned military aircraft crossing the tacit median line in the Taiwan Strait—a line that held significance for seven decades as a symbol of cross-strait stability. Nor should it be viewed as normal that a steady stream of high-altitude surveillance balloons—which are suspected of collecting military intelligence—violate Taiwan’s airspace.81 Some have better described this “new normal” as a strategy akin to an anaconda noticeably tightening its grip around the island, drawing close enough to reduce warning time and provocative enough to raise the risk of inadvertent clashes. In other words, the PRC has unilaterally dialed up a military cost-imposition campaign meant to chip away at peace and stability across the Taiwan Strait, wear down Taiwan’s military, and erode confidence and social cohesion in Taiwan society.

Russia’s full-scale invasion of Ukraine in 2022 was an additional wake-up call for the citizens of Taiwan, following mainland China’s 2019 crackdown on Hong Kong freedoms, heightening recognition of the risks presented by the PRC and, in particular, that the long-standing status quo in cross-strait relations is no longer acceptable to Beijing. Taiwan thus finds itself in the unenviable position of simultaneously countering PLA gray zone intrusions and cognitive warfare—what NATO calls affecting attitudes and behaviors to gain advantage82—while beefing itself up militarily to deter the growing threat of a blockade or assault.

With this backdrop, Taipei authorities have since embarked on long-overdue reforms in defense affairs, marked by several developments aimed at bolstering the island democracy’s military capabilities and readiness in the face of growing threats from Beijing.

First, Taiwan’s overall defense spending has undergone seven consecutive year-on-year increases, reaching 2.5 percent of gross domestic product.83 While this is commendable, Taiwan’s defense requirements are very substantial, and its budget in US dollars is only $19.1 billion.84 Accordingly, it will be important for Taiwan to continue the trend of higher defense spending to at least 3 percent of GDP both to bolster Taiwan’s military capabilities and as a deterrent signal to Beijing—and also to garner international community recognition that Taiwan is serious about its own defense. A key element will be to ensure that Taiwan has sufficient stocks of ammunition and other weapons capabilities to fight effectively until the United States could fully engage and in the event of a longer war. One area that deserves a high degree of attention is defense against ballistic and cruise missiles and unmanned vehicles. Especially in light of the recent coalition success in defeating such Iranian attacks against Israel, planning should be undertaken to assure comparable success for Taiwan against PRC attacks. Adding mobile, short-range air defenses to the high-priority list of military investments for Taiwan—such as the highly mobile National Advanced Surface-to-Air Missile System (NASAMS)85—will make it harder for the PLA to find and destroy Taiwan defenses, especially if combined with passive means for target detection and missile guidance.

Second, the new president can kick-start an enhanced approach to defense by embracing full integration of public-private innovation and adopting Ukraine’s model of grass-roots innovation for defense, which has served it well through a decade of war against a much larger Russia. Recognizing that innovation is itself a form of resilience, Taiwan can draw valuable lessons from Ukraine, particularly in leveraging private-sector expertise. By implementing what some Ukrainian defense experts term a “capability accelerator” to integrate emerging technologies into mission-focused capabilities, Taiwan can enhance its resilience and swiftly adapt to evolving security challenges, including rapidly fielding a high volume of unmanned systems to achieve distributed surveillance, redundant command and control, and higher survivability.86 This comprehensive approach, which recognizes the private sector as the greatest source of innovation in today’s complex security environment, holds significant potential for enhancing Taiwan’s defense capabilities through the utilization of disruptive technologies. The island’s overall resilience would significantly benefit by drawing the private sector in as a direct stakeholder in national defense matters.

Ukraine’s grass-roots model of defense innovation, spearheaded by volunteers, nongovernment organizations, and international partners, is a worthy and timely model for Taiwan. Ukraine’s approach has yielded significant advancements in drone warfare, as well as sophisticated capabilities like the Delta battlefield management system—a user-friendly cloud-based situational awareness tool that provides real-time information on enemy and friendly forces through the integration of data from sources such as drones, satellites, and even civilian reports.87 This collaborative model, reliant on cooperation between civilian developers and military end users, has propelled Ukraine’s military technological revolution by integrating intelligence and surveillance tasks, while enhancing decision-making and kill-chain target acquisition. Taiwan will benefit from a comparable approach.

Third, as suggested above, Taiwan should focus a large portion of its defense budget on low-cost, highly effective systems. In terms of force structure, it appears that Taiwan has settled on a design that blends large legacy platforms of a twentieth-century military with the introduction of more survivable and distributable low-end asymmetric capabilities. The latter are best exemplified by Taiwan’s indigenously produced Ta Chiang-class of high-speed, guided-missile corvettes (PGG) and Min Jiang-class fast mine laying boats (FMLB).88 But much more must be done to bolster Taiwan’s overall defense capabilities by focusing on less expensive, but nonetheless highly effective systems.

In Ukraine’s battle against Russian Federation invaders, drones have provided Ukrainian forces with important tactical capabilities by enabling them to gather intelligence, monitor enemy movements, and conduct precision strikes on high-value targets. Taiwan can comparably utilize low-cost UAVs to establish mesh networks that connect devices for intelligence, surveillance, and reconnaissance and for targeting that would be invaluable in countering a PRC amphibious assault. Lessons from Ukraine further highlight the importance of having the right mix of drone types and capabilities in substantial stockpiles, capable of a variety of missions. Notably, Ukrainian officials have called for the production of more than one million domestically produced drones in 2024.89 Then-President Tsai’s formation of a civilian-led “drone national team” program is a commendable step in this direction and underscores the power of collaborative innovation in joint efforts between users.90 Encouraging cooperation between Taiwan drone makers and US private industry will accelerate the development of a combat-ready unmanned systems fleet with sufficient range, endurance, and payload to enhance situational awareness and battlefield effects.

Concurrent with those efforts utilizing unmanned systems, Taiwan should bolster its naval mining capabilities as a strategic measure against PRC aggression. Naval mines represent one of the most cost-effective and immediately impactful layers of defense.91 In this regard, Taiwan’s new Min Jiang class of FMLB represents the right type of investments in capabilities which could prove pivotal in thwarting potential invasion attempts.

Even more significantly for a Taiwan audience, Ukraine broke a blockade of its Black Sea ports using a combination of naval drones and coastal defense missiles—and repelled the once-mighty Russian Black Sea Fleet—all without a traditional navy of its own.92 Faced with clear intent by a PLA Navy practicing daily to isolate the island, the time is past due for Taiwanese authorities to hone their own counterblockade skills including a heavy reliance on unmanned surface vehicles.

Taiwan should also make rapid investments in port infrastructure and defenses along Taiwan’s eastern seaboard in places such as Su’ao and Hualien harbors, which can serve as deepwater ports that are accessible, strategic, antiblockade strongpoints, and where any conceivable PLA blockade would be at its weakest and most vulnerable point logistically. Su’ao harbor, as a potential future homeport for Taiwan’s new indigenous Hai Kun-class diesel submarines, could also serve a dual purpose as an experimentation and development zone for public-private collaboration on unmanned-systems employment and operations. Infrastructure investments in East Coast ports could enhance the island’s ability to attain emergency resupply of energy, food, humanitarian supplies, and munitions under all conditions, broadening options for international community aid and complicating PLA efforts.

Fourth, every new capability needs trained operators who are empowered to employ and engage. This year Taiwan began implementation of a new, one-year conscript training system for male adults born after January 1, 2005 (up from a wholly inadequate four months of conscription in the past decade).93 Taiwan’s “all-out defense” plan realigns into a frontline main battle force consisting of all-volunteer career military personnel, backed up by a standing garrison force composed mainly of conscripted military personnel guarding infrastructure, along with a civil defense system integrated with local governments and private-sector resources. Upon mobilization, there would also be a reserve force to supplement the main battle and garrison forces.

According to details laid out in its 2023 National Defense Report, Taiwan’s revamped one-year conscript system and reorganized reserve mobilization system place significant emphasis on traditional military combat skills, such as rifle marksmanship and operation of mortars.94 However, in response to evolving security challenges and the changing nature of warfare, Taiwan’s military should incorporate greater training in emerging technologies and unconventional tactics, along with decentralized command and control, especially in the areas of drone warfare, where unmanned aerial vehicles and surface vessels play a crucial role in reconnaissance, surveillance, and targeted strikes. By integrating drone warfare training into the conscript system as well as in annual reserve call-up training, Taiwan can better prepare its military personnel to adapt to modern battlefield environments and effectively counter emerging threats.

Integrating drone operations into military operations down to the conscript and reservist level offers a cost-effective means to enhance battlefield situational awareness and operational capabilities, and also has the added benefit of enhancing the attractiveness and value of a mandatory conscription system emerging from years of low morale and characterized by Taiwan’s outgoing president as “insufficient” and “full of outmoded training.”95 Recognizing the imperative to modernize military training to face up to a rapidly expanding PLA threat, Taiwan’s military force realignment plan came with a promise to “include training in the use of Stinger missiles, Javelin missiles, Kestrel rockets, drones, and other new types of weapons . . . in accordance with mission requirements to meet the needs of modern warfare.”96 Looking at the example of Ukraine, where drones have been utilized, underscores the importance of incorporating drone warfare training into its asymmetric strategy.

The Taiwan Enhanced Resilience Act “prioritize[d] realistic training” by the United States, with Taiwan authorizing “an enduring rotational United States military presence that assists Taiwan in maintaining force readiness.”97 There have been numerous reports of US special forces in Taiwan,98 and those forces could provide training in tactical air control, dynamic targeting, urban warfare, and comparable capabilities.99 Likewise, parts of an Army Security Force Assistance Brigade could do similar work on a rotational basis, on- or off-island.

To facilitate a comprehensive and integrated approach to defense planning and preparedness between the military, government agencies, and civilian organizations, Taiwan has also established the All-out Defense Mobilization Agency, which (as noted above) is a centralized body subordinate to the Ministry of National Defense that is tasked with coordinating efforts across various sectors, down to the local level, to enhance national defense readiness. That agency would be significantly more effective if raised to the national level with a broadened mandate as part of a comprehensive approach.

The Taiwanese leadership also should consider elevating their efforts to create a large-scale civil defense force, offering practical skills training which would appeal to Taiwanese willing to dedicate time and effort toward defense of their communities and localities. These skills could include emergency medical training, casualty evacuation, additive manufacturing, drone flying, and open-source intelligence. Private, nonprofit civil defense organizations such as Taiwan’s Kuma Academy hold widespread appeal to citizens seeking to enhance basic preparedness skills.100 With a curriculum that covers topics ranging from basic first aid to cognitive warfare, Kuma Academy’s popular classes typically sell out within minutes of going online. According to a recent survey of domestic Taiwan opinions sponsored by Spirit of America, “When facing external threats, 75.3% of the people agree that Taiwanese citizens have an obligation to defend Taiwan.”101 A well-trained civil defense force and other whole-of-society resilience measures provide an additional layer of defense and enhance social cohesion to better deny Beijing’s ultimate political objective of subjugating the will of the people.

Defense resilience recommendations for Taiwan

Raise defense spending to at least 3 percent of GDP.

Adopt Ukraine’s model of grass-roots innovation in defense.

Focus a large portion of its defense budget on low-cost, highly effective systems including unmanned vehicles and naval mines.

Incorporate greater training in emerging technologies and unconventional tactics for conscripts and reserves.

Invest in East Coast port infrastructure as counterblockade strongholds.

Elevate the All-out Defense Mobilization Agency to the national level and implement a larger civil defense force that fully integrates civilian agencies and local governments.

Conclusion

On April 3, 2024, Taiwan was struck by the strongest earthquake in twenty-five years. In the face of this magnitude 7.4 quake, Taiwan’s response highlights the effectiveness of robust investment in stricter building codes, earthquake alert systems, and resilience policies, resulting in minimal casualties and low infrastructure damage.102 Taiwan’s precarious position on the seismically vulnerable Ring of Fire, a belt of volcanoes around the Pacific Ocean, mirrors its vulnerability under constant threat of military and gray zone aggression from a mainland China seeking seismic changes in geopolitical power. Drawing from its success in preparing for and mitigating the impact of natural disasters, Taiwan can apply a similarly proactive approach in its defense preparedness. Safeguarding Taiwan’s sovereignty and security requires investments in a comprehensive security strategy for resilience across society—including cybersecurity for critical infrastructures, bolstering energy security, and enhanced defense resilience. Such an approach would provide Taiwan the greatest likelihood of deterring or, if necessary, defeating PRC aggression including through blockade or kinetic conflict.

### Econ – Stranded Assets

#### Deep reductions collapse governments and destroy the world economy

Meredith ’23 Dennis Meredith is the author of “The Climate Pandemic: How Climate Disruption Threatens Human Survival.” Opinion: Why Fossil Fuel Companies Can’t Leave Resources Stranded Huge legal, political, and economic obstacles stand in the way of limiting global temperature rise to 1.5 C. https://undark.org/2023/11/02/opinion-fossil-fuel-stranding/

A critical component of climate advocates’ plans to limit oil and gas production is leaving in the ground, or stranding, large percentages of existing fossil fuel reserves. In 2015, A University College London study found that limiting heating to 2 C would require stranding a third of oil reserves, almost half of gas reserves, and more than 80 percent of coal reserves. In a 2021 update, a similar analysis found that meeting the Paris Agreement’s 1.5 C target would mean leaving in the ground nearly 60 percent of oil and gas and 90 percent of coal reserves by 2050.

However, these scenarios minimize or ignore the profound legal, political, and economic obstacles to such stranded assets.

Resource stranding would be a political disaster for any government, given the potential skyrocketing energy prices and enormous investor losses that would result.

For one thing, because such strandings would damage corporations, company directors who approved them would be left open to personal lawsuits for breaching their corporate fiduciary duty. Such duty legally requires directors to act in the best interest of the company.

Stranding resources could also be thwarted by legal claims from investors seeking compensation under international treaties. Countries offer such treaties to encourage foreign investment, and if they are violated, those investors can demand arbitration. An analysis by researchers at Boston University estimated that such arbitration could lead to government liabilities of up to $340 billion for oil and gas projects worldwide. Risks would be even greater if coal mining and fossil fuel infrastructure were included.

One group found that aggressive energy policies to limit warming to 2 C would mean that $1.4 trillion in existing projects would lose their value. The researchers traced the risk of ownership of more than 40,000 oil and gas assets. Private investors would suffer the most through their pension funds and investments, the study found.

Such stranded assets would be a political disaster for any government, given the potential skyrocketing energy prices and enormous investor losses that would result. Witness how quickly and dramatically the Biden administration responded to the recent rise in gasoline prices by selling oil from the U.S. oil reserve to keep the price low.

Finally, advocates of resource stranding ignore the fact that fossil fuels are inseparably fundamental to the functioning of the world economy, and deep reductions in carbon emissions under current policies is not a realistic possibility.

### Solves Case--Climate

#### Continued strong LNG exports are a hidden carbon tax on domestic usage

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6. Implications for U.S. Power Sector Emissions, Prices, Generation, and Capacity

In the previous section, we identified the effect of recoupling induced by LNG exporting on domestic natural gas and coal prices. In principle, the upward pressure on domestic prices would result in substitution away from those fossil fuels, including for electricity generation. At the daily or weekly frequency, natural gas and coal prices are key drivers of competition among fossil-fired and non-fossil-fired electricity generation units (EGUs). Over longer horizons, natural gas and coal prices affect EGU capacity investment and retirement decisions.

To simulate the short- and medium-run effects of recoupling on the power sector, we use the National Renewable Energy Laboratory’s (NREL) Regional Energy Deployment System (ReEDS) capacity expansion model (Ho et al., 2021).30 ReEDS is a quantitative equilibrium model that projects the evolution of the utility-scale power sector for the contiguous United States using a system-wide, least-cost approach, subject to policy and operational constraints.31 Essentially, the ReEDS model solves the social planner’s problem of minimizing the aggregate system cost of maintaining and dispatching an endogenous set of EGUs to serve exogenous, inelastic demand in every region of the contiguous United States during each modeled period.

Our simulations are based on the Mid-case scenario from the 2023 Standard Scenarios Report, which scenario uses central or median values for core inputs such as technology costs, uses the AEO2023 Reference Case coal, natural gas, and uranium prices, assumes end-use electricity demand growth averaging 1.8% per year, and includes both state and federal (but not local) electricity sector policies as they existed in September 2023 (Gagnon et al., 2023). Following common practice for ReEDS (e.g., Gagnon et al., 2023), we solve the model using myopic expectations, in which current-period prices and policies are assumed to extend into the future. Our simulations are for the period 2023-2030, with the model solved in one-year steps.

We identify the effects of recoupling on the electric power sector by simulating the Mid-case scenario with adjusted coal and natural gas fuel prices based on our four alternative forecasts shown in Figure 10. The ReEDS model takes annual fuel prices for each U.S. Census Division as exogenous inputs, which inputs the Mid-case scenario draws from the AEO2023 Reference Case.32 To incorporate information from our fuel price forecasts, we subtract the difference between our forecast annual average (i.e., across weeks within a year) fuel price and the AEO2023 Reference Case national annual average (i.e., across Census Divisions within a year) fuel price. Our approach preserves the signal from our forecast via the variation in mean annual fuel prices while also incorporating persistent, idiosyncratic differences in fuel prices across Census Divisions that are unlikely the result of changes in LNG exporting. As additional points of comparison, we also simulate scenarios using the unadjusted AEO2023 Reference Case fuel

prices and using the adjusted fuel prices based on our VAR forecast including a $30/MT carbon tax.

Table 4 presents results from our ReEDS model runs in 2030, the last year of our simulations. The outcomes include CO2 emissions from electricity generation in million metric tons (MMT), average bulk system electricity prices in dollars per megawatt-hour ($/MWh), average retail electricity prices in cents per kilowatt-hour (¢/kWh), total annual electricity generation in terawatt-hours (TWh), and electricity generation capacity in gigawatts (GW). Column (1) reports results for the ReEDS model run using coal and natural gas prices based on the NGCC parity cointegrating coefficients forecast. Column (2) reports results for the scenario using prices based on the full set of estimated cointegrating coefficients forecast. Column (3) reports results for the estimated gas-coal cointegrating coefficient without gas-oil cointegration forecast scenario. Column (4) reports results for the model run using fuel prices based on the VAR. Column (5) reports results for the scenario using AEO2023 reference prices. Finally, Column (6) reports results for the model run using fuel prices based on the VAR including a $30/MT carbon tax.

The differences in outcomes across our ReEDS model runs mirror the differences in our fuel price forecasts. Emissions, prices, generation, and capacity are quite similar in Columns (1) and (2), as are the outcomes in Columns (3) and (4). Comparing Columns (2) and (3), provides an estimate of the impact of recoupling relative to gas-coal cointegration. Under recoupling, emissions are lower by 145 million metric tons, or 33%, mainly due to substitution from gas-fired generation to non-fossil generation driven by increased investment in non-fossil generation capacity. Average bulk system electricity prices are 9.4% higher and average retail electricity rates are 3.8% higher under recoupling.

It is potentially illuminating to contrast the results from model runs using our fuel price forecasts with the run using AEO2023 reference case fuel prices, Column (5). The results in Column (5) are most similar to the results based on our no-recoupling forecasts. Relative to Column (3), emissions in Column (5) are 11% higher, and coal-fired generation is 94% higher, mainly because AEO2023’s coal price forecast ($53.30/short ton) is significantly lower than our coal-gas cointegration coal price forecast ($74.90/short ton).33

We can also compare the results of recoupling to the impacts of a $30/MT carbon tax policy. Indeed, the results in Column (6), the ReEDS model run using VAR-based fuel prices, including a $30/MT carbon tax, are quite similar to the recoupling results in Column (2). However, emissions are 12% lower, and coal-fired generation is 36% lower, because the effective coal price is relatively higher under the VAR-based $30/MT carbon tax scenario. Thus, recoupling is comparable to imposing a $30/MT carbon tax on gas and a $20/MT carbon tax on coal.

7. Discussion

The central hypothesis of this paper – that U.S. gas prices have recoupled to world energy prices, in particular to oil prices – is likely to be controversial. From an historical perspective, this recoupling should not be surprising, however, because there are multiple margins on which fossil fuels compete; indeed, the period of shut-in fracking, which we date from 2010 to 2016, was the historical exception in which domestic gas prices disconnected from global fuels markets.

We have made the statistical case for this recoupling. That empirical evidence is bolstered by market evidence of the internationalization of pricing, for example the increasing ability of Japanese LNG importers to sign contracts either indexed to oil or to Henry Hub, and the fact that recently U.S. upstream gas producers have been signing contracts for U.S. production indexed to Brent or to Asian gas prices.

34 We recognize, however, that there are counterarguments. Once built, LNG export terminals operate near capacity, effectively making the marginal gas consumer (and thus price-setter) domestic consumption. Still, there is short-run flexibility in adjusting capacity utilization rates to market conditions, there is medium-term flexibility in capacity through the new technology of offshore liquefaction facilities (so-called fast LNG plants), and long-term contracts take into account projected industry expansion plans. Ultimately, the question of recoupling seems to us to be an empirical one.

The recoupling hypothesis, if correct, has major ramifications. As our two estimates of the price impacts of this recoupling indicate, the recoupling has resulted in gas prices that are substantially higher than they would have been without LNG exports – we estimate, prospectively, an LNG-induced increase of approximately $1.60/MMBtu. The mechanism behind this price increase – recoupling to global markets – is different than the mechanism behind the market studies used in prior assessments of the economic impact of LNG exports, which focused on domestic supply and demand considerations with domestic prices set in autarchy. Because gas and coal prices are connected through widespread competition in the U.S. power sector, this price increase translates to coal as well, and in effect operates akin to a modest carbon tax on gas and coal of roughly $20-$30/MT of CO2. We estimate that this increase in domestic prices has expedited the decline in the use of gas and coal historically and, prospectively, is associated with further emissions reductions in the power sector of 145 million metric tons of CO2 in 2030, compared to the no-recoupling counterfactual. This is arguably an underestimate because it only considers the power sector and omits reductions in residential and commercial gas use.

One theme of this paper has been the ever-evolving nature of natural gas markets and pricing. Even if our recoupling hypothesis is correct, that recoupling need not be permanent, and one can imagine a situation in which eventually U.S. LNG export capacity freezes, fracking technology continues to advance, and the shut-in gas period of regime II is effectively reestablished, resulting in lower gas and coal prices domestically – in effect lifting the effective “LNG carbon tax” on domestic consumers of gas and coal and increasing foreign natural gas prices. Whether that situation arises depends on future technological innovation and future policy decisions concerning LNG permitting.

A complete analysis of the market and climate implications of LNG exports – that is, the full study called for as part of the January 2024 LNG export pause – would address additional considerations beyond domestic prices and CO2 emissions. Those considerations include impacts on international prices, effects of increased gas supply on international generation choices, and long-run market and emissions impacts given the long-lived nature of LNG export facilities. A full analysis of climate impacts would also consider the life-cycle emissions associated with LNG exports, including methane emissions leaks through the LNG supply chain and ongoing regulatory changes that will affect evolving technology and upstream emissions.

35 Beyond market and climate impacts, a full review of the consequences of LNG exports would also include local environmental effects of LNG export facilities, their impacts on local communities, and geopolitical considerations.

#### US LNG exports reduce fossil fuel emissions

Stock and Watkins ’24 The Market and Climate Implications of U.S. LNG Exports James H. Stock is a Research Associate at Harvard and Matthew Zaragoza-Watkins is from U.C. Davis DOI 10.3386/w32228 ISSUE DATE March 2024 07/01/2024 Summary of Working Paper 32228 https://www.nber.org/papers/w32228

In less than a decade, the United States has gone from being a net importer of liquified natural gas (LNG) to the world’s largest exporter. This change resulted from two developments: the fracking revolution and the construction of a number of LNG export terminals. A decade ago, the US natural gas market was separate from the world market. Because export capacity was limited, rising domestic production due to fracking sharply reduced prices. Today, domestic and global markets are integrated. This has driven up the domestic gas price and put upward pressure on domestic coal prices because coal and gas are substitutes for power generation. Higher prices have reduced domestic demand for both fossil fuels in much the same way a carbon tax would.

In The Market and Climate Implications of US LNG Exports (NBER Working Paper 32228), James H. Stock and Matthew Zaragoza-Watkins explain that the US has gone through four distinct stages in its transformation from natural gas importer to exporter. In the first, from the 1990s to around 2006, gas and oil competed to power the steam boiler generators that utilities were bringing on line to replace aging coal-fired plants. This competition helped to align the prices of coal, gas, and oil. The surge in fracked gas, which started in the mid-2000s, initiated a second, transitory stage in which gas prices fell; oil could no longer compete in the electricity-generation business. The correlation between oil and gas prices declined. The third phase began in 2010, when fracked gas flooded the domestic market, and US gas prices became disconnected from both oil and international gas prices. Finally, when the first LNG export facility opened in 2016, the US entered the fourth and current stage. Expanding gas exports mopped up excess supplies, and domestic gas prices recoupled with oil and international gas prices.

In 2005, the US imported roughly 15 percent of the gas it consumed. By 2017, it was a net exporter and, by 2023, the world’s largest exporter. In 2005, coal generated half of the nation’s electricity. By 2020, that share was down to 19 percent, largely due to the replacement of coal-fired generation with generation from gas-powered units.

The surge in LNG exports has buoyed domestic gas and coal prices, reducing domestic consumption. The researchers estimate domestic gas prices through 2030 would be approximately 54 percent higher relative to a scenario without the export-driven recoupling to global prices. The effect of that price increase is comparable to that of imposing a $30 per metric ton carbon tax on domestic natural gas combustion. Domestic coal prices would be about 64 percent higher in 2030 under recoupling because of their connection to domestic gas prices. That amounts to about a $20 per metric ton carbon tax in terms of impact on demand.

The researchers point out that the reconnection of US gas and coal prices to international energy markets has important implications for greenhouse gas emissions. They calculate that by 2030, if gas markets remain integrated and current trends continue, the US power-generation sector will emit 145 million fewer metric tons of CO2 than it would have absent integration. This is about a one-third reduction in the CO2 emissions from the power sector, mostly due to the nation switching from fossil fuels to non-fossil alternatives.

# Answers To

## A2 EU BTA

#### Status quo US leakage regulations solves EU methane rules

Silverstein 2024, Ken Silverstein, senior contributor to Forbes, “The EU’s Methane Regulations Will Impact U.S. Oil And Gas Producers” <https://www.forbes.com/sites/kensilverstein/2024/07/01/the-eus-methane-regulations-will-impact-us-oil-and-gas-producers/> accessed 8-13-24//DeLo-IU

The European Union’s methane regulations will soon come into full force, prompting oil, gas, and coal companies to monitor, measure and report their emissions. The same restrictions will also apply to energy imports. That impacts the United States, the EU’s largest liquefied natural gas supplier.

EU Regulators could restrict access to European markets if a country fails to comply. This is significant as the continent weans itself off Russian oil and gas and opens to global imports. However, those producers rising to the challenge could gain competitive advantages. By contributing to cleaner air, they might attract more investment, leading to progress in leak detection and methane capture technologies.

“Methane is the second highest contributor to global warming and air pollution after CO2, accounting for around a third of greenhouse gas emissions, harming both our environment and our health,” said European Commission for Energy Kadri Simson in a release. “With the final EU adoption of the methane regulation, we now have means to get clearer insight into the main sources of methane emissions in the energy sector. This will increase transparency and provide the tools necessary to reduce these potent emissions, both in the EU and globally.”

The new rules require EU gas, oil, and coal operators to:

Stop Routine Flaring and Limit Venting: Allowed only in emergencies, technical malfunctions, or for safety reasons.

Implement Advanced Monitoring: Use satellites and technologies to detect and report methane leaks.

Adopt Best Practices: Although the EU must still determine “maximum methane intensity values.”

While the standard does not set an exact number by which producers must cut their emissions, earlier versions of the rule aimed to reduce methane levels by 35% by 2030 compared with 2005. This goal aligns with the EU’s broader climate neutrality target by 2050.

According to BP, oil and gas contribute a fifth of all global methane emissions tied to human activity. Methane levels have been rising 0.8% since 2022. The challenge: Natural gas, which results in about half the emissions as coal, is now the most widely used fuel to generate electricity in the United States.

“According to the Global Flaring and Methane Reduction Partnership, if we can deploy the full potential of methane reduction, the world could avoid roughly 0.1° Celsius of warming by mid-century. To put that in context, it’s roughly equivalent to switching off the emissions of every car and truck in the world,” said BP’s Fuzzy Bitar in a speech.

Millions In Investments

Major oil and gas producers are already investing in mitigation efforts to curtail their methane releases. Moreover, companies like Shell, Equinor, BP, Total, Statoil, and EQT are thinking long-term: without methane controls, the world can’t limit temperature increases, which then dampens the prospects for natural gas usage; methane is a byproduct of the fuel that has economic value if recaptured.

For example, BP has measured and reported methane levels for roughly four years. The goal is to cut methane intensity by 50% in the coming years. It will achieve this by implementing new technologies and positioning more people in the field. “We’re doing everything from deploying drone-mounted measurements to advanced predictive algorithms to deploying exciting new flow measurement technologies,” said Bitar.

The EU and U.S. launched the Global Methane Pledge at the COP26 UN Climate Conference in Glasgow in 2021. The International Energy Agency estimates that the industry can reduce worldwide emissions by 75%.

How much methane escapes during operations? About 75 million metric tons. Some gas is also flared because it can't reach production facilities. However, capturing and reselling methane can offset the cost of new technologies.

San Francisco-based Paxon Energy recaptures about 20 million standard cubic feet of methane annually during pipeline maintenance, which utilities can then sell. “We recover 95% to 99% of the natural gas that would otherwise get burned off or released into the atmosphere,” says CEO Nooshin Behroyan.

The United States aims to reduce its methane emissions by 30% by 2030, giving it a head start on the new EU regulations. Nevertheless, the standards will push oil and gas producers worldwide. Smaller producers with less capital may need help, but those companies that do comply will capture market share and increase their access to capital, driving sustainability and innovation in the industry.

##  A2: Qatar

### A2: Qatar—Instability

Middle East Instability threatens Qatar LNG exports
Ackerman 2023, Wayne has more than 30 years’ experience in the upstream exploration and production sector and major capital project development, including LNG. He is also the founder and president of Ackerman and Associates Global Consulting, LLC, Middle East instability threatens Qatar LNG exports, “The implications of Red Sea instability on the global LNG market,” <https://www.mei.edu/publications/implications-red-sea-instability-global-lng-market> accessed 8-13-24//DeLo-IU

In recent weeks, maritime attacks carried out by the Iranian-backed Houthi rebels in the Bab el-Mandeb Strait, between Yemen, Djibouti, and Eritrea, along with retaliatory strikes by the United States and its allies, have significantly increased global shipping risks and raised the ire of many foreign governments. More than 40 attacks against commercial shipping have been reported since mid-November 2023, although none have targeted crude oil or liquefied natural gas (LNG) carriers to date. But that is not to say that global energy flows through this critical maritime chokepoint are invulnerable; any harm that came to hydrocarbon carriers traveling into or out of the Red Sea via the Bab el-Mandeb would have far-reaching consequences for international markets.

According to S&P Global, approximately 8% of global LNG volumes transited the 20-mile-wide, 70-mile-long strait in 2023. Most of this traffic in the east-to-west direction has comprised Qatari LNG cargoes destined for European markets. But effective Jan. 15, 2024, Qatar Energy announced the suspension of its LNG shipments via the Red Sea due to the escalation of hostilities. And, as reported by Drewry, a maritime consulting group, more than 90% of global container vessels originally transiting the Red Sea have diverted their voyages to around the Cape of Good Hope.

The gas market impact of the Houthi strikes on Red Sea shipping has been limited to date, due to sufficient global supply, a warmer-than-average northern hemisphere winter, high European storage levels, and new market dynamics brought on by the Russo-Ukrainian war; but the market will undoubtedly experience more profound supply and price volatility should the Red Sea route effectively become closed to commercial maritime transit or the military activity in the region expands and further escalates. Vessels forced to deviate around the Cape of Good Hope incur longer shipping times and higher fuel costs, not to mention additional expense due to scrambled schedules. Even though no price spikes are forecasted at this point, commodity costs will increase over time.

Further market shifts can be anticipated, with Europe potentially trying to secure increased volumes from Atlantic Basin producers, including the United States. At the same time, Middle East suppliers will seek more Asian buyers, which can be reached without having to enter the Red Sea and passing through the Suez Canal (or circumnavigate Africa), minimizing their exposure to the Bab el-Mandeb Strait. In the long term, the Red Sea shipping threats and low-water issues in the Panama Canal, which are complicating passage between the Atlantic and Pacific oceans, may further segment the global LNG market into Atlantic Basin suppliers and buyers on the one hand and Middle East/Australia suppliers and Asian buyers on the other. In this geo-economic market realignment, Saudi Arabia and North American producers could turn out to be the big winners.

Implications

Longer shipping times, higher costs, and shipping risks\

As of mid-December, at least three LNG carriers opted for the longer voyage around the Cape of Good Hope, which added approximately 22 days to a round-trip passage from Qatar to Europe. The extra 6,000-7,000 nautical miles translates to an additional $1 million in fuel costs. Insurance premiums are also rising, driving shipping costs higher. The longer shipping times may adversely impact planned port arrivals, loading, and offloading schedules and cause a global rescheduling of the LNG carrier fleet, again adding cost to the final product. By one key measure, the extra 11-day delay to cargo shipments from Qatar to Europe equates to three to four missing cargoes, assuming a ship is offloaded in 24 hours. With prolonged shipping delays in the system and it being the middle of the European winter heating season, European buyers will have to secure spot cargoes as insurance.

Currently, the Houthis seem to be focusing on large container vessels and bulk carriers, but loaded LNG carriers offer handsome targets in their own right. Qatari-flagged LNG carriers may have some inherent limited protection. Still, the Houthis must realize that while the ship is Qatari, the cargo is destined for the European Union, some of whose members are staunch supporters of Israel. Thus, based on Houthi communiques, LNG carriers may be viable targets in the longer term. With more frequent attacks, the risk increases for an “inadvertent” attack on a Qatari-flagged LNG carrier loaded with gas destined for the EU or a ship carrying US-produced LNG. In either case, serious repercussions would be expected, militarily and throughout the global LNG market.

Isolation to regional spread

To date, either through discipline or luck, high-profile Houthi attacks have been limited to the Bab el-Mandeb Strait and have not strayed into Saudi Arabian waters. Soon after the start of the current Israel-Hamas conflict, the Houthis launched several missiles from northern Yemen into the Red Sea in an attempt to reach Israel. Those projectiles all failed to reach their target, but they did transgress Saudi national waters. More such transgressions or “inadvertent” attacks on international vessels in Saudi waters — or even more provocatively, Saudi vessels carrying crude or other energy products — would require Riyadh to take action, pushing Saudi Arabia into renewed war with the Houthis as well as, again, conflict with Iran. The Saudis have remained quiet for now and avoided taking any part in the US-led international deterrence efforts in the Red Sea, but any Houthi actions threatening Saudi interests or assets, direct or indirect, will likely require a change in Riyadh’s policy.

The Houthis have, for years, been supplied by Iran; yet their shift to maritime combat and surveillance operations over the past several months implies a more recent introduction of new weaponry. The international coalition’s pivot from deterrence toward more offensive action may push the Iranians to decide they need to increase their support for the Houthis, resulting in an escalation of hostilities with more widespread attacks on commercial shipping. The originally scripted Houthi attacks on Israeli shipping, or ships carrying Israeli goods, have already metastasized to widespread commercial shipping in the Red Sea, including against US and allied warships. More concerning would be any expansion of hostilities and increased piracy on the other side of the Arabian Peninsula, in the Strait of Hormuz. In a worst-case scenario, simultaneous hostilities in the Strait of Hormuz and the Bab el-Mandeb Strait would drastically impact global energy supply — strategic leverage Tehran has long sought to develop.

Saudi Arabia’s conundrum

As alluded to above, since 2023, the Saudis have assertively sought to de-escalate and disengage from the Yemeni civil war, and in parallel, the Saudis and Iranians have taken steps to rebuild bilateral relations. The recent hostilities in Bab el-Mandeb, however, present the Saudis with a difficult challenge. The governments of Saudi Arabia as well as the United Arab Emirates have been careful not to vocally align with the US on the Israel-Hamas conflict for fear that their populations would view that alignment as anti-Palestinian. At the same time, the Saudis have refrained from taking an active role on the Houthi issue. With the recent US and allied counterattacks on the Houthis, the Saudis and Emiratis have, thus, called for restraint and de-escalation. Future Houthi attacks on Saudi crude carriers or those that occur in Saudi waters would force Riyadh into an uncomfortable decision: whether to align with Washington and its allies or remain quiet. The Saudis will have to juggle among three competing factors: their interests and obligations to global maritime shipping networks and their oil customers, efforts to manage Iranian proxies, and the need to prevent anger and resentment in their population.

That said, as long as Saudi assets and territorial waters remain off limits to the Houthis, the ongoing instability in the Bab el-Mandeb Strait could actually positively impact the Saudi petroleum industry. As regional turmoil increases, Red Sea export points north of the strait would offer the Saudis a competitive advantage on the European markets. But to seize this opportunity, Saudi Arabia would need to expand crude and petroleum product exports from port facilities in Jizan and Yanbu as well as increase export volumes. Second, Saudi Aramco should now execute the plan to expand domestic gas infrastructure to export LNG from a Red Sea port as it develops gas resources from the Jafurah area. Avoiding the congested Arabian Gulf seaways and the politically unstable Strait of Hormuz and Bab el-Mandeb Strait could result in a “de-risked” product premium.

Structural market shift

With the Red Sea waterway under duress and no estimate as to when hostilities might end, the global shipping fleet must consider alternative routes, such as the lengthy Cape of Good Hope voyage. For the global LNG trade, the Red Sea has always been the dividing line between the eastern and western markets for producers and buyers. The Russo-Ukrainian war had already led to an LNG market shift, whereby US LNG producers expanded to fill the void in Russia’s gas supply to Europe. At the same time, the increased US LNG supply to Europe diminished the appetite for other international suppliers. The current instability along the Red Sea shipping lanes will drive buyers to support further US LNG expansion, and spreading instability could also lure the Asian market to secure more North American LNG volumes. The situation as a whole will support the development and expansion of new LNG supply chains that minimize shipping risk. Unfortunately, geographic pinch-points are present throughout the world, and most, if not all, have their own challenges associated with transiting them.

Geopolitical fallout and impact on global LNG

The fallout of the Oct. 7 Hamas attack on Israel is still reverberating globally. More specifically, what started as a horrific act of terrorism has now expanded beyond the Gaza-Israel theater to include more than a dozen countries, impacting the Eastern Mediterranean, Suez Canal zone, Red Sea, Arabian Sea, and Arabian Gulf. Approximately 24% of global oil and 24% of global LNG supply is produced in the Middle East, with an estimated 24% of this regionally produced oil and 20% of this LNG passing through the Strait of Hormuz. Both Qatar and US suppliers of LNG have already suspended the transit of their cargoes via the Red Sea.

For now, although oil markets have expressed some concern, the LNG market has been relatively stable due to significant global supply and no incident of an attack on an energy-carrying vessel in the Red Sea to date. Nevertheless, the long-term impact of the insecurity in the region may result in further geographic segmentation of LNG, with Atlantic producers and buyers building stronger supply lines amongst each other and Asian buyers aligning more closely with Middle Eastern producers. US energy companies stand to benefit from a stronger EU market pull, but West Coast North American LNG (Canada, Mexico, US) will also become more attractive to Asian buyers as they try to avoid the Panama Canal drought issues and geopolitical unrest in the Middle East, thus introducing more competition to Middle East suppliers (e.g., Qatar). Asian buyers will now be evaluating the security of supply and the LNG price. Over the next 5-10 years, while Asian LNG demand grows, North American LNG greenfield projects and brownfield expansions can expect to market support to increase their capacity, and project developers will scurry to secure offtake contracts for new greenfield LNG projects in the US, Canada, and Mexico. Global geopolitics are driving Middle East LNG producers into a more competitive environment with western North American LNG producers, to the benefit of Asian buyers.

# Affirmative Answers

### U: Fill In

#### Other countries can fill in:

#### Qatar

Reuters 23 Yousef Saba, contributor, 10-18-23, “Qatar supplies gas to Europe, vying with US to replace Russia supply” <https://www.reuters.com/markets/commodities/qatarenergy-shell-agree-27-year-lng-supply-2023-10-18/> accessed 8-12-24//DeLo-IU

LNG 2023 energy trade show in Vancouver

DUBAI, Oct 18 (Reuters) - Qatar has agreed to supply Shell (SHEL.L), opens new tab in the Netherlands with gas for 27 years, the second such deal with a European buyer in a week, as the Gulf state competes with the United States to help Europe replace lost Russian supplies.

Shell's agreement is identical to a TotalEnergies deal last week with QatarEnergy to supply France. Both are Qatar's biggest and longest gas supply deals with Europe.

Qatar, the world's top exporter of liquefied natural gas (LNG), has previously focused on long-term supplies to the Asian market.

But European Union buyers have signed deals to import gas to compensate for the loss of supply from Russia after the EU imposed restrictions on Russian energy imports in response to Russia's invasion of Ukraine last year.

Affiliates of QatarEnergy and Shell agreed to two sale and purchase agreements for 3.5 million tonnes of LNG a year (mtpa) for 27 years, QatarEnergy said.

The deal reaffirmed "Qatar's commitment to help meeting Europe's energy demands and bolstering its energy security with a source known for its superior economic and environmental qualities," QatarEnergy chief Saad al-Kaabi said in the company's statement.

But the long-term deals are potentially at odds with EU goals to reach net zero emissions by 2050.

France last month said the EU should set fossil fuel phase-out dates to strengthen its efforts to agree a global phase-out deal at the upcoming COP28 U.N. climate summit, hosted by the United Arab Emirates from Nov. 30.

A spokesman for the Dutch climate ministry Tim van Dijk said the government aimed to cut gas demand but would need gas "in the foreseeable future, as renewable alternatives and infrastructure are insufficiently available."

The French energy ministry said TotalEnergies' deal was "a commercial agreement between two companies, which does not bind France, whose objective is carbon neutrality in 2050."

"Moreover, the European gas package directive provides that there cannot be long-term contracts post 2050 for delivery to France," it added.

LONG-TERM SUPPLY

From 2026, the LNG will be delivered to Rotterdam in the Netherlands from two joint ventures between QatarEnergy and Shell in Qatar's North Field LNG expansion project, QatarEnergy said in a statement.

Shell holds a 6.25% stake in the North Field East project and a 9.375% share in the North Field South project.

Until now, Asia had outpaced Europe in locking in long-term LNG supply from Qatar's two-phase expansion plan that will raise its liquefaction capacity to 126 mtpa by 2027 from 77 mtpa.

EU buyers have long been reluctant to sign long-term gas deals with Qatar, as the European Commission has said long-term contracts could inhibit free flows of gas in Europe and they should not run beyond 2049.

QatarEnergy's previous deals include a 27-year LNG supply agreement with China's Sinopec sealed in November for 4 mtpa and an identical one signed in June with China National Petroleum Corporation (CNPC).

Prior to Russia's invasion of Ukraine in February 2022, EU countries received almost 40% of their gas from Russia.

Germany was the biggest buyer and it too has turned to Qatar for replacement gas through a deal between QatarEnergy and ConocoPhillips (COP.N), opens new tab signed in November last year to supply Germany with 2 mtpa of LNG for 15 years.

#### Canada

Dutta 2024, 12 Jun 2024, S&P Global, Ashok Dutta, ““Canada has room for multiple LNG projects, as LNG Canada is on the cusp of startup”

Canada's West Coast has room for multiple LNG export projects to meet a burgeoning global energy demand, particularly in Asia led by Japan and South Korea, even as the North America nation's first greenfield LNG facility is "on the cusp of a startup," industry participants said June 12.

Register Now "LNG Canada is now over more than 90% complete and we will be the first to be built on the [Canadian] West Coast," Senior Vice President Teresa Waddington said at the Global Energy Show in Calgary. "We will have the advantage of a less shipping time to Asia [compared with the US Gulf Coast]."

The first cargo of LNG to set sail from Kitimat in coastal British Columbia, which is the location of the LNG Canada plant, will be chartering a new path on its journey to the Indo-Pacific region, Waddington said, adding there is a growing interest of Canadian LNG in Japan and Korea.

"When we spoke in Japan and South Korea, what came up was they see Canada as their allies. We are across the Pacific Ocean and there are no pinch points," Waddington said following a business trip last week to those Asia nations.

"Between Fukushima and the Russian invasion of Ukraine, they are waiting for new sources of LNG and Canada will play a role in that. There is a huge hunger in Asia-Pacific for energy and they are asking what next after LNG Canada," she said.

West Coast Canadian LNG is at the heart of Asian buyers and the cargoes from don't have the challenges of going through the Panama Canal and the Strait of Hormuz that other leading suppliers like those from the Middle East and the US Gulf Coast have to navigate, president of Global LNG Consulting Racim Gribaa said at the same conference.

"Canada is the closest to the best global market of Asia with the distance from Prince Rupert port [in British Columbia] to Tokyo being half compared with the US Gulf Coast," Gribaa said, noting that, as a rule of thumb, it will take an LNG carrier eight to nine days to reach from Prince Rupert to Tokyo compared with 16-18 days from the USGC.

Current Canadian LNG projects

There are five LNG projects at various stages of development in coastal British Columbia with the most advanced being the first phase of the 12 million mt/year LNG Canada that is preparing to warm up its LNG trains this late summer, Ian Archer, a gas analyst in the Calgary office at S&P Global Commodities Insights, said separately.

LNG Canada – a joint venture between operator Shell with 40% interest, Petronas (25%), PetroChina and Mitsubishi Corp. (each 15%) and Korea Gas Corp. (5% stake) – is being built in two equal phases, with the first phase comprising of two LNG processing trains.

Under the first phase, LNG Canada targets to export a single ship every two days from Kitimat starting around mid-2025, Waddington said, noting for their part the project's JV partners are widely expected to take their share of 'equity' LNG to Asia.

The four other LNG projects are: 2.1 million mt/year Woodfibre; 3 million mt/year Cedar; 12 million mt/year Ksi Lisims; and 2.7 million mt/year Summit Lake PG projects that are all targeting for start up before end 2030.

"We see Canada playing a role in energy security and its now Canada's time to start supplying energy in response to energy security issues," Petronas' Policy Director Bryan Cox said at the same event.

As an upstream partner in LNG Canada, Petronas will provide feedgas for the plant from its "prolific assets" in North East British Columbia, particularly the Montney Basin, Cox said, adding besides the LNG Canada there is "room for more" greenfield export facilities.

Besides energy security, Asian buyers are also keeping a close eye on Canada's low-carbon LNG and the work that has been done by developers along the natural gas value chain, Waddington said.

"Canada has regulatory challengers with multiple layers of approval. But we have overcome that and Canadian LNG is ready to be on the map," Gribaa said.

### Ext: Qatar

#### **Qatar will absorb global market share – they’re already gearing up to out compete US exports**

Reuters 2024, Marwa Rashad February 27, 2024, “Qatar's bigger LNG expansion to squeeze US, other rivals” <https://www.reuters.com/business/energy/qatars-new-lng-expansion-plans-squeeze-out-us-other-rivals-2024-02-27/> Accessed 8-13-24//DeLo-IU

LONDON, Feb 27 (Reuters) - Qatar's planned expansion of liquefied natural gas (LNG) production could see it control nearly 25% share of the global market by 2030 and squeeze out rival projects including in the United States where President Biden paused new export approvals, market experts say.

Qatar, one of the world's top LNG exporters, plans an 85% expansion in LNG output from its North Field's current 77 million metric tons per year (mtpa) to 142 mtpa by 2030, from previously expected 126 mtpa.

Some market experts said that the move will have an impact on global projects in the United States, East Africa, and elsewhere which requires financing and long-term customers commitment to reach final investment decision (FID), given Qatar's edge as the world's lowest cost producer.

Analysts estimate Qatar's unit cost of LNG production to be as low as $0.3/mmBtu, versus $3-$5/mmBtu globally, as associated liquids production pays for most of the LNG construction costs, and as access to cheap labour from southeast Asia prevents projects ballooning in cost or slipping behind schedule.

"The Qataris realised that they should be able to offer pretty much the most competitive prices. They have the reserves, lower costs for building incremental capacity, the relationship with engineering firms and existing clients, so why stop here?," said Ira Joseph, Senior Research Associate at Columbia University's Center on Global Energy Policy.

"This suggests that they are hurtling into use it or lose it mode. If you're the world's low cost producer, why not throw down the hammer & scare away any competition that's requiring long-term customers and financing," he added.

OPEC on Monday cut its forecast for global oil demand growth in 2024.

Fraser Carson, Senior Research Analyst of Global LNG at Wood Mackenzie said the timing of Qatari announcement is "fortuitous", as other major LNG competitors stall, in light of the Biden administration's pause of U.S. LNG export approvals, sanctions on Russian LNG and as civil unrest continues in Mozambique.

Competition between Qatar and the United States intensified following Europe's decision to wean off dependence on Russia's pipeline gas following its invasion of Ukraine, as U.S. gas suppliers filled the supply vacuum, establishing themselves as the world's biggest LNG exporter in 2023, surpassing Qatar, though Qatari supplies also helped replace the volumes.

The U.S. LNG capacity will almost double over the next four years, but a decision to pause approvals for applications for new LNG export terminals, for environmental reviews, has prompted warnings from gas importers that the move would compromise future energy security worldwide.

"The signal the U.S. projects need to take from this (is): if they don't go ahead, someone will," said Kaushal Ramesh, Rystad Energy's vice president for LNG research.

ASIA'S GROWTH HORIZON

The new expansion is expected to lead to a period of more stable, lower prices across the rest of the decade and would encourage greater take-up of LNG from Asian buyers, said Alex Froley senior LNG analyst at data intelligence firm ICIS.

"Bringing online 16 mtpa of low cost volumes is positive for Asia and is exactly what the LNG market needs to guarantee a long-term future in emerging Asia", Rystad's Ramesh said.

Global gas market will grow to 580-600 mtpa by 2030, from current 400 mtpa, mainly driven by Asian demand. Qatar is expected to control 24-25% of the market by then.

"Qatar is geographically well placed to meet current high demand in Northeast Asia in China, Japan and Korea and future demand in the only real growth region of South Asia, especially in India," said Henning Gloystein, Practice Head, Energy and Resources at Eurasia Group.

QatarEnergy chief Saad al-Kaabi said on Sunday that he still believes that there is ample opportunity for gas to be part of the energy mix in the future: "We think there will be a shortage of gas, even with our project".

While there are concerns over the additional carbon emissions impact from new global LNG production, Others argue that there is still huge scope for gas to reduce emissions by replacing coal and oil, ICIS' Froley said.

Despite being the world's largest LNG importer last year, China's overall energy mix is only around 8% gas against 61% for coal and 18% for oil, for example, he added, citing IEA figures.

"For coal to be replaced by gas delivered as LNG as the primary fuel in Asian thermal power plants, the LNG price and price stability is critical. Volatility will make coal to gas conversion more difficult," said Morten Frisch, senior partner at Morten Frisch Consulting.

The world's top energy companies including Exxon Mobil (XOM.N), opens new tab, Shell (SHEL.L), opens new tab, TotalEnergies (TTEF.PA), opens new tab and ConocoPhillips (COP.N), opens new tab have played a central role in Qatar's LNG industry for decades. They all hold stakes in existing production facilities and in recent years acquired stakes in the new expansion phases, offering cash in exchange for LNG volumes.

While the new contracts are not as lucrative as in the past, according to industry sources, they offer the companies an important foothold in the LNG industry, which they expect will continue to grow in the coming decades as economies shift from coal to less polluting natural gas.

Industry sources expect Qatar to continue to seek partnerships with global players as it has a lot of LNG volumes to sell, with one source expecting Australia's Woodside (WDS.AX), opens new tab, whose U.S. Lake Charles project is under threat by Biden's pause, might seek to become a Qatari partner, given they have recently shelved plans for a $52 billion tie-up with smaller rival Santos (STO.AX), opens new tab.

The Reuters Power Up newsletter provides everything you need to know about the global energy industry. Sign up here.

### U: EU LNG Methane Tax

#### US LNG will be taxed by the EU now

Wood Mackenzie 2024, 3-21, Leading global provider of data and analytics solutions for the renewables, energy and natural resources sectors. “Global LNG market could split if an EU carbon tax is imposed on imports” <https://www.woodmac.com/press-releases/global-lng-market-could-split-if-an-eu-carbon-tax-is-imposed-on-imports2/> Accessed 8-12-24//DeLo-IU

The global liquefied natural gas (LNG) market could be transformed and potentially bifurcate if the European Union (EU) extends its carbon taxes to include LNG imports, according to the Wood Mackenzie’s latest Horizons report.

The EU has extended its Emission Trading Scheme (ETS) to shipping, meaning that LNG cargoes into Europe will be subject to a carbon tax from 2024. The report, titled Call of duties: How emission taxes on imports could transform the global LNG market’ concludes that if the trading bloc goes further and tightens it methane regulation or includes LNG in its Carbon Border Adjustment Mechanism (CBAM) – effectively placing an import duty on LNG at prevailing ETS carbon prices – then Wood Mackenzie predicts that the global LNG market would split.

“If the EU decides to apply these levies, then this will push European gas prices up but also bifurcate the global LNG market, creating a two-tier LNG market,” says Massimo Di Odoardo, Vice President of Gas & LNG Research at Wood Mackenzie. “If taxes were limited to the EU, or even extended to Japan and South Korea, trade flows would likely be optimised elsewhere to mitigate the impact.”

LNG emissions under the microscope

The report states that the environmental credentials of LNG are under increasing scrutiny. Despite emitting about half the carbon dioxide (CO2) of coal when combusted, the LNG value chain remains highly carbon intensive and plagued by methane losses.

However, it adds that while LNG players are actively working to reduce the greenhouse gas (GHG) footprint of their projects, the reluctance from buyers to pay a premium for lower-emission LNG has so far curbed sellers’ appetite to commit to major investment to reduce carbon intensity.

US LNG one of worst performers

The report adds that not all LNG projects are equal. Measured in kilograms of carbon dioxide equivalent (kg CO2e), methane accounts for 5% to 15% of overall carbon intensity in LNG projects outside the US. But for LNG projects in the US, methane can account for as much as 25% to 40%. This largely due to higher levels of methane losses caused by extensive use of pneumatic devices and compressors associated with shale gas production.

“With a range of 800 to 1400 kilograms CO2 equivalent per tonne (CO2e/t) of LNG, the US has some of the world’s highest-emitting projects, with upstream reservoir type and pipeline distance to LNG plants adding to their high methane intensity,” Di Odoardo says.

He adds that’s projects with the lowest carbon emissions will gain from an import tax on emissions and targeting premium markets will boost trading profitability. However, proximity to premium markets will be key, with Qatar and Mozambique requiring high carbon prices to be lured away from proximate markets in emerging Asia, which are unlikely to introduce an import tax on emissions.

#### US failure to regulate methane creates compliance problems for an EU BTA – policy alignment is key to coordination

Cahill and Post 2024, Ben Cahill, Senior Associate (Non-resident), Energy Security and Climate and Hatley Post Published May 3, 2024, <https://www.csis.org/analysis/eu-methane-rules-impact-global-lng-exporters> accessed 8-12-24//DeLo-IU

The Issue

Last November, the European Union reached a provisional agreement on its long-developing methane legislation, which aims to reduce emissions from domestically produced and imported oil, natural gas, and coal. Gaps in the legislation represent key problems that producers and consumers are grappling with to better track and reduce emissions across natural gas value chains. The legislation should enter force in the next few months, but even afterwards there will be major uncertainties. This brief describes the methane regulation and discusses the significance for global gas suppliers, including special challenges for U.S. liquefied natural gas (LNG) exporters.

Introduction

In November 2023, the European Union reached a provisional agreement on its long-developing methane legislation, which aims to reduce emissions from domestically produced and imported oil, natural gas, and coal. As Brussels takes steps to establish “methane performance profiles” of supplier countries and producers, the demand for better emissions data will ramp up quickly, including from liquefied natural gas (LNG) exporters.

The legislation should be formally adopted and enter into force within the next few months, but even afterward there will be major uncertainties. The European Commission needs to clarify how it will calculate the methane intensity of imported gas and determine “maximum methane intensity values” (i.e., an import standard). It will need to clarify how it will judge whether imported fossil fuels are produced under measurement, reporting, and verification (MRV) rules that are equivalent to EU standards, and whether there is regulatory equivalence in any other countries that could potentially allow some producers to be exempt from these requirements. Other unanswered questions concern verification of data and potential penalties for noncompliance.

EU requirements are also hard to reconcile with the way U.S. LNG volumes are produced and traded—and this is a concern since the United States is Europe’s largest LNG supplier. The methane legislation demands data “at the level of the producer” (Article 27a), but U.S. LNG sellers usually do not produce gas themselves, instead buying molecules from large producers or gas marketers. These sellers have limited information on the methane intensity of the gas they purchase, so this EU rule could be difficult to satisfy. In addition, a large share of U.S. LNG is sold on a free-on-board basis to traders or aggregators who sell from their portfolios to buyers in multiple regions, including Europe. These aggregators have no producer-level data. EU requirements will be easier to meet in countries with more concentrated production and simpler supply chains, such as Qatar.

Remote Visualization

This CSIS brief describes the European Union’s methane legislation, outlines areas of uncertainty, and discusses the significance for the global LNG industry.

Near the Finish Line but More Distance to Cover

In November 2023, the European Union’s major legislative bodies reached a provisional agreement on new methane rules. The European Commission, the Council of the European Union, and European Parliament had all introduced separate versions of the legislation, and “trilogue” negotiations resolved key differences. Two parliamentary committees have endorsed the agreement, and after a recent plenary vote in the parliament and pending approval from the council, the methane legislation will be published in the Official Journal of the European Union and enter into force, barring any surprises, in the summer.

It has taken years for the legislation to reach this point. The European Union first introduced a methane strategy in 2020. The commission’s legislative proposal followed in late 2021, the council approved its “general approach” in December 2022, and the parliament adopted its position in May 2023. There were persistent disagreements, including rules related to leak detection and repair as well as MRV. A significant area of dispute—and the critical issue for global LNG suppliers—concerned gas import rules. Key parliamentary committees and many environmental organizations advocated stringent requirements for imported gas. Rather than adopting a firm import standard, the European Union has imposed a series of information requirements that will ratchet up between now and 2030.

Remote Visualization

The legislation is nearing the finish line, but unfinished details will be significant for domestic oil and gas producers and suppliers to the European Union. These issues include MRV equivalence; verification of data; the methodology to calculate methane intensity and “maximum methane intensity values”; and potential penalties for operators and importers who fail to meet the new obligations. While key elements of the legislation could evolve before and after it enters into force, each of these issues is examined below.

MRV Equivalence

The methane legislation imposes new MRV rules on all domestic operators, aiming to increase the accuracy and reliability of reported emissions. As of January 2027, these standards will then be applied to imports, so the European Union will have to assess whether other countries’ MRV regulations are equivalent to or stronger than their own. This is a critical issue that could influence market competitiveness—or eventually even market access for gas suppliers. Crafting the rules for determining MRV equivalence will be challenging given the variation in regulatory regimes and governing bodies across countries. For example, how can countries demonstrate to Brussels that their rules—such as U.S. Environmental Protection Agency (EPA) requirements or upstream regulations in Nigeria or Colombia—are as strong as those in the European Union? Article 29a does outline important clauses related to measurement and quantification of methane emissions and notes that the commission may request standardization organizations to develop harmonized standards. But for now, there is considerable uncertainty over the information suppliers must provide.

Article 27a of the agreed text states that EU importers must demonstrate by January 2027 that supply contracts concluded after the entry into force of the legislation are produced in countries with MRV measures equivalent to or stronger than EU rules. Importers must undertake “all reasonable efforts” to bring previously concluded supply contracts into compliance and report annually on progress. The commission must recommend optional model clauses to provide this information, and member states and the commission “shall protect the commercial secrecy of data obtained.”

Crucially, the methane legislation allows for international producers or other countries to be exempted from requirements, but under conditions that may prove difficult or time consuming. Article 27a(4) specifies that MRV measures can be determined to be equivalent to EU rules if producers meet EU methane quantification standards or the Oil and Gas Methane Partnership (OGMP 2.0) Level 5 standards and are also subject to independent third-party verification (see discussion below). Article 27a(5) notes that Brussels can also determine country-level equivalency to its rules, but only if producing countries initiate a request and provide all necessary data to prove their MRV requirements are equivalent to or stronger than EU rules. Again, independent third-party verification of data is required. U.S. methane regulations might meet such a standard, but it remains uncertain how this process will work and how long it will take.

Remote Visualization

Verification of Data

The provisional legislation notes the importance of independent, accredited verification of data to satisfy monitoring and reporting requirements. But it is unclear which entities will emerge as accreditation bodies, aside from references to Regulation (EC) No 765/2008, which provides a broad framework on how accreditation systems should operate. Article 9 specifies that verifiers must be separate from operators, “undertakings,” and importers subject to the regulation. Article 8(2b) of the legislation states that verification activities “shall be aligned with European or international standards and methodologies,” but the commission will still have to adopt a delegated act specifying a methodology for calculating methane intensity.

The technical sophistication required to analyze and interpret methane emissions data suggests a limited pool of potential verifiers. Commercial entities in the certified gas space offer independent third-party verification of emissions data, but it is unclear which of their varying methodologies may be deemed acceptable.

Methane Intensity

An essential goal of the legislation is to measure the methane intensity of the European Union’s imported fossil fuels, but the methodology for calculating such values has yet to be determined. Article 27b states that a delegated act will be adopted within three years of enactment, which will set the rules and “consider the different production processes and site conditions for the production of crude oil, natural gas, and coal, and shall take into account existing international methodologies and best practice.” There are several questions about how this standard will be calculated. For example, in areas with significant associated gas production (gas produced along with oil), how will emissions be allocated across products: based on mass, energy content, or economic value?

Importers with supply contracts concluded or renewed after the enactment date are required to begin annually reporting their products’ methane intensity by 2028. Until then, importers should “undertake all reasonable efforts” to report methane intensities for existing contracts. The timeline for the commission to develop and publish a methodology is a concern, given the complexity of methane emissions monitoring, quantification, reporting, and verification.

Maximum Methane Intensity Values

The European Union will set a maximum methane intensity value to cap allowable emissions for crude oil, natural gas, and coal imports beginning in 2030. The consequences for failing to meet this standard are not yet clear. There have been proposals to impose a fee on noncompliant suppliers, and there is an implicit threat that the European Union could eventually close market access to emissions-intensive gas suppliers. In May 2023, the parliament proposed that the commission “study the possibility of introducing an ambitious upstream methane emission intensity performance standard at below or equal to 0.2 percent.” This 0.2 percent target would align with an earlier goal set by the Oil and Gas Climate Initiative, as well as the agreed 2030 target for signatories to the Oil and Gas Decarbonization Charter and the upstream methane intensity target in the waste emissions charge under the U.S. Inflation Reduction Act of 2022 (IRA). Although the 0.2 percent methane-intensity target was dropped in the November 2023 provisional EU agreement, it may resurface if Brussels determines there is value in global alignment—but the commission may also want to set its own target.

How quickly the European Union will set its methane performance standard matters greatly. If it takes several years to create a methodology and set a target, “third countries” and companies will have limited time to adjust their processes and equipment. Accelerated action would help gas suppliers prepare to meet or exceed the standard.

Potential Penalties

Like other extraterritorial rules, such as the European Union’s Carbon Border Adjustment Mechanism, an explicit goal of the methane legislation is to push global actors to align with EU standards. Not all gas-producing countries share the same ambitions. Gas suppliers may simply refuse to provide the requested data or provide incomplete data, perhaps arguing that they lack the technical systems or financial resources necessary to meet the European Union’s MRV requirements. Gas producers could argue that domestic laws on national security or corporate data secrecy prevent them from sharing sensitive information. They may also provide incomplete or poor-quality data that fails to meet the standard set by Brussels.

What happens if suppliers refuse to provide the data? Article 30 explicitly states that a failure to meet the requirements of Articles 27(1), 27a(1) and 27a(2), 27b(2) and 27b(2a), and Annex VIII will be subject to penalties. Penalties are capped at “20% of the annual turnover of the legal person concerned in the preceding business year” or “20% of the yearly income in the preceding calendar year” for natural persons. Article 30 also includes a list of factors to be considered when imposing penalties. But the European Union delegates enforcement to its 27 member states. This raises the possibility of a variable regulatory landscape—especially among member states with deeper concerns over energy security or natural gas prices—that would undercut the legislation’s effectiveness.

Why This Matters for Global Gas Producers

It is easy to get lost in the minutiae, but these rules are important for global gas producers. Gaps and uncertainties in the legislation represent key problems with which both producers and consumers are grappling regarding how to better track and reduce methane emissions across natural gas value chains.

The European Union is well ahead of other gas-importing regions in demanding and publicly sharing more granular data on the emissions intensity of purchased gas. But as Brussels clarifies these rules, Japan, South Korea, and other gas importers are in the early stages of gathering information on emissions intensity from their gas suppliers. It is possible—although far from certain—that they could eventually adopt similar requirements. Supply-side regulations—such as the U.S. EPA’s final rule on greenhouse gas emissions from the oil and gas sector and the IRA’s methane fee and associated reporting requirements—have the greatest potential to drive methane reductions from the oil and gas industry. But a stronger demand pull for gas with demonstrably lower emissions intensity could also create a powerful signal.

There is an essential, unresolved question about how these regulatory requirements will shape commercial terms and the day-to-day business of the global gas trade. The European Union’s methane legislation seems it will be most effective in developing national- or operator-level methane intensity profiles. Developing this data would be an important achievement, creating incentives for emissions reductions. But the EU requirements do not map neatly onto commercial transactions. Will emerging data on emissions intensity become available at the level of LNG cargoes or discrete pipeline volumes? If so, will the market begin to assign a premium to gas with lower emissions intensity? Emerging rules in the European Union might push the oil and gas industry in this direction, but regulatory and market momentum elsewhere will probably be necessary.

While these rules will apply to all imported gas, they will be especially challenging for U.S. LNG exporters because of the complicated nature of U.S. gas supply chains. The United States is unique in this regard, but since it has become such a large LNG exporter to Europe, Washington and Brussels will have to reach some accommodation. Time is of the essence—because within a few months LNG suppliers to Europe will be playing by a new set of rules.

### Link:

#### Streamlining LNG exports under decarbonization regulations is critical avoid warming while leverage the benefits of NG

Blanton and Mosis 2021 Erin M. Blanton & Samer Mosis • July 08, 2021, “The Carbon-Neutral LNG Market: Creating a Framework for Real Emissions Reductions” https://www.energypolicy.columbia.edu/publications/carbon-neutral-lng-market-creating-framework-real-emissions-reductions/

As governments and companies consider options to decarbonize their energy systems, addressing greenhouse gas emissions from natural gas and liquified natural gas (LNG) will inevitably become a greater concern. Natural gas is viewed by some as potentially providing a bridge in a broad energy transition from dependence on fossil fuels to lower-emission sources. Even with advancements in renewable energy, many forecasts show natural gas will remain core to meeting global energy demand for some time, including as a backup fuel source for renewables.[1] But as the emissions profile of the natural gas value chain has become clearer, estimates of its footprint have increased, raising questions about natural gas’s transitory function. While gas will continue to have a prominent role in the energy mix,[2] without action to better account for, reduce, and offset natural gas and LNG emissions, the breadth and length of its use will increasingly come into question—including by countries with growing energy demand who see diminishing incentive to favor natural gas over high-emitting but fiscally cheap fuel sources, such as coal.

Amid these considerations, discussions of value chain carbon intensity and greenhouse gas (GHG) accounting are becoming an important component of LNG trade, giving rise to the concept of “carbon-neutral LNG.” In the trade of carbon-neutral LNG, GHG emissions from supply and/or consumption are accounted for and offset by procuring and retiring carbon credits generated through GHG abatement projects, such as afforestation, farm/soil management, and methane collection.[3] Currently, carbon-neutral LNG makes up a slim portion of global LNG trade, with just 14 cargoes traded transparently since the first was sold in 2019, compared to over 5,000 cargoes of LNG being delivered globally in 2020 alone.[4] By examining the efficacy of the market at this early stage, as this commentary does, areas for improvement in the carbon-neutral LNG trade are highlighted.

Procurement of carbon credits does not negate the emissions from natural gas and LNG, and accordingly, adoption of offsets should be paired with a broader and deeper reduction in the emissions intensity of these fossil fuels to ensure they remain conducive to meeting growing energy demand without needlessly jeopardizing global, national, and corporate efforts to reduce emissions. When considering this alongside the important role LNG and natural gas are likely to continue to play in meeting energy demand in key parts of the world during the transition period, it becomes clear that efforts must be made to scale GHG emissions mitigation throughout the value chain, such as through leakage reduction and employment of less carbon-intensive liquefaction technology, as well as to offset remaining emissions through the procurement and retirement of high-quality carbon credits.

Serious questions remain about scaling the carbon-neutral LNG trade, including which emissions are accounted for, what methodology is employed in the emissions measurement and verification, and how the emissions are priced—either through a carbon credit or a carbon tax. If these questions are sufficiently addressed, natural gas and LNG may align better with global policy direction and emissions requirements. That is to say, GHG verification and mitigation will be critical to the sustainability of LNG in the decarbonizing global energy stack in the coming decade, with knock-on impacts on long-term LNG contract structure, trade flows, and market pricing.

While this commentary does not prescribe policy to meet carbon neutrality or Paris Agreement goals specifically, it does examine an existing and growing market trade behavior that has the potential to assist countries dependent on natural gas in meeting their climate targets during this transitory period for the global energy system. Section 1 outlines the current state of the carbon-neutral LNG trade, while section 2 suggests a structure for LNG GHG accounting based on existing accounting methodologies. Section 3 discusses the different forms through which emissions mitigation can be integrated into the LNG trade, including a discussion on the risks of greenwashing. Section 4 highlights the implications of the growing carbon-neutral LNG market and provides recommendations to market participants and policy makers.

### I/L D: Russia Leverage Inevitable

#### The thesis of the DA about Russian use of leverage over the EU is inevitable, the EU is still reliant on Russian energy

Sullivan 2024, 04/29/2024, Arthur Sullivan, Reporter and senior editor focused on global economic stories with a geopolitical angle. “War in Ukraine: Why is the EU still buying Russian gas?” https://www.dw.com/en/war-in-ukraine-why-is-the-eu-still-buying-russian-gas/a-68925869

Although the EU has dramatically reduced the amount of Russian gas it imports, significant quantities are still flowing into the bloc.

More than two years since Russia began its full-scale invasion of Ukraine, its gas is still flowing into Europe.

While the European Union has greatly reduced the amount of gas it imports from Russia, the hydrocarbon is still powering some European homes and businesses and boosting Kremlin revenues as a result.

When the war began, European leaders were forced to reckon with a long-established dependence on both Russian gas and oil. Gas was a particular problem, as in 2021, 34% of the EU's gas came from Russia.

Countries in Central and Eastern Europe were especially dependent. When the EU mooted a ban, German Chancellor Olaf Scholz was quick to voice his opposition. "Europe has deliberately exempted energy supplies from Russia from sanctions. At the moment, Europe's supply of energy for heat generation, mobility, power supply and industry cannot be secured in any other way," he said.

Vladimir Putin seized on this. Throughout 2022, Russia cut gas imports to Europe. European leaders fretted about a winter energy shortage. These fears were never realized, but crucially, they meant the EU never actually sanctioned Russian gas.

"It was never a sanction," says Benjamin Hilgenstock from the Kyiv School of Economics. "It was a voluntary decision by countries, and a smart one, to diversify supply and no longer be blackmailable by Russia," he told DW.

How LNG imports from Russia replaced pipeline gas

According to EU data, the share of Russian pipeline gas member states imported fell from 40% of the total in 2021 to about 8% in 2023. However, when Liquefied Natural Gas (LNG) is included — natural gas cooled down to liquid form so it can be transported by ship — the total share of Russian gas in the EU's total last year was 15%.

A key way the EU reduced its reliance on Russian gas was by increasing LNG imports from countries such as the United States and Qatar. However, this has inadvertently led to a surge of heavily discounted Russian LNG entering the bloc.

According to the data provider Kpler, Russia is now the EU's second-biggest LNG supplier. LNG imports from Russia accounted for 16% of the EU's total LNG supply in 2023, a 40% increase compared with the amount Russia sold to the EU in 2021.

Import volumes in 2023 were slightly down from 2022, but data from the first quarter of 2024 shows that Russian LNG exports to Europe have risen again by 5% year-on-year. France, Spain and Belgium have been particularly big importers. Those three countries accounted for 87% of the LNG that came into the EU in 2023.

Countries want to stop 'trans-shipping' LNG

Yet much of this LNG is not needed by the European market and is being handled at European ports before being reexported to third countries worldwide, with some EU states and companies profiting as a result.

"A lot of the Russian LNG that goes to Europe is just being 'trans-shipped,'" said Hilgenstock. "So that has nothing to do with Europe's natural gas supply. It's just European companies making money facilitating Russian LNG exports."

According to a recent report by the Centre for Research on Energy and Clean Air (CREA), just under a quarter of Europe's LNG imports from Russia (22%) were trans-shipped to global markets in 2023. Petras Katinas, an energy analyst with CREA, told DW that most of this LNG was sold to countries in Asia.

The 'Hoegh Esperanza' Floating Storage and Regasification Unit (FSRU) is anchored during the opening of the LNG (Liquefied Natural Gas) terminal in Wilhelmshaven, GermanyThe 'Hoegh Esperanza' Floating Storage and Regasification Unit (FSRU) is anchored during the opening of the LNG (Liquefied Natural Gas) terminal in Wilhelmshaven, Germany

Germany has rapidly built up its LNG capacity, by developing terminals such as this one at WilhelmshavenImage: Michael Sohn/REUTERS

As a result, several EU members, such as Sweden, Finland and the Baltic States, are putting pressure on the bloc to enact a total ban on Russian LNG, a move that would require the agreement of all member states.

EU discussions are currently focused on banning the reexport of Russian LNG from European ports. According to the news agency Bloomberg, the sanctioning of key Russian LNG projects, such as Arctic LNG 2, the UST Luga LNG terminal and the Murmansk plant, is also being considered.

"We should really basically ban Russian LNG," said Hilgenstock. "We don't think it plays any significant role for European gas supply, or it can be relatively easily replaced through LNG from other sources." A 2023 study by the Bruegel think tank backs up this analysis.

Yet Acer, the EU's energy regulator, recently warned that any reduction of Russian LNG imports should take place "in gradual steps" to avoid an energy shock.

The EU countries still piping in Russian gas

Pipeline gas from Russia is also still coming into the EU. Although the Nord Stream pipelines are not operational and the Yamal pipeline no longer brings Russian gas to Europe, Russian gas still flows into Austria's Baumgarten gas hub via pipelines that cross Ukraine. Austria's partly state-owned OMV energy company has a contract with Russian gas company Gazprom until 2040.

In February, Austria confirmed that 98% of its gas imports in December 2023 were from Russia. The government says it wants to break the contract with Gazprom as early as possible, but EU sanctions on Russian gas are necessary for that to happen legally.

Like Austria, Hungary has continued to import pipeline Russian gas in large quantities. Hungary also recently struck a gas deal with Turkey, but experts say this gas, via Turkstream, is also from Russia.

Hilgenstock says that some countries have continued to buy Russian gas as they are benefiting from cheap, attractive contracts. "So unless and until there is an embargo on Russian natural gas, then it's really up to these countries to do this," he said.

For countries such as Austria and Hungary, a possible end to their pipeline imports from Russia may ultimately be fashioned by Ukraine. Kyiv insists it will not renew existing deals it has with Gazprom to let gas flow via its territory. That agreement expires at the end of 2024.

Why sanctions won’t stop Russia

Although Russian gas is still imported into Europe, its overall share of Europe's gas imports has fallen dramatically since 2021.

The EU says it wants the bloc to be completely free of Russian gas by 2027, a goal that Hilgenstock believes looks increasingly realistic.

"I think if this entire, sordid affair has shown us one thing is that we can, in fact, relatively quickly diversify our supply of gas and other energy sources away from Russia," he said.

However, he believes the political conditions "aren't particularly conducive" for a total gas embargo at present, particularly a pipeline embargo. He points to Hungary's presidency of the EU in the second half of 2024 as a potential barrier. Budapest has closer ties to Moscow than most EU member states.

### D: Allinces Resilient

#### Allies are resilient and over-dependent.

Kelly 22 - (\*Robert E. Kelly \*\*Paul Poast \*Professor of Political Science at Pusan National University \*\*Associate Professor of Political Science at the University of Chicago and a Nonresident Fellow at the Chicago Council on Global Affairs; 2-22-2022, Foreign Affairs, "The Allies Are Alright," doa: 6-14-2023) url: <https://www.foreignaffairs.com/articles/united-states/2022-02-22/allies-are-alright> ADA-]

But those calling for Biden to carefully minister to wounded U.S. alliances misunderstood what really happened during Trump’s presidency. The ostensibly great threat of Trump had little effect on Washington’s major allies. The Trump years did not alienate traditional U.S. allies so much as it exposed their chronic weakness and their reluctance to push back against the United States. Trump’s brazen and often distasteful behavior revealed a bald truth: U.S. allies will put up with more capriciousness, browbeating, and neglect than anyone expected.

The U.S. alliance system is built on hierarchy, dependency, and the stubborn persistence of American power. This network benefits the United States by supporting its efforts to achieve and maintain global influence, and it benefits U.S. allies by dramatically reducing their defense costs and increasing their trade gains. As a result, these countries are willing to tolerate U.S. actions that deviate from Washington’s traditional liberalism and multilateralism—such as Trump’s abuse and tariffs or Biden’s unilateral withdrawal from Afghanistan. There was also no sign that the allies feared abandonment or sensed a major decline in the relative power of the United States. Despite the sound and fury of recent years, U.S. alliances remain quite robust. The rhetorical agonizing over the need to assuage allies is unnecessary: the United States can pressure its allies far more than anyone imagined it could. No reassurance is required.

PROTÉGÉS, NOT FRIENDS

The United States’ alliances—whether multilateral arrangements such as NATO or bilateral agreements with states such as Japan and South Korea—are strikingly unequal. Diplomatic politesse about “friendship” or “partnership” obscures U.S. military dominance in all these relationships. U.S. allies—particularly those whose military capabilities have atrophied since the Cold War—are more accurately described as junior members of a patron-protégé relationship in which the patron can be simultaneously demanding and neglectful of its protégés. The substantial gulf in economic capacity and military capability between the United States and its allies pushes these associations toward hierarchy in practice, if not in form. That hierarchy, in turn, creates a dependency on U.S. power, permitting Washington to ignore militarily weak allies when it suits U.S. interests. There is little the neglected allies can do about it.

States around the world join and value alliances with the United States for two reasons: they face military threats on their borders, and they want access to U.S. markets. The United States is economically and militarily strong enough to act as an importer of last resort for smaller economies and to project power to defend weaker countries. Geographically distant enough to not pose a direct military threat itself, it is the ideal state for shifting local balances of power in favor of weaker states under threat.

For this reason, U.S. alliances have weathered many past storms, from seemingly endless trade disputes between Japan and the United States since the 1970s to French and German opposition to the U.S.-led invasion of Iraq in 2003. U.S. allies tolerate Washington’s abuse of its position of strength because, from their perspective, it is worth the cost. The benefits of a world-class security guarantee and access to the world’s leading economy vastly outweigh the humiliations of Trump’s browbeating or the political costs of occasionally being pressed into unwanted foreign policy ventures, such as the so-called war on terror. The alternative—the massive cost of self-defense and the vulnerability of standing alone against the likes of China or Russia—is worse. It is in this sense that the United States is what former Secretary of State Madeleine Albright called “the indispensable nation.” But this indispensability does not derive from the country’s adherence to democratic values or liberal norms. Instead, it comes from American power and the benefits gained from aligning with that power.

That blunt reality compels a reconsideration of the supposed crisis of the Trump years, when much of the foreign policy establishment feared that the White House was doing untold damage to U.S. alliances. Analysts may have fretted about Trump’s bullying and bristling antagonism, but the allies targeted did not seem hugely bothered. Their actual behavior during the Trump presidency did not suggest any attempt to defect from, hedge against, or drift away from the patronage of the United States.

Trump antagonized allies everywhere, but the examples of four core treaty allies—Germany, France, Japan, and South Korea—in the crucial theaters of Europe and East Asia are especially telling. Many analysts now continue to urge Biden to reassure these U.S. allies of Washington’s steadfast commitment, but it is hard to see the need. By the logic of those urging reassurance, Trump’s behavior should have pushed these countries away from the United States politically or strategically. But that was not the case. None of them tried to distance itself from the United States to protect itself from Trump’s unpredictability. To the contrary, they all flattered Trump. They tolerated his antics and did not risk expulsion from under the U.S. security umbrella. The Trump years have turned the conventional wisdom on its head: Washington has considerable room to neglect its allies without incurring reprisals.

#### Cred theory is wrong.

Fisher ’16 [Max; April 29; International reporter, citing research by Jonathan Mercer at the University of Washington, a study by Yale University, and corroborating political science research; Vox, “The Credibility Trap,” https://www.vox.com/2016/4/29/11431808/credibility-foreign-policy-war]

But there is a problem with this theory of credibility: It does not appear to be real. Political scientists have [investigated](https://www.washingtonpost.com/news/wonk/wp/2013/09/12/why-obama-shouldnt-care-about-backing-down-on-syria/) this theory over and over, and have repeatedly disproven it.

Yet the belief in credibility persists, dominating America's foreign policy debate, steering the United States toward military action abroad in pursuit of a strategic asset — the credibility of America's reputation — that turns out not to exist.

How did this idea become so entrenched in Washington, and why does it persist despite being repeatedly debunked? What does it mean to have so many of America's foreign policy discussions turn around an idea that is demonstrably false — and what can this tell us about how and why America intervenes abroad?

The credibility myth

When Americans talk about "credibility" in foreign policy, what they are usually describing is something that political scientists instead call reputational or reputation-based credibility.

In political science, "credibility" usually refers to specific promises or threats, and in this case the research does say that credibility is real. For example, if the US pledges to defend South Korea from a North Korean invasion, then it matters that the US convince both Koreas that this pledge is credible, for example by stationing US troops in South Korea.

That is the formal definition of credibility in foreign policy, it's real, and it matters. But when "credibility" is used colloquially, it typically refers to a very different kind of credibility, one based entirely in a country's or leader's reputation from its actions in other disputes or conflicts. (This article uses the colloquial definition of credibility, except where noted otherwise.)

Under this line of thinking, if the US fails to follow through on a threat or stand up to a challenger in one part of the world, then its allies and enemies globally will be more likely to conclude that all American threats are empty, and that America can be pushed around. If the US backed down once, it will back down again.

It's easy to see how people could be attracted to this idea, which puts complicated geo-politics in simple and familiar human terms. It encourages us to think of states as just like people.

But states are not people, and this theory, for all its appealing simplicity, is not correct. There is no evidence that America's allies or enemies change their behavior based on conclusions about America's reputation for credibility, or that such a form of reputation even exists in foreign policy.

"Do leaders assume that other leaders who have been irresolute in the past will be irresolute in the future and that, therefore, their threats are not credible?" the University of Washington's Jonathan Mercer wrote, in introducing his research on this question.

"No; broad and deep evidence dispels that notion," Mercer concluded. "As the record shows, reputations do not matter."

A 1984 [Yale University study](http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=7615680), for example, examined dozens of cases from 1900 to 1980 to look for signs that, if a country stood down in one confrontation, it would face more challengers elsewhere. The answer was no: "deterrence success is not systematically associated … with the defender's firmness or lack of it in previous crises."

Historians have also looked at specific incidents where the US thought its credibility was on the line and determined that we were simply mistaken.

# Processing: NG Usage Bad DA

#### Small carbon tax will cause rapid shift to domestic NG electricity production

The short-term impact on emissions and federal tax revenue of a carbon tax

in the U.S. electricity sector

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5. Conclusion and policy implications

In this study, we conducted an empirical analysis of NGCC utilization from 2003 to 2017 to estimate the impact of a carbon tax. In doing so, we estimated average NGCC capacity factors, generation, CO2 emissions, and net tax revenue given different future NGCC capacity scenarios as estimated by the EIA. We assumed all increases in NGCC generation would directly offset coal generation at 100 percent, which would significantly decrease CO2 emissions in the short-run. Overall, we found that a carbon tax price of $10/ton CO2 emissions provides for the greatest marginal impact on NGCC utilization and would therefore lead to substantial reductions in CO2 emissions while generating federal tax revenue. By focusing on different capacity scenarios, we are able to contribute to extant research and the carbon tax policy discussion by differentiating among potential policy decisions regarding future investment to enhance capacity and how such policy decisions might impact electricity generation, CO2 emissions, and federal tax revenue in the short-term.

From our regression estimates and counterfactual analysis, we observed a few key policy implications and recommendations for future research. First, we observe that the highest marginal increase in utilization happens with a carbon tax priced at $10/ton. Therefore, in order to see a rapid increase in NGCC generation, especially in the short-term, even a small carbon tax would have a significant impact on NGCC utilization and generation that replaces coal. Depending on future estimated changes in natural gas capacity provided by the EIA, a $10 carbon tax would reduce carbon emissions between 1.39 and 1.55 billion metric tons per year through increased NGCC utilization. In addition, this relatively low carbon tax price of only $10/ton would be more politically feasible while still generating significant amounts of net carbon tax revenue for the federal government.

Our results are based on the average estimated changes in NGCC utilization in response to changes in resource price ratios. While we include nearly all NGCC generators in the U.S. in our empirical model, the NGCC utilization response to carbon taxes will vary across generators based on several factors. Natural gas infrastructure, and the availability of natural gas, is a considerable constraint in certain parts of the country. Other technical factors, such as transmission congestion and operational constraints, may limit increasing utilization. Further, not all areas have much coal generation remaining to replace. However, in studies that explicitly include some of these constraints, NGCC utilization rates are still able to go higher than 80 percent (Steinberg et al., 2018), which is higher than our results.

Our estimates are fairly conservative for several reasons. First, we considered scenarios with and without any NGCC capacity growth. Some politicians and policy proposals aim to eliminate natural gas generation as soon as possible since it is a fossil-fuel with carbon emissions. If NGCC plants last on average for about 30–40 years (Mills et al., 2017; Joskow, 2006), new plants built in 2021 would continue to operate until 2061, which slows the transition to 100 percent renewable electricity generation. However, it is outside the scope of this research to determine if that goal of zero-emissions is technologically or politically feasible. Yet, there are nontrivial emissions reductions as a result of a low priced $10 carbon tax resulting from increased NGCC utilization with no new investments in NGCC capacity. Additionally, we do not focus on the role of renewables in this study, which could alter these estimates. It is highly likely that any carbon tax would also incentivize the production of zero and low carbon sources of electricity, such as renewables and nuclear generation, which would further reduce emissions.

Future work on this topic could focus more explicitly on the complementary relationship between NGCC and intermittent renewable generators. Our regression results showed increased renewable generation displaces NGCC utilization, indicating they are competitive rather than complementary. However, previous literature suggests that high levels of fast-reacting fossil fuels, such as NGCC, will increase intermittent renewable generation (Verdolini et al., 2018). With policies and subsidies to increase renewable generation, NGCC utilization would also increase if it were complementary with renewables. Finally, our estimates are conservative because we focus on the short-term impact of a carbon tax on NGCC utilization, and do not consider the impact of a rising carbon tax price, or implications beyond 2030. A carbon tax on the electricity sector would quickly act to incentivize increased NGCC utilization based on the statistically significant relationship we (and others) have found between natural gas and coal utilization in response to changes in resource prices. As natural gas becomes relatively cheaper than coal, either through government policies or economic conditions, natural gas utilization increases. Therefore, a carbon tax would be an effective method for quickly increasing NGCC utilization. Future work should consider the coupled impact of carbon taxes on changes in NGCC capacity and utilization over a longerterm, which would likely be affected by potential advancements in technology.

#### Low to modest carbon tax drastically ramps up gas production

Stevens and Carroll, Kelly A. Stevens, School of Public Administration, University of Central Florida, Deborah A. Carroll, School of Public Administration, University of Central Florida, “A comparison of different carbon taxes on utilization of natural gas” *Energy and Climate Change*, [https://doi.org/10.1016/j.egycc.2020.100005 accessed 8-9-2024](https://doi.org/10.1016/j.egycc.2020.100005%20accessed%208-9-2024) //DeLo-IU

Our regression estimates and counterfactual analysis illustrate some important patterns. First, it takes a high carbon tax price of $220/ton CO 2 emitted to reach the 75 percent utilization target determined by the Clean Power Plan in 2015. We also observe that the highest marginal increase in utilization happens with a carbon tax priced at $10-$50/ton CO 2 emitted. Therefore, in order to see a rapid increase in NGCC gener- ation, especially in the short-term, even a small carbon tax would have a significant impact on NGCC utilization and generation that replaces coal. Assuming no changes in natural gas capacity, a $50 carbon tax would reduce carbon emissions by at least 159 million metric tons a year through increased utilization alone. A lower carbon tax price around $50/ton CO 2 emissions (compared to $220/ton) would be more politi- cally feasible and can still generate $70 billion dollars in net carbon tax revenue per year.