SOUTH TEXAS ECONOMIC DEVELOPMENT CENTER

Regional Economic Impacts of a Proposed Condensate Plant in Ingleside, Texas

Report commissioned by Cheniere Energy, Inc.

CHENIERE

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College of Business
Texas A&M University-Corpus Christi

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EXECUTIVE SUMMARY

Cheniere Condensate Plant
Regional Economic Impacts

This report summarizes the quantitative findings on the regional and local economic impacts of a proposed industrial site in Ingleside, Texas, by Cheniere Energy. Economic impact estimates are provided for the capital project during its construction phase as well as the plant's subsequent operation. During its first 10 years, this facility is expected to generate a **cumulative total of $1.9 billion** in economic impacts and over **4,600 job-years** for the Corpus Christi metro area.

Construction

- Construction of the industrial facility will involve capital expenditures totaling $400 million. During the construction phase, Cheniere Energy will hire 300 construction workers, and an additional 58 full-time-equivalent (FTE) jobs are directly associated with its contractors and suppliers. The construction project will generate an estimate total of 358 direct job-years.
- For the Corpus Christi metro area, Cheniere Energy's capital investment will generate an estimated **total economic impact of $526.3 million**, along with **$72.5 million in value-added output**, **$31.5 million in household income**, and **608 job-years**.
- For San Patricio County, the estimated **total economic impact is $383.1 million**, along with **$52.3 million in value-added output**, **$24.5 million in household income**, and **387 job-years**.
- The construction project will contribute an estimated total of **$2.2 million** in **indirect business tax revenues** to the taxing entities in the Corpus Christi metro area, and $1.1 million to San Patricio County.

Operation

- The annual maintenance and operation (M&O) budget for the industrial site is $10 million, with 30 direct employees working on site.
- For the Corpus Christi metro area, the plant will generate an estimated total economic impact of **$178.7 million per year**, along with **$38.9 million in value-added output**, **$22.5 million in household income**, and **452 jobs**.
- For San Patricio County, the estimated total economic impact is **$130.1 million per year**, along with **$28 million in value-added output**, **$17.5 million in household income**, and **325 jobs**.
- The facility will contribute an estimated total of **$3.2 million annually in indirect business tax revenues** to the taxing entities in the Corpus Christi metro area, and $1.6 million to San Patricio County.

1. INTRODUCTION

1.1 Objective

Cheniere Energy, Inc. is planning for the construction of a $400 million marine terminal and condensate plant in Ingleside, Texas. The company has commissioned Texas A&M University-Corpus Christi's South Texas Economic Development Center to conduct a study that assesses quantitatively the regional economic impacts of this construction project and the industrial site's subsequent operation. The primary objective of this report is to summarize the findings on the contribution of this facility to the regional economy of San Patricio County and the Corpus Christi metro area on the basis of Cheniere Energy's planned capital investment and the plant's subsequent operation.

1.2 Study Scope

In this study, economic impacts are measured by economic activities in San Patricio County and the Corpus Christi metro area that are associated with Cheniere Energy's capital investment for the industrial site and the subsequent operation of its facilities. These impacts are measured alternatively by changes in gross business revenues (or total output), value-added output, household income earnings, and employment across different industries and households within the local communities of San Patricio County and the metro area.[1] In addition, this report provides estimates for changes in local direct tax revenues associated with the construction and operation of the plant.

1.3 Methodology

This study utilizes the traditional methodology of estimating regional economic impacts on the basis of direct ***expenditures*** associated with the development project and the subsequent operation of the industrial site. Data on direct expenditures and direct employment are provided by Cheniere Energy officials.

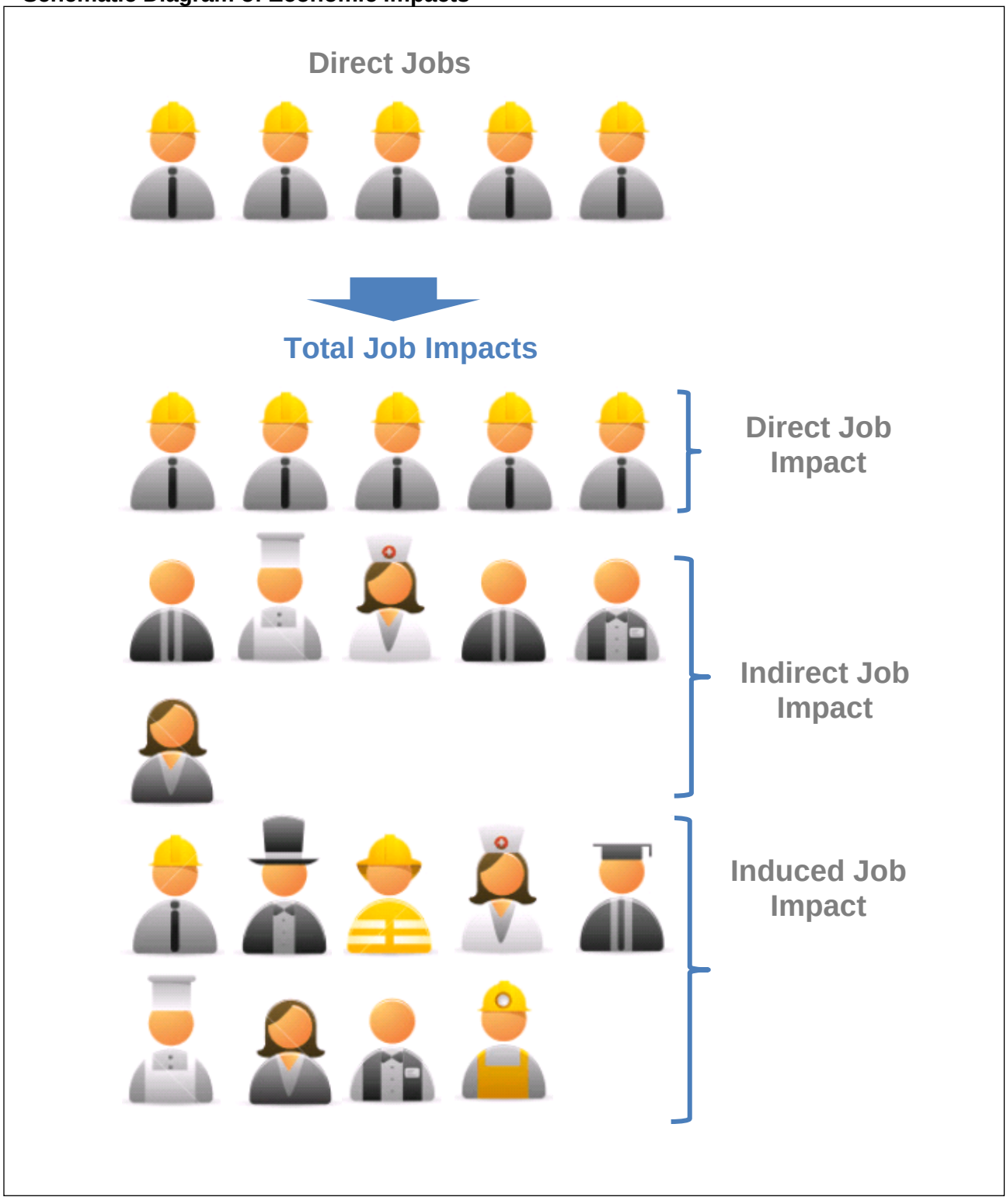
[1] Value-added output refers to the amount of output that is generated by local resources, while gross business revenues, or total output, refer to gross sales that might include output generated from resources outside the region.

In addition to those expenditures that immediately benefit the regional economy, this study presents estimates for ***secondary*** economic effects within the region. There are two types of secondary effects—***indirect impacts*** and ***income-induced*** impacts. Indirect impacts occur as a result of increased input needs of business vendors from which the industrial site directly purchases goods and services (e.g., equipment and parts suppliers, banks). Some or all of the new facility's purchase orders will be directed to businesses within the region, thereby increasing the demand for jobs to be filled by local workers, and creating more business-to-business transactions and new rounds of additional spending within the region.

Income-induced impacts represent economic activity in local industries that is caused by the spending of the direct employees associated with the industrial site as well as employees of its immediate suppliers. This effect occurs when those employees spend at least some of their incomes on local goods and services, generating additional rounds of business sales across different industries within the region.

As the schematic diagram in ***Exhibit 1*** below illustrates, because of the indirect and induced effects, expenditures on the construction and operation of the Cheniere plant and its employees will ultimately generate a multiple of expenditures and income across the regional economy. The increases in regional employment and business sales will in turn generate additional household income and indirect business tax revenues within the region. Estimates for indirect business taxes exclude direct taxes, such as property tax, that Cheniere Energy might incur for the industrial property in Ingleside.

Exhibit 1
Schematic Diagram of Economic Impacts



1.4 Multiplier Effects

As a result of various rounds of business transactions and expenditures, Cheniere Energy's initial capital investment on the Ingleside project and its operation will generate a multiple of business revenues and household earnings in the region. These additional, or multiplier, effects cannot be observed directly. This study employs IMPLAN's regional input-output model to account for the secondary flows of economic activities within the Corpus Christi metro area. This modeling methodology is widely used by government agencies and consulting firms to estimate the regional economic impacts of new development projects.

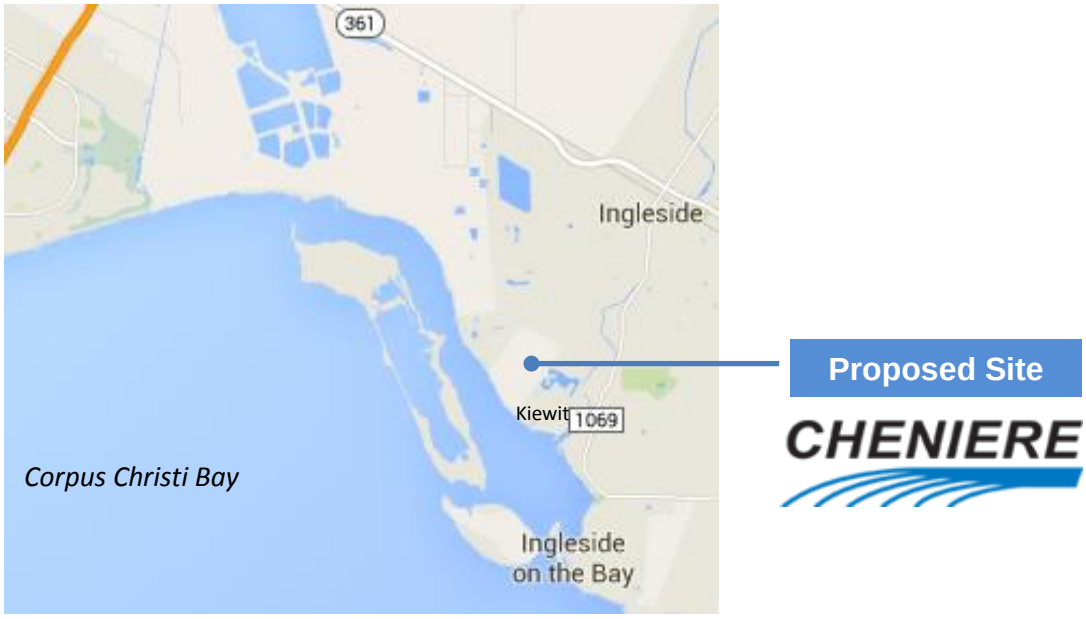
For the construction project, estimates of economic impacts from the IMPLAN model are drawn from Cheniere Energy's planned capital expenditures. Estimates for the economic impacts from the facilities in operation correspond to Cheniere Energy's annual budget for maintenance and operation (M&O) and its estimate for direct employment on site.

2. BACKGROUND

2.1 Construction Project

Cheniere Energy, Inc. is a Houston-based company with a focus on liquefied natural gas-related (LNG) businesses. In addition to a proposed LNG terminal in nearby Gregory, the company is proposing an industrial development project for a condensate facility in Ingleside, Texas. The Ingleside site is located on a 552-acre property for industrial uses along the La Quinta Channel and next to Kiewit Offshore Services (see ***Exhibit 2***). In addition to the condensate facility, the property will include two ship berths and nine storage tanks with a capacity of 2.7 million barrels. Construction is expected to begin as early as the second half of 2015, and the facility may become operational another year later.

Exhibit 2
Location of Proposed Site



Source: Scripps Newspapers.

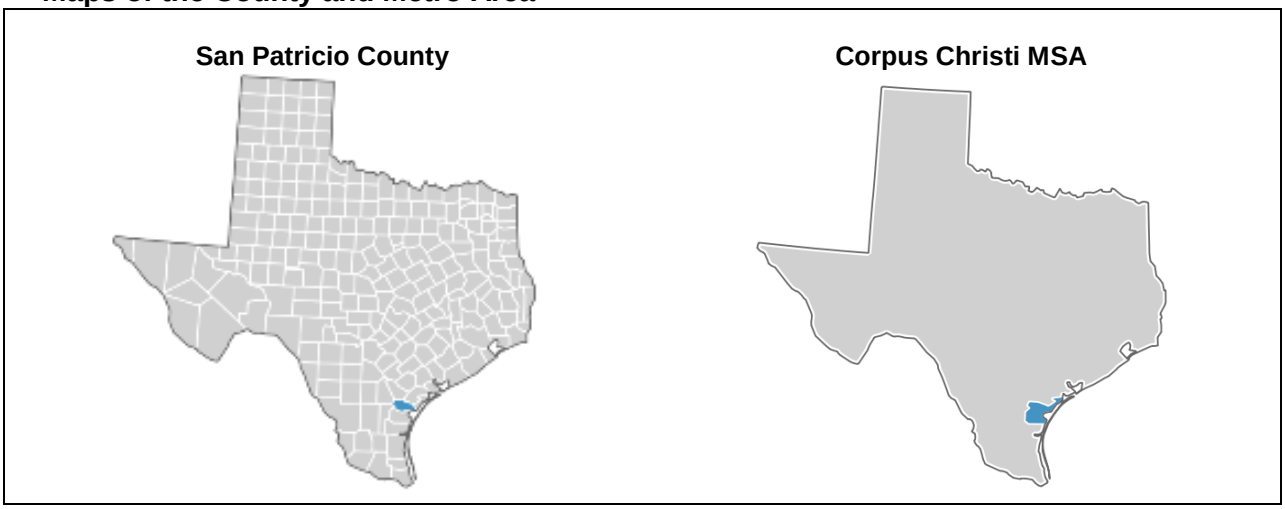
Condensate is a low-density mixture of hydrocarbon liquids that are typically present in the production of natural gas. Compared with crude oil, condensate is lighter and has a lower domestic market value, though it is assessed at a premium in many overseas markets. Condensate can also be refined into other petroleum products such as propane or kerosene. The Ingleside facility will process supplies from the Eagle Ford Shale and Permian Basin via pipelines and trucks, and make them available for shipment on tankers and barges through the Port of Corpus Christi.

The capital budget for this proposed project by Cheniere Energy is estimated at **$400 million**. The construction phase during the 2015-16 period will require an estimated total of 300 full-time-equivalent (FTE) local construction workers. Once the plant becomes operational, the company will incur maintenance and operation (M&O) expenses totaling **$10 million per year**. The plant will also be operated with 25-30 employees working on site, with an average salary of $116,700, excluding benefits. The majority of those direct employees are engineers, and operations and administration personnel.

2.2 Area Profile

The industrial site is located in San Patricio County, which is one of the three counties that comprise the metropolitan statistical area (MSA) of Corpus Christi in South Texas. The other two counties are Nueces and Aransas Counties. Corpus Christi is the largest city of the metro area. ***Exhibit 3*** below shows the maps of the county and metro area in Texas.

Exhibit 3
Maps of the County and Metro Area



The population of San Patricio County is approximately 67,000, or about 15 percent of Corpus Christi MSA's total population. Nueces County, which occupies much of the City of Corpus Christi, accounts for about 80 percent of the metro area's population and employment.

Much of San Patricio County was recently devastated by the closure of former Naval Station Ingleside. The military and civilian personnel on the base made up about 10 percent of the county's workforce. In the run-up to the eventual closure of the military installation in 2011, employment and population retreated significantly. The county's unemployment rate surpassed 10 percent in 2010 and 2011.

Since 2011, this South Texas region has seen resurgence in employment and population growth. One major factor for such rapid economic growth is the record number of large-scale industrial sites under construction or expansion. Most of those facilities currently underway, including the two facilities proposed by Cheniere Energy, will leverage the rapidly expanding oil and gas supplies from the Eagle Ford Shale and other shale plays in Texas.

While San Patricio County's economy has rapidly rebounded from the deep contraction in 2010 and 2011, the current unemployment rate remains evaluated at nearly 7 percent. In 2014, the county's unemployment rate was the highest in the 12-county Coastal Bend region, and at least one percentage point higher than those of the other two counties in the Corpus Christi metro area.

Exhibit 4 below displays some basic economic data of the region in comparison with the state of Texas and the United Sates. Between 2008 and 2013, San Patricio County's population growth at 0.6 percent was significantly lower than the rest of the nation's largely as a result of the closure of its military base. On the other hand, its employment and personal income grew at a relatively more rapid pace, due largely to the surges in employment growth in some industries, particularly construction during recent years. The county's unemployment rate at 7.5 percent in 2013 remained higher than the rest of Texas, but on a par with the national average. Because of the large concentration of industrial manufacturing facilities, the average wage rate of San Patricio County is higher than the wage rate of the other counties in the Corpus Christi MSA, but it remains below the state and national averages.

Exhibit 4
Regional Economic Profile

	San Patricio County	San Patricio County	Corpus Christi MSA	Texas	U.S.
Panel A:	Level		*% Change 2008-13*		
Population	66,809	*0.6%*	*4.7%*	*8.9%*	*3.9%*
Employment	27,544	*6.6%*	*3.8%*	*5.5%*	*-0.8%*
Per capita personal income	$40,675	*18.8%*	*14.8%*	*9.4%*	*8.8%*
Panel B:			2013 Level		
Unemployment Rate		7.5%	6.0%	6.3%	7.5%
Hourly Wage		$20.45	$20.35	$24.67	$24.11

Sources: Texas Workforce Commission, Census Bureau, Bureau of Economic Analysis, and author's calculations.

3. ECONOMIC IMPACTS FROM CONSTRUCTION

3.1 Direct Expenditures

The construction project proposed by Cheniere Energy in Ingleside, Texas, will involve an estimated capital budget of $400 million, a portion of which will directly involve local resources within the metro area of Corpus Christi, particularly San Patricio County. In particular, the developer expects to employ an estimated total of 300 local workers mostly from the construction industry.

3.2 Regional Economic Impacts

This section describes the significance of the Ingleside capital project to the regional economy of Corpus Christi MSA. ***Exhibit 5*** below lists estimates for the regional economic impacts as measured alternatively by changes in output (or business sales), value added, household or personal income, employment, and indirect tax revenues in the Corpus Christi metro area. In the broadest sense, the $400 million capital investment will generate an economic impact totaling **$526.3 million**.

Exhibit 5

MSA Economic Impacts from Construction

	Direct	Secondary		Total
		Indirect	*Induced*	
Output (millions)	$400.0	$11.3	$115.0	**$526.3**
Value Added (millions)	$55.1	$1.6	$15.8	**$72.5**
Household Income (millions)	$24.9	$0.5	$6.1	**$31.5**
Employment (FTE jobs)	358	12	168	**538**
Indirect Business Taxes (millions)	$0.69	$0.13	$1.38	**$2.20**

Cheniere Energy will directly employ 300 construction workers to build the condensate plant and other facilities on site. In addition to those directly employed by Cheniere Energy, the construction project will also generate an estimated total of 58 FTE employees working with the developer's immediate contractors and suppliers. In total, **358 FTE jobs** in the Corpus Christi MSA are directly associated with this project.

The hiring of 358 direct employees locally will generate secondary effects totaling 180 FTE jobs, 120 of which are associated with the indirect effect and 168 are associated the income-induced effect. Including those secondary effects, the capital project will generate a total employment impact of **538 job-years** (number of FTE job positions in a given year). This amount of employment impact supports an estimated **$31.5 million in local household income** and **$72.5 million in value-added output** in Corpus Christi MSA.

The effects on local household income and business sales affect local tax revenues as well. The tax impacts are calculated using IMPLAN. The bottom row of ***Exhibit 5*** lists estimates for the increases in indirect business taxes, which include sales, excise and business property taxes. The construction project generates an estimated total of **$2.2 million in local indirect tax revenues** within Corpus Christi MSA.

3.3 Local Economic Impacts

This section describes the significance of the Ingleside capital project to the local economy of San Patricio County. While the county and its local communities are projected to experience the majority of the economic impacts, some of which are spilled over to other neighboring communities. This is especially true in the case of the construction sector when its workforce is about 4 times larger in Nueces County than in San Patricio County, and the number of construction establishments is about 7 times larger.

Exhibit 6 below lists estimates for the construction project on changes in output (or business sales), value added, household or personal income, employment, and indirect business taxes for San Patricio County. The county will account for an estimated total of 257 (72%) of the 358 job positions in Corpus Christi MSA directly associated with the construction project. The rest of the direct employment impact (101 jobs) is absorbed by residents from the neighboring areas, notably the City of Corpus Christi. Including the secondary effects on local employment (130 jobs), San Patricio County is projected to gain a total of **387 job-years**.

Exhibit 6

County Economic Impacts from Construction

	Direct	Secondary		Total
		Indirect	*Induced*	
Output (millions)	$291.1	$8.2	$83.7	**$383.1**
Value Added (millions)	$39.8	$1.1	$11.4	**$52.3**
Household Income (millions)	$19.4	$0.4	$4.7	**$24.5**
Employment (FTE jobs)	257	9	121	**387**
Indirect Business Taxes (millions)	$0.35	$0.06	$0.70	**$1.12**

The construction project will also benefit San Patricio County's overall household income, business sales, and tax revenues. The total economic impacts for the county are estimated to be **$383.1 million**, along with **$52.3 million in value-added output**, **$24.5 in household income**, and **$1.1 million in indirect business taxes**.

4. ECONOMIC IMPACTS FROM OPERATION

4.1 Direct Expenditures

In contrast to the construction phase, which generates a one-time regional economic impact during the proposed timeline between 2015 and 2016, the proposed Cheniere plant in operation will generate **permanent** economic impacts. This section describes the annual regional economic impact of the plant once it becomes operational.

Cheniere Energy will incur an estimated total of **$10 million annually** in expenditures for maintenance and operation (M&O) for the Ingleside plant. In addition, the facility will be operated with 25 to 30 FTE employees, each with an average annual salary (excluding benefits) of $116,700. The total annual direct payroll is therefore equal to approximately **$3.5 million**.

4.2 Regional Economic Impacts

This section describes the contribution of the proposed industrial plant to Corpus Christi MSA when this facility becomes operational. ***Exhibit 7*** below lists estimates for the regional economic impacts as measured alternatively by changes in output (or business sales), value added, household or personal income, employment, and indirect tax revenues in the Corpus Christi metro area. The area is projected to reap most of the $10 million M&O expenditures annually in the form of direct value-added output.

Exhibit 7

MSA Economic Impacts from Operation

	Direct	Secondary		Total
		Indirect	*Induced*	
Output (millions)	$119.1	$34.6	$25.0	**$178.7**
Value Added (millions)	$9.9	$13.4	$15.6	**$38.9**
Household Income (millions)	$5.3	$6.9	$10.3	**$22.5**
Employment (FTE jobs)	33	129	290	**452**
Indirect Business Taxes (millions)	$0.52	$1.48	$1.21	**$3.2**

The maintenance and operation of the facility will generate a regional economic impact totaling **$178.7 million annually**. Including the secondary economic impacts, the $10 million annual M&O expenditures will generate a total of **$38.9 million in value-added output**, and **$3.2 million in indirect business taxes annually**.

Cheniere Energy plans to hire 30 FTE employees for the operation of the industrial site. In addition, 3 FTE job positions from its immediate contractors or suppliers will be associated directly with the facility's M&O. The total of 33 direct job positions will generate an estimate of 419 additional jobs within the region, so that the total employment impact on the metro area equals **452 jobs**. This relatively large multiplier effect arises from the capital intensive nature of the facility as well as the relatively high income earnings of the direct employees (more than twice the regional average). The regional employment impact supports a total of **$22.5 million in annual income** among Corpus Christi households.

4.3 Local Economic Impacts

This section describes the contribution of the proposed industrial plant to San Patricio County when this facility is operational. ***Exhibit 8*** below lists estimates for changes in output (or business sales), value added, household or personal income, employment, and indirect business taxes for the county.

Exhibit 8
County Economic Impacts from Operation

	Direct	Secondary		Total
		Indirect	*Induced*	
Output (millions)	$86.71	$25.16	$18.19	**$130.1**
Value Added (millions)	$7.13	$9.64	$11.28	**$28.0**
Household Income (millions)	$4.12	$5.38	$8.01	**$17.5**
Employment (FTE jobs)	24	93	208	**325**
Indirect Business Taxes (millions)	$0.26	$0.75	$0.61	**$1.6**

The maintenance and operation of the facility will generate a county-wide economic impact totaling **$130.1 million annually**. Including the secondary economic impacts, the $10 million annual M&O expenditures will

generate a total of **$28 million in value-added output**, and **$1.6 million in indirect business taxes annually**.

During the facility's operation, an estimate of 24 local residents in San Patricio County will fill the 33 direct job positions. Along with a total of 301 jobs associated with the secondary effects, the total employment impact on the county equals **325 jobs**. The local employment impact further supports a total of **$17.5 million in annual household income** within San Patricio County.

5. STREAM OF FUTURE ECONOMIC IMPACTS

The proposed capital project by Cheniere Energy will generate a stream of regional economic impacts into the future. The construction phase of the industrial site will generate a one-time economic impact associated with the capital development activity. When construction is complete, maintenance and operation of the condensate plant and other facilities on site will generate a stream of future regional economic impacts over time.

Exhibit 9 below displays the output (business sales), employment and tax impacts for the first 10 years of the proposed project. Construction is assumed to take place in the first year, followed by the facility's operation in the second year. Nominal values are expressed in current dollars, or present values, with an annual discount rate of 3 percent. Employment impacts are expressed in the number of job-years, which represents the number of FTE job positions in a given year. The **Appendix** contains estimates for the employment impacts in terms of the amounts of job-years alternatively by industry and occupation.

For the Corpus Christi metro area, the *cumulative* total discounted present value of the economic impact estimates for the Cheniere plant during its first 10-year period is **$1.9 billion**. Over that same 10-year period, the total impact on local **indirect business tax revenues is $27.2 million**, and the total employment impact equals **4,602 job-years**.

For San Patricio County, the corresponding cumulative total of the economic impact estimates for the Cheniere plant during its first 10-year period is **$1.4 billion**. The corresponding estimate for the county's **indirect business tax revenues is $13.7 million**, and the total employment impact equals **3,309 job-years**.

Exhibit 9

Present Values of Future Economic Impacts

	Output (millions)	Taxes (millions)	Employment (job-years)
Corpus Christi MSA			
Year 1 (construction)	$526.3	$2.2	538
Year 2	$173.5	$3.1	452
Year 3	$168.4	$3.0	452
Year 4	$163.5	$2.9	452
Year 5	$158.8	$2.8	452
Year 6	$154.1	$2.8	452
Year 7	$149.7	$2.7	452
Year 8	$145.3	$2.6	452
Year 9	$141.1	$2.5	452
Year 10	$137.0	$2.5	452
Cumulative Total	**$1,917.7**	**$27.2**	**4,602**
San Patricio County			
Year 1 (construction)	$383.1	$1.1	387
Year 2	$126.3	$1.6	325
Year 3	$122.6	$1.5	325
Year 4	$119.0	$1.5	325
Year 5	$115.6	$1.4	325
Year 6	$112.2	$1.4	325
Year 7	$108.9	$1.4	325
Year 8	$105.8	$1.3	325
Year 9	$102.7	$1.3	325
Year 10	$99.7	$1.2	325
Cumulative Total	**$1,395.7**	**$13.7**	**3,309**

Note: Present values are computed at a discount rate of 3%.

APPENDIX

Detailed Job Impact Data

Exhibit A.1

Job Impacts by Industry

		Construction		M&O	
		MSA	County	MSA	County
NAICS	**Industry**				
11	Agriculture, Forestry, Fishing & Hunting	1	0	0	0
21	Mining, Quarrying, & Oil & Gas Extraction	2	1	72	51
22	Utilities	1	1	0	0
23	Construction	307	220	27	19
31	Manufacturing	8	6	58	42
42	Wholesale Trade	5	4	18	13
44	Retail Trade	44	32	40	29
48	Transportation & Warehousing	5	4	13	10
51	Information	3	2	4	3
52	Finance & Insurance	10	7	18	13
53	Real Estate & Rental & Leasing	12	9	13	10
54	Professional, Scientific, & Technical Services	19	14	18	13
55	Management of Companies & Enterprises	0	0	0	0
56	Administrative Support & Waste Management	16	12	18	13
61	Educational Services (Private)	4	3	4	3
62	Health Care & Social Assistance	38	27	45	32
71	Arts, Entertainment, & Recreation	5	3	4	3
72	Accommodation & Food Services	26	19	31	23
81	Other Services (except Public Administration)	20	15	22	16
90	Government	13	9	45	32
	Total	**538**	**387**	**452**	**325**

Exhibit A.1
Job Impacts by Occupation

		Construction		M&O	
		MSA	County	MSA	County
SOC	**Occupation**				
11-0000	Management	47	34	43	31
13-0000	Business & Financial Operations	18	13	17	12
15-0000	Computer & Mathematical	2	2	4	3
17-0000	Architecture & Engineering	11	8	9	6
19-0000	Life, Physical, & Social Science	1	1	4	3
21-0000	Community & Social Service	3	2	4	3
23-0000	Legal	2	2	4	3
25-0000	Education, Training, & Library	7	5	17	12
27-0000	Arts, Design, Entertainment, Sports, & Media	6	4	9	6
29-0000	Healthcare Practitioners & Technical	15	11	17	12
31-0000	Healthcare Support	7	5	9	6
33-0000	Protective Service	4	3	9	6
35-0000	Food Preparation & Serving Related	25	18	30	22
37-0000	Building & Grounds Cleaning & Maintenance	13	10	17	12
39-0000	Personal Care & Service	16	11	22	16
41-0000	Sales & Related	47	34	56	41
43-0000	Office & Administrative Support	64	46	56	41
45-0000	Farming, Fishing, & Forestry	0	0	0	0
47-0000	Construction & Extraction	194	139	35	25
49-0000	Installation, Maintenance, & Repair	21	15	26	19
51-0000	Production	15	11	30	22
53-0000	Transportation & Material Moving	18	13	30	22
55-0000	Military	0	0	0	0
99-0000	Unclassified Occupation	1	1	0	0
	Total	**538**	**387**	**452**	**325**

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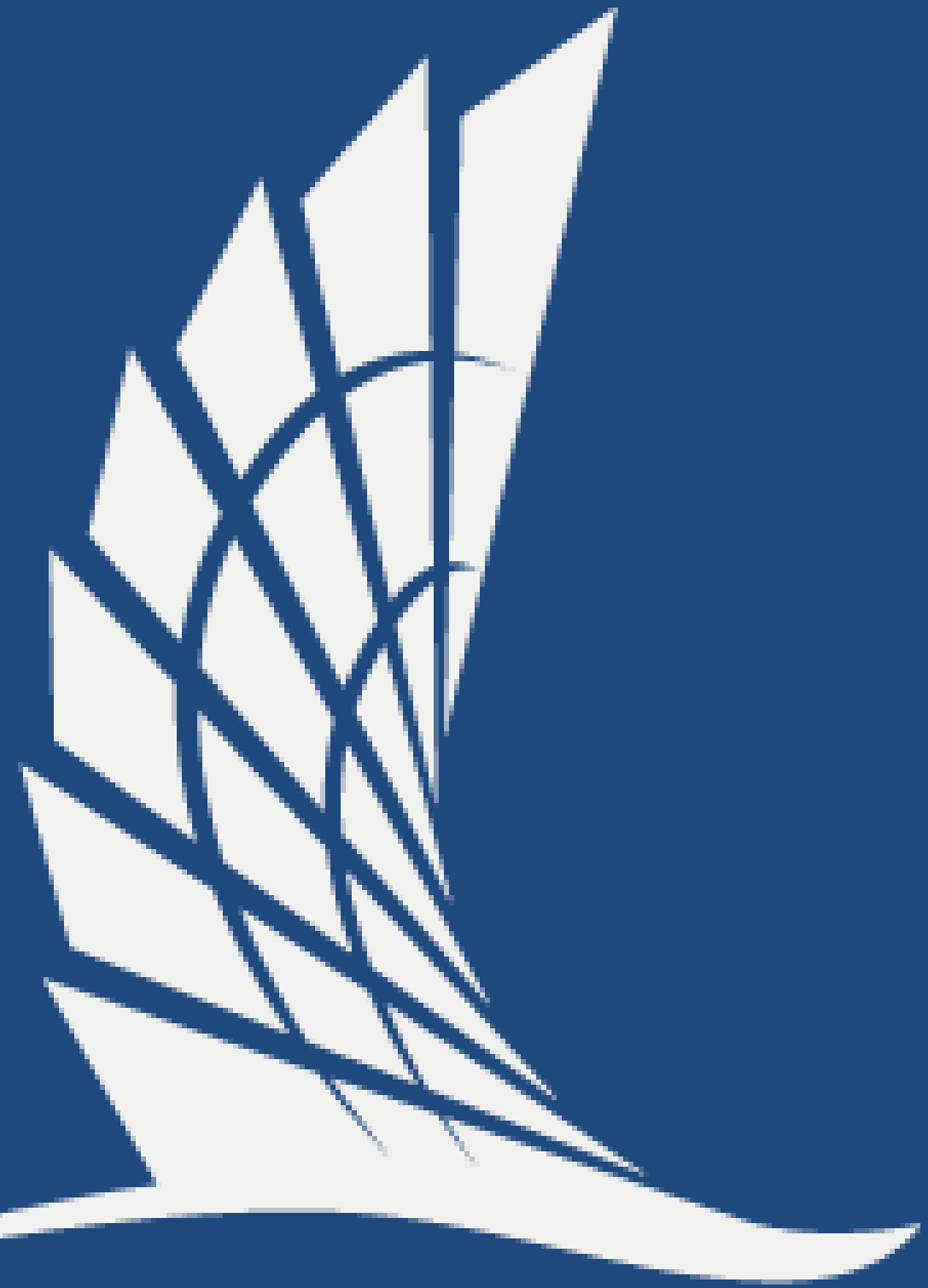

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