

# Potential Economic Impacts of Proposed Increases in Regulation and Taxes on Deepwater Drilling in the Gulf of Mexico

- Capital costs associated with exploration and production drilling are likely to rise in the post Macondo world for the following reasons:
  - higher insurance costs and the potential for unlimited economic liability;
  - additional regulation by permitting authorities;
  - more stringent drilling practices (e.g., requirement for back-up rigs and other supporting equipment ) and changes to well and rig designs .
  - increased taxes and fees
- Forty-four GOM deepwater projects are at pre-Final-Investment Decision (FID) stage and at risk of an extended moratorium or higher capital costs due to overly excessive regulation and taxation which could result in project delay or the outright cancellation of projects. Wood Mackenzie has estimated that higher drilling costs, regulatory delays and a 25% increase in overall capital costs due to increased regulations and taxes, would render the GOM deepwater fields sub-economic - unable to achieve a post-tax internal rate-of-return of even 10%.
- This analysis estimates the impacts on the US economy should deepwater development in the GOM cease due to sub-economic returns. The economic impacts reveal that a complete shut-down of deepwater drilling would:
  - Reduce direct and indirect employment in the oil & gas and its service industries by 93,000 jobs<sup>1</sup> - every year through 2035.
  - Reduce an additional 82,000 jobs every year through 2035 in non oil & gas related industries due to less income in the economy.
  - Reduce annual GDP by over \$20 billion per year or a cumulative impact of approximately \$500 billion in the next 25 years.
  - Reduce long-term U.S. oil production by 27 percent.
  - Increase long-term U.S. foreign oil imports by 19 percent.

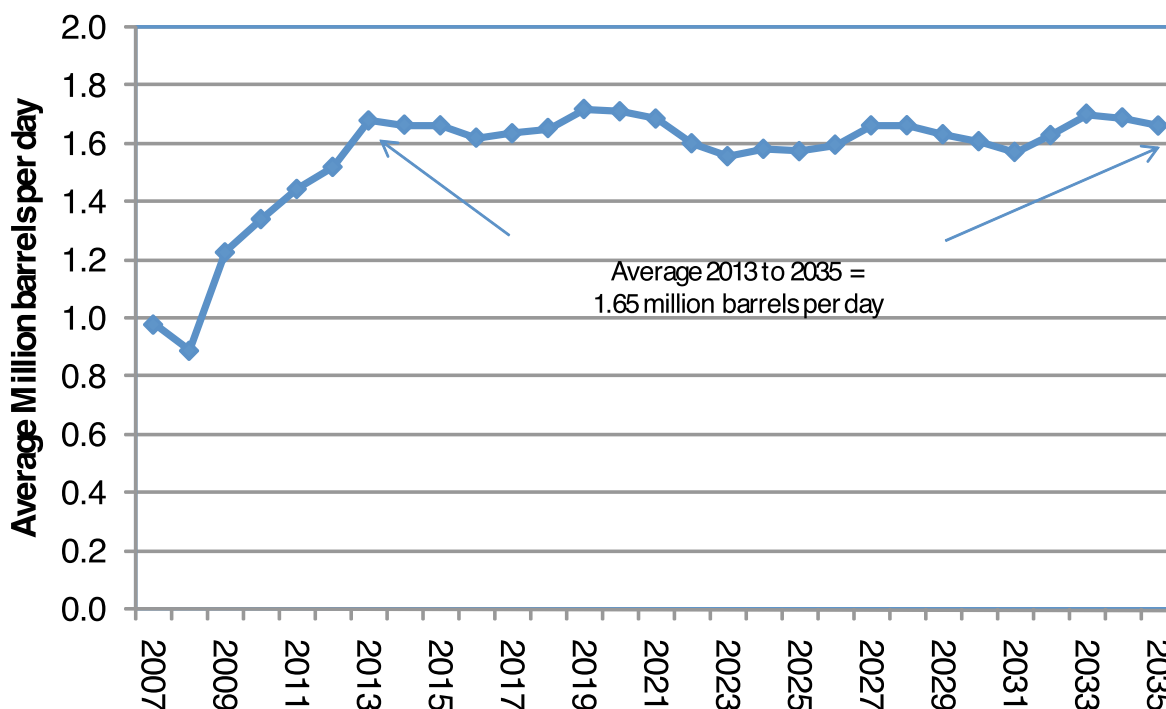
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<sup>1</sup> This is slightly higher than the current estimate of approximately 85,000 direct and indirect jobs related to deep water exploration and development. Production is projected to be higher in the future.

## Analysis

- EIA's Annual Energy Outlook 2010 (Reference Case originally released in December 2009) projected that deep water Gulf of Mexico oil production would rise from the 2009 level of 1.2 million barrels per day to over 1.65 million barrels per day by 2013. This level essentially remains constant for over 20 years until the end of the forecast in 2035.

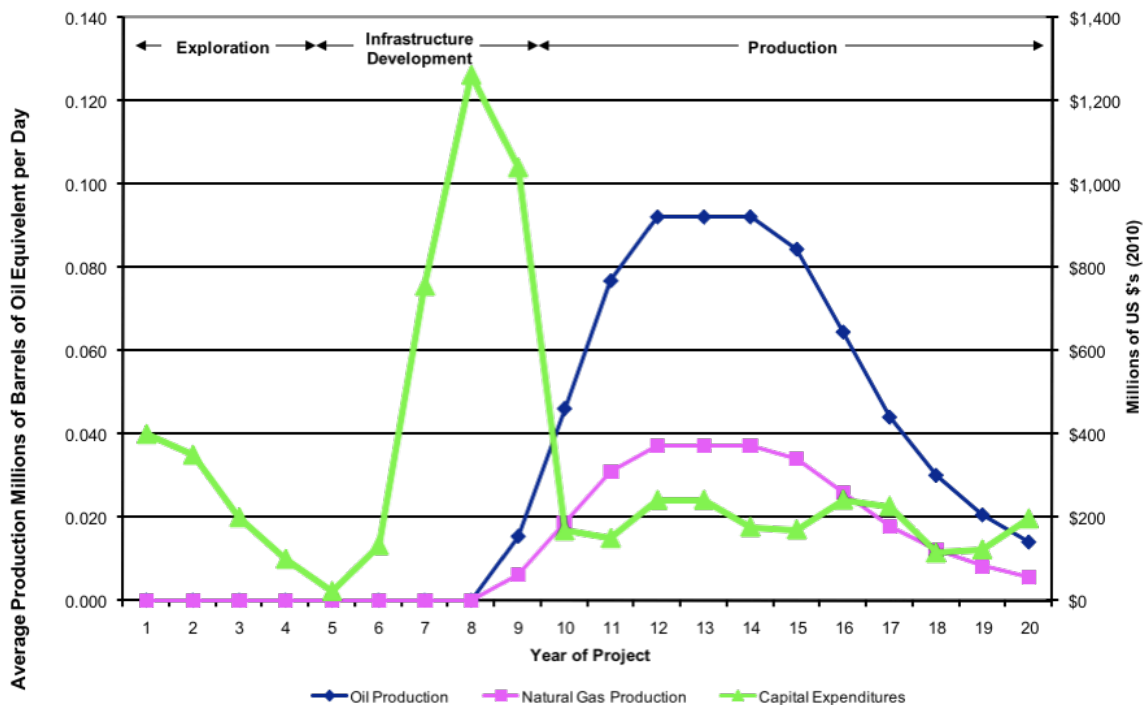
**Deep Gulf of Mexico Oil Production**  
**EIA Annual Energy Outlook 2010 - Reference Case**



- Total U.S. oil production is projected to also remain relatively steady between 2013 and 2035 at a little over 6 million barrels per day. The elimination of the deep water GOM oil production would reduce U.S. production by over 27 percent.
- The loss of domestic oil production would most likely be offset by increased foreign oil imports. The AEO 2010 forecasts projects relatively steady net oil imports at approximately 8.65 million barrels per day from 2013 to 2035. An additional 1.65 million barrels per day of imports would equate an increase of 19%.
- Deep water natural gas production is projected to increase from the current level of over 5 Bcf per day to an average of 7.75 Bcf per day by 2035. Although these volumes may be replaced by increases in U.S. onshore natural gas production, the marginal increases would most likely be at higher cost.

- The projected development expenditures needed to achieve GOM deep water development is based on a 2009 analysis by IHS Global Insight which itemized yearly expenditures for a 350 mmboe (250 oil and 100 natural gas) deep water GOM field at a total cost of approximately \$6.5 billion. This is in-line, if not slightly conservative, with current Wood Mackenzie estimates that a 200 mmboe would require \$4.1 billion in capex and a 400 mmboe requires \$8.6 billion.
  - The field life is 15 years.
  - Maximum flow of 47 mmboe for 4 years before declining.
  - Finding costs are assumed to be \$3 per boe, in-line with GOM historical averages.

**Annual Production and Capital Expenditures - Typical GOM Deepwater Field**



- Since oil and gas fields only produce at a maximum rate for only a few years before going into decline, new fields must be developed every year. In order to reach and maintain an average 1.65 million barrels of oil projected in the 2010 AEO, and average of 2.4 similar fields as the one above must start development every year for the next 20 years.
- The capital expenditures for each field differ significantly each year depending on the stage of development and peak as production platforms, pipelines, and other infrastructure are built right before production. However, since new fields must start development each year, total capital expenditures on exploration and development would be reasonably constant if long term oil production were to remain at a constant volume. To maintain an average 1.65 million barrels of oil production through 2035, approximately \$16 billion must be spent annually for

GOM exploration and development<sup>2</sup>.

- The IMPLAN (Version 3) economic impact assessment software was used to determine the employment and GDP impacts of a single field each year through its 20-year development cycle.

**Categorized Costs for a Deep Water GOM Field**

Total Expenditures			
All Years (\$millions)	Project Costs (IHS)	Split	IMPLAN Sector
\$450	Seismic		Support activities for other mining
\$300	Exploration Drilling Costs	50%	Drilling oil and gas wells
		50%	Water transportation
\$300	Well Test		Support activities for oil and gas operations
\$870	Development Drilling Costs		Drilling oil and gas wells
\$716	Subsea Structures		Mining and oil and gas field machinery manufacturing
\$459	Pipeline Construction		Support activities for oil and gas operations
\$591	Topsides Structures		Ship building and repairing
\$564	Floating Platforms		Ship building and repairing
\$1,798	Fixed Production Operating Costs	50%	Oil and gas extraction
		50%	Water transportation
\$499	Pipeline Tariffs		Pipeline transportation
\$6,547	Total		

Source: Global Insight, 2010.

- To estimate the average annual long-run economic impact of GOM deep water drilling, the single field IMPLAN results were multiplied by 2.4 to account for the estimated number of fields starting each year needed to meet the AEO 2010 forecast of GOM deepwater production. They were also summed across years to account for the fact that in any one year, there will be a multitude of fields in different stages of development.

**Average Annual Long-term Economic Impacts GOM Deep Water Drilling, 2013 – 2035**  
**(\$millions per year, except where indicated)**

<sup>2</sup> Cost pressures increase as an area is developed and the most promising prospects are developed first. However, cost pressures decrease with technology and efficiency advances.

<u>Impact Type</u>	<u>Employment</u> <sup>1</sup>	<u>Labor Income</u>	<u>Value Added (GDP Contribution)</u>
Direct Effect	30,183	\$3,242	\$6,610
Indirect Effect	63,207	\$4,234	\$6,706
Subtotal Industry	93,390	\$7,477	\$13,316
Induced Effect	82,051	\$3,848	\$6,814
<b>Total Effect</b>	<b>175,441</b>	<b>\$11,325</b>	<b>\$20,130</b>

<sup>1</sup> Employment as defined by the BLS.

- The approximate 93,000 jobs for direct and indirect employment related to deep water oil and gas development is slightly higher than current levels. This is to be expected with an increase in production rates from the current 1.2 million barrels of oil per day to about 1.65 million barrels per day by 2013.
- The additional 82,000 jobs per year that are induced represent the amount of jobs created in the economy as income from both labor and equity owner's is spent in the economy as a whole. This increases demand for goods and services in non oil and gas related sectors. Contrary to popular belief, the benefits of oil and gas development and production are not restricted to a narrow sector of the economy. Rather, its impacts are broad-based benefiting manufacturing, construction, real estate, finance and insurance, health and social services among others.
- Deep water drilling in the GOM was projected to contribute \$20 billion to the U.S. economy. The cumulative impact through 2035 is over \$500 billion.