THE SUBSEA SECTOR IN BRAZIL

BUSINESS OPPORTUNITIES IN A GLOBAL MARKET

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Agenda

- Petrobras – The subsea vocation
- Service and Equipment demands
- Presal – New Frontier
- E&P Results and Perspectives
- Conclusions
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A Company Driven by Technology
Successive records in drilling and completion

US$ 4 Billion invested in R&D in the last 5 years
Concessions areas

**Table: Petrobras Concessions**

<table>
<thead>
<tr>
<th>Concessions</th>
<th>100% W.I</th>
<th>Partnerships</th>
<th>Total</th>
<th>Other Companies</th>
<th>Total Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explor Contracts</strong></td>
<td>68</td>
<td>75</td>
<td>143</td>
<td>152</td>
<td>295</td>
</tr>
<tr>
<td><strong>Evaluation Plans</strong></td>
<td>17</td>
<td>21</td>
<td>38</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td>256</td>
<td>30</td>
<td>286</td>
<td>43</td>
<td>329</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>341</td>
<td>126</td>
<td>467</td>
<td>195</td>
<td>662</td>
</tr>
</tbody>
</table>
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Petrobras E&P equipment and services demand

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Installed Dec/10</th>
<th>Business Plan (2010-2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsea Trees</td>
<td>803</td>
<td>500</td>
</tr>
<tr>
<td>Subsea Manifolds</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Subsea Flexible Flowlines (km)</td>
<td>4,364</td>
<td>4000</td>
</tr>
<tr>
<td>Umbilicals (km)</td>
<td>3,303</td>
<td>2200</td>
</tr>
<tr>
<td>Rigid Pipelines (km)</td>
<td>1,773</td>
<td>500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Resources</th>
<th>Current Situation Dec/10</th>
<th>Delivery Plan (to be contracted) Accumulated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2015</td>
</tr>
<tr>
<td>Drilling Rigs Water Depth Above 2,000 m</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>Supply and Special Vessel</td>
<td>298</td>
<td>465</td>
</tr>
<tr>
<td>Production Platforms SS e FPSO</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>Others (Jacket and TLWP)</td>
<td>79</td>
<td>81</td>
</tr>
</tbody>
</table>
Special vessels and rigs ( % growth)

Drilling Rigs

Special Vessel - PLSV
Special vessels and rigs ( % growth)

Support Vessel

Special Vessel – DSV / RSV
Support vessels:
- 146 vessels planned to be contracted in 7 rounds;
- vessels to be built in Brazil;
- 41 vessels already under contract (2009 and 2010)
- 3rd round on progress (technical proposals under analysis);

Small support vessels:
- vessels to be built in Brazil;
- 31 vessels already contracted (LH and P);
- up to 29 to be contracted (UT and LH).

PLSV:
- tension capacity of **200 and 300 ton to be built in Brazilian shipyards**;
- tension capacity of **550 ton may be built wherever**;
- Technical proposals under analysis
Commercial Strategy

- Operation in pool regime
- Subsea and Well Equipment
  - long term contracts
  - standardization
- Special Vessels and Rigs – long term contracts
- Anticipation that allows the construction and/or new companies entry in Brazil
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The Pre Salt Province: A New Era For Petrobras

Total Area = 12,000 km²

<table>
<thead>
<tr>
<th>Blocks</th>
<th>Consortium</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS-8</td>
<td>BR (66%), SH (20%) e PTG (14%)</td>
</tr>
<tr>
<td>BMS-9</td>
<td>BR (45%), BG (30%) e REP (25%)</td>
</tr>
<tr>
<td>BMS-10</td>
<td>BR (65%), BG (25%) e PAX (10%)</td>
</tr>
<tr>
<td>BMS-11</td>
<td>BR (65%), BG (25%) e PTG (10%)</td>
</tr>
<tr>
<td>BMS-21</td>
<td>BR (80%), PTG (20%)</td>
</tr>
<tr>
<td>BMS-22</td>
<td>EXX (40%), HES (40%) e BR (20%)</td>
</tr>
<tr>
<td>BMS-24</td>
<td>BR (80%), PTG (20%)</td>
</tr>
</tbody>
</table>
Outstanding Exploratory Success
Transfer of Rights areas

- 6+1 contingent areas
- 5 bi boe production right
- 100% Petrobras
Development Strategy

Phase 0
Information Gathering
2008/2018
- Appraisal wells
- Extended Well Tests
- Lula Pilot

Phase 1a
Operated Production > 1 MM bbl
2013/2016
- Guará Pilot
- Lula NE Pilot
- Guará N
- Cernambi S
- 8 definitive production systems (replicants)
- 4 Transfer of Rights production units

Phase 1b
Significant production increase
After 2017
- Innovation acceleration
- Massive use of new technologies specially tailored for Pre-Salt conditions

Significant production increase
After 2017
FPSOs Operating in Pre-Salt cluster

- BW Cidade de São Vicente
  - Tupi EWT
  - Lula NE EWT

- BW Cidade de Angra dos Reis
  - Lula Pilot

- Dynamic Producer
  - Guará EWT
Accomplishments 2010

- Transfer of rights to produce 5 billion boe in specific areas of the pre-salt that are not under concession.
- Start up of FPSO Cidade de Angra dos Reis in Lula (Pilot Project).
- Start up of Guara Extended Well Test.
- 8 more wells drilled, taking Santos Basin Pre-Salt total to 20 wells drilled.

2011 Activity

- 9 rigs currently operating in the Pre-Salt Cluster (1 ANP), up to 3 new rigs to arrive.
- 4 new wells with drilling concluded, up to 20 additional wells to be drilled.
Satellite or manifolded wells connected to a floating production unit by means:

- Rigid pipes in a SLWR configuration
- Decoupled system by means of subsea tethered buoys or multi hybrid riser system
- Flexible pipe in a lazy wave configuration
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E&P Profile

**Oil and Gas Production**
- 57%
- 13%
- 11%
- 19%
- 2,338 thousand boed

**Total Proven Reserves (SPE)**
- 50%
- 32%
- 9%
- 9%

**Exploratory**
- 31%
- 33%
- 21%
- 15%
Petrobras estimated production

* Production curve does not currently assume any contribution from Transfer of Rights
Proven Reserves

SPE (billion boe)

2001: 9.67
2002: 11.01
2003: 12.60
2004: 13.02
2005: 13.23
2006: 13.75
2007: 13.92
2008: 14.09
2009: 14.17
2010: 15.28

2010 growth: 8%
**Proven Reserves SEC Criteria** (billion boe)

- ExxonMobil: 23.0
- PetroChina: 22.1
- BP: 18.0
- Lukoil: 17.5
- Royal Dutch Shell: 13.9
- Petrobras: 12.1
- Chevron: 11.3
- ConocoPhillips: 10.3
- Total: 10.1
- ENI: 6.4
- Repsol-YPF: 2.0

**Production** (million boed)

- ExxonMobil: 3.9
- PetroChina: 3.9
- BP: 3.3
- Royal Dutch Shell: 3.1
- Chevron: 2.7
- Petrobras: 2.5
- ConocoPhillips: 2.5
- Total: 2.2
- ENI: 1.7
- Repsol-YPF: 0.9

**Reserve / Production Ratio** (years)

- Lukoil: 21.2
- PetroChina: 18.5
- ExxonMobil: 15.5
- Petrobras: 14.0
- Total: 12.5
- BP: 12.3
- ConocoPhillips: 11.9
- Royal Dutch Shell: 11.9
- Chevron: 11.6
- ENI: 10.2
- Repsol-YPF: 6.3

**Reserve Replacement Index (%)**

- Royal Dutch Shell: 373%
- ExxonMobil: 229%
- Petrobras: 209%
- ConocoPhillips: 139%
- PetroChina: 132%
- Total: 129%
- BP: 115%
- Chevron: 94%
- Total: 92%
- ENI: 82%
- Repsol-YPF: 62%
- Lukoil: 0%
Oil and Gas Production Growth

5 year Production Growth (% p.y.)
Production Growth 2009 (5 year period)

Petrobras: 4.6%
ConocoPhillips: 4.3%
Lukoil: 3.4%
PetroChina: 2.6%
Chevron: 2.4%
ENI: 0.3%
BP: -0.1%
ExxonMobil: -0.7%
Total: -1.9%
Royal Dutch Shell: -2.3%
Repsol-YPF: -4.5%

Source: Evaluate Energy, 2009
Oil Production (bpd)
Impressive Record of Accelerating Development

- Production since incorporation of Petrobras (1953)
- Discovery of Garoupa in the Campos basin (1974)
- Discovery of giant fields in Campos basin including Albacora/Marlim (80’s & 90’s)
- Discovery of the Pre-Salt, since Parati (2006)
(*) Exploration & Production

- Exploration: US$ 18,1 billions
- Production: US$ 68,0 billions
- Pre-salt Santos: US$ 22,1 billions
- International: US$ 10,6 billions
Continued emphasis on Post-Salt acreage, growing spending on Pre-Salt

Pre-Salt
US$ 33.0 Billion

- 84% Exploration
- 13% Development
- 3% Infrastructure

Post-Salt
US$ 75.2 Billion

- 67% Exploration
- 18% Development
- 15% Infrastructure

- Annual expenditures for exploration of more than US$4 billion annually
- Development Capex in Pre-salt approaching 50% of Post-salt spending
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Conclusions

- Petrobras’s strategy of “Extended Well Test” followed by a “Pilot System” and a “Phased Development” has been shown suitable in reducing the capital exposure and increasing the flexibility.

- Standardization provides: anticipation, flexibility and cost reduction.

- All this knowledge was only possible due to essential integrated work with suppliers of goods and services partners as well as the Universities and Research Institutes.
The increasing projects portfolio given by Pre-Salt and new discoveries open up a huge opportunity either for growing the capacity of the “players already established” and for starting up of “new Companies” in Brazil.

The providers should be prepared to add new technologies aiming to reduce the costs and to improve the reliability.

The Local Content is being considered seriously as one of the most important factors in the bid processes.

There are enormous challenges to face, such as modernization of shipyards, personnel training, financial structuring, improving the business environment in Brazil etc.