Exploration Executive Panel

Outlook on Sustainability of the Exploration & Geophysical Industries
SECTION BREAK

Neil Piggott
Hess Corporation: Deepwater Exploration
A Large Cap’s perspective

- ~20% Global YTF… 180Bnboe
- Atlantic “Golden Triangle”: GoM, Angola, Niger, Campos

Since then:
Santos Pre-Salt, Ghana, SE Med, E Africa
And most recently:
MSGBC and Guyana

Shift from structured fan plays to carbonates and passive margin strat traps
Deepwater Costs

Conditions right to invest counter-cyclically in the Deepwater:

- Deepwater activity low; 50% of 2013, projected to be flat to 2017 levels for 3 years
- Overall drilling spread rate and seismic costs down ~40% since 2013; “hangover” of 2014 long-term contracts meant cost reductions were slow

Other factors:

- Delivering top quartile drilling performance offers further Deepwater well cost reduction opportunity
- High well rates and EUR/well
- Drilling performance offers further improvements

Permian reportedly experiencing 5-20% cost inflation in 2017 after seeing immediate deflation in 2015

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### Offshore Guyana: Low Development Costs and Financial Returns
(from Hess Corp 2018 Investor presentation)
Liza Phase I offers breakevens superior to U.S. shale plays

<table>
<thead>
<tr>
<th></th>
<th>Guyana Liza Phase 1 Development¹</th>
<th>Delaware Basin Illustrative 50,000 Net Acre Development²</th>
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</thead>
<tbody>
<tr>
<td>Peak Production</td>
<td>120,000 BOED</td>
<td>120,000 BOED</td>
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<tr>
<td>Peak Production Oil</td>
<td>120,000 BOD</td>
<td>86,000 BOD</td>
</tr>
<tr>
<td>Initial Investment to Peak Production</td>
<td>3 years</td>
<td>10+ years</td>
</tr>
<tr>
<td>Reservoir Quality</td>
<td>Multi Darcy</td>
<td>Micro Darcy</td>
</tr>
<tr>
<td>Total Production Wells</td>
<td>8</td>
<td>1,400</td>
</tr>
<tr>
<td>Avg. EUR / Production Well</td>
<td>56 MMBO</td>
<td>0.9 MMBOE, 0.6 MMBO</td>
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<tr>
<td>Development Capex</td>
<td>$3.2 Billion</td>
<td>$10.5 Billion</td>
</tr>
<tr>
<td>Unit Development Costs</td>
<td>~$7/BO</td>
<td>~$9/BOE, ~$12.5/BOE</td>
</tr>
<tr>
<td>Cost Environment</td>
<td>Deflating</td>
<td>Inflating</td>
</tr>
<tr>
<td>Required WTI price for 10% Cost of Supply</td>
<td>~$35/bbl</td>
<td>~$45/bbl</td>
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Deepwater Value Maximization

Standardization of projects drives cost efficiencies

Shorter cycle time to first oil and gas:
- GoM Miocene ILX specialists
- Guyana
- Pre-Salt EWTs and EPS
- Zohr gas project

Gas management and exploitation:
- Reinjection for EOR
- FLNG for associated gas (e.g. Angola)
- FLNG for remote areas: e.g. Coral
Deepwater Exploration Challenges/Technology

Imaging under salt: (Pre-Salt and sub-salt canopies):

- Microbiolites, coquinas and hydrothermal mounds
- Marine carbonate platforms
- Turtles and 3-ways to stems (OBN technology for max signal)

De-risking subtle stratigraphic traps (by seismic attributes):

- Onlap terminations/MTC cut-offs (fluid effect)
- Channelized sand fairways