Joint Economic Committee
Republicans
Senator Sam Brownback *Ranking Member*
Representative Kevin Brady *Senior House Republican*

Republican Staff Commentary

The Importance of Deepwater Oil & Gas Development in the Gulf of Mexico

July 21, 2010

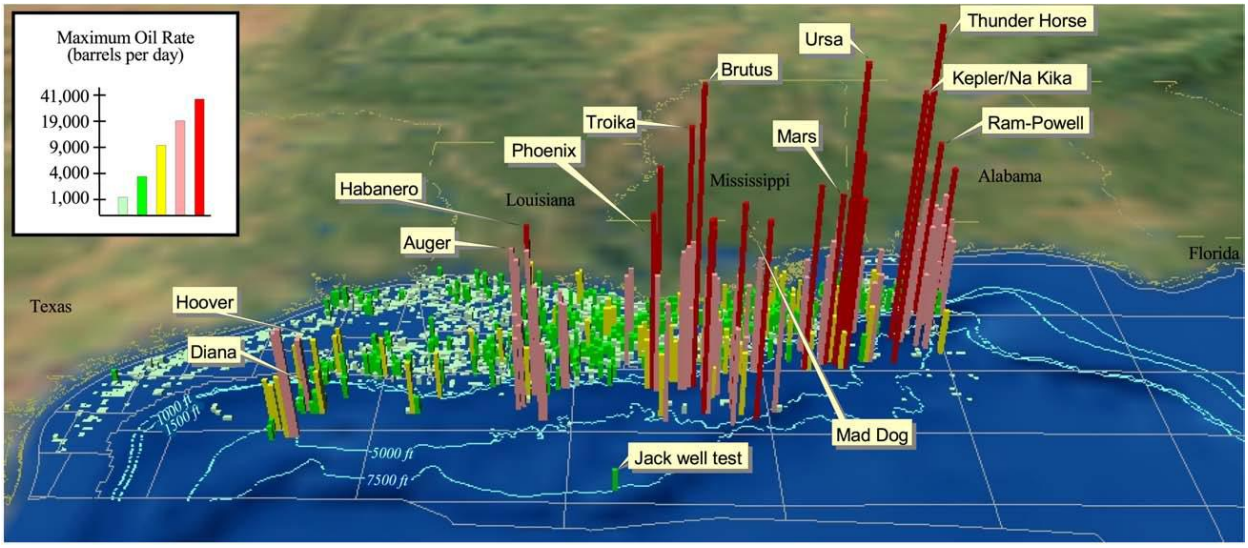
- *Deepwater offshore is the only source of substantial oil supply growth outside OPEC and Russia. The Administration risks crippling development in the world's leading deepwater producing area, the Gulf of Mexico.*
- *The world economy will need more oil to grow—not because of the U.S. and other advanced economies—but because of newly industrializing nations.*
- *Potential price shocks await as the oil price is near $80/barrel already even with much slack in the economy.*
- *North America needs to develop its natural resources for the sake of stability in the world oil market and the world economy.*
- *The Administration must not transform the economic problems caused by the spill into an even greater disaster; otherwise, we will suffer for it.*

Competing concerns. In 2008, the world experienced an oil price spike to nearly $150 per barrel, and U.S. motorists saw gasoline prices spike to well over $4 per gallon. The global financial crisis and the decline in worldwide economic activity broke the oil price surge, but the conditions that enabled it are likely to return. The price of oil initially fell to nearly $30 per barrel but has long since recovered and now is close to $80 per barrel. Can one be sure that $100 plus oil will not soon return?

Today, of course, the pressing concern is the oil that has escaped from the Macondo well that blew out and sank the Deepwater Horizon drilling platform in the Gulf of Mexico (GOM). Calamities that have befallen other parts of the U.S. economy induced the federal government to rush to contain the economic fallout. Indeed, this was the stated reason for saving failing financial institutions and Detroit automobile companies. However, environmental concerns have caused the Administration to stop the deep-water drilling industry dead in its tracks for six months without regard for the Gulf of Mexico's economy or the heightened risk of a future oil price shock. (See Figure 4 in the Appendix for well locations subject to the Interior Department's drilling moratorium).[i]

GOM is the backbone of oil & gas production in the U.S. The Gulf of Mexico is one of the most productive oil and gas basins in the world, and it has retained that status by extending development into deeper waters. There are nearly 7,000 active leases in the GOM, of which 64% are in "deep" water, 1,000 feet or more as defined by the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOE).[ii] In 2008, federal offshore GOM production exceeded that of any state in the nation and its proven reserves are second only to those of Texas.[iii] Federal GOM offshore oil production represents 31% of crude oil and 11% of natural gas production in the U.S. By 2009, nearly 4,000 wells had been drilled in more than 1,000 feet of water where 80% of the Gulf's oil and 45% of its natural gas production took place.[iv] Since 1986, 65 oil and gas discoveries occurred in water depths exceeding 5,000 feet, considered "ultra-deep" by BOE. As of 2009, the Bureau expected drilling activity at great depth to increase, as 15 new ultra-deep mobile offshore drilling units (MODUs) and four upgraded semisubmersible rigs have been under contract for delivery by 2011. The new MODUs are capable of drilling wells of 30,000 to 40,000 feet from the seafloor in water depths from 7,500 to 12,000 feet.[v] The Administration's original drilling ban applied to water depths exceeding 500 feet.

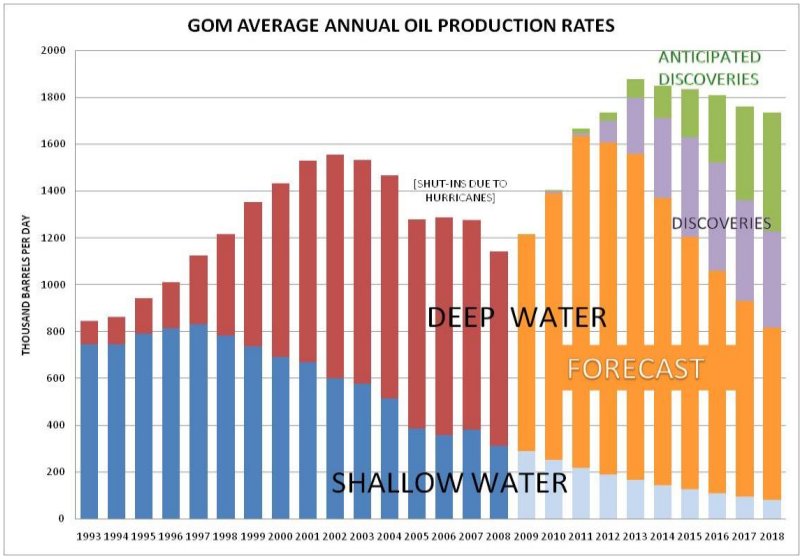
Figure 1 GOM OIL WELL OUTPUT RATES



"Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights," OCS Report MMS 2009-016, U.S. Department of the Interior, May 2009.

Figure 1 shows the maximum historic daily rate of oil production for the highest producing well of each lease in the Gulf. Figure 5 in the Appendix shows the same for natural gas production. These maps demonstrate that deepwater fields achieve some of the highest rates of output.

Figure 2



Reproduced from "Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights," OCS Report MMS 2009-016, U.S. Dpt. of the Interior, May 2009.

In 2008, the Gulf of Mexico's outer continental shelf (OCS) had the largest number of U.S. crude oil discoveries, which led to an increase in its proven reserves while reserves fell for the nation as a whole, offshore and on land.[vi] Prior to the accident and the moratorium, the Energy Information Administration (EIA) and the BOE had foreseen most U.S. oil production increases in the near-term coming from deep-water fields in the Gulf. Figure 2 depicts BOE's anticipated increase in deep-water production as well as the decline of shallow-water production. A Deutsche Bank research report states that, pre-spill, expected deepwater Gulf oil production increases essentially represented the entire net growth in U.S. oil supply and 4% of global oil supply growth to 2015.[vii]

A sophisticated, mature industry. Drilling in deep water is not experimental, rare, or low-budget. The first GOM deepwater discovery was made in 1986; in 2008 approximately 169 deepwater rigs were operating around the world. By 2008, 8% of global oil production came from deepwater fields.[viii] Deepwater operations require huge upfront investments. Exploration projects cost billions of dollars, and lease costs for a drilling rig of $0.5 million or more per day are not unusual. Major international oil companies have developed extraordinarily sophisticated technical knowhow and attracted the necessary, mostly private, capital to produce oil far from shore where political impediments have been few.

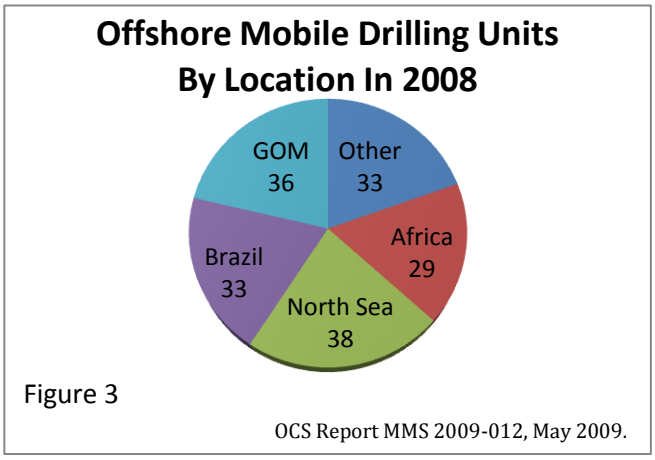


Figure 3

OCS Report MMS 2009-012, May 2009.

Hundreds of deepwater wells are producing millions of barrels of oil per day, and the industry plans to invest $167 billion on deepwater projects worldwide over the next four years, according to industry research firm Douglas-Westwood. But accidents happen as they do in other fields of human endeavor. In this connection it is worth noting that no substantial oil spills have occurred in the Gulf's "Hurricane Alley," even from storms as devastating as Katrina and Rita, which destroyed 113 offshore drilling platforms (mostly of older vintage) in 2005.[ix] In the prior 20 years, less than 0.001 percent of the oil produced in U.S. state and federal waters had been spilled.[x]

The 33 rigs active in the GOM subject to the moratorium were inspected after the Deepwater accident and no significant problems were found. Eight of the 15 experts who had reviewed the wording of the Interior Secretary's May Report before it contained a drilling moratorium even stated in a letter to Senator Landrieu and other government officials: "Indeed, an argument can be made that the changes made in the wording [adding a blanket moratorium to the final report] are counterproductive to long term safety." They pointed out that the safety of offshore workers is much better than that of the average worker in the U.S. A blanket moratorium, they said, "will not measurably reduce risk further and it will have a lasting impact on the nation's economy which may be greater than that of the spill."[xi]

The regional fallout. The Louisiana Mid-Continent Oil and Gas Association, as of May 28, 2010, estimated the daily lease cost per rig between $250,000 and $500,000 for the 33 rigs that had to suspend operations. The Association projected that, including supply boats, the total potential revenue loss would be $8.75 million to $17.49 million per day. Its assessment is that 800 to 1,400 jobs are at risk for each rig with a potential total wage loss of up to $330 million per month. Twenty-seven percent of total national drilling employment is in Harris County, Texas (14,881) and Lafayette Parish, Louisiana (2,014).[xii] The economic fallout for the Gulf region, of course, may be worse as income lost and dollars not spent hurt employment in other sectors.

Bending the cost curve up. As serious as these effects are, there are larger effects that harm not only the Gulf coast. The Deepwater Horizon accident will add delays and costs to deepwater operations in the Gulf and elsewhere. EIA estimates that in the 4th quarter of 2010 the moratorium will reduce oil production by 31,000 barrels per day (b/d) and by 82,000 b/d in 2011 on average.[xiii] However, estimates by consulting firm Wood Mackenzie are much higher: 46,000 b/d in 2010 and 93,000 b/d in 2011, and the potential delay of new projects could cut another 100,000 b/d in 2011.[xiv] The combination of the moratorium, tightened drilling regulations, and longer permitting timeframes could defer as much as 340,000 b/d in 2015, representing 17% of GOM deepwater production, according to Wood Mackenzie. Once rigs can no longer be kept busy with incidental work and relocate, resumption of drilling in the GOM will be delayed further. The Administration also has cancelled lease sales in Alaska and off the coast of Virginia.

Enhancing safety regulations will increase costs. New safety regulations will require retrofitting or replacing drilling equipment. Wood Mackenzie estimates that a 20% increase in capital and operating costs would erode over $11 billion in value from existing deepwater GOM projects, and would reduce federal tax revenues from those fields by more than $5.4 billion. Such an increase in cost could marginalize at least seven current discoveries, putting another $7.6 billion in future government revenues at risk.

Publicly available estimates of the cost per barrel of producing oil in deep water are mostly in the range of $50 to $60, although some are as high as $70. Unless the government minimizes delays to exploration and development activity, is mindful of the cost impacts of new regulatory requirements, royalties, and increased industry liability for spills, it will bend upward permanently the already very steep cost curve of the global oil supply. Wood Mackenzie points out that insurance rates have risen sharply already. The view that environmental damage is an "externality" whose cost oil companies ignore hardly applies. Oil companies cannot hide large spills, and they know that huge costs face them if one occurs. Furthermore, the moratorium demonstrates that the government can deny them access to their discoveries. The Interior Secretary's May Report states that over 50,000 wells have been drilled since 1947 in the federal GOM. Yet the industry has a remarkable safety record. Accidents will happen even when all relevant costs have been taken into account.

Supply, price concerns. OPEC accounts for 42% of the world's oil production. Russia, which does not belong to OPEC, offered to cooperate with the cartel prior to the world economic crisis. OPEC and Russia together account for 56% of the world's crude oil production. More importantly, they account for 75% of the world's proven oil reserves (OPEC 70%, Russia 4.4%). The only other region that holds a substantial share of proven oil reserves is North America with 15% (including Canadian oil sands). And, North America's resource potential is much larger than the proven reserves. The oil price spikes occurred because China and other industrializing countries demanded more oil and OPEC largely refused to produce more. Price volatility increased because the market saw the increasing trend in demand with no clear understanding of how supply would respond. The oil price is back near $80 per barrel despite slack in the world economy, because OPEC has cut back its oil production substantially. It is important for the stability of the world oil market and by extension world economic growth, including U.S. economic growth, that the oil supply outside of OPEC not remain highly inelastic. Otherwise, a handful of oil exporting nations will be in a position to extort the rest financially and politically. Industrialization the world over will require more oil than advanced countries can save. For some time already, developed economies have grown without increasing their oil use. Oil consumption in the U.S., for example, has been relatively flat for 10 years and has declined since 2005, despite a growing population and economy. The U.S. share of world oil consumption has declined steadily since 1999 from 25.8% to 22.3% in 2009. China, on the other hand, just became the world's largest energy consumer.

Conclusions. In addition to the painful immediate impacts from the spill in the form of lost income and employment hitting the Gulf's economy, the country faces the question of what this spill will do to its long-term energy supply. Deepwater development was a promising source of incremental oil and gas among otherwise anemic growth in non-OPEC supply. The nation may live to regret it if it treats the Gulf spill solely as an environmental disaster and not as an economic one also. Pretending that the price of oil cannot go much above $80 per barrel, that the economy could handle any oil price increase, or that alternative energy sources can be scaled up on command to replace oil will cause this nation to confront a very hard reality in a very short time. China, India, and other industrializing nations will not slow economic development just to ease demand for natural resources, and deepwater production cannot be turned back on like a faucet when nosebleed prices return. We already know what the response will be from OPEC and Russia to pleas for more oil production.

Theodore Boll

APPENDIX

Figure 4 LOCATION OF 33 WELLS SUBJECT TO MORATORIUM
(Courtesy of Wood Mackenzie)

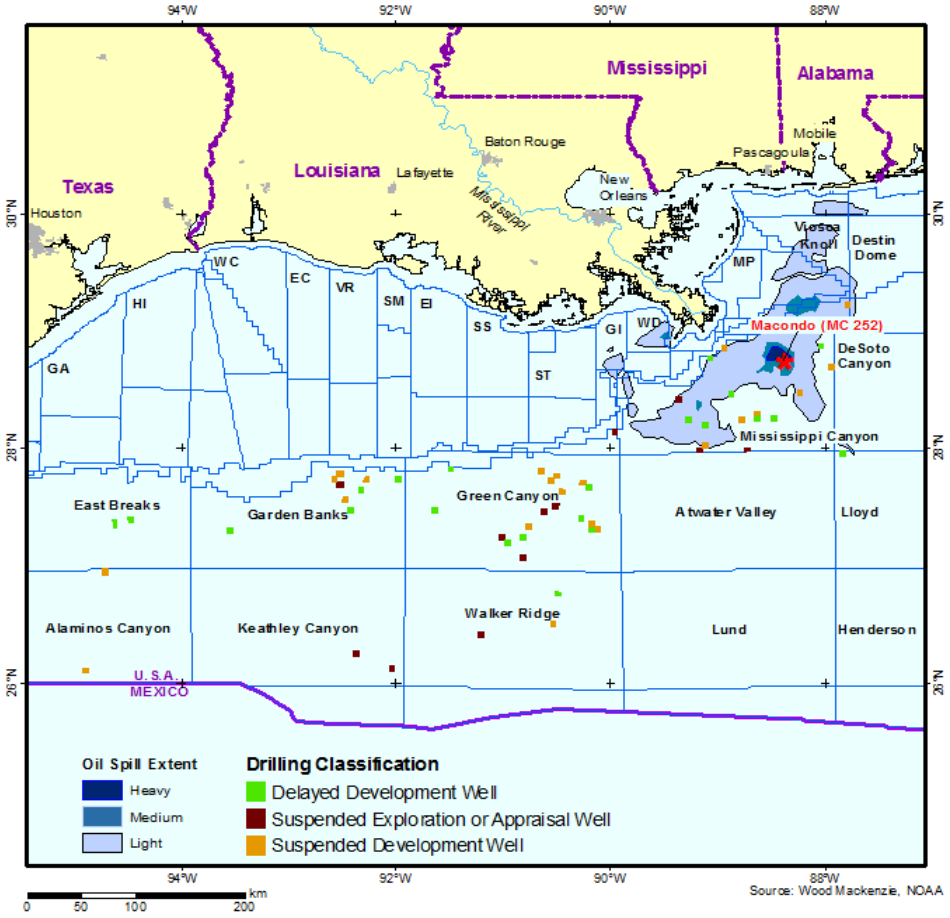
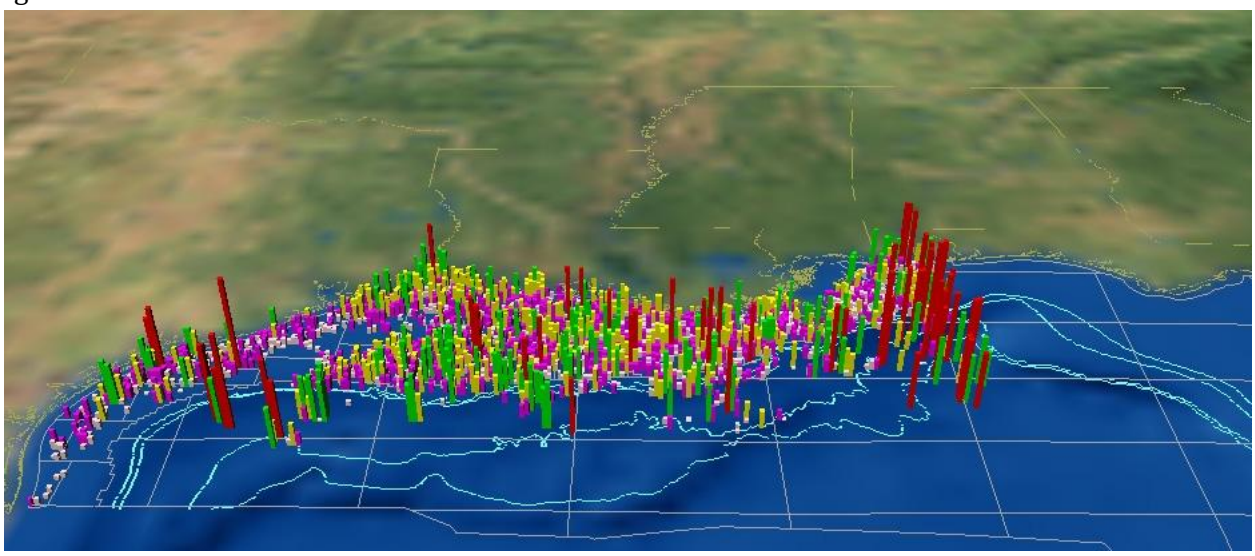


Figure 5 GOM NATURAL GAS WELL OUTPUT RATES



"Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights," OCS Report MMS 2009-016, U.S. Department of the Interior, May 2009.

ENDNOTES

[i] In a May 2010 report, Secretary of the Interior Salazar recommended a six-month moratorium on permits for new wells being drilled using floating rigs and an immediate halt (as soon as safely practicable) to drilling operations on 33 permitted deepwater wells being drilled at the time in the GOM. See, "Increased Safety Measures for Energy Development on the Outer Continental Shelf," Department of the Interior, May 27, 2010 ("Interior Secretary's May Report"). A map showing the 33 wells is provided courtesy of Wood Mackenzie in the Appendix. After an appellate court upheld a court injunction of the Secretary's May 28th decision to suspend drilling in more than 500 feet of water, the Secretary changed the suspension criterion to the type of blowout prevention equipment used in deepwater operations from the "functionally equivalent concept of water depth (see Secretary of the Interior Decision Memorandum, July 12, 2010, p. 9., fn. 6)."

[ii] Formerly named the Minerals Management Service (MMS).

[iii] "U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 2008," Energy Information Administration, October 29, 2009, Table 4.

[iv] Interior Secretary's May Report, pp.3, 4.

[v] "Deepwater Gulf of Mexico: Interim Report of 2009 Highlights," OCS Report MMS 2009-016, Department of the Interior, May 2009, p.10.

[vi] "U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 2008," Energy Information Administration, October 29, 2009, Table 4.

[vii] "Macondo and the Global Deepwater," Global Markets Research, Deutsche Bank, June 6, 2010.

[viii] Ben Casselman and Guy Chazan, "Cramped on Land, Big Oil Bets at Sea," *The Wall Street Journal*, January 6, 2010 (presenting data from PFC Energy).

[ix] "Short-Term Energy Outlook Supplement: The 2008 Outlook for Hurricane Production Outages in the Gulf of Mexico," Energy Information Administration, June 2008, p.2. Shut-ins due to hurricanes have contributed to the production decline in the Gulf in recent years, as seen in Figure 2.

[x] "Leasing Oil And Natural Gas Resources—Outer Continental Shelf," Department of the Interior, MMS, p.5; http://www.mms.gov/ld/PDFs/GreenBook-LeasingDocument.pdf.

[xi] It is worth recalling a far larger oil spill in Mexico's Bay of Campeche that started on June 3, 1979. Mexico's national oil company, Pemex, experienced a blowout in its Ixtoc 1 well (in 160 feet of water), which spewed oil until March 23, 1980. The total uncontrolled discharge was 3.3 million barrels affecting the Mexican/South Texas coastline. Its effects have turned out to be minor.

[xii] According to the most recent Bureau of Labor Statistics (BLS) data available. National employment in oil and gas well drilling was 63,012 in September 2009. According to the Interior Secretary's May Report, offshore operations provide direct employment of 150,000 jobs (MMS database, 2010).

[xiii] "Short-term Energy Outlook," EIA, July 7, 2010.

[xiv] "Moratorium halts U.S. deepwater drilling for six months," Upstream Insight, North America, Wood Mackenzie, June 3, 2010.