# The Economic Impacts of Gulf of Mexico Oil and Natural Gas Vessel Transit Restrictions

Prepared By

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# Key Findings

The Gulf of Mexico offshore oil and natural gas industry plays a major role in domestic energy production, and is expected to continue for decades to come, despite the evolving energy landscape. The offshore oil and natural gas industry relies on a wide variety of supplies to explore for new resources, drill exploration and production wells, develop new projects, and to conduct production operations. These supplies vary greatly, from pipe, to chemicals, to drilling mud, food, fuel, and thousands of other commodities and pieces of equipment. Significantly restricting the movement of the vessels that transport these things is projected to have a major impact on the industry's ability to supply the necessary materials to conduct offshore oil and natural gas development. This reduction in activity is projected to lead to reduced industry spending, supported employment and GDP, government revenues, and oil and natural gas production. (Table 1)

**Table 1: Key Findings**

| | | Vessel Transit Restrictions Case Impacts | | |
|---|---|---|---|---|
| **Economic Impact** | **Base Case Average (2023-2040)** | **Maximum Year Impact** | **Average Impact (2023-2040)** | **Cumulative Impact (2023-2040)** |
| Capital Investment and Spending ($ Billions) | $29.0 | -$9.4 | -$4.1 | -$74.0 |
| Employment | 354,053 | -101,469 | -44,466 | N/A |
| Contributions to GDP ($ Billions) | $29.9 | -$8.7 | -$3.9 | -$70.9 |
| Government Revenues ($ Billions) | $7.3 | -$2.4 | -$1.6 | -$29.7 |
| Oil and Natural Gas Production (MMBOED) | 2.58 | -0.92 | -0.62 | -4.1 Billion Barrells of Oil Equivalent |

*Source: Energy and Industrial Advisory Partners*

# Executive Summary

## Introduction

As the economy continues to struggle with inflation, and with energy accounting for a material part of inflation, the continued need for domestic oil and natural gas production is clear. Offshore oil and natural gas production, which is a key part of domestic production, is also a significant source of employment, gross domestic product, and government revenues.

Following a lawsuit filed against the National Marine Fisheries Service (NMFS) relating to various marine species, NMFS entered into a settlement with the plaintiffs calling for the implementation of new restrictions applicable to the transit of oil and gas vessels between the 100 to 400 m isobath across the northern Gulf of Mexico on the Outer Continental Shelf (OCS), eastward from the Mexican border with Texas and westward of the Rice's Whale Core Area identified in the 2020 Biological Opinion (Expanded Rice's Whale Area).[1] If implemented, these restrictions would greatly reduce the ability of oil and gas vessels to transit through this area, which would include all vessels transiting to deepwater, drilling and production platforms. Transit through this area would essentially be halted during certain sea state conditions as well as at night. These restrictions only apply to oil and natural gas industry vessels and not to other vessels transiting the area.

These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

For the purposes of this report, two scenarios were developed, a scenario based on a continuation of current policies as it relates to vessel transit requirements for offshore oil and gas (the Base Case), and a scenario examining the potential impacts of implementation of the transit restrictions described above and the subsequent reduction in the availability of vessels used in the supply of offshore energy projects on these offshore energy activities. (The Vessel Transit Restrictions Case). To develop the Vessel Transit Restrictions Case, forecast demand for supply vessels based on historical activity and vessel demand was calculated. Using data from NMFS's "Opinion on the Federally Regulated Oil and Gas Program activities in the Gulf of Mexico" released in 2020, an estimate of the number of vessels trips and the length of these trips was calculated.[2] An estimate average length of the restricted area was then calculated, which was

[1] These restrictions are reflected in Notice to Lessees No. 2023-G-01, which this report assumes will be implemented under the "Vessel Transit Restrictions Case." Similar restrictions are also reflected in lease stipulations applicable to Lease Sale 261 (which have been preliminarily enjoined by a federal court).
[2] Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico, National Marine Fisheries Service

overlayed with data provided by Oceanweather Inc on visibility based on significant wave heights and visibility, and data on monthly sunrise and sunset times to estimate the share of a supply vessel's trip that would be restricted under the Vessel Transit Restrictions Case. These data were then utilized to estimate the reduction of the Gulf of Mexico oil and natural gas supply vessel capacity due to these restrictions. The report assumes that the supply vessel fleet (and thus its capacity would grow over time) will reduce the impact of the restrictions.

Energy and Industrial Advisory Partners (EIAP) was commissioned by The American Petroleum Institute (API) to develop a report forecasting activity levels, spending, oil, and natural gas production, supported employment, GDP, and Government Revenues in these scenarios. The scenarios developed in this report are based solely upon government and other publicly available data, Oceanweather Inc's analysis, and EIAP's expertise and analysis.

## The Economic Impacts of the Gulf of Mexico oil and natural gas industry

The Gulf of Mexico oil and natural gas industry supports significant national employment, gross domestic product, and state and Federal Government revenues. To quantify the potential effects of a change in offshore supply vessel availability, this study forecasted a Base Case activity level for U.S. offshore oil and natural gas activity to provide a basis of comparison with potential activity levels and economic impacts under the Vessel Transit Restrictions Case. The study forecasted key activity indicators, including the number of projects executed, oil and natural gas production, and spending based on projected activity levels. These activity and spending forecasts drive the projected employment, GDP, and government revenue forecasts presented in this report.

- In 2023, Gulf of Mexico oil and natural gas production is projected to be nearly 2.4 million barrels of oil equivalent per day. Oil and natural gas production from the Gulf of Mexico is projected to average just under 2.6 million barrels of oil equivalent per day over the 2023 to 2040 forecast period. In 2040 at the end of the forecast period, oil and natural gas production is projected to be slightly over 2.1 million barrels of oil equivalent per day.
- In 2023, Gulf of Mexico oil and natural gas industry spending is projected at around $33.9 billion. Gulf of Mexico offshore oil and natural gas industry spending is projected to average just over $28.9 billion per year over the 2023 to 2040 forecast period.
- In 2023, the offshore oil and natural gas industry is projected to support an estimated 412 thousand jobs in the United States, compared to just over 354 thousand jobs on average across the 2023-2040 forecast period.
- In 2023, the Gulf of Mexico offshore oil and natural gas industry is projected to support an estimated $34.3 billion of U.S. gross domestic product. The industry is projected to contribute an average of just over $29.6 billion of GDP per year over the 2023 to 2040 forecast period.

- In 2023, government revenues due to the Gulf of Mexico oil and natural gas industry are projected to reach nearly $6.1 billion. Government revenues derived from oil and natural gas activities in the Gulf of Mexico (excluding personal and corporate income taxes and property taxes) are projected to average just over $7.3 billion per year over the 2023 to 2040 forecast period.
- The Gulf of Mexico oil and natural gas producing states are projected to receive $375 million of revenues due to revenue sharing under GOMESA in 2023, which is consistent across the forecast period due to caps on state distributions. Contributions to the LWCF from GOMESA and non-GOMESA offshore sources are projected to just over $1.1 billion in 2023, which is consistent with the average across the 2023-2040 forecast period.

## Impact of Oil and Natural Gas Industry Vessel Restrictions

Restricting the ability of offshore oil and natural gas supply vessels to transit across the Expanded Rice's Whales Area would likely drastically reduce the capacity of the vessels required to support exploration, development, and production of offshore oil and natural gas projects. This change would likely have a severely negative immediate impact on Gulf of Mexico oil and natural gas development, spending, supported employment and GDP, and government revenues. The Vessel Transit Restrictions Case compares activity levels (project executions, spending, oil, and natural gas production), economic impacts, and government revenues to the Base Case scenario. This study assumes that no other major policy or regulatory changes impacting the Gulf of Mexico oil and natural gas industry would be enacted.

- In the Vessel Transit Restrictions Case, average combined oil and natural gas production across the forecast period is projected to decline from around 2.6 million barrels of oil equivalent per day on average to just under 2 million barrels of oil equivalent per day (about a 24 percent decline).
- In the Vessel Transit Restrictions Case, Gulf of Mexico oil and natural gas industry spending is projected to decline to just over $24.8 billion on average compared to just over $28.9 billion in the Base Case, a 14 percent reduction. In 2024, spending is projected to be reduced by approximately $ 6.8 billion, a 19 percent reduction.
- In the Vessel Transit Restrictions Case, average employment supported by the Gulf of Mexico oil and natural gas industry is projected to decline to just under 310 thousand jobs nationally compared to about 354 thousand jobs each year in the Base Case, a 13 percent decline. In the Vessel Transit Restrictions Case, average yearly contributions to GDP by the Gulf of Mexico oil and natural gas industry are projected at just over $25.9 billion, around a 13 percent reduction compared to around $29.9 billion in the Base Case.
- In the Vessel Transit Restrictions Case, government revenues due to the Gulf of Mexico oil and natural gas industry are projected to average around $5.7 billion annually, a 22 percent reduction from the over $7.4 billion per year projected in the Base Case.

- Contributions to the Land and Water Conservation Fund (LWCF) are projected to average around $1.09 billion per year in the Vessel Transit Restrictions Case, compared to just above $1.13 billion per year in the base case over the forecast period.

## Study Limitations

Given the large degree of volatility and uncertainty in energy markets and the global economy, the assumptions and forecasts contained in this report are based on reasonable readings of conditions when this report was developed. Uncertainty around commodity pricing and global economic conditions may significantly affect the forecast contained in this report. EIAP makes no representations as to the impacts of the potential policy environment addressed in this report. These and other policies could impose significantly greater engineering, operational, cost, and other burdens on the energy industry and regulators. The report's projections of the effects of this potential scenario on engineering, operations, and costs are an independent, good faith view derived from reasonable assumptions based on these potential scenarios and the authors' expertise and experience. Energy and Industrial Advisory Partners provided this independent study while expressly disclaiming any warranty, liability, or responsibility for the completeness, accuracy, use, or fitness to any person or party for any reason.

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# Introduction

## Purpose of the Report

As the economy continues to struggle with inflation, and with energy accounting for a material part of inflation, the continued need for domestic oil and natural gas production is clear. Offshore oil and natural gas production, which is a key part of domestic production, is also a significant source of employment, gross domestic product, and government revenues.

Following a lawsuit filed against the National Marine Fisheries Service (NMFS) relating to various marine species, NMFS entered into a settlement with the plaintiffs calling for the implementation of new restrictions applicable to the transit of oil and gas vessels between the 100 to 400 m isobath across the northern Gulf of Mexico on the Outer Continental Shelf (OCS), eastward from the Mexican border with Texas and westward of the Rice's Whale Core Area identified in the 2020 Biological Opinion (Expanded Rice's Whale Area).[3] If implemented, these restrictions would greatly reduce the ability of oil and gas vessels to transit through this area, which would include all vessels transiting to deepwater, drilling and production platforms. Transit through this area would essentially be halted during certain sea state conditions as well as at night. These restrictions only apply to oil and natural gas industry vessels and not to other vessels transiting the area.

These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

For the purposes of this report, two scenarios were developed, a scenario based on a continuation of current policies as it relates to vessel transit requirements for offshore oil and gas (the Base Case), and a scenario examining the potential impacts of implementation of the transit restrictions described above and the subsequent reduction in the availability of vessels used in the supply of offshore energy projects on these offshore energy activities. (The Vessel Transit Restrictions Case). To develop the Vessel Transit Restrictions Case, forecast demand for supply vessels based on historical activity and vessel demand was calculated. Using data from NMFS's "Opinion on the Federally Regulated Oil and Gas Program activities in the Gulf of Mexico" released in 2020, an estimate of the number of vessels trips and the length of these

[3] These restrictions are reflected in Notice to Lessees No. 2023-G-01, which this report assumes will be implemented under the "Vessel Transit Restrictions Case." Similar restrictions are also reflected in lease stipulations applicable to Lease Sale 261 (which have been preliminarily enjoined by a federal court).

trips was calculated.[4] An estimate average length of the restricted area was then calculated, which was overlayed with data provided by Oceanweather Inc on visibility based on significant wave heights and visibility, and data on monthly sunrise and sunset times to estimate the share of a supply vessel's trip that would be restricted under the Vessel Transit Restrictions Case. These data were then utilized to estimate the reduction of the Gulf of Mexico oil and natural gas supply vessel capacity due to these restrictions. The report assumes that the supply vessel fleet (and thus its capacity would grow over time) will reduce the impact of the restrictions.

Energy and Industrial Advisory Partners (EIAP) was commissioned by The American Petroleum Institute (API) to develop a report forecasting activity levels, spending, oil, and natural gas production, supported employment, GDP, and Government Revenues in these scenarios. The scenarios developed in this report are based solely upon government and other publicly available data, Oceanweather Inc's analysis, and EIAP's expertise and analysis.

## Report Structure

In this report, EIAP first outlines the study's methodology, including data development, the limitations of this study, and how the two scenarios in this report were developed. The following section discusses activity levels and the economic impacts of the Gulf of Mexico oil and natural gas industry. The next section outlines the potential impacts of the second scenario developed for the report, the Vessel Transit Restrictions Case on the Gulf of Mexico oil and natural gas industry and its economic impacts. The final section concludes. The study also includes appendices including a more detailed explanation of the report's methodology and data tables of the report's findings.

## Excluded from Study

This paper has been limited in scope to assessing the potential impacts of the two scenarios developed for the report. Additional changes to regulations or policies outside of the changes assessed in this report would likely have a more significant effect than the impacts laid out in this report. The study also excludes potential domestic supply chain reductions due to reduced activity levels which could lead to reductions in the domestic economic impacts of the Gulf of Mexico oil and natural gas industry by, for example, reducing the growth of local content used in oil and natural gas industry. The impacts projected in this report would likely be more significant if these potential supply chain changes were included. This study also does not attempt to calculate the effects of these changes on the downstream oil and natural gas industry, or subsequent impacts on other industries (for example, due to reduced energy production) other than the impacts directly due to reduced activity in the Gulf of Mexico oil and natural gas sector.

Additionally, the projected government revenue impacts do not account for personal income taxes, corporate income taxes, or local property taxes. Due to the exclusion of these impacts, the economic

[4] Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico, National Marine Fisheries Service

impacts presented in this study likely represent conservative projections of the potential impacts of the scenarios developed. Additionally, the impacts presented could be imprecise by as much as 10% or more due to the impacts of the studied scenarios and other factors.

## About EIAP

Energy & Industrial Advisory Partners (EIAP) was founded to provide companies and their management teams, investors, and industry associations across the energy and industrial markets with economic and strategic consulting and M&A advisory services from seasoned advisors with significant industry experience. EIAP is a specialist M&A advisory and consulting firm that utilizes its deep industry experience and rigorous analytical methodologies to help stakeholders gain the insights they require to make more informed, data-driven decisions. For more information, please visit **eiapartners.com**

# Methodology

## Data Development

As part of the development of this report, a detailed review of the potential impacts of the transit restrictions described above for offshore oil and naturals gas vessels was conducted. This study is in no way exhaustive, especially considering the uncertainty around how the Gulf of Mexico oil and natural gas industry would respond to vessel transit restrictions. This report focuses on the potential operational effects of the proposed transit restrictions based on a reasonable reading of these proposals and considers the potential operational changes offshore energy companies and their suppliers could undertake to minimize the effects of these changes on their operations. As such, this analysis is inherently forward-looking and subject to significant changes based on the potential development and implementation of these policy changes by regulators such as the Bureau of Ocean Energy Management, the National Oceanic and Atmospheric Administration and the Coast Guard.

## Limitations

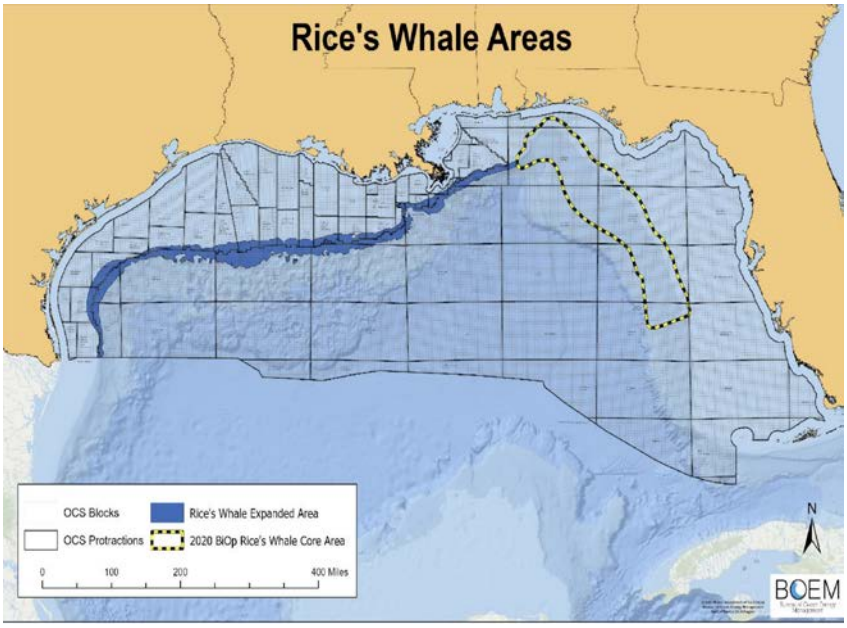
Given the large degree of volatility and uncertainty in energy markets and the global economy, the assumptions and forecasts contained in this report are based on reasonable readings of conditions when this report was developed. Uncertainty around commodity pricing and global economic conditions may significantly affect the forecast contained in this report. EIAP makes no representations as to the impacts of the potential policy environment addressed in this report. These and other policies could impose significantly greater engineering, operational, cost, and other burdens on the energy industry and regulators. The report's projections of the effects of this potential scenario on engineering, operations, and costs are an independent, good faith view derived from reasonable assumptions based on these potential scenarios and the authors' expertise and experience. Energy and Industrial Advisory Partners

provided this independent study while expressly disclaiming any warranty, liability, or responsibility for the completeness, accuracy, use, or fitness to any person or party for any reason.

## Offshore Energy Vessels Transit Restrictions

Following a lawsuit filed against the National Marine Fisheries Service (NMFS) relating to various marine species, NMFS entered into a settlement with the plaintiffs calling for the implementation of new restrictions applicable to the transit of oil and gas vessels between the 100 to 400 m isobath across the northern Gulf of Mexico on the Outer Continental Shelf (OCS), eastward from the Mexican border with Texas and westward of the Rice's Whale Core Area identified in the 2020 Biological Opinion (Expanded Rice's Whale Area).[5] If implemented, these restrictions would greatly reduce the ability of oil and gas vessels to transit through this area, which would include all vessels transiting to deepwater, drilling and production platforms. Transit through this area would essentially be halted during certain sea state conditions as well as at night. These restrictions only apply to oil and natural gas industry vessels and not to other vessels transiting the area. (Figure 1)

**Figure 1: Rice's Whale Areas**




*Source: Bureau of Ocean Energy Management*

These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given

[5] These restrictions are reflected in Notice to Lessees No. 2023-G-01, which this report assumes will be implemented under the "Vessel Transit Restrictions Case." Similar restrictions are also reflected in lease stipulations applicable to Lease Sale 261 (which have been preliminarily enjoined by a federal court).

the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

The primary purpose of this report is to estimate the impact that restricting transit of offshore oil and gas vessels would have on vessel capacity availability and the subsequent impacts reduced vessel capacity would have on Gulf of Mexico exploration, project development and operations, and the impact reduced activity levels would be projected to have on the economy.

A large variety of vessels are required to support offshore oil and natural gas exploration, development, and operations. These vessels range from seismic vessels (which identify potential oil and natural gas deposits) and drilling rigs to a variety of installation vessels (such as pipe and cable lay vessels, heavy lifts vessels, and multipurpose support vessels). These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

Given that the transit restrictions primarily impact vessel transiting to deepwater areas from ports, the largest potential impact of the restrictions are expected to be on supply vessels, which ferry supplies from shore to deepwater drilling rigs, platforms, and other vessels. The number of active vessels in the Gulf of Mexico and the projected needs for these vessels, as well as miles traveled, and number of trips was estimated to form the basis of this report's analysis. (Table 2)

**Table 2: Historical Gulf of Mexico Supply Vessel Active Fleet, Trips, and Miles Traveled Estimates[6]**

| Vessel Trips | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Service Vessels | 580 | 597 | 580 | 564 | 537 | 575 |
| Service Vessel Trips | 81,394 | 83,779 | 81,394 | 79,148 | 75,359 | 80,692 |
| Service Vessel Miles | 5,879,017 | 6,051,333 | 5,879,017 | 5,716,837 | 5,443,158 | 5,828,335 |

*Source: EIAP, National Marine Fisheries Service, BOEM, Army Corps of Engineers*

For the purposes of this report, two scenarios were developed, a scenario based on a continuation of current policies as it relates to vessel transit requirements for offshore oil and gas (the Base Case), and a scenario examining the potential impacts of implementation of the transit restrictions described above and the subsequent reduction in the availability of vessels used in the supply of offshore energy projects on these offshore energy activities (The Vessel Transit Restrictions Case). To develop the Vessel Transit Restrictions Case, forecast demand for supply vessels based on historical activity and vessel demand was

[6] The oil and gas industry's share of total vessel traffic based on Bureau of Ocean Energy Management and Army Corps of Engineers Data as presented in the "National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinion", March 13th, 2020, Page 338 is between 9.23 and 19.28 percent.

calculated. Using data from the National Marine Fisheries Service's "Opinion on the Federally Regulated Oil and Gas Program activities in the Gulf of Mexico" released in 2020, an estimate of the number of vessels trips and the length of these trips was calculated.[7] An estimate average length of the restricted area was then calculated, which was overlayed with data provided by Oceanweather Inc on visibility based on significant wave heights and visibility, and data on monthly sunrise and sunset times to estimate the share of a supply vessel's trip which would be restricted by the proposed settlement. This data was then utilized to estimate the reduction of the Gulf of Mexico oil and natural gas supply vessel capacity due to the longer trip times for supply vessels due to these restrictions. The report assumes that the supply vessel fleet will grow (and thus its capacity would grow over time) reducing the impact of the proposed restrictions. (Table 3)

**Table 3: Estimate of the Initial Impact of Vessel Transit Restrictions**

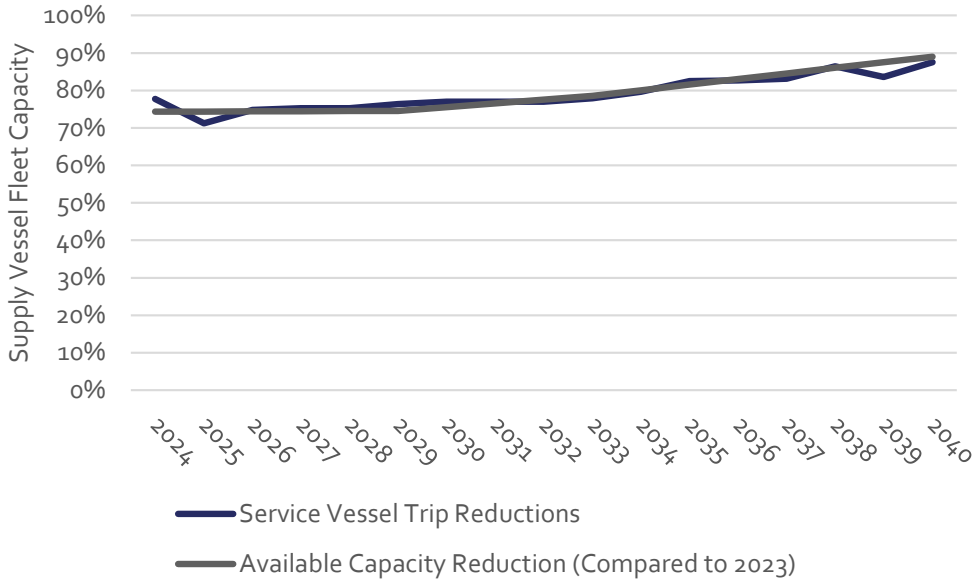
| Input | Output |
|---|---|
| Estimated Length of Area (Miles) | 25 |
| Annual Supply Vessel Trips | 83,020 |
| Total KM Travelled | 9,461,363 |
| Total Miles Travelled | 5,879,017 |
| Average Trip Length | 71 |
| Rice Whale Area Share of Trip | 35.3% |
| Average Share of Time Outside Weather/Daylight Window | 72.7% |
| Estimated Transit Time Increase | 25.7% |

*Source: Energy and Industrial Advisory Partners*

The study assumes that the Gulf of Mexico offshore oil and natural gas industry will take actions over time to reduce the impact of the vessel transit restrictions, by for example ordering additional vessels. These reductions are expected to require time and thus be gradual due to restrictions on domestic shipbuilding capacity, port capacity, and available US mariners. (Figure 2)

[7] Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico, National Marine Fisheries Service

**Figure 2: Estimate of Reductions in Supply Capacity Overtime**




*Source: Energy and Industrial Advisory Partners*

As the available fleet of supply vessels increases, the vessel transit restrictions impact on offshore oil and naturals gas activity are expected to decline. As such, reductions in spending, employment, GDP, oil and natural gas production and government revenues will also decline. However, lagging indicators such as production and government revenues are projected to continue to be materially below base case levels for most of the forecast period.

## Scenario Development

The study's data development was undertaken by developing a model that accounts for all major parts of the offshore oil and natural gas exploration and production lifecycle. The major sections of the offshore oil and natural gas model are: an Activity Model that assesses near term project activity, OCS reserves and production; and the likely project development and drilling activity necessary to meet production targets; a spending model derived from the activities required to develop and operate offshore oil and natural gas projects and reasonable assumptions around the spending levels typically associated with these activities; a government revenue model which uses forecast production levels and other relevant forecasts (leasing, block rentals, etc.), forecast commodity pricing, historical data on actual government revenues and distributions and governmental polices to forecast potential government revenues; and an economic model which utilizes the projected spending and government revenue levels, as well as assumptions about the nature of spending and its geographic distribution to forecast associated economic activity including employment and gross domestic product.

The Base Case model for offshore oil and natural gas was initially developed based on forecast production and pricing levels based on the Energy Information Administration's (EIA) Annual Energy Outlook (AEO)

2023[8] for long-term prices and the EIA's Short-Term Energy Outlook[9] for the near term (2023 and 2024) prices. The Base Case does not consider any potential impacts of the current proposed five- year Leasing Program if the leasing schedule varied from assumptions in AEO 2023. Modifications to near-term pricing and production levels were made based on current market conditions. Although these forecasts were utilized to develop the Base Case model, due to differences in modeling techniques, especially the project-based model developed in this report, the report's forecast production levels vary modestly from those provided in the EIA's forecasts.

Following the creation of the Base Case forecast, the potential effects of the additional scenario (reduced supply vessels capacity due to transit restrictions for Gulf of Mexico oil and natural gas vessels, the "Vessel Transit Restrictions Case") was considered. Amongst other factors, how this scenario would impact new project development of both underway and future projects and existing producing projects were examined. Given the projected reduced carrying capacity of the Gulf of Mexico oil and natural gas industry supply fleet, activity levels were reduced to align supply vessel requirements with the projected available supply vessel fleet. Existing producing platforms were given priority for supply vessels due to typically lower production cost of these projects (as capital spending has already taken place), thus the primary impact is projected on new well drilling and capital projects. As the carrying capacity of the fleet grows due to projected new building of vessels, the impacts on project development and drilling (as well as spending, employment, and GDP) are projected to decline over time.

# Gulf of Mexico Oil and Natural Gas Economic Impacts

The Gulf of Mexico oil and natural gas industry supports significant employment, gross domestic product, and state and federal government revenues. To quantify the potential effects on offshore oil and natural gas vessel transit restrictions, this study developed a Base Case activity level for Gulf of Mexico oil and natural gas activity to compare activity levels and subsequent impacts of the transit restrictions described above. The study forecasted key activity indicators, including the number of wells drilled, projects executed, oil and natural gas production, and spending based on projected activity levels. These activity and spending forecasts drive the projected employment, GDP, and government revenue forecasts presented in this report.

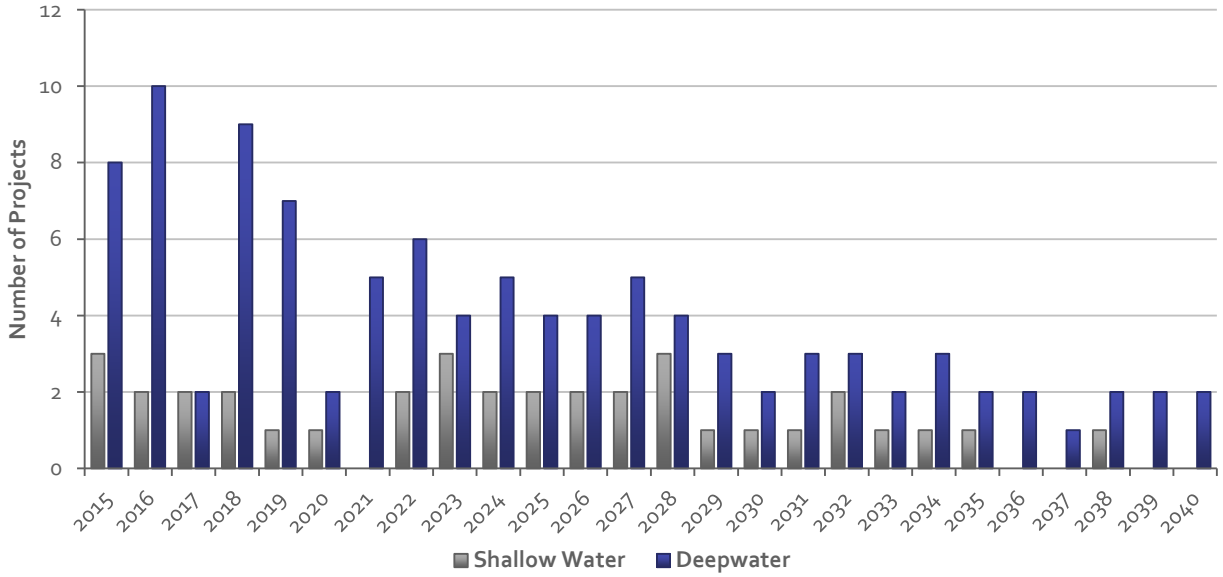
## Projects

The development of new Gulf of Mexico oil and natural gas projects is the primary source of industry capital spending, supports national employment and GDP, and is one of the key drivers of Gulf of Mexico oil and natural gas production. In the Base Case, project development is projected to remain steady over

[8] Annual Energy Outlook 2023, Energy Information Administration
[9] Short Term Energy Outlook, August 8th, 2023, Energy Information Administration

the near term, before slowly declining, in line with the EIA's projection of falling oil and natural gas production from the Gulf of Mexico. (Figure 3)

**Figure 3: Projected Base Case Guld of Mexico Offshore Oil and Natural Gas Project Startups by Year**




*Source: Energy and Industrial Advisory Partners*

# Production

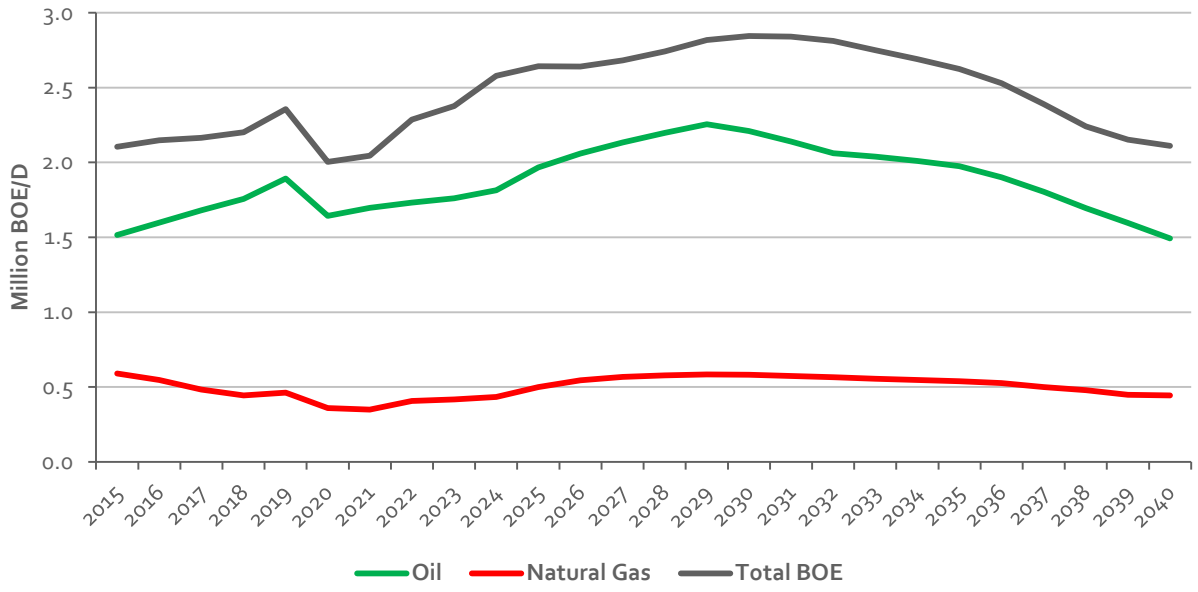
The decline rate of existing producing wells and new project developments are the main determinants of Gulf of Mexico oil and natural gas production. Production is influenced by several factors, including reservoir productivity, oil, and natural gas production ratios, well counts, and operational choices by operators. To prepare the production forecast, the Energy Information Administration's (EIA) production forecasts from the "Annual Energy Outlook 2023"[10]and the EIA's Short Term Energy Outlook[11] were utilized as the primary indicator of forecast production levels. The Base Case production forecast was developed to be relatively in line with the EIA's long-term forecast. The production forecast in this report differs from this forecast due to the project-based methodology used to develop forecasts for the report. To develop the production forecast for this report, project developments (in addition to the existing production base) were modeled utilizing indicators such as the water depth of the project, the number of projected producing wells, projected per well production levels, assumptions on peak production years, and decline rate assumptions.

This study forecasts that combined Gulf of Mexico oil and natural gas production in 2023 will be nearly 2.4 million barrels of oil equivalent per day, with oil and other liquids accounting for around 74 percent of production and natural gas accounting for 26 percent of production. On average, across the 2023-2040

[10] Annual Energy Outlook 2023, Energy Information Administration
[11] Short Term Energy Outlook, August 8th, 2023, Energy Information Administration

forecast period oil and natural gas production is projected at just under 2.6 million barrels of oil equivalent per day. At the end of the forecast period in 2040, the Gulf of Mexico is projected to produce just over 2.1 million barrels of oil equivalent per day. (Figure 4)

**Figure 4: Projected Base Case Gulf of Mexico oil and natural gas Production (BOE/D)**



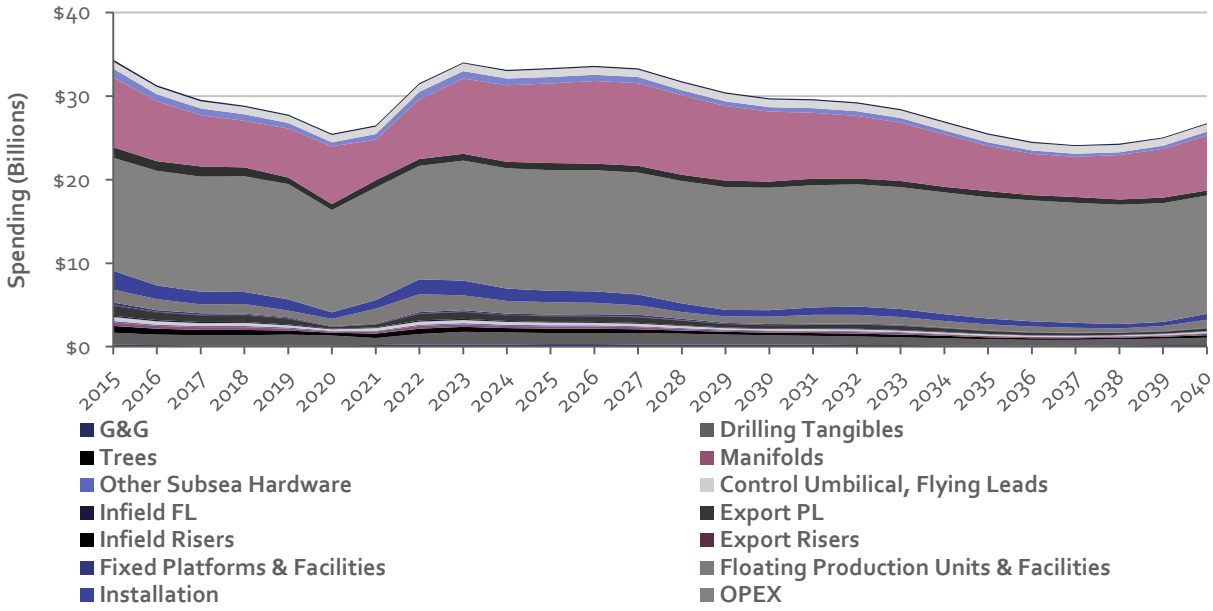

*Source: Energy and Industrial Advisory Partners*

# Spending

Offshore oil and natural gas exploration, development, and operations require significant capital and operational investment. Investment spans activities including geological and geophysical surveys, drilling, engineering, surface and subsea production equipment procurement, installation, operational expenditures, and decommissioning. For this study, spending was modeled in 19 categories, encompassing the full range of activities required to identify, explore for, develop, operate, and decommission offshore oil and natural gas projects.

In the Base Case scenario developed for this report, offshore oil and natural gas spending is projected at around $33.9 billion in 2023. Across the 2023-2040 forecast period, spending is projected to average just over $28.9 billion. (Figure 5)

**Figure 5: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Spending**

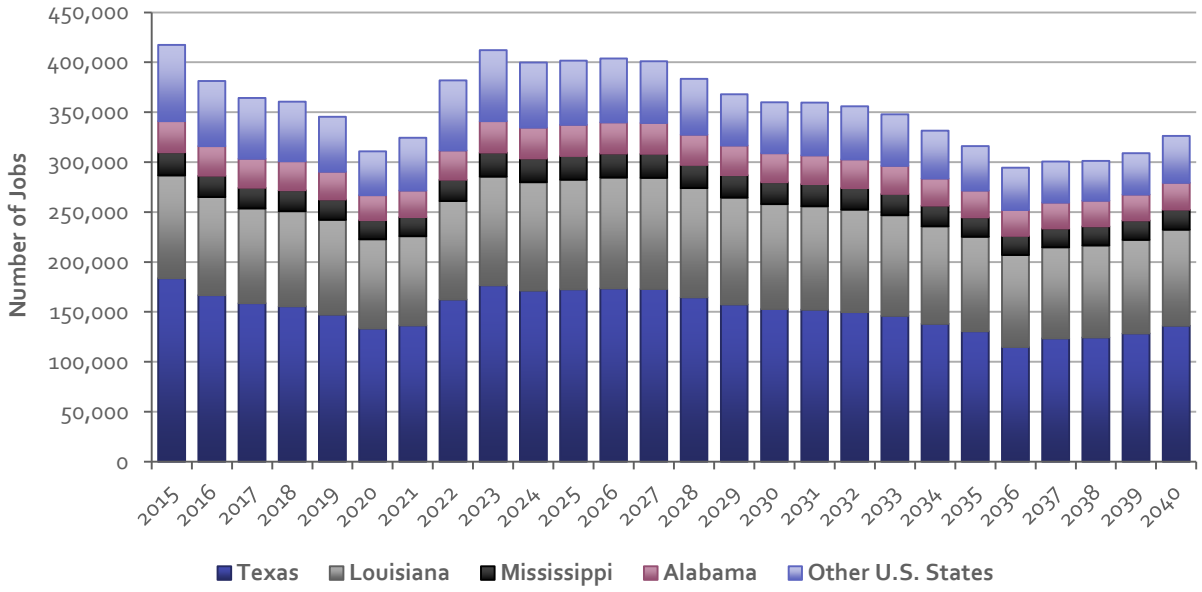



*Source: Energy and Industrial Advisory Partners*

# Employment

The Gulf of Mexico offshore oil and natural gas industry has supported significant levels of employment in the U.S. for decades. While the most significant employment impacts of the industry take place in the Gulf Coast states, almost, if not all, states see employment supported due to the Gulf of Mexico offshore oil and natural gas industry. The Gulf of Mexico offshore oil and natural gas industry directly supports many highly paid jobs, especially blue-collar jobs. The industry also supports significant employment through the industry's supply chain (indirect jobs) and due to increased spending by workers (induced jobs). In 2023, an estimated 412 thousand jobs are projected to be supported by Gulf of Mexico offshore oil and natural gas industry activity. From 2023 to 2040, an average of around 354 thousand jobs are projected to be supported by the Gulf of Mexico offshore oil and natural gas industry. (Figure 6)

**Figure 6: Projected Base Case Gulf of Mexico Oil and Natural Gas Supported Employment**

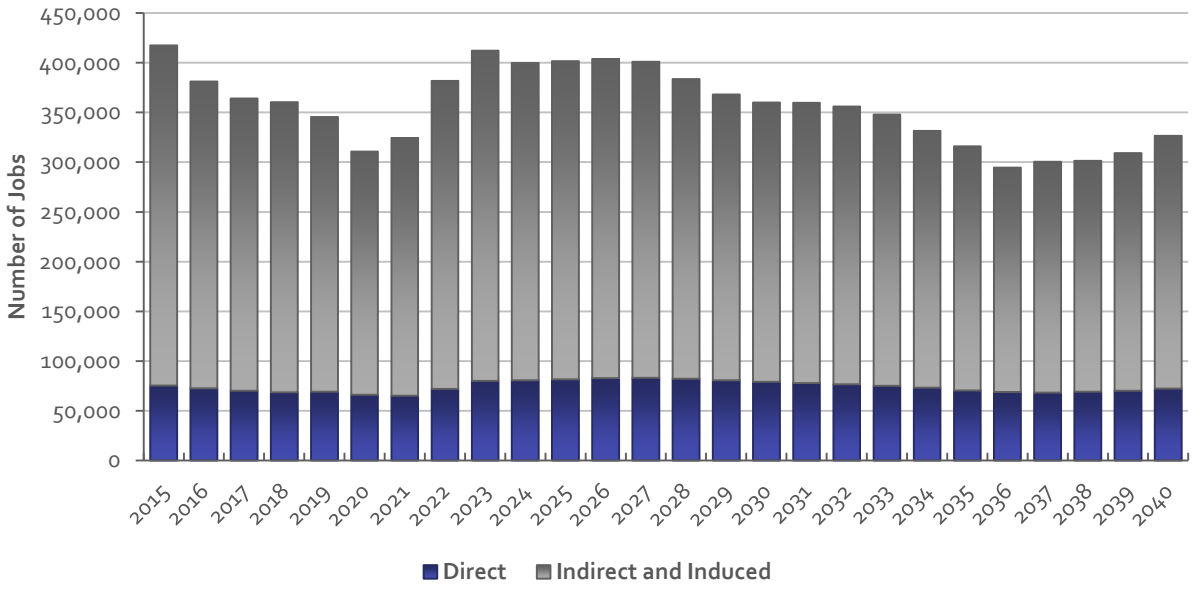



*Source: Energy and Industrial Advisory Partners*

The most significant employment impacts are projected to be in the Gulf Coast states. An average of about 149 thousand jobs were projected to be supported in Texas across the 2023-2040 forecast period, with just above 101 thousand jobs supported in Louisiana, over 28 thousand jobs supported in Alabama, just over 21 thousand jobs supported in Mississippi, and over 52 thousand jobs supported in other U.S. states.

The Gulf of Mexico offshore oil and natural gas industry supports employment through direct employment by the industry, indirectly through its suppliers and through induced employment due to increased worker spending. Indirect employment occurs through the industry's purchases of goods and services, while induced employment is due to the impact of higher income in the economy. Direct employment by oil and natural gas companies and their suppliers due to Gulf of Mexico oil and natural gas industry activity in 2023 is projected to be just under 80 thousand jobs. Across the 2023 to 2040 forecast period, direct employment is projected to average just over 76 thousand jobs yearly. Indirect and induced employment due to the Gulf of Mexico oil and natural gas industry is projected to be around 332 thousand jobs in 2023. Across the 2023 to 2040 forecast period, supported indirect and induced employment is projected to average just under 278 thousand jobs each year. (Figure 7)

**Figure 7: Projected Base Case Gulf of Mexico Oil and Natural Gas Direct vs. Indirect and Induced Supported Employment**

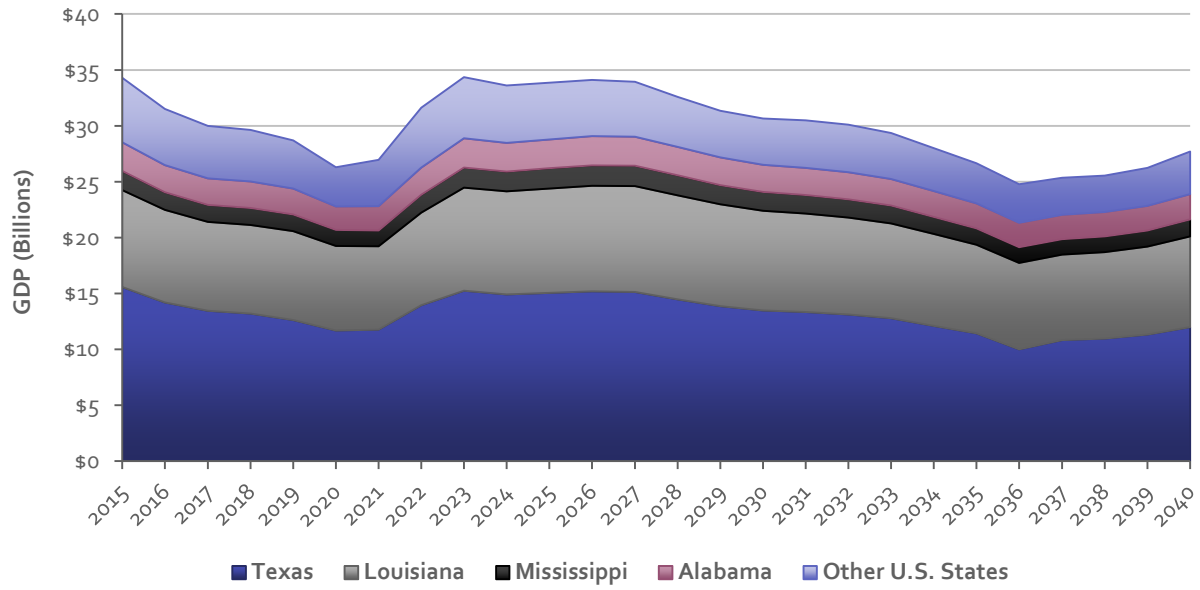



*Source: Energy and Industrial Advisory Partners*

# GDP

Gulf of Mexico oil and natural gas industry activity supports significant levels of gross domestic product nationally. In 2023, the industry is projected to support just under $34.4 billion of U.S. GDP. Over the forecast period from 2023 to 2040, contributions to GDP are projected to average just over $29.9 billion per year. (Figure 8)

**Figure 8: Projected Base Case Gulf of Mexico Oil and Natural Gas Contributions to GDP**




*Source: Energy and Industrial Advisory Partners*

## Government Revenues

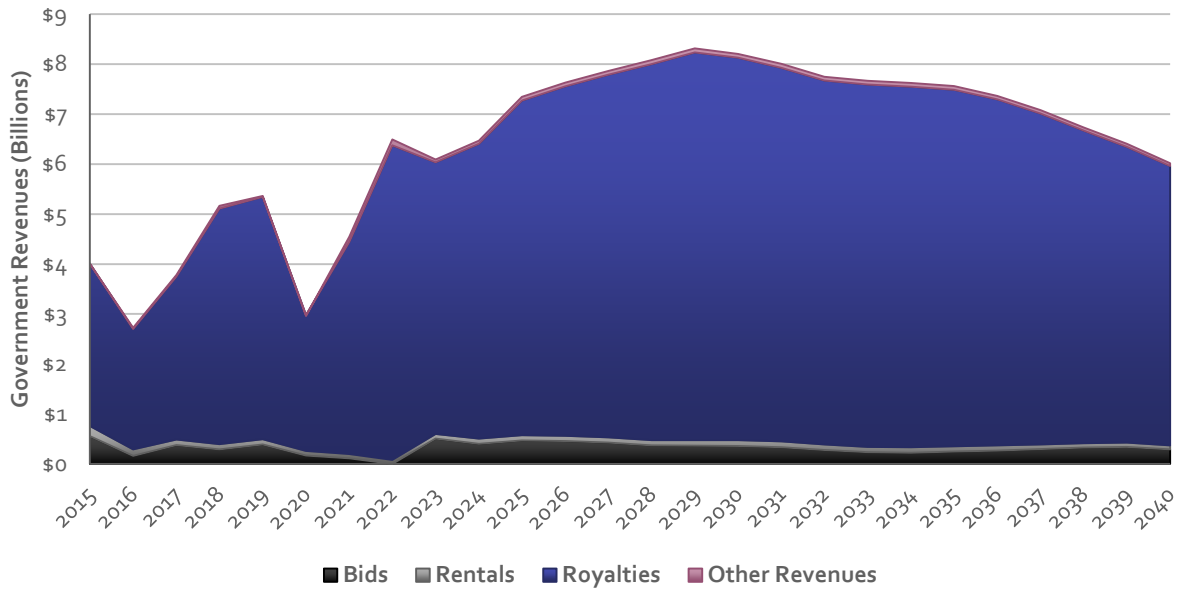
Gulf of Mexico offshore oil and natural gas activity's contributions to government revenues are primarily derived from three main revenue streams; royalties paid on produced oil and natural gas, bonus bids paid to acquire blocks in lease sales, and rents paid for blocks leased by operators. Several policies impact royalties and lease payments received by the Federal Government, including royalty relief for certain blocks depending on production rates, differing rent, and royalty regimes for fields in different water depths, and blocks leased at different times. Additionally, the value of oil and natural gas produced in the Gulf of Mexico differs from commonly published indicators such as West Texas Intermediate (WTI) crude due to transportation costs, long-term sales contracts, and differentials due to product quality and location. To calculate government revenues due to offshore oil and natural gas activities, data from the Office of Natural Resource Revenue[12] (ONRR) as well as oil and natural gas price projections from the Energy Information Administration's Annual Energy Outlook 2023[13] and Short-Term Energy Outlook[14] were utilized as the basis of the forecast. Data on disbursements to states are available as fiscal year data, so for the purposes of this report, fiscal year data was utilized as a stand-in for calendar year data.

In 2023, government revenues due to Gulf of Mexico oil and natural gas activities are projected to reach nearly $6.1 billion. On average, across the 2023 to 2040 forecast period, government revenues due to Gulf of Mexico oil and natural gas activities (excluding personal and corporate income taxes and property taxes) are projected to average just over $7.3 billion annually. The largest source of government revenues

[12] Natural Resources Revenue Data, Office of Natural Resource Revenue, U.S. Department of the Interior
[13] Annual Energy Outlook 2023, Energy Information Administration
[14] Short Term Energy Outlook, August 8th, 2023, Energy Information Administration

from Gulf of Mexico offshore oil and natural gas activities is from royalties paid on produced oil and natural gas. Across the 2023 to 2040 forecast period, average royalty revenues are projected at over $6.8 billion per year. Bid revenues are projected to average about $342 million per year across the forecast period, rental revenues are projected to average just below $103 million per year, and other revenues are projected to average nearly $70 million per year. (Figure 9)

**Figure 9: Projected Base Case Gulf of Mexico Oil and Natural Gas Government Revenues by Type[15]**

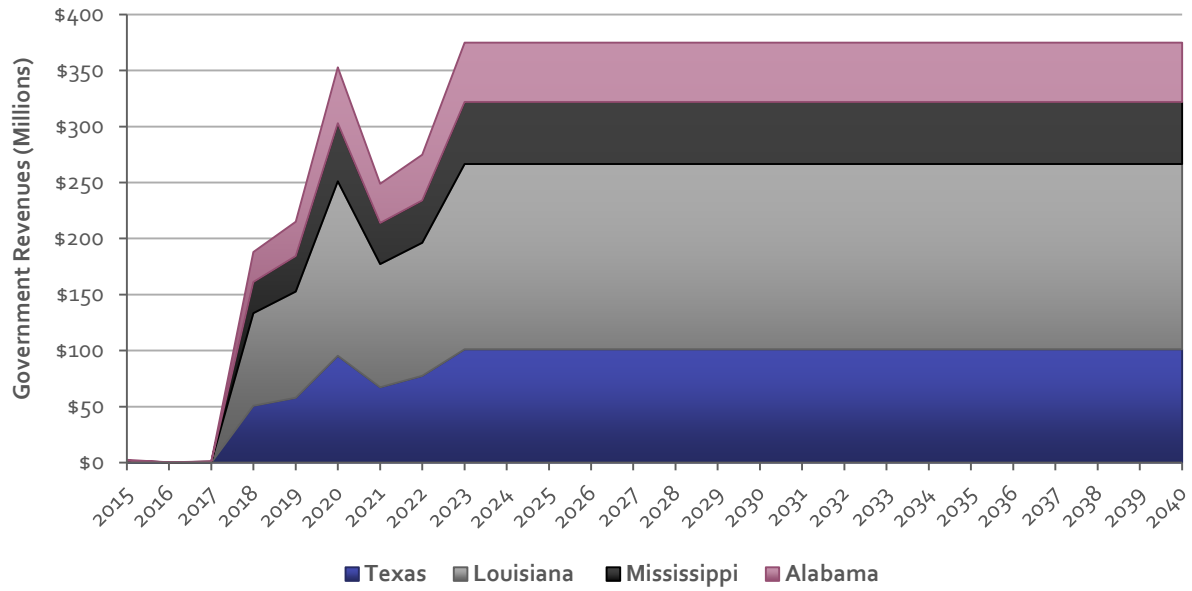



*Source: Energy and Industrial Advisory Partners*

Congress passed the OCS Energy Security Act (GOMESA) in 2006, which created revenue-sharing provisions for the four Gulf oil and natural gas producing states (Louisiana, Texas, Mississippi, and Alabama) and their coastal political subdivisions. Revenue sharing was enacted in two phases beginning in 2007 and 2017, respectively, with revenue sharing caps of $375 million for fiscal years 2017–2019, $487.5 million for fiscal years 2020 and 2021, and $375 million for fiscal years 2022–2055. Total projected Federal Government revenues, actual fiscal year distribution data from the ONRR, and analysis of the growth of revenue sharing and the revenue sharing caps were utilized to develop the revenue sharing forecasts in this report. In 2023, the Gulf of Mexico oil and natural gas producing states are projected to receive around $375 million due to revenue sharing, with revenue projected to remain flat throughout the forecast period due to the revenue sharing cap. (Figure 10)

[15] No bid revenue was received in 2022 as no Gulf of Mexico lease sales were held that year. Lease sale 259 was held on March 29, 2023.

**Figure 10: Projected Base Case Gulf of Mexico Oil and Natural Gas Government Revenues by State**




*Source: Energy and Industrial Advisory Partners*

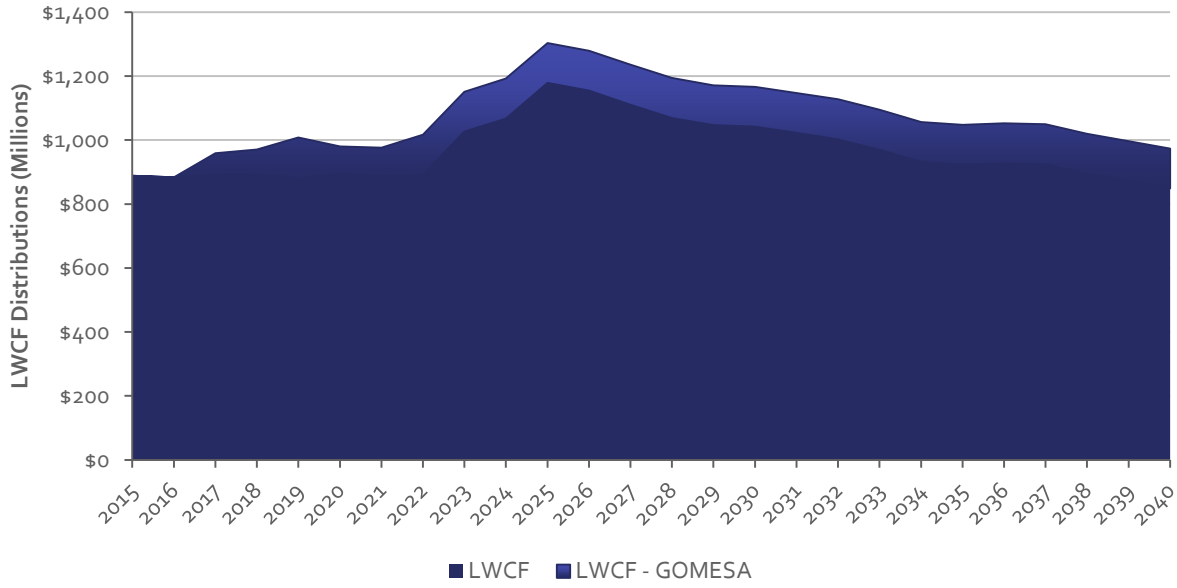
Based on historical distributions, this study projects that Louisiana will see the largest annual distributions due to GOMESA, with distributions averaging around $165million over the 2023-2040 forecast period. Texas is projected to receive the second-highest average distributions, at over $101million per year. Mississippi and Alabama are projected to receive distributions that average around $55 and $53 million annually.

In addition to provisions for revenue sharing with the OCS producing States, GOMESA also included a provision for distributions to the Land and Water Conservation Fund (LWCF). The LWCF "Supports the protection of federal public lands and waters – including national parks, forests, wildlife refuges, and recreation areas – and voluntary conservation on private land. LWCF investments secure public access, improve recreational opportunities, and preserve ecosystem benefits for local communities."[16] In addition to funding from GOMESA, the LWCF also receives significant additional funding due to offshore oil and natural gas activities.

GOMESA distributions to the LWCF are capped at $125 million per year as part of a total cap with state distributions of $500 million. This study projects that distributions to the LWCF due to GOMESA revenue sharing will remain at or around the $125 million cap level for the 2023-2040 forecast period. Non-GOMESA LWCF contributions are projected to average just over $1 billion per year. (Figure 11)

[16] Land and Water Conservation Fund, U.S. Department of the Interior

**Figure 11: Projected Base Case LWCF Distributions**




*Source: Energy and Industrial Advisory Partners*

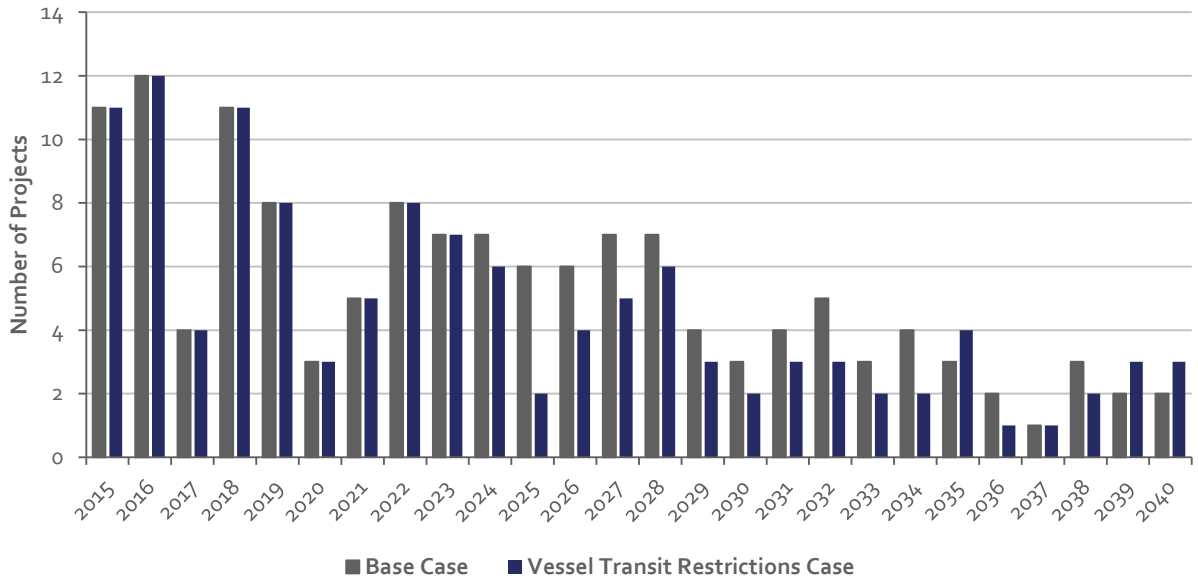
# Vessel Transit Restrictions Case Impacts

A reduction in the available capacity to transport equipment and goods to drilling rigs, projects under development, and production platforms would likely have an immediate, long-lasting, negative impact on Gulf of Mexico oil and natural gas project development, spending, supported employment and GDP, and government revenues. For the purposes of this report, a "Vessel Transit Restrictions Case" was developed to compare activity levels (project executions, spending, oil, and natural gas production), economic impacts, and government revenues to the Base Case Scenario. This scenario assumes that beginning in 2024, the transit restrictions on oil and gas vessels in the Proposed Lease Sale 261 Stipulation Language are implemented. This scenario also assumes no other major policy or regulatory changes impacting the Gulf of Mexico oil and natural gas industry would be enacted.

## Projects

Development of new offshore oil and natural gas projects in the Gulf of Mexico is a key indicator for capital and operational spending, supported employment, oil and natural gas production, and government revenues due to Gulf of Mexico offshore oil and natural gas activity. Under the Vessel Transit Restrictions Case, project development activity is projected to be reduced as soon as 2024, as the vessel capacity to support drilling rigs and construction vessels required for project development are immediately reduced. Over the 2023-2040 forecast period, new project startups are projected to decline by 22 percent, from 76 to 59. (Figure 12)

**Figure 12: Projected Base Case vs. Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Project Startups by Year**



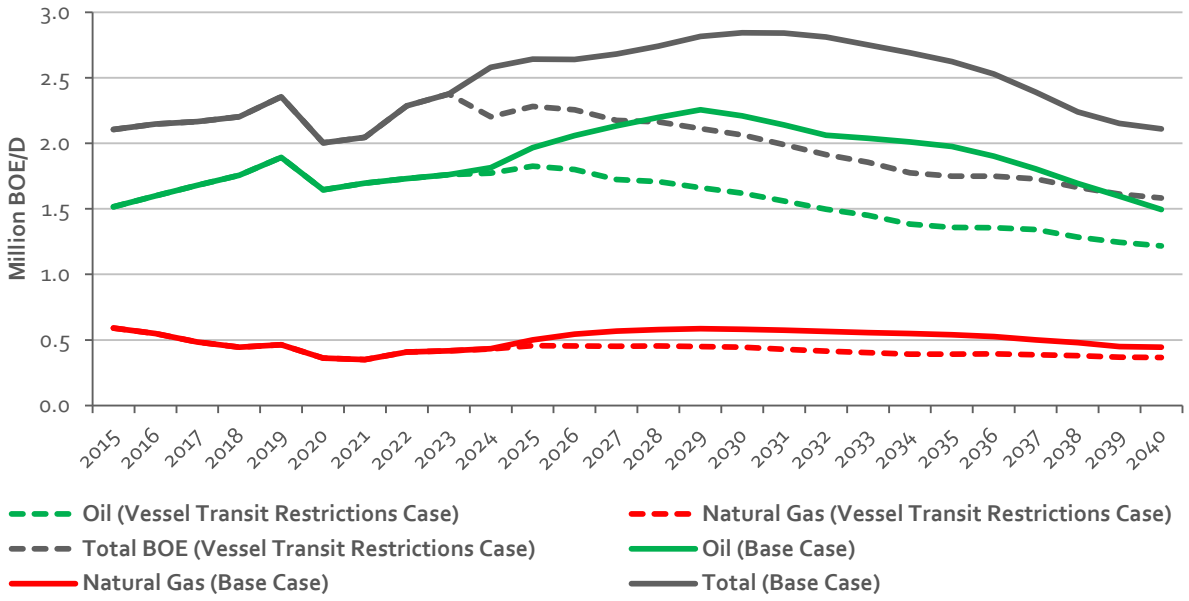

*Source: Energy and Industrial Advisory Partners*

# Production

To develop the production forecasts for this report, project development, in addition to the existing production base was modeled utilizing key indicators such as the water depth of a project, the projected number of producing wells, per well production estimates, and assumptions on peak production years, and decline rates. The Vessel Transit Restrictions Case modeled the impact of reduced and delayed project development due to the proposed vessel restrictions on production.

The average production from 2023 to 2040 in the Base Case is around 2.6 million barrels of oil equivalent per day. The average production in the Vessel Transit Restrictions Case over the same time period is slightly around 2.0 million barrels of oil equivalent per day, a 24 percent reduction. In 2040, production is projected to be just under 1.6 million barrels of oil equivalent per day lower than the base case, around a 25 percent reduction. (Figure 13)

**Figure 13: Projected Base Case vs. Vessel Transit Restrictions Case Gulf of Mexico oil and natural gas Production (BOE/D)**

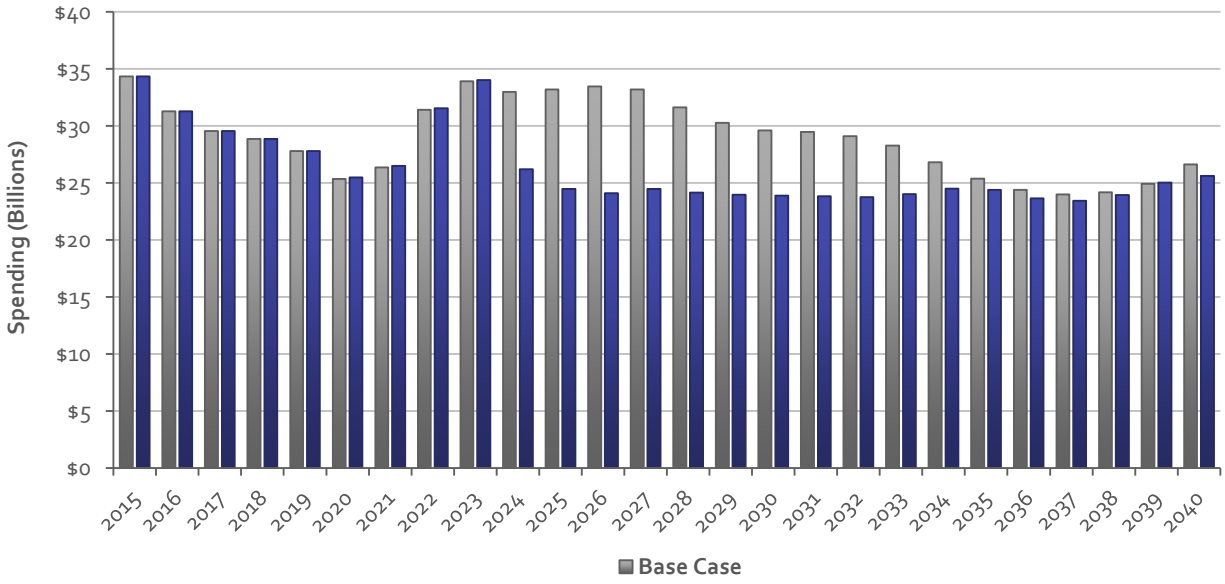



*Source: Energy and Industrial Advisory Partners*

# Spending

In the Vessel Transit Restrictions Case, spending is projected at just under $24.9 billion per year on average from 2023-2040, a 14 percent reduction from the just over $28.9 billion in the Base Case (Figure 14)

**Figure 14: Projected Base Case vs. Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Spending**



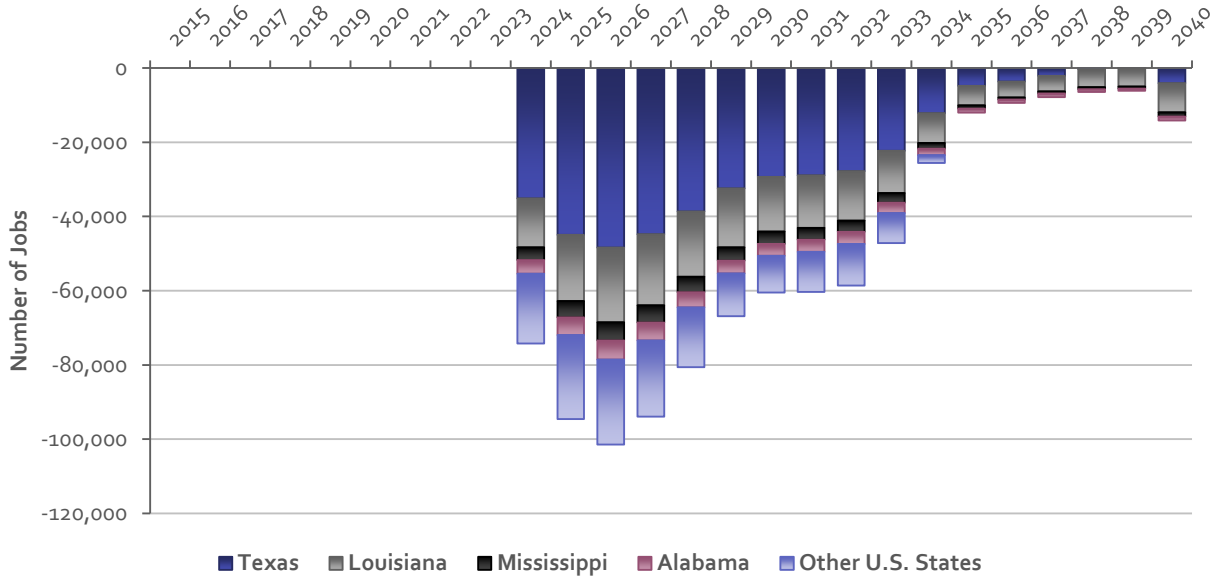

*Source: Energy and Industrial Advisory Partners*

# Employment

In the Base Case, during the 2023 to 2040 forecast period, this study project average annual employment of around 354 thousand nationally will be supported by Gulf of Mexico oil and natural gas activity. In the Vessel Transit Restrictions Case, average employment is projected to decline to just under 310 thousand jobs supported annually (a 13 percent reduction).

In the Vessel Transit Restrictions Case, Texas' average annual supported employment across the forecast period is projected to decline from just above 149 thousand jobs to just over 128 thousand jobs (a 14 percent decline. Louisiana's average supported employment is projected at just over 91 thousand jobs in the Vessel Transit Restrictions Case, compared to about 102 thousand jobs in the Base Case, an 11 percent reduction. Alabama is projected to see average annual supported employment decline from over 28 thousand jobs to about 26 thousand jobs, a 9 percent decline. Mississippi is projected to see average annual supported employment decline from about 21 thousand jobs to slightly over 19 thousand jobs, an 11 percent decline. The rest of the U.S. is projected to see average annual supported employment decline from over 52 thousand jobs to just over 45 thousand jobs, a 14 percent decline. (Figure 15)

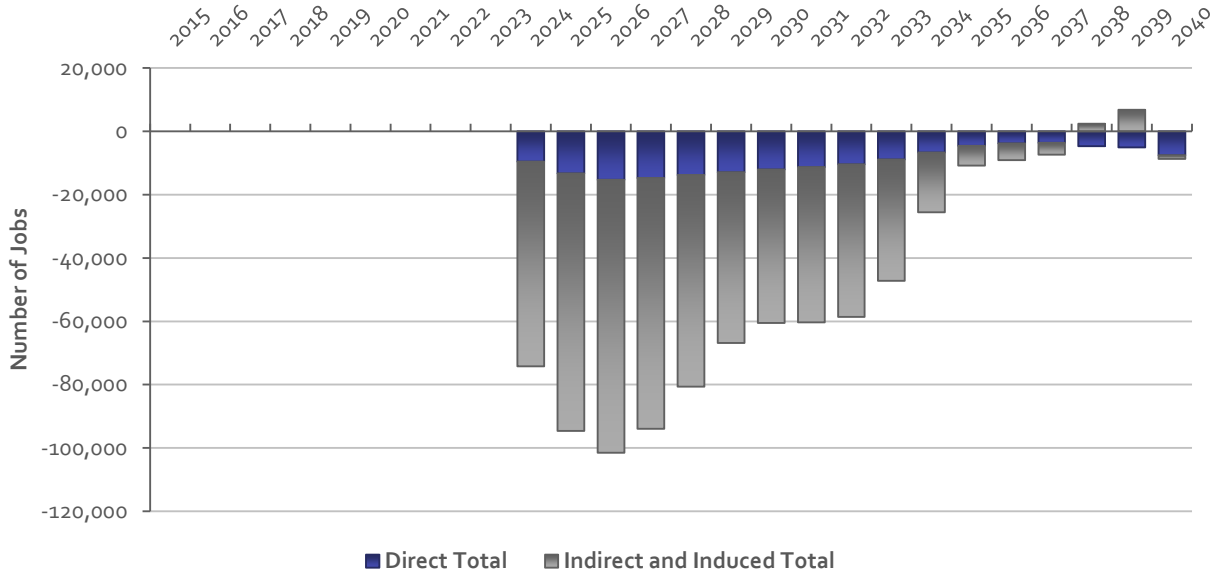
**Figure 15: Projected Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Supported Employment Reductions**




*Source: Energy and Industrial Advisory Partners*

The Gulf of Mexico oil and natural gas industry supports employment through direct employment by the industry, indirect employment by its suppliers, and induced employment due to increased spending by workers. Across the 2023 to 2040 forecast period, direct employment is projected to average around 76 thousand jobs each year in the Base Case. In the Vessel Transit Restrictions Case, average direct employment across the forecast period is projected at just under 68 thousand jobs, a slightly below 11 percent decrease. Across the 2023 to 2040 forecast period, supported indirect and induced employment in the Vessel Transit Restrictions Case is projected at around 242 thousand jobs on average, compared to around 278 thousand jobs in the Base Case, a nearly 13 percent decline. (Figure 16)

**Figure 16: Projected Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Direct and Indirect and Induced Supported Employment Reductions**

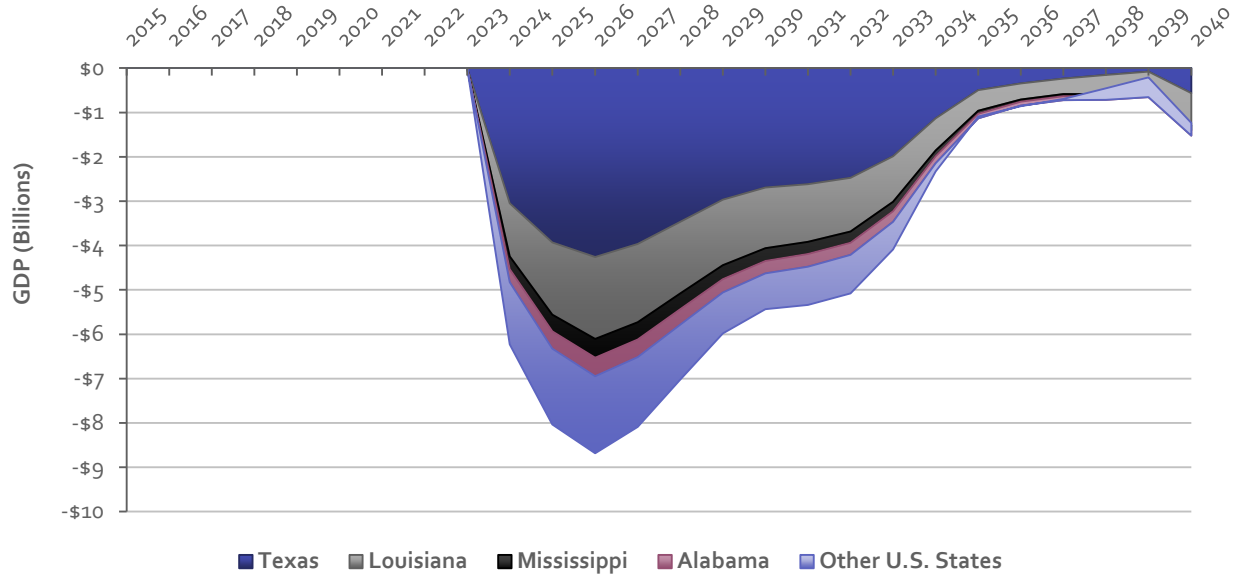



*Source: Energy and Industrial Advisory Partners*

# GDP

The Gulf of Mexico oil and natural gas industry supports significant gross domestic product (GDP) levels in the Gulf Coast states' economies and the national economy through its spending. On average, the Gulf of Mexico offshore oil and natural gas industry is projected to contribute just over $ 29.9 billion to the national GDP annually over the forecast period in the Base Case. In the Vessel Transit Restrictions Case, annual contributions to GDP are projected to average over $25.9 billion, and around 13 percent reduction. (Figure 17)

**Figure 17: Projected Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Contributions to GDP Reductions**



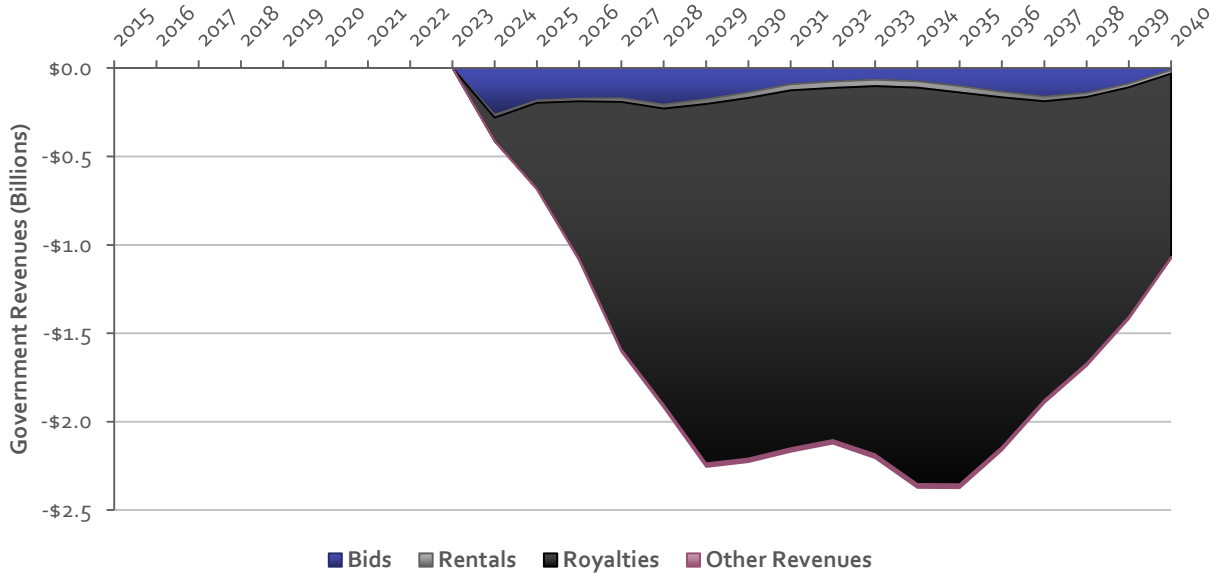

*Source: Energy and Industrial Advisory Partners*

# Government Revenues

In the Base Case developed for this report, average annual government revenues across the 2023 to 2040 forecast period due to Gulf of Mexico offshore oil and natural gas activities (excluding personal and corporate income taxes and property taxes) are projected at over $7.3 billion per year. In the Vessel Transit Restrictions Case, revenues are projected at an average of around $ 5.7 billion annually, a 22 percent reduction.

Across the 2023 to 2040 forecast period, average royalty revenues are projected to be reduced from slightly over $6.8 billion in the Base Case to just over $5.3 billion per year in the Vessel Transit Restrictions Case, a 22 percent reduction. Bid revenues are projected to decline from an average of about $342 million per year in the Base Case to just below $216 million per year in the Vessel Transit Restrictions Case, a 37 percent reduction. Rental revenues are projected to decline from around $102 million per year on average in the Base Case to just above $78 million, a 24 percent reduction. Other revenues are projected to decline to around $54 million per year on average in the Vessel Transit Restrictions Case compared to just over $69 million, a 22 percent reduction from the Base Case. (Figure 18)

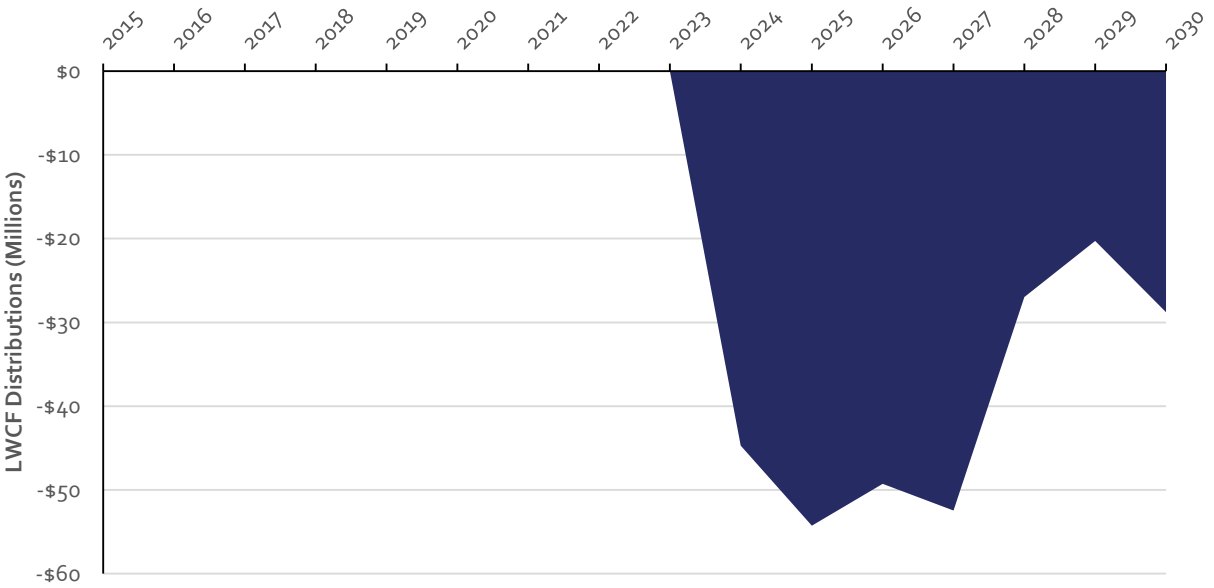
**Figure 18: Projected Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural Gas Government Revenue Reductions by Type**




*Source: Energy and Industrial Advisory Partners*

In the Vessel Transit Restrictions Case, distributions to states due to GOMESA are projected to be relatively in line with distributions in the Base Case due to the cap on distributions to states. If this cap were removed or increased, distributions to states would likely be reduced. Distributions to the LWCF due to GOMESA are also projected to be relatively in line with those in the Base Case. Non-GOMESA distributions to the LWCF due to offshore activities are projected to average just over $963 million compared to around $1 billion in the Base Case, a 4 percent reduction. (Figure 19)

**Figure 19: Projected Vessel Transit Restrictions Case LWCF Distribution Reductions**




*Source: Energy and Industrial Advisory Partners*

# Conclusions

The Gulf of Mexico offshore oil and natural gas industry plays a major role in domestic energy production, and is expected to continue for decades to come, despite the evolving energy landscape. The offshore oil and natural gas industry relies on a wide variety of supplies to explore for new resources, drill exploration and production wells, develop new projects, and to conduct production operations. These supplies very greatly, from pipe, to chemicals, to drilling mud, food, fuel, and thousands of other commodities and pieces of equipment. Significantly restricting the movement of the vessels that transport these things is projected to have a major impact on the industry's ability to supply the necessary materials to conduct offshore oil and natural gas development. This reduction in activity is projected to lead to reduced industry spending, supported employment and GDP, government revenues, and oil and natural gas production. (Table 4)

**Table 4: Key Findings**

| | | Vessel Transit Restrictions Case Impacts | | |
|---|---|---|---|---|
| Economic Impact | Base Case Average (2023-2040) | Maximum Year Impact | Average Impact (2023-2040) | Cumulative Impact (2023-2040) |
| Capital Investment and Spending ($ Billions) | $29.0 | -$9.4 | -$4.1 | -$74.0 |
| Employment | 354,053 | -101,469 | -44,466 | N/A |
| Contributions to GDP ($ Billions) | $29.9 | -$8.7 | -$3.9 | -$70.9 |
| Government Revenues ($ Billions) | $7.3 | -$2.4 | -$1.6 | -$29.7 |
| Oil and Natural Gas Production (MMBOED) | 2.58 | -0.92 | -0.62 | -4.1 Billion Barrells |

*Source: Energy and Industrial Advisory Partners*

# Appendices

## Methodology

### Overall Methodology

As part of the development of this report, a detailed review of the potential impacts of a change to offshore energy construction vessel crewing requirements was to take place was conducted. This study is not exhaustive, especially considering the uncertainty around how the Gulf of Mexico oil and natural gas industry would respond to these changes and a subsequent reduction in offshore energy vessel availability. This report focuses on the potential operational effects of these changes based on a reasonable reading of these proposals and considers the potential operational changes energy companies could undertake to minimize the effects of these changes on their operations. As such, this analysis is inherently forward-looking and subject to significant changes based on the potential development and implementation of policy changes by Congress, the executive branch, and regulators such as the Department of Homeland Security and the Coast Guard.

### Scenario Development

The study's data development was undertaken by first developing a model that accounts for all major parts of the offshore oil and natural gas exploration and production lifecycle. The major sections of the offshore oil and natural gas model are: an Activity Model that assesses near term project activity, OCS reserves and production; and the likely project development and drilling activity necessary to meet production targets; a spending model derived from the activities required to develop and operate offshore oil and natural gas projects and reasonable assumptions around the spending levels typically associated with these activities; a government revenue model which uses forecast production levels and other relevant forecasts (leasing, block rentals, etc.), forecast commodity pricing, historical data on actual government revenues and distributions and governmental policies to forecast potential government revenues; and an Economic Model which utilizes the projected spending and government revenue levels, as well as assumptions about the nature of spending and its geographic distribution to forecast associated supported economic activity including employment and gross domestic product.

The Base Case model for offshore oil and natural gas was initially developed based on forecast production and pricing levels based on the Energy Information Administration's (EIA) Annual Energy Outlook 2023[17] for long-term prices and the EIA's Short-Term Energy Outlook[18] for the near term (2023 and 2024) prices. However, modifications to near-term pricing and production levels were made based on current market conditions. Although these forecasts were utilized to develop the Base Case model, due to differences in

[17] Annual Energy Outlook 2023, Energy Information Administration
[18] Short Term Energy Outlook, August 8th, 2023, Energy Information Administration

modeling techniques, especially the project-based model developed in this report, the report's forecast production levels vary from those provided in the EIA's forecasts.

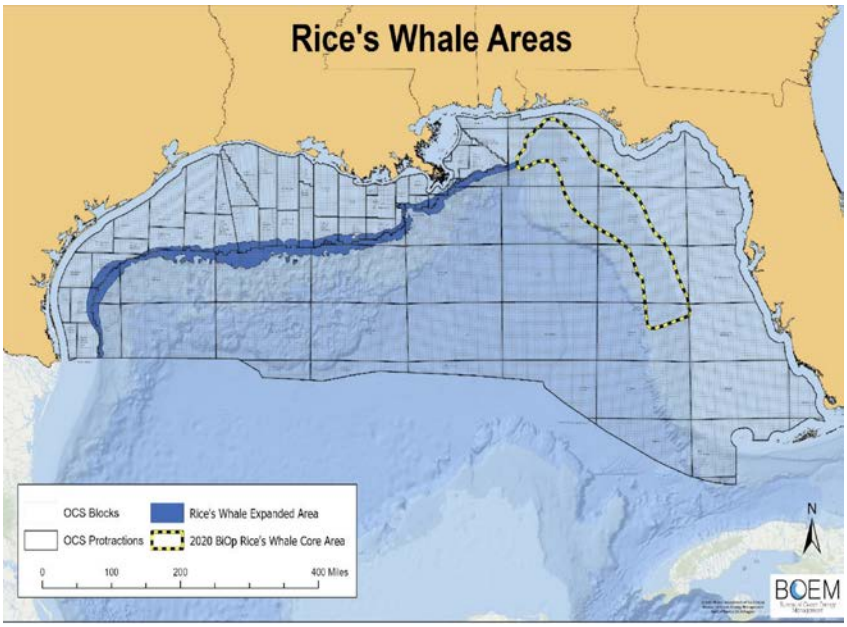
Following the creation of the Base Case forecast, the potential effects of the additional scenario (reduced vessel availability due to attempted changes in crewing requirements for offshore energy vessels, the "Vessel Transit Restrictions Case") was considered. Amongst other factors, how this scenario would impact new project development of both underway and future projects and existing producing projects were examined.

## Offshore Energy Vessels Transit Restrictions

Following a lawsuit filed against the National Marine Fisheries Service (NMFS) relating to various marine species, NMFS entered into a settlement with the plaintiffs calling for the implementation of new restrictions applicable to the transit of oil and gas vessels between the 100 to 400 m isobath across the northern Gulf of Mexico on the Outer Continental Shelf (OCS), eastward from the Mexican border with Texas and westward of the Rice's Whale Core Area identified in the 2020 Biological Opinion (Expanded Rice's Whale Area).[19] If implemented, these restrictions would greatly reduce the ability of oil and gas vessels to transit through this area, which would include all vessels transiting to deepwater, drilling and production platforms. Transit through this area would essentially be halted during certain sea state conditions as well as at night. These restrictions only apply to oil and natural gas industry vessels and not to other vessels transiting the area. (Figure 20)

[19] These restrictions are reflected in Notice to Lessees No. 2023-G-01, which this report assumes will be implemented under the "Vessel Transit Restrictions Case." Similar restrictions are also reflected in lease stipulations applicable to Lease Sale 261 (which have been preliminarily enjoined by a federal court).

**Figure 20: Rice's Whale Areas**




*Source: Bureau of Ocean Energy Management*

These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

The primary purpose of this report is to estimate the impact that restricting transit of offshore oil and gas vessels would have on vessel capacity availability and the subsequent impacts reduced vessel capacity would have on Gulf of Mexico exploration, project development and operations, and the impact reduced activity levels would be projected to have on the economy.

A large variety of vessels are required to support offshore oil and natural gas exploration, development, and operations. These vessels range from seismic vessels (which identify potential oil and natural gas deposits) and drilling rigs to a variety of installation vessels (such as pipe and cable lay vessels, heavy lifts vessels, and multipurpose support vessels). These transit restrictions would essentially reduce the capacity of the existing offshore oil and gas supply fleet, as the journey between shore and platforms would be extended. This reduction in transport capacity would reduce the ability to support exploration, drilling, development, and production operations, reducing the industry's ability to explore for, develop and produce oil and natural gas. Given the Jones Act requirement that vessels transporting equipment from US ports to offshore be Jones Act compliant (US built, flagged, and crewed), overcoming these restrictions would take a significant amount of time, as well as putting strain on Gulf Coast ports, and the limited pool of US mariners.

Given that the transit restrictions primarily impact vessel transiting to deepwater areas from ports, the largest potential impact of the restrictions are expected to be on supply vessels, which ferry supplies from shore to deepwater drilling rigs, platforms, and other vessels. The number of active vessels in the Gulf of Mexico and the projected needs for these vessels, as well as miles traveled, and number of trips was estimated to form the basis of this report's analysis. (Table 5)

**Table 5: Historical Gulf of Mexico Supply Vessel Active Fleet, Trips, and Miles Traveled Estimates[20]**

| Vessel Trips | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Service Vessels | 580 | 597 | 580 | 564 | 537 | 575 |
| Service Vessel Trips | 81,394 | 83,779 | 81,394 | 79,148 | 75,359 | 80,692 |
| Service Vessel Miles | 5,879,017 | 6,051,333 | 5,879,017 | 5,716,837 | 5,443,158 | 5,828,335 |

*Source: EIAP, National Marine Fisheries Service, BOEM, Army Corps of Engineers*

For the purposes of this report, two scenarios were developed, a scenario based on a continuation of current policies as it relates to vessel transit requirements for offshore oil and gas (the Base Case), and a scenario examining the potential impacts of implementation of the transit restrictions described above and the subsequent reduction in the availability of vessels used in the supply of offshore energy projects on these offshore energy activities (The Vessel Transit Restrictions Case). To develop the Vessel Transit Restrictions Case, forecast demand for supply vessels based on historical activity and vessel demand was calculated. Using data from the National Marine Fisheries Service's "Opinion on the Federally Regulated Oil and Gas Program activities in the Gulf of Mexico" released in 2020, an estimate of the number of vessels trips and the length of these trips was calculated.[21] An estimate average length of the restricted area was then calculated, which was overlayed with data provided by Oceanweather Inc on visibility based on significant wave heights and visibility, and data on monthly sunrise and sunset times to estimate the share of a supply vessel's trip which would be restricted by the proposed settlement. This data was then utilized to estimate the reduction of the Gulf of Mexico oil and natural gas supply vessel capacity due to the longer trip times for supply vessels due to these restrictions. The report assumes that the supply vessel fleet will grow (and thus its capacity would grow over time) reducing the impact of the proposed restrictions. (Table 6)

[20] The oil and gas industry's share of total vessel traffic based on Bureau of Ocean Energy Management and Army Corps of Engineers Data as presented in the "National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinion", March 13th, 2020, Page 338 is between 9.23 and 19.28 percent.

[21] Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico, National Marine Fisheries Service

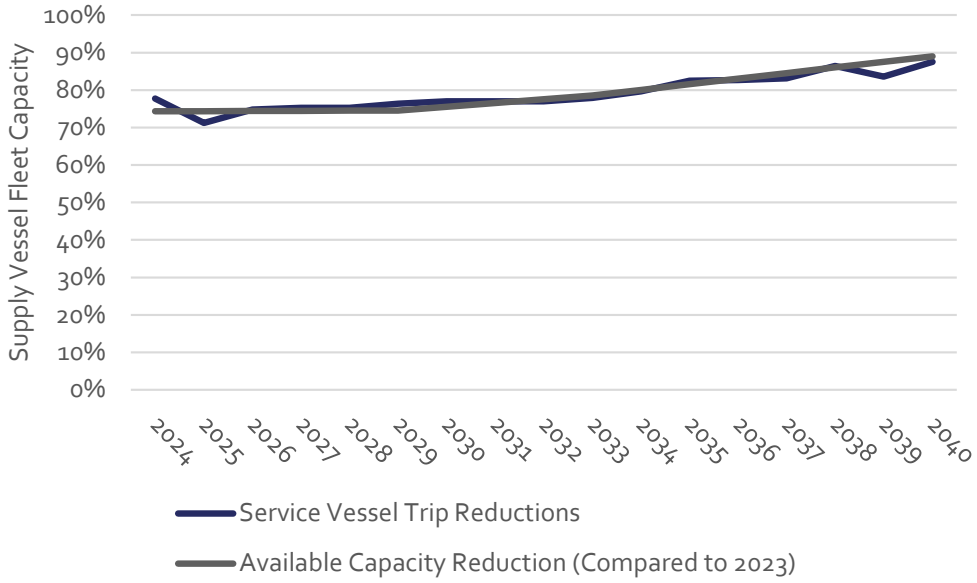
**Table 6: Estimate of the Initial Impact of Vessel Transit Restrictions**

| Input | Output |
|---|---|
| Estimated Length of Area (Miles) | 25 |
| Annual Supply Vessel Trips | 83,020 |
| Total KM Travelled | 9,461,363 |
| Total Miles Travelled | 5,879,017 |
| Average Trip Length | 71 |
| Rice Whale Area Share of Trip | 35.3% |
| Average Share of Time Outside Weather/Daylight Window | 72.7% |
| Estimated Transit Time Increase | 25.7% |

*Source: Energy and Industrial Advisory Partners*

The study assumes that the Gulf of Mexico offshore oil and natural gas industry will take actions over time to reduce the impact of the vessel transit restrictions, by for example ordering additional vessels. These reductions are expected to require time and thus be gradual due to restrictions on domestic shipbuilding capacity, port capacity, and available US mariners. (Figure 21)

**Figure 21: Estimate of Reductions in Supply Capacity Overtime**




*Source: Energy and Industrial Advisory Partners*

As the available fleet of supply vessels increases, the vessel transit restrictions impact on offshore oil and naturals gas activity are expected to decline. As such, reductions in spending, employment, GDP, oil and natural gas production and government revenues will also decline. However, lagging indicators such as production and government revenues are projected to continue to be materially below base case levels for most of the forecast period.

## Project and Activity Methodology

When developing this study to forecast activity levels, near-term and longer-term projects not currently under development were considered. Near-term project activity forecasts are based on actual projects operators have stated development plans for or, in some cases, reasonable forecasts for other potential projects when no development decisions have taken place. For long-term activity, project forecasts are based primarily on projected production levels, with project development activity to meet projected production forecasts.

For the Vessel Transit Restrictions Case, the project and activity forecasts presented in the Base Case were used as a baseline for activity levels. For each case, a reasonable reading of this potential scenario's impacts on activity levels was then developed based on the forecast included in this report for offshore energy vessel availability.

## Spending Methodology

The spending analysis developed for this report attempts to account for the totality of capital and operational spending associated with offshore oil and natural gas development throughout a project's lifecycle.

Spending for each oil and gas project is divided into nineteen categories. Each category accounts for one general activity type required to find, develop, operate, or abandon an offshore energy project. Costs for each category were developed based on general project sizes (and the associated activity levels and equipment requirements), water depths, and other factors. The distribution of spending overtime for each category for different project sizes and water depths was then developed.

After the overall spending forecast for Gulf of Mexico oil and natural gas activity was developed, spending was allocated to individual states and international suppliers. Domestic spending is allocated based on a category-by-category analysis of supply chains and Bureau of Economic Analysis data to provide state-specific spending allocations. Spending with international suppliers is not analyzed further and accounts for no economic impacts in the report. Oil and natural gas spending distributions are constant throughout the scenarios presented in this report. It is possible that reduced activity levels may lead to changes in supply chains and thus spending distributions.

## Economic Methodology

The Bureau of Economic Analysis' RIMS II input-output multipliers were used to develop this report's employment and gross domestic product analysis. These multipliers provide state-level employment and gross domestic product estimates based on industry-specific spending levels. For this report, economic activity was also divided into direct (directly related to industries involved in the offshore energy supply chain) and indirect and induced (industries not directly involved in the offshore energy supply chain and economic activity due to increased wages), employment and gross domestic product.

The following RIMS industry categories were used in the development of the report to account for spending by the Gulf of Mexico oil and natural gas industry (all RIMS categories were used in the output of data):

- Mining and oil and gas field machinery manufacturing
- Steel product manufacturing from purchased steel
- Fabricated metal product manufacturing
- Construction
- Drilling oil and gas wells
- Architectural, engineering, and related services
- Support activities for oil and gas operations
- Natural gas distribution
- Mechanical power transmission equipment manufacturing
- Laminated plastics plate, sheet (except packaging), and shape manufacturing
- Cut stone and stone product manufacturing
- Spring and wire product manufacturing
- Power, distribution, and specialty transformer manufacturing
- Communication and energy wire and cable manufacturing
- Water transportation

## Government Revenue Methodology

Government revenues due to offshore oil and natural gas activity are primarily derived from three main revenue streams, royalties paid on produced oil and natural gas, bonus bids paid to acquire blocks in lease sales, and rents for blocks leased by operators. Several policies impact royalty and lease payments received by the Federal Government, including royalty relief for certain blocks depending on production levels and differing rent and royalty regimes for fields in different water depths and blocks leased at different times. Additionally, the value of oil and natural gas produced in the OCS may differ from major indicators such as West Texas Intermediate (WTI) crude due to transportation costs, long-term sales contracts, and differentials due to product quality and location. Data from the Office of Natural Resource Revenue[22] (ONRR) and oil and natural gas price projections from the Energy Information Administration's Annual Energy Outlook 2022[23] and Short-Term Energy Outlook[24] were utilized to calculate government revenues due to offshore oil and natural gas activities. In some cases (especially regarding disbursements to states), calendar year data was unavailable. In these cases, fiscal year data was utilized as a stand-in for calendar year data. Lease sale bid and rental revenues were calculated

[22] U.S. Department of the Interior, Natural Resources Revenue Data, https://revenuedata.doi.gov/
[23] Annual Energy Outlook 2023, Energy Information Administration
[24] Short Term Energy Outlook, August 8th, 2023, Energy Information Administration

through the simulation of yearly lease sales based on the return to a regular leasing schedule in 2025. The number of leases acquired and retained was modeled on the oil price forecasts used to develop the report and historical bid numbers and levels correlated with activity levels.

In 2006 Congress passed the OCS Energy Security Act (GOMESA), which created revenue-sharing provisions for the four Gulf oil and natural gas producing states (Alabama, Louisiana, Mississippi, and Texas) and their coastal political subdivisions. Revenue sharing was enacted in two phases beginning in 2007 and 2017, respectively, with revenue sharing caps of $375 million for fiscal years 2017–2019, $487.5 million for 2020 and 2021, and $375 million for 2022–2055 enacted. Total projected Federal Government revenues, actual revenue distribution data from the ONRR, analysis of the growth of revenue sharing based on eligible leases, and the revenue sharing caps were considered to develop the revenue sharing forecasts in this report.

In addition to provisions for revenue sharing with the OCS producing States, GOMESA also included a provision for distributions to the Land and Water Conservation Fund (LWCF). The LWCF "supports the protection of federal public lands and waters – including national parks, forests, wildlife refuges, and recreation areas – and voluntary conservation on private land. LWCF investments secure public access, improve recreational opportunities, and preserve ecosystem benefits for local communities."[25] LWCF distribution forecasts are based on total projected Federal Government revenues, actual distribution data from the ONRR, and analysis of revenue sharing growth based on eligible leases and revenue sharing caps.

[25] Land and Water Conservation Fund, U.S. Department of the Interior

# Data Tables by Case

## Gulf of Mexico Oil and Natural Gas Industry Economic Impacts

**Table 7: Projected Base Case Gulf of Mexico Oil and Natural Gas Production (BOE/D)**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Oil | 1,514,583 | 1,598,583 | 1,680,500 | 1,757,167 | 1,892,167 | 1,644,083 | 1,696,200 |
| Natural Gas | 589,930 | 548,251 | 484,225 | 445,142 | 463,627 | 360,395 | 349,089 |
| Total BOE | 2,104,513 | 2,146,834 | 2,164,725 | 2,202,309 | 2,355,794 | 2,004,478 | 2,045,289 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Oil | 1,731,000 | 1,760,644 | 1,814,451 | 1,966,106 | 2,059,685 | 2,133,750 | 2,196,910 |
| Natural Gas | 406,905 | 417,301 | 433,645 | 499,410 | 544,480 | 567,060 | 578,649 |
| Total BOE | 2,285,001 | 2,376,292 | 2,578,902 | 2,641,590 | 2,639,863 | 2,682,304 | 2,740,273 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Oil | 2,254,803 | 2,209,216 | 2,140,401 | 2,062,071 | 2,037,863 | 2,010,061 | 1,975,380 |
| Natural Gas | 584,845 | 581,944 | 573,657 | 565,022 | 556,344 | 547,806 | 539,867 |
| Total BOE | 2,816,463 | 2,843,792 | 2,840,252 | 2,810,918 | 2,749,717 | 2,690,149 | 2,622,987 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Oil | 1,900,758 | 1,804,243 | 1,693,638 | 1,596,184 | 1,493,654 |
| Natural Gas | 526,550 | 500,453 | 479,556 | 448,625 | 445,005 |
| Total BOE | 2,528,454 | 2,389,014 | 2,239,661 | 2,151,546 | 2,110,466 |

*Source: Energy and Industrial Advisory Partners*

**Table 8: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| G&G | $215 | $189 | $167 | $160 | $156 | $176 | $192 |
| Drilling Tangibles | $1,448 | $1,265 | $1,227 | $1,211 | $1,310 | $1,159 | $863 |
| Trees | $805 | $680 | $611 | $627 | $451 | $328 | $506 |
| Manifolds | $425 | $358 | $321 | $328 | $237 | $167 | $261 |
| Other Subsea Hardware | $168 | $145 | $143 | $143 | $130 | $81 | $90 |
| Control Umbilical, Flying Leads | $495 | $412 | $366 | $373 | $268 | $182 | $308 |
| Infield FL | $166 | $127 | $114 | $119 | $102 | $44 | $68 |
| Export PL | $1,162 | $892 | $781 | $782 | $658 | $223 | $358 |
| Infield Risers | $85 | $66 | $60 | $61 | $53 | $22 | $33 |
| Export Risers | $44 | $33 | $29 | $30 | $25 | $8 | $14 |
| Fixed Platforms & Facilities | $270 | $204 | $166 | $135 | $114 | $76 | $88 |
| Floating Production Units & Facilities | $1,558 | $1,320 | $1,082 | $1,155 | $825 | $880 | $1,760 |
| Installation | $2,269 | $1,640 | $1,527 | $1,439 | $1,328 | $752 | $1,038 |
| OPEX | $13,502 | $13,721 | $13,783 | $13,816 | $13,829 | $12,276 | $13,474 |
| Decommissioning CAPEX | $1,257 | $1,150 | $1,212 | $1,100 | $773 | $696 | $858 |
| Drilling | $8,363 | $7,157 | $6,112 | $5,560 | $5,847 | $6,892 | $4,882 |
| Engineering CAPEX | $1,063 | $874 | $808 | $792 | $663 | $506 | $679 |
| Engineering OPEX | $844 | $858 | $861 | $863 | $864 | $877 | $886 |
| Natural Gas Processing and Transportation | $199 | $189 | $172 | $163 | $157 | $144 | $124 |
| Total | $34,338 | $31,281 | $29,542 | $28,857 | $27,789 | $25,344 | $26,359 |

*Source: Energy and Industrial Advisory Partners*

**Table 8: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| G&G | $252 | $275 | $284 | $292 | $291 | $282 | $267 |
| Drilling Tangibles | $1,286 | $1,525 | $1,417 | $1,361 | $1,354 | $1,352 | $1,297 |
| Trees | $619 | $575 | $519 | $506 | $502 | $456 | $366 |
| Manifolds | $323 | $301 | $272 | $265 | $263 | $240 | $194 |
| Other Subsea Hardware | $143 | $151 | $137 | $134 | $136 | $134 | $118 |
| Control Umbilical, Flying Leads | $395 | $367 | $327 | $317 | $315 | $287 | $228 |
| Infield FL | $127 | $126 | $105 | $98 | $98 | $96 | $78 |
| Export PL | $776 | $811 | $693 | $645 | $656 | $665 | $561 |
| Infield Risers | $61 | $61 | $52 | $49 | $49 | $48 | $40 |
| Export Risers | $31 | $32 | $27 | $25 | $25 | $25 | $21 |
| Fixed Platforms & Facilities | $147 | $154 | $147 | $170 | $212 | $211 | $155 |
| Floating Production Units & Facilities | $2,145 | $1,760 | $1,503 | $1,467 | $1,357 | $1,173 | $807 |
| Installation | $1,769 | $1,793 | $1,479 | $1,368 | $1,364 | $1,275 | $1,067 |
| OPEX | $13,591 | $14,334 | $14,405 | $14,450 | $14,525 | $14,589 | $14,659 |
| Decommissioning CAPEX | $785 | $827 | $754 | $827 | $757 | $803 | $733 |
| Drilling | $7,152 | $9,012 | $9,174 | $9,550 | $9,894 | $9,921 | $9,519 |
| Engineering CAPEX | $917 | $902 | $792 | $773 | $756 | $720 | $603 |
| Engineering OPEX | $894 | $896 | $900 | $903 | $908 | $912 | $916 |
| Natural Gas Processing and Transportation | $131 | $127 | $135 | $141 | $145 | $148 | $152 |
| Total | $31,412 | $33,901 | $32,987 | $33,199 | $33,463 | $33,190 | $31,628 |

*Source: Energy and Industrial Advisory Partners*

**Table 8: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| G&G | $251 | $236 | $222 | $206 | $186 | $165 | $151 |
| Drilling Tangibles | $1,214 | $1,132 | $1,065 | $1,015 | $949 | $855 | $737 |
| Trees | $309 | $312 | $339 | $349 | $328 | $284 | $238 |
| Manifolds | $163 | $165 | $179 | $185 | $174 | $151 | $125 |
| Other Subsea Hardware | $99 | $93 | $95 | $98 | $94 | $84 | $71 |
| Control Umbilical, Flying Leads | $191 | $196 | $216 | $225 | $211 | $182 | $152 |
| Infield FL | $58 | $55 | $62 | $69 | $68 | $60 | $49 |
| Export PL | $419 | $381 | $432 | $483 | $480 | $426 | $344 |
| Infield Risers | $30 | $28 | $32 | $35 | $34 | $31 | $25 |
| Export Risers | $16 | $15 | $17 | $19 | $19 | $17 | $14 |
| Fixed Platforms & Facilities | $99 | $86 | $98 | $96 | $76 | $50 | $38 |
| Floating Production Units & Facilities | $788 | $880 | $1,063 | $1,045 | $953 | $770 | $733 |
| Installation | $783 | $788 | $866 | $972 | $929 | $825 | $680 |
| OPEX | $14,677 | $14,673 | $14,651 | $14,645 | $14,613 | $14,584 | $14,535 |
| Decommissioning CAPEX | $781 | $710 | $758 | $688 | $736 | $667 | $715 |
| Drilling | $8,953 | $8,398 | $7,901 | $7,495 | $6,981 | $6,282 | $5,441 |
| Engineering CAPEX | $532 | $522 | $561 | $564 | $538 | $468 | $420 |
| Engineering OPEX | $917 | $917 | $916 | $915 | $913 | $912 | $908 |
| Natural Gas Processing and Transportation | $156 | $159 | $160 | $158 | $155 | $152 | $148 |
| Total | $30,278 | $29,589 | $29,474 | $29,104 | $28,282 | $26,812 | $25,375 |

*Source: Energy and Industrial Advisory Partners*

**Table 8: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| G&G | $150 | $158 | $176 | $193 | $208 |
| Drilling Tangibles | $664 | $648 | $714 | $776 | $876 |
| Trees | $213 | $203 | $201 | $226 | $301 |
| Manifolds | $111 | $106 | $106 | $120 | $159 |
| Other Subsea Hardware | $62 | $60 | $61 | $64 | $76 |
| Control Umbilical, Flying Leads | $136 | $127 | $123 | $139 | $191 |
| Infield FL | $44 | $42 | $38 | $35 | $45 |
| Export PL | $287 | $261 | $242 | $245 | $322 |
| Infield Risers | $22 | $20 | $19 | $19 | $24 |
| Export Risers | $11 | $10 | $9 | $9 | $13 |
| Fixed Platforms & Facilities | $44 | $50 | $38 | $25 | $38 |
| Floating Production Units & Facilities | $678 | $587 | $458 | $623 | $990 |
| Installation | $628 | $589 | $535 | $500 | $677 |
| OPEX | $14,463 | $14,354 | $14,274 | $14,210 | $14,176 |
| Decommissioning CAPEX | $646 | $694 | $626 | $676 | $608 |
| Drilling | $4,943 | $4,830 | $5,323 | $5,804 | $6,567 |
| Engineering CAPEX | $381 | $366 | $342 | $375 | $467 |
| Engineering OPEX | $904 | $897 | $892 | $888 | $886 |
| Natural Gas Processing and Transportation | $142 | $135 | $129 | $123 | $121 |
| Total | $24,386 | $24,002 | $24,177 | $24,928 | $26,622 |

*Source: Energy and Industrial Advisory Partners*

## Table 9: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Supported Employment (Number of Jobs)

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Texas | 183,868 | 166,737 | 158,715 | 155,767 | 147,462 | 133,381 | 136,682 |
| Louisiana | 102,936 | 98,247 | 94,932 | 95,089 | 94,621 | 89,432 | 89,175 |
| Mississippi | 23,024 | 21,524 | 20,740 | 20,926 | 20,415 | 19,110 | 19,116 |
| Alabama | 31,413 | 29,595 | 28,870 | 29,053 | 28,011 | 25,157 | 26,508 |
| Other U.S. States | 76,183 | 65,041 | 60,861 | 59,631 | 54,989 | 43,624 | 52,990 |
| Total | 417,424 | 381,144 | 364,119 | 360,465 | 345,498 | 310,703 | 324,472 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Texas | 162,509 | 176,720 | 171,397 | 172,677 | 173,615 | 172,903 | 164,651 |
| Louisiana | 98,453 | 108,914 | 108,640 | 109,864 | 111,042 | 111,307 | 109,391 |
| Mississippi | 21,545 | 23,872 | 23,548 | 23,789 | 23,968 | 23,984 | 23,318 |
| Alabama | 29,384 | 31,580 | 30,904 | 31,056 | 31,144 | 31,130 | 30,213 |
| Other U.S. States | 69,845 | 70,935 | 65,312 | 64,309 | 63,926 | 61,813 | 55,878 |
| Total | 381,735 | 412,021 | 399,802 | 401,695 | 403,695 | 401,137 | 383,451 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Texas | 157,438 | 152,802 | 152,179 | 149,840 | 146,127 | 138,149 | 130,689 |
| Louisiana | 107,061 | 105,026 | 103,753 | 102,442 | 100,620 | 97,657 | 94,407 |
| Mississippi | 22,674 | 22,166 | 21,988 | 21,692 | 21,294 | 20,505 | 19,734 |
| Alabama | 29,453 | 28,952 | 28,974 | 28,730 | 28,360 | 27,455 | 26,677 |
| Other U.S. States | 51,427 | 51,109 | 52,847 | 53,352 | 51,559 | 47,771 | 44,509 |
| Total | 368,052 | 360,056 | 359,742 | 356,057 | 347,960 | 331,537 | 316,016 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Texas | 114,868 | 123,572 | 124,523 | 128,598 | 136,219 |
| Louisiana | 92,032 | 91,145 | 92,027 | 93,470 | 96,173 |
| Mississippi | 19,121 | 18,954 | 19,088 | 19,477 | 20,172 |
| Alabama | 25,978 | 25,771 | 25,694 | 26,065 | 26,807 |
| Other U.S. States | 42,443 | 41,135 | 39,994 | 41,418 | 46,998 |
| Total | 294,441 | 300,577 | 301,326 | 309,028 | 326,369 |

*Source: Energy and Industrial Advisory Partners*

**Table 10: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Direct vs. Indirect and Induced Supported Employment (Number of Jobs)**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Direct | 75,446 | 72,786 | 70,085 | 68,677 | 69,356 | 66,074 | 65,276 |
| Indirect and Induced | 341,978 | 308,358 | 294,034 | 291,788 | 276,142 | 244,629 | 259,196 |
| Total | 417,424 | 381,144 | 364,119 | 360,465 | 345,498 | 310,703 | 324,472 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Direct | 72,155 | 79,995 | 80,610 | 81,791 | 82,999 | 83,292 | 82,368 |
| Indirect and Induced | 309,581 | 332,026 | 319,192 | 319,905 | 320,695 | 317,845 | 301,083 |
| Total | 381,735 | 412,021 | 399,802 | 401,695 | 403,695 | 401,137 | 383,451 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Direct | 80,833 | 79,306 | 77,915 | 76,795 | 75,250 | 73,171 | 70,644 |
| Indirect and Induced | 287,219 | 280,750 | 281,827 | 279,261 | 272,710 | 258,366 | 245,372 |
| Total | 368,052 | 360,056 | 359,742 | 356,057 | 347,960 | 331,537 | 316,016 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Direct | 68,919 | 68,219 | 69,214 | 70,288 | 72,305 |
| Indirect and Induced | 225,522 | 232,357 | 232,112 | 238,741 | 254,064 |
| Total | 294,441 | 300,577 | 301,326 | 309,028 | 326,369 |

*Source: Energy and Industrial Advisory Partners*

## Table 11: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Contributions to GDP $ Millions

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Texas | $15,587 | $14,208 | $13,469 | $13,196 | $12,638 | $11,677 | $11,769 |
| Louisiana | $8,675 | $8,268 | $7,950 | $7,929 | $7,933 | $7,576 | $7,453 |
| Mississippi | $1,702 | $1,586 | $1,515 | $1,525 | $1,504 | $1,436 | $1,399 |
| Alabama | $2,562 | $2,432 | $2,368 | $2,381 | $2,323 | $2,109 | $2,198 |
| Other U.S. States | $5,768 | $5,017 | $4,693 | $4,609 | $4,291 | $3,497 | $4,138 |
| Total | $34,294 | $31,511 | $29,994 | $29,640 | $28,690 | $26,296 | $26,957 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Texas | $13,950 | $15,263 | $14,915 | $15,063 | $15,191 | $15,132 | $14,475 |
| Louisiana | $8,286 | $9,215 | $9,220 | $9,338 | $9,457 | $9,480 | $9,320 |
| Mississippi | $1,599 | $1,791 | $1,775 | $1,797 | $1,817 | $1,818 | $1,769 |
| Alabama | $2,426 | $2,617 | $2,578 | $2,593 | $2,607 | $2,607 | $2,542 |
| Other U.S. States | $5,355 | $5,473 | $5,110 | $5,063 | $5,044 | $4,895 | $4,469 |
| Total | $31,616 | $34,359 | $33,597 | $33,855 | $34,115 | $33,931 | $32,574 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Texas | $13,872 | $13,472 | $13,359 | $13,136 | $12,782 | $12,103 | $11,440 |
| Louisiana | $9,112 | $8,927 | $8,794 | $8,670 | $8,496 | $8,232 | $7,931 |
| Mississippi | $1,716 | $1,674 | $1,653 | $1,627 | $1,590 | $1,527 | $1,461 |
| Alabama | $2,483 | $2,443 | $2,437 | $2,416 | $2,381 | $2,311 | $2,244 |
| Other U.S. States | $4,172 | $4,140 | $4,249 | $4,258 | $4,112 | $3,825 | $3,583 |
| Total | $31,356 | $30,658 | $30,491 | $30,106 | $29,361 | $27,998 | $26,659 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Texas | $10,013 | $10,829 | $10,960 | $11,319 | $11,992 |
| Louisiana | $7,722 | $7,642 | $7,741 | $7,876 | $8,128 |
| Mississippi | $1,412 | $1,398 | $1,416 | $1,450 | $1,510 |
| Alabama | $2,190 | $2,170 | $2,171 | $2,200 | $2,263 |
| Other U.S. States | $3,425 | $3,325 | $3,257 | $3,385 | $3,805 |
| Total | $24,763 | $25,363 | $25,546 | $26,230 | $27,697 |

*Source: Energy and Industrial Advisory Partners*

## Table 12: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Government Revenues by Type $ Millions

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Bids | $556 | $158 | $374 | $291 | $387 | $165 | $112 |
| Rentals | $201 | $133 | $111 | $103 | $107 | $94 | $83 |
| Royalties | $3,251 | $2,408 | $3,262 | $4,715 | $4,852 | $2,716 | $4,250 |
| Other Revenues | -$8 | $25 | $33 | $54 | $15 | -$14 | $104 |
| Total | $4,000 | $2,723 | $3,780 | $5,163 | $5,361 | $2,961 | $4,549 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Bids | $0 | $504 | $402 | $466 | $454 | $426 | $367 |
| Rentals | $78 | $95 | $103 | $105 | $105 | $107 | $109 |
| Royalties | $6,299 | $5,437 | $5,902 | $6,704 | $7,000 | $7,257 | $7,526 |
| Other Revenues | $115 | $55 | $60 | $68 | $71 | $74 | $77 |
| Total | $6,492 | $6,091 | $6,467 | $7,344 | $7,631 | $7,864 | $8,079 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Bids | $361 | $359 | $335 | $276 | $232 | $223 | $247 |
| Rentals | $112 | $113 | $113 | $112 | $110 | $107 | $105 |
| Royalties | $7,764 | $7,657 | $7,481 | $7,288 | $7,253 | $7,219 | $7,137 |
| Other Revenues | $79 | $78 | $76 | $74 | $74 | $74 | $73 |
| Total | $8,316 | $8,207 | $8,005 | $7,750 | $7,668 | $7,623 | $7,561 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Bids | $266 | $294 | $327 | $337 | $287 |
| Rentals | $101 | $95 | $89 | $86 | $84 |
| Royalties | $6,930 | $6,624 | $6,258 | $5,923 | $5,592 |
| Other Revenues | $71 | $68 | $64 | $60 | $57 |
| Total | $7,368 | $7,080 | $6,738 | $6,406 | $6,020 |

*Source: Energy and Industrial Advisory Partners*

## Table 13: Projected Base Case Gulf of Mexico Offshore Oil and Natural Gas Government Revenues by State $ Millions

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Texas | $0.29 | $0.04 | $0.12 | $50.62 | $57.89 | $95.28 | $67.38 |
| Louisiana | $0.82 | $0.10 | $0.32 | $82.84 | $94.73 | $155.72 | $109.95 |
| Mississippi | $0.67 | $0.08 | $0.25 | $27.75 | $31.72 | $51.91 | $36.52 |
| Alabama | $0.67 | $0.09 | $0.26 | $26.78 | $30.60 | $50.05 | $35.05 |
| Total | $2.44 | $0.31 | $0.96 | $187.99 | $214.94 | $352.96 | $375.00 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Texas | $77.31 | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 |
| Louisiana | $118.88 | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 |
| Mississippi | $37.81 | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 |
| Alabama | $40.89 | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 |
| Total | $274.89 | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Texas | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 |
| Louisiana | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 |
| Mississippi | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 |
| Alabama | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 |
| Total | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Texas | $101.23 | $101.23 | $101.23 | $101.23 | $101.23 |
| Louisiana | $165.44 | $165.44 | $165.44 | $165.44 | $165.44 |
| Mississippi | $55.16 | $55.16 | $55.16 | $55.16 | $55.16 |
| Alabama | $53.17 | $53.17 | $53.17 | $53.17 | $53.17 |
| Total | $375.00 | $375.00 | $375.00 | $375.00 | $375.00 |

*Source: Energy and Industrial Advisory Partners*

**Table 14: Projected Base Case LWCF Distributions $ Millions**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| LWCF | $0.89 | $0.88 | $0.89 | $0.89 | $0.88 | $0.90 | $0.89 |
| LWCF - GOMESA | $0.00 | $0.00 | $0.07 | $0.08 | $0.13 | $0.08 | $0.09 |
| Total | $0.89 | $0.88 | $0.96 | $0.97 | $1.01 | $0.98 | $0.98 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| LWCF | $0.89 | $1.03 | $1.07 | $1.18 | $1.15 | $1.11 | $1.07 |
| LWCF - GOMESA | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 |
| Total | $1.02 | $1.15 | $1.19 | $1.30 | $1.28 | $1.24 | $1.19 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| LWCF | $1.05 | $1.04 | $1.02 | $1.00 | $0.97 | $0.93 | $0.92 |
| LWCF - GOMESA | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 |
| Total | $1.17 | $1.17 | $1.15 | $1.13 | $1.09 | $1.06 | $1.05 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| LWCF | $0.93 | $0.92 | $0.89 | $0.87 | $0.85 |
| LWCF - GOMESA | $0.13 | $0.13 | $0.13 | $0.13 | $0.13 |
| Total | $1.05 | $1.05 | $1.02 | $1.00 | $0.97 |

*Source: Energy and Industrial Advisory Partners*

# Vessel Transit Restrictions Case Impacts

### Table 15: Projected Base Case vs. Vessel Transit Restrictions Case Gulf of Mexico Oil and Natural gas Production (BOE/D)

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Oil (Vessel Transit Restrictions Case) | 1,514,583 | 1,598,583 | 1,680,500 | 1,757,167 | 1,892,167 | 1,644,083 | 1,696,200 |
| Oil (Base Case) | 1,514,583 | 1,598,583 | 1,680,500 | 1,757,167 | 1,892,167 | 1,644,083 | 1,696,200 |
| Natural Gas (Vessel Transit Restrictions Case) | 589,930 | 548,251 | 484,225 | 445,142 | 463,627 | 360,395 | 349,089 |
| Natural Gas (Base Case) | 589,930 | 548,251 | 484,225 | 445,142 | 463,627 | 360,395 | 349,089 |
| Total BOE (Vessel Transit Restrictions Case) | 2,104,513 | 2,146,834 | 2,164,725 | 2,202,309 | 2,355,794 | 2,004,478 | 2,045,289 |
| Total BOE (Base Case) | 2,104,513 | 2,146,834 | 2,164,725 | 2,202,309 | 2,355,794 | 2,004,478 | 2,045,289 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Oil (Vessel Transit Restrictions Case) | 1,731,000 | 1,760,644 | 1,772,801 | 1,825,240 | 1,800,860 | 1,723,091 | 1,708,209 |
| Oil (Base Case) | 1,731,000 | 1,760,644 | 1,814,451 | 1,966,106 | 2,059,685 | 2,133,750 | 2,196,910 |
| Natural Gas (Vessel Transit Restrictions Case) | 406,905 | 417,301 | 429,970 | 456,377 | 453,937 | 452,248 | 454,450 |
| Natural Gas (Base Case) | 406,905 | 417,301 | 433,645 | 499,410 | 544,480 | 567,060 | 578,649 |
| Total BOE (Vessel Transit Restrictions Case) | 2,285,001 | 2,376,292 | 2,202,770 | 2,281,617 | 2,254,797 | 2,175,339 | 2,162,659 |
| Total BOE (Base Case) | 2,285,001 | 2,376,292 | 2,578,902 | 2,641,590 | 2,639,863 | 2,682,304 | 2,740,273 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Oil (Vessel Transit Restrictions Case) | 1,662,317 | 1,618,874 | 1,559,655 | 1,497,876 | 1,451,712 | 1,384,377 | 1,359,101 |
| Oil (Base Case) | 2,254,803 | 2,209,216 | 2,140,401 | 2,062,071 | 2,037,863 | 2,010,061 | 1,975,380 |
| Natural Gas (Vessel Transit Restrictions Case) | 450,214 | 443,667 | 429,467 | 414,762 | 403,277 | 390,272 | 390,683 |
| Natural Gas (Base Case) | 584,845 | 581,944 | 573,657 | 565,022 | 556,344 | 547,806 | 539,867 |
| Total BOE (Vessel Transit Restrictions Case) | 2,112,531 | 2,062,541 | 1,989,122 | 1,912,638 | 1,854,990 | 1,774,648 | 1,749,784 |
| Total BOE (Base Case) | 2,816,463 | 2,843,792 | 2,840,252 | 2,810,918 | 2,749,717 | 2,690,149 | 2,622,987 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Oil (Vessel Transit Restrictions Case) | 1,355,463 | 1,341,639 | 1,283,512 | 1,244,064 | 1,216,086 |
| Oil (Base Case) | 1,900,758 | 1,804,243 | 1,693,638 | 1,596,184 | 1,493,654 |
| Natural Gas (Vessel Transit Restrictions Case) | 394,585 | 387,150 | 379,944 | 367,432 | 366,982 |
| Natural Gas (Base Case) | 526,550 | 500,453 | 479,556 | 448,625 | 445,005 |
| Total BOE (Vessel Transit Restrictions Case) | 1,750,048 | 1,728,790 | 1,663,456 | 1,611,496 | 1,583,067 |
| Total BOE (Base Case) | 2,528,454 | 2,389,014 | 2,239,661 | 2,151,546 | 2,110,466 |

*Source: Energy and Industrial Advisory Partners*

**Table 16: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| G&G | $215 | $189 | $167 | $160 | $156 | $176 | $192 |
| Drilling Tangibles | $1,448 | $1,265 | $1,227 | $1,211 | $1,310 | $1,159 | $863 |
| Trees | $805 | $680 | $611 | $627 | $451 | $328 | $506 |
| Manifolds | $425 | $358 | $321 | $328 | $237 | $167 | $261 |
| Other Subsea Hardware | $168 | $145 | $143 | $143 | $130 | $81 | $90 |
| Control Umbilical, Flying Leads | $495 | $412 | $366 | $373 | $268 | $182 | $308 |
| Infield FL | $166 | $127 | $114 | $119 | $102 | $44 | $68 |
| Export PL | $1,162 | $892 | $781 | $782 | $658 | $223 | $358 |
| Infield Risers | $85 | $66 | $60 | $61 | $53 | $22 | $33 |
| Export Risers | $44 | $33 | $29 | $30 | $25 | $8 | $14 |
| Fixed Platforms & Facilities | $270 | $204 | $166 | $135 | $114 | $76 | $88 |
| Floating Production Units & Facilities | $1,558 | $1,320 | $1,082 | $1,155 | $825 | $880 | $1,760 |
| Installation | $2,269 | $1,640 | $1,527 | $1,439 | $1,328 | $752 | $1,038 |
| OPEX | $13,502 | $13,721 | $13,783 | $13,816 | $13,829 | $12,276 | $13,474 |
| Decommissioning CAPEX | $1,257 | $1,150 | $1,212 | $1,100 | $773 | $696 | $858 |
| Drilling | $8,363 | $7,157 | $6,112 | $5,560 | $5,847 | $6,892 | $4,882 |
| Engineering CAPEX | $1,063 | $874 | $808 | $792 | $663 | $506 | $679 |
| Engineering OPEX | $844 | $858 | $861 | $863 | $864 | $877 | $886 |
| Natural Gas Processing and Transportation | $199 | $189 | $172 | $163 | $157 | $144 | $124 |
| Total | $34,338 | $31,281 | $29,542 | $28,857 | $27,789 | $25,488 | $26,483 |

*Source: Energy and Industrial Advisory Partners*

**Table 16: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| G&G | $252 | $275 | $153 | $145 | $145 | $147 | $143 |
| Drilling Tangibles | $1,286 | $1,525 | $923 | $724 | $652 | $695 | $693 |
| Trees | $619 | $575 | $270 | $230 | $247 | $245 | $219 |
| Manifolds | $323 | $301 | $142 | $120 | $129 | $129 | $116 |
| Other Subsea Hardware | $143 | $151 | $82 | $63 | $63 | $69 | $63 |
| Control Umbilical, Flying Leads | $395 | $367 | $167 | $139 | $148 | $147 | $133 |
| Infield FL | $127 | $126 | $61 | $42 | $43 | $47 | $39 |
| Export PL | $776 | $811 | $415 | $290 | $302 | $339 | $311 |
| Infield Risers | $61 | $61 | $30 | $21 | $22 | $24 | $21 |
| Export Risers | $31 | $32 | $16 | $11 | $11 | $12 | $11 |
| Fixed Platforms & Facilities | $147 | $154 | $147 | $170 | $212 | $211 | $155 |
| Floating Production Units & Facilities | $2,145 | $1,760 | $678 | $495 | $550 | $403 | $422 |
| Installation | $1,769 | $1,793 | $814 | $615 | $559 | $622 | $501 |
| OPEX | $13,591 | $14,334 | $14,363 | $14,324 | $14,315 | $14,309 | $14,337 |
| Decommissioning CAPEX | $785 | $827 | $754 | $827 | $757 | $803 | $761 |
| Drilling | $7,152 | $9,012 | $5,796 | $4,953 | $4,662 | $4,984 | $4,973 |
| Engineering CAPEX | $917 | $902 | $480 | $404 | $397 | $400 | $369 |
| Engineering OPEX | $894 | $896 | $898 | $895 | $895 | $894 | $896 |
| Natural Gas Processing and Transportation | $131 | $127 | $135 | $141 | $145 | $148 | $152 |
| Total | $31,543 | $34,028 | $26,188 | $24,469 | $24,108 | $24,479 | $24,162 |

*Source: Energy and Industrial Advisory Partners*

**Table 16: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| G&G | $139 | $136 | $137 | $140 | $143 | $145 | $145 |
| Drilling Tangibles | $661 | $632 | $617 | $625 | $644 | $666 | $665 |
| Trees | $207 | $211 | $209 | $211 | $240 | $265 | $243 |
| Manifolds | $111 | $113 | $111 | $111 | $125 | $138 | $127 |
| Other Subsea Hardware | $59 | $58 | $59 | $57 | $60 | $69 | $70 |
| Control Umbilical, Flying Leads | $131 | $138 | $138 | $137 | $154 | $171 | $161 |
| Infield FL | $36 | $39 | $43 | $42 | $44 | $53 | $57 |
| Export PL | $294 | $305 | $327 | $301 | $298 | $340 | $354 |
| Infield Risers | $20 | $21 | $22 | $21 | $22 | $26 | $27 |
| Export Risers | $11 | $12 | $13 | $12 | $12 | $14 | $15 |
| Fixed Platforms & Facilities | $99 | $86 | $98 | $96 | $76 | $50 | $38 |
| Floating Production Units & Facilities | $513 | $697 | $733 | $788 | $880 | $1,008 | $953 |
| Installation | $487 | $531 | $609 | $612 | $657 | $762 | $807 |
| OPEX | $14,285 | $14,225 | $14,119 | $14,043 | $13,927 | $13,842 | $13,695 |
| Decommissioning CAPEX | $837 | $767 | $787 | $716 | $764 | $754 | $801 |
| Drilling | $4,798 | $4,634 | $4,528 | $4,562 | $4,684 | $4,864 | $4,904 |
| Engineering CAPEX | $372 | $387 | $403 | $401 | $428 | $464 | $463 |
| Engineering OPEX | $893 | $889 | $882 | $878 | $870 | $865 | $856 |
| Natural Gas Processing and Transportation | $156 | $159 | $160 | $158 | $155 | $152 | $148 |
| Total | $23,952 | $23,880 | $23,835 | $23,753 | $24,026 | $24,496 | $24,382 |

*Source: Energy and Industrial Advisory Partners*

**Table 16: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Spending $ Millions (Continued)**

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| G&G | $146 | $152 | $157 | $164 | $170 |
| Drilling Tangibles | $651 | $654 | $675 | $724 | $713 |
| Trees | $211 | $230 | $288 | $353 | $404 |
| Manifolds | $111 | $122 | $152 | $186 | $213 |
| Other Subsea Hardware | $62 | $59 | $69 | $82 | $94 |
| Control Umbilical, Flying Leads | $140 | $149 | $183 | $226 | $262 |
| Infield FL | $47 | $42 | $49 | $61 | $77 |
| Export PL | $306 | $289 | $347 | $418 | $514 |
| Infield Risers | $22 | $21 | $25 | $31 | $39 |
| Export Risers | $13 | $11 | $14 | $17 | $21 |
| Fixed Platforms & Facilities | $44 | $50 | $38 | $25 | $38 |
| Floating Production Units & Facilities | $770 | $788 | $935 | $1,210 | $1,430 |
| Installation | $709 | $612 | $722 | $889 | $1,102 |
| OPEX | $13,525 | $13,346 | $13,210 | $13,118 | $13,014 |
| Decommissioning CAPEX | $791 | $780 | $771 | $762 | $753 |
| Drilling | $4,846 | $4,879 | $5,030 | $5,413 | $5,345 |
| Engineering CAPEX | $417 | $411 | $459 | $534 | $604 |
| Engineering OPEX | $845 | $834 | $826 | $820 | $813 |
| Natural Gas Processing and Transportation | $142 | $135 | $129 | $123 | $121 |
| Total | $23,655 | $23,430 | $23,949 | $25,034 | $25,606 |

*Source: Energy and Industrial Advisory Partners*

## Table 17: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Supported Employment Reductions (Number of Jobs)

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Texas | 183,868 | 166,737 | 158,715 | 155,767 | 147,462 | 133,381 | 136,682 |
| Louisiana | 102,936 | 98,247 | 94,932 | 95,089 | 94,621 | 89,432 | 89,175 |
| Mississippi | 23,024 | 21,524 | 20,740 | 20,926 | 20,415 | 19,110 | 19,116 |
| Alabama | 31,413 | 29,595 | 28,870 | 29,053 | 28,011 | 25,157 | 26,508 |
| Other U.S. States | 76,183 | 65,041 | 60,861 | 59,631 | 54,989 | 43,624 | 52,990 |
| **Total** | **417,424** | **381,144** | **364,119** | **360,465** | **345,498** | **310,703** | **324,472** |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Texas | 162,509 | 176,720 | 136,265 | 127,744 | 125,262 | 128,129 | 125,949 |
| Louisiana | 98,453 | 108,914 | 95,438 | 92,059 | 90,919 | 92,131 | 91,864 |
| Mississippi | 21,545 | 23,872 | 20,145 | 19,316 | 19,021 | 19,338 | 19,181 |
| Alabama | 29,384 | 31,580 | 27,219 | 26,323 | 26,038 | 26,347 | 26,079 |
| Other U.S. States | 69,845 | 70,935 | 46,506 | 41,649 | 40,985 | 41,292 | 39,785 |
| **Total** | **381,735** | **412,021** | **325,573** | **307,092** | **302,225** | **307,237** | **302,858** |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Texas | 125,025 | 123,466 | 123,255 | 122,050 | 123,801 | 125,988 | 125,870 |
| Louisiana | 91,171 | 90,283 | 89,616 | 89,149 | 89,242 | 89,648 | 89,175 |
| Mississippi | 19,070 | 18,856 | 18,767 | 18,623 | 18,733 | 18,890 | 18,839 |
| Alabama | 25,985 | 25,764 | 25,704 | 25,469 | 25,580 | 25,743 | 25,642 |
| Other U.S. States | 39,944 | 41,182 | 42,080 | 42,175 | 43,433 | 45,668 | 45,656 |
| **Total** | **301,196** | **299,551** | **299,422** | **297,467** | **300,789** | **305,937** | **305,181** |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Texas | 111,171 | 121,476 | 124,222 | 129,453 | 132,126 |
| Louisiana | 87,818 | 86,985 | 87,188 | 88,470 | 88,323 |
| Mississippi | 18,489 | 18,321 | 18,476 | 18,893 | 19,003 |
| Alabama | 25,105 | 24,827 | 25,011 | 25,497 | 25,762 |
| Other U.S. States | 42,772 | 41,640 | 44,109 | 48,470 | 52,425 |
| **Total** | **285,355** | **293,249** | **299,005** | **310,783** | **317,639** |

*Source: Energy and Industrial Advisory Partners*

**Table 18: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Direct and Indirect and Induced Supported Employment Reductions (Number of Jobs)**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Direct | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Indirect and Induced | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Direct | 0 | 0 | -9,620 | -13,297 | -15,329 | -14,756 | -13,776 |
| Indirect and Induced | 0 | 0 | -64,609 | -81,307 | -86,140 | -79,143 | -66,817 |
| Total | 0 | 0 | -74,229 | -94,603 | -101,469 | -93,900 | -80,593 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Direct | -12,902 | -12,029 | -11,309 | -10,396 | -8,946 | -6,672 | -4,605 |
| Indirect and Induced | -53,954 | -48,476 | -49,011 | -48,194 | -38,225 | -18,928 | -6,230 |
| Total | -66,856 | -60,505 | -60,320 | -58,590 | -47,171 | -25,599 | -10,835 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Direct | -3,793 | -3,649 | -4,719 | -5,048 | -7,580 |
| Indirect and Induced | -5,293 | -3,679 | 2,399 | 6,803 | -1,151 |
| Total | -9,086 | -7,328 | -2,321 | 1,755 | -8,730 |

*Source: Energy and Industrial Advisory Partners*

**Table 19: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Contributions to GDP Reductions $ Millions**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Texas | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Louisiana | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Mississippi | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Alabama | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Other U.S. States | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Total | $0 | $0 | $0 | $0 | $0 | $0 | $0 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Texas | $0 | $0 | -$3,046 | -$3,930 | -$4,262 | -$3,965 | -$3,464 |
| Louisiana | $0 | $0 | -$1,202 | -$1,629 | -$1,847 | -$1,762 | -$1,617 |
| Mississippi | $0 | $0 | -$283 | -$375 | -$418 | -$394 | -$354 |
| Alabama | $0 | $0 | -$298 | -$388 | -$423 | -$399 | -$350 |
| Other U.S. States | $0 | $0 | -$1,401 | -$1,710 | -$1,733 | -$1,572 | -$1,234 |
| Total | $0 | $0 | -$6,231 | -$8,032 | -$8,682 | -$8,091 | -$7,020 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Texas | -$2,964 | -$2,692 | -$2,619 | -$2,475 | -$1,988 | -$1,132 | -$495 |
| Louisiana | -$1,478 | -$1,369 | -$1,299 | -$1,206 | -$1,025 | -$723 | -$464 |
| Mississippi | -$314 | -$288 | -$275 | -$256 | -$212 | -$136 | -$74 |
| Alabama | -$303 | -$280 | -$282 | -$277 | -$237 | -$156 | -$101 |
| Other U.S. States | -$928 | -$806 | -$865 | -$862 | -$628 | -$185 | $42 |
| Total | -$5,986 | -$5,435 | -$5,339 | -$5,077 | -$4,090 | -$2,332 | -$1,093 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Texas | -$345 | -$234 | -$152 | -$77 | -$567 |
| Louisiana | -$365 | -$350 | -$432 | -$453 | -$727 |
| Mississippi | -$51 | -$47 | -$53 | -$53 | -$108 |
| Alabama | -$89 | -$91 | -$81 | -$74 | -$122 |
| Other U.S. States | -$9 | $23 | $262 | $447 | $290 |
| Total | -$858 | -$699 | -$457 | -$209 | -$1,234 |

*Source: Energy and Industrial Advisory Partners*

**Table 20: Projected Vessel Transit Restrictions Case Gulf of Mexico Offshore Oil and Natural Gas Government Revenue Reductions by Type $ Millions**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Bids | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Rentals | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Royalties | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Other Revenues | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Total | $0 | $0 | $0 | $0 | $0 | $0 | $0 |

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Bids | $0 | $0 | -$266 | -$182 | -$173 | -$171 | -$207 |
| Rentals | $0 | $0 | -$15 | -$14 | -$15 | -$20 | -$23 |
| Royalties | $0 | $0 | -$132 | -$484 | -$890 | -$1,399 | -$1,672 |
| Other Revenues | $0 | $0 | -$1 | -$5 | -$9 | -$14 | -$17 |
| Total | $0 | $0 | -$414 | -$686 | -$1,087 | -$1,605 | -$1,919 |

| | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|
| Bids | -$176 | -$138 | -$92 | -$76 | -$66 | -$75 | -$103 |
| Rentals | -$28 | -$31 | -$34 | -$36 | -$36 | -$36 | -$35 |
| Royalties | -$2,031 | -$2,038 | -$2,024 | -$1,992 | -$2,082 | -$2,240 | -$2,215 |
| Other Revenues | -$21 | -$21 | -$21 | -$20 | -$21 | -$23 | -$23 |
| Total | -$2,256 | -$2,228 | -$2,171 | -$2,124 | -$2,206 | -$2,374 | -$2,375 |

| | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|
| Bids | -$135 | -$162 | -$141 | -$88 | -$11 |
| Rentals | -$31 | -$26 | -$23 | -$22 | -$21 |
| Royalties | -$1,977 | -$1,689 | -$1,505 | -$1,296 | -$1,036 |
| Other Revenues | -$20 | -$17 | -$15 | -$13 | -$11 |
| Total | -$2,163 | -$1,895 | -$1,685 | -$1,419 | -$1,079 |

*Source: Energy and Industrial Advisory Partners*

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