



December 21, 2011



Mr. John Anderson  
Office of Fossil Energy  
U.S. Department of Energy  
Docket Room 3F-056, FE-50  
Forrestal Building  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

**Re: Cameron LNG, LLC  
FE Docket No. 11-162-LNG  
Application for Long-Term, Multi-Contract Authorization to  
Export Liquefied Natural Gas to Non-Free Trade Agreement  
Countries**

Dear Mr. Anderson,

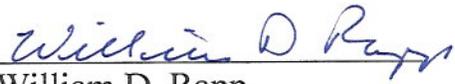
Cameron LNG, LLC ("Cameron LNG") hereby submits its application for long-term, multi-contract authorization to export liquefied natural gas ("LNG"). In this application, Cameron LNG is seeking authorization to export up to 12 million metric tons per year (equivalent to approximately 620 billion cubic feet) of LNG produced from domestic sources. The requested authorization is sought for a term of 20 years, commencing on the earlier of the date of first export or seven years from the date of issuance of the authorization.

As reflected in its application, Cameron LNG is requesting authority to export LNG from the Cameron LNG terminal in Cameron Parish, Louisiana to any country with which the United States does not have a free trade agreement requiring national treatment for trade in natural gas and with which trade is not prohibited by United States law or policy.

Cameron LNG also submits a check in the amount of \$50.00 in payment of the applicable filing fee.

Please contact me if you have any questions regarding this application.

Respectfully submitted,

  
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*Counsel for Cameron LNG, LLC*

**UNITED STATES OF AMERICA  
DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY**

**Cameron LNG, LLC**

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**Docket No. 11- \_\_\_ -LNG**

**APPLICATION OF CAMERON LNG, LLC  
FOR LONG-TERM, MULTI-CONTRACT AUTHORIZATION TO EXPORT  
LIQUEFIED NATURAL GAS  
TO NON-FREE TRADE AGREEMENT COUNTRIES**

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**UNITED STATES OF AMERICA  
DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY**

Cameron LNG, LLC

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LIQUEFIED NATURAL GAS  
TO NON-FREE TRADE AGREEMENT COUNTRIES**

Pursuant to Section 3 of the Natural Gas Act (“NGA”)<sup>1</sup> and Part 590 of the regulations of the Department of Energy (“DOE”),<sup>2</sup> Cameron LNG, LLC (“Cameron LNG”) submits this application (“Application”) for a long-term, multi-contract authorization to export up to 12 million metric tons per annum (“MTPA”) of liquefied natural gas (“LNG”) (equivalent to approximately 620 billion cubic feet (“Bcf”) per year)<sup>3</sup> produced from domestic sources. Cameron LNG seeks this authorization for a 20-year period commencing on the earlier of the date of first export or seven years from the date the requested authorization is granted.

In this Application, Cameron LNG seeks authorization to export LNG from the Cameron LNG terminal in Cameron Parish, Louisiana (“Cameron Terminal”) to any country (i) with which the United States does not have a Free Trade Agreement (“FTA”) requiring national treatment for trade in natural gas, (ii) which has or will develop the capacity to import LNG delivered by ocean-going carrier, and (iii) with which trade is not prohibited by United States

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<sup>1</sup> 15 U.S.C. § 717b (2010).

<sup>2</sup> 10 C.F.R. Part 590 (2011).

<sup>3</sup> The proposed export quantity of 12 MTPA of LNG is equivalent to approximately 1.7 billion cubic feet per day (“Bcfd”) of LNG. The Liquefaction Project may also consume another 0.2 Bcfd of fuel, resulting in a total gas requirement of up to 1.9 Bcfd.

law or policy. Cameron LNG is requesting this authorization both on its own behalf and as agent for other parties who hold title to the LNG at the time of export.

This Application is the second part of Cameron LNG's planned two-part export authorization request. On November 10, 2011, Cameron LNG filed a separate application with the DOE Office of Fossil Energy ("DOE/FE") for a long-term authorization to export LNG to those countries with which the United States has an FTA. That request is presently pending with DOE/FE in Docket No. 11 - 145 - LNG.

In support of this Application, Cameron LNG respectfully states the following:

**I. COMMUNICATIONS AND CORRESPONDENCE**

Any notices, pleadings or other communications concerning this Application should be addressed to:

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**II. DESCRIPTION OF THE APPLICANT**

The exact legal name of Cameron LNG is Cameron LNG, LLC. Cameron LNG is a limited liability company organized under the laws of Delaware. Cameron LNG is a wholly-owned indirect subsidiary of Sempra Energy, a publicly-traded corporation. Cameron LNG's executive offices are located at 101 Ash Street, San Diego, California 92101. Cameron LNG is currently engaged in the business of owning and operating the Cameron Terminal in Cameron Parish, Louisiana.

Cameron LNG currently holds no import or export authorizations from DOE/FE. One of the affiliates of Cameron LNG, Sempra LNG Marketing, LLC (“SLNG”), has a blanket authorization to import LNG at the Cameron Terminal.<sup>4</sup> SLNG also has a blanket authorization to export previously imported (i.e., foreign sourced) LNG from the Cameron Terminal.<sup>5</sup> Nothing in this Application is intended to supersede or otherwise modify the blanket import and export authorizations granted by DOE/FE to SLNG.

### **III. DESCRIPTION OF CAMERON LNG TERMINAL**

In this Application, Cameron LNG seeks a long-term authorization to export domestically produced LNG from the Cameron Terminal. The Federal Energy Regulatory Commission (“FERC”) approved the construction and operation of the Cameron Terminal in an order issued in 2003.<sup>6</sup> In that order, FERC authorized the Cameron Terminal to send out up to 1.5 Bcfd of re-gasified LNG to domestic markets. In a subsequent order, issued in 2007, FERC authorized Cameron LNG to construct and operate additional facilities expanding the maximum send-out capacity to 1.8 Bcfd.<sup>7</sup>

Cameron LNG completed construction of the Cameron Terminal and placed it into service in July 2009. Initially, the Cameron Terminal was used for the sole purpose of receiving and storing foreign-sourced LNG, and re-gasifying such LNG and sending it out for delivery to domestic markets. In January 2011, FERC authorized Cameron LNG to operate the Cameron

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<sup>4</sup> *Sempra LNG Marketing, LLC*, DOE Order No. 2806 (2010).

<sup>5</sup> *Sempra LNG Marketing, LLC*, DOE Order No. 2885 (2010).

<sup>6</sup> *Cameron LNG, LLC*, 104 FERC ¶61,269 (2003).

<sup>7</sup> *Cameron LNG, LLC*, 118 FERC ¶61,019 (2007).

Terminal for the additional purpose of exporting previously imported (i.e., foreign sourced) LNG on behalf of its customers.<sup>8</sup>

The Cameron Terminal has an existing interconnection with Cameron Interstate Pipeline, LLC (“Cameron Interstate”). Cameron Interstate, an affiliate of Cameron LNG, is an interstate pipeline regulated by FERC. Cameron Interstate’s facilities consist primarily of a 36.2 mile pipeline connecting the Cameron Terminal with five other interstate pipelines. Those interstate pipelines provide, directly or indirectly, access to all of the major gas producing basins in the Gulf Coast and Midcontinent regions of the United States, including recent discoveries of shale gas and other unconventional reserves.

#### **IV. LIQUEFACTION PROJECT DESCRIPTION**

Cameron LNG is finalizing the design of natural gas processing and liquefaction facilities to receive and liquefy domestic natural gas at the Cameron Terminal for export to foreign markets (the “Project”). The Project facilities will be integrated into the existing Cameron Terminal facilities. The Cameron Terminal presently consists of two marine berths, three full containment LNG storage tanks, LNG vaporization systems, and associated utilities. The new facilities proposed as part of the Project will include natural gas pre-treatment, liquefaction, and export facilities with a capacity of up to 12 MTPA of LNG, plus upgrades to the existing equipment and additional utilities.

The Project facilities will permit gas to be received by pipeline at the Cameron Terminal, to be liquefied, and to be loaded from the Cameron Terminal’s storage tanks onto vessels berthed at the existing marine facility. The Project will be designed to allow Cameron LNG to provide bi-directional service. Thus, once the Project facilities are operational, the Cameron Terminal

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<sup>8</sup> *Cameron LNG, LLC*, 134 FERC ¶61,049 (2011).

will have the capability to (i) liquefy domestically-produced gas for export, or (ii) import LNG and either re-gasify it for delivery to domestic markets or export it to foreign markets.

The Project will not result in an increase in the number of ship transits currently authorized for the Cameron Terminal. The total amount of LNG processed (whether through liquefaction of natural gas or re-gasifying LNG) would not exceed the current maximum authorized send-out rate of 1.8 Bcfd.

When gas prices are significantly higher overseas than in the United States, as they are currently, customers of the Project can be expected to liquefy and export LNG. If gas prices in the United States converge with those in other markets, the Project's customers may elect not to export their supplies of domestic gas. Further, Cameron LNG will continue to be able to receive cargoes of LNG and operate in vaporization and send-out mode to enable its customers to provide additional natural gas supply to the United States market, to the extent such supply is needed.<sup>9</sup>

Any modifications to the Cameron Terminal proposed as part of the Project would be subject to review and approval by FERC. Upon completion of initial facility planning and design, Cameron LNG will request that FERC initiate the mandatory pre-filing review process for the first phase of the Project. It is anticipated that this request will be made no later than the second quarter of 2012.

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<sup>9</sup> In addition, the domestic market for LNG itself may develop more fully during the 20-year term of the requested authorization. For example, LNG appears to be a promising option for transportation fuel. The LNG would be delivered by truck or other means of ground transportation to natural gas fueling stations, where it would be used as transportation fuel. This would be an additional option for the Project's customers, in lieu of re-gasifying LNG and sending it out of the Cameron Terminal via pipeline.

## V. AUTHORIZATION REQUESTED

Cameron LNG requests long-term, multi-contract authorization to export up to 12 MTPA of domestically produced LNG from the Cameron Terminal. This authorization is requested for a 20-year term commencing on the earlier of the date of first export or seven years from the date on which authorization is granted by the DOE. Cameron LNG seeks authorization to export LNG to any country (i) with which the United States does not have an FTA requiring the national treatment for trade in natural gas, (ii) which has or will develop the capacity to import LNG delivered by ocean-going carrier, and (iii) with which trade is not prohibited by United States law or policy.

Cameron LNG requests authorization to export LNG on its own behalf (by holding title to the LNG at the time of export) or by acting as agent for others. In those instances in which Cameron LNG exports LNG on its own behalf, Cameron LNG will either take title to the gas at a point upstream of the Cameron Terminal or will purchase LNG from a customer of the Cameron Terminal prior to export. In other cases, Cameron LNG will act as agent for the customers of the Cameron Terminal without taking title to facilitate the export of the customer's LNG. To ensure that all exports are permitted and lawful under United States laws and policies, Cameron LNG will comply with all DOE/FE requirements for an exporter or agent.

In Order No. 2913,<sup>10</sup> DOE/FE approved a proposal by the applicant to register each LNG title holder for whom the applicant sought to export LNG as agent. The applicant also proposed that this registration include a written statement by the title holder acknowledging and agreeing to comply with all applicable requirements included in its export authorization and to include those requirements in any subsequent purchase or sale agreement entered into by that title holder.

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<sup>10</sup> *Freeport LNG Development, LP*, DOE Order No. 2913 (2011).

The applicant further stated that it would file under seal with DOE/FE any relevant long-term commercial agreements that it reached with the LNG title holders on whose behalf the exports were performed. The DOE found that this proposal was an acceptable alternative to the non-binding policy adopted in Order No. 2859,<sup>11</sup> which stated that title to all LNG authorized for export must be held by the authorization holder at the point of export. In approving this alternative approach, DOE/FE noted that it would ensure that the title holder was aware of all DOE/FE requirements applicable to the proposed export, and would provide DOE/FE with a record of all authorized exports and a point of contact with the title holder.

Therefore, when acting as agent, Cameron LNG will register with DOE/FE each LNG title holder for whom Cameron LNG seeks to export as agent, and will provide DOE/FE with a written statement by the title holder acknowledging and agreeing to (i) comply with all requirements in Cameron LNG's long-term export authorization, and (ii) include those requirements in any subsequent purchase or sale agreement entered into by the title holder. Cameron LNG will also file under seal with DOE/FE any relevant long-term commercial agreements that it enters into with the LNG title holders on whose behalf the exports are performed.

In recent orders granting long-term authorizations to export LNG, DOE/FE has found that the applicants were not required to submit with their applications transaction-specific information, pursuant to Section 590.202(b) of the DOE's regulations.<sup>12</sup> DOE/FE found that, given the stage of development for these projects, it was appropriate for the applicants to submit such information "when practicable" (i.e., when the contracts reflecting such information are

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<sup>11</sup> *Dow Chemical Company*, DOE Order No. 2859 (2010).

<sup>12</sup> *See, e.g., Sabine Pass Liquefaction, LLC*, DOE Order No. 2833 (2010). The transaction-specific information described in the regulations includes long-term supply agreements and long-term export agreements.

executed). Cameron LNG requests that the DOE make the same finding in this case. As discussed below, abundant, reliable and economical supplies of domestic gas are available without the need to enter into long-term supply agreements. Presently, participants in the United States wholesale gas market do not typically enter into the types of long-term gas purchase and sales agreements that were prevalent at the time DOE/FE originally adopted this requirement. The wholesale gas market today is far more diverse and liquid and provides gas purchasers with many reliable and competitive short-term supply options. Thus, submittal of the transaction-specific information identified in Section 590.202(b) at the time the applicable agreements are executed is appropriate in light of current market conditions and contracting practices.

Cameron LNG further requests that DOE/FE issue an order authorizing the long-term export of LNG, subject to completion of the environmental review of the proposed modifications to the Cameron Terminal that FERC will conduct.<sup>13</sup> DOE/FE routinely grants conditional authorizations of this nature subject to the completion of a satisfactory environmental review by another agency.<sup>14</sup>

The long-term authorization requested in this application is necessary in order to permit Cameron LNG to incur the substantial costs of developing the Project and secure customer contracts. Terms for the use of the liquefaction and other facilities will be set forth in one or more long-term service or agency agreements with customers of the Project. These agreements are expected to be for terms of up to 20 years in length and will run concurrently with Cameron LNG's export authorization. Cameron LNG has not yet entered into such agreements; a long-term export authorization is required to finalize arrangements with prospective customers. As

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<sup>13</sup> It is anticipated that FERC will act as the lead agency for purposes of the environmental review and DOE/FE will act as a cooperating agency.

<sup>14</sup> *Sabine Pass Liquefaction, LLC*, DOE Order No. 2961 (2011).

noted above, Cameron LNG intends to file these agreements with DOE under seal when they are executed.

## VI. EXPORT SOURCES

Cameron LNG seeks authorization to export natural gas available through the United States natural gas supply and transmission network. As a result of the Cameron Terminal's access (through its existing interconnection with Cameron Interstate) to five major interstate pipelines, and indirect access to the entire national gas pipeline grid, the Project's customers will have a variety of stable and economical supply options from which to choose.

The sources of natural gas for the Project will include the vast supplies available from the Texas and Louisiana producing regions. In 2010, these regions collectively produced and made available to the national market 8.9 trillion cubic feet ("Tcf") (approximately 24.4 Bcfd) of natural gas, according to the United States Energy Information Administration ("EIA"), which was 40% of the United States total for that year.<sup>15</sup> According to the 2010 Report of the Potential Gas Committee, the United States Gulf Coast region is estimated to have traditional natural gas resources of 506 Tcf.<sup>16</sup> Other regional gas production basins such as Permian, Fort Worth and Anadarko are estimated to contain another 147 Tcf of traditional natural gas resources.<sup>17</sup>

Emerging unconventional supply areas, such as the Barnett, Haynesville, and Eagle Ford shale gas formations also represent very attractive sources of supply for the Project's customers. Technological improvements in natural gas exploration, drilling and production have resulted in significant reductions in the costs of developing shale resources, making shale gas production

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<sup>15</sup> Energy Information Administration, Natural Gas Marketed Production available at [http://www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_a\\_EPG0\\_VGM\\_mmcf\\_a.htm](http://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGM_mmcf_a.htm).

<sup>16</sup> U.S. Potential Gas Committee 2010, "The Potential Supply of Natural Gas in the United States," available at <http://www.potentialgas.org/PGC%20Press%20Conf%202011%20slides.pdf> (Apr. 2011).

<sup>17</sup> Potential Supply of Natural Gas - 2010, *Advance Summary* at pp. 18.

economically viable. The latest EIA estimate of shale gas resources in these three shale formations alone range from 139 to 260 Tcf.<sup>18</sup> Production from shale gas resources has contributed to a 20% increase in total United States gas production during the past five years.<sup>19</sup> Shale production has increased from a nominal amount just seven years ago (1.4 Bcfd in 2004)<sup>20</sup> to 23% of total United States production in 2010 (13.2 Bcfd).<sup>21</sup> Looking forward, the EIA projects that shale gas production will account for an estimated 47% of total domestic dry production by 2035.<sup>22</sup>

Given the size of traditional natural gas resources in close proximity to the Cameron Terminal, as well as rapid growth in emerging unconventional gas and oil resources in the region, the Project's customers will have a choice of diverse and reliable alternative gas supplies.

Natural gas to be exported will be purchased in a market that has sufficient liquidity and capacity to accommodate a wide range of sales arrangements beyond long-term physical sales. Natural gas markets are particularly liquid in the Gulf Coast region of Texas and Louisiana as a result of the key market centers in the area and the availability of readily accessible incremental gas supplies. In 2010, only 4.2 Tcf (38%) of the 11.2 Tcf of marketed gas production from Texas, Louisiana and the Gulf of Mexico was delivered to consumers in those two states.<sup>23</sup>

The Cameron Terminal, in particular, is ideally situated to take advantage of the abundant natural gas resources in this region. The Project's customers will be able to deliver natural gas

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<sup>18</sup> Energy Information Administration, *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays* at p. 5, available at <http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf> (July 2011); Baker Institute, *Shale Gas and U.S. National Security* at p. 24 (July 2011).

<sup>19</sup> The 20% increase is derived from EIA dry gas production information for 2005 and 2010 available on the EIA website at the following link: [http://www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_dc\\_u\\_nus\\_a.htm](http://www.eia.gov/dnav/ng/ng_prod_sum_dc_u_nus_a.htm).

<sup>20</sup> See Wood MacKenzie, *North American Natural Gas Long-Term View* (Apr. 2011).

<sup>21</sup> Energy Information Administration, *Annual Energy Outlook 2011* (Apr. 2011).

<sup>22</sup> *Id.*, p. 2

<sup>23</sup> Energy Information Administration, *Natural Gas Monthly* (November 2011), Table 5 and Table 16.

supplies to the Cameron Terminal from five interstate pipelines (Florida Gas Transmission Company, Transcontinental Gas Pipeline Company, LLC, Texas Eastern Transmission Corporation, Tennessee Gas Pipeline Company, and Trunkline Gas Company) with significant capacity in southwestern Louisiana. These interstate pipelines are connected to recently-constructed transmission and gathering systems that have been developed to access new production in the major shale gas formations. This interconnected pipeline network will enable the Project's customers to access and deliver supplies from the recent and substantial shale gas discoveries in Texas and Louisiana.

Moreover, the Project's customers will not necessarily have to limit themselves to particular geographical supply areas when contracting for gas supply. The Cameron Terminal is in close proximity to the Henry Hub, one of the most liquid and transparent natural gas market centers in the world and the pricing point for the natural gas futures contract. In addition to the Henry Hub, there are 11 other market centers in Louisiana and Texas.<sup>24</sup> These market centers provide ample liquidity to accommodate a wide range of gas supply arrangements for each of the Project's customers. Therefore, in addition to purchasing gas supplies at or near the point of production, the Project's customers may elect to purchase supplies at a market center in proximity to the Cameron Terminal.

## **VII. PUBLIC INTEREST ANALYSIS**

### **A. Applicable Legal Standard**

The DOE/FE has the power to approve or deny applications to export LNG pursuant to specific authorization in Section 3 of the Natural Gas Act.<sup>25</sup> The general standard for review of

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<sup>24</sup> Energy Information Administration, *Natural Gas Market Centers: A 2008 Update* (Apr. 2009).

<sup>25</sup> 15 U.S.C. § 717b. This authority is delegated to the Assistant Secretary for FE pursuant to Redelegation Order No. 00.002.04D (Nov. 6, 2007).

export applications to non-FTA countries is established by Section 3(a), which provides that:

[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 [Secretary] authorizing it to do so. The [Secretary] 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. The [Secretary] may by its order grant such application, in whole or in part, with such modification and upon such terms and conditions as the [Secretary] may find necessary or appropriate, and may from time to time, after opportunity for hearing, and for good cause shown, make such supplemental order in the premises as it may find necessary or appropriate.

In applying this statute, DOE/FE has consistently found that Section 3(a) creates a rebuttable presumption that proposed exports of natural gas are in the public interest. For that reason, DOE/FE must grant the export application unless opponents of an export authorization establish an affirmative showing based on evidence in the record that the export would be inconsistent with the public interest.<sup>26</sup>

DOE has issued a set of Policy Guidelines setting out the criteria that it employs in evaluating applications for natural gas imports.<sup>27</sup> While nominally applicable to natural gas import cases, the DOE has found that the same policies apply to natural gas export applications.<sup>28</sup> The goals of the Policy Guidelines are to minimize federal control and involvement in energy markets and to promote a balanced and diverse energy resource system. The Guidelines provide that:

The market, not government, should determine the price and other contract terms of imported [or exported] natural gas. The federal

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<sup>26</sup> Order No. 1473 at 13 n.42 (citing *Panhandle Producers and Royalty Owners Ass'n v. ERA*, 822 F.2d 1105, 1111 (D.C. Cir. 1987)); see also *Sabine Pass Liquefaction, LLC*, DOE Order No. 2961 (2011).

<sup>27</sup> *Policy Guidelines and Delegation Orders Relating to the Regulation of Imported Natural Gas*, 49 Fed. Reg. 6684 (Feb. 22, 1984) ("Policy Guidelines").

<sup>28</sup> *Phillips Alaska Natural Gas Corp. and Marathon Oil Co.*, DOE Order No. 1473 (1999).

government's primary responsibility in authorizing imports [or exports] will be to evaluate the need for the gas and whether the import [or export] arrangement will provide the gas on a competitively priced basis for the duration of the contract while minimizing regulatory impediments to a freely operating market.<sup>29</sup>

Historically, the DOE has also been guided by DOE Delegation Order No. 0204-111 ("Delegation Order"). The Delegation Order stated that exports of natural gas are to be regulated primarily "based on a consideration of the domestic need for the gas to be exported and such other matters [found] in the circumstances of a particular case to be appropriate."<sup>30</sup>

Both the Policy Guidelines and the principles underlying the Delegation Order presume that competitive markets largely free of governmentally-imposed restrictions will benefit the public:

The government, while ensuring that the public interest is adequately protected, should not interfere with buyers' and sellers' negotiation of the commercial aspects of import [and export] arrangements. The thrust of this policy is to allow the commercial parties to structure more freely their trade arrangements, tailoring them to the markets served.<sup>31</sup>

Although the Delegation Order is no longer in effect, DOE has noted in recent orders that its "review of export applications in decisions under current delegated authority has continued to focus on the domestic need for the natural gas proposed to be exported; whether the proposed exports pose a threat to the security of domestic natural gas supplies; and any other issue determined to be appropriate, including whether the arrangement is consistent with DOE's policy

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<sup>29</sup> *Id.*

<sup>30</sup> *Department of Energy*, Delegation Order No. 0204-111 (Feb. 22, 1982).

<sup>31</sup> Policy Guidelines at 6685.

of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements.”<sup>32</sup>

In granting recent authorizations, 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 imbalances with the foreign recipient nations, and the degree to which the exports would encourage efficient management of United States domestic natural resources.<sup>33</sup> As demonstrated below, the export of domestically produced LNG as proposed in this Application satisfies each of these considerations.

#### **B. Domestic Need for Gas to be Exported**

The Project is proposed in light of the recent, substantially improved outlook for domestic natural gas resources and production. Drilling productivity gains and extraction technology enhancements have enabled rapid growth in supplies from unconventional gas-bearing shale formations in the United States. Natural gas proved reserves have increased by 61 Tcf (29%) between 2006 and 2009 and estimates of recoverable natural gas resources have increased by 849 Tcf (64%) between 2006 and 2010.<sup>34</sup> In light of these substantial resource additions and the comparatively minor increases in domestic natural gas demand, there are more than sufficient natural gas resources to accommodate both domestic demand and the exports proposed in this Application throughout the 20-year term of the requested authorization.

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<sup>32</sup> *Sabine Pass Liquefaction, LLC*, Order No. 2961 (2011).

<sup>33</sup> *See, e.g., Sabine Pass Liquefaction, LLC*, Order No. 2961, at 34-38 (2011).

<sup>34</sup> Energy Information Administration, *Natural Gas Reserves Summary as of December 31, 2010*, available at [http://www.eia.gov/dnav/ng/ng\\_enr\\_sum\\_a\\_EPG0\\_R11\\_BCF\\_a.htm](http://www.eia.gov/dnav/ng/ng_enr_sum_a_EPG0_R11_BCF_a.htm).

As United States natural gas resources and production have increased, United States natural gas prices have fallen significantly. The annual average Henry Hub price for natural gas fell from \$8.69 per MMBtu in 2005 to \$4.37 in 2010.<sup>35</sup> In its most recently calculated reference case, the EIA estimates that the annual average wellhead price for natural gas, stated in 2009 dollars, will remain under \$5.00 per MMBtu through at least 2020, and rise to only \$6.26 by 2035.<sup>36</sup> Prices for natural gas in the United States market are now substantially below those of most other major gas-consuming countries. While United States gas prices have fallen, prices for LNG in other major gas consuming countries have actually increased sharply over the past decade, moving generally in line with world oil prices. The result is that domestic gas can be liquefied and exported to foreign markets on a very competitive basis. As discussed below, such exports can be expected to have only a nominal effect on United States prices.

#### 1. United States Natural Gas Supply

Domestic gas production and reserves collectively provide for an abundant domestic supply of natural gas. Domestic gas production has been on a significant upward trend in recent years as rapid growth in supply from unconventional discoveries has more than compensated for declines in production from conventional onshore and offshore fields. The EIA estimates that United States dry gas production was 63.2 Bcfd in August 2011, a 6.2% increase compared to August 2010 dry production of 59.5 Bcfd.<sup>37</sup> Increased drilling productivity in certain prolific shale gas formations, including the Marcellus and Haynesville shales, has enabled domestic production to continue expanding despite a reduction in the number of wells drilled.

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<sup>35</sup> Energy Information Administration, *Natural Gas Spot and Futures Prices*, available at [http://www.eia.gov/dnav/ng/ng\\_pri\\_fut\\_s1\\_a.htm](http://www.eia.gov/dnav/ng/ng_pri_fut_s1_a.htm).

<sup>36</sup> Energy Information Administration, *2011 Annual Energy Outlook, Reference Case* (Apr. 2011).

<sup>37</sup> Energy Information Administration *Natural Gas Gross Withdrawals and Production*, available at [http://www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_dcu\\_NUS\\_m.htm](http://www.eia.gov/dnav/ng/ng_prod_sum_dcu_NUS_m.htm)

In its *Annual Energy Outlook 2011*, the EIA noted that United States shale gas production grew at an average annual rate of 17% between 2000 and 2006. The rate of growth accelerated substantially during the period 2006 to 2010, with the annual growth rate averaging 48%. The EIA expects this increase in shale gas production to continue through 2035, when it will make up an estimated 47% of total United States gas production, up considerably from a 16% share in 2009.

The EIA has significantly increased its estimate of shale gas production for 2015, 2020, 2025, 2030, and 2035 compared with EIA's projections in the *Annual Energy Outlook 2010*. For example, the EIA revised its projection of shale gas production for 2015 from 3.85 Tcf to 7.20 Tcf. Similarly, the EIA revised its projection of shale gas production for 2035 from 6.00 Tcf to 12.25 Tcf.<sup>38</sup>

The growth in shale gas production has been accompanied by an increase in the overall volume of United States natural gas resources. In 2011, the EIA substantially increased its estimate of technically recoverable natural gas resources in the United States to 2,543 Tcf.<sup>39</sup>

This growth in United States natural gas resources is reflected in other recent academic and industry evaluations. The Potential Gas Committee in April 2011 determined that the United States possesses future available gas supply of 2,170 Tcf, the highest resource evaluation in the group's 46-year history and enough to satisfy 90 years of domestic market needs, based on 2010 consumption. This assessment included 687 Tcf of shale gas resources, which is 32% of the total available supply.<sup>40</sup>

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<sup>38</sup> See Energy Information Administration, *Annual Energy Outlook 2011* at Table A-14, p 143 (Apr. 2011); Energy Information Administration, *Annual Energy Outlook 2010* at Table A-14, p 135 (Apr. 2010).

<sup>39</sup> Energy Information Administration, *Assumptions to the Annual Energy Outlook 2011*, Table 9.2, available at [http://www.eia.gov/forecasts/aeo/assumptions/pdf/oil\\_gas.pdf](http://www.eia.gov/forecasts/aeo/assumptions/pdf/oil_gas.pdf) (2011).

<sup>40</sup> U.S. Potential Gas Committee 2010, "The Potential Supply of Natural Gas in the United States," available at <http://www.potentialgas.org/PGC%20Press%20Conf%202011%20slides.pdf> (Apr. 2011). The PGC consists of

In its recently published study, The Future of Natural Gas (“MIT Report”), the Massachusetts Institute of Technology estimates that the United States has a mean remaining resource base of approximately 2,100 Tcf. This estimate includes 650 Tcf of recoverable shale gas resources, “approximately 400 Tcf of which could be economically developed with a gas price at or below \$6/MMbtu at the wellhead.”<sup>41</sup>

According to the July 2011 report titled “Shale Gas and U.S. National Security” by the James A. Baker III Institute for Public Policy at Rice University, North America has mean technically recoverable shale gas resources of 937 Tcf, with 637 Tcf of that located in the United States. The report assigns a weighted mean break-even price for United States shale gas resources of \$5.42/MMbtu.<sup>42</sup> This report indicates that the break-even price is the average price needed for development of up to 60 percent of the identified technically recoverable resource.<sup>43</sup>

In a July 2011 report commissioned by the EIA, an independent consultant estimates United States onshore lower 48 states shale gas resources to be 750 Tcf.<sup>44</sup> The 750 Tcf of shale gas resources in this report is a subset of the *Annual Energy Outlook 2011* onshore Lower 48 States natural gas shale technically recoverable resource estimate for shale gas of 862 Tcf. The *Annual Energy Outlook 2011* estimate includes an additional 35 Tcf of proved reserves reported

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members, advisors and representatives from the exploration, production, pipeline and distribution sectors of the natural gas industry, together with observers from various professional and industry trade associations, research organizations, and government agencies, and from Canada and Mexico. For the 2007-2008 assessment cycle, over ninety topic experts were involved. The PGC functions independently but with the guidance and administrative support of the Potential Gas Agency at the Colorado School of Mines.

<sup>41</sup> Massachusetts Institute of Technology, *Executive Summary*, at xii, available at <http://web.mit.edu/mitei/research/studies/documents/natural-gas/natural-gas-summary.pdf> (2011).

<sup>42</sup> The weighted mean break-even price for United States shale gas resources was calculated based on break-even price estimates presented in the MIT Report.

<sup>43</sup> Baker Institute, *Shale Gas and U.S. National Security* at pp. 24-25 (July 2011).

<sup>44</sup> Energy Information Administration, *Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays* at p. 5, available at <http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf> (July 2011).

to the United States Securities Exchange Commission and the EIA, 20 Tcf of reserves not included in the July 2011 report, and 56 Tcf of undiscovered resources estimated by the USGS.<sup>45</sup>

These studies and reports indicate that the United States has a 90- to an over 100-year inventory of recoverable natural gas resources. This inventory is expected to continue growing as further advancements in drilling technology are deployed to exploit additional shale gas development opportunities.

## 2. United States Natural Gas Demand

Over the past decade, there has been essentially no growth in the demand for natural gas in the United States. According to data published by the EIA, natural gas demand in 2010 was only 3.2% higher than in 2000.<sup>46</sup> In its *Annual Energy Outlook 2011*, the EIA estimated long-term annual United States demand growth of only 0.6%, with demand expected to reach 26.6 Tcf in 2035 (compared to 22.7 Tcf of actual demand in 2009).<sup>47</sup>

The table below presents a comparison of actual demand and prices in 2010 and forecasted demand and prices in the year 2025, based on information presented in the *Annual Energy Outlook 2011*.<sup>48</sup>

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<sup>45</sup> *Id.*

<sup>46</sup> Energy Information Administration, *Natural Gas Consumption by End Use available at* [http://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_a.htm](http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm)

<sup>47</sup> Energy Information Administration, *Annual Energy Outlook 2011*, Table A13.

<sup>48</sup> Energy Information Administration, *Annual Energy Outlook 2011*, Table 16, available at <http://205.254.135.24/forecasts/aeo/excel/table16.xls>. Volumes stated in Tcf per year in the *Annual Energy Outlook 2011* were converted to Bcf per day. In addition, 2009 volumes and prices were updated to 2010 actual volumes and prices, based on EIA Natural Gas Summary available at [http://www.eia.gov/dnav/ng/ng\\_sum\\_lsum\\_dcu\\_nus\\_a.htm](http://www.eia.gov/dnav/ng/ng_sum_lsum_dcu_nus_a.htm)

	2010	2025 Projection						
		AEO2011 Reference Case	IHSGI	EVA	DB	ICF	ExxonMobil	INFORUM
		Bcf/d						
Dry gas production	59	66	72	68	64	80	66	62
Consumption	66	69	79	70	70	83	72	68
Residential	14	13	13	14	15	14	19	13
Commercial	9	10	8	9	9	8		11
Industrial	18	22	18	21	18	20	19	22
Electricity generators	20	18	35	21	22	33	33	22
Other	5	5	6	6	6	7	0	
		2009 \$ / Mcf						
L48 wellhead price	4.2	5.4	4.7	6.5	7.2	6.1		
End-use prices								
Residential	11.2	12.2	11.6			10.5		
Commercial	9.2	10.0	9.8			9.5		
Industrial	5.4	6.3	7.1			7.4		
Electricity generators	5.3	5.9	5.4			7.1		

The consensus of estimates by the EIA and academic and industry experts is that the United States has between 2,000 and 2,543 Tcf of recoverable natural gas resources. Even at 100% utilization, the Project would result in maximum natural gas requirements of 13.4 Tcf over the 20-year term of the requested authorization. This represents only 0.5% to 0.7% of total estimated recoverable United States natural gas resources.

### 3. Impact on Domestic Gas Prices

Cameron LNG commissioned the independent consulting firm of Black & Veatch to assess the impact of the proposed LNG exports on United States delivered natural gas prices. As noted above, estimates of the available United States natural gas supply have increased dramatically over the past five years due to commercialization of vast shale gas resources and significant productivity improvements in shale gas development and production. Black & Veatch analyzed the underlying long-run supply and demand curves used in EIA's *Annual*

*Energy Outlook 2011*<sup>49</sup> as the basis for evaluating the impact of Cameron LNG's proposed LNG exports on United States delivered natural gas prices. This approach was used in order to take advantage of the latest market intelligence underlying the EIA's well known National Energy Modeling System ("NEMS") and to approximate the results of running the NEMS model using the EIA's *Annual Energy Outlook 2011* assumptions. The estimates of domestic supply and demand in EIA's *Annual Energy Outlook 2011* extend to 2035, allowing a long-term view of price impacts. This approach also allows the results to be compared to those of other demand and supply case studies published in EIA's *Annual Energy Outlook 2011*.

In the report attached as Appendix C, Black & Veatch first estimates the EIA's *Annual Energy Outlook 2011* natural gas supply and demand curves at five-year intervals using reference and sensitivity case results as reflected in the *Annual Energy Outlook 2011*. The 48 case study results were sorted into three groups, one in which the natural gas demand curve is held constant (10 cases), one in which the natural gas supply curve is held constant (29 cases), and a third group in which both the supply and demand curves are concurrently shifted (9 cases). After constructing the demand and supply curves, Black & Veatch calculated the reference price and quantity at the intersection of the supply and demand curves.

Black & Veatch next estimated the delivered price impacts of increasing the natural gas demand curve by 1.0 Bcfd, thereby simulating 1.0 Bcfd of gas needed for LNG exports. Black & Veatch found that an incremental 1.0 Bcfd increase in demand would increase United States average delivered natural gas prices by \$0.085/Mcf in 2020, \$0.088/Mcf in 2025, \$0.078/Mcf in 2030, and \$0.064/Mcf in 2035.<sup>50</sup> Based on the range of EIA's *Annual Energy Outlook 2011* sensitivity cases, Black & Veatch indicates that this analysis is accurate up to approximately 2.0

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<sup>49</sup> Energy Information Administration, *AEO 2011 with Projections to 2035* (Apr. 2011).

<sup>50</sup> Black & Veatch Management Consultants, *Price Response to Incremental LNG Export Demand* (2011).

Bcfd of incremental demand in 2020 and approximately 7.0 Bcfd of incremental demand in 2035, although there are indications that the supply curve begins to flatten out at a level well below 7.0 Bcfd (i.e., lower price impacts per Bcfd at higher volumes). A 12 MTPA LNG export operation (approximately equivalent to 620 Bcf per year) would create 1.9 Bcfd of incremental natural gas demand (consisting of 1.7 Bcfd of exports and 0.2 Bcfd of fuel consumption). Consequently, the effect on average delivered United States natural gas prices (in 2009 dollars) of a 12 MTPA LNG export facility as implied by the *Annual Energy Outlook 2011* model is \$0.161/Mcf in 2020, \$0.167/Mcf in 2025, \$0.148/Mcf in 2030 and \$0.122/Mcf in 2035.

The Black & Veatch analysis supports the conclusion that the exports proposed in this Application will have a minimal impact on domestic natural gas prices. Further, any upward pressure on prices due to increased demand for exports would likely be offset by a reduction in domestic price volatility. In recent years, low market prices have resulted in domestic producers deferring the drilling of new wells or completion of wells that have already been drilled. Exports of domestic LNG will provide an additional market for United States production, thereby encouraging exploration, development and production at times when domestic demand alone might not. Customers of the Project will have sufficient flexibility to reduce their exports and instead redirect gas to the domestic market if demand and market prices indicate a sufficient need for incremental supplies. The increased production and reserves are not, in other words, irrevocably dedicated to foreign destinations. To the contrary, market signals in the United States will play a key role in the determination of whether such gas will be consumed in the United States or delivered to a foreign market. Supplemental natural gas production initially expected to be liquefied and exported will likely reduce volatility in the United States natural gas market by sustaining robust levels of domestic exploration and production and providing an

additional source of supply during periods of high domestic demand. This will serve to reduce the likelihood and magnitude of sudden and significant increases in domestic gas prices.

### **C. Other Public Interest Considerations**

To assess and quantify the substantial public benefits that will result from the Project, Cameron LNG prepared an Economic Impact Assessment of the Project, which is attached as Appendix D to this Application (“Economic Assessment”). This Economic Assessment, which is derived from price forecasts from the EIA and regional input-output multipliers from the United States Bureau of Economic Analysis, finds that the Project will substantially benefit national, regional and local economies and improve the United States balance of trade.

#### **1. Benefits to National, Regional and Local Economies**

With an estimated capital cost in excess of \$4 billion, and annual LNG exports averaging \$8.6 billion, the Project will stimulate local, regional, and national economies through direct and indirect job creation, increased economic activity and tax revenues.

The design, engineering and construction of the Project will result in the creation of an average of over 1,300 on-site engineering and construction jobs over a four-year period. Hundreds of additional off-site jobs will be created to support the design, fabrication and construction of the Project facilities. During the peak 12-month construction period, an estimated 2,900 jobs will be directly created, with a total of 5,200 direct job-years created during construction.

There will also be substantial indirect economic impacts resulting from construction of the Project. Using the average of commonly accepted employment and demand output multiplier methods, the Economic Assessment estimates a total economy-wide impact of 63,000 job-years over the 48 month construction period. The Economic Assessment further calculates that the

design, engineering and construction of the Project will result in a total economic impact of \$7.6 billion, which will be spread over the 48-month construction period.

An even greater number of jobs, and far greater overall economic benefits, will result from the exploration and production of the 1.9 Bcfd of gas required for the Project. Some 4,600 jobs are expected in the natural gas industry. In addition, the exploration and production of natural gas has a very strong multiplier or “ripple” effect on job creation and other economic activity. Independent studies have examined the economic impact of shale gas development in Pennsylvania and West Virginia.<sup>51</sup> The studies measured the costs of natural gas development in these areas and estimated that, for every dollar spent by natural gas producers, at least one additional dollar of economic activity was generated within that state.<sup>52</sup> This, in turn, benefits local businesses and other vendors and suppliers.

For the United States economy as a whole, the Economic Assessment finds that the Project would generate, in addition to 63,000 job-years during construction, an average of 53,000 jobs during the ensuing 20-year operations period, resulting in a total impact during the periods of construction and operation of 1.1 million job-years. In order to verify the reasonableness of this result, the Economic Assessment identified three relevant studies that suggested economy-

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<sup>51</sup> See, e.g., *Economic Impacts of Marcellus Shale in Pennsylvania: Employment and Income in 2009* (Aug. 2011), available at <http://www.marcellus.psu.edu/resources/PDFs/Economic%20Impact%20of%20Marcellus%20Shale%202009.pdf>; Pennsylvania State University, *An Emerging Giant: Prospects and Economic Impacts of Developing the Marcellus Shale Natural Gas Play* (July 24, 2009), available at <http://www.alleghenyconference.org/PDFs/PELMisc/PSUStudyMarcellusShale072409.pdf>; National Energy Technology Laboratory, *Projecting the Economic Impact of Marcellus Shale Gas Development in West Virginia* (Mar. 31, 2010), available at <http://www.netl.doe.gov/energy-analyses/pubs/WVMarcellusEconomics3.pdf>; West Virginia University, *The Economic Impact of the Natural Gas Industry and the Marcellus Shale Development in West Virginia in 2009* (Dec. 2010), available at <http://be.wvu.edu/bber/pdfs/BBER-2010-22.PDF>; Report to the American Petroleum Institute, *The Economic Impacts of the Marcellus Shale: Implications for New York, Pennsylvania, and West Virginia* (July 14, 2010), available at <http://www.api.org/policy/exploration/hydraulicfracturing/upload/API%20Economic%20Impacts%20Marcellus%20Shale.pdf>.

<sup>52</sup> *Id.*

wide job gains from the Cameron facility ranging from 46,000 to 95,000 (i.e., 920,000 to 1,900,000 job-years over the term of the export permit).

As shown in Figure A-3 of the Economic Assessment, the total economic benefits of the Project to the United States economy are estimated to average \$2 billion per year during the period of construction and \$14 to \$18 billion per year during the 20-year term of the requested authorization. The total increase in United States output is estimated at \$336 billion over the 20-year term. This does not include the beneficial effects to the local, state and federal governments from the new tax revenue that will be generated from the economic activities associated with the Project.

## 2. Increased Exports and International Trade

Cameron LNG estimates that the Project's customers will export an average of approximately \$8.6 billion of LNG per year.<sup>53</sup> In addition, associated oil and natural gas liquids production resulting from the Project is expected to average \$2.2 billion per year, bringing the average total trade balance benefits to \$10.8 billion per year in 2011 dollars. This will have a positive and significant impact on the balance of trade that the United States has with its international trading partners. In 2010, the United States trade deficit was \$646 billion (reflecting imports of \$1,935 billion and exports of \$1,289 billion).<sup>54</sup> Over 40% of this trade imbalance was attributable to imports of petroleum products. While the Project alone will not eliminate this imbalance, it will make a significant contribution to reducing it for a sustained period of time.

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<sup>53</sup> This assumes that the Project's customers will sell LNG at a price equal to 70% of the oil price forecasts in the AEO 2011, as stated in 2011 dollars.

<sup>54</sup> U.S. Department of Commerce Bureau of Economic Analysis, *International Data*, available at <http://www.bea.gov/iTable/iTable.cfm?ReqID=6&step=1>, Table 1. U.S. International Transactions.

Increasing exports to address the United States trade imbalance is a key element of President Obama's efforts to spur economic recovery. In his National Export Initiative, the President stated that a central goal of his administration is to "enhance and coordinate Federal efforts to facilitate the creation of jobs in the United States through the promotion of exports."<sup>55</sup> The President further noted that "[a] critical component of stimulating economic growth in the United States is ensuring that U.S. businesses can actively participate in international markets by increasing their exports."<sup>56</sup> Approval of this Application, which would result in \$173 billion of new exports from the United States over the 20-year term of the requested authorization, plus \$43 billion of displaced imports, would represent a significant step toward achieving the President's goal.

United States international trade law, general United States trade policy and DOE's longstanding policy that the public interest is best served by the principles of free trade all support exports of domestically produced LNG. In addition to having a beneficial impact on the United States trade deficit by leveling the balance of payments between the United States and the rest of the world, LNG exports also will enhance the diversity of global supply and contribute to the security interests of the United States and its allies.

The export of domestically produced LNG will promote liberalization of the global gas market by fostering increased liquidity and trade at prices established by market forces. LNG exports also will advance national security interests as well as the security interests of United States allies through the diversification of global natural gas supplies. The current international

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<sup>55</sup> See Executive Order – National Export Initiative (Mar. 11, 2010) *available at* <http://www.whitehouse.gov/the-press-office/executive-order-national-export-initiative> ("A critical component of stimulating economic growth in the United States is ensuring that U.S. businesses can actively participate in international markets by increasing their exports of goods, services, and agricultural products. Improved export performance will, in turn, create good high-paying jobs.").

<sup>56</sup> *Id.*

trade in natural gas centers around three primary markets: North America, Europe and Asia. There is substantial trade within these markets, but limited trade among the markets. The pricing structure within these markets is significantly different. In North America, natural gas is traded in a highly liquid and competitive market, and prices are very transparent. The European and Asian markets are dominated by natural gas price linkage to the valuation of competing crude oil products. LNG contracts for these markets also are predominantly indexed to crude oil.

Current global supply shortages of LNG are having adverse impacts for the United States' closest allies in Asia and Europe. For example, natural gas consumption and price forecasts by the EIA<sup>57</sup> and the Institute of Energy Economics, Japan (“IEEJ”)<sup>58</sup> indicate that Japan's economy will be burdened by LNG imports with a cumulative price premium relative to United States gas prices of over one trillion United States dollars through 2035. By introducing market-based price structures, the Project reduces the premiums charged to economies which have few economic energy supply alternatives, and helps reduce gas price volatility around the world.

It would also be inconsistent with United States obligations under World Trade Organization (“WTO”) Agreements to restrict exports of domestically-produced LNG to other WTO countries. The United States has undertaken commitments not to restrict such exports to other WTO countries, whether directly or indirectly, through quantitative measures or other administrative action.<sup>59</sup> It would be a further violation of the most-favored-nation obligations under the WTO Agreements for the United States to grant such applications for exports to

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<sup>57</sup> Energy Information Administration, *Annual Energy Outlook 2011*, Figure 88, Figure 52.

<sup>58</sup> Institute of Energy Economics Japan, *Asia/World Energy Outlook 2010*, November 2010, slide 11.

<sup>59</sup> See Marrakesh Protocol to the General Agreement on Tariffs and Trade 1994, Schedule XX – United States of America, Part I, Section II, 54 at HTS 2711.11.00 “Liquefied Natural Gas.”

countries with which the United States has separate FTAs while denying applications for exports to other WTO countries with which the United States does not have FTAs.

### 3. Environmental Benefits

The export of LNG from the United States provides consuming nations with access to low carbon natural gas as an alternative to higher CO<sub>2</sub> emitting fossil fuels such as coal and fuel oil. In many locations, LNG would be able to displace the current consumption of coal in power generation and deter the construction of additional coal-fired generation capacity. This would act as a bridge until some countries can develop their own unconventional natural gas resources. The potential reductions in global greenhouse gas emissions, and other undesirable byproducts of coal- or oil-fired generation,<sup>60</sup> are substantial.

An LNG supply volume of 1 Bcfd has the potential to replace almost 6400 MW of traditional coal-fired generation.<sup>61</sup> This would result in a reduction in combustion emissions of approximately 126 thousand tons of CO<sub>2</sub> per day.<sup>62</sup> Generating similar reductions in CO<sub>2</sub> emissions would require the construction of 11,800 wind turbines or 14 square miles of PV solar panels.<sup>63</sup>

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<sup>60</sup> Increased supplies of LNG can also be expected to reduce emissions of sulfur dioxide and particulate emissions.

<sup>61</sup> This is based on a gross heating value of 1030 Btu/Scf and a gas plant heat rate of 6719 Btu/kWh. Life Cycle Assessment of GHG Emissions from LNG and Coal Fired Generation Scenarios: Assumptions and Results, Pace, pp 11 (February 3, 2009). This reflects a calculated value of 153,297 MWh per day of power generated converted to an equivalent capacity of 6387 MW at a 100% load factor.

<sup>62</sup> The reduction in emissions is calculated from emission rates for coal-powered generation and LNG powered generation contained in the document Life Cycle Assessment of GHG Emissions from LNG and Coal Fired Generation Scenarios: Assumptions and Results, Pace, pp 11 (February 3, 2009).

<sup>63</sup> The calculation of the equivalent reduction required from wind turbines or solar panels is based on replacement of 106,557 MWh/Day of coal-fired generation with wind or PV solar. Capacity factors of 0.25 for wind and 0.17 for solar were derived from information in EIA Renewable Energy Trends in Consumption and Electricity 2008 Edition, Tables 1.11 & 1.12. The calculation further assumed a 1.5 MW wind turbine size and derived solar PV size of 8 acres per MW based on information from the Copper Mountain Solar Facility. See

The United States has a strong interest in encouraging the world's major energy consumers to take advantage of a global boom in natural gas to help ease oil dependency and reduce greenhouse gas emissions. The State Department has established a new Bureau of Energy Resources; one of the primary objectives of this agency is to promote environmentally sustainable forms of energy abroad.

### **VIII. REVIEW OF ENVIRONMENTAL IMPACTS**

As noted above, Cameron LNG will, in the next several months, initiate the pre-filing review process at FERC for the proposed Project facilities. This will be the first step in a comprehensive and detailed environmental review by FERC of the Project. It is anticipated that, consistent with the requirements of the National Environmental Policy Act, FERC will act as the lead agency for environmental review, with the DOE/FE acting as a cooperating agency. Cameron LNG therefore respectfully requests that the DOE/FE issue an order approving this Application, with such approval conditioned upon completion by FERC of a satisfactory environmental review of the Project. Such conditional orders are routinely issued by DOE/FE, which may review an application to determine whether a proposed authorization is in the public interest concurrent with FERC's review of environmental impacts.

### **IX. REPORT CONTACT INFORMATION**

The contact with respect to monthly reports submitted by Cameron LNG following the receipt of the authorization requested herein is:

Richard McElroy  
101 Ash Street  
San Diego, CA 92101  
(619) 696-2734

**X. APPENDICES**

The following appendices are included with this Application:

Appendix A	Verification
Appendix B	Opinion of Counsel
Appendix C	Black & Veatch Report
Appendix D	Economic Impact Assessment

**XI. CONCLUSION**

For the reasons set forth above, Cameron LNG respectfully requests that DOE/FE issue an order granting Cameron LNG authorization to export for a period of 20 years (commencing on the earlier of the date of first export or seven years from the date the requested authorization is granted) up to 12 MTPA (equivalent to approximately 620 Bcf per year) of domestically produced LNG to any country with which the United States does not have an FTA and with which trade is not prohibited by United States law or policy.

Respectfully submitted,



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Dated: December 21, 2011

## APPENDIX A



## APPENDIX B

## OPINION OF COUNSEL

December 21, 2011

Mr. John A. Anderson  
Office of Fossil Energy  
U.S. Department of Energy  
Docket Room 3F-056, FE 50  
Forrestal Building  
1000 Independence Avenue, S.W.  
Washington, DC 20585

RE: Cameron LNG, LLC Application for Long-Term Authorization to  
Export Liquefied Natural Gas to Free Trade Agreement Countries

Dear Mr. Anderson:

This opinion of counsel is submitted pursuant to Section 590.202(c) of the regulations of the U.S. Department of Energy, 10 C.F.R. § 590.202(c) (2011). I am counsel to Cameron LNG, LLC ("Cameron LNG"). I have reviewed the organizational and internal governance documents of Cameron LNG and it is my opinion that the proposed export of natural gas as described in the application filed by Cameron LNG, to which this Opinion of Counsel is attached as Appendix B, is within the company powers of Cameron LNG.

Respectfully submitted,

  
William D. Rapp  
Counsel to Cameron LNG, LLC

## APPENDIX C

REVISED FINAL

**PRICE RESPONSE TO INCREMENTAL  
LNG EXPORT DEMAND (BASED ON  
DOE/EIA ANNUAL ENERGY OUTLOOK  
2011 FORECASTS)**

PREPARED FOR

Cameron LNG, LLC

01 DECEMBER 2011



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