

Comments of the American Public Gas Association on the NERA- Macroeconomic Impacts of LNG Exports from the United States (“2012 LNG Export Study”)

The American Public Gas Association (“APGA”) commends the Department of Energy Office of Fossil Energy (“DOE/FE”) for commissioning independent studies to examine the cumulative economic impact of exporting domestically produced liquefied natural gas (“LNG”). The commissioned studies, however, exaggerate the benefits, downplay the potential harms, and fail to consider the foregone opportunities entailed by LNG exports. The DOE/FE should, in the exercise of its public interest discretion, look beyond these studies to consider the profound tradeoffs that will result from a policy that permits the aggressive export of a valuable fuel sourced in the U.S. rather than supporting its expanded use domestically. The DOE/FE must either reject the various LNG export applications before it or at a minimum place prudent limits and conditions on such exports in order to mitigate these harms and prevent the United States from squandering the almost unlimited potential domestically of the abundant natural gas supplies resulting from the so-called “shale gas revolution.”

APGA is the national, non-profit association of publicly-owned natural gas distribution systems, with some 700 members in 36 states. Overall, there are some 950 publicly-owned gas distribution systems in the United States. Publicly-owned gas systems are not-for-profit retail distribution entities that are owned by, and accountable to, the citizens they serve. They include municipal gas distribution systems, public utility districts, county districts, and other public agencies that have natural gas distribution facilities. APGA’s members are active participants in the domestic market for natural gas where they secure the supplies of natural gas needed to serve their end users. To date, APGA has intervened in and protested each application filed at DOE to export domestically produced LNG to any country with which the United States does not have a Free Trade Agreement requiring the national treatment for trade in natural gas and LNG that has or in the future develops the capacity to import LNG, and with which trade is not prohibited by U.S. law or policy (“non-FTA Nations”). Those protests point out, among other things, that the United States is at a crossroads: it can take the path toward energy independence and a manufacturing renaissance or it can reflexively approve LNG exports, with the associated greater profits for the affected companies – but it cannot have it both ways.

DOE/FE commissioned two studies regarding the effects of LNG exports. The first, conducted by the U.S. Energy Information Administration (“EIA”), studied the impact of LNG exports on domestic prices and concluded that the exports will increase prices, with higher volumes causing more drastic increases.¹ The second, conducted by

¹ *Effect of Increased Natural Gas Exports on Domestic Energy Markets*, U.S. Energy Information Administration (Jan. 2012) (“EIA Export Report”). As requested by the DOE/FE, the EIA Export Report considered four scenarios: (1) 6 Bcf/d phased in at a rate of 1 Bcf/d per year (low/slow

NERA Economic Consulting, focused on the macroeconomic effects of LNG exports, which it found would be a net positive while at the same time confirming that LNG exports would raise domestic natural gas prices, which would burden the U.S. consumers who can least afford the increase and disadvantage domestic manufacturing.² The NERA Study built on the EIA Export Report. APGA will explore below the failings and shortcomings of these reports and why those failings and shortcomings argue for finding that wholesale exports of LNG is inconsistent with the public interest.

Underestimate Domestic Demand

The EIA Export Report and the NERA Study are based on outdated data that underestimate future domestic demand for natural gas. Both studies rely on the EIA's Annual Energy Outlook 2011 ("AEO2011"), which is based on demand data from 2009. On December 5, 2012, the EIA issued the Early Release of its Annual Energy Outlook for 2013 ("AEO2013"). AEO2013 projects greater increases in domestic demand for natural gas than projected in prior Annual Energy Outlooks. In particular, AEO2013 projects greater increases in future reliance on natural gas for electric generation and greater demand by domestic manufacturers.

The increased reliance on natural gas for electric generation in AEO2013 is premised in part on low natural gas prices, but also on the implementation of the Environmental Protection Agency's pending Mercury Air Toxic Standards ("MATS"), which will force the retirement of a number of coal-fired generators. Once a coal plant is retired due to MATS, or for any other reason, the operator of the retired plant cannot simply flip a switch in response to higher natural gas costs. Meanwhile, the EPA's new greenhouse gas standards for new electric generators virtually ensure that new coal plants will not be constructed to replace those that are retired.³ And there is no evidence that nuclear generation will pick up the slack. Thus, electric generators will soon not only demand more gas but also rely on it more heavily for base and intermediate load production, rendering unsustainable the expectations about demand elasticity that EIA relied on when assuming that natural gas prices would not rise sharply due to LNG exports.⁴

The EIA Export Report predicts that as natural gas prices increase due to exports, domestic demand will slacken with most of the decrease coming from the electric

scenario); (2) 6 Bcf/d phased in at a rate of 3 Bcf/d per year (low/rapid scenario); (3) 12 Bcf/d phased in at a rate of 1 Bcf/d per year (high/slow scenario); and (4) 12 Bcf/d phased in at a rate of 3 Bcf/d per year (high/rapid scenario).

² *Macroeconomic Impacts of LNG Exports from the United States*, NERA Economic Consulting (Dec. 2012) ("NERA Study").

³ "Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units" 77 C.F.R. 22392 (Apr. 13, 2012).

⁴ See Energy Information Administration, *Fuel Competition in Power Generation and Elasticities of Substitution* (June 2012) (general description of fuel switching and price elasticity among fuels in the power generation sector) available at <http://www.eia.gov/analysis/studies/fuelelasticities/pdf/eia-fuelelasticities.pdf>.

generation sector as utilities fire-up their existing “excess coal-fired capacity” to mitigate higher natural gas prices.⁵ This assumption that there will continue to be “excess coal-fired capacity” does not take into account the recently enacted MATS requirement, greenhouse gas standards on new generators and other pending environmental regulations, such as the Cross-State Air Pollution Rule (“CSAPR”), which will force further retirements of coal-fired generators. With less coal-fired capacity to switch to when natural gas prices increase, natural gas prices will increase more than projected in the EIA Export Report and the NERA Study. By the same token, electricity prices will also increase by more than anticipated in EIA’s report.

AEO2011 also underestimated future demand growth in the industrial sector if natural gas prices remain low enough to spur the re-shoring of U.S. manufacturing, as analysts now predict. *AEO2013* projects substantially greater increases in demand for natural gas due to increased manufacturing. Even *AEO2013*, however, fails to capture the full extent of potential growth as energy-intensive industries seek to take advantage of low domestic prices.⁶ Increased industrial demand could lead to somewhat greater increases in natural gas prices than projected, but unlike natural gas demand in the electric generation sector, manufacturers will remain price-sensitive - meaning that manufacturers will likely curtail consumption and hence production due to higher prices. The DOE/FE must examine what curtailing manufacturing in exchange for exports would truly mean for the future of the U.S. economy before it determines that LNG export applications are consistent with the public interest. The two reports under consideration do not do justice to this critically important issue.

Benefits Exaggerated and Drawbacks Understated

The DOE/FE commissioned the NERA Study to examine the macro-economic effect of the price increases predicted in the EIA Export Report. The NERA Study, like the EIA Export Report, concludes that the more domestic LNG that is exported from the U.S., the more natural gas prices will increase. The NERA Study nevertheless finds that higher LNG export volumes are *always* better for the U.S. economy.⁷ The NERA Study comes to this conclusion by exaggerating the benefits of LNG exports to the U.S. economy and understating or ignoring the drawbacks.

The NERA Study is not concerned by any level of future natural gas price increase caused by exports because it concludes that the “rents” obtained by LNG exporters from foreign customers and the increased profits enjoyed by natural gas

⁵ EIA Export Report at 12.

⁶ Letter from Edward J. Markey, Ranking Member, House of Representatives Committee on Natural Resources, to Steven Chu, Secretary of Energy (Dec. 14, 2012)(“Markey Letter”) (stating that *AEO2013* domestic demand projections “fail to capture many of the more than 100 newly announced natural gas-intensive manufacturing projects that have been announced over the past 18 months. Those projects represent of \$90 billion in investment and billions of cubic feet of additional future daily natural gas use.”).

⁷ NERA Study at 6; *see id.* at 76-77.

producers will make up for the resulting declines in real wages and economic output. The NERA Study assumes, however, that all tolling fees for natural gas exports will accrue to U.S. companies because it assumes that all financing for LNG export projects will originate from U.S. sources.⁸ This is clearly not the case. Even a cursory review of the companies applying for LNG export authority reveals substantial foreign investment in planned export facilities, just as there is substantial foreign investment in all stages of natural gas production in the U.S. Foreign investment in the natural gas sector is not a problem in and of itself; it is simply a reality that affects the validity of the NERA Study's assumption that natural gas tolling fees and increased profits in the natural gas sector due to higher natural gas commodity prices will accrue directly to the U.S. economy.

The NERA Study also assumes that the benefits of higher natural gas prices realized by natural gas producers will be shared broadly with the American public through ownership of shares in natural gas producing companies.⁹ NERA admits, however, that “[h]ouseholds with income solely from wages or government transfers” will not share in the benefits of increased profits from natural gas.¹⁰ Therefore, the increase in natural gas prices due to exports will impact most dramatically those consumers without investments or retirement savings, those living paycheck-to-paycheck or relying on government assistance. According to Gallup, only 53% of Americans hold individual stocks, stock mutual funds, or stocks in their 401(k) or IRA accounts.¹¹ Of those 53%, it cannot be assumed that every investor holds enough shares in natural gas producing companies to offset losses elsewhere in the market due to higher natural gas prices or the resulting loss to real wages. Moreover, as a recent report shows, more than one in four American workers with 401(k) and other retirement savings plans use them to pay current expenses.¹² Contrary to the NERA Study's assumption, it appears that only certain investors, and not the general public, will benefit from the expected wealth transfer to the natural gas industry resulting from LNG exports.

Even with these unrealistic assumptions regarding the benefits of exports and higher natural gas prices to the U.S. economy, the NERA Study predicts only modest increases to gross domestic product and no net gain in U.S. employment due to LNG export activity.¹³ In addition, the NERA Study's findings regarding the putative gains for the U.S. economy created under its unrealistic expectations of the benefits of exports is further undermined by its failure to account for potential harms and for lost opportunities, as discussed below.

⁸ NERA Study at 5.

⁹ NERA Study at 8.

¹⁰ NERA Study at 8.

¹¹ See Nathaniel Popper, *Retreat from Stock Market Continues*, New York Times (May 28, 2012) available at:

¹² Michael Fletcher, *More Workers Raiding Retirement Account To Pay Bills*, Washington Post (Jan. 15, 2013), at A1.

¹³ NERA Study at 56.

Understates Harms and Fails To Consider Lost Opportunities

The NERA Study admits that higher natural gas prices due to proposed LNG exports will raise natural gas and electric energy costs, which will depress both “real wages and return on capital in all other industries” besides the natural gas sector.¹⁴ The NERA Study, however, downplays the significance of higher natural gas prices to the broader U.S. economy, while at the same time conceding that:

As the price of natural gas increases, the economy demands or produces fewer goods and services. This results in lower wages and capital income for consumers. Hence, under such economic conditions, consumers save less of their income for investment.^[15]

As a result, industries that rely on natural gas will experience “a reduction in overall output,” which, the NERA Study asserts, will be mitigated by a “switch to fuels that are relatively cheaper.”¹⁶

The NERA Study claims that harms resulting from exports will “likely be confined to very narrow segments of industry,” namely low value-added, energy intensive manufacturing that is subject to international competition.¹⁷ The NERA Study then concedes that:

“[d]omestic industries for which natural gas is a significant component of their cost structure will experience increases in their cost of production, which will adversely impact their competitive position in a global market and harm U.S. consumers who purchase their goods.”^[18]

Because it relies on industry analysis from 2007, prior to the widespread development of shale gas resources that significantly reduced natural gas prices, the NERA Study fails to recognize the current and potential importance of energy-intensive industries to the U.S. economy.¹⁹

The NERA Study ignores the benefits of producing materials in the U.S. that can then be used by other U.S. manufactures that are less energy intensive and higher up the value chain. For instance, if plastics are produced at competitive prices in the U.S., toy

¹⁴ NERA Study at 7.

¹⁵ NERA Study at 58.

¹⁶ NERA Study at 53.

¹⁷ NERA Study at 67-69.

¹⁸ NERA Study at 13.

¹⁹ NERA Study at 67.

manufacturers may find it economical to “re-shore” toy manufacturing plants.²⁰ Rather than a “narrow segment,” energy intensive industries should be viewed as a foundational segment of U.S. industry that will supply the processed materials necessary to support a renaissance in American manufacturing. The NERA Study simply does not account for this.

Industry is poised to invest billions of dollars in new petrochemical plants, ethane crackers and other natural gas intensive facilities in the United States premised on the promise of sustainably low domestic natural gas prices.²¹ For example, Sasol North America, Inc. is currently considering investing in the first gas-to-liquids plant in United States, an innovative technology for producing diesel and other liquid fuels without oil, and U.S. natural gas prices are a primary consideration regarding whether the investment will go forward.²²

Energy intensive manufacturing is the sector of the economy most vulnerable to increases in natural gas and electricity costs.²³ Prior economic data demonstrate that when domestic energy prices increase, the country loses manufacturing jobs, particularly in the fertilizer, plastics, chemicals, and steel industries.²⁴ Rather than trading a few existing manufacturing jobs for a few natural gas and construction jobs, as the NERA Study implicitly recommends, the DOE/FE should pursue policies that create new manufacturing jobs and broader economic growth in the U.S.

In addition, using natural gas for manufacturing provides a value-added benefit to the economy because industry multiplies the value of every dollar it expends on natural gas for energy or as a raw material. Rather than investing in natural gas exports, which squeeze out investments from other sectors of the economy, the U.S. should pursue policies that allow industry to invest in natural-gas dependent manufacturing. Energy and natural gas intensive manufacturing produces chemicals, metals, cement and other materials that may be low-value added but that create positive ripple effects up the value-chain and throughout the economy. Rather than exporting natural gas as a raw natural resource, the U.S. could export processed materials, such as steel, or higher value-added goods made from steel at more competitive prices, with greater benefits to the U.S. job market, balance of trade, and GDP.

²⁰ Steven Mufson, *The New Boom: Shale Gas Fueling an American Industrial Revival*, Washington Post (Nov. 14, 2012).

²¹ Press Release, Dow Chemical, *DOE Report on LNG Exports Short Changes Manufacturing and U.S. Competitiveness* (Dec. 6, 2012) available at <http://www.dow.com/news/press-releases/article/?id=6138>.

²² Clifford Kraus, *South African Company to Build U.S. Plant to Convert Gas to Liquids*, New York Times (Dec. 3, 2012).

²³ NERA Study at 67.

²⁴ U.S. House Committee on Natural Resources Democrats, *Drill Here, Sell There, Pay More: The Painful Price of Exporting Natural Gas* (March 2012) available at <http://democrats.naturalresources.house.gov/reports/drill-here-sell-there-pay-more>.

The NERA Study's failure to recognize the current opportunity to renew U.S. manufacturing through low natural gas prices is part of a larger failure to consider opportunities that will be lost if exports are allowed to drive up domestic natural gas prices. Although it may be outside the scope of the NERA Study, it is not outside the purview of the DOE/FE, when determining whether LNG exports are in the public interest, to consider the benefits of supporting domestic use of natural gas.²⁵ If prices remain low, natural gas will be an economical transportation fuel that will lower our national dependence on imported foreign oil. If natural gas remains abundant at low prices, it will also continue to compete economically with carbon-intensive coal, displacing its use on economic grounds regardless of environmental regulations. The DOE/FE must consider the opportunities that will be lost if exports are allowed to inflate domestic natural gas prices.

Equilibrium

Unless DOE/FE imposes export limits, domestic and foreign natural gas commodity prices will converge, squandering the current opportunity to foster renewed U.S. manufacturing through competitive natural gas, energy, and processed materials costs. LNG exports will raise domestic prices just as they lower foreign prices, bringing international prices to a new equilibrium. NERA acknowledges that domestic and international natural gas prices will tend to converge toward a global LNG price, just as they have for global oil prices,²⁶ but the NERA Study assumes that Henry Hub prices will always remain lower than prices in consuming nations.²⁷ It is unclear, however, how domestic prices will avoid total convergence and remain lower than international prices without DOE imposed limits on exports.

Once natural gas prices rise to a new international price, then (just like crude oil) that price will be subject to international volatility. The price of crude rises and falls on international events, such as unrest in the Middle East, and an international natural gas price would do the same. For instance, if a future nuclear disaster in another country, like the recent Fukushima incident in Japan, causes another country to suddenly curtail nuclear power production, it would cause the new international natural gas price to rise. The NERA Study does not acknowledge the possibility of international events causing domestic price spikes because, for the sake of simplicity, it does not consider possible events in other countries and assumes that other countries will not adjust their levels of LNG exports as U.S. exports begin to transform the market.

The DOE/FE, however, can and should consider how international developments could quickly spoil the market for U.S. LNG exports. First, exports from the U.S. will erase the very price arbitrage that exporters seek to exploit by simultaneously increasing domestic natural gas prices while decreasing international natural gas prices. Second, the

²⁵ See, Elizabeth Bassett, *Increased Gas Use Among States' Top Priorities*, Platts Gas Daily (Jan. 10, 2013)(discussing state level initiatives to spur use of natural gas as a transportation fuel).

²⁶ NERA Study at 111.

²⁷ NERA Study at 12.

continued development of natural gas resources and LNG export capacity in other countries could eliminate the current price arbitrage even more quickly than anticipated. Even without factoring in international considerations, the NERA Study estimates that the U.S. can only profitably export about 6 billion cubic feet per day (“Bcf/d”) in domestically produced LNG. Yet the total export capacity applied for to date is 29.21 Bcf/d and 24.8 Bcf/d to FTA and non-FTA Nations, respectively, with many applications for from 1 to 3 Bcf/d for individual projects.²⁸ If the DOE/FE grants export authority without constraints, it could well set off an export boom followed by a bust. While export supporters may argue that whether there is ultimately a bust in LNG exports is a question to be determined by the market, the DOE should consider this scenario because it could have a profound impact on the public interest. An export boom and bust would drive up domestic natural gas prices, squander the competitive advantage afforded by low domestic natural gas prices, introduce international price volatility, and leave the U.S. saddled with under-utilized white elephant export terminals.

Recommendations

APGA has protested the LNG export applications pending before the DOE/FE on the grounds, among others, that sanctioning large LNG exports will have the adverse effects described above, which adverse effects outweigh the short-term financial benefits of such exports to the natural gas industry. APGA does not believe that the two reports under consideration, when considered in the context of current facts and circumstances, support the grant of the LNG export applications. Hopefully, DOE/FE will look at the larger picture in determining whether LNG exports are consistent with the public interest.

If, however, the DOE/FE determines to approve some level of LNG exports as not inconsistent with the public interest, it should both be conservative as to what the level of acceptable exports is and also condition such approvals on the future impacts of such exports on the U.S. natural gas market. The United States must retain the discretion to unwind these transactions if they have the adverse consequences on the U.S. economy feared by APGA and others.²⁹

Respectfully submitted,

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By: _____

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²⁸ *Id.*

²⁹ APGA notes the recent formation of the coalition, America’s Energy Advantage (AEA), which includes Alcoa Inc., Eastman Chemical, Nucor Corporation, Celanese Corporation and The Dow Chemical Company, along with APGA. AEA demonstrates the growing awareness of American business reliant on natural gas to the very real risks to the U.S. economy of LNG exports.