New Changes in Regulations and Oil and Gas Opportunities in Brazil
Paulo Carvalho
Technical Director, Pré-Sal Petróleo
Summary

- O&G in a Global Context
- Pré-Sal Petróleo – Roles and Activities
- National Policies in Place at MME
- 2017 E&P Checklist
- Bidding Rounds Schedule
- O&G Companies Operating in Brazil
O&G in a Global Context

Nigeria Awards 2017 Crude Oil Term Contracts To 39 Companies

Argentina gears up for offshore bid rounds
First event scheduled for next year with deep-water rounds in 2018 and 2019 in push to explore vast

PLANO ESTRATÉGICO
PLANO DE NEGÓCIOS E GESTÃO 2017-2021

Setembro 2016

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11
Pré-Sal Petróleo S.A.

Management of production sharing agreements (PSA’s)

Representation of the State in unitization agreements

Commercialization of the State’s petroleum and natural gas

Maximizing the economic results to the State from pre-salt activities
Unitization agreements

Agreements signed so far
- Tartaruga Mestiça
- Lula
- Nautilus
- Sapinhoá

Under negotiation
- Pre-unitization: Libra
- Unitizations: Pirambu, Albacora, Baleia Azul and South of Sapinhoá

General info
- Working with 6 additional areas with potential for unitization
- About 9 Bboe in place (State’s share) in all known areas with potential for unitization

Points of attention
- Timeframe for negotiation of new cases
Libra: the first production sharing agreement

**Consortium basic info**
- Bid Round in Oct 21, 2013
- Signature Bonus: R$ 15 billion
- Petrobras (40%); Shell (20%); Total (20%); CNODC (10%); CNOOC (10%)

**Main field characteristics**
- Discoverer: 2-ANP-2A – RJS
- API 27º; GOR 410-450 m³/m³; CO2 40-42%
- High productivity: 3667 bopd (choke 32/64”)

**Short-term goal**
- Extended well test in 2017 - 30 Mbpd

**Main challenges**
- Cost reduction
- Conciliation of fast-track development vs. local content requirements
Libra: Integrated Development Plan

- Current base case ➔ 4 FPUs (WD = 2,100m);
- Objective ➔ anticipation, with an acceptable level of risk;
- Sequence based on availability of reservoir information;

<table>
<thead>
<tr>
<th>RESERVOIR DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Salt Microbial</td>
</tr>
<tr>
<td>Aptian Carbonates</td>
</tr>
<tr>
<td>27 API Oil</td>
</tr>
<tr>
<td>Reservoir Depth 5,300 m</td>
</tr>
<tr>
<td>GOR 415 scm/scm</td>
</tr>
<tr>
<td>CO₂ content ~ 40%</td>
</tr>
</tbody>
</table>
# Libra EWT de-risking campaign

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWT / EPS PROGRAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBRA 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBRA 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBRA 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBRA 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ref: Forecast April 17, Petrobras Business Plan 17-21 and Libra Business Plan 2017

![Map of Libra fields]

Legend:
- Production Line
- Injection Line
- Drilled Wells
- Completed Wells
FPSO Pioneiro de Libra
Libra: Pilot Project

STANDARD PRE-SALT PROJECTS SOLUTION

SUBSEA & FLOW ASSURANCE
- 2nd generation of std. pre-salt X-Trees
- Full Gas reinjection
- Water Alternating Gas injection wells (WAG)
- Rigid or Flexible lines

FPU
- Oil Capacity: 180 k bbl/d
- Gas Comp.: 12 MM m3/d
- Water Injection: 225 k bpd
- Water Depth: 2.100 m
- Chartered Unit

WELLS
- 8 production and 9 injectors.
- Incorporation of 4 appraisal wells
- Intelligent Completion (2/3 zones)
Pré-Sal Petróleo shall not commercialize directly or indirectly the State’s petroleum and natural gas but shall manage the commercialization contract with a trading agent, monitor and audit the operations.
National Policies in Place at MME

- E&P National Policy
- Onshore E&P Policy (Reate)
- Transfer of Rights Renegotiation
  - Local Content Policy
- Tax Regime Renewal (Repetro)
  - 2017-2019 Bidding Rounds
  - Unitization Agreements
- Petrobras’ Right of First Refusal (Pre-salt Operatorship)
2018-2019 Bidding Rounds Planning:
- 4th Onshore Marginal Fields: Closed in May 11/17
- 14th Round: Due to close in Sep 27/17
- 15th Round: Due to close in May/18
- 16th Round: Due to close Q3/19
- 2nd and 3rd Pre-salt PSC: Due to close in Oct 27/17
- 4th Pre-salt PSC: Due to close in May/18
- 5th Pre-salt PSC: Due to close Q3/19
- Unitization Agreements

- Reference Price for Government Take
- Petrobras’ Right of First Refusal (Pre-salt Ownership)
- Exploration Period Extension for 11th and 12th Concession Bidding Rounds
- PSC Government Share Oil and Gas Commercialization
- Local Content Policy
- E&P National Policy Review
- New Gas Policy
- Downstream Policy
- Biofuels Policy
2017 E&P Checklist

Upcoming Deliverables

- Onshore E&P Policy: Repetro Tax Regime Renewal
- Transfer of Rights Renegotiation
- New Gas Act
- New Biofuels Act
Bidding Rounds Schedule

**Concession Bidding Rounds**
- 14th: 27 September
- 15th: May
- 16th: Q3

**Production Sharing Bidding Rounds**
- 2nd and 3rd: 27 October
- 4th: May
- 5th: Q3
14th Concession Bidding Round – 27 Sep 2017

Sedimentary Basins: 9
Sectors: 12 Offshore and 17 Onshore
Blocks: 287
16th Concession Bidding Round – Q3 2019
2nd PSC Bidding Round
27 Oct 2017

Unitized Areas’ Operators

- Petrobras
- Statoil
- Shell
3rd PSC Bidding Round
27 Oct 2017
4th PSC Bidding Round
May 2018
5th PSC Bidding Round
Q3 2019
Transfer of Rights

1. Búzios
2. Itapu
3. Atapu, Berbigão and Sururu
4. Sépia
5. Sul de Lula
6. Sul de Sapinhoá

200 to 300 km distance from Rio de Janeiro; >2,000 m depth from water line
O&G Companies Operating in Brazil

Producers

Other Operators
Working together to Develop Brazil’s Resources

Thank you

spg@mme.gov.br
Thank You

Paulo Moreira de Carvalho
Technical Director
paulo.carvalho@ppsa.gov.br
www.presalpetroleo.gov.br