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Pursuant to the Federal Register Notice issued December 11, 2012, attached please find the Reply Comments of Gulf LNG Liquefaction Company, LLC on the Department of Energy LNG Export Study.

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Many thanks,  
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**UNITED STATES OF AMERICA  
BEFORE THE  
DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY**

**REPLY COMMENTS OF GULF LNG LIQUEFACTION COMPANY, LLC ON  
THE DEPARTMENT OF ENERGY LNG EXPORT STUDY**

Pursuant to the Department of Energy's ("DOE") notice and invitation to comment,<sup>1</sup> Gulf LNG Liquefaction Company, LLC ("GLLC") hereby submits its Reply Comments in response to comments received on (1) the Energy Information Administration's ("EIA") study titled *Effect of Increased Natural Gas Exports on Domestic Energy Markets* ("EIA Study") that was issued in January 2012; and (2) the NERA Economic Consulting ("NERA") study titled *Macroeconomic Impacts of Increased LNG Exports From the United States* ("NERA Study") published in December 2012 (together with the EIA Study, "LNG Export Study").

**REPLY COMMENTS**

The domestic natural gas industry is undergoing a fundamental change, a transformation brought about by advanced technologies that enable recovery of the vast amounts of shale gas located in the United States, which has created a *massive* resource for the U.S. The scale of this natural gas resource may be underappreciated, even underestimated, but it is the essential driver of liquefied natural gas ("LNG") exports and the blossoming resurgence of domestic manufacturing. This natural gas transformation offers the United States a tremendous opportunity to strengthen American energy security by drastically reducing our dependence on imported oil, while at the same time creating new U.S. jobs and industries. It is an opportunity that we as a country cannot afford to ignore.

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<sup>1</sup> 77 Fed. Reg. 73,628 (Dec. 11, 2012) ("December 11 Notice").

## **I. DOMESTIC NATURAL GAS SUPPLY CAN SUPPORT LNG EXPORTS WITH MINIMAL IMPACT TO DOMESTIC INDUSTRIES**

Most comments criticizing the LNG Export Study were premised on a very understated view of the U.S. natural gas supply. Thus, the magnitude of the domestic natural gas supply is one of the most important considerations in the LNG export discussion. Recent discoveries allow us to conclude that today's domestic supply (and potential supply) will help dampen the market volatility that has plagued the natural gas industry in the past. Importantly, as predicted by the NERA Study and the AEO 2013 data, this vast resource also will mitigate any undue increase in domestic natural gas prices. The reason for this is the size of the resource and the producers' ability to quickly ramp-up production from shale resources. Thus, the overall effect of these recent developments is that the U.S. will have access to a more than adequate natural gas supply at reasonable prices to meet all domestic uses, including an increase in manufacturing consumption, natural gas vehicles, power generation, *and* LNG exports.

### **A. The Domestic Natural Gas Supply is Massive**

Advances in technologies have yielded dramatically increased production and fundamentally changed the North American natural gas supply outlook. With shale gas, the U.S. has more than 90 years of supply,<sup>2</sup> and it is evident that a new era of natural gas sufficiency has arrived. Dramatically increased forecasts of U.S. natural gas production levels confirm the impact of new drilling technologies and increasing gas resource assessments.

For example, the EIA's forecast of U.S. natural gas production for 2030 increased by over 50% between AEO 2008 (19.43 Tcf, or 53 Bcf/day ) and AEO 2013 (29.79 Tcf, or 82

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<sup>2</sup> See, e.g. INTERNATIONAL ENERGY AGENCY, SPECIAL REPORT, GOLDEN RULES FOR A GOLDEN AGE OF GAS Table 3.1 (May 29, 2012) (putting U.S. shale gas recoverable resources at 24 Tcm, or 840 Tcf).

Bcf/day).<sup>3</sup> Production will be poised to increase even further as undeveloped resource plays, such as the Utica Shale and many conventional fields, are developed and as additional resource plays are discovered. Furthermore, based on the magnitude of the domestic natural gas resource, today's "unconventional" supply will become conventional. Simply put, more than enough supply exists to sustain economically LNG exports,<sup>4</sup> as well as the resurgent manufacturing industry, further development of natural gas-fired power generation, and natural gas vehicles.

In 2011, the Secretary of Energy's National Petroleum Council ("NPC") issued a comprehensive study that estimated the natural gas resource base at 2,200 Tcf,<sup>5</sup> which is enough to meet the highest estimates of demand growth, including LNG exports, and gas-in-transportation markets, without stressing the availability or cost of natural gas supply to the U.S.<sup>6</sup> As a telling example of the nature of the growing natural gas supply, since 2010 the U.S. shale gas rig count has declined by roughly 50% in response to weak gas prices. However, gas production has increased over that same period. The switch to pad drilling has reduced drilling

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<sup>3</sup> See U.S. ENERGY INFORMATION ADMINISTRATION, *Annual Energy Outlook 2013 Early Release Report* (Dec. 5, 2012) ("AEO 2013") (includes LNG exports and projects only moderate price impacts, available at: <http://www.eia.gov/forecasts/aeo/er/index.cfm> ).

<sup>4</sup> NAVIGANT CONSULTING, INC., GULF LNG EXPORT PROJECT MARKET ANALYSIS STUDY 8 (Aug. 27, 2012) ("Navigant Market Analysis Study") ("Navigant's market view is that domestic supply is abundant to such a degree that it will support domestic market requirements as well as export demand for LNG shipped from North America.") (attached as Appendix A to Gulf LNG Liquefaction Company, LLC's Application for Long-Term, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries, FE Docket No. 12-100-LNG (Aug. 31, 2012) ("GLLC Application")). See also DELOITTE CENTER FOR ENERGY SOLUTIONS AND DELOITTE MARKETPOINT LLC, MADE IN AMERICA: THE ECONOMIC IMPACT OF LNG EXPORTS FROM THE UNITED STATES 18 (2011) ("Deloitte Study") ("The projected volume of LNG exports is insignificant compared to total U.S. resource potential.").

<sup>5</sup> NATIONAL PETROLEUM COUNCIL, PRUDENT DEVELOPMENT, REALIZING THE POTENTIAL OF NORTH AMERICA'S ABUNDANT NATURAL GAS AND OIL RESOURCES 10, 62 (Sept., 2011), available at <http://www.npc.org/reports/NARD-ExecSummVol.pdf>.

<sup>6</sup> *Id.* at 9. See also Keith Schaefer, *Natural Gas Rig Count Falls but Production Remains the Same*, OIL PRICE.COM (Feb. 22, 2013), available at [HTTP://OILPRICE.COM/ENERGY/NATURAL-GAS/NATURAL-GAS-RIG-COUNT-FALLS-BUT-PRODUCTION-REMAINS-THE-SAME.HTML](http://oilprice.com/Energy/Natural-Gas/Natural-Gas-Rig-Count-Falls-But-Production-Remains-the-Same.html).

times and increased rig output – and shale gas production has increased by 8 Bcf/day since 2010.<sup>7</sup>

B. The Current Natural Gas Market is Over-Supplied

The domestic natural gas market is suffering an over-supply condition.<sup>8</sup> The initial foray into shale gas production has resulted in a glut of domestic natural gas, which caused natural gas prices to plummet to near-record lows.<sup>9</sup> As the domestic prices fell, natural gas production has become less economical, leaving the resource potential underutilized. In response to these low prices, the demand markets are responding through the pursuit of LNG exports and a potential increase in manufacturing. However, the market has not yet corrected itself to achieve a new supply/demand balance and the over-supply condition remains. By approving LNG exports applications, *i.e.*, by allowing the market to stimulate naturally demand, DOE can thereby allow the market to regain a healthy balance. DOE should not implement policies or make decisions that would further hamper the rehabilitation of an artificially suppressed market. Conversely, by delaying or capping LNG exports, the DOE would be inhibiting the market forces at work, impeding the full development of the gas market, and perpetuating cycles of supply-demand imbalance.

Allowing natural market forces to stimulate new demand and alleviate the over-supply condition will continue to be important into the future. Presently, demand is increasing, in part, due to the mass retirement of coal-fired power generation and the construction of gas-fired

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<sup>7</sup> BENTEK, *Quarterly Market Update*, Oct. 23, 2012.

<sup>8</sup> See, e.g., Shelia McNulty, *US gas market: Shale extraction technology leads to oversupplied market*, FINANCIAL TIMES, Mar. 21, 2011, available at <http://www.ft.com/cms/s/0/309ab490-50f9-11e0-8931-00144feab49a.html#axzz2LZU2DXmT>.

<sup>9</sup> Before the advent of shale production, citygate natural gas prices were approximately \$8-12 per MMcf and natural gas consumers were *importing* LNG. With increasing shale production, citygate natural gas prices have more than halved. See U.S. ENERGY INFORMATION ADMINISTRATION, *Natural Gas Pricing Data*, available at <http://www.eia.gov/dnav/ng/hist/n3050us3m.htm>.

replacement power generation. Although this certainly stimulates demand, the market remains constrained by barriers to overseas markets. Just as the bulk of coal-fired power generation retirements are completed, generally around 2018, the first group of LNG export terminals is expected to commence service, assuming DOE acts swiftly on the LNG export applications. This increase in demand from LNG exports will timely follow the coal-fired power plant retirements and provide additional needed stimulation to the natural gas production industry. Such timing would signal to the market a steady and sustained increase in demand for natural gas and would not result in the rapid draw on supplies feared by some commenters. This gradual and steady increase in demand will likely help reduce price volatility because of producer reaction, through investments in development, production, and transportation, to the heightened demand signal.

C. Increasing Demand Will Reduce the Volatility of Supply and Price

The U.S. natural gas industry has been plagued with supply and price volatility in the past. Before the development of shale resources, traditional natural gas extraction involved substantially more lead time and investment, as well as exploratory risk. This meant that the production industry could not react as quickly to increases in demand. This slow ability to react led to increased price volatility, which had detrimental effects on all consumers of natural gas, including local distribution companies, industrials, and power generation, because the price volatility created uncertainty in economic and commercial decisions.

Of equal importance, the supply volatility created an unacceptable risk to natural gas-dependent manufacturers because the security of a reliable stream of natural gas was uncertain.<sup>10</sup>

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<sup>10</sup> Oil and Gas Online, *Manufacturing Recovery Loses Steam; Shale Gas Key to Recovery* (Dec. 12, 2012) (citing Kevin Swift, Chief Economist for the American Chemistry Council and lead author of the Year End 012 Situation and Outlook, who states “[f]ollowing a decade of high and volatile natural gas prices that destroyed industrial demand and lead to the closure of many gas-intensive manufacturers,

Coupled with the price volatility and other labor concerns, it was this unreliable access to natural gas that caused many manufacturers to re-locate to other countries.<sup>11</sup>

The advanced drilling technologies have also greatly improved efficient production, shifted the production paradigm, and upended traditional notions of the industry. Because of the lower exploration and production risk associated with shale gas production—resulting from the manufacturing-like nature of shale gas production— production is significantly more responsive to changes in demand than was previously possible when conventional gas production was the dominant production technology. This increased responsiveness of supply will help mitigate boom and bust cycles in the natural gas industry and decrease natural gas price volatility. Further, each increment of new demand will be reflected in the size of the natural gas market, leading to a continued increase in the share of gas produced from shale resources, which can lower the price volatility of the gas market by increasing the overall supply responsiveness of the market.

This process of continually improving supply responsiveness is *crucial* for understanding the impact of LNG exports. With increases in demand, as stimulated by LNG exports, the responsiveness of supply can continually improve.<sup>12</sup> The ability of natural gas production to expand to meet demand, as a result of both the large size of the resource and the reduction in

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shale gas offers a new era of American competitiveness that will lead to greater investment, industry growth, and employment.”), *available at* <http://www.oilandgasonline.com/doc.mvc/manufacturing-recovery-loses-steam-shale-gas-key-recovery-0001>.

<sup>11</sup> *Id.*

<sup>12</sup> Navigant Market Analysis Study at 6 (stating that new demand will increase the size of the natural gas market, leading to a continued increase in shale gas’ share of total natural gas production, which will lower the price volatility of the gas market by increasing the overall supply responsiveness of the market.). *See also* Deloitte Study at 2 (“The results show that the North American gas market is dynamic. If exports can be anticipated, and clearly they can with the public application process and long lead time required to construct a LNG liquefaction plant, then producers, midstream players, and consumers can act to mitigate the price impact. Producers will bring more supplies online, flows will be adjusted, and consumers will react to price change resulting from LNG exports.”).

exploration and production risk, is a key reason that the domestic price impact from LNG exports will be minor. Indeed, the pricing impacts in the NERA Study would likely have been even smaller had it incorporated the more recent AEO 2013 data, which reflects the significantly higher supply information.<sup>13</sup> This new paradigm of increasingly responsive natural gas supply, fostered by enlargement of the market through the addition of new demand, is completely counter to multiple assertions in the initial comments on the LNG Export Study that large increases in demand will significantly tighten the supply-demand balance and lead to high volatility due to a presumed multi-year supply response time.<sup>14</sup>

D. Increased Natural Gas Production Will Benefit All Natural Gas Consumers

The development of shale resources has been a boon for all natural gas consumers, and it is this development, coupled with the relatively low prices and reduced volatility, that is enticing manufacturers and industrials to migrate back to the U.S. to take advantage of reliable supplies and stable prices.

In fact, The Dow Chemical Company (“Dow”) has previously testified that natural gas in the \$6-\$8 dollar range would not prevent U.S. petrochemical companies from remaining competitive internationally:

US petrochemical competitiveness depends on a multitude of factors, such as the relative cost of energy (including crude oil, coal, etc.), the relative cost of new facility

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<sup>13</sup> Gulf LNG Liquefaction Company, LLC, *Answer of Gulf LNG Liquefaction Company, LLC To Motions to Intervene, Protests, and Comments*, FE Docket No. 12-101-LNG at 32-33 (Jan. 2, 2013).

<sup>14</sup> See Dow Chemical Company, *Comments of the Dow Chemical Company*, 24-25 (Jan. 24, 2013) (“Dow Comments”). See also supra note 9; Navigant Market Analysis Study at 8 (“LNG exports offer the potential for a steady, reliable baseload market which will serve to underpin ongoing supply development. The existence of growing domestic demand and export demand will also tend to support additional supply development and as a result tend to reduce price volatility.”); Deloitte Study at 18 (acknowledging that “[i]t is possible that LNG exports might actually work to decrease, not increase, U.S. price volatility. This is counterintuitive but quite possible because LNG exports, with their well-known export capacities, will prompt incremental supplies that could be utilized to meet peak domestic demand.”).

construction, the strength of the economy in each global area, and the extent to which local industry is protected by local government policies. **In general, we believe that if crude were in the \$75-\$100 range, and natural gas were available at a consistent \$6-\$8 dollar per MMBtu range, US petrochemical facilities could be globally competitive.** We believe the best way to achieve consistent natural gas pricing is to adopt a comprehensive policy approach which considers all sources of demand in the context of both normal and extreme situations to ensure the market is resilient to both supply and demand shocks. This presumes there are enough price-sensitive (demand-elastic) natural gas users to assure minimal volatility. **We cannot effectively plan major long term petrochemical investments in the U.S. if the historical pattern of natural gas price spikes persists.**<sup>15</sup>

Notably, the “\$6-\$8 dollar per MMBtu range” referred to by Dow above is generally higher than the ranges predicted by the NERA Study in the unconstrained exports cases.<sup>16</sup> Thus, the impact to Dow and other manufacturers will certainly be minimal because even with slightly higher domestic gas prices, “US petrochemical facilities could be globally competitive.”<sup>17</sup> Importantly, Dow also notes in the testimony above that it is the “historical pattern of natural gas price spikes” that hinders its planning for long-term petrochemical investments.<sup>18</sup> As discussed above, the stable demand from LNG exports is likely to stimulate production and reduce the volatility of which Dow complains.

Given the size of the U.S. natural gas supply, the addition of LNG exports to the projected demand will not overwhelm or price-out the growth opportunities for these manufacturers or for other domestic uses.<sup>19</sup> Moreover, granting an export authorization to an

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<sup>15</sup> *To Receive Testimony on the Role of Natural Gas in Mitigating Climate Change: Hearing Before the S. Comm. On Energy and Natural Resources, 111th Cong. 129 (Oct. 28, 2009) (Testimony of Edward Stones, Director of Energy Risk, The Dow Chemical Company) (“Dow Testimony”) (emphasis added).*

<sup>16</sup> NERA Study at 128, 135, 149, 156, 177. The average prices from 2015-2035 of the unconstrained scenarios with exports are as follows: HEUR\_INTREF, \$4.58; HEUR\_D, \$4.85; HEUR\_SD, \$5.22; USREF\_D, \$5.59; USREF\_SD, \$6.28; LEUR\_SD, \$7.52.

<sup>17</sup> Dow Testimony.

<sup>18</sup> *Id.*

<sup>19</sup> See AEO2013 data, which includes LNG exports and project only moderate price impacts.

individual LNG export project does not necessarily mean that the LNG export project will be constructed. Each project will make its own individual assessment of the LNG export market, the associated risk factors, and the conceivable benefits and reach a conclusion about whether to construct the LNG export project.

E. Opponents Misunderstand Convergence of Natural Gas Prices

The price differential between domestic and international natural gas prices currently provides the incentive for U.S. LNG exports. Many opponents of LNG exports argue that increased LNG exports will raise domestic prices to the level of international prices, creating a price convergence. This conclusion fails for two main reasons.

First, the logistical costs of bringing the LNG to international markets are significant<sup>20</sup> and preclude domestic natural gas prices from actually converging with international prices. The economically correct price comparison must include these logistical costs on the export side, so that even with an equilibrium level of LNG exports, the U.S. domestic price should be less than the international price by at least the logistical costs. The common practice is to estimate a “netback” price (*i.e.*, international price less logistical costs) to compare to the U.S. domestic price.

Second, shale resources are not unique to the United States but are present in many other locations around the world. While the U.S. presently has an advantage by its head start in developing its shale resources, other countries will likely realize the significant benefits and develop their own shale resources. This increase in international natural gas supply will likely

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<sup>20</sup> NERA Study at Figure 62 (showing total logistical costs of moving natural gas from the wellhead to the liquefaction facility, plus total liquefaction costs, plus shipping, regas and transport to market, of over \$6/MMBtu to Europe and \$7 to \$8/MMBtu to Asia). *See also* Deloitte Study at 13 (“The high cost of constructing a liquefaction plant plus the high transportation cost of a LNG tanker is estimated to require a spread of at least \$3.00/MMBtu to Europe and over \$4.00/MMBtu to Asia in order to make LNG export economic to those regions.”).

have the effect of driving down international prices closer than otherwise to U.S. domestic prices. Hence, international and domestic natural gas prices may approach convergence, but this would probably be more due more to downward pressure on international prices, and not upward pressure on domestic prices.

Contrary to the speculation that high international netback prices could cause U.S. prices to move much closer to world oil-indexed levels as a result of unconstrained exports of LNG, the actual NERA Study results indicate just the opposite. By examining the high shale case with international supply and demand shocks and no LNG exports, Figure 116 of the NERA Study shows that for the year 2020 there is an international netback price of \$9.20 and a U.S. wellhead price of \$3.43, representing a premium of 168% (even higher than the 122% premium in Dow's example). Without any need to speculate, the impact of unconstrained exports can be assessed by comparing the preceding prices to the unconstrained export version of this scenario, found in Figure 122 of the NERA Study, which reveals an equilibrium of U.S. wellhead price and international netback price at \$4.68. These results suggest that the U.S. wellhead price would move only moderately, while the majority to movement towards the equilibrium price is caused by a substantial drop in the international netback price. Because present international gas prices are indexed to oil prices, which are not expected to drop, the substantial decrease in the international netback price shows that U.S. natural gas prices would clearly not be "linked" to oil-indexed levels.

## **II. THE NERA STUDY IS SOUND**

GLLC continues to agree with the basic methodology and the overall conclusions of the NERA Study:

Across all these scenarios, the U.S. was projected to gain net economic benefits from allowing LNG exports. Moreover, for every one of the market scenarios examined, net economic benefits increased as the level of LNG exports increases.

In particular, scenarios with unlimited exports always had higher net economic benefits than corresponding cases with limited exports.<sup>21</sup>

As the NERA Study acknowledges, these benefits are the expected result of removing restrictions and barriers to free trade.<sup>22</sup> GLLC has acknowledged several flaws in the NERA Study, but, as explained in its initial comments, remedy of those flaws (for example, by using more recent supply and demand information) actually show the case of LNG exports is even stronger than NERA estimates.<sup>23</sup>

Despite the strengths of the NERA Study, several entities submitted comments criticizing the methodology, data, and conclusions of the NERA Study, but many of the criticisms of the NERA Study's modeling and results can be shown to be either factually incorrect or simply unfounded conclusions. For example:

- Echoing comments raised by other opponents of LNG exports, such as Citizens Against LNG, Dow states that NERA “fails to consider what would happen if natural gas exports reached levels at or near the authorized levels [presumably the total of all export applications] under a “no constraint’ scenario.”<sup>24</sup> As clearly explained in the NERA Study, NERA’s global model solves for economically achievable export levels, rather than artificially setting a prescribed level. In fact, this aspect of modeling directly addresses one of the shortcomings of the EIA Study. The fact that the “authorized levels” of exports do not occur in the modeling only serves to

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<sup>21</sup> NERA Study at 1.

<sup>22</sup> *Id.*

<sup>23</sup> See Gulf LNG Liquefaction Company, LLC, *Initial Comments of Gulf LNG Liquefaction Company, LLC on the Department of Energy LNG Export Study*, FE Docket No. 12-100-LNG 5-7 (Jan. 24, 2013) (“GLLC Initial Comments”).

<sup>24</sup> Dow Comments at 21. See also Citizens Against LNG, *Comments on 2012 LNG Export Study 2* (Jan. 24, 2013).

emphasize the point that export levels, and thus prices, will be self-regulating in the marketplace.

- Raising a similar unsupported complaint by Save our Supplies, Dow claims that it is “unproven and unlikely” that production can keep up with increasing demands for both domestic use and LNG exports, and it includes a chart purporting to show that a future production growth rate would need to be ten times the production growth rate from 2000 to 2010, in order to be able to supply LNG exports of 10 Bcf/day.<sup>25</sup> To make such an analysis however, it is inappropriate to include historical production periods from before the shale revolution, because to do so fails to recognize the fundamental reformation of the supply side of the gas market and would inaccurately depict the production growth rate since the onset of the shale boom. Computing a compound annual growth rate (“CAGR”) based on historical data covering 2008-2012, which reflects the new production realities, yields a CAGR for dry natural gas production of 4.5%, significantly higher than Dow’s figure of 0.3%, which was based on 2000-2010 levels. The CAGR for future gas production that would be necessary from 2016-2020 (to capture the period Dow claims will have the bulk of demand growth) in order to supply an assumed 10 Bcf/day in LNG exports can be estimated at about 4.4% using AEO 2013 figures as a starting point,<sup>26</sup> which is actually less than the relevant historical period, not ten times more as claimed by Dow.

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<sup>25</sup> Dow Comments at 15 (depicting a historical growth rate during 2000-2010 of 0.3%, and a future growth rate during 2011-2020, sufficient to supply 10 Bcf/day of LNG exports, of 3.4%). *See also* Save our Supplies, *Comments on 2012 LNG Export Study 2*, 22-24 (Jan. 24, 2013).

<sup>26</sup> AEO 2013 production estimates for 2016 and 2020 are 68.8 and 72.9, respectively. The estimated LNG exports in 2020, as stated in AEO 2013, are 1.2 Bcf/day. Assuming that an additional 8.8 Bcf/day of production could supply the assumed 10 Bcf/day LNG export level, then the 2020 production figure would need to be 81.7, representing a CAGR over that period of 4.4%. This information is summarized in the table below:

- While many LNG export opponents (including Alcoa, American Public Gas Association, Clean Ocean Action, Dow, and Natural Resources Defense Council) claim that NERA’s reliance on the AEO 2011 data, instead of using newer AEO 2013 data, reduces the validity of the NERA Study, closer analysis indicates that the use of the new AEO 2013 data is likely supportive of LNG exports.<sup>27</sup> While opponents make much of a presumed understatement of demand in AEO 2011, examination of the more recent AEO 2013 assumptions shows an average increase in natural gas production of 16% from AEO 2011 to AEO 2013, while demand only increased an average of 6%. This fact, unrecognized by many opponents, is why the forecast of U.S. domestic gas prices in AEO 2013 is actually *lower* than in AEO 2011, by an average of about 20%. The use of a supply forecast more in line with current actual production levels (*e.g.*, AEO 2013 rather than AEO 2011) would be expected to result in lower domestic gas prices than estimated in the NERA Study, undermining Dow’s

	<b>Production</b>	<b>LNG Exports</b>	<b>Source</b>
	Bcf/day	Bcf/day	
2008	55.1		Actuals per EIA
2012	65.7		Actuals per EIA
<b>CAGR 2008-2012</b>	<b>4.5%</b>		
2016	68.8		AEO 2013
2020	72.9	1.20	AEO 2013
2020 w/10 Bcfd Exports	81.7	10.00	AEO 2013, Adj. for 10 Bcfd Exports
<b>CAGR 2016-2020 w/10 Bcfd Exports</b>	<b>4.4%</b>		

<sup>27</sup> Alcoa, *Comments on 2012 LNG Export Study 2* (Jan. 24, 2013) (“Alcoa Comments”); American Public Gas Ass’n, *Comments on 2012 LNG Export Study 2-3* (Jan. 24, 2013); Clean Ocean Action, *Comments on 2012 LNG Export Study 5* (Jan. 24, 2013); Dow Comments at 21; Natural Resources Defense Council, *Comments on DOE LNG Export Study 6* (Jan. 24, 2013).

unsupported claim that the NERA Study “grossly understates gas price increases.”<sup>28</sup>

As GLLC explained in its initial comments, the price impact is likely over-estimated for several reasons, including the reliance on the AEO 2011 data, which does not show the higher supply projections.<sup>29</sup>

- The NERA Study explains that the cost of competing supplies in the global market will limit how high U.S. natural gas prices could rise under pressure of LNG exports.<sup>30</sup> Dow asserts that this “alleged effect” is never illustrated in the NERA Study in context with data.<sup>31</sup> Dow’s assertion is incorrect, since in every instance in the Detailed Results tables in the NERA Study (*i.e.*, Figures 81-143) where there are LNG exports, the U.S. Wellhead Price is either less than or equal to the Netback Price.
- Dow claims that the NERA Study represents the industrial sector as the average of five sub-sectors, thereby muting effects on energy intensive industries such as the chemical industry.<sup>32</sup> In actuality, and in contrast to Dow’s misplaced criticism, the NERA Study represents the Energy Intensive Sector as the average of its five sub-sectors, while other industrial sectors, such as manufacturing, are treated separately.

### **III. CURRENT GEOPOLITICAL BENEFITS STRONGLY FAVOR U.S. LNG EXPORTS**

As the United States natural gas industry and the GLLC Project await the DOE’s decision regarding authorization of additional LNG for export, non-FTA countries are also looking

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<sup>28</sup> Dow Comments at 4.

<sup>29</sup> GLLC Initial Comments at 5-7.

<sup>30</sup> NERA Study at 2.

<sup>31</sup> Dow Comments at 21.

<sup>32</sup> *Id.* at 6.

anxiously to the DOE for such a decision. DOE's decision, to take a protectionist or free-trade position on LNG exports, bears many and significant economic and political implications for foreign countries and the security of their energy supplies.

In Europe, the desire for U.S. LNG comes from supply shifts in the European markets. For instance, tightening of supply from the U.K. portions of the North Sea production has continued to increase the U.K.'s reliance on gas sourced from North Africa and, more recently, from the Middle East. These gas supplies are delivered to the U.K. as LNG. Algeria, a significant North African supplier, has come under recent political insurrection that sent shock waves across Europe and communities reliant upon gas supply from this region. Moreover, the reliance upon Russian pipeline natural gas has long been a concern for Eastern European countries and elsewhere throughout Europe.<sup>33</sup> Countries dependent on Russian-supplied natural gas are disadvantaged in from this near single-source dependency, its high delivered gas costs, and some interruptions to the supply.<sup>34</sup>

U.S. LNG exports may have significant impacts in Asia. In Japan, the interest in U.S. LNG exports is driven by Japan's unfortunate natural disaster with the 2011 tsunami and the resulting nuclear power plant crises at Fukushima. The disaster significantly crippled Japan's nuclear industry, and until Japan, a country with few natural energy resources, is able to find

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<sup>33</sup> RT, *Russia increasingly worried about US 'shale revolution,'* Oct. 24, 2012, available at <http://rt.com/business/russia-shale-gas-usa-110/>; Will Englund, Kathy Lally, *Cumbersome Gazprom losing its clout*, WASH. POST, Sept. 23, 2012; Editorial, *U.S. gas exports could limit Putin's influence*, WASH. POST, Sept. 25, 2012. See also DELOITTE CENTER FOR ENERGY SOLUTIONS, EXPORTING THE AMERICAN RENAISSANCE: GLOBAL IMPACTS OF LNG EXPORTS FROM THE UNITED STATES 16 (2013) ("Russia, the leading gas exporter to Europe, appears to be especially hard hit by U.S. LNG exports. Because of its huge volumes of gas exports, primarily to Europe, and their high cost to markets, Russia is vulnerable to supply competition."), available at [http://www.deloitte.com/view/en\\_US/us/Insights/centers/centers-center-for-energy-solutions/50cb7218eee8b310VgnVCM1000003256f70aRCRD.htm](http://www.deloitte.com/view/en_US/us/Insights/centers/centers-center-for-energy-solutions/50cb7218eee8b310VgnVCM1000003256f70aRCRD.htm).

<sup>34</sup> Andrew E. Kramer, *Russia Cuts Gas, and Europe Shivers*, NEW YORK TIMES (Jan. 6, 2009), available at [http://www.nytimes.com/2009/01/07/world/europe/07gazprom.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2009/01/07/world/europe/07gazprom.html?pagewanted=all&_r=0).

alternate energy supplies, it will continue to need reliable and economical supplies. Recently, Japanese political and business leaders have unequivocally stated their interest in U.S. LNG exports.<sup>35</sup> U.S. LNG exports may also be delivered to China and India as their fast-paced growth demands new sources of energy, including natural gas.

Many countries are watching the ongoing development of natural gas shale resources in the U.S. and are evaluating opportunities to acquire a portion of U.S. natural gas supply to help meet the energy requirements of their utilities and industries. While the impact to U.S. natural gas prices resulting from LNG exports has been shown to be minor, many foreign countries expect that the arrival of even minor volumes of gas supplies from the U.S. may have a major impact on their local and national prices.<sup>36</sup> The impact of U.S. LNG exports will likely be much greater than expected because besides lowering prices in these countries, the imports would demonstrate a new supply source and provide additional negotiating advantages for the purchaser.

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<sup>35</sup> Brian Scheid, *Japan looking for assurance on LNG export policy: US senator*, PLATTS (Jan. 23, 2013), available at <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/NaturalGas/6067945>.

<sup>36</sup> GORDON PICKERING, NAVIGANT CONSULTING, INC., NG MARKET NOTES, ONE PARADIGM SHIFT TO ANOTHER 2-3 (December 2011) (“The changes in North America as a result of gas shale [the growth of unconventional gas supplies in the U.S. that has “caused a significant amount of global LNG demand in the US to disappear”] have amplified other pressures around the globe. It has begun to weaken the dominance of oil-linked prices for LNG in Europe with more activity in the spot market, where prices are generally considerably lower.”), available at [http://www.navigant.com/~media/WWW/Site/Insights/NG\\_Notes\\_Dec2011\\_Energy.ashx](http://www.navigant.com/~media/WWW/Site/Insights/NG_Notes_Dec2011_Energy.ashx). See also BROOKINGS ENERGY SECURITY INITIATIVE, LIQUID MARKETS: ASSESSING THE CASE FOR U.S. EXPORTS OF LIQUEFIED NATURAL GAS 38 (May, 2012) (stating [w]ithout exporting natural gas, the U.S. shale gas ‘revolution’ has already had a positive impact on the liquidity of global LNG markets. Many LNG cargoes that were previously destined for gas-thirsty U.S. markets were diverted and served spot demand in both the Atlantic and Pacific Basins. The increased availability of LNG cargoes has helped create a looser LNG market for other consumers. This in turn has helped apply downward pressure to the terms of oil-linked contracts resulting in the renegotiation of some contracts, particularly in Europe. Increased availability of LNG cargoes also accelerated a recent trend of increasing reliance of consumers on spot LNG markets.” (internal citations omitted)) (“Brookings Report”), available at <http://www.brookings.edu/research/reports/2012/05/02-lng-exports-ebinger>.

The U.S. is leading the development of natural gas shale resources and thus not only serves as a potential source of gas for many countries in need of new supplies, but also serves as model other countries may use in developing their own shale resources. How long other countries will take interest in the U.S. supply unknown, but the opportunity for U.S. LNG exports is assuredly now.

#### IV. THE LEGAL STANDARD

DOE is required to authorize exports to a foreign country unless it finds that such exports “will not be consistent with the public interest.”<sup>37</sup> Specifically, Section 717b(a) of the Natural Gas Act (“NGA”) states in relevant part:

(a) Mandatory authorization order

[N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the Commission authorizing it to do so. The Commission shall issue such order upon application, unless, after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest.<sup>38</sup>

Numerous commenters have misstated the standard by which DOE must evaluate the pending LNG export applications when they claim that DOE must make an affirmative showing that the LNG exports are in the public interest.<sup>39</sup> Rather, DOE has consistently found that Section 717b(a) creates a rebuttable presumption that proposed exports of natural gas are in the public interest.<sup>40</sup> For that reason, DOE *must* grant the export application unless opponents of an export authorization make an affirmative showing based on evidence in the record that the export

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<sup>37</sup> 15 U.S.C. § 717b(a).

<sup>38</sup> *Id.* (emphasis added).

<sup>39</sup> See, e.g., Sierra Club, *Comments on LNG Export Study* 5 n.9 (Jan. 24, 2013) (Sierra Club Comments”); American Iron and Steel Institute, *Comments on 2012 LNG Export Study* 4 (Jan. 24, 2013).

<sup>40</sup> See, e.g., *Sabine Pass Liquefaction, LLC*, FE Docket No. 10-111-LNG, Order No. 2961, at 28 (May 20, 2011 (“DOE/FE Order No. 2961”).

would be inconsistent with the public interest.<sup>41</sup> None of the LNG export opponents has made this showing, either in their comments on the LNG Study or in their oppositions to GLLC's LNG export application.

Many opponents of LNG exports claim the DOE should consider factors previously (and purposefully) omitted from the "will not be consistent with the public interest" analysis.<sup>42</sup> As the DOE has clearly explained, this analysis will include factors such as (1) domestic need for the gas; (2) whether the proposed exports pose a threat to the security of domestic natural gas supplies; and (3) other issues determined appropriate for consideration, including whether the exports DOE's policy of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade agreements.<sup>43</sup> Moreover, in granting its most recent authorization to export LNG to non-FTA countries, DOE has indicated that the following additional considerations are relevant in determining whether proposed exports are in the public interest: whether the exports will be beneficial for regional economies, the extent to which the exports will foster competition and mitigate trade imbalance with the foreign recipient nations, and the degree to which the exports would encourage efficient management of United States domestic natural resources.<sup>44</sup>

Application of each of the factors listed above to the massive supply of domestic natural gas and the industry's over-supply condition, described above, indicates that DOE should allow

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<sup>41</sup> *Id.* at 28 n.38.

<sup>42</sup> *See, e.g.*, Sierra Club Comments at 24-52; Delaware Riverkeeper Network Letter to Dep't of Energy (Jan. 24, 2013) (raising environmental issues).

<sup>43</sup> DOE/FE Order No. 2961 at 29. *See also Policy Guidelines and Delegation Orders Relating to the Regulation of Imported Natural Gas*, 49 Fed. Reg. 6,684 (Feb. 22, 1984) (providing that "the policy cornerstone of the public interest standard is **competition**. Competitive [export] arrangements are an essential element of the public interest, and natural gas [exported] under agreements that provide for the sale of gas in volumes and at prices responsive to market demands largely meets the public interest test." (emphasis added)).

<sup>44</sup> DOE/FE Order No. 2961 at 34-38.

LNG exports as regulated by competition in the industry. The glut of natural gas and the corresponding low domestic natural gas prices clearly indicate that domestic natural gas needs are being met and access to these supplies is secure. Furthermore, as GLLC demonstrated in its LNG export application, GLLC's project will bring readily identifiable and quantitative benefits to the regional economies. GLLC's export project will foster competition in the natural gas industry with natural gas going to those who value it the most. Finally, the substantial geopolitical and trade balance benefits, explained above, further show that LNG exports opponents cannot demonstrate that exports "will not be consistent with the public interest."

## **V. DOE SHOULD NOT DELAY LNG EXPORT AUTHORIZATIONS**

With the conclusion of the comment and review process of the LNG Study, DOE should now be ready to act on GLLC's pending export application. In addition to the copious materials and studies provided by GLLC in its application that clearly demonstrate the regional benefits of the Elba Island export project, DOE now has the fully vetted LNG Export Study that concludes unequivocally that "benefits that come from export expansion more than outweigh the losses from reduced capital and wage income to U.S. consumers, and hence LNG exports have net economic benefits in spite of higher domestic gas prices."<sup>45</sup> No further studies are needed.<sup>46</sup> And, no party has demonstrated that granting the pending LNG export applications is not in the public interest. Accordingly, DOE should proceed to grant all pending applications to export LNG to non-FTA countries.

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<sup>45</sup> NERA Study at 1.

<sup>46</sup> For example, Sierra Club's dramatic call for a "full programmatic EIS" should be rejected because not only are such comments outside the scope of DOE's current "not inconsistent with the public interest" analysis and the factors outlined in the December 11 Notice, the environmental impacts of any LNG export terminal will be evaluated by the Federal Energy Regulatory Commission, as provided in the Natural Gas Act. Sierra Club Comments at 5 n.9.

A. Delay May Create Missed Opportunity

Importantly, the window for U.S. LNG exports is relatively narrow. As other countries identify and explore their own shale resources, international natural gas production will increase and therefore reduce the pricing differential necessary for U.S. LNG exports.<sup>47</sup> Delays in approving the pending applications will only risk the U.S. missing this rare opportunity. Moreover, some opponents of LNG exports have suggested the DOE adopt a “go slow” approach.<sup>48</sup> This argument should also be rejected. Picking one or two export projects for authorization is likely to be an arbitrary approach and will also cause the U.S. to miss the significant benefits that uncapped exports would bring to the to the U.S. economy. As the NERA Study found, “scenarios with unlimited exports always had higher net economic benefits than corresponding cases with limited exports.”<sup>49</sup>

B. LNG Exports Should Not be Capped

DOE should not impose artificial or arbitrary limits on LNG export volumes, and instead DOE should allow competitive market forces to decide the overall quantities of LNG export volumes for three principal reasons. First, the domestic supply of natural gas is comparatively enormous,<sup>50</sup> a crucial fact often overlooked or underestimated by other commenters, and means that over the expected time horizon of LNG export authorizations, LNG exports will not “lead to

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<sup>47</sup> Amy Myers Jaffe, Meghan L. O’Sullivan, *The Geopolitics of Natural Gas, Report of Scenarios Workshop of Harvard University’s Belfer Center and Rice University’s Baker Institute Energy Forum* (July, 2012) (“The natural gas supply picture in North America will have a ripple effect around the globe that will expand over time, not only through displacement of supplies in global trade but also by fostering a growing interest in shale resource potential in other parts of the world.”).

<sup>48</sup> Alcoa Comments at 2.

<sup>49</sup> NERA Study at 1.

<sup>50</sup> *Id.* at 1-2.

a reduction in the supply of natural gas needed to meet essential domestic needs.”<sup>51</sup> Second, the expected impacts to domestic natural gas prices will be sufficiently minimal.<sup>52</sup> Third, because exports will stimulate domestic production, domestic manufacturing will benefit from security of supply. Finally, establishing arbitrary regulatory caps on LNG export volumes contravenes the market-driven principles, under relevant DOE precedent,<sup>53</sup> used to determine whether LNG export applications are in the public interest.<sup>54</sup>

As demonstrated by the NERA Study, competitive global market forces significantly impact potential U.S. LNG exports, meaning the project proponents are better suited to optimizing the level of LNG exports rather than a centralized regulatory construct setting artificial limits.

## **VI. CONCLUSION**

The supply of natural gas in the U.S. has created a unique opportunity for the country to participate in the LNG exports markets, and it is this massive resource of natural gas that will allow production to expand to meet the projected demand for LNG exports while still satisfying the domestic needs of manufacturers, consumers, and power generation. The LNG Export Study has confirmed that LNG exports will not be inconsistent with the public interest, and DOE should not delay action on GLLC’s pending application.

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<sup>51</sup> DOE/FE Order No. 2961 at 29, 32 (noting that DOE considers “whether the proposed exports pose a threat to the security of domestic natural gas supplies.”).

<sup>52</sup> Navigant Market Analysis Study at 1-2.

<sup>53</sup> DOE/FE Order No. 2961 at 32.

<sup>54</sup> Michael Levi, *A Strategy for U.S. Natural Gas Exports* (June, 2012) (“In practice, to the extent that allowing exports leads to potentially worrisome rises in domestic natural gas prices, exports are likely to be self-limiting without quotas. Strong increases in domestic prices will make exports less attractive overseas. Large export volumes would also reduce overseas prices. The combination would most likely close off additional exports before U.S. prices could rise too far. In essence, export quotas would become relevant when they would have little effect anyway.”).

**WHEREFORE**, in consideration of the foregoing, Gulf LNG Liquefaction Company, LLC respectfully requests that the DOE accept and consider these Reply Comments when considering LNG export policies and when issuing individual orders for LNG export authorization, including GLLC's application.

Respectfully submitted,

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