

Exhibit 13

The Economic Benefits of Golden Pass LNG, The Perryman Group,
May 2019.

THE ECONOMIC BENEFITS OF GOLDEN PASS LNG

May 2019



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Summary of Key Results

- Golden Pass LNG would generate a substantial economic stimulus during the construction phase and once operational. The Perryman Group estimates that when multiplier effects are considered,
 - **construction** and related outlays would likely generate gains in US business activity of **\$19.0 billion** in gross product and **205,723** job-years of employment,
 - **ongoing operations** lead to total benefits to the US economy including **\$612.9 million** in gross product each year and **5,177** jobs (almost **\$15.0 billion** in US gross product and **126,555** job-years of employment cumulatively over the first 25 years).
- **Combining the effects of construction with the cumulative effects of the first 25 years of operations** of Golden Pass LNG indicates the substantial economic benefits of the facilities.
 - For the nation as a whole, The Perryman Group estimates that the total cumulative benefits of construction and the first 25 years of operation of the facilities include **\$34.0 billion** in gross product and **332,278** job-years of employment (including multiplier effects).
 - Total economic benefits to the primary impact region (Beaumont-Port Arthur and Lake Charles MSAs) include an estimated **\$21.4 billion** in gross product and **219,061** job years of employment during construction and the first 25 years of operations (including multiplier effects).
 - Jefferson County could be expected to experience increased business activity of an estimated **\$18.7 billion** in gross product and **197,763** job-years of employment during the construction and first 25 years of operations of Golden Pass LNG (including multiplier effects).
- In addition, Golden Pass LNG would lead to **substantial dynamic market responses** such as enhanced natural gas exploration and production and the potential for increased development of chemicals facilities which use byproducts as inputs.

- Any economic stimulus generates **incremental taxes**. Based on the incremental economic activity associated with Golden Pass LNG (including multiplier effects), The Perryman Group estimates that
- State taxes could be expected to increase by
 - Almost **\$648.0 million** during construction and **\$23.3 million** per year once the facilities are fully operational for Texas and
 - **\$16.0 million** during construction and **\$0.8 million** per year once the facilities are fully operational for Louisiana.
- Receipts to Jefferson County local entities could be expected to rise by an estimated **\$98.1 million** during the construction phase and **\$8.3 million** per year once full operations levels are reached.

Introduction

Technological advances in the energy sector and new discoveries have dramatically increased US production of natural gas, leading to a situation of excess domestic supply. At the same time, demand for natural gas is strong in international markets due to its thermal efficiencies and clean-burning, low-emission qualities. Developing economies around the world are looking to natural gas to facilitate growth, and the ability to export domestic gas as LNG greatly expands the market scope and access for US producers, encouraging domestic production despite the oversupply conditions.

Golden Pass LNG is adding liquefaction and export capability as part of its Sabine Pass, Texas facilities. Once fully operational, export capacity is expected to be approximately 16 million tons of LNG per year.

In addition to opening additional markets to US natural gas, Golden Pass LNG will involve a substantial capital investment during construction and on an ongoing basis, leading to a substantial increase in business activity in the local area and beyond.

In addition to opening additional markets to US natural gas, Golden Pass LNG will involve a substantial capital investment during construction and on an ongoing basis, leading to a substantial increase in business activity in the local area and beyond. The Perryman Group recently quantified the economic and fiscal benefits of the project.

Economic Benefits of Golden Pass LNG Construction and Operations

The Perryman Group evaluated the potential benefits of Golden Pass LNG to the economies of Jefferson County (Texas), the primary impact region which includes the Beaumont-Port Arthur and Lake Charles Metropolitan Statistical Areas (including Jefferson County), and the United States.

Several sources of economic benefits were measured including construction and pre-operational activity, ongoing operations, additional natural gas production, and associated potential development of facilities utilizing by-products such as methane.

Following an overview of the methods used in this study, key summary results for each channel of economic effects are presented. Additional methodological detail and results by major industry group are included in the Appendices.

Measuring Economic Impacts

The Perryman Group's input-output assessment system (the US Multi-Regional Impact Assessment System, which is described in further detail in the Appendices to this report) was developed by the firm more than 35 years ago and has been consistently maintained and updated since that time. The model has been used in hundreds of analyses for clients ranging from major corporations to government agencies and has been peer reviewed on multiple occasions. Data such as construction cost estimates, ongoing employment projections, and likely throughput were provided by Golden Pass LNG and used as inputs to the impact assessment process. Other inputs were derived by The Perryman Group as described in the Appendices. The impact system 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. This process allows for estimation of the total economic impact (including multiplier effects) of construction and operations of Golden Pass LNG and related facilities. The models used in the current analysis reflect the specific industrial composition and characteristics of the economies of Jefferson County, the primary impact area (which includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA—Hardin, Jefferson, Newton, and Orange counties) and Lake Charles MSA (Calcasieu and Cameron parishes), and the United States.

Total economic effects are quantified for key measures of business activity:

- **Total expenditures** (or total spending) measure 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 job-years of employment for a temporary stimulus (such as construction) or jobs for effects that would be ongoing.

Monetary values were quantified on a constant (2019) basis to eliminate the effects of inflation. See the Appendices for additional information regarding the methods and assumptions used in this analysis.

Construction Phase

Construction of Golden Pass LNG will involve a substantial investment, leading to a sizable economic stimulus. The Perryman Group estimates that gains in US business activity from construction and related outlays are likely to include **\$19.0 billion** in gross product and **205,723** job-years of employment when multiplier effects are considered, with benefits concentrated in the local area. (A job-year is one person working for one year.)

Economic Benefits of Construction of Golden Pass LNG Facilities				
	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment (Job-years)
United States	\$41.754	\$19.029	\$12.629	205,723
Primary Impact Region*	\$23.712	\$11.677	\$8.165	134,750
Jefferson County	\$20.481	\$10.236	\$7.261	119,629
<p>* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA--Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is one person working for one year.</p> <p>Source: US Multi-Regional Impact Assessment System, The Perryman Group</p>				

Results by major industry group are provided in the Appendices.

Ongoing Operations

The Golden Pass LNG facilities would serve as an ongoing stimulus to the local area, region, and nation through purchases and providing well-paying jobs. The Perryman Group estimates that ongoing operations of Golden Pass LNG would likely generate total benefits to the US economy including **\$612.9 million** in gross product each year and **5,177 jobs** (including multiplier effects). The local area would capture a significant portion of the gains, as described in the following table.

Economic Benefits of Ongoing Operations of Golden Pass LNG				
	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment (Jobs)
United States	\$2.290	\$0.613	\$0.351	5,177
Primary Impact Region*	\$1.820	\$0.398	\$0.231	3,449
Jefferson County	\$1.639	\$0.347	\$0.207	3,196
* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA--Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Cumulative Operations Effects

The first 25 years of operations of Golden Pass LNG lead to cumulative gains in business activity including almost **\$15.0 billion** in US gross product and **126,555** job-years of employment when multiplier effects are considered. Again, these benefits are concentrated in Jefferson County and the surrounding area.

Cumulative Economic Benefits of the First 25 Years of Operations of Golden Pass LNG				
	Total Expenditures (Millions of 2019 Dollars)	Gross Product (Millions of 2019 Dollars)	Personal Income (Millions of 2019 Dollars)	Employment (Job-years)
United States	\$55.985	\$14.983	\$8.572	126,555
Primary Impact Region*	\$44.480	\$9.718	\$5.653	84,310
Jefferson County	\$40.074	\$8.492	\$5.050	78,134
<p>* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is one person working for one year.</p> <p>Source: US Multi-Regional Impact Assessment System, The Perryman Group</p>				

Results by major industry group are provided in the Appendices.

Total Construction and First 25 Years of Operations of the Facilities

Combining the effects of construction with the cumulative effects of the first 25 years of operations of Golden Pass LNG indicates the substantial economic benefits of the facilities.

- For the nation as a whole, The Perryman Group estimates that the total cumulative benefits of construction and the first 25 years of operation of the facilities include **\$34.0 billion** in gross product and **332,278** job-years of employment (including multiplier effects).
- Total economic benefits to the primary impact region (Beaumont-Port Arthur and Lake Charles MSAs) include an estimated **\$21.4 billion** in gross product and **219,061** job years of employment during construction and the first 25 years of operations (including multiplier effects).
- Jefferson County could be expected to experience increased business activity of an estimated **\$18.7 billion** in gross product and **197,763** job-years of employment during the construction and first 25 years of operations of Golden Pass LNG (including multiplier effects).

Total Cumulative Economic Benefits of Construction and the First 25 Years of Operations of Golden Pass LNG

	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment (Job-years)
United States	\$97.739	\$34.011	\$21.201	332,278
Primary Impact Region*	\$68.192	\$21.394	\$13.818	219,061
Jefferson County	\$60.555	\$18.728	\$12.311	197,763

* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is one person working for one year.

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

Results by major industry group are provided in the Appendices.

Other Potential Benefits

The Perryman Group evaluated the potential benefits of dynamic market responses such as the

- enhanced natural gas exploration and production which would be stimulated by Golden Pass LNG exports and
- increased development of chemicals facilities which use byproducts as inputs.

Enhanced Natural Gas Production

The Perryman Group measured the cumulative economic benefits of enhanced production of natural gas over the first 25 years as well as the potential impact in a “typical” year. In this analysis, the natural gas is assumed to be produced in Texas but outside of the primary impact region (Beaumont Port Arthur and Lake Charles MSAs). TPG also analyzed the impact of the initial drilling stimulus required to establish the level of incremental natural gas production associated with the facility. This analysis assumes new exploration and production activity follows recent patterns in terms of geographic placement.

The **cumulative** incremental business activity stemming from enhanced production over 25 years includes an estimated **\$137.6 billion** in gross product and **1,475,465** job-years of employment in the United States. For Texas, the enhanced natural gas production generates **\$124.8 billion** in gross product and **1,359,429** job-years of employment over 25 years. (These benefits are summarized in the table at the end of this section of the report.)

The Perryman Group also quantified the likely incremental business activity stemming from natural gas production related to supplying the Golden Pass facility in a “**typical**” year, which is 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 **\$4.9 billion** in US gross product and approximately **52,166** US jobs. These

effects are primarily in Texas with a “typical” year of activity in Texas expected to result in **\$4.4 billion** in gross product and **47,986** jobs.

The cumulative effects of the **initial drilling stimulus** required to establish the level of incremental natural gas production associated with the Golden Pass LNG facility include **\$40.3 billion** in gross product and **445,385** job-years of employment for the US. For Texas, these gains include **\$36.9 billion** in gross product and **414,079** person-years of employment. (The following table shows more details.)

Total Potential Economic Benefits of Incremental Natural Gas Production Associated with Golden Pass LNG Facilities on the United States and Texas				
	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment
UNITED STATES				
Cumulative Impact over First 25 years	\$321.815	\$137.640	\$90.910	1,475,465 (job-years)
“Typical” Year	\$11.484	\$4.892	\$3.224	52,166 (jobs)
Initial Drilling Stimulus	\$92.087	\$40.306	\$26.982	445,385 (job-years)
Texas				
Cumulative Impact over First 25 years	\$283.304	\$124.789	\$83.139	1,359,429 (job-years)
“Typical” Year	\$10.103	\$4.429	\$2.942	47,986 (jobs)
Initial Drilling Stimulus	\$81.359	\$36.873	\$24.978	414,079 (job-years)
* Note: Includes multiplier effects. A job-year is one person working for one year. Production patterns are based on the amount of gas needed and typical exploration and production cost and patterns. Source: US Multi-Regional Impact Assessment System, The Perryman Group				

Potential Benefits from Liquid By-Products

Additional development in industries which utilize various liquid by-products (such as ethane) is a likely outcome stemming from the Golden Pass LNG operations. An analysis by the American Chemical Council was utilized to quantify the potential new investment and production likely to occur in response to the greater availability of petroleum liquids. The region is already a site of numerous related industries, and further expansion could reasonably be expected and accommodated.

Construction of New Chemical Manufacturing Facilities

The economic benefits of construction of chemical facilities utilizing incremental ethane production associated with the Golden Pass LNG facility were estimated to include more than **\$3.7 billion** in US gross product and **57,856** job-years of employment. The impacts are concentrated in the primary impact region, especially Jefferson County, as shown in the following table.

Total Economic Benefits of Construction of New Chemical Manufacturing Facilities to Accommodate Incremental Ethane Production Associated with the Implementation of the Golden Pass LNG Facilities				
	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment (Job-years)
United States	\$8.455	\$3.745	\$2.511	57,856
Primary Impact Region*	\$5.275	\$2.462	\$1.749	40,303
Jefferson County	\$4.737	\$2.222	\$1.602	36,717
* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA--Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is one person working for one year. Source: US Multi-Regional Impact Assessment System, The Perryman Group				

New Chemical Manufacturing Facilities Operations

Once new chemical manufacturing facilities are completed, the ongoing operations of these facilities have the potential to continue to generate economic benefits (measured at maturity) of almost **\$4.8 billion** in U.S. gross product and **38,479** jobs.

Total Annual Economic Benefits of New Chemical Manufacturing Operations (at Maturity) to Accommodate Incremental Ethane Production Associated with the Implementation of the Golden Pass LNG Facilities

	Total Expenditures (Billions of 2019 Dollars)	Gross Product (Billions of 2019 Dollars)	Personal Income (Billions of 2019 Dollars)	Employment (Jobs)
United States	\$20.031	\$4.784	\$2.694	38,479
Primary Impact Region*	\$14.714	\$3.215	\$1.870	27,889
Jefferson County	\$13.257	\$2.809	\$1.671	25,837

* Note: Includes multiplier effects. Results for each geographic area are included in subsequently larger areas analyzed as appropriate. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). Source: US Multi-Regional Impact Assessment System, The Perryman Group

Fiscal Benefits

Any economic stimulus generates incremental taxes through mechanisms such as increasing retail sales and enhancing the property tax base. Based on the incremental economic activity associated with Golden Pass LNG (including multiplier effects), The Perryman Group estimates that

- State taxes could be expected to increase by
 - Almost **\$648.0 million** during construction and **\$23.3 million** per year once the facilities are fully operational for Texas and
 - **\$16.0 million** during construction and **\$0.8 million** per year once the facilities are fully operational for Louisiana.
- Receipts to Jefferson County local entities could be expected to rise by an estimated **\$98.1 million** during the construction phase and **\$8.3 million** per year once full operations levels are reached.

Fiscal Benefits of Construction and Operation of Golden Pass LNG

	Construction Phase (Millions of 2019 Dollars)	Ongoing Effects Per Year (Millions of 2019 Dollars)	Ongoing Effects Over 25 Years (Millions of 2019 Dollars)	Total of Construction and Ongoing Effects over 25 Years (Millions of 2019 Dollars)
Federal	\$1,644.562	\$30.737	\$751.358	\$2,395.920
State: Texas	\$647.923	\$23.255	\$568.460	\$1,216.383
State: Louisiana	\$16.004	\$0.818	\$19.997	\$36.001
Other States	\$286.749	\$2.561	\$62.598	\$349.347
Local Jefferson County	\$98.127	\$8.337	\$203.788	\$301.915
Local: Remainder of Primary Impact Area*	\$1.985	\$0.265	\$6.484	\$8.469
Other Government Entities across the US	\$743.885	\$3.634	\$88.840	\$832.725

* Note:.. The Primary Impact Area includes the Beaumont-Port Arthur and Lake Charles MSAs. "Local: Remainder of Primary Impact Area" is the Primary Impact Area excluding Jefferson County.

Source: The Perryman Group *

Fiscal benefits associated with the likely incremental business activity stemming from natural gas production related to supplying the Golden Pass facility can also be expected. In this analysis, the natural gas is assumed to be produced in Texas but outside of the primary impact region (Beaumont Port Arthur and Lake Charles MSAs). Some of these fiscal effects include federal tax receipts of more than **\$15.7 billion** over 25 years of cumulative production and almost **\$6.1 billion** to the state of Texas. The following table illustrates additional fiscal effects to other taxing jurisdictions.

Fiscal Benefits of Incremental Natural Gas Production Associated with Golden Pass LNG			
	Cumulative over First 25 Years (Millions of 2019 Dollars)	Typical Year of Production (Millions of 2019 Dollars)	Initial Drilling Stimulus (Millions of 2019 Dollars)
Federal	\$15,745.092	\$556.849	\$4,744.735
State: Texas	\$6,072.951	\$214.678	\$1,835.277
State: Other	\$825.518	\$29.329	\$242.005
Local: Texas	\$3,111.770	\$109.958	\$942.465
Local: Other	\$422.994	\$15.022	\$124.276
* Note:.. This analysis assume that the natural gas is obtained in Texas, but outside of the primary impact region. Source: The Perryman Group *			

The construction and operations of the of chemical facilities utilizing incremental ethane production associated with the Golden Pass LNG facility would also generate fiscal benefits. Details of those benefits are in the following table.

Fiscal Benefits of Chemical Plant Construction and Operations Associated with Golden Pass LNG		
	Construction Phase (Millions of 2019 Dollars)	Ongoing Effects Per Year (Millions of 2019 Dollars)
Federal	\$359.319	\$268.824
State: Texas	\$133.126	\$188.049
State: Louisiana	\$2.457	\$6.615
Other States	\$57.290	\$20.656
Local: Jefferson County	\$107.047	\$67.414
Local: Remainder of Primary Impact Area	\$2.185	\$2.140
Other Local Areas	\$59.411	\$29.316
<p>* Note: Primary Impact Area includes the Beaumont-Port Arthur and Lake Charles MSAs. "Local: Remainder of Primary Impact Area" is the Primary Impact Area excluding Jefferson County.</p> <p>Source: The Perryman Group</p>		

These incremental tax estimates are conservative in that they do not include potential gains associated with oil development and production enabled by the facilities (the dynamic response) that occurs within the local area. In addition, although the fiscal outlays to support this project are unlikely to be significant, all fiscal effects are determined on a "net" basis.

Balance of Payments Benefits

Exporting LNG through the Golden Pass LNG facilities will improve the US balance of payments. The Perryman Group estimates that the improvement in balance of payments would be in the range of \$13.3 billion to \$21.5 billion per year at mature throughput levels, depending on the price of natural gas, destinations, transportation costs, and other factors.

Conclusion

Golden Pass LNG will generate a substantial economic stimulus through construction and ongoing operations. When multiplier effects are considered, the capital investment during construction and hiring and spending once operational generate benefits across the economy.

The Perryman Group's analysis indicates that Golden Pass LNG could be expected to lead to total gains in US gross product of over **\$34 billion** and **332,278** job-years of employment through construction and the first 25 years of operations when multiplier effects are considered. A large proportion of these benefits would be concentrated in the local primary impact region, which could be expected to see benefits of **\$21.4 billion** in gross product and **219,061** job-years of employment through construction and the first 25 years of operations (including multiplier effects).

Technological advances and new discoveries have dramatically increased US production of natural gas, leading to excess supply in the domestic market. At the same time, demand is growing around the world, particularly in developing economies. Golden Pass LNG

provides a mechanism to export natural gas, providing a substantial long-term stimulus to the US economy and clean-burning fuel to countries around the world.

*Golden Pass LNG could be expected to lead to total gains in US gross product of over **\$34 billion** and **332,278** job-years of employment through construction and the first 25 years of operations when multiplier effects are considered.*

Appendix A: Methods Used

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 this case, input data such as construction cost estimates, employment once operational, and capacity were provided by Golden Pass LNG. A variety of sources of data regarding natural gas markets, oil and gas exploration and production patterns, 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 available studies by major private groups and the Energy Information Administration regarding natural gas supplies and pricing.

The second major phase of the analysis is the simulation of the input-output system to measure overall economic effects of the economic stimulus. 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; it has also been peer reviewed on multiple occasions. The systems used in the current simulations reflect the unique industrial structures and characteristics of Jefferson County, the primary impact region of the Beaumont-Port Arthur Metropolitan Statistical Area (MSA-Hardin, Jefferson, Newton, and Orange counties) and Lake Charles MSA (Calcasieu and Cameron parishes), and the United State economies.

The USMRIAS is somewhat similar in format to the Input-Output Model of the United States which is 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 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, health care services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the Center for Community and Economic Research *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.

Impacts were measured in constant 2019 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 Texas 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 **Jobs and Job-Years of Employment**, which reflect the full-time equivalent jobs generated by an activity. For an economic stimulus expected to endure (such as the ongoing operations of a facility), the Jobs measure is used. It should be noted that, unlike the dollar values described above, Jobs is a “stock” rather than a “flow.” In other words, if an area produces \$1 million in output in 2018 and \$1 million in 2019, it is appropriate to say that \$2 million was achieved in the 2018-19 period. If the same area has 100 people working in 2018 and 100 in 2019, it only has 100 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 Job-Years (a job lasting for a year, although it could be multiple partial-year jobs). This concept is distinct from Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

Appendix B: Detailed Sectoral Results

Construction

The Anticipated Cumulative Impact of Construction and Other Preoperational Activities Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$588,500,214	\$171,160,397	\$111,444,270	1,670
Mining	\$651,435,881	\$156,614,849	\$88,028,328	526
Construction	\$6,653,299,430	\$3,129,295,687	\$2,578,734,553	34,478
Manufacturing	\$12,883,446,642	\$4,297,795,274	\$2,589,173,480	39,738
Transportation & Utilities	\$2,997,057,805	\$1,200,911,992	\$702,781,835	7,549
Information	\$699,703,581	\$432,236,422	\$184,535,604	1,574
Wholesale Trade	\$1,381,250,248	\$934,631,255	\$538,916,705	5,825
Retail Trade*	\$4,624,310,782	\$3,473,890,787	\$2,020,342,073	58,846
Financial Activities*	\$4,481,845,941	\$1,130,123,688	\$458,698,633	4,583
Business Services	\$3,703,122,452	\$2,329,479,620	\$1,900,258,459	22,005
Health Services	\$1,052,587,655	\$736,621,446	\$622,820,256	9,792
Other Services	\$2,036,954,550	\$1,036,120,143	\$832,841,648	19,138
Total, All Industries	\$41,753,515,183	\$19,028,881,562	\$12,628,575,846	205,723

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. Multiplier

The Anticipated Cumulative Impact of Construction and Other Preoperational Activities Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$166,955,393	\$50,973,679	\$32,310,989	481
Mining	\$161,657,314	\$39,393,477	\$21,570,156	133
Construction	\$6,461,706,256	\$3,027,207,772	\$2,494,607,749	33,353
Manufacturing	\$4,268,041,404	\$1,425,489,385	\$874,394,619	13,280
Transportation & Utilities	\$1,554,974,218	\$669,437,832	\$400,843,974	4,482
Information	\$366,546,029	\$226,758,207	\$96,810,359	825
Wholesale Trade	\$568,872,895	\$384,969,634	\$221,976,919	2,399
Retail Trade*	\$3,307,041,602	\$2,488,171,541	\$1,447,748,277	42,067
Financial Activities*	\$2,098,161,991	\$470,943,561	\$203,393,580	2,019
Business Services	\$2,644,102,100	\$1,666,305,373	\$1,359,278,210	15,740
Health Services	\$775,192,868	\$542,058,440	\$458,315,434	7,206
Other Services	\$1,338,555,963	\$684,855,955	\$553,472,762	12,765
Total, All Industries	\$23,711,808,034	\$11,676,564,857	\$8,164,723,028	134,750

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

Notes: Monetary values given in 2019 US dollars. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Cumulative Impact of Construction and Other Preoperational Activities Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$160,556,885	\$48,903,243	\$31,105,022	463
Mining	\$23,981,641	\$5,563,685	\$2,659,843	15
Construction	\$6,418,713,550	\$3,004,266,093	\$2,475,702,376	33,100
Manufacturing	\$2,820,222,696	\$881,540,619	\$540,234,497	7,952
Transportation & Utilities	\$1,364,135,163	\$579,677,764	\$345,764,835	3,841
Information	\$267,319,626	\$165,509,066	\$70,661,135	602
Wholesale Trade	\$490,714,135	\$332,088,596	\$191,485,241	2,070
Retail Trade*	\$2,985,981,741	\$2,247,947,104	\$1,308,208,096	37,977
Financial Activities*	\$1,698,186,346	\$373,365,224	\$167,136,645	1,655
Business Services	\$2,378,851,834	\$1,504,952,173	\$1,227,655,342	14,216
Health Services	\$700,882,354	\$490,031,540	\$414,326,206	6,514
Other Services	\$1,171,334,334	\$601,866,348	\$485,864,090	11,222
Total, All Industries	\$20,480,880,305	\$10,235,711,455	\$7,260,803,327	119,629

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

Ongoing Operations of the Facilities

The Anticipated Annual Impact of Ongoing Operations Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$17,748,387	\$5,418,820	\$3,486,519	52
Mining	\$374,280,800	\$82,418,419	\$38,548,406	190
Construction	\$51,999,236	\$28,343,551	\$23,356,852	312
Manufacturing	\$1,117,483,287	\$141,474,398	\$73,220,107	903
Transportation & Utilities	\$186,504,261	\$58,180,674	\$33,068,791	336
Information	\$23,737,789	\$14,709,469	\$6,279,945	54
Wholesale Trade	\$60,858,242	\$41,146,835	\$23,725,631	257
Retail Trade*	\$133,499,948	\$99,025,943	\$57,401,970	1,701
Financial Activities*	\$173,936,384	\$53,852,818	\$19,196,557	185
Business Services	\$60,590,264	\$37,178,728	\$30,328,317	351
Health Services	\$29,622,004	\$20,754,758	\$17,548,342	276
Other Services	\$60,057,491	\$30,420,512	\$24,517,364	561
Total, All Industries	\$2,290,318,093	\$612,924,925	\$350,678,800	5,177

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Annual Impact of Ongoing Operations Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$5,751,326	\$1,867,935	\$1,164,788	17
Mining	\$159,724,997	\$35,140,736	\$16,354,170	80
Construction	\$46,475,737	\$25,413,103	\$20,941,980	280
Manufacturing	\$1,166,723,604	\$113,589,919	\$56,323,104	516
Transportation & Utilities	\$115,217,497	\$37,697,430	\$22,065,674	237
Information	\$13,744,575	\$8,523,097	\$3,638,782	31
Wholesale Trade	\$24,490,816	\$16,553,317	\$9,544,789	103
Retail Trade*	\$99,880,189	\$73,980,365	\$42,871,278	1,271
Financial Activities*	\$86,115,466	\$25,913,082	\$9,942,273	95
Business Services	\$36,393,060	\$21,290,769	\$17,367,811	201
Health Services	\$23,150,560	\$16,191,897	\$13,690,401	215
Other Services	\$41,959,497	\$21,382,918	\$17,353,145	402
Total, All Industries	\$1,819,627,324	\$397,544,567	\$231,258,196	3,449

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

Notes: Monetary values given in 2019 US dollars per year. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Annual Impact of Ongoing Operations Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$5,748,206	\$1,864,666	\$1,163,576	17
Mining	\$30,237,233	\$6,640,386	\$3,066,423	15
Construction	\$46,196,211	\$25,269,858	\$20,823,936	279
Manufacturing	\$1,145,500,205	\$105,276,990	\$51,761,017	441
Transportation & Utilities	\$111,038,737	\$35,905,207	\$20,922,214	223
Information	\$10,331,876	\$6,409,986	\$2,736,630	23
Wholesale Trade	\$23,081,873	\$15,600,752	\$8,995,533	97
Retail Trade*	\$96,440,195	\$71,398,938	\$41,370,412	1,228
Financial Activities*	\$72,740,558	\$21,987,309	\$8,837,391	84
Business Services	\$36,393,060	\$21,290,769	\$17,367,811	201
Health Services	\$22,429,462	\$15,680,801	\$13,258,262	208
Other Services	\$39,246,703	\$20,088,667	\$16,291,317	379
Total, All Industries	\$1,639,384,318	\$347,414,330	\$206,594,524	3,196

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$433,848,673	\$132,459,811	\$85,225,858	1,260
Mining	\$9,149,069,578	\$2,014,668,806	\$942,292,662	4,648
Construction	\$1,271,090,122	\$692,841,092	\$570,944,240	7,635
Manufacturing	\$27,316,208,459	\$3,458,256,769	\$1,789,821,577	22,072
Transportation & Utilities	\$4,558,984,749	\$1,422,191,670	\$808,346,746	8,220
Information	\$580,256,019	\$359,564,154	\$153,509,488	1,310
Wholesale Trade	\$1,487,643,218	\$1,005,809,688	\$579,958,808	6,272
Retail Trade*	\$3,263,326,135	\$2,420,629,770	\$1,403,156,719	41,569
Financial Activities*	\$4,251,770,544	\$1,316,399,816	\$469,248,322	4,529
Business Services	\$1,481,092,650	\$908,811,699	\$741,357,513	8,585
Health Services	\$724,092,113	\$507,337,596	\$428,958,681	6,748
Other Services	\$1,468,069,338	\$743,611,175	\$599,312,242	13,707
Total, All Industries	\$55,985,451,599	\$14,982,582,047	\$8,572,132,855	126,555

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. Multiplier

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$140,587,702	\$45,660,549	\$28,472,542	416
Mining	\$3,904,381,720	\$858,994,195	\$399,767,862	1,963
Construction	\$1,136,071,514	\$621,208,063	\$511,914,132	6,845
Manufacturing	\$28,519,858,464	\$2,776,637,415	\$1,376,784,494	12,614
Transportation & Utilities	\$2,816,422,589	\$921,491,066	\$539,382,152	5,792
Information	\$335,977,888	\$208,341,981	\$88,947,854	756
Wholesale Trade	\$598,663,312	\$404,635,910	\$233,316,652	2,522
Retail Trade*	\$2,441,511,290	\$1,808,405,635	\$1,047,962,666	31,078
Financial Activities*	\$2,105,040,903	\$633,429,733	\$243,032,887	2,326
Business Services	\$889,606,514	\$520,440,068	\$424,545,730	4,913
Health Services	\$565,901,545	\$395,801,198	\$334,653,648	5,262
Other Services	\$1,025,674,723	\$522,692,608	\$424,187,221	9,822
Total, All Industries	\$44,479,698,162	\$9,717,738,421	\$5,652,967,840	84,310

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

Notes: Monetary values given in 2019 US dollars. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Cumulative Impact (Over 25 Years) of Ongoing Operations Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$140,511,436	\$45,580,649	\$28,442,921	416
Mining	\$739,131,025	\$162,320,259	\$74,956,876	364
Construction	\$1,129,238,650	\$617,706,517	\$509,028,625	6,810
Manufacturing	\$28,001,065,217	\$2,573,432,855	\$1,265,267,013	10,782
Transportation & Utilities	\$2,714,275,308	\$877,681,253	\$511,430,979	5,451
Information	\$252,556,520	\$156,688,254	\$66,895,284	567
Wholesale Trade	\$564,222,533	\$381,351,025	\$219,890,414	2,378
Retail Trade*	\$2,357,422,708	\$1,745,304,199	\$1,011,274,896	30,020
Financial Activities*	\$1,778,099,287	\$537,466,588	\$216,024,720	2,063
Business Services	\$889,606,514	\$520,440,068	\$424,545,730	4,913
Health Services	\$548,274,740	\$383,307,763	\$324,090,265	5,094
Other Services	\$959,362,095	\$491,055,416	\$398,231,459	9,274
Total, All Industries	\$40,073,766,033	\$8,492,334,847	\$5,050,079,182	78,134

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

Total Construction and the First 25 Years of Operations

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$1,022,348,888	\$303,620,209	\$196,670,128	2,929
Mining	\$9,800,505,459	\$2,171,283,655	\$1,030,320,990	5,173
Construction	\$7,924,389,552	\$3,822,136,780	\$3,149,678,794	42,113
Manufacturing	\$40,199,655,102	\$7,756,052,043	\$4,378,995,057	61,811
Transportation & Utilities	\$7,556,042,554	\$2,623,103,662	\$1,511,128,581	15,769
Information	\$1,279,959,601	\$791,800,577	\$338,045,092	2,884
Wholesale Trade	\$2,868,893,467	\$1,940,440,943	\$1,118,875,512	12,098
Retail Trade*	\$7,887,636,917	\$5,894,520,557	\$3,423,498,792	100,415
Financial Activities*	\$8,733,616,485	\$2,446,523,504	\$927,946,955	9,112
Business Services	\$5,184,215,103	\$3,238,291,319	\$2,641,615,972	30,590
Health Services	\$1,776,679,768	\$1,243,959,042	\$1,051,778,937	16,540
Other Services	\$3,505,023,888	\$1,779,731,319	\$1,432,153,890	32,844
Total, All Industries	\$97,738,966,783	\$34,011,463,609	\$21,200,708,700	332,278

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$307,543,095	\$96,634,228	\$60,783,530	897
Mining	\$4,066,039,034	\$898,387,672	\$421,338,018	2,096
Construction	\$7,597,777,770	\$3,648,415,835	\$3,006,521,881	40,199
Manufacturing	\$32,787,899,868	\$4,202,126,801	\$2,251,179,112	25,894
Transportation & Utilities	\$4,371,396,806	\$1,590,928,898	\$940,226,125	10,273
Information	\$702,523,917	\$435,100,188	\$185,758,213	1,581
Wholesale Trade	\$1,167,536,206	\$789,605,544	\$455,293,571	4,922
Retail Trade*	\$5,748,552,892	\$4,296,577,175	\$2,495,710,943	73,145
Financial Activities*	\$4,203,202,894	\$1,104,373,294	\$446,426,467	4,346
Business Services	\$3,533,708,614	\$2,186,745,441	\$1,783,823,941	20,654
Health Services	\$1,341,094,414	\$937,859,639	\$792,969,083	12,468
Other Services	\$2,364,230,686	\$1,207,548,563	\$977,659,983	22,587
Total, All Industries	\$68,191,506,196	\$21,394,303,278	\$13,817,690,868	219,061

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

Notes: Monetary values given in 2019 US dollars. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Anticipated Cumulative Impact of Construction and the First 25 Years of Operations Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$301,068,320	\$94,483,892	\$59,547,942	879
Mining	\$763,112,666	\$167,883,944	\$77,616,719	379
Construction	\$7,547,952,200	\$3,621,972,610	\$2,984,731,001	39,911
Manufacturing	\$30,821,287,913	\$3,454,973,474	\$1,805,501,510	18,735
Transportation & Utilities	\$4,078,410,471	\$1,457,359,017	\$857,195,814	9,292
Information	\$519,876,146	\$322,197,320	\$137,556,419	1,170
Wholesale Trade	\$1,054,936,669	\$713,439,621	\$411,375,655	4,448
Retail Trade*	\$5,343,404,449	\$3,993,251,304	\$2,319,482,992	67,997
Financial Activities*	\$3,476,285,633	\$910,831,812	\$383,161,364	3,718
Business Services	\$3,268,458,348	\$2,025,392,241	\$1,652,201,072	19,130
Health Services	\$1,249,157,094	\$873,339,303	\$738,416,471	11,608
Other Services	\$2,130,696,428	\$1,092,921,764	\$884,095,549	20,496
Total, All Industries	\$60,554,646,339	\$18,728,046,302	\$12,310,882,509	197,763

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

Enhanced Production Activity

The Potential Cumulative Impact (Over 25 Years) of the Incremental Natural Gas Drilling and Extraction Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$4,259,805,334	\$1,202,903,407	\$791,758,989	12,236
Mining	\$95,863,545,796	\$34,802,202,388	\$27,012,182,859	349,234
Construction	\$3,927,717,028	\$2,092,404,426	\$1,724,271,295	23,634
Manufacturing	\$72,752,570,388	\$22,840,213,355	\$13,794,731,732	200,353
Transportation & Utilities	\$23,761,725,703	\$10,643,696,855	\$6,395,792,329	74,254
Information	\$5,025,083,505	\$3,113,320,421	\$1,407,476,037	13,245
Wholesale Trade	\$10,776,107,845	\$6,863,663,298	\$3,927,872,154	42,909
Retail Trade*	\$31,426,839,258	\$23,462,621,193	\$13,748,833,393	399,113
Financial Activities*	\$35,524,912,576	\$11,438,393,035	\$5,445,911,824	68,135
Business Services	\$12,473,243,406	\$7,335,121,671	\$5,976,277,741	71,594
Health Services	\$7,749,157,886	\$5,332,736,113	\$4,365,559,648	77,443
Other Services	\$18,274,056,257	\$8,513,037,097	\$6,319,003,123	143,316
Total, All Industries	\$321,814,764,982	\$137,640,313,259	\$90,909,671,126	1,475,465

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

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 Golden Pass LNG on Business

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$151,582,593	\$42,792,339	\$28,184,176	436
Mining	\$3,471,254,308	\$1,242,490,035	\$955,849,186	12,253
Construction	\$137,156,778	\$73,067,242	\$60,211,948	825
Manufacturing	\$2,587,125,141	\$817,854,273	\$496,625,692	7,185
Transportation & Utilities	\$832,878,825	\$373,536,496	\$224,161,656	2,600
Information	\$178,921,443	\$110,971,149	\$50,639,629	482
Wholesale Trade	\$382,706,656	\$241,113,215	\$137,787,309	1,501
Retail Trade*	\$1,106,688,683	\$825,129,794	\$484,160,981	13,985
Financial Activities*	\$1,255,581,824	\$410,864,025	\$196,990,620	2,519
Business Services	\$437,682,761	\$257,449,840	\$209,708,852	2,517
Health Services	\$275,860,422	\$189,304,971	\$154,087,517	2,779
Other Services	\$666,260,184	\$307,772,187	\$225,388,506	5,084
Total, All Industries	\$11,483,699,618	\$4,892,345,564	\$3,223,796,070	52,166

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$1,239,273,643	\$350,537,756	\$229,866,509	3,531
Mining	\$25,018,611,507	\$9,929,847,553	\$8,114,972,704	109,916
Construction	\$1,267,436,808	\$675,198,943	\$556,405,895	7,627
Manufacturing	\$21,248,163,963	\$6,400,837,483	\$3,738,240,584	55,624
Transportation & Utilities	\$7,518,739,383	\$3,345,836,754	\$2,024,681,483	23,619
Information	\$1,456,797,696	\$896,861,268	\$382,898,878	3,347
Wholesale Trade	\$3,171,107,584	\$2,146,319,424	\$1,237,586,891	13,712
Retail Trade*	\$9,698,402,792	\$7,293,279,351	\$4,242,969,219	126,482
Financial Activities*	\$10,743,989,533	\$3,144,219,126	\$1,431,224,114	15,323
Business Services	\$3,923,869,663	\$2,304,519,987	\$1,879,897,747	22,312
Health Services	\$2,249,080,082	\$1,573,282,618	\$1,330,225,058	21,441
Other Services	\$4,551,564,372	\$2,245,087,871	\$1,812,961,274	42,450
Total, All Industries	\$92,087,037,025	\$40,305,828,135	\$26,981,930,355	445,385

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

The Potential Cumulative Impact (Over 25 Years) of the Incremental Natural Gas Drilling and Extraction Associated with Golden Pass LNG on Business Activity in Texas

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$3,587,743,252	\$999,043,283	\$663,448,664	10,266
Mining	\$94,144,096,723	\$34,409,161,733	\$26,806,976,533	348,165
Construction	\$3,731,202,455	\$1,987,715,631	\$1,638,001,222	22,452
Manufacturing	\$45,042,841,254	\$14,715,937,857	\$8,944,450,800	130,629
Transportation & Utilities	\$19,733,975,710	\$9,163,914,139	\$5,568,023,905	65,781
Information	\$4,790,437,399	\$2,967,944,028	\$1,341,753,991	12,627
Wholesale Trade	\$10,463,163,473	\$6,664,338,567	\$3,813,804,487	41,662
Retail Trade*	\$30,337,488,635	\$22,670,928,811	\$13,287,537,335	385,217
Financial Activities*	\$34,591,827,065	\$10,863,662,367	\$5,105,150,593	63,608
Business Services	\$12,039,996,710	\$7,080,342,932	\$5,768,697,202	69,107
Health Services	\$7,607,327,695	\$5,235,132,865	\$4,285,658,301	76,026
Other Services	\$17,234,111,419	\$8,030,936,394	\$5,915,624,338	133,891
Total, All Industries	\$283,304,211,789	\$124,789,058,607	\$83,139,127,370	1,359,429

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

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 Golden Pass LNG on Business Activity in Texas

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$127,030,141	\$35,372,116	\$23,498,293	364
Mining	\$3,400,684,029	\$1,226,448,050	\$947,615,859	12,211
Construction	\$130,294,444	\$69,411,485	\$57,199,378	784
Manufacturing	\$1,598,926,267	\$524,034,453	\$319,332,226	4,654
Transportation & Utilities	\$691,534,559	\$321,440,282	\$195,072,909	2,303
Information	\$170,566,713	\$105,789,355	\$48,275,014	459
Wholesale Trade	\$371,592,634	\$234,111,148	\$133,785,886	1,458
Retail Trade*	\$1,068,301,601	\$797,268,802	\$467,898,094	13,498
Financial Activities*	\$1,221,880,958	\$389,899,757	\$184,557,278	2,349
Business Services	\$422,480,251	\$248,507,555	\$202,424,807	2,429
Health Services	\$270,811,443	\$185,840,186	\$151,267,305	2,728
Other Services	\$629,283,038	\$290,530,131	\$210,991,733	4,749
Total, All Industries	\$10,103,386,078	\$4,428,653,321	\$2,941,918,781	47,986

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

The Potential Cumulative Impact of the Initial Drilling Stimulus Required to Establish the Level of Incremental Natural Gas Production Associated with Golden Pass LNG on Business Activity in Texas

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$1,074,249,436	\$299,169,445	\$198,279,688	3,055
Mining	\$24,967,267,901	\$9,913,837,997	\$8,099,813,200	109,807
Construction	\$1,204,023,431	\$641,416,868	\$528,567,365	7,245
Manufacturing	\$13,290,329,333	\$4,263,180,167	\$2,551,950,693	37,744
Transportation & Utilities	\$6,252,232,789	\$2,888,503,208	\$1,766,316,060	20,958
Information	\$1,388,772,576	\$854,982,361	\$365,019,427	3,191
Wholesale Trade	\$3,079,016,795	\$2,083,989,073	\$1,201,646,656	13,314
Retail Trade*	\$9,363,463,246	\$7,048,087,307	\$4,101,494,830	122,086
Financial Activities*	\$10,496,333,882	\$3,001,546,030	\$1,346,799,922	14,424
Business Services	\$3,787,577,640	\$2,224,474,594	\$1,814,601,219	21,537
Health Services	\$2,207,915,937	\$1,544,487,364	\$1,305,878,403	21,048
Other Services	\$4,247,650,002	\$2,108,985,341	\$1,697,655,651	39,670
Total, All Industries	\$81,358,832,967	\$36,872,659,755	\$24,978,023,114	414,079

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate. (in constant 2019 dollars)

Potential Benefits from Liquid By-Products

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in the United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$114,966,428	\$32,836,416	\$21,476,411	461
Mining	\$108,236,779	\$26,901,668	\$15,912,575	143
Construction	\$2,291,566,169	\$983,299,069	\$810,299,674	15,248
Manufacturing	\$2,006,029,305	\$615,007,177	\$359,153,490	7,754
Transportation & Utilities	\$663,573,543	\$289,136,999	\$173,862,986	2,724
Information	\$133,879,060	\$82,562,156	\$35,248,433	435
Wholesale Trade	\$291,605,717	\$197,343,585	\$113,790,069	1,840
Retail Trade*	\$908,787,785	\$684,380,084	\$398,306,664	16,228
Financial Activities*	\$960,512,310	\$270,661,308	\$120,666,148	1,846
Business Services	\$354,231,700	\$211,700,815	\$172,693,616	2,925
Health Services	\$208,255,956	\$145,695,022	\$123,186,490	2,745
Other Services	\$413,719,797	\$205,763,895	\$165,982,820	5,508
Total, All Industries	\$8,455,364,551	\$3,745,288,194	\$2,510,579,377	57,856

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$32,606,886	\$9,720,195	\$6,203,798	132
Mining	\$26,919,036	\$6,822,830	\$3,907,912	36
Construction	\$2,254,662,739	\$963,583,596	\$794,052,896	14,942
Manufacturing	\$643,463,672	\$194,983,648	\$115,958,172	2,385
Transportation & Utilities	\$352,618,348	\$164,285,566	\$100,698,897	1,623
Information	\$70,133,753	\$43,313,441	\$18,491,897	228
Wholesale Trade	\$120,098,866	\$81,284,771	\$46,869,523	758
Retail Trade*	\$650,018,125	\$490,255,546	\$285,458,532	11,600
Financial Activities*	\$445,723,587	\$113,333,461	\$52,922,986	808
Business Services	\$252,928,385	\$151,432,192	\$123,529,864	2,092
Health Services	\$153,373,006	\$107,212,757	\$90,649,379	2,020
Other Services	\$272,329,141	\$136,215,522	\$110,420,245	3,678
Total, All Industries	\$5,274,875,545	\$2,462,443,525	\$1,749,164,102	40,303

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

Notes: Monetary values given in 2019 US dollars. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes). A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Potential Impact of Constructing New Chemical Manufacturing Facilities to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Job Years*
Agriculture	\$31,358,397	\$9,332,518	\$5,975,093	127
Mining	\$3,792,735	\$906,156	\$440,289	4
Construction	\$2,246,381,764	\$959,153,041	\$790,401,843	14,873
Manufacturing	\$441,161,659	\$122,770,386	\$72,559,056	1,424
Transportation & Utilities	\$308,028,043	\$141,801,596	\$86,642,233	1,390
Information	\$51,148,088	\$31,614,146	\$13,497,093	166
Wholesale Trade	\$103,598,206	\$70,119,155	\$40,431,329	654
Retail Trade*	\$586,948,432	\$442,946,847	\$257,957,826	10,472
Financial Activities*	\$360,649,398	\$90,243,410	\$43,304,481	661
Business Services	\$227,555,189	\$136,768,572	\$111,568,108	1,889
Health Services	\$138,670,565	\$96,922,451	\$81,948,830	1,826
Other Services	\$237,987,501	\$119,591,878	\$96,832,555	3,230
Total, All Industries	\$4,737,279,977	\$2,222,170,155	\$1,601,558,735	36,717

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

Notes: Monetary values given in 2019 US dollars. A job-year is equivalent to one person working for one year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in The United States

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$132,333,942	\$40,579,139	\$26,079,575	387
Mining	\$3,019,451,933	\$664,817,491	\$310,769,492	1,532
Construction	\$410,480,861	\$223,941,815	\$184,541,999	2,470
Manufacturing	\$11,100,811,066	\$1,289,169,065	\$657,543,251	7,131
Transportation & Utilities	\$1,455,181,138	\$449,867,881	\$255,523,166	2,593
Information	\$177,588,341	\$110,072,927	\$46,993,662	401
Wholesale Trade	\$377,671,733	\$255,281,608	\$147,197,653	1,589
Retail Trade*	\$995,672,522	\$738,620,660	\$428,184,325	12,676
Financial Activities*	\$1,322,894,122	\$413,413,210	\$146,620,962	1,414
Business Services	\$370,009,824	\$216,887,148	\$176,924,361	2,049
Health Services	\$220,827,529	\$154,732,662	\$130,827,885	2,057
Other Services	\$447,819,570	\$226,854,010	\$182,883,990	4,181
Total, All Industries	\$20,030,742,581	\$4,784,237,617	\$2,694,090,320	38,479

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in the Primary Impact Region

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$46,507,227	\$15,104,776	\$9,418,853	139
Mining	\$1,291,591,136	\$284,160,022	\$132,245,421	649
Construction	\$375,818,761	\$205,499,084	\$169,344,021	2,265
Manufacturing	\$9,434,527,121	\$918,526,801	\$455,447,860	4,170
Transportation & Utilities	\$931,688,235	\$304,834,298	\$178,430,602	1,916
Information	\$111,143,334	\$68,920,662	\$29,424,435	251
Wholesale Trade	\$198,041,127	\$133,855,794	\$77,182,455	835
Retail Trade*	\$807,665,500	\$598,230,598	\$346,671,880	10,283
Financial Activities*	\$696,359,196	\$209,542,001	\$80,396,665	768
Business Services	\$294,286,753	\$172,164,452	\$140,442,088	1,625
Health Services	\$187,203,389	\$130,933,244	\$110,705,264	1,740
Other Services	\$339,298,918	\$172,909,552	\$140,323,369	3,248
Total, All Industries	\$14,714,130,697	\$3,214,681,283	\$1,870,032,913	27,889

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

Notes: Monetary values given in 2019 US dollars per year. The Primary Impact Region includes the Beaumont-Port Arthur Metropolitan Statistical Area (MSA) (Hardin, Jefferson, Newton, and Orange counties) and the Lake Charles MSA (Calcasieu and Cameron parishes)..Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.

The Potential Annual Impact of New Chemical Manufacturing Operations (at Maturity) to Accommodate the Incremental Ethane Production Associated with Golden Pass LNG on Business Activity in Jefferson County

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	\$46,481,991	\$15,078,375	\$9,409,039	139
Mining	\$244,508,590	\$53,696,367	\$24,796,165	120
Construction	\$373,558,426	\$204,340,741	\$168,389,496	2,254
Manufacturing	\$9,262,907,387	\$851,306,009	\$418,557,267	3,561
Transportation & Utilities	\$897,897,352	\$290,341,819	\$169,184,164	1,801
Information	\$83,547,097	\$51,833,309	\$22,129,333	189
Wholesale Trade	\$186,647,937	\$126,153,030	\$72,740,958	786
Retail Trade*	\$779,848,515	\$577,356,273	\$334,535,378	9,931
Financial Activities*	\$588,205,138	\$177,796,913	\$71,462,159	682
Business Services	\$294,286,753	\$172,164,452	\$140,442,088	1,625
Health Services	\$181,372,336	\$126,800,339	\$107,210,885	1,686
Other Services	\$317,362,369	\$162,443,876	\$131,737,160	3,065
Total, All Industries	\$13,256,623,890	\$2,809,311,505	\$1,670,594,090	25,837

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

Notes: Monetary values given in 2019 US dollars per year. Components may not sum due to rounding. Retail Trade includes restaurants, Financial Activities includes Real Estate.