FULBRIGHT & Jaworski L.L.P.
Attorneys at Law

Lisa Tonery
Partner

666 Fifth Avenue, 31st Floor • New York, New York 10103-3198
ltonery@fulbright.com • Direct: 212 318 3009 • Main: 212 318 3000 • Facsimile: 212 318 3400

August 31, 2012

Mr. John Anderson
Office of Fuels Programs, 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: In the Matter of Cheniere Marketing, LLC
FE Docket No. 12-97-LNG
Application For Long-Term Authorization to Export Liquefied Natural Gas to Non-Free Trade Countries

Dear Mr. Anderson:

Enclosed for filing on behalf of Cheniere Marketing, LLC ("CMI"), please find CMI's application for long-term, multi-contract authorization to engage in exports of domestically produced liquefied natural gas ("LNG") in an amount up to 782 million MMBtu per year, which is equivalent to approximately 767 billion standard cubic feet of natural gas per year.[1] CMI seeks authorization for a 22-year term, commencing on the earlier of the date of first export or eight years from the date the requested authorization is granted, to export LNG to any country with which the U.S. does not now or in the future have a Free Trade Agreement requiring the national treatment for trade in natural gas and LNG that has, or in the future develops, the capacity to import LNG and with which trade is not prohibited by U.S. law or policy.

Should you have any questions about the foregoing, please feel free to contact the undersigned at (212) 318-3009.

Respectfully submitted,

/s/ Lisa M. Tonery
Lisa M. Tonery
Tania S. Perez
Attorneys for
Cheniere Marketing, LLC

1 A check in the amount of $50.00 is being provided as the filing fee stipulated by 10 C.F.R. § 590.207 (2012).

UNITED STATES OF AMERICA
BEFORE THE DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

In The Matter Of:	)	
	)	
CHENIERE MARKETING, LLC	)	Docket No. 12 - 97 - LNG
	)	

APPLICATION OF CHENIERE MARKETING, LLC FOR LONG-TERM AUTHORIZATION TO EXPORT LIQUEFIED NATURAL GAS TO NON-FREE TRADE COUNTRIES

Davis Thames
President Cheniere Marketing
Cheniere Energy, Inc.
700 Milam Street, Suite 800
Houston, TX 77002
Telephone: (713) 375-5000
Facsimile: (713) 375-6000
Email: davis.thames@cheniere.com

Lisa M. Tonery
Tania S. Perez
Fulbright & Jaworski L.L.P.
666 Fifth Avenue
New York, NY 10103
Telephone: (212) 318-3009
Facsimile: (212) 318-3400
Email: ltonery@fulbright.com
Email: tperez@fulbright.com

TABLE OF CONTENTS

Page

TABLE OF CONTENTS
(continued)

Page

UNITED STATES OF AMERICA
BEFORE THE DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

In The Matter Of:	)	
	)	
CHENIERE MARKETING, LLC	)	Docket No. 12-97-LNG
	)	

APPLICATION OF CHENIERE MARKETING, LLC FOR LONG-TERM AUTHORIZATION TO EXPORT LIQUEFIED NATURAL GAS TO NON-FREE TRADE COUNTRIES

Pursuant to Section 3 of the Natural Gas Act ("NGA")[1] and Part 590 of the Department of Energy's ("DOE") regulations,[2] Cheniere Marketing, LLC ("CMI") hereby requests that DOE, Office of Fossil Energy ("FE"), grant long-term, multi-contract authorization for CMI to engage in exports of domestically produced liquefied natural gas ("LNG") in an amount up to 782 million MMBtu per year,[3] which is equivalent to approximately 767 billion cubic feet ("Bcf") of natural gas per year,[4] for a 22-year period, commencing the earlier of the date of first export or eight-years from the date of issuance of the authorization requested herein.[5] CMI is seeking authorization to export LNG from the proposed Corpus Christi Liquefaction Project

---

1 15 U.S.C. § 717b (2006).

2 10 C.F.R. Part 590 (2012).

3 782 million MMBtu is equivalent to the planned peak production rate of the export facilities of approximately 15 million tonnes per annum ("mtpa") of LNG, including a margin for excess production capacity. The authorization is requested in terms of MMBtu per year to maintain consistency with industry convention for the denomination of quantities in LNG export contracts, which are denominated in MMBtu per year.

4 Conversion based on an assumed higher heating value of exported LNG equal to 1,020 Btu per standard cubic foot.

5 A term of 22 years is requested since LNG Train 3 of the proposed Corpus Christi Liquefaction facility will not be placed in-service until almost two years after the scheduled in-service date of LNG Train 1. Accordingly, a 22-year term as requested herein will enable CMI to enter into 20-year commercial agreements for the export and sale of LNG in conjunction with the liquefaction capacity associated with each of LNG Trains 1, 2 and 3.

("CCL Project") to be located near Corpus Christi, Texas,[6] to any country with which the U.S. does not now or in the future have a free trade agreement ("FTA") requiring the national treatment for trade in natural gas and LNG that has, or in the future develops, the capacity to import LNG and with which trade is not prohibited by U.S. law or policy ("non-FTA Countries").

Concurrent with this Application, CMI separately is filing with DOE/FE an application for long-term, multi-contract authorization to engage in exports of LNG in an amount up to 782 million MMBtu per year, to any nation that currently has or develops the capacity to import LNG and with which the U.S. currently has, or in the future enters into, an FTA requiring the national treatment for trade in natural gas and LNG ("FTA Countries").[7]

Substantial resources have been both expended to date and committed for future expenditure to develop the CCL Project. CMI respectfully requests that the DOE/FE issue an order authorizing CMI to export LNG from the CCL Project to non-FTA Countries as requested herein on an expedited basis by no later than February 2013.

In support of its Application, CMI states as follows:

I. DESCRIPTION OF THE APPLICANT

The exact legal name of CMI is Cheniere Marketing, LLC. CMI has its principal place of business in Houston, Texas. CMI is an indirect subsidiary of Cheniere Energy, Inc. ("Cheniere Energy") and is affiliated with the developers of the CCL Project. Cheniere Energy is a Delaware corporation with its primary place of business in Houston, Texas. Cheniere Energy is

---

[6] The CCL Project is being developed by CMI affiliates, Corpus Christi Liquefaction, LLC and Cheniere Corpus Christi Pipeline, L.P. at the same general locations proposed for the previously authorized Corpus Christi LNG, L.P. ("CCLNG") import terminal and associated pipeline. *See Corpus Christi LNG L.P. and Cheniere Corpus Christi Pipeline Company, Order Granting Authority Under Section 3 of the Natural Gas Act and Issuing Certificates*, 111 FERC ¶ 61,081 (2005).

[7] CMI anticipates exporting up to a total of 15 mtpa on an annual basis from the CCL Project.

a developer of LNG terminals and natural gas pipelines on the Gulf Coast, including the CCL Project. CMI is authorized to do business in the States of Texas and Louisiana.

II. COMMUNICATIONS AND CORRESPONDENCE

All correspondence and communications concerning this Application, including all service of pleadings and notices, should be directed to the following persons:[8]

Davis Thames
Cheniere Marketing, LLC
700 Milam Street, Suite 800
Houston, TX 77002
Telephone: (713) 375-5000
Facsimile: (713) 375-6000
Email: davis.thames@cheniere.com

Patricia Outtrim
Cheniere Energy, Inc.
700 Milam Street, Suite 800
Houston, TX 77002
Telephone: (713) 375-5000
Facsimile: (713) 375-6000
Email: pat.outtrim@cheniere.com

Lisa M. Tonery
Tania S. Perez
Fulbright & Jaworski L.L.P.
666 Fifth Avenue
New York, NY 10103
Telephone: (212) 318-3009
Facsimile: (212) 318-3400
Email: ltonery@fulbright.com
Email: tperez@fulbright.com

Pursuant to Section 590.103(b) of the DOE regulations,[9] CMI hereby certifies that the persons listed above and the undersigned are the duly authorized representatives of CMI.

III. EXECUTIVE SUMMARY

CMI is herein seeking multi-contract, long-term authorization to export up to 782 million MMBtu of LNG per year, which is equivalent to approximately 767 Bcf of natural gas per year, to those countries that: (i) do not now or in the future have an FTA requiring the national

[8] CMI requests waiver of Section 590.202(a) of DOE's regulations, 10 C.F.R. § 590.202(a), to the extent necessary to include outside counsel on the official service list in this proceeding.

[9] 10 C.F.R. § 590.103(b).

treatment for trade in natural gas and LNG, (ii) which have, or in the future develop, the capacity to import LNG and (iii) with which trade is not prohibited by U.S. law or policy (*i.e.,* non-FTA Countries). CMI requests this authorization for a 22-year term commencing the earlier of the date of first export or eight years from the date of issuance of the authorization requested herein.

CMI is filing this Application in conjunction with the CCL Project being developed by CMI's affiliates, Corpus Christi Liquefaction, LLC ("CCL") and Corpus Christi Pipeline, L.P. ("CCP"), at the site of the previously authorized CCLNG import terminal and associated pipeline in San Patricio and Nueces Counties, Texas.[10] Concurrent with this Application, CCL is filing an application with the Federal Energy Regulatory Commission ("FERC" or "Commission") for authorization pursuant to Section 3(a) of the NGA to site, construct and operate the CCL Terminal facilities (the "CCL Terminal"), and CCP is filing an application with FERC pursuant to Section 7(c) of the NGA to construct, own and operate the Corpus Christi Pipeline ("Pipeline") to connect the CCL Terminal facilities to interstate and intrastate natural gas supplies and markets.[11] DOE/FE will act as a cooperating agency in the FERC's environmental review process for the CCL Project and in the preparation of an environmental assessment ("EA") or environmental impact statement ("EIS") to satisfy DOE/FE's NEPA responsibilities.[12]

The CCL Terminal has been designed to produce approximately 782 million MMBtu per year of LNG. In addition, the CCL Terminal design includes a small amount (approximately 400,000 MMBtu per day) of LNG regasification capacity. The Pipeline, which is proposed as

---

[10] *See supra* note 6.

[11] CCL commenced the FERC's mandatory National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321, *et seq*., prefiling process for the CCL Project on December 22, 2011 in Docket No. PF12-3-000. Through a May 31, 2012 filing, CCL and CCP formally notified the Commission of the inclusion of CCP in the NEPA prefiling process in Docket No. PF12-3-000.

[12] *See FERC Notice of Intent to Prepare an Environmental Assessment for the Planned Corpus Christi LNG Terminal and Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping,* Accession No. 20120601-3015 (June 1, 2012) (noting that DOE/FE has agreed to participate as a cooperating agency in the NEPA process).

part of the CCL Project is comprised of an approximately 23-mile-long, 48-inch-diameter pipeline to be located wholly within San Patricio County, Texas. The Pipeline has been designed to transport natural gas to the CCL Terminal for liquefaction and export and may be used to transport regasified LNG from the CCL Terminal.

CMI proposes to source natural gas to be used as feedstock for LNG production at the CCL Project from the interstate and intrastate pipeline grid at different interconnection points. Through the Pipeline's multiple interconnects, which may include the pipeline systems of Texas Eastern Transmission Corporation ("TETCO"), Kinder Morgan Tejas Pipeline LLC ("Kinder Morgan"), Natural Gas Pipeline Company of America ("NGPL"), Transcontinental Gas Pipeline Corporation ("TRANSCO"), and Tennessee Gas Pipeline Company ("TGP"), the CCL Project would have the ability to source gas from virtually any point on the U.S. pipeline system through direct delivery or by displacement.

The CCL Project is motivated by the improved outlook for domestic natural gas production owing to drilling productivity gains that have enabled rapid growth in supplies in South Texas and elsewhere in the U.S.[13] The inability of U.S. residential, commercial, industrial, and electric consumers to increase consumption quickly enough to offset growth in production has contributed to projections for sustained low prices for natural gas in the U.S. Rapid growth in U.S. natural gas production has driven wellhead prices to historically low levels,[14] resulting in decreased investment by the natural gas industry and a reduction in associated economic activity, landowner royalties, taxes and fee income. Low wellhead prices

---

[13] Domestic wellhead natural gas production in 2011 totaled 28.57 Tcf, the highest in U.S. history. *See* U.S. Energy Information Administration ("EIA"), *Natural Gas Gross Withdrawals and Production*, http://www.eia.gov/dnav/ng/ng_prod_sum_dcu_NUS_a.htm.

[14] Henry Hub natural gas futures on the New York Mercantile Exchange ("NYMEX") have traded at times during 2012 at the lowest price levels seen since 2002. *See David Bird*, *US Gas: Futures Slip to Fourth-Straight New Decade Low on Glut*, Dow Jones Energy Service, Apr. 13, 2012.

also have encouraged increased flaring of associated natural gas that could have been beneficially utilized.[15]

Record natural gas delivery is being supported by significant growth in domestic petroleum production, as technologies pioneered in unconventional natural gas basins are applied to tight geologic formations rich in petroleum liquids that produce a mixture of natural gas, natural gas liquids ("NGL"), and oil condensate. As a result of these technological innovations, U.S. oil production has expanded by over 1.3 million barrels per day ("b/d") since 2008, reversing several decades of decline.[16] Furthermore, the quantity of NGLs extracted from the processing of wellhead natural gas production is at record-high levels,[17] contributing to a revival in the petrochemical manufacturing sector in the United States. These benefits, among others, are the direct result of increased production of natural gas, and are unlikely to continue if future demand for natural gas does not increase.

Overall, the CCL Project presents numerous benefits to the public. CMI submits that the authorization sought herein is not inconsistent with the public interest. To the contrary, as discussed herein, the CCL Project will result in a number of economic and public benefits, ranging from improving the U.S. balance of payments to stimulating state, regional and national economies through job creation, increased economic activity and tax revenues.

---

[15] A total of 165.9 Bcf was vented or flared in 2010, an increase of 72.1% from vented and flared volumes of 96.4 Bcf in 2004. The World Bank-led Global Gas Flaring Reduction Partnership estimates that natural gas flaring in the U.S. increased 7.1 billion cubic meters in 2011, equivalent to 250 Bcf. *See* EIA, *Natural Gas Gross Withdrawals and Production*, *supra* note 13; Press Release, *World Bank Sees Warning Sign in Gas Flaring Increase* (July 3, 2012), http://www.worldbank.org/en/news/2012/07/03/world-bank-sees-warning-sign-gas-flaring-increase.

[16] The U.S. produced 6.27 million b/d of crude oil in May 2012 compared to an average of 4.95 million b/d in 2008. *See* EIA, *U.S. Field Production of Crude* (July 30, 2012), http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbblpd_a.htm.

[17] The U.S. produced 796.7 million barrels of NGLs, the highest domestic production levels in data available for the period 1981-2011. *See* EIA, *U.S. Gas Plant Production of Natural Gas Liquids and Liquid Refinery Cases* (July 30, 2012), http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MNGFPUS1&f=A.

The economic benefits of the CCL Project are quantified in the report CCL and CCP commissioned from The Perryman Group, entitled *The Anticipated Impact of Cheniere's Proposed Corpus Christi Liquefaction Facility on Business Activity in Corpus Christi, Texas, and the US* ("Perryman Report").[18] With respect to economic activity, the Perryman Report estimates the cumulative beneficial direct impact to business activity and tax receipts due to the construction and operation of the CCL Project over 25 years will range from $9.9 to $11.2 billion to the regional economy, $19.6 to $23.5 billion to the Texas economy, and $25.5 to $31.1 billion to the U.S. economy.[19] The Perryman Report estimates the total indirect benefits due to enhanced natural gas exploration and production ("E&P") investments over 25 years made possible by the CCL Project will be $13.8 billion to the regional economy, $101.0 billion to the Texas economy, and $111.4 billion to the U.S. economy.[20] With respect to job creation, the Perryman Report estimates the construction and operation of the CCL Project over 25 years will create between 39,823 and 52,613 jobs nationwide,[21] and that an additional 44,341 jobs will be indirectly generated owing to stimulus in the E&P sector.[22]

Another indirect benefit of the CCL Project will be captured by the chemical industry, which will be advantageously impacted by the additional production of NGLs, such as ethane, made possible through LNG exports. In this regard, the Perryman Report estimates that the

---

[18] The Perryman Group, *The Anticipated Impact of Cheniere's Proposed Corpus Christi Liquefaction Facility on Business Activity in Corpus Christi, Texas, and the US* (May 2012). The Perryman Report is attached hereto as Exhibit B.

[19] *See* Perryman Report, at 46, 51. Figures provided are identified as Gross Product by the Perryman Group, a measurement akin to Gross Domestic Product figures commonly cited in media reports. All state benefits presented are inclusive of regional benefits, and all national benefits include those identified in the State of Texas. References to regional impacts measured by The Perryman Group refer to the Corpus Christi Metropolitan Statistical Area (MSA), which includes Nueces, San Patricio and Aransas counties in South Texas.

[20] *Id.* at 57.

[21] *Id.* at 23, 29, 36.

[22] *Id.* at 67.

economic benefits due to the construction of new chemical manufacturing facilities supported by exports from the CCL Project will be $1.1 billion to the regional economy, $2.1 billion to the Texas economy, and $3.0 billion to the U.S. economy.[23] The operation of these chemical facilities over 25 years will generate $62.4 billion to the regional economy, $80.2 billion to the Texas economy, and $90.1 billion to the U.S. economy.[24] With respect to job creation, the Perryman Report estimates that the CCL Project will indirectly support the creation of 9,836 jobs during the construction of these new chemical facilities,[25] and 34,003 permanent jobs during their operation over 25 years.[26]

For the foregoing reasons, and as demonstrated fully herein, the export of LNG from the CCL Project as proposed by CMI is consistent with the public interest. Accordingly, CMI requests that DOE/FE grant the authorization requested in this Application by no later than February 2013.

IV. AUTHORIZATION REQUEST

CMI requests long-term, multi-contract authorization to export up to 782 million MMBtu per year of LNG, which is equivalent to approximately 767 Bcf per year of natural gas, from the CCL Project to any country with which (i) the U.S. does not now or in the future have an FTA requiring the national treatment for trade in natural gas (ii) that has, or in the future develops, the capacity to import LNG and (iii) with which trade is not prohibited by U.S. law or policy. CMI requests this authorization for a 22-year term commencing the earlier of the date of first export or eight years from the date of issuance of the authorization requested herein.

---

[23] *Id.* at 72. Assuming a duration of five years for the average employment opportunity, the person years of employment provided by the Perryman Report would approximate the creation of 250,829 jobs nationwide owing to stimulus in the E&P sector.

[24] *Id.* at 83.

[25] *Id.* at 73.

[26] *Id.* at 77.

CMI will comply with all DOE/FE requirements for exporters and agents, including the registration requirements as first established in *Freeport LNG Development, L.P.*, DOE/FE Order No. 2913 and most recently set forth in *Excelerate Liquefaction Solutions I, LLC*, DOE/FE Order No. 3128 (2012).[27]

CMI has not yet entered into any long-term gas supply or long-term export contracts in conjunction with the LNG export authorization requested herein. Accordingly, CMI is not submitting transaction-specific information (*e.g.,* long-term supply agreements and long-term export agreements) at this time[28] and requests that DOE/FE make a similar finding to that in *Sabine Pass*, DOE/FE Order No. 2961 with regard to the transaction-specific information requested in Section 590.202(b) of the DOE regulations. CMI is cognizant of the DOE/FE Policy Guidelines (of 1984) and expects to enter into export transactions that are responsive to the relative level of natural gas prices in the United States, similar to those entered into in connection with the Sabine Pass liquefaction and export project (DOE/FE Docket No. 10-111-LNG), thereby creating supply to mitigate price impacts if the U.S. market is in greater need of natural gas that would otherwise be exported.

---

[27] *Freeport LNG Development, L.P., Order Granting Long-Term Authorization to Export Liquefied Natural Gas from Freeport LNG Terminal to Free Trade Nations*, FE Docket No. 10-160-LNG, DOE/FE Order No. 2913 (Feb. 10, 2011); *Errata Notice Correcting Footnote 9 in Order 2913 Issued 2/10/2009* (Feb. 17, 2011); *Excelerate Liquefaction Solutions I, LLC*, FE Docket No. 12-61-LNG, DOE/FE Order No. 3128 (2012).

[28] In the May 20, 2010 order granting Sabine Pass Liquefaction, LLC ("Sabine Pass") long-term export authorization to non-FTA Countries, DOE/FE found that Sabine Pass was not required to submit with its application transaction-specific information pursuant to Section 590.202(b) of the DOE regulations. DOE/FE found that given the state of development for the proposed Sabine Pass export project, it was appropriate for Sabine Pass to submit such transaction-specific information when the contracts reflecting such information were executed. *See Sabine Pass Liquefaction, LLC*, *Opinion and Order Conditionally Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Non-Free Trade Agreement Nations*, FE Docket No. 10-111-LNG, DOE/FE Order No. 2961, at 41 (May 20, 2011) [hereinafter *Sabine Pass,* DOE/FE Order No. 2961].

Finally, CMI requests that, pursuant to Section 590.402 of the DOE regulations,[29] the Assistant Secretary issue a conditional order authorizing the export of domestically produced LNG as requested herein by February 2013, followed by issuance of a final order immediately upon completion of the environmental review of the CCL Project by FERC.[30] DOE routinely issues conditional orders subject to satisfactory environmental review in similar circumstances.[31]

V. DESCRIPTION OF LIQUEFACTION PROJECT

The CCL Project will be located on the northern shore of the La Quinta Channel north and east of the City of Corpus Christi, Texas. The CCL Project will include three ConocoPhillips Optimized Cascade[SM] LNG trains, each with a nominal liquefaction capacity of approximately five mtpa. The CCL Project will be designed to export 782 million MMBtu of LNG per year and to import up to 400,000 MMBtu of LNG per day. At the CCL Project, natural gas will be liquefied into LNG and stored in three 160,000 m^3 full-containment LNG storage tanks. LNG will be exported on LNG carriers that will arrive at the CCL Terminal through the La Quinta Channel in the Corpus Christi Bay. The CCL Terminal will receive natural gas from the interstate and intrastate natural gas pipeline systems through interconnections with the Pipeline.

---

[29] 10 C.F.R. § 590.402.

[30] In promulgating its regulations setting forth the administrative procedures for the import and export of natural gas, DOE indicated that issuance of a conditional decision is appropriate when the application at issue involves, for example, the importation of LNG into new terminal facilities. In such a case, DOE reviews the application to determine if the proposed importation is in the public interest based on the considerations within DOE's jurisdiction, while, concurrently, FERC must review other aspects of the proposed importation such as siting, construction and operation of the LNG receiving terminal facilities. *See Import and Export of Natural Gas,* 46 Fed. Reg. 44,696, 44,700 (Sept. 4, 1981).

[31] *See, e.g., Sabine Pass,* DOE/FE Order No. 2961, *supra* note 28; *Rochester Gas and Elec. Corp.*, FE Docket No. 90-05-NG, Order No. 503 (May 16, 1991).

VI. EXPORT SOURCES

CMI proposes to source natural gas to be used as feedstock for LNG production at the CCL Project from the interstate and intrastate grid at points of interconnection with other pipelines and points of liquidity both upstream and downstream of the Pipeline. Through the Pipeline's interconnects with various interstate and intrastate pipeline systems, the CCL Project will have access to virtually any point on the U.S. interstate pipeline system through direct delivery or by displacement. The rapidly developing Eagle Ford area in South Texas is located approximately 75 miles from the CCL Project and represents among the most proximate potential source of physical natural gas supply available for export. In addition, it is anticipated that the CCL Project will be connected to multiple interstate and Texas intrastate pipelines that will enable CMI to purchase natural gas from multiple conventional and unconventional basins across the region, state, and from virtually anywhere in the nation. This supply can be sourced in large volumes in the spot market, or pursued under long-term arrangements. Given the increases in reported reserves and technically recoverable resources in the United States, and in particular, the well documented increase in production associated with emerging unconventional resources, the proposed exports are not anticipated to have any meaningful adverse impact on the availability or pricing of natural gas. To the contrary, increased demand due to the CCL Project will have the beneficial effect of supporting prices and production during periods of slack demand so that the E&P sector can continue to invest in the economy, and could provide supplies to the domestic market were prices to signal such a need.

VII. COMMERCIAL MATTERS

CMI is currently engaged in commercial discussions with CCL to obtain all the available liquefaction capacity at the CCL Terminal. Either CMI or the CCL Project will bear the responsibility for sourcing gas supplies for delivery to the CCL Terminal. CCL will commence

negotiations with CCP for transportation capacity on the Pipeline once commercial discussions between CCL and CMI progress. As discussed above, CMI will file any long-term gas supply or long-term export contracts with DOE/FE pursuant to DOE/FE regulation.

VIII. APPLICABLE LEGAL STANDARD

Pursuant to Section 3 of the NGA, FE is required to authorize exports to a foreign country unless there is a finding that such exports "will not be consistent with the public interest."[32] Section 3(a) of the NGA, 15 USC 717b(a), states in relevant part:

> **(a) Mandatory authorization order**
> After six months from June 21, 1938, no person shall export any natural gas from the U.S. 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.[33]

Section 3(a) thus creates a statutory presumption in favor of approval of this Application which opponents bear the burden of overcoming. Therefore, in the absence of testimony that the proposed export is contrary to the public interest that outweighs evidence in favor, DOE has a statutory obligation to approve an application for export authorization.

Furthermore, DOE issued a set of Policy Guidelines in 1984 delineating the criteria that DOE shall utilize in reviewing applications for natural gas imports,[34] and the agency has applied this criteria in its review of applications for natural gas exports as well.[35] The *Policy Guidelines*

---

[32] 15 U.S.C. § 717b(a).

[33] *Id.*

[34] *Policy Guidelines and Delegation Orders Relating to the Regulation of Imported Natural Gas*, 49 Fed. Reg. 6,684 (Feb. 22, 1984) [hereinafter *Policy Guidelines*].

[35] *See Phillips Alaska Natural Gas Corp. and Marathon Oil Co.,* FE Docket No. 96-99-LNG, Order No. 1473, at 14 (Apr. 2, 1999) (citing *Yukon Pacific*, Order No. 350, 1 FE ¶ 70,259, at 71,128) [hereinafter *Phillips Alaska,* DOE/FE Order No. 1473].

emphasize free market principles and promote limited government involvement in federal natural gas regulation:

> The market, not government, should determine the price and other contract terms for imported [and exported] gas. U.S. buyers [and sellers] should have full freedom - along with the responsibility - for negotiating the terms of trade arrangements with foreign sellers [and buyers].
>
> 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.[36]

The *Policy Guidelines* also provide some insight into the public interest standard for evaluating potential import and export applications. In this regard, the *Policy Guidelines* provide that the "policy cornerstone of the public interest standard is competition."[37] Competitive import/export arrangements are therefore an essential element of the public interest and, so long as the sales agreements are set in terms that are consistent with market demands, they should be considered to "largely" meet the public interest standard.[38] The *Policy Guidelines* further provide that "[t]his policy approach presumes that buyers and sellers, if allowed to negotiate free of constraining governmental limits, will construct competitive import [and export] agreements that will be responsive to market forces over time."[39]

Further, in evaluating an application for export authorization, FE has noted that it has been guided by the principles described in DOE Delegation Order No. 0204-111, which called for the regulation of exports based on, among other things, a consideration of the domestic need

---

[36] *Policy Guidelines, supra* note 34, at 6685.

[37] *Id.* at 6687.

[38] *Id.*

[39] *Id.* (referencing "exports" inserted to reflect DOE policy that "the principles are applicable to exports as well" as enunciated in *Phillips Alaska,* DOE/FE Order No. 1473, *supra* note 35, at 14).

for the gas to be exported. Although DOE Delegation Order No. 0204-111 is no longer in effect, FE has noted that its "review of export applications in decisions under current delegated authority has continued to focus on the domestic need for the gas to be exported; whether the export poses 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 of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements."[40] In the past, FE also has considered other factors to the extent they are shown to be relevant to the public interest determination for export authorization, including local interests, international effects and the environment.

As discussed herein, all of the foregoing factors support grant of this Application. The accuracy of the forecasting methodology, projections of supply, cost of supply, demand, and future technological innovation necessarily complicate, however, the determination of whether such forward-looking factors are in the public interest or not. CMI undertakes that it will ensure that its export contracts contain provisions that permit its customers to temporarily cancel or suspend the loading of cargoes of LNG for export if market price signals so dictate. Such provisions ensure that regardless of the future evolution of the factors described above, the export agreements will be responsive to future market price signals and will therefore be sensitive to future conditions of supply and demand in the domestic market.

IX. PUBLIC INTEREST ANALYSIS

The CCL Project has been proposed in part due to the improved outlook for domestic natural gas production, owing to drilling productivity gains that have enabled rapid growth in new supplies in South Texas and elsewhere in the U.S. Improvements in drilling and extraction

[40] *Sabine Pass,* DOE/FE Order No. 2961, *supra* note 28, at 29.

technologies have coincided with a rapid diffusion of knowledge in the natural gas industry of the resource base and best practices in drilling and resource development. These changes have rendered obsolete once prominent concerns of declining future domestic natural gas production.

Authorization for export of natural gas as LNG will provide a market solution to allow the further responsible development of these emerging sources of domestic natural gas and will result in the following benefits:

- Raise domestic natural gas productive capacity and promote stability in domestic natural gas pricing;
- Stimulate the regional, state and national economy through job creation and increased economic activity;
- Promote the liberalization of contract structures in global LNG markets by lowering the cost of energy in foreign nations, thereby fostering economic growth abroad and creating demand for U.S.-sourced goods and services;
- Expand economic activity and job creation in the domestic natural gas and petrochemicals sectors;
- Promote greater national security by expanding American influence in international energy markets while enabling greater production in domestic petroleum basins;
- Improve the U.S. balance of payments between $5.88 billion and $9.52 billion annually through the exportation of natural gas and the displacement of imports of other petroleum liquids; and
- Increase economic trade and ties with foreign trading partners and hemispheric allies, and displace environmentally damaging fuels in those countries.

CMI submits that these and the other benefits enumerated in this Application compellingly demonstrate that the LNG exports that would result from the approval of this Application are in the public interest.

A. Analysis of Domestic Need for Gas to be Exported

As provided in DOE Delegation Order No. 0204-111, domestic need for the natural gas proposed to be exported is "the only explicit criterion that must be considered in determining the public interest."[41] The CCL Project is therefore in the public interest because it (i) does not

[41] *Phillips Alaska,* DOE/FE Order No. 1473, *supra* note 35, at 14.

impinge on domestic needs for natural gas; (ii) supports and encourages the continued development of natural gas resources during times when domestic prices of natural gas are depressed; and (iii) subsidizes the production of a quantity of natural gas that can be deployed on short notice when and if market prices induce the cancellation of the export of LNG cargoes, thereby mitigating price volatility that may otherwise arise and ensuring that domestic supplies will be available over the duration of commodity market cycles.

CMI commissioned a report by Advanced Resources International ("ARI"), *U.S. Natural Gas Resources and Productive Capacity: Mid-2012* ("ARI Resource Report"),[42] to assess the scope of domestic natural gas resources and their potential for future recovery. The ARI Resource Report, as well as publicly available information, demonstrate that the U.S. has significant natural gas resources available to meet projected future domestic needs, including the quantities contemplated for export under this Application. The ARI Resource Report also shows that the incremental price impact of such exports is modest in comparison to the benefits garnered by the CCL Project, and indeed when compared to the normal year-to-year price volatility in the natural gas market, are statistically insignificant. In this regard, CMI submits that the need for the LNG export capability to be provided by the CCL Project is unequivocally supported by the existing and projected trends concerning U.S. gas demand and supply.

1. *National Supply – Overview*

Domestic natural gas production has expanded rapidly in recent years as innovations in new drilling and completion technologies have increased productivity. Since 2005, U.S. marketed natural gas production has grown 27.4%, to 24.17 trillion cubic feet ("Tcf") (66.2

[42] The ARI Resource Report is attached hereto as Exhibit C. Also included as Exhibit C is a 2010 version of the ARI Resource Report dated August 26, 2010.

Bcf/d) in 2011, representing the highest U.S. production levels in U.S. history.[43] Increased drilling productivity has enabled domestic production to continue expanding despite a recent reduction in capital deployed by industry in upstream development.

The robust outlook for future increases in U.S. natural gas supply capacity has been reflected in recent industry evaluations. Proved U.S. reserves of wet natural gas in 2010 expanded by 33.8 Tcf to 317.6 Tcf, according to the EIA, representing the largest annual increase and the largest quantity of domestic proved natural gas reserves in U.S. history.[44] The Potential Gas Committee of the Colorado School of Mines ("Potential Gas Committee") in April 2011 raised its prior estimates of the U.S. technically recoverable gas resource base by 89 Tcf to 1,898 Tcf at year-end 2010.[45] Including 273 Tcf of established proved domestic natural gas reserves as of year-end 2009, the Potential Gas Committee determined that the U.S. possesses future available gas supply of 2,170 Tcf, the highest resource evaluation in the group's 44-year history.[46] Most of the increase arose from the Potential Gas Committee's reevaluation of gas plays in the Gulf Coast, Mid-Continent and Rocky Mountain areas.

The ARI Resource Report provides additional independent analysis of the unconventional natural gas resource base in the U.S. to supplement publicly available information on conventional onshore and offshore gas resources. ARI estimates that the U.S. possesses technically recoverable natural gas resources totaling 2,915 Tcf, including 1,897 Tcf of proved and technically recoverable unconventional gas resources plus 1,012 Tcf of recoverable

---

43 *See* EIA, *Natural Gas Gross Withdrawals and Production*, *supra* note 13.

44 *See* EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2010*, at 1 (Aug. 2012), http://www.eia.gov/naturalgas/crudeoilreserves/pdf/uscrudeoil.pdf.

45 *See* Press Release, Potential Gas Committee, Potential Gas Committee Reports Unprecedented Increase In Magnitude of U.S. Natural Gas Resource Base, at 2 (Apr. 27, 2011), http://potentialgas.org/press-release.

46 *Id.* at 2.

conventional resources identified by EIA.[47] Of this total, 318 Tcf represent proved natural gas reserves and 2,597 Tcf comprise undiscovered or inferred resources.[48] Unconventional gas-bearing formations account for 65.3% of technically recoverable domestic gas resources and include 1,219 Tcf of recoverable reserves from unconventional gas formations, 561 Tcf from tight sandstones, and 124 Tcf from coalbed formations.[49]

ARI's assessment of 2,915 Tcf of recoverable domestic natural gas reserves represents an increase of 330 Tcf, or 19.5%, from its resource estimate of 2,585 Tcf provided in August 2010.[50] The ARI Resource Report notes that recoverable natural gas estimates in the U.S. have continued to grow due to (i) improvements in drilling and oilfield service technologies that have expanded the quantity of natural gas resources that can be commercially recovered in established unconventional basins; (ii) the addition of previously unidentified unconventional resources that have been demonstrated as productive through drilling and development activities;[51] and (iii) growth in estimates of associated natural gas resources in emerging unconventional fields rich in petroleum liquids, such as the Eagle Ford in South Texas, the Avalon and Bone Spring basins in West Texas and the Granite Wash in the Anadarko Basin.[52]

ARI's assessment of 2,915 Tcf of technically recoverable resources represents over 120 years of supply at recent domestic demand levels. Furthermore, ARI projects that technology

---

47 ARI, *U.S. Natural Gas Resources and Productive Capacity: 2012* (Aug. 2012), at 1, 10 [hereinafter *ARI Resource Report*].

48 *Id.* at 10.

49 *Id.*

50 *Id.*; ARI, *U.S. Natural Gas Resources and Productive Capacity* (Aug. 26, 2010), at 8.

51 ARI specifically identifies the Utica, Niobrara, Avalon, Wolfcamp and Woodford (Cana) formations as new plays that have been successfully delineated by exploratory drilling and demonstrated as productive, and therefore contribute to updated resource estimates since 2010. Other unconventional plays, including the Collingswood, Mancos, Baxter, Tuscaloosa and Brown Dense, are not included in current estimates but could be demonstrated as productive by future industry investment. *ARI Resource Report*, *supra* note 47, at 12.

52 *Id.* at 3.

gains will continue to drive production costs lower and augment recoverable natural gas reserves in the future. Remaining recoverable domestic unconventional gas resources, for example, are projected to increase 17.7%, or 216 Tcf by 2035 to 1,435 Tcf from their current assessment of 1,219 Tcf, due to steady improvements in well performance and technology progress.[53] The cumulative quantity of exports requested pursuant to this Application would represent only 7.48% of the additional resources that ARI projects will be gained through technological progress over the course of the forecast period.

The ARI Resource Report and publicly available information demonstrate that the U.S. has sufficient natural gas resources available at modest prices to meet projected domestic demand over the next 25 years. Further, the ARI Resource Report establishes that the availability of new natural gas reserves is likely to continue expanding into the future as new unconventional formations are discovered and the oil and gas industry continues to improve drilling and extraction techniques.

2. *Regional Supply*

In addition to a national analysis, the ARI Resource Report identifies regional natural gas resources that are relatively proximate to the CCL Project ("Corpus Christi Supply Area") and can be reasonably expected to contribute to natural gas supply available for export. The ARI Resource Report identifies a total of 1,073 Tcf of technically recoverable natural gas in the Corpus Christi Supply Area alone.[54] Resources are potentially recoverable from multiple gas-yielding formations in the region, and the ARI Resource Report assesses both those thermally mature basins that yield only dry natural gas, and those formations that contain recoverable

[53] *Id.* at 11.

[54] *Id.* at 39.

hydrocarbons in association with natural gas, including NGLs, condensates and crude oil.[55] The Corpus Christi Supply Area is notable for its high concentration of natural gas resources in liquids-rich basins that can be extracted in association with other hydrocarbons. The ARI Resource Report has identified 167 Tcf of dry natural gas resources that can be recovered in association with tight oil or NGLs.[56] An additional 88 Tcf of associated natural gas can be recovered from conventional oil plays in the Corpus Christi Supply Area.[57]

3. *National Natural Gas Demand*

In its Annual Energy Outlook 2012 ("AEO 2012") Reference Case, EIA predicts the domestic market to grow at only a 0.4% annual rate over the next 25 years, expanding to 26.63 Tcf (73.0 Bcf/d) in 2035 from 24.13 Tcf (66.1 Bcf/d) in 2010.[58] AEO 2012 includes an alternative High Economic Growth Case scenario, which represents a more robust demand outlook if future economic growth exceeds expectations, and is used in the ensuing analysis as an upper bound on potential future growth in domestic natural gas demand. Under the High Economic Growth Case, AEO 2012 forecasts long-term annual U.S. natural gas demand to grow an average 0.6%, reaching 28.17 Tcf (77.2 Bcf/d) in 2035.[59]

---

[55] These liquids-rich resources consist of fields containing natural gas with high Btu content that yield NGLs following processing, and basins rich in oil that produce casinghead natural gas in association with recovered liquids.

[56] *Id.* at 41.

[57] *Id*.

[58] EIA, *Annual Energy Outlook 2012* (June 2012), http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf [hereinafter *AEO 2012*]. *See AEO 2012* Reference Case, at Table 13, *Natural Gas Supply, Disposition and Prices* (June 25, 2012), http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO_2012&subject=0-AEO2012&table=13-AEO 2012&region=0-0&cases=ref2012-d020112c.

[59] *See AEO 2012* High Economic Growth Case, at Table 13, *Natural Gas Supply, Disposition and Prices* (June 25, 2012), http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO_2012&subject=0-AEO_2012&table=13-AEO2012&region=0-0&cases=hm2012-d022412a.

a. *Industrial Sector*

Consumption of natural gas by U.S. industrial end-users is projected to see limited expansion through 2035. The AEO 2012 Reference Case projects U.S. industrial sector demand will grow an average of 0.2% annually to total 7.0 Tcf (19.18 Bcf/d) in 2035 from 6.6 Tcf (18.2 Bcf/d) consumed in 2010.[60] In the AEO 2012 High Economic Growth Case, industrial demand is forecast to expand by 0.6% annually, to 7.65 Tcf (20.96 Bcf/d) in 2035.[61]

b. *Residential and Commercial Sectors*

EIA is forecasting a contraction in future residential consumption of natural gas as customer growth is offset by efficiency gains and household migration to milder climates. U.S. residential natural gas demand is forecast in the AEO 2012 Reference Case to decline an annual average of -0.2% to 4.64 Tcf (12.7 Bcf/d) in 2035 from 4.94 Tcf (13.4 Bcf/d) in 2010.[62] In the High Economic Growth Case of AEO 2012, residential demand is projected to remain flat at 4.96 Tcf by 2035.[63]

Commercial sector natural gas use is projected to experience modest annual growth of 0.5% in the AEO 2012 Reference Case, reaching 3.60 Tcf (9.86 Bcf/d) in 2035 from 3.20 Tcf (8.77 Bcf/d) in 2010.[64] In the High Economic Growth Case of AEO 2012, commercial demand is projected to grow 0.5% annually and reach 3.62 Tcf (9.92 Bcf/d) by 2035.[65]

---

60 *See AEO 2012* Reference Case, *supra* note 58.

61 *See AEO 2012* High Economic Growth Case, *supra* note 59.

62 *See AEO 2012* Reference Case, *supra* note 58.

63 *See AEO 2012* High Economic Growth Case, *supra* note 59.

64 *See AEO 2012* Reference Case, *supra* note 58.

65 *See AEO 2012* High Economic Growth Case, *supra* note 59.

c. *Electricity Sector*

Demand by the electric generating sector is forecast in the AEO 2012 Reference Case to increase an average of 0.8% per year, expanding to 8.96 Tcf (24.55 Bcf/d) in 2035 from 7.38 Tcf (20.22 Bcf/d) in 2010.[66] In the AEO 2012 High Economic Growth Case, electricity sector demand is projected to grow 1.0% annually and reach 9.37 Tcf (25.67 Bcf/d) by 2035.[67]

d. *Transportation Sector*

Natural gas consumed for residential and commercial transportation accounts for a small portion of domestic demand. In 2011, 32.85 Bcf of natural gas was used in the U.S. for vehicle fuel, or approximately 0.1% of the total U.S. gas market of 23.2 Tcf.[68] From this small base, EIA in its AEO 2012 Reference Case forecasts that transportation sector demand will grow 5.9% annually to 0.16 Tcf (0.44 Bcf/d) in 2035.[69] In the AEO 2012 High Economic Growth Case, demand in the transportation sector is projected to grow 6.1% annually and reach 0.17 Tcf (0.47 Bcf/d) by 2035.[70]

4. *Supply-Demand Balance Demonstrates the Lack of National and Regional Need*

Recent trends in the U.S. natural gas market make evident that the request for authorization to export domestic natural gas as LNG from the CCL Project is consistent with the public interest. U.S. natural gas production has been growing at more than twice the rate of domestic demand growth since 2005.[71] The inability of the U.S. market to absorb incremental

---

66 *See AEO 2012* Reference Case, *supra* note 58.

67 *See AEO 2012* High Economic Growth Case, *supra* note 59.

68 *See* EIA, *Natural Gas Consumption by End Use* (Aug. 8, 2012), http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm.

69 *See AEO 2012* Reference Case, *supra* note 58.

70 *See AEO 2012* High Economic Growth Case, *supra* note 59.

71 Numerous articles have documented the widespread shut-in of natural gas in 2012 and the impact on producers of the current over-supply situation: *Encana reverses loss, will shut in 600,000 Mcf/d*, Gas Daily, Apr. 26, 2012,

supplies has slowed investments and forced the shut-in of actively producing wells in marginal natural gas fields, creating spare capacity and non-productive resources.[72] These trends demonstrate that available natural gas reserves exceed current demand, and that future resources exist well in excess of projected long-term domestic needs.

a. *National Need*

The Reference Case and High Economic Growth Case of the AEO 2012 provide a reasonable range of expectations for future domestic natural gas market needs, provided that natural gas demand meets or exceeds EIA's long-term outlook. According to these scenarios, domestic demand growth for natural gas will average between 0.4% and 0.6% annually over the next 25 years, leading to a domestic market between 26.63 Tcf and 28.17 Tcf by 2035. Over this same period of time, domestic natural gas production is projected to grow between 1.0% and 1.2% per year on average, or approximately twice the rate of growth in domestic natural gas demand. The EIA anticipates that the U.S. will become a net exporter of natural gas after 2022 under both future market scenarios.[73] Domestic natural gas production is expected to exceed domestic consumption by between 1.2 Tcf and 1.6 Tcf (3.2 Bcf/d to 4.4 Bcf/d) by 2035. This surplus of deliverable supply in excess of foreseeable U.S. market needs demonstrates that resources are available for export and would not interfere with the public interest.

The matter of domestic need also can be assessed by comparing cumulative future consumption with the potential recoverable natural gas resources within the U.S. The AEO 2012

---

at 1; *Conoco Phillips Shuts in More Gas*, Natural Gas Intelligence, Apr. 30, 2012, at 1; *Chesapeake Slashes Gas Drilling, Production*, Oil Daily, Jan. 24, 2012, at 1.

[72] Producers in 2010 reported to EIA a net decline of 5,473 producing U.S. natural gas wells (to 487,627 wells from 493,100 producing wells in 2009), the first contraction in the number of active domestic gas wells since 1999. Despite the decline in producing wells, dry U.S. natural gas production grew by 709 Bcf (1.9 Bcf/d) in 2010 (to 21.3 Tcf from 20.6 Tcf). *See* EIA (July 31, 2012), http://www.eia.gov/dnav/ng/hist/na1170_nus_8a.htm; EIA, *Natural Gas Gross Withdrawals and Production* (July 31, 2012), http://www.eia.gov/dnav/ng/ng_prod_sum_dcu_NUS_a.htm.

[73] *See AEO 2012* Reference Case, *supra* note 58; *AEO 2012* High Economic Growth Case, *supra* note 59.

forecasts that cumulative natural gas consumption in the domestic market over 25 years will total 640.3 Tcf, and potentially up to 657.9 Tcf in the case of strong future economic growth.[74] The combined 657.16 Tcf to 674.8 Tcf of demand needs from the domestic market plus maximum exports from the CCL Project represent between 29.8% and 30.6% of EIA's estimate of 2,203.3 Tcf of technically recoverable natural gas resources. Considering the 2,915 Tcf of recoverable domestic natural gas resources estimated by ARI, the combined 657.16 Tcf to 674.8 Tcf of future demand needs from the domestic market plus maximum exports from the CCL Project represent between 22.5% and 23.1% of recoverable resources. The availability of natural gas resources in excess of those required to meet both domestic needs and exports from the CCL Project demonstrate that exports will not interfere with the domestic need.

The ARI Resource Report further establishes that available natural gas resources will exceed future domestic need, and that spare productive capacity will remain available to meet future demand. The ARI Resource Report examines its natural gas resource assessment in the context of the EIA's latest demand Reference Case in AEO 2012 for the U.S. natural gas market through 2035. Using the AEO 2012 reference outputs and holding all other variables constant, ARI used its Technology Model for Unconventional Gas Supply to re-assess the outlook for domestic natural gas productive capacity in light of EIA's projected track for future U.S. natural gas prices.[75]

The substitution of ARI's productive capacity is appropriate given that EIA historically has underestimated the future contributions of unconventional gas to domestic markets. As recently as the 2010 AEO, EIA projected unconventional gas production by 2035 would reach

---

[74] Data represents aggregation of U.S. total natural gas consumption between 2011 and 2035. *See AEO 2012*, *supra* note 58.

[75] *See AEO 2012*, *supra* note 58.

16.5 Bcf/d, a level actually achieved in 2011. In its 2011 AEO, EIA predicted unconventional gas production of 15 Bcf/d in 2011, compared to actual unconventional gas production levels of 18 Bcf/d for 2011.

ARI estimates U.S. unconventional gas productive capacity alone will grow to 86.3 Bcf/d in 2035 from 42.5 Bcf/d in 2011.[76] ARI subsequently merged its unconventional productive capacity findings with the AEO 2012 projections for conventional domestic dry production. The combined data demonstrate that U.S. natural gas productive capacity would grow to 103.0 Bcf/d in 2035 from 65.3 Bcf/d in 2011 at the future market price track forecast by EIA, an increase of 57.7%.[77] The rate of growth in domestic productive capacity would well exceed EIA expectations for future U.S. demand growth of 0.4% annually presented in its AEO 2012 Reference Case.[78] Under the modified supply case presented by ARI, domestic natural gas productive capacity would exceed projected U.S. demand by 6.6 Bcf/d in 2015, 10.3 Bcf/d in 2025, and 27.3 Bcf/d in 2035.[79]

The AEO 2012, ARI Resource Report and other publicly available information demonstrate that the U.S. has sufficient natural gas resources available at modest prices to meet projected domestic demand over the 22-year period requested by CMI in this Application. These reports establish that the availability of new natural gas reserves is likely to continue expanding into the future as new unconventional formations are discovered and the oil and gas industry continues to improve drilling and extraction techniques. This anticipated future surplus of

---

[76] *ARI Resource Report*, *supra* note 47, at 24.

[77] *Id.*

[78] *Id.* at 27.

[79] *Id.*

deliverable supply in excess of domestic needs demonstrates that the resources proposed for export by the CCL Project are not required to meet domestic needs.

b. *Regional Need*

(1) *Regional Supply Competition*

Historically the Gulf Coast region has been a large net exporter of natural gas to other major consuming regions of the U.S. due to the region's prolific resources, well developed midstream infrastructure, and access to numerous major interstate pipeline networks. The prospects for future exports from the Gulf Coast region have been challenged by the rapid development of emerging unconventional natural gas basins that are more proximate to or within major downstream consuming markets. The most notable example is unconventional gas in the northeastern region of the U.S., where recent drilling activity in Pennsylvania and West Virginia has generated rapid growth in deliverability in a short duration of time.[80]

Natural gas supplies transported by pipeline from the Gulf Coast in recent years have accounted for approximately three-quarters of the natural gas used in the northeastern region of the U.S.[81] Deliverability from supply basins in the Northeast U.S. in July 2012 was assessed at 7.19 Bcf/d, a sufficient level of production to independently satisfy over two-thirds of expected future demand needs in the northeastern region of the U.S.[82] Additional near-term growth is

---

[80] Natural gas production from the Marcellus region averaged 3.69 Bcf/d in 2011, a 954% increase from average annual production of 0.35 Bcf/d in 2009. *See* Lippman Consulting, *available by subscription at* http://www.lippmanconsulting.com/.

[81] Pipelines that originate in the Gulf Coast and ship natural gas to the Northeast include TRANSCO, TGP, TETCO and the Columbia Gulf Transmission system. These pipelines together transported between 6.6 Bcf/d and 7.7 Bcf/d (2.41 Tcf – 2.81 Tcf) into the Northeast region during the 2006-2008 period. *See* Federal Energy Regulatory Commission Office of Market Oversight, *Northeast Natural Gas Market: Overview and Focal Points*, at 3 (updated Sept. 30, 2009), http://www.ferc.gov/market-oversight/mkt-gas/northeast/ngas-ne-reg-des.pdf. Annual natural gas consumption in the Mid-Atlantic and New England regions totaled between 3.08 and 3.4 Quadrillion Btus (3.00-3.3 Tcf) during the 2006-2008 period. *See* EIA Annual Energy Outlook 2009, http://www.eia.gov/oiaf/aeo/supplement/stimulus/arra/excel/sup_t2t3.xls.

[82] *See* Lippman Consulting data, *available by subscription at* http://www.lippmanconsulting.com/. The *AEO 2012* Reference Case projects combined natural gas consumption in the Mid-Atlantic and New England regions at

anticipated in Northeast natural gas basin deliverability as midstream infrastructure is completed to tie-in wells that have been drilled but are not yet producing.[83] Furthermore, additional natural gas basins located in the northeastern and midwestern regions of the U.S. have been identified and over the long term are likely to be developed and help meet future market needs in these downstream markets.[84]

Long-term growth in natural gas deliverability in Northeast U.S. natural gas basins ultimately creates the conditions for consumers in the Northeast to be reliant in the future predominantly on supplies sourced from within their region. Multiple pipeline projects have been proposed to move expanding natural gas supplies from the region into other downstream markets, such as the midwestern and southeastern regions of the U.S.[85] Those projects would intensify gas-on-gas competition in markets traditionally served by suppliers from the Gulf Coast region, thereby reducing the public's need for those supplies in the future. In particular, the relatively longer distance and associated higher cost of transportation to reach downstream markets from relatively remote basins in areas such as South and West Texas will make these sources of natural gas supplies increasingly non–competitive. Without expansion in local markets, increased inter-regional supply competition within the U.S. will potentially result in stranded natural gas resources in remote areas such as South and West Texas. The decline in

---

4.04 Quadrillion Btus by 2035, or 3.93 Tcf (10.78 Bcf/d). *See AEO 2012* Reference Case, *supra* note 58. Production as of June 2012 from the Marcellus formation represents 61.9% of these future demand needs.

83 Bentek Energy estimates that at mid-2012 over 1,000 wells had been drilled into the Marcellus formation but were not yet producing due to inadequate infrastructure, and that these drilled but non-producing wells will support 1 Bcf/d of additional production growth by the end of 2012. *See Marcellus Still Hasn't Gotten the Memo on Production Cuts*, NGI's Shale Daily, July 27, 2012.

84 Notable other unconventional plays under development in the Midwest and Northeast regions include: the Utica area in Ohio, West Virginia and Pennsylvania; the Collingswood in Michigan; the Huron in Kentucky, West Virginia, Virginia and Ohio; and the New Albany in Illinois, Indiana and Kentucky.

85 These projects include TRANSCO's Atlantic Access Project and the Leidy Southeast Project; Spectra Energy Corp.'s Renaissance Gas Transmission Project; TETCO's Uniontown to Gas City Expansion Project; ANR Pipeline's Lebanon Lateral Project; and the Commonwealth Pipeline proposed by Inergy Midstream LP, UGI Energy Services Inc. and Capitol Energy Ventures Corp., a unit of WGL Holdings Inc.

anticipated domestic future needs by the nation for regional natural gas supplies from the Gulf Coast lends further support that resources to be exported from the CCL Project will not interfere with the public interest.

(2) *Natural Gas Flaring*

The U.S. has experienced a notable expansion in the rate of natural gas flaring in recent years due to greater drilling activity targeting petroleum in tight formations. Consistent with the national trend, operators in the State of Texas have significantly increased their frequency of natural gas flaring as liquids development proceeds in basins located within the Corpus Christi Supply Area. The Railroad Commission of Texas ("TRC") has reported that requests for permits in the State of Texas to flare natural gas at the wellhead have tripled since 2009.[86] Data available from the TRC is summarized in Exhibit D, and demonstrate that the total volume of natural gas vented and flared at the wellhead in Texas from both oil and natural gas wells approximately doubled in 2011 to 12.5 Bcf from 6.3 Bcf in 2010, due to a significant increase in the venting and flaring of casinghead gas from oil wells. Volumes of vented and flared casinghead natural gas in Texas totaled 10.2 Bcf in 2011, an increase of 138% and 208%, respectively, from total vented and flared casinghead volumes of 4.3 Bcf in 2010 and 3.3 Bcf in 2009. Through April 2012, combined wellhead flaring in Texas from both oil and natural gas wells totaled 6.3 Bcf, and is on pace to grow by approximately 50% to 18.6 Bcf in 2012. Casinghead flaring in Texas through April 2012 totaled 5.8 Bcf, an increase of 140.8% over the same four-month period in 2011. The

[86] The TRC approved 651 permits to flare natural gas in fiscal year 2011, more than double the 306 approved in 2010 and 312% higher than the 158 flaring permits approved in fiscal year 2009. *See* NGI Shale Daily, *Permits to Flare Texas Gas Skyrocket; Eagle Ford Booms* (Jan. 19, 2012), *available by subscription at* http://shaledaily.com/news/sd20120119e.shtml.

majority of the increased flaring has occurred in the Eagle Ford area in South Texas and in the Permian and Midland basins in West Texas.[87]

The expanded practice of flaring in Texas can be attributed to several factors, including the wide disparity between petroleum and natural gas prices, the influence of low natural gas prices on industry practices, and delays in the start of associated gas gathering infrastructure as liquids-focused development proceeds in new fields. Nevertheless, the increasingly frequent decision of operators in the region to burn rather than monetize associated natural gas resources demonstrates that surplus resources are presently available for alternative uses that would not interfere with the public interest. Furthermore, EIA projects that petroleum prices will continue to trade at a large premium to natural gas prices over the duration of their 25-year forecasting horizon.[88] This market dynamic encourages the prioritization of liquids production over natural gas production, and establishes the conditions for further growth in flaring at both the national and regional level. Based on EIA's long-term outlook for oil and natural gas prices, the ARI Resource Report projects the Corpus Christi Supply Area will see a near four-fold increase by 2035 in associated natural gas productive capacity from tight oil or liquids-rich plays, to 10.2 Bcf/d from 2.7 Bcf/d in 2011.[89] Unless markets are developed for these incremental sources of natural gas, growth in future natural gas flaring is likely.

---

87 Areas comprising South Texas and West Texas accounted for a combined 93.1% of casinghead venting and flaring in Texas in 2011. Calculations include TRC Railroad Districts 1, 2 and 4 for South Texas and TRC Districts 8, 8A and 7C for West Texas. In 2011, a total 3.8 Bcf and 5.7 Bcf of associated gas was vented or flared at the wellhead in South Texas and West Texas, representing 37.3% and 55.8%, respectively, of total casinghead flaring in the state.

88 The *AEO 2012* projects that the price of U.S. light crude in constant 2010 dollars will increase from $92.86 per barrel in 2011 to $144.98/bbl in 2035. The price of wellhead natural gas in constant 2010 dollars is projected to increase from $3.72 per MMBtu to $6.48/ MMBtu over this same period. The projected price of domestic oil in 2035 would trade at 22.4 times the projected price of natural gas at the wellhead, compared to energy price equivalence of 5.8 MMBtu per barrel of oil. *See AEO 2012*, Reference Case, at Table 1, *Total Energy Supply, Disposition, and Price Summary*, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2012&subject=0-AEO2012&table=1-AEO2012&region=0-0&cases=ref2012-d020112c.

89 *See ARI Resource Report*, *supra* note 47, at 42.

5. *Price Impacts*

The natural gas industry has benefited in recent years from the completion of numerous econometric studies by EIA and other third-party analysts that project the impact on domestic natural gas markets that would result from future LNG exports. At the request of the DOE, EIA prepared an analysis ("EIA Export Report"), which estimates that future LNG export levels between 6 Bcf/d and 12 Bcf/d would result in an average increase of 3% to 9% in domestic consumer prices for consumers over a 20-year period.[90] The EIA Export Report uses multiple modeling scenarios to consider a range of exogenous assumptions, including scenarios with total future LNG export volumes from the Gulf Coast region of 6 Bcf/ and 12 Bcf/d. These scenarios consider a moderate and rapid introductory pace for future LNG exports of 1 Bcf/d and 3 Bcf/d per year after 2015.[91]

Third-party reports and testimony have identified limitations in the methodology employed in the EIA Export Report. First, several of the scenarios represented in the EIA Export Report suggest large hypothetical price impacts resulting from LNG exports, which may be unlikely to prevail based on rational market behavior.[92] Second, the National Energy Modeling System ("NEMS") utilized by EIA for the simulations presented in the EIA Export Report are

---

[90] Energy Information Administration, *Effect of Increased Natural Gas Exports on Domestic Energy Markets, as requested by the Office of Fossil Energy* (Jan. 2012), at 15.

[91] *Id*. at 1.

[92] Problematic scenarios identified include cases that assume rapid initial exports of 3 Bcf/d annually, which would exceed historical rates of global LNG demand growth by approximately 150% per year and thus be extremely difficult to absorb in international markets; and scenarios of low performing unconventional natural gas recovery coupled with high and rapid export growth, since the reality of below-expectation unconventional natural gas well performance would lead to higher domestic prices and reduce the incentive to export. *See* Brookings Institute Energy Security Initiative, *Liquids Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas* ("Brookings Report"), at 30-31; Kate Winston, *EIA study overstates LNG export potential: panel*, Gas Daily, Jan. 25, 2012, at 1; Navigant Consulting, *Whitepaper: Analysis of the EIA Export Report 'Effect of Increased Natural Gas Exports on Domestic Energy Markets'*, Jan. 19, 2012 (and included in the Jordan Cove DOE non-FTA application (Feb. 2012)), at 6.

not integrated as part of a global model.[93] The outcomes therefore do not reflect that interactions with the international market will influence the volume of actual LNG traded, and that resulting reactions in global markets would serve to inhibit aggressive growth in future LNG exports.[94] EIA acknowledged that while the assumptions behind the scenarios it modeled were fixed and not responsive to market signals, "[i]n reality, given available prices in export markets, lower or higher U.S. natural gas prices would tend to make any given volume of additional exports more or less likely."[95] The removal of outlier scenarios from consideration would serve to reduce the impacts of future LNG exports on consumer prices as stated in the EIA Export Report.

Furthermore, the NEMS model utilized by EIA for its analytical work represents a static model structure. The NEMS model assumes that market participants react to, rather than anticipate, future events. Given that the start of future LNG exports will require long lead times and will be eminently foreseeable by market participants, this underlying assumption of the NEMS model does not realistically depict market behavior and would otherwise overstate the price impact resulting from future LNG exports.[96] An alternative analysis to the EIA Export Report was prepared by Deloitte Marketpoint LLC ("Deloitte Report"). The Deloitte Report utilizes a dynamic pricing model to forecast the market impacts of LNG exports.[97] The Deloitte

---

93 *See* EIA Export Report, at 3.

94 Kenneth B. Medlock III, *US LNG Exports: Truth and Consequence*, James A. Baker Institute for Public Policy, Rice University, Aug. 10, 2012, at 5 ("Rice Report").

95 *Id.* at 4.

96 *See* Brookings Report, *supra* note 92, at 31 ("In reality, the expectation of future demand would likely induce gas producers to invest in additional production before incremental demand occurs. As a result, the increase in prices would likely begin earlier and peak at a lower level than suggested by the [EIA] model."). *See* Rice Report, *supra* note 94, at 15 ("When considering the price impact of *expected* events, such as the opening of an LNG export terminal, the long-run elasticity is a more appropriate representation of supply responsiveness. Producers know the additional market "demand" in the form of exports is coming as the development plans are common knowledge. Thus, the additional demand should not be treated as an unknown.").

97 Deloitte Center for Energy Solutions and Deloitte MarketPoint LLC, *Made In America: The Economic Impact of LNG Exports From the United States* (2011),

Report projects that the export of 6 Bcf/d from the Gulf Coast region will result in a weighted average citygate price impact of $0.12 per MMBtu from 2016 to 2035, representing a 1.7% increase in average consumer prices over that time period.[98] The Deloitte Report notes that the North American natural gas market is highly integrated, and that wholesale price impacts would be much lower in downstream markets that are not proximate to the source of LNG exports.[99]

These studies support a growing consensus within the industry and policy community that the impact on domestic natural gas prices resulting from LNG exports would be small.[100] Productivity gains from improved drilling technologies in emerging unconventional basins increase the scope of domestic resources available at lower prices while decreasing the time required for suppliers to respond to market signals. The result has been a dramatic increase in the elasticity of domestic natural gas supply, which enables the industry to respond with robust increases in supply to modest increases in prices.[101] Further advances in technology are expected to increase recoverable reserves by 17.7% over the long term,[102] while additional

---

https://www.deloittemarketpoint.com/Documents/Made%20in%20America%20-%20The%20economic%20impact%20of%20LNG%20exports%20from%20the%20United%20States.pdf#45.

98 *Id*. at 2.

99 The Deloitte Report predicts that Henry Hub and Houston Ship Channel gas prices would increase by $0.22/MMBtu and $0.20/MMBtu, respectively, as a result of 6 Bcf/d of LNG exports from the Gulf Coast, while downstream consumers in places such as Illinois, New York and California would experience price increases of about $0.10/MMbtu or less. *Id*. at 8.

100 *See* Deloitte Report, at 1 ("… the magnitude of domestic price increase that results from the export of natural gas in the form of LNG is likely quite small."); Brookings Report, *supra* note 92, at 46 ("While it is clear that domestic natural gas prices will increase if natural gas is exported, most existing analysis indicate that the implications of this price increase are likely to be modest."); Rice Report, *supra* note 94, at 33 ("… the export of LNG in any reasonable volume from the US should not have a significant impact on the price at the margin.").

101 The Rice Report estimates that development of unconventional natural gas has lead to a five-fold increase in the elasticity of domestic supply between prices of $4 and $6 per Mcf. The report estimates supply elasticity in that price range of approximately 1.52, suggesting a 1% increase in price would lead to a 1.52% increase in supply. Rice Report, at 32.

102 *See ARI Resource Report*, *supra* note 47, at 11.

discoveries of productive resources are likely in the future. Both of these trends will serve to further reduce the future price impacts associated with LNG exports.

B. Other Public Interest Considerations

1. *Promote long-term stability in natural gas markets*

Robust supply growth has led to historically low prices and prompted domestic producers to slow drilling, defer completions of recently drilled wells and reduce plans for future investments in natural gas producing basins.[103] The inability of domestic demand for natural gas to expand at a rate commiserate with demonstrated supply growth in unconventional basins has created excess productive capacity, in which the potential production of marketed natural gas in the United States far exceeds actual deliverability to domestic consumers.[104] The quantity of proved yet non-productive domestic natural gas reserves in the United States has more than doubled since 2004.[105] Producers have been aggressively shutting in natural gas wells since 2010.[106] Other indications of growing excess productivity capacity are prevalent in the domestic natural gas industry, including increasing reliance on flaring to dispose of wellhead production,

---

[103] Numerous articles have documented the widespread shut-in of natural gas in 2012 and the impact on producers of the current over-supply situation: *Encana reverses loss, will shut in 600,000 Mcf/d*, Gas Daily, April 26, 2012, at 1; *Conoco Phillips Shuts in More Gas*, Natural Gas Intelligence, April 30, 2012, at 1; *Shut-ins Could Reach 1 Tcf-Plus, Say Analysts*, Natural Gas Intelligence, February 13, 2012, at 1; *Chesapeake Slashes Gas Drilling, Production*, Oil Daily, January 24, 2012, at 1.

[104] ARI estimates that spare productive capacity in 2012 totals 2.3 Bcf/d. *See ARI Resource Report*, *supra* note 47, at 24.

[105] Proved reserves in non-producing reservoirs have grown by 120% since 2004, to 113.4 Tcf in 2010 compared to 51.4 Tcf of proved non-producing reserves in 2004. *See* EIA *Proved Nonproducing Reserves* (Aug. 2, 2012), http://www.eia.gov/dnav/ng/ng_enr_nprod_a_EPG0_R9908_Bcf_a.htm.

[106] Producers in 2010 reported to EIA a net decline of 5,473 actively producing U.S. natural gas wells, to 487,627 wells from 493,100 producing wells in 2009, the first contraction in the number of actively producing domestic gas wells since 1999. A total of 16,973 gas exploratory and development wells were drilled in 2010, suggesting that up to 22,446 potentially active gas wells were shut-in during 2010. *See* EIA (July 31, 2012), http://www.eia.gov/dnav/ng/hist/na1170_nus_8a.htm; EIA, *Crude Oil and Natural Gas Exploratory and Development Wells* (Aug. 6, 2012), http://www.eia.gov/dnav/ng/ng_enr_wellend_s1_a.htm.

consecutive years of record-high storage inventories,[107] and a growing backlog of drilled but non-producing wells in many natural gas basins.

The growth in excess natural gas productive capacity represents an inefficient allocation of market resources, and a lost opportunity to expand jobs, investment opportunities, associated economic activity and local, state, and federal revenues in the United States. The ability to export domestic natural gas as LNG from the CCL Project will greatly expand the market scope and access for natural gas producers and thus serve to encourage domestic production at times when U.S. market prices might not otherwise do so. Furthermore, a market-responsive contract structure for LNG exports as pursued by CMI will provide an incentive for customers to cancel exports and supply incremental gas to the market during periods of heavy need, thereby reducing the peaks in prices that would otherwise occur. The combination of more stable pricing during periods of excess supply and reduced price spikes during periods of supply shortage will serve to reduce long-term volatility in domestic natural gas markets. In this regard, exports will promote greater stability in the investment cycle for natural gas to the benefit of domestic producers and consumers alike.

2. *Benefits to Local, Regional and U.S. Economies*

The construction and operation of the CCL Project will stimulate the local, regional, and national economies through job creation, increased economic activity and tax revenues. Much of the technology, equipment, and material needed to construct the CCL Project will be obtained from U.S. sources. Moreover, the national economy will benefit from the CCL Project's role in

[107] Domestic working gas storage inventories reached a record high of 3,852 Bcf during the week ending November 18, 2011. Working storage inventories previously set record highs of 3,837 Bcf during the week ending November 27 2009, and 3,840 Bcf during the week ending November 5, 2010. *See* EIA, *Weekly Working Gas in Underground Storage* (Aug. 23, 2012), http://www.eia.gov/dnav/ng/ng_stor_wkly_s1_w.htm.

supporting the E&P value chain for natural gas extraction.[108] This stimulus will have a profound multiplier effect due to the wages, taxes and lease payments involved in the natural gas supply chain.

The economic benefits of the CCL Project are quantified in the Perryman Report.[109] The Perryman Report considers a low- and high-case scenario to evaluate, among other indicators, the impacts to gross product, personal income, tax revenues and employment (expressed as annual and person-years of employment) that are anticipated to result from the construction and operation of the CCL Project.

a. *Direct Economic Benefits*

The CCL Project will provide a significant source of employment, economic activity and tax revenues to the regional and national economies. Direct spending by CCL and CCP during the construction phase of the CCL Project is expected to average between $37.9 million and $51.2 million per month over five years.[110] Total spending (including direct, indirect and induced spending) resulting from construction is forecast to average between $123.2 million and $166.4 million over this same period.[111] Most of the construction workforce will come directly from the surrounding community in Corpus Christi and southeastern Texas, creating a direct stimulus to regional economic activity, employment and municipal revenues.[112] In addition, a large share of the materials and equipment used in the construction of the CCL Project will be

---

[108] Natural gas production activity is reported in a total of 32 U.S. states. *See* EIA, *Natural Gas Gross Withdrawals and Production*, *supra* note 13.

[109] Perryman Report, *supra* note 18.

[110] Perryman Report, at 21. All dollar figures reported represent constant 2012 dollars.

[111] *Id*.

[112] As referenced in note 19, the regional impacts are measured by the Perryman Report to the Corpus Christi MSA in South Texas, which includes Nueces, San Patricio and Aransas counties.

sourced from domestic vendors and manufacturers located across the U.S., creating broad impacts associated with Project construction.

(1) Direct Regional Benefits

The Perryman Report predicts that construction of the CCL Project and other pre-operational activity over five years will contribute a cumulative impact between $3.84 billion and $5.18 billion in gross product to the Corpus Christi metropolitan region, and will generate between $413.76 million and $558.55 million in fiscal benefits to municipalities in the region.[113] Construction and pre-occupation activities are forecast to create between 8,223 and 11,101 jobs (equivalent to 41,115 to 55,505 person years of employment), and provide between $2.82 billion and $3.81 billion in personal income to regional workers over the duration of construction.[114]

Following construction, the operation of the CCL Project will provide a stable source of employment, economic stimulus and tax contributions over the long term in the Corpus Christi metropolitan region. Given the large skilled workforce in southeastern Texas, a permanent workforce is expected to be predominantly found within the surrounding area. The projected annual impacts to the Corpus Christi metropolitan region resulting from operations of the CCL Project include 2,141 permanent jobs, $136 million in personal income and $241 million in gross product.[115] Over 25 years of operation, the CCL Project is projected to contribute a cumulative 53,521 person years of employment, $3.41 billion in personal income, and $6.02 billion in gross product in southeastern Texas.[116]

---

[113] *Id.* at 22, 28 for low and high cases, respectively, for gross product. *See id.* at 23, 29 for low and high cases of fiscal benefits. All figures assume a construction period of 5 years.

[114] *Id.* at 22, 28 for low and high cases, respectively of personal income. *See id.* at 23, 29 for low and high cases of employment data, respectively.

[115] *Id.* at 35, 36.

[116] *Id.* at 40-41.

The Perryman Report demonstrates that the impact to Corpus Christi and the surrounding region owing to the construction and operation of the CCL Project will be significant. Over a cumulative 30-year period, construction and operation of the CCL Project is forecast to generate between $6.23 and $7.22 billion in personal income, and between $9.86 and $11.2 billion in gross product for the region.[117] Between 94,636 and 109,027 person years of employment are forecast to be created in the Corpus Christi metropolitan region as a result of the construction and operation of the CCL Project.[118]

(2) Direct State Benefits

Construction and pre-operation activities will increase estimated gross product in the State of Texas between $11.19 billion and $15.11 billion, and generate between $578.43 million and $780.88 million in state taxes.[119] Construction and pre-occupation activities will create between 25,487 and 34,407 jobs (equivalent to 127,435-172,037 person years of employment), and provide between $7.78 billion and $10.50 billion in personal income to workers within the state.[120]

The operation of the CCL Project will provide stable employment and tax revenues to the state economy over the long term. The projected annual impacts to the State of Texas resulting from operations of the CCL Project include 2,873 permanent jobs, $188 million in personal income, and $335 million in gross product.[121] Over 25 years of operation, the CCL Project is

[117] *Id.* at 46-47, 51-52.

[118] *Id.* at 47, 51.

[119] *Id.* at 22-23, 28-29.

[120] *Id.* at 23, 29.

[121] *Id.* at 35-36.

forecast to contribute a cumulative 71,831 person years of employment, $4.70 billion in personal income, and $8.36 billion in gross product to the State of Texas.[122]

The construction and long-term operation of the CCL Project is projected by the Perryman Report to generate significant cumulative benefits for the State of Texas, including $12.48 to $15.20 billion in personal income, $19.56 to $23.47 billion in gross product, and $970.62 million to $1.17 billion in tax benefits.[123] A total of between 199,266 and 243,868 person years of employment are forecast to be created in the State of Texas as a result of the construction and operation of the CCL Project.[124]

(3) Direct National Benefits

The construction and long-term operation of the CCL Project is projected by the Perryman Report to generate significant cumulative benefits for the United States. Activities associated with construction and pre-operation of the CCL Project are projected to increase gross product between $16.05 billion and $21.66 billion, to generate between $1.38 billion and $1.86 billion in federal tax revenues, and to create an additional $219.95 million to $296.93 million in fiscal revenues to states other than Texas.[125] Construction and pre-occupation activities are expected to create between 36,544 and 49,334 nationwide jobs (equivalent to 182,718-246,669 person years of employment), and contribute between $10.94 billion and $14.77 billion in personal income to workers across the nation.[126]

---

[122] *Id.* at 40-41.

[123] *Id.* at 46-47, 51-52.

[124] *Id.* at 47, 51.

[125] *Id.* at 22-23, 28-29.

[126] *Id.*

The long-term operation of the CCL Project will provide stable employment and taxes that benefit the nation. The projected annual impacts to the overall U.S. economy resulting from operations of the CCL Project include 3,279 permanent jobs, $213 million in personal income, $378 million in gross product, and $22.41 million in annual tax contributions.[127] Over 25 years of operation, the CCL Project is projected to contribute to the U.S. economy an estimated 81,982 person years of employment, $5.33 billion in personal income, $9.44 billion in gross product and $560.24 million in federal tax revenues.[128]

The Perryman Report demonstrates that the construction and long-term operation of the CCL Project will create significant long-term benefits for the U.S., including the generation of between $16.27 billion and $20.10 billion in personal income, between $25.49 and $26.99 billion in gross product, and between $1.93 and $2.42 billion in federal tax revenues.[129] A total of between 264,699 and 328,651 person years of employment are expected to be created nationwide as a result of the construction and operation of the CCL Project.[130]

b. *Indirect Economic Benefits*

The natural gas supply chain has very significant multiplier effects on the domestic economy due to the large number of high-wage jobs paid directly by the natural gas industry, as well as royalty and lease payments to landowners in association with natural gas production. Exporting LNG will create broad economic impacts and spur additional exploration, drilling, and oilfield support services; additional pipeline and midstream construction; an expansion in royalty payments to landowners and municipalities; and benefits to ancillary industries supported by oil and natural gas industry investments.

---

127 *Id.* at 35-36.

128 *Id.* at 40-41.

129 *Id.* at 46-47, 51-52.

130 *Id.* at 47, 51.

(1) Indirect Regional Benefits

Communities in South Texas which support industry activity in the Eagle Ford area are expected to benefit from the expansion in activity made possible by the CCL Project. Third-party evaluations have recognized that the economic benefits associated with development of the Eagle Ford to date have been significant. In 2011, development of the Eagle Ford area supported an estimated 47,097 full-time jobs, provided $257 million in local government revenue and created a total economic impact of $25.5 billion.[131]

The Perryman Report estimates that the CCL Project will stimulate significant investments from the oil and natural gas sector in Corpus Christi and the surrounding region. The projected cumulative benefits over 25 years to the region from additional investments by the oil and natural gas sector are projected to include $8.67 billion in personal income and $13.81 billion in gross product to the Corpus Christi metropolitan area and surrounding counties.[132] A total of 6,875 temporary and permanent jobs (equivalent to 171,884 cumulative person years of employment) are forecast to be created in the region as a result of expanded activity by the oil and natural gas industry.[133]

(2) Indirect State Benefits

The Perryman Report estimates that the State of Texas will experience benefits from the stimulus to the oil and natural gas sector and related industries that will be supported by the capacity to export natural gas as LNG from the CCL Project. The projected cumulative benefits over 25 years to the State of Texas from expanded oil and gas sector activity include $67.27

---

[131] The University of Texas at San Antonio Institute for Economic Development, *Economic Impact of the Eagle Ford Shale*, at 5 (May 2012), *available at* http://iedtexas.org/In-the-News/new-report-the-impact-of-eagle-ford-shale.html.

[132] Perryman Report, *supra* note 18, at 57-58.

[133] *Id.* at 58.

billion in personal income and $101.05 billion in gross product.[134] A total of 46,221 temporary and permanent jobs (equivalent to 1,155,515 cumulative person years of employment) are forecast to be created within the State of Texas as a result of the stimulus to the oil and natural gas industry.[135]

(3) Indirect National Benefits

The Perryman Report anticipates that the U.S. will experience national benefits from the stimulus to the oil and natural gas sector that will be supported by the capacity to export from the CCL Project. The projected cumulative benefits over 25 years to the nation include $73.55 billion in personal income, $111.45 billion in gross product, and $8.44 billion in federal tax revenues.[136] A total of 50,166 temporary and permanent jobs (equivalent to 1,254,145 cumulative person years of employment) are forecast to be created in the U.S. over 25 years as a result of expanded activity by the oil and natural gas industry that will be supported by the capacity to export from the CCL Project.[137]

3. *Support Domestic Petrochemical Industry Expansion*

The CCL Project will play an important role in supporting the expansion of the domestic petrochemicals industry by expanding the availability of supplies of NGLs such as ethane, propane and butane. These NGLs are extracted as by-products during the treating and processing of wellhead natural gas supplies, and represent a critical source of feedstock to the petrochemicals sector. Increasing demand for natural gas increases the available supply of NGLs.

---

[134] *Id*.

[135] *Id.*

[136] *Id*.

[137] *Id.*

Recent growth in U.S. natural gas production resulting from unconventional gas development has been recognized by the petrochemicals sector as a positive catalyst that is supporting a revival in the domestic industry, including plans for multiple expansion projects that will contribute significant employment opportunities and economic activity to the U.S. economy.[138] By expanding demand for natural gas, the CCL Project will promote greater upstream investment in regional hydrocarbon basins, thereby expanding the availability of associated NGLs, and will contribute to both the aggregate amount and the security of supply of critical feedstock for the petrochemical industry.

Regional sources of NGL supply are critical to the nation's chemicals industries, accounting for nearly 40% of domestic NGL production in 2011.[139] The ARI Resource Report estimates that liquids-rich shale and tight sand basins in the Corpus Christi Supply Area contain 28,300 million barrels of NGLs[140] that are recoverable along with 167 Tcf of associated natural gas resources.[141] Additional NGL supplies also are recoverable from the processing of 282 Tcf of conventional natural gas resources in the region.[142]

The ARI Resource Report projects robust future growth in regional NGL productive capacity, based on EIA's long-term oil and natural gas price track. Productive capacity of NGLs in the Corpus Christi Supply Area is projected to expand to 2.01 million b/d by 2020, an increase of 116% from regional NGL production levels in 2011. Over the long-term, NGL productive

---

138 *See* American Chemistry Council, *Shale Gas and New Petrochemical Investments: Benefits for the Economy, Jobs and US Manufacturing* (Mar. 2011). The ACC report predicts that a 25% increase in domestic ethane supply would support 17,000 new knowledge-intensive sector jobs; 395,000 additional jobs related to and supportive of the chemicals sector; $16.2 billion in direct capital investment by the chemicals sector; $132.4 billion in total U.S. economic output; and $4.4 billion in annual federal, state and local tax revenue. *Id.* at 1.

139 *See ARI Resource Report*, *supra* note 47, at 43. ARI estimates that the Corpus Christi Supply Region had NGL production of 930,000 b/d in 2011.

140 *Id.* at 43.

141 *Id.* at 41.

142 *Id.* at 39.

capacity in the Corpus Christi Supply Area is projected to expand to 2.57 million b/d in 2035, an increase of 176% from production levels in 2011. The ARI Resource Report notes however that development of these formations rich in NGLs cannot proceed, or will result in greater incidence of flaring, unless markets are developed for associated natural gas resources.[143]

The Perryman Report identifies a considerable stimulus to the domestic chemicals industry that will result from the CCL Project's operation and the associated increase in NGL feedstock. The Perryman Group projects that the construction of new chemical manufacturing facilities resulting from the CCL Project will contribute, respectively, to the region, state and nation $1.12 billion, $2.07 billion and $3.03 billion in gross product and $99.54 million, $112.37 million and $290.85 million in fiscal tax benefits. Construction of these facilities will also support job creation, leading to additional employment of 3,846 workers in the region, 6,813 workers in the state and 9,836 workers in the nation, and gains of $780 million, $1.40 billion and $2.03 billion in personal income in the region, state and nation, respectively.[144]

The ongoing operations of these chemical facilities will create long-term stimulus on business activity and tax receipts. The Perryman Group forecasts that the cumulative impact of operations over 25 years of new chemical manufacturing facilities resulting from the CCL Project will contribute, respectively, to the region, state and nation $62.37 billion, $80.24 billion and $90.06 billion in gross product; and $1.94 billion, $3.76 billion and $5.34 billion in fiscal tax benefits.[145] Operation of these facilities will support stable long-term jobs and expanded business activity in communities, leading to cumulative employment over 25 years of 554,962 person-years in the region, 689,166 person-years in the state and 782,064 person-years in the

---

[143] *Id.* at 43.

[144] *See* Perryman Report, *supra* note 18, at 72-73.

[145] *See id.* at 82-83.

nation; and cumulative gains in personal income of $35.33 billion, $45.13 billion and $50.81 billion in the region, state and nation, respectively.[146]

4. *International Considerations*

U.S. international trade law, general U.S. trade policy and DOE's longstanding policy that the public interest is best served by the principles of free trade all strongly support exportation of domestic natural gas as LNG. Exportation of LNG will positively impact the U.S. balance of trade, diversify global supply and contribute to the security interests of the U.S. and its allies. Furthermore, the exportation of LNG will advance initiatives underway by the current Administration to promote investment in energy infrastructure in neighboring Caribbean and Central/South America nations. Finally, it also would be inconsistent with the U.S. obligations under the World Trade Organization ("WTO") Agreements to restrict in any manner exports of domestically produced LNG to other WTO Countries.[147]

a. *Balance of Payments*

Exports of LNG from the CCL Project will have a beneficial impact for the U.S. on its balance of payments with the rest of the world by reducing the overall U.S. trade deficit. The Perryman Report estimates that once operational, the CCL Project will improve the international balance of payments of the U.S. between $5.88 billion and $9.52 billion per year.[148] In addition to direct exports of natural gas as LNG by the CCL Project, the Perryman Report estimates that imports of products such as petroleum and NGLs that are lifted in association with wellhead

---

146 *Id.*

147 *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."

148 Perryman Report, *supra* note 18, at 87. Projections vary based on natural gas prices, export destination, transportation costs, and other market factors.

natural gas will decline as a result of expanded domestic production that will be supported by the capacity to export natural gas.

According to the U.S. Department of Commerce, Bureau of Economic Analysis, the net annual U.S. trade deficit totaled $559.9 billion in 2011 (comprised of approximately $2.1 trillion in exports minus approximately $2.7 trillion in imports).[149] Significantly, more than half (approximately $335.2 billion) of the annual trade deficit in 2011 resulted from a negative balance of trade in crude oil.[150] Based on the Perryman Report, the CCL Project will be responsible for reducing the total future trade deficit of the U.S. by 1.1% to 1.7% each year, and the future U.S. crude oil trade deficit by 1.8% to 2.8% per year, from 2011 levels.

The benefits that accrue from lowering the U.S. trade deficit and improving the national balance of payments have been expressly recognized by the DOE in its prior decisions,[151] and apply as well to the CCL Project.

b. *Geopolitical Benefits*

The export of domestically produced natural gas as LNG will advance national security interests as well as the security interests of U.S. allies through the diversification of global natural gas supplies and the fostering of increased liquidity and trade. DOE/FE recognized these geopolitical benefits when authorizing LNG exports from the Sabine Pass LNG Terminal:

> First, the export of natural gas produced in the United States will help to promote new international markets for natural gas, thereby encouraging

---

149 *See* BEA, U.S. Dep't. of Commerce, *U.S. NG Int'l Trade in Goods and Services*, at 1 (June 8, 2012), http://www.bea.gov/newsreleases/international/trade/2012/pdf/trad1312.pdf.

150 *Id.* at 43.

151 *See, e.g.*, *ConocoPhillips*, Order No. 2731, at 10 ("exportation of LNG will help to improve the United States' balance of payments with destination countries"); *Cheniere Marketing, LLC*, Order No. 2651, at 14 ("I find that mitigation of balance of payment issues may result from a grant of the application [to export LNG]"); *Freeport LNG Development., L.P.*, FE Docket No. 08-70-LNG, Order No. 2644, at 12 ("mitigation of balance of payments issues to the benefit of United States interests will result from a grant of the application [to export LNG]"); *ConocoPhillips*, Order No. 2500, at 58 ("we find that mitigation of balance of payment issues may result from a grant of the instant application [to export LNG]").

> the development of additional productive resources in this country…and internationally.
>
> Second, augmentation of global natural gas supplies will support efforts by overseas electric power generators to switch away from oil or coal, both more carbon intensive and environmentally damaging than natural gas. Third, an improvement in natural gas supplies internationally will help certain countries that currently have limited sources of natural gas supplies to broaden and diversify their supply base. This will contribute to greater overall transparency, efficiency, and liquidity of international natural gas markets, encouraging a liberalized global natural gas trade and a greater diversification of global natural gas supplies. Fourth, these developments may encourage the decoupling of international natural gas prices from oil prices in some international natural gas markets and may exert downward pressure on natural gas market prices in relation to oil prices in those markets.[152]

Many of the geopolitical benefits recognized by DOE have been further endorsed in other recent analyses by experts and policymakers that have considered the security implications of unconventional natural gas supply growth and LNG exports.[153] The energy security of the United States has benefited substantially to date from increased domestic natural gas production, which by displacing the need for imports of LNG into the U.S., has increased global supply liquidity, weakened oil-price linkage in international gas markets, benefited consumers in allied nations, weakened the leverage of large incumbent suppliers frequently hostile to U.S. interests, reduced the potential for formation of a "natural gas Opec," and reduced America's reliance on Middle Eastern oil.[154] It stands to reason that policies that enable further expansion in domestic production and the direct engagement with international markets through the trade of natural gas will further expand these benefits.

---

[152] *Sabine Pass,* DOE/FE Order No. 2961, *supra* note 28, at 37.

[153] *See* Brookings Report, *supra* note 92, at 46-47.

[154] Kenneth B. Medlock, Amy Myers Jaffe, Peter R. Hartley, *Shale Gas and U.S. National Security*, James A. Baker III Institute for Public Policy (July 19, 2011).

CMI respectfully requests that DOE/FE consider the geopolitical implications of LNG exports in a context that includes anticipated trends in the U.S. petroleum industry. Many forecasters now predict that the U.S. will experience significant future growth in domestic petroleum production. By reducing America's dependence on foreign source of oil, this trend will have profound and positive impacts on the energy security of the U.S. However, these developments will have consequential future impacts on the domestic natural gas market. First, the volume of casinghead gas produced from oil wells is growing rapidly.[155] Sources of associated supplies are predominantly discretionary to producers, and therefore are less responsive to natural gas market signals. Second, increased drilling for petroleum is leading to the more frequent flaring of associated natural gas production.[156] Constraints on the capacity of the market to absorb future growth in associated natural gas production are likely to result either in further expansion in the rate of flaring, or a slowdown in the development of domestic petroleum resources that could compromise the future energy security of the U.S.

The Administration has recognized the negative impacts associated with flaring, and is seeking new regulations to reduce the frequency of flaring as new unconventional fields are developed.[157] In this regard, DOE should consider LNG exports as a component of a policy that

---

[155] Gross wellhead production of natural gas from oil wells totaled 5.99 Tcf in 2010, the highest domestic production levels from oil wells since 2004. *See* EIA, *Natural Gas Gross Withdrawals and Production*, *supra* note 13.

[156] In North Dakota, the rate of flaring grew by 1,000% between 2004 and 2010 as Bakken unconventional natural gas development increased. *See* EIA (July 31, 2012), http://www.eia.gov/dnav/ng/hist/n9040nd2a.htm. North Dakota as of May 2012 is producing record levels of associated natural gas from the Bakken unconventional natural gas, but over 30% of the associated natural gas in the state is currently being flared. *See* Jim Magill, *N.D. eyes innovative ways to reduce gas flaring*, Gas Daily, Aug. 8, 2012, at 1.

[157] The Environmental Protection Agency on April 17, 2012 issued in the *Federal Register* final new source performance standards to reduce venting and flaring from natural gas processing and as part of completion activities at natural gas wells. The final rulemaking is available at http://epa.gov/airquality/oilandgas/pdfs/20120417finalrule.pdf.

seeks to maximize the future energy security and geopolitical benefits for the U.S.[158] Allowing for the development of new markets to proceed for domestic sources of associated or stranded natural gas reserves would be consistent with the these goals. Given its proximity to multiple basins rich in both petroleum and associated natural gas, the CCL Project is well positioned to advance these goals.

c. *Economic Trade and Ties with Neighboring Countries*

The U.S. has long recognized as a matter of policy that increased economic trade with global allies and proximate hemispheric neighbors serve the national interest. The export of LNG from the CCL Project will directly support these economic interests, and help to advance initiatives that are currently being pursued by the current Administration to expand international trade. Specifically, the President is promoting expanded investment in energy infrastructure in the Caribbean and South American nations through the Energy and Climate Partnership of the Americas ("ECPA").[159] The development of hemispheric natural gas usage via LNG exports will support the policy goals established under the EPCA. LNG exports will also positively contribute to the President's National Export Initiative.[160] The additional international trade opportunities afforded by the CCL Project would be consistent with these policies, and will lend further support to the principles that underpin them.

---

158 *See* Brookings Report, *supra* note 92, at 38.

159 ECPA is a set of voluntary initiatives which promote energy efficiency, renewable energy, cleaner fossil fuels, and modernized energy infrastructure. President Obama endorsed the goals of the EPCA in his address to the Summit of the Americas in April 2009, and invited countries of the Western Hemisphere to join the partnership. *See* Press Release, The White House, *The United States and the 2009 Summit of the Americas: Securing Our Citizens' Future* (Apr. 19, 2009), http://www.whitehouse.gov/the-press-office/united-states-and-2009-summit-americas-securing-our-citizens-future.

160 Exec. Order No. 13534, 75 Fed. Reg. 12433 (Mar. 16, 2010).

X. ENVIRONMENTAL IMPACT

The potential environmental impacts of the CCL Project will be reviewed by FERC under NEPA. DOE/FE has agreed to act as a cooperating agency in the FERC's environmental review process for the CCL Project, including the preparation of an EA or EIS, to satisfy its NEPA responsibilities in authorizing LNG exports as proposed in this Application.[161] Concurrent with this Application, CCL and CCP are filing an application with FERC for authorization to site, construct, own and operate the Project.[162]

CMI has requested that the Assistant Secretary issue an order authorizing the export of LNG, conditioned on completion of the environmental review of the CCL Project by FERC. CMI expects that upon issuance of an EA or EIS by FERC for the CCL Project, DOE/FE will adopt the FERC EA or EIS if DOE/FE concludes that its comments and suggestions have been satisfied.[163] To the extent it reaches such conclusion, CMI requests that DOE/FE promptly complete its NEPA obligations by issuing a Finding of No Significant Impact or Record of Decision, as applicable, thereby finalizing any conditional order, as requested herein.

XI. RELATED AUTHORIZATIONS

The siting, construction and operation of the CCL Project is subject to approval by FERC pursuant to Section 3 of the NGA. As discussed above, CCL and CCP are filing an application with FERC for such authorization concurrent with this Application.

---

[161] *See supra* note 12.

[162] *See supra* accompanying text note 11.

[163] *See* 40 C.F.R. § 1506.3(c) ("A cooperating agency may adopt without recirculating the environmental impact statement of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied.").

XII. REPORT CONTACT INFORMATION

The report contact is as follows:

Patricia Outtrim, V.P. Government Affairs
Cheniere Energy, Inc.
700 Milam Street, Suite 800
Houston, TX 77002
(713) 375-0212 (phone)
(713) 375-6000 (fax)
pat.outtrim@cheniere.com

XIII. EXHIBITS

The following exhibits are attached hereto and incorporated by reference herein:

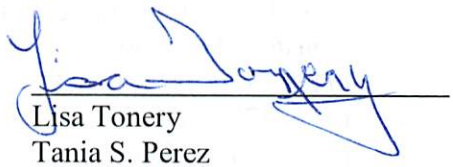
Exhibit A:	Opinion of Counsel
Exhibit B:	*The Anticipated Impact of Cheniere's Proposed Corpus Christi Liquefaction Facility on Business Activity in Corpus Christi, Texas, and the US*, prepared by Perryman Group (May 2012)
Exhibit C:	*U.S. Natural Gas Resources and Productive Capacity: Mid-2012*, prepared by Advanced Resources International, Inc. (Aug. 23, 2012); *U.S. Natural Gas Resources and Productive Capacity*, prepared by Advanced Resources International, Inc. (Aug. 26, 2010)
Exhibit D:	Texas Railroad Commission Data

XIV. CONCLUSION

For the foregoing reasons, CMI respectfully requests that DOE/FE grant CMI's request for long-term, multi-contract authorization to engage in exports of domestically-produced LNG in an amount up to 782 million MMBtu per year, which is equivalent to approximately 767 Bcf per year of natural gas, from the CCL Terminal to countries that (i) do not have an FTA requiring the national treatment for trade in natural gas and LNG, (ii) which have, or in the future develop, the capacity to import LNG, and (iii) with which trade is not prohibited by U.S. law or policy, for a 22-year term commencing the earlier of the date of first export or eight years from

the date of issuance of such authorization. CMI respectfully requests that the DOE/FE grant such authorization on an expedited basis by no later than February 2013.

Respectfully submitted,



Lisa Tonery
Tania S. Perez
Attorneys for
Cheniere Marketing, LLC

Fulbright & Jaworski L.L.P.
666 Fifth Avenue
New York, New York 10103
(212) 318-3009

Dated: August 31, 2012

VERIFICATION

State of Texas)

County of Harris)

BEFORE ME, the undersigned authority, on this day personally appeared Davis Thames, who, having been by me first duly sworn, on oath says that he is the President for Cheniere Marketing, LLC and is duly authorized to make this Verification; that he has read the foregoing instrument and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

CEC Davis Thames

SWORN TO AND SUBSCRIBED before me on the 29 day of August, 2012.

Toni A. Bennett

Name: Toni A Bennett

Title: Notary Public

My Commission expires:

NOTARY PUBLIC STATE OF TEXAS
TONI A BENNETT
My Commission Expires
October 05, 2013

Exhibit A

CHENIERE

Cheniere Energy, Inc.
700 Milam Street, Suite 800
Houston, Texas 77002
phone: 713.375.5000
fax: 713.375.6000

August 31, 2012

Office of Fuel Programs
Fossil Energy, U.S. Department of Energy
Docket Room 3F-056, FE50
Forrestal Building
1000 Independence Avenue, S.W.
Washington, D.C. 10585

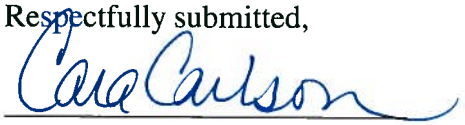
Re: In the Matter of **Cheniere Marketing, LLC**
FE Docket No. 12-__-LNG
Application For Long-Term Authorization to Export LNG to Non-Free Trade Nations
Opinion of Counsel

Dear Sir or Madam:

This opinion of counsel is provided in accordance with the requirements of Section 590.202(c) of the U.S. Department of Energy's regulations, 10 C.F.R. § 590.202(c) (2012). Cheniere Marketing, LLC ("CMI") seeks authorization to export liquefied natural gas ("LNG") from the proposed Corpus Christi Liquefaction, LLC project presently under development near Corpus Christi, Texas, to any nation with which the U.S. does not have a free trade agreement requiring the national treatment for trade in natural gas and LNG that has, or in the future develops, the capacity to import LNG and with which trade is not prohibited by U.S. law or policy.

I have examined CMI's Limited Liability Company Agreement and other authorities as necessary, and have concluded that the proposed exportation of domestically-produced LNG is within CMI's corporate powers. Further, CMI is authorized to do business in Louisiana and Texas and to engage in foreign commerce.

Respectfully submitted,



By: Cara E. Carlson, *Assistant General Counsel and Corporate Secretary*
Cheniere Energy, Inc.
700 Milam Street, Suite 800
Houston, TX 77002
Phone: (713) 375-5000
Fax: (713) 375-6000
Email: Cara.Carlsoni@cheniere.com

Exhibit B

May 2012

The Anticipated Impact of Cheniere's Proposed Corpus Christi Liquefaction Facility on Business Activity in Corpus Christi, Texas, and the US

THE PERRYMAN GROUP

510 N. Valley Mills Dr., Suite 300

Waco, TX 76710

ph. 254.751.9595, fax 254.751.7855

info@perrymangroup.com

www.perrymangroup.com

Table of Contents

INTRODUCTION

INTRODUCTION

- Oil and gas exploration and production has long been a source of stimulus for the Texas economy. In recent years, advances in recovery techniques have spurred exploration and development activity, particularly for shale plays. As a result, the state's ability to produce natural gas has increased substantially.

- Corpus Christi Liquefaction, LLC ("Corpus Christi Liquefaction") has a proposed project to construct and operate a natural gas liquefaction and export plant and import facilities with regasification capabilities. The complex would be located at a previously authorized, but not constructed, liquefied natural gas ("LNG") import terminal in San Patricio and Nueces Counties within the Corpus Christi Metropolitan Statistical Area (MSA).

- The construction and operation of the facility involve substantial economic benefits for the local area, state of Texas, and United States. In addition to the gains in business activity stemming from the investment and ongoing operations spending by the facility and the related positive effects on the US position in international trade, it will also support additional development of natural gas reserves and promote incremental petrochemical production.

- The Perryman Group (TPG) was asked to evaluate
  - current economic conditions in the Corpus Christi area;
  - the potential impact of the construction and ongoing operation of the Corpus Christi Liquefaction facility on

business activity in the local area, Texas, and the United States; and
  - other potential benefits of the facility such as its positive effect on the US balance of trade.

- This report presents the findings from TPG's analysis.

The Perryman Group's Perspective

- TPG is an economic research and analysis firm based in Waco, Texas. The firm has more than 30 years of experience in assessing the economic impact of corporate expansions, regulatory changes, real estate developments, public policy initiatives, and myriad other factors affecting business activity. TPG has conducted hundreds of impact analyses for local areas, regions, and states throughout the US. Impact studies have been performed for hundreds of clients including many of the largest corporations in the world, governmental entities at all levels, educational institutions, major health care systems, utilities, and economic development organizations.

- Dr. M. Ray Perryman, founder and President of the firm, developed the US Multi-Regional Impact Assessment System (used in this study) in the early 1980s and has consistently maintained, expanded, and updated it since that time. The model has been used in hundreds of diverse applications and has an excellent reputation for reliability.

- The firm has conducted numerous investigations related to the oil and gas industry. These analyses have included, among others, forecasts, impact assessments, regulatory and

environmental issues, and legislative and policy initiatives. Previous work by The Perryman Group includes an assessment of the effects of offshore drilling for the US Department of the Interior, several studies of specific production areas, and projections of natural gas prices and output. Information has been prepared for the Interstate Oil Compact Commission, the US Department of Energy, the Texas Railroad Commission, and numerous legislative committees regarding energy policy. Additionally, over the past several years, TPG has performed multiple comprehensive assessments of the impact of the Barnett Shale on the local northeast Texas area and the state of Texas, as well as a detailed analysis of the labor market in the Permian Basin oil and gas producing area of west Texas. The firm has also completed in-depth analyses of numerous refineries and petrochemical facilities, as well as various aspects of natural gas taxation in Texas and Arkansas.

- In addition, TPG has conducted several projects related to the manufacturing benefits associated with a major international pipeline project. The firm has also completed numerous studies specifically dealing with changes in the cost of energy resources, including electricity, oil, and natural gas on both a regional and national basis.

CURRENT SOCIOECONOMIC CONDITIONS IN THE CORPUS CHRISTI AREA

CURRENT SOCIOECONOMIC CONDITIONS IN THE CORPUS CHRISTI AREA

Recent Demographic and Housing Trends

- The population of the Corpus Christi Metropolitan Statistical Area (MSA) has seen modest growth in recent years, continuing a long-term trend.
  - Total population grew by about 6.2% from 2000 (when it was 403,280, according to the US Bureau of the Census) to reach about 428,000 in 2010. (Note that American Community Survey data used in this analysis differ in an insignificant manner from US Bureau of Economic Analysis population estimates.)
  - Some 49.2% of residents are male; 50.8% are female.
  - The median age in the area was 35.5. About 26.0% of the population was younger than age 18 and 13.0% was aged 65 years or older.[1] By comparison, 24.0% of the US population was younger than 18.

- The median household income for the Corpus Christi MSA in 2010 was $41,994, significantly lower than median levels for the state or nation as a whole. About 15% of households had incomes below $15,000 and 5% had incomes above $150,000.

- About 56% of the population age 16 and over were employed in 2010 and 37% were not in the work force. Approximately 75%

[1] US Census Bureau American Fact Finder.

of those employed were private wage and salary workers, while almost 19% were federal, state, or local government workers. Another 7% were self-employed in not-incorporated businesses.[2]

- In 2010, 78.6% of people 25 and older had at least graduated high school. An estimated 20% had a Bachelor's degree or higher.[3]

- As of 2010 there were 154,000 households in the Corpus Christi MSA. The average household size was 2.7 people. About 70% of the households were family households with 46 % of those being married couple families. In addition, 37% of all households have at least one person under the age of 18 and 25% have at least one person 65 years or older.[4]

- In 2010, the Corpus Christi MSA had a total of 183,000 housing units; 16% of these were vacant.
    - Of the total housing units, about 68% were single-unit structures, 25% were multi-unit structures, and 7% were mobile homes.
    - Some 26% of the units were built since 1990, and 57% of the housing units have 3 or more bedrooms.
    - Of the 154,000 occupied housing units, 94,000 were owner occupied and 60,000 were renter occupied.
    - For homeowners with a mortgage, the median monthly housing cost was $1,336; for owners without a mortgage it was $458. For renters, the median monthly housing cost was $794.

[2] US Census Bureau. American Fact Finder.
[3] US Census Bureau. American Fact Finder.
[4] US Census Bureau. American Fact Finder.

- About 37% of owners with mortgages, 13% of owners without mortgages, and 54% of renters spent 30% or more of household income on housing.[5]

Economic Conditions

- The Corpus Christi MSA economy is fairly diverse, with services industries, nondurable manufacturing, wholesale and retail trade, and mining each accounting for significant shares of the area's output (real gross product).

- According to recent data collected by the Texas Workforce Commission, the trade, transportation, and utilities segment was the largest source of jobs, with total nonfarm employment of 35,500 as of March 2012. Government was a close second, with 34,100 employees followed by education and health services with 32,200. Mining, logging, and construction had 21,300 employees as of March 2012.[6]

- Recently, the Corpus Christi MSA has experienced employment growth, adding 1,500 nonfarm jobs from February 2012 to March 2012. Total nonfarm employment for the area grew by 7,800 (4.4%) from 178,400 in March 2011 to 186,200 in March 2012.

- Even so, an estimated 14,300 persons remain unemployed, for an unemployment rate of 6.5%.[7] This rate is relatively low by current state and national standards.

[5] US Census Bureau. American Fact Finder.
[6] Texas Workforce Commission.
[7] Texas Workforce Commission.

- As of September 2011, there were 17 firms which employed 1000 or more employees per firm with 41,334 employees in total. There were 28,084 employees working at 185 firms that employed between 100 and 249 employees.[8]

- Oil and gas exploration and production, as well as port-related business including refining and petrochemicals, provide an ongoing stimulus for Corpus Christi. The area is also a desirable location for retirees.

Baseline Outlook Summary

- The Perryman Group's outlook for the Corpus Christi area calls for output (real gross product) to increase from an estimated $16.1 billion in 2011 to $23.3 billion by 2021 and almost $39.0 billion by 2040.

- Real personal income (by place of residence) is projected to rise from an estimated $15.0 billion in 2011 to $22.5 billion by 2021 and $43.3 billion by 2040.

- Real retail sales is forecast to rise from an estimated $4.6 billion in 2011 to $6.9 billion in 2021 and $13.2 billion in 2040.

- Total employment for the Corpus Christi MSA is expected to rise from about 249,000 in 2011 to 306,000 in 2021 and 398,000 in 2040.

[8] Texas Workforce Commission.

- Additional forecast detail (including detailed projections by industry) is presented in the appendices to this report.

NATURAL GAS INDUSTRY OVERVIEW AND THE ROLE OF THE CORPUS CHRISTI LIQUEFACTION FACILITY

NATURAL GAS INDUSTRY OVERVIEW AND THE ROLE OF THE CORPUS CHRISTI LIQUEFACTION FACILITY

US Natural Gas Industry Overview

- The natural gas industry has enjoyed significant growth the past several years based on technological improvements that have made the exploration and production of gas more economical. According to the US Energy Information Administration, natural gas production has increased by 20% between 2005 and 2010 (from 18.5 quadrillion BTU in 2005 to 22.09 quadrillion BTU in 2010).[9] Most of the increase in production has come from shale gas formations.

- Shale gas formations, such as the Eagle Ford Shale which is located in South Texas proximate to the proposed Corpus Christi Liquefaction facility, are a crucial component of the nation's natural gas supply. Estimates of the total potential US supply of natural gas from shale sources is rising rapidly over time as new fields are discovered and explored.

[9] US Energy Information Administration AEO2012 Early Release Overview; http://www.eia.gov/forecasts/aeo/er/early_production.cfm.

- The US Energy Information Administration (EIA) estimates that shale gas comprised 14% of the total US supply in 2009, but is expected to account for 46% of supply in 2035.[10]

- In a recent study for America's Natural Gas Alliance, IHS Global Insight (USA) indicated even greater importance of shale gas, estimating that in 2010, such gas represented 27% of the total, with the share rising to 60% by 2035. IHS Global Insight also projected that there will be $1.9 trillion in capital investment (both upstream and infrastructure) between 2010 and 2035.[11]

- This industry development will contribute to lower natural gas prices in the future (compared to what they would be in the absence of shale gas development). By allowing consumer and business resources to be expended in more productive ways, lower prices will contribute to economic growth.

- Natural gas also has desirable environmental properties compared to many fuels and will likely serve as an important energy source given efforts to reduce carbon dioxide emissions. An interdisciplinary study by MIT, for instance, stated that "natural gas provides a cost-effective bridge to...a low-carbon future."[12]

- In addition, by increasing domestic supplies, these reserves contribute to US energy security. In fact, natural gas has now

[10] "What is Shale Gas and Why is it Important?;" US Energy Information Administration; Updated August 4, 2011; Retrieved January 2012 from http://www.eia.gov/energy_in_brief/about_shale_gas.cfm.
[11] "The Economic and Employment Contributions of Shale Gas in the United States;" IHS Global Insight (USA); December 2011.
[12] "The Future of Natural Gas: An Interdisciplinary MIT Study;" Massachusetts Institute of Technology; 2011.

become a viable source of exports for the nation, as supplies and production are in excess of domestic needs.

Corpus Christi Liquefaction Project

- Upon completion, the Corpus Christi Liquefaction (CCL) facility will be capable of processing an average of approximately 2.1 billion standard cubic feet per day ("Bscf/d") of pipeline-quality natural gas (including fuel and inerts) in the liquefaction mode and 400 million standard cubic feet per day ("MMscf/d") in the vaporization mode. Although both modes of operation are not expected to occur simultaneously, the facility would be able to do so.

- The CCL Project will involve liquefying natural gas into liquefied natural gas (LNG), which could then be exported via the project's marine terminal. The terminal could also be utilized for importing LNG.

- The Corpus Christi Liquefaction Project would help ensure the ongoing development of US natural gas resources by providing access to world markets.
    - As noted, drilling productivity gains have enabled rapid growth in supplies from unconventional, and particularly shale, gas-bearing formations in the United States.
    - As technological advances and new techniques in drilling have greatly enhanced the ability to tap unconventional natural gas resources, potential production has rapidly increased.
    - By enabling the export of natural gas as LNG, the CCL facility would provide access to a global market for gas,

thus encouraging further development of US sources of domestic natural gas, natural gas liquids, and oil. In particular, the CCL initiative would affect the Eagle Ford Shale, which is located approximately 70 miles to the northwest of the project.

- The ability to export domestic gas as LNG thus not only greatly expands the market scope and access for domestic natural gas producers, but also may encourage domestic production at times when US market prices might not otherwise do so.

- International demand for natural gas is enhanced by its favorable environmental properties. It has been termed a "bridge fuel" between the dominant fossil fuels used today and renewable fuels, serving as a backup fuel to intermittent renewable energy sources.

- Developing economies around the world are also in need of low-cost, environmentally friendly fuels to facilitate growth.

THE ECONOMIC BENEFITS OF THE CORPUS CHRISTI LIQUEFACTION FACILITY

THE ECONOMIC BENEFITS OF THE CORPUS CHRISTI LIQUEFACTION FACILITY

- The Perryman Group evaluated the potential economic benefits of Cheniere's Corpus Christi Liquefaction facility on business activity in the local area, Texas, and the United States.

- Several sources of economic benefits stemming from the initiative were measured. These include the impacts of
  - construction and pre-operational activity,
  - ongoing operations,
  - enhanced exploration and production of natural gas, and
  - associated development of facilities utilizing by-products such as methane.

- In addition, The Perryman Group analyzed the project's potential positive effect on US trade imbalances. Possible price responses were also examined in a summary manner.

- Following an explanation of the methods used in this study, key summary results for each channel of economic effects are presented in tabular and graphical form. Next, a sectoral breakout of gains in business activity indicates the likely industry-level effect.

- Further detailed results are presented in the appendices to this report, together with additional methodological explanation.

Measuring Economic Impacts

- **Any investment or corporate activity generates multiplier effects throughout the economy.** Construction and development of a facility leads to purchases ranging from concrete to engineering services to landscaping. Ongoing operations also stimulate business activity through purchases and the expenditures by employees of payroll dollars for various goods and services.

- In addition, operation of a liquefaction facility will encourage further development of natural gas resources by providing a ready market for LNG exports. Exploration, drilling, production, servicing, pipeline development and operations, royalty payments, and other direct expenditures associated with natural gas exploration and production involve substantial gains.

- Direct investments to construct and operate the Corpus Christi Liquefaction facility thus lead to a sizable stimulus in a variety of sectors, as well as generating spillover benefits for an even wider range of businesses. It also supports substantial fiscal revenues for governments at all levels.

- The Perryman Group developed a model some 30 years ago (with continual updates and refinements since that time) to describe these interactions. This dynamic input-output assessment model uses a variety of data (from surveys, industry information, and other sources) to describe the various goods and services (known as resources or inputs) required to produce another good/service. An associated fiscal model allows for estimation of tax receipts to state and local entities. It has been used in thousands of applications, including numerous studies of

refining and petrochemical activity, energy resource development and production, and international trade. The submodels used in the current analysis reflect the specific industrial composition and characteristics of Corpus Christi, Texas, and the United States.

- Impacts are expressed in terms of several different indicators of business activity.
  - **Total expenditures** (or total spending) measures the dollars changing hands as a result of the economic stimulus.
  - **Gross product** (or output) is production of goods and services that will come about in each area as a result of the activity. This measure is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.
  - **Personal income** is dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.
  - **Job gains** are expressed as person-years of employment (one person working for one year) for temporary projects (such as construction of a facility or cumulative assessments over time or as permanent jobs when evaluating ongoing annual effects.

- All results are expressed on an annual or a cumulative basis in constant (2012) dollars. Additional information regarding the methods and assumptions used will be provided in the full report and its appendices.

- Results are presented for three geographic areas:
  - the Corpus Christi Metropolitan Statistical Area (MSA);
  - the State of Texas (including the effects on business activity within the Corpus Christi area as well as spillover to other parts of the state); and
  - the United States (which include effects for Texas and spillover to other states).

Construction and Pre-Operational Activity

- Construction and other pre-operational development (including the pipeline and compressor stations) lead to sizable gains in business activity in the local area, with even greater spillover benefits to the rest of the state and the nation. Corpus Christi and the surrounding area have a large construction workforce relative to peak requirements with extensive experience in petrochemical facilities and related construction. As a result, virtually all of the workforce should be available in the local area. In addition, it is not anticipated that any temporary housing will be required or that construction workers would be housed in hotels.

- Any construction project has the potential to exceed budgets due to unforeseen circumstances. Cheniere quantified a "contingency" amount to be set aside to cover such overages. The Perryman Group developed two scenarios for construction and pre-operational activity: (1) a Low-Case scenario, where construction costs equal budgeted amounts and (2) a High-Case scenario, where contingency funds are fully spent.

- Direct construction spending would likely average about $37.9 million per month, with total (direct, indirect, and induced) spending of $123.2 million per month in the Low-Case scenario. These values would increase to $51.2 million and $166.4 million per month, respectively, in the High-Case construction cost scenario.

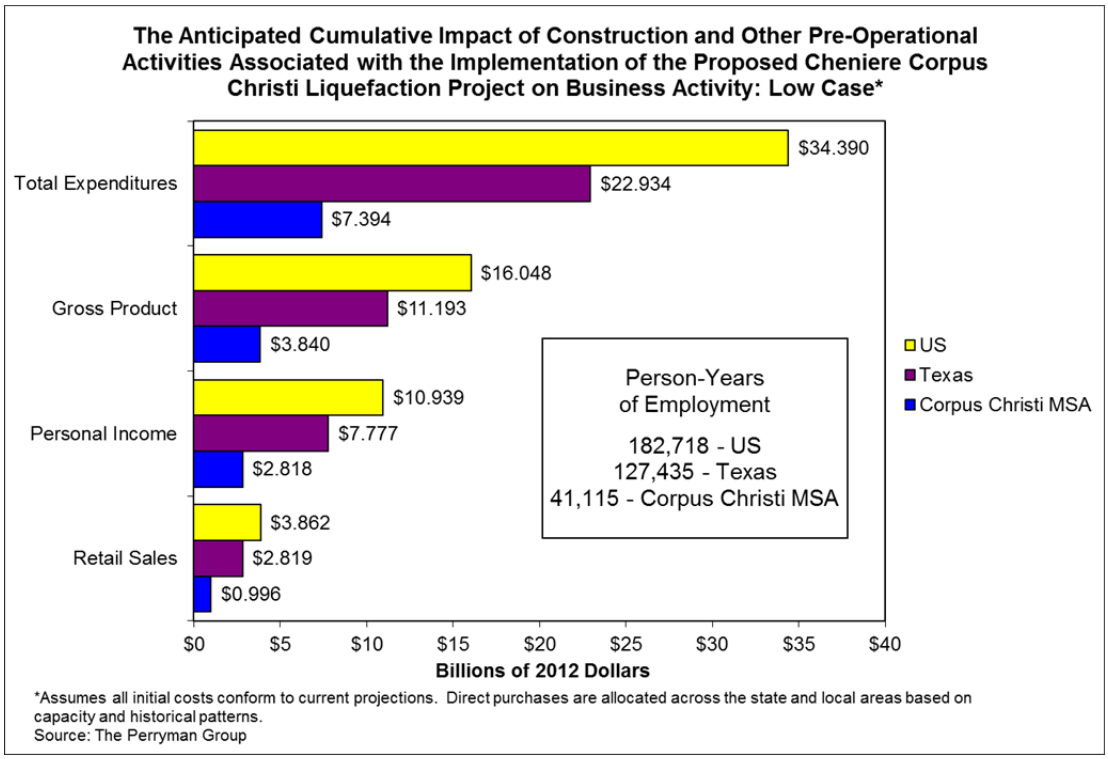
- Local tax revenues in the Corpus Christi area would total about $1.61 million - $2.18 million per month, depending on where construction costs ultimately fall between the "Low" and "High" scenarios.

- A significant portion of construction materials would likely be procured locally. Based on the area's ability to supply needed materials, The Perryman Group estimates these purchases would range from $785.1 million to $1.060 billion depending on the scenario. Local school districts are expected to benefit by about $1.6 million per year once the facility is operational.

Low-Case Scenario

- The Low-Case scenario assumes that all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.

- Gains in business activity for the United States were found to include $16.0 billion in gross product and 182,718 person-years of employment.



- As noted, Texas and the Corpus Christi Area would also see substantial economic benefits. In addition, The Perryman Group estimates that Texas would see an increase in tax receipts stemming from construction and pre-operational activities of almost $578.4 million, with $96.8 million for Corpus Christi and $1.4 billion to the federal government.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts: Low Case			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$7.394	$22.934	$34.390
Gross Product	$3.840	$11.193	$16.048
Personal Income	$2.818	$7.777	$10.939
Retail Sales	$0.996	$2.819	$3.862
Employment (Person-Years)	41,115	127,435	182,718
Employment (Average Annual)*	8,223	25,487	36,544
FISCAL BENEFITS (In constant 2012 Dollars)			
Federal		$1,376,999,497	
Texas		$578,426,647	
Other States		$219,945,570	
Corpus Christi Area		$96,755,771	
Other Local Areas		$316,984,196	
* Assumes a five-year construction period.			

- Under the Low-Case scenario, the project could be expected to generate some 10,384 person-years of employment (when multiplier effects are considered) within the local construction sector. Texas and the United States would also experience

broad-based increases in business activity as illustrated in the following tables.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area: Low Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$113,281,295	$32,544,545	$21,448,803	348	70
Mining	$74,536,516	$18,622,733	$10,492,170	70	15
Construction	$2,396,030,327	$1,406,518,239	$1,253,158,554	10,384	2,077
Nondurable Manufacturing	$531,589,315	$121,181,224	$62,684,335	906	181
Durable Manufacturing	$517,836,688	$210,395,830	$134,306,191	2,258	452
Transportation and Utilities	$418,736,346	$168,095,334	$98,440,893	1,152	230
Information	$103,540,043	$63,755,375	$27,607,649	268	54
Wholesale Trade	$182,228,781	$123,318,091	$71,106,310	815	163
Retail Trade	$996,388,024	$750,110,454	$436,531,412	13,618	2,724
Finance, Insurance, and Real Estate	$767,839,549	$165,624,745	$63,605,813	662	132
Business Services	$645,291,993	$406,344,950	$331,473,359	4,134	827
Health Services	$230,613,793	$161,390,732	$136,457,361	2,311	462
Other Services	$415,824,332	$212,383,787	$170,944,200	4,189	838
TOTAL	$7,393,737,000	$3,840,286,040	$2,818,257,050	41,115	**8,223**
Source: US Multi-Regional Impact Assessment System, The Perryman Group * Assumes a five-year construction period.					

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: Low Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*Average Annual)**
Agriculture	$317,437,664	$91,482,975	$60,280,889	979	196
Mining	$351,428,489	$85,122,888	$46,836,708	299	60
Construction	$6,138,188,182	$3,157,657,985	$2,696,206,773	31,244	6,249
Nondurable Manufacturing	$1,894,204,172	$529,519,371	$277,004,679	4,739	948
Durable Manufacturing	$2,364,767,314	$926,820,216	$599,916,199	9,717	1,943
Transportation and Utilities	$1,484,536,312	$616,946,964	$365,515,262	4,368	874
Information	$408,536,445	$251,646,262	$108,621,325	1,039	208
Wholesale Trade	$807,567,751	$546,500,632	$315,117,132	3,612	722
Retail Trade	$2,818,729,491	$2,123,698,234	$1,236,191,284	38,516	7.702
Finance, Insurance, and Real Estate	$2,700,632,177	$651,448,285	$260,902,797	2,783	557
Business Services	$1,809,315,046	$1,149,738,992	$937,892,409	11,698	2,340
Health Services	$650,996,339	$455,683,113	$385,284,295	6,523	1,305
Other Services	$1,187,417,814	$606,728,931	$487,081,334	11,917	2,383
TOTAL	$22,933,757,195	$11,192,994,849	$7,776,851,086	127,435	**25,487**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

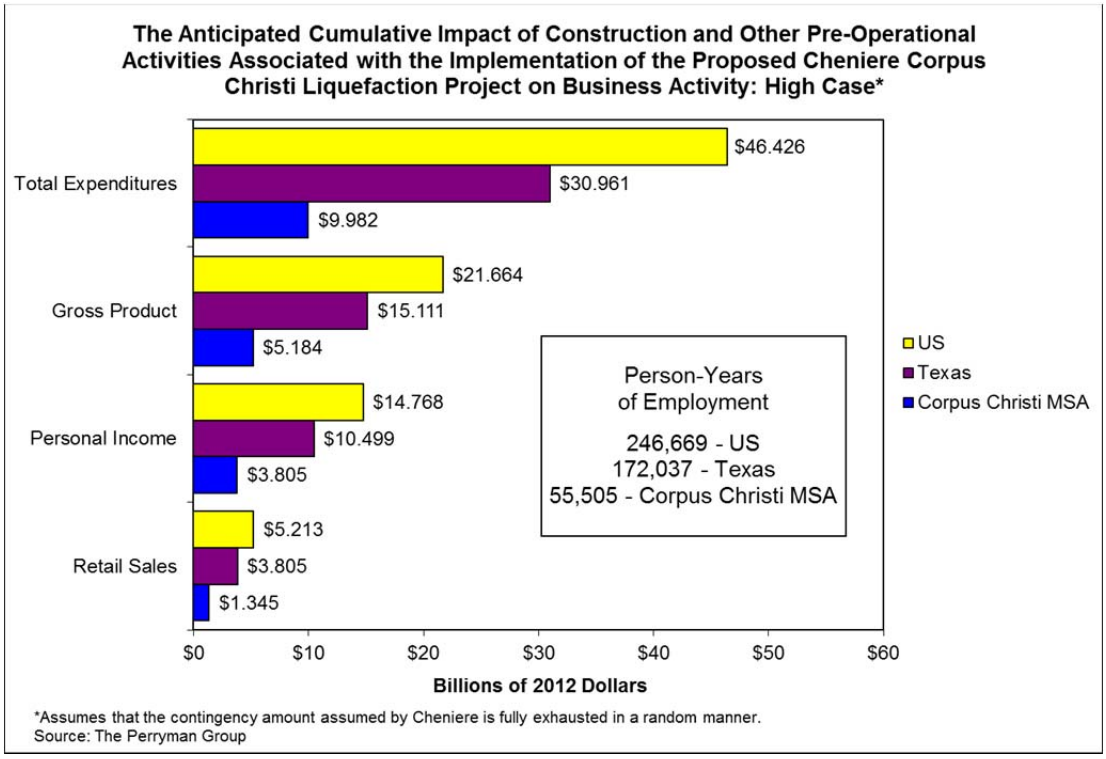
* Assumes a five-year construction period.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: Low Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*Average Annual)**
Agriculture	$483,343,874	$141,863,730	$92,370,648	1,497	300
Mining	$471,946,041	$115,878,826	$66,025,121	429	86
Construction	$7,938,027,661	$4,044,857,782	$3,427,314,660	41,813	8,363
Nondurable Manufacturing	$4,751,148,243	$1,264,636,787	$653,018,191	11,052	2,210
Durable Manufacturing	$4,228,625,906	$1,638,317,876	$1,066,456,000	17,362	3,472
Transportation and Utilities	$2,410,605,078	$965,222,592	$565,102,874	6,610	1,322
Information	$569,589,220	$350,856,144	$151,381,923	1,444	289
Wholesale Trade	$1,126,496,835	$762,314,084	$439,557,091	5,039	1,008
Retail Trade	$3,861,639,838	$2,906,939,441	$1,691,669,457	52,779	10,556
Finance, Insurance, and Real Estate	$3,661,643,840	$906,779,249	$370,650,132	3,954	791
Business Services	$2,328,710,735	$1,481,263,210	$1,208,331,219	15,071	3,014
Health Services	$879,491,877	$615,582,284	$520,480,524	8,813	1,763
Other Services	$1,678,585,387	$853,187,453	$686,985,981	16,855	3,371
TOTAL	$34,389,854,535	$16,047,699,459	$10,939,343,818	182,718	**36,544**
Source: US Multi-Regional Impact Assessment System, The Perryman Group * Assumes a five-year construction period.					

High-Case Scenario

- Alternatively, construction and pre-operational investments could be significantly higher if certain contingencies or other sources of cost variation arise. For purposes of this scenario, it was assumed that the contingency amount quantified by Cheniere is fully exhausted in a random manner.

- Cumulative economic benefits for the United States during the pre-operational period for the High-Case scenario include $21.7 billion in gross product and 246,669 person-years of employment.



- Under the High-Case Scenario, incremental tax receipts rise to almost $130.6 million for local taxing entities in Corpus Christi, $780.9 million for Texas, and $1.86 billion for the federal government.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts: High Case			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$9.982	$30.961	$46.426
Gross Product	$5.184	$15.111	$21.664
Personal Income	$3.805	$10.499	$14.768
Retail Sales	$1.345	$3.805	$5.213
Employment (Person-Years)	55,505	172,037	246,669
Employment (Average Annual)*	11,101	34,407	49,334
FISCAL BENEFITS (In Constant 2012 Dollars)			
	Federal	$1,858,949,320	
	Texas	$780,875,973	
	Other States	$296,926,519	
	Corpus Christi Area	$130,620,291	
	Other Local Areas	$427,928,665	
* Assumes a five-year construction period.			

- The sectoral breakout of the economic benefits is presented in the following tables.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area: High Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$152,929,748	$43,935,135	$28,955,884	470	94
Mining	$100,624,296	$25,140,689	$14,164,430	95	19
Construction	$3,234,640,941	$1,898,799,623	$1,691,764,047	14,019	2,804
Nondurable Manufacturing	$717,645,576	$163,594,652	$84,623,852	1,223	245
Durable Manufacturing	$699,079,529	$284,034,370	$181,313,358	3,049	610
Transportation and Utilities	$565,294,067	$226,928,702	$132,895,206	1,555	311
Information	$139,779,058	$86,069,756	$37,270,326	362	72
Wholesale Trade	$246,008,855	$166,479,423	$95,993,518	1,100	220
Retail Trade	$1,345,123,833	$1,012,649,113	$589,317,406	18,384	3,677
Finance, Insurance, and Real Estate	$1,036,583,391	$223,593,406	$85,867,847	893	179
Business Services	$871,144,190	$548,565,683	$447,489,034	5,581	1,116
Health Services	$311,328,620	$217,877,488	$184,217,437	3,119	624
Other Services	$561,362,849	$286,718,113	$230,774,671	5,655	1,131
TOTAL	$9,981,544,950	$5,184,386,153	$3,804,647,017	55,505	**11,101**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

* Assumes a five-year construction period.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: High Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$428,540,846	$123,502,016	$81,379,200	1,322	264
Mining	$474,428,460	$114,915,899	$63,229,556	404	81
Construction	$8,286,554,045	$4,262,838,280	$3,639,879,143	42,180	8,436
Nondurable Manufacturing	$2,557,175,632	$714,851,151	$373,956,316	6,397	1,279
Durable Manufacturing	$3,192,435,874	$1,251,207,291	$809,886,869	13,118	2,624
Transportation and Utilities	$2,004,124,021	$832,878,402	$493,445,604	5,897	1,179
Information	$551,524,201	$339,722,454	$146,638,789	1,402	280
Wholesale Trade	$1,090,216,464	$737,775,853	$425,408,128	4,876	975
Retail Trade	$3,805,284,813	$2,866,992,616	$1,668,858,233	51,997	10,399
Finance, Insurance, and Real Estate	$3,645,853,439	$879,455,185	$352,218,776	3,757	751
Business Services	$2,442,575,312	$1,552,147,639	$1,266,154,752	15,792	2,158
Health Services	$878,845,057	$615,172,203	$520,133,798	8,807	1,761
Other Services	$1,603,014,049	$819,084,057	$657,559,801	16,088	3,218
TOTAL	$30,960,572,214	$15,110,543,046	$10,498,748,966	172,037	**34,407**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

* Assumes a five-year construction period.

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: High Case					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$652,514,229	$191,516,036	$124,700,375	2,020	404
Mining	$637,127,155	$156,436,416	$89,133,913	580	116
Construction	$10,716,337,342	$5,460,558,006	$4,626,874,790	56,447	11,289
Nondurable Manufacturing	$6,414,050,128	$1,707,259,663	$881,574,558	14,921	2,984
Durable Manufacturing	$5,708,644,973	$2,211,729,132	$1,439,715,599	23,439	4,688
Transportation and Utilities	$3,254,316,855	$1,303,050,499	$762,888,880	8,924	1,785
Information	$768,945,447	$473,655,794	$204,365,596	1,950	390
Wholesale Trade	$1,520,770,728	$1,029,124,014	$593,402,072	6,802	1,360
Retail Trade	$5,213,213,782	$3,924,368,246	$2,283,753,767	71,252	14,250
Finance, Insurance, and Real Estate	$4,943,219,184	$1,224,151,985	$500,377,678	5,338	1,068
Business Services	$3,143,759,492	$1,999,705,333	$1,631,247,145	20,346	4,069
Health Services	$1,187,314,034	$831,036,083	$702,648,707	11,897	2,379
Other Services	$2,266,090,273	$1,151,803,061	$927,431,074	22,754	4,551
TOTAL	$46,426,303,622	$21,664,394,269	$14,768,114,155	246,669	**49,334**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

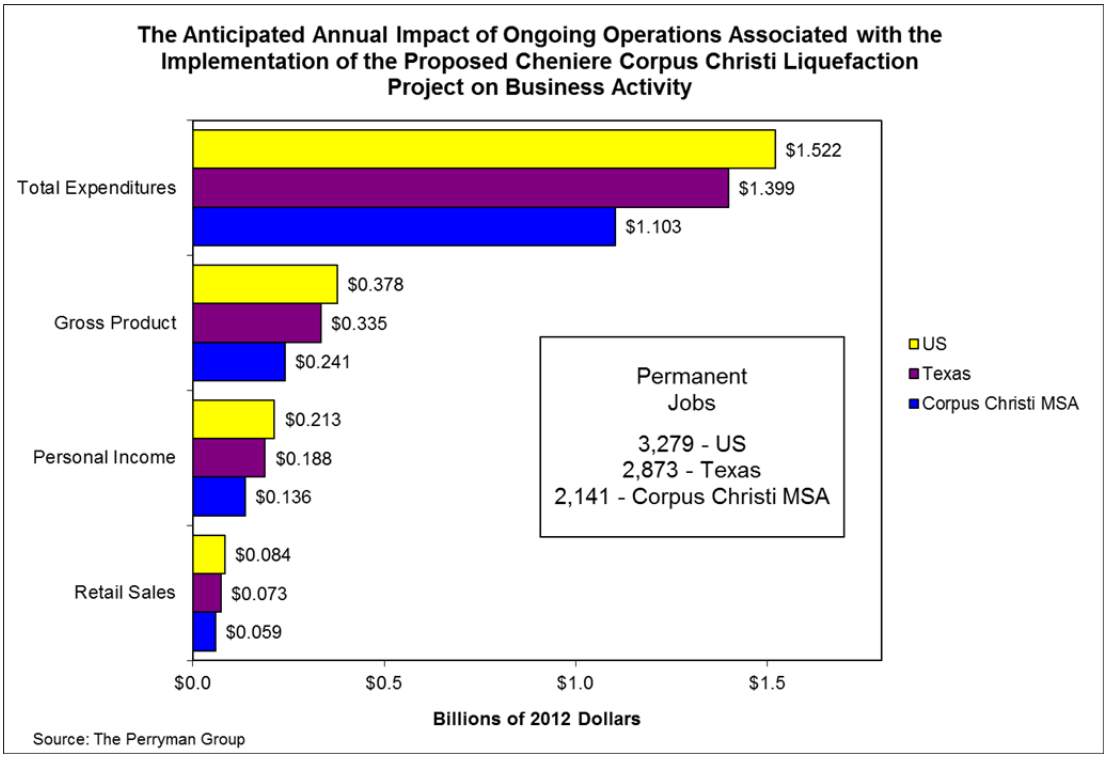
* Assumes a five-year construction period.

Ongoing Operations of the Facility

- Once in operation, the Corpus Christi Liquefaction Facility will continue to serve as a stimulus to the local area, state, and nation through its purchases and payroll. It will also generate substantial tax receipts including an estimated $53.8 million in local tax revenues during the first 10 years alone.

- Given the Corpus Christi area's large skilled workforce in the refining and petrochemical sectors, as well as training programs at local colleges, the permanent workers should be available within the local area. There is unlikely to be any significant change in population given that the workers will be available in the area.

- The economic benefits of ongoing operations of the Corpus Christi Liquefaction facility as of maturity include some $378 million in US gross product each year as well as 3,279 permanent jobs. These effects are concentrated in Texas and the local area.



- Incremental tax receipts at all levels are notable, including more than $22.4 million in federal taxes, almost $15.7 million to the state of Texas, and millions to Corpus Christi-area and other taxing authorities as presented in the table below.

The Anticipated Annual Impact of Ongoing Operations Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$1.103	$1.399	$1.522
Gross Product	$0.241	$0.335	$0.377
Personal Income	$0.136	$0.188	$0.213
Retail Sales	$0.059	$0.073	$0.084
Employment (Permanent Jobs)	2,141	2,873	3,279
FISCAL BENEFITS (In Constant 2012 Dollars)			
Federal		$22,409,473	
Texas		$15,687,565	
Other States		$2,279,338	
Corpus Christi Area		$5,376,903	
Other Local Areas		$2,779,539	

- When the CCL facility is operational, it will support jobs across a spectrum of industries. Nondurable manufacturing and mining will benefit, as will consumer-oriented sectors such as retail trade.

- These industry-level effects are presented in the following tables.

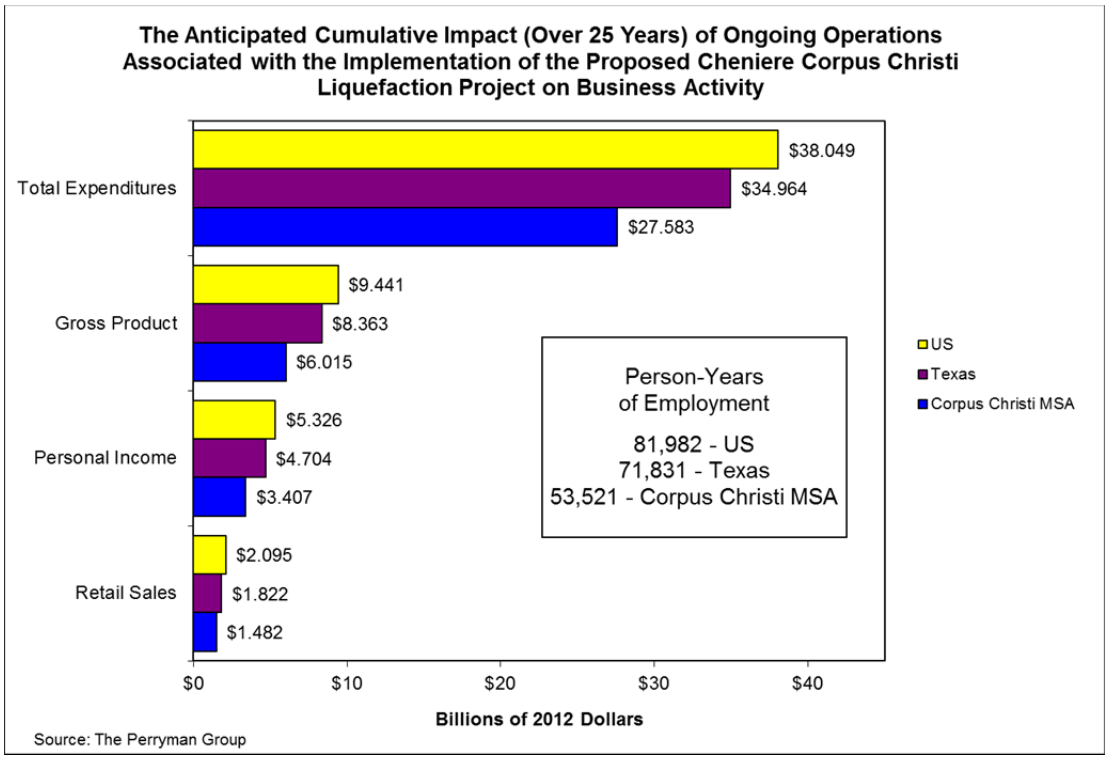
The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$7,410,745	$2,213,175	$1,445,300	23
Mining	$145,173,350	$31,959,682	$14,895,781	76
Construction	$26,465,750	$14,462,945	$11,918,367	172
Nondurable Manufacturing	$649,545,276	$57,845,067	$27,665,441	244
Durable Manufacturing	$9,106,070	$3,697,213	$2,383,851	35
Transportation and Utilities	$60,698,736	$18,797,793	$10,704,782	119
Information	$7,462,682	$4,607,406	$1,989,735	19
Wholesale Trade	$15,662,202	$10,586,165	$6,104,077	70
Retail Trade	$59,268,493	$43,946,154	$25,474,063	811
Finance, Insurance, and Real Estate	$65,195,846	$19,375,845	$6,502,362	65
Business Services	$18,037,054	$10,519,842	$8,581,495	107
Health Services	$13,588,911	$9,508,799	$8,039,777	136
Other Services	$25,702,322	$13,085,929	$10,584,198	263
TOTAL	**$1,103,317,437**	**$240,606,015**	**$136,289,229**	**2,141**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$8,642,957	$2,575,729	$1,682,392	27
Mining	$237,312,485	$52,218,288	$24,340,403	124
Construction	$29,396,128	$16,037,342	$13,215,769	191
Nondurable Manufacturing	$718,712,915	$69,759,249	$33,783,740	343
Durable Manufacturing	$26,039,727	$10,095,934	$6,631,161	95
Transportation and Utilities	$90,688,944	$28,692,623	$16,479,181	186
Information	$13,236,280	$8,176,402	$3,520,734	33
Wholesale Trade	$28,185,579	$19,051,626	$10,985,337	126
Retail Trade	$72,870,898	$54,129,040	$31,391,489	997
Finance, Insurance, and Real Estate	$98,697,940	$30,433,289	$10,584,792	109
Business Services	$27,027,881	$15,842,824	$12,923,685	161
Health Services	$16,407,793	$11,496,851	$9,720,694	165
Other Services	$31,357,002	$16,000,623	$12,881,289	317
TOTAL	**$1,398,576,531**	**$334,509,820**	**$188,140,666**	**2,873**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$9,940,459	$2,962,403	$1,934,956	31
Mining	$272,938,405	$60,057,423	$27,994,443	143
Construction	$33,809,145	$18,444,906	$15,199,752	220
Nondurable Manufacturing	$740,040,422	$73,125,268	$35,518,566	369
Durable Manufacturing	$29,948,874	$11,611,560	$7,626,647	109
Transportation and Utilities	$104,303,386	$33,000,029	$18,953,076	214
Information	$15,223,342	$9,403,863	$4,049,275	38
Wholesale Trade	$32,416,866	$21,911,702	$12,634,483	145
Retail Trade	$83,810,453	$62,255,022	$36,104,055	1,147
Finance, Insurance, and Real Estate	$113,514,712	$35,002,008	$12,173,806	125
Business Services	$31,085,372	$18,221,187	$14,863,819	185
Health Services	$18,870,970	$13,222,786	$11,179,988	189
Other Services	$36,064,391	$18,402,675	$14,815,059	364
TOTAL	**$1,521,966,797**	**$377,620,832**	**$213,047,925**	**3,279**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Cumulative Operations Effects

- Over the first 25 years of operations, the Corpus Christi Liquefaction Facility leads to cumulative gains in business activity including $9.4 billion in output in the United States as well as 81,982 person-years of employment. Again, these benefits are concentrated in the Corpus Christi area.



- This economic activity (further described in the table below) generates incremental receipts to all levels of government including $560. 2 million to the federal government, $392.2 million to the state of Texas, and $134.4 million to local entities in Corpus Christi, as well as millions more to other taxing authorities as noted below.

The Anticipated Cumulative Impact (Over the First 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity and Tax Receipts			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$27.583	$34.964	$38.049
Gross Product	$6.015	$8.363	$9.440
Personal Income	$3.407	$4.704	$5.326
Retail Sales	$1.482	$1.822	$2.095
Employment (Person-Years)	53,521	71,831	81,982
FISCAL BENEFITS (In Constant 2012 Dollars)			
Federal			$560,236,822
Texas			$392,189,121
Other States			$56,983,438
Corpus Christi Area			$134,422,573
Other Local Areas			$69,488,484

- The economic effects by industry group are indicated in the tables below.

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$185,268,636	$55,329,364	$36,132,496	586
Mining	$3,629,333,744	$798,992,055	$372,394,514	1,907
Construction	$661,643,748	$361,573,623	$297,959,185	4,308
Nondurable Manufacturing	$16,238,631,888	$1,446,126,671	$691,636,018	6,103
Durable Manufacturing	$227,651,761	$92,430,333	$59,596,270	866
Transportation and Utilities	$1,517,468,409	$469,944,829	$267,619,545	2,969
Information	$186,567,060	$115,185,146	$49,743,384	477
Wholesale Trade	$391,555,039	$264,654,123	$152,601,930	1,749
Retail Trade	$1,481,712,321	$1,098,653,845	$636,851,572	20,273
Finance, Insurance, and Real Estate	$1,629,896,162	$484,396,136	$162,559,041	1,630
Business Services	$450,926,345	$262,996,049	$214,537,377	2,676
Health Services	$339,722,773	$237,719,980	$200,994,426	3,403
Other Services	$642,558,046	$327,148,233	$264,604,956	6,576
TOTAL	**$27,582,935,933**	**$6,015,150,387**	**$3,407,230,716**	**53,521**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$216,073,930	$64,393,221	$42,059,788	681
Mining	$5,932,812,118	$1,305,457,194	$608,510,080	3,110
Construction	$734,903,200	$400,933,546	$330,394,230	4,777
Nondurable Manufacturing	$17,967,822,877	$1,743,981,217	$844,593,507	8,570
Durable Manufacturing	$650,993,181	$252,398,356	$165,779,019	2,366
Transportation and Utilities	$2,267,223,590	$717,315,578	$411,979,535	4,647
Information	$330,907,004	$204,410,041	$88,018,346	831
Wholesale Trade	$704,639,487	$476,290,654	$274,633,435	3,148
Retail Trade	$1,821,772,462	$1,353,226,010	$784,787,221	24,922
Finance, Insurance, and Real Estate	$2,467,448,505	$760,832,235	$264,619,788	2,717
Business Services	$675,697,037	$396,070,605	$323,092,117	4,029
Health Services	$410,194,820	$287,421,272	$243,017,352	4,113
Other Services	$783,925,053	$400,015,579	$322,032,232	7,919
TOTAL	**$34,964,413,264**	**$8,362,745,509**	**$4,703,516,649**	**71,831**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

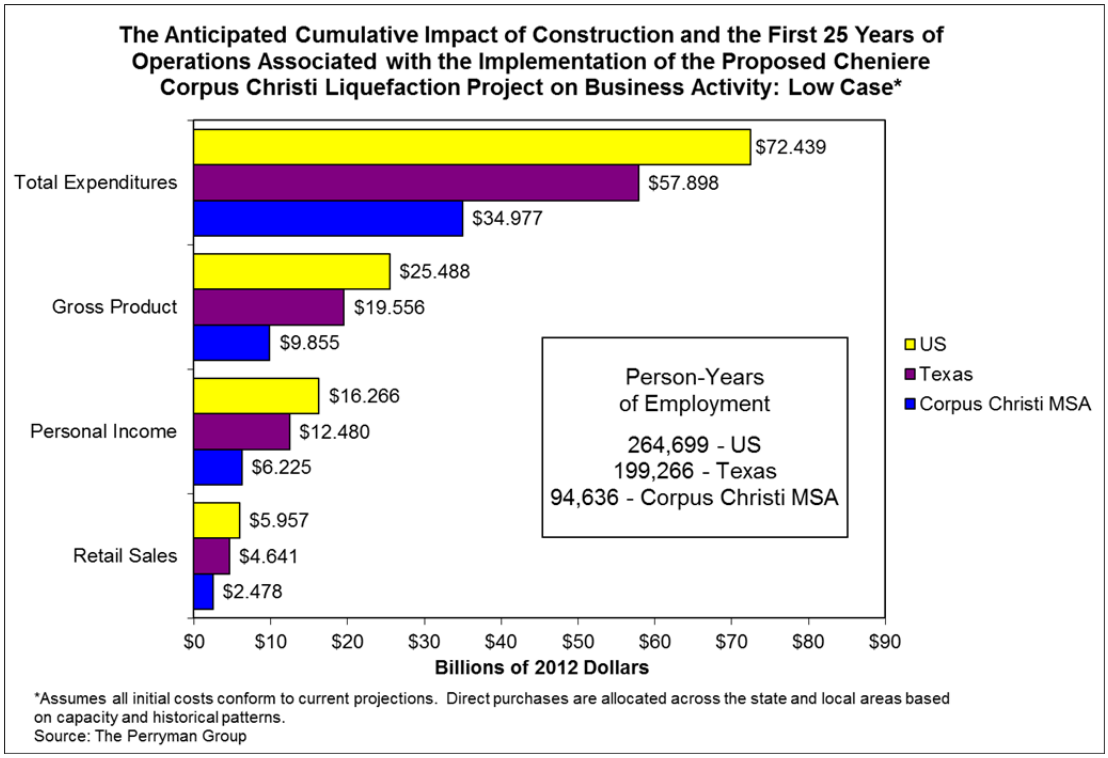
The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$248,511,468	$74,060,086	$48,373,904	783
Mining	$6,823,460,136	$1,501,435,566	$699,861,076	3,577
Construction	$845,228,635	$461,122,654	$379,993,806	5,494
Nondurable Manufacturing	$18,501,010,540	$1,828,131,705	$887,964,152	9,225
Durable Manufacturing	$748,721,842	$290,289,004	$190,666,164	2,722
Transportation and Utilities	$2,607,584,646	$825,000,717	$473,826,893	5,344
Information	$380,583,559	$235,096,568	$101,231,871	956
Wholesale Trade	$810,421,661	$547,792,552	$315,862,067	3,620
Retail Trade	$2,095,261,324	$1,556,375,552	$902,601,365	28,663
Finance, Insurance, and Real Estate	$2,837,867,806	$875,050,200	$304,345,147	3,124
Business Services	$777,134,301	$455,529,677	$371,595,483	4,634
Health Services	$471,774,253	$330,569,645	$279,499,701	4,731
Other Services	$901,609,767	$460,066,879	$370,376,484	9,108
TOTAL	**$38,049,169,937**	**$9,440,520,805**	**$5,326,198,114**	**81,982**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Total Construction and First 25 Years of Operations of the Facility

- Combining the construction (under low-case and high-case assumptions) with the cumulative effects of the first 25 years of operations of the Corpus Christi Liquefaction Facility indicates the substantial economic benefits of the facility.

Total Cumulative Operations and Low-Case Construction

- For the United States, The Perryman Group found that the total cumulative impact of construction (under a low-case scenario) and the first 25 years of operation of the facility on business activity includes $25.5 billion in gross product and 264,699 person-years of employment.



- Tax receipts from construction through the first 25 years of operation include more than $1.9 billion to the federal government, $970.6 million to the state of Texas, and hundreds of millions to various local taxing entities.

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts: Low Case			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$34.977	$57.898	$72.439
Gross Product	$9.855	$19.556	$25.488
Personal Income	$6.225	$12.480	$16.266
Retail Sales	$2.478	$4.641	$5.957
Employment (Person-Years)	94,636	199,266	264,699
FISCAL BENEFITS (In Constant 2012 Dollars)			
Federal			$1,937,236,319
Texas			$970,615,768
Other States			$276,929,008
Corpus Christi Area			$231,178,344
Other Local Areas			$386,472,681

- The sectoral composition of these economic benefits is noted in the following tables.

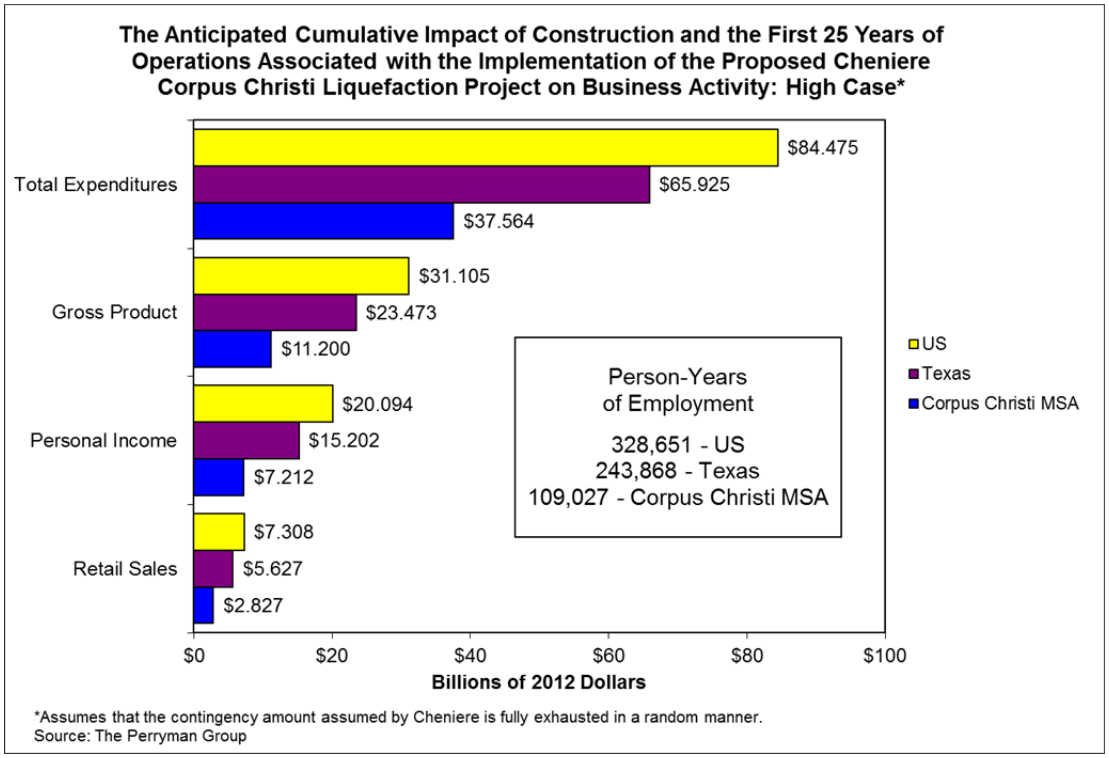
The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations of the Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area: Low Case				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$298,549,931	$87,873,908	$57,581,299	934
Mining	$3,703,870,260	$817,614,788	$382,886,685	1,977
Construction	$3,057,674,075	$1,768,091,862	$1,551,117,738	14,692
Nondurable Manufacturing	$16,770,221,203	$1,567,307,895	$754,320,353	7,009
Durable Manufacturing	$745,488,449	$302,826,162	$193,902,462	3,124
Transportation and Utilities	$1,936,204,755	$638,040,164	$366,060,439	4,121
Information	$290,107,103	$178,940,521	$77,351,033	745
Wholesale Trade	$573,783,820	$387,972,214	$223,708,240	2,564
Retail Trade	$2,478,100,345	$1,848,764,299	$1,073,382,984	33,891
Finance, Insurance, and Real Estate	$2,397,735,712	$650,020,882	$226,164,854	2,291
Business Services	$1,096,218,338	$669,340,999	$546,010,736	6,810
Health Services	$570,336,566	$399,110,711	$337,451,787	5,713
Other Services	$1,058,382,378	$539,532,020	$435,549,157	10,764
TOTAL	$34,976,672,934	$9,855,436,426	$6,225,487,766	94,636
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations of the Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: Low Case				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$533,511,593	$155,876,196	$102,340,677	1,661
Mining	$6,284,240,607	$1,390,580,082	$655,346,788	3,409
Construction	$6,873,091,381	$3,558,591,531	$3,026,601,002	36,021
Nondurable Manufacturing	$19,862,027,049	$2,273,500,588	$1,121,598,186	13,309
Durable Manufacturing	$3,015,760,495	$1,179,218,572	$765,695,218	12,084
Transportation and Utilities	$3,751,759,902	$1,334,262,543	$777,494,797	9,015
Information	$739,443,449	$456,056,303	$196,639,671	1,870
Wholesale Trade	$1,512,207,238	$1,022,791,286	$589,750,567	6,760
Retail Trade	$4,640,501,953	$3,476,924,244	$2,020,978,505	63,438
Finance, Insurance, and Real Estate	$5,168,080,682	$1,412,280,521	$525,522,585	5,499
Business Services	$2,485,012,083	$1,545,809,597	$1,260,984,526	15,727
Health Services	$1,061,191,159	$743,104,385	$628,301,647	10,637
Other Services	$1,971,342,868	$1,006,744,510	$809,113,565	19,836
TOTAL	$57,898,170,459	$19,555,740,358	$12,480,367,735	199,266
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations of Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: Low Case				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$731,855,341	$215,923,816	$140,744,552	2,280
Mining	$7,295,406,177	$1,617,314,393	$765,886,197	4,006
Construction	$8,783,256,296	$4,505,980,437	$3,807,308,465	47,307
Nondurable Manufacturing	$23,252,158,783	$3,092,768,492	$1,540,982,343	20,277
Durable Manufacturing	$4,977,347,749	$1,928,606,880	$1,257,122,163	20,084
Transportation and Utilities	$5,018,189,724	$1,790,223,309	$1,038,929,768	11,954
Information	$950,172,779	$585,952,712	$252,613,794	2,401
Wholesale Trade	$1,936,918,496	$1,310,106,636	$755,419,157	8,659
Retail Trade	$5,956,901,162	$4,463,314,993	$2,594,270,822	81,443
Finance, Insurance, and Real Estate	$6,499,511,646	$1,781,829,448	$674,995,278	7,078
Business Services	$3,105,845,035	$1,936,792,887	$1,579,926,702	19,705
Health Services	$1,351,266,130	$946,151,929	$799,980,225	13,544
Other Services	$2,580,195,154	$1,313,254,332	$1,057,362,465	25,963
TOTAL	$72,439,024,472	$25,488,220,264	$16,265,541,932	264,699
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Total Cumulative Operations and High-Case Construction

- Under High-Case construction assumptions, the total construction and cumulative operations impacts (over the first 25 years) rise to $31.1 billion in US gross product and 328,651 person-years of employment.



- These economic benefits lead to a sizable fiscal stimulus (as illustrated in the table below), including $2.4 billion in federal taxes, $1.2 billion to the state of Texas, $265.0 million to local entities in the Corpus Christi area, and hundreds of millions to other areas.

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity and Tax Receipts: High Case			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$37.564	$65.925	$84.475
Gross Product	$11.200	$23.473	$31.105
Personal Income	$7.212	$15.202	$20.094
Retail Sales	$2.827	$5.627	$7.308
Employment (Person-Years)	109,027	243,868	328,651
FISCAL BENEFITS (In Constant 2012 Dollars)			
Federal			$2,419,186,142
Texas			$1,173,065,094
Other States			$353,909,957
Corpus Christi Area			$265,042,864
Other Local Areas			$497,417,149

- In terms of overall spending, the nondurable manufacturing sector accounts for the largest share of the economic benefits.

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area: High Case				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$338,198,384	$99,264,499	$65,088,380	1,056
Mining	$3,729,958,040	$824,132,745	$386,558,944	2,002
Construction	$3,896,284,689	$2,260,373,245	$1,989,723,232	18,326
Nondurable Manufacturing	$16,956,277,463	$1,609,721,324	$776,259,870	7,326
Durable Manufacturing	$926,731,289	$376,464,703	$240,909,628	3,915
Transportation and Utilities	$2,082,762,476	$696,873,531	$400,514,751	4,524
Information	$326,346,118	$201,254,903	$87,013,710	838
Wholesale Trade	$637,563,894	$431,133,546	$248,595,449	2,849
Retail Trade	$2,826,836,153	$2,111,302,957	$1,226,168,978	38,657
Finance, Insurance, and Real Estate	$2,666,479,554	$707,989,543	$248,426,888	2,523
Business Services	$1,322,070,535	$811,561,731	$662,026,412	8,257
Health Services	$651,051,393	$455,597,468	$385,211,864	6,522
Other Services	$1,203,920,895	$613,866,346	$495,379,627	12,230
TOTAL	$37,564,480,884	$11,199,536,540	$7,211,877,734	109,027
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: High Case				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$644,614,776	$187,895,237	$123,438,988	2,003
Mining	$6,407,240,578	$1,420,373,093	$671,739,636	3,514
Construction	$9,021,457,245	$4,663,771,826	$3,970,273,373	46,956
Nondurable Manufacturing	$20,524,998,510	$2,458,832,367	$1,218,549,823	14,968
Durable Manufacturing	$3,843,429,055	$1,503,605,648	$975,665,888	15,485
Transportation and Utilities	$4,271,347,611	$1,550,193,980	$905,425,139	10,544
Information	$882,431,205	$544,132,495	$234,657,135	2,233
Wholesale Trade	$1,794,855,951	$1,214,066,507	$700,041,563	8,024
Retail Trade	$5,627,057,275	$4,220,218,626	$2,453,645,454	76,919
Finance, Insurance, and Real Estate	$6,113,301,944	$1,640,287,421	$616,838,564	6,473
Business Services	$3,118,272,349	$1,948,218,245	$1,589,246,869	19,821
Health Services	$1,289,039,878	$902,593,475	$763,151,151	12,920
Other Services	$2,386,939,103	$1,219,099,636	$979,592,032	24,007
TOTAL	$65,924,985,478	$23,473,288,555	$15,202,265,615	243,868
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: High Case				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$901,025,697	$265,576,122	$173,074,279	2,804
Mining	$7,460,587,291	$1,657,871,982	$788,994,989	4,156
Construction	$11,561,565,977	$5,921,680,660	$5,006,868,596	61,941
Nondurable Manufacturing	$24,915,060,668	$3,535,391,368	$1,769,538,710	24,145
Durable Manufacturing	$6,457,366,816	$2,502,018,137	$1,630,381,763	26,160
Transportation and Utilities	$5,861,901,501	$2,128,051,217	$1,236,715,774	14,268
Information	$1,149,529,006	$708,752,362	$305,597,467	2,906
Wholesale Trade	$2,331,192,389	$1,576,916,565	$909,264,139	10,422
Retail Trade	$7,308,475,105	$5,480,743,798	$3,186,355,132	99,915
Finance, Insurance, and Real Estate	$7,781,086,990	$2,099,202,185	$804,722,824	8,462
Business Services	$3,920,893,792	$2,455,235,010	$2,002,842,628	24,980
Health Services	$1,659,088,287	$1,161,605,728	$982,148,408	16,628
Other Services	$3,167,700,040	$1,611,869,941	$1,297,807,559	31,862
TOTAL	$84,475,473,559	$31,104,915,074	$20,094,312,268	328,651
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

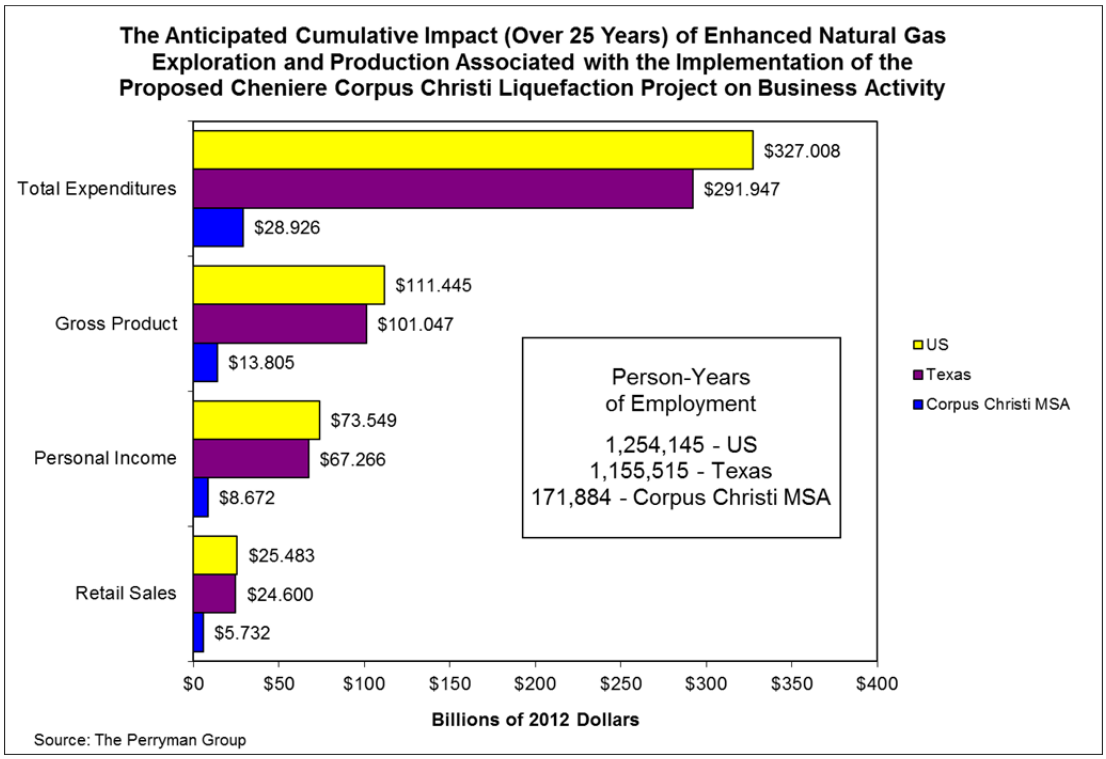
Enhanced Exploration and Production Activity

- As noted, the existence of the Corpus Christi Liquefaction Facility will also likely stimulate additional development of natural gas resources by providing a mechanism to export LNG. This development involves sizable investment in exploration and production activity and, thus, further economic stimulus.

- The cumulative (over 25 years) economic benefits of enhanced exploration and production of natural gas are presented in the table below. This analysis assumes that the new resources are obtained in the Eagle Ford Shale area of South Texas. As a result, Corpus Christi will not be the site of direct activity, but will capture a substantial segment of spinoff benefits. The simulation also reflects the need for an initial period of rapid drilling activity to increase supply to meet the additional requirements, followed by a period of more modest investment to maintain adequate levels of gas production (this phenomenon is examined in more detail in the full report). The results are also calibrated to typical capital expenditure and well patterns in the Eagle Ford Shale. While the increased drilling activity is likely to occur in some relatively small communities where labor force and housing have been an issue, responses to such shortages are occurring rapidly throughout Eagle Ford Shale and the situation should be well in hand before the liquefaction facility comes online.

Cumulative Incremental Natural Gas Exploration and Production Effects (Over 25 Years)

- Under these assumptions, the cumulative (over 25 years) incremental business activity stemming from enhanced exploration and production includes an estimated $111.4 billion in gross product and 1,254,145 person-years of employment in the United States.



- This substantial level of additional economic activity leads to additional tax receipts to the federal government of $8.4 billion, with $5.4 billion to Texas, $454.7 million to taxing entities in Corpus Christi, and hundreds of millions to other states and local areas.

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$28.926	$291.947	$327.008
Gross Product	$13.805	$101.047	$111.445
Personal Income	$8.672	$67.266	$73.549
Retail Sales	$5.732	$24.600	$25.483
Employment (Person-Years)	171,884	1,155,515	1,254,145
Employment (Average Annual)*	6,875	46,221	50,166
FISCAL BENEFITS (In Constant 2012 Dollars)			
	Federal	$8,437,633,777	
	Texas	$5,350,196,324	
	Other States	$240,866,858	
	Corpus Christi Area	$454,699,044	
	Other Local Areas	$2,408,401,166	
* Total effect over first 25 years.			

- A sizable portion of this activity occurs within the mining sector; however, given the high value-added nature of the oil and gas industry, the economic benefits which spread through

the economy generate sizable gains in all segments of the economy.

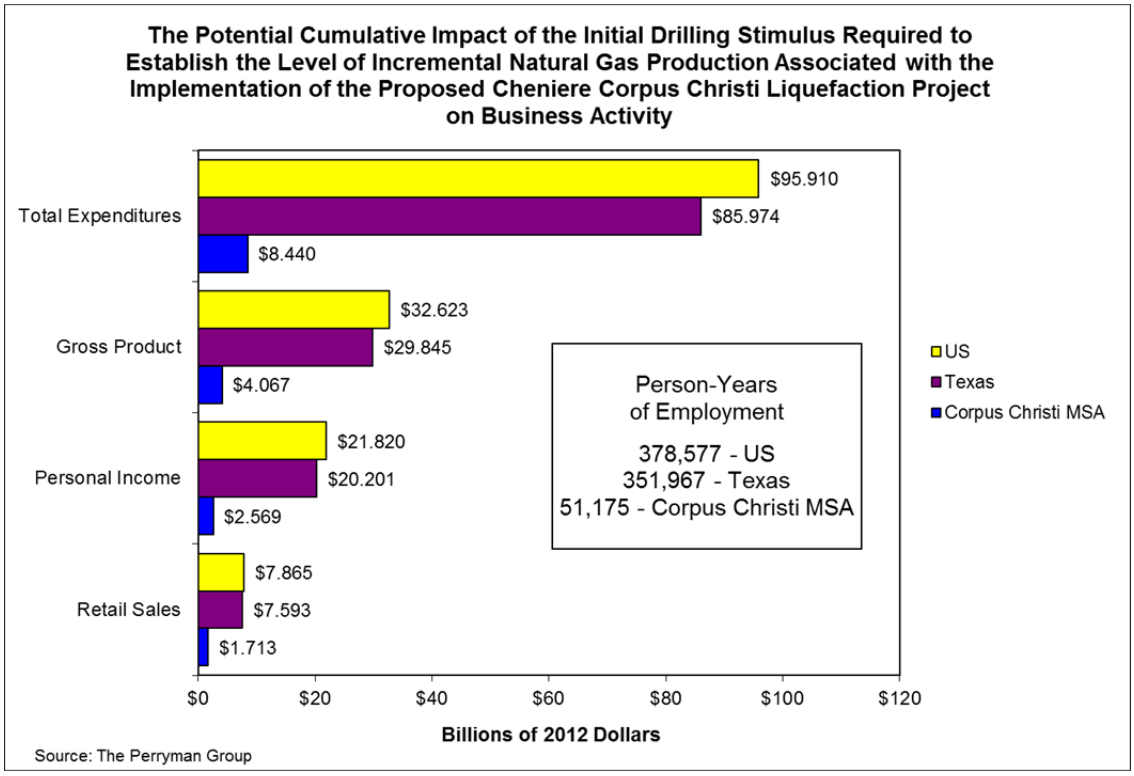
The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area					
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$680,668,669	$190,019,023	$125,935,846	2,049	82
Mining	$581,273,086	$143,065,882	$80,690,571	527	21
Construction	$951,447,195	$509,794,061	$420,102,079	6,073	243
Nondurable Manufacturing	$3,618,211,447	$814,856,932	$416,896,765	5,748	230
Durable Manufacturing	$1,425,910,442	$568,947,697	$361,926,944	5,438	218
Transportation and Utilities	$3,049,588,815	$1,345,876,937	$812,600,274	10,035	401
Information	$613,126,703	$376,288,667	$162,813,426	1,573	63
Wholesale Trade	$1,258,124,440	$851,467,093	$490,963,530	5,629	225
Retail Trade	$5,731,920,064	$4,311,846,499	$2,508,646,376	78,370	3,135
Finance, Insurance, and Real Estate	$5,224,954,120	$1,380,185,422	$568,434,959	6,157	246
Business Services	$1,841,871,981	$1,076,454,842	$878,111,351	10,953	438
Health Services	$1,369,573,301	$956,878,690	$809,049,775	13,700	548
Other Services	$2,579,017,531	$1,279,201,998	$1,035,587,921	25,633	1,025
TOTAL	**$28,925,687,795**	**$13,804,883,742**	**$8,671,759,818**	**171,884**	**6,875**
Source: US Multi-Regional Impact Assessment System, The Perryman Group.					

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas					
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$2,889,274,554	$804,318,354	$534,231,915	8,726	349
Mining	$16,571,887,087	$3,713,641,976	$1,800,450,807	9,389	376
Construction	$62,485,900,725	$25,658,985,438	$21,143,419,391	305,635	12,225
Nondurable Manufacturing	$19,996,048,723	$5,773,200,383	$3,168,028,507	51,079	2,043
Durable Manufacturing	$16,320,020,938	$6,088,069,232	$4,037,991,220	59,955	2,398
Transportation and Utilities	$16,038,412,386	$7,381,206,574	$4,472,680,591	55,914	2,237
Information	$4,137,382,935	$2,509,961,580	$1,132,882,618	11,466	459
Wholesale Trade	$8,597,513,499	$5,476,043,735	$3,133,778,387	35,413	1,417
Retail Trade	$24,600,377,820	$18,388,593,325	$10,778,242,689	327,434	13,097
Finance, Insurance, and Real Estate	$28,121,519,065	$8,863,593,008	$4,172,896,818	54,067	2,163
Business Services	$9,740,396,100	$5,728,020,226	$4,666,894,608	58,741	2,350
Health Services	$6,155,309,666	$4,235,897,968	$3,467,650,536	64,622	2,585
Other Services	$76,293,208,213	$6,425,538,836	$4,757,102,789	113,074	4,523
TOTAL	**$291,947,251,710**	**$101,047,070,635**	**$67,266,250,876**	**1,155,515**	**46,221**
Source: US Multi-Regional Impact Assessment System, The Perryman Group					

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States					
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$3,429,564,214	$968,098,141	$637,357,887	10,401	416
Mining	$17,965,802,415	$4,032,345,300	$1,967,005,087	10,298	412
Construction	$62,644,273,976	$25,743,355,286	$21,212,945,390	306,640	12,266
Nondurable Manufacturing	$38,003,400,997	$10,791,029,545	$6,032,121,295	94,655	3,786
Durable Manufacturing	$20,691,182,226	$7,628,545,225	$5,087,582,509	75,645	3,026
Transportation and Utilities	$19,342,059,943	$8,583,345,927	$5,142,458,668	63,116	2,525
Information	$4,331,337,159	$2,629,716,946	$1,187,007,832	11,997	480
Wholesale Trade	$8,854,657,858	$5,639,827,573	$3,227,507,049	36,472	1,459
Retail Trade	$25,483,427,828	$19,030,552,238	$11,152,318,015	339,246	13,570
Finance, Insurance, and Real Estate	$28,887,004,770	$9,335,250,598	$4,452,524,470	57,914	2,317
Business Services	$10,090,894,071	$5,934,137,046	$4,834,827,932	60,855	2,434
Health Services	$6,270,068,590	$4,314,871,589	$3,532,301,036	65,827	2,633
Other Services	$81,014,081,835	$6,814,265,662	$5,082,680,606	121,079	4,843
TOTAL	**$327,007,755,884**	**$111,445,341,076**	**$73,548,637,776**	**1,254,145**	**50,166**
Source: US Multi-Regional Impact Assessment System, The Perryman Group					

Cumulative Incremental Natural Gas Exploration and Production Effects (Initial Drilling Stimulus)

- The first few years after the Corpus Christi Liquefaction facility goes online are likely to be particularly stimulative to incremental natural gas development as the needed sustainable capacity is developed. The Perryman Group estimates that the gains in business activity from additional development during this period (likely to be the first two years and a subset of the 25-year results previously described) include $32.6 billion in US gross product and 378,577 US jobs.



- The industry composition of these economic benefits is described in the following tables.

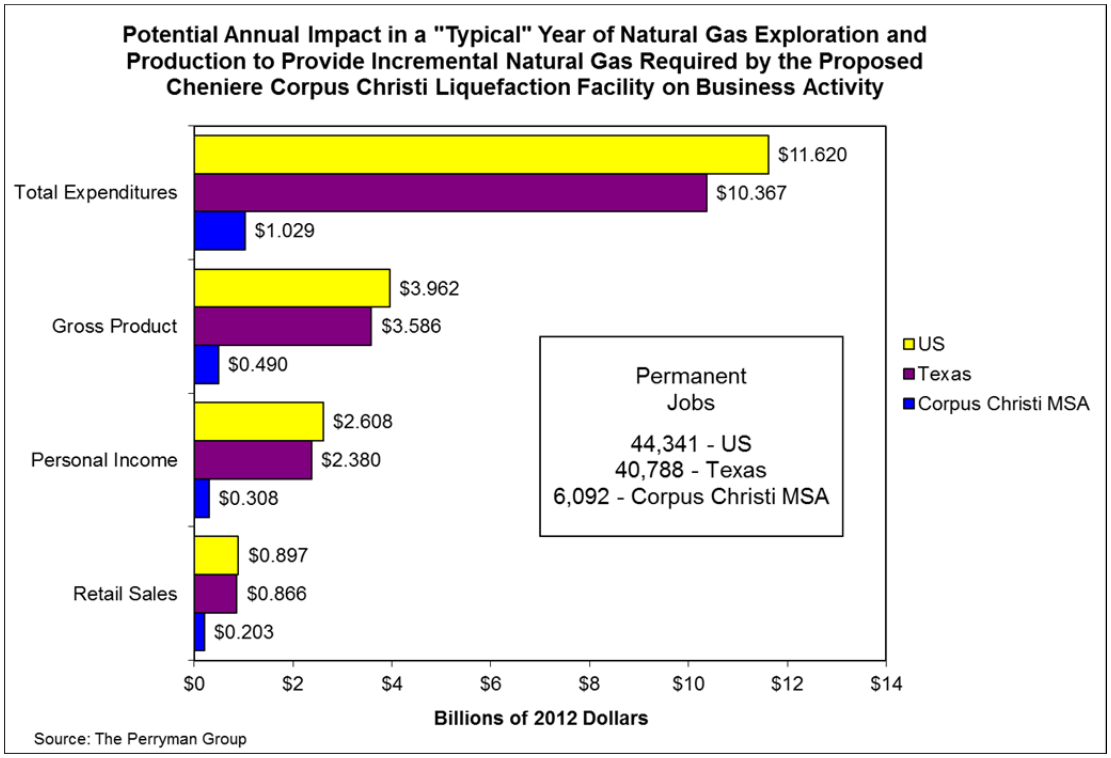
The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$203,350,535	$56,449,260	$37,456,271	610
Mining	$51,923,606	$16,167,829	$11,917,959	97
Construction	$225,939,204	$120,701,473	$99,465,537	1,438
Nondurable Manufacturing	$1,079,818,796	$242,851,224	$124,240,837	1,715
Durable Manufacturing	$438,352,563	$174,540,336	$110,919,514	1,672
Transportation and Utilities	$914,845,934	$409,258,163	$248,024,202	3,082
Information	$183,642,468	$112,681,083	$48,753,960	471
Wholesale Trade	$381,637,332	$258,307,597	$148,942,469	1,708
Retail Trade	$1,712,584,209	$1,289,040,489	$750,118,865	23,409
Finance, Insurance, and Real Estate	$1,501,065,967	$388,648,447	$168,028,157	1,834
Business Services	$560,423,819	$327,586,618	$267,226,750	3,333
Health Services	$410,748,878	$286,996,144	$242,657,890	4,109
Other Services	$775,524,249	$383,927,290	$310,887,480	7,697
TOTAL	**$8,439,857,559**	**$4,067,155,953**	**$2,568,639,892**	**51,175**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$865,609,062	$240,990,651	$159,754,409	2,597
Mining	$966,914,942	$236,164,383	$135,862,228	879
Construction	$20,159,810,175	$8,278,294,368	$6,821,830,084	98,615
Nondurable Manufacturing	$5,693,382,502	$1,568,744,394	$815,926,630	13,639
Durable Manufacturing	$5,023,438,379	$1,867,189,885	$1,239,486,804	18,443
Transportation and Utilities	$5,079,748,261	$2,325,035,088	$1,418,125,825	17,814
Information	$1,164,139,736	$714,266,885	$308,025,861	2,933
Wholesale Trade	$2,530,008,112	$1,712,400,292	$987,385,256	11,317
Retail Trade	$7,593,026,126	$5,716,973,716	$3,327,147,728	103,773
Finance, Insurance, and Real Estate	$8,525,864,494	$2,444,391,182	$1,098,585,037	12,260
Business Services	$3,064,162,505	$1,799,607,108	$1,468,018,228	18,306
Health Services	$1,786,488,877	$1,249,689,560	$1,056,624,123	17,891
Other Services	$23,521,644,605	$1,691,475,890	$1,363,955,277	33,500
TOTAL	**$85,974,237,776**	**$29,845,223,400**	**$20,200,727,489**	**351,967**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*
Agriculture	$998,512,991	$282,317,582	$185,184,205	3,002
Mining	$1,008,845,719	$249,231,100	$148,245,627	972
Construction	$20,210,915,712	$8,305,519,713	$6,844,265,461	98,939
Nondurable Manufacturing	$10,778,097,804	$2,826,307,753	$1,452,470,990	24,020
Durable Manufacturing	$6,366,642,295	$2,335,282,565	$1,559,956,878	23,261
Transportation and Utilities	$6,118,279,311	$2,696,219,799	$1,627,006,499	20,076
Information	$1,220,096,776	$748,697,598	$322,749,121	3,067
Wholesale Trade	$2,605,678,515	$1,763,616,737	$1,016,917,114	11,655
Retail Trade	$7,864,546,278	$5,915,800,829	$3,441,880,810	107,510
Finance, Insurance, and Real Estate	$8,728,674,894	$2,561,175,789	$1,167,681,120	13,025
Business Services	$3,174,423,189	$1,864,364,089	$1,520,843,329	18,965
Health Services	$1,819,795,981	$1,272,988,636	$1,076,323,708	18,225
Other Services	$25,015,181,914	$1,801,142,664	$1,456,914,477	35,860
TOTAL	**$95,909,691,380**	**$32,622,664,854**	**$21,820,439,339**	**378,577**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Incremental Natural Gas Exploration and Production Effects in a "Typical Year"

- The Perryman Group also quantified the likely incremental business activity stemming from natural gas exploration and production related to supplying the Corpus Christi Liquefaction facility in a "typical year" based on the average pattern over the course of the first 25 years once the initial development has occurred and the needed supplies have reached sustainable levels. The "typical year" effects on business activity were estimated to be almost $4.0 billion in US gross product and 44,341 US jobs.



- Industry-level effects are described below.

Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production to Provide Incremental Natural Gas Required by the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$24,109,778	$6,737,284	$4,464,235	73
Mining	$23,134,153	$5,623,060	$3,112,940	20
Construction	$34,919,958	$18,717,933	$15,424,743	223
Nondurable Manufacturing	$128,183,212	$28,875,121	$14,773,215	204
Durable Manufacturing	$50,248,368	$20,057,067	$12,761,313	192
Transportation and Utilities	$107,939,663	$47,521,911	$28,672,943	354
Information	$21,707,562	$13,322,889	$5,764,602	56
Wholesale Trade	$44,443,021	$30,077,400	$17,342,897	199
Retail Trade	$203,025,279	$152,710,508	$88,844,317	2,776
Finance, Insurance, and Real Estate	$186,323,876	$49,382,315	$20,171,852	218
Business Services	$65,027,975	$38,003,484	$31,001,106	387
Health Services	$48,478,093	$33,869,763	$28,637,198	485
Other Services	$91,245,303	$45,273,377	$36,649,822	907
TOTAL	**$1,028,786,242**	**$490,172,112**	**$307,621,183**	**6,092**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production to Provide Incremental Natural Gas Required by the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$102,289,290	$28,474,912	$18,919,703	309
Mining	$670,280,160	$149,797,631	$72,178,334	373
Construction	$2,182,101,277	$896,051,420	$738,352,900	10,673
Nondurable Manufacturing	$714,138,061	$207,752,528	$114,942,741	1,843
Durable Manufacturing	$574,976,651	$214,632,512	$142,335,882	2,113
Transportation and Utilities	$562,065,700	$258,941,138	$156,713,162	1,957
Information	$148,052,473	$89,648,669	$40,763,595	416
Wholesale Trade	$305,335,255	$192,367,611	$109,930,994	1,239
Retail Trade	$866,269,562	$646,667,535	$379,533,301	11,474
Finance, Insurance, and Real Estate	$993,481,079	$318,211,881	$150,902,759	1,996
Business Services	$341,787,883	$201,043,412	$163,762,320	2,065
Health Services	$219,121,399	$150,368,689	$122,394,768	2,319
Other Services	$2,687,120,422	$232,367,370	$169,696,622	4,011
TOTAL	**$10,367,019,213**	**$3,586,325,308**	**$2,380,427,081**	**40,788**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production to Provide Incremental Natural Gas Required by the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$122,022,758	$34,435,054	$22,684,962	371
Mining	$727,483,325	$162,803,753	$78,859,198	409
Construction	$2,187,631,707	$898,997,634	$740,780,764	10,708
Nondurable Manufacturing	$1,358,139,078	$390,537,068	$220,971,809	3,442
Durable Manufacturing	$729,026,223	$269,032,673	$179,368,836	2,666
Transportation and Utilities	$678,005,279	$301,269,978	$180,253,547	2,210
Information	$154,964,014	$93,918,639	$42,710,996	436
Wholesale Trade	$314,467,574	$198,121,163	$113,218,937	1,276
Retail Trade	$897,386,684	$669,258,977	$392,721,067	11,888
Finance, Insurance, and Real Estate	$1,021,136,192	$335,422,683	$161,109,331	2,141
Business Services	$354,086,763	$208,277,749	$169,655,136	2,139
Health Services	$223,206,675	$153,172,147	$124,676,683	2,362
Other Services	$2,852,598,344	$246,271,535	$181,318,881	4,295
TOTAL	**$11,620,154,617**	**$3,961,519,053**	**$2,608,330,146**	**44,341**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

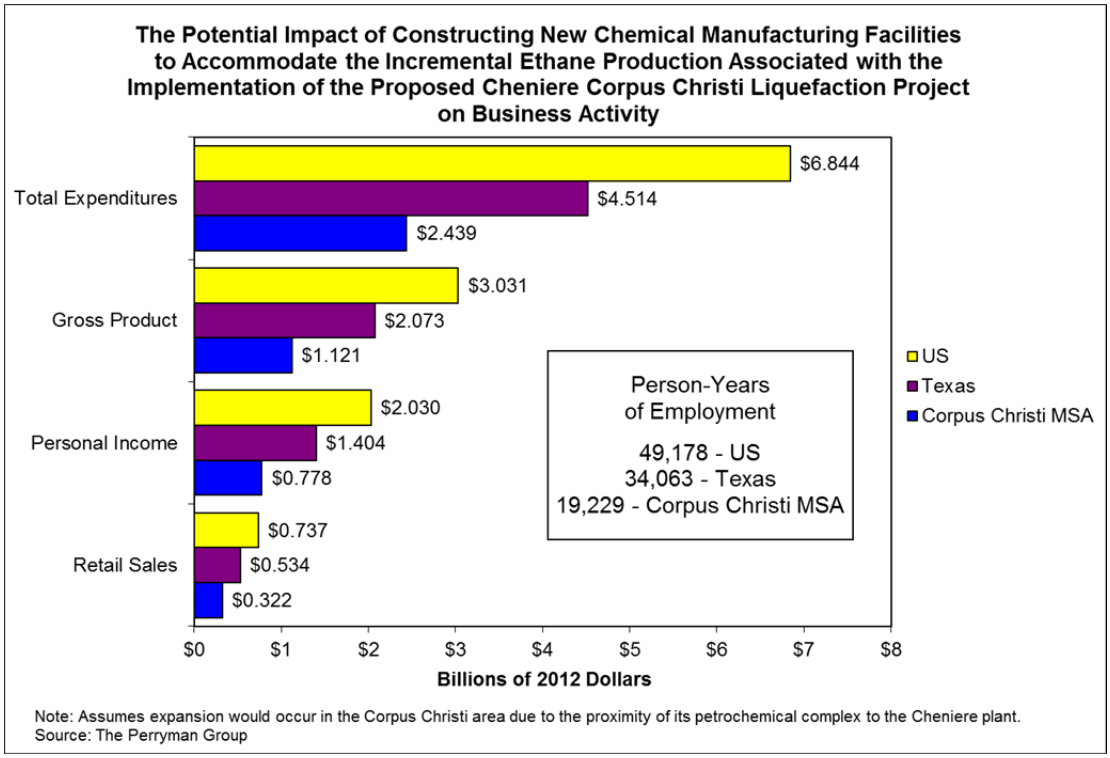
Benefits from Liquid By-Products

- Another likely outgrowth of the existence of the Corpus Christi Liquefaction Facility is further development of industries which utilize various liquid by-products such as ethane.

- Based on a recent analysis by the American Chemical Council, it was possible to determine the potential level of new investment and production likely to occur in response to the greater availability of petroleum liquids. It is assumed that the expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant. The emergence of the Eagle Ford Shale has already stimulated significant investments in the area.

Construction of New Chemical Manufacturing Facilities

- The economic benefits of construction of chemical facilities utilizing incremental ethane associated with the facility were estimated to include more than $3.0 billion in US gross product and 49,178 jobs.



- The incremental tax receipts associated with these economic benefits were estimated to be $290.9 million to the federal government, $112.4 million to Texas, and hundreds of millions to other taxing authorities.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$2.439	$4.514	$6.844
Gross Product	$1.121	$2.073	$3.031
Personal Income	$0.778	$1.404	$2.030
Retail Sales	0.322	$0.534	$0.737
Employment (Person-Years)	19,229	34,063	49,178
Employment (Average Annual)*	3,846	6,813	9,836
FISCAL BENEFITS (In Constant 2012 Dollars)			
	Federal	$290,851,915	
	Texas	$112,367,580	
	Other States	$44,118,978	
	Corpus Christi Area	$39,685,812	
	Other Local Areas	$59,851,797	
* Assumes a five-year construction period.			

- The construction and retail segments are major beneficiaries of this stimulus, although it has notable spillover effects throughout the economy.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$37,772,990	$10,579,874	$7,005,728	159	32
Mining	$28,111,046	$7,039,262	$4,017,277	38	8
Construction	$906,057,828	$388,358,185	$320,031,332	6,352	1,270
Nondurable Manufacturing	$195,121,546	$43,934,822	$22,523,548	476	95
Durable Manufacturing	$95,042,569	$38,019,138	$24,018,394	511	102
Transportation and Utilities	$161,516,013	$70,705,645	$42,573,493	710	142
Information	$33,855,396	$20,804,485	$9,002,937	123	25
Wholesale Trade	$70,223,869	$47,523,972	$27,402,744	458	92
Retail Trade	$322,133,600	$242,843,453	$141,377,750	6,028	1,206
Finance, Insurance, and Real Estate	$270,930,770	$67,528,406	$28,558,358	446	89
Business Services	$101,226,162	$60,226,161	$49,129,116	874	185
Health Services	$76,210,590	$53,256,931	$45,029,228	1,054	211
Other Services	$141,071,343	$70,461,884	$56,993,018	2,000	400
TOTAL	**$2,439,273,720**	**$1,121,282,215**	**$777,662,920**	**19,229**	**3,846**
Source: US Multi-Regional Impact Assessment System, The Perryman Group * Assumes a five-year construction period.					

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$60,206,991	$16,902,234	$11,183,304	254	51
Mining	$65,108,193	$15,949,596	$9,097,157	83	16
Construction	$1,363,610,826	$584,855,690	$481,957,514	9,565	1,913
Nondurable Manufacturing	$389,150,624	$108,006,383	$56,232,387	1,385	277
Durable Manufacturing	$376,547,196	$142,421,432	$93,317,566	1,944	389
Transportation and Utilities	$335,360,885	$150,400,662	$91,193,870	1,537	307
Information	$80,263,720	$49,326,360	$21,274,463	286	57
Wholesale Trade	$174,489,073	$118,085,131	$68,088,938	1,139	228
Retail Trade	$533,666,735	$402,372,784	$234,264,266	9,985	1,997
Finance, Insurance, and Real Estate	$572,345,306	$157,977,062	$69,484,626	1,107	221
Business Services	$207,465,510	$123,988,388	$101,142,752	1,800	360
Health Services	$124,066,375	$86,796,332	$73,387,103	1,718	344
Other Services	$232,033,931	$116,323,444	$93,701,433	3,261	652
TOTAL	**$4,514,315,366**	**$2,073,405,500**	**$1,404,325,379**	**34,063**	**6,813**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

* Assumes a five-year construction period.

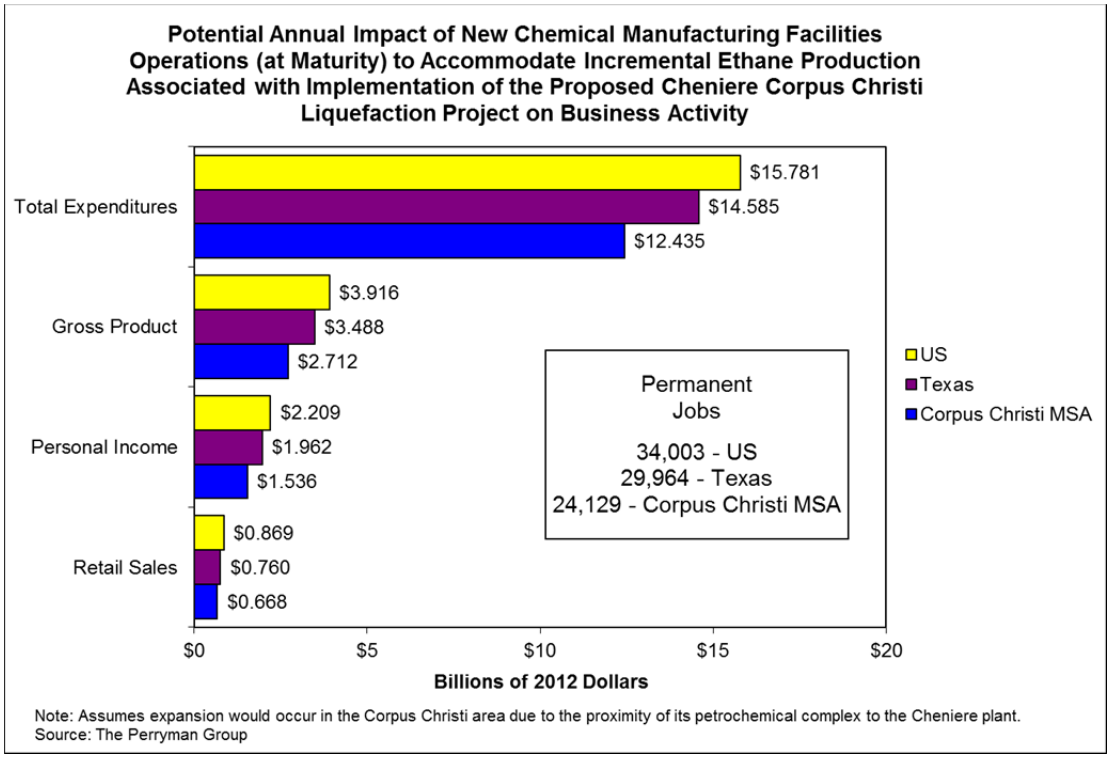
The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States					
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**	
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Person-Years)*	*(Average Annual)**
Agriculture	$92,630,453	$26,444,745	$17,301,290	392	78
Mining	$90,427,140	$22,402,497	$13,195,456	122	24
Construction	$1,846,798,324	$792,451,510	$653,029,399	12,960	2,592
Nondurable Manufacturing	$983,715,673	$259,230,901	$133,341,077	3,332	666
Durable Manufacturing	$634,698,814	$236,672,049	$156,076,487	3,259	652
Transportation and Utilities	$540,453,433	$233,157,940	$139,789,692	2,315	463
Information	$112,160,985	$68,938,179	$29,721,404	398	80
Wholesale Trade	$239,610,524	$162,155,943	$93,500,561	1,564	313
Retail Trade	$736,958,387	$555,129,064	$323,109,010	13,794	2,759
Finance, Insurance, and Real Estate	$780,331,185	$220,507,553	$98,482,363	1,569	314
Business Services	$286,574,586	$171,266,641	$139,709,691	2,486	497
Health Services	$168,505,940	$117,886,072	$99,673,765	2,333	467
Other Services	$331,361,391	$165,067,205	$133,381,626	4,653	931
TOTAL	**$6,844,226,835**	**$3,031,310,299**	**$2,030,311,822**	**49,178**	**9.836**

Source: US Multi-Regional Impact Assessment System, The Perryman Group

* Assumes a five-year construction period.

New Chemical Manufacturing Facilities Operations

- The ongoing operations of these facilities generate economic benefits (measured at maturity) of almost $3.9 billion in US gross product and 34,003 permanent jobs.



- Tax effects are sizable, with gains to the federal government of an estimated $232.4 million.

The Potential Annual Impact of New Chemical Manufacturing Facilities Operations (at Maturity) to Accommodate Incremental Ethane Production Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity and Tax Receipts			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$12.435	$14.585	$15.781
Gross Product	$2.712	$3.488	$3.916
Personal Income	$1.536	$1.962	$2.209
Retail Sales	$0.668	$0.760	$0.869
Employment (Permanent Jobs)	24,129	29,964	34,003
FISCAL BENEFITS (In Constant 2012 Dollars)			
Federal		$232,363,868	
Texas		$163,599,243	
Other States		$22,699,602	
Corpus Christi Area		$60,601,214	
Other Local Areas		$23,972,952	

- Nondurable manufacturing, mining, and consumer-oriented segments of the economy would see notable increases in business activity as outlined in the following tables.

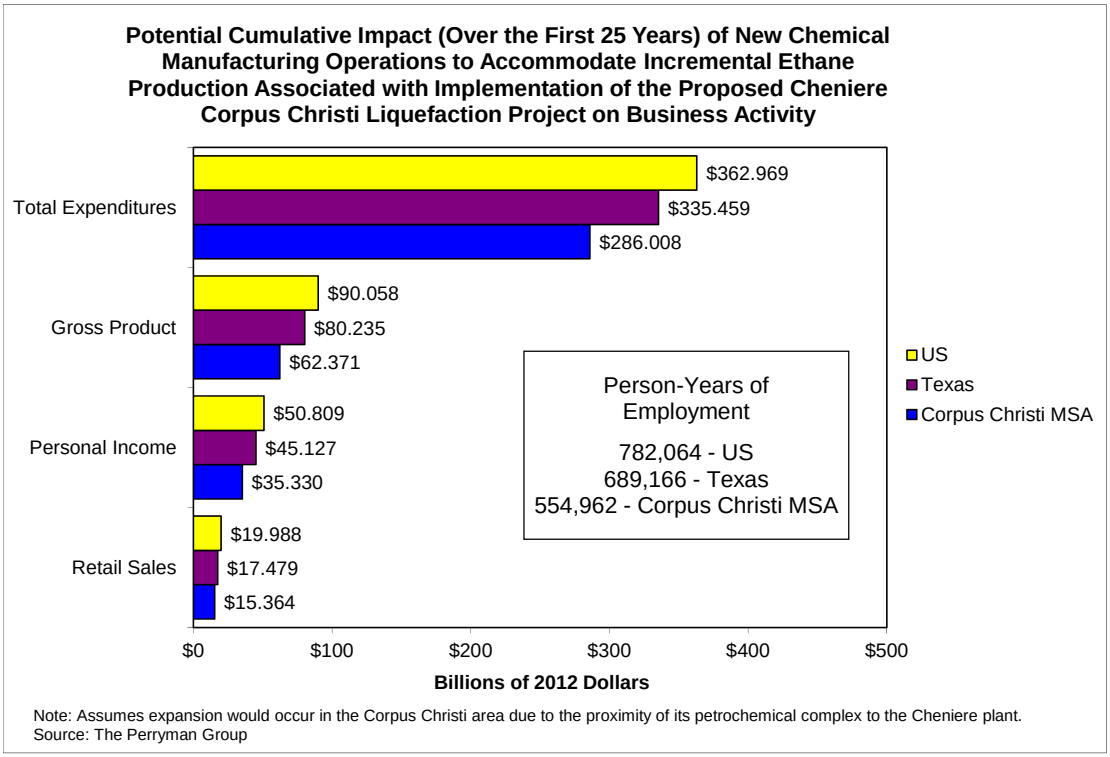
The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$83,523,950	$24,943,925	$16,289,475	264
Mining	$1,636,198,639	$360,206,530	$167,885,193	860
Construction	$298,286,318	$163,006,852	$134,327,799	1,942
Nondurable Manufacturing	$7,320,800,253	$651,951,752	$311,807,619	2,751
Durable Manufacturing	$102,631,372	$41,670,013	$26,867,558	390
Transportation and Utilities	$684,114,474	$211,863,428	$120,649,895	1,339
Information	$84,109,314	$51,928,479	$22,425,620	215
Wholesale Trade	$176,523,259	$119,313,005	$68,796,944	789
Retail Trade	$667,994,694	$495,301,907	$287,109,356	9,140
Finance, Insurance, and Real Estate	$734,799,848	$218,378,456	$73,285,870	735
Business Services	$203,289,398	$118,565,502	$96,719,065	1,207
Health Services	$153,155,917	$107,170,388	$90,613,548	1,534
Other Services	$289,681,984	$147,486,985	$119,290,839	2,964
TOTAL	**$12,435,109,421**	**$2,711,787,223**	**$1,536,068,781**	**24,129**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$90,133,891	$26,861,230	$17,544,978	284
Mining	$2,474,835,536	$544,563,318	$253,836,181	1,297
Construction	$306,560,282	$167,246,926	$137,821,890	1,993
Nondurable Manufacturing	$7,495,165,138	$727,490,877	$352,316,908	3,575
Durable Manufacturing	$271,557,741	$105,286,399	$69,153,683	987
Transportation and Utilities	$945,758,166	$299,223,715	$171,854,691	1,938
Information	$138,035,791	$85,268,372	$36,716,303	347
Wholesale Trade	$293,935,963	$198,681,673	$114,561,623	1,313
Retail Trade	$759,941,009	$564,489,782	$327,369,090	10,396
Finance, Insurance, and Real Estate	$1,029,280,739	$317,376,417	$110,384,492	1,133
Business Services	$281,862,801	$165,218,380	$134,775,860	1,681
Health Services	$171,110,208	$119,895,989	$101,373,171	1,716
Other Services	$327,009,442	$166,864,001	$134,333,735	3,303
TOTAL	**$14,585,186,706**	**$3,488,467,080**	**$1,962,042,606**	**29,964**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$103,072,636	$30,717,167	$20,063,564	325
Mining	$2,830,098,860	$622,735,533	$290,274,435	1,483
Construction	$350,567,095	$191,255,268	$157,606,261	2,279
Nondurable Manufacturing	$7,673,480,580	$758,236,049	$368,292,081	3,826
Durable Manufacturing	$310,539,930	$120,400,290	$79,080,713	1,129
Transportation and Utilities	$1,081,522,012	$342,177,362	$196,524,479	2,217
Information	$157,850,867	$97,508,671	$41,986,939	397
Wholesale Trade	$336,130,552	$227,202,482	$131,006,976	1,502
Retail Trade	$869,030,751	$645,522,446	$374,363,013	11,888
Finance, Insurance, and Real Estate	$1,177,034,273	$362,935,889	$126,230,217	1,296
Business Services	$322,324,283	$188,935,524	$154,122,972	1,922
Health Services	$195,673,126	$137,107,092	$115,925,318	1,962
Other Services	$373,951,737	$190,817,375	$153,617,380	3,778
TOTAL	$15,781,276,702	**$3,915,551,148**	**$2,209,094,347**	**34,003**
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Cumulative Incremental Chemical Manufacturing Operations (Over 25 Years)

- Over the first 25 years (including time for ramping up of operations), the cumulative (over 25 years) incremental business activity associated with new chemical manufacturing operations totals an estimated $90.1 billion in gross product and 782,064 person-years of employment in the United States. This analysis assumes that the production will ramp up to its mature and sustainable level over the first five years of operations.



Note: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.
Source: The Perryman Group

- These gains in business activity (further described in the table below) lead to additional receipts to all levels of government including $5.3 billion to the federal government, $3.8 billion to the state of Texas, $1.4 billion to local entities in Corpus Christi, and millions to other taxing authorities.

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate Incremental Ethane Production Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity			
ECONOMIC BENEFITS (Monetary Values in Billions of Constant 2012 Dollars)			
	Corpus Christi	Texas	United States
Total Expenditures	$286.008	$335.459	$362.969
Gross Product	$62.371	$80.235	$90.058
Personal Income	$35.330	$45.127	$50.809
Retail Sales	$15.364	$17.479	$19.988
Employment (Person-Years)	554,962	689,166	782,064
FISCAL BENEFITS (In constant 2012 Dollars)			
Federal		$5,344,368,964	
Texas		$3,762,782,589	
Other States		$522,090,846	
Corpus Christi Area		$1,393,827,922	
Other Local Areas		$551,377,896	

- Nondurable manufacturing, mining, and consumer-oriented segments of the economy would see notable increases in business activity as outlined in the following tables.

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate Incremental Ethane Production Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$1,921,050,854	$573,710,281	$374,657,923	6,072
Mining	$37,632,568,696	$8,284,750,184	$3,861,359,448	19,774
Construction	$6,860,585,319	$3,749,157,602	$3,089,539,368	44,665
Nondurable Manufacturing	$168,378,405,823	$14,994,890,286	$7,171,575,229	63,279
Durable Manufacturing	$2,360,521,550	$958,410,301	$617,953,843	8,977
Transportation and Utilities	$15,734,632,907	$4,872,858,853	$2,774,947,589	30,788
Information	$1,934,514,213	$1,194,355,007	$515,789,251	4,941
Wholesale Trade	$4,060,034,968	$2,744,199,122	$1,582,329,713	18,138
Retail Trade	$15,363,877,955	$11,391,943,866	$6,603,515,194	210,212
Finance, Insurance, and Real Estate	$16,900,396,497	$5,022,704,487	$1,685,575,014	16,899
Business Services	$4,675,656,156	$2,727,006,543	$2,224,538,486	27,750
Health Services	$3,522,586,098	$2,464,918,933	$2,084,111,598	35,283
Other Services	$6,662,685,637	$3,392,200,666	$2,743,689,308	68,183
TOTAL	$286,007,516,672	$62,371,106,130	$35,329,581,966	554,962
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate Incremental Ethane Production Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$2,073,079,490	$617,808,292	$403,534,493	6,536
Mining	$56,921,217,326	$12,524,956,322	$5,838,232,159	29,837
Construction	$7,050,886,477	$3,846,679,294	$3,169,903,476	45,829
Nondurable Manufacturing	$172,388,798,175	$16,732,290,162	$8,103,288,895	82,227
Durable Manufacturing	$6,245,828,049	$2,421,587,169	$1,590,534,702	22,704
Transportation and Utilities	$21,752,437,822	$6,882,145,449	$3,952,657,893	44,582
Information	$3,174,823,188	$1,961,172,567	$844,474,979	7,976
Wholesale Trade	$6,760,527,147	$4,569,678,471	$2,634,917,328	30,200
Retail Trade	$17,478,643,206	$12,983,264,980	$7,529,489,060	239,109
Finance, Insurance, and Real Estate	$23,673,457,000	$7,299,657,591	$2,538,843,327	26,064
Business Services	$6,482,844,412	$3,800,022,747	$3,099,844,773	38,659
Health Services	$3,935,534,792	$2,757,607,755	$2,331,582,940	39,465
Other Services	$7,521,217,161	$3,837,872,033	$3,089,675,903	75,978
TOTAL	$335,459,294,245	$80,234,742,830	$45,126,979,927	689,166
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate Incremental Ethane Production Associated with Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States				
Sector	**Total Expenditures**	**Real Gross Product**	**Personal Income**	**Employment**
	(2012 Dollars)	*(2012 Dollars)*	*(2012 Dollars)*	*(Permanent Jobs)*
Agriculture	$2,370,670,623	$706,494,843	$461,461,981	7,474
Mining	$65,092,273,787	$14,322,917,259	$6,676,311,997	34,120
Construction	$8,063,043,178	$4,398,871,168	$3,624,943,995	52,408
Nondurable Manufacturing	$176,490,053,340	$17,439,429,125	$8,470,717,870	87,999
Durable Manufacturing	$7,142,418,389	$2,769,206,675	$1,818,856,397	25,963
Transportation and Utilities	$24,875,006,276	$7,870,079,328	$4,520,063,025	50,981
Information	$3,630,569,934	$2,242,699,430	$965,699,596	9,121
Wholesale Trade	$7,731,002,685	$5,225,657,077	$3,013,160,438	34,535
Retail Trade	$19,987,707,263	$14,847,016,252	$8,610,349,293	273,434
Finance, Insurance, and Real Estate	$27,071,788,288	$8,347,525,453	$2,903,294,988	29,805
Business Services	$7,413,458,517	$4,345,517,061	$3,544,828,346	44,209
Health Services	$4,500,481,898	$3,153,463,109	$2,666,282,315	45,130
Other Services	$8,600,889,960	$4,388,799,623	$3,533,199,731	86,885
TOTAL	$362,969,364,138	$90,057,676,404	$50,809,169,971	782,064
Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Balance of Trade Benefits

- Executive Order 13534 issued March 10, 2010 established the National Export Initiative as an Administration effort to stimulate economic growth by insuring US businesses can export their goods, services and agricultural products.[13] The National Export Initiative also helps achieve the Administration's goal of doubling US exports over 5 years.

- Increasing US exports reduces the balance of trade deficit the US has experienced for many years. The most recent monthly data for February 2012 showed a US trade balance of -$46.0 billion.[14]

- The Corpus Christi Liquefaction Project would help improve the balance of trade by increasing US exports of LNG. The Perryman Group estimates that the improvement in the international balance of payments of the United States could potentially range from $5.884 billion to $9.523 billion per year based on current prices, with the actual amount depending on destination, transportation costs, and other market factors. These estimates assume displacement of imports of oil and natural gas liquids (other than ethane, which is assumed to be used for petrochemical expansion) and export of LNG.

- Based on projections of future gas prices by the Energy Information Administration, this amount is expected to increase over time.

[13] http://www.whitehouse.gov/the-press-office/executive-order-national-export-initiative
[14] http://www.census.gov/indicator/www/ustrade.html

Other Potential Benefits

- The economic stimulus associated with the Cheniere facility also leads to other outcomes such as improvement in the housing market which The Perryman Group examined in a summary fashion.

- Given the availability of the necessary workforce in the local area, it is not anticipated that the project will require any net new residences. However, because of the creation of high paying direct and spinoff jobs, the value of local housing is likely to increase markedly (as there is a demand for higher quality owner-occupied and rental housing). This value increment is estimated to be about $107.0 million.

- The only hotel rooms that would be needed are those associated with potential executives or suppliers since it is unlikely that they would be used as housing for construction workers. Even so, based on the results of the impact assessment and a construction period of approximately 60 months, there would likely be 15-20 additional room-nights per month, which is not likely to significantly affect local market conditions.

- While the impact assessment system is not designed to provide detailed estimates of economic outcomes such as truck trips, some conclusions can be drawn from trucking revenues and employment, which suggest an average of 26-36 trips per day, with 44-59 during peak periods. The average number of round trips per day by workers during construction is about 1,620 in the "Low" case and 2,268 in the "High" case; the corresponding peak estimates are 2,700 and 3,645, respectively.

Potential Consumer Price Effects

- The potential effect of this facility on consumer prices of natural gas was examined in a summary manner as a component of this study.

- Future prices of natural gas will depend on many highly uncertain factors including the pace of technology implementation for broader applications, the magnitude of new supply discoveries, the development of new methods for extraction, the supply and price of alternative fuels, and many others.

- While a full-scale pricing analysis is beyond the scope of this study, some basic comparisons to reference cases, market responses (elasticities), and related information suggest a potential price increase of 6%-10% over the next several decades. It should be noted that this amount is below the variation in projected prices among reputable sources and would lie within the 95% confidence interval ("margin of error") of any major forecasting model presently available.

- These considerations, coupled with the extreme volatility in prices in recent years, suggest that any impact is likely to be insignificant relative to market expectations.

CONCLUSION

CONCLUSION

- The proposed Corpus Christi Liquefaction Facility represents an important investment which would lead to substantial economic stimulus through its construction and ongoing operations. The project also has the potential to enhance natural gas exploration and production and the development of industries utilizing by-products.

- All of these outcomes generate a sizable economic stimulus. In addition, the economic activity associated with the project would increase tax receipts to all levels of government.
    - The Perryman Group estimates that for the US as a whole, the **cumulative impact of construction and other pre-operational activities** associated with the proposed Cheniere Corpus Christi Liquefaction Facility would lead to an increase in business activity of $34.4 billion in total expenditures, $16.0 billion in gross product, and 182,718 person-years of employment (assuming costs according to budgets, with even larger gains if contingency funds are utilized). Tax receipts stemming from this business activity during construction are a significant source of revenues to the US of almost $1.4 billion.
    - Once operational, the **facility would lead to annual gains in US business activity** of an estimated $378 million in gross product and 3,279 permanent jobs, as well as $22.4 million in additional federal tax receipts.
    - The anticipated **cumulative impact over the first 25 years of ongoing operations** of the proposed facility for the US would result in an increase of economic activity of $9.4 billion in gross product and 81,982 person-years of

employment. Fiscal benefits from increased tax receipts for the US would be $560.2 million.

- Adding the **economic benefits of construction and preoperational activity and the first 25 years of ongoing operations of the facility** indicates increased business activity for the US of $25.5 billion in gross product and 264,699 person-years of employment, as well as incremental federal tax receipts of more than $1.9 billion.
- The benefits from anticipated **enhanced natural gas exploration and production** associated with the proposed facility for the US are expected to be $327.008 billion in total expenditures, $111.4 billion in output (gross product), and 1,254,145 person-years of employment. Fiscal benefits from increased tax receipts are anticipated to be $8.4 billion for the US.
- The proposed project is also likely to generate positive economic benefits from **construction associated with ethane and other liquid by-products** for the US of $3.0 billion in gross product and 49,178 person-years of employment as well as $290.9 million in federal tax receipts.
- On **annual basis, at maturity, the ongoing operations of facilities utilizing incremental ethane and other liquid by-products** have the potential to generate $3.9 billion in gross product and 34,003 person-years of employment for the United States ($90.1 billion in gross product and 782,064 person-years of employment cumulatively over the first 25 years assuming a five-year ramp-up period).

- Clearly, the Cheniere Corpus Christi Liquefaction initiative is in the national interest and worthy of implementation and significant support.

APPENDICES

APPENDIX A: US Multi-Regional Impact Assessment System Methodology

US Multi-Regional Impact Assessment System

- The basic modeling technique employed in this study is known as dynamic input-output analysis. This methodology essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.
- There are two essential steps in conducting an input-output analysis once the system is operational. The first major endeavor is to accurately define the levels of direct activity to be evaluated. In the case of a prospective evaluation, it is necessary to first calculate reasonable estimates of the direct activity.
- In this instance, data regarding construction costs and schedules, capacity, and likely hiring at the Corpus Christi Liquefaction facility was provided by Cheniere and reviewed by The Perryman Group for reasonableness.
- A variety of sources of data regarding natural gas markets, oil and gas exploration and production patterns in the region, experiences in other areas regarding development of firms utilizing liquid by-products such as ethane, and other information necessary to the analysis were collected and analyzed by The Perryman Group. TPG made use of a major recent analysis by the American Chemical Council regarding the use of natural gas liquids from shale gas activity, as well as natural gas supply and pricing analyses by Navigant and the Energy Information Administration. In addition, allocations to local and state direct contributions made use of extensive databases from the Bureau of Economic Analysis.
- The second major phase of the analysis is the simulation of the input-output system to measure overall economic effects. The present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility. The systems used in the current simulations reflect the unique industrial structures of the Corpus Christi, Texas, and United States economies.
- The USMRIAS is somewhat similar in format to the Input-Output Model of the United States and the Regional Input-Output Modeling System, both of which are maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and

nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models. The models used for the present investigation have been thoroughly tested for reasonableness and historical reliability.

- The impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the *direct effect*. The ensuing transactions in the output chain constitute the *indirect effect*.
- Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings, and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, healthcare services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the *ACCRA Cost of Living Index*, a privately compiled inter-regional measure which has been widely used for several decades, and the *Consumer Expenditure Survey* of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the *induced effect*. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.
- Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources. Note that all monetary values are given in constant (2012) dollars to eliminate the effects of inflation.
- The USMRIAS generates estimates of the effect on several measures of business activity. The most comprehensive measure of economic activity used in this study is **Total Expenditures**. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for $0.50; the miller then sells flour to a baker for $0.75; the baker, in turn, sells bread to a customer for $1.25. The Total Expenditures recorded in this instance would be $2.50, that is, $0.50 + $0.75 + $1.25. This measure is quite broad, but is useful in

that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.

- A second measure of business activity frequently employed in this analysis is that of **Gross Product**. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of Arkansas is the amount of US output that is produced in that state; it is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is $1.25 (the value of the bread) rather than $2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, $0.50; the miller, $0.25 ($0.75 - $0.50); and the baker, $0.50 ($1.25 - $0.75). The total value-added is, therefore, $1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.
- The third gauge of economic activity used in this evaluation is **Personal Income**. As the name implies, Personal Income is simply the income received by individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.
- The fourth measure, **Retail Sales**, represents the component of Total Expenditures which occurs in retail outlets (general merchandise stores, automobile dealers and service stations, building materials stores, food stores, drugstores, restaurants, and so forth). Retail Sales is a commonly used measure of consumer activity.
- The final aggregates used are **Permanent Jobs and Person-Years of Employment**. The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. It should be noted that, unlike the dollar values described above, Permanent Jobs is a "stock" rather than a "flow." In other words, if an area produces $1 million in output in 2010 and $1 million in 2011, it is appropriate to say that $2 million was achieved in the 2010-2011 period. If the same area has 100 people working in 2010 and 100 in 2011, it only has 100 Permanent Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Person-Years (a person working for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

The Texas Econometric Model

Overview

- The Texas Econometric Model. The system was developed by Dr. M. Ray Perryman, President and CEO of The Perryman Group (TPG) approximately 30 years ago has been consistently maintained and updated since that time. It is formulated in an internally consistent manner and is designed to permit the integration of relevant global, national, state, and local factors into the projection process. It is the result of more than three decades of continuing research in econometrics, economic theory, statistical methods, and key policy issues and behavioral patterns, as well as intensive, ongoing study of local, regional, and national economies. It is extensively used by scores of federal and State governmental entities on an ongoing basis, as well as hundreds of major corporations.
- In this instance, the Texas Econometric Model was used to describe current and projected economic activity in the Corpus Christi area, as well as to evaluate labor availability.
- This section describes the forecasting process in a comprehensive manner, focusing on both the modeling and the supplemental analysis. The overall methodology, while certainly not ensuring perfect foresight, permits an enormous body of relevant information to impact the economic outlook in a systematic manner.

Model Logic and Structure

- The Texas Econometric Model revolves around a core system which projects output (real and nominal), income (real and nominal), and employment by industry in a simultaneous manner. For purposes of illustration, it is useful to initially consider the employment functions. Essentially, employment within the system is a derived demand relationship obtained from a neo-Classical production function. The expressions are augmented to include dynamic temporal adjustments to changes in relative factor input costs, output and (implicitly) productivity, and technological progress over time. Thus, the typical equation includes output, the relative real cost of labor and capital, dynamic lag structures, and a technological adjustment parameter. The functional form is logarithmic, thus preserving the theoretical consistency with the neo-Classical formulation.
- The income segment of the model is divided into wage and non-wage components. The wage equations, like their employment counterparts, are individually estimated at the 3-digit North American Industry Classification System (NAICS) level of aggregation. Hence, income by place of work is measured for approximately 90 production categories. The wage equations measure real compensation, with the form of the variable structure differing between “basic” and “non-basic.”

- The basic industries, comprised primarily of the various components of Mining, Agriculture, and Manufacturing, are export-oriented, i.e., they bring external dollars into the area and form the core of the economy. The production of these sectors typically flows into national and international markets; hence, the labor markets are influenced by conditions in areas beyond the borders of the particular region. Thus, real (inflation-adjusted) wages in the basic industry are expressed as a function of the corresponding national rates, as well as measures of local labor market conditions (the reciprocal of the unemployment rate), dynamic adjustment parameters, and ongoing trends.
- The "non-basic" sectors are somewhat different in nature, as the strength of their labor markets is linked to the health of the local export sectors. Consequently, wages in these industries are related to those in the basic segment of the economy. The relationship also includes the local labor market measures contained in the basic wage equations.
- Note that compensation rates in the export or "basic" sectors provide a key element of the interaction of the regional economies with national and international market phenomena, while the "non-basic" or local industries are strongly impacted by area production levels. Given the wage and employment equations, multiplicative identities in each industry provide expressions for total compensation; these totals may then be aggregated to determine aggregate wage and salary income. Simple linkage equations are then estimated for the calculation of personal income by place of work.
- The non-labor aspects of personal income are modeled at the regional level using straightforward empirical expressions relating to national performance, dynamic responses, and evolving temporal patterns. In some instances (such as dividends, rents, and others) national variables (for example, interest rates) directly enter the forecasting system. These factors have numerous other implicit linkages into the system resulting from their simultaneous interaction with other phenomena in national and international markets which are explicitly included in various expressions.
- The output or gross area product expressions are also developed at the 3-digit NAICS level. Regional output for basic industries is linked to national performance in the relevant industries, local and national production in key related sectors, relative area and national labor costs in the industry, dynamic adjustment parameters, and ongoing changes in industrial interrelationships (driven by technological changes in production processes).
- Output in the non-basic sectors is modeled as a function of basic production levels, output in related local support industries (if applicable), dynamic temporal adjustments, and ongoing patterns. The inter-industry linkages are obtained from the input-output (impact assessment) system which is part of the overall integrated modeling structure maintained by The Perryman Group. Note that the dominant component of the econometric system involves the simultaneous estimation and projection of output (real and nominal), income (real and nominal), and employment at a disaggregated industrial level. This process, of necessity, also produces

projections of regional price deflators by industry. These values are affected by both national pricing patterns and local cost variations and permit changes in prices to impact other aspects of economic behavior. Income is converted from real to nominal terms using Texas Consumer Price Index, which fluctuates in response to national pricing patterns and unique local phenomena.

- Several other components of the model are critical to the forecasting process. The demographic module includes (1) a linkage equation between wage and salary (establishment) employment and household employment, (2) a labor force participation rate function, and (3) a complete population system with endogenous migration. Given household employment, labor force participation (which is a function of economic conditions and evolving patterns of worker preferences), and the working age population, the unemployment rate and level become identities.
- The population system uses Census information, fertility rates, and life tables to determine the "natural" changes in population by age group. Migration, the most difficult segment of population dynamics to track, is estimated in relation to relative regional and extra-regional economic conditions over time. Because evolving economic conditions determine migration in the system, population changes are allowed to interact simultaneously with overall economic conditions. Through this process, migration is treated as endogenous to the system, thus allowing population to vary in accordance with relative business performance (particularly employment).
- Real retail sales is related to income, interest rates, dynamic adjustments, and patterns in consumer behavior on a store group basis. It is expressed on an inflation-adjusted basis. Inflation at the state level relates to national patterns, indicators of relative economic conditions, and ongoing trends.
- A final significant segment of the forecasting system relates to real estate absorption and activity. The short-term demand for various types of property is determined by underlying economic and demographic factors, with short-term adjustments to reflect the current status of the pertinent building cycle. In some instances, this portion of the forecast requires integration with the Multi-Regional Industry-Occupation System which is maintained by The Perryman Group.
- The overall Texas Econometric Model contains numerous additional specifications, and individual expressions are modified to reflect alternative lag structures, empirical properties of the estimates, simulation requirements, and similar phenomena. Moreover, it is updated on an ongoing basis as new data releases become available. Nonetheless, the above synopsis offers a basic understanding of the overall structure and underlying logic of the system.

Model Simulation and Multi-Regional Structure

- The initial phase of the simulation process is the execution of a standard non-linear algorithm for the state system and that of each of the individual sub-areas. The external assumptions are derived from scenarios developed through national and international models and extensive analysis by The Perryman Group. The US

model, which follows the basic structure outlined above, was used to some extent in the current analysis to define the demand for domestically produced goods on a per capita basis.

- Once the initial simulations are completed, they are merged into a single system with additive constraints and interregional flows. Using information on minimum regional requirements, import needs, export potential, and locations, it becomes possible to balance the various forecasts into a mathematically consistent set of results. This process is, in effect, a disciplining exercise with regard to the individual regional (including metropolitan and rural) systems. By compelling equilibrium across all regions and sectors, the algorithm ensures that the patterns in state activity are reasonable in light of smaller area dynamics and, conversely, that the regional outlooks are within plausible performance levels for the state as a whole.
- The iterative simulation process has the additional property of imposing a global convergence criterion across the entire multi-regional system, with balance being achieved simultaneously on both a sectoral and a geographic basis. This approach is particularly critical on non-linear dynamic systems, as independent simulations of individual systems often yield unstable, non-convergent outcomes.
- It should be noted that the underlying data for the modeling and simulation process are frequently updated and revised by the various public and private entities compiling them. Whenever those modifications to the database occur, they bring corresponding changes to the structural parameter estimates of the various systems and the solutions to the simulation and forecasting system. The multi-regional version of the Texas Econometric Model is re-estimated and simulated with each such data release, thus providing a constantly evolving and current assessment of state and local business activity.

The Final Forecast

- The process described above is followed to produce an initial set of projections. Through the comprehensive multi-regional modeling and simulation process, a systematic analysis is generated which accounts for both historical patterns in economic performance and inter-relationships and best available information on the future course of pertinent external factors. While the best available techniques and data are employed in this effort, they are not capable of directly capturing “street sense,” i.e., the contemporaneous and often non-quantifiable information that can materially affect economic outcomes. In order to provide a comprehensive approach to the prediction of business conditions, it is necessary to compile and assimilate extensive material regarding current events and factors both across the state of Texas and elsewhere.
- This critical aspect of the forecasting methodology includes activities such as (1) daily review of hundreds of financial and business publications and electronic information sites; (2) review of all major newspapers in the state on a daily basis; (3) dozens of hours of direct telephone interviews with key business and political

leaders in all parts of the state; (4) face-to-face discussions with representatives of major industry groups; and (5) frequent site visits to the various regions of the state. The insights arising from this "fact finding" are analyzed and evaluated for their effects on the likely course of the future activity.

- Another vital information resource stems from the firm's ongoing interaction with key players in the international, domestic, and state economic scenes. Such activities include visiting with corporate groups on a regular basis and being regularly involved in the policy process at all levels. The firm is also an active participant in many major corporate relocations, economic development initiatives, and regulatory proceedings.
- Once organized, this information is carefully assessed and, when appropriate, independently verified. The impact on specific communities and sectors that is distinct from what is captured by the econometric system is then factored into the forecast analysis. For example, the opening or closing of a major facility, particularly in a relatively small area, can cause a sudden change in business performance that will not be accounted for by either a modeling system based on historical relationships or expected (primarily national and international) factors.
- The final step in the forecasting process is the integration of this material into the results in a logical and mathematically consistent manner. In some instances, this task is accomplished through "constant adjustment factors" which augment relevant equations. In other cases, anticipated changes in industrial structure or regulatory parameters are initially simulated within the context of the Multi-Regional Impact Assessment System to estimate their ultimate effects by sector. Those findings are then factored into the simulation as constant adjustments on a distributed temporal basis. Once this scenario is formulated, the extended system is again balanced across regions and sectors through an iterative simulation algorithm analogous to that described in the preceding section.

APPENDIX B: Detailed Sectoral Results

Construction and Pre-Operational Activity

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: Low Case* Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$468,414,408	$128,173,116	$87,293,029	1,429
Forestry & Fishery Products	$14,929,466	$13,690,614	$5,077,619	67
Coal Mining	$61,282,157	$17,695,230	$18,646,620	129
Crude Petroleum & Natural Gas	$374,492,172	$81,630,691	$37,647,977	189
Miscellaneous Mining	$36,171,712	$16,552,906	$9,730,524	111
New Construction	$7,453,922,432	$3,788,799,927	$3,216,307,039	38,763
Maintenance & Repair Construction	$484,105,229	$256,057,856	$211,007,621	3,050
Food Products & Tobacco	$2,392,099,295	$619,803,988	$316,625,492	5,423
Textile Mill Products	$18,389,541	$4,169,875	$3,528,107	83
Apparel	$274,192,324	$152,301,437	$77,173,466	2,156
Paper & Allied Products	$156,199,359	$69,088,763	$31,234,522	486
Printing & Publishing	$217,097,270	$107,754,679	$70,333,911	1,224
Chemicals & Petroleum Refining	$1,534,360,807	$243,306,454	$114,246,508	867
Rubber & Leather Products	$158,809,646	$68,211,591	$39,876,185	814
Lumber Products & Furniture	$122,997,454	$39,400,675	$28,090,511	599
Stone, Clay, & Glass Products	$306,852,290	$151,193,011	$79,074,578	1,321
Primary Metal	$629,139,900	$189,750,917	$141,241,293	2,178
Fabricated Metal Products	$2,505,294,659	$992,755,285	$640,924,098	11,250
Machinery, Except Electrical	$242,595,141	$98,548,091	$70,403,167	768
Electric & Electronic Equipment	$150,769,216	$81,262,137	$48,581,270	413
Motor Vehicles & Equipment	$129,399,241	$27,326,744	$17,753,248	258
Transp. Equip., Exc. Motor Vehicles	$45,014,207	$18,818,713	$12,297,363	151
Instruments & Related Products	$32,814,218	$14,362,243	$10,916,608	143
Miscellaneous Manufacturing	$63,749,580	$24,900,059	$17,173,861	279
Transportation	$967,944,403	$639,605,571	$423,012,294	5,993
Communication	$556,291,507	$343,915,271	$146,828,470	1,331
Electric, Gas, Water, Sanitary Services	$1,442,660,675	$325,617,021	$142,090,581	617
Wholesale Trade	$1,126,496,835	$762,314,084	$439,557,091	5,039
Retail Trade	$2,655,357,792	$2,200,156,006	$1,315,622,939	35,353
Finance	$410,690,163	$221,813,723	$129,162,775	1,177
Insurance	$502,273,081	$300,250,149	$179,501,364	2,213
Real Estate	$2,748,680,596	$384,715,376	$61,985,992	564
Hotels, Lodging Places, Amusements	$265,954,262	$138,817,456	$91,069,049	2,275
Personal Services	$537,566,060	$330,746,894	$257,326,433	4,445
Business Services	$2,328,710,735	$1,481,263,210	$1,208,331,219	15,071
Eating & Drinking Places	$1,206,282,047	$706,783,435	$376,046,518	17,426
Health Services	$879,491,877	$615,582,284	$520,480,524	8,813
Miscellaneous Services	$847,642,725	$349,843,921	$303,285,537	7,425
Households	$40,720,054	$40,720,054	$39,858,414	2,824
Total	**$34,389,854,535**	**$16,047,699,459**	**$10,939,343,818**	**182,718**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: Low Case*
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$310,360,198	$84,957,234	$57,860,603	947
Forestry & Fishery Products	$7,077,465	$6,525,741	$2,420,286	32
Coal Mining	$35,843,095	$10,353,706	$10,910,380	76
Crude Petroleum & Natural Gas	$290,716,547	$63,376,164	$29,229,012	147
Miscellaneous Mining	$24,868,846	$11,393,018	$6,697,316	76
New Construction	$5,792,672,432	$2,975,055,799	$2,545,731,197	29,069
Maintenance & Repair Construction	$345,515,750	$182,602,186	$150,475,576	2,175
Food Products & Tobacco	$658,156,540	$170,510,890	$87,105,113	1,492
Textile Mill Products	$8,877,405	$2,024,213	$1,712,671	40
Apparel	$143,221,349	$79,564,290	$40,316,441	1,126
Paper & Allied Products	$101,162,744	$44,743,099	$20,228,025	315
Printing & Publishing	$146,012,080	$72,470,356	$47,303,034	823
Chemicals & Petroleum Refining	$733,500,069	$115,758,970	$54,355,558	412
Rubber & Leather Products	$103,273,985	$44,447,552	$25,983,836	530
Lumber Products & Furniture	$73,166,805	$23,397,398	$16,681,054	356
Stone, Clay, & Glass Products	$217,173,995	$106,935,831	$55,927,887	934
Primary Metal	$330,828,901	$99,925,978	$74,380,005	1,147
Fabricated Metal Products	$1,361,607,959	$537,584,749	$347,065,413	6,092
Machinery, Except Electrical	$138,581,491	$55,978,306	$39,991,136	437
Electric & Electronic Equipment	$101,416,655	$54,707,947	$32,706,270	278
Motor Vehicles & Equipment	$50,118,036	$10,589,061	$6,879,349	100
Transp. Equip., Exc. Motor Vehicles	$27,909,064	$11,661,071	$7,620,096	93
Instruments & Related Products	$22,894,779	$10,016,949	$7,613,793	100
Miscellaneous Manufacturing	$41,069,630	$16,022,927	$11,051,197	180
Transportation	$647,901,644	$427,999,674	$283,063,708	4,011
Communication	$398,622,947	$246,471,915	$105,226,775	954
Electric, Gas, Water, Sanitary Services	$836,634,668	$188,947,290	$82,451,554	358
Wholesale Trade	$807,567,751	$546,500,632	$315,117,132	3,612
Retail Trade	$1,945,801,483	$1,612,243,512	$964,070,069	25,906
Finance	$279,968,015	$151,191,963	$88,039,519	802
Insurance	$353,434,080	$211,260,357	$126,299,763	1,557
Real Estate	$2,067,230,082	$288,995,966	$46,563,515	424
Hotels, Lodging Places, Amusements	$198,269,974	$103,486,938	$67,891,010	1,696
Personal Services	$391,254,486	$240,736,306	$187,296,740	3,235
Business Services	$1,809,315,046	$1,149,738,992	$937,892,409	11,698
Eating & Drinking Places	$872,928,009	$511,454,722	$272,121,215	12,610
Health Services	$650,996,339	$455,683,113	$385,284,295	6,523
Miscellaneous Services	$578,931,288	$238,804,468	$207,023,579	5,069
Households	$28,875,566	$28,875,566	$28,264,555	2,002
Total	**$22,933,757,195**	**$11,192,994,849**	**$7,776,851,086**	**127,435**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area: Low Case*—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$110,769,136	$30,236,658	$20,592,848	337
Forestry & Fishery Products	$2,512,158	$2,307,887	$855,955	11
Coal Mining	$8,601,673	$2,487,214	$2,620,945	18
Crude Petroleum & Natural Gas	$58,503,069	$12,743,778	$5,877,414	30
Miscellaneous Mining	$7,431,773	$3,391,741	$1,993,811	22
New Construction	$2,274,010,470	$1,342,010,307	$1,200,000,000	9,615
Maintenance & Repair Construction	$122,019,857	$64,507,932	$53,158,554	769
Food Products & Tobacco	$229,997,797	$59,558,292	$30,425,220	521
Textile Mill Products	$74,718	$16,963	$14,356	0
Apparel	$2,858,787	$1,587,088	$804,203	22
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$32,265,512	$15,987,884	$10,435,654	182
Chemicals & Petroleum Refining	$259,724,138	$41,164,173	$19,328,971	146
Rubber & Leather Products	$6,668,363	$2,866,823	$1,675,930	34
Lumber Products & Furniture	$6,316,432	$2,030,257	$1,447,463	31
Stone, Clay, & Glass Products	$41,446,318	$20,472,153	$10,707,023	179
Primary Metal	$4,659,326	$1,404,805	$1,045,664	16
Fabricated Metal Products	$415,392,065	$165,161,385	$106,628,404	1,872
Machinery, Except Electrical	$25,959,561	$10,429,698	$7,451,023	81
Electric & Electronic Equipment	$8,233,975	$4,447,112	$2,658,633	22
Motor Vehicles & Equipment	$600,143	$126,684	$82,304	1
Transp. Equip., Exc. Motor Vehicles	$9,937,471	$4,150,386	$2,712,133	33
Instruments & Related Products	$2,434,140	$1,059,311	$805,172	10
Miscellaneous Manufacturing	$2,857,258	$1,114,040	$768,373	12
Transportation	$168,543,537	$111,509,265	$73,748,244	1,045
Communication	$100,294,588	$62,059,938	$26,495,384	240
Electric, Gas, Water, Sanitary Services	$250,192,809	$56,586,069	$24,692,649	107
Wholesale Trade	$182,228,781	$123,318,091	$71,106,310	815
Retail Trade	$685,385,326	$567,895,172	$339,583,151	9,125
Finance	$80,070,871	$43,213,652	$25,163,436	229
Insurance	$71,706,300	$42,863,612	$25,625,554	316
Real Estate	$616,062,378	$79,547,482	$12,816,823	117
Hotels, Lodging Places, Amusements	$64,909,097	$33,908,733	$22,245,301	556
Personal Services	$137,853,152	$84,782,251	$65,961,965	1,139
Business Services	$645,291,993	$406,344,950	$331,473,359	4,134
Eating & Drinking Places	$311,002,699	$182,215,282	$96,948,261	4,493
Health Services	$230,613,793	$161,390,732	$136,457,361	2,311
Miscellaneous Services	$205,983,108	$85,063,809	$73,743,241	1,805
Households	$10,324,431	$10,324,431	$10,105,958	716
Total	**$7,393,737,000**	**$3,840,286,040**	**$2,818,257,050**	**41,115**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: High Case* Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$632,359,451	$173,033,707	$117,845,589	1,930
Forestry & Fishery Products	$20,154,779	$18,482,329	$6,854,786	91
Coal Mining	$82,730,912	$23,888,560	$25,172,938	175
Crude Petroleum & Natural Gas	$505,564,433	$110,201,432	$50,824,769	256
Miscellaneous Mining	$48,831,811	$22,346,423	$13,136,207	149
New Construction	$10,062,795,283	$5,114,879,901	$4,342,014,503	52,329
Maintenance & Repair Construction	$653,542,060	$345,678,105	$284,860,288	4,118
Food Products & Tobacco	$3,229,334,048	$836,735,384	$427,444,414	7,322
Textile Mill Products	$24,825,880	$5,629,331	$4,762,945	112
Apparel	$370,159,638	$205,606,940	$104,184,179	2,910
Paper & Allied Products	$210,869,135	$93,269,830	$42,166,604	656
Printing & Publishing	$293,081,315	$145,468,817	$94,950,780	1,652
Chemicals & Petroleum Refining	$2,071,387,090	$328,463,713	$154,232,786	1,170
Rubber & Leather Products	$214,393,022	$92,085,648	$53,832,850	1,098
Lumber Products & Furniture	$166,046,563	$53,190,911	$37,922,190	809
Stone, Clay, & Glass Products	$414,250,592	$204,110,565	$106,750,681	1,783
Primary Metal	$849,338,865	$256,163,737	$190,675,746	2,941
Fabricated Metal Products	$3,382,147,790	$1,340,219,635	$865,247,533	15,188
Machinery, Except Electrical	$327,503,441	$133,039,923	$95,044,276	1,037
Electric & Electronic Equipment	$203,538,442	$109,703,886	$65,584,715	558
Motor Vehicles & Equipment	$174,688,975	$36,891,105	$23,966,885	348
Transp. Equip., Exc. Motor Vehicles	$60,769,179	$25,405,263	$16,601,440	204
Instruments & Related Products	$44,299,194	$19,389,028	$14,737,421	194
Miscellaneous Manufacturing	$86,061,932	$33,615,080	$23,184,713	377
Transportation	$1,306,724,944	$863,467,521	$571,066,596	8,091
Communication	$750,993,535	$464,285,616	$198,218,435	1,796
Electric, Gas, Water, Sanitary Services	$1,947,591,911	$439,582,979	$191,822,284	833
Wholesale Trade	$1,520,770,728	$1,029,124,014	$593,402,072	6,802
Retail Trade	$3,584,733,019	$2,970,210,608	$1,776,090,967	47,726
Finance	$554,431,720	$299,448,527	$174,369,747	1,589
Insurance	$678,068,659	$405,337,701	$242,326,842	2,988
Real Estate	$3,710,718,805	$519,365,757	$83,681,089	761
Hotels, Lodging Places, Amusements	$359,038,253	$187,403,566	$122,943,217	3,071
Personal Services	$725,714,181	$446,508,307	$347,390,684	6,001
Business Services	$3,143,759,492	$1,999,705,333	$1,631,247,145	20,346
Eating & Drinking Places	$1,628,480,763	$954,157,638	$507,662,800	23,526
Health Services	$1,187,314,034	$831,036,083	$702,648,707	11,897
Miscellaneous Services	$1,144,317,679	$472,289,294	$409,435,475	10,024
Households	$54,972,073	$54,972,073	$53,808,859	3,812
Total	**$46,426,303,622**	**$21,664,394,269**	**$14,768,114,155**	**246,669**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: High Case*
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$418,986,268	$114,692,265	$78,111,814	1,279
Forestry & Fishery Products	$9,554,578	$8,809,751	$3,267,386	43
Coal Mining	$48,388,178	$13,977,503	$14,729,013	102
Crude Petroleum & Natural Gas	$392,467,339	$85,557,821	$39,459,166	199
Miscellaneous Mining	$33,572,943	$15,380,575	$9,041,377	103
New Construction	$7,820,107,783	$4,016,325,329	$3,436,737,116	39,243
Maintenance & Repair Construction	$466,446,262	$246,512,951	$203,142,027	2,937
Food Products & Tobacco	$888,511,329	$230,189,702	$117,591,903	2,014
Textile Mill Products	$11,984,496	$2,732,688	$2,312,106	54
Apparel	$193,348,821	$107,411,792	$54,427,195	1,520
Paper & Allied Products	$136,569,704	$60,403,184	$27,307,834	425
Printing & Publishing	$197,116,308	$97,834,981	$63,859,097	1,111
Chemicals & Petroleum Refining	$990,225,093	$156,274,610	$73,380,003	556
Rubber & Leather Products	$139,419,880	$60,004,195	$35,078,179	716
Lumber Products & Furniture	$98,775,186	$31,586,487	$22,519,423	480
Stone, Clay, & Glass Products	$293,184,893	$144,363,371	$75,502,647	1,262
Primary Metal	$446,619,016	$134,900,070	$100,413,007	1,549
Fabricated Metal Products	$1,838,170,745	$725,739,411	$468,538,307	8,225
Machinery, Except Electrical	$187,085,012	$75,570,713	$53,988,034	589
Electric & Electronic Equipment	$136,912,485	$73,855,728	$44,153,464	376
Motor Vehicles & Equipment	$67,659,349	$14,295,233	$9,287,121	135
Transp. Equip., Exc. Motor Vehicles	$37,677,236	$15,742,446	$10,287,130	126
Instruments & Related Products	$30,907,951	$13,522,881	$10,278,620	135
Miscellaneous Manufacturing	$55,444,001	$21,630,951	$14,919,116	243
Transportation	$874,667,219	$577,799,560	$382,136,006	5,414
Communication	$538,140,978	$332,737,086	$142,056,146	1,288
Electric, Gas, Water, Sanitary Services	$1,129,456,801	$255,078,842	$111,309,599	483
Wholesale Trade	$1,090,216,464	$737,775,853	$425,408,128	4,876
Retail Trade	$2,626,832,001	$2,176,528,741	$1,301,494,594	34,973
Finance	$377,956,821	$204,109,150	$118,853,350	1,083
Insurance	$477,136,007	$285,201,481	$170,504,680	2,102
Real Estate	$2,790,760,611	$390,144,554	$62,860,746	572
Hotels, Lodging Places, Amusements	$267,664,465	$139,707,366	$91,652,864	2,289
Personal Services	$528,193,556	$324,994,014	$252,850,599	4,368
Business Services	$2,442,575,312	$1,552,147,639	$1,266,154,752	15,792
Eating & Drinking Places	$1,178,452,811	$690,463,874	$367,363,640	17,024
Health Services	$878,845,057	$615,172,203	$520,133,798	8,807
Miscellaneous Services	$781,557,238	$322,386,032	$279,481,831	6,843
Households	$38,982,013	$38,982,013	$38,157,150	2,703
Total	**$30,960,572,214**	**$15,110,543,046**	**$10,498,748,966**	**172,037**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

The Anticipated Cumulative Impact of Construction and Other Pre-Operational Activities Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area: High Case*—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$149,538,334	$40,819,488	$27,800,345	455
Forestry & Fishery Products	$3,391,413	$3,115,648	$1,155,539	15
Coal Mining	$11,612,259	$3,357,739	$3,538,276	24
Crude Petroleum & Natural Gas	$78,979,143	$17,204,100	$7,934,509	40
Miscellaneous Mining	$10,032,894	$4,578,851	$2,691,645	30
New Construction	$3,069,914,134	$1,811,713,915	$1,620,000,000	12,981
Maintenance & Repair Construction	$164,726,807	$87,085,708	$71,764,047	1,038
Food Products & Tobacco	$310,497,026	$80,403,694	$41,074,047	704
Textile Mill Products	$100,869	$22,900	$19,381	0
Apparel	$3,859,363	$2,142,569	$1,085,674	30
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$43,558,441	$21,583,644	$14,088,134	245
Chemicals & Petroleum Refining	$350,627,586	$55,571,634	$26,094,110	198
Rubber & Leather Products	$9,002,291	$3,870,211	$2,262,506	46
Lumber Products & Furniture	$8,527,183	$2,740,847	$1,954,075	41
Stone, Clay, & Glass Products	$55,952,529	$27,637,406	$14,454,480	242
Primary Metal	$6,290,090	$1,896,486	$1,411,646	22
Fabricated Metal Products	$560,779,288	$222,967,870	$143,948,345	2,527
Machinery, Except Electrical	$35,045,407	$14,080,092	$10,058,881	110
Electric & Electronic Equipment	$11,115,867	$6,003,601	$3,589,154	30
Motor Vehicles & Equipment	$810,193	$171,024	$111,111	1
Transp. Equip., Exc. Motor Vehicles	$13,415,586	$5,603,022	$3,661,380	45
Instruments & Related Products	$3,286,089	$1,430,070	$1,086,982	14
Miscellaneous Manufacturing	$3,857,299	$1,503,954	$1,037,303	17
Transportation	$227,533,775	$150,537,508	$99,560,129	1,411
Communication	$135,397,693	$83,780,917	$35,768,768	324
Electric, Gas, Water, Sanitary Services	$337,760,292	$76,391,194	$33,335,077	145
Wholesale Trade	$246,008,855	$166,479,423	$95,993,518	1,100
Retail Trade	$925,270,190	$766,658,482	$458,437,254	12,319
Finance	$108,095,676	$58,338,430	$33,970,638	309
Insurance	$96,803,504	$57,865,876	$34,594,498	426
Real Estate	$831,684,211	$107,389,101	$17,302,711	158
Hotels, Lodging Places, Amusements	$87,627,281	$45,776,790	$30,031,157	750
Personal Services	$186,101,755	$114,456,039	$89,048,653	1,538
Business Services	$871,144,190	$548,565,683	$447,489,034	5,581
Eating & Drinking Places	$419,853,643	$245,990,630	$130,880,152	6,065
Health Services	$311,328,620	$217,877,488	$184,217,437	3,119
Miscellaneous Services	$278,077,195	$114,836,142	$99,553,375	2,437
Households	$13,937,981	$13,937,981	$13,643,044	966
Total	**$9,981,544,950**	**$5,184,386,153**	**$3,804,647,017**	**55,505**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

Ongoing Operations of the Facility

The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$9,723,638	$2,696,081	$1,836,181	30
Forestry & Fishery Products	$216,821	$266,322	$98,775	1
Coal Mining	$1,581,757	$418,531	$441,034	3
Crude Petroleum & Natural Gas	$270,189,837	$59,259,694	$27,330,500	138
Miscellaneous Mining	$1,166,811	$379,198	$222,910	3
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$33,809,145	$18,444,906	$15,199,752	220
Food Products & Tobacco	$23,499,995	$6,029,656	$3,080,237	53
Textile Mill Products	$293,061	$99,830	$84,466	2
Apparel	$4,705,330	$2,540,204	$1,287,160	36
Paper & Allied Products	$4,763,026	$2,136,928	$966,090	15
Printing & Publishing	$7,016,839	$3,541,506	$2,311,620	40
Chemicals & Petroleum Refining	$695,910,794	$57,128,028	$26,824,926	203
Rubber & Leather Products	$3,851,377	$1,649,116	$964,066	20
Lumber Products & Furniture	$1,477,378	$494,940	$352,865	8
Stone, Clay, & Glass Products	$2,833,073	$1,422,427	$743,936	12
Primary Metal	$3,821,173	$1,083,136	$806,234	12
Fabricated Metal Products	$8,254,531	$2,912,529	$1,880,333	33
Machinery, Except Electrical	$5,913,397	$2,491,030	$1,779,602	19
Electric & Electronic Equipment	$2,949,958	$1,583,453	$946,641	8
Motor Vehicles & Equipment	$1,573,114	$318,147	$206,689	3
Transp. Equip., Exc. Motor Vehicles	$883,594	$399,348	$260,960	3
Instruments & Related Products	$792,557	$342,820	$260,575	3
Miscellaneous Manufacturing	$1,450,098	$563,730	$388,812	6
Transportation	$43,405,439	$20,235,228	$13,382,857	190
Communication	$14,929,206	$9,253,432	$3,950,587	36
Electric, Gas, Water, Sanitary Services	$60,897,947	$12,764,801	$5,570,218	24
Wholesale Trade	$32,416,866	$21,911,702	$12,634,483	145
Retail Trade	$54,604,081	$45,226,066	$27,043,742	727
Finance	$13,971,981	$7,919,295	$4,611,429	42
Insurance	$12,254,293	$7,324,561	$4,378,911	54
Real Estate	$87,288,438	$19,758,152	$3,183,466	29
Hotels, Lodging Places, Amusements	$5,882,723	$3,008,614	$1,973,755	49
Personal Services	$11,608,329	$7,157,093	$5,568,334	96
Business Services	$31,085,372	$18,221,187	$14,863,819	185
Eating & Drinking Places	$29,206,372	$17,028,956	$9,060,313	420
Health Services	$18,870,970	$13,222,786	$11,179,988	189
Miscellaneous Services	$17,969,693	$7,489,618	$6,492,874	159
Households	$897,781	$897,781	$878,784	62
Total	**$1,521,966,797**	**$377,620,832**	**$213,047,925**	**3,279**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$8,454,437	$2,344,169	$1,596,510	26
Forestry & Fishery Products	$188,520	$231,560	$85,882	1
Coal Mining	$1,375,295	$363,901	$383,467	3
Crude Petroleum & Natural Gas	$234,922,680	$51,524,685	$23,763,122	120
Miscellaneous Mining	$1,014,510	$329,702	$193,814	2
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$29,396,128	$16,037,342	$13,215,769	191
Food Products & Tobacco	$20,432,603	$5,242,621	$2,678,182	46
Textile Mill Products	$254,809	$86,799	$73,441	2
Apparel	$4,091,156	$2,208,638	$1,119,151	31
Paper & Allied Products	$4,141,321	$1,858,000	$839,989	13
Printing & Publishing	$6,100,950	$3,079,243	$2,009,891	35
Chemicals & Petroleum Refining	$680,343,410	$55,850,085	$26,224,858	199
Rubber & Leather Products	$3,348,667	$1,433,862	$838,229	17
Lumber Products & Furniture	$1,284,540	$430,337	$306,807	7
Stone, Clay, & Glass Products	$2,463,279	$1,236,762	$646,832	11
Primary Metal	$3,322,406	$941,757	$700,998	11
Fabricated Metal Products	$7,177,089	$2,532,365	$1,634,898	29
Machinery, Except Electrical	$5,141,537	$2,165,882	$1,547,315	17
Electric & Electronic Equipment	$2,564,908	$1,376,769	$823,079	7
Motor Vehicles & Equipment	$1,367,779	$276,620	$179,711	3
Transp. Equip., Exc. Motor Vehicles	$768,261	$347,222	$226,897	3
Instruments & Related Products	$689,107	$298,073	$226,563	3
Miscellaneous Manufacturing	$1,260,821	$490,148	$338,061	6
Transportation	$37,739,843	$17,593,978	$11,636,029	165
Communication	$12,980,537	$8,045,606	$3,434,928	31
Electric, Gas, Water, Sanitary Services	$52,949,100	$11,098,646	$4,843,153	21
Wholesale Trade	$28,185,579	$19,051,626	$10,985,337	126
Retail Trade	$47,476,756	$39,322,829	$23,513,794	632
Finance	$12,148,256	$6,885,611	$4,009,511	37
Insurance	$10,654,773	$6,368,505	$3,807,343	47
Real Estate	$75,894,912	$17,179,174	$2,767,937	25
Hotels, Lodging Places, Amusements	$5,114,867	$2,615,907	$1,716,126	43
Personal Services	$10,093,125	$6,222,897	$4,841,515	84
Business Services	$27,027,881	$15,842,824	$12,923,685	161
Eating & Drinking Places	$25,394,142	$14,806,212	$7,877,695	365
Health Services	$16,407,793	$11,496,851	$9,720,694	165
Miscellaneous Services	$15,624,157	$6,512,018	$5,645,377	138
Households	$780,596	$780,596	$764,078	54
Total	**$1,398,576,531**	**$334,509,820**	**$188,140,666**	**2,873**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Annual Impact of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$7,250,030	$2,013,302	$1,371,171	22
Forestry & Fishery Products	$160,716	$199,872	$74,129	1
Coal Mining	$787,780	$207,153	$218,291	1
Crude Petroleum & Natural Gas	$143,574,617	$31,489,899	$14,523,104	73
Miscellaneous Mining	$810,953	$262,630	$154,386	2
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$26,465,750	$14,462,945	$11,918,367	172
Food Products & Tobacco	$17,144,747	$4,398,186	$2,246,804	38
Textile Mill Products	$4,848	$1,689	$1,428	0
Apparel	$186,535	$100,554	$50,952	1
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$3,171,383	$1,600,396	$1,044,615	18
Chemicals & Petroleum Refining	$628,535,900	$51,529,393	$24,196,042	183
Rubber & Leather Products	$501,863	$214,849	$125,599	3
Lumber Products & Furniture	$269,935	$90,220	$64,322	1
Stone, Clay, & Glass Products	$1,219,588	$610,179	$319,126	5
Primary Metal	$113,145	$32,087	$23,884	0
Fabricated Metal Products	$3,834,312	$1,352,348	$873,078	15
Machinery, Except Electrical	$2,082,464	$878,127	$627,337	7
Electric & Electronic Equipment	$491,419	$264,001	$157,829	1
Motor Vehicles & Equipment	$37,318	$7,494	$4,869	0
Transp. Equip., Exc. Motor Vehicles	$678,748	$307,534	$200,962	2
Instruments & Related Products	$176,413	$76,479	$58,131	1
Miscellaneous Manufacturing	$202,727	$78,745	$54,312	1
Transportation	$24,029,548	$11,120,118	$7,354,449	104
Communication	$7,268,799	$4,508,384	$1,924,773	17
Electric, Gas, Water, Sanitary Services	$36,669,189	$7,677,675	$3,350,333	15
Wholesale Trade	$15,662,202	$10,586,165	$6,104,077	70
Retail Trade	$38,328,414	$31,743,522	$18,981,612	510
Finance	$8,519,777	$4,842,260	$2,819,662	26
Insurance	$5,137,803	$3,070,687	$1,835,778	23
Real Estate	$51,538,267	$11,462,899	$1,846,922	17
Hotels, Lodging Places, Amusements	$3,877,660	$1,980,445	$1,299,240	32
Personal Services	$8,039,202	$4,949,466	$3,850,764	67
Business Services	$18,037,054	$10,519,842	$8,581,495	107
Eating & Drinking Places	$20,940,079	$12,202,631	$6,492,451	301
Health Services	$13,588,911	$9,508,799	$8,039,777	136
Miscellaneous Services	$13,295,332	$5,571,030	$4,829,619	118
Households	$684,010	$684,010	$669,537	47
Total	**$1,103,317,437**	**$240,606,015**	**$136,289,229**	**2,141**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$243,090,944	$67,402,027	$45,904,537	751
Forestry & Fishery Products	$5,420,524	$6,658,059	$2,469,367	33
Coal Mining	$39,543,934	$10,463,268	$11,025,846	76
Crude Petroleum & Natural Gas	$6,754,745,923	$1,481,492,354	$683,262,488	3,438
Miscellaneous Mining	$29,170,279	$9,479,945	$5,572,742	63
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$845,228,635	$461,122,654	$379,993,806	5,494
Food Products & Tobacco	$587,499,865	$150,741,403	$77,005,928	1,320
Textile Mill Products	$7,326,536	$2,495,742	$2,111,662	50
Apparel	$117,633,249	$63,505,107	$32,179,012	899
Paper & Allied Products	$119,075,650	$53,423,199	$24,152,243	377
Printing & Publishing	$175,420,983	$88,537,652	$57,790,510	1,005
Chemicals & Petroleum Refining	$17,397,769,842	$1,428,200,690	$670,623,144	5,083
Rubber & Leather Products	$96,284,416	$41,227,911	$24,101,654	492
Lumber Products & Furniture	$36,934,461	$12,373,493	$8,821,627	189
Stone, Clay, & Glass Products	$70,826,821	$35,560,681	$18,598,395	311
Primary Metal	$95,529,333	$27,078,389	$20,155,842	310
Fabricated Metal Products	$206,363,280	$72,813,230	$47,008,318	826
Machinery, Except Electrical	$147,834,935	$62,275,749	$44,490,047	486
Electric & Electronic Equipment	$73,748,944	$39,586,328	$23,666,036	202
Motor Vehicles & Equipment	$39,327,838	$7,953,681	$5,167,235	75
Transp. Equip., Exc. Motor Vehicles	$22,089,858	$9,983,695	$6,523,988	79
Instruments & Related Products	$19,813,921	$8,570,498	$6,514,381	86
Miscellaneous Manufacturing	$36,252,450	$14,093,259	$9,720,295	159
Transportation	$1,085,135,978	$505,880,696	$334,571,432	4,740
Communication	$373,230,155	$231,335,801	$98,764,678	895
Electric, Gas, Water, Sanitary Services	$1,522,448,669	$319,120,021	$139,255,462	604
Wholesale Trade	$810,421,661	$547,792,552	$315,862,067	3,620
Retail Trade	$1,365,102,032	$1,130,651,658	$676,093,540	18,167
Finance	$349,299,530	$197,982,375	$115,285,717	1,050
Insurance	$306,357,315	$183,114,013	$109,472,768	1,350
Real Estate	$2,182,210,961	$493,953,812	$79,586,662	724
Hotels, Lodging Places, Amusements	$147,068,085	$75,215,345	$49,343,864	1,233
Personal Services	$290,208,233	$178,927,330	$139,208,359	2,405
Business Services	$777,134,301	$455,529,677	$371,595,483	4,634
Eating & Drinking Places	$730,159,292	$425,723,894	$226,507,825	10,496
Health Services	$471,774,253	$330,569,645	$279,499,701	4,731
Miscellaneous Services	$449,242,337	$187,240,456	$162,321,861	3,974
Households	$22,444,516	$22,444,516	$21,969,594	1,557
Total	**$38,049,169,937**	**$9,440,520,805**	**$5,326,198,114**	**81,982**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$211,360,933	$58,604,221	$39,912,740	653
Forestry & Fishery Products	$4,712,997	$5,789,000	$2,147,047	28
Coal Mining	$34,382,370	$9,097,525	$9,586,672	66
Crude Petroleum & Natural Gas	$5,873,066,988	$1,288,117,116	$594,078,061	2,989
Miscellaneous Mining	$25,362,760	$8,242,553	$4,845,347	54
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$734,903,200	$400,933,546	$330,394,230	4,777
Food Products & Tobacco	$510,815,077	$131,065,530	$66,954,550	1,148
Textile Mill Products	$6,370,222	$2,169,980	$1,836,032	43
Apparel	$102,278,895	$55,215,955	$27,978,772	781
Paper & Allied Products	$103,533,024	$46,450,012	$20,999,715	328
Printing & Publishing	$152,523,750	$76,981,069	$50,247,269	874
Chemicals & Petroleum Refining	$17,008,585,239	$1,396,252,128	$655,621,440	4,969
Rubber & Leather Products	$83,716,669	$35,846,542	$20,955,730	428
Lumber Products & Furniture	$32,113,505	$10,758,414	$7,670,163	164
Stone, Clay, & Glass Products	$61,581,985	$30,919,041	$16,170,796	270
Primary Metal	$83,060,145	$23,543,920	$17,524,954	269
Fabricated Metal Products	$179,427,233	$63,309,114	$40,872,448	718
Machinery, Except Electrical	$128,538,436	$54,147,062	$38,682,880	422
Electric & Electronic Equipment	$64,122,692	$34,419,231	$20,576,972	176
Motor Vehicles & Equipment	$34,194,480	$6,915,508	$4,492,770	65
Transp. Equip., Exc. Motor Vehicles	$19,206,528	$8,680,550	$5,672,429	69
Instruments & Related Products	$17,227,663	$7,451,814	$5,664,077	74
Miscellaneous Manufacturing	$31,520,515	$12,253,704	$8,451,531	138
Transportation	$943,496,078	$439,849,440	$290,900,717	4,121
Communication	$324,513,420	$201,140,157	$85,873,189	778
Electric, Gas, Water, Sanitary Services	$1,323,727,512	$277,466,138	$121,078,818	525
Wholesale Trade	$704,639,487	$476,290,654	$274,633,435	3,148
Retail Trade	$1,186,918,911	$983,070,718	$587,844,857	15,796
Finance	$303,706,396	$172,140,265	$100,237,781	913
Insurance	$266,369,313	$159,212,630	$95,183,580	1,174
Real Estate	$1,897,372,795	$429,479,340	$69,198,427	629
Hotels, Lodging Places, Amusements	$127,871,681	$65,397,687	$42,903,141	1,072
Personal Services	$252,328,128	$155,572,424	$121,037,864	2,091
Business Services	$675,697,037	$396,070,605	$323,092,117	4,029
Eating & Drinking Places	$634,853,550	$370,155,292	$196,942,364	9,126
Health Services	$410,194,820	$287,421,272	$243,017,352	4,113
Miscellaneous Services	$390,603,935	$162,800,460	$141,134,422	3,455
Households	$19,514,893	$19,514,893	$19,101,961	1,354
Total	**$34,964,413,264**	**$8,362,745,509**	**$4,703,516,649**	**71,831**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$181,250,749	$50,332,552	$34,279,265	561
Forestry & Fishery Products	$4,017,888	$4,996,811	$1,853,231	25
Coal Mining	$19,694,501	$5,178,820	$5,457,274	37
Crude Petroleum & Natural Gas	$3,589,365,427	$787,247,478	$363,077,591	1,827
Miscellaneous Mining	$20,273,817	$6,565,758	$3,859,649	43
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$661,643,748	$361,573,623	$297,959,185	4,308
Food Products & Tobacco	$428,618,677	$109,954,654	$56,170,096	962
Textile Mill Products	$121,205	$42,215	$35,712	1
Apparel	$4,663,375	$2,513,854	$1,273,811	36
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$79,284,572	$40,009,899	$26,115,373	454
Chemicals & Petroleum Refining	$15,713,397,496	$1,288,234,822	$604,901,053	4,585
Rubber & Leather Products	$12,546,563	$5,371,228	$3,139,975	65
Lumber Products & Furniture	$6,748,365	$2,255,509	$1,608,061	33
Stone, Clay, & Glass Products	$30,489,704	$15,254,472	$7,978,147	133
Primary Metal	$2,828,632	$802,165	$597,100	8
Fabricated Metal Products	$95,857,800	$33,808,689	$21,826,945	384
Machinery, Except Electrical	$52,061,610	$21,953,163	$15,683,437	171
Electric & Electronic Equipment	$12,285,473	$6,600,037	$3,945,736	34
Motor Vehicles & Equipment	$932,959	$187,349	$121,720	1
Transp. Equip., Exc. Motor Vehicles	$16,968,711	$7,688,345	$5,024,050	62
Instruments & Related Products	$4,410,326	$1,911,969	$1,453,275	18
Miscellaneous Manufacturing	$5,068,181	$1,968,636	$1,357,801	21
Transportation	$600,738,696	$278,002,946	$183,861,225	2,605
Communication	$181,719,985	$112,709,590	$48,119,334	436
Electric, Gas, Water, Sanitary Services	$916,729,713	$191,941,884	$83,758,320	364
Wholesale Trade	$391,555,039	$264,654,123	$152,601,930	1,749
Retail Trade	$958,210,357	$793,588,062	$474,540,291	12,752
Finance	$212,994,419	$121,056,502	$70,491,553	643
Insurance	$128,445,064	$76,767,171	$45,894,451	566
Real Estate	$1,288,456,679	$286,572,464	$46,173,038	421
Hotels, Lodging Places, Amusements	$96,941,505	$49,511,127	$32,481,009	812
Personal Services	$200,980,049	$123,736,649	$96,269,110	1,663
Business Services	$450,926,345	$262,996,049	$214,537,377	2,676
Eating & Drinking Places	$523,501,963	$305,065,782	$162,311,280	7,521
Health Services	$339,722,773	$237,719,980	$200,994,426	3,403
Miscellaneous Services	$332,383,310	$139,275,755	$120,740,471	2,956
Households	$17,100,258	$17,100,258	$16,738,417	1,186
Total	**$27,582,935,933**	**$6,015,150,387**	**$3,407,230,716**	**53,521**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Total Construction and First 25 Years of Operations of the Facility

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: Low Case * Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$711,505,352	$195,575,143	$133,197,566	2,180
Forestry & Fishery Products	$20,349,990	$20,348,673	$7,546,987	100
Coal Mining	$100,826,091	$28,158,498	$29,672,466	205
Crude Petroleum & Natural Gas	$7,129,238,095	$1,563,123,045	$720,910,465	3,628
Miscellaneous Mining	$65,341,991	$26,032,850	$15,303,266	173
New Construction	$7,453,922,432	$3,788,799,927	$3,216,307,039	38,763
Maintenance & Repair Construction	$1,329,333,864	$717,180,510	$591,001,426	8,544
Food Products & Tobacco	$2,979,599,160	$770,545,391	$393,631,419	6,743
Textile Mill Products	$25,716,076	$6,665,617	$5,639,769	133
Apparel	$391,825,573	$215,806,545	$109,352,478	3,054
Paper & Allied Products	$275,275,009	$122,511,962	$55,386,764	863
Printing & Publishing	$392,518,253	$196,292,331	$128,124,421	2,229
Chemicals & Petroleum Refining	$18,932,130,650	$1,671,507,144	$784,869,652	5,949
Rubber & Leather Products	$255,094,062	$109,439,502	$63,977,839	1,306
Lumber Products & Furniture	$159,931,915	$51,774,168	$36,912,138	788
Stone, Clay, & Glass Products	$377,679,111	$186,753,692	$97,672,973	1,632
Primary Metal	$724,669,233	$216,829,306	$161,397,135	2,488
Fabricated Metal Products	$2,711,657,940	$1,065,568,515	$687,932,416	12,076
Machinery, Except Electrical	$390,430,076	$160,823,841	$114,893,214	1,254
Electric & Electronic Equipment	$224,518,161	$120,848,466	$72,247,306	616
Motor Vehicles & Equipment	$168,727,079	$35,280,425	$22,920,483	333
Transp. Equip., Exc. Motor Vehicles	$67,104,065	$28,802,409	$18,821,351	230
Instruments & Related Products	$52,628,139	$22,932,741	$17,430,990	229
Miscellaneous Manufacturing	$100,002,030	$38,993,319	$26,894,156	439
Transportation	$2,053,080,380	$1,145,486,267	$757,583,725	10,733
Communication	$929,521,662	$575,251,072	$245,593,149	2,225
Electric, Gas, Water, Sanitary Services	$2,965,109,344	$644,737,043	$281,346,042	1,221
Wholesale Trade	$1,936,918,496	$1,310,106,636	$755,419,157	8,659
Retail Trade	$4,020,459,824	$3,330,807,664	$1,991,716,479	53,520
Finance	$759,989,693	$419,796,099	$244,448,493	2,227
Insurance	$808,630,396	$483,364,162	$288,974,132	3,563
Real Estate	$4,930,891,557	$878,669,187	$141,572,654	1,288
Hotels, Lodging Places, Amusements	$413,022,347	$214,032,801	$140,412,913	3,507
Personal Services	$827,774,293	$509,674,224	$396,534,792	6,850
Business Services	$3,105,845,035	$1,936,792,887	$1,579,926,702	19,705
Eating & Drinking Places	$1,936,441,338	$1,132,507,329	$602,554,343	27,923
Health Services	$1,351,266,130	$946,151,929	$799,980,225	13,544
Miscellaneous Services	$1,296,885,063	$537,084,377	$465,607,398	11,399
Households	$63,164,570	$63,164,570	$61,828,008	4,381
Total	**$72,439,024,472**	**$25,488,220,264**	**$16,265,541,932**	**264,699**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: Low Case* Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$521,721,131	$143,561,454	$97,773,344	1,600
Forestry & Fishery Products	$11,790,462	$12,314,741	$4,567,333	60
Coal Mining	$70,225,465	$19,451,231	$20,497,052	142
Crude Petroleum & Natural Gas	$6,163,783,535	$1,351,493,280	$623,307,073	3,136
Miscellaneous Mining	$50,231,607	$19,635,571	$11,542,663	131
New Construction	$5,792,672,432	$2,975,055,799	$2,545,731,197	29,069
Maintenance & Repair Construction	$1,080,418,950	$583,535,732	$480,869,805	6,952
Food Products & Tobacco	$1,168,971,617	$301,576,420	$154,059,663	2,640
Textile Mill Products	$15,247,627	$4,194,193	$3,548,703	83
Apparel	$245,500,244	$134,780,246	$68,295,213	1,908
Paper & Allied Products	$204,695,768	$91,193,111	$41,227,740	643
Printing & Publishing	$298,535,830	$149,451,425	$97,550,303	1,697
Chemicals & Petroleum Refining	$17,742,085,308	$1,512,011,099	$709,976,997	5,381
Rubber & Leather Products	$186,990,654	$80,294,094	$46,939,566	959
Lumber Products & Furniture	$105,280,309	$34,155,811	$24,351,217	520
Stone, Clay, & Glass Products	$278,755,980	$137,854,871	$72,098,683	1,205
Primary Metal	$413,889,045	$123,469,897	$91,904,959	1,416
Fabricated Metal Products	$1,541,035,192	$600,893,863	$387,937,860	6,810
Machinery, Except Electrical	$267,119,926	$110,125,368	$78,674,016	859
Electric & Electronic Equipment	$165,539,347	$89,127,177	$53,283,241	454
Motor Vehicles & Equipment	$84,312,517	$17,504,569	$11,372,119	165
Transp. Equip., Exc. Motor Vehicles	$47,115,592	$20,341,622	$13,292,526	162
Instruments & Related Products	$40,122,442	$17,468,762	$13,277,869	174
Miscellaneous Manufacturing	$72,590,145	$28,276,630	$19,502,727	318
Transportation	$1,591,397,722	$867,849,115	$573,964,425	8,132
Communication	$723,136,367	$447,612,072	$191,099,963	1,732
Electric, Gas, Water, Sanitary Services	$2,160,362,180	$466,413,428	$203,530,373	883
Wholesale Trade	$1,512,207,238	$1,022,791,286	$589,750,567	6,760
Retail Trade	$3,132,720,394	$2,595,314,230	$1,551,914,926	41,702
Finance	$583,674,411	$323,332,228	$188,277,300	1,715
Insurance	$619,803,393	$370,472,986	$221,483,343	2,731
Real Estate	$3,964,602,877	$718,475,306	$115,761,943	1,053
Hotels, Lodging Places, Amusements	$326,141,655	$168,884,625	$110,794,151	2,768
Personal Services	$643,582,614	$396,308,730	$308,334,604	5,327
Business Services	$2,485,012,083	$1,545,809,597	$1,260,984,526	15,727
Eating & Drinking Places	$1,507,781,559	$881,610,013	$469,063,578	21,737
Health Services	$1,061,191,159	$743,104,385	$628,301,647	10,637
Miscellaneous Services	$969,535,223	$401,604,928	$348,158,001	8,524
Households	$48,390,459	$48,390,459	$47,366,517	3,356
Total	**$57,898,170,459**	**$19,555,740,358**	**$12,480,367,735**	**199,266**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area: Low Case*
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$292,019,885	$80,569,210	$54,872,113	898
Forestry & Fishery Products	$6,530,046	$7,304,699	$2,709,186	36
Coal Mining	$28,296,174	$7,666,033	$8,078,220	56
Crude Petroleum & Natural Gas	$3,647,868,496	$799,991,256	$368,955,005	1,856
Miscellaneous Mining	$27,705,590	$9,957,499	$5,853,460	65
New Construction	$2,274,010,470	$1,342,010,307	$1,200,000,000	9,615
Maintenance & Repair Construction	$783,663,605	$426,081,554	$351,117,738	5,076
Food Products & Tobacco	$658,616,474	$169,512,946	$86,595,316	1,483
Textile Mill Products	$195,923	$59,178	$50,068	1
Apparel	$7,522,162	$4,100,942	$2,078,014	58
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$111,550,084	$55,997,784	$36,551,027	636
Chemicals & Petroleum Refining	$15,973,121,634	$1,329,398,995	$624,230,024	4,731
Rubber & Leather Products	$19,214,926	$8,238,051	$4,815,905	99
Lumber Products & Furniture	$13,064,797	$4,285,766	$3,055,524	64
Stone, Clay, & Glass Products	$71,936,022	$35,726,625	$18,685,169	312
Primary Metal	$7,487,958	$2,206,970	$1,642,764	24
Fabricated Metal Products	$511,249,865	$198,970,074	$128,455,348	2,256
Machinery, Except Electrical	$78,021,170	$32,382,860	$23,134,460	252
Electric & Electronic Equipment	$20,519,448	$11,047,149	$6,604,369	56
Motor Vehicles & Equipment	$1,533,102	$314,033	$204,024	2
Transp. Equip., Exc. Motor Vehicles	$26,906,182	$11,838,731	$7,736,183	95
Instruments & Related Products	$6,844,466	$2,971,279	$2,258,447	28
Miscellaneous Manufacturing	$7,925,439	$3,082,675	$2,126,174	34
Transportation	$769,282,233	$389,512,211	$257,609,469	3,650
Communication	$282,014,573	$174,769,528	$74,614,718	676
Electric, Gas, Water, Sanitary Services	$1,166,922,522	$248,527,953	$108,450,970	471
Wholesale Trade	$573,783,820	$387,972,214	$223,708,240	2,564
Retail Trade	$1,643,595,683	$1,361,483,235	$814,123,443	21,877
Finance	$293,065,290	$164,270,154	$95,654,988	872
Insurance	$200,151,364	$119,630,782	$71,520,005	882
Real Estate	$1,904,519,057	$366,119,946	$58,989,861	538
Hotels, Lodging Places, Amusements	$161,850,602	$83,419,860	$54,726,311	1,368
Personal Services	$338,833,201	$208,518,900	$162,231,075	2,802
Business Services	$1,096,218,338	$669,340,999	$546,010,736	6,810
Eating & Drinking Places	$834,504,662	$487,281,064	$259,259,541	12,014
Health Services	$570,336,566	$399,110,711	$337,451,787	5,713
Miscellaneous Services	$538,366,417	$224,339,564	$194,483,711	4,761
Households	$27,424,688	$27,424,688	$26,844,375	1,902
Total	**$34,976,672,934**	**$9,855,436,426**	**$6,225,487,766**	**94,636**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes all initial costs conform to current projections. Direct purchases are allocated across the state and local areas based on capacity and historical patterns.**

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States: High Case* Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$875,450,394	$240,435,734	$163,750,126	2,680
Forestry & Fishery Products	$25,575,303	$25,140,388	$9,324,153	123
Coal Mining	$122,274,846	$34,351,828	$36,198,783	251
Crude Petroleum & Natural Gas	$7,260,310,356	$1,591,693,786	$734,087,257	3,694
Miscellaneous Mining	$78,002,090	$31,826,367	$18,708,949	212
New Construction	$10,062,795,283	$5,114,879,901	$4,342,014,503	52,329
Maintenance & Repair Construction	$1,498,770,694	$806,800,760	$664,854,094	9,612
Food Products & Tobacco	$3,816,833,913	$987,476,787	$504,450,342	8,641
Textile Mill Products	$32,152,415	$8,125,073	$6,874,607	162
Apparel	$487,792,887	$269,112,048	$136,363,191	3,809
Paper & Allied Products	$329,944,785	$146,693,029	$66,318,847	1,033
Printing & Publishing	$468,502,297	$234,006,469	$152,741,290	2,657
Chemicals & Petroleum Refining	$19,469,156,932	$1,756,664,403	$824,855,930	6,253
Rubber & Leather Products	$310,677,438	$133,313,559	$77,934,504	1,591
Lumber Products & Furniture	$202,981,024	$65,564,404	$46,743,817	998
Stone, Clay, & Glass Products	$485,077,413	$239,671,246	$125,349,076	2,094
Primary Metal	$944,868,198	$283,242,127	$210,831,588	3,250
Fabricated Metal Products	$3,588,511,071	$1,413,032,865	$912,255,850	16,014
Machinery, Except Electrical	$475,338,375	$195,315,672	$139,534,323	1,523
Electric & Electronic Equipment	$277,287,386	$149,290,214	$89,250,751	760
Motor Vehicles & Equipment	$214,016,813	$44,844,785	$29,134,120	423
Transp. Equip., Exc. Motor Vehicles	$82,859,037	$35,388,958	$23,125,428	283
Instruments & Related Products	$64,113,115	$27,959,526	$21,251,802	279
Miscellaneous Manufacturing	$122,314,383	$47,708,339	$32,905,008	536
Transportation	$2,391,860,921	$1,369,348,217	$905,638,028	12,831
Communication	$1,124,223,689	$695,621,417	$296,983,113	2,691
Electric, Gas, Water, Sanitary Services	$3,470,040,580	$758,703,000	$331,077,746	1,437
Wholesale Trade	$2,331,192,389	$1,576,916,565	$909,264,139	10,422
Retail Trade	$4,949,835,051	$4,100,862,266	$2,452,184,508	65,893
Finance	$903,731,250	$497,430,902	$289,655,464	2,639
Insurance	$984,425,974	$588,451,714	$351,799,609	4,338
Real Estate	$5,892,929,766	$1,013,319,569	$163,267,751	1,485
Hotels, Lodging Places, Amusements	$506,106,338	$262,618,911	$172,287,080	4,304
Personal Services	$1,015,922,414	$625,435,637	$486,599,043	8,406
Business Services	$3,920,893,792	$2,455,235,010	$2,002,842,628	24,980
Eating & Drinking Places	$2,358,640,055	$1,379,881,532	$734,170,625	34,022
Health Services	$1,659,088,287	$1,161,605,728	$982,148,408	16,628
Miscellaneous Services	$1,593,560,016	$659,529,750	$571,757,336	13,998
Households	$77,416,589	$77,416,589	$75,778,453	5,369
Total	**$84,475,473,559**	**$31,104,915,074**	**$20,094,312,268**	**328,651**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas: High Case*
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$630,347,200	$173,296,486	$118,024,555	1,932
Forestry & Fishery Products	$14,267,575	$14,598,751	$5,414,433	72
Coal Mining	$82,770,548	$23,075,028	$24,315,685	168
Crude Petroleum & Natural Gas	$6,265,534,326	$1,373,674,937	$633,537,227	3,188
Miscellaneous Mining	$58,935,703	$23,623,128	$13,886,724	157
New Construction	$7,820,107,783	$4,016,325,329	$3,436,737,116	39,243
Maintenance & Repair Construction	$1,201,349,462	$647,446,497	$533,536,257	7,713
Food Products & Tobacco	$1,399,326,406	$361,255,232	$184,546,453	3,162
Textile Mill Products	$18,354,719	$4,902,667	$4,148,138	97
Apparel	$295,627,716	$162,627,747	$82,405,967	2,302
Paper & Allied Products	$240,102,728	$106,853,196	$48,307,549	753
Printing & Publishing	$349,640,058	$174,816,050	$114,106,365	1,985
Chemicals & Petroleum Refining	$17,998,810,332	$1,552,526,738	$729,001,443	5,525
Rubber & Leather Products	$223,136,549	$95,850,737	$56,033,909	1,144
Lumber Products & Furniture	$130,888,691	$42,344,901	$30,189,586	644
Stone, Clay, & Glass Products	$354,766,879	$175,282,412	$91,673,443	1,532
Primary Metal	$529,679,160	$158,443,989	$117,937,961	1,818
Fabricated Metal Products	$2,017,597,978	$789,048,525	$509,410,755	8,942
Machinery, Except Electrical	$315,623,448	$129,717,775	$92,670,914	1,012
Electric & Electronic Equipment	$201,035,176	$108,274,959	$64,730,436	552
Motor Vehicles & Equipment	$101,853,829	$21,210,741	$13,779,891	200
Transp. Equip., Exc. Motor Vehicles	$56,883,764	$24,422,997	$15,959,560	195
Instruments & Related Products	$48,135,614	$20,974,694	$15,942,697	209
Miscellaneous Manufacturing	$86,964,516	$33,884,655	$23,370,646	381
Transportation	$1,818,163,297	$1,017,649,001	$673,036,722	9,536
Communication	$862,654,398	$533,877,243	$227,929,334	2,065
Electric, Gas, Water, Sanitary Services	$2,453,184,314	$532,544,980	$232,388,417	1,009
Wholesale Trade	$1,794,855,951	$1,214,066,507	$700,041,563	8,024
Retail Trade	$3,813,750,913	$3,159,599,460	$1,889,339,451	50,769
Finance	$681,663,217	$376,249,415	$219,091,131	1,996
Insurance	$743,505,321	$444,414,111	$265,688,260	3,276
Real Estate	$4,688,133,406	$819,623,894	$132,059,173	1,201
Hotels, Lodging Places, Amusements	$395,536,146	$205,105,053	$134,556,005	3,361
Personal Services	$780,521,684	$480,566,437	$373,888,463	6,459
Business Services	$3,118,272,349	$1,948,218,245	$1,589,246,869	19,821
Eating & Drinking Places	$1,813,306,362	$1,060,619,166	$564,306,003	26,150
Health Services	$1,289,039,878	$902,593,475	$763,151,151	12,920
Miscellaneous Services	$1,172,161,174	$485,186,492	$420,616,253	10,298
Households	$58,496,906	$58,496,906	$57,259,111	4,057
Total	**$65,924,985,478**	**$23,473,288,555**	**$15,202,265,615**	**243,868**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area: High Case*
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$330,789,083	$91,152,040	$62,079,610	1,016
Forestry & Fishery Products	$7,409,301	$8,112,459	$3,008,771	40
Coal Mining	$31,306,759	$8,536,558	$8,995,551	62
Crude Petroleum & Natural Gas	$3,668,344,571	$804,451,578	$371,012,100	1,866
Miscellaneous Mining	$30,306,711	$11,144,609	$6,551,294	73
New Construction	$3,069,914,134	$1,811,713,915	$1,620,000,000	12,981
Maintenance & Repair Construction	$826,370,555	$448,659,330	$369,723,232	5,345
Food Products & Tobacco	$739,115,703	$190,358,348	$97,244,143	1,666
Textile Mill Products	$222,074	$65,115	$55,092	1
Apparel	$8,522,737	$4,656,423	$2,359,485	66
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$122,843,013	$61,593,543	$40,203,506	700
Chemicals & Petroleum Refining	$16,064,025,082	$1,343,806,456	$630,995,163	4,782
Rubber & Leather Products	$21,548,854	$9,241,439	$5,402,481	111
Lumber Products & Furniture	$15,275,548	$4,996,356	$3,562,136	75
Stone, Clay, & Glass Products	$86,442,233	$42,891,878	$22,432,627	375
Primary Metal	$9,118,722	$2,698,651	$2,008,746	30
Fabricated Metal Products	$656,637,088	$256,776,559	$165,775,290	2,911
Machinery, Except Electrical	$87,107,016	$36,033,255	$25,742,318	281
Electric & Electronic Equipment	$23,401,339	$12,603,638	$7,534,890	64
Motor Vehicles & Equipment	$1,743,152	$358,372	$232,831	3
Transp. Equip., Exc. Motor Vehicles	$30,384,297	$13,291,366	$8,685,430	107
Instruments & Related Products	$7,696,415	$3,342,038	$2,540,257	32
Miscellaneous Manufacturing	$8,925,479	$3,472,589	$2,395,104	38
Transportation	$828,272,471	$428,540,454	$283,421,354	4,016
Communication	$317,117,678	$196,490,507	$83,888,102	760
Electric, Gas, Water, Sanitary Services	$1,254,490,005	$268,333,077	$117,093,397	509
Wholesale Trade	$637,563,894	$431,133,546	$248,595,449	2,849
Retail Trade	$1,883,480,547	$1,560,246,545	$932,977,546	25,071
Finance	$321,090,095	$179,394,932	$104,462,191	952
Insurance	$225,248,569	$134,633,046	$80,488,948	992
Real Estate	$2,120,140,890	$393,961,564	$63,475,749	579
Hotels, Lodging Places, Amusements	$184,568,786	$95,287,917	$62,512,166	1,563
Personal Services	$387,081,804	$238,192,688	$185,317,763	3,201
Business Services	$1,322,070,535	$811,561,731	$662,026,412	8,257
Eating & Drinking Places	$943,355,606	$551,056,413	$293,191,432	13,586
Health Services	$651,051,393	$455,597,468	$385,211,864	6,522
Miscellaneous Services	$610,460,505	$254,111,898	$220,293,846	5,393
Households	$31,038,239	$31,038,239	$30,381,461	2,152
Total	**$37,564,480,884**	**$11,199,536,540**	**$7,211,877,734**	**109,027**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

***Assumes that the contingency amount assumed by Cheniere is fully exhausted in a random manner.**

Enhanced Exploration and Production Activity

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$3,003,378,257	$804,052,983	$547,604,896	8,968
Forestry & Fishery Products	$426,185,957	$164,045,158	$89,752,991	1,433
Coal Mining	$528,760,688	$158,082,577	$161,782,087	1,129
Crude Petroleum & Natural Gas	$2,376,898,845	$521,205,849	$245,109,990	1,255
Miscellaneous Mining	$15,060,142,883	$3,353,056,874	$1,560,113,011	7,914
New Construction	$59,478,883,720	$24,057,063,597	$19,823,336,231	286,551
Maintenance & Repair Construction	$3,165,390,256	$1,686,291,689	$1,389,609,159	20,089
Food Products & Tobacco	$18,858,707,438	$5,680,391,170	$3,388,731,378	51,921
Textile Mill Products	$791,308,585	$202,777,557	$114,063,161	2,389
Apparel	$1,846,685,895	$1,021,455,765	$518,554,952	14,481
Paper & Allied Products	$1,128,676,582	$499,505,933	$229,203,975	3,986
Printing & Publishing	$1,461,455,859	$719,808,430	$462,831,907	8,019
Chemicals & Petroleum Refining	$12,191,758,443	$2,105,350,726	$1,004,270,482	8,158
Rubber & Leather Products	$1,724,808,194	$561,739,965	$314,465,440	5,701
Lumber Products & Furniture	$542,392,288	$196,029,736	$135,235,218	2,866
Stone, Clay, & Glass Products	$2,366,909,738	$1,010,498,496	$530,530,345	8,895
Primary Metal	$5,910,064,523	$1,861,081,325	$1,375,773,666	21,253
Fabricated Metal Products	$5,091,427,988	$1,970,896,511	$1,276,351,070	22,347
Machinery, Except Electrical	$3,882,120,938	$1,466,919,392	$1,042,233,788	11,685
Electric & Electronic Equipment	$892,032,388	$458,050,597	$283,477,130	2,503
Motor Vehicles & Equipment	$1,032,670,738	$268,438,815	$170,733,525	2,244
Transp. Equip., Exc. Motor Vehicles	$359,639,432	$151,304,386	$98,833,881	1,218
Instruments & Related Products	$197,229,429	$79,125,363	$59,250,030	777
Miscellaneous Manufacturing	$416,694,764	$166,200,604	$115,163,855	1,857
Transportation	$9,442,880,535	$6,216,310,677	$4,111,586,077	58,279
Communication	$4,118,964,877	$2,551,929,227	$1,153,681,199	11,259
Electric, Gas, Water, Sanitary Services	$9,899,179,409	$2,367,035,250	$1,030,872,592	4,838
Wholesale Trade	$8,854,657,858	$5,639,827,573	$3,227,507,049	36,472
Retail Trade	$17,212,761,012	$14,186,715,764	$8,475,778,490	224,862
Finance	$4,207,960,731	$2,675,705,876	$1,575,432,075	23,902
Insurance	$6,686,041,505	$3,985,010,668	$2,380,235,201	29,145
Real Estate	$17,993,002,533	$2,674,534,053	$496,857,195	4,867
Hotels, Lodging Places, Amusements	$4,247,445,640	$1,555,754,380	$666,532,656	14,777
Personal Services	$3,505,080,933	$2,150,908,782	$1,665,212,203	29,093
Business Services	$10,090,894,071	$5,934,137,046	$4,834,827,932	60,855
Eating & Drinking Places	$8,270,666,816	$4,843,836,474	$2,676,539,525	114,383
Health Services	$6,270,068,590	$4,314,871,589	$3,532,301,036	65,827
Miscellaneous Services	$6,584,736,283	$2,754,833,329	$2,381,366,604	56,172
Households	$66,889,191,261	$430,556,890	$402,895,775	21,776
Total	**$327,007,755,884**	**$111,445,341,076**	**$73,548,637,776**	**1,254,145**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$2,626,363,108	$703,119,924	$478,863,857	7,842
Forestry & Fishery Products	$262,911,446	$101,198,430	$55,368,058	884
Coal Mining	$419,281,603	$125,351,823	$128,285,355	895
Crude Petroleum & Natural Gas	$2,376,898,845	$521,205,849	$245,109,990	1,255
Miscellaneous Mining	$13,775,706,640	$3,067,084,304	$1,427,055,462	7,239
New Construction	$59,478,883,720	$24,057,063,597	$19,823,336,231	286,551
Maintenance & Repair Construction	$3,007,017,005	$1,601,921,840	$1,320,083,160	19,084
Food Products & Tobacco	$6,661,433,830	$2,006,476,320	$1,196,996,661	18,340
Textile Mill Products	$518,192,738	$132,789,988	$74,694,882	1,564
Apparel	$1,305,193,003	$721,940,272	$366,502,120	10,235
Paper & Allied Products	$995,132,395	$440,404,756	$202,084,728	3,514
Printing & Publishing	$1,309,330,305	$644,882,283	$414,654,905	7,184
Chemicals & Petroleum Refining	$7,658,861,663	$1,322,581,155	$630,882,635	5,125
Rubber & Leather Products	$1,547,904,790	$504,125,609	$282,212,574	5,117
Lumber Products & Furniture	$435,356,827	$157,345,312	$108,547,958	2,300
Stone, Clay, & Glass Products	$2,227,074,314	$950,798,930	$499,186,971	8,369
Primary Metal	$4,541,066,526	$1,429,983,391	$1,057,091,631	16,330
Fabricated Metal Products	$3,860,860,408	$1,494,542,656	$967,864,679	16,946
Machinery, Except Electrical	$3,068,597,984	$1,159,517,172	$823,827,117	9,236
Electric & Electronic Equipment	$801,994,825	$411,817,119	$254,864,279	2,251
Motor Vehicles & Equipment	$541,929,579	$140,872,525	$89,598,305	1,178
Transp. Equip., Exc. Motor Vehicles	$296,037,147	$124,546,184	$81,355,095	1,002
Instruments & Related Products	$185,118,599	$74,266,688	$55,611,795	729
Miscellaneous Manufacturing	$361,984,729	$144,379,258	$100,043,390	1,613
Transportation	$8,459,584,816	$5,569,000,605	$3,683,442,887	52,210
Communication	$3,926,629,950	$2,432,766,977	$1,099,810,094	10,733
Electric, Gas, Water, Sanitary Services	$7,578,827,570	$1,812,205,969	$789,237,703	3,704
Wholesale Trade	$8,597,513,499	$5,476,043,735	$3,133,778,387	35,413
Retail Trade	$16,689,614,055	$13,755,539,314	$8,218,174,395	218,028
Finance	$3,821,161,624	$2,429,752,858	$1,430,617,101	21,705
Insurance	$6,307,354,908	$3,759,306,097	$2,245,422,522	27,494
Real Estate	$17,993,002,533	$2,674,534,053	$496,857,195	4,867
Hotels, Lodging Places, Amusements	$4,215,059,708	$1,543,892,061	$661,450,477	14,664
Personal Services	$3,372,684,797	$2,069,663,294	$1,602,312,753	27,994
Business Services	$9,740,396,100	$5,728,020,226	$4,666,894,608	58,741
Eating & Drinking Places	$7,910,763,766	$4,633,054,011	$2,560,068,294	109,406
Health Services	$6,155,309,666	$4,235,897,968	$3,467,650,536	64,622
Miscellaneous Services	$5,936,871,441	$2,483,788,357	$2,147,066,606	50,645
Households	$62,979,345,253	$405,389,728	$379,345,476	20,503
Total	**$291,947,251,710**	**$101,047,070,635**	**$67,266,250,876**	**1,155,515**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Anticipated Cumulative Impact (Over 25 Years) of Enhanced Natural Gas Exploration and Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$666,551,642	$178,806,839	$121,777,423	1,996
Forestry & Fishery Products	$14,117,028	$11,212,184	$4,158,423	53
Coal Mining	$69,334,452	$20,034,344	$21,111,470	146
Crude Petroleum & Natural Gas	$459,301,889	$100,629,659	$46,410,281	234
Miscellaneous Mining	$52,636,745	$22,401,878	$13,168,819	147
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$951,447,195	$509,794,061	$420,102,079	6,073
Food Products & Tobacco	$1,400,678,905	$361,634,791	$184,740,349	3,167
Textile Mill Products	$456,124	$117,684	$99,588	1
Apparel	$17,459,982	$9,670,179	$4,900,050	135
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$187,278,954	$92,584,156	$60,431,765	1,052
Chemicals & Petroleum Refining	$1,971,827,846	$333,633,984	$156,660,551	1,188
Rubber & Leather Products	$40,509,636	$17,216,139	$10,064,462	205
Lumber Products & Furniture	$22,786,568	$7,936,507	$5,658,312	119
Stone, Clay, & Glass Products	$309,582,620	$132,976,459	$69,547,248	1,161
Primary Metal	$42,768,940	$13,342,454	$9,931,466	150
Fabricated Metal Products	$574,778,222	$223,587,181	$144,348,187	2,535
Machinery, Except Electrical	$339,518,156	$129,224,966	$92,318,889	1,007
Electric & Electronic Equipment	$36,045,176	$19,480,510	$11,646,148	97
Motor Vehicles & Equipment	$3,822,160	$839,795	$545,621	7
Transp. Equip., Exc. Motor Vehicles	$67,616,765	$30,019,296	$19,616,556	240
Instruments & Related Products	$12,560,039	$5,042,592	$3,832,829	49
Miscellaneous Manufacturing	$16,431,797	$6,497,936	$4,481,688	72
Transportation	$1,519,098,861	$1,001,353,364	$662,259,368	9,382
Communication	$595,030,125	$366,844,342	$156,617,621	1,418
Electric, Gas, Water, Sanitary Services	$1,530,489,955	$344,523,573	$150,340,906	653
Wholesale Trade	$1,258,124,440	$851,467,093	$490,963,530	5,629
Retail Trade	$3,926,496,573	$3,254,418,836	$1,946,038,402	52,295
Finance	$537,808,870	$294,415,250	$171,438,887	1,561
Insurance	$850,688,095	$508,463,338	$303,979,382	3,748
Real Estate	$3,836,457,155	$577,306,834	$93,016,690	848
Hotels, Lodging Places, Amusements	$361,931,565	$188,886,505	$123,916,097	3,096
Personal Services	$779,385,634	$480,547,403	$373,873,611	6,457
Business Services	$1,841,871,981	$1,076,454,842	$878,111,351	10,953
Eating & Drinking Places	$1,805,423,491	$1,057,427,664	$562,607,974	26,075
Health Services	$1,369,573,301	$956,878,690	$809,049,775	13,700
Miscellaneous Services	$1,391,570,083	$554,985,588	$481,126,228	11,780
Households	$64,226,828	$64,226,828	$62,867,790	4,454
Total	**$28,925,687,795**	**$13,804,883,742**	**$8,671,759,818**	**171,884**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$969,161,507	$259,460,226	$176,706,875	2,894
Forestry & Fishery Products	$29,351,484	$22,857,357	$8,477,330	108
Coal Mining	$168,765,262	$48,743,615	$51,364,336	355
Crude Petroleum & Natural Gas	$758,143,227	$165,612,035	$76,380,038	385
Miscellaneous Mining	$81,937,231	$34,875,451	$20,501,253	232
New Construction	$19,189,474,479	$7,761,369,475	$6,395,851,844	92,457
Maintenance & Repair Construction	$1,021,441,233	$544,150,238	$448,413,617	6,483
Food Products & Tobacco	$5,156,388,699	$1,331,360,491	$680,122,472	11,644
Textile Mill Products	$40,211,614	$10,082,559	$8,530,740	197
Apparel	$593,168,684	$328,694,021	$166,554,310	4,656
Paper & Allied Products	$327,868,489	$141,211,284	$63,840,535	993
Printing & Publishing	$447,074,931	$221,011,221	$144,259,038	2,510
Chemicals & Petroleum Refining	$3,879,228,982	$651,741,963	$306,030,736	2,322
Rubber & Leather Products	$334,156,406	$142,206,215	$83,133,159	1,698
Lumber Products & Furniture	$147,953,910	$51,885,188	$36,991,251	785
Stone, Clay, & Glass Products	$753,027,826	$322,620,493	$168,731,917	2,819
Primary Metal	$1,879,857,748	$586,668,274	$436,687,166	6,735
Fabricated Metal Products	$1,600,148,845	$623,122,297	$402,288,597	7,064
Machinery, Except Electrical	$1,180,463,820	$446,443,188	$318,940,790	3,480
Electric & Electronic Equipment	$224,874,960	$121,125,941	$72,413,198	613
Motor Vehicles & Equipment	$291,913,008	$63,824,514	$41,464,569	598
Transp. Equip., Exc. Motor Vehicles	$102,390,848	$45,575,447	$29,781,981	362
Instruments & Related Products	$57,211,851	$22,832,238	$17,354,582	230
Miscellaneous Manufacturing	$128,799,478	$51,184,986	$35,302,828	575
Transportation	$3,036,704,179	$2,002,071,985	$1,324,098,921	18,759
Communication	$1,194,109,219	$735,140,035	$313,854,890	2,845
Electric, Gas, Water, Sanitary Services	$3,081,575,131	$694,147,814	$302,907,579	1,317
Wholesale Trade	$2,605,678,515	$1,763,616,737	$1,016,917,114	11,655
Retail Trade	$5,388,425,381	$4,465,760,338	$2,670,381,856	71,758
Finance	$926,713,785	$505,806,214	$294,532,446	2,683
Insurance	$2,076,791,703	$1,241,039,893	$741,942,503	9,147
Real Estate	$5,725,169,406	$814,329,682	$131,206,170	1,195
Hotels, Lodging Places, Amusements	$519,751,127	$271,151,267	$177,884,628	4,442
Personal Services	$1,089,419,000	$672,306,912	$523,065,667	9,034
Business Services	$3,174,423,189	$1,864,364,089	$1,520,843,329	18,965
Eating & Drinking Places	$2,476,120,897	$1,450,040,491	$771,498,954	35,752
Health Services	$1,819,795,981	$1,272,988,636	$1,076,323,708	18,225
Miscellaneous Services	$1,977,182,384	$785,789,457	$681,213,964	16,678
Households	$21,454,816,959	$85,452,592	$83,644,449	5,929
Total	**$95,909,691,380**	**$32,622,664,854**	**$21,820,439,339**	**378,577**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$847,502,315	$226,890,090	$154,524,798	2,531
Forestry & Fishery Products	$18,106,747	$14,100,560	$5,229,612	66
Coal Mining	$133,822,674	$38,651,324	$40,729,429	281
Crude Petroleum & Natural Gas	$758,143,227	$165,612,035	$76,380,038	385
Miscellaneous Mining	$74,949,040	$31,901,024	$18,752,760	212
New Construction	$19,189,474,479	$7,761,369,475	$6,395,851,844	92,457
Maintenance & Repair Construction	$970,335,696	$516,924,893	$425,978,240	6,158
Food Products & Tobacco	$1,821,383,689	$470,274,532	$240,238,673	4,113
Textile Mill Products	$26,332,795	$6,602,618	$5,586,401	129
Apparel	$419,237,304	$232,312,998	$117,716,565	3,291
Paper & Allied Products	$289,075,329	$124,503,268	$56,286,970	876
Printing & Publishing	$400,538,101	$198,005,767	$129,242,857	2,248
Chemicals & Petroleum Refining	$2,436,931,331	$409,424,248	$192,248,484	1,459
Rubber & Leather Products	$299,883,954	$127,620,962	$74,606,681	1,524
Lumber Products & Furniture	$118,756,749	$41,646,187	$29,691,413	630
Stone, Clay, & Glass Products	$708,539,452	$303,560,292	$158,763,350	2,652
Primary Metal	$1,444,410,473	$450,773,363	$335,533,641	5,175
Fabricated Metal Products	$1,213,402,475	$472,517,379	$305,057,858	5,357
Machinery, Except Electrical	$933,090,173	$352,888,199	$252,104,734	2,751
Electric & Electronic Equipment	$202,177,137	$108,900,057	$65,104,149	551
Motor Vehicles & Equipment	$153,191,417	$33,494,115	$21,759,962	314
Transp. Equip., Exc. Motor Vehicles	$84,283,012	$37,515,423	$24,515,033	298
Instruments & Related Products	$53,698,770	$21,430,229	$16,288,928	216
Miscellaneous Manufacturing	$111,888,721	$44,464,641	$30,667,735	499
Transportation	$2,720,489,417	$1,793,594,413	$1,186,219,299	16,806
Communication	$1,138,350,329	$700,812,695	$299,199,446	2,712
Electric, Gas, Water, Sanitary Services	$2,359,258,844	$531,440,675	$231,906,526	1,008
Wholesale Trade	$2,530,008,112	$1,712,400,292	$987,385,256	11,317
Retail Trade	$5,224,655,122	$4,330,032,610	$2,589,221,016	69,577
Finance	$841,529,515	$459,312,103	$267,458,789	2,436
Insurance	$1,959,165,574	$1,170,749,397	$699,920,078	8,629
Real Estate	$5,725,169,406	$814,329,682	$131,206,170	1,195
Hotels, Lodging Places, Amusements	$515,788,128	$269,083,792	$176,528,293	4,408
Personal Services	$1,048,268,776	$646,912,110	$503,308,099	8,692
Business Services	$3,064,162,505	$1,799,607,108	$1,468,018,228	18,306
Eating & Drinking Places	$2,368,371,004	$1,386,941,106	$737,926,712	34,197
Health Services	$1,786,488,877	$1,249,689,560	$1,056,624,123	17,891
Miscellaneous Services	$1,782,649,619	$708,476,511	$614,190,083	15,037
Households	$20,200,727,489	$80,457,667	$78,755,215	5,583
Total	**$85,974,237,776**	**$29,845,223,400**	**$20,200,727,489**	**351,967**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$199,145,329	$53,261,264	$36,273,892	595
Forestry & Fishery Products	$4,205,205	$3,187,995	$1,182,379	15
Coal Mining	$20,975,626	$6,058,271	$6,383,988	44
Crude Petroleum & Natural Gas	$14,779,586	$3,228,515	$1,488,988	8
Miscellaneous Mining	$16,168,394	$6,881,043	$4,044,983	45
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$225,939,204	$120,701,473	$99,465,537	1,438
Food Products & Tobacco	$419,078,904	$108,229,480	$55,288,795	948
Textile Mill Products	$136,998	$34,507	$29,202	0
Apparel	$5,229,856	$2,898,321	$1,468,628	41
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$55,551,116	$27,420,824	$17,898,186	312
Chemicals & Petroleum Refining	$587,640,184	$99,086,305	$46,526,781	353
Rubber & Leather Products	$12,181,737	$5,181,787	$3,029,246	62
Lumber Products & Furniture	$6,768,084	$2,373,441	$1,692,137	36
Stone, Clay, & Glass Products	$97,056,332	$41,464,760	$21,686,241	362
Primary Metal	$13,499,560	$4,214,762	$3,137,263	47
Fabricated Metal Products	$177,158,442	$69,049,668	$44,578,560	783
Machinery, Except Electrical	$103,289,261	$39,041,811	$27,891,642	304
Electric & Electronic Equipment	$10,485,004	$5,652,984	$3,379,559	28
Motor Vehicles & Equipment	$1,148,284	$250,720	$162,895	2
Transp. Equip., Exc. Motor Vehicles	$20,351,695	$9,071,066	$5,927,624	72
Instruments & Related Products	$3,707,666	$1,477,829	$1,123,285	15
Miscellaneous Manufacturing	$4,888,236	$1,943,294	$1,340,308	22
Transportation	$468,024,840	$308,611,725	$204,104,777	2,892
Communication	$178,231,968	$109,857,942	$46,901,882	425
Electric, Gas, Water, Sanitary Services	$446,821,094	$100,646,438	$43,919,425	191
Wholesale Trade	$381,637,332	$258,307,597	$148,942,469	1,708
Retail Trade	$1,176,674,535	$975,208,378	$583,143,428	15,671
Finance	$158,936,559	$86,871,207	$50,585,364	461
Insurance	$263,717,028	$157,584,483	$94,210,202	1,162
Real Estate	$1,078,412,380	$144,192,758	$23,232,591	212
Hotels, Lodging Places, Amusements	$108,209,984	$56,462,812	$37,041,563	926
Personal Services	$233,419,688	$143,909,223	$111,963,690	1,934
Business Services	$560,423,819	$327,586,618	$267,226,750	3,333
Eating & Drinking Places	$535,909,673	$313,832,111	$166,975,437	7,739
Health Services	$410,748,878	$286,996,144	$242,657,890	4,109
Miscellaneous Services	$420,008,135	$167,081,454	$144,845,689	3,547
Households	$19,296,940	$19,296,940	$18,888,617	1,338
Total	**$8,439,857,559**	**$4,067,155,953**	**$2,568,639,892**	**51,175**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production Stimulus Required to Maintain the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$104,878,656	$28,077,714	$19,122,488	313
Forestry & Fishery Products	$17,144,101	$6,357,340	$3,562,474	57
Coal Mining	$18,503,347	$5,567,699	$5,667,054	40
Crude Petroleum & Natural Gas	$83,187,073	$18,254,486	$8,616,051	44
Miscellaneous Mining	$625,792,905	$138,981,568	$64,576,092	325
New Construction	$2,077,095,555	$840,111,942	$692,255,294	10,007
Maintenance & Repair Construction	$110,536,153	$58,885,692	$48,525,470	702
Food Products & Tobacco	$677,975,685	$208,848,425	$126,977,929	1,920
Textile Mill Products	$32,130,493	$8,238,270	$4,574,281	95
Apparel	$64,543,963	$35,688,704	$18,124,332	506
Paper & Allied Products	$40,173,497	$17,860,466	$8,215,462	145
Printing & Publishing	$51,547,070	$25,371,372	$16,268,662	282
Chemicals & Petroleum Refining	$426,887,517	$74,097,082	$35,446,468	291
Rubber & Leather Products	$64,880,854	$20,432,749	$11,364,675	202
Lumber Products & Furniture	$19,506,430	$7,083,150	$4,861,431	103
Stone, Clay, & Glass Products	$82,877,807	$35,359,129	$18,577,780	312
Primary Metal	$206,950,804	$65,279,676	$48,194,154	745
Fabricated Metal Products	$178,688,777	$69,093,170	$44,770,711	783
Machinery, Except Electrical	$137,075,271	$51,787,925	$36,758,364	414
Electric & Electronic Equipment	$32,466,591	$16,553,081	$10,297,616	91
Motor Vehicles & Equipment	$36,924,969	$9,850,582	$6,247,004	81
Transp. Equip., Exc. Motor Vehicles	$12,844,307	$5,351,511	$3,495,431	43
Instruments & Related Products	$7,021,774	$2,819,540	$2,105,922	28
Miscellaneous Manufacturing	$14,669,492	$5,854,909	$4,060,423	65
Transportation	$329,965,468	$217,155,947	$143,633,363	2,036
Communication	$146,658,486	$90,960,930	$41,508,336	410
Electric, Gas, Water, Sanitary Services	$348,039,811	$84,114,032	$36,620,184	174
Wholesale Trade	$314,467,574	$198,121,163	$113,218,937	1,276
Retail Trade	$604,543,430	$497,748,221	$297,328,192	7,869
Finance	$155,957,041	$100,912,935	$59,485,260	940
Insurance	$235,165,911	$140,095,889	$83,664,794	1,023
Real Estate	$630,013,240	$94,413,859	$17,959,277	178
Hotels, Lodging Places, Amusements	$166,110,548	$59,154,183	$24,053,189	523
Personal Services	$123,268,730	$75,565,386	$58,448,192	1,023
Business Services	$354,086,763	$208,277,749	$169,655,136	2,139
Eating & Drinking Places	$292,843,255	$171,510,756	$95,392,875	4,019
Health Services	$223,206,675	$153,172,147	$124,676,683	2,362
Miscellaneous Services	$233,027,377	$98,356,348	$84,981,577	1,992
Households	$2,338,497,217	$16,153,327	$15,038,583	783
Total	**$11,620,154,617**	**$3,961,519,053**	**$2,608,330,146**	**44,341**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production Stimulus Required to Maintain the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$91,713,201	$24,553,109	$16,722,036	274
Forestry & Fishery Products	$10,576,089	$3,921,803	$2,197,668	35
Coal Mining	$14,672,258	$4,414,916	$4,493,699	31
Crude Petroleum & Natural Gas	$83,187,073	$18,254,486	$8,616,051	44
Miscellaneous Mining	$572,420,829	$127,128,230	$59,068,583	297
New Construction	$2,077,095,555	$840,111,942	$692,255,294	10,007
Maintenance & Repair Construction	$105,005,722	$55,939,477	$46,097,606	666
Food Products & Tobacco	$239,480,366	$73,771,226	$44,852,229	678
Textile Mill Products	$21,040,829	$5,394,876	$2,995,493	62
Apparel	$45,618,115	$25,223,914	$12,809,840	358
Paper & Allied Products	$35,420,198	$15,747,228	$7,243,414	128
Printing & Publishing	$46,181,443	$22,730,420	$14,575,228	252
Chemicals & Petroleum Refining	$268,170,703	$46,547,781	$22,267,468	183
Rubber & Leather Products	$58,226,407	$18,337,083	$10,199,067	181
Lumber Products & Furniture	$15,657,039	$5,685,364	$3,902,078	83
Stone, Clay, & Glass Products	$77,981,442	$33,270,136	$17,480,217	293
Primary Metal	$159,013,047	$50,158,395	$37,030,537	572
Fabricated Metal Products	$135,500,773	$52,393,766	$33,949,899	594
Machinery, Except Electrical	$108,350,283	$40,935,438	$29,055,417	327
Electric & Electronic Equipment	$29,189,566	$14,882,291	$9,258,223	82
Motor Vehicles & Equipment	$19,377,651	$5,169,432	$3,278,331	43
Transp. Equip., Exc. Motor Vehicles	$10,572,790	$4,405,095	$2,877,264	36
Instruments & Related Products	$6,590,603	$2,646,407	$1,976,608	26
Miscellaneous Manufacturing	$12,743,457	$5,086,187	$3,527,309	57
Transportation	$295,605,864	$194,543,301	$128,676,690	1,824
Communication	$139,810,273	$86,713,512	$39,570,106	390
Electric, Gas, Water, Sanitary Services	$266,459,836	$64,397,837	$28,036,472	133
Wholesale Trade	$305,335,255	$192,367,611	$109,930,994	1,239
Retail Trade	$586,169,558	$482,620,174	$288,291,504	7,630
Finance	$141,621,345	$91,636,938	$54,017,328	853
Insurance	$221,846,494	$132,161,084	$78,926,155	965
Real Estate	$630,013,240	$94,413,859	$17,959,277	178
Hotels, Lodging Places, Amusements	$164,843,988	$58,703,144	$23,869,788	519
Personal Services	$118,612,546	$72,711,083	$56,240,450	985
Business Services	$341,787,883	$201,043,412	$163,762,320	2,065
Eating & Drinking Places	$280,100,004	$164,047,362	$91,241,797	3,844
Health Services	$219,121,399	$150,368,689	$122,394,768	2,319
Miscellaneous Services	$210,100,074	$88,679,177	$76,620,335	1,796
Households	$2,201,806,014	$15,209,123	$14,159,539	738
Total	**$10,367,019,213**	**$3,586,325,308**	**$2,380,427,081**	**40,788**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

The Potential Annual Impact in a "Typical" Year of Natural Gas Exploration and Production Stimulus Required to Maintain the Level of Incremental Natural Gas Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$23,609,486	$6,336,760	$4,315,687	71
Forestry & Fishery Products	$500,292	$400,523	$148,548	2
Coal Mining	$2,450,401	$708,105	$746,176	5
Crude Petroleum & Natural Gas	$18,828,584	$4,125,404	$1,902,632	10
Miscellaneous Mining	$1,855,168	$789,551	$464,133	5
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$34,919,958	$18,717,933	$15,424,743	223
Food Products & Tobacco	$49,600,006	$12,805,380	$6,541,601	112
Textile Mill Products	$16,141	$4,182	$3,539	0
Apparel	$618,159	$342,329	$173,464	5
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$6,641,891	$3,284,390	$2,143,796	37
Chemicals & Petroleum Refining	$69,873,794	$11,829,834	$5,554,795	42
Rubber & Leather Products	$1,433,220	$609,004	$356,021	7
Lumber Products & Furniture	$807,941	$281,067	$200,386	4
Stone, Clay, & Glass Products	$10,870,135	$4,673,789	$2,444,411	41
Primary Metal	$1,499,806	$467,818	$348,221	5
Fabricated Metal Products	$20,245,269	$7,872,522	$5,082,511	89
Machinery, Except Electrical	$11,987,138	$4,568,133	$3,263,494	36
Electric & Electronic Equipment	$1,282,674	$693,502	$414,600	3
Motor Vehicles & Equipment	$135,250	$29,750	$19,329	0
Transp. Equip., Exc. Motor Vehicles	$2,391,876	$1,061,157	$693,429	8
Instruments & Related Products	$445,819	$179,211	$136,217	2
Miscellaneous Manufacturing	$582,461	$230,119	$158,715	3
Transportation	$53,510,866	$35,270,961	$23,326,954	330
Communication	$21,066,655	$12,988,399	$5,545,164	50
Electric, Gas, Water, Sanitary Services	$54,428,798	$12,250,950	$5,345,988	23
Wholesale Trade	$44,443,021	$30,077,400	$17,342,897	199
Retail Trade	$139,003,478	$115,212,260	$68,893,247	1,851
Finance	$19,085,842	$10,451,100	$6,085,707	55
Insurance	$29,931,848	$17,891,379	$10,696,170	132
Real Estate	$137,306,187	$21,039,837	$3,389,975	31
Hotels, Lodging Places, Amusements	$12,818,153	$6,689,812	$4,388,749	110
Personal Services	$27,594,333	$17,014,121	$13,237,260	229
Business Services	$65,027,975	$38,003,484	$31,001,106	387
Eating & Drinking Places	$64,021,801	$37,498,248	$19,951,070	925
Health Services	$48,478,093	$33,869,763	$28,637,198	485
Miscellaneous Services	$49,201,044	$19,631,254	$17,018,661	417
Households	$2,272,680	$2,272,680	$2,224,590	158
Total	**$1,028,786,242**	**$490,172,112**	**$307,621,183**	**6,092**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Benefits from Liquid By-Products

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$89,809,804	$24,158,760	$16,453,460	377
Forestry & Fishery Products	$2,820,650	$2,285,985	$847,830	15
Coal Mining	$14,320,018	$4,124,736	$4,346,505	44
Crude Petroleum & Natural Gas	$68,470,817	$14,967,197	$6,902,856	47
Miscellaneous Mining	$7,636,306	$3,310,563	$1,946,095	31
New Construction	$1,753,148,559	$742,638,447	$611,980,334	12,146
Maintenance & Repair Construction	$93,649,764	$49,813,064	$41,049,066	815
Food Products & Tobacco	$476,902,933	$123,181,862	$62,927,176	1,730
Textile Mill Products	$3,791,250	$916,695	$775,608	25
Apparel	$55,010,703	$30,476,133	$15,442,725	613
Paper & Allied Products	$31,725,855	$13,841,546	$6,257,662	133
Printing & Publishing	$41,209,558	$20,434,373	$13,337,978	323
Chemicals & Petroleum Refining	$343,376,655	$56,886,469	$26,711,500	285
Rubber & Leather Products	$31,698,719	$13,493,823	$7,888,429	222
Lumber Products & Furniture	$22,813,898	$7,509,214	$5,353,654	154
Stone, Clay, & Glass Products	$78,453,604	$35,025,130	$18,318,288	422
Primary Metal	$149,093,390	$46,171,554	$34,367,843	718
Fabricated Metal Products	$199,227,898	$76,570,711	$49,434,149	1,178
Machinery, Except Electrical	$103,055,883	$39,001,496	$27,862,832	433
Electric & Electronic Equipment	$27,680,404	$15,098,875	$9,026,624	117
Motor Vehicles & Equipment	$26,931,892	$5,926,593	$3,850,306	79
Transp. Equip., Exc. Motor Vehicles	$9,391,264	$4,132,398	$2,700,376	46
Instruments & Related Products	$5,842,344	$2,438,280	$1,853,314	35
Miscellaneous Manufacturing	$12,208,237	$4,797,799	$3,309,100	78
Transportation	$256,209,998	$169,099,164	$111,836,153	2,126
Communication	$109,738,106	$67,674,621	$28,892,467	369
Electric, Gas, Water, Sanitary Services	$284,243,435	$64,058,776	$27,953,539	189
Wholesale Trade	$239,610,524	$162,155,943	$93,500,561	1,564
Retail Trade	$508,011,581	$421,009,845	$251,750,425	9,109
Finance	$84,074,648	$45,765,235	$26,649,228	373
Insurance	$167,305,290	$100,015,088	$59,792,959	1,047
Real Estate	$528,951,248	$74,727,230	$12,040,176	149
Hotels, Lodging Places, Amusements	$48,457,578	$25,271,155	$16,578,751	581
Personal Services	$101,056,346	$62,309,425	$48,477,742	1,183
Business Services	$286,574,586	$171,266,641	$139,709,691	2,486
Eating & Drinking Places	$228,946,806	$134,119,219	$71,358,586	4,685
Health Services	$168,505,940	$117,886,072	$99,673,765	2,333
Miscellaneous Services	$176,370,088	$70,849,926	$61,420,982	2,120
Households	$7,900,257	$7,900,257	$7,733,089	798
Total	**$6,844,226,835**	**$3,031,310,299**	**$2,030,311,822**	**49,178**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$58,901,960	$15,844,577	$10,791,038	247
Forestry & Fishery Products	$1,305,031	$1,057,658	$392,266	7
Coal Mining	$8,516,310	$2,453,037	$2,584,926	26
Crude Petroleum & Natural Gas	$51,353,113	$11,225,398	$5,177,142	35
Miscellaneous Mining	$5,238,770	$2,271,161	$1,335,089	21
New Construction	$1,296,887,671	$549,365,107	$452,711,064	8,985
Maintenance & Repair Construction	$66,723,155	$35,490,584	$29,246,450	580
Food Products & Tobacco	$126,341,798	$32,633,513	$16,670,756	458
Textile Mill Products	$1,862,041	$450,227	$380,933	12
Apparel	$29,160,178	$16,154,846	$8,185,909	325
Paper & Allied Products	$20,979,056	$9,152,868	$4,137,945	88
Printing & Publishing	$27,689,986	$13,730,492	$8,962,203	217
Chemicals & Petroleum Refining	$161,781,890	$26,802,056	$12,585,122	134
Rubber & Leather Products	$21,335,676	$9,082,381	$5,309,519	149
Lumber Products & Furniture	$13,733,860	$4,520,512	$3,222,875	93
Stone, Clay, & Glass Products	$55,363,964	$24,716,902	$12,927,042	298
Primary Metal	$85,918,225	$26,607,336	$19,805,198	414
Fabricated Metal Products	$113,306,783	$43,548,023	$28,114,659	670
Machinery, Except Electrical	$61,094,904	$23,121,365	$16,518,000	257
Electric & Electronic Equipment	$18,664,856	$10,181,149	$6,086,639	79
Motor Vehicles & Equipment	$10,600,079	$2,332,638	$1,515,436	31
Transp. Equip., Exc. Motor Vehicles	$5,797,814	$2,551,187	$1,667,111	28
Instruments & Related Products	$4,112,697	$1,716,419	$1,304,634	24
Miscellaneous Manufacturing	$7,954,016	$3,125,903	$2,155,973	51
Transportation	$172,147,964	$113,618,036	$75,142,915	1,429
Communication	$78,460,417	$48,385,918	$20,657,501	264
Electric, Gas, Water, Sanitary Services	$163,212,921	$36,782,626	$16,050,956	108
Wholesale Trade	$174,489,073	$118,085,131	$68,088,938	1,139
Retail Trade	$369,428,699	$306,160,579	$183,074,236	6,624
Finance	$57,259,829	$31,168,844	$18,149,708	254
Insurance	$118,372,041	$70,762,796	$42,304,787	741
Real Estate	$396,713,436	$56,045,423	$9,030,132	111
Hotels, Lodging Places, Amusements	$36,066,074	$18,808,850	$12,339,256	432
Personal Services	$72,929,387	$44,966,876	$34,984,958	854
Business Services	$207,465,510	$123,988,388	$101,142,752	1,800
Eating & Drinking Places	$164,238,036	$96,212,205	$51,190,031	3,361
Health Services	$124,066,375	$86,796,332	$73,387,103	1,718
Miscellaneous Services	$119,262,924	$47,909,311	$41,533,380	1,433
Households	$5,578,850	$5,578,850	$5,460,803	564
Total	**$4,514,315,366**	**$2,073,405,500**	**$1,404,325,379**	**34,063**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$36,961,223	$9,935,861	$6,766,875	155
Forestry & Fishery Products	$811,767	$644,013	$238,853	4
Coal Mining	$3,546,557	$1,021,386	$1,076,302	11
Crude Petroleum & Natural Gas	$21,549,794	$4,710,785	$2,172,608	15
Miscellaneous Mining	$3,014,695	$1,307,091	$768,367	12
New Construction	$864,591,781	$366,243,405	$301,807,376	5,990
Maintenance & Repair Construction	$41,466,047	$22,114,780	$18,223,956	362
Food Products & Tobacco	$77,615,233	$20,052,625	$10,243,840	282
Textile Mill Products	$25,887	$6,278	$5,312	0
Apparel	$971,099	$538,040	$272,632	11
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$10,251,671	$5,076,977	$3,313,858	80
Chemicals & Petroleum Refining	$103,941,958	$17,275,551	$8,111,875	87
Rubber & Leather Products	$2,315,700	$985,352	$576,032	16
Lumber Products & Furniture	$2,126,522	$698,737	$498,160	14
Stone, Clay, & Glass Products	$20,248,777	$9,021,749	$4,718,412	109
Primary Metal	$2,140,177	$663,079	$493,564	10
Fabricated Metal Products	$44,251,917	$17,016,934	$10,986,156	262
Machinery, Except Electrical	$18,028,298	$6,818,965	$4,871,497	76
Electric & Electronic Equipment	$2,610,133	$1,425,276	$852,078	11
Motor Vehicles & Equipment	$212,053	$46,617	$30,287	1
Transp. Equip., Exc. Motor Vehicles	$3,734,913	$1,645,019	$1,074,962	18
Instruments & Related Products	$761,083	$317,855	$241,599	5
Miscellaneous Manufacturing	$928,699	$364,910	$251,682	6
Transportation	$78,903,984	$52,088,471	$34,449,455	655
Communication	$32,844,257	$20,277,065	$8,656,931	111
Electric, Gas, Water, Sanitary Services	$82,612,029	$18,617,174	$8,124,039	55
Wholesale Trade	$70,223,869	$47,523,972	$27,402,744	458
Retail Trade	$222,822,071	$184,664,106	$110,423,231	3,996
Finance	$28,840,240	$15,719,285	$9,153,387	128
Insurance	$42,355,662	$25,319,328	$15,136,891	265
Real Estate	$199,734,869	$26,489,794	$4,268,080	53
Hotels, Lodging Places, Amusements	$20,222,770	$10,548,398	$6,920,114	243
Personal Services	$43,428,600	$26,749,111	$20,811,241	508
Business Services	$101,226,162	$60,226,161	$49,129,116	874
Eating & Drinking Places	$99,311,530	$58,179,348	$30,954,519	2,032
Health Services	$76,210,590	$53,256,931	$45,029,228	1,054
Miscellaneous Services	$74,860,008	$30,120,692	$26,112,130	901
Households	$3,571,104	$3,571,104	$3,495,540	361
Total	**$2,439,273,720**	**$1,121,282,215**	**$777,662,920**	**19,229**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$100,824,419	$27,955,670	$19,039,369	311
Forestry & Fishery Products	$2,248,217	$2,761,497	$1,024,195	13
Coal Mining	$16,401,245	$4,339,746	$4,573,081	32
Crude Petroleum & Natural Gas	$2,801,598,948	$614,463,885	$283,390,003	1,426
Miscellaneous Mining	$12,098,667	$3,931,903	$2,311,351	26
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$350,567,095	$191,255,268	$157,606,261	2,279
Food Products & Tobacco	$243,671,490	$62,521,516	$31,938,985	547
Textile Mill Products	$3,038,754	$1,035,134	$875,833	21
Apparel	$48,789,576	$26,339,383	$13,346,570	373
Paper & Allied Products	$49,387,826	$22,157,810	$10,017,386	156
Printing & Publishing	$72,757,620	$36,721,883	$23,969,196	417
Chemicals & Petroleum Refining	$7,215,900,382	$592,360,630	$278,147,708	2,108
Rubber & Leather Products	$39,934,932	$17,099,692	$9,996,404	204
Lumber Products & Furniture	$15,318,940	$5,132,031	$3,658,859	78
Stone, Clay, & Glass Products	$29,376,138	$14,749,151	$7,713,872	129
Primary Metal	$39,621,754	$11,231,035	$8,359,839	128
Fabricated Metal Products	$85,591,250	$30,200,021	$19,497,174	342
Machinery, Except Electrical	$61,316,029	$25,829,495	$18,452,695	201
Electric & Electronic Equipment	$30,588,118	$16,418,829	$9,815,727	84
Motor Vehicles & Equipment	$16,311,617	$3,298,869	$2,143,163	31
Transp. Equip., Exc. Motor Vehicles	$9,161,991	$4,140,838	$2,705,890	33
Instruments & Related Products	$8,218,023	$3,554,700	$2,701,905	35
Miscellaneous Manufacturing	$15,036,069	$5,845,321	$4,031,590	66
Transportation	$450,071,083	$209,819,117	$138,766,873	1,966
Communication	$154,800,968	$95,948,855	$40,963,646	371
Electric, Gas, Water, Sanitary Services	$631,450,929	$132,358,245	$57,757,606	251
Wholesale Trade	$336,130,552	$227,202,482	$131,006,976	1,502
Retail Trade	$566,189,826	$468,949,170	$280,416,610	7,535
Finance	$144,875,501	$82,115,186	$47,815,913	436
Insurance	$127,064,784	$75,948,382	$45,404,934	560
Real Estate	$905,093,989	$204,872,322	$33,009,370	300
Hotels, Lodging Places, Amusements	$60,997,970	$31,196,322	$20,465,865	511
Personal Services	$120,366,789	$74,211,913	$57,738,070	998
Business Services	$322,324,283	$188,935,524	$154,122,972	1,922
Eating & Drinking Places	$302,840,925	$176,573,276	$93,946,403	4,353
Health Services	$195,673,126	$137,107,092	$115,925,318	1,962
Miscellaneous Services	$186,327,787	$77,659,866	$67,324,628	1,648
Households	$9,309,089	$9,309,089	$9,112,110	646
Total	**$15,781,276,702**	**$3,915,551,148**	**$2,209,094,347**	**34,003**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$88,167,893	$24,446,385	$16,649,351	272
Forestry & Fishery Products	$1,965,997	$2,414,845	$895,627	12
Coal Mining	$14,342,391	$3,794,976	$3,999,020	28
Crude Petroleum & Natural Gas	$2,449,913,228	$537,330,013	$247,815,954	1,247
Miscellaneous Mining	$10,579,917	$3,438,329	$2,021,206	23
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$306,560,282	$167,246,926	$137,821,890	1,993
Food Products & Tobacco	$213,083,320	$54,673,168	$27,929,672	479
Textile Mill Products	$2,657,299	$905,194	$765,889	18
Apparel	$42,665,003	$23,032,991	$11,671,170	326
Paper & Allied Products	$43,188,155	$19,376,333	$8,759,900	137
Printing & Publishing	$63,624,330	$32,112,172	$20,960,335	365
Chemicals & Petroleum Refining	$7,095,025,146	$582,437,858	$273,488,391	2,073
Rubber & Leather Products	$34,921,886	$14,953,161	$8,741,552	179
Lumber Products & Furniture	$13,395,948	$4,487,805	$3,199,561	69
Stone, Clay, & Glass Products	$25,688,541	$12,897,685	$6,745,547	113
Primary Metal	$34,648,021	$9,821,199	$7,310,425	112
Fabricated Metal Products	$74,846,950	$26,409,002	$17,049,686	299
Machinery, Except Electrical	$53,619,006	$22,587,109	$16,136,322	176
Electric & Electronic Equipment	$26,748,380	$14,357,767	$8,583,555	73
Motor Vehicles & Equipment	$14,264,014	$2,884,761	$1,874,131	27
Transp. Equip., Exc. Motor Vehicles	$8,011,883	$3,621,037	$2,366,218	29
Instruments & Related Products	$7,186,412	$3,108,477	$2,362,734	31
Miscellaneous Manufacturing	$13,148,586	$5,111,556	$3,525,503	58
Transportation	$393,573,499	$183,480,448	$121,347,418	1,719
Communication	$135,368,747	$83,904,361	$35,821,465	324
Electric, Gas, Water, Sanitary Services	$552,184,668	$115,743,267	$50,507,273	219
Wholesale Trade	$293,935,963	$198,681,673	$114,561,623	1,313
Retail Trade	$495,115,814	$410,081,813	$245,215,812	6,589
Finance	$126,689,227	$71,807,237	$41,813,564	381
Insurance	$111,114,296	$66,414,555	$39,705,236	490
Real Estate	$791,477,216	$179,154,626	$28,865,692	263
Hotels, Lodging Places, Amusements	$53,340,873	$27,280,237	$17,896,777	447
Personal Services	$105,257,103	$64,896,065	$50,490,189	872
Business Services	$281,862,801	$165,218,380	$134,775,860	1,681
Eating & Drinking Places	$264,825,195	$154,407,969	$82,153,277	3,807
Health Services	$171,110,208	$119,895,989	$101,373,171	1,716
Miscellaneous Services	$162,937,993	$67,911,195	$58,873,343	1,441
Households	$8,140,516	$8,140,516	$7,968,264	565
Total	**$14,585,186,706**	**$3,488,467,080**	**$1,962,042,606**	**29,964**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Facility on Business Activity in the Corpus Christi Metropolitan Statistical Area
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$81,712,581	$22,691,232	$15,453,990	253
Forestry & Fishery Products	$1,811,369	$2,252,693	$835,485	11
Coal Mining	$8,878,796	$2,334,747	$2,460,282	17
Crude Petroleum & Natural Gas	$1,618,179,876	$354,911,767	$163,684,880	823
Miscellaneous Mining	$9,139,967	$2,960,015	$1,740,031	19
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$298,286,318	$163,006,852	$134,327,799	1,942
Food Products & Tobacco	$193,232,517	$49,570,436	$25,322,949	434
Textile Mill Products	$54,642	$19,032	$16,100	0
Apparel	$2,102,371	$1,133,311	$574,267	16
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$35,743,560	$18,037,510	$11,773,493	205
Chemicals & Petroleum Refining	$7,084,010,843	$580,769,974	$272,705,226	2,067
Rubber & Leather Products	$5,656,319	$2,421,490	$1,415,583	29
Lumber Products & Furniture	$3,042,340	$1,016,843	$724,956	15
Stone, Clay, & Glass Products	$13,745,556	$6,877,115	$3,596,757	60
Primary Metal	$1,275,221	$361,637	$269,188	4
Fabricated Metal Products	$43,215,205	$15,241,842	$9,840,158	173
Machinery, Except Electrical	$23,470,736	$9,897,060	$7,070,504	77
Electric & Electronic Equipment	$5,538,613	$2,975,470	$1,778,841	15
Motor Vehicles & Equipment	$420,602	$84,462	$54,875	1
Transp. Equip., Exc. Motor Vehicles	$7,649,939	$3,466,107	$2,264,973	28
Instruments & Related Products	$1,988,291	$861,965	$655,174	8
Miscellaneous Manufacturing	$2,284,868	$887,512	$612,132	10
Transportation	$270,828,727	$125,331,004	$82,889,452	1,175
Communication	$81,924,125	$50,812,433	$21,693,455	197
Electric, Gas, Water, Sanitary Services	$413,285,747	$86,532,425	$37,760,443	164
Wholesale Trade	$176,523,259	$119,313,005	$68,796,944	789
Retail Trade	$431,986,307	$357,770,268	$213,935,183	5,749
Finance	$96,023,459	$54,575,439	$31,779,437	290
Insurance	$57,906,397	$34,608,650	$20,690,419	255
Real Estate	$580,869,992	$129,194,367	$20,816,014	190
Hotels, Lodging Places, Amusements	$43,703,768	$22,320,912	$14,643,289	366
Personal Services	$90,607,066	$55,783,720	$43,400,634	750
Business Services	$203,289,398	$118,565,502	$96,719,065	1,207
Eating & Drinking Places	$236,008,386	$137,531,639	$73,174,173	3,391
Health Services	$153,155,917	$107,170,388	$90,613,548	1,534
Miscellaneous Services	$149,847,095	$62,789,156	$54,432,964	1,332
Households	$7,709,244	$7,709,244	$7,546,116	535
Total	**$12,435,109,421**	**$2,711,787,223**	**$1,536,068,781**	**24,129**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant.

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the United States
Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$2,318,961,635	$642,980,412	$437,905,495	7,164
Forestry & Fishery Products	$51,708,988	$63,514,430	$23,556,485	310
Coal Mining	$377,228,641	$99,814,153	$105,180,855	725
Crude Petroleum & Natural Gas	$64,436,775,800	$14,132,669,348	$6,517,970,071	32,798
Miscellaneous Mining	$278,269,346	$90,433,759	$53,161,071	597
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$8,063,043,178	$4,398,871,168	$3,624,943,995	52,408
Food Products & Tobacco	$5,604,444,265	$1,437,994,868	$734,596,646	12,590
Textile Mill Products	$69,891,353	$23,808,089	$20,144,157	472
Apparel	$1,122,160,237	$605,805,816	$306,971,101	8,572
Paper & Allied Products	$1,135,920,000	$509,629,639	$230,399,879	3,594
Printing & Publishing	$1,673,425,271	$844,603,319	$551,291,516	9,588
Chemicals & Petroleum Refining	$165,965,708,779	$13,624,294,487	$6,397,397,280	48,486
Rubber & Leather Products	$918,503,435	$393,292,908	$229,917,291	4,696
Lumber Products & Furniture	$352,335,619	$118,036,708	$84,153,747	1,804
Stone, Clay, & Glass Products	$675,651,171	$339,230,472	$177,419,050	2,964
Primary Metal	$911,300,335	$258,313,802	$192,276,288	2,954
Fabricated Metal Products	$1,968,598,758	$694,600,483	$448,434,991	7,875
Machinery, Except Electrical	$1,410,268,670	$594,078,379	$424,411,994	4,634
Electric & Electronic Equipment	$703,526,710	$377,633,058	$225,761,720	1,928
Motor Vehicles & Equipment	$375,167,195	$75,873,993	$49,292,745	716
Transp. Equip., Exc. Motor Vehicles	$210,725,800	$95,239,281	$62,235,465	754
Instruments & Related Products	$189,014,538	$81,758,107	$62,143,823	816
Miscellaneous Manufacturing	$345,829,591	$134,442,390	$92,726,574	1,518
Transportation	$10,351,634,909	$4,825,839,692	$3,191,638,083	45,216
Communication	$3,560,422,268	$2,206,823,659	$942,163,851	8,533
Electric, Gas, Water, Sanitary Services	$14,523,371,367	$3,044,239,636	$1,328,424,941	5,765
Wholesale Trade	$7,731,002,685	$5,225,657,077	$3,013,160,438	34,535
Retail Trade	$13,022,365,988	$10,785,830,914	$6,449,582,022	173,304
Finance	$3,332,136,512	$1,888,649,267	$1,099,766,003	10,018
Insurance	$2,922,490,032	$1,746,812,791	$1,044,313,473	12,881
Real Estate	$20,817,161,744	$4,712,063,396	$759,215,511	6,906
Hotels, Lodging Places, Amusements	$1,402,953,319	$717,515,415	$470,714,890	11,760
Personal Services	$2,768,436,158	$1,706,874,007	$1,327,975,606	22,947
Business Services	$7,413,458,517	$4,345,517,061	$3,544,828,346	44,209
Eating & Drinking Places	$6,965,341,274	$4,061,185,338	$2,160,767,271	100,130
Health Services	$4,500,481,898	$3,153,463,109	$2,666,282,315	45,130
Miscellaneous Services	$4,285,539,101	$1,786,176,923	$1,548,466,441	37,909
Households	$214,109,049	$214,109,049	$209,578,539	14,857
Total	**$362,969,364,138**	**$90,057,676,404**	**$50,809,169,971**	**782,064**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant. This analysis also assumes that the production will ramp up to its mature and sustainable level over the first five years of operations.

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in Texas Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$2,027,861,549	$562,266,851	$382,935,062	6,264
Forestry & Fishery Products	$45,217,940	$55,541,441	$20,599,431	271
Coal Mining	$329,874,994	$87,284,446	$91,977,464	634
Crude Petroleum & Natural Gas	$56,348,004,237	$12,358,590,299	$5,699,766,952	28,680
Miscellaneous Mining	$243,338,095	$79,081,576	$46,487,743	522
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$7,050,886,477	$3,846,679,294	$3,169,903,476	45,829
Food Products & Tobacco	$4,900,916,368	$1,257,482,857	$642,382,466	11,010
Textile Mill Products	$61,117,866	$20,819,451	$17,615,454	413
Apparel	$981,295,060	$529,758,794	$268,436,909	7,496
Paper & Allied Products	$993,327,556	$445,655,648	$201,477,699	3,143
Printing & Publishing	$1,463,359,597	$738,579,961	$482,087,694	8,385
Chemicals & Petroleum Refining	$163,185,578,360	$13,396,070,743	$6,290,232,982	47,674
Rubber & Leather Products	$803,203,369	$343,922,708	$201,055,691	4,107
Lumber Products & Furniture	$308,106,803	$103,219,518	$73,589,897	1,578
Stone, Clay, & Glass Products	$590,836,437	$296,646,749	$155,147,573	2,592
Primary Metal	$796,904,478	$225,887,578	$168,139,776	2,583
Fabricated Metal Products	$1,721,479,851	$607,407,036	$392,142,786	6,886
Machinery, Except Electrical	$1,233,237,138	$519,503,507	$371,135,405	4,052
Electric & Electronic Equipment	$615,212,750	$330,228,645	$197,421,770	1,686
Motor Vehicles & Equipment	$328,072,322	$66,349,504	$43,105,009	626
Transp. Equip., Exc. Motor Vehicles	$184,273,315	$83,283,860	$54,423,025	659
Instruments & Related Products	$165,287,476	$71,494,982	$54,342,886	714
Miscellaneous Manufacturing	$302,417,478	$117,565,789	$81,086,574	1,327
Transportation	$9,052,190,468	$4,220,050,306	$2,790,990,611	39,540
Communication	$3,113,481,184	$1,929,800,294	$823,893,685	7,462
Electric, Gas, Water, Sanitary Services	$12,700,247,353	$2,662,095,143	$1,161,667,282	5,042
Wholesale Trade	$6,760,527,147	$4,569,678,471	$2,634,917,328	30,200
Retail Trade	$11,387,663,718	$9,431,881,693	$5,639,963,679	151,549
Finance	$2,913,852,221	$1,651,566,447	$961,711,982	8,760
Insurance	$2,555,628,811	$1,527,534,755	$913,220,429	11,264
Real Estate	$18,203,975,969	$4,120,556,388	$663,910,916	6,039
Hotels, Lodging Places, Amusements	$1,226,840,086	$627,445,448	$411,625,881	10,284
Personal Services	$2,420,913,375	$1,492,609,501	$1,161,274,352	20,066
Business Services	$6,482,844,412	$3,800,022,747	$3,099,844,773	38,659
Eating & Drinking Places	$6,090,979,488	$3,551,383,287	$1,889,525,381	87,561
Health Services	$3,935,534,792	$2,757,607,755	$2,331,582,940	39,465
Miscellaneous Services	$3,747,573,841	$1,561,957,493	$1,354,086,894	33,150
Households	$187,231,863	$187,231,863	$183,270,070	12,992
Total	**$335,459,294,245**	**$80,234,742,830**	**$45,126,979,927**	**689,166**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant. This analysis also assumes that the production will ramp up to its mature and sustainable level over the first five years of operations.

The Potential Cumulative Impact (Over the First 25 Years) of New Chemical Manufacturing Operations to Accommodate the Incremental Ethane Production Associated with the Implementation of the Proposed Cheniere Corpus Christi Liquefaction Project on Business Activity in the Corpus Christi Metropolitan Statistical Area—Detailed Industrial Category

Category	Total Expenditures (2012 Dollars)	Gross Product (2012 Dollars)	Personal Income (2012 Dollars)	Employment (Person-Years)
Agricultural Products & Services	$1,879,389,367	$521,898,334	$355,441,763	5,818
Forestry & Fishery Products	$41,661,487	$51,811,947	$19,216,159	255
Coal Mining	$204,212,315	$53,699,191	$56,586,490	388
Crude Petroleum & Natural Gas	$37,218,137,138	$8,162,970,639	$3,764,752,251	18,939
Miscellaneous Mining	$210,219,243	$68,080,355	$40,020,708	447
New Construction	$0	$0	$0	0
Maintenance & Repair Construction	$6,860,585,319	$3,749,157,602	$3,089,539,368	44,665
Food Products & Tobacco	$4,444,347,899	$1,140,120,018	$582,427,834	9,975
Textile Mill Products	$1,256,773	$437,728	$370,294	8
Apparel	$48,354,543	$26,066,156	$13,208,146	371
Paper & Allied Products	$0	$0	$0	0
Printing & Publishing	$822,101,886	$414,862,723	$270,790,350	4,712
Chemicals & Petroleum Refining	$162,932,249,386	$13,357,709,392	$6,272,220,201	47,541
Rubber & Leather Products	$130,095,336	$55,694,269	$32,558,404	672
Lumber Products & Furniture	$69,973,815	$23,387,380	$16,673,986	342
Stone, Clay, & Glass Products	$316,147,797	$158,173,654	$82,725,418	1,381
Primary Metal	$29,330,091	$8,317,650	$6,191,327	88
Fabricated Metal Products	$993,949,714	$350,562,359	$226,323,630	3,982
Machinery, Except Electrical	$539,826,932	$227,632,386	$162,621,589	1,774
Electric & Electronic Equipment	$127,388,089	$68,435,800	$40,913,342	351
Motor Vehicles & Equipment	$9,673,852	$1,942,618	$1,262,115	13
Transp. Equip., Exc. Motor Vehicles	$175,948,602	$79,720,461	$52,094,384	639
Instruments & Related Products	$45,730,684	$19,825,206	$15,069,013	188
Miscellaneous Manufacturing	$52,551,975	$20,412,786	$14,079,039	221
Transportation	$6,229,060,714	$2,882,613,087	$1,906,457,402	27,015
Communication	$1,884,254,880	$1,168,685,958	$498,949,469	4,520
Electric, Gas, Water, Sanitary Services	$9,505,572,192	$1,990,245,766	$868,490,188	3,773
Wholesale Trade	$4,060,034,968	$2,744,199,122	$1,582,329,713	18,138
Retail Trade	$9,935,685,072	$8,228,716,172	$4,920,509,209	132,226
Finance	$2,208,539,548	$1,255,235,106	$730,927,046	6,665
Insurance	$1,331,847,124	$795,998,944	$475,879,648	5,868
Real Estate	$13,360,009,825	$2,971,470,436	$478,768,321	4,366
Hotels, Lodging Places, Amusements	$1,005,186,655	$513,380,977	$336,795,651	8,422
Personal Services	$2,083,962,522	$1,283,025,554	$998,214,588	17,241
Business Services	$4,675,656,156	$2,727,006,543	$2,224,538,486	27,750
Eating & Drinking Places	$5,428,192,884	$3,163,227,694	$1,683,005,985	77,986
Health Services	$3,522,586,098	$2,464,918,933	$2,084,111,598	35,283
Miscellaneous Services	$3,446,483,188	$1,444,150,580	$1,251,958,178	30,646
Households	$177,312,604	$177,312,604	$173,560,674	12,295
Total	**$286,007,516,672**	**$62,371,106,130**	**$35,329,581,966**	**554,962**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

NOTE: Assumes expansion would occur in the Corpus Christi area due to the proximity of its petrochemical complex to the Cheniere plant. This analysis also assumes that the production will ramp up to its mature and sustainable level over the first five years of operations.

Forecast Tables for the Corpus Christi Metropolitan Statistical Area

Historical and Projected Values for Key Economic Indicators for the Corpus Christi Metropolitan Statistical Area*

Date	Gross Area Product	Real Gross Area Product	Personal Income (by place of residence)	Real Personal Income (by place of residence)	Personal Income (by place of work)	Real Personal Income (by place of work)	Total Employment	Wage and Salary Employment
2001	$10,282.788	$12,294.706	$9,894.973	$10,836.993	$7,442.152	$8,150.659	216.7	180.2
2002	$10,710.672	$12,768.038	$10,241.211	$11,121.553	$7,736.475	$8,401.508	218.2	179.8
2003	$11,635.507	$13,152.881	$10,805.356	$11,447.015	$8,253.244	$8,743.350	222.2	180.9
2004	$12,835.746	$13,933.734	$11,388.008	$11,783.249	$8,772.435	$9,076.898	225.3	181.5
2005	$13,460.690	$13,460.690	$12,200.894	$12,200.894	$9,211.065	$9,211.065	229.7	184.2
2006	$14,915.007	$14,093.832	$13,096.253	$12,732.333	$9,969.662	$9,692.624	234.3	187.6
2007	$16,640.062	$14,967.170	$14,096.242	$13,472.289	$10,525.492	$10,059.594	239.3	190.8
2008	$16,869.542	$14,658.723	$15,428.875	$14,197.972	$11,320.207	$10,417.090	245.9	195.7
2009	$15,804.503	$14,580.688	$15,211.542	$14,021.636	$10,774.352	$9,931.540	242.9	190.7
2010	$17,150.369	$15,221.888	$15,994.224	$14,562.903	$11,291.567	$10,281.086	243.8	191.4
2011	$18,462.055	$16,069.146	$16,969.671	$14,981.779	$11,922.396	$10,525.761	249.2	195.6
2012	$19,744.535	$16,753.396	$18,046.511	$15,542.130	$12,646.327	$10,891.350	254.6	199.7
2013	$21,173.608	$17,465.350	$19,273.120	$16,203.066	$13,492.868	$11,343.562	260.7	204.3
2014	$22,717.807	$18,194.118	$20,633.149	$16,914.757	$14,431.081	$11,830.392	267.0	209.1
2015	$24,328.630	$18,911.792	$22,076.944	$17,648.759	$15,426.005	$12,331.863	273.1	213.7
2016	$25,996.123	$19,626.626	$23,608.714	$18,405.281	$16,480.412	$12,848.079	278.9	218.1
2017	$27,725.477	$20,335.321	$25,232.811	$19,184.503	$17,597.163	$13,379.121	284.6	222.3
2018	$29,537.658	$21,055.592	$26,953.731	$19,986.582	$18,779.206	$13,925.053	290.1	226.4
2019	$31,435.360	$21,784.204	$28,776.109	$20,811.642	$20,029.577	$14,485.919	295.5	230.5
2020	$33,428.670	$22,527.314	$30,704.725	$21,659.778	$21,351.399	$15,061.739	301.0	234.5
2021	$35,520.383	$23,282.801	$32,744.494	$22,531.055	$22,747.877	$15,652.515	306.4	238.6
2022	$37,712.953	$24,050.086	$34,900.471	$23,425.502	$24,222.301	$16,258.221	311.8	242.6
2023	$40,008.677	$24,828.528	$37,177.847	$24,343.114	$25,778.042	$16,878.809	317.1	246.5
2024	$42,409.842	$25,617.524	$39,581.945	$25,283.850	$27,418.547	$17,514.208	322.5	250.5
2025	$44,918.426	$26,416.338	$42,118.215	$26,247.632	$29,147.341	$18,164.318	327.8	254.4
2026	$47,536.396	$27,224.288	$44,792.235	$27,234.343	$30,968.020	$18,829.015	333.0	258.3
2027	$50,265.432	$28,040.595	$47,609.699	$28,243.827	$32,884.248	$19,508.147	338.2	262.1
2028	$53,107.236	$28,864.557	$50,576.421	$29,275.884	$34,899.757	$20,201.533	343.3	265.9
2029	$56,062.877	$29,695.219	$53,698.318	$30,330.276	$37,018.334	$20,908.965	348.4	269.6
2030	$59,133.545	$30,531.773	$56,981.413	$31,406.717	$39,243.825	$21,630.206	353.4	273.2
2031	$62,319.524	$31,373.055	$60,431.821	$32,504.881	$41,580.124	$22,364.989	358.4	276.8
2032	$65,620.806	$32,217.880	$64,055.746	$33,624.394	$44,031.171	$23,113.015	363.2	280.3
2033	$69,037.495	$33,065.236	$67,859.468	$34,764.838	$46,600.939	$23,873.959	368.0	283.8
2034	$72,569.388	$33,914.080	$71,849.333	$35,925.747	$49,293.437	$24,647.460	372.6	287.1
2035	$76,215.960	$34,763.339	$76,031.748	$37,106.608	$52,112.695	$25,433.130	377.2	290.4
2036	$79,976.319	$35,611.911	$80,413.164	$38,306.860	$55,062.757	$26,230.548	381.6	293.6
2037	$83,849.218	$36,458.673	$85,000.067	$39,525.895	$58,147.676	$27,039.261	386.0	296.7
2038	$87,833.055	$37,302.478	$89,798.964	$40,763.055	$61,371.505	$27,858.785	390.2	299.7
2039	$91,925.858	$38,142.158	$94,816.370	$42,017.633	$64,738.284	$28,688.606	394.3	302.6
2040	$96,125.282	$38,976.533	$100,058.795	$43,288.875	$68,252.033	$29,528.176	398.2	305.4

Historical and Projected Values for Key Economic Indicators for the Corpus Christi Metropolitan Statistical Area*

Date	Texas Consumer Price Index	Gross Product Deflator	Population	Industrial Production Index	Labor Productivity	Retail Sales	Real Retail Sales
2001	91.3	83.6	401.3	95.9	$68,210	N/A	N/A
2002	92.1	83.9	402.9	106.2	$71,006	$4,695.754	$5,099.405
2003	94.4	88.5	403.5	104.4	$72,695	$4,984.241	$5,280.222
2004	96.6	92.1	406.8	118.5	$76,782	$5,502.712	$5,693.693
2005	100.0	100.0	410.3	100.0	$73,065	$4,681.347	$4,681.347
2006	102.9	105.8	411.9	116.8	$75,129	$4,733.741	$4,602.199
2007	104.6	111.2	411.5	131.1	$78,435	$7,051.068	$6,738.961
2008	108.7	115.1	413.2	111.4	$74,888	$6,339.899	$5,834.107
2009	108.5	108.4	416.1	121.8	$76,456	$4,606.507	$4,246.168
2010	109.8	112.7	419.6	133.5	$79,510	$4,933.781	$4,492.258
2011	113.3	114.9	423.0	146.4	$82,151	$5,243.352	$4,629.126
2012	116.1	117.9	426.4	154.1	$83,889	$5,585.117	$4,810.050
2013	118.9	121.2	429.6	161.1	$85,488	$5,961.601	$5,011.966
2014	122.0	124.9	432.6	167.9	$87,020	$6,378.932	$5,229.356
2015	125.1	128.6	435.5	174.5	$88,514	$6,821.702	$5,453.408
2016	128.3	132.5	438.5	180.9	$90,002	$7,291.170	$5,684.174
2017	131.5	136.3	441.4	187.2	$91,482	$7,788.635	$5,921.699
2018	134.9	140.3	444.3	193.6	$92,990	$8,315.440	$6,166.019
2019	138.3	144.3	447.2	200.1	$94,514	$8,872.964	$6,417.162
2020	141.8	148.4	450.0	206.8	$96,052	$9,462.632	$6,675.146
2021	145.3	152.6	452.8	213.5	$97,597	$10,085.904	$6,939.978
2022	149.0	156.8	455.6	220.3	$99,149	$10,744.283	$7,211.657
2023	152.7	161.1	458.4	227.2	$100,708	$11,439.307	$7,490.169
2024	156.6	165.6	461.2	234.2	$102,271	$12,172.553	$7,775.490
2025	160.5	170.0	463.9	241.2	$103,840	$12,945.634	$8,067.584
2026	164.5	174.6	466.6	248.4	$105,413	$13,760.198	$8,366.404
2027	168.6	179.3	469.3	255.5	$106,991	$14,617.924	$8,671.891
2028	172.8	184.0	472.0	262.8	$108,573	$15,520.525	$8,983.971
2029	177.0	188.8	474.6	270.1	$110,158	$16,469.743	$9,302.560
2030	181.4	193.7	477.2	277.4	$111,747	$17,467.346	$9,627.561
2031	185.9	198.6	479.8	284.8	$113,337	$18,515.128	$9,958.860
2032	190.5	203.7	482.4	292.2	$114,927	$19,614.904	$10,296.333
2033	195.2	208.8	484.9	299.6	$116,518	$20,768.511	$10,639.841
2034	200.0	214.0	487.4	307.0	$118,108	$21,977.800	$10,989.231
2035	204.9	219.2	489.9	314.5	$119,697	$23,244.637	$11,344.335
2036	209.9	224.6	492.3	321.9	$121,285	$24,570.897	$11,704.973
2037	215.0	230.0	494.7	329.4	$122,871	$25,958.461	$12,070.948
2038	220.3	235.5	497.1	336.8	$124,454	$27,409.213	$12,442.050
2039	225.7	241.0	499.4	344.2	$126,034	$28,925.034	$12,818.055
2040	231.1	246.6	501.7	351.6	$127,611	$30,507.799	$13,198.723

*** GROSS AREA PRODUCT - Millions of Dollars; REAL GROSS AREA PRODUCT - Millions of 2000 Dollars; PERSONAL INCOME (By place of residence and work) - Millions Dollars; REAL PERSONAL INCOME (By place of residence and work) - Millions of 2000 Dollars; EMPLOYMENT - Thousands of Persons; TEXAS CONSUMER PRICE INDE 2000=100; GROSS PRODUCT DEFLATOR - 2000=100; POPULATION - Thousands of Persons; INDUSTRIAL PRODUCTION INDEX - 2000=100; LABOR PRODUCTIVITY - 2000 Dollars per Employee; RETAIL SALES - Millions of Dollars; REAL RETAIL SALES - Millions of 2000 Dollars**

Historical and Projected Values for Key Economic Indicators for the Corpus Christi Metropolitan Statistical Area**

Date	Gross Area Product	Real Gross Area Product	Personal Income (by place of residence)	Real Personal Income (by place of residence)	Personal Income (by place of work)	Real Personal Income (by place of work)	Total Employment	Wage and Salary Employment
2002	4.2	3.8	3.5	2.6	4.0	3.1	0.7	-0.2
2003	8.6	3.0	5.5	2.9	6.7	4.1	1.8	0.6
2004	10.3	5.9	5.4	2.9	6.3	3.8	1.4	0.3
2005	4.9	-3.4	7.1	3.5	5.0	1.5	1.9	1.5
2006	10.8	4.7	7.3	4.4	8.2	5.2	2.0	1.8
2007	11.6	6.2	7.6	5.8	5.6	3.8	2.1	1.7
2008	1.4	-2.1	9.5	5.4	7.6	3.6	2.8	2.6
2009	-6.3	-0.5	-1.4	-1.2	-4.8	-4.7	-1.2	-2.6
2010	8.5	4.4	5.1	3.9	4.8	3.5	0.4	0.4
2011	7.6	5.6	6.1	2.9	5.6	2.4	2.2	2.2
2012	6.9	4.3	6.3	3.7	6.1	3.5	2.2	2.1
2013	7.2	4.2	6.8	4.3	6.7	4.2	2.4	2.3
2014	7.3	4.2	7.1	4.4	7.0	4.3	2.4	2.3
2015	7.1	3.9	7.0	4.3	6.9	4.2	2.3	2.2
2016	6.9	3.8	6.9	4.3	6.8	4.2	2.1	2.1
2017	6.7	3.6	6.9	4.2	6.8	4.1	2.0	1.9
2018	6.5	3.5	6.8	4.2	6.7	4.1	1.9	1.9
2019	6.4	3.5	6.8	4.1	6.7	4.0	1.9	1.8
2020	6.3	3.4	6.7	4.1	6.6	4.0	1.8	1.8
2021	6.3	3.4	6.6	4.0	6.5	3.9	1.8	1.7
2022	6.2	3.3	6.6	4.0	6.5	3.9	1.8	1.7
2023	6.1	3.2	6.5	3.9	6.4	3.8	1.7	1.6
2024	6.0	3.2	6.5	3.9	6.4	3.8	1.7	1.6
2025	5.9	3.1	6.4	3.8	6.3	3.7	1.6	1.6
2026	5.8	3.1	6.3	3.8	6.2	3.7	1.6	1.5
2027	5.7	3.0	6.3	3.7	6.2	3.6	1.6	1.5
2028	5.7	2.9	6.2	3.7	6.1	3.6	1.5	1.4
2029	5.6	2.9	6.2	3.6	6.1	3.5	1.5	1.4
2030	5.5	2.8	6.1	3.5	6.0	3.4	1.4	1.4
2031	5.4	2.8	6.1	3.5	6.0	3.4	1.4	1.3
2032	5.3	2.7	6.0	3.4	5.9	3.3	1.4	1.3
2033	5.2	2.6	5.9	3.4	5.8	3.3	1.3	1.2
2034	5.1	2.6	5.9	3.3	5.8	3.2	1.3	1.2
2035	5.0	2.5	5.8	3.3	5.7	3.2	1.2	1.1
2036	4.9	2.4	5.8	3.2	5.7	3.1	1.2	1.1
2037	4.8	2.4	5.7	3.2	5.6	3.1	1.1	1.1
2038	4.8	2.3	5.6	3.1	5.5	3.0	1.1	1.0
2039	4.7	2.3	5.6	3.1	5.5	3.0	1.0	1.0
2040	4.6	2.2	5.5	3.0	5.4	2.9	1.0	0.9

Historical and Projected Values for Key Economic Indicators for the Corpus Christi Metropolitan Statistical Area**

Date	Texas Consumer Price Index	Gross Product Deflator	Population	Industrial Production Index	Labor Productivity	Retail Sales	Real Retail Sales
2002	0.9	0.3	0.4	10.8	4.1	N/A	N/A
2003	2.5	5.5	0.1	-1.7	2.4	6.1	3.5
2004	2.4	4.1	0.8	13.5	5.6	10.4	7.8
2005	3.5	8.6	0.8	-15.6	-4.8	-14.9	-17.8
2006	2.9	5.8	0.4	16.8	2.8	1.1	-1.7
2007	1.7	5.1	-0.1	12.3	4.4	49.0	46.4
2008	3.9	3.5	0.4	-15.1	-4.5	-10.1	-13.4
2009	-0.2	-5.8	0.7	9.4	2.1	-27.3	-27.2
2010	1.2	3.9	0.8	9.7	4.0	7.1	5.8
2011	3.1	2.0	0.8	9.6	3.3	6.3	3.0
2012	2.5	2.6	0.8	5.3	2.1	6.5	3.9
2013	2.4	2.9	0.7	4.5	1.9	6.7	4.2
2014	2.6	3.0	0.7	4.2	1.8	7.0	4.3
2015	2.5	3.0	0.7	3.9	1.7	6.9	4.3
2016	2.5	3.0	0.7	3.7	1.7	6.9	4.2
2017	2.5	2.9	0.7	3.5	1.6	6.8	4.2
2018	2.5	2.9	0.7	3.4	1.6	6.8	4.1
2019	2.5	2.9	0.6	3.4	1.6	6.7	4.1
2020	2.5	2.8	0.6	3.3	1.6	6.6	4.0
2021	2.5	2.8	0.6	3.3	1.6	6.6	4.0
2022	2.5	2.8	0.6	3.2	1.6	6.5	3.9
2023	2.5	2.8	0.6	3.1	1.6	6.5	3.9
2024	2.5	2.7	0.6	3.1	1.6	6.4	3.8
2025	2.5	2.7	0.6	3.0	1.5	6.4	3.8
2026	2.5	2.7	0.6	3.0	1.5	6.3	3.7
2027	2.5	2.7	0.6	2.9	1.5	6.2	3.7
2028	2.5	2.6	0.6	2.8	1.5	6.2	3.6
2029	2.5	2.6	0.6	2.8	1.5	6.1	3.5
2030	2.5	2.6	0.5	2.7	1.4	6.1	3.5
2031	2.5	2.6	0.5	2.7	1.4	6.0	3.4
2032	2.5	2.5	0.5	2.6	1.4	5.9	3.4
2033	2.5	2.5	0.5	2.5	1.4	5.9	3.3
2034	2.5	2.5	0.5	2.5	1.4	5.8	3.3
2035	2.5	2.5	0.5	2.4	1.3	5.8	3.2
2036	2.4	2.4	0.5	2.4	1.3	5.7	3.2
2037	2.4	2.4	0.5	2.3	1.3	5.6	3.1
2038	2.4	2.4	0.5	2.3	1.3	5.6	3.1
2039	2.4	2.4	0.5	2.2	1.3	5.5	3.0
2040	2.4	2.3	0.5	2.1	1.3	5.5	3.0

**Percent Change

Historical and Projected Values for Key Measures of Per Capita Economic Performance for the Corpus Christi Metropolitan Statistical Area

Date	Per Capita Gross Area Product*	Per Capita Real Gross Area Product*	Per Capita Personal Income (by place of residence)*	Per Capita Real Personal Income (by place of residence)*	Per Capita Retail Sales*	Per Capita Real Retail Sales*
2001	$25.625	$30.639	$24.659	$27.006	N/A	N/A
2002	$26.587	$31.694	$25.421	$27.607	$11.656	$12.658
2003	$28.839	$32.600	$26.782	$28.372	$12.354	$13.087
2004	$31.550	$34.249	$27.992	$28.963	$13.526	$13.995
2005	$32.811	$32.811	$29.740	$29.740	$11.411	$11.411
2006	$36.211	$34.218	$31.796	$30.912	$11.493	$11.173
2007	$40.435	$36.370	$34.253	$32.737	$17.134	$16.375
2008	$40.826	$35.476	$37.339	$34.361	$15.343	$14.119
2009	$37.983	$35.042	$36.558	$33.698	$11.071	$10.205
2010	$40.876	$36.280	$38.121	$34.709	$11.759	$10.707
2011	$43.649	$37.992	$40.121	$35.421	$12.397	$10.944
2012	$46.301	$39.287	$42.319	$36.446	$13.097	$11.280
2013	$49.287	$40.655	$44.863	$37.717	$13.877	$11.667
2014	$52.515	$42.058	$47.696	$39.100	$14.746	$12.088
2015	$55.858	$43.421	$50.688	$40.521	$15.662	$12.521
2016	$59.287	$44.761	$53.843	$41.975	$16.628	$12.963
2017	$62.814	$46.071	$57.167	$43.464	$17.646	$13.416
2018	$66.484	$47.392	$60.668	$44.986	$18.717	$13.879
2019	$70.301	$48.717	$64.354	$46.542	$19.843	$14.351
2020	$74.285	$50.060	$68.232	$48.132	$21.028	$14.833
2021	$78.440	$51.415	$72.310	$49.755	$22.273	$15.326
2022	$82.768	$52.783	$76.596	$51.412	$23.580	$15.827
2023	$87.273	$54.160	$81.098	$53.101	$24.953	$16.339
2024	$91.957	$55.546	$85.825	$54.823	$26.394	$16.860
2025	$96.821	$56.940	$90.785	$56.576	$27.904	$17.390
2026	$101.868	$58.340	$95.988	$58.362	$29.487	$17.929
2027	$107.099	$59.745	$101.441	$60.178	$31.146	$18.477
2028	$112.516	$61.154	$107.154	$62.025	$32.883	$19.034
2029	$118.118	$62.564	$113.136	$63.902	$34.700	$19.599
2030	$123.906	$63.975	$119.397	$65.808	$36.600	$20.173
2031	$129.879	$65.384	$125.945	$67.743	$38.587	$20.755
2032	$136.035	$66.789	$132.791	$69.705	$40.663	$21.345
2033	$142.373	$68.189	$139.943	$71.694	$42.830	$21.942
2034	$148.890	$69.581	$147.412	$73.708	$45.092	$22.546
2035	$155.584	$70.964	$155.208	$75.748	$47.451	$23.158
2036	$162.453	$72.337	$163.340	$77.811	$49.910	$23.776
2037	$169.491	$73.697	$171.818	$79.897	$52.472	$24.400
2038	$176.696	$75.043	$180.651	$82.004	$55.140	$25.030
2039	$184.063	$76.372	$189.850	$84.132	$57.916	$25.666
2040	$191.585	$77.683	$199.425	$86.278	$60.804	$26.306

*** PER CAPITA GROSS AREA PRODUCT - Dollars per Person; PER CAPITA REAL GROSS AREA PRODUCT - 2000 Dollars per Person; PER CAPITA PERSONAL INCOME (By place of residence) - Dollars per Person; PER CAPITA REAL PERSONAL INCOME (By place of residence) - 2000 Dollars per Person; PER CAPITA RETAIL SALES - Dollars per Person; PER CAPITA REAL RETAIL SALES - 2000 Dollars per Person**

Historical and Projected Values for Key Measures of Per Capita Economic Performance for the Corpus Christi Metropolitan Statistical Area

Date	Per Capita Gross Area Product**	Per Capita Real Gross Area Product**	Per Capita Personal Income (by place of residence)**	Per Capita Real Personal Income (by place of residence)**	Per Capita Retail Sales**	Per Capita Real Retail Sales**
2002	3.8	3.4	3.1	2.2	N/A	N/A
2003	8.5	2.9	5.4	2.8	6.0	3.4
2004	9.4	5.1	4.5	2.1	9.5	6.9
2005	4.0	(4.2)	6.2	2.7	(15.6)	(18.5)
2006	10.4	4.3	6.9	3.9	0.7	(2.1)
2007	11.7	6.3	7.7	5.9	49.1	46.6
2008	1.0	(2.5)	9.0	5.0	(10.5)	(13.8)
2009	(7.0)	(1.2)	(2.1)	(1.9)	(27.8)	(27.7)
2010	7.6	3.5	4.3	3.0	6.2	4.9
2011	6.8	4.7	5.2	2.1	5.4	2.2
2012	6.1	3.4	5.5	2.9	5.6	3.1
2013	6.5	3.5	6.0	3.5	6.0	3.4
2014	6.5	3.4	6.3	3.7	6.3	3.6
2015	6.4	3.2	6.3	3.6	6.2	3.6
2016	6.1	3.1	6.2	3.6	6.2	3.5
2017	5.9	2.9	6.2	3.5	6.1	3.5
2018	5.8	2.9	6.1	3.5	6.1	3.4
2019	5.7	2.8	6.1	3.5	6.0	3.4
2020	5.7	2.8	6.0	3.4	6.0	3.4
2021	5.6	2.7	6.0	3.4	5.9	3.3
2022	5.5	2.7	5.9	3.3	5.9	3.3
2023	5.4	2.6	5.9	3.3	5.8	3.2
2024	5.4	2.6	5.8	3.2	5.8	3.2
2025	5.3	2.5	5.8	3.2	5.7	3.1
2026	5.2	2.5	5.7	3.2	5.7	3.1
2027	5.1	2.4	5.7	3.1	5.6	3.1
2028	5.1	2.4	5.6	3.1	5.6	3.0
2029	5.0	2.3	5.6	3.0	5.5	3.0
2030	4.9	2.3	5.5	3.0	5.5	2.9
2031	4.8	2.2	5.5	2.9	5.4	2.9
2032	4.7	2.1	5.4	2.9	5.4	2.8
2033	4.7	2.1	5.4	2.9	5.3	2.8
2034	4.6	2.0	5.3	2.8	5.3	2.8
2035	4.5	2.0	5.3	2.8	5.2	2.7
2036	4.4	1.9	5.2	2.7	5.2	2.7
2037	4.3	1.9	5.2	2.7	5.1	2.6
2038	4.3	1.8	5.1	2.6	5.1	2.6
2039	4.2	1.8	5.1	2.6	5.0	2.5
2040	4.1	1.7	5.0	2.6	5.0	2.5

**Percent Change

Historical and Projected Values for Nominal Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2001	$56.477	$393.470	$769.082	$1,421.505	$397.808	$1,023.697	$1,425.513	$526.057
2002	$60.113	$368.009	$864.605	$1,458.741	$369.519	$1,089.222	$1,425.740	$612.802
2003	$164.833	$597.476	$913.505	$1,440.474	$335.890	$1,104.584	$1,517.630	$649.439
2004	$232.461	$699.027	$932.700	$1,851.405	$381.497	$1,469.908	$1,637.264	$685.065
2005	$120.263	$989.543	$1,100.936	$1,643.714	$367.784	$1,275.930	$1,802.233	$716.974
2006	$39.725	$1,081.845	$1,287.225	$2,607.704	$459.335	$2,148.369	$1,850.383	$643.333
2007	$147.527	$1,393.212	$1,408.584	$3,178.584	$471.066	$2,707.518	$1,939.309	$677.358
2008	$249.269	$1,826.498	$1,538.799	$2,280.643	$527.979	$1,752.664	$1,987.155	$731.042
2009	$52.470	$1,237.975	$1,368.078	$2,162.854	$438.511	$1,724.343	$1,888.309	$711.525
2010	$52.218	$1,850.673	$1,303.473	$2,327.761	$447.347	$1,880.415	$1,925.500	$721.334
2011	$51.908	$2,243.214	$1,405.034	$2,493.929	$481.182	$2,012.747	$2,037.703	$753.058
2012	$53.950	$2,445.448	$1,500.762	$2,686.912	$513.371	$2,173.542	$2,164.196	$790.526
2013	$56.235	$2,644.356	$1,603.850	$2,885.632	$546.027	$2,339.605	$2,313.266	$842.542
2014	$58.815	$2,865.710	$1,710.531	$3,086.984	$577.955	$2,509.029	$2,481.198	$898.909
2015	$61.488	$3,104.495	$1,820.711	$3,288.775	$609.813	$2,678.963	$2,656.094	$956.341
2016	$64.257	$3,338.755	$1,931.446	$3,499.368	$641.763	$2,857.605	$2,838.820	$1,014.721
2017	$67.125	$3,574.747	$2,044.126	$3,720.696	$674.132	$3,046.564	$3,019.402	$1,073.437
2018	$70.093	$3,822.537	$2,159.378	$3,952.257	$705.939	$3,246.318	$3,205.741	$1,133.644
2019	$73.163	$4,082.288	$2,275.056	$4,195.966	$738.605	$3,457.360	$3,397.721	$1,196.535
2020	$76.337	$4,354.132	$2,395.736	$4,452.584	$772.387	$3,680.196	$3,598.249	$1,262.183
2021	$79.617	$4,638.159	$2,521.763	$4,722.647	$807.299	$3,915.348	$3,807.492	$1,330.660
2022	$83.006	$4,934.419	$2,653.250	$5,006.704	$843.356	$4,163.348	$4,025.604	$1,402.037
2023	$86.505	$5,242.917	$2,790.275	$5,305.315	$880.572	$4,424.744	$4,252.725	$1,476.383
2024	$90.115	$5,563.612	$2,933.047	$5,619.053	$918.958	$4,700.095	$4,488.982	$1,553.765
2025	$93.839	$5,896.411	$3,081.623	$5,948.500	$958.525	$4,989.975	$4,734.484	$1,634.250
2026	$97.678	$6,241.170	$3,236.220	$6,294.249	$999.284	$5,294.966	$4,989.324	$1,717.901
2027	$101.635	$6,597.690	$3,396.960	$6,656.905	$1,041.241	$5,615.663	$5,253.576	$1,804.779
2028	$105.709	$6,965.716	$3,564.192	$7,037.079	$1,084.405	$5,952.674	$5,527.295	$1,894.941
2029	$109.904	$7,344.931	$3,737.855	$7,435.391	$1,128.779	$6,306.612	$5,810.513	$1,988.442
2030	$114.220	$7,734.963	$3,918.246	$7,852.471	$1,174.368	$6,678.104	$6,103.242	$2,085.334
2031	$118.659	$8,135.374	$4,105.009	$8,288.953	$1,221.172	$7,067.781	$6,405.471	$2,185.663
2032	$123.222	$8,545.667	$4,297.763	$8,745.477	$1,269.191	$7,476.286	$6,717.161	$2,289.476
2033	$127.909	$8,965.280	$4,496.521	$9,222.687	$1,318.424	$7,904.264	$7,038.251	$2,396.810
2034	$132.723	$9,393.589	$4,701.286	$9,721.233	$1,368.865	$8,352.367	$7,368.653	$2,507.701
2035	$137.663	$9,829.907	$4,912.048	$10,241.763	$1,420.510	$8,821.254	$7,708.249	$2,622.179
2036	$142.731	$10,273.466	$5,128.785	$10,784.896	$1,473.348	$9,311.548	$8,056.895	$2,740.278
2037	$147.928	$10,723.435	$5,351.459	$11,351.240	$1,527.370	$9,823.870	$8,414.417	$2,862.029
2038	$153.254	$11,178.920	$5,580.021	$11,941.395	$1,582.561	$10,358.835	$8,780.613	$2,987.456
2039	$158.710	$11,638.965	$5,814.405	$12,555.950	$1,638.905	$10,917.045	$9,155.249	$3,116.583
2040	$164.296	$12,102.557	$6,054.534	$13,195.478	$1,696.385	$11,499.093	$9,538.058	$3,249.427

*Millions of Dollars

Historical and Projected Values for Nominal Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2002	6.4	-6.5	12.4	2.6	-7.1	6.4	0.0	16.5
2003	174.2	62.4	5.7	-1.3	-9.1	1.4	6.4	6.0
2004	41.0	17.0	2.1	28.5	13.6	33.1	7.9	5.5
2005	-48.3	41.6	18.0	-11.2	-3.6	-13.2	10.1	4.7
2006	-67.0	9.3	16.9	58.6	24.9	68.4	2.7	-10.3
2007	271.4	28.8	9.4	21.9	2.6	26.0	4.8	5.3
2008	69.0	31.1	9.2	-28.2	12.1	-35.3	2.5	7.9
2009	-79.0	-32.2	-11.1	-5.2	-16.9	-1.6	-5.0	-2.7
2010	-0.5	49.5	-4.7	7.6	2.0	9.1	2.0	1.4
2011	-0.6	21.2	7.8	7.1	7.6	7.0	5.8	4.4
2012	3.9	9.0	6.8	7.7	6.7	8.0	6.2	5.0
2013	4.2	8.1	6.9	7.4	6.4	7.6	6.9	6.6
2014	4.6	8.4	6.7	7.0	5.8	7.2	7.3	6.7
2015	4.5	8.3	6.4	6.5	5.5	6.8	7.0	6.4
2016	4.5	7.5	6.1	6.4	5.2	6.7	6.9	6.1
2017	4.5	7.1	5.8	6.3	5.0	6.6	6.4	5.8
2018	4.4	6.9	5.6	6.2	4.7	6.6	6.2	5.6
2019	4.4	6.8	5.4	6.2	4.6	6.5	6.0	5.5
2020	4.3	6.7	5.3	6.1	4.6	6.4	5.9	5.5
2021	4.3	6.5	5.3	6.1	4.5	6.4	5.8	5.4
2022	4.3	6.4	5.2	6.0	4.5	6.3	5.7	5.4
2023	4.2	6.3	5.2	6.0	4.4	6.3	5.6	5.3
2024	4.2	6.1	5.1	5.9	4.4	6.2	5.6	5.2
2025	4.1	6.0	5.1	5.9	4.3	6.2	5.5	5.2
2026	4.1	5.8	5.0	5.8	4.3	6.1	5.4	5.1
2027	4.1	5.7	5.0	5.8	4.2	6.1	5.3	5.1
2028	4.0	5.6	4.9	5.7	4.1	6.0	5.2	5.0
2029	4.0	5.4	4.9	5.7	4.1	5.9	5.1	4.9
2030	3.9	5.3	4.8	5.6	4.0	5.9	5.0	4.9
2031	3.9	5.2	4.8	5.6	4.0	5.8	5.0	4.8
2032	3.8	5.0	4.7	5.5	3.9	5.8	4.9	4.7
2033	3.8	4.9	4.6	5.5	3.9	5.7	4.8	4.7
2034	3.8	4.8	4.6	5.4	3.8	5.7	4.7	4.6
2035	3.7	4.6	4.5	5.4	3.8	5.6	4.6	4.6
2036	3.7	4.5	4.4	5.3	3.7	5.6	4.5	4.5
2037	3.6	4.4	4.3	5.3	3.7	5.5	4.4	4.4
2038	3.6	4.2	4.3	5.2	3.6	5.4	4.4	4.4
2039	3.6	4.1	4.2	5.1	3.6	5.4	4.3	4.3
2040	3.5	4.0	4.1	5.1	3.5	5.3	4.2	4.3

*Percent Change

Historical and Projected Values for Nominal Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2001	$311.617	$957.547	$2,491.072	$1,930.448	$10,282.788
2002	$313.064	$933.340	$2,619.431	$2,054.827	$10,710.672
2003	$317.101	$1,079.289	$2,814.864	$2,140.896	$11,635.507
2004	$356.694	$1,093.882	$3,030.695	$2,316.553	$12,835.746
2005	$346.242	$1,143.247	$3,158.269	$2,439.269	$13,460.690
2006	$329.284	$1,211.445	$3,301.554	$2,562.509	$14,915.007
2007	$335.511	$1,326.595	$3,548.083	$2,685.299	$16,640.062
2008	$324.172	$1,457.398	$3,713.644	$2,760.922	$16,869.542
2009	$321.563	$1,446.936	$3,781.040	$2,833.753	$15,804.503
2010	$321.664	$1,480.901	$4,012.512	$3,154.333	$17,150.369
2011	$327.986	$1,545.521	$4,346.611	$3,257.092	$18,462.055
2012	$341.956	$1,635.772	$4,733.148	$3,391.865	$19,744.535
2013	$361.451	$1,744.055	$5,154.099	$3,568.123	$21,173.608
2014	$383.643	$1,854.154	$5,593.404	$3,784.459	$22,717.807
2015	$408.335	$1,966.584	$6,061.041	$4,004.765	$24,328.630
2016	$433.415	$2,084.314	$6,555.285	$4,235.742	$25,996.123
2017	$459.570	$2,207.482	$7,081.127	$4,477.765	$27,725.477
2018	$486.812	$2,336.226	$7,639.760	$4,731.211	$29,537.658
2019	$515.150	$2,470.675	$8,232.344	$4,996.463	$31,435.360
2020	$544.587	$2,610.956	$8,860.003	$5,273.903	$33,428.670
2021	$575.126	$2,757.189	$9,523.810	$5,563.919	$35,520.383
2022	$606.764	$2,909.488	$10,224.782	$5,866.898	$37,712.953
2023	$639.497	$3,067.957	$10,963.871	$6,183.230	$40,008.677
2024	$673.317	$3,232.695	$11,741.951	$6,513.304	$42,409.842
2025	$708.210	$3,403.791	$12,559.812	$6,857.506	$44,918.426
2026	$744.160	$3,581.323	$13,418.145	$7,216.225	$47,536.396
2027	$781.146	$3,765.362	$14,317.538	$7,589.842	$50,265.432
2028	$819.143	$3,955.963	$15,258.459	$7,978.739	$53,107.236
2029	$858.121	$4,153.174	$16,241.253	$8,383.291	$56,062.877
2030	$898.048	$4,357.028	$17,266.125	$8,803.868	$59,133.545
2031	$938.884	$4,567.544	$18,333.135	$9,240.832	$62,319.524
2032	$980.586	$4,784.730	$19,442.185	$9,694.540	$65,620.806
2033	$1,023.107	$5,008.577	$20,593.014	$10,165.338	$69,037.495
2034	$1,066.395	$5,239.061	$21,785.184	$10,653.562	$72,569.388
2035	$1,110.393	$5,476.143	$23,018.077	$11,159.537	$76,215.960
2036	$1,155.040	$5,719.767	$24,290.886	$11,683.575	$79,976.319
2037	$1,200.270	$5,969.859	$25,602.609	$12,225.973	$83,849.218
2038	$1,246.014	$6,226.327	$26,952.039	$12,787.015	$87,833.055
2039	$1,292.199	$6,489.064	$28,337.767	$13,366.967	$91,925.858
2040	$1,338.745	$6,757.939	$29,758.171	$13,966.078	$96,125.282

*Millions of Dollars

Historical and Projected Values for Nominal Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2002	0.5	-2.5	5.2	6.4	4.2
2003	1.3	15.6	7.5	4.2	8.6
2004	12.5	1.4	7.7	8.2	10.3
2005	-2.9	4.5	4.2	5.3	4.9
2006	-4.9	6.0	4.5	5.1	10.8
2007	1.9	9.5	7.5	4.8	11.6
2008	-3.4	9.9	4.7	2.8	1.4
2009	-0.8	-0.7	1.8	2.6	-6.3
2010	0.0	2.3	6.1	11.3	8.5
2011	2.0	4.4	8.3	3.3	7.6
2012	4.3	5.8	8.9	4.1	6.9
2013	5.7	6.6	8.9	5.2	7.2
2014	6.1	6.3	8.5	6.1	7.3
2015	6.4	6.1	8.4	5.8	7.1
2016	6.1	6.0	8.2	5.8	6.9
2017	6.0	5.9	8.0	5.7	6.7
2018	5.9	5.8	7.9	5.7	6.5
2019	5.8	5.8	7.8	5.6	6.4
2020	5.7	5.7	7.6	5.6	6.3
2021	5.6	5.6	7.5	5.5	6.3
2022	5.5	5.5	7.4	5.4	6.2
2023	5.4	5.4	7.2	5.4	6.1
2024	5.3	5.4	7.1	5.3	6.0
2025	5.2	5.3	7.0	5.3	5.9
2026	5.1	5.2	6.8	5.2	5.8
2027	5.0	5.1	6.7	5.2	5.7
2028	4.9	5.1	6.6	5.1	5.7
2029	4.8	5.0	6.4	5.1	5.6
2030	4.7	4.9	6.3	5.0	5.5
2031	4.5	4.8	6.2	5.0	5.4
2032	4.4	4.8	6.0	4.9	5.3
2033	4.3	4.7	5.9	4.9	5.2
2034	4.2	4.6	5.8	4.8	5.1
2035	4.1	4.5	5.7	4.7	5.0
2036	4.0	4.4	5.5	4.7	4.9
2037	3.9	4.4	5.4	4.6	4.8
2038	3.8	4.3	5.3	4.6	4.8
2039	3.7	4.2	5.1	4.5	4.7
2040	3.6	4.1	5.0	4.5	4.6

*Percent Change

Historical and Projected Values for Real Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2001	$57.199	$900.598	$1,003.766	$1,749.795	$440.408	$1,309.387	$1,531.936	$560.958
2002	$64.831	$937.921	$1,080.763	$1,970.308	$405.696	$1,564.612	$1,532.859	$650.086
2003	$164.758	$1,045.053	$1,096.695	$1,773.103	$380.453	$1,392.650	$1,617.285	$680.951
2004	$200.394	$1,052.887	$1,042.757	$2,220.870	$405.502	$1,815.368	$1,698.966	$697.674
2005	$120.263	$989.543	$1,100.936	$1,643.714	$367.784	$1,275.930	$1,802.233	$716.974
2006	$39.118	$925.917	$1,173.966	$2,388.091	$442.270	$1,945.821	$1,802.599	$598.193
2007	$122.058	$1,116.122	$1,205.092	$2,660.904	$447.138	$2,213.766	$1,888.996	$616.343
2008	$199.107	$1,162.825	$1,308.528	$1,905.443	$503.797	$1,401.646	$1,904.011	$662.541
2009	$50.699	$1,362.510	$1,138.905	$2,127.050	$418.890	$1,708.160	$1,878.037	$590.273
2010	$52.491	$1,510.132	$1,112.854	$2,364.182	$441.279	$1,922.903	$1,913.801	$599.818
2011	$51.881	$1,759.903	$1,201.175	$2,518.365	$479.221	$2,039.144	$2,010.923	$625.294
2012	$53.008	$1,854.302	$1,254.075	$2,663.164	$510.263	$2,152.901	$2,098.680	$646.697
2013	$53.744	$1,935.666	$1,304.791	$2,781.372	$538.317	$2,243.055	$2,198.335	$679.265
2014	$54.899	$2,020.948	$1,350.638	$2,891.395	$563.998	$2,327.396	$2,309.747	$712.756
2015	$56.059	$2,108.944	$1,392.782	$2,992.612	$589.693	$2,402.919	$2,417.981	$744.727
2016	$57.224	$2,181.591	$1,431.986	$3,102.018	$615.296	$2,486.722	$2,528.092	$777.028
2017	$58.392	$2,249.401	$1,469.513	$3,214.595	$641.182	$2,573.412	$2,627.927	$808.153
2018	$59.564	$2,319.357	$1,505.740	$3,327.562	$665.643	$2,661.919	$2,730.229	$839.547
2019	$60.738	$2,389.435	$1,538.807	$3,443.700	$691.476	$2,752.225	$2,832.226	$872.081
2020	$61.914	$2,459.518	$1,572.950	$3,562.485	$718.178	$2,844.307	$2,937.098	$905.399
2021	$63.091	$2,529.484	$1,607.546	$3,683.750	$745.610	$2,938.140	$3,043.933	$939.495
2022	$64.267	$2,599.207	$1,642.553	$3,807.472	$773.777	$3,033.695	$3,152.666	$974.361
2023	$65.443	$2,668.560	$1,677.912	$3,933.623	$802.682	$3,130.941	$3,263.224	$1,009.988
2024	$66.618	$2,737.411	$1,713.647	$4,062.173	$832.331	$3,229.842	$3,375.530	$1,046.367
2025	$67.790	$2,805.629	$1,749.689	$4,193.085	$862.725	$3,330.360	$3,489.501	$1,083.486
2026	$68.958	$2,873.079	$1,786.067	$4,326.320	$893.867	$3,432.453	$3,605.045	$1,121.330
2027	$70.122	$2,939.625	$1,822.751	$4,461.834	$925.758	$3,536.076	$3,722.067	$1,159.884
2028	$71.281	$3,005.131	$1,859.834	$4,599.578	$958.399	$3,641.178	$3,840.466	$1,199.132
2029	$72.435	$3,069.460	$1,897.190	$4,739.499	$991.790	$3,747.709	$3,960.133	$1,239.055
2030	$73.581	$3,132.476	$1,934.882	$4,881.539	$1,025.928	$3,855.611	$4,080.955	$1,279.633
2031	$74.719	$3,194.041	$1,972.651	$5,025.638	$1,060.813	$3,964.825	$4,202.812	$1,320.844
2032	$75.849	$3,254.020	$2,010.254	$5,171.728	$1,096.439	$4,075.289	$4,325.579	$1,362.663
2033	$76.969	$3,312.281	$2,047.654	$5,319.738	$1,132.804	$4,186.935	$4,449.126	$1,405.066
2034	$78.078	$3,368.691	$2,084.813	$5,469.594	$1,169.900	$4,299.694	$4,573.317	$1,448.026
2035	$79.176	$3,423.120	$2,121.693	$5,621.215	$1,207.723	$4,413.491	$4,698.012	$1,491.512
2036	$80.262	$3,475.444	$2,158.255	$5,774.516	$1,246.265	$4,528.252	$4,823.064	$1,535.496
2037	$81.334	$3,525.539	$2,194.462	$5,929.410	$1,285.516	$4,643.894	$4,948.323	$1,579.943
2038	$82.391	$3,573.287	$2,230.274	$6,085.802	$1,325.466	$4,760.336	$5,073.636	$1,624.821
2039	$83.434	$3,618.572	$2,265.653	$6,243.595	$1,366.106	$4,877.489	$5,198.842	$1,670.094
2040	$84.460	$3,661.287	$2,300.560	$6,402.687	$1,407.421	$4,995.265	$5,323.781	$1,715.724

*Millions of 2000 Dollars

Historical and Projected Values for Real Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2002	13.3	4.1	7.7	12.6	-7.9	19.5	0.1	15.9
2003	154.1	11.4	1.5	-10.0	-6.2	-11.0	5.5	4.7
2004	21.6	0.7	-4.9	25.3	6.6	30.4	5.1	2.5
2005	-40.0	-6.0	5.6	-26.0	-9.3	-29.7	6.1	2.8
2006	-67.5	-6.4	6.6	45.3	20.3	52.5	0.0	-16.6
2007	212.0	20.5	2.7	11.4	1.1	13.8	4.8	3.0
2008	63.1	4.2	8.6	-28.4	12.7	-36.7	0.8	7.5
2009	-74.5	17.2	-13.0	11.6	-16.9	21.9	-1.4	-10.9
2010	3.5	10.8	-2.3	11.1	5.3	12.6	1.9	1.6
2011	-1.2	16.5	7.9	6.5	8.6	6.0	5.1	4.2
2012	2.2	5.4	4.4	5.7	6.5	5.6	4.4	3.4
2013	1.4	4.4	4.0	4.4	5.5	4.2	4.7	5.0
2014	2.1	4.4	3.5	4.0	4.8	3.8	5.1	4.9
2015	2.1	4.4	3.1	3.5	4.6	3.2	4.7	4.5
2016	2.1	3.4	2.8	3.7	4.3	3.5	4.6	4.3
2017	2.0	3.1	2.6	3.6	4.2	3.5	3.9	4.0
2018	2.0	3.1	2.5	3.5	3.8	3.4	3.9	3.9
2019	2.0	3.0	2.2	3.5	3.9	3.4	3.7	3.9
2020	1.9	2.9	2.2	3.4	3.9	3.3	3.7	3.8
2021	1.9	2.8	2.2	3.4	3.8	3.3	3.6	3.8
2022	1.9	2.8	2.2	3.4	3.8	3.3	3.6	3.7
2023	1.8	2.7	2.2	3.3	3.7	3.2	3.5	3.7
2024	1.8	2.6	2.1	3.3	3.7	3.2	3.4	3.6
2025	1.8	2.5	2.1	3.2	3.7	3.1	3.4	3.5
2026	1.7	2.4	2.1	3.2	3.6	3.1	3.3	3.5
2027	1.7	2.3	2.1	3.1	3.6	3.0	3.2	3.4
2028	1.7	2.2	2.0	3.1	3.5	3.0	3.2	3.4
2029	1.6	2.1	2.0	3.0	3.5	2.9	3.1	3.3
2030	1.6	2.1	2.0	3.0	3.4	2.9	3.1	3.3
2031	1.5	2.0	2.0	3.0	3.4	2.8	3.0	3.2
2032	1.5	1.9	1.9	2.9	3.4	2.8	2.9	3.2
2033	1.5	1.8	1.9	2.9	3.3	2.7	2.9	3.1
2034	1.4	1.7	1.8	2.8	3.3	2.7	2.8	3.1
2035	1.4	1.6	1.8	2.8	3.2	2.6	2.7	3.0
2036	1.4	1.5	1.7	2.7	3.2	2.6	2.7	2.9
2037	1.3	1.4	1.7	2.7	3.1	2.6	2.6	2.9
2038	1.3	1.4	1.6	2.6	3.1	2.5	2.5	2.8
2039	1.3	1.3	1.6	2.6	3.1	2.5	2.5	2.8
2040	1.2	1.2	1.5	2.5	3.0	2.4	2.4	2.7

*Percent Change

Historical and Projected Values for Real Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2001	$296.203	$1,069.462	$2,800.753	$2,324.036	$12,294.706
2002	$296.375	$1,010.184	$2,857.974	$2,366.737	$12,768.038
2003	$302.583	$1,133.721	$2,996.494	$2,342.238	$13,152.881
2004	$349.119	$1,117.565	$3,128.659	$2,424.843	$13,933.734
2005	$346.242	$1,143.247	$3,158.269	$2,439.269	$13,460.690
2006	$335.575	$1,187.699	$3,199.303	$2,443.371	$14,093.832
2007	$347.088	$1,277.703	$3,291.850	$2,441.014	$14,967.170
2008	$340.820	$1,364.273	$3,372.445	$2,438.730	$14,658.723
2009	$337.436	$1,341.435	$3,305.876	$2,448.467	$14,580.688
2010	$342.815	$1,351.242	$3,452.031	$2,522.523	$15,221.888
2011	$352.896	$1,384.652	$3,643.191	$2,520.865	$16,069.146
2012	$366.540	$1,427.804	$3,846.049	$2,543.078	$16,753.396
2013	$384.588	$1,486.952	$4,054.619	$2,586.017	$17,465.350
2014	$405.424	$1,541.583	$4,256.910	$2,649.818	$18,194.118
2015	$428.553	$1,594.941	$4,465.906	$2,709.285	$18,911.792
2016	$451.310	$1,649.918	$4,677.303	$2,770.156	$19,626.626
2017	$475.085	$1,705.796	$4,894.984	$2,831.475	$20,335.321
2018	$499.724	$1,762.538	$5,118.122	$2,893.210	$21,055.592
2019	$525.232	$1,820.106	$5,346.548	$2,955.331	$21,784.204
2020	$551.612	$1,878.459	$5,580.073	$3,017.805	$22,527.314
2021	$578.866	$1,937.554	$5,818.484	$3,080.599	$23,282.801
2022	$606.994	$1,997.342	$6,061.546	$3,143.678	$24,050.086
2023	$635.994	$2,057.776	$6,309.000	$3,207.008	$24,828.528
2024	$665.860	$2,118.802	$6,560.563	$3,270.552	$25,617.524
2025	$696.586	$2,180.367	$6,815.933	$3,334.272	$26,416.338
2026	$728.163	$2,242.413	$7,074.783	$3,398.131	$27,224.288
2027	$760.579	$2,304.880	$7,336.762	$3,462.090	$28,040.595
2028	$793.820	$2,367.707	$7,601.500	$3,526.108	$28,864.557
2029	$827.868	$2,430.830	$7,868.604	$3,590.145	$29,695.219
2030	$862.705	$2,494.180	$8,137.663	$3,654.160	$30,531.773
2031	$898.308	$2,557.690	$8,408.242	$3,718.110	$31,373.055
2032	$934.653	$2,621.289	$8,679.892	$3,781.954	$32,217.880
2033	$971.711	$2,684.903	$8,952.142	$3,845.646	$33,065.236
2034	$1,009.452	$2,748.459	$9,224.507	$3,909.144	$33,914.080
2035	$1,047.843	$2,811.879	$9,496.486	$3,972.403	$34,763.339
2036	$1,086.848	$2,875.086	$9,767.563	$4,035.377	$35,611.911
2037	$1,126.427	$2,938.001	$10,037.212	$4,098.021	$36,458.673
2038	$1,166.539	$3,000.543	$10,304.894	$4,160.291	$37,302.478
2039	$1,207.138	$3,062.630	$10,570.062	$4,222.138	$38,142.158
2040	$1,248.179	$3,124.180	$10,832.160	$4,283.517	$38,976.533

*Millions of 2000 Dollars

Historical and Projected Values for Real Gross Product by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2002	0.1	-5.5	2.0	1.8	3.8
2003	2.1	12.2	4.8	-1.0	3.0
2004	15.4	-1.4	4.4	3.5	5.9
2005	-0.8	2.3	0.9	0.6	-3.4
2006	-3.1	3.9	1.3	0.2	4.7
2007	3.4	7.6	2.9	-0.1	6.2
2008	-1.8	6.8	2.4	-0.1	-2.1
2009	-1.0	-1.7	-2.0	0.4	-0.5
2010	1.6	0.7	4.4	3.0	4.4
2011	2.9	2.5	5.5	-0.1	5.6
2012	3.9	3.1	5.6	0.9	4.3
2013	4.9	4.1	5.4	1.7	4.2
2014	5.4	3.7	5.0	2.5	4.2
2015	5.7	3.5	4.9	2.2	3.9
2016	5.3	3.4	4.7	2.2	3.8
2017	5.3	3.4	4.7	2.2	3.6
2018	5.2	3.3	4.6	2.2	3.5
2019	5.1	3.3	4.5	2.1	3.5
2020	5.0	3.2	4.4	2.1	3.4
2021	4.9	3.1	4.3	2.1	3.4
2022	4.9	3.1	4.2	2.0	3.3
2023	4.8	3.0	4.1	2.0	3.2
2024	4.7	3.0	4.0	2.0	3.2
2025	4.6	2.9	3.9	1.9	3.1
2026	4.5	2.8	3.8	1.9	3.1
2027	4.5	2.8	3.7	1.9	3.0
2028	4.4	2.7	3.6	1.8	2.9
2029	4.3	2.7	3.5	1.8	2.9
2030	4.2	2.6	3.4	1.8	2.8
2031	4.1	2.5	3.3	1.8	2.8
2032	4.0	2.5	3.2	1.7	2.7
2033	4.0	2.4	3.1	1.7	2.6
2034	3.9	2.4	3.0	1.7	2.6
2035	3.8	2.3	2.9	1.6	2.5
2036	3.7	2.2	2.9	1.6	2.4
2037	3.6	2.2	2.8	1.6	2.4
2038	3.6	2.1	2.7	1.5	2.3
2039	3.5	2.1	2.6	1.5	2.3
2040	3.4	2.0	2.5	1.5	2.2

*Percent Change

Historical and Projected Values for Wage and Salary Employment by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2001	1.8	2.3	14.6	12.8	6.0	6.9	24.7	5.7
2002	1.6	2.7	15.6	11.9	5.4	6.5	24.5	5.6
2003	1.6	3.0	15.4	11.9	5.5	6.4	24.7	5.6
2004	1.5	3.2	14.0	10.9	5.2	5.7	25.0	6.0
2005	1.4	3.8	14.8	10.5	4.6	5.9	26.1	5.2
2006	1.3	4.1	15.8	11.4	5.3	6.1	26.3	5.4
2007	1.3	4.6	17.0	11.1	5.3	5.9	27.1	5.5
2008	1.3	5.1	18.8	11.1	5.2	5.9	27.9	5.8
2009	1.3	4.2	17.1	10.0	4.3	5.7	26.8	5.6
2010	1.3	4.3	16.3	9.8	4.1	5.7	26.7	5.5
2011	1.3	4.9	17.1	9.9	4.2	5.7	27.3	5.5
2012	1.3	5.1	17.6	10.0	4.3	5.7	27.8	5.6
2013	1.3	5.2	18.1	10.1	4.3	5.8	28.5	5.7
2014	1.3	5.3	18.6	10.2	4.4	5.8	29.2	5.8
2015	1.3	5.3	18.9	10.3	4.5	5.8	30.0	5.9
2016	1.3	5.4	19.2	10.4	4.5	5.9	30.7	6.0
2017	1.3	5.4	19.5	10.4	4.6	5.9	31.3	6.1
2018	1.3	5.5	19.8	10.5	4.6	5.9	31.9	6.2
2019	1.3	5.5	20.0	10.5	4.6	5.9	32.5	6.3
2020	1.3	5.5	20.2	10.6	4.6	5.9	33.0	6.4
2021	1.3	5.5	20.4	10.6	4.7	6.0	33.6	6.5
2022	1.3	5.5	20.6	10.7	4.7	6.0	34.1	6.6
2023	1.3	5.5	20.8	10.7	4.7	6.0	34.6	6.7
2024	1.3	5.5	21.0	10.8	4.8	6.0	35.2	6.8
2025	1.3	5.5	21.2	10.8	4.8	6.0	35.7	6.8
2026	1.3	5.5	21.4	10.9	4.8	6.1	36.3	6.9
2027	1.3	5.5	21.6	10.9	4.8	6.1	36.8	7.0
2028	1.3	5.5	21.8	11.0	4.9	6.1	37.3	7.1
2029	1.3	5.5	22.0	11.0	4.9	6.1	37.8	7.2
2030	1.3	5.5	22.2	11.0	4.9	6.1	38.4	7.3
2031	1.3	5.5	22.4	11.1	4.9	6.1	38.9	7.4
2032	1.3	5.4	22.6	11.1	5.0	6.2	39.4	7.4
2033	1.3	5.4	22.8	11.2	5.0	6.2	39.9	7.5
2034	1.3	5.4	23.0	11.2	5.0	6.2	40.4	7.6
2035	1.3	5.3	23.1	11.2	5.0	6.2	40.9	7.7
2036	1.3	5.3	23.3	11.3	5.0	6.2	41.3	7.8
2037	1.3	5.3	23.5	11.3	5.1	6.2	41.8	7.8
2038	1.3	5.2	23.7	11.3	5.1	6.2	42.3	7.9
2039	1.3	5.2	23.9	11.3	5.1	6.2	42.7	8.0
2040	1.3	5.1	24.0	11.4	5.1	6.3	43.2	8.1

*Thousands of Persons

Historical and Projected Values for Wage and Salary Employment by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Agriculture	Mining	Construction	Total Mfg.	Durable Mfg.	Nondurable Mfg.	Total Trade	Transportation, Warehousing, and Utilities
2002	-10.2	15.1	7.2	-7.3	-9.7	-5.2	-0.7	-2.9
2003	-1.0	12.5	-1.4	-0.2	1.6	-1.6	0.8	0.4
2004	-3.3	6.8	-9.1	-8.5	-5.4	-11.1	1.2	7.2
2005	-5.8	19.6	5.6	-3.0	-10.8	4.1	4.5	-12.8
2006	-11.1	5.9	6.7	7.9	14.6	2.7	0.8	3.6
2007	7.0	12.1	7.6	-2.1	-0.4	-3.6	3.1	1.8
2008	-2.0	11.8	10.5	-0.1	-1.7	1.4	2.9	5.5
2009	-0.5	-17.2	-8.8	-9.9	-17.4	-3.4	-4.1	-4.0
2010	-0.4	2.2	-4.7	-2.7	-4.5	-1.3	-0.4	-1.8
2011	-2.4	14.8	5.0	1.3	2.7	0.2	2.2	0.4
2012	0.6	3.1	3.1	1.1	1.5	0.7	2.1	1.0
2013	0.3	1.7	2.8	1.3	1.7	0.9	2.3	2.4
2014	0.2	1.6	2.3	1.0	1.4	0.7	2.7	2.3
2015	0.2	1.6	2.0	0.8	1.3	0.4	2.5	2.0
2016	0.2	0.9	1.6	0.7	1.1	0.4	2.4	1.8
2017	0.2	0.5	1.4	0.6	1.0	0.4	2.0	1.6
2018	0.1	0.5	1.3	0.5	0.7	0.4	1.9	1.4
2019	0.1	0.4	1.1	0.5	0.7	0.4	1.7	1.4
2020	0.1	0.3	1.0	0.5	0.6	0.4	1.7	1.4
2021	0.1	0.3	1.0	0.5	0.6	0.3	1.7	1.4
2022	0.0	0.2	1.0	0.5	0.6	0.3	1.6	1.4
2023	0.0	0.1	1.0	0.4	0.6	0.3	1.6	1.3
2024	0.0	0.1	1.0	0.4	0.6	0.3	1.6	1.3
2025	0.0	0.0	1.0	0.4	0.6	0.3	1.5	1.3
2026	-0.1	-0.1	0.9	0.4	0.5	0.3	1.5	1.3
2027	-0.1	-0.1	0.9	0.4	0.5	0.3	1.5	1.2
2028	-0.1	-0.2	0.9	0.4	0.5	0.3	1.4	1.2
2029	-0.1	-0.2	0.9	0.4	0.5	0.3	1.4	1.2
2030	-0.1	-0.3	0.9	0.4	0.5	0.3	1.4	1.2
2031	-0.2	-0.4	0.9	0.3	0.5	0.2	1.3	1.2
2032	-0.2	-0.4	0.9	0.3	0.4	0.2	1.3	1.1
2033	-0.2	-0.5	0.8	0.3	0.4	0.2	1.3	1.1
2034	-0.2	-0.6	0.8	0.3	0.4	0.2	1.2	1.1
2035	-0.3	-0.6	0.8	0.3	0.4	0.2	1.2	1.1
2036	-0.3	-0.7	0.8	0.3	0.4	0.2	1.2	1.0
2037	-0.3	-0.8	0.8	0.3	0.4	0.2	1.1	1.0
2038	-0.3	-0.8	0.8	0.3	0.4	0.2	1.1	1.0
2039	-0.4	-0.9	0.7	0.2	0.3	0.2	1.1	1.0
2040	-0.4	-1.0	0.7	0.2	0.3	0.2	1.0	0.9

*Percent Change

Historical and Projected Values for Wage and Salary Employment by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2001	3.4	7.6	69.4	38.0	180.2
2002	3.2	7.5	69.0	38.2	179.8
2003	3.0	7.9	69.8	38.1	180.9
2004	2.9	8.0	71.7	38.3	181.5
2005	2.8	7.9	72.8	38.7	184.2
2006	2.6	8.1	73.9	38.8	187.6
2007	2.5	8.3	74.7	38.6	190.8
2008	2.5	8.4	76.0	38.8	195.7
2009	2.4	7.8	76.5	39.0	190.7
2010	2.3	7.8	77.9	39.7	191.4
2011	2.3	7.8	80.4	39.1	195.6
2012	2.3	7.9	83.1	38.9	199.7
2013	2.4	8.1	85.9	39.0	204.3
2014	2.4	8.2	88.6	39.5	209.1
2015	2.5	8.3	91.2	39.9	213.7
2016	2.5	8.4	93.8	40.3	218.1
2017	2.6	8.6	96.4	40.6	222.3
2018	2.6	8.7	99.0	41.0	226.4
2019	2.7	8.8	101.6	41.4	230.5
2020	2.7	8.9	104.2	41.7	234.5
2021	2.8	9.0	106.8	42.1	238.6
2022	2.8	9.1	109.4	42.4	242.6
2023	2.9	9.2	112.0	42.8	246.5
2024	2.9	9.3	114.5	43.1	250.5
2025	3.0	9.4	117.1	43.5	254.4
2026	3.0	9.5	119.6	43.8	258.3
2027	3.1	9.6	122.1	44.1	262.1
2028	3.1	9.7	124.6	44.4	265.9
2029	3.2	9.8	127.0	44.8	269.6
2030	3.2	9.9	129.4	45.1	273.2
2031	3.3	10.0	131.7	45.4	276.8
2032	3.3	10.1	134.0	45.7	280.3
2033	3.4	10.2	136.2	46.0	283.8
2034	3.4	10.3	138.4	46.3	287.1
2035	3.4	10.4	140.5	46.5	290.4
2036	3.5	10.4	142.6	46.8	293.6
2037	3.5	10.5	144.6	47.1	296.7
2038	3.6	10.6	146.5	47.4	299.7
2039	3.6	10.7	148.4	47.6	302.6
2040	3.6	10.7	150.2	47.9	305.4

*Thousands of Persons

Historical and Projected Values for Wage and Salary Employment by Major Industrial Classification for the Corpus Christi Metropolitan Statistical Area*

Date	Information	Finance, Insurance, and Real Estate	Total Services	Government	Total All Industries
2002	-4.4	-0.8	-0.5	0.6	-0.2
2003	-6.4	5.0	1.1	-0.4	0.6
2004	-2.7	1.2	2.7	0.5	0.3
2005	-3.3	-0.8	1.6	1.1	1.5
2006	-8.7	2.2	1.5	0.2	1.8
2007	-1.9	2.4	1.1	-0.4	1.7
2008	-1.1	1.2	1.7	0.5	2.6
2009	-6.0	-6.9	0.7	0.4	-2.6
2010	-1.4	-0.9	1.8	1.8	0.4
2011	-0.4	0.5	3.2	-1.3	2.2
2012	0.7	1.3	3.5	-0.5	2.1
2013	1.7	2.1	3.4	0.3	2.3
2014	2.0	1.6	3.1	1.2	2.3
2015	2.3	1.4	3.0	1.0	2.2
2016	2.1	1.4	2.8	0.9	2.1
2017	2.0	1.4	2.8	0.9	1.9
2018	2.0	1.3	2.7	0.9	1.9
2019	2.0	1.3	2.6	0.9	1.8
2020	1.9	1.3	2.6	0.9	1.8
2021	1.9	1.3	2.5	0.9	1.7
2022	1.8	1.2	2.4	0.8	1.7
2023	1.8	1.2	2.4	0.8	1.6
2024	1.7	1.2	2.3	0.8	1.6
2025	1.7	1.1	2.2	0.8	1.6
2026	1.6	1.1	2.2	0.8	1.5
2027	1.6	1.1	2.1	0.8	1.5
2028	1.6	1.0	2.0	0.7	1.4
2029	1.5	1.0	1.9	0.7	1.4
2030	1.5	1.0	1.9	0.7	1.4
2031	1.4	0.9	1.8	0.7	1.3
2032	1.4	0.9	1.7	0.7	1.3
2033	1.3	0.9	1.7	0.6	1.2
2034	1.3	0.8	1.6	0.6	1.2
2035	1.3	0.8	1.5	0.6	1.1
2036	1.2	0.8	1.5	0.6	1.1
2037	1.2	0.7	1.4	0.6	1.1
2038	1.1	0.7	1.3	0.6	1.0
2039	1.1	0.7	1.3	0.5	1.0
2040	1.0	0.6	1.2	0.5	0.9

*Percent Change

Exhibit C



U.S. NATURAL GAS RESOURCES AND PRODUCTIVE CAPACITY: MID-2012

Prepared for:
CHENIERE ENERGY
Houston, Texas

Prepared by:
Vello A. Kuuskraa
ADVANCED RESOURCES INTERNATIONAL, INC.
Arlington, VA USA

August 23, 2012

Advanced Resources International, Inc.

DISCLAIMER

Review or use of this report by any party other than the client for whom it was prepared constitutes acceptance of the following terms by both the client and the third party.

Any use of this Report other than as a whole and in conjunction with this disclaimer is forbidden without prior written permission of Advanced Resources International, Inc. (ARI). This Report may not be reproduced or copied, in whole or in part, or distributed to anyone without the prior written permission of the Report's authors at ARI. Without limiting the generality of the foregoing, excerpts from the Report cannot be reproduced, copied or distributed without the review and prior written approval of the Report's authors at ARI. Data, model results, analyses, recommendations or any other material presented in this Report may not be excerpted, redacted, modified or applied to any other context without obtaining the prior written permission of ARI. All copyrights in this Report are held by ARI.

This Report is provided 'as is'. ARI bears no responsibility whatsoever for the results of any action that you or any other party chooses to take or not take on the basis of this Report. You acknowledge that ARI is not recommending any investment actions and you agree to not rely on this Report for such action.

The material in this Report is intended for general information only. Any use of this material in relation to any specific application should be based on independent examination and verification of its unrestricted applicability for such use and on a determination of suitability for the application by professionally qualified personnel in regard to any financial, investment or operating decision.

JAF2012_041.DOC

BACKGROUND

This report has been prepared by Advanced Resources, a geology, engineering and economics consulting firm headquartered in Arlington, Virginia. The firm has been at the forefront of unconventional gas appraisal and development since its formation in 1970. In 1978, the company (then called Lewin & Associates) published the three volume report entitled "Enhanced Recovery of Unconventional Gas", which provided the foundation for the U.S. Department of Energy's and Gas Research Institute's (GRI) investments in unconventional gas research and technology. Prepared during a time when the conventional wisdom was that the nation was running out of natural gas supplies and curtailments existed on gas use for power generation, this report helped reverse both the nation's outlook and policies for natural gas.

Advanced Resources was the engineering support contractor on the GRI Team that changed coalbed methane from a scientific curiosity to a major source of gas supply. Advanced Resources' basin studies and its *COMET3* reservoir simulator are still the benchmark tools for optimizing CBM resources. Advanced Resources was the pioneer in bringing CBM expertise and technologies to countries such as Australia, China and India.

In the 1980s and 1990s, the firm conducted the first comprehensive geologic appraisals and engineering tests on the Appalachian Basin's Devonian Shale and the Michigan Basin's Antrim Shale. The firm participated in appraising Mitchell Energy's Stella Young #1 well, which ultimately lead to unlocking the immense resource potential offered by the Barnett Shale. In the May 25, 1998 issue of the *Oil and Gas Journal*, Advanced Resources presented the rationale as to why the Barnett Shale resource was at least ten times larger than initially appraised.

Advanced Resources assists a select group of domestic and international clients to identify the highly productive "core areas" of emerging unconventional gas plays in the U.S. and worldwide. The firm incorporates its internal resource appraisal, well performance and economic data, assembled for 143 of the major U.S. unconventional gas plays, in its outlook and projections for unconventional gas productive capacity. Mr. Kuuskraa, a founder of the firm and the lead author of this report, is on the board of Southwestern Energy (SWN), is a member of the Potential Gas Committee and the National Petroleum Council.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The pursuit of new shale gas plays, improvements in well performance and continuing growth in the size of the unconventional gas resource base underlie the favorable outlook for domestic natural gas resources and productive capacity set forth in this report.

- Domestic natural gas production (dry) has been steadily climbing, from 49 Bcfd in the middle of the past decade (2005) to 63 Bcfd last year (2011), and is expected to exceed 65 Bcfd this year.[1]

- Natural gas proved reserves (wet), the foundation for future productive capacity, have also increased, from 213 Tcf (at the end of 2005) to 318 Tcf (at the end of 2010),[2] with unconventional gas (shale gas, tight gas sands and coalbed methane) accounting for two-thirds of the proved reserves. Preliminary data indicate that proved natural gas reserves increased further during 2011.[3]

- The remaining natural gas reserve and resource base is large, estimated at 2,909 Tcf. This reserve and resource number combines our firm's internal assessment of 1,897 Tcf of proved reserves and remaining undeveloped resources for unconventional gas with EIA's assessment of 1,012 Tcf of remaining proved reserves and resources for conventional gas.

Other studies, such as the recent report by the Potential Gas Committee, support the view that the domestic natural gas resource base is large and growing.

[1] EIA's Short Term Energy Outlook, August 2012.
[2] U.S. Energy Information Administration, Early Release Overview 2012, DOE/EIA-0383ER(2012), January 23, 2012.
[3] A survey of 30 large oil and gas companies by the American Gas Association's "Preliminary Findings Concerning 2011 Natural Gas Reserves", found that their remaining natural gas proved reserves grew by nearly 7 Tcf in 2011 compared to 2010 (AGA, April 2012).

The single largest factor behind this increasingly positive outlook for domestic natural gas productivity is the "shale gas revolution".

- Shale gas contributed 20 Bcfd of dry natural gas production (21 Bcfd wet) in 2011 and is on pace to provide 25 Bcfd (dry) this year, providing 37% of total domestic natural gas supply.

- In addition to the six established deep shale gas plays - - the Antrim, Barnett, Fayetteville, Haynesville/Bossier, Woodford and Marcellus - - new shale gas (and shale liquids) plays continue to emerge, including the Eagle Ford, the Utica, the Niobrara and the Wolfcamp, among others.

- Improvements in well productivity and drilling efficiency, along with the boost in revenues from shale plays with high liquids content, have enabled the great bulk of domestic shale gas plays to remain active and economic even under continuing low natural gas prices of $4.12/Mcf (Henry Hub, spot) last year (2011) and considerably lower this year.[4]

This report provides Advanced Resources' independent projections for natural gas productive capacity to the year 2035. We base our unconventional gas projections on our internal resource data base and supply model (MUGS). Our conventional gas projections are from EIA's Annual Energy Outlook 2012 (AEO 2012). We also use the AEO 2012 Reference Case for the natural gas price track underlying the natural gas supply projections in our report.

Our outlook is for significant increases in U.S. unconventional as well as total natural gas productive capacity in the coming years.

- We project total unconventional gas (shale gas, tight sand gas and CBM) productive capacity to grow from a base of 42 Bcfd (dry) in 2011 to 51 Bcfd in 2015. (Our estimate is that approximately 2 Bcf of today's natural gas productive capacity is shut-in or constrained by high producing back pressures).

[4] EIA's Short Term Energy Outlook, August 2012 projects natural gas prices of $2.75/Mcf (Henry Hub, spot).

- Given its large resource base, we look for continuing growth in unconventional gas productive capacity, reaching 86 Bcfd by 2035. Much of the increase in unconventional gas productive capacity is expected to occur in South, Central and West Texas plus Oklahoma, areas readily accessible to the LNG export facilities planned at Corpus Christi.

- Combining our projections for unconventional gas with EIA's projections for conventional gas (in AEO 2012), the overall domestic dry natural gas productive capacity increases from 63 Bcfd in 2011 to 71 Bcfd in 2015 and further to 103 Bcfd in 2035.

When we compare U.S. natural gas productive capacity with consumption, we foresee a significant surplus in domestic natural gas productive capacity in the near-term and particularly in the longer-term. Surplus natural gas productive capacity reaches nearly 7 Bcfd in 2015 and increases to 27 Bcfd in 2035.

* * * * *

This report on "U.S. Natural Gas Resources and Productive Capacity: Mid-2012", provides a significant update to the previously prepared August 2010 report on domestic natural gas productive capacity, submitted as part of Cheniere Energy's LNG export application for Sabine Pass.

Since the preparation of the August 2010 report, significant changes have occurred for U.S. natural gas supplies. These changes include: (1) recognition of a significantly larger recoverable shale gas resource base, incorporating emerging shale gas plays such as the Woodford (Cana), Utica and Niobrara; (2) continued progress in technology, leading to higher performing wells in established shale gas basins such as the Marcellus and Fayetteville; and (3) expectations for significant volumes of associated gas from the liquids-rich shale and tight gas plays such as the Eagle Ford, Granite Wash, Avalon/Bone Spring and Wolfcamp.

These and other important changes that have occurred during the past two years provide the foundation for the increasingly favorable and robust outlook for domestic natural gas resources and productive capacity set forth in this report.

I. CHANGING OUTLOOK FOR U.S. NATURAL GAS SUPPLY

The outlook for U.S. natural gas supply has changed dramatically in the past decade. Much of this change in outlook has been due to advances in natural gas extraction technology and an improved understanding of the large volumes of economically recoverable natural gas held in shales.

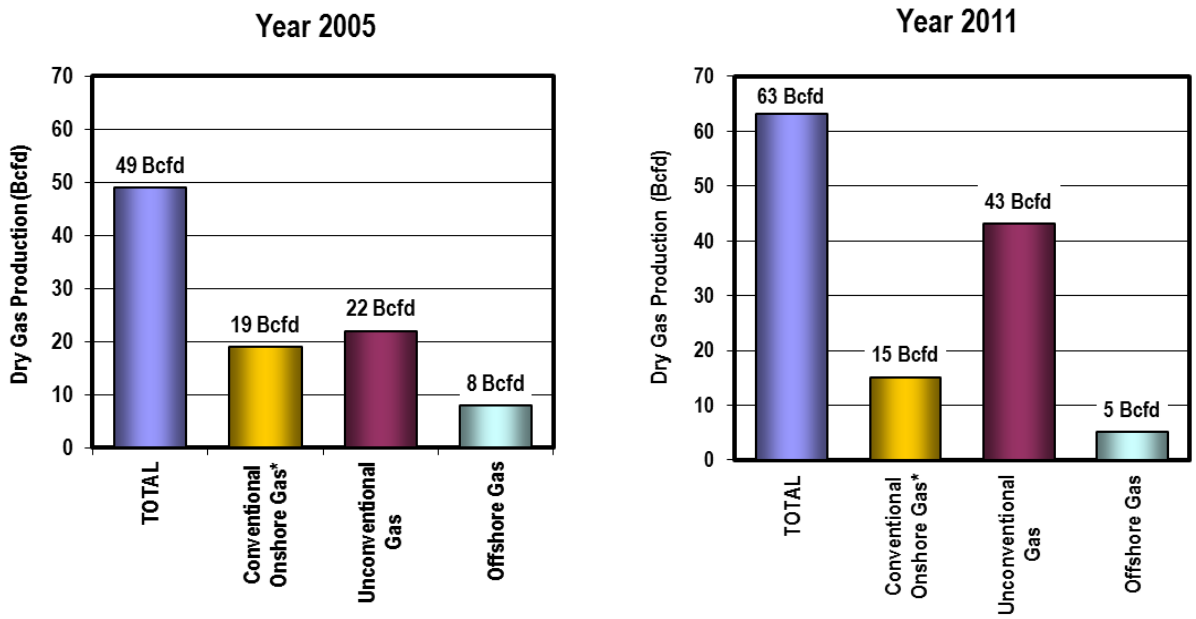
During the first half of this past decade, the nation was advised that only massive investments in LNG import facilities would avert a supply crisis and save the day.[5] Natural gas reserves and production had not kept pace with growing demand, the large conventional gas fields were in decline, and notable analysts were skeptical about our ability to add new domestic natural gas production.[6]

The concerns over the adequacy and security of natural gas supplies has now ended. However, it was not LNG imports but domestic unconventional gas resources that "saved the day". Benefitting from science and technology investments made in the 1980s and 1990s, production of unconventional gas (tight gas sands, coalbed methane and particularly shale gas) surged.

- Instead of declining, overall domestic natural gas production (dry) actually increased by 14 Bcfd - - from 49 Bcfd in 2005 to 63 Bcfd in 2011. Increases in unconventional gas production more than overcame the declines in conventional (onshore and offshore) gas production, **Figure I-1**.
- After two decades of little growth, proved reserves of natural gas (wet) also began to increase, from 213 Tcf (end of 2005) to 318 Tcf (end of 2010), **Figure I-2**.[7] Based on survey data by the American Gas Association, proved reserves of natural gas increased further during 2011.[3]

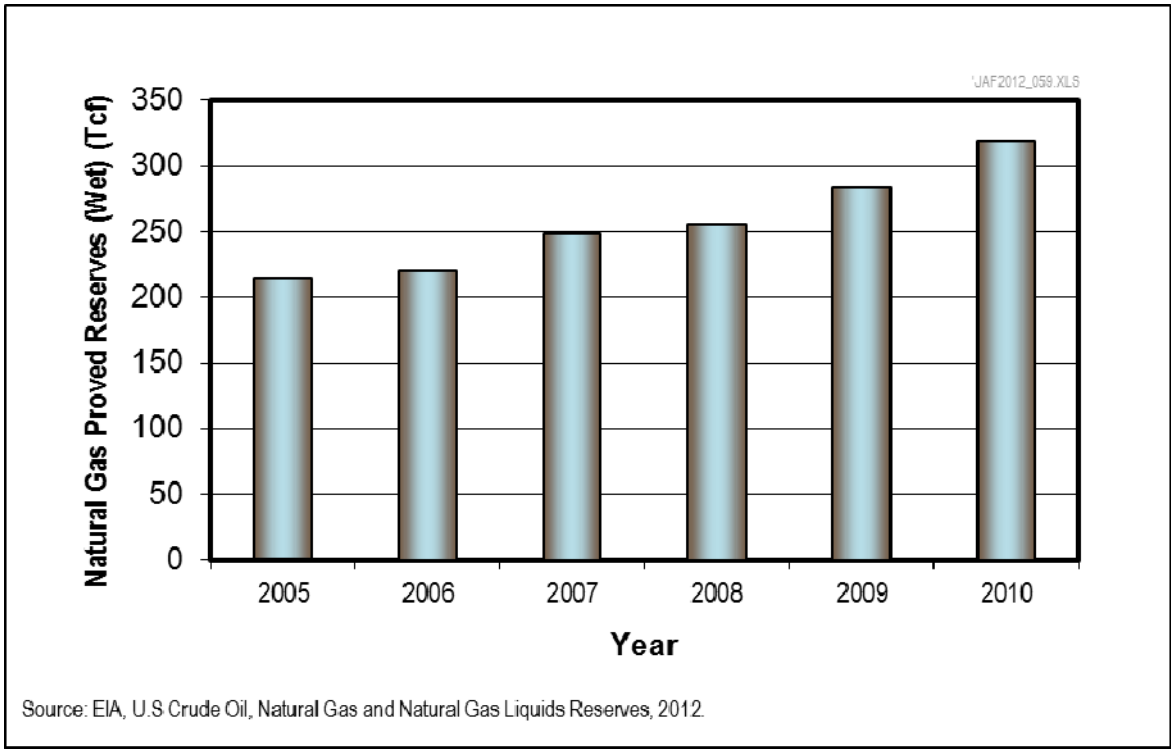
[5] Numerous remarks by the Federal Reserve Chairman, Alan Greenspan, helped promote aggressive investments in LNG.
[6] A series of CERA analytical reports including "Can We Drill Our Way Out of the Supply Shortage?" and "Diminishing Returns" provided the foundation for "fears of scarcity".
[7] EIA U.S. Crude Oil, Natural Gas and Natural Gas Liquids Reserves, 2009.

Figure I-1. Increases in Unconventional Dry Natural Gas Production Have More Than Replaced Declines in Conventional Natural Gas Production



*Includes onshore associated, non-associated and Alaska.
Source: U.S. Energy Information Agency (2012); Advanced Resources Int'l (2012).

Figure I-2. Natural Gas Proved Reserves (Wet) Have Risen Sharply in the Past Five Years

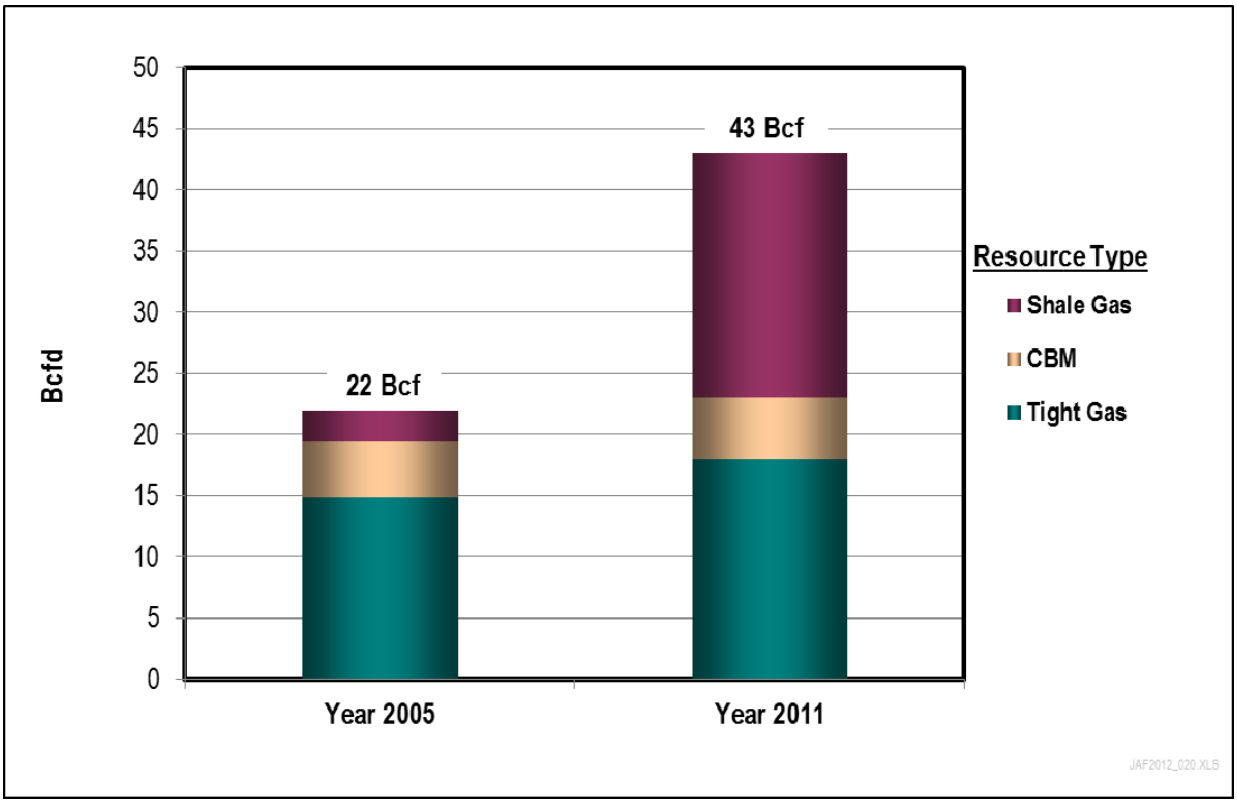


Source: EIA, U.S Crude Oil, Natural Gas and Natural Gas Liquids Reserves, 2012.

A closer look at the data helps illustrate the contribution that unconventional gas has made during the past six years:

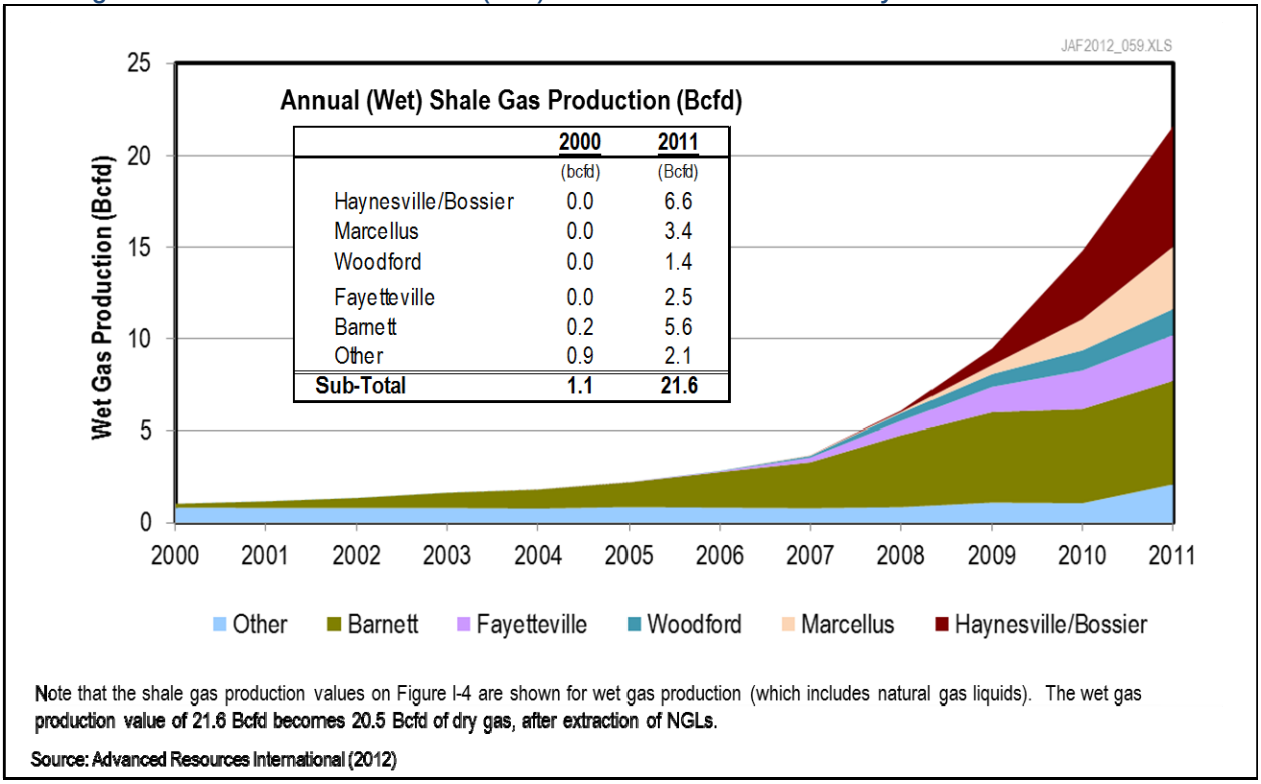
- Production of tight gas sands, coalbed methane and gas shales has increased from 22 Bcfd in 2005 to 43 Bcfd in 2011 and today account for two-thirds of domestic natural gas supply, **Figure I-3**.

Figure I-3. Changes in Unconventional Dry Natural Gas Production by Resource Type



- Shale gas production (wet) provided the great bulk of the growth in gas supplies during the past six years reaching 21.6 Bcfd, (20.5 Bcfd (dry)), **Figure I-4.** Further increases are anticipated, particularly from the Marcellus, Eagle Ford, Utica and Wolfcamp shales.

Figure I-4. Shale Gas Production (Wet) Has Increased Dramatically in the Past Ten Years



	2000 (bcfd)	2011 (Bcfd)
Haynesville/Bossier	0.0	6.6
Marcellus	0.0	3.4
Woodford	0.0	1.4
Fayetteville	0.0	2.5
Barnett	0.2	5.6
Other	0.9	2.1
Sub-Total	**1.1**	**21.6**

Note that the shale gas production values on Figure I-4 are shown for wet gas production (which includes natural gas liquids). The wet gas production value of 21.6 Bcfd becomes 20.5 Bcfd of dry gas, after extraction of NGLs.

Source: Advanced Resources International (2012)

JAF2012_087.PPT

Today there is a major surplus in natural gas productive capacity, with available gas storage filled to the brim, numerous shut-in or pressure constrained gas wells, deferred completions of already-drilled wells and depressed natural gas wellhead prices. Still, the critical question that needs to be asked to address the issue of LNG exports is:

What will be the status of U.S. natural gas supply and productive capacity in five, ten and twenty years from now?

Answering this challenging question will require that we first delve into a series of more fundamental topics that, to a large extent, will determine the future outlook for U.S. and North American natural gas supply.

- *With the continuing discovery and definition of new shale gas basins, how large is the domestic natural gas resource base?*

- *How much of this large technically recoverable domestic natural gas resource base can be converted to productive capacity at currently projected natural gas prices?*

- *Can the economically-viable natural gas productive capacity fully meet expected domestic demand for natural gas, as well as support exports?*

- *To what extent will progress in technology further increase the size of the natural gas resource base and the volume of economically feasible gas supply?*

- *To what extent will the establishment of new markets for natural gas be essential for the U.S. to efficiently develop the large NGL, condensate and oil resources that exist in the emerging liquids-rich shale plays?*

In the following chapters of this report, we will address these important questions. We then conclude the report with a more in-depth look at the accessible gas resources and supplies in the Texas and Oklahoma natural gas basins favorably located for LNG exports from Corpus Christi.

II. THE DOMESTIC NATURAL GAS RESOURCE BASE

The domestic natural gas resource base is large, estimated at 2,916 Tcf, including undiscovered/inferred resources and proved natural gas reserves for both conventional and unconventional gas. Our assessment of the U.S. natural gas resource base includes independent work by Advanced Resources on unconventional gas resources plus data from EIA (AEO 2011) on onshore and offshore conventional gas resources, as shown in **Table II-1**.[8]

Table II-1. ARI's Technically Recoverable U.S. Natural Gas Resources

	Proved Reserves (Tcf)	Undiscovered/ Inferred Resources (Tcf)	Total Recoverable Resources (Tcf)
Conventional Gas			
Onshore Non-Associated	85	370	455
Offshore Non-Associated	12	263	275
Alaska	9	272	281
Subtotal Conventional Gas	**106**	**905**	**1,011**
Unconventional Gas*			
Shale Gas	97	1,122	1,219
Tight Gas Sands	97	464	561
Coalbed Methane	18	106	124
Subtotal Unconventional Gas	**212**	**1,692**	**1,904**
TOTAL US	**318**	**2,597**	**2,915**

*The proved reserves and undiscovered/inferred resources as of 12/31/2010.

JAF2012_059.XLS

**We have reclassified the 2.6 Tcf of proved natural gas reserves in Kentucky's Big Sandy area as shale gas reserves.

[8] U.S. Energy Information Administration, Summary: U.S Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2009, November 2010.

Today, unconventional gas dominates the domestic natural gas resource base, for both proved reserves (212 Tcf) and for undiscovered/inferred recoverable resources (1,904 Tcf). Shale gas, with 1,219 Tcf of proved reserves plus recoverable resources, has become the largest of the unconventional gas sources. Still, conventional onshore and offshore natural gas fields hold significant undeveloped resources and proved reserves, totaling 730 Tcf in the Lower-48 plus another 281 Tcf in Alaska.

It is useful to recognize that the size of the unconventional gas resource base is not static (fixed for all time), but rather grows with progress in technology. (See discussion in Chapter IV on how technology progress influences the growth of the resource base.) For example, today's ultimately recoverable shale gas resources, currently assessed at 1,219 Tcf, increase to 1,435 Tcf by year 2035 due to steady improvements in well performance and technology progress.

Other studies also support the view that the domestic natural gas resource base is large and increasing over time. For example, the Potential Gas Committee's (PGC) most recent (end of 2010) estimate for the U.S. natural gas resource base is 1,898 Tcf for undeveloped resources.[9] Proved natural gas reserves of 273 Tcf (beginning of 2010) bring the overall total to 2,170 Tcf. Compared to its year 2008 report, today's PGC estimated remaining natural gas resource base is 61 Tcf larger (an increase of 105 Tcf if the 44 Tcf produced during the intervening two year period is included).

In the following sections of this chapter, we take a more in-depth look at each of the three unconventional gas resources - - shale gas, tight gas sands and coalbed methane that now account for the bulk of the U.S. natural gas resource base.

[9] Potential Gas Committee, "Potential Supply of Natural Gas in the United States", (December 31, 2010).

II.I SHALE GAS

II.1.1 Recoverable Resources

Based on our updated resource assessments for shale gas, we estimate 97 Tcf of proved reserves and 1,122 Tcf of wet undeveloped technically recoverable resource (as of 12/31/2010) in 55 established and emerging plays. We recently added the liquids-rich Utica, Niobrara, Avalon, Wolfcamp and Woodford (Cana) shale plays to our shale resource base.

Several unproven liquids-rich shale gas basins and plays (Collingwood, Mancos, Baxter, Tuscaloosa and Brown Dense) are not yet included in our study. As these unproven gas shale basins are explored and better defined, we will incorporate these basins and plays into our shale gas resource base.

II.1.2 Development

Shale gas drilling and development have increased many fold in recent years. The Barnett Shale, with over 16,000 total shale gas wells on production, has led the way, **Figure II-1**. With recent large-scale rig deployments to the Marcellus, Eagle Ford and Permian Basin shales, we look for growing well drilling and development in these three shale plays.

II.1.3 Production

The Barnett, Fayetteville, Haynesville/Bossier, Marcellus and Eagle Ford shales provide the bulk of current dry shale gas production of 20.5 Bcfd, **Figure II-2**. Continued progress in well drilling and completion technology and the incorporation of additional gas shale plays support expectations for higher rates of production from shale gas of 25 Bcfd in 2012, 30 Bcfd in 2015 and 58 Bcfd in 2035, **Table II-2**.

Table II-2. Projected Shale Gas Production (Dry) by Source.

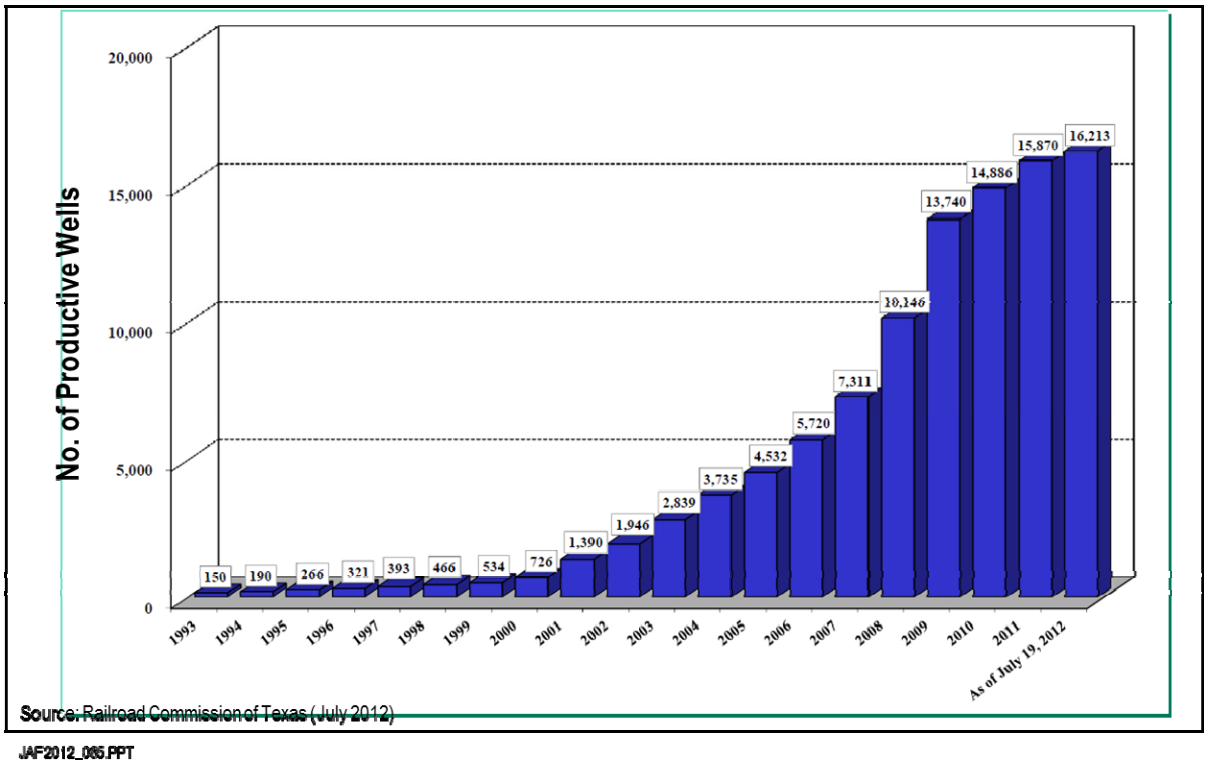
	Actual	Projected		
	2011	2012	2015	2035
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
Barnett	5.3	5.1	4.3	2.7
Fayetteville	2.5	2.7	2.6	2.8
Haynesville/Bossier	6.6	6.9	6.0	10.1
Marcellus	3.2	6.2	10.6	24.6
Eagle Ford	0.8	1.3	2.4	5.9
Woodford*	1.2	1.3	1.6	2.0
Other**	0.9	1.3	2.5	10.3
Total	20.5	24.8	30.0	58.4

*Includes Arkoma, Ardmore and Anadarko Basins.

JAF2012_059.XLS

**Includes Antrim, Bakken,Huron, Utica, Wolfcamp and other shales.

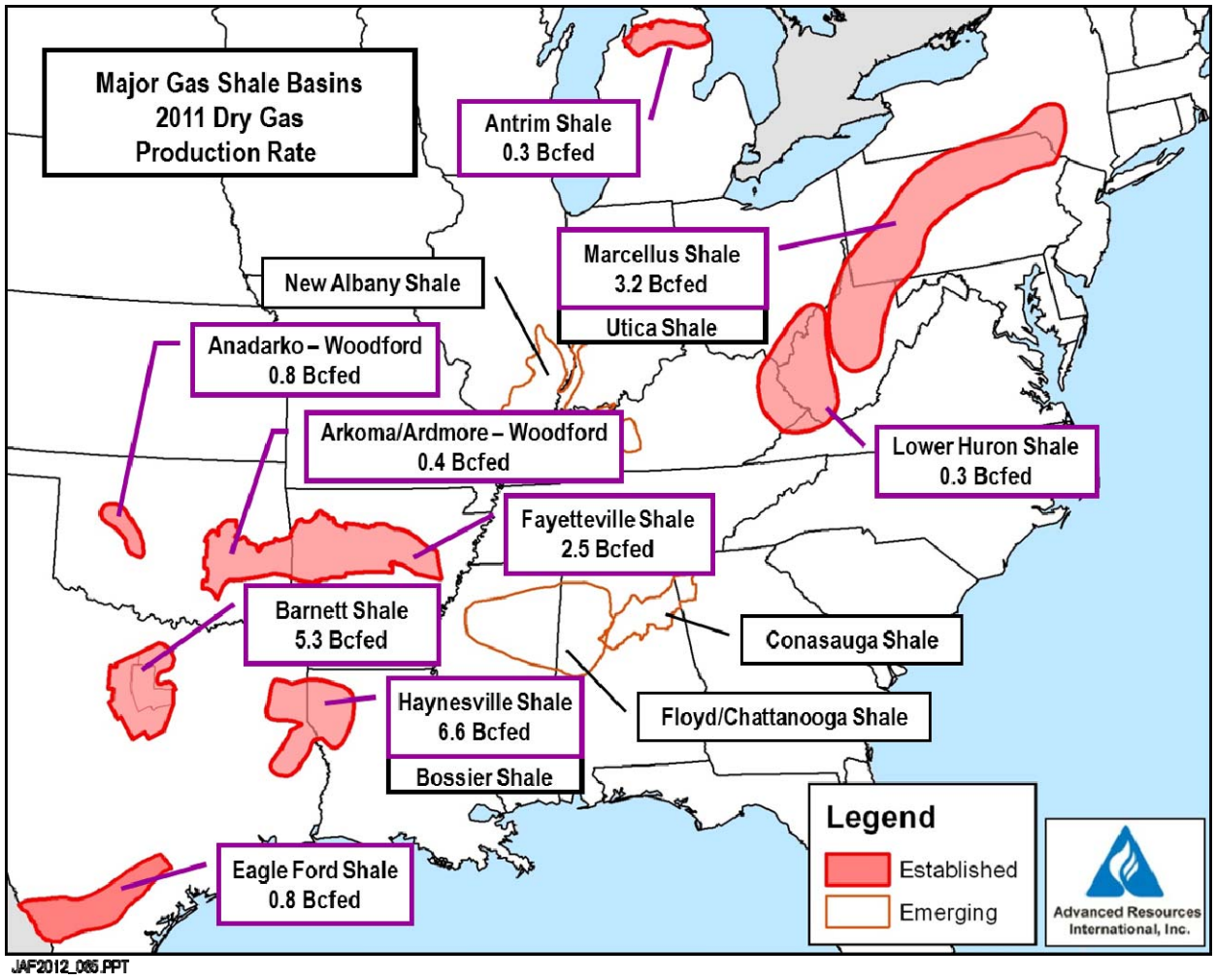
Figure II-1. Cumulative Number of Producing Barnett Shale (Newark East) Wells



Source: Railroad Commission of Texas (July 2012)

JAF2012_085.PPT

Figure II-2. Locations of Established Shale Gas Basins*



*The Williston and Permian shale basins currently provide 0.3 Bcf of dry shale gas production.

II.2. TIGHT GAS SANDS

II.2.1 Recoverable Resources

We estimate 97 Tcf of proved reserves and 464 Tcf of undeveloped technically recoverable resource (as of 12/31/2010) for tight gas sands in 58 established plays.

- The Piceance Basin, Bossier Sands and Granite Wash/Atoka in the Anadarko Basin account for important portions of the undeveloped tight gas sand resource. Numerous other Gulf Coast, Permian and Rockies plays account for the rest.

- We recently updated our resource assessments, well performance and economics for the emerging Granite Wash play in Oklahoma and West Texas and added the Cleveland/Tonkawa and Mississippian tight gas plays to MUGS.

We believe that significant increases in recoverable tight gas sand resources are possible in future years as industry pursues closer well spacing, multiple completions and more intensive stimulations.

II.2.2 Development

Tight gas sand production increased slightly in 2011 as industry embraced greater use of horizontal wells and pursued higher productivity and liquids-rich plays such as the Granite Wash, Bone Spring and Cleveland. We anticipate relatively level productive capacity from tight gas sands.

II.2.3 Production

We project tight gas sand production to increase moderately from 17.3 Bcfd in 2011 to 17.8 Bcfd in 2012 and then decline slightly to 17.4 Bcfd in 2015. After this, with increasing wellhead gas prices, we look for growth in tight gas sand production, reaching 18.3 Bcfd in 2020 and continuing to grow through 2035. Continued progress in well drilling and production technologies (e.g., multi-stage stimulation and longer horizontal wells) provide the basis for our long-term “bullish” outlook for tight gas sand production.

II.3 COALBED METHANE RESOURCES

II.3.1 Recoverable Resources

We estimate 18 Tcf of proved reserves and 106 Tcf of undeveloped technically recoverable resource (as of 12/31/2010) for coalbed methane in 30 established plays. The San Juan Basin and the Powder River Basin account for the bulk of the proved reserves and undeveloped resources of coalbed methane.

A significant portion of the CBM resource in-place is in deep, low permeability formations in the Piceance (80 Tcf) and Greater Green River basins (300+Tcf). These basins are not yet included in our estimates for proved reserves or undeveloped technically recoverable resources. Significant advances in well completion technology will be required to enable these deep CBM resources to contribute to domestic natural gas supplies in future years.

II.3.2 Development

Coalbed methane drilling and development held steady from 2005 to 2008, at about 5,000 wells per year. Starting in 2009, CBM wells placed on production declined and dropped further in 2011 as the CBM rig count plummeted. Based on the drop in well drilling, CBM productive capacity has begun to decline.

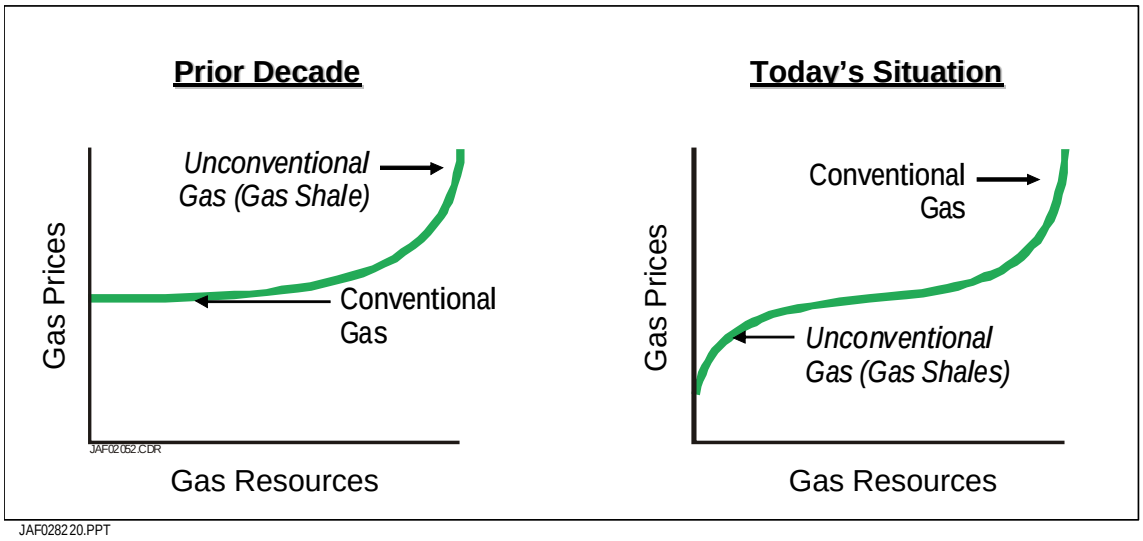
II.3.3 Production

With lower natural gas prices and the decline in CBM well drilling, we expect CBM production to decline from 4.8 Bcfd in 2011, to 4.4 Bcfd in 2012 to 3.4 Bcfd in 2015 and further to 2.6 Bcfd in 2020. With improving natural gas prices, we look for a reversal of the decline in CBM production after year 2020. In addition, breakthroughs in deep CBM well completions and enhanced coalbed methane technology could provide "upside" to our projections of CBM production.

II.4 PRICE-SUPPLY CURVE FOR DOMESTIC NATURAL GAS

Our analysis shows that unconventional gas resources, particularly the higher quality gas shales, make up the low cost portion of today's domestic natural gas price-supply curve. **Figure II-3** captures the shift that has occurred in the relative economics of conventional and unconventional gas in the past decade.

Figure II-3. Today's Domestic Natural Gas Price/Supply Curve



Several factors account for the radical shift that has taken place in the price-supply curve for domestic natural gas:

- First, the application of horizontal wells has enabled shale gas to deliver high rates of gas production, often in excess of 20 MMcfd from shale plays such as the Haynesville/Bossier, and from tight sand plays such as the Granite Wash, enabling these resources to have low finding and development (F&D) costs.

- Second, several of the shale gas and tight gas sand plays are rich in liquids, such as the Eagle Ford Shale and the Granite Wash tight sands. Extraction of these liquids (oil, condensate and NGLs) provides considerable additional revenues given the relatively high current price for oil, lowering significantly the "break-even" price for natural gas.

- Third, the size of the unconventional gas resource base is large and exists in numerous basins. Each of these basins has a highly productive "core area" with much lower F&D costs than for the basin or play as a whole. Industry has steadily improved its ability to identify and then preferentially develop these special "core areas", helping maintain productivity during a low gas price period.

III. METHODOLOGY AND ASSUMPTIONS FOR PROJECTING U.S. NATURAL GAS PRODUCTIVE CAPACITY

III.1 BACKGROUND

In this section of the report, we discuss the use of our unconventional gas resource base and economics model (MUGS) to provide independent projections for unconventional gas productive capacity. Then, we combine our estimates for unconventional gas productive capacity with EIA's projections of conventional gas production (in AEO 2012) to provide an overall outlook for U.S. natural gas productive capacity to year 2035.

It is important to note that the report presents natural gas productive capacity, not projected production.

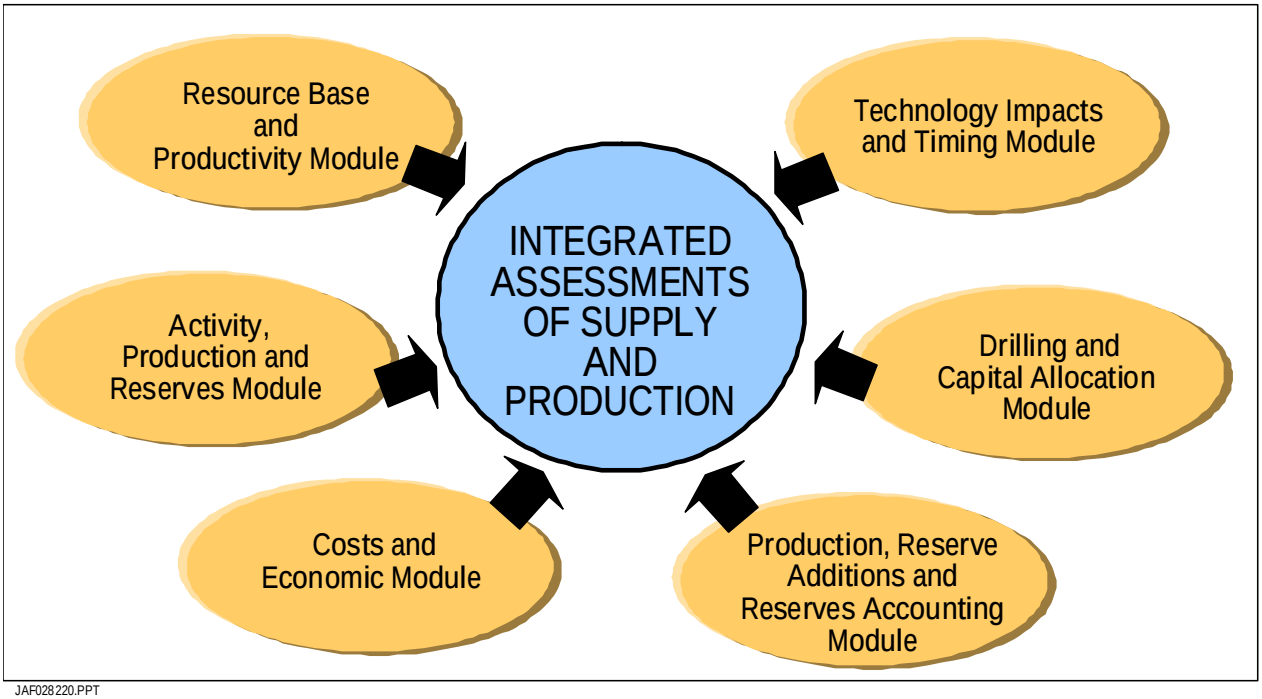
- Available natural gas productive capacity is the volume of natural gas that could be economically produced at a particular gas price track, given a defined natural gas resource base, the costs of production, and expected returns on investment.
- In contrast, projected natural gas production is the volume of natural gas that would be produced at market equilibrium between supply (plus changes in gas storage) and demand.
- If the available natural gas productive capacity (at a given gas price track) is less than projected demand, then either additional imports and/or higher gas prices are required to balance supply and demand.
- However, if available natural gas productive capacity (at a given gas price track) is more than projected demand, a variety of responses could occur. Producers could shut in wells or defer completing already drilled wells. Excess supply could drive down gas prices to reach market equilibrium, as has occurred during the

past several years, or the excess natural gas productive capacity could be exported using LNG.

III.2. OVERVIEW OF ADVANCED RESOURCES' MUGS MODEL

The key components of Advanced Resources' Technology Model of Unconventional Gas Supply (MUGS) are illustrated in **Figure III-1**. Additional discussion of the model, as adopted into the Oil and Gas Module of EIA's National Energy Modeling System, is available in the Methodology Chapter for AEO 2009.[10]

Figure III-1. The Advanced Resources' Unconventional Gas Supply And Technology Model (MUGS)



MUGS contains a series of cost-price factors that relate costs to changes in natural gas prices. Some of these cost factors are directly related to change in natural gas prices, such as production taxes and fuel use. Other cost factors, such as well completing and operations, are indirectly related to natural gas and oil prices through unit costs for steel and for electricity.

[10] U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook, DOE/EIA-0383(2009) March 2009.

III.3 OVERVIEW OF INPUTS FOR PROJECTING PRODUCTIVE CAPACITY

III.3.1 Price Track

In our assessment of productive capacity, we use the natural gas and oil price tracks provided by EIA (in AEO 2012) for the Reference Case, **Figures III-2 and III-3**.

- In the near-term, natural gas prices rise little, from $3.94/MMBtu (Henry Hub, 2010 dollars per million Btu) in 2011 to $4.29/MMBtu in 2015. In the longer-term, to 2035, natural gas prices rise to $7.37/MMBtu, enabling much more of the large unconventional gas resource base to become economic.

- Oil prices rise steadily from $94 per barrel (average well head price, 2010 dollar per barrel) in 2011 to $118 per barrel in 2015 and to $138 per barrel in 2035.

Figure III-2. Reference Case Natural Gas Prices, AEO 2012

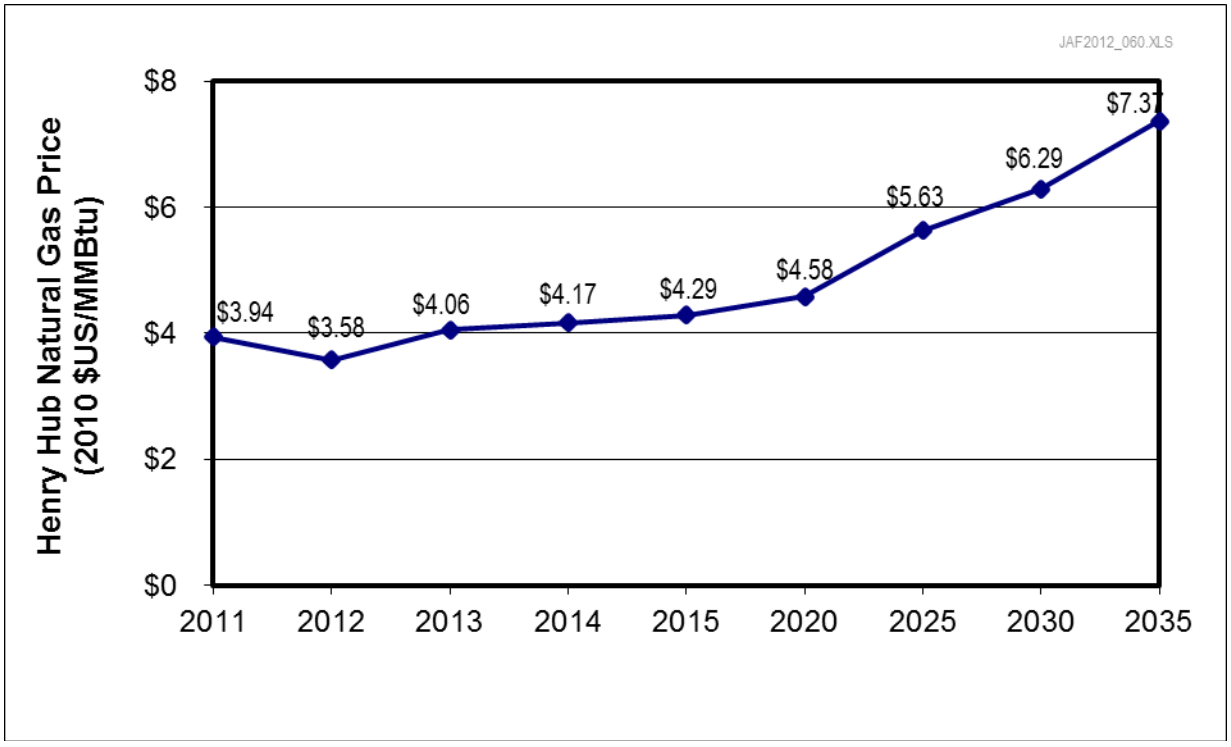
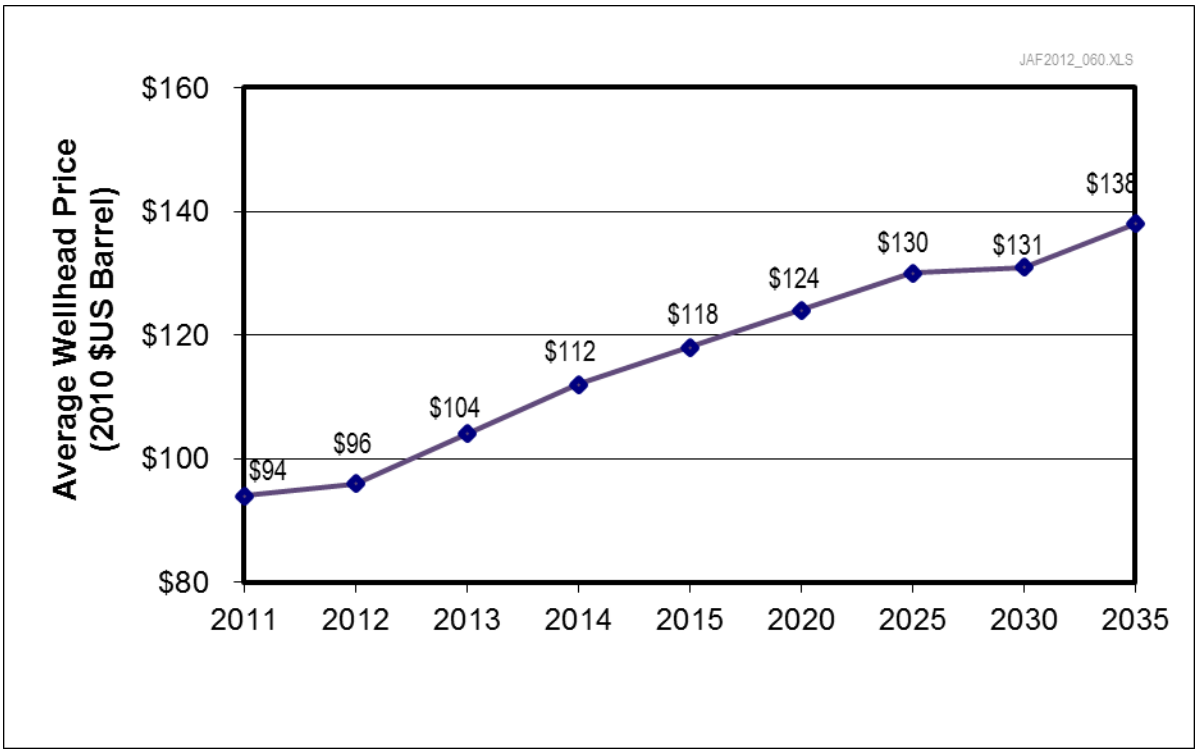


Figure III-3. Reference Case Oil Prices, AEO 2012



III.3.2 Resource Base and Proved Reserves

For undeveloped resources, we use as inputs into MUGS our independently assessed unconventional gas resource base, discussed in Chapter II. For proved reserves we use EIA's latest publication of proved natural gas reserves (end of 2010).

III.3.3 Cost and Well Performance Data

We have play-specific capital and operating costs and well performance data for 143 distinct U.S. unconventional gas plays in MUGS, including 55 U.S. gas shale plays, 58 U.S. tight gas sand plays and 30 U.S. coalbed methane plays. For example, we partition the large Marcellus Shale play of the Appalachian Basin into 8 distinct plays reflecting differences in geology, resource type and well performance.

III.3.4 Economic Considerations

In addition to Capex and Opex, MUGS incorporates a variety of economic factors, including accounting for the value of co-produced liquids, for royalties and state production taxes, for lease costs, dry holes and seismic.

The model specifically addresses oil and NGLs produced from the liquids-rich shales such as the Eagle Ford and Granite Wash, among others. The value of producing and selling liquids (oil/condensate) as well as the value (and costs) of producing NGLs are credited against overall costs, enabling produced natural gas from liquids-rich shales to have considerably lower "break-even" costs.

The economic model incorporates a 15% return on investment, before tax, to establish the minimum required Henry Hub price for each play.

III.3.5 Other Considerations

As further discussed in Chapter IV, the model incorporates a variety of technology progress, environmental and infrastructure constraint levers that influence the timing and costs of unconventional gas production.

IV. OUTLOOK FOR U.S. NATURAL GAS PRODUCTIVE CAPACITY

IV.1 SUMMARY OF RESULTS

Using EIA's estimates for conventional natural gas and ARI's estimates for unconventional natural gas, we project total U.S. natural gas productive capacity (dry) to increase from 63 Bcfd in 2011 to 71 Bcfd in the near-term (2015) and further to 103 Bcfd in the longer-term (2035), **Table IV-1**. (These projections use the AEO 2012 Reference Case natural gas price track, presented previously in **Figure III-2**.)

Table IV-1. Total U.S. Natural Gas Productive Capacity (Dry)

	U.S. Conventional Dry Natural Gas Production	PLUS: Unconventional Gas Productive Capacity	U.S. Total Dry Natural Gas Productive Capacity**
	(EIA, 2012)	(ARI, 2012)	(Combined EIA/ARI, 2012)
	(Bcfd)	(Bcfd)	(Bcfd)
2011 (Actual)*	22.8	40.2/42.5 **	63.0/65.3
Near-Term			
2012	21.9	47.0	68.9
2013	20.6	48.2	68.8
2014	20.5	49.4	69.9
2015	20.6	50.8	71.4
Longer-Term			
2020	20.6	55.5	76.1
2025	19.4	62.9	82.3
2030	18.4	73.4	91.8
2035	16.7	86.3	103.0

*U.S. conventional dry gas production dataffor 2011 are from EIA's Short Term Energy Outlook (March 2012) and from EIA's AEO 2012.

**Approximately 2.3 Bcfd of natural gas productive capacity was placed into storage, shut-in or scaled back with pressure during 2011.

JAF2012_059.XLS

IV.2 U.S. NATURAL GAS PRODUCTIVE CAPACITY VERSUS NET CONSUMPTION

When we compare total domestic natural gas productive capacity with projected net domestic consumption, we see a surplus of productive capacity of over 6 Bcfd in 2015. Productive capacity increases steadily to about 27 Bcfd in 2035, **Table IV-2**.

Table IV-2. Projections of Surplus U.S. Dry Natural Gas Productive Capacity

	U.S. Production and Natural Gas Productive Capacity (AEO 2012 and ARI 2012)	U.S. Natural Gas Consumption/Net Imports/Exports (AEO 2012)*			Surplus Domestic Natural Gas Productive Capacity
		Plus: Other** Supply	Domestic Consumption***	Demand for Domestic Productive Capacity	
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
2011 (Actual)	63.0	3.6	66.6	63.0	-
Near-Term					
2012	68.9	4.4	69.0	64.6	**4.3**
2013	68.8	4.4	66.7	62.3	**6.5**
2014	69.9	4.8	68.1	63.3	**6.6**
2015	71.4	4.8	69.6	64.8	**6.6**
Longer-Term					
2020	76.1	0.9	69.8	68.9	**7.2**
2025	82.3	(2.1)	69.9	72.0	**10.3**
2030	91.8	(2.3)	71.5	73.8	**18.0**
2035	103.0	(3.6)	72.1	75.7	**27.3**

JAF2012_059.XLS

* U.S. natural gas consumption data are from EIA Short Term Energy Outlook (August 2012) and from EIA AEO 2012.
**Other includes: (1) supplemented natural gas; (2) net imports; and (3) change in inventory. The data assumes 1 Bcfd of LNG exports in 2016 increasing to 2 Bcfd in 2019 and remaining at this level from 2020 to 2030.
***Net demand for domestic productive capacity is defined as total domestic consumption less gas supplies provided by supplemental natural gas, net pipeline and LNG imports and the balancing item; when Other Supply is negative due to net exports, this column adds to Demand for Productive Capacity.

IV.3 CONVENTIONAL NATURAL GAS PRODUCTION

EIA's data and projections in the Reference Case of AEO 2012 indicate a steady decline in conventional gas production from 22.7 Bcfd in 2011, to 20.6 Bcfd in 2015 and further to 16.7 Bcfd in 2035, **Table IV-3**.

Table IV-3. EIA's Estimates of U.S. Conventional Natural Gas Productive Capacity

	Annual Production
	(Bcfd)
2011 (Actual)	22.8
Near-Term	
2012	21.9
2013	20.6
2014	20.5
2015	20.6
Longer-Term	
2020	20.6
2025	19.4
2030	18.4
2035	16.7

JAF2012_059.XLS

IV.4 UNCONVENTIONAL GAS PRODUCTIVE CAPACITY

IV.4.1 Summary Projection. Advanced Resources projects unconventional gas productive capacity (dry) to increase from 40.2 Bcfd in 2011 to 50.8 Bcfd in 2015 and further to 86.3 Bcfd in 2035, **Table IV-4.** (These projections use the EIA AEO 2012 natural gas price track for the Reference Case.)

Table IV-4. Advanced Resources Estimates of U.S. Unconventional Gas Productive Capacity

	Annual Production
	(Bcfd)
2011 (Actual)	42.5*
Near-Term	
2012	47.0
2013	48.2
2014	49.4
2015	50.8
Longer-Term	
2020	55.5
2025	62.9
2030	73.4
2035	86.3

JAF2012_059.XLS

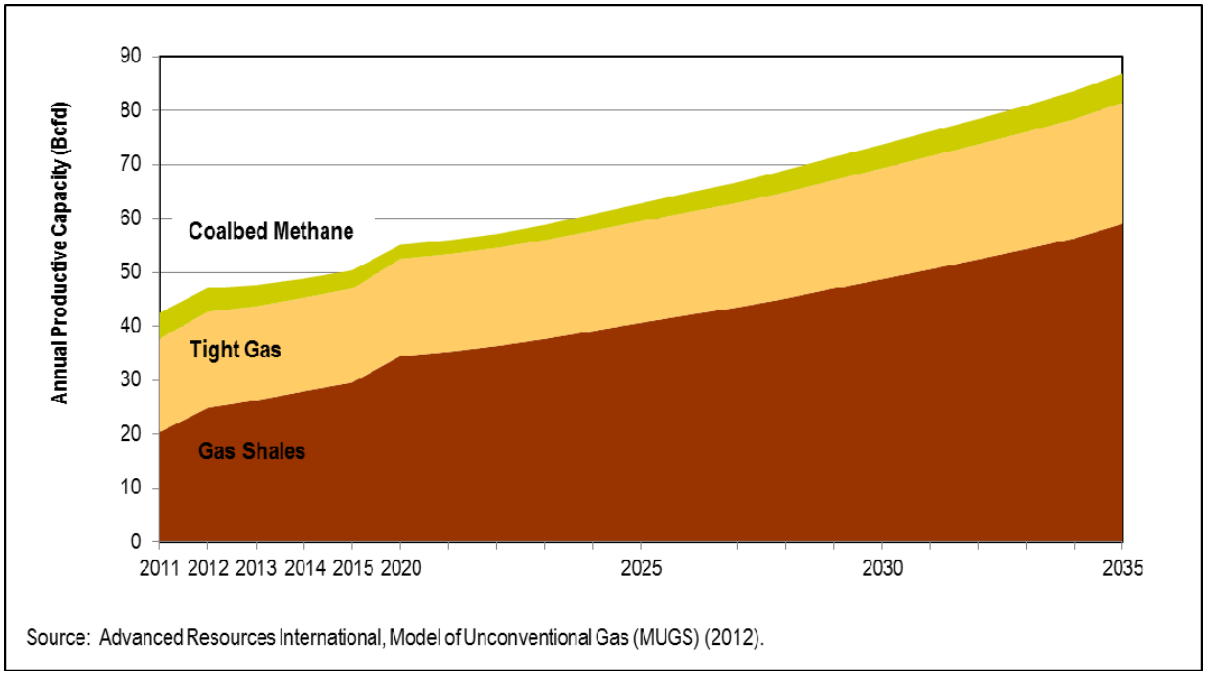
*Approximately 2.3 Bcfd of year 2011's unconventional gas productive capacity was shut in, constrained by high producing pressures or placed into storage.

The projected growth of unconventional gas productive capacity in the next 24 years (from 42 Bcfd in 2011 to 86 Bcfd in 2030) of 44 Bcfd is equal to 1.8 Bcfd per year, below the annual growth rate for unconventional gas productive capacity of 2.3 Bcfd per year in the past six years.

Additional discussion of the feasibility of achieving these increases in unconventional gas productive capacity is provided in **Section IV-6 Benchmarks and Comparisons** of this report.

IV.4.2 Detailed Projections. Gas shales account for most of the unconventional gas productive capacity growth from year 2011 to year 2015**.** Gas shales also provide much of the longer-term growth in unconventional gas productive capacity, from year 2015 to 2030, **Figure IV-1.**

Figure IV-1. Longer-Term Expectations for U.S. Unconventional Gas Productive Capacity



Source: Advanced Resources International, Model of Unconventional Gas (MUGS) (2012).

IV.5 COMPARISON OF ADVANCED RESOURCES' AND EIA'S PROJECTIONS FOR UNCONVENTIONAL GAS

Table IV-5 compares Advanced Resources' and EIA's (AEO 2012) Reference Case projections for unconventional gas production.

- For the near-term, Advanced Resources expects unconventional gas productive capacity to increase from 42 Bcfd (in 2011) to 51 Bcfd (in 2015). In comparison, EIA's projections for unconventional gas production are 40 Bcfd (in 2011) reaching 44 Bcfd in 2015, 7 Bcfd lower than the unconventional gas productive capacity projected by Advanced Resources.

- For the mid-term, Advanced Resources expects unconventional gas productive capacity to reach 55 Bcfd in 2020 and 63 Bcfd in 2025 compared to 48 Bcfd in 2020 and 53 Bcfd in 2025 by EIA. As such, Advanced Resources' outlook for unconventional gas productive capacity is 7 Bcfd higher than EIA in year 2020 and 10 Bcfd higher than EIA in 2025.

- For the longer-term, Advanced Resources expects unconventional gas productive capacity to reach 86 Bcfd in 2035 compared to 59 Bcfd by EIA. As such, Advanced Resources' outlook is for 27 Bcfd higher natural gas productive capacity in 2035 than set forth by EIA. Unconventional gas productive capacity reaches 58 Bcfd in 2035 in the ARI study, compared to 37 Bcfd for shale gas in EIA's AEO 2012.

It is useful to note that Advanced Resources' projections are for productive capacity (at the EIA price track); EIA numbers are for actual production integrated with demand (at the EIA price track).

Table IV-5. Comparison of Advanced Resources' and EIA's Projections for Unconventional Gas (Dry)

	Advanced Resources Int'l, Inc. (2012)				EIA AEO 2012			
	Total*	Gas Shales	Tight Gas Sands	CBM	Total	Gas Shales	Tight Gas Sands	CBM
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
2011 (Actual)	42.5	20.4	17.3	4.8	40.2	18.7	16.5	5.0
Near-Term								
2012	47.0	24.8	17.8	4.4	42.9	21.0	16.7	5.2
2013	48.2	26.8	17.4	4.0	41.8	20.7	16.2	4.9
2014	49.4	28.5	17.3	3.6	42.9	21.5	16.5	4.9
2015	50.8	30.0	17.4	3.4	44.2	22.5	16.7	5.0
Longer-Term								
2020	55.5	34.9	18.0	2.6	48.1	26.6	16.6	4.9
2025	62.9	40.8	18.8	3.3	52.6	30.9	16.9	4.8
2030	73.4	48.5	20.5	4.4	55.4	34.0	16.6	4.8
2035	86.3	58.4	22.5	5.4	59.0	37.4	16.8	4.8

*Totals may not add due to rounding.

JAF2012_059.XLS

IV.6 BENCHMARK AND COMPARISONS

IV.6.1 Benchmark Questions. It is useful to review our outlook on natural gas production and productive capacity using a set of "benchmark" questions. Because gas shales become the dominant source of unconventional gas production, we will target many of the "benchmark" questions to this important resource.

- ***Is the Shale Gas Recoverable Resource Base Sufficient?*** For the 24 year period (2012-2035), shale gas production equals 388 Tcf. With a 1,185 Tcf proved reserves and remaining recoverable shale gas resource base (and further growth in the resource base in future years, as discussed in Chapter II), the shale gas resource base is more than sufficient to support projected shale gas production volumes of nearly 30 Bcfd in 2015 and 58 Bcfd in 2035.

- ***Will There Be Sufficient Rig Capacity?*** Since the natural gas rig and well drilling requirements in the years after 2011 do not exceed natural gas rig and well drilling activity in 2008, the latest peak year in gas drilling, the current rig capacity is sufficient.

- ***Will There Be Sufficient Investment Capital?*** The entry of the majors (e.g., Shell, BP, ConocoPhillips and ExxonMobil) and global E&Ps (Reliance, Statoil, Mitsui) into U.S. shale gas and other unconventional gas development argues that investment capital will be sufficient.

- ***Is There Precedent for Such a Large Future Increase in Unconventional Natural Gas Supply and Productive Capacity?*** Our expectations for growth in future natural gas productive capacity (in the 24 years, 2012 to 2035) of 44 Bcfd is equal to an annual increase in productive capacity of 1.8 Bcfd. This is equal to about 78% of the annual rate of increase in unconventional gas productive capacity of 2.3 Bcfd achieved in the past six years. Continued technologically-based improvements in well performance (see **Chapter V**) and the active pursuit of new shale gas plays provide support that a 44 Bcfd increase in productive capacity for unconventional gas is realistic over the next 24 years.

V. IMPORTANCE OF PROGRESS IN TECHNOLOGY FOR NATURAL GAS SUPPLY

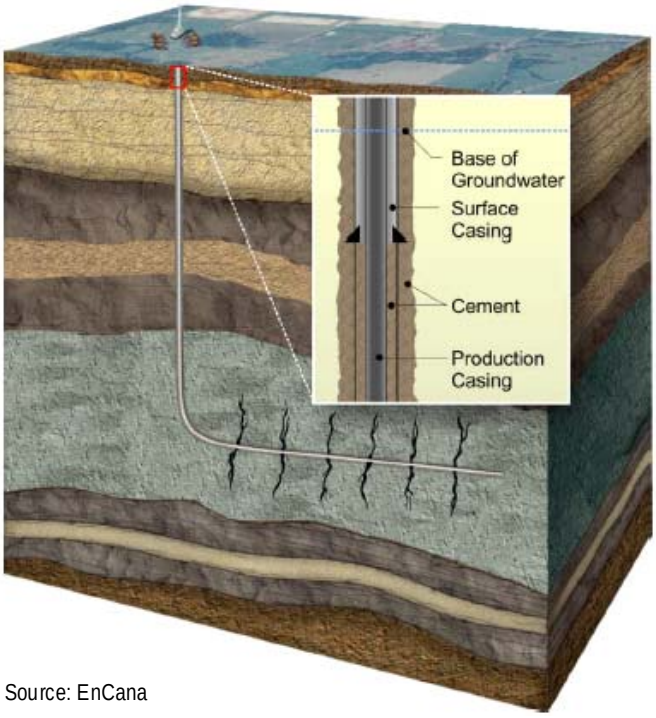
The "conventional wisdom" three years ago was that lower natural gas prices would crater rig utilization which would, in turn, reduce productive capacity and collapse the natural gas surplus. The "conventional wisdom" for a collapse in the natural gas surplus turned out to be wrong because of two key aspects of progress in technology - - significant increases in well productivity from more effective use of horizontal well drilling and reductions in well costs from increases in rig efficiencies.

V.1 EXAMPLES OF PROGRESS IN TECHNOLOGY

V.1.1 Increased Use of Horizontal Wells

The use of intensively stimulated horizontal wells have enabled the deep, ultra-low permeability gas shale formations to be economically developed, **Figure V-1**.

Figure V-1. Horizontal Well with Multi-Stage Fracturing



Source: EnCana

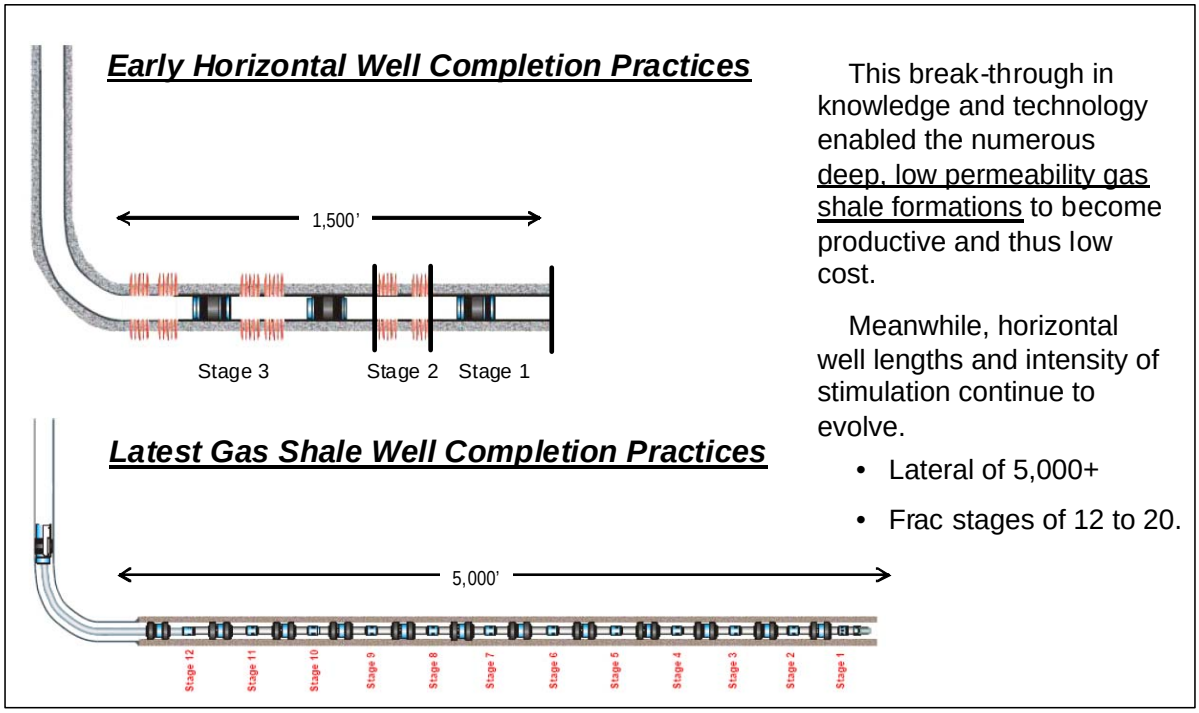
Natural gas production from shallow, fractured shale formations in the Appalachian and Michigan basins of the U.S. has been underway for decades.

What "changed the game" was the recognition that one could "create a permeable reservoir" and high rates of gas production by using intensively stimulated horizontal wells.

JAF028220.PPT

As operators have gained experience with horizontal drilling, the lengths of the horizontal laterals have increased as have the number of frac stages, **Figure V-2**.

Figure V-2. Changes in Well Completion Practices



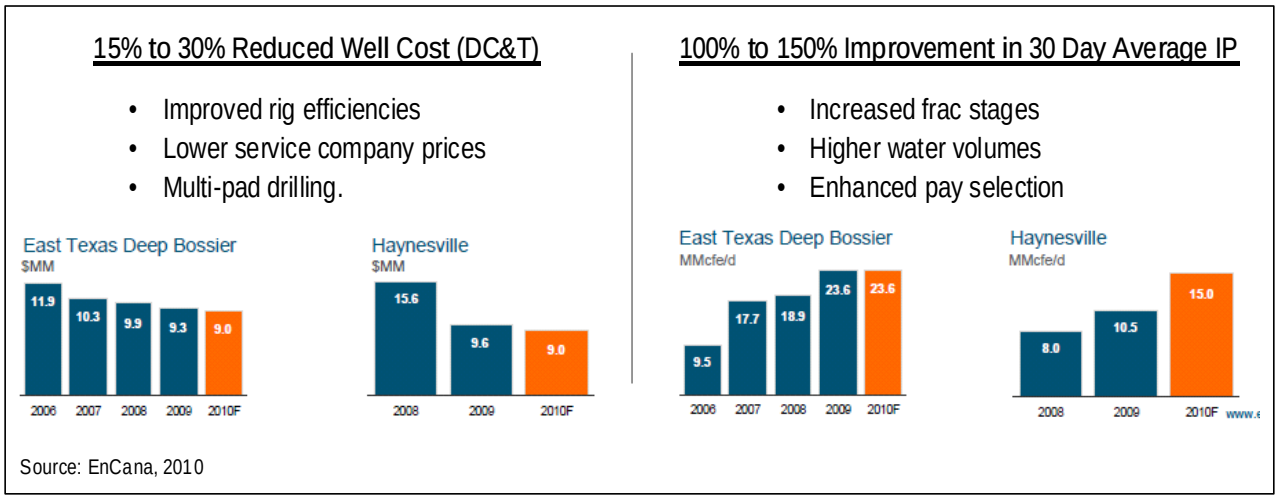
V.1.2 Reduced Well Costs and Improved Wells

In response to lower natural gas prices, the oil and gas industry has worked hard to lower costs and to improve well performance. The experience of EnCana (the second largest North American natural gas producer) in two of the high-impact natural gas plays - - Deep Bossier tight gas and Haynesville Shale - - illustrates this trend, **Figure V-3**.

- Use of multi-pad drilling, improved rig efficiencies and lower hydraulic fracturing costs have helped EnCana reduce well costs (drilling, completion and tie-in) in the East Texas tight gas play and in the Haynesville Shale play by 15% to 30%.

- The use of higher volume hydraulic fractures, increased frac stages and more focused pay selection in these two major natural gas plays have led to 100% to 150% improvements in initial (30 day) gas production rates.

Figure V-3. Changes in Well Costs and Performance for Two Major Unconventional Gas Plays



JAF028220.PPT

Similar improvements in well performance are being achieved in other major gas shale plays. For example, **Figure V-4** shows the progression of improving well performance achieved by Range Resources in the Marcellus Shale of the Appalachian Basin from 2006 through 2010.

An equally striking example of the impact of progress in technology is provided by Southwestern's Fayetteville Shale wells. The application of longer horizontal wells, use of more frac stages/perforation clusters, and use of 3-D seismic have led to a three-fold improvement in well production rates, **Table V-1**.

Figure V-4. Improvements in Shale Well Performance: Range Resources

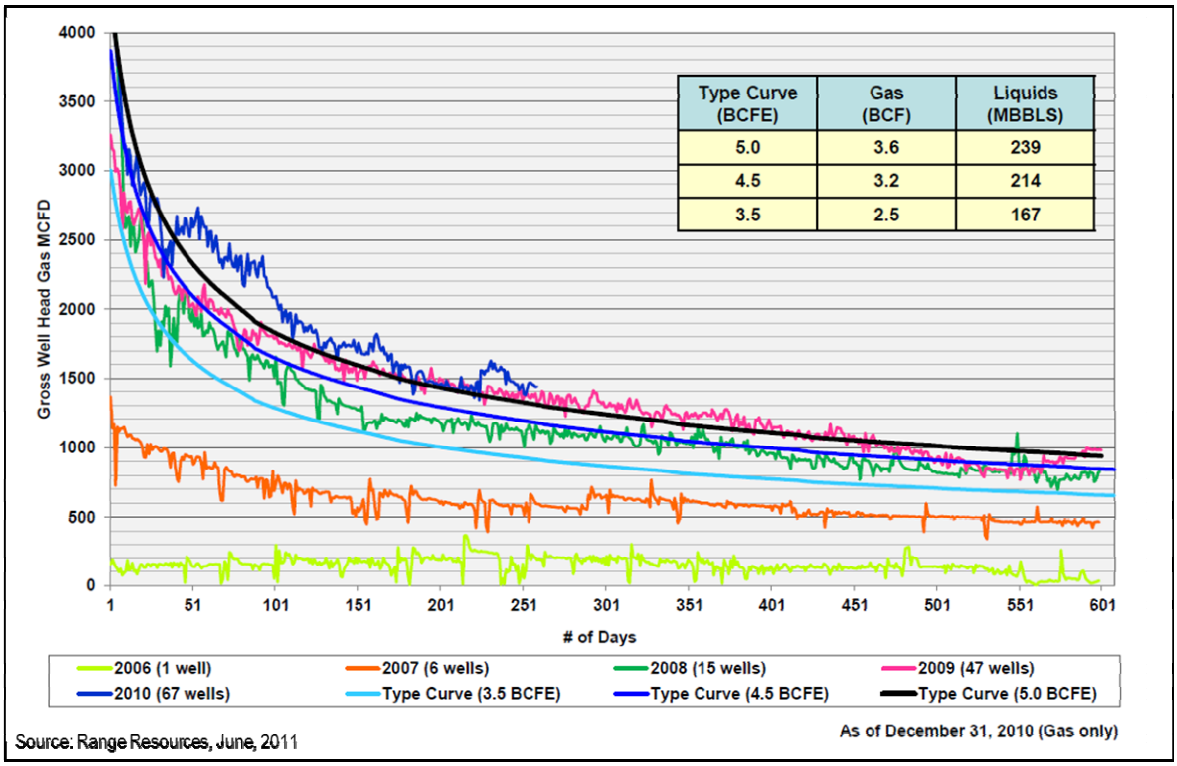


Table V-1. Improvements in Fayetteville Shale Well Performance: Southwestern Energy

Time Frame	New Wells on Production (ft)	Average IP Rate (Mcf/d)	Average 30th Day Rate (Mcf/d)	Average Lateral Length (feet)
1st Qtr 2007	58	1,260	1,070	2,100
1st Qtr 2008	75	2,340	2,150	3,300
1st Qtr 2009	120	2,990	2,540	3,870
1st Qtr 2010	106	3,200	2,390	4,350
1st Qtr 2011	137	3,230	2,600	4,980
1st Qtr 2012	146	3,320	2,420	4,740

V.2 INCORPORATION OF TECHNOLOGY PROGRESS IN THE NATURAL GAS SUPPLY MODEL (MUGS)

A primary objective in the construction of Advanced Resources' unconventional gas model (MUGS) in 1996 was to incorporate the impacts that progress in technology would have on future natural gas supply. We recognized that unconventional gas was a "technology play" and that significant advances in E&P technology would be essential for unlocking this vast resource.

As set forth in our documentation of the MUGS model in 1996, we anticipated the introduction of horizontal wells in gas shales, expected steady progress in the ability of geophysical methods to delineate the "sweet spots" (core area) of unconventional gas plays, and set forth other expectations for technology progress.*

V.2.1. Technology Levers

Within MUGS, certain "levers" allow the user to incorporate technology progress in well performance and influence the timing of a play's development. The Technology Performance and Timing levers in MUGS include:

- Improved Well Performance. This technology lever enables the model to increase unconventional gas well performance (estimated ultimate recovery (EUR)) over time, based on continuing advances in exploration and production technology. Currently, this technology lever improves well performance by 0.5% per year, equal to 10% over 20 years.

- Improved Ability to Identify Higher Productivity "Sweetspots". This technology lever enables the model to improve its discrimination among the high, average and low productivity areas within an unconventional gas play.

* See methodology for AEO 2009.

- Dry Hole Rate Improvement. This technology lever enables the model to increase the well drilling success rate of an emerging gas play by 0.5% per year up to a maximum of 95% (unless actual performance is higher). After a play is mature (over 50% developed), the success rate begins to decline, as new wells seek to define the outer limits of the play.

- Pace of Development in Emerging Basins. This technology lever captures the ability to use geologic characterization and seismic to lower the risks and accelerate the development pace in emerging basins.

- Availability of Hypothetical Plays. This technology lever schedules the time of development for plays classified as "hypothetical".

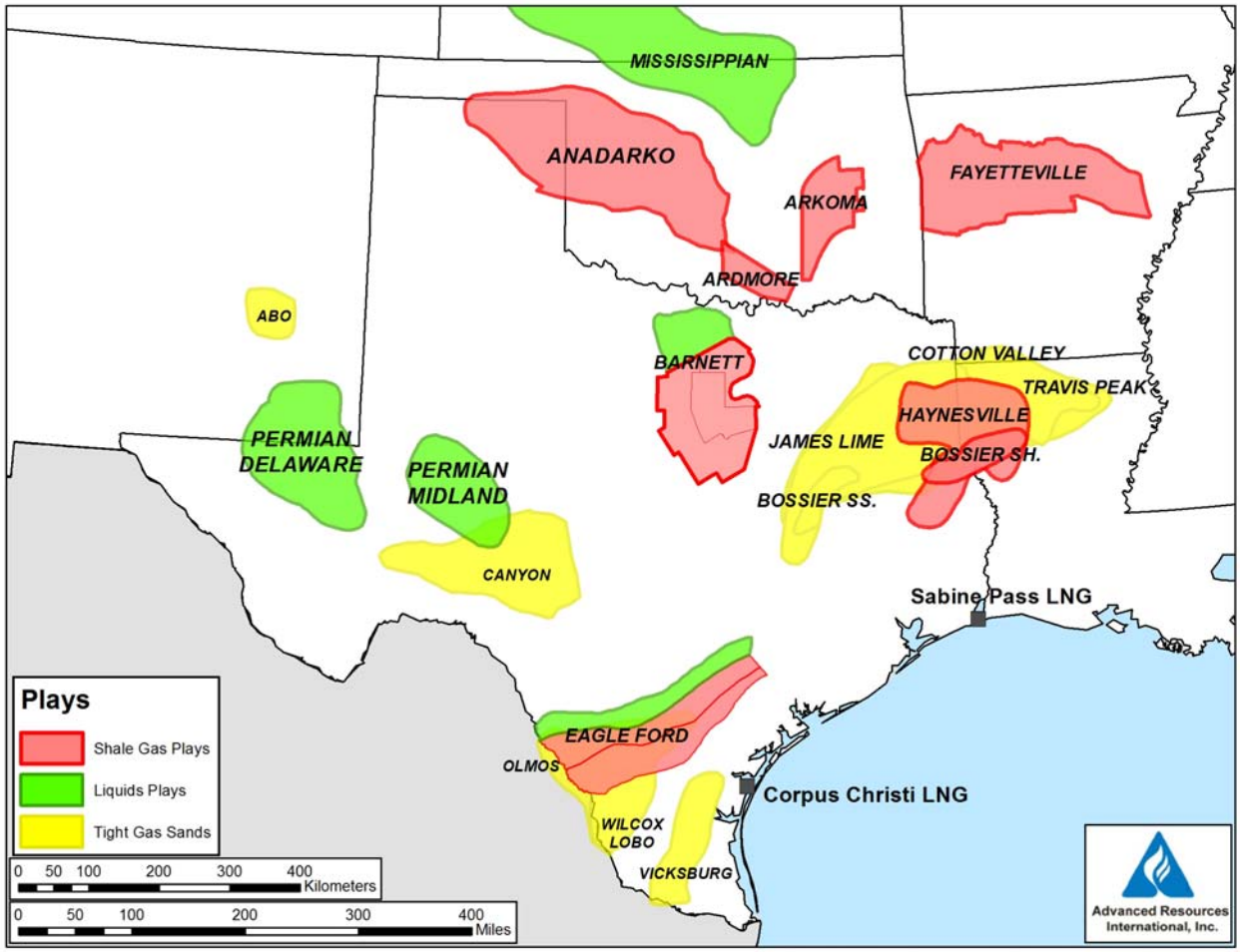
- Pipeline Constraints. This technology lever limits the pace of development in basins with inadequate pipeline capacity.

- Environmental Constraints. This technology lever excludes areas of a play or basin designated as wilderness or precluded from development for other reasons. It also limits access and thus restricts the pace of development in environmentally sensitive basin areas.

VI. UNCONVENTIONAL NATURAL GAS AND NATURAL GAS LIQUIDS AVAILABLE IN THE "CORPUS CHRISTI SUPPLY AREA"

The proposed location for the LNG exports set forth in this report is Corpus Christi, on the southern Gulf Coast of Texas. As such, it is useful to examine in more detail the natural gas and natural gas liquids (NGL) supplies that are located close to the "Corpus Christi Supply Area" and thus readily available to this LNG export site. This chapter addresses the unconventional gas basins and plays that would provide the natural gas and NGL supplies for the "Corpus Christi Supply Area", **Figure VI-1.**

Figure VI-1. Location of Unconventional Gas Plays: "Corpus Christi Supply Area"



VI.1 SHALE/TIGHT SAND GAS RESOURCES IN THE "CORPUS CHRISTI SUPPLY AREA"

The "Corpus Christi Supply Area" has major volumes of proved and undeveloped technically recoverable natural gas resources, estimated at 1,073 Tcf of wet natural gas.

- Much of this technically recoverable resource, equal to 209 Tcf of wet natural gas, is in the Eagle Ford shales and tight gas sands in South Texas and in the Permian Basin shales and tight sands of West Texas, in close proximity to the proposed Corpus Christi LNG export facility.

- The Barnett Shale (in North Texas), the Anadarko Basin Complex (including the Mississippian Lime) of Oklahoma, Kansas and the Panhandle of Texas, the Arkoma Basin's Fayetteville and Woodford shales plus a host of shale and tight gas sands of East Texas (e.g., Haynesville/Bossier, Cotton Valley, etc.) provide a second unconventional gas and oil supply area close to Corpus Christi. These basins also hold shale and tight sand resources equal to 582 Tcf of wet natural gas.

- Additional volumes of conventional natural gas (as estimated by the EIA in AEO 2012 and its supporting documents), of 282 Tcf of proved and unproved (including 194 Tcf of non-associated conventional gas and 88 Tcf of associated conventional gas) natural gas resources exist in the Gulf Coast, Mid-Continent and Southwest U.S. hydrocarbon basins within the "Corpus Christi Supply Area".

Importantly, without markets for the 1,073 Tcf of proved and technically recoverable shale, tight sand and conventional natural gas resource, much of the unconventional NGLs, the feed stock for the revitalization of the U.S. petrochemical industry, would remain unproduced or be flared.

Further discussion of the natural gas and NGL productive capacity available from the unconventional oil and gas resources in the "Corpus Christi Supply Area" is provided below.

VI.2 SHALE AND TIGHT SAND DRY GAS PRODUCTIVE CAPACITY IN THE "CORPUS CHRISTI SUPPLY AREA"

A series of large unconventional gas plays exist in the "Corpus Christi Supply Area" - - the established Barnett, Eagle Ford, Fayetteville, Haynesville and Wolfcamp shales, the combined Avalon/Bone Spring shale and tight sands play in the Permian Basin, and the various shale and tight sand plays in near the Anadarko Basin. The dry gas productive capacity from these unconventional gas plays (under the EIA AEO 2012 natural gas and oil price tracks) steadily increases from 24 Bcfd in 2011, to nearly 37 Bcfd in 2035, **Table VI-1**.

Table VI-1. Unconventional Dry Gas Productive Capacity: "Corpus Christi Supply Area"

	Corpus Christi Supply Area		
	Shales	Tight Gas Sands	Total
	(Bcfd)	(Bcfd)	(Bcfd)
2011 (Actual)	16.4	7.8	24.2
Near-Term			
2012	17.5	8.2	25.7
2013	17.8	7.8	25.6
2014	17.5	7.9	25.4
2015	17.2	8.0	25.2
Longer-Term			
2020	15.5	9.0	24.5
2025	16.6	10.0	26.6
2030	19.8	11.1	30.9
2035	24.6	12.0	36.6

JAF2012_059.XLS

The majority of the productive capacity in the "Corpus Christi Supply Area" is from shales. For example, in 2011 shale gas provided 16 Bcfd of the 24 Bcfd of natural gas productive capacity in this "Supply Area." As the Barnett Shale matures, its declining production is more than offset by growth in the Eagle Ford, Permian and Anadarko shales and tight sands.

VI.3 ASSOCIATED GAS PRODUCTION FROM TIGHT OIL AND HIGHLY LIQUIDS-RICH SHALES AND TIGHT SANDS IN THE "CORPUS CHRISTI SUPPLY AREA"

A number of the unconventional gas plays in the "Corpus Christi Supply Area" also provide associated gas from oil or highly liquids-rich shales and other tight formations. The presence of high liquids production helps ensure that associated natural gas production from these plays remains economic even at low natural gas prices. Of the 1,073 Tcf of proved and undeveloped technically recoverable natural gas resources available in the "Corpus Christi Supply Area", 167 Tcf is held as associated gas in liquids-heavy shale and tight oil plays plus 88 Tcf of associated gas in conventional oil plays.

Table VI-2 shows that the associated gas production from the high liquids content shales and tight oil plays doubles from a base of 2.7 Bcfd in 2011 to 5.7 Bcfd in 2015, increases further to 8 Bcfd in 2020, and to reach over 10 Bcfd in the 2030 to 2035 time frame. (Additional volumes of associated gas would be produced with conventional oil.)

Table VI-2. Unconventional Total and Associated Gas Productive Capacity: "Corpus Christi Supply Area"

	Total Dry Unconventional Gas (Bcf)	Associated Dry Unconventional Gas* (Bcf)
2011 (Actual)	24.2	2.7
Near-Term		
2012	25.7	3.7
2013	25.6	4.5
2014	25.4	5.1
2015	25.2	5.7
Longer-Term		
2020	24.5	8.0
2025	26.6	9.6
2030	30.9	10.1
2035	36.6	10.2

*From tight oil and highly liquids-rich shale and tight sand plays.

JAF2012_059.XLS

VI.4 SHALE AND TIGHT SAND NGL PRODUCTIVE CAPACITY IN THE "CORPUS CHRISTI SUPPLY AREA"

Many of the shale and tight gas resources in the "Corpus Christi Supply Area" have wet gas, providing a source for significant volumes of natural gas liquids (NGLs). Without a ready market for natural gas, the NGL resources would remain unproduced or, even more problematic, both the natural gas and the NGLs would be flared. This is the situation today in the liquids-rich Bakken, Eagle Ford and Niobrara shales.

- The "Corpus Christi Supply Area" shales and tight gas sands hold an estimated 28,300 million barrels of recoverable NGL resource.

- Last year (2011) the shales and tight gas sands in the "Corpus Christi Supply Area" provided 930,000 B/D of natural gas liquids productive capacity, equal to nearly 40% of total domestic NGL supply, **Table VI-3**.

- Our projections are that NGL productive capacity from shales and tight gas sands in the "Corpus Christi Supply Area" will increase significantly, particularly from the Eagle Ford and Permian Basin shales of South and West Texas and the liquids-rich tight sands of the Anadarko Basin Complex of Oklahoma reaching 1,540,000 barrels per day in 2015 and 2,570,000 barrels per day in 2035 (using the EIA AEO 2012 natural gas and oil price tracks).

Additional volumes of NGLs would be available in the "Corpus Christi Supply Area" from the 88 Tcf of associated gas in the conventional oil fields of West Texas, the Gulf Coast and the Mid-Continent.

Table VI-3. NGL Productive Capacity: "Corpus Christi Supply Area"

	Corpus Christi Supply Area		
	Shales	Tight Gas Sands	Total
	(M B/D)	(M B/D)	(M B/D)
2011 (Actual)	520	410	930
Near-Term			
2012	660	460	1,120
2013	820	470	1,290
2014	930	490	1,420
2015	1,030	510	1,540
Longer-Term			
2020	1,360	650	2,010
2025	1,640	740	2,380
2030	1,740	800	2,540
2035	1,750	820	2,570

JAF2012_023.XLS



U.S. NATURAL GAS RESOURCES AND PRODUCTIVE CAPACITY

Prepared for:
CHENIERE ENERGY
Houston, Texas

Prepared by:
Vello A. Kuuskraa
Tyler Van Leeuwen
ADVANCED RESOURCES INTERNATIONAL, INC.
Arlington, VA USA

August 26, 2010

Advanced Resources International, Inc.

DISCLAIMER

Review or use of this report by any party other than the client for whom it was prepared constitutes acceptance of the following terms by both the client and the third party.

Any use of this Report other than as a whole and in conjunction with this disclaimer is forbidden without prior written permission of Advanced Resources International, Inc. (ARI). This Report may not be reproduced or copied, in whole or in part, or distributed to anyone without the prior written permission of the Report's authors at ARI. Without limiting the generality of the foregoing, excerpts from the Report cannot be reproduced, copied or distributed without the review and prior written approval of the Report's authors at ARI. Data, model results, analyses, recommendations or any other material presented in this Report may not be excerpted, redacted, modified or applied to any other context without obtaining the prior written permission of ARI. All copyrights in this Report are held by ARI.

This Report is provided 'as is'. ARI bears no responsibility whatsoever for the results of any action that you or any other party chooses to take or not take on the basis of this Report. You acknowledge that ARI is not recommending any investment actions and you agree to not rely on this Report for such action.

The material in this Report is intended for general information only. Any use of this material in relation to any specific application should be based on independent examination and verification of its unrestricted applicability for such use and on a determination of suitability for the application by professionally qualified personnel in regard to any financial, investment or operating decision.

INTRODUCTION

This report has been prepared by Advanced Resources, a geology, engineering and economics consulting firm formed in 1970. The firm has been at the forefront of unconventional gas appraisal and development since its formation. In 1978, the company (then called Lewin & Associates) published the three volume report entitled "Enhanced Recovery of Unconventional Gas", which provided the foundation for the U.S. Department of Energy's and Gas Research Institute's (GRI) investments in unconventional gas research and technology. This report, prepared during a time when the "conventional wisdom" was that the nation was running out of natural gas supplies and curtailments existed on gas use for power generation, helped reverse both the outlook and policies for natural gas.

Advanced Resources was the support contractor on the GRI Team that changed coalbed methane from a scientific curiosity to a major source of gas supply. Advanced Resources' basin studies and its *COMET3* reservoir simulator are still the benchmark tools for optimizing CBM resources. Advanced Resources was the pioneer in bringing CBM expertise and technologies to countries such as Australia, China, and India among others.

The firm participated in the appraisal of Mitchell Energy's Stella Young #1 well that lead to a revised view of the resource potential offered by the Barnett Shale. In the May 25, 1998, *Oil and Gas Journal*, Advanced Resources presented the rationale as to why the Barnett Shale resource was at least ten times larger than held by "conventional wisdom". In the mid-1990s the U.S. DOE Energy Information Administration (EIA) asked Advanced Resources to build the unconventional gas supply module within the larger National Energy Modeling System (NEMS). EIA continues to use this modeling structure but in recent years has begun to incorporate its own resource assessments and development assumptions.

Advanced Resources assists a select group of domestic and international clients identify the highly productive "core areas" of emerging unconventional gas plays in the U.S. and worldwide. The firm incorporates its internal resource appraisal, well performance and economic data, assembled for 104 of the major U.S. unconventional gas plays, in its outlook and projections for unconventional gas productive capacity. Mr. Kuuskraa, a founder of the firm and the lead author of this report, is on the Boards of Southwestern Energy (SWN) and the Research Partnership to Secure Energy for America (RPSEA).

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The introduction and aggressive development of unconventional gas, particularly gas shales, has dramatically changed the outlook for U.S. natural gas - - from “fears of impending shortages” at the beginning of this decade to “expectations of plenty” today.

- Instead of declining as predicted by many, domestic natural gas production increased during the past decade, from 53 Bcfd in 2000 to 59 Bcfd this year.

- Increased production of unconventional gas more than countered declines in onshore and offshore conventional gas. Today, unconventional gas, at 36 Bcfd, provides over 60% of domestic natural gas production, up from 16 Bcfd at the start of this decade.

- Gas shales provide 12 Bcfd today (20% of domestic natural gas production), up from 1 Bcfd in 2000 and account for much of the 20 Bcfd of unconventional gas production growth during this past decade.

The domestic natural gas resource is large, equal to nearly 2,600 Tcf. This resource number combines our firm’s internal assessments of unconventional gas resources with EIA’s assessments for conventional gas The major deep gas shale basins, such as the Barnett, Haynesville and Marcellus, account for over a quarter of this resource base. Other studies, such as the recent work by the Potential Gas Committee, support our view that the domestic natural gas resource base is large and growing.

This report provides independent projections for natural gas productive capacity to the year 2035. We base our unconventional gas projections on our internal resource data base and supply model (MUGS). Our conventional gas projections are from EIA’s Annual Energy Outlook 2010 (AEO 2010). We use the AEO 2010 Reference Case for the natural gas price track in our report.

Based on this approach, we project significant increases in U.S. unconventional and total natural gas productive capacity in the coming years:

- We project near-term unconventional gas productive capacity to increase by 13 Bcfd, from 36 Bcfd today to 49 Bcfd by 2020, with gas shales accounting for essentially all of this growth.

- Given its large resource base, we project continuing growth in unconventional gas productive capacity, reaching 69 Bcfd by 2035 for a gain of 20 Bcfd for the 15 years from 2020 to 2035. Approximately half of the increase in unconventional gas productive capacity is expected to occur in the Mid-Continent/Gulf Coast Corridor, accessible to the LNG export facilities planned at Sabine Pass.

- Combining our projections for unconventional gas with EIA's projections for conventional gas (in AEO 2010), the overall domestic natural gas productive capacity reaches 69 Bcfd in 2020 and nearly 93 Bcfd in 2035, up from about 59 Bcfd today.

When we compare U.S. natural gas productive capacity with projected net consumption (defined as total consumption less net imports and supplemental supplies), we foresee potential for a significant surplus of productive capacity, reaching 15 Bcfd in 2020 and increasing to 24 to 29 Bcfd in 2035 (depending on the availability of the Alaska natural gas pipeline).

Additional discussion and the details of our analysis are provided in the attached full report.

I. CHANGING OUTLOOK FOR U.S. NATURAL GAS SUPPLY

The outlook for U.S. natural gas supply has changed dramatically during the past decade, particularly in the past five years. Much of this change in outlook has been caused by the introduction of the large natural gas resources held in gas shales.

At the start of this decade, "fears of impending shortages" was the conventional wisdom for natural gas supplies. We were advised that only massive investments in LNG import facilities would avert a crisis and save the day[1]. Natural gas reserves and production had been flat for the past decade, the large conventional gas fields were in decline, and notable analysts were skeptical about our ability to add new natural gas production[2].

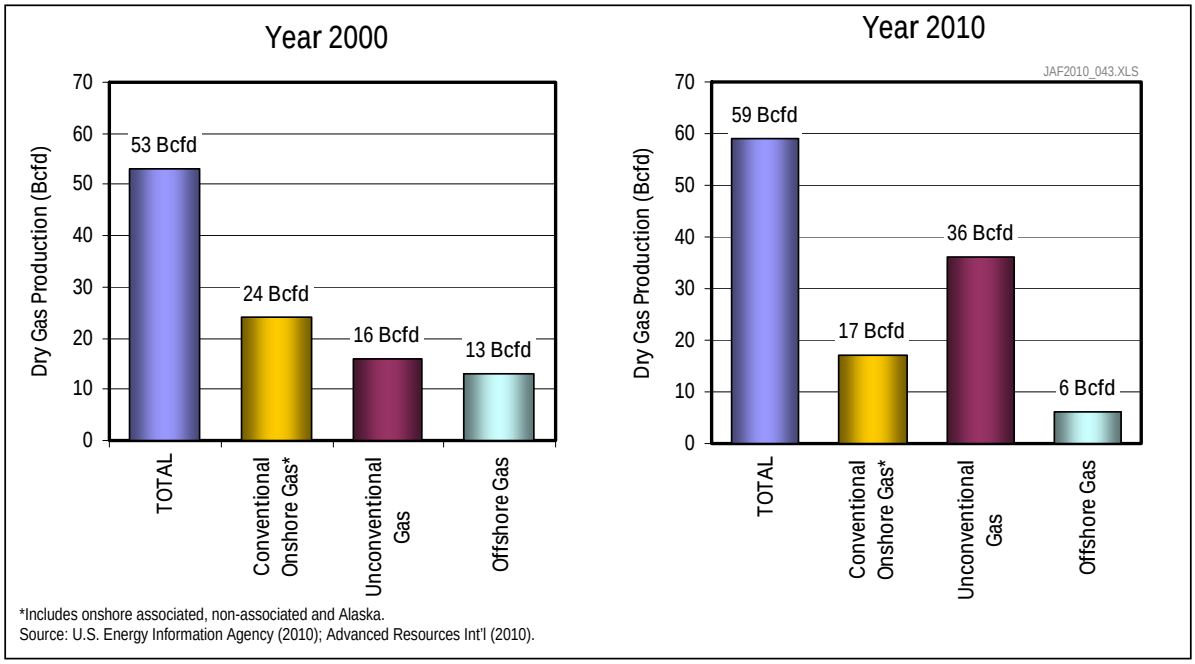
Today, we realize that, instead of LNG, it was domestic unconventional gas that "saved the day". Benefitting from science and technology investments in the 1980s and 1990s, increases in unconventional gas production more than countered the declines in conventional onshore and offshore natural gas.

- Instead of declining, domestic natural gas production (dry) actually increased - - from 53 Bcfd in 2000 to 59 Bcfd in mid-2010. The 20 Bcfd increase in unconventional gas production more than overcame the 14 Bcfd decline in conventional (onshore and offshore) gas production, **Figure I-1**.

- After two decades of essentially no growth, proved reserves of natural gas (dry) began to increase steadily from 177 Tcf (end of 2000) to 245 Tcf (end of 2008), **Figure I-2**. Further increases in proved natural gas reserves are expected for 2009 and 2010, based on our review of annual reports and presentations by companies active in unconventional gas.

[1] Numerous remarks by the Federal Reserve Chairman, Alan Greenspan, helped promote aggressive investments in LNG.
[2] A series of CERA analytical reports including "Can We Drill Our Way Out of the Supply Shortage?" and "Diminishing Returns" provided the foundation for "fears of scarcity".

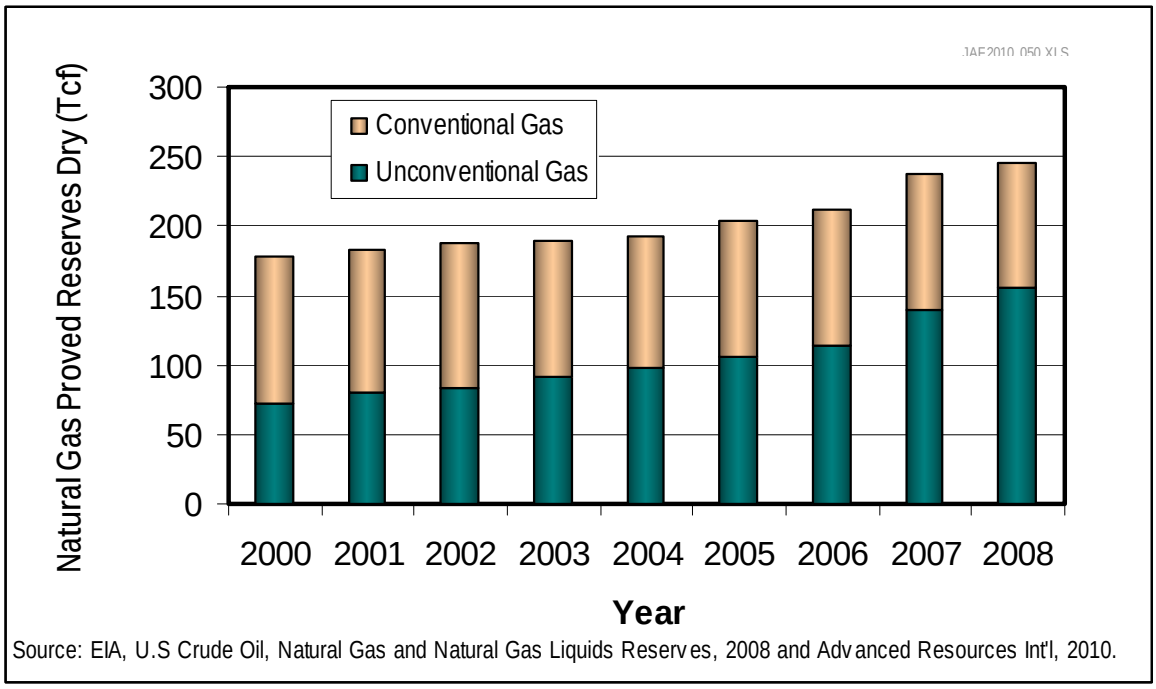
Figure I-1. Unconventional Gas Has Become the Dominant Source of U.S. Natural Gas Supply



*Includes onshore associated, non-associated and Alaska.
Source: U.S. Energy Information Agency (2010); Advanced Resources Int'l (2010).

JAF028220.PPT

Figure I-2. A Decade of Increases in Domestic Natural Gas Proved Reserves

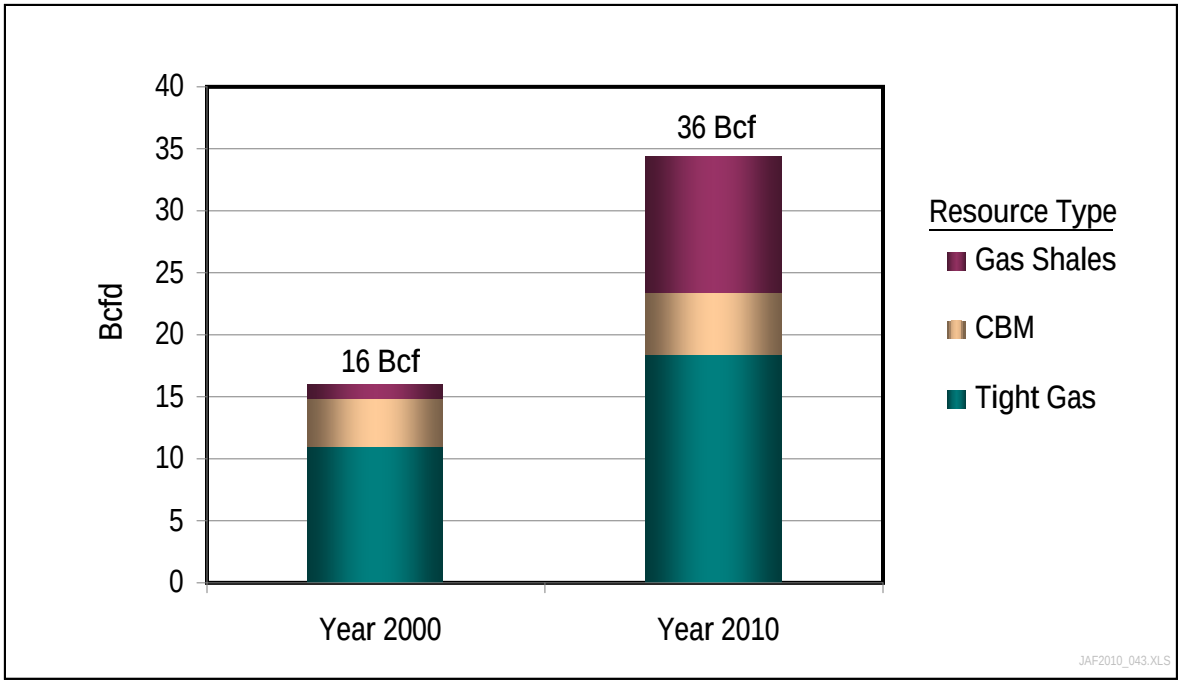


Source: EIA, U.S Crude Oil, Natural Gas and Natural Gas Liquids Reserves, 2008 and Advanced Resources Int'l, 2010.

A closer look at the data helps illustrate the contribution that unconventional gas has made during this decade:

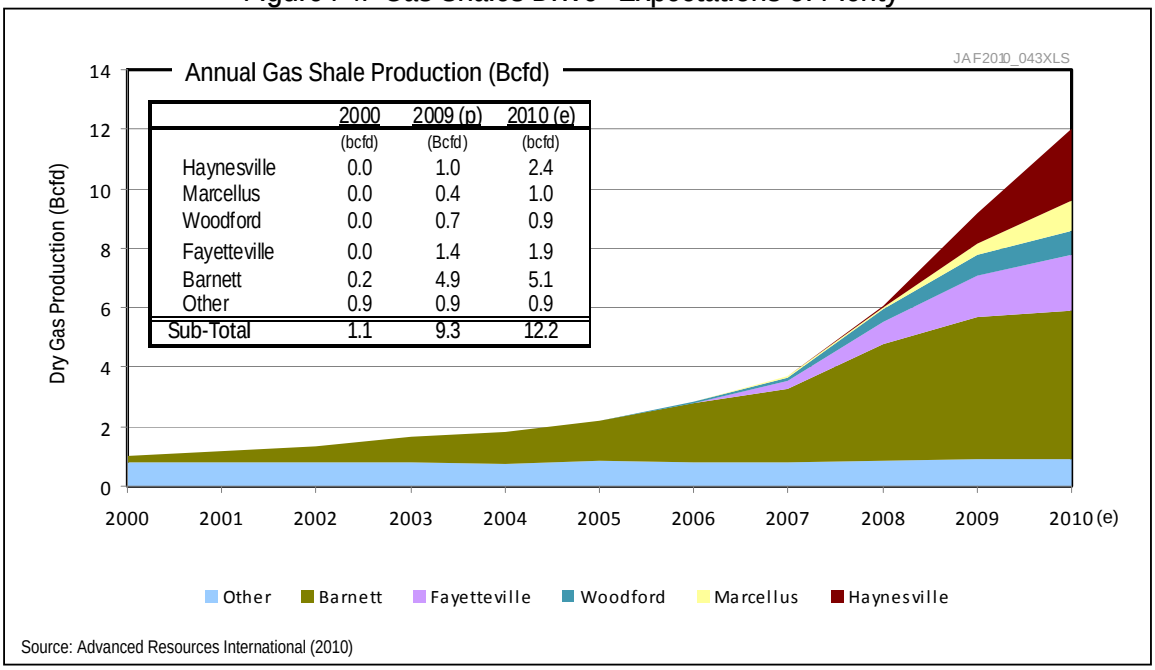
- Unconventional gas is now the dominant source of proved reserves increasing from 56 Tcf (end of 2000) to 156 Tcf (end of 2008).
- Production of tight gas sands, coalbed methane and gas shales increased by 20 Bcf, from 16 Bcfd in 2000 to 36 Bcfd in 2010. **Figure I-3**.

Figure I-3. Changes in Unconventional Gas Production by Resource Type



- Gas shales, currently producing at 12 Bcfd, have provided more than half of the 20 Bcfd of growth in unconventional gas production during the past decade. Further increases are anticipated, particularly from the "magnificent seven" U.S. gas shale plays - - Barnett, Haynesville, Fayetteville, Marcellus, Woodford, Eagle Ford and Bossier, **Figure I-4.**

Figure I-4. Gas Shales Drive "Expectations of Plenty"



Source: Advanced Resources International (2010)

JAF028220.PPT

Clearly, the outlook for natural gas supplies and domestic production is radically different today than at the start of this decade. With the discovery and development of the major gas shale plays, we have moved from "fears of impending shortages" to "expectations of plenty" in our projections for natural gas supplies.

Today there is a surplus of natural gas supply, with available gas storage filled to the brim, thousands of shut-in gas wells, deferred completions of already drilled wells and depressed wellhead gas prices. Still the critical question that needs to be addressed is:

What will be the status of U.S. natural gas supply and productive capacity in five, ten and twenty five years from now?

Answering this challenging question will require that we first delve into a series of more fundamental topics that, to a large extent, will determine the level of future U.S. and North American natural gas supply:

- With the addition of the new gas shale basins, just how large is the domestic natural gas resource base?
- How much of this domestic natural gas resource base can be converted to productive capacity at currently projected natural gas prices?
- Will the economically viable natural gas productive capacity meet expected domestic demand for natural gas, as well as support LNG exports of domestic natural gas production?
- To what extent will continued progress in technology further increase the size of the natural gas resource base and the volume of economically feasible gas supply?

In the following chapters of this report, we will address these questions. We then conclude the report with a more in-depth look at the accessible gas resources and supplies in the Mid-Continent/Gulf Coast corridor available for LNG export from the Sabine Pass terminal.

II. THE DOMESTIC NATURAL GAS RESOURCE BASE

The domestic natural gas resource base is large, equal to 2,585 Tcf overall and 2,286 Tcf in the Lower-48, including undiscovered/inferred resources and proved natural gas reserves, for both conventional and unconventional gas. Our assessment of the U.S. natural gas resource base includes independent work by Advanced Resources[3] on unconventional gas resources plus data from EIA (AEO 2010)[4] on onshore and offshore conventional gas resources, as shown below in **Table II-1**.

Table II-1. Technically Recoverable U.S. Natural Gas Resources as of 1/1/2009 (Tcf)

	Proved Reserves	Undiscovered/ Inferred Resources	Total Recoverable Resources***
LOWER-48			
Conventional Gas			
'Onshore Non-Associated	53	430	483
Offshore Non-Associated	8	284	292
Associated	21	117	138
Subtotal Conventional Gas	**82**	**831**	**913**
Unconventional Gas*			
Gas Shales**	39	660	700
Tight Gas Sands	96	471	567
Coalbed Methane	21	85	106
Subtotal Unconventional Gas	**156**	**1,216**	**1,373**
TOTAL LOWER-48	**238**	**2,047**	**2,286**
ALASKA	8	291	299
TOTAL US	**246**	**2,338**	**2,585**

*A number of the smaller tight gas plays are not yet included in unconventional gas reserves and resources.

JAF2010_050.XLS

**Our proved reserves values for Appalachian gas shales are larger than tabulated by EIA for end of 2008.

***Totals may differ slightly due to rounding

[3] Advanced Resources Internal Data Base (2010).

[4] U.S. Energy Information Administration, Annual Energy Outlook 2010, Report #:DOE/EIA-0383(2010), May 11, 2010.

Today, unconventional gas dominates the domestic natural gas resource base, for both proved reserves (156 Tcf) and for undiscovered/inferred recoverable resources (1,216 Tcf). Gas shales, with 700 Tcf of proved reserves plus recoverable resources, have become the largest of the unconventional gas resources. However, conventional onshore and offshore natural gas fields still hold large resources, accounting for 913 Tcf in the Lower-48 plus 299 Tcf in Alaska.

It is useful to recognize that the size of the unconventional gas resource base is not static (fixed for all time), but rather grows with progress in technology. (See discussion in Chapter IV on how technology progress influences the growth of the resource base.) For example, ultimate recoverable gas shale resources, which at the beginning of 2009 were assessed at 711 Tcf (including 11 Tcf of past production), increase steadily to 853 Tcf by year 2035 due to modest but steady improvements in well performance and other factors.

Other studies also support the view that the domestic natural gas resource base is large and increasing over time. For example, the Potential Gas Committee's (PGC) most recent (end of 2008) estimate for the U.S. natural gas resource base is 1,836 Tcf for undeveloped resources. Of this, 616 Tcf is the PGC's estimate for gas shales and 163 Tcf is the estimate for coalbed methane[5]. Proved natural gas reserves of 245 Tcf (end of 2008) would bring the overall total to 2,081 Tcf. Compared to its prior (year-end 2006) report, the latest PGC natural gas resource estimate is 556 Tcf larger (including 41 Tcf produced during the intervening two year period).

[5] Potential Gas Committee, "Potential Supply of Natural Gas in the United States", December 31, 2008.

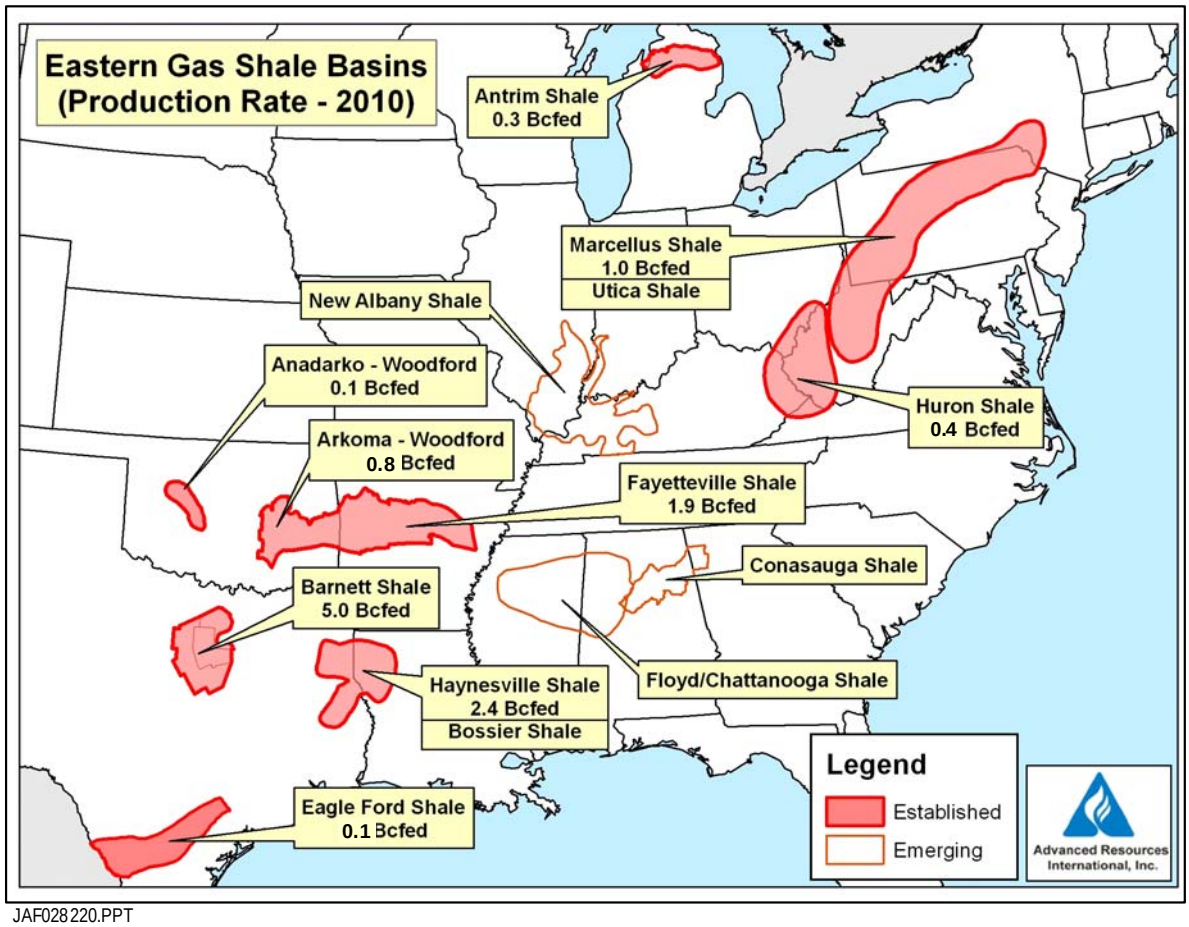
II.1 GAS SHALES

II.1.1 Recoverable Resources

Based on our updated resource assessments, we estimate 39 Tcf of proved reserves and 660 Tcf of undeveloped technically recoverable resource (as of 1/1/2009) for gas shales in 35 established plays, **Figure II-1**.

- The Marcellus Shale, the Haynesville Shale and the Fayetteville Shale account for significant portions of the undeveloped gas shale resource.
- We recently added the emerging Cretaceous-age Eagle Ford liquids-rich shale play in South Texas and the Jurassic-age Bossier Shale in Louisiana and East Texas to our gas shale resource base.

Figure II-1. Production From Established U.S. Gas Shale Basins



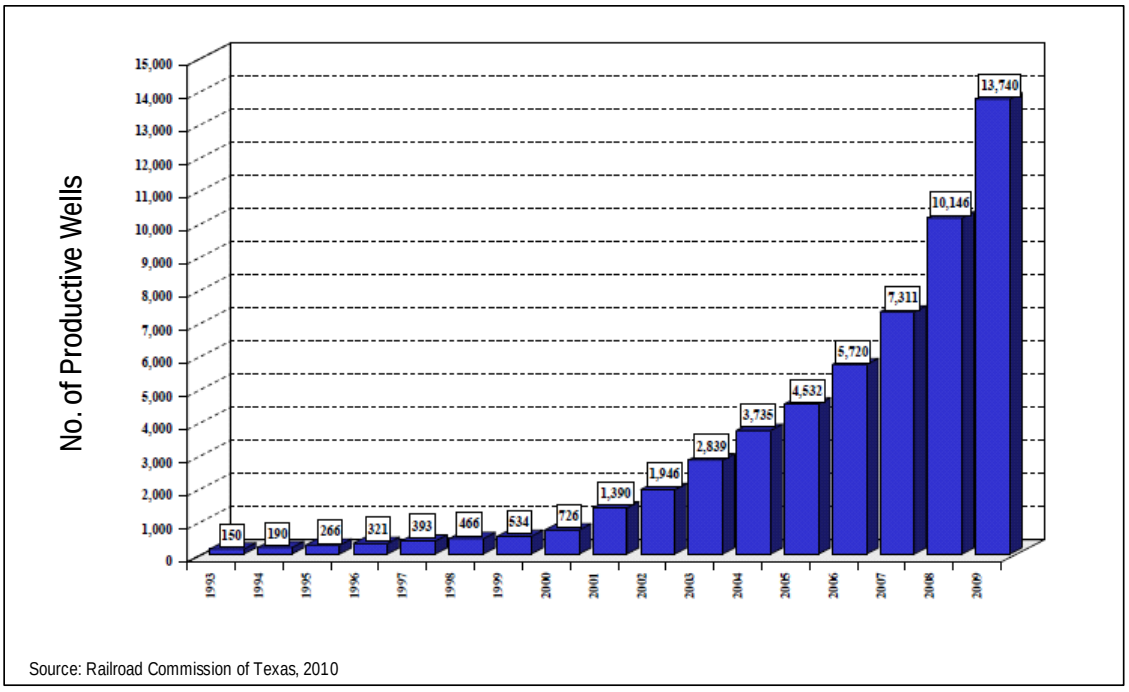
JAF028220.PPT

The emerging and unproven gas shale basins and plays of the Rockies (Mancos, Baxter, Niobara, etc.) are not yet included in our gas shale resource data base, nor are the Utica or the other emerging gas shale plays in the east. As these unproven gas shale basins are explored and defined, we will incorporate these resources into our overall natural gas resource base.

II.1.2 Development

Gas shale drilling and development has increased many fold in recent years, from about 1,800 new wells placed on production in 2001 to over 6,000 new wells in 2008. Because a significant number of the wells drilled in 2008 were late to be completed and "tied in", the number of new gas shale wells placed on production in 2009 was 7,400, including nearly 3,600 new Barnett Shale wells, **Figure II-2**. During this time, proved gas shale reserves increased from 4 Tcf to 39 Tcf (end of 2008) and further growth in proved gas shale reserves to an estimated 47 Tcf (end of 2009).

Figure II-2. Cumulative Number of Producing Barnett Shale (Newark East) Wells



Source: Railroad Commission of Texas, 2010

JAF028220.PPT

While the number of gas shale wells placed on production is expected to decline

somewhat in 2010, these wells are being drilled in the more highly productive gas shale basins enabling gas shale reserves and productive capacity to continue to grow.

II.1.3 Production

In line with increases in well drilling and growth in proved reserves, production from gas shales has also increased - - from 1 Bcfd in 2000 to over 9 Bcfd in 2009. With continued active drilling and increased in wells placed on-line, gas shales production is expected to exceed 12 Bcfd in 2010, **Table II-2**.

Table II-2. U.S. Gas Shale Production

Year	Bcfd
2000	1.1
2008	6.1
2009	9.3
2010 (Preliminary)	12.2

Continued progress in well drilling and completion technology and the incorporation of additional gas shale plays support expectations for higher rates of production from gas shales in future years.

II.2. TIGHT GAS SANDS

II.2.1 Recoverable Resources

We estimate 96 Tcf of proved reserves and 471 Tcf of undeveloped technically recoverable resource (as of 1/1/2009) for tight gas sands in 54 established plays.

- The Piceance Basin, Bossier Sands, and Granite Wash/Atoka in the Anadarko Basin provide important portions of the undeveloped tight gas sand resource. Numerous other Gulf Coast, Permian and Rockies plays account for the rest.

- We recently updated our resource assessments, well performance and economics for the Piceance (Mesaverde), Uinta (Tertiary, Mesaverde), Green River (Lance) and East Texas (Bossier and Cotton Valley) basins and added the emerging Granite Wash/Atoka horizontal well play in Oklahoma and West Texas to MUGS.

Significant increases in recoverable resources for tight gas sand are possible by using closer well spacing, massive multiple completions and horizontal well drilling.

II.2.2 Development

Tight gas sand drilling and development have grown significantly in recent years, from about 5,000 new wells placed on production in 2001 to nearly 15,000 new wells in 2008. During this time, proved tight gas sand reserves increased from 48 Tcf to 96 Tcf (as of 1/1/2009). In 2009, tight gas drilling declined to about 8,000 new wells and is expected to decline further in 2010 as many of the available well drilling rigs have been moved to gas shale plays.

Despite the decline in well drilling, we anticipate that tight gas sand proved reserves will grow as industry continues to shift their focus to greater use of horizontal wells and higher productivity plays such as the Granite Wash.

II.2.3 Production

With the nearly two-fold increase in proved reserves, tight gas production increased from 11 Bcfd in 2000 to nearly 18 Bcfd in 2008. We expect tight gas sand production to increase in 2010, **Table II-3**.

Table II-3. U.S. Tight Gas Sand Production

Year	Bcfd
2000	10.9
2008	17.8
2009	17.8
2010 (Preliminary)	18.9

Improved Rockies basis differentials and new well drilling and production technologies (e.g., multi-stage stimulation and horizontal wells) provide the basis for a "bullish" outlook for future tight gas sand production.

II.3 COALBED METHANE RESOURCES

II.3.1 Recoverable Resources

We estimate 21 Tcf of proved reserves and 85 Tcf of undeveloped technically recoverable resource for coalbed methane in 29 established plays.

- The San Juan Basin and the Powder River Basin account for the bulk of the undeveloped CBM resource as well as much of the proved CBM reserves.
- We recently updated our resource assessments, well performance and economics for the San Juan (Fruitland) and Powder River (Ft. Union) CBM basins.

Much of the CBM resource in-place is in deep, low permeability formations in the Piceance (80 Tcf) and Greater Green River basins (300+Tcf) and thus these basins are not yet included in our estimates for recoverable resources. Significant advances in well completion technology will be required to enable these deep CBM resources to contribute to domestic natural gas supplies in future years.

II.3.2 Development

Coalbed methane drilling and development has been relatively steady from 2001 to 2008, at about 5,000 wells per year. During this time, proved CBM reserves increased from about 16 Tcf to 21 Tcf (as of 1/1/2009).

In 2009, the number of CBM wells placed on production declined to about 2,000 wells and is expected to drop further in 2010 as the rig count has plummeted. Furthermore, many of the CBM wells in the Powder River Basin are shut in. Based on the drop in well drilling, proved CBM reserves are expected to decline in 2010.

II.3.3 Production

CBM production has increased moderately, from 4 Bcfd in 2000 to above 5 Bcfd in 2009. Even with the recent decline in CBM well drilling, we expect CBM production to remain relatively stable at about 5 Bcfd in 2010, but to decline in future years, **Table II-4**. Breakthroughs in deep CBM well completions and enhanced coalbed methane technology could provide some "upside" to future projections of CBM production.

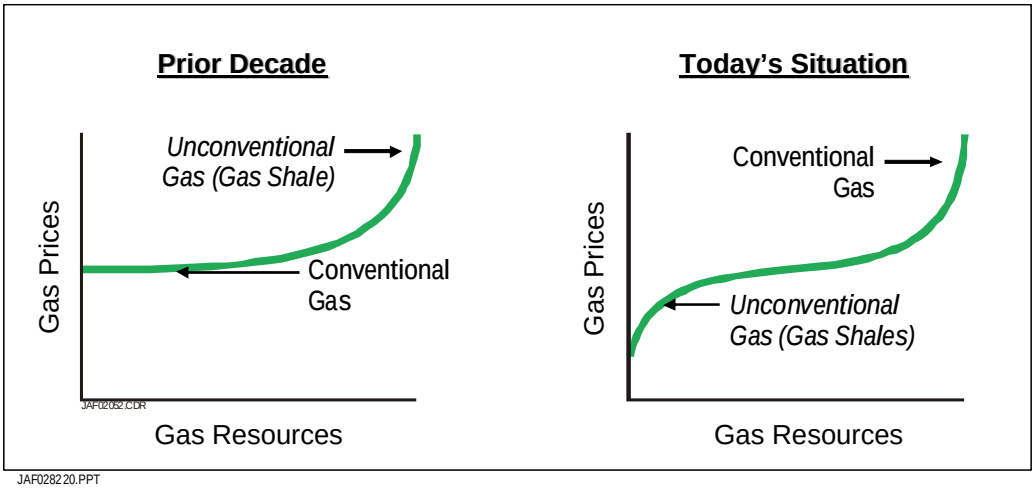
Table II-4. U.S. Coalbed Methane Production

Year	Bcfd
2000	4.0
2008	5.4
2009	5.2
2010 (Preliminary)	5.2

II.4 PRICE-SUPPLY CURVE FOR DOMESTIC NATURAL GAS

Our analysis shows that unconventional gas resources, particularly the higher quality gas shales, make up the low cost portion of the domestic natural gas price-supply curve. **Figure II-3** captures the shift that has occurred in the relative economics of conventional and unconventional gas in the past decade.

Figure II-3. Today's Domestic Natural Gas Price/Supply Curve



Several factors account for the radical shift that has taken place in the price-supply curve for domestic natural gas:

- First, the application of horizontal wells has enabled gas shales to deliver high rates of gas production, often in excess of 20 MMcfd from gas shale plays such as the Haynesville and Bossier, enabling these resources to have low finding and development (F&D) costs per unit of production.

- Second, several of the gas shale and tight gas sand plays are liquids rich, such as the Eagle Ford gas shales and the Granite Wash tight gas sands. Extraction and sale of these liquids (oil, condensate and NGLs) provide considerable additional revenues given the relatively high current price for oil.

- Third, as presented earlier, the size of the unconventional gas resource base is large and exists in numerous basins. Each of these basins has a highly productive "core area" with much lower F&D costs than for the basin or play as a whole. Industry's ability to identify and then preferentially develop these special "core areas" establish the low cost portion of the price-supply curve for domestic natural gas.

III. OUTLOOK FOR U.S. NATURAL GAS PRODUCTIVE CAPACITY

III.1 BACKGROUND

In this section of the report, we discuss the use of our unconventional gas resource base and economics model (MUGS) to provide independent projections for unconventional gas productive capacity. Then, we combine our estimates for unconventional gas productive capacity with projections of conventional gas production in EIA's AEO 2010 to provide an overall outlook for U.S. natural gas productive capacity to year 2035.

It is important to note that the report presents natural gas productive capacity, not projected production.

- Available natural gas productive capacity is the volume of natural gas that could be economically produced at a particular gas price track, given a defined natural gas resource base, established costs of production and expected returns on investment.

- Projected natural gas production is the volume of natural gas that would be produced at market equilibrium between supply (plus changes in gas storage) and net demand. (Net demand is total demand less net imports.)

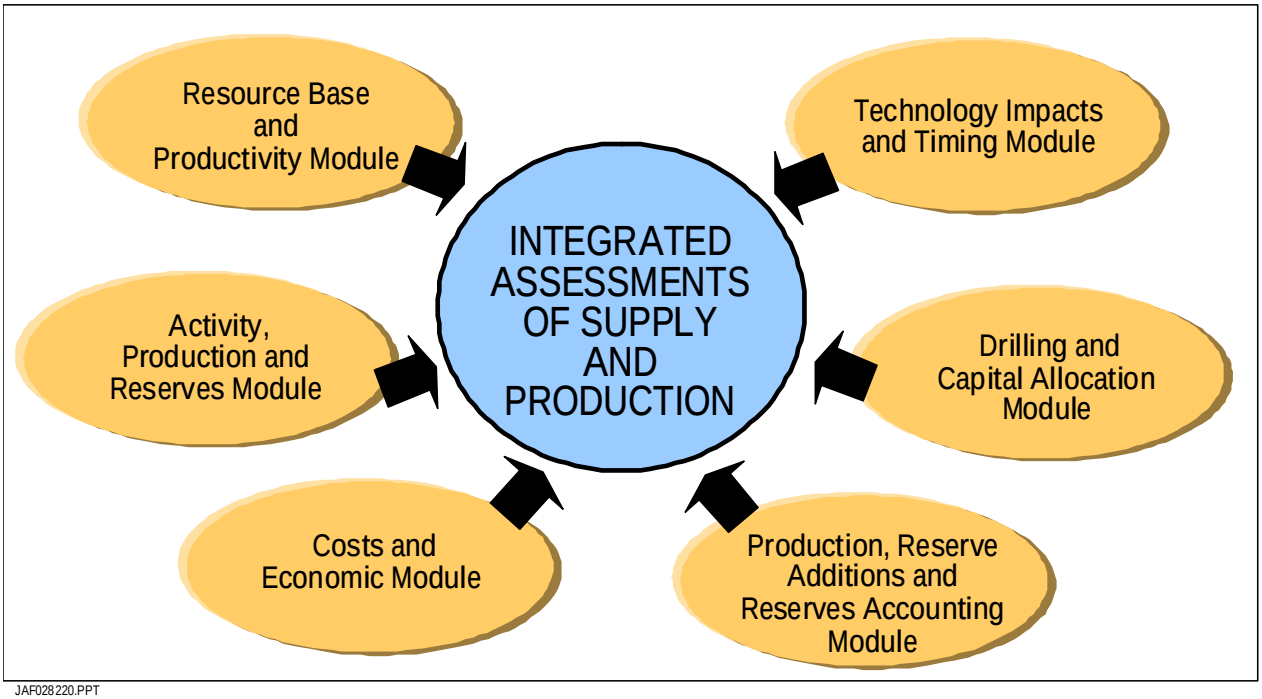
- If the available natural gas productive capacity, at a given gas price track, is less than projected demand, then either additional imports and/or higher gas prices are required to balance supply and demand.

- If available natural gas productive capacity, at a given gas price track, is more than projected demand, a variety of responses could occur. Producers could shut in wells or defer completing already drilled wells. There could be reductions in gas imports or increases in gas exports. Or, excess supply could drive down gas prices to reach market equilibrium.

III.2. OVERVIEW OF ADVANCED RESOURCES' MUGS MODEL

The key components of Advanced Resources' Technology Model of Unconventional Gas Supply, MUGS are illustrated in **Figure III-1**. Additional discussion of the model, as adopted into the Oil and Gas Module of EIA's National Energy Modeling System, is available in the Methodology for AEO 2009.[6]

Figure III-1. The Advanced Resources' Unconventional Gas Supply And Technology Model (MUGS)



MUGS contains a series of cost-price factors that relate costs to changes in natural gas prices. Some of these cost factors are directly related to price, such as production taxes and fuel use. Other cost factors, such as well completing and operations, are indirectly related to price through unit costs such as steel for well casing and salaries for operating staff.

[6] U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 200, DOE/EIA-0383(2009) March 2009.

III.3 OVERVIEW OF INPUTS FOR PROJECTING PRODUCTIVE CAPACITY

III.3.1 Price Track

To ensure our projections of unconventional gas productive capacity are comparable with the EIA's projections of natural gas production, we use the price track provided by the EIA in AEO 2010 for the Reference Case, (Henry Hub, 2008 dollars per million Btu), **Figure III-2**.

- In the near-term, from 2010 to 2020, natural gas prices rise from $4.50/MMBtu to $6.64/MMBtu.
- In the longer-term, from 2021 to 2035, natural gas prices rise from $6.74/MMBtu to $8.88/MMBtu.

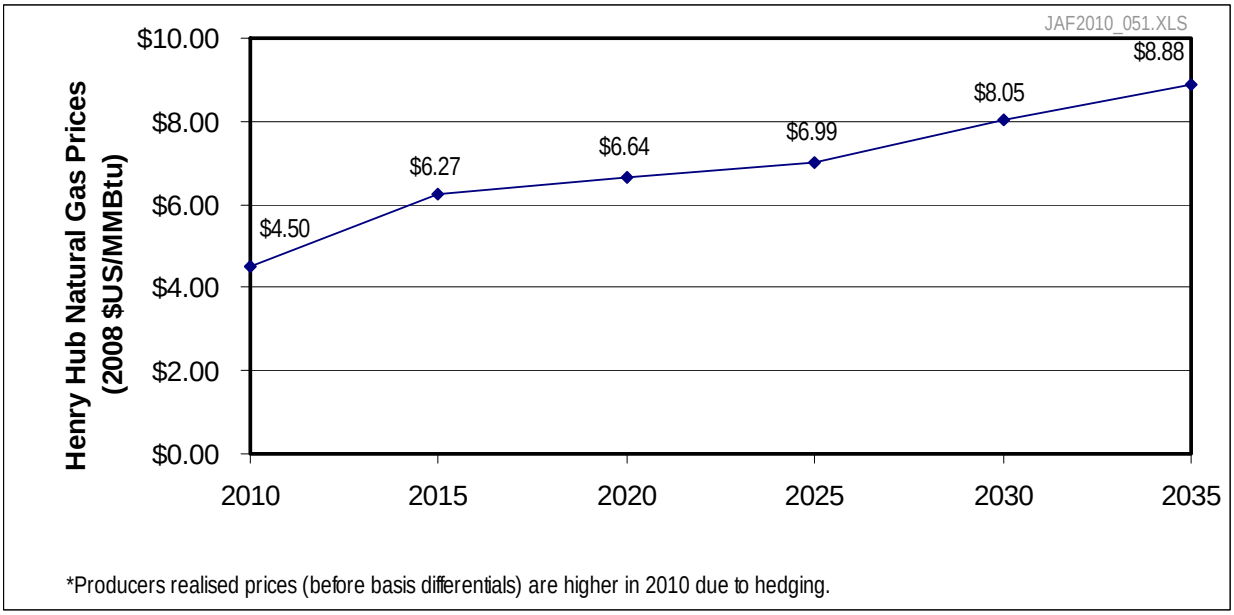
III.3.2 Basis Differentials

In the past, we and others have used historical data to set basis differentials. The historical data approach is reasonable when pipeline transportation and regional supply remain relatively stable. With the massive completion of new natural gas pipelines in the past few years, we now expect much lower basis differentials than shown by historical data, **Figure III-3**.

- The historical data (for 2004-2008) show a basis differential of 24% between the Rockies Hub and NYMEX, compared to a basis differential of 5% for forward prices. Assuming a NYMEX price of $6 MMBtu, the Rockies basis differential would shrink from $1.44/MMBtu in the past to $0.30/MMBtu in the future, providing a potential gain of $1.13/MMBtu to producers.
- Similar, though smaller, reductions in basis differentials are also expected for the Mid-Continent, San Juan and the AECO Hub in Alberta, Canada.

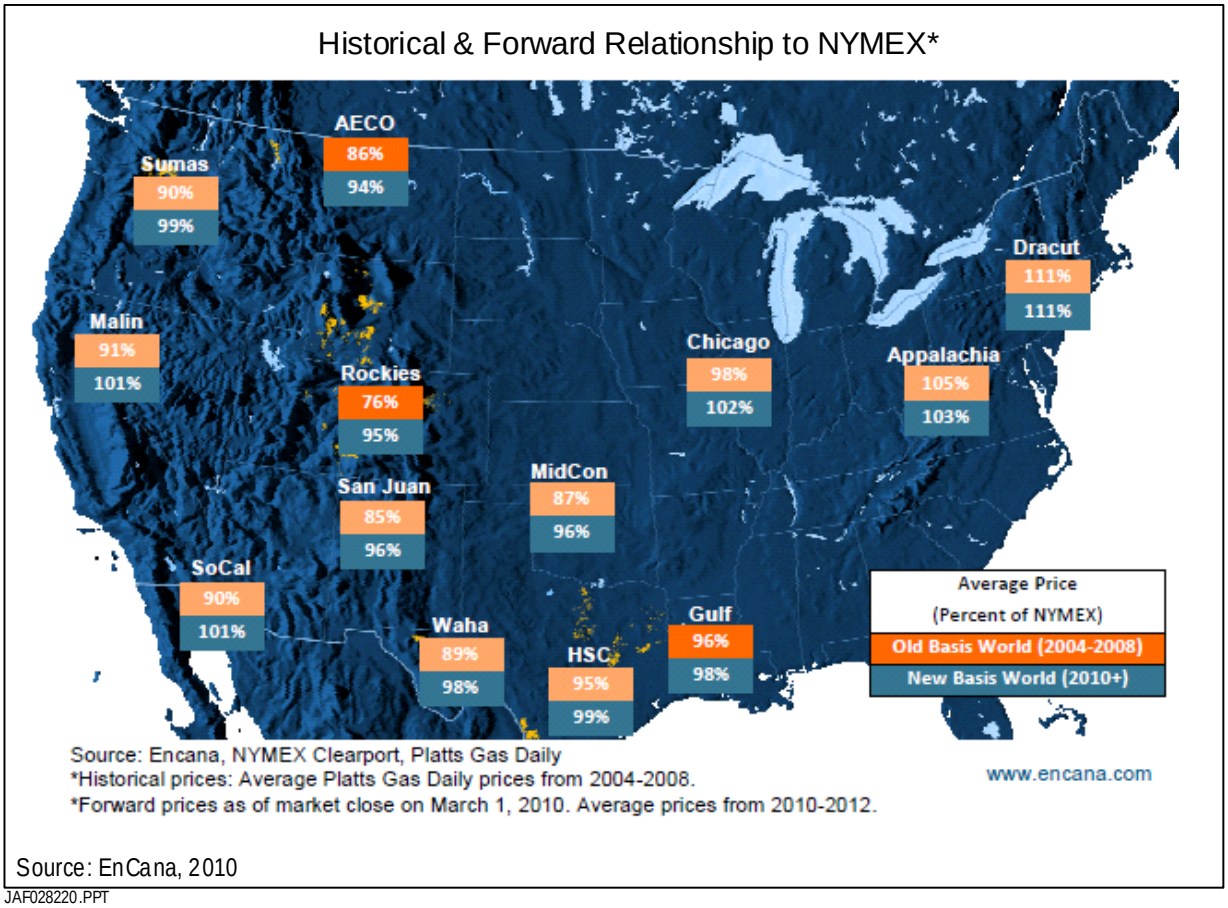
We have incorporated these reduced basis differentials into MUGS (our unconventional gas model) to evaluate future available natural gas productive capacity.

Figure III-2. Reference Case Natural Gas Prices, AEO 2010



*Producers realised prices (before basis differentials) are higher in 2010 due to hedging.

Figure III-3. Increased Transportation Outlets Have Reduced Basis Differentials



Source: EnCana, 2010

JAF028220.PPT

III.3.3 Resource Base and Proved Reserves

For undeveloped resources, we use as input into MUGS our independently assessed unconventional gas resource base, discussed in Chapter II. In addition, we input our internal estimates of proved reserves (1/1/2010) into MUGS by updating EIA's proved reserves for end of 2008 based on well drilling and well performance in 2009.

III.3.4 Cost and Well Performance Data

We have play-specific capital and operating costs and well performance data for 104 distinct unconventional gas plays in MUGS, including 29 gas shale plays, 46 tight gas sand plays and 29 coalbed methane plays. For example, we partition the large Marcellus Shale play of the Appalachian Basin into 6 distinct plays reflecting difference in geology, resource access and well performance.

III.3.5 Economic Considerations

In addition to basic Capex and Opex, MUGS incorporates a variety of economic factors, including accounting for the value of co-produced liquids and higher or lower than standard Btu content in the produced gas, for royalties and state production taxes, for lease costs, dry holes and seismic. The model specifically addresses oil and NGLs produced from the liquids-rich shales such as the Eagle Ford and Granite Wash, among others. The value of producing and selling liquids (oil/condensate) as well as the value (and costs) of producing NGLs are credited against overall costs, enabling produced natural gas from liquids-rich shales to have considerably lower break-even costs. The economic model incorporates a 15% return on investment, before tax, to establish the minimum required Henry Hub price for each play.

III.3.6 Other Considerations

As further discussed in Chapter IV, the model incorporates a variety of technology progress, environmental, infrastructure and development constraint levers that influence the timing and costs of unconventional gas production.

IV. PROJECTED TOTAL U.S. NATURAL GAS PRODUCTIVE CAPACITY

IV.1 SUMMARY OF RESULTS

We project total U.S. natural gas productive capacity to increase from 59 Bcfd in 2010 to 69 Bcfd in 2020 and further to nearly 93 Bcfd in 2035 under the EIA 2010 Reference Case natural gas price track, **Table IV-1.** Should the Alaska natural gas pipeline be delayed beyond 2035, the U.S. natural gas productive capacity in 2035 would be about 4.5 Bcfd less, at 88 Bcfd.

Table IV-1. Total U.S. Natural Gas Productive Capacity

	U.S. Conventional Dry Natural Gas Production		PLUS: Unconventional Gas Productive Capacity		U.S. Total Dry Natural Gas Productive Capacity	
	(EIA STEO 2010; Ref Case AEO 2010)		(ARI, 2010)		(Combined EIA/ARI, 2010)	
	(Tcf)	(Bcfd)	(Tcf)	(Bcfd)	(Tcf)	(Bcfd)
2009* (Actual)	9.3	25.4	11.8	32.3	21.5	57.7
2010* (Preliminary)	8.4	23.0	13.2	36.3	21.4	58.6
Near -Term						
2012	8.0	21.8	14.1	38.5	22.0	60.2
2015	7.5	20.5	15.8	43.4	23.3	63.9
2020	7.2	19.8	18.1	49.3	25.3	69.1
Longer-Term						
2025	8.4	22.9	20.2	55.4	28.6	78.3
2030	8.3	22.8	22.4	61.3	30.7	84.1
2035	8.7	23.7	25.2	69.0	33.8	92.7

* Data for 2009 and 2010 is from Short Term Energy Outlook (July 2010) and from AEO 2010 for years 2012 through 2035 for total U.S. dry gas production.
**Conventional gas production is the difference between U.S. total dry natural gas production (from STEO (July 2010) and AEO 2010) and EIA's projections for unconventional gas.

IV.2 U.S. NATURAL GAS PRODUCTIVE CAPACITY VERSUS NET DEMAND

Our analysis, using EIA data for conventional gas and Advanced Resources' data for unconventional gas, shows a steady growth in U.S. natural gas productive capacity by year 2020, continuing to year 2035, **Table IV-2**.

When we compare total productive capacity with projected net consumption, we see a potential for a significant surplus of productive capacity of 14 Bcfd in 2020, increasing to 29 Bcfd in 2035. (Net consumption (demand) is defined as total consumption less gas supplies provided by supplemental natural gas and net pipeline and LNG imports.) Even after subtracting the 4.5 Bcfd expected from the Alaska natural gas pipeline (scheduled to come online in 2023 and reach capacity by 2024), surplus productive capacity would still exceed 24 Bcfd in 2035.

Table IV-2. Projections of Surplus U.S. Dry Natural Gas Productive Capacity

	U.S. Dry Natural Gas Productive Capacity (AEO 2010 and ARI 2010)	U.S. Natural Gas Consumption (AEO 2010)*			Surplus U.S. Dry Natural Gas Productive Capacity	
		Total	Less: Other**	Net		
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	Unadjusted (Bcfd)	Adjusted*** (Bcfd)
2009 (Actual)	57.4	62.5	6.6	55.9	1.5	0.1
2010 (Preliminary)	58.6	64.7	7.4	57.3	1.3	-0.1
Near-Term						
2012	60.2	59.6	7.3	52.3	7.9	7.5
2015	63.9	59.5	6.7	52.9	11.0	11.0
2020	69.1	61.8	7.2	54.6	14.5	14.5
Longer-Term						
2025	78.3	64.6	6.1	58.5	19.9	15.4
2030	84.1	66.6	5.2	61.4	22.7	18.2
2035	92.7	68.1	4.2	63.9	28.7	24.2

* U.S. natural gas production and consumption data are from EIA Short Term Energy Outlook (July 2010) for 2009 and 2010 and from AEO 2010 for 2012 and beyond.

**Other supplies include: (1) supplemented natural gas; (2) net imports; and (3) change in inventory (2009 & 2010).

***After subtracting projected production from the Alaskan Natural Gas Pipeline (4.5 Bcfd in 2025 and beyond) and supply/demand balance discrepancies reported in the STEO for 2009, 2010 and in AEO 2010 for year 2012.

IV.3 CONVENTIONAL NATURAL GAS PRODUCTION

To estimate conventional natural gas production, we subtracted EIA's projections of unconventional gas production from its projections for total U.S. natural gas production in the Reference Case of AEO 2010, **Table IV-3.**

Table IV-3. U.S. Conventional Natural Gas Production

	EIA Reference Case Gas Supply (AEO 2010)							
	U.S. Total Dry Natural Gas Production		Less: EIA Unconventional Gas Production		U.S. Conventional Gas Production		NOTE: Alaska Natural Gas Production	
	(Tcf)	(Bcfd)	(Tcf)	(Bcfd)	(Tcf)	(Bcfd)	(Tcf)	(Bcfd)
Near-Term								
2012	19.3	52.7	11.3	30.9	8.0	21.8	0.30	0.8
2015	19.3	52.8	11.8	32.4	7.5	20.5	0.29	0.8
2020	20.0	54.6	12.7	34.8	7.2	19.8	0.27	0.7
Longer-Term								
2025	21.3	58.4	12.9	35.4	8.4	22.9	1.88	5.2
2030	22.4	61.3	14.1	38.5	8.3	22.8	1.88	5.1
2035	23.3	63.8	14.6	40.0	8.7	23.7	1.87	5.1

While data were provided in AEO 2010 for gas shale and coalbed methane production, the volumes for tight gas sand production were not provided. As such, we used the tight gas sand production values reported in AEO 2009 for EIA's tight gas production projections in AEO 2010.

IV.4 UNCONVENTIONAL GAS PRODUCTIVE CAPACITY

IV.4.1 Summary Projection. Advanced Resources projects unconventional gas productive capacity to increase from 36.3 Bcfd in 2010 to 49.3 Bcfd in 2020 and 69 Bcfd in 2035, **Table IV-4.** These projections use the EIA AEO 2010 natural gas price track for the Reference Case.

Table IV-4. Unconventional Gas Productive Capacity

	Annual Production	
	(Tcf)	(Bcfd)
2009 (Actual)	11.8	32.3
2010 (Preliminary)	13.2	36.3
Near-Term		
2012	14.1	38.5
2015	15.8	43.4
2020	18.0	49.3
Longer-Term		
2025	20.2	55.4
2030	22.4	61.3
2035	25.2	69.0

While the projected growth of unconventional gas productive capacity of 13 Bcfd in the next ten years may seem aggressive, it is less than the 20 Bcfd of growth achieved by these resources in the past decade. Additional discussion of the feasibility of achieving these increases in unconventional gas productive capacity is provided in Section IV-7: Bechmarks and Comparisons of this report.

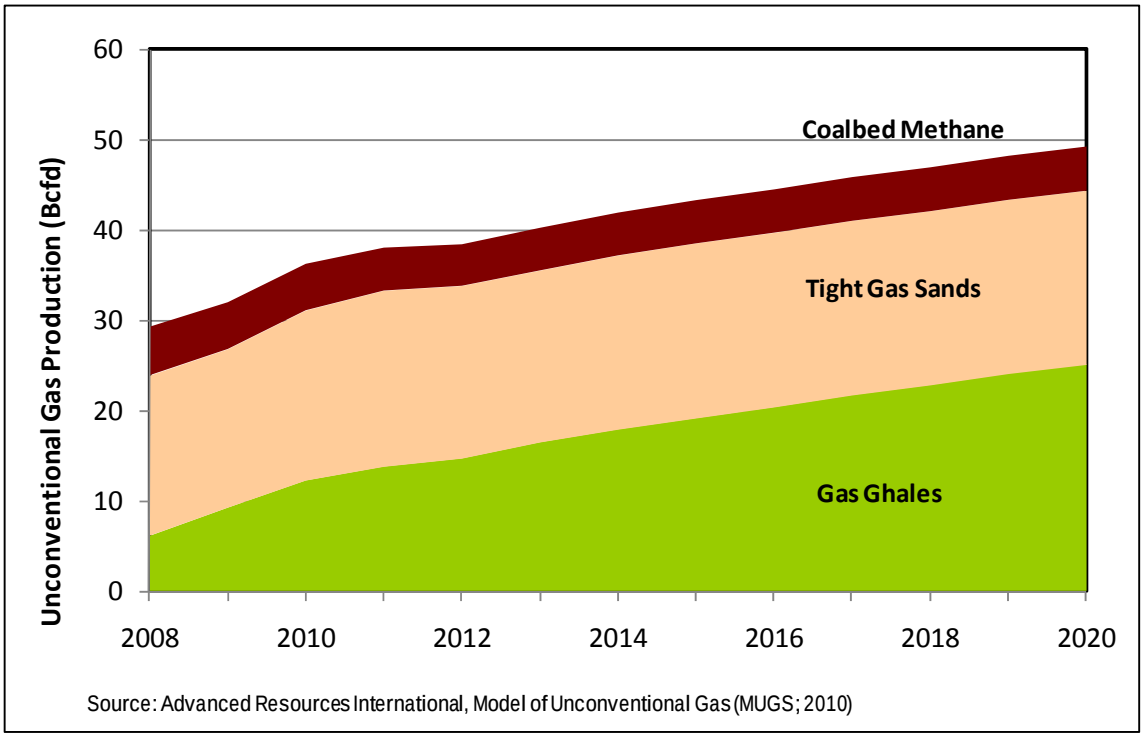
IV.4.2 Detailed Projections. In our unconventional gas model (MUGS), gas shales account for the great bulk (13 Bcfd) of near-term growth in unconventional gas productive capacity, from year 2010 to year 2020. Small increases in tight gas counter small losses in CBM in near-term productive capacity, **Table IV-5** and **Figure IV-1.** Gas shales also provide the great bulk of the longer-term growth in productive capacity, increasing by 14 Bcfd from year 2020 to 2035, **Table IV-5** and **Figure IV-2.**

Table IV-5. Unconventional Gas Productive Capacity by Resource

	Annual Production			
	Gas Shales	Tight Gas Sands	CBM	Total
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
2009 (Actual)	9.3	17.8	5.2	32.3
2010 (Preliminary)	12.2	18.9	5.2	36.3
Near-Term				
2012	14.7	19.2	4.6	38.5
2015	19.1	19.5	4.8	43.4
2020	25.1	19.3	4.9	49.3
Longer-Term				
2025	30.3	19.9	5.2	55.4
2030	34.6	21.2	5.5	61.3
2035	39.1	23.8	6.0	69.0

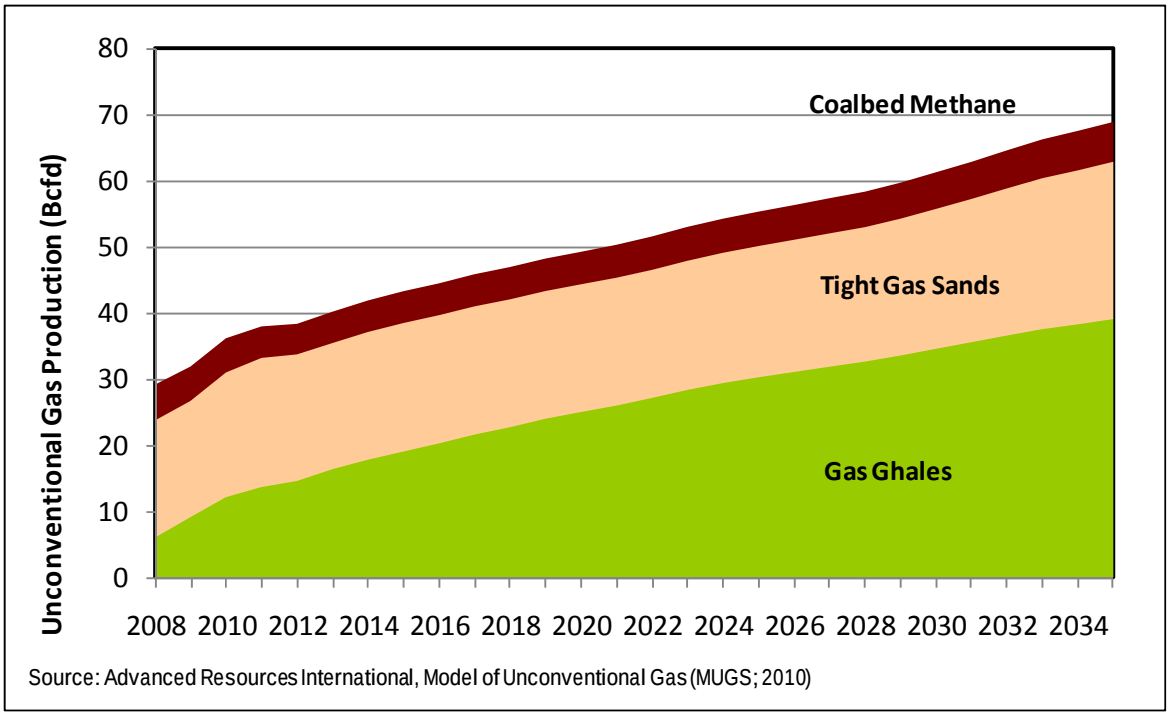
JAF2010_055.XLS

Figure IV-1. Mid-Term Expectations for Unconventional Gas Productive Capacity



Source: Advanced Resources International, Model of Unconventional Gas (MUGS; 2010)

Figure IV-2. Longer-Term Expectations for Unconventional Gas Productive Capacity



Source: Advanced Resources International, Model of Unconventional Gas (MUGS; 2010)

IV.5 COMPARISON OF ADVANCED RESOURCES' AND EIA'S PROJECTIONS FOR UNCONVENTIONAL GAS

Table IV-6 compares Advanced Resources' (2010) and EIA's (AEO 2010) Reference Case projections for unconventional gas.

- For the near-term, Advanced Resources projects unconventional gas productive capacity to increase from 36 Bcfd (in 2010) to 49 Bcfd (in 2020). In comparison, the EIA's projections for unconventional gas production start at 31 Bcfd (in 2010) and reach only 35 Bcfd in 2020.

- For the longer-term, Advanced Resources projects unconventional gas productive capacity to reach 69 Bcfd in 2035 compared with 40 Bcfd by EIA. Shale gas production in our analysis reaches 39 Bcfd in 2035, compared to 16 Bcfd in the EIA AEO reference case.

It is useful to note that Advanced Resources' projections are for productive capacity (at the EIA price track); EIA numbers are for actual production integrated with demand (at the EIA price track).

Table IV-6. Comparison of Advanced Resources' and EIA's Projections for Unconventional Gas

	Advanced Resources Int'l, Inc. (2010)				EIA AEO 2010			
	Total	Gas Shales	Tight Gas Sands	CBM	Total	Gas Shales	Tight Gas Sands	CBM
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
2009 (Actual)	32.3	9.3	17.8	5.2	30.6	6.5	18.1	6.0
2010 (Preliminary)	36.3	12.2	18.9	5.2	30.6	7.5	17.4	5.7
Near-Term								
2012	38.5	14.7	19.2	4.6	30.9	9.0	16.7	5.3
2015	43.4	19.1	19.5	4.8	32.4	10.5	16.7	5.2
2020	49.3	25.1	19.3	4.9	34.8	12.3	17.4	5.1
Longer-Term								
2025	55.4	30.3	19.9	5.2	35.4	13.5	17.0	4.8
2030	61.3	34.6	21.2	5.5	38.5	15.1	18.4	5.1
2035	69.0	39.1	23.8	6.0	40.0	16.4	18.3	5.3

Differences in the size of the shale gas resource base underlie much the disparity in the two outlooks for unconventional gas. ARI calculates 700 Tcf of technically recoverable resources for gas shale plays which is 404 Tcf larger than used by EIA. A significant portion of this difference occurs in the Northeast region, the location of the Marcellus, Devonian-age Huron, and Antrim gas shales, **Table IV-7.**

Table IV-7. Comparison of Advanced Resources' and EIA's Gas Shale Resources

Technically Recoverable Resources	ARI (Tcf)	EIA (Tcf)	Difference (Tcf)
National*	700	296	404
Northeast Region	243	79	164

* Excludes gas shale resource in the Rocky Mountain and West Coat Regions, which are not yet included in ARI's gas shale resource base

IV.6 A MORE DETAILED LOOK

This section of the report provides a more detailed look at the sources of our projected increases in unconventional gas productive capacity.

- ***Gas Shales.*** Gas shales account for 13 Bcfd of the increase in productive capacity by 2020 and 27 Bcfd by 2035. Three gas shale plays - - the Marcellus, the Haynesville/Bossier, and the Eagle Ford - - provide essentially all of this increase. These three gas shale plays also account for about half of today's active natural gas rigs.

	# of Natural Gas Rigs (Mid-2010)	Productive Capacity (Bcfd)		
		2010	2020	2035
Marcellus	127	1.0	5.4	11.6
Haynesville/Bossier	173	2.4	7.6	11.9
Eagle Ford	82	0.1	2.3	5.2
Sum	**382**	**3.5**	**15.3**	**28.7**

JAF2010_050.XLS

In contrast, we project gas production from the Barnett Shale to decline, after reaching a peak of 5.1 Bcfd in 2010, (includes associated gas production from Barnett oil wells).

- ***Tight Gas Sands.*** Tight gas sands provide little increase in productive capacity by 2020 but, with the higher EIA natural gas price track after 2020, contribute 5 Bcfd increased capacity by 2035. The three tight gas basins that account for much of the projected increase - - Anadarko, Green River and Uinta-Piceance - - have seen their natural gas rig count climb to 192 from 124 a year ago.

	# of Natural Gas Rigs (Mid-2010)	Productive Capacity (Bcfd)		
		2010	2020	2035
Anadarko*	111	1.2	2.6	4.3
Green River**	33	4.1	4.0	4.2
Uinta-Piceance	48	2.3	3.1	5.1
Total	**192**	**7.6**	**9.7**	**13.6**

*Includes the emerging Granite Wash and other tight gas plays.
**Includes the Pinedale/Jonah, Lance and Mesaverde plays.

A number of the more mature tight gas sand plays, such as the Gulf Coast Wilcox/Lobo and the Arkoma Atoka, are projected to be in decline.

- ***Coalbed Methane.*** Coalbed methane productive capacity declines somewhat by 2020 but then increases moderately by 2035 as gas prices increase. Higher natural gas prices stimulate increased development of the lower productivity, extension areas of the maturing CBM basins and plays.

IV.7 BENCHMARK AND COMPARISONS

IV.7.1 Benchmark Questions. It is useful to review natural gas production projections with a variety of "benchmark" questions. Because gas shales become the dominant source of unconventional gas production, we will target most of the benchmark questions to this resource base.

- ***Is the Recoverable Resource Base Sufficient?*** For the 25 year period (2010-2035), gas shale production equals 248 Tcf. With 700 Tcf of remaining recoverable gas shale resource (as of the beginning of 2009) and further growth of the resource base (as discussed in Chapter II), the gas shale resource base is far from being mature or depleted by 2035.

- ***Will There Be Sufficient Rig Capacity?*** The well drilling requirements in the years after 2010 do not exceed gas shale well drilling projected for 2010.

- ***Will There Be Sufficient Investment Capital?*** Given that the future well requirements for gas shale do not exceed projected 2010 drilling and that gas

prices increase, we do not anticipate capital constraints for gas shale development. The entry of the majors (e.g., Shell, BP, ConocoPhillips and ExxonMobil) as well as global E&Ps (Reliance, Statoil, Mitsui) into gas shale development further argues that capital will likely be sufficient.

- ***Is There Precedent for Such a Large Increase in Unconventional Natural Gas Supply?*** Our analysis shows that unconventional natural gas productive capacity is projected to increase by 13 Bcfd in the coming decade (from 36.3 Bcfd in 2010 to 49.3 Bcfd in 2020). While this is a large increase, it is considerably less than the actual results from the past decade (2000 to 2010), when unconventional gas production increased by 20 Bcfd, from 16 Bcfd in 2000 to 36 Bcfd today. Continued technological improvements (discussed below) and the pursuit of new unconventional gas plays, such as the Granite Wash tight gas sand and the Eagle Ford and Bossier gas shales, provide support that a 13 Bcfd production increase is realistic for the upcoming decade.

IV.7.2 Comparison Projections. As a comparison projection, we have included the recent work provided by EnCana on the outlook for North American gas shale and total natural gas production.

- EnCana projects gas shale production of 43 Bcfd in year 2020 for North America, **Figure IV-3**. Taking out 8 Bcfd for the Canadian Horn River and Montney, EnCana's projections for U.S. gas shale production is 35 Bcfd in year 2020. Our projections for year 2020 U.S. gas shale production from MUGS is less, at 25 Bcfd, indicating that our projection for gas shale productive capacity is more conservative than EnCana's.

- EnCana projects total North American gas production to reach 85 Bcfd in 2020, up from 70 Bcfd in 2010, a growth of 15 Bcfd, **Figure IV-4**. Our combined conventional gas (from EIA) and unconventional gas projections for year 2020 are 69 Bcfd for the U.S., up from 59 Bcfd in 2010, for an overall U.S. growth of 10 Bcfd. Assuming EnCana has expectations of growth on the order of 5 Bcfd in

Canadian natural gas production, these two projections would be reasonably comparable.

Figure IV-3. Shale Gas Production Forecast

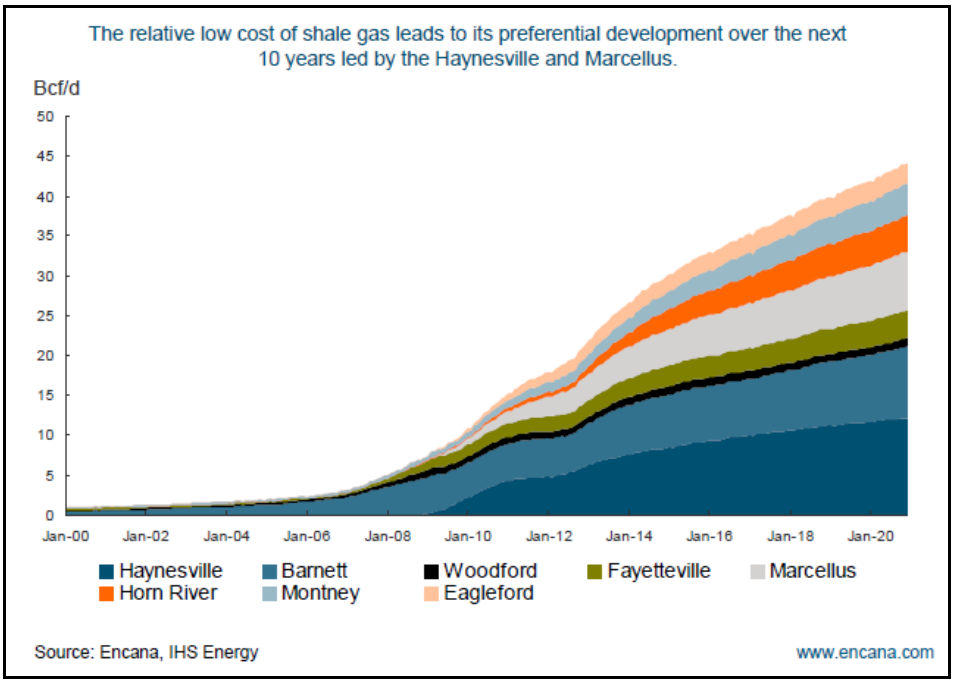
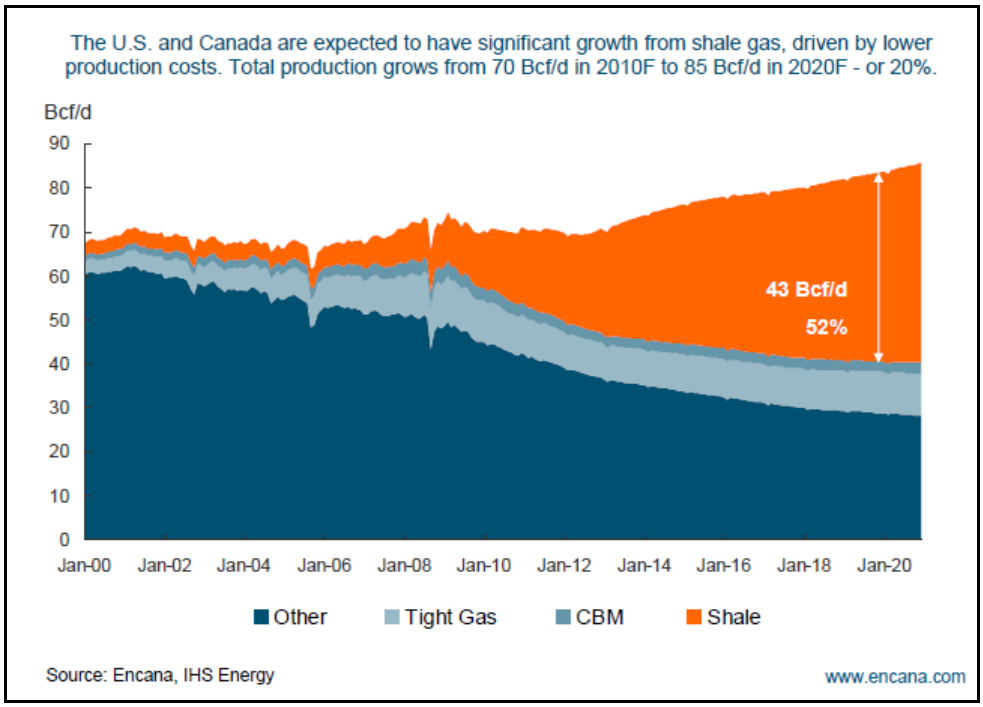


Figure IV-4. North American Gas Production Forecast



V. IMPORTANCE OF PROGRESS IN TECHNOLOGY FOR NATURAL GAS SUPPLY

The "conventional wisdom" a year ago was that lower natural gas prices would crater rig utilization. Low prices would, in turn, reduce productive capacity and lead to a strong price rebound - - the saying was, "low gas prices would cure low gas prices":

- The initial decline in rig utilization appeared to support the "conventional wisdom". Natural gas rig utilization declined from a peak of 1,585 in September, 2008 to a low of 675 in July, 2009.

- Since then, rig utilization has rebounded to 982 active natural gas rigs (July, 2009) with the majority of these being horizontal rigs with large gains in Texas, Oklahoma, Louisiana and Pennsylvania, states with active gas shale plays.

The "conventional wisdom" for natural gas supply turned out to be wrong because of three aspects of progress in technology - - increased use of horizontal well drilling in tight gas sands and gas shales; reductions in well costs from learning and increased rig efficiencies; and steady improvements in well productivity.

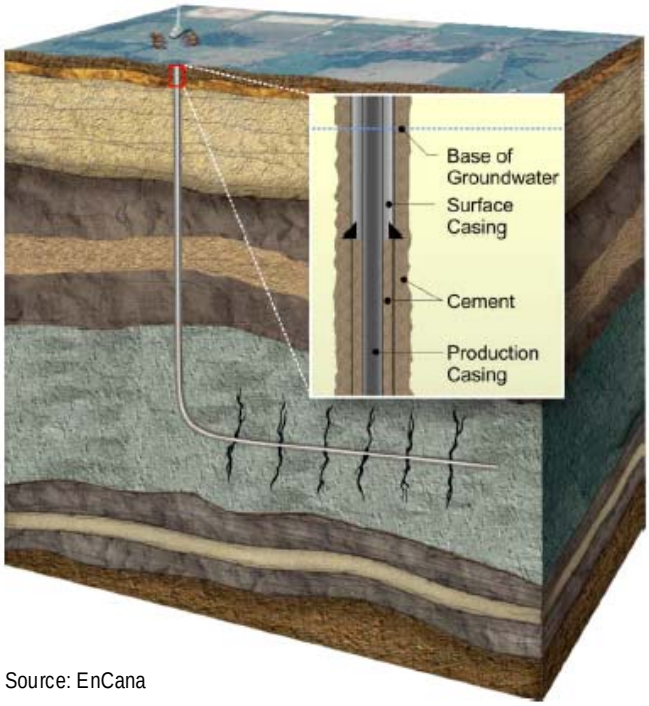
V.1 EXAMPLES OF PROGRESS IN TECHNOLOGY

V.1.1 Increased Use of Horizontal Rigs and Wells

The use of intensively stimulated horizontal wells with their high rates of gas production enabled the deep, ultra-low permeability gas shale formations to be economically developed, **Figure V-1**. As operators have gained experience with horizontal drilling and completions, the lengths of the horizontal laterals have increased as have the number of frac stages, **Figure V-2**.

Today, the utilization of horizontal rigs is at an all time high of 858. These rigs now make up more than half of the 1,557 active U.S. rigs and an estimated 80% of active natural gas rigs.

Figure V-1. Horizontal Well with Multi-Stage Fracturing



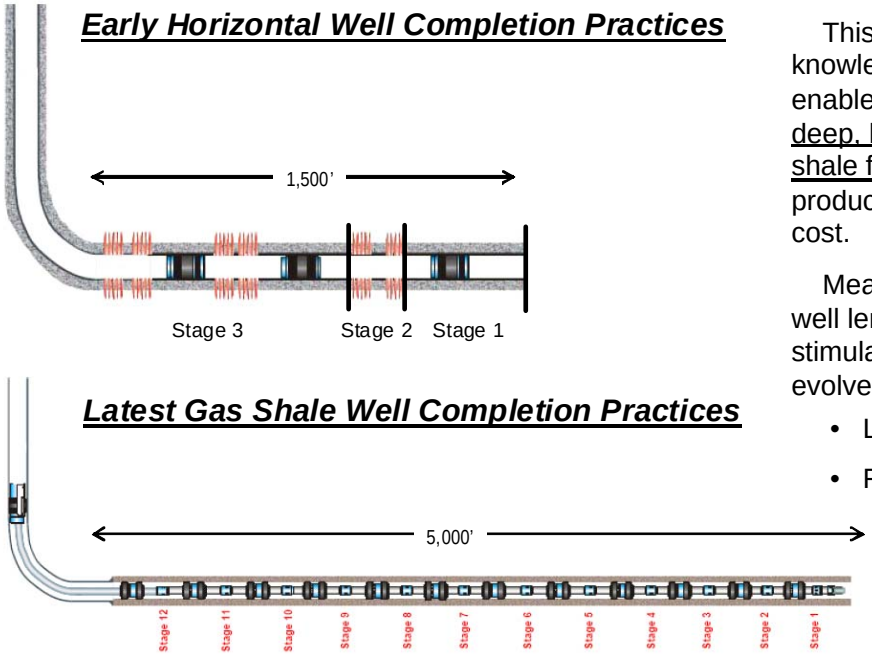
Source: EnCana

Natural gas production from shallow, fractured shale formations in the Appalachian and Michigan basins of the U.S. has been underway for decades.

What "changed the game" was the recognition that one could "create a permeable reservoir" and high rates of gas production by using intensively stimulated horizontal wells.

JAF028220.PPT

Figure V-2. Changes in Well Completion Practices



This break-through in knowledge and technology enabled the numerous deep, low permeability gas shale formations to become productive and thus low cost.

Meanwhile, horizontal well lengths and intensity of stimulation continue to evolve.

- Lateral of 5,000+
- Frac stages of 12 to 20.

JAF028220.PPT

In spite of increased use of horizontal rigs to drill horizontal wells (which take longer to drill), natural gas rig efficiencies, measured in terms of wells drilled per rig year, have remained high, **Table V-1**.

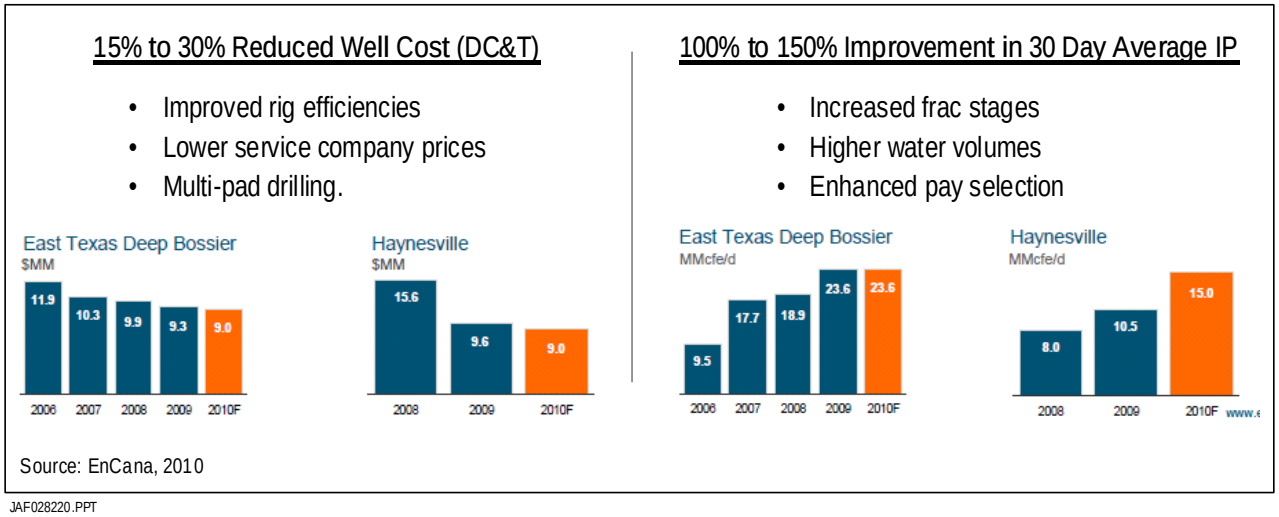
Table V-1. Natural Gas Rig Efficiencies

Year	Natural Gas Wells	Natural Gas Rig-Yrs.	Natural Gas Wells/Rig-Yr.
2007	33,093	1,466	22.6
2008	33,544	1,491	22.5
2009	19,194	801	24.0
2010 (6 months)	10,739	460	23.3

V.1.2 Reduced Well Costs and Improved Wells

In response to lower natural gas prices, industry has worked hard to lower its costs and to improve well performance. The experience of EnCana (the second largest North American natural gas producer) in two of the high impact natural gas plays - - Deep Bossier tight gas and Haynesville Shale - - illustrates this trend, **Figure V-3**.

Figure V-3. Changes in Well Costs and Performance for Two Major Unconventional Gas Plays

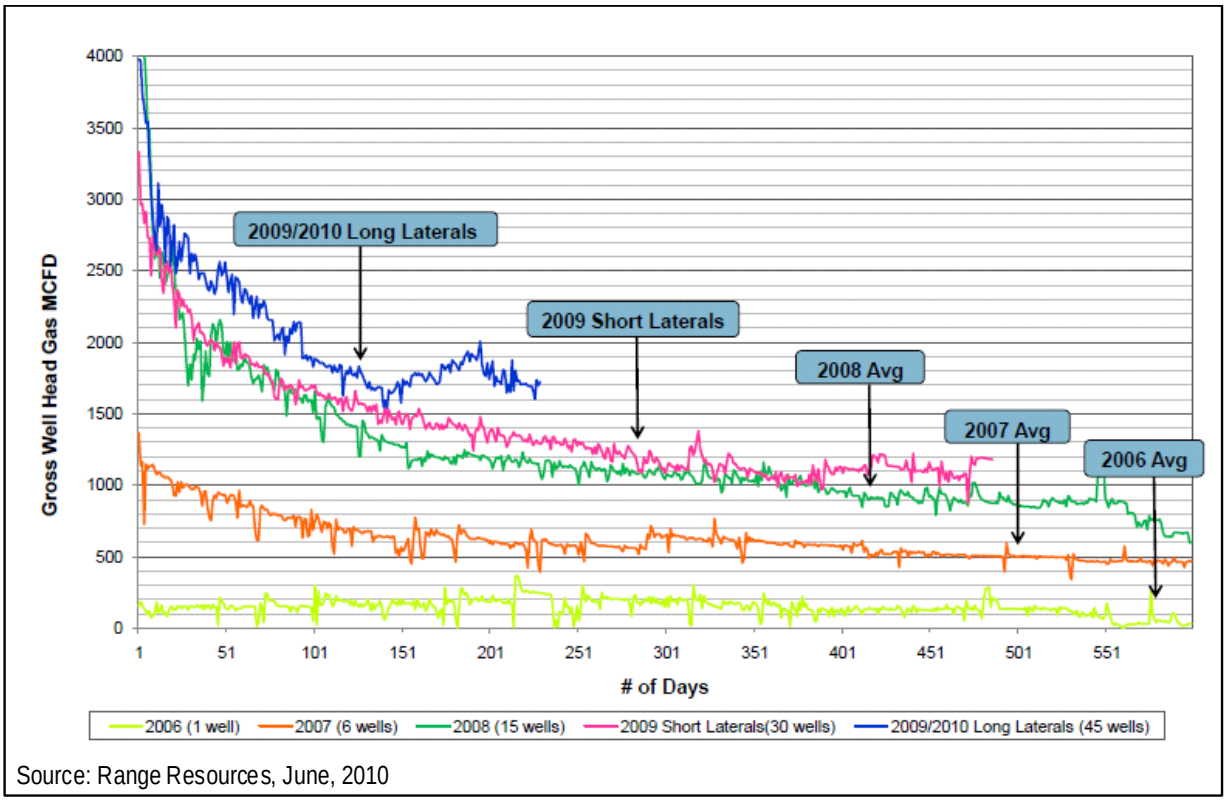


- Use of multi-pad drilling, improved rig efficiencies and lower hydraulic fracturing costs have helped EnCana reduce well costs (drilling, completion and tie-in) in the East Texas tight gas play and in the Haynesville Shale play by 15% to 30%.

- The use of higher volume hydraulic fractures, increased frac stages and more intensive pay selection in these two major natural gas plays have led to 100% to 150% improvements in initial (30 day) gas production rates.

Similar improvements in well performance are being achieved in other major gas shale plays. For example, **Figure V-4** shows the progression of improvements in well performance achieved by Range Resources in the Marcellus Shale of the Appalachian Basin from 2006 through 2009.

Figure V-4. Improvements in Shale Well Performance: Range Resources



Source: Range Resources, June, 2010

JAF028220.PPT

An even more striking example of the impact of progress in technology is provided by Southwestern's Fayetteville Shale wells. Application of longer lateral horizontal wells, use of more frac stages/perforation clusters to contact the reservoir, and use of 3-D seismic to improve well locations have led to nearly three-fold improvements in initial well production rates since early 2007, **Table V-2**.

Table V-2. Improvements in Fayetteville Shale Well Performance: Southwestern Energy

Time Frame	Wells on Production	Average IP Rate (Mcf/d)	30th Day Rate	60th Day Rate	Average Lateral Length
1st Qtr 2007	58	1,260	1,070	960	2,100
2nd/3rd/4th Qtr 2007	197	1,770	1,490	1,290	2,500-3,190
1st Qtr 2008	75	2,340	2,150	1,940	3,300
2nd/3rd/4th Qtr 2008	254	2,920	2,480	2,200	3,560-3,850
1st Qtr 2009	120	3,000	2,370	1,880	3,870
2nd/3rd/4th Qtr 2009	326	3,650	2,710	2,400	4,180
2nd Qtr 2010	143	3,450	2,610	2,430	4,530

V.2 INCORPORATION OF TECHNOLOGY PROGRESS IN THE NATURAL GAS SUPPLY MODEL (MUGS)

A primary objective of Advanced Resources construction of their unconventional gas model (MUGS) in 1996 was to incorporate the impacts that progress in technology would have on future natural gas supply. We recognized that unconventional gas was a "technology play" and that significant advances in E&P technology would be essential for unlocking this vast resource.

As set forth in our documentation of the MUGS model in 1996, we anticipated the introduction of horizontal wells in gas shales, expected steady progress in the ability of geophysical methods to delineate the "sweet spots" (core area) of unconventional gas plays, and set forth other expectations for technology progress.*

V.2.1. Technology Levers

Within MUGS, certain "levers" allow the user to incorporate technology progress in well performance and influence the timing of a play's development.

The Technology Performance levers in MUGS include:

- Improved Well Performance. This technology lever enables the model to increase unconventional gas well performance (estimated ultimate recovery (EUR)) over time, based on continuing advances in exploration and production technology. Currently, this technology lever improves well performance by 0.5% per year, equal to 10% over 20 years.

- Improved Ability to Identify Higher Productivity "Sweetspots". This technology lever enables the model to improve its discrimination among the high, average and low productivity areas within an unconventional gas play.

- Dry Hole Rate Improvement. This technology lever enables the model to increase the well drilling success rate of a gas play now by 0.5% per year up to a maximum of 95% (unless actual performance is higher). After a play is mature (over 50% developed), the success rate begins to decline, as new wells seek to define the outer limits of the play.

* See methodology for AEO 2009.

The Technology Timing levers in MUGS include:

- Pace of Development in Emerging Basins. This technology lever captures the ability to use geologic characterization and seismic to lower the risks and accelerate the development pace in emerging basins.

- Availability of Hypothetical Plays. This technology lever schedules the time of development for plays classified as “hypothetical”.

- Pipeline Constraints. This technology lever limits the pace of development in basins with inadequate pipeline capacity.

- Environmental Constraints. This technology lever excludes areas of a play or basin designated as wilderness or precluded from development for other reasons. It also limits access and thus restricts the pace of development in environmentally sensitive basin areas.

VI. ACCESSIBLE NATURAL GAS RESOURCES AND SUPPLIES IN THE MID-CONTINENT/GULF COAST CORRIDOR

A likely area of LNG exports is the Gulf Coast. As such, it is useful to examine the unconventional gas resources and supplies that might be reasonably accessible and available to this area from the Mid-Continent/Gulf Coast corridor. **Table VI-1** and **Figure VI-1** show the unconventional gas plays that are located in this corridor.

Table VI-1. Unconventional Gas Plays in the Mid-Continent/Gulf Coast Corridor

Gas Shale Plays	Tight Gas Sands Plays	Coalbed Methane Plays
Woodford	East Texas	Mid-Continent
Fayetteville	Arkoma	Warrior
Barnett	Anadarko	Cahaba
Haynesville	Gulf Coast	
Eagle Ford		
Bossier		

The Gulf Coast/Mid-Continent Corridor contains all the major shale plays except the Marcellus and three of the largest tight gas sands plays – the East Texas, Anadarko and Gulf Coast plays. As such, the unconventional gas productive capacity in this corridor represents a major portion of the U.S. total. Our analysis shows that, in 2010, about half of U.S. unconventional productive capacity (19 Bcfd) is from this corridor, **Table VI-2**. This trend continues through our near and longer-term projections.

Figure VI-1: Location of Unconventional Gas Plays in the Gulf Coast/Mid-Continent Corridor

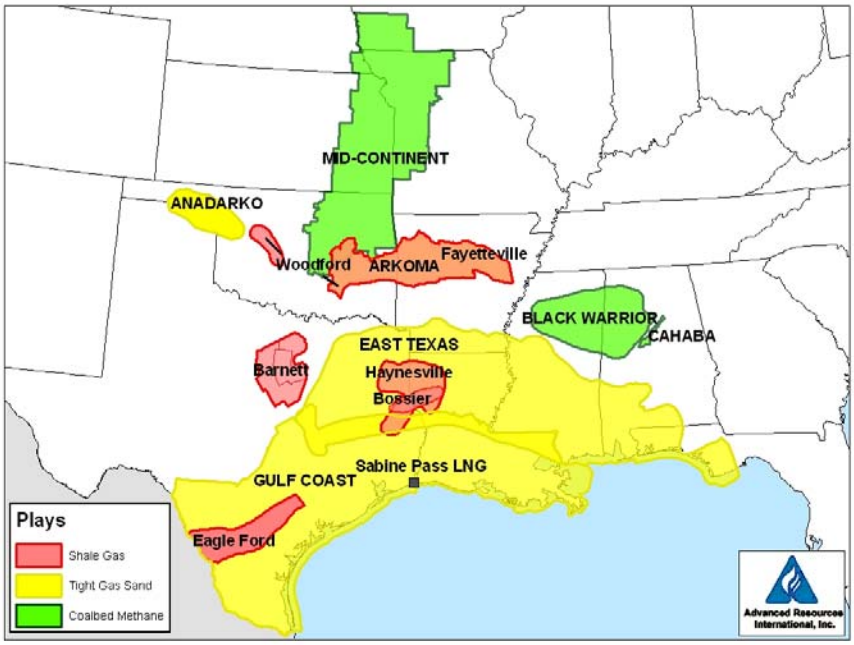


Table VI-2. Unconventional Gas Productive Capacity in the Mid-Continent/Gulf Coast Corridor and for Total U.S.

	Annual Productive Capacity				
	Gulf Coast Corridor				Unconventional Gas Total U.S.
	Tight Gas Sands	CBM	Gas Shales	Total	
	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)	(Bcfd)
2009 (Actual)	7.9	0.6	7.9	16.3	32.3
2010 (Preliminary)	8.3	0.6	10.4	19.4	36.3
Near-Term					
2012	8.0	0.5	11.8	20.3	38.5
2015	7.8	0.5	15.0	23.3	43.4
2020	8.1	0.5	18.5	27.1	49.3
Longer-Term					
2025	8.7	0.4	21.6	30.7	55.4
2030	9.3	0.5	23.7	33.5	61.3
2035	10.3	0.6	25.9	36.8	69.0

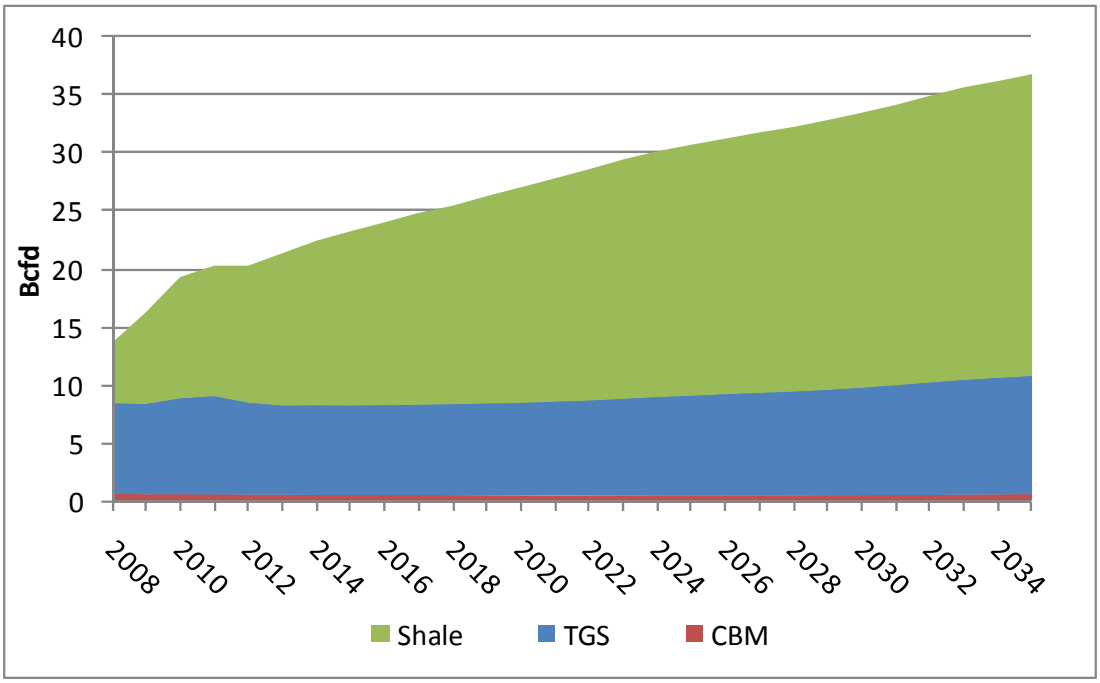
JAF2010_050.XLS

The majority of the productive capacity in this corridor exists in the shale gas plays, **Figure VI-2**. In 2020, gas shales provide over 18 Bcfd of supply, 68% of the corridor total. In the short term, the Barnett shale provides the bulk of this supply. As the Barnett matures, its declining production is more than offset by growth in the Haynesville, Eagle Ford, Bossier and Fayetteville Shales. Shale gas' resilience in the face of low natural gas prices suggests that supply in this region could remain robust even with continued low gas prices.

Tight gas sand plays provide most of the remaining supply in this corridor, over 8 Bcfd in 2020. The East Texas tight gas basin provides the majority of the gas from this resource type, and continues to grow robustly through 2035. Supported by associated condensate production, the Anadarko Basin Granite Wash plays can provide a significant amount of gas supply by 2020.

The Mid-Continent and Warrior CBM basins provide a moderate amount of gas supply, at 0.5 to 0.6 Bcfd through 2035.

Figure VI-2: Unconventional Gas Productive Capacity in the Mid-Continent/Gulf Coast Corridor



APPENDIX – Case Studies

To provide some additional background and support for our assessment of U.S. natural gas resources and productive capacity, particularly for unconventional gas, we have prepared Case Studies for three firms that have been, and are expected to remain, at the forefront of unconventional gas development.

- Chesapeake Energy, the dominant lease holder in the Marcellus, Haynesville, Bossier and Eagle Ford gas shale plays and currently the most active natural gas driller in the U.S.

- Devon Energy, the dominant producer in the Barnett Shale, pioneering the use of horizontal wells for unlocking the deep gas shale resource.

- Southwestern Energy, the dominant producer in the Fayetteville Shale, demonstrating that other deep gas shale plays could be unlocked with proper well drilling and completion practices.

CASE STUDY #1: CHESAPEAKE ENERGY CORP.

Background. Chesapeake Energy (CHK) has been a leader in developing unconventional gas, particularly gas shales. A brief look at their recent activities and future plans provides valuable perspective on how the efforts of one company are changing the outlook for domestic natural gas supplies.

- CHK is currently the most active driller in the U.S., with 133 operated rigs and responsible for 1 out of 8 gas wells drilled in the U.S. It is also the second largest natural gas producer in the U.S., producing 2.5 Bcfd of natural gas (2.8 Bcfed natural gas and liquids) in mid-2010.

- Essentially all of CHK's rigs are dedicated to unconventional resources, with 80% of the rigs active in natural gas shales and the bulk of the remainder in liquids-rich shale and tight gas plays.

- Chesapeake has been successful in attracting a number of major oil and gas companies, such as BP and Statoil, into joint ventures for financing the development of the major gas shale basins of the U.S.

Resources and Development. In a relatively short time, Chesapeake has built its unconventional gas resource base (defined as unrisked unproven resources plus proved reserves) for natural gas to 219 Tcfe (May 2010). Its risked resources are 96 Tcf including proved reserves of nearly 16 Tcf.

Chesapeake has a publically announced objective of adding 2.5 to 3.0 Tcfe per year of new proved reserves (after replacing production) for the next several years and has announced aggressive objectives for increasing unconventional gas production.

The table below provides a snapshot of Chesapeake's unconventional gas resources, (unrisked and risked) its current level of gas production and its active operated rigs.

Status of Chesapeake Energy's Unconventional Gas Activities

	Unrisked Resource*	Risked Resource*	Current Production	Operated Rigs
	(Tcf)	(Tcf)	(MMcfd)	
1. Gas Shales				
Haynesville	32	23	615	36
Barnett	7	6	535	22
Fayetteville	12	9	370	8
Marcellus	67	27	130	26
Bossier	10	4	-	-
Eagle Ford	11	2	-	5
2. Other Unconventional				
Granite Wash	8	6	280	12
Other	72	19	860	24
Total	**219**	**96**	**2,790**	**133**

*Includes proved reserves

JAF2010_050.XLS

CASE STUDY #2: DEVON ENERGY

Background. Devon is the fourth largest natural gas producer in North America, producing 966 Bcf (2.65 Bcfd) of natural gas in 2009. It is the leading producer of natural gas from the Barnett Shale and the pioneer in applying horizontal well drilling in gas shales. Recently, Devon sold its domestic offshore and international oil and gas assets (proceeds of about $10 billion) to concentrate on North American onshore natural gas.

Resources and Development. Devon has accumulated a large resource and reserve base for natural gas, particularly in U.S. gas shales:

Basin	Unrisked Resource*	Risked Resource*	Risked Well Locations
	(Tcf)	(Tcf)	(#)
Barnett Shale	37	18.0	7,500
Haynesville Shale	27	7.4	1,600
Woodford Shale			
Anadarko	12	7.0	3,500
Arkoma	3	1.6	2,150
TOTAL	79	34	14,750

*Includes proved reserves

Barnett Shale. Devon severely restricted its activity in the Barnett Shale during 2009, reducing its operated rig count in this play by 75%. As a result, its Barnett Shale gas shale production declined from 1.2 Bcfd at the end of 2008 to 1.1 Bcfd at the end of 2009. In 2010, Devon has slowly increased its activity in this play, with plans for drilling 370 wells (up from 336 in 2009) and rebuilding its gas production to 1.2 Bcfd. Devon reports three notable achievements for the Barnett Shale:

- Reserve revisions, due to improving well performance, have added over a Tcf of proved reserves during the past five years.

- Well performance has remained constant, even as its acreage has become maturely developed.

- Stimulation costs per well have declined by a third during the past two years.

Other Gas Shale Plays. After an extended period of geological evaluation and delineation drilling, Devon is ramping up its activity in the Haynesville Shale, planning to drill 25 wells in 2010 up from 9 in 2009.

Devon is a "first mover" in the emerging Anadarko (Cana) Woodford Shale play and has plans to drill 81 wells in this play in 2010, up from 40 wells in 2009. During its first quarter of 2010, Devon's net production in this play was 73 MMcfd. It also is increasing its activity in the Arkoma Woodford Shale play, planning to drill 85 wells in 2010, up from 61 in 2009. Its first quarter 2010 net production in this play was 88 MMcfd.

Other Unconventional Gas. Devon plans to increase the development pace of its Washakie (Green River Basin, Wyoming) tight gas sands by drilling 115 wells in 2010, up from 94 wells in 2009 and of its Powder River Coalbed Methane by drilling 35 wells in 2010, up from 15 wells in 2009. In contrast, it is slowing the pace of development in its East Texas tight gas plays (Carthage and Groesbeck) with plans to drill 40 wells in 2010, down from 49 wells in 2009.

CASE STUDY #3: SOUTHWESTERN ENERGY

Background. Southwestern Energy (SWN) is the leading developer of the second deep gas shale play to emerge in the U.S., the Fayetteville Shale.

Investment, Reserves and Production. Southwestern's natural gas production has grown significantly in the past four years:

- Annual natural gas production has grown steadily from 0.03 Bcfd (12 Bcf) in 2006 to an expected 0.93 Bcfd net (340 Bcf) in 2010. Similarly, proved reserves have increased from 0.2 Tcf at the end of 2006 to 3.1 Tcf at the end of 2009 and are expected to further increase in 2010.

SWN's Investment and Results for Fayetteville Shale

Year	Capital Investment	Wells Drilled	Proved Reserves	Annual Production	
	(Billion)	(Number)	(Tcf)	(Bcf)	(Bcfd)
2006	n/a	300	0.2	12	0.03
2007	$1.0	415	0.7	54	0.20
2008	$1.2	604	1.5	134	0.37
2009	$1.3	570	3.1*	244	0.67
Projected 2010	$1.2	~600	n/a	340	0.93

*Represents about 85% of SWN's proved reserves.

- SWN reports encouraging initial results from placing over 400 wells on closer spacings of 10 to 12 wells per section. The data from the closer spaced wells indicate interference of only 5 to 8%. SWN is testing even closer well spacing of 40 acres (and less) per well as part of its 2010 drilling program. Should these closer well spacing tests be successful, the technically recoverable resources from this play would increase materially.

Well Performance and Costs. Southwestern's Fayetteville Shale well performance has increased steadily, as measured by initial productivity (IP). The improvement, from 1.7 MMcfd in 2007 to 3.5 MMcfd in 2009, is due, in part, to using longer horizontal laterals and conducting more intensive well stimulations.

Despite drilling longer laterals, well costs have remained stable at $2.9 to $3.0 million per well. Improved well drilling efficiencies, from 17 rig-days per well in 2007 to 12 rig-days per well in 2009, have helped hold costs in line.

SWN's Well and Cost Performance for Fayetteville Shale

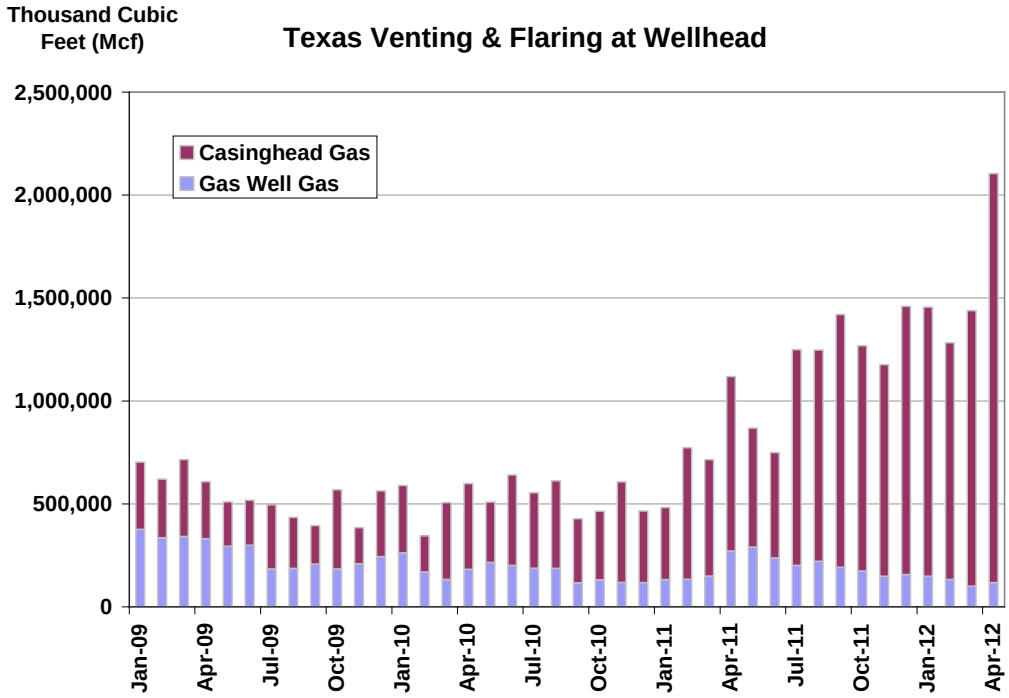
Year	Cost/ Hz Well	Lateral Length	Drilling Time*	Initial Production	F&D Costs
	(Million)	(Feet)	(Days)	(MMcfd)	($/Mcf)
2007	$2.9	2,657	17	1.7	$2.54
2008	$3.0	3,620	14	2.8	$1.53
2009	$2.9	4,100	12	3.5	$0.86

*Re-entry to re-entry.

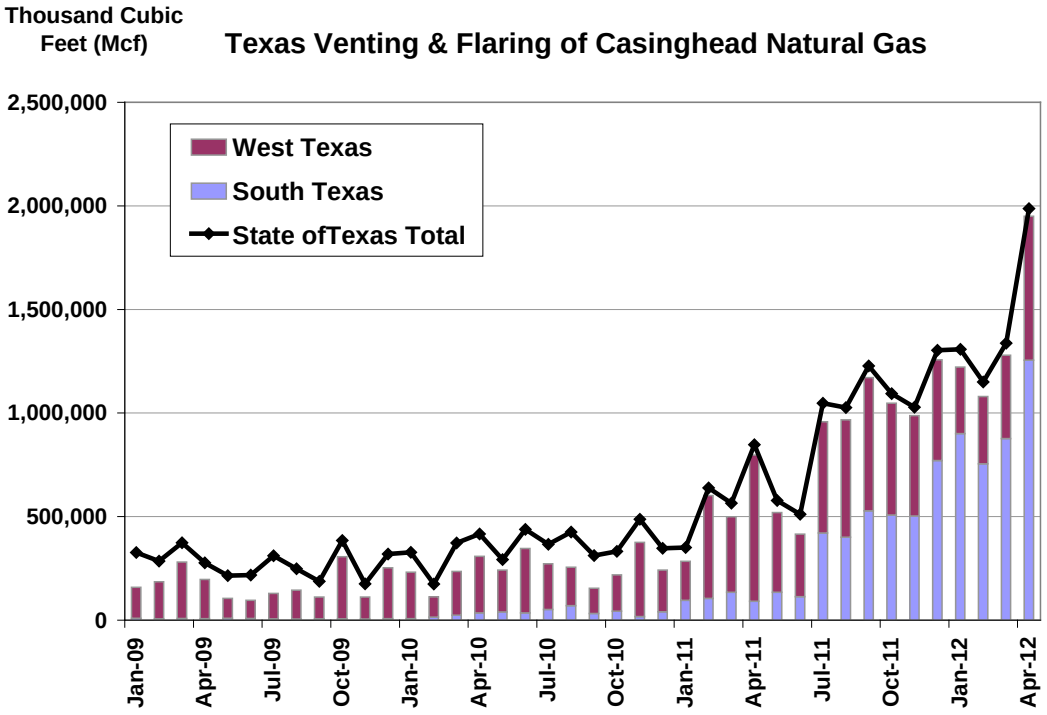
Southwestern's gross Fayetteville gas shale production is at 1.5 Bcfd, up from 1.0 Bcfd a year ago. It plans to drill about 600 shale wells this year using 24 rigs (16 Hz rigs).

Exhibit D

Exhibit D



Source: Railroad Commission of Texas, *Annual Monthly Summary of Texas Natural Gas*, reports from 2009 through 2011; and *Monthly Summary of Texas Natural Gas*, reports from January 2012 through April 2012.



Source: Railroad Commission of Texas, *Monthly Summary of Texas Natural Gas*, reports from January 2009 through April 2012.

Texas Wellhead Venting & Flaring -- Monthly All Volumes in Mcf			
	Gas Well Gas	Casinghead Gas	**Total**
Jan-09	376,763	326,592	703,355
Feb-09	335,436	285,437	620,873
Mar-09	341,862	373,524	715,386
Apr-09	330,738	277,282	608,020
May-09	294,622	214,905	509,527
Jun-09	299,499	218,231	517,730
Jul-09	184,520	310,986	495,506
Aug-09	186,517	247,870	434,387
Sep-09	207,419	186,886	394,305
Oct-09	183,750	385,066	568,816
Nov-09	209,655	175,212	384,867
Dec-09	243,687	319,402	563,089
Jan-10	261,984	327,620	589,604
Feb-10	169,777	174,687	344,464
Mar-10	133,557	372,951	506,508
Apr-10	182,225	416,414	598,639
May-10	215,850	292,751	508,601
Jun-10	201,642	438,632	640,274
Jul-10	187,541	366,531	554,072
Aug-10	186,812	425,320	612,132
Sep-10	117,083	311,521	428,604
Oct-10	131,454	332,661	464,115
Nov-10	118,999	487,665	606,664
Dec-10	117,954	347,398	465,352
Jan-11	132,065	350,229	482,294
Feb-11	134,342	638,245	772,587
Mar-11	149,445	565,199	714,644
Apr-11	271,295	847,351	1,118,646
May-11	290,557	577,597	868,154
Jun-11	237,416	511,534	748,950
Jul-11	200,929	1,047,742	1,248,671
Aug-11	221,072	1,025,808	1,246,880
Sep-11	191,948	1,227,299	1,419,247
Oct-11	174,121	1,093,847	1,267,968
Nov-11	148,476	1,027,985	1,176,461
Dec-11	157,000	1,302,899	1,459,899
Jan-12	148,352	1,308,011	1,456,363
Feb-12	133,288	1,149,459	1,282,747
Mar-12	100,781	1,337,635	1,438,416
Apr-12	117,927	1,986,490	2,104,417

Texas Wellhead Venting & Flaring -- Annual All Volumes in Mcf			
	Gas Well Gas	Casinghead Gas	**Total**
2009	3,194,468	3,321,393	6,515,861
2010	2,024,878	4,294,151	6,319,029
2011	2,308,666	10,215,735	12,524,401
YTD 2012	500,348	5,781,595	6,281,943

Source: Railroad Commission of Texas, *2009 Annual Monthly Summary of Texas Natural Gas*; *2010 Annual Monthly Summary of Texas Natural* Gas; *2011 Annual Monthly Summary of Texas Natural Gas*; *Monthly Summary of Texas Natural Gas*, reports used from J*anuary 2012 through April 2012;* see Table 2 "Gas Well Gas Production and Initial Disposition" and Table 3 "Casinghead Gas Production and Initial Disposition," available at http://www.rrc.state.tx.us/data/production/monthlygas/index.php

Venting & Flaring of Casinghead Gas

All volumes in Mcf

	South Texas Casinghead				*West Texas Casinghead*				*Texas State Casinghead*	*% of State Total*	
	Dist 1	Dist 2	Dist 4	**Total**	Dist 7C	Dist 8	Dist 8A	**Total**	**Total**	South	West
Jan-09	4,366	290	4,154	8,810	4,286	62,390	83,631	150,307	326,592	2.7%	46.0%
Feb-09	3,437	309	2,462	6,208	4,526	88,381	86,358	179,265	285,437	2.2%	62.8%
Mar-09	3,914	337	3,873	8,124	7,364	159,763	104,928	272,055	373,524	2.2%	72.8%
Apr-09	3,400	333	3,310	7,043	14,216	124,842	50,162	189,220	277,282	2.5%	68.2%
May-09	3,970	291	5,209	9,470	9,295	38,379	48,415	96,089	214,905	4.4%	44.7%
Jun-09	4,449	408	3,860	8,717	5,025	43,019	39,408	87,452	218,231	4.0%	40.1%
Jul-09	3,587	380	2,374	6,341	5,324	69,341	48,200	122,865	310,986	2.0%	39.5%
Aug-09	2,872	274	2,340	5,486	7,067	81,270	51,139	139,476	247,870	2.2%	56.3%
Sep-09	3,522	325	2,335	6,182	4,535	45,609	55,650	105,794	186,886	3.3%	56.6%
Oct-09	2,994	329	2,862	6,185	4,538	216,094	79,888	300,520	385,066	1.6%	78.0%
Nov-09	3,624	304	1,392	5,320	4,201	53,457	48,598	106,256	175,212	3.0%	60.6%
Dec-09	6,696	180	601	7,477	3,204	187,548	54,917	245,669	319,402	2.3%	76.9%
Jan-10	4,682	151	2,121	6,954	4,147	175,257	45,574	224,978	327,620	2.1%	68.7%
Feb-10	4,989	6,960	2,394	14,343	3,473	47,709	47,384	98,566	174,687	8.2%	56.4%
Mar-10	10,910	102	13,442	24,454	68,798	97,653	43,997	210,448	372,951	6.6%	56.4%
Apr-10	23,331	8,308	3,555	35,194	66,645	158,642	47,701	272,988	416,414	8.5%	65.6%
May-10	23,274	10,107	6,347	39,728	5,318	130,906	65,419	201,643	292,751	13.6%	68.9%
Jun-10	19,928	10,715	4,566	35,209	7,880	232,651	69,987	310,518	438,632	8.0%	70.8%
Jul-10	16,238	30,592	4,529	51,359	8,207	147,828	64,767	220,802	366,531	14.0%	60.2%
Aug-10	11,628	54,422	3,964	70,014	8,612	122,925	53,781	185,318	425,320	16.5%	43.6%
Sep-10	23,615	7,680	1,226	32,521	4,117	78,017	39,287	121,421	311,521	10.4%	39.0%
Oct-10	32,326	9,438	1,546	43,310	3,437	132,270	39,513	175,220	332,661	13.0%	52.7%
Nov-10	7,026	9,351	1,284	17,661	3,965	305,344	48,992	358,301	487,665	3.6%	73.5%
Dec-10	35,784	1,249	3,307	40,340	3,177	141,454	56,580	201,211	347,398	11.6%	57.9%
Jan-11	42,882	52,528	1,021	96,431	6,750	137,951	43,257	187,958	350,229	27.5%	53.7%
Feb-11	59,819	43,024	2,174	105,017	7,670	412,997	75,927	496,594	638,245	16.5%	77.8%
Mar-11	57,591	74,021	3,327	134,939	3,710	304,625	55,958	364,293	565,199	23.9%	64.5%
Apr-11	57,175	27,963	5,989	91,127	3,350	668,852	33,683	705,885	847,351	10.8%	83.3%
May-11	79,673	52,790	2,278	134,741	72,457	274,459	37,943	384,859	577,597	23.3%	66.6%
Jun-11	72,588	38,633	2,733	113,954	4,722	245,189	51,260	301,171	511,534	22.3%	58.9%
Jul-11	241,503	176,199	3,485	421,187	4,081	462,167	70,492	536,740	1,047,742	40.2%	51.2%
Aug-11	285,146	112,821	2,114	400,081	12,369	493,946	61,136	567,451	1,025,808	39.0%	55.3%
Sep-11	338,275	186,759	2,807	527,841	22,874	567,324	53,440	643,638	1,227,299	43.0%	52.4%
Oct-11	447,739	57,336	2,199	507,274	34,708	446,608	59,298	540,614	1,093,847	46.4%	49.4%
Nov-11	332,110	169,924	1,310	503,344	24,123	402,497	57,432	484,052	1,027,985	49.0%	47.1%
Dec-11	508,007	261,485	1,316	770,808	24,145	409,819	51,844	485,808	1,302,899	59.2%	37.3%
Jan-12	643,581	255,816	1,049	900,446	53,093	220,835	47,761	321,689	1,308,011	68.8%	24.6%
Feb-12	618,174	135,305	1,029	754,508	36,691	231,446	57,029	325,166	1,149,459	65.6%	28.3%
Mar-12	720,767	153,881	1,675	876,323	41,436	316,926	44,072	402,434	1,337,635	65.5%	30.1%
Apr-12	1,003,491	250,270	1,729	1,255,490	39,556	506,190	148,359	694,105	1,986,490	63.2%	34.9%

Venting & Flaring of Casinghead Gas -- Annual by Region											
	South Texas Casinghead				***West Texas Casinghead***				***Texas State Casinghead***	***% of State Total***	
	Dist 1	Dist 2	Dist 4	**Total**	Dist 7C	Dist 8	Dist 8A	**Total**	**Total**	South	West
2009	46,831	3,760	34,772	85,363	73,581	1,170,093	751,294	1,994,968	3,321,393	2.6%	60.1%
2010	213,731	149,075	48,281	411,087	187,776	1,770,656	622,982	2,581,414	4,294,151	9.6%	60.1%
2011	2,522,508	1,253,483	30,753	3,806,744	220,959	4,826,434	651,670	5,699,063	10,215,735	37.3%	55.8%
2012 YTD	2,986,013	795,272	5,482	3,786,767	170,776	1,275,397	297,221	1,743,394	5,781,595	65.5%	30.2%

Source: Railroad Commission of Texas, *Monthly Summary of Texas Natural Gas*; reports used from January 2009 through April 2012*;* see Table 5 "Casinghead Gas Production and Initial Disposition," available at http://www.rrc.state.tx.us/data/production/monthlygas/index.php