Gulf of Mexico
Production Forecast and
Upstream Developments

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MMS Mission Statement

MMS’s mission is to manage the ocean energy and mineral resources on the Outer Continental Shelf and Federal and Indian mineral revenues to enhance public and trust benefits, promote responsible use, and realize fair value.
Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights
Active Leases by Water Depth

Active Leases by Water Depth
- < 1,000 ft
- 1,000 - 1,499 ft
- 1,500 - 4,999 ft
- 5,000 - 7,499 ft
- ≥ 7,500 ft
Deepwater Hub Facilities

System Type
- ▲ Spar
- ⚫ TLP, MTLP, WP
- ■ Other (compliant tower, FPS, FPSO, FPU, fixed platform, or semisubmersible)

Facilities
- ▶ Shallow-water facilities that currently act as a hub.
- ■ Deepwater facilities that currently act as a hub or have the potential to act as a hub.
- □ Future deepwater facilities that will have the potential to be used as a hub once they are installed.
Shallow versus Deepwater Oil Production
Shallow versus Deepwater Gas Production

[Graph showing Shallow-water gas and Deepwater gas production over years from 1960 to 2006.]
Gulf of Mexico Oil and Gas Production Forecast: 2009-2018
Crude Oil Production Forecast
2009 - 2018

★ Indicates years with known anomalous data due to hurricane affected shut-in
Natural Gas Production Forecast
2009-2018

*Indicates years with known anomalous data due to hurricane affected shut-in*
## Gulf of Mexico Deepwater Production Starts 2008 - 2009

<table>
<thead>
<tr>
<th>Project or Facility</th>
<th>Area Block</th>
<th>Operator</th>
<th>Facility Type</th>
<th>Water Depth</th>
<th>First Production</th>
<th>Gas (MMcfpd)</th>
<th>Oil (MBopd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neptune (AT)</td>
<td>GC613</td>
<td>BHP Billiton</td>
<td>Mini-TLP</td>
<td>4,250</td>
<td>July 2008</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Thunder Horse</td>
<td>MC778</td>
<td>BP</td>
<td>Semi-sub</td>
<td>6,050</td>
<td>Sept. 2008</td>
<td>200</td>
<td>250</td>
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<td>Blind Faith</td>
<td>MC650</td>
<td>Chevron</td>
<td>Semi-sub</td>
<td>6,480</td>
<td>Nov. 2008</td>
<td>45</td>
<td>45</td>
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<td>Shenzi</td>
<td>GC653</td>
<td>BHP Billiton</td>
<td>Mini-TLP</td>
<td>4,300</td>
<td>Mar. 2009</td>
<td>50</td>
<td>100</td>
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<tr>
<td>Tahiti</td>
<td>GC641</td>
<td>Chevron</td>
<td>SPAR</td>
<td>4,000</td>
<td>May 2009</td>
<td>70</td>
<td>125</td>
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<td>Thunder Hawk</td>
<td>MC736</td>
<td>Murphy</td>
<td>Semi-sub</td>
<td>5,724</td>
<td>July 2009</td>
<td>70</td>
<td>45</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>485</td>
<td>615</td>
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# Gulf of Mexico Deepwater Production Starts 2010 - 2011

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<tr>
<td>Perdido</td>
<td>AC857</td>
<td>Shell</td>
<td>SPAR</td>
<td>7,835</td>
<td>1st Quarter 2010</td>
<td>200</td>
<td>100</td>
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<td>ATP Titan</td>
<td>MC941</td>
<td>ATP</td>
<td>Mini-TLP</td>
<td>4,000</td>
<td>1st Quarter 2010</td>
<td>50</td>
<td>25</td>
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<td>Phoenix</td>
<td>GC237</td>
<td>Helix Energy</td>
<td>FPU (Ship) Producer I</td>
<td>2,820</td>
<td>1st Half 2010</td>
<td>72</td>
<td>45</td>
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<td>Cascade Chinook</td>
<td>WR249</td>
<td>Petrobras</td>
<td>FPSO BW Pioneer</td>
<td>8,530</td>
<td>2nd Half 2010</td>
<td>16</td>
<td>80</td>
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<td>Droshky</td>
<td>GC244</td>
<td>Marathon</td>
<td>Subsea-GC065</td>
<td>2,950</td>
<td>Mid - 2010</td>
<td>70</td>
<td>40</td>
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<tr>
<td>Caesar / Tonga</td>
<td>GC683/726</td>
<td>Anadarko</td>
<td>Subsea-GC680</td>
<td>4,565</td>
<td>Early 2011</td>
<td>30</td>
<td>40</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>438</strong></td>
<td><strong>330</strong></td>
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Update on Some Specific Development Projects
Cascade-Chinook
Floating Production Storage Offloading (FPSO) Facility
FPSO - BW Pioneer
Cascade-Chinook Update

- Located in Walker Ridge about 165 miles south of Louisiana in 8,200 feet of water with fields to be developed by two subsea wells in Cascade and one subsea well in Chinook. Each well will be drilled to an approximated depth of 27,000 ft.

- Development Plan for use of an FPSO facility was approved by MMS on April 29, 2008. The FPSO is specified to have 600,000 barrels of oil storage capacity, 80,000 bpd processing capacity, and 16mm cfpd of natural gas export capacity.

- Crude oil will be initially stored in tanks located in the facility’s hull and then offloaded to shuttle tankers for transportation to shore. Natural gas processed will be transported to shore by pipeline.

- FPSO will include a disconnectable turret. In a hurricane or tropical storm, the facility is designed to disconnect from the turret and move off location until the storm has passed.

- Project will be the first production from deep discoveries in the Lower Tertiary trend of the Walker Ridge and Keathley Canyon areas of the Gulf of Mexico.

- Key step in the development process is the MMS review and approval of the Deepwater Operations Plan (DWOP), which outlines the details and capabilities of the FPSO facility and associated new technologies.

- Production is planned to begin in 2010.
Perdido Hub Project
Chevron Tahiti
Deep Shelf Discoveries 2007-2010

Map showing locations of deep shelf discoveries.
Gulf of Mexico OCS Deep Gas Potential

- Undiscovered Technically Recoverable Resource (UTRR) base of 87 Tcf in Gulf of Mexico OCS in 0-200 meters water depth as of MMS 2006 Assessment of Undiscovered Resources
- Expensive ultra-deep wells and high-pressure/high-temperature (HP/HT) production equipment in shallow water, but production facilities are less expensive than deep water floating platforms
- Large ultra-deep jack-up rig rates of $140k to $180k per day compared with deepwater rigs at $400k to $600k per day
- McMoRan announces major ultra-deep discovery at Davy Jones prospect in South Marsh Island Block 230 with 200 feet of net pay in multiple zones of the Wilcox section of the Eocene/Paleocene
- McMoRan indicates Davy Jones sands logged below 27,300 feet appear to be some of the highest quality Wilcox sands seen in GOM (Howard Weil 38th Annual Energy Conference, New Orleans, LA, March 23, 2010)
Thank You!

Questions?

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