Wood Mackenzie

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- We use a foundation of robust proprietary data and models to analyse, value and advise on assets, companies and markets.
- We have been a trusted source of knowledge for over 40 years and now employ over 950 professionals in 25 offices around the world
- Our clients include all the major energy, metals and mining companies, as well as governments, investment banks and institutional investors
- Our insight helps our clients to identify new opportunities, define strategy and improve their performance
These slides have been prepared using the following Wood Mackenzie products:

**Upstream Service**
- Forward-looking commercial analysis at the country and asset level from our regional experts.
- Contains 120+ country reports, 3,000+ asset reports.
- Covers exploration, development, production, transportation, fiscal and regulatory framework.

**Upstream Data Tool**
- Global E&P database and mapping tool containing over 700 commercial and technical attributes for:
  » 150 countries
  » 140,000 wells
  » 67,000 blocks
  » 30,000 fields


For a copy of the entire presentation or additional information on Wood Mackenzie, please contact Felecia Williams via email ([felecia.williams@woodmac.com](mailto:felecia.williams@woodmac.com)) or telephone (713-470-1692).
1. Deepwater GoM rig market then and now

2. Gulf production leaders and key areas of growth

3. Production profile and capex forecast by play-type

4. Key emerging plays

5. Global rig supply and demand
Deepwater GoM rig market then and now

Several operators experienced a rig crunch in mid-2012

- Inadequate rig positions and inequitable distribution
- Lack of available rig slots and elevated day rates
- Increased global competition particularly within the Golden Triangle
- Permitting delays impacted smaller independents’ contracting strategy

By 2014, the deepwater GoM rig market has loosened up

- Operators turned to the newbuild market
- Rig contract extensions improved rig positions
- Rig sharing between operators continues
- Rig fleet has been high-graded in terms of specifications
Agenda

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Future growth lies predominantly in the frontier protraction areas of Keathley Canyon and Walker Ridge.

<table>
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<tr>
<th>Protration Area</th>
<th>Production ('000 boed) 2014</th>
<th>Production ('000 boed) 2020</th>
<th>CAGR %</th>
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<tr>
<td>Garden Banks</td>
<td>218</td>
<td>46</td>
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<td>Keathley Canyon</td>
<td>57</td>
<td>341</td>
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<td>Green Canyon</td>
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<td>23</td>
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<td>573</td>
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Source: Wood Mackenzie Upstream Data Tool (UDT)
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Lower Tertiary displaces Subsalt Miocene as key investment area as region approaches new capex peak in 2016

Source: Wood Mackenzie Upstream Data Tool (UDT)
Drilling moratorium results in production deferment which is finally trending upwards

Commercial production by play (2008-2020)

Source: Wood Mackenzie Upstream Data Tool (UDT)
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Two key emerging plays: Lower Tertiary and Jurassic

Lower Tertiary

- High yet-to-find volumes driven by commercial success to date
- Marginal economics given current low recovery factors
- HP/HT technology and EOR will be key driver to unlocking value

Jurassic

- Limited commercial success with fewer than 10 wells drilled
- Appomattox field potentially a one-off discovery in terms of recoverable reserves
- Uncertainties regarding near-term success, aerial extent and Eastern Gulf leasing
- Economics favorable given higher permeability/porosity and shallower reservoir depths relative to the Lower Tertiary
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Global rig supply and demand

- 2016 could potentially result in a pinch point for rig demand

- Can rigs be built?
  - 90 currently being built but a further 95 required to meet demand

- Can service sector and construction meet demand
  - 170 new floating facilities and 220 sub sea tie-backs
  - Not to mention the hiring and training of staff

- New era of deepwater cost inflation on the horizon……….
Jackson M. Sandeen
Research Analyst – Deepwater Gulf of Mexico

- Jackson is currently a Research Analyst working on the Deepwater Gulf of Mexico Upstream Research team. In this role he performs asset valuations, assists with consulting projects and publishes topical reports on key regional trends. He has spent his time focusing on rig market constraints, play-level economics and the commercial impact of emerging plays.

- Jackson earned dual degrees in Economics and Broadcast Journalism from Boston University.
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