

ECONOMIC IMPACT ANALYSIS OF A PROPOSED LNG FACILITY EXPANSION AND ASSOCIATED PIPELINE

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Prepared for



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By

RESI

RESEARCH & CONSULTING



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1.0 Executive Summary

Study Overview

In February of 2004, Dominion Resources, Inc. announced plans to fund an expansion of its Cove Point liquefied natural gas (LNG) importation facility in Calvert County. The expansion will nearly double existing plant capacity and involves the extension of an associated pipeline that will traverse the following Maryland jurisdictions: Calvert, Charles and Prince George's Counties. Collectively, the proposed LNG facility expansion and associated pipeline represents an investment in excess of \$550 million.¹ This report presents an independent assessment of the economic, fiscal and qualitative benefits of the proposed project.

It should be noted that there is a demonstrable need for an expanded supply of energy in the Mid-Atlantic region. A prominent factor driving this need is the fact that the region is characterized by robust population and industrial growth; a trend that is expected to continue in the future. Without adequate energy supply, this growth cannot be sustained. The proposed LNG facility expansion and associated pipeline will address this and other related needs facing the region.

Dominion's \$550+ million investment will generate new job creation due to both the construction and operations of the proposed LNG facility expansion and associated pipeline. Regional job growth will also serve to augment local personal income levels, tax revenue streams and regional output (or gross state product, GSP). RESI employs standard econometric techniques to calculate these expected economic benefits. It should be noted that all impacts presented in this study refer to the expanded portion of the proposed facility/pipeline. In other words, this study does not consider economic impacts associated with existing facility operations.

RESI has determined that the proposed LNG facility expansion and associated pipeline will provide benefits including considerable jobs impacts in Maryland and in Southern Maryland (comprised of Calvert, Charles, Prince George's and St. Mary's counties), in particular. It is significant to note that many of these jobs are high-paying positions with annual average salaries far in excess of State and local averages. Moreover, the proposed LNG facility expansion and associated pipeline will result in a sizeable tax revenue stream and will represent a positive net fiscal impact for State and local governments. In addition, this study identifies significant qualitative impacts attributable to the proposed LNG facility expansion and associated pipeline. These include the project's contribution to the provision of clean and affordable energy which will further promote economic development in the region.

A substantial portion of these jobs, income, tax revenue and output (GSP) impacts are directly attributable to the proposed LNG facility expansion and associated pipeline. In other words, these impacts are generated by the new employees that are hired to construct and operate the proposed LNG facility expansion and associated pipeline. The balance of impacts considered in this study are referred to as spill-over or multiplicative impacts. These impacts occur as existing State and local businesses benefit from the facility expansion/pipeline. Specifically, these spill-over/multiplicative impacts occur as new Cove Point employees spend money on goods and services in Southern Maryland and throughout the State. A facility expansion/pipeline also means that the Cove Point LNG facility will increase its business expenditures on State and local goods and services; these expenditures are also captured in the multiplicative impacts. This study breaks out all impacts to both the direct and multiplicative levels.

¹ Throughout this document, the proposed project under consideration in this study is referred to as the "proposed LNG facility expansion and associated pipeline".

Additionally, a significant portion of the new jobs (both direct and multiplicative) attributable to the proposed LNG facility expansion and associated pipeline are created as the development is being constructed. The balance of job creation occurs during the operations phase of the proposed LNG facility expansion and associated pipeline. Again, this study breaks out all impacts for both the construction and operation phases.

Quantitative Benefits

- ✓ Collectively, the construction and operations phases of the proposed LNG facility expansion and associated pipeline will generate 392 jobs annually, \$13.0 million in annual earnings and \$61.1 million in GSP for Southern Maryland economies. The proposed LNG facility expansion and associated pipeline will also generate \$17.9 million in annual tax revenues for state and local (Southern Maryland) economies;
- ✓ Fully 62 percent (or 244) of the total jobs created are expected to be generated by the construction phase of the LNG facility/pipeline. These jobs are temporary in nature and will only be supported during the four-year build-out period;
- ✓ The remaining 38 percent (or 148) of the total jobs created will be generated by the operations phase of the proposed LNG facility expansion and associated pipeline. These jobs are permanent and are expected to be supported over the entire life-span of facility operations (for the purposes of this analysis, RESI assumes that this life-span will extend twenty years);
- ✓ Of the 148 jobs created by the operations phase, 26 percent (or 38) are direct jobs. These positions will be filled by employees working directly for the proposed LNG facility expansion and associated pipeline. The average annual earnings associated with these positions exceed \$70,000. These earnings far exceed prevailing average annual salaries in the region and State. Consider the following: employees in Maryland earned an average annual salary of \$39,382 in 2002. In Calvert County, employees earned an average annual salary of \$33,036. The corresponding figures for Charles, Prince George's, and St. Mary's Counties are \$31,328, \$39,943 and \$40,603, respectively.

Net Fiscal Benefits

The results summarized above indicate that the proposed LNG facility expansion and associated pipeline will create a total of 392 annual jobs. While the creation of new jobs is considered to be a positive outcome for a given region because of the new income, tax revenue and GSP impacts associated with each new job, it is also true that each new job will incur some incremental costs for state and local governments in the form of increased demand for the provision of government services.

The logic behind this conclusion is as follows: local governments in Southern Maryland will need to ramp up spending levels to accommodate each new employee and resident that locates to the region as a result of the proposed LNG facility expansion and associated pipeline. Some of these new employees will move to the region and will require Southern Maryland counties to increase their outlays on services such as water, sewer and public education. Other new employees will reside outside of the region, but will still require the region to ramp up spending for certain services, such as sanitation services.

RESI calculates the cost of services attributable to the proposed LNG facility expansion and associated pipeline in order to determine the net fiscal impact of the proposed development. Subtracting the expected fiscal costs from the expected fiscal benefits yields the net fiscal impact. This study finds that, over the life-span of the proposed LNG facility expansion and associated pipeline, the expected tax revenue stream received by state and local governments far exceeds the expected cost of services attributable to the development.

- ✓ RESI estimates that the State and region would derive a cumulative net positive fiscal impact of \$91.2 million over the life-span of the proposed LNG facility expansion and associated pipeline. This figure represents the amount of money that State and local governments could receive from the proposed project.

Qualitative Benefits

This study also identifies additional qualitative benefits attributable to the proposed LNG facility expansion and associated pipeline. While these benefits are not included in RESI's findings, they are significant and should be noted. A substantial benefit resulting from the proposed LNG facility expansion and associated pipeline is the provision of a competitively priced, clean-burning energy source for Maryland and the Mid-Atlantic region. This access will serve to enhance the economic development potential of these areas for the following reasons:

- ✓ Regional economic development is encouraged by providing an assured source of clean, affordable energy for both large and small customers;
- ✓ By supplementing the current supply of natural gas, the proposed project will act as a damper on price spikes caused by existing supply constraints during periods of peak consumption.
- ✓ The proposed project will encourage the construction and operation of combustion turbines and high efficiency combined cycle units, which will provide a source of reliable electricity during periods of high usage.
- ✓ Various industries require certain forms of energy, which if not available locally serve as an impediment to economic development;
- ✓ Employers today have become more sensitive to the central character of reliable and affordable energy supply;
- ✓ Recent advances in technology have resulted in lower production costs of gas-fired electricity generation;
- ✓ Provides an appropriate infrastructure enhancement that is in the proper location to help sustain the high growth, mid-Atlantic region;
- ✓ The permanent work force will consist of well-compensated professionals who will make a positive contribution to the quality of life in the immediate region.

2.0 Scope of Study

2.1 Introduction

Dominion Resources, Inc. contracted RESI of Towson University to determine the total economic impacts associated with the proposed expansion of an existing LNG facility in Calvert County, MD as well as the proposed extension of an associated pipeline that will traverse several Maryland jurisdictions. The proposed project represents an investment exceeding \$550 million.

The scope of this analysis consists of estimating varying economic effects including job creation and resulting personal income, output and fiscal or tax revenue impacts directly associated with both the operational and construction phases of the proposed LNG facility expansion and associated pipeline. Additionally, RESI calculates the spill-over or multiplicative impacts that will arise from the proposed LNG facility expansion and associated pipeline. This analysis also focuses on additional qualitative benefits such as the enhanced economic development potential of the region due to access to a secure, competitively priced energy source.

2.2 Impact Analysis Defined

To quantify the most likely economic impact of a new business entering or expanding into a specified area, economists measure two types of economic impacts: direct and multiplicative. The direct economic effects are generated when the new business creates new jobs and hires workers to fill those jobs. There are two subsets of multiplicative impacts: indirect and induced. Indirect economic impacts accrue as this new firm purchases goods and services from other locally situated businesses. Both the direct and indirect impacts result in an increase in area household income. This increase in household allows local households to increase their spending at local area businesses. The increase in local spending is referred to as the induced impact.

The measurement of economic impacts associated with the construction and operation of the proposed LNG facility is an estimate of the economic activity in Southern Maryland and the balance of the state that could occur due to the construction and eventual operation of a proposed LNG facility. The analysis implies that in the absence of proposed LNG facility, the State and local area will not realize the economic benefits described herein. These economic impacts therefore represent the potential economic activity that could result from the proposed LNG facility. Neither RESI nor Dominion can guarantee the actual levels of impacts the proposed LNG facility will yield.

The analysis was conducted in two steps. An expenditure survey was administered to Dominion and the responses were the basis for the direct economic impacts. These direct economic impacts were processed using RESI's modified IMPLAN model and the indirect and induced economic (or multiplicative) impacts were then estimated.

2.3 Methodology

In order to quantify the economic impact of the proposed LNG facility expansion and associated pipeline considered in this analysis, RESI utilized a modified IMPLAN input/output model, an economic impact assessment software system. The system was originally developed and is now maintained by the Minnesota IMPLAN Group (MIG). The model is based on Bureau of Economic Analysis (BEA) industrial multiplier tables and has been customized by RESI to reflect the economy of Calvert County as well as economies of surrounding jurisdictions. Please refer to Appendix 5.3 for more detail on how IMPLAN works and for examples of public and private sector clients who have utilized IMPLAN to conduct economic impact analyses.

Specifically, the IMPLAN model enumerates both direct and multiplicative impacts in terms of output, employment and tax revenues of the proposed LNG facility expansion and associated pipeline.

2.4 Major Assumptions/Notes

Impacts in this study were calculated using the following guidelines:

- √ All dollar figures appearing in this analysis represent mid-year 2004 dollars (i.e., future dollars are discounted back to 2004).
- √ As indicated by Dominion, construction of the expanded LNG facility is expected to begin in 2005 and to be completed in 2008.
- √ As indicated by Dominion, construction of the expanded pipeline will extend six months and be completed by 2008.
- √ The operations phase of the expanded LNG facility is assumed to have a life span of twenty years for the purposes of this study, although RESI does acknowledge that a more realistic life span, according to Dominion, would be closer to forty years.
- √ Present value figures included in this study represent the revenue attributed to the life of the proposed project, discounted to account for inflation. To calculate present value figures, RESI utilized a discount rate of ten percent, which we determined to be the standard rate based upon on industry research. This is true for all present value calculations except for those referring to cost of services. A discount of 5.71% (the 30-year Treasury bond rate) was used when calculating the present value of cost of services.

3.0 Economic Impacts Associated with the Proposed LNG facility expansion and associated pipeline

3.1 Summary

RESI has determined that the proposed LNG facility expansion and associated pipeline will generate significant positive economic impacts. To arrive at this conclusion, RESI quantified the impacts associated with both the construction and operations phases of the proposed LNG facility expansion and associated pipeline. Figure 1 details average annual impacts attributable to the proposed LNG facility expansion and associated pipeline. Please note the following: all impacts, excluding tax revenue impacts, presented in this report refer to the Southern Maryland region which is comprised of the following Maryland jurisdictions: Calvert, Charles, Prince George’s and St. Mary’s Counties. Tax revenue impacts include both State and local (Southern Maryland) tax revenue streams - though they understate State tax revenue streams to some degree as they do not include Maryland property utility taxes.

✓ The proposed LNG facility expansion and associated pipeline is expected to generate an average of 196 direct jobs, \$8.2 million in direct annual earnings, \$61.1 million in annual economic output and \$15.5 million in state and local average annual direct tax revenues.

✓ Through the multiplier effect, additional impacts will be generated including 196 jobs, \$4.8 million in multiplicative average annual earnings, \$13.0 million in average annual output and \$1.2 million in average annual tax revenues (includes both state and local tax revenues).

*Figure 1: Average Annual Impacts
(Construction & Operations Phases)*

	Employment (Southern MD)	Payroll (Southern MD)	Output (Southern MD)	Taxes (State & Southern MD)
Total (24 years)	392	\$13.0	\$61.1	\$17.9
Direct	196	\$8.2	\$48.1	\$14.5
Multiplicative	196	\$4.8	\$13.0	\$3.4
Construction Phase (4 years)	244	\$7.9	\$18.3	\$1.2
Direct	158	\$5.5	\$12.2	\$0.4
Multiplicative	86	\$2.4	\$6.1	\$0.8
Operations Phase (20 years)	148	\$5.1	\$42.8	\$16.7
Direct	38	\$2.7	\$35.9	\$14.1
Multiplicative	111	\$2.4	\$6.9	\$2.6

Dollar Figures in millions.

√ In order to accurately account for risks associated with developments as well as for the time value of money (interest rate) for projects that span multiple years, economists calculate the present value of economic and fiscal impacts. As shown in Figure 2, the cumulative net present value for payroll and output is \$53.2 and \$318.8 million, respectively. Of this, \$20.4 million in payroll and \$45.0 million in output is attributable to the construction phase and is, therefore, temporary in nature. The remaining \$32.8 and \$273.8 million are longer term impacts and are attributable to the life-span of the operations phase (twenty years) of the proposed LNG facility expansion and associated pipeline. In addition, the proposed project is expected to generate \$110.8 million in state and local tax revenue streams. Approximately \$4.1 million of these tax revenues are attributable to the construction phase, which is expected to span four years. The remaining \$106.8 million result from operations of the proposed project and are long-term impacts (twenty years).

*Figure 2: Net Present Value Impacts
(Construction & Operations Phases)*

	Payroll (Southern MD)	Output (Southern MD)	Taxes (State & Southern MD)
Total (24 years)	\$53.2	\$318.8	\$110.8
Direct	\$31.7	\$260.0	\$91.7
Multiplicative	\$21.5	\$58.8	\$19.2
Construction Phase (4 years)	\$20.4	\$45.0	\$4.1
Direct	\$14.6	\$30.1	\$1.4
Multiplicative	\$5.8	\$14.9	\$2.7
Operations Phase (20 years)	\$32.8	\$273.8	\$106.8
Direct	\$17.0	\$229.9	\$90.3
Multiplicative	\$15.7	\$43.9	\$16.5
<i>Dollar Figures in millions.</i>			

Figure 3: Construction, Average Annual Economic Impacts

	Avg. Annual Employment (Southern MD)	Avg. Annual Earnings (Southern MD)	Avg. Annual Output (Southern MD)
<i>Direct Impacts</i>	158	\$5.5	\$12.2
<i>Multiplicative Impacts</i>	86	\$2.4	\$6.1
Total	244	\$7.9	\$18.3
<i>Dollars in millions.</i>			

Figure 4: Construction, Local Supporting Industries

- Engineering- Architectural Services
- Personnel Supply Services
- Accounting- Auditing and Bookkeeping
- Wholesale Trade
- Management and Consulting Services
- Motor Freight Transport and Warehousing
- Miscellaneous Retail
- Other Business Services
- Miscellaneous Repair Shops

Figure 5: Construction, Present Value Economic Impacts

	Total Earnings (Southern MD)	Total Output (Southern MD)
Year 0	\$5.3	\$11.4
Year 1	\$4.8	\$10.4
Year 2	\$4.4	\$9.4
Year 3	\$5.9	\$13.8
Net Present Value	\$20.4	\$45.0
<i>Dollars in millions.</i>		

3.2 Economic Impacts: Construction Phase

Construction of the proposed LNG facility expansion and associated pipeline is expected to span four years. According to Dominion, an estimated 158 Southern Maryland workers are expected to be employed directly by the construction of the proposed LNG facility expansion and associated pipeline (please refer to Figure 3). The creation of the 158 jobs will generate \$5.5 million in annual wages and \$12.2 million in annual economic output for Southern Maryland.

Through the multiplier effect, the construction phase of the proposed LNG facility expansion and associated pipeline is estimated to generate an additional 86 jobs, \$2.4 million in annual earnings and \$6.1 million in annual economic output for the economies of Southern Maryland.

Construction of the proposed LNG facility expansion and associated pipeline will involve the purchase of goods and services from state and local providers. Dominion estimates that \$16 million in construction materials will be purchased from Southern Maryland and Maryland area suppliers. These purchases from supporting industries are responsible for the generation of a significant portion of the multiplicative impacts listed in Figure 3. Figure 4 lists state and local industries that will benefit from the lion's share of these multiplicative impacts.

While Figure 3 shows the annual impacts that will be generated during the construction phase of the proposed project, Figure 5 shows the cumulative (includes both direct and multiplicative impacts) economic impacts attributable to the construction phase in its entirety (all four years). To derive this total, RESI calculates the present value of each year's impacts. As mentioned previously in this document, the present value is simply each year's impact, discounted for inflation. The construction phase is estimated to yield a total of \$20.4 million in total earnings and \$45.0 million in total output for Southern Maryland.

Figure 6: Construction, Average Annual Fiscal Impacts

Average Annual Tax Revenue Impacts	
	Scenarios I & II (Tax Incentives)
<i>Direct Impacts</i>	\$0.4
<i>Multiplicative Impacts</i>	\$0.8
Total	\$1.2
<i>Dollars in millions.</i>	

3.3 Fiscal Impacts: Construction Phase

Construction of the proposed LNG facility expansion and associated pipeline, which is expected to span four years, will generate approximately \$0.4 million in direct Southern Maryland fiscal impacts annually (includes taxes such as business property taxes). The construction phase of the proposed LNG facility expansion and associated pipeline will generate an additional \$0.8 million annually in multiplicative tax revenues (includes taxes such as income and sales taxes).

Overall, the construction phase of the proposed LNG facility expansion and associated pipeline will generate a total of \$1.2 million in tax revenues per year, with a net present value tax revenue stream approaching \$4.1 million (as shown in Figure 7).

Figure 7: Construction, Present Value Fiscal Impacts

	Tax Revenues (Maryland & Southern MD)
Year 0	\$1.2
Year 1	\$1.1
Year 2	\$1.0
Year 3	\$0.9
Net Present Value	\$4.1
<i>Dollars in millions.</i>	

3.4 Economic Impacts: Operations Phase

Figure 8: Operations, Average Annual Economic Impacts

	Avg. Annual Employment (Southern MD)	Avg. Annual Earnings (Southern MD)	Avg. Annual Output (Southern MD)
<i>Direct Impacts</i>	38	\$2.7	\$35.9
<i>Multiplicative Impacts</i>	110	\$2.4	\$6.9
Total	148	\$5.1	\$42.8
<i>Dollars in millions.</i>			

Figure 9: Operations, Local Supporting Industries

- Maintenance and Repair Other Facilities
- Accounting- Auditing and Bookkeeping
- Personnel Supply Services
- Water Transportation
- Credit Agencies
- Research- Development & Testing Services
- Management and Consulting Services
- Legal Services
- Arrangement Of Passenger Transportation
- Other State and Local Govt Enterprises
- Transportation Services
- Engineering- Architectural Services

As detailed in Figure 8, a total of 38 positions are expected to be supported directly by the operations of the proposed LNG facility expansion and associated pipeline. According to RESI, the creation of the new 38 (direct) jobs will generate an estimated \$2.7 million in annual earnings and \$35.9 million in annual economic output for Southern Maryland.

The injection of total annual earnings attributable to these direct employment positions (roughly \$2.7 million) results in the generation of additional spin-off impacts. Through the multiplier effect, the operations phase of the proposed LNG facility expansion and associated pipeline will generate an additional 110 jobs, \$2.4 million in annual earnings and \$6.9 million in annual economic output for Southern Maryland's economy.

It should be noted that the 38 direct jobs associated with operations of the proposed project will bring to Southern Maryland are high skill, high wage employment positions. The average annual earnings for these 38 direct employment positions is \$70,000. These earnings far surpass prevailing average annual salaries in the region and State. Consider the following: employees in Maryland earned an average annual salary of \$39,382 in 2002. In Calvert County, employees earned an average annual salary of \$33,036. The corresponding figures for Charles, Prince George's, and St. Mary's Counties are \$31,328, \$39,943 and \$40,603, respectively.

Operations of the proposed LNG facility expansion and associated pipeline will involve the purchase of goods and services from local area and State providers. These purchases from supporting industries are responsible for the generation of a significant portion of the multiplier impacts listed in Figure 8. Figure 9 lists the industries that will benefit from a majority of these multiplicative impacts.

Figure 10: Operations, Present Value Economic Impacts

	Total Earnings (Southern MD)	Total Output (Southern MD)
Year 4	\$3.5	\$29.2
Year 5	\$3.2	\$26.6
Year 6	\$2.9	\$24.2
Year 7	\$2.6	\$22.0
Year 8	\$2.4	\$20.0
Year 9	\$2.2	\$18.2
Year 10	\$2.0	\$16.5
Year 11	\$1.8	\$15.0
Year 12	\$1.6	\$13.6
Year 13	\$1.5	\$12.4
Year 14	\$1.3	\$11.3
Year 15	\$1.2	\$10.2
Year 16	\$1.1	\$9.3
Year 17	\$1.0	\$8.5
Year 18	\$0.9	\$7.7
Year 19	\$0.8	\$7.0
Year 20	\$0.8	\$6.4
Year 21	\$0.7	\$5.8
Year 22	\$0.6	\$5.3
Year 23	\$0.6	\$4.8
Total	\$32.8	\$273.8
<i>Dollars in millions.</i>		

Figure 10 illustrates the cumulative (includes both direct and multiplicative impacts) economic impacts attributable to the operations phase in its entirety (all twenty years). To derive this total, RESI sums the present value of each year's impacts. The present value for each year is simply the annual impact, discounted for inflation. The operations phase is estimated to yield a total of \$32.8 million in total earnings and \$273.8 million in total output for Southern Maryland.

Figure 11: Operations, Average Annual Fiscal Impacts

Average Annual Tax Revenues	
Direct Impacts	\$14.1
Multiplicative Impacts	\$2.6
Total	\$16.7
<i>Dollars in millions.</i>	

Figure 12: Operations, Annual Local Fiscal Impacts

Annual Local Fiscal Impacts: Plant Operations (Property & Income Taxes)				
Jurisdiction/Region	Direct Property Taxes	Direct Income Taxes	Indirect Income Taxes	Total Local Taxes
Calvert County	\$10,858,080	\$35,490	\$32,830	\$10,926,399
Charles County	\$1,096,415	\$1,218	\$1,127	\$1,098,760
Prince George's County	\$533,599	\$651	\$602	\$534,852
St. Mary's County		\$14,322	\$13,248	\$27,570
Total	\$12,488,094	\$51,681	\$47,807	\$12,587,582

Figure 13: Operations, Present Value Fiscal Impacts

Year	Tax Revenue Stream
4	\$11.4
5	\$10.4
6	\$9.4
7	\$8.6
8	\$7.8
9	\$7.1
10	\$6.4
11	\$5.9
12	\$5.3
13	\$4.8
14	\$4.4
15	\$4.0
16	\$3.6
17	\$3.3
18	\$3.0
19	\$2.7
20	\$2.5
21	\$2.3
22	\$2.1
23	\$1.9
Present Value of Tax Stream	\$106.8
<i>Dollars in millions</i>	

3.5 Fiscal Impacts: Operations Phase

State and local governments will benefit from increased tax revenue generation attributable to the operation of the proposed LNG facility expansion and associated pipeline. It should be noted that projects of this magnitude typically receive some form of state and/or local tax incentives. The estimate of tax revenues contained in this study is based on the most timely information available as well as on the historical tax classification of the facility and assets. The estimate does not include any State or local incentives that may be granted for the encouragement of additional investment and increased employment in the county and State. Changes in classification by tax administrators and the granting of incentives could decrease the projected tax revenue streams discussed in this analysis.

As shown in Figure 11, the proposed LNG facility expansion and associated pipeline is expected to generate \$14.1 million in average annual direct taxes. These taxes are comprised of property taxes, sales tax, income taxes and the Maryland Business Property Tax. RESI relied on information provided by Dominion to derive the average annual direct tax revenues.

Multiplicative taxes average nearly \$2.6 million per year according to RESI's estimates. These impacts include taxes such as indirect business sales taxes and business and personal income taxes and were generated by RESI's IMPLAN model.

Figure 12 breaks out the portion of the \$16.7 million in annual tax revenues that will be received by local county governments (includes expected revenues to be received by Southern Maryland counties only).

Figure 13 details present value figures the proposed LNG facility expansion and associated pipeline will generate in state and local tax revenues. The net present value figure (for the life-span of the operations of the proposed project) amounts to more than \$106.8 million.

3.6 Net Fiscal Impact

RESI expects that annual cost of services will amount to approximately \$2.6 million per year. The net present value of these costs over a 24-year period is \$19.6 million.

RESI concludes that the expanded LNG facility/ pipeline could generate \$91.2 million on a net present value basis. This figure represents the proposed project's net fiscal impact for State and local economies.

In order to determine the net fiscal impact of the proposed LNG facility expansion and associated pipeline, it was necessary for RESI to compare expected tax revenues with expected cost of services levels. Cost of services refers to the annual operational costs or government services costs that the study area will have to assume for each employee and resident that locates to Southern Maryland as a result of the operations and construction phases of the proposed LNG facility expansion and associated pipeline. These costs do not include capital improvement costs, but rather measure the increased operational costs Southern Maryland will likely bear due to the increased number of employees and residents the proposed LNG facility expansion and associated pipeline will attract and the associated increased level of government services demanded. These services include water, sewer and public education services to name a few.

Cost of services is expected to amount to approximately \$2.6 million per year (see Appendix for more detail) or \$19.6 million on a net present value basis. To determine the net fiscal impact of the proposed LNG facility expansion and associated pipeline, RESI subtracted estimated cost of services from the expected tax revenue streams. This study concludes that the proposed LNG facility expansion and associated pipeline is estimated to generate \$91.2 million on a net present value basis. This figure represents the net fiscal gain that Southern Maryland and the State could receive were the proposed LNG facility expansion and associated pipeline to go forward.

Figure 14: Net Fiscal Impact (Construction & Operations)

	Present Value Streams
Present Value of Tax Revenue Stream	\$110.8
Present Value of Cost of Services	\$19.6
<i>Net Fiscal Benefit</i>	<i>\$91.2</i>
<i>Dollars in millions.</i>	

4.0 Qualitative Benefits

Regional access to a diverse array of fuel sources enhances the economic development appeal of a community. This is true for three reasons. First, access to a variety of energy supplies fosters increased price competition and further enhances opportunities for both industrial users and residential consumers. Second, various industries require certain forms of energy and if supply is not available locally, those industries cannot consider a region for economic expansion. Finally, given the events of 2001 in California, employers have become more sensitive to the central character of energy supply. Energy is no longer taken for granted.

- The proposed LNG facility will provide regional residents and industries with access to a relatively clean burning fuel. Electric generating plants that have been built or proposed in recent years (90% of which are expected to be natural gas fired facilities) emit relatively smaller quantities of pollutants relative to the production of other fossil energy sources (please refer to Figure 15).¹

Figure 15: Pounds of Pollutants Emitted per Billion BTU of Energy Produced

Pollutant	Natural Gas	Oil	Coal
Nitrogen Oxides	92	448	457
Sulfur Dioxide	1	1,122	2,591
Particulates	7	84	2,744

Source: Environmental Law Institute

¹Environmental Law Institute

5.0 Appendices

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Appendix 5.1: Background on RESI of Towson University

RESI is an economic research and policy institute affiliated with Towson University. The organization was founded in 1989 and has since become the recognized authority on the Maryland economy, its industries, and its markets. The institute consists of economists, policy experts, management consultants, database programmers, application developers and support staff.

RESI publishes numerous reports concerning trends and issues in the Maryland economy and routinely forecasts economic activity in Maryland and in other portions of the nation. Among the publications RESI produces is the Maryland Economic Forecast under contract to the Comptroller of Maryland, and a monthly Economic Viewpoint and quarterly Outlook Maryland published by the Daily Record.

RESI also produces the Maryland Statistical Abstract on behalf of the Maryland Department of Business and Economic Development, the leading data publication focused on data trends in Maryland. The Abstract draws from the most recent available data from a vast array of federal, state and local government sources. Graphs and maps supplement these data in order to create greater visual appeal and awareness of potential data applications. Topics include demographic trends, manufacturing, tourism, trade, vital statistics, real estate and construction, and general employment.

RESI has produced the Maryland Department of Human Resource's (DHR) Fact Pack since 1996. The Fact Pack is a compilation of socio-economic data for each of Maryland's 24 jurisdictions as well as program data from DHR's agencies. The socio economic data includes employment and population. The DHR program data include an overview of the number of clients served and the types of programs offered. RESI collects these data and develops the layout for the Fact Pack publication.

RESI also hosts an annual outlook conference. The conference is unique because of its intense scrutiny of the Maryland and national economies. The most recent conference included a presentation about the potential impacts of gaming in Maryland.

In addition to our publications and presentations, RESI routinely conducts economic analyses on behalf of public sector and private clients. RESI has produced a wide body of work ranging from demographic and economic analyses to site selection and economic impact studies. In recent years, RESI has developed a particular expertise in conducting economic impact analyses. A sample list of our economic impact analysis clients include the following: the Maryland State Highway Administration (SHA), the Home Builders Association of Maryland (HBAM), the Michaels Companies, Greenebaum & Rose, the Bainbridge Development Corporation, Manekin Corporation, Constellation Energy and Conectiv, among others.

Appendix 5.2: Information Provided by Dominion

One of the most critical steps in this analysis was the collection of accurate expenditure and employment data for the proposed project. RESI has developed a survey instrument designed to gather the necessary information in the most efficient manner. The survey instrument was administered to Dominion and the results were processed and verified by RESI. In the verification process, RESI evaluated the reasonableness of the responses and contacted Dominion if/when there were discrepancies between what was reported and industry standards. Dominion was then able to validate any responses in question. Since the responses form the basis of the direct economic impacts and drive the multiplicative impacts, it is imperative that the responses are as accurate as possible. The responses were then incorporated into RESI's modified IMPLAN model yielding the direct and multiplicative economic impacts.

The results presented below are derived directly from the expenditure survey completed by Dominion:

- Total direct employment in construction is 158 and total direct employment in operations phase is 100.
- Total direct annual payrolls are roughly \$12.5 million (includes operations and construction phases).
- Local property tax payments by Dominion are anticipated to amount to \$13.9 million annually.
- Direct local expenditures on materials and supplies sum to roughly \$1.6 million per year of operations.
- Total direct expenditures during the operations phase of the proposed LNG facility are \$9.6 million per year. This represents both expenditures on wages and salaries and purchases of goods and services.
- The estimated number of business visitors that will visit Southern Maryland due to the presence of the proposed LNG facility is 1,600 per year.

Appendix: 5.2 Information Provided by Dominion (continued)

Data Survey:

I. Operations

Items with an asterisk are optional

1. Anticipated number of LNG importation plant (LNG) workers living in:
 - Calvert County, Maryland - 23
 - Charles County, Maryland - 1
 - Prince Georges' County, Maryland - 1
 - St Mary's County - 8
 - Balance of Maryland - 5

2. Anticipated number of LNG workers living outside Maryland - 0

3. Anticipated total payroll in year one of operation: Please attach a list of anticipated job titles and salaries for LNG - \$2,660,000

4. Anticipated total expenditures on contract labor per annum:
 - Calvert County - \$350,000
 - Charles County - \$50,000
 - Prince Georges' County -
 - Balance Maryland - \$600,000

5. Anticipated purchases of materials/supplies per annum:
 - from Calvert County suppliers - \$400,000

 - from Charles County suppliers - \$100,000

Appendix: 5.2 Information Provided by Dominion (continued)

from Prince Georges' County suppliers - \$0

from Balance of Maryland - \$1,000,000

6. Anticipated non-transportation equipment rental expenditures per annum:

from Calvert County suppliers - \$65,000

from Charles County suppliers - \$0

from Prince Georges' County suppliers - \$0

from Balance of Maryland - \$10,000

7. Anticipated transportation rental expenditures per annum:

from Calvert County suppliers

A. Trucking - \$1,000

B. Automobiles - \$1,000

C. Other (please specify mode) - \$5,000

from Charles County suppliers

A. Trucking - \$0

B. Automobiles - \$0

Appendix: 5.2 Information Provided by Dominion (continued)

D. Other (please specify mode) - \$0

from Prince Georges' County suppliers

A. Trucking - \$0

B. Automobiles - \$0

E. Other (please specify mode) - \$0

from Balance of Maryland (\$)

A. Trucking - \$0

B. Automobiles - \$0

C. Other (please specify mode) - \$5,000

8. Anticipated expenditures on hotels & motels per annum:

in Calvert - \$60,000

Balance of Maryland - \$20,000

9. Anticipated total real property taxes paid on all facilities and land located in Calvert County and Maryland before rebate in year one of operation - \$

10. Anticipated business personal property taxes paid on all facilities located in Calvert County and Maryland year one of operation - \$

Appendix: 5.2 Information Provided by Dominion (continued)

11. Anticipated firm sponsored charitable contributions during a typical year:

to Calvert County organizations - \$100,000

to Balance of Maryland - \$20,000

12. Estimated number of business visitors (including company employees) from outside Calvert County that are expected to visit your Calvert County operation during a typical year - 1,600

II. Construction: PLANT

1. Estimated facility construction cost - \$450,000,000

2. Estimated time to build - 42 Months

3. Estimated number of construction employees from:

Calvert County (FTE) - 50

Charles County (FTE) - 10

Appendix: 5.2 Information Provided by Dominion (continued)

Prince Georges' County (FTE) - 0

Balance of Maryland (FTE) - 50

4. Estimated number of construction employees from outside Maryland (FTE) - 200

5. Estimated expenditures on construction material procured from:

Calvert County - \$5,000,000

Charles County - \$1,000,000

Prince Georges' County - \$100,000

Balance of Maryland - \$2,000,000

6. Estimated expenditures on construction material procured from outside Maryland - \$254,000,000

II. Construction: Pipeline

1. Estimated facility construction cost - Calvert \$50,054,000, Charles \$43,817,000

and Prince George's \$16,350,000

2. Estimated time to build - 6 Months

3. Estimated number of construction employees from:

Calvert County (FTE) - 9

Charles County (FTE) - 9

Appendix: 5.2 Information Provided by Dominion (continued)

Prince Georges' County (FTE) - 9

Balance of Maryland (FTE) - 21

4. Estimated number of construction employees from outside Maryland (FTE) - 92

**Impacts associated with these 92 out-of-state jobs are not analyzed within this study. This study focuses on Maryland and local (Southern Maryland) impacts only.*

5. Estimated expenditures on construction material procured from:

Calvert County - \$4,000,000

Charles County - \$3,000,000

Prince Georges' County - \$1,000,000

Balance of Maryland - \$2,000,000

6. Estimated expenditures on construction material procured from outside Maryland - \$10,000,000

Appendix 5.3: IMPLAN Model Overview

What is IMPLAN?

IMPLAN is an economic impact assessment software system. The system was originally developed and is now maintained by the Minnesota IMPLAN Group (MIG). It combines a set of extensive databases concerning economic factors, multipliers and demographic statistics with a highly refined and detailed system of modeling software. IMPLAN allows the user to develop local-level input-output models that can estimate the economic impact of new firms moving into an area as well as the impacts of professional sports teams, recreation and tourism, and residential development. The model accomplishes this by identifying direct impacts by sector, then developing a set of indirect and induced impacts by sector through the use of industry-specific multipliers, local purchase coefficients, income-to-output ratios, and other factors and relationships.

There are two major components to IMPLAN: data files and software. An impact analysis using IMPLAN starts by identifying expenditures in terms of the sectoring scheme for the model. Each spending category becomes a “group” of “events” in IMPLAN, where each event specifies the portion of price allocated to a specific IMPLAN sector. Groups of events can then be used to run impact analysis individually or can be combined into a project consisting of several groups.

In terms of the operation of the proposed LNG facility, these events and groups would be items such as operations and capital investments of the firms, expenditures by employees of the facility, and employee housing expenditures. Once the direct economic impacts have been identified, IMPLAN can calculate the indirect and induced impacts based on a set of multipliers and additional factors.

The hallmark of IMPLAN is the specificity of its economic datasets. The database includes information for five-hundred-and-twenty-eight different industries (generally at the three or four digit Standard Industrial Classification level), and twenty-one different economic variables. Along with these data files, national input-output structural matrices detail the interrelationships between and among these sectors. The database also contains a full schedule of Social Accounting Matrix (SAM) data. All of this data is available at the national, state, and county level.

Another strength of the IMPLAN system is its flexibility. It allows the user to augment any of the data or algorithmic relationships within each model in order to more precisely account for regional relationships. This includes inputting different output-to-income ratios for a given industry, different wage rates, and different multipliers where appropriate. IMPLAN also provides the user with a choice of trade-flow assumptions, including the modification of regional purchase coefficients, which determine the mix of goods and services purchased locally with each dollar in each sector. Moreover, the system also allows the user to create custom impact analyses by entering changes in final demand. This flexibility is a critically important feature in terms of RESI’s approach. RESI is uniquely qualified to develop data and factors tailored to this project, and, where appropriate, overwrite the default data contained in the IMPLAN database.

Appendix 5.3: IMPLAN Model Overview (continued)

An additional major advantage of IMPLAN is its credibility and acceptance within the profession. There are over five hundred active users of IMPLAN databases and software within the federal and state governments, universities, and among private sector consultants. Listed below is a sampling of IMPLAN users.

Sampling of IMPLAN Users

Academic Institutions

Alabama A&M University
Albany State University
Auburn University
Cornell University
Duke University
Iowa State University
Michigan Tech University
Ohio State
Penn State University
Portland State University
Purdue University
Stanford University
Texas A&M University
University of California – Berkeley
University of Wisconsin
University of Minnesota
Virginia Tech
West Virginia University
Marshall University College of Business

Federal Government

Argonne National Lab
US Dep't of Agriculture, Forest Service
US Dep't of Agriculture, Econ Research Service
US Dep't of Interior, Bureau of Land Mgmt
US Dep't of Interior, Fish and Wildlife Service
US Dep't of Interior, National Parks Service
US Army Corps of Engineers

State Governments

MD Dep't of Natural Resources
Missouri Dep't of Economic Dev.
California Energy Commission
Florida Division of Forestry
Illinois Dep't of Natural Resources
New Mexico Dep't of Tourism
South Carolina Emp. Security
Utah Dep't of Natural Resources
Wisconsin Dep't of Transportation

Private Consulting Firms

Coopers & Lybrand
Batelle Pacific NW Laboratories
Boise Cascade Corporation
Charles River Associates
CIC Research
BTG/Delta Research Division
Crestar Bank
Deloitte & Touche
Ernst & Young
Jack Faucett Associates
KPMG Peat Marwick
Price Waterhouse LLP
SMS Research
Economic Research Associates
American Economics Group, Inc.
L.E. Peabody Associates, Inc.
The Kalorama Consulting Group
West Virginia Research League

Appendix 5.4: Cost of Services Assumptions & Methodology

Cost of Services Assumptions & Methodology

As mentioned in the body of this document, cost of services levels measure the annual operational costs State and local (Southern Maryland) will likely bear due to each employee and resident that locates to the region as a result of the operations and construction phases of the proposed LNG facility expansion and associated pipeline.

In order to calculate the cost of services, RESI first examined the most recent budgets for Southern Maryland and Maryland jurisdictions. Using Census population data, RESI determined the allocation of expenditures on a per capita basis. The next step involved calculating the number of new residents expected to locate to the State and local area as a result of new employment impacts. Using employment impacts generated by the IMPLAN model, the assumptions listed on the following page and Census data detailing average household sizes for the State and local area, RESI was able to estimate the total number of new residents that would move to the region. RESI then multiplied per capita expenditures by the total number of new residents to derive annual cost of services expenditures at the county and state levels.

Wherever possible, RESI employed a cautious approach in calculating the cost of services to be borne by the State and local (Southern Maryland) area. For example, as detailed on the following page, cost of services calculations are based on the assumption that all jobs created by the proposed LNG facility will be filled by persons currently living outside of the area and that these positions will drive new residents to locate within the region. This approach was used to derive the maximum level of cost of services that the State and local area could bear. *Realistically, RESI expects that current residents will fill some portion of these jobs and that this methodology is overstating annual cost of services.*

The following assumptions were utilized to calculate cost of services levels for the State and local area:

- RESI assumes that the employment generated due to the proposed Cove Point project and its associated impacts will result in a non-zero gain in jobs and residents in Southern Maryland.
- RESI assumes that the multiplicative operational employment impacts will be evenly spread across the jurisdictions comprising Southern Maryland (Calvert, Charles, Prince George's and St. Mary's counties).
- Unless otherwise indicated by the data provided by Dominion RESI assumes that the dispersement of construction employment impacts are evenly distributed throughout Southern Maryland.

Appendix 5.5: Detailed Impacts & Calculations

Table A

	Southern MD: Annual Employment Impacts - Plant Construction			Total	Average Annual Wage
	Direct	Indirect	Induced		
Agriculture	0	0	0	0	\$16,780
Mining	0	0	0	0	\$0
Utilities	0	0	0	0	\$297,860
Construction	110	0	0	111	\$34,799
Manufacturing	0	1	0	1	\$55,512
Wholesale Trade	0	1	1	2	\$24,952
Transportation & Warehousing	0	1	1	2	\$34,591
Retail Trade	0	3	8	10	\$20,522
Information	0	0	0	1	\$40,543
Finance & Insurance	0	1	3	4	\$17,424
Real Estate & Rental & Leasing	0	2	2	4	\$12,086
Professional, Scientific & Technical Services	0	7	1	8	\$48,617
Management of Companies & Enterprises	0	0	0	0	\$40,780
Administrative & Support & Waste Management & Remediation Services	0	1	1	2	\$19,789
Educational Services	0	0	0	1	\$21,238
Health Care & Social Services	0	0	7	7	\$28,751
Arts, Entertainment & Recreation	0	0	1	1	\$17,847
Accommodation & Food Services	0	1	6	6	\$13,916
Other Services	0	1	3	5	\$18,349
Government	0	0	1	1	\$67,705
Total	110	19	35	164	\$32,186

Table A details the employment impacts generated by the construction of the proposed LNG facility (exclusive of the associated pipeline construction). These impacts include direct and multiplicative (the sum of the indirect and induced) employment impacts as well as the average annual wages associated with each industrial sector. The construction phase of the proposed LNG facility is expected to generate 164 annual jobs with an average annual wage of \$32,186.

Appendix 5.5: Detailed Impacts & Calculations

Table B

	Southern MD: Annual Employment Impacts - Pipeline Construction			Total	Average Annual Wage
	Direct	Indirect	Induced		
Agriculture	0	0	0	0	\$0
Mining	0	0	0	0	\$0
Utilities	0	0	0	0	\$0
Construction	48	0	0	48	\$35,165
Manufacturing	0	1	0	1	\$52,398
Wholesale Trade	0	1	0	1	\$23,281
Transportation & Warehousing	0	1	1	2	\$29,452
Retail Trade	0	2	4	6	\$20,162
Information	0	0	0	0	\$43,683
Finance & Insurance	0	1	1	2	\$18,736
Real Estate & Rental & Leasing	0	2	1	3	\$13,995
Professional, Scientific & Technical Services	0	6	1	6	\$48,133
Management of Companies & Enterprises	0	0	0	0	\$24,725
Administrative & Support & Waste Management & Remediation Services	0	1	0	1	\$25,556
Educational Services	0	0	0	0	\$52,150
Health Care & Social Services	0	0	3	3	\$30,156
Arts, Entertainment & Recreation	0	0	0	0	\$20,640
Accommodation & Food Services	0	0	3	3	\$13,827
Other Services	0	2	2	3	\$22,222
Government	0	0	0	1	\$71,410
Total	48	16	17	80	\$32,360

Table B details the employment impacts generated by the construction of the proposed LNG pipeline. These impacts include direct and multiplicative (the sum of the indirect and induced) employment impacts as well as the average annual wages associated with each industrial sector. The construction phase of the proposed LNG pipeline is expected to generate 80 annual jobs with an average annual wage of \$32,360.

Appendix 5.5: Detailed Impacts & Calculations

Table C

Southern MD: Annual Employment Impacts - Plant Operations					
	Direct	Indirect	Induced	Total	Average Annual Wage
Agriculture	0	0	0	1	\$7,466
Mining	0	0	0	0	\$0
Utilities	38	0	0	38	\$70,133
Construction	0	6	0	6	\$30,996
Manufacturing	0	1	1	2	\$42,456
Wholesale Trade	0	1	1	2	\$24,829
Transportation & Warehousing	0	4	2	6	\$33,583
Retail Trade	0	1	17	18	\$19,164
Information	0	1	1	2	\$26,208
Finance & Insurance	0	1	2	4	\$28,326
Real Estate & Rental & Leasing	0	2	5	7	\$8,236
Professional, Scientific & Technical Services	0	8	3	10	\$31,593
Management of Companies & Enterprises	0	0	0	0	\$40,451
Administrative & Support & Waste Mangement & Remediation Services	0	3	2	4	\$19,276
Educational Services	0	0	1	1	\$23,826
Health Care & Social Services	0	0	15	15	\$26,656
Arts, Entertainment & Recreation	0	0	2	2	\$11,643
Accomodation & Food Services	0	6	12	18	\$10,589
Other Services	0	1	7	8	\$14,817
Government	0	1	2	2	\$63,372
Total	38	38	73	148	\$34,587

Table C details the employment impacts generated by the operations of the proposed LNG facility. These impacts include direct and multiplicative (the sum of the indirect and induced) employment impacts as well as the average annual wages associated with each industrial sector. Operations of the expanded LNG facility is expected to generate a total of 148 annual jobs with an average annual wage of \$34,587. It should be noted that the 38 direct jobs that will be created to operate the proposed LNG facility are associated with a high average annual wage in excess of \$70,000.

Appendix 5.5: Detailed Impacts & Calculations

Table D

	Southern MD: Annual Output (GSP) Impacts - Plant Construction			Total
	Direct	Multiplicative Indirect Induced		
Agriculture	\$0	\$9,231	\$10,807	\$20,038
Minining	\$0	\$164	\$5	\$169
Utilities	\$0	\$35,680	\$91,050	\$126,730
Construction	\$7,659,776	\$15,794	\$17,367	\$7,692,937
Manufacturing	\$0	\$152,511	\$48,934	\$201,445
Wholesale Trade	\$0	\$71,267	\$38,250	\$109,517
Transportation and Warehousing	\$0	\$88,628	\$66,463	\$155,091
Retail Trade	\$0	\$120,709	\$358,591	\$479,300
Information	\$0	\$36,811	\$47,423	\$84,234
Finance and Insurance	\$0	\$121,877	\$261,739	\$383,616
Real Estate and Rental and Leasing	\$0	\$165,971	\$147,802	\$313,773
Professional, Scientific and Technical Services	\$0	\$583,705	\$67,765	\$651,470
Management of Companies and Enterprises	\$0	\$6,640	\$7,716	\$14,356
Administrative and Support and Waste Management and Remediation Services	\$0	\$43,714	\$33,742	\$77,456
Educational Services	\$0	\$4,063	\$15,622	\$19,685
Health Care and Social Services	\$0	\$6	\$412,430	\$412,436
Arts, Entertainment and Recreation	\$0	\$3,490	\$31,062	\$34,552
Accommodation and Food Services	\$0	\$22,287	\$203,146	\$225,433
Other Services	\$0	\$126,777	\$178,996	\$305,773
Government	\$0	\$26,314	\$81,242	\$107,556
Total	\$7,659,776	\$1,635,639	\$2,120,152	\$11,415,567

Table D details the economic output impacts, or the total gross value of goods and services, attributable to the construction of the proposed LNG facility (exclusive of the proposed pipeline). These impacts include direct and multiplicative (the sum of indirect and induced) economic output impacts. According to RESI's findings, construction of the proposed LNG facility will generate more than \$11.4 million for each of the four years of the construction phase.

Appendix 5.5: Detailed Impacts & Calculations

Table E

	Southern MD: Annual Output (GSP) Impacts - Pipeline Construction			Total
	Direct	Indirect	Induced	
Agriculture	\$0	\$1,953	\$5,344	\$7,297
Minining	\$0	\$84	\$3	\$87
Utilities	\$0	\$18,107	\$45,019	\$63,126
Construction	\$4,500,000	\$11,915	\$8,587	\$4,520,502
Manufacturing	\$0	\$96,570	\$24,197	\$120,767
Wholesale Trade	\$0	\$38,566	\$18,913	\$57,479
Transportation and Warehousing	\$0	\$80,509	\$32,861	\$113,370
Retail Trade	\$0	\$93,831	\$177,306	\$271,137
Information	\$0	\$21,732	\$23,448	\$45,180
Finance and Insurance	\$0	\$72,121	\$129,416	\$201,537
Real Estate and Rental and Leasing	\$0	\$171,313	\$73,081	\$244,394
Professional, Scientific and Technical Services	\$0	\$480,765	\$33,506	\$514,271
Management of Companies and Enterprise	\$0	\$4,889	\$3,815	\$8,704
Administrative and Support and Waste Ma	\$0	\$27,460	\$16,683	\$44,143
Educational Services	\$0	\$1,926	\$7,724	\$9,650
Health Care and Social Services	\$0	\$5	\$203,926	\$203,931
Arts, Entertainment and Recreation	\$0	\$2,433	\$15,359	\$17,792
Accomodation and Food Services	\$0	\$13,093	\$100,446	\$113,539
Other Services	\$0	\$186,088	\$88,505	\$274,593
Government	\$0	\$15,963	\$40,170	\$56,133
Total	\$4,500,000	\$1,339,323	\$1,048,309	\$6,887,632

Table E details the economic output impacts, or the total gross value of goods and services, attributable to the construction of the proposed LNG pipeline. These impacts include direct and multiplicative (the sum of indirect and induced) economic output impacts. According to RESI's findings, construction of the proposed LNG pipeline will generate more than \$6.8 million for each of the four years of the construction phase.

Appendix 5.5: Detailed Impacts & Calculations

Table F

	Southern MD: Annual Output (GSP) Impacts - Plant Operations			Total
	Direct	Multiplicative		
		Indirect	Induced	
Agriculture	\$0	\$4,503	\$23,193	\$27,696
Mining	\$0	\$120	\$11	\$131
Utilities	\$35,942,087	\$25,756	\$195,389	\$36,163,233
Construction	\$0	\$372,123	\$37,268	\$409,390
Manufacturing	\$0	\$209,173	\$105,014	\$314,187
Wholesale Trade	\$0	\$69,263	\$82,084	\$151,347
Transportation & Warehousing	\$0	\$367,586	\$142,628	\$510,214
Retail Trade	\$0	\$42,021	\$769,535	\$811,556
Information	\$0	\$125,632	\$101,769	\$227,401
Finance & Insurance	\$0	\$170,577	\$291,525	\$462,103
Real Estate & Rental & Leasing	\$0	\$194,788	\$317,181	\$511,969
Professional, Scientific & Technical Services	\$0	\$501,293	\$145,417	\$646,710
Management of Companies & Enterprises	\$0	\$8,808	\$16,557	\$25,366
Administrative & Support & Waste Management & Remediation Services	\$0	\$116,356	\$72,408	\$188,765
Educational Services	\$0	\$24,820	\$33,524	\$58,344
Health Care & Social Services	\$0	\$21	\$885,067	\$885,088
Arts, Entertainment & Recreation	\$0	\$11,363	\$66,662	\$78,025
Accommodation & Food Services	\$0	\$198,601	\$435,948	\$634,549
Other Services	\$0	\$84,031	\$384,124	\$468,155
Government	\$0	\$57,906	\$174,345	\$232,251
Total	\$35,942,087	\$2,584,741	\$4,279,651	\$42,806,479

Table F details the economic output impacts, or the total gross value of goods and services, attributable to operations of the proposed LNG facility. These impacts include direct and multiplicative (the sum of indirect and induced) economic output impacts. According to RESI's findings, operations of the proposed LNG facility will generate more than \$42.8 million for each year of the twenty-year operations phase.

Appendix 5.5: Detailed Impacts & Calculations

Table G

Annual State & Southern MD Fiscal Impacts: Plant Construction						
	Employee Compensation	Proprietary Income	Household Expenditures	Enterprises (Corporations)	Indirect Business Taxes	Total
Corporate Profits Tax				\$460		\$460
Dividends				\$8		\$8
Indirect Bus Tax: Motor Vehicle Lic					\$1,375	\$1,375
Indirect Bus Tax: Other Taxes					\$19,766	\$19,766
Indirect Bus Tax: Property Tax					\$115,601	\$115,601
Indirect Bus Tax: S/L NonTaxes					\$13,966	\$13,966
Indirect Bus Tax: Sales Tax					\$83,942	\$83,942
Personal Tax: Estate and Gift Tax						\$0
Personal Tax: Income Tax			\$218,571			\$218,571
Personal Tax: Motor Vehicle License			\$3,953			\$3,953
Personal Tax: NonTaxes (Fines- Fees			\$33,814			\$33,814
Personal Tax: Other Tax (Fish/Hunt)			\$943			\$943
Personal Tax: Property Taxes			\$2,555			\$2,555
Social Ins Tax- Employee Contribution	\$659					\$659
Social Ins Tax- Employer Contribution	\$2,372					\$2,372
Direct Wage Taxes	\$273,349					\$273,349
Total State & Local Tax Revenues	\$276,380	\$0	\$259,836	\$468	\$234,650	\$771,334

Table G details the annual state and local fiscal impacts associated with the construction phase of the proposed LNG plant. RESI estimates that the construction of the proposed LNG facility will generate in nearly \$800,000 in total annual tax revenues at the State and local level. These tax revenues include both direct and multiplicative impacts.

Table H

Annual State & Southern MD Fiscal Impacts: Pipeline Construction						
	Employee Compensation	Proprietary Income	Household Expenditures	Enterprises (Corporations)	Indirect Business Taxes	Total
Corporate Profits Tax				\$1,468		\$1,468
Dividends				\$25		\$25
Indirect Bus Tax: Motor Vehicle Lic					\$809	\$809
Indirect Bus Tax: Other Taxes					\$11,636	\$11,636
Indirect Bus Tax: Property Tax					\$68,052	\$68,052
Indirect Bus Tax: S/L NonTaxes					\$8,221	\$8,221
Indirect Bus Tax: Sales Tax					\$49,415	\$49,415
Personal Tax: Estate and Gift Tax						\$0
Personal Tax: Income Tax			\$108,058			\$108,058
Personal Tax: Motor Vehicle License			\$1,954			\$1,954
Personal Tax: NonTaxes (Fines- Fees			\$16,717			\$16,717
Personal Tax: Other Tax (Fish/Hunt)			\$466			\$466
Personal Tax: Property Taxes			\$1,263			\$1,263
Social Ins Tax- Employee Contribution	\$326					\$326
Social Ins Tax- Employer Contribution	\$1,175					\$1,175
Direct Wage Taxes	\$121,321					\$121,321
State & Local Total Tax Revenues	\$122,822	\$0	\$128,458	\$1,493	\$138,133	\$390,906

Table H details the annual state and local fiscal impacts associated with the construction phase of the proposed LNG pipeline. RESI estimates that the construction of the proposed LNG pipeline will generate in close to \$400,000 in total annual tax revenues for State and local governments. These tax revenues include both direct and multiplicative impacts.

Appendix 5.5: Detailed Impacts & Calculations

Table I

Annual State & Southern MD Direct Fiscal Impacts: Plant Operations			
Jurisdiction/Region	Direct Property Taxes	Direct Income Taxes	Total Direct Taxes
Calvert County	\$10,858,080	\$35,490	\$10,893,570
Charles County	\$1,096,415	\$1,218	\$1,097,633
Prince George's County	\$533,599	\$651	\$534,250
St. Mary's County		\$14,322	\$14,322
Balance of Maryland		\$5,523	\$5,523
Maryland	\$1,438,884	\$94,500	\$1,533,384
Total	\$13,926,978	\$151,704	\$14,078,682

Table I details the annual state and local direct fiscal impacts associated with operations of the proposed LNG facility. RESI estimates that the operations phase will generate close to \$14.1 million in annual tax revenues for State and local governments. These tax revenues includes direct tax impacts only.

Table J

Annual State & Southern MD Multiplicative Fiscal Impacts: Plant Operations						
	Employee Compensation	Proprietary Income	Household Expenditures	Enterprises (Corporations)	Indirect Business Taxes	Total
Corporate Profits Tax	\$0	\$0	\$0	\$82,979	\$0	\$82,979
Dividends	\$0	\$0	\$0	\$1,410	\$0	\$1,410
Indirect Bus Tax: Motor Vehicle Lic	\$0	\$0	\$0	\$0	\$23,283	\$23,283
Indirect Bus Tax: Other Taxes	\$0	\$0	\$0	\$0	\$334,807	\$334,807
Indirect Bus Tax: Property Tax	\$0	\$0	\$0	\$0	\$1,109,808	\$1,109,808
Indirect Bus Tax: S/L NonTaxes	\$0	\$0	\$0	\$0	\$236,561	\$236,561
Indirect Bus Tax: Sales Tax	\$0	\$0	\$0	\$0	\$343,220	\$343,220
Personal Tax: Estate and Gift Tax	\$0	\$0	\$0	\$0	\$0	\$0
Personal Tax: Income Tax	\$0	\$0	\$349,026	\$0	\$0	\$349,026
Personal Tax: Motor Vehicle License	\$0	\$0	\$8,682	\$0	\$0	\$8,682
Personal Tax: NonTaxes (Fines- Fees	\$0	\$0	\$74,292	\$0	\$0	\$74,292
Personal Tax: Other Tax (Fish/Hunt)	\$0	\$0	\$2,072	\$0	\$0	\$2,072
Personal Tax: Property Taxes	\$0	\$0	\$5,606	\$0	\$0	\$5,606
Social Ins Tax- Employee Contribution	\$852	\$0	\$0	\$0	\$0	\$852
Social Ins Tax- Employer Contribution	\$3,068	\$0	\$0	\$0	\$0	\$3,068
State & Local Total Tax Revenues	\$3,920	\$0	\$439,678	\$84,389	\$2,047,679	\$2,575,666

Table J details the annual state and local multiplicative fiscal impacts associated with operations of the proposed LNG facility. RESI estimates that the operations phase will generate in roughly \$2.6 million in annual tax revenues for State and local governments. These tax revenues include multiplicative impacts only.

Appendix 5.5: Detailed Impacts & Calculations

Table K

Annual Local Fiscal Impacts: Plant Operations				
Jurisdiction/Region	Direct Property Taxes	Direct Income Taxes	Indirect Income Taxes	Total Local Taxes
Calvert County	\$10,858,080	\$35,490	\$32,830	\$10,926,399
Charles County	\$1,096,415	\$1,218	\$1,127	\$1,098,760
Prince George's County	\$533,599	\$651	\$602	\$534,852
St. Mary's County		\$14,322	\$13,248	\$27,570
Balance of Maryland		\$5,523	\$5,109	\$10,632
Total	\$12,488,094	\$57,204	\$52,916	\$12,598,214

Table K details the annual local fiscal impacts associated with operations of the proposed LNG facility. RESI estimates that the operations phase will generate more than \$12.6 million in annual tax revenues for local governments. These tax revenues include both direct and indirect tax revenues.

Table L

Annual Local Fiscal Impacts (Direct Income, Direct Wage & Indirect Wage Taxes): Plant Operations						
Year	Calvert	Charles	Prince Georges	St Mary's	Balance of MD	Total
4	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
5	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
6	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
7	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
8	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
9	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
10	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
11	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
12	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
13	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
14	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
15	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
16	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
17	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
18	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
19	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
20	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
21	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
22	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214
23	\$10,926,399	\$1,098,760	\$534,852	\$27,570	\$10,632	\$12,598,214

Table L details the annual local fiscal impacts associated with operations of the proposed LNG facility. RESI estimates that the proposed plant will generate close to \$12.6 million in annual tax revenues for local governments for each of the twenty-year operations phase. These tax revenues include both direct and indirect tax revenues.

Appendix 5.5: Detailed Impacts & Calculations (Continued)

Table M

Annual Local Expenditures & Population Data			
	Expenditures	Population	Cost per Capita
Calvert County	\$209,162,866	83,725	\$2,498
Charles County	\$305,434,098	132,812	\$2,300
Prince George's County	\$1,641,492,772	847,103	\$1,938
St. Mary's County	\$193,187,600	91,745	\$2,106
Balance of Maryland	\$12,174,455,275	5,529,981	\$2,202

Table M details expenditure taken from each jurisdiction's most recent fiscal year operating budget. Totals listed in the expenditures column in Table M represent the sum of annual local expenditures on services including: education spending, spending water, sewer and sanitation services, and public safety expenditures, to name a few.

Table N

Annual Local Cost of Services						
	Direct Employment	Multiplicative Employment	Total Employment	Persons per Household	Estimated Number of New Residents	Annual Cost of Services
Plant Operations	38	110	148		420	\$999,372
Calvert County	25	72	96	2.9	279	\$696,318
Charles County	1	2	3	2.8	8	\$19,312
Prince George's County	0	1	1	2.8	4	\$7,989
St. Mary's County	8	24	33	2.8	90	\$189,281
Balance of Maryland	4	11	15	2.7	39	\$86,473
Plant Construction	110	54	164		164	\$1,070,952
Calvert County	50	25	75	2.9	216	\$538,849
Charles County	10	5	15	2.8	42	\$97,140
Prince George's County	0	0	0	2.8	0	\$0
St. Mary's County	0	0	0	2.8	0	\$0
Balance of Maryland	50	25	75	2.7	198	\$434,962
Pipeline Construction	48	33	81		81	\$497,379
Calvert County	9	6	15	2.9	44	\$109,782
Charles County	9	6	15	2.8	43	\$98,954
Prince George's County	9	6	15	2.8	42	\$81,870
St. Mary's County	0	0	0	2.8	0	\$0
Balance of Maryland	21	14	35	2.7	94	\$206,773
Total	196	197	393		665	\$2,567,703

Table N identifies the annual cost of services expected to be borne to local governments due to the construction and operations phases of the proposed LNG facility, and pipeline. This figure is expected to approach \$2.6 million annually (includes both the construction and operations phases).

Appendix 5.5: Detailed Impacts & Calculations (Continued)

Table O

Cumulative Local Annual Cost of Services: Operations & Construction Phases						
	Calvert County	Charles County	Prince George's County	St. Mary's County	Balance of Maryland	Total
Year	Annual Cost of Services	Annual Cost of Services	Annual Cost of Services	Annual Cost of Services	Annual Cost of Services	Annual Cost of Services
0	\$1,344,950	\$215,407	\$89,859	\$189,281	\$728,208	\$2,567,703
1	\$1,344,950	\$215,407	\$89,859	\$189,281	\$728,208	\$2,567,703
2	\$1,344,950	\$215,407	\$89,859	\$189,281	\$728,208	\$2,567,703
3	\$1,344,950	\$215,407	\$89,859	\$189,281	\$728,208	\$2,567,703
4	\$696,318	\$19,312	\$89,859	\$189,281	\$86,473	\$1,081,242
5	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
6	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
7	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
8	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
9	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
10	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
11	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
12	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
13	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
14	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
15	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
16	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
17	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
18	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
19	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
20	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
21	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
22	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372
23	\$696,318	\$19,312	\$7,989	\$189,281	\$86,473	\$999,372

Table O provides a breakdown of the annual cost of services attributable to the proposed LNG facility and associated pipeline. The drop in cost of services occurs as the construction phase ends.

Table P

Cumulative Local Annual Cost of Services & Present Value: Operations & Construction Phases		
<i>Year</i>	<i>Annual Cost of Services</i>	<i>Annual Present Value</i>
0	\$2,567,703	\$2,567,703
1	\$2,567,703	\$2,432,205
2	\$2,567,703	\$2,303,857
3	\$2,567,703	\$2,182,282
4	\$1,081,242	\$870,451
5	\$999,372	\$762,086
6	\$999,372	\$721,871
7	\$999,372	\$683,777
8	\$999,372	\$647,694
9	\$999,372	\$613,515
10	\$999,372	\$581,140
11	\$999,372	\$550,473
12	\$999,372	\$521,425
13	\$999,372	\$493,909
14	\$999,372	\$467,845
15	\$999,372	\$443,157
16	\$999,372	\$419,772
17	\$999,372	\$397,620
18	\$999,372	\$376,638
19	\$999,372	\$356,762
20	\$999,372	\$337,936
21	\$999,372	\$320,103
22	\$999,372	\$303,211
23	\$999,372	\$287,211
<i>Net Present Value of Cost of Services</i>		\$19,642,645

Table P details annual and total (net) present value figures for cost of services attributable to both the construction and operations phases of the proposed LNG facility and associated pipeline project.