Testimony of Chett Chiasson
Executive Director
Greater Lafouche Port Commission
Galliano, Louisiana
Subcommittee on Energy and Mineral Resources Oversight Hearing on
America's Offshore Energy Resources: Creating Jobs, Securing America, and Lowering Prices
March 5, 2013

Good morning Mr. Chairman and Members of the Committee. I appreciate the opportunity to appear before you today. My name is Chett Chiasson, and I am the Executive Director of the Greater Lafourche Port Commission, otherwise known as Port Fourchon.

With this testimony, I hope to impress upon you several points: the importance of Port Fourchon to the offshore oil and gas industry; the contribution that Port Fourchon therefore makes to the national economy; and the importance of robust oil and gas lease sales in the Gulf of Mexico to not just the Gulf economy and not just with respect to offshore fossil fuel development, but to our national economy, and to sustain long term, offshore energy development from all available sources that our Country intends to pursue.

By way of background, The Greater Lafourche Port Commission, a political subdivision of the state of Louisiana, facilitates the economic growth of the communities in which it operates by maximizing the flow of trade and commerce. We do this to grow our economy and preserve our environment and heritage. The Port Commission exercises jurisdiction over the Tenth Ward of Lafourche Parish, south of the Intracoastal Waterway, including Port Fourchon and the South Lafourche Leonard Miller, Jr. Airport. The Port Commission has been in existence since 1960 and its 9 member Board of Commissioners is the only elected Port Commission in the State of Louisiana. Port Fourchon is located on the Gulf of Mexico near the mouth of Bayou Lafourche and it is the only Louisiana port directly on the Gulf of Mexico. Although 675 million barrels of domestically produced and imported crude oil per year are transported via pipelines through the Port, Port Fourchon does not handle any bulk oil and gas per se. Rather, we are an intermodal offshore supply port. More than 250 companies utilize Port Fourchon in servicing offshore rigs in the Gulf of Mexico, carrying equipment, supplies and personnel to offshore locations. In terms of service, Port Fourchon's tenants provide services to 90 percent of all deepwater rigs in the Gulf of Mexico, and roughly 45 percent of all shallow water rigs in the Gulf. 80% of all Gulf oil now comes from deepwater Gulf of Mexico operations. In total, Port Fourchon plays a key roll in 18% of the nation's oil supply.

In a recent study conducted by Dr. Loren C. Scott, former Chair of the LSU Economics Department, of the economic impact to the nation of Port Fourchon, Dr. Scott finds that more than $63 billion in total value of oil and gas are associated with Port Fourchon. With the Chairman's permission, I would like to submit this study to the Committee for the Record. The Port commissioned Dr. Scott to conduct this economic study as a means of documenting the importance of Port Fourchon to the Nation, as a means of justifying federal participation in infrastructure development at the Port, such as modernizing Louisiana Highway One which connects the Port to the rest of the world, or for seaport security funding, or for additional hurricane protection. Another study published by the U.S. Department of Homeland Security's

NISAC Lab in collaboration with the NIMSAT Institute, called the *Louisiana Highway 1/Port Fourchon Study*, found that a disruption of access to Port Fourchon for a 90 day period could have a nearly $8 Billion impact to the Nation's GDP. While each report was intended for different purposes, I share this information with the Committee to illustrate the need for continued and sustained progress in developing all of our offshore energy resources, both conventional and non-conventional. Port Fourchon is the epicenter of offshore oil and gas activities, and the companies in and around Fourchon, and their technologies and innovations developed as a result of these activities, will not only continue to sustain future offshore domestic oil and gas activities, but will foster growth in our budding offshore renewable energy industry as well.

For Port Fourchon to continue to grow and have a successful future creating jobs throughout the economy and facilitating development for our community, Gulf of Mexico Lease sales are critically important. That is the future of the oil and gas industry. Robust lease sales have the ability to energize oil and gas service companies', their suppliers and their suppliers' suppliers throughout the country, who are planning for future development. It facilitates critically needed investment by entities that service these offshore activities, which has a positive ripple effect throughout the national economy. I will certainly be watching closely the upcoming Central Gulf Lease Sale to be held on March 20th, eager to see the level of interest on the part of the industry and the bid amounts for the 39 million acres up for lease.

According to the economic impact study that I eluded to earlier, Port Fourchon supports over 8,000 direct jobs. These are good paying jobs, in which someone with a high school diploma can start out making $50,000 per year. If someone wants to work on an offshore supply vessel or tugboat company, they can start out as a deckhand and work their way up to Captain within 5 years, earning a six figure income. The Houma-Thibodaux MSA maintains one of the lowest unemployment rates in the country, at about 3.7%, well below the National average. If someone is willing and able to work, they typically have a job. And I know this is the case in other Gulf communities, and in areas where new discoveries of onshore energy resources have occurred, such as in North Dakota, or eastern states such as Pennsylvania, West Virginia and Ohio. While the effects of the BP oil spill, the subsequent moratorium and the new permitting regime still linger, our industry is as resilient as it is innovative, and thus we are coming back. But the industry needs to have confidence that the investments made in domestic offshore energy production will not be overly impeded by governmental regulations, and that our Nation's domestic energy policy will continue to sustain investment of all energy types. The response by industry in the government lease sales is certainly one indicator of that confidence.

Port Fourchon should be seen as an example of what could happen in areas along Florida's Coast, and the East and West Coast if these areas would be available for conventional and renewable energy development. . Billions of dollars of investment throughout the country, low unemployment rates, high paying jobs, more revenue for our Country, and making great strides toward energy independence …What's not to like about that!

Again Mr. Chairman and Members of the Committee, I appreciate the opportunity to appear before you today, and I would be happy to answer any questions that the Committee may have.

The Economic Impacts of Port Fourchon on the National and Houma MSA Economies

Released April 2008

Prepared By:
Loren C. Scott & Associates

In Cooperation with

LOUISIANA ECONOMIC DEVELOPMENT

SLEC
South Louisiana Economic Council
Assumption • Lafourche • St. Mary • Terrebonne

EXECUTIVE SUMMARY

Near the mouth of Bayou Lafourche in Lafourche Parish is the equivalent of a small city which is vital to the U.S. energy supply and to the Houma MSA economy. It is Port Fourchon. This port services about 90 percent of all deepwater rigs and platforms in the Gulf of Mexico and it is also the host for the Louisiana Offshore Oil Port (LOOP). We estimate that in 2006 about $63.4 billion worth of oil and natural gas was tied to this port via the LOOP and the offshore platforms the port helps to service.

The purpose of this report is two-fold. First, we estimate the impact on the U.S. economy of a temporary loss of the services of Port Fourchon. Secondly, we estimate the impact of this port on the Houma MSA economy. Regarding the first task, we use a model developed by Richardson and Scott and the experience from Hurricanes Katrina and Rita to estimate the impact on the U.S. economy of a three-week loss in services from Port Fourchon due to damage from a hurricane, a terrorist attack, or some other destructive phenomenon. We conservatively estimate that a three-week loss in services from Port Fourchon would lead to:

- A loss of $9,994.7 million in sales at U.S. firms;
- A loss of $2,890.9 million in household earnings in the U.S., and;
- A loss of 77,440 jobs in the nation.

The longer it takes to restore activity at the port or the longer it takes to shift services to other ports along the coast, the greater these losses will be.

We used a survey of a sample of firms operating at the port in 2006 to generate a "lower bound" estimate of the impact of the port on the Houma MSA economy. This is "lower bound" estimate because we could not secure a 100 percent response rate by firms located at the port to our questionnaire. We did secure data from the largest players at the port, but still we were not able to include data from a non-trivial number of firms that did not respond. Based on the replies we did receive, we estimated the following impacts on the Houma MSA of both on-going activities and construction spending by our sample of firms:

- $1,501 million in business sales in the MSA are tied to the port;
- $351.4 million in household earnings of MSA residents can be traced back to the port;
- There are 8,169 jobs in the Houma MSA that are dependent on the presence of the port, and;
- At least $12,053,899 in sales taxes was collected by local governments in the MSA because of the presence of the port. This figure does not include direct sales taxes or any property taxes paid by these firms.

Though located on a relatively small piece of land, Port Fourchon plays a vital role in both the U.S. and Houma MSA economies.

TABLE OF CONTENTS

Page

THE ECONOMIC IMPACTS OF PORT FOURCHON ON THE NATIONAL AND HOUMA MSA ECONOMIES

I. Introduction

Port Fourchon is located near the mouth of Bayou Lafourche in Lafourche Parish Louisiana. It is the only Louisiana port directly on the Gulf of Mexico. Port Fourchon plays two crucial roles in the US economy: (1) **servicing offshore rigs** in the Gulf of Mexico and (2) serving as a **host for the Louisiana Offshore Port** (LOOP). In terms of service, Port Fourchon provides catering to 90 percent of all deepwater rigs in the Gulf of Mexico and roughly 45 percent of all shallow water rigs in the gulf.[1] The Gulf of Mexico (GOM) accounted for 470.7 million barrels or roughly 80 percent of US offshore oil in 2006. With regard to natural gas, the GOM accounted for 2.9 trillion cubic feet (tcf) of production or 88 percent of total US offshore production in 2005.[2]

The LOOP is the only port in the United States capable of handling Ultra Large Crude Carriers and Very Large Crude Carriers.[3] Oil is shipped north to the Galliano Salt Dome. The LOOP had unloaded more than 3.5 billion barrels of oil from over 3000 tankers from its beginning in 1981 to March 2007.[4] The Greater Lafourche Port Commission reports that the LOOP handles roughly 15 percent of US imports of foreign oil and its pipeline distribution connects to over 50% of US refining capacity. This translates into 1.5 million barrels per day (bd) of oil (1.15 million barrels of imported crude and 350,000 barrels of domestic production).

Given the role of oil and natural gas in our economy, the economic significance of Port Fourchon is apparent. Hollywood took notice of Port Fourchon's importance in the 2005

[1] Great Lafourche Port Commission
[2] Energy Information Administration, Official Energy Statistics for the United States.
[3] Energy Information Administration, State Energy Profiles, www.tonto.eia.doe.gov/state/state_energy_profiles.
[4] Energy API, http://www.api.org/aboutoilgas/sectors/marine/loop-supertankers.cfm.

television docudrama *Oil Storm*, which begins with the fictional Hurricane Julia "crippling the primary nerve center of the gulf coast petroleum industry at Port Fourchon, Louisiana." The docudrama shows how the effects of that disaster could have significant consequences throughout the United States, even in areas far removed from landfall.[5] A fictional motion picture is hardly the way to judge the economic importance of Port Fourchon, but the plot does start with an observation of Port Fourchon's crucial role in the US economy.

Servicing Offshore Rigs

To provide a more realistic assessment of the importance of Port Fourchon, Table 1 starts with an estimate of the value of 2006 production serviced by Port Fourchon. The first column contains GOM production data obtained from the US Energy Information Administration. The second column uses the proportion of deepwater and shallow water rigs serviced by Port Fourchon to convert these figures into estimates of production serviced by the port. The final column uses the average 2006 prices, $66.05 per barrel for oil and $6.42 per thousand cubic feet (mcf) for natural gas to convert production into dollars. Note that these figures would significantly understate the value of production at current prices as of this report (February 2008).

[5] Wikipedia, http://en.wikipedia.org/wiki/Oil_Storm.

Table 1
Value of 2006 Oil and Gas Production Serviced by Port Fourchon

Oil Production	**2006 Annual Barrels**	**2006 Serviced by Port Fourchon (Barrels)**	**Value ($millions)**
Deepwater Gulf	340,936,596	306,842,936	$20,267.0
Onshore	129,822,673	58,420,203	$3,858.7
Total GOM Production	470,759,269	365,263,139	$24,125.6
Gas Production	**2006 Annual MCF**	**2006 Serviced by Port Fourchon (mcf)**	**Value ($millions)**
Deepwater Gulf	1,093,476,288	984,128,659	$6,318.1
Onshore	1,812,205,568	815,492,506	$5,235.5
Total GOM Production	2,905,681,856	1,799,621,165	$11,553.6

Host for LOOP

The second component of Port Fourchon's economic contribution is the LOOP. As previously stated, 15 percent of the nation's foreign oil comes through the LOOP (including an increasing amount of domestic deepwater production). Because, we have already accounted for a portion of the deepwater production which flows through the LOOP, consider only imported crude oil handled by the LOOP. US imports of crude oil topped 5 billion barrels in 2006. The LOOP handles an estimated 1.15 million barrels per day or almost 420 million barrels per year. Using the 2006 price of $66.05 per barrel for oil, this translates into **$27.7 billion of imported oil flowing through Port Fourchon**.

Total Value of Oil and Natural Gas Associated with the Port

Table 2 provides a handy summary of the value of oil and natural gas associated with Port Fourchon. The first two rows document the values associated with servicing offshore rigs and the last row shows the value associated with LOOP. **A total of over $63.4 billion in oil and natural gas was supported by Port activities in 2006**.

Table 2
Total Value of Oil and Gas Associated with Port Fourchon

Item	Value ($mm)
Oil Production at Rigs Serviced by the Port	$24,125.6
Gas Production Serviced by the Port	$11,553.6
Imported Oil handled by the LOOP	$27,724.5
Total	$63,403.7

To the extent that the LOOP handles foreign (Port Fourchon services all domestic oil handled by LOOP) oil not serviced by Port Fourchon, the $63.4 billion figure is a conservative estimate of the Port's role in the US oil and gas sector. With $63.4 billion of oil and gas dependent on Port Fourchon, James Erkine and Caroline Levy's decision to focus on this area as the nerve center of US oil production in their movie seems quite logical. With US gross domestic product (GDP) at just over $13.1 trillion in 2006, the oil and gas production associated with Port Fourchon was just under 0.5% of US GDP. However, given the key role of energy in the US economy, the economic significance of this oil and gas is obviously larger.

II. Impact of Port Fourchon on the U.S. Economy

The figures in Table 2 clearly suggest that Port Fourchon plays an important role in the US economy, but they do not quantify that role. That is one purpose of this study. Perhaps the best way to quantify that role is to attempt to estimate the impact **of losing the services of Port Fourchon for a time**.

Rather than a fictional movie account, economic data are required for a more serious approach to this problem. Fortunately, Dr. James Richardson and Dr. Loren Scott considered a very similar scenario in their report "The Economic Impact of Coastal Erosion in Louisiana on State, Regional, and National Economies" in February 2004. Unfortunately, many of the conjectures in this study were realized in fall 2005 when Hurricanes Katrina and Rita ravaged the

Louisiana coastline. Our approach will be to review the Richardson and Scott report, compare their predictions to what actually occurred in the fall of 2005, and then evaluate the economic importance of Port Fourchon in the context of these results.

The Richardson/Scott Coastal Study—Impact on Oil

Richardson and Scott focused on losses in access to Louisiana's oil and natural gas production. They evaluated two scenarios, a three week and a five week disruption in supplies. For simplicity, we focus on the three week scenario.

With regard to crude oil, the Richardson and Scott study focused only on the largest economic cost---rising gasoline prices. They argue that a three week disruption to Louisiana's pipeline system would raise gasoline prices by 21.6 cents per gallon nationwide. Over a three-week period, this translates into a $1.74 billion cost to consumers.

When consumers spend more on gasoline, they tend to cut spending elsewhere to balance the budget, causing the shock to gasoline prices to echo throughout the US economy. Richardson and Scott used the US Bureau of Economic Analysis (BEA) input-output tables to compute the total impact of this disruption in access to Louisiana crude to various parts of the US economy.

Table 3 presents their results. Note on the top row the impacts of this disruption on the total U.S. economy. According to Richardson/Scott, such a disruption would cost the U.S economy (1) nearly $4 billion in lost business sales, (2) over $1.1 billion in lost household earnings, and (3) 30,800 jobs.

Table 3
The Impact of a Three-Week Louisiana Oil Disruption on Sales, Earnings, and Employment

Area	Lost Sales (Millions $)	Lost Earnings (Millions $)	Lost Employment
Continental US	$3,975.2	$1,149.8	30,800
Eastern US	$2,497.7	$702.0	23,344
Western US	$344.5	$19.9	831

Notes: Reprinted from Richardson and Scott, *The Economic Impact of Coastal Erosion in Louisiana on State, Regional, and National Economies*. Continental US totals have been updated based on current BEA RIMS II Input/Output tables.

The Richardson/Scott Coastal Study—Impact on Natural Gas

Richardson and Scott also considered a similar exercise based on a three-week disruption in supplies of **natural gas** from Louisiana. Overall, they project the disruption would lead to an 11.4 percent increase in the price of natural gas. They estimated that the total increased cost to residential, commercial, industrial, and electric power generation users would be approximately $740 million, with over 70percent of the increased cost occurring in the Eastern US. Again, the impact ripples throughout the economy. Table 4 contains the total impact of the three-week disruption in natural gas estimated by Richardson and Scott. Note in row 1 that they estimated such a disruption would cost the total U.S economy (1) nearly $1.7 billion in lost business sales, (2) $489 million in lost household earnings, and (3) 13,099 jobs.

Table 4
The Impact of a Three-Week Louisiana Natural Gas Disruption on Sales, Earnings, and Employment

Area	Lost Sales (Millions $)	Lost Earnings (Millions $)	Lost Employment
Continental US	$1,690.6	$489.0	13,099
Eastern US	$1,257.3	$316.4	9,049
Western US	$198.6	$48.4	1,290

Notes: Reprinted from Richardson and Scott, *The Economic Impact of Coastal Erosion in Louisiana on State, Regional, and National Economies*.

The Richardson/Scott Coastal Study—Total Impact of Three-Week Disruption

The data in Table 5 summarize the impacts of both the loss of oil production and natural gas production from a three-week disruption on the continental U.S. economy. Such a disruption would cost the U.S. economy (1) nearly $5.7 billion in lost business sales, (2) over $1.6 billion in lost household earnings, and (3) 43,899 jobs.

Table 5
The Total Impact of a Three-Week Louisiana Oil & Natural Gas Disruption on Sales, Earnings, and Employment in the Continental U.S.

Area	Lost Sales (Millions $)	Lost Earnings (Millions $)	Lost Employment
Lost Oil Impacts	$3,975.2	$1,149.8	30,800
Lost Natural Gas Impacts	$1,690.6	$489.0	13,099
Total Impacts	$5,665.8	$1,638.8	43,899

Accuracy of Richardson/Scott Model---Evidence from Katrina/Rita

Of course, the accuracy of the results in Tables 3 through 5 depends crucially on the accuracy of the underlying assumptions of the models. Hurricanes Katrina and Rita provide an obvious test of these assumptions.

Figure 1 graphs the daily price of crude oil from July 1 2005 to the end of 2005. The line reflects, August 29, 2005, the day Katrina made landfall. Figure 2 contains a similar graph of the spot price of gasoline in cents, measured at New York Harbor. Both clearly reflect the impact of Hurricane Katrina on the crude oil market and price of gasoline---a fact that is generally consistent with the predictions of Richardson and Scott.

Figure 1
2005 Spot Price of Oil Pre-Storm and Post-Storm

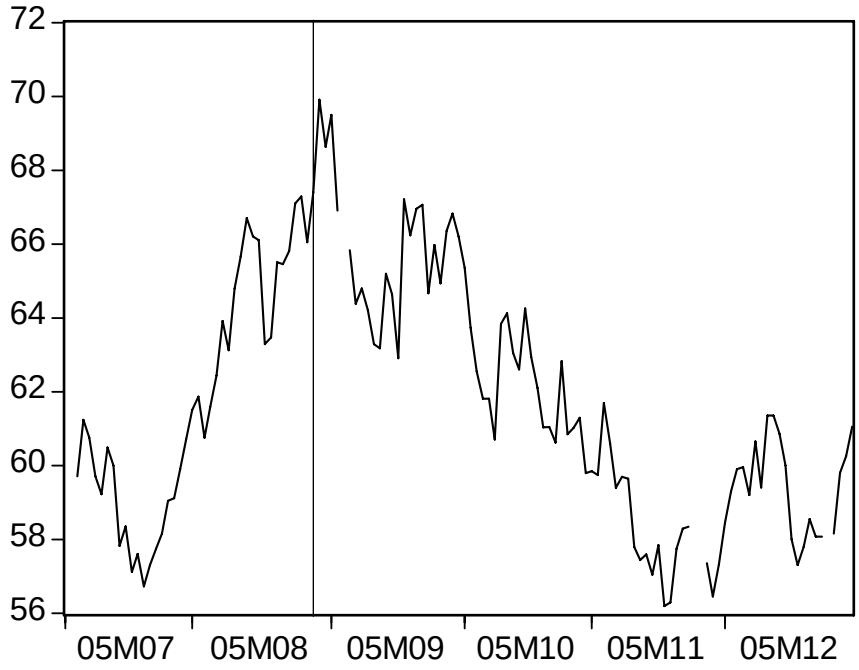
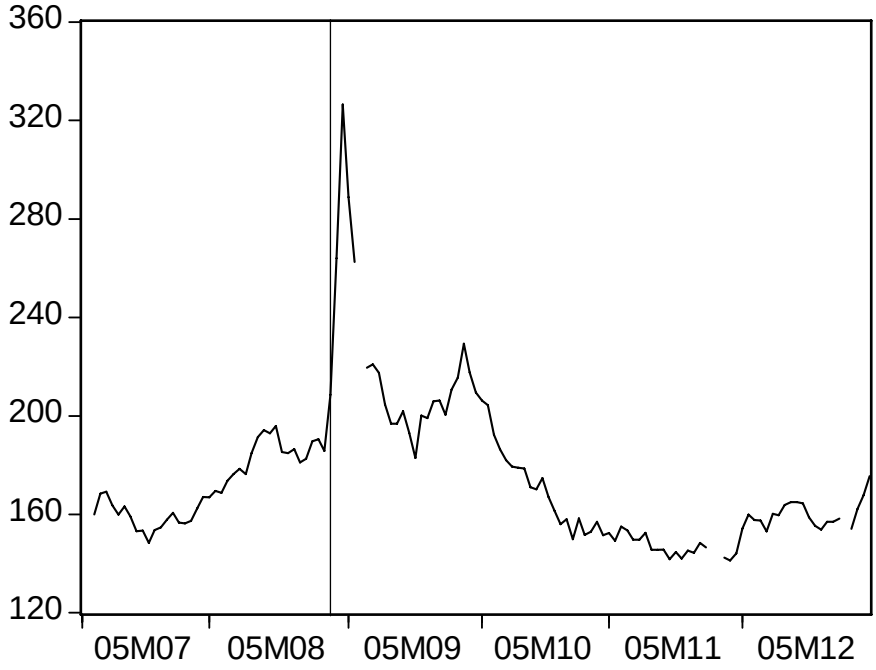


Figure 2
2005 Spot Price of Gasoline Pre-Storm and Post-Storm



Looking more closely at the data, we can compare the magnitudes of the impacts observed during Hurricanes Katrina and Rita to those projected by Richardson and Scott. Table 6 contains the weekly spot price of gasoline for the three major spot markets reported by the US Energy Information Administration. The results show an average increase of 75 cents, over triple the 21.6 cent increase used by Richardson and Scott, during the first week immediately following Hurricane Katrina. Prices fell during the week of 9/16/2005 and then rose again near the onset of Hurricane Rita. **Overall, the results indicate that Hurricanes Katrina and Rita had a larger and longer lasting impact than the three-week 21.6 cent increase used by Richardson and Scott.**

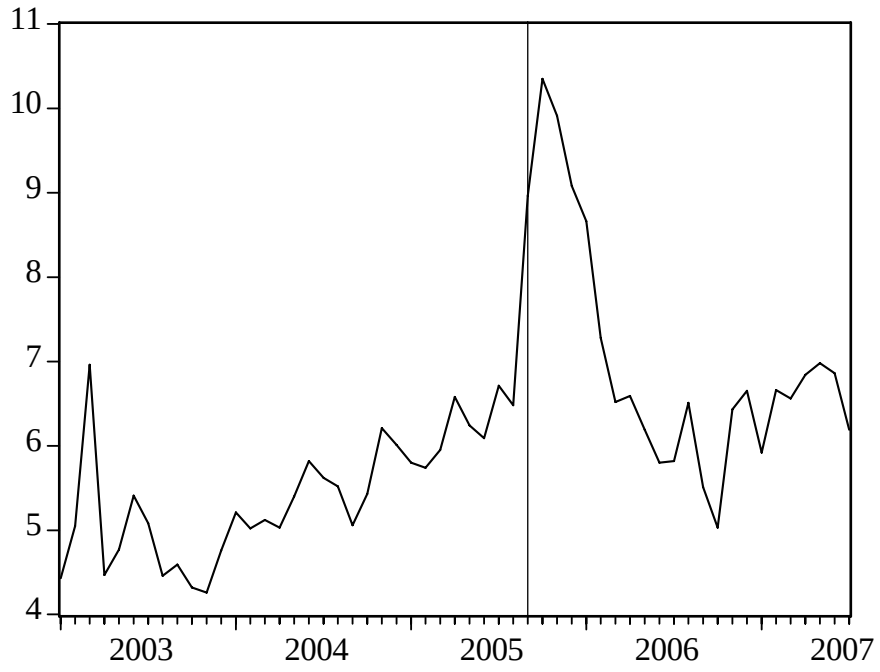
Table 6
Effects of Hurricanes Katrina and Rita on the Price of Gasoline

Date	New York Harbor	US Gulf Coast	Los Angeles	Average	Average Increase
8/26/2005	$ 1.86	$ 1.83	$ 2.02	$ 1.91	
9/2/2005	$ 2.70	$ 2.61	$ 2.65	$ 2.65	$ 0.75
9/9/2005	$ 2.16	$ 2.20	$ 2.14	$ 2.16	$ 0.26
9/16/2005	$ 1.94	$ 1.85	$ 2.11	$ 1.97	$ 0.06
9/23/2005	$ 2.02	$ 2.25	$ 2.23	$ 2.17	$ 0.26
9/30/2005	$ 2.17	$ 2.77	$ 2.28	$ 2.40	$ 0.50
10/7/2005	$ 1.94	$ 2.18	$ 2.04	$ 2.05	$ 0.15
10/14/2007	$ 1.76	$ 1.86	$ 1.89	$ 1.83	$(0.07)

Source: US Energy Information Administration

With regard to natural gas prices, the US Energy Information Administration only reports monthly prices. The wellhead spot price of natural gas rose from $6.48 MCF in August 2005 to $8.96 in September 2005, $10.35 in October 2005, and $9.91 in November 2005. Just as with gasoline, the increases due to Katrina and Rita significantly outpaced the 11.4% increase in the price of natural gas used by Richardson and Scott.

Figure 3
Wellhead Price of Natural Gas Pre-Storm and Post-Storm



Katrina/Rita Effects as Model for Loss of Port Fourchon

Both Richardson and Scott (2004) and the movie *Oil Storm* focus on Port Fourchon as the source of a major disruption to U.S. crude oil and natural gas supplies. We would argue that the impacts of Hurricanes Katrina and Rita serve as a reasonably accurate model of what would happen if the services of Port Fourchon were lost

Some credence for this model can be found in comparing the oil and natural gas lost due to these hurricanes with the production flowing through Port Fourchon. If the amounts are reasonably comparable, that is reassuring evidence that the Richardson/Scott model can be used to estimate the loss of Port Fourchon. By converting the figures in Table 1 to daily production levels, we find the average daily production of rigs serviced by Port Fourchon is just over 1 million barrels of oil per day. In terms of natural gas, just under 5 billion cubic feet per day of

production is serviced by the port. Another 1.15 million barrels per day of imported oil flow through the LOOP.

How does 1 million barrels of crude oil per day production (plus another 1.15 million b/d in the LOOP) and 5 billion cubic feet of natural gas production compare to losses during Hurricanes Katrina and Rita? Table 7 contains a synopsis of the estimated amounts of crude oil and natural gas lost to the U.S. during Hurricanes Katrina and Rita. The level of oil shut in slightly exceeds the production serviced by Port Fourchon but never approaches the sum of production plus the LOOP pipeline. It makes sense that the oil losses would be more associated with the amount serviced by the port versus the amount flowing through LOOP, since LOOP production was hardly impacted by the hurricanes. Though the LOOP pipeline flows through the port, most of the activity at the port is associated with servicing offshore platforms.

Table 7
Effects of Hurricanes Katrina and Rita on U.S. Access to Crude oil and Natural Gas

Week	Crude oil shut in	Natural Gas shut in
2. Aug. 28-Sept. 3	1.4 million barrels/day	8.8 billion cubic feet/day
3. Sept. 4-10	1.2 million barrels/day	5.8 billion cubic feet/day
4. Sept. 11-17	934,000 barrels/day	3.8 billion cubic feet/day
5. Sept. 18-24	1.5 million barrels/day	7.5 billion cubic feet/day
6. Sept. 25-Oct. 1	1.5 million barrels/day	8.05 billion cubic feet/day
7. Oct. 2-Oct.8	1.4 million barrels/day	7.5 billion cubic feet/day
8. Oct. 9-Oct.17	1.06 million barrels/day	6.04 billion cubic feet/day

Source: U.S. Department of Energy, www.energy.gov/news/2404.htm

Note in Table 7 that natural gas shut in hovers at levels slightly above the 5 billion cubic feet level serviced by Port Fourchon. This can be explained by the fact that some of the gas shut in was outside of the port's servicing limit. The bottom line is that the evidence from the impact of Katrina/Rita on oil and gas production suggests the Richardson/Scott model would be a reasonable tool for estimating the loss of Port Fourchon for a period.

Estimating the Loss of Port Fourchon Services for Three Weeks

Using the Richardson/Scott model we are able to estimate the loss of services at Port Fourchon for various time periods. We take the conservative position that some event occurs---a hurricane, terrorist attack, etc.---that causes Port Fourchon to be unable to service offshore extraction activities. We conservatively assume that after a period of three weeks lost functionality at the port could either (1) be restored at the port or (2) activities could be transferred to other ports in Louisiana, Texas, and/or Mississippi. To the extent that replacement of port activities will take longer than three weeks, our estimates will be significantly understated.

Table 8 contains our estimate of the impact on the U.S. economy of the loss of Port Fourchon activities for a three-week period. Figures in this table were generated using the actual gasoline and natural gas price changes caused by the hurricanes and lost production volumes limited by the port's servicing area.

Table 8
Impact of Three Week Gasoline Disruption on
Continental US Output by Industry

Category	Gasoline Disruption	Natural Gas Disruption	Total Port Impact
Lost Sales	$6,468.2	$3,526.5	**$9,994.7**
Lost Earnings	$1,870.9	$1,020.0	**$2,890.9**
Lost Jobs	50,116	27,324	**77,440**

These estimates demonstrate just how vital this port is to the nation's economy. Just a three-week cessation of port activities would cause **a loss of nearly $10 billion in sales at U.S. businesses**. About two-thirds of this loss would be due to the interruption of oil production ($6.5 billion) and about one-third would be due to the loss of natural gas ($3.5 billion).

Of course a loss in business sales translates into a loss of earnings by U.S. citizens. According to the middle row of Table 8, households in the U.S. would find their **incomes falling by nearly $2.9 billion,** with the split being again about two-thirds due to oil disruption and one-third due to natural gas shortages. Finally, Table 8 shows the job impact of the loss of Port Fourchon activities. A total of **77,440 jobs would vanish**, about 50,116 due to oil disruption and 27,324 due to the loss of natural gas. Note again that these should be considered conservative estimates of the sales, earnings and job losses. If it takes longer than three weeks to restore the port's operations or to shift their activities to other ports the numbers in Table 8 would rise proportionately.

Industry Impacts of Disruption of Port Activities

In Table 8 we presented the total impacts on business sales, household earnings and jobs of the disruption of Port Fourchon activities. In this section we show how the disruption of oil production affects different industries in the country.

Business sales impacts. Back in Table 8 it was shown that the disruption of port activities would create a loss of $9,994.7 million in business sales in the country. Table 9 illustrates how those losses would be spread across various industries in the country. The biggest losers would be industries in the manufacturing sector with sales losses of just over $1.6 billion. Over one billion dollars in sales would be lost in real estate ($1.3 billion), health care ($1.1 billion), and finance/insurance ($1 billion).

Table 9
Total Impact of Three Week Disruption on
Continental US Business Sales by Industry

Category	Lost Sales (Millions of $)
Manufacturing	$1,627.0
Real estate and rental and leasing	$1,320.8
Health care and social assistance	$1,116.9
Finance and insurance	$1,001.8
Retail trade	$850.0
Information	$567.0
Professional, scientific, and technical services	$510.1
Wholesale trade	$453.2
Accommodation and food services	$441.9
Other services	$428.3
Transportation and warehousing	$326.4
Administrative and waste management services	$294.4
Utilities	$245.9
Total	**$9,994.7**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Output Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $200 million in lost sales included in this table.

Household earnings impacts. Table 10 shows how the total of $2,890.9 million in household earnings losses shown in Table 8 is distributed across industries. Employees in the health care sector would be the biggest losers experiencing a loss of $521.9 million in earnings. Over $200 million in household earnings would be lost by workers in finance/insurance ($320.2 million), manufacturing ($299.7 million), retail trade ($298.4 million), and professional/scientific/technical services ($227.5 million).

Table 10
Total Impact of Three Week Disruption on
Continental US Household Earnings by Industry

Category	Lost Earnings (millions of $)
Health care and social assistance	$521.9
Finance and insurance	$320.2
Manufacturing	$299.7
Retail trade	$298.4
Professional, scientific, and technical services	$227.5
Other services	$151.8
Wholesale trade	$151.4
Accommodation and food services	$130.8
Transportation and warehousing	$118.1
Administrative and waste management services	$118.1
Real estate and rental and leasing	$112.9
Information	$111.6
Total	**$2,890.9**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Output Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $100 million in lost earnings included in this table.

Job impacts. Back in Table 8 we estimated that a three-week disruption in activities at Port Fourchon would create a loss of 77,440 jobs. Table 11 illustrates how those losses would be distributed across various industries in the country. Job losses are especially heavy in the health care industry (-13,233 jobs) and retail trade (-12,145 jobs). Three other sectors would suffer job losses in excess of 5,000 including (1) hotels and restaurants (-7,414 jobs), (2) other services (-5,729 jobs), and manufacturing (-5,267 jobs). There are ten other sectors where job losses would be between 1,500 and 5,000 jobs. Clearly, the loss of Port Fourchon activities for even a short 3-week period would have serious consequences across a wide variety of industries.

Table 11
Impact of Three-Week Disruption on
Continental US Employment by Industry

Category	Lost Jobs
Health care and social assistance	13,233
Retail trade	12,145
Accommodation and food services	7,414
Other services	5,729
Manufacturing	5,267
Finance and insurance	4,848
Administrative and waste management services	4,666
Professional, scientific, and technical services	3,791
Real estate and rental and leasing	3,775
Educational services	3,041
Transportation and warehousing	2,801
Wholesale trade	2,572
Arts, entertainment, and recreation	2,175
Agriculture, forestry, fishing, and hunting	1,794
Information	1,674
Total	77,440

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Output Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over 1,000 lost jobs are included in this table.

III. The Impact of Port Fourchon on the Houma MSA

The activities of Port Fourchon play a crucial role in the Houma area economy by creating jobs, earnings and sales for area businesses. Port Fourchon businesses hire workers directly and spend in the community. However the effect doesn't stop there. Like a rock dropped into a pond, the impact of the spending ripples throughout the community. As workers buy groceries at the local market, that creates new jobs at the market and the spending continues as the market hires additional workers. Economists label the first round of spending as the direct effect and the second round as the indirect impact.

Survey of Port Businesses

To measure the direct effect of Port Fourchon businesses, we conducted a survey of businesses at the port. To measure both the direct and multiplier effects of the port firms were asked to provide some rather sensitive information to our team. This information involved requesting both construction expenditure data and annual revenue for 2006. Firms were assured that individual firm information would be kept strictly confidential by our team and that final results would be reported only in aggregate form and in such way that no information on an individual firm would be discoverable.

Not surprisingly, firm were very reluctant to release information that is this sensitive. Initially, responsibility for gathering this information fell to the staff of the South Louisiana Economic Council (SLEC) at Nichols University. Some information was gathered through this group, then follow up phone calls were made by Dr. Loren Scott. Data were gathered from 17 firms that operate at the port. It is important to note that our sample included (1) all of the large firms operating at the port and (2) some of the 17 had several different operations at the port. As an example of the latter, the Edison Chouest Company was one of the 17 responders, but Chouest was responding in aggregate for at least 10 different operational units at the port.

Estimate of the "Direct Effect" of the Port on the MSA

The results from our sample revealed that **in 2006 construction expenditures at the port by these firms totaled $49.3 million. Annual revenues in 2006 of those port businesses exceeded $922.6 million.** These would represent a very conservative estimate of the direct impact of the port on the Houma MSA, because it does not include data from the firms that did not respond to our survey. In effect, these represent dollars that were pumped into the Houma MSA economy that would not have been there if this port had been located somewhere else---say

in Texas or Mississippi. An economist would describe these as the direct effect of the port on the MSA's economy.

Estimate of the "Total Effect" of Construction at the Port on the MSA

The U.S. Bureau of Economic Analysis provides Input/Output tables which allow us to convert these spending and revenue figures into to the total effect (direct and indirect) on employment, earnings, and sales created by Port Fourchon businesses. We first estimate the impact of the **construction spending** on the MSA. We treat construction impacts separately because they (1) vary considerably from year-to-year and (2) they are one-time expenditures, as contrasted to revenues from on-going operations which tend to be more or less repeated each year.

Construction impacts on business sales. As previously stated, $49.3 million was spent by Port businesses on construction projects in 2006. Tables 12-14 reveal the I/O table estimates of the impact of this construction spending on the MSA economy. Table 12 reveals that these projects translated into over **$106 million in new sales for Houma area business**. Not surprising, the largest beneficiary of this spending was the construction sector, where the direct spending originated. However, this construction spending translated into over $2 million a piece in sales in retail trade ($6.5 million), real estate ($4 million), health care ($3.9 million) and professional/scientific/technical services ($2.2 million). According to the data in Table 12, there were seven other sectors in the Houma MSA where sales jumped by $1 million or more due to construction spending at the port.

Table 12
Impact of 2006 Port Fourchon Construction
On Business Sales in the Houma MSA

Category	Sales (Millions of $)
Construction	$49.5
Retail trade	$6.5
Real estate and rental and leasing	$4.0
Health care and social assistance	$3.9
Professional, scientific, and technical services	$2.2
Manufacturing	$1.8
Wholesale trade	$1.6
Other services	$1.4
Accommodation and food services	$1.4
Transportation and warehousing	$1.3
Information	$1.1
Finance and insurance	$1.0
Total	**$106.1**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Output Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $1 million in 2006 sales attributable to Port Fourchon construction are included in this table.

Construction impacts on household earnings. All those new business sales tabulated in Table 12 will result in new household earnings for residents of the MSA. Table 13 details these impacts of construction spending at the port on household earnings. According to the I/O tables, **2006 construction spending at the port created $28 million in additional earnings for MSA residents**. Most of those earnings accrued to workers in the construction sector, where the direct dollars are initially injected. Earnings jumps of $1 million or more also occurred for workers in the MSA's retail trade ($2.2 million) and health care ($1.8 million) sectors.

Table 13
Impact of 2006 Port Fourchon Construction
On Household Earnings in the Houma MSA

Category	Earnings (Millions of $)
Construction	$19.1
Retail trade	$2.2
Health care and social assistance	$1.8
Professional, scientific, and technical services	$0.9
Wholesale trade	$0.5
Other services	$0.5
Total	$28.0

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Output Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $.5 million in 2006 earnings attributable to Port Fourchon construction are included in this table.

Construction impacts on jobs. Finally, Table 14 reports the I/O table estimates of the impact of construction spending at the port on jobs in the MSA. According to the I/O table, **construction spending at the port in 2006 supported a total of 868 jobs in the Houma MSA**. By way of reference, between December 2006 and December 2007, non-farm employment in this MSA increased by 2,800 jobs.[6] Thus, the jobs supported by construction spending alone at the port were equivalent to about one-third of the entire MSA's job growth in 2007. Most of these jobs---550---were in the construction sector. However, 104 jobs were supported in retail trade, and over fifty were in the health care sector.

[6] Louisiana Workforce at a Glance, January 25, 2008, p. 9b.

Table 14
Impact of 2006 Port Fourchon Construction
On Employment in the Houma MSA

Category	Jobs
Construction	550
Retail trade	104
Health care and social assistance	53
Accommodation and food services	30
Other services	23
Administrative and waste management services	20
Professional, scientific, and technical services	19
Wholesale trade	11
Manufacturing	10
Transportation and warehousing	10
Total	**868**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Ouput Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with 10 or more jobs attributable to Port Fourchon construction are included in this table.

Estimate of the "Total Effect" of On-Going Operations at the Port on the MSA

Tables 15-17 focus on the impact of on-going operations at the port on the Houma MSA economy. Not surprisingly, given almost a billion dollars of revenue, those impacts are quite large.

Operations impacts on business sales. Table 15 documents the I/O estimates of the impact of on-going operations at the port on business sales in the MSA. According to the I/O tables over $1.4 billion in business sales in the MSA are supported by the presence of the port. By any measure, this is a very significant number. Note in Table 15 that two-thirds of a billion dollars ($672.4 million) in sales are supported in firms involved in the mining sector due to the presence of the port. This would include firms in the extraction sector, lift ship firms, etc. An estimated $318.4 million in sales are supported at firm classified in the transportation and warehousing industry. Over $50 million in sales at firms in the management-of-companies

sector ($73.6 million) and real estate firms ($55.3 million) can be traced to the presence of the port in the MSA.

Table 15
Impact of 2006 Port Fourchon Operations
On Business Sales in the Houma MSA

Category	Sales (Millions of $)
Mining	$672.4
Transportation and warehousing	$318.4
Management of companies and enterprises	$73.6
Real estate and rental and leasing	$55.3
Health care and social assistance	$45.5
Manufacturing	$45.0
Retail trade	$44.9
Professional, scientific, and technical services	$31.4
Other services	$25.8
Wholesale trade	$25.8
Total	**$1,422.9**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Ouput Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $25 million in 2006 sales attributable to Port Fourchon operations are included in this table.

Operations impacts on household earnings. According to the I/O tables, **about one-third of a billion dollars ($324.4 million) in household earnings in the Houma MSA can be traced to on-going operations at the port** (see the bottom line of Table 16). As a reference point, this is about equivalent to all the money earned by workers in the MSA's wholesale trade, finance and insurance companies, and real estate/rental/leasing firms combined.[7]

Workers in the MSA's mining sector are particularly big winners from the presence of the port, adding $128.1 million a year to their pocketbooks. The number two most winning slot

[7] Regional Economic Information System, Bureau of Economic Analysis, April 2007, cd-rom.

goes to workers in the transportation/warehousing sector where $58.6 million in household earnings is generated by the presence of the port.

Table 16
Impact of 2006 Port Fourchon Operations
On Household Earnings in the Houma MSA

Category	Earnings (Millions of $)
Mining	$128.1
Transportation and warehousing	$58.6
Management of companies and enterprises	$29.9
Health care and social assistance	$20.8
Retail trade	$15.4
Professional, scientific, and technical services	$13.1
Manufacturing	$10.8
Other services	$9.3
Wholesale trade	$8.6
Finance and insurance	$5.6
Accommodation and food services	$5.2
Total	**$323.4**

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Ouput Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with over $5 million in 2006 earnings attributable to Port Fourchon operations are included in this table.

Operations impacts on jobs. Finally, Table 17 details the impact of on-going operations at the port on jobs in the MSA. According to the I/O tables there are 7,301 jobs in the MSA that would not be there absent the on-going operations at the port. Almost a third of those jobs are located in the MSA's mining sector. Over a thousand jobs exist in the MSa's transportation/warehousing sector (1,009) because of on-going operations at the port.

Table 17

Impact of 2006 Port Fourchon Operations On Jobs in the Houma MSA

Category	Jobs
Mining	2,132
Transportation and warehousing	1,009
Retail trade	723
Health care and social assistance	612
Management of companies and enterprises	545
Other services	410
Accommodation and food services	395
Professional, scientific, and technical services	279
Administrative and waste management services	230
Manufacturing	205
Wholesale trade	183
Total	7,301

Sources: U.S. Bureau of Economic Analysis RIMS II Input/Ouput Tables and author's calculations. The total is the sum over all 20 industrial sectors. Only those with 150 or more jobs attributable to Port Fourchon operations are included in this table.

Estimate of the "Total Effect" of Both Construction & On-Going Operations at the Port on the MSA

In Tables 12 through 17 we have documented the impact on the Houma MSA economy of first construction spending and then on-going operations at Port Fourchon in 2006. In Table 18 we sum these two impacts together to get the total impact of all activity at the port in 2006 on the MSA's economy. Recall that our surveys revealed that in 2006, our sample of firms spent $9.3 million on construction and received $922.6 million in revenues.

That is a huge amount of money to be circulating in the MSA's economy that would not have been there if this port had been located elsewhere. Consequently, the total impacts on the MSA's economy are quite large. According to the I/O tables, **the presence of the port in 2006 created (1) over $1.5 billion in sales at firms in the MSA, (2) $351.4 million in household earnings for MSA residents, and (3) 8,169 jobs for citizens of the MSA**. It is very important

to note that this is a very conservative estimate of the impact of the port, because the estimate is based on a sample of firms surveyed at the port. Had we received a complete census of responses from port tenants, our impact estimates would have been noticeably larger.

Table 18
Total Impact of Port Fourchon on the Houma MSA Economy in 2006

Category	Total Port Impact
Business Sales (millions)	**$1,501.0**
Household Earnings (millions)	**$351.4**
Jobs	**8,169**

Estimate of the Impact on Local Government Sales Tax Collections in 2006

It is possible to use the data in the middle row of Table 18 to generate a lower estimate of the local government sales taxes collected in Lafourche and Terrebonne governments in 2006 because of the presence of Port Fourchon. In 2005, total personal income for this two parish MSA was $5,175,679,000.[8] In that same year, local governments in the two parishes collected $130,755,954 in sales taxes. That is, for every dollar of income earned in these two parishes, local governments collected about 2.5 cents in sales tax collections ($130,755,954 divided by $5,175,679,000).

Note in Table 18 that we estimate activities at Port Fourchon in 2006 created $351.4 million in earnings. Multiplying that figure by 2.5 percent generates a lower estimate of **$12,053,899 in local sales taxes collected in 2006 due to the presence of Port Fourchon**. Note that we refer to this as a "lower" estimate. We know the sales impact number is higher because (1) our survey did not capture all the firms operating at the port so our earnings estimate of

[8] Ibid

$341.4 million is a lower bound, and (2) our estimates do not include the direct sales taxes paid by the companies at Port Fourchon when they purchased taxable materials and supplies.

Too, notice that the $12 million figure we estimate is for sales taxes only. These companies also pay property taxes, license fees and other taxes to local government that positively impact local budgets and are not included in our local government revenue estimates.

IV. Summary and Conclusions

Near the mouth of Bayou Lafourche in Lafourche Parish is the equivalent of a small city which is vital to the U.S. energy supply and to the Houma MSA economy. It is Port Fourchon. This port services about 90 percent of all deepwater rigs and platforms in the Gulf of Mexico and it is also the host for the Louisiana Offshore Oil Port (LOOP). We estimate that in 2006 about $63.4 billion worth of oil and natural gas was tied to this port via the LOOP and the offshore platforms the port helps to service.

The purpose of this report is two-fold. First, we estimate the impact on the U.S. economy of a temporary loss of the services of Port Fourchon. Secondly, we estimate the impact of this port on the Houma MSA economy.

Regarding the first task, we use a model developed by Richardson and Scott and the experience from Hurricanes Katrina and Rita to estimate the impact on the U.S. economy of a three-week loss in services from Port Fourchon due to damage from a hurricane, a terrorist attack, or some other destructive phenomenon. We conservatively estimate that a three-week loss in services from Port Fourchon would lead to:

- A loss of $9,994.7 million in sales at U.S. firms;
- A loss of $2,890.9 million in household earnings in the U.S., and;

- A loss of 77,440 jobs in the nation.

The longer it takes to restore activity at the port or the longer it takes to shift services to other ports along the coast, the greater these losses will be.

We used a survey of a sample of firms operating at the port in 2006 to generate a "lower bound" estimate of the impact of the port on the Houma MSA economy. This is "lower bound" estimate because we could not secure a 100 percent response rate by firms located at the port to our questionnaire. We did secure data from the largest players at the port, but still we were not able to include data from a non-trivial number of firms that did not respond. Based on the replies we did receive, we estimated the following impacts on the Houma MSA of both on-going activities and construction spending by our sample of firms:

- $1,501 million in business sales in the MSA are tied to the port;
- $351.4 million in household earnings of MSA residents can be traced back to the port;
- There are 8,169 jobs in the Houma MSA that are dependent on the presence of the port, and;
- At least $12,053,899 in sales taxes was collected by local governments in the MSA because of the presence of the port. This figure does not include direct sales taxes or any property taxes paid by these firms.

Though located on a relatively small piece of land, Port Fourchon plays a vital role in both the U.S. and Houma MSA economies.