

From: owner-snl-nisac-dutydesk@sandia.gov [owner-snl-nisac-dutydesk@sandia.gov] on behalf of Pillow, Krisha [Krisha.Pillow@dhs.gov]
Sent: Friday, July 30, 2010 6:37 AM
To: snl-nisac-dutydesk; lanl-nisac-dutydesk@lanl.gov
Subject: FW: Deepwater Economic Impact Data - govt use only
Attachments: Effects of Drilling Pause for 6 Months.doc

NOT FOR FURTHER DISTRIBUTION

From: Alt, Richard
Sent: Thursday, July 29, 2010 5:39 PM
To: Pillow, Krisha; Smith, Susan; Herrin, Steven; Frantz, Andrew; Wales, Brandon
Subject: FW: Deepwater Economic Impact Data - govt use only

Once this is finalized with the WH those who have a responsibility for tracking economic impacts to oil production may want to examine what factors went into this process for future studies that may come our way. As noted this is a DRAFT and not meant for a wider distribution.

From: Hicks, Tiffany
Sent: Thursday, July 29, 2010 4:45 PM
To: Alt, Richard
Cc: Grayburn, Lindsey <CTR>; Grinder, Donald
Subject: FW: Deepwater Economic Impact Data - govt use only

Rich,

I received the attached document from July McWilliams. She is one of the newer DOI-BOEM (formerly MMS) reps at the NIC. I was discussing the economic impacts working group with her and she indicated BOEM has almost completed their analysis on the impacts from the moratorium. It estimates the impact to drilling activity, production, and revenues. This analysis was prepared on the stipulations of the first moratorium, and is pretty technical, but it is useful in showing what data are being used by BOEM to do this analysis and rough estimates of the potential impacts.

As she states below, this is a preliminary estimate and not cleared by the White House yet.

Some of the key highlights include:

- 45 drilling rigs in depths greater than 500 feet would be affected
- The estimated direct lost employment amounts is 9,450 workers during this time, indirect employment impacts are also estimated
- The gross value of the production that would be delayed during the moratorium is estimated to be about \$2.6 billion
- Loss to government revenue for FY2011 is estimated to be \$692 million
- The total impact of government revenues and industry profits in 2011 is estimated to be \$3.3 billion
- Calculated that 57 additional wells would have been drilled during the 6-month ban after completion of the 25 wells that were currently being drilled at the time of the ban.

Sincerely,

Tiffany

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From: prvs=819ebfdd6=Jully.McQuilliams@boemre.gov on behalf of McQuilliams, Jully
Sent: Thu 7/29/2010 4:05 PM
To: jbarnes@eda.doc.gov
Cc: Cesnik, Catherine M; Steve Hammond; Mark Miller - NOAA; Hicks, Tiffany; matthews.denise@doi.gov; Brown, Baron CDR
Subject: FW: Deepwater Economic Impact Data - govt use only

Josh,

As you requested, please see economic impacts paper from DOI attached. This is a preliminary estimate as of June 2010 from DOI-BOEM. The drilling moratorium reference is the original one, not the revised moratorium. I'll keep you posted if there are future updates. This info was sent to the WH but hasn't been cleared yet, so please don't distribute outside of official govt use only.

Also, you may be interested in these recent external studies below - (not DOI reviewed) - that have studied this topic.

LSU Study - July 2010 - The Economic Cost of a Moratorium on Offshore Oil and Gas Exploration to the Gulf Region.
http://www.saveusenergyjobs.com/wp-content/uploads/2010/07/The_Economic_Cost_of_a_Moratorium_on_Offshore%20Oil_and_Gas_Exploration_to_the_Gulf_Region.pdf

IHS Global Study - July 2010 - The Economic Impact of the Gulf of Mexico Offshore Oil and Natural Gas Industry and the Role of the Independents <http://www.ihsglobalinsight.com/Scripts/registrationForm.cfm?ID=177>

If you have any questions, please don't hesitate to contact me.

Thanks,

Jully McQuilliams,
National Incident Command (NIC)
Inter-Agency Solutions Group (IASG)
DOI – BOEM Rep

From: Kunkel, Kevin
Sent: Tuesday, July 20, 2010 10:47 AM
To: McQuilliams, Jully; 'jbarnes@eda.doc.gov'
Subject: Fw: Deepwater Economic Impact Data

From: Barnes, Joshua <jbarnes@eda.doc.gov>
To: Kunkel, Kevin
Sent: Tue Jul 20 08:31:17 2010
Subject: Deepwater Economic Impact Data

Hi Kevin,

It was a pleasure speaking with you last week. As a follow-up, can you send me (or connect me with the POC) any analysis/data related to the oil platforms impacted by the drilling suspension and their subsequent economic impact? If the information is available, the impact described by industry sector and location would be quite helpful.

Thank you,

Josh

Joshua Barnes

National Incident Command - Economic Solutions Team

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Effects of Drilling Pause for 6 Months

The following analysis looks at the effects of the 6-month pause in the drilling of new and current wells in the deep waters of the Gulf of Mexico (GOM) imposed on May 30, 2010. The analysis compares estimates of drilling activity, production, and revenues that would have occurred without the ban to estimates of the same with the pause.

There are 45 drilling rigs in greater than 500 feet in the GOM that will be affected by the drilling pause. This count of semi-submersibles and drillships is based on a list of current rig activity in the deepwater and from new rigs expected to begin working before the end of the year. The number of platform rigs comes from the GOM Current Deepwater Activity Report as of May 19. We assumed that this level of platform rig activity would have continued through the end of the year. The breakout by water depth and type of rig is shown below.

Water Depth Interval (feet)	Number of Drillships	Number of Semi-submersibles	Number of Platform Rigs	Total Rigs
500-1500	0	1	1	2
1500-5000	6	8	8	22
5000-7500	2	12	0	14
>7500	3	3	1	7
Total	11	24	10	45

Some media sources have cited 33 or 35 as the number of rigs affected by the deepwater drilling pause. However, the first number likely fails to take into account two semisubmersible rigs drilling the relief wells at the Macondo site, while both numbers almost certainly exclude 10 platform rigs affected by the drilling pause.

Based on the drilling status of the 45 rigs as of May 27, 5 drillships, 14 semisubmersibles, and 6 platform rigs were in the process of drilling when the order to stop drilling was announced. The remaining 20 of the 45 rigs had either recently finished drilling, had not yet started drilling, were in the process of completing wells, were in transit to begin working in the GOM, or were under construction.

2010 Spending and Employment Impacts

For job and spending impacts, we assume that since rigs must stop drilling, direct employment on the rigs along with supply crews, along with spending for the rigs would also stop and would resume normally once drilling once the rigs resume operations. We assumed that drilling is not capable of immediately returning to current levels once the ban is lifted, so we allowed for an additional month before drilling could re-start on January 1, 2011.

Jobs Impact

The employment impacts on the drilling ban in the deepwater GOM would be felt through the end of 2010, when the ban expires. We estimated the number of workers per rig in each of the water depths indicated below. This employment per rig includes both shifts, where half of the employees are on the rig at all times. This includes employees on the water and supply crews.

	Employees per Drill Ship	Employees per Semi-submersible	Employees per Platform Rig
500-1500	150	150	50
1500-5000	200	200	50
5000-7500	300	300	50
>7500	300	300	50

Based on the number of rigs that will not be able to drill as a result of the ban and the number of workers we assumed to be on each rig, the sum of the direct lost employment amounts to 9,450 workers in CY 2010. Of these, 8,950 employees are on deepwater drillships and semi-submersible rigs. The total employment, 9,450, is revised from our earlier estimates primarily to include lost employment from platform rigs. The total employment broken out by water depth and rig type is included in the table below.

	Employees on Drill Ships	Employees on Semi-submersibles	Employees on Platform Rigs	Total Employment by Water Depth
500-1500	0	150	50	200
1500-5000	1,200	1,600	400	3,200
5000-7500	600	3,600	0	4,200
>7500	900	900	50	1,850
Total Employment	2,700	6,250	500	9,450

The associated indirect and induced employments effects throughout the economy are given in the table below. The multipliers are from Mag-Plan (with 0.52 for indirect, 0.94 for induced, and the total being 2.46 times the direct employment total). Although other multiplier effects cited in the media and in political correspondence are at higher levels, we are comfortable with our conservative approach, because the loss in employment is not long term, so the full effects of the indirect and induced employment may not be fully felt as some businesses may be willing sustain short term losses to avoid having to lay off and subsequently rehire workers.

Note that direct impacts result from the first round of spending by the offshore oil and gas industry, the government, and oil companies from costs, revenue impacts and profits. The indirect impacts are the impacts associated with the “ripple-effect” spending by support industries providing goods and services. The induced impacts are felt from household spending of income earned either directly or indirectly from spending by oil companies and the government. Since this is a short term drilling pause, these impacts may not all be felt immediately and some effects may linger past the end of the drilling pause.

	Direct Employment	Indirect Employment	Induced Employment	Total Employment
Drill Ship Employment	2,700	1,404	2,538	6,642
Semi Submersible Employment	6,250	3,250	5,875	15,375
Platform Employment	500	260	470	1,230
Total Lost Employment	9,450	4,914	8,883	23,247

Spending Impacts

To calculate the spending impacts for the drilling delay, we looked at the daily cost of the rig and the number of days the rig would not be drilled.

We used the average daily rig rate in each water depth and multiplied by two to reflect supplementary costs of operating the rigs. This calculation is based on conversations with industry indicating that the average daily costs of operating a drilling rig are about equal to the daily costs of leasing the rig. Of these costs, a portion of the daily rig leasing costs is used to pay the rig operator and to pay the drilling rig employees. All of the other employees and contract employees are paid out of the operating costs of the rig. These operating costs also cover all of the materials and supplies necessary to support drilling activities. The costs for both the day rate and the operating activities are paid by all the lease owners through the operator.

Idle days per rig are used in the analysis as days the rig cannot drill and are labeled in this summary as “Days not Drilled.” “Days not Drilled” is every day that the rig is not drilling because of the ban. This is not necessarily related to how long it takes to drill a well, but rather is a measure of how long a rig is unemployed.

The table below shows the daily rig cost along with the “Days not Drilled” for wells that were both stopped during drilling (current wells) and for wells that would be drilled during the rest of 2010 (new wells). For current wells, the “Days not Drilled” is the number of days the rig would have needed to finish what it was currently drilling. For new wells, it is all the remaining days between the time the current well would have been finished (or the rig became available for drilling) to the effective end of the drilling ban which we assumed to be the end of the year.

	Drillships			Semi-submersible Rigs			Platform Rigs		
	Daily Rig Cost	Days not Drilled		Daily Rig Cost	Days not Drilled		Daily Rig Cost	Days not Drilled	
		Current Wells	New Wells		Current Wells	New Wells		Current Wells	New Wells
500-1500	\$354,000	0	0	\$612,988	72	142	\$74,677	46	168
1500-5000	\$494,000	251	805	\$612,971	311	1,316	\$74,677	275	811
5000-7500	\$718,000	49	243	\$825,338	494	1,773	\$74,677	0	538
>7500	\$906,000	0	476	\$825,338	120	402	\$74,677	0	184
Total		300	1,524		997	3,633		321	1,701

We multiplied the daily cost per rig by the number of days the rigs would be idle in 2010 as imposed and implied by the drilling ban. Industry spending not incurred in 2010 is given in the chart below for both current wells and new wells. The indirect and induced multipliers on industry spending are taken from Mag-Plan (0.48 to indirect, 0.67 to induced, and the total being 2.15 times the direct impact).

(\$ mil)	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Drill Ships	\$ 159	\$ 76	\$ 107	\$ 342
Semi Submersibles	\$ 742	\$ 356	\$ 497	\$ 1,594
Platforms	\$ 24	\$ 12	\$ 16	\$ 52
Total from Currently Drilling Wells	\$ 925	\$ 444	\$ 620	\$ 1,988
Drill Ships	\$ 1,003	\$ 482	\$ 672	\$ 2,157
Semi Submersibles	\$ 2,689	\$ 1,291	\$ 1,802	\$ 5,781
Platforms	\$ 127	\$ 61	\$ 85	\$ 273

Total from New Wells to be Drilled	\$ 3,819	\$ 1,833	\$ 2,559	\$ 8,211
Total Delayed Spending	\$ 4,744	\$ 2,277	\$ 3,178	\$ 10,199

Rental Impacts

We assumed rental payments are suspended only for those leases with an Application for Permit to Drill (APD) and for those that are currently drilling. Because rents are paid on non-producing leases, only 11 of the 25 leases currently being drilled at the time of the ban would be paying rent. In addition, 12 of the 34 leases with an APD are paying rent. So, the rental payments of 23 leases will not be collected because of the drilling pause. Of the 23 leases paying rent, 1 is paying \$3 per acre per year, 12 are paying \$7.50, and 10 are paying \$9.50. Each of the leases is 5,760 acres and we assumed rental payments would be suspended for half a year.

The impacts of the lost rental revenues are shown in the table below. The government spending multipliers are from Mag-Plan (0.31 to indirect, 1.46 to induced, with the total being 2.77 times the direct impact).

	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Rents (\$mil)	\$ 0.5	\$ 0.2	\$ 0.8	\$ 1.5

2010 GDP Impacts

The total impact of rents and industry spending in 2010 is \$10.2 billion (sum of the total impact of industry spending and rents). This makes up 0.070% of the estimated 2010 GDP.

FY2011 Production and Revenue Impacts

Production Impacts

Based on the rigs currently drilling at the time of the drilling pause, the following table shows the type and number of wells that were being drilled at the time of the shut down.

Water Depth Interval (feet)	Drillship Wells	Semi-Submersible Wells	Platform Wells	Total Wells
500-1500	0	1	1	2
1500-5000	4	4	5	13
5000-7500	1	8	0	9
>7500	0	1	0	1
Total	5	14	6	25

In addition to the 25 rigs drilling the above wells, there are 20 more rigs working in the GOM that were temporarily not drilling for various reasons mentioned earlier at the time of the pause. This makes a total of 45 rigs available for continuous drilling in the deepwater GOM at the end of May, 2010.

To calculate the number of new wells that would have been drilled through the end of the year, we projected when each of the 45 rigs would have been available to drill their next well. This was based on projections of when the current well would be finished, when construction would be finished, or

when the rig would arrive at its next location. Research indicates that the average time to drill a well is approximately 90 days, but the time between starts of wells is somewhat longer, closer to 120 days. Based on the time that each rig would become available to drill a new well, we assumed the rig started a well and continued that well for 120 days. At that point it started a new well. Whenever a well could not be finished by the end of the six month ban, the proportional fraction of the well that was finished was included in the totals. With these assumptions, we calculated that 57 additional wells would have been drilled during the 6-month ban after completion of the 25 wells that were currently being drilled at the time of the ban.

The following table shows all of the rigs operating the GOM, their current status and the dates they will start future wells. Those rigs actively drilling prior to the ban are shown in green.

Rig/owner	Rig	Lease operator	Water Depth	Area/Block	Current Location	Activity	Location Information	Status	Project Name	Future Well	1st Well	Start Dates	2nd Well	Wells Finished
Drillships														
1 Transocean	Discoverer Enterprise	BP	4,992	MC 252	Relief	Relief Well 1	Relief Well 1	Macondo	15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	0.767
2 Transocean	Discoverer Deep Seas	Petrobras	8,850	WR 469	Finished	Relief Well 2	Relief Well 2	Macondo	15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	1.783
3 Transocean	Discoverer Spirit	Anadarko	7,790	MC 876	Completing	Plugging and abandoning well	Temporarily abandoning well	Callisto	15-Jun	15-Jun	14-Nov	13-Oct	29-Sep	1.533
4 Transocean	Discoverer America	Statcoi	2,036	MC 540	Completing	Operations completed May 5, 2010	Operations completed May 5, 2010	Kralakra	15-Jun	15-Jun	14-Nov	13-Oct	29-Sep	1.375
5 Stena	Stenaforth	Hess	3,350	GC 469	Drilling -78%	Completing well		Pony	7-Jul	7-Jul	14-Nov	13-Oct	29-Sep	1.375
6 Transocean	Discoverer Inspiration	Chevron	6,750	KC 736	Drilling -78%			Mocasin	19-Jul	19-Jul	16-Nov	14-Oct	30-Sep	1.375
7 Transocean	GSF CR Luigs	BHP Billiton	4,234	GC 653	Drilling -56%	BOP on deck for yellow pod repair		Shenzl	20-Jul	20-Jul	17-Nov	15-Oct	7-Dec	1.200
8 Transocean	Discoverer Clear Leader	Chevron	4,292	GC 640	Drilling -24%			Tahiti	9-Aug	9-Aug	7-Dec	7-Dec	7-Dec	0.967
9 Transocean	Deepwater Pathfinder	Eni			Not Started	En route to gulf. Drilling starts September 2010			15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	0.650
10 Pride	Deep Ocean Ascension	BP			Not Started	En route. Drilling starts 3rd Q 2010			15-Oct	15-Oct	14-Nov	13-Oct	29-Sep	0.650
11 Frontier Drilling	Bully 1	Shell			Not Started	Construction. Drilling starts 2010			15-Oct	15-Oct	14-Nov	13-Oct	29-Sep	12.675
Semi-Submersibles														
12 Transocean	GSF Development Driller III	BP	5,159	MC 252	Relief	Relief Well 1	Relief Well 1	Macondo	15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	0.900
13 Transocean	GSF Development Driller II	BP	5,159	MC 252	Relief	Relief Well 2	Relief Well 2	Macondo	15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	0.900
14 Noble	Clyde Boudreaux	Noble	5,040	GC 723	Finished	Plugging and abandoning well	Temporarily abandoning well	Deep Blue	15-Jun	15-Jun	14-Nov	13-Oct	29-Sep	1.667
15 Diamond	Ocean Monarch	Marathon	3,831	GC 511	Finished	Operations completed May 5, 2010	Operations completed May 5, 2010	Krothy Head	15-Jun	15-Jun	14-Nov	13-Oct	29-Sep	1.667
16 Seadrill	West Sirius	Devon/BP	8,142	WR 206	Finished			Cascade	15-Jun	15-Jun	14-Nov	13-Oct	29-Sep	1.558
17 Noble	Jim Thompson	Shell	4,038	MC 964	Drilling -103%			Vito	28-Jun	28-Jun	26-Oct	26-Oct	26-Oct	1.533
18 Frontier Drilling	Driller	Shell	3,243	GC 248	Completing	Completing well		Glider	1-Jul	1-Jul	29-Oct	29-Oct	29-Oct	1.533
19 Transocean	Ambrante	Eni	3,226	GC 254	Drilling -99%			Allegheny	1-Jul	1-Jul	29-Oct	29-Oct	29-Oct	1.533
20 Maersk	Developer	Statcoi	6,667	WR 543	Drilling -97%			Trust	3-Jul	3-Jul	31-Oct	31-Oct	31-Oct	1.517
21 Transocean	Deepwater Nautilus	Shell	5,292	MC 667	Drilling -96%			Alansa	4-Jul	4-Jul	1-Nov	1-Nov	1-Nov	1.508
22 Noble	Lorris Bouzgard	LLoG Exploration	2,642	MC 503	Drilling -87%			Appaloosa	12-Jul	12-Jul	9-Nov	9-Nov	9-Nov	1.442
23 Transocean	Maianas	Eni	5,380	MC 728	Drilling -82%			Triton	17-Jul	17-Jul	14-Nov	13-Oct	29-Sep	1.400
24 Enco	8500	Anadarko	5,272	GC 903	Drilling -65%			Heidelberg	1-Aug	1-Aug	29-Nov	29-Nov	29-Nov	1.275
25 Noble	Amos Runner	Anadarko	6,840	KC 875	Drilling -64%			Lucius	2-Aug	2-Aug	30-Nov	30-Nov	30-Nov	1.267
26 Enco	8501	Noble	6,500	MC 519	Drilling -60%			Santa Cruz	6-Aug	6-Aug	4-Dec	4-Dec	4-Dec	1.233
27 Diamond	Ocean Voyager	Water Oil & Gas	1,183	EB 834	Drilling -55%			Hummingbird	12-Aug	12-Aug	10-Dec	10-Dec	10-Dec	1.183
28 Noble	Paul Romano	Marathon	6,291	MC 993	Drilling -51%			Jmsbruck	14-Aug	14-Aug	11-Dec	11-Dec	11-Dec	1.167
29 Transocean	GSF Development Driller I	BHP Billiton	4,439	GC 817	Starting New Well	most recent location		Baha	29-Sep	29-Sep	14-Nov	13-Oct	29-Sep	0.783
30 Noble	Danny Atkins	Shell	7,790	AC 557	Starting New Well	Commissioning inspection on location			29-Sep	29-Sep	14-Nov	13-Oct	29-Sep	0.783
31 Diamond	Ocean Confidence	ATP	5,822	MC 305	Starting New Well	Moved on location May 18			29-Sep	29-Sep	14-Nov	13-Oct	29-Sep	0.783
32 Diamond	Ocean Victory	Newfield	2,093	GB 293	Starting New Well	new location - running anchors		Pirenees	15-Aug	15-Aug	13-Dec	13-Dec	13-Dec	1.158
33 Enco	8502	Neven			Not Started	En route to gulf. Drilling starts August 2010			15-Aug	15-Aug	13-Dec	13-Dec	13-Dec	1.158
34 Diamond	Ocean Endeavor	Devon/BP			Not Started	Waiting on location			15-Aug	15-Aug	13-Dec	13-Dec	13-Dec	0.900
35 Noble	Jim Day	Marathon			Not Started	Construction. Drilling starts September 2010			15-Sep	15-Sep	14-Nov	13-Oct	29-Sep	29.765
Platform Rigs (Assume that 10 are drilling at any one time in deepwater GOM)														
36			500-1,500								17-Jul	14-Nov	13-Oct	1.400
37			1,500-5,000								15-Jun	13-Oct	13-Oct	1.667
38			1,500-5,000								8-Jul	5-Nov	14-Dec	1.475
39			1,500-5,000								15-Jul	12-Nov	12-Nov	1.417
40			1,500-5,000								13-Aug	4-Dec	4-Dec	1.175
41			1,500-5,000								31-Aug	29-Dec	29-Dec	1.025
42			5,000-7,500								20-Jun	18-Oct	18-Oct	1.625
43			5,000-7,500								1-Jul	29-Oct	29-Oct	1.533
44			5,000-7,500								26-Jul	23-Nov	23-Nov	1.533
45			>7,500								1-Jul	29-Oct	29-Oct	1.4175
														56.615

The 25 current wells were actually being drilled, but the 57 new wells is an estimate based on the ability of the rigs to drill wells, not based on existing contracts. The numbers of new wells that would have been drilled through December 31, 2010 by rig type and water depth are shown in the table below.

Water Depth Interval (feet)	Drillship Wells	Semi-Submersible Wells	Platform Wells	Total Wells
500-1500	0.00	1.18	1.40	2.58
1500-5000	6.68	10.46	6.76	23.90
5000-7500	2.03	14.78	4.48	21.28
>7500	3.97	3.35	1.53	8.85
Total	12.68	29.77	14.18	56.61

To determine the amount of production affected by the drilling pause, we estimated the number of development wells. Of the 25 wells being drilled at the time of the ban, records indicate that 10 were development wells. Empirical data indicated the fraction of wells drilled that are development wells in the various water depth ranges, and from this we estimated that 19 of the 57 new wells would be development wells. In sum, 29 {10 + 19} of the 82 {25 + 57} wells are development.

Additional empirical data indicates that 100% of development wells and 33% of exploration wells are productive. This results in 15 productive wells of the 25 being drilled at the time of the ban {10 + 1/3(15)} and 31 productive wells {19 + 1/3(36)} from the 57 new wells. In total, 46 {15 + 31} of the 82 {25 + 57} wells are projected to be productive.

Empirical data indicate that all production wells are not placed into production as soon as they are drilled. Often, they are not immediately completed because construction and additional drilling of other wells must occur. We assumed that 100% of productive wells drilled from platform rigs would begin production in the first year after drilling was completed. Based on historical data, we assumed that for semi-submersible and drillship rigs:

- 25% of productive wells would begin production in the first year after drilling was completed
- 50% would begin production in the second year
- 25% would begin production in the third year

The average production decline rate in deep water, as cited in the GOM production report, is 12% per year. Historical data indicate that 1) production in these water depths has traditionally been 70% oil and 30% gas, and 2) the initial daily production rates are as shown in the table below:

	500-1500	1500-5000	5000-7500	7500+
Initial Production (BOE/d)	1,800	4,400	11,600	6,800

By looking at the number of production wells, the average daily production, the time to first production, and the annual decline, we were able to calculate the projected daily production from each of the wells impacted by the drilling pause over the next three years.

To calculate the lost production resulting from the 6-month drilling pause, we calculated the annual production that would have occurred absent any drilling pause in FY 2010-2012. This constitutes the No Pause estimates. To calculate the production estimates with the drilling pause, we assumed drilling would begin January 1, 2011 and production would follow thereafter in the same manner assumed for the No Pause case. The net effects are simply the difference from the production that would have occurred in the No Pause case and the production that will occur in the Pause case.

The following tables show the production that would result only from the deepwater drilling that would be affected by the pause. The first table shows production effects from the wells that were currently being drilled at the time of the pause; the second table shows the production effects from new wells that would have been drilled, and the third table shows the total effects.

Production Shift from 6-Month Drilling Pause from Wells being Drilled at the Time of the Ban (Current Wells)						
Fiscal Year	No Pause		Pause		Net Effects	
	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
2010	1.7	4.2	-	-	(1.7)	(4.2)
2011	11.1	26.6	6.1	14.8	(4.9)	(11.8)
2012	17.7	42.7	13.9	33.4	(3.9)	(9.4)

Production Shift from 6-Month Drilling Pause from New Wells						
Fiscal Year	No Pause		Pause		Net Effects	
	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
2010	0.0024	0.0057	-	-	(0.0024)	(0.0057)
2011	34.6	83.2	9.0	21.6	(25.6)	(61.6)
2012	110.7	266.7	60.0	144.5	(50.7)	(122.2)

Production Shift from 6-Month Drilling Pause from All Wells						
Fiscal Year	No Pause		Pause		Net Effects	
	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)	Oil (MMbbl)	Gas (Bcf)
2010	1.7	4.2	0.0	0.0	(1.7)	(4.2)
2011	45.6	109.9	15.1	36.4	(30.5)	(73.5)
2012	128.5	309.5	73.9	177.9	(54.6)	(131.6)

Based on the net effects, for FY2011, the estimated delayed production for the 15 producing wells being drilled at the time of the ban is:

4.9 million barrels of oil
11.8 billion cubic feet of gas

Similarly, for FY 2011, the estimated delayed production from the 31 producing new wells:

25.6 million barrels of oil
61.6 billion cubic feet of gas

And in total, for FY 2011, the estimated delayed production from the 31 new wells and 15 current wells is:

30.5 million barrels of oil
73.5 billion cubic feet of gas

The combined delayed proportional production effects from wells currently being drilled at the time of the ban and wells drilled after the ban in FY 2011 (30.5 MMbbl of oil and 73.5 Bcf of gas) is:

5.2% of estimated total FY 2011 GOM oil production
3.2% of estimated total FY 2011 GOM gas production
4.4% of estimated total FY 2011 GOM BOE production

By multiplying the delayed production from the drilling pause by current prices (\$75.01 for oil and \$3.71 for gas), the gross value of the production that is delayed is about \$2.6 billion.

Government Revenues

To calculate government revenues for FY 2011, we looked at the lost production due to the drilling pause and the associated lost royalties and tax revenue.

To calculate royalties, we used a composite royalty rate that was estimated from royalty terms of leases associated with current deepwater drilling rig activities (either drilling or gearing up to drill). The composite rate is assumed to apply to all production used in this analysis. The composite royalty rates are 7.07% for oil and 2.96% for gas based on:

18 of 35 leases are DWRRA leases (0 royalty rate)
11 of 35 leases are Post-DWRRA leases (0 royalty rate for gas in 2011)
4 of 35 leases are 18.75% leases
2 of 35 leases are 16.76% leases

To calculate taxes, we assumed they are 35% of net revenue. Net revenue is the gross value of production less royalties, rentals, costs, and bonuses. Costs are assumed to be 33% of gross value based on the average costs from our leasing model IMODEL and also on rule of thumb industry estimates. For a tax write-off, we assume bonuses are 1.8% of gross value. This rough ratio is from Mag-Plan and is an estimate of the amount of bonuses that would be written off taxes in a given year.

The following table shows the government revenue that would have been received in FY 2011 absent the drilling pause. The multipliers for these government revenues are from Mag-Plan and are the same as the multipliers for Rent Revenues (0.31 to indirect, 1.46 to induced, and 2.15 to total).

	Direct	Indirect	Induced	Total
Royalties	\$ 170	\$ 53	\$ 248	\$ 471
Taxes	\$ 522	\$ 162	\$ 762	\$ 1,446
Government Revenue	\$ 692	\$ 215	\$ 1,010	\$ 1,917

The budget implication of a pause in offshore drilling in FY2011 would be \$692 million. The indirect and induced effects would be felt throughout the economy because less money will be spent by the government in supporting industries and that will get spent by households.

Industry Profits

Industry profits are calculated as the gross value of production less industry spending (costs) and payments to government (royalties and taxes). Costs are again assumed to be 33% of gross value and royalties and taxes are as calculated above. The multipliers from Mag-Plan are 0.11 to indirect, 0.26 to induced, and 1.37 for total.

	Direct	Indirect	Induced	Total
Profits	\$ 1,015	\$ 112	\$ 264	\$ 1,391

FY2011 GDP Impacts

The total impact of government revenues and industry profits in 2011 is \$3.3 billion (the sum of the total effects of government revenue and industry profits). This makes up 0.02% of the estimated 2011 GDP.

Possible Oil and Gas Price Effects from a 6 Month Pause in Drilling

The effects to oil and gas prices due from the lost FY 2011 production are shown in the table below.

Change in Price due to Production Change					
Base Price		Δ Production per day		Δ Price	
\$75.01	\$/barrel	-84	mmbbls/day	Mkt Sim	Steo
				\$0.05	\$0.47
				0.1%	0.6%
\$3.71	\$/mcf	-201	mmcf/day	\$0.0067	
				0.2%	

The following table has the assumptions used in the elasticity calculations.

Assumptions:					
Period Affected	365	days	Crude oil price in U.S.	\$75.01	\$/BO
Δ production	-53.9	mboed	World Demand 1st Qtr 2010	85.02	MMBOD
	-13.8	oil	U.S. Wellhead Gas Price 2009	\$3.71	\$/mcf
	-33.2	bcf gas	U.S. Gas Demand 2009	22.834	Tcfy
Demand elasticity					

	MMS Mkt Sim	EIA-STE0
Oil	-0.73	-0.05
Gas	-0.72	
	Supply elasticity	
Oil	0.66	0.11
Gas	1.07	

