



## Industrial Energy Consumers of America

*The Voice of the Industrial Energy Consumers*

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September 11, 2019

The Honorable Rick Perry  
Secretary  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585

The Honorable Wilbur Ross  
Secretary  
U.S. Department of Commerce  
1401 Constitution Avenue, NW  
Washington, DC 20230

***Re: U.S. LNG Purchases by State-Owned Enterprises and Foreign Country Utilities Threaten Electricity Grid Reliability, National Security, and Manufacturing Competitiveness***

Dear Secretary Perry and Secretary Ross:

Nearly 100 percent of all U.S. LNG exports are purchased or consumed by state-owned enterprises (SOEs) and foreign government-controlled utilities (FGCU). These entities are poised to control the vast majority of the 34.5 Bcf/d, an equivalent of 42 percent of U.S. 2018 demand that has been approved for export by the U.S. Department of Energy (DOE) to non-free trade agreement (NFTA) countries for periods of up to 30 years. The DOE plans to approve another 20.0 Bcf/d, an equivalent to 25 percent of 2018 demand, that is pending or in pre-filing to export. There is also growing ownership in U.S. LNG export terminals, natural gas resources, and importantly, direct or indirect control of firm natural gas pipeline transportation, which results in less access to, control, and availability of these resources and pipeline capacity for U.S. consumers, manufacturers, and power generators. Inadequate pipeline capacity at peak demand would prevent power plants from operating and threaten grid reliability. Under the Natural Gas Act<sup>1</sup> (NGA), foreign government entities should be prevented from negatively impacting the public interest and national security.

There are many good reasons why the U.S. should export LNG which includes supporting our allies who need natural gas, supply underdeveloped countries who need LNG to electrify their economies, give countries the option of switching from coal to a less carbon intensive fuel, and for fair-trade commerce between countries with which the U.S. has a free-trade agreement. *That said, there absolutely no reason that the federal government should not take action to protect and insulate the U.S. consumer and economy from becoming negatively impacted by excessive LNG exports. It is prudent and in the public interest to put U.S. consumers interests first – not last.*

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<sup>1</sup> Natural Gas Act, 15 U.S. Code § 717b. Exportation or importation of natural gas; LNG terminals, <https://www.law.cornell.edu/uscode/text/15/717b>

The attached report identifies U.S. LNG export buying entities. The source for the listed entities is from the DOE's Long-term Contract Information and Registrations webpage<sup>2</sup>. Web searches were used to determine whether they are SOEs or FGCU. There are six LNG export terminals operating and three of them are constructing new capacity. There are four new export terminals under construction and six others that are approved and not under construction. Finally, there are thirteen that are proposed and in pre-filing status at FERC.

The entrance of foreign country entities into the U.S. market changes everything and none of it for the better. SOEs and FGCU are unique because they have automatic cost pass-through and are therefore less price sensitive. When foreign country entities buy or control firm natural gas pipeline capacity, it is serving their country's public interest, not U.S. public interest, and the two are not compatible. Couple this with the regional inadequate pipeline capacity to meet today's peak demand and the tremendous increasing barriers to building new pipeline capacity and we have a perfect storm! As exports increase there are significant potential for negative impacts on prices for natural gas and electricity that are priced on the margin, pipeline transportation availability and costs, storage capacity, fuel and electricity security, energy independence, and manufacturing competitiveness.

To this point, the INGAA Foundation report of May 2019<sup>3</sup> provides examples of how disruptive LNG exports are to pipeline operations. The following statements are from the report.

"This incremental gas demand will significantly affect the daily and seasonal utilization of pipelines along the eastern seaboard and the service offerings needed to meet the requirements of these LNG terminals.

"Higher ambient temperatures will require more feed gas to produce the same amount of LNG. The variation of daily feed gas could approach 12 percent during the peak summer months, which will translate into over 2 Bcf/d extra feed gas demand on certain days.

"Additional gas storage or pipeline no-notice services will be needed to help mitigate the types of intra-day swings that already have been observed at existing LNG liquefaction terminals.

"Because of significant seasonal demand variability in both markets, the volume of US LNG exports could vary significantly. High US demand for natural gas during the peak winter months to serve residential and commercial load could place additional stress on the existing natural gas infrastructure, requiring new infrastructure to serve LNG exports for the global market.

"Pipeline imbalance tolerances will allow a shipper to flow typically within +/-2.5 percent of daily variation; however, the daily swings for LNG liquefaction feed gas rates are expected to far exceed those thresholds during summer months. Even if pipelines allowed a 5 percent

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<sup>2</sup> U.S. Department of Energy: Long-term Contract Information and Registrations:  
<https://www.energy.gov/fe/downloads/long-term-contract-information-and-registrations>

<sup>3</sup> The INGAA Foundation: The Role of Natural Gas in the Transition to a Lower-Carbon Economy, May, 2019, <https://www.ingaa.org/Foundation/FDNreports/Flagship2019.aspx>

nomination tolerance, the average daily variation would exceed that limit seven months of the year.”

The global LNG market is not a free market<sup>4</sup> and it is for this reason that policymakers should act to establish consumer safeguards. SOEs and FGCU's sole mission is to ensure their countries have sufficient supplies and have the ability to pay any price, no matter how high to secure the natural gas supplies that their country needs. When global LNG demand exceeds global supply, these entities have *market power* to buy natural gas at any price to keep their countries operating. If needed, they will easily outbid U.S. consumers for natural gas.

On July 31, 2019, the DOE announced that it has approved LNG export volumes of 34.5 Bcf/d for shipment to non-free trade agreement (NFTA). This is equal to 42 percent of U.S. 2018 demand. The DOE has approved an additional 21.6 Bcf/d or another 26 percent of 2018 demand for shipment to free trade agreement countries (FTA), resulting in a potential offshore take of 68 percent of 2018 demand. Even though the DOE is required to determine whether NFTA shipments are not in the public interest, neither they nor the Federal Energy Regulatory Commission (FERC), has conducted research to determine whether there is adequate pipeline capacity at peak demand. In fact, manufacturers do not have adequate pipeline capacity along the eastern seaboard which includes: Virginia, North Carolina, South Carolina, Georgia, and the Northeast.

The INGAA Foundation report of June 18, 2019<sup>5</sup> says that the U.S. needs 57.0 Bcf/d of new pipeline capacity by 2035, only 15 years away. And, 25.0 Bcf/d of new capacity to move Marcellus and Utica supplies to consumers and export facilities. Given the recent experience with the Mountain View and Atlantic Coast pipelines, and the increasing difficulty in building pipelines and expansions of this magnitude, and in that time frame, it is highly improbable that 82.0 Bcf/d of pipeline can be completed in 15 years. The Atlantic Coast pipeline was originated in September of 2013 and has planned capacity of 1.5 Bcf/d or just 2.6 percent of what INGAA says we need by 2035. Without additional pipeline capacity, the U.S. consumer may not get the natural gas they need because foreign interests have locked up existing firm pipeline capacity.

Foreign ownership/control of U.S. LNG export terminals, pipelines, and natural gas resources should be prevented from negatively impacting U.S. public interest. Where is the reciprocity? Foreign interests get access to a non-renewable resource that will, long-term, result in higher natural gas and electricity prices for U.S. consumers, and a reduction of manufacturing competitiveness and with potential impacts to high paying middle class jobs. Their purpose for investment is in conflict with the U.S. public interest under the NGA. Their sole purpose is to serve their country's retail consumers, power generators, and manufacturers. Their consumer demand is competing with our consumer demand and pipelines have a finite through-put capacity.

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<sup>4</sup> “WoodMac: Uncontracted demand by world’s seven largest LNG buyers to quadruple,” LNG World News, December 13, 2018, [https://www.lngworldnews.com/woodmac-uncontracted-demand-by-worlds-seven-largest-lng-buyers-to-quadruple/?utm\\_source=emark&utm\\_medium=email&utm\\_campaign=daily-update-lng-world-news-2018-12-14&uid=55872](https://www.lngworldnews.com/woodmac-uncontracted-demand-by-worlds-seven-largest-lng-buyers-to-quadruple/?utm_source=emark&utm_medium=email&utm_campaign=daily-update-lng-world-news-2018-12-14&uid=55872)

<sup>5</sup> The INGAA Foundation, June 18, 2019: North American Midstream Infrastructure through 2035: <https://www.ingaa.org/Foundation/FDNreports/Midstream2035.aspx>

The DOE is giving legal approval to export for periods of 20-30 years for LNG export terminals. This shifts all of the supply and price risks onto U.S. consumers and the economy. To see where this is going, one only need look at Australia. Australian consumers no longer have a domestic price like we do. They pay the high Asian LNG net-back price which is historically three times higher. Australian consumers no longer benefit by their abundant natural gas resources. Now, after the damage is done, the Australia government admits they made a terrible mistake. The U.S. is making the same mistakes. We urge policymakers to take action before it is too late.

## RECOMMENDATIONS

- 1. DOE should stop approving LNG export applications.** It is LNG export applications that are driving foreign companies to lock-up firm pipeline transportation that may deny U.S. consumers access to natural gas or cause the electric grid to fail. The DOE has never denied an LNG export application. None of the DOE LNG export-related studies consider availability of pipeline capacity. Simultaneously, there are significant growing barriers to building new pipelines in the U.S. It is not in the public interest (NGA), to approve LNG export volumes that would result in inadequate pipeline capacity for the U.S. market. The moratorium should remain in place until such time as the DOE/FERC can assure Congress and the public that adequate pipeline capacity exists going forward and checks and balances are in place.
- 2. The DOE must NOT approve excessive LNG export volumes that will result in connecting the low U.S. natural gas price to the historically high global LNG market price,** like what happened in Australia. Low volumes of LNG exports are healthy – high volumes are perilous to “America First” and the manufacturing renaissance long-term.
- 3. DOE should revisit their approval of each approved export terminal and cumulative volume, to determine whether the export volume is not inconsistent with the NGA public interest.** The vast majority of LNG is consumed by NFTA countries. NFTA countries often discriminate against U.S. manufacturing and agricultural products. To approve shipments to NFTA agreement countries, the DOE must ensure that doing so is not inconsistent with the public interest under the NGA. The Government Accountability Office (GAO) report<sup>6</sup> confirms that Congress nor DOE has defined “public interest” under the NGA. IECA has evaluated every DOE LNG export study and have found serious flaws. The DOE also used third party proprietary economic models that are not consistent with the Data Quality Act and prevents U.S. consumers from challenging the findings. And, the DOE LNG studies never evaluated whether there is adequate pipeline capacity at peak demand for approved volumes.

Under the NGA’s public interest determination, it should be unlawful to ship U.S. LNG to countries that subsidize natural gas and electricity prices to the manufacturing and power generation industries.

IECA does not oppose shipments to FTA countries.

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<sup>6</sup> GAO, Federal Approval Process for Liquefied Natural Gas Exports, September 2014  
<https://www.gao.gov/assets/670/666177.pdf>

- 4. The DOE/FERC should complete a national study to evaluate pipeline capacity adequacy at peak demand, considering domestic and export demand for the duration of LNG export contracts which are as long as 30 years.** The DOE/FERC should determine whether there is adequate and economically recoverable natural gas supply and pipeline capacity to supply growing U.S. demand including the LNG and Mexico export markets at peak demand and for the full term of the LNG export contracts. The report should be provided to the Congressional committees with jurisdiction in energy and trade. Congress should hold oversight hearings. Transparency is needed. Without pipeline capacity, it does not matter how much natural gas is in the ground. Using EIA AEO 2019's average annual demand through 2050 and EIA natural gas resource data, the U.S. has only 57 years of technically available natural gas supply.
- 5. DOE should add off-ramp consumer safety-valve provisions to all existing and future LNG export legal agreement approvals.** Safeguards are needed to protect the U.S. consumer and the economy in the event that LNG exports increase prices due to unforeseen circumstances. Unforeseen events, such as inadequate supply or pipeline capacity due to demand, cyberattacks, or pipeline failure can happen. The U.S. consumer should be the priority, not exports. Remember, LNG exporters/buyers hold firm pipeline transportation.
- 6. Congress and the USTR should investigate and provide solutions to neutralize foreign country investments that are not in the public interest.** There are laws that prevent unfair trading of products into the U.S. market. Why are there not protections against unfair foreign government purchases of natural gas? Does the DOE believe that SOEs/FGCUs that have the ability to pay any amount for their own national security and that often subsidize natural gas costs for their consumers resembles "fair" trade? If not, that clearly demonstrates that LNG exports are not in the public interest under the NGA. The DOE LNG export studies have said that LNG exports lower the price of natural gas to foreign manufacturers, which reduces our competitiveness, increases U.S. prices of natural gas and electricity long-term, and limits pipeline capacity that is available to U.S. manufacturing to operate existing facilities and invest in new ones.
- 7. Congress, with the support of the DOE/FERC, should consider requiring that LNG exporters maintain a natural gas inventory to reduce impacts to domestic consumers at peak demand.** It is a fact that the largest LNG buying countries are located in the northern hemisphere and have winter when we do. This means they will be pulling on our inventory just when U.S. consumers need the natural gas the most. LNG exporters should also be required to support the cost to develop incremental storage to meet their peak demands to protect the U.S. market.
- 8. Congress should require LNG exporters with firm natural gas pipeline capacity contracts to release their unused capacity in a timely daily fashion.** Foreign government entities are not like U.S. businesses. U.S. businesses will release (sell) firm capacity that is unused to profit from it. Foreign government-related entities have automatic cost pass-through. Market sources report that these entities are not always releasing their pipeline capacity, effectively withholding it from the market.

In closing, according to Reuters, the value of U.S. 2018 LNG exports was \$3.5 billion. If the DOE gets this wrong, long-term, it could threaten the U.S. manufacturing sector whose contribution

to the GDP was \$2,334.6 billion<sup>7</sup> or 11.4 percent of U.S. GDP. We look forward to working with you on this important and timely national security issue.

Sincerely,

Paul N. Cicio  
President

cc: The Honorable Neal Chatterjee  
The Honorable Richard Glick  
The Honorable Bernard McNamee  
Senate Committee on Energy and Natural Resources  
House Committee on Energy and Commerce  
Senate Committee on Finance  
House Committee on Ways and Means  
The Honorable Robert Lighthizer

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*The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales, over 3,700 facilities nationwide, and with more than 1.7 million employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemicals, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, automotive, brewing, independent oil refining, and cement.*

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<sup>7</sup> U.S. Bureau of Economic Analysis (BEA), <https://www.bea.gov/>

## APPENDIX

### U.S. LNG EXPORTS BUYERS REPORT SEPTEMBER 10, 2019

The information under the “Buyers” column was derived from the U.S. Department of Energy’s (DOE) “Long-Term Contract Information and Registrations,”<sup>8</sup> and from web sources. For clarity, the entities categorized as companies or trading companies sell almost 100 percent of their purchased U.S. LNG to either SOEs or FGCU.

#### **Definitions**

**SOEs:** A state-owned enterprise (SOE) is a business enterprise where the state (government) has significant control through full, majority, or significant minority ownership. Defining characteristics of SOEs are their distinct legal form and operation in commercial affairs and activities.

**FGCUs:** A foreign government-controlled utility (FGCU) is a gas or electric utility that is regulated by a foreign government and whose sole purpose is to ensure supply and reliability of natural gas or electricity for their country. All costs of purchased natural gas (LNG) are automatically passed-through to their consumers which means that they are less-price-sensitive than, for example, U.S. consumers.

#### APPROVED AND OPERATING LNG EXPORT TERMINALS

Terminal	Capacity (Bcf/d)	Buyer
Sabine Pass Liquefaction, LLC	3.50 (Trains 1-5)	1. Gas Natural Aproveisionamientos SDG S.A. (Spain FGCU) 2. Korea Gas Corporation (South Korea FGCU) 3. GAIL (India) Limited (India SOE) 4. CPC Corporation, Taiwan (Taiwan SOE) 5. BG Gulf Coast LNG, LLC (subsidiary of Royal Dutch Shell) 6. Polskie Gornictwo Naftowe (Poland SOE) 7. Petronas LNG Ltd. (Malaysia SOE) 8. Total Gas & Power NA, Inc. (global trading company) 9. Centrica PLC (UK/Ireland trading company) 10. Trafigura Pte Ltd (global trading company) 11. Vitol Inc. (global trading company) 12. Cheniere Marketing, LLC
Dominion Cove LNG Terminal	0.82	1. GAIL Global (USA) LNG LLC (India SOE) 2. GAIL (India) Limited (India SOE) 3. Pacific Summit Energy LLC (global trading company) 4. ST Cove Point LLC (U.S. trading company)

<sup>8</sup> Long-Term Contract Information and Registrations, U.S. Department of Energy, <https://www.energy.gov/fe/downloads/long-term-contract-information-and-registrations>

Terminal	Capacity (Bcf/d)	Buyer
Corpus Christi Liquefaction Terminal	0.71 (Train 1)	<ol style="list-style-type: none"> <li>1. PetroChina International Company Limited (China SOE)</li> <li>2. PT Pertamina (Persero) (Indonesia SOE)</li> <li>3. CPC Corporation, Taiwan (Taiwan SOE)</li> <li>4. ENDESA Generacion, S.A. (Spain FGCU)</li> <li>5. Endesa S.A. (Spain FGCU)</li> <li>6. Polskie Gornictwo Naftowe (Poland SOE)</li> <li>7. Iberdrola, S.A. (Spain FGCU)</li> <li>8. Gas Natural Fenosa LNG SL (Spain FGCU)</li> <li>9. Gas Natural Fenosa LNG GOM, Limited (Spain FGCU)</li> <li>10. Electricite De France (France SOE)</li> <li>11. EDP Energias de Portugal S.A. (Portugal FGCU)</li> <li>12. Trafigura Pte Ltd (global trading company)</li> <li>13. Vitol Inc. (global trading company)</li> <li>14. Woodside Energy Trading Singapore Pte Ltd (Singapore trading company)</li> <li>15. Cheniere Marketing International LLP</li> </ol>
Cameron LNG Terminal	0.71 (Train 1)	<ol style="list-style-type: none"> <li>1. GDF SUEZ S.A. (France FGCU)</li> <li>2. Global LNG S.A.S. (Norway company)</li> <li>3. Total Gas &amp; Power North America, Inc. (U.S. trading company)</li> <li>4. Diamond Gas International Pte Ltd. (subsidiary of Mitsubishi Corporation)</li> <li>5. MC Global Gas Corporation (subsidiary of Mitsubishi Corporation)</li> <li>6. Mitsui &amp; Co. (Japanese company)</li> </ol>
Freeport LNG	2.14	<ol style="list-style-type: none"> <li>1. Chubu Electric Power Company (Japan FGCU)</li> <li>2. Osaka Gas Co. (Japan SOE)</li> <li>3. Kansai Electric Power Co. (Japan FGCU)</li> <li>4. Toshiba American LNG Co. (Japanese company)</li> </ol>
American LNG Hialeah Facility Terminal	0.008	<ol style="list-style-type: none"> <li>1. New Fortress Energy Marketing LLC (trading company)</li> <li>2. Peninsula Energy Services Company, Inc. (subsidiary of Chesapeake Utilities Corporation)</li> </ol>
<b>Capacity Approved and Operating</b>	<b>7.9 Bcf/d (9.6% of 2018 U.S. demand)</b>	

**APPROVED AND UNDER CONSTRUCTION LNG EXPORT TERMINALS**

Terminal	Capacity (Bcf/d)	Buyer
Cameron LNG Terminal	1.43 (Trains 2-3)	<ol style="list-style-type: none"> <li>1. GDF SUEZ S.A. (France FGCU)</li> <li>2. Global LNG S.A.S. (Norway company)</li> <li>3. Total Gas &amp; Power North America, Inc. (U.S. trading company)</li> <li>4. Diamond Gas International Pte Ltd. (subsidiary of Mitsubishi Corporation)</li> </ol>



Terminal	Capacity (Bcf/d)	Buyer
		<ul style="list-style-type: none"> <li>5. MC Global Gas Corporation (subsidiary of Mitsubishi Corporation)</li> <li>6. Mitsui &amp; Co. (Japanese company)</li> </ul>
Corpus Christi Liquefaction Terminal	1.40 (Trains 2-3)	<ul style="list-style-type: none"> <li>1. PetroChina International Company Limited (China SOE)</li> <li>2. PT Pertamina (Persero) (Indonesia SOE)</li> <li>3. CPC Corporation, Taiwan (Taiwan SOE)</li> <li>4. ENDESA Generacion, S.A. (Spain FGCU)</li> <li>5. Endesa S.A. (Spain FGCU)</li> <li>6. Polskie Gornictwo Naftowe (Poland SOE)</li> <li>7. Iberdrola, S.A. (Spain FGCU)</li> <li>8. Gas Natural Fenosa LNG SL (Spain FGCU)</li> <li>9. Gas Natural Fenosa LNG GOM, Limited (Spain FGCU)</li> <li>10. Electricite De France (France SOE)</li> <li>11. EDP Energias de Portugal S.A. (Portugal FGCU)</li> <li>12. Trafigura Pte Ltd (global trading company)</li> <li>13. Vitol Inc. (global trading company)</li> <li>14. Woodside Energy Trading Singapore Pte Ltd (Singapore trading company)</li> <li>15. Cheniere Marketing International LLP</li> </ul>
Sabine Pass Liquefaction, LLC	0.70 (Train 6)	<ul style="list-style-type: none"> <li>1. Gas Natural Aprovisionamientos SDG S.A. (Spain FGCU)</li> <li>2. Korea Gas Corporation (South Korea FGCU)</li> <li>3. GAIL (India) Limited (India SOE)</li> <li>4. CPC Corporation, Taiwan (Taiwan SOE)</li> <li>5. BG Gulf Coast LNG, LLC (subsidiary of Royal Dutch Shell)</li> <li>6. Polskie Gornictwo Naftowe (Poland SOE)</li> <li>7. Petronas LNG Ltd. (Malaysia SOE)</li> <li>8. Total Gas &amp; Power NA, Inc. (global trading company)</li> <li>9. Centrica PLC (UK/Ireland trading company)</li> <li>10. Trafigura Pte Ltd (global trading company)</li> <li>11. Vitol Inc. (global trading company)</li> <li>12. Cheniere Marketing, LLC</li> </ul>
Southern LNG Company, LLC	0.35	<ul style="list-style-type: none"> <li>1. Shell NA LNG LLC (U.S. production company)</li> </ul>
Venture Global Calcasieu Pass	1.41	<ul style="list-style-type: none"> <li>1. Edison S.P.A. (EDF SOE)</li> <li>2. Polskie Gornictwo Naftowe (Poland SOE)</li> <li>3. Galp Energia E&amp;P B.V. (Portugal company)</li> <li>4. Repsol LNG Holding, S.A. (trading company)</li> <li>5. Venture Global Commodities, LLC (LNG company)</li> <li>6. Shell NA LNG LLC (U.S. production company)</li> <li>7. BP Gas Marketing Limited (U.S. marketing company)</li> </ul>
Golden Pass LNG Terminal LLC	2.10	<ul style="list-style-type: none"> <li>1. Ocean LNG Limited (marketing company)</li> </ul>
Driftwood LNG	4.00	TBD

Terminal	Capacity (Bcf/d)	Buyer
<b>Capacity Approved and Under Construction</b>	<b>11.4 Bcf/d (13.9% of 2018 U.S. demand)</b>	

#### APPROVED AND NOT UNDER CONSTRUCTION LNG EXPORT TERMINALS

Terminal	Capacity (Bcf/d)	Buyer
Lake Charles LNG	2.20	TBD
Magnolia LNG	1.08	1. Meridian LNG Holdings Corporation (shipping and trading company)
Cameron LNG Terminal	1.41	1. GDF SUEZ S.A. (France FGCU) 2. Global LNG S.A.S. (Norway company) 3. Total Gas & Power North America, Inc. (U.S. trading company) 4. Diamond Gas International Pte Ltd. (subsidiary of Mitsubishi Corporation) 5. MC Global Gas Corporation (subsidiary of Mitsubishi Corporation) 6. Mitsui & Co. (Japanese company)
Port Arthur LNG	1.86 (Trains 1-2)	TBD
Freeport LNG Terminal	0.72	1. Chubu Electric Power Company (Japan FGCU) 2. Osaka Gas Co. (Japan SOE) 3. Kansai Electric Power Co. (Japan FGCU) 4. Toshiba American LNG Co. (Japanese company)
Gulf LNG Liquefaction	1.50	TBD
<b>Capacity Approved and Not Under Construction</b>	<b>8.8 Bcf/d (10.7% of 2018 U.S. demand)</b>	

#### PROPOSED OR IN PRE-FILING LNG EXPORT TERMINALS

Terminal	Capacity (Bcf/d)	Buyer
Texas LNG Brownsville	0.55	TBD
Rio Grande LNG	3.60	TBD
Annova LNG Brownsville	0.90	TBD
Eagle LNG Partners	0.132	TBD
Venture Global Plaquemines	3.40	1. Polskie Gornictwo Naftowe (Poland SOE)
Jordan Cove	1.08	TBD
Corpus Christi Liquefaction Terminal	1.86	1. PetroChina International Company Limited (China SOE) 2. PT Pertamina (Persero) (Indonesia SOE) 3. CPC Corporation, Taiwan (Taiwan SOE) 4. ENDESA Generacion, S.A. (Spain FGCU) 5. Endesa S.A. (Spain FGCU)

Terminal	Capacity (Bcf/d)	Buyer
		6. Polskie Gornictwo Naftowe (Poland SOE) 7. Iberdrola, S.A. (Spain FGCU) 8. Gas Natural Fenosa LNG SL (Spain FGCU) 9. Gas Natural Fenosa LNG GOM, Limited (Spain FGCU) 10. Electricite De France (France SOE) 11. EDP Energias de Portugal S.A. (Portugal FGCU) 12. Trafigura Pte Ltd (global trading company) 13. Vitol Inc. (global trading company) 14. Woodside Energy Trading Singapore Pte Ltd (Singapore trading company) 15. Cheniere Marketing International LLP
Commonwealth LNG	1.18	TBD
Port Fourchon LNG	0.65	TBD
Galveston Bay LNG	1.20	TBD
Pointe LNG	0.90	TBD
Delta LNG	2.76	TBD
Port Arthur LNG	1.86 (Trains 3-4)	TBD
<b>Capacity Proposed or Pre-Filing</b>	<b>20.1 Bcf/d (24.5% of 2018 U.S. demand)</b>	
<b>Capacity Total Overall</b>	<b>48.2 Bcf/d (58.7% of 2018 U.S. demand)</b>	