Side Event COP 20 - New large-scale Carbon Capture (CCS) projects operating in the Americas

United Nations Framework Convention on Climate Change

Petrobras' Offshore CO_2 Management – Pre-salt Development

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Lima, Peru - December 9th, 2014

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NON-SEC COMPLIANT OIL AND GAS RESERVES: CAUTIONARY STATEMENT FOR US INVESTORS

We present certain data in this presentation, such as oil and gas resources, that we are not permitted to present in documents filed with the United States Securities and Exchange Commission (SEC) under new Subpart 1200 to Regulation S-K because such terms do not qualify as proved, probable or possible reserves under Rule 4-10(a) of Regulation S-X.

PETROBRAS

Outline

About Petrobras

Pre-salt Development

CO2 Management

Final Remarks

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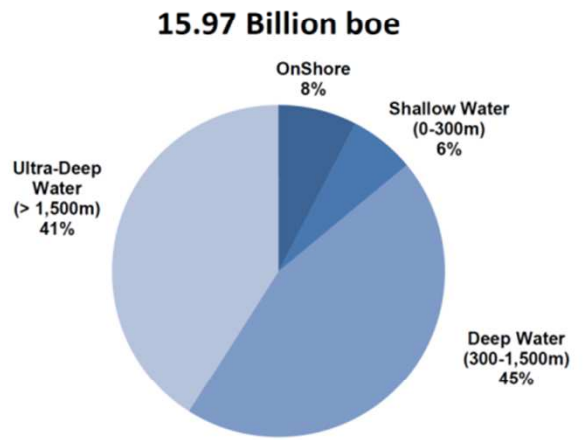
PETROBRAS TODAY

Fully integrated across the hydrocarbon chain

Exploration and Production	Downstream	Distribution	Gas and Power	International	Biofuels
• 2.6 mm boed production • 293 production fields • 92% of Brazilian production • 34% of global DW and UDW production	• 12 refineries (Brazil) • 2.2 mm bpd refining capacity • Oil products sales in Brazil: 2,443 Kbpd • Oil products output in Brazil: ,2,180 Kbpd	• 7,710 service stations • 37,7% of market share • 21% share of service stations	• 9,190 km of gas pipelines in Brazil • NG Supply: 96.3 million m³/d • 3 LNG Regasification terminals with 41 MMm³/d capacity • 6,885 MW of generation capacity	• 17 countries • 0.7 Bn boe of 1P (SPE) • 217 th. boed production • 231 th. bpd refining capacity	• 3 Biodiesel Plants and interest in 2 addiotional plants: 14,1 kbbld • Ethanol: opening new markets • Largest domestic producer of biodiesel: 20% of internal market • 3rd producer of ethanol in Brazil

Adjusted EBITDA per Segment (US$ bn) (1)

2013 Proven Reserves (SPE Criteria) - Brazil



(1) Adjusted according average exchange rate. Excludes Corporate and Elimination.

Source: http://www.investidorpetrobras.com.br/en/presentations/petrobras-at-a-glance.htm

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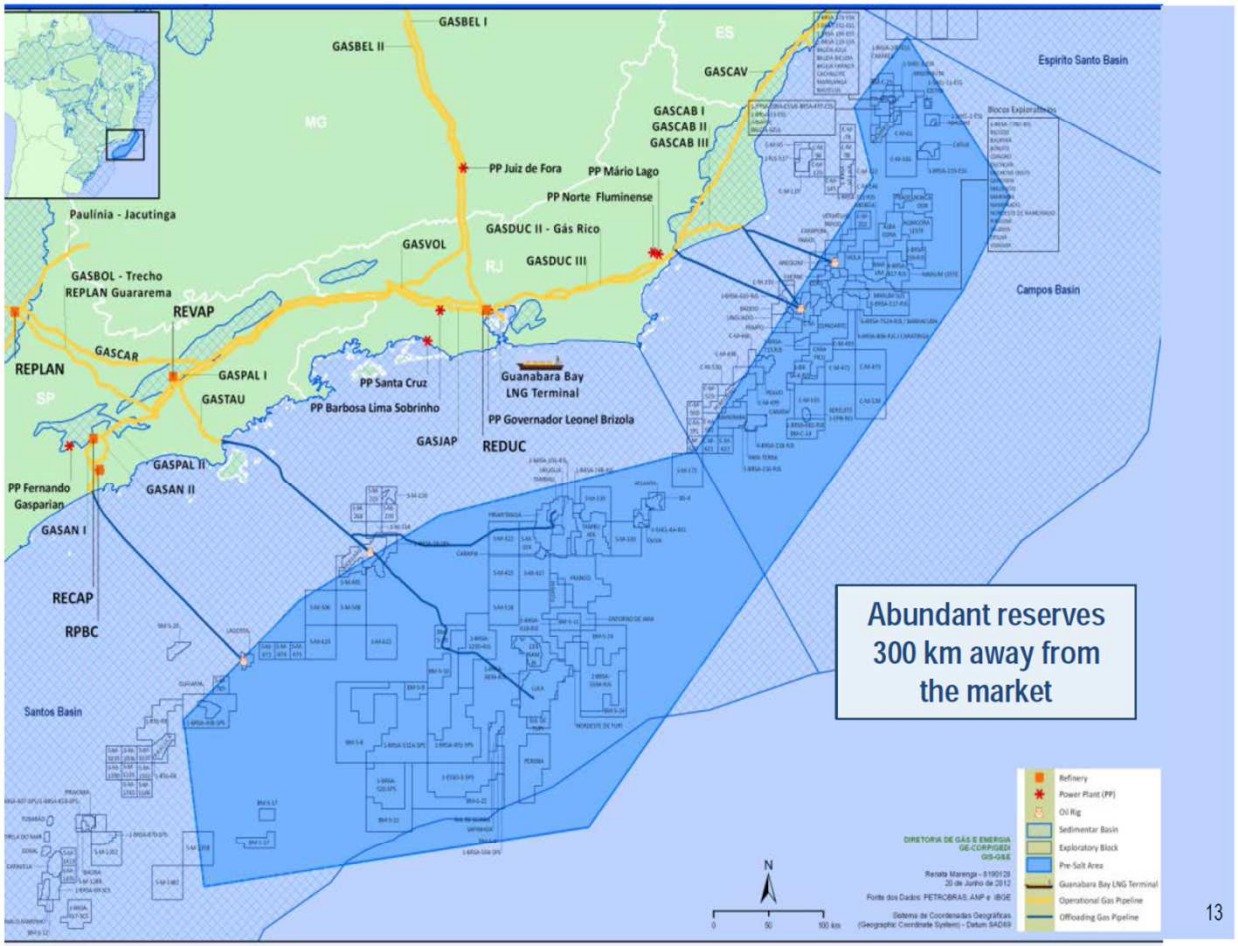
COMPETITIVE ADVANTAGES

Uniquely positioned to integrate upstream and downstream operations



Exploration & Production

- Leader in deep-water production, with access to abundant oil reserves
- New exploratory frontier, adjacent to existing operations

Downstream

- Dominant position in growing market, far from other refining centers
- Balance and integration between production, refining and demand

Gas & Power/ Biofuels/Petrochemicals

- Fully developed infrastructure for processing and transfporting gas
- Integration accross full energy and hydrocarbon chain in Brazil

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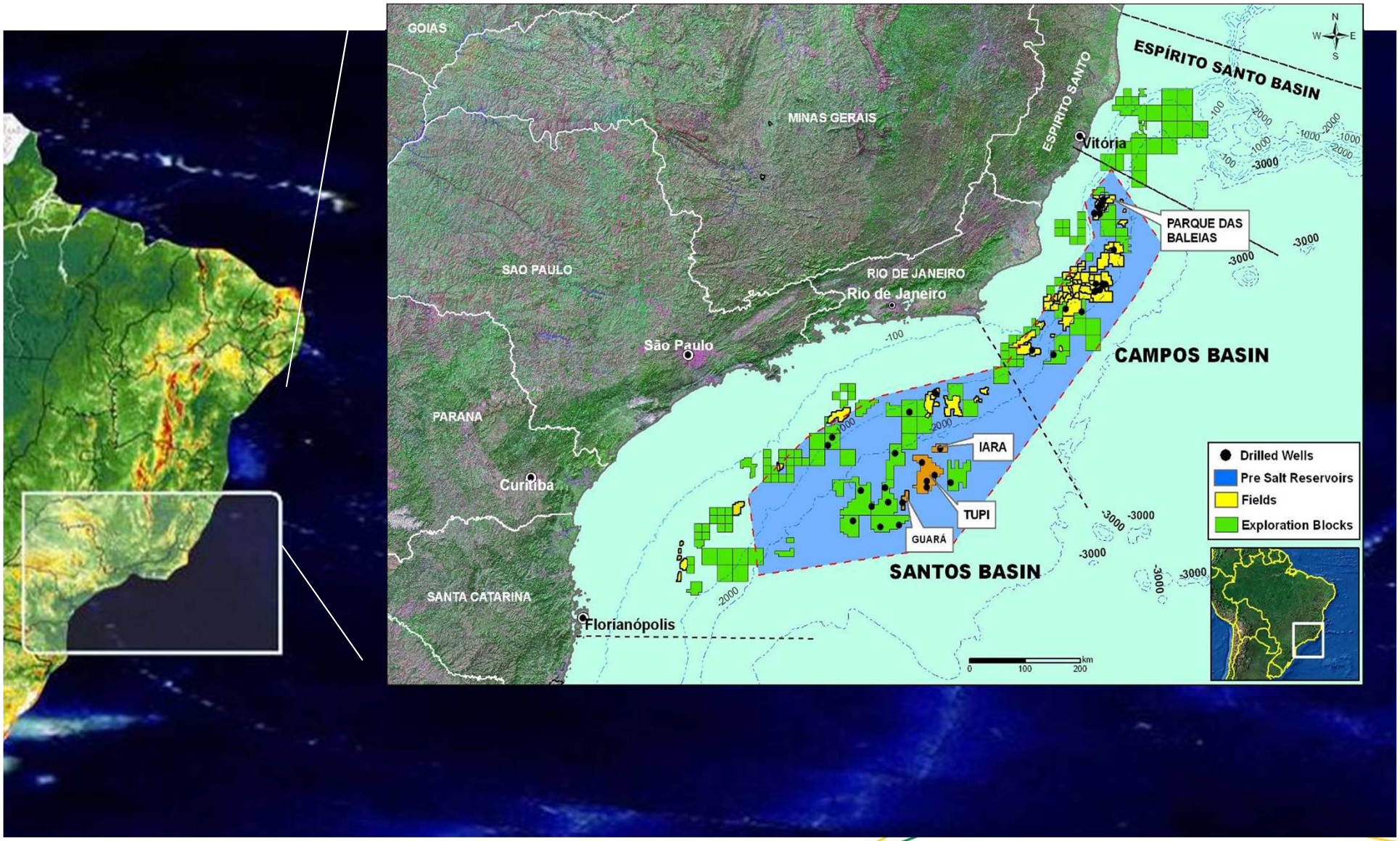
Pre-Salt Province



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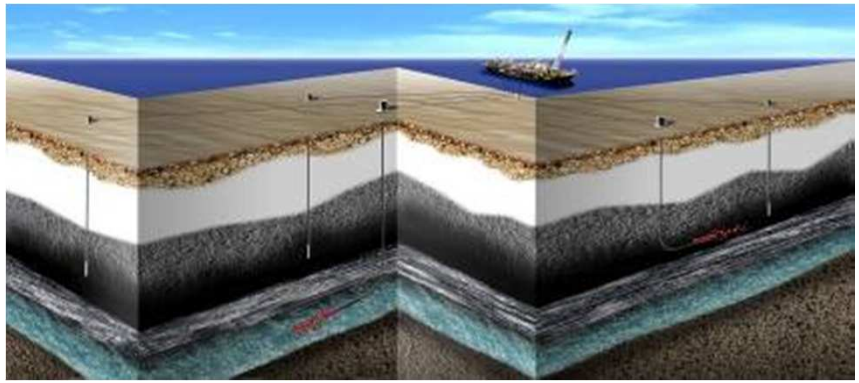
Handling of CO2 in the Pre-Salt Hydrocarbon Fluids

Motivation:

- High (8 to 20%) CO_2 content in the gas phase in some wells;
- Although it doesn't have target obligations to reduce its emissions, Brazil is committed with climate change control;
- Accordingly, Petrobras and partners in the pre-salt blocks do not consider to vent the CO_2 associated to the produced gas.

Questions raised:

- What is the best way to capture the CO2 in an offshore ultra-deep water environment (2,100 m WD), 300 km from shore?
- What is the best option for sequestrating the captured CO2?



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Natural Gas Processing

CO_2 Content in the fluids address challenges:

- **Size & Footprint**
- **Weight**
- **Efficiency**

FPSO Cidade Angra dos Reis

Membranes:

- **Better for medium or high CO_2 content.**
- **Smaller footprint**
- **Simple to operate and easy to maintain**
- **Process a wide range of CO_2 in the inlet stream.**

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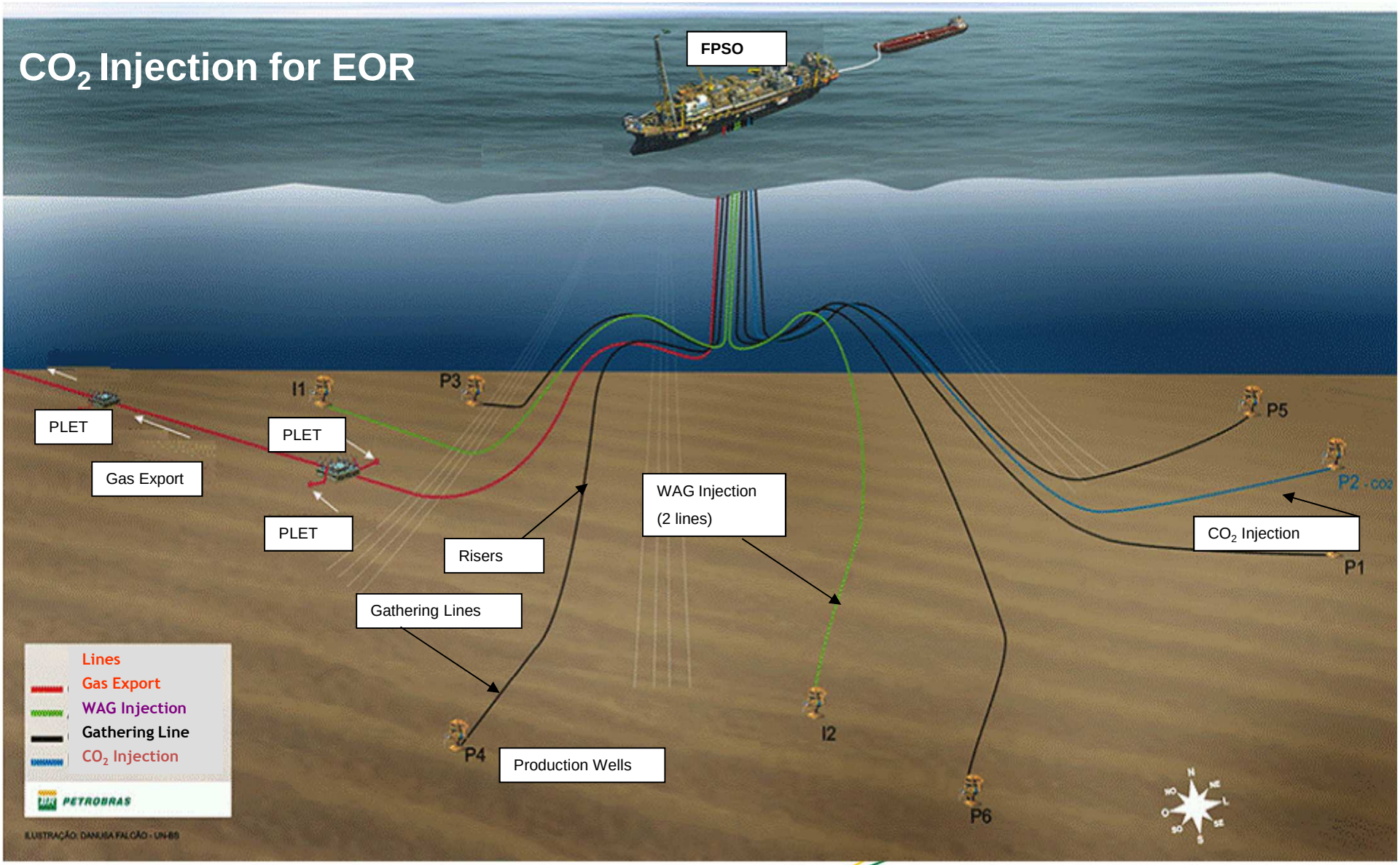
WAG-CO2 EOR



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Lula Pilot Production Development

Info

- Water depth: 2,149 m (7,050 ft)
- 1st oil: Oct/2010
- 100,000 bpd | 5 MM m³/d gas
- 6 production wells
- 3 injection wells (gas, water and WAG)

Current data

4 producers: 100,000 bbl/d

1 CO_2 injector: 0,5 MM m3/d.

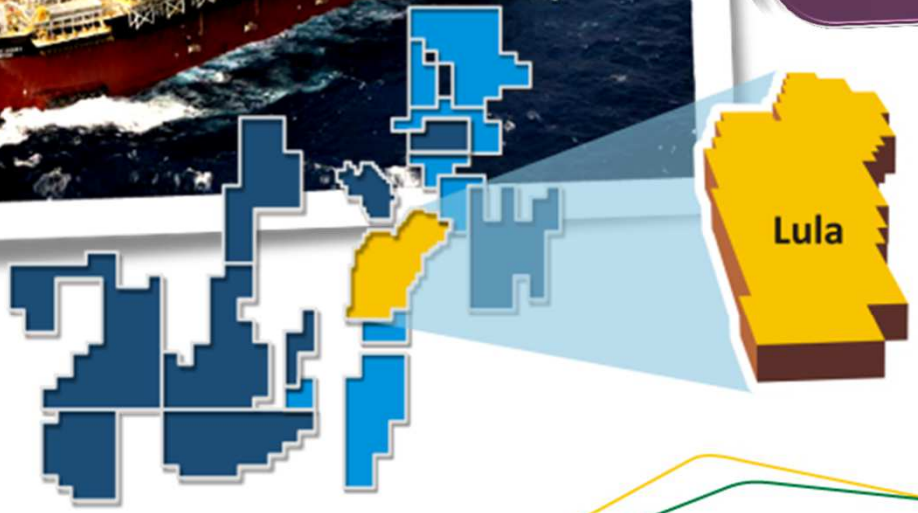
Exported gas : 4,4 MM m³/d (5% CO_2)

WAG tested in 2013

Water Injection started in Oct/12 (WAG)

Objectives

- Investigate the long term carbonate reservoir behavior
- Test different recovery mechanisms
- Test different well geometries and stimulation techniques
- Learn about the complex processing plant operation
- Evaluate flow assurance aspects



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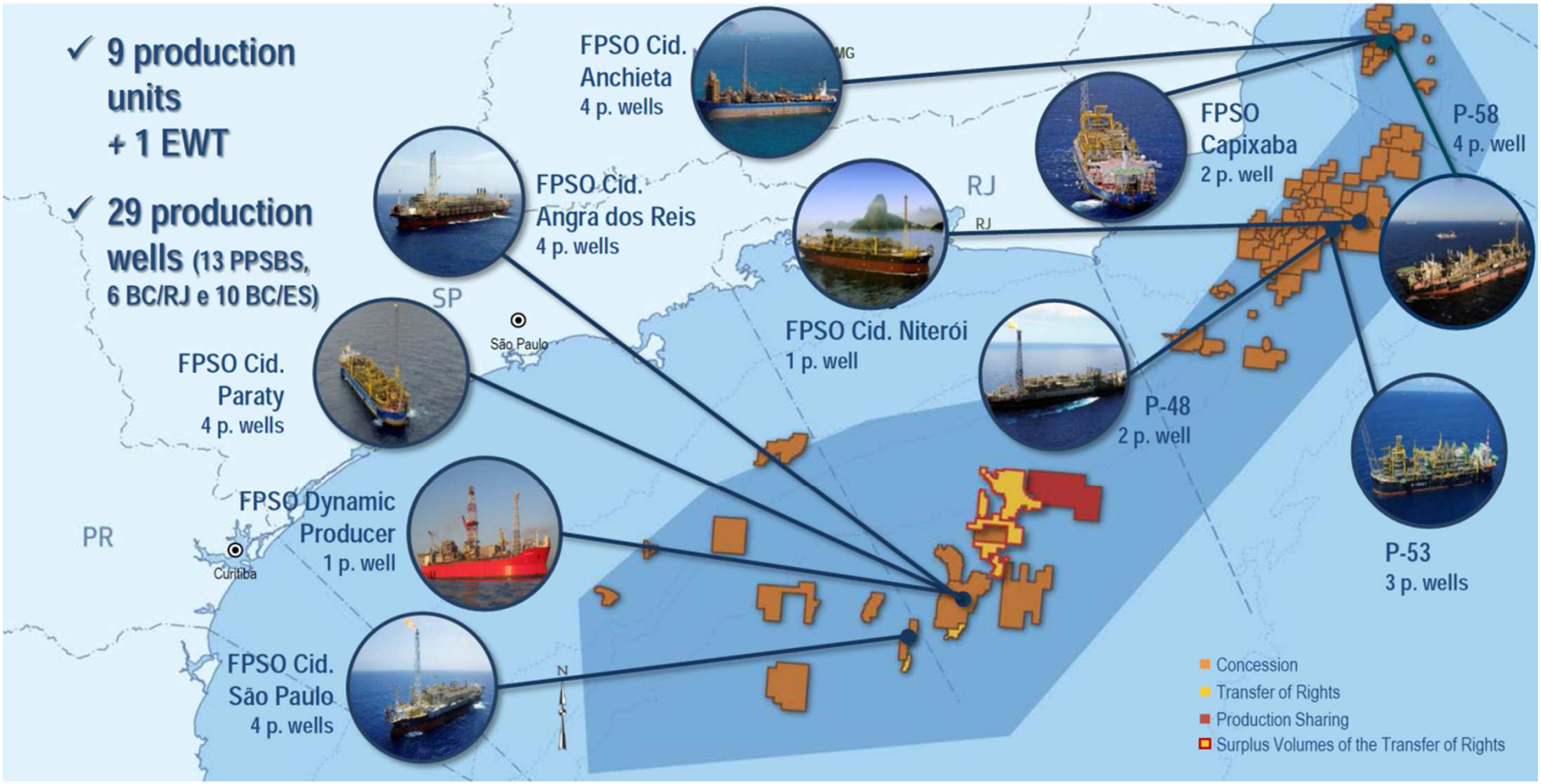
PRE-SALT PROVINCE – ON STREAM

Daily Production Record: 618kbpd on 18th September



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- Petrobras is committed in reducing substantially its environmental and operational footprint;
- Petrobras and partners are committed to reduce the emissions related to the CO_2 produced with the hydrocarbon in the Santos Pre-salt cluster;
- Technology is the key factor to address the changing energy environment;

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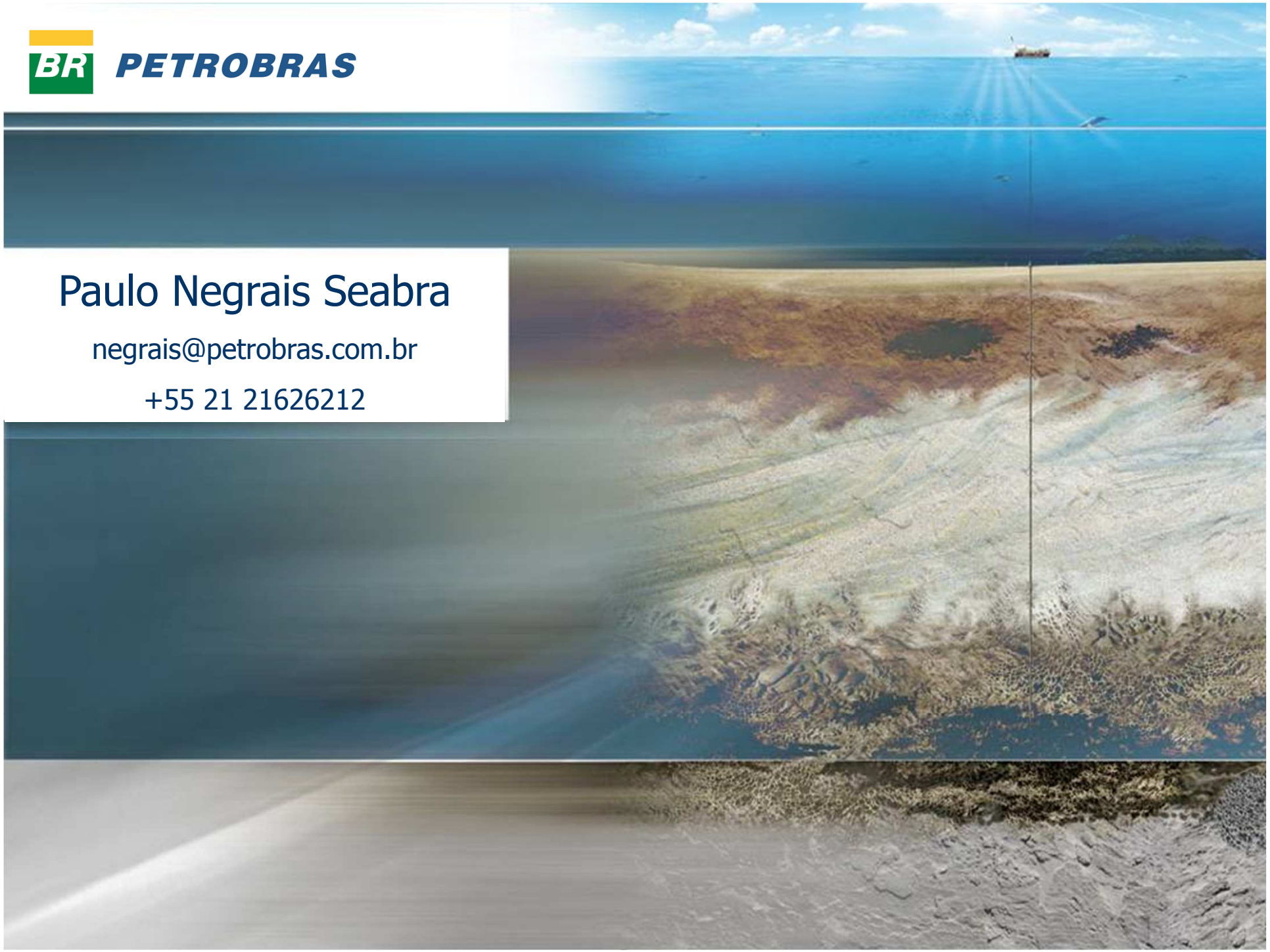

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