



## Deepwater 2020

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# Deepwater South America 2020

# Brazilian Exploration Scenario and Opportunities

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## Disclaimer

This institutional presentation is based upon or derived from sources believed to be reliable for informational purposes only.

Projections and future values are presented, but no representation regarding their accuracy or completeness is made.

Forward-looking statements regarding our intent, belief or current expectations may change without prior notice.



# Agenda

1 Brazillian E&P Scenario

2 Investment Opportunities

3 Closing Remarks



## Equinor Reports Commercial Viability of Pre-Salt Carcará Discovery in Brazil

By Reuters

December 2019 – “Norway's Equinor ASA has submitted to Brazil's oil industry regulator ANP **declarations of the commercial viability of two blocs licensed in the Carcara oil field in the pre-salt region of the Santos basin, the company said on Thursday.**”

BUSINESS NEWS OCTOBER 10, 2019 / 8:14 AM / 3 MONTHS AGO

## Brazil raises \$2.2 billion in oil auction; Total, Petronas invest big

Gram Slattery, Marta Nogueira

4 MIN READ



October 2019 – **Ten companies agrees to pay more than \$2 billion** (8.9 billion reais) for the exploration and production rights **in 12 offshore oil blocks in Brazil**, in what could be a promising sign for even bigger upcoming oil auctions.



### Oil & Gas industry

Shell hails bounceback towards deepwater drilling

Head of exploration says break-even prices are now \$30 a barrel

AUGUST 12, 2018

Save to myFT

*“The most excitement at the moment is from the deepwater,” Mr Brown\* told the Financial Times, saying **projects in Brazil, the Gulf of Mexico and West of Shetland in the North Sea were among the most attractive.***

*\* Andy Brown, Shell’s head of exploration and production*



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## Brazil: New regulations spur offshore investment surge

By Mark Young | Jan. 16, 2018, 2:56 p.m. | Share

This **fresh investment**, notably in offshore pre-salt basins, follows the **introduction of significant regulatory changes to the oil and gas sector within Brazil.**

# Main Regulatory Enhancements

2016

Petrobras is no longer the sole Operator for Pre-salt

2017

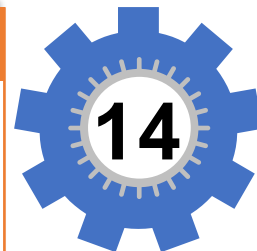
- New Simplified Contract Rules
- New Local Content Rules  
2017 & Beyond
- Bidding Schedule  
2018/2019
- Extension -  
Exploration Phase  
(Rounds 11 and 12)

2018

- Local Content Waiver  
(previous rounds - up to 13<sup>th</sup>  
Round)
- Royalties Reduction  
(incremental production in  
mature fields)
- Collateral Burden  
Reduction  
(100% to 30% in marginal  
fields)
- Reserve Based  
Lending (RBL)

2019








- Open Acreage
- Transfer of Rights  
Surplus
- R&D Ordinance  
Update
- Discussion of  
Decommissioning  
Rules



Bidding Rounds  
(in 2017/2021)



# 2017 - 2019 Bidding Rounds Results – Exploration Blocks

Round	Acquired Blocks	Area (km <sup>2</sup> )	Signing Bonus (US\$ billion)	Registered Companies	Winner Companies
 <b>Brazil 14<sup>th</sup> Round</b> <small>OIL AND GAS CONCESSIONS</small>	<b>37</b> (24 onshore and 13 offshore)	<b>25,011.7</b>	<b>1.035</b>	<b>32</b>	<b>17</b>
 <b>PRE-SALT Brazil 2</b> <small>PRODUCTION SHARE</small>	<b>3</b>	<b>655.74</b>	<b>0.889</b>	<b>10</b>	<b>7</b>
 <b>PRE-SALT Brazil 3</b> <small>PRODUCTION SHARE</small>	<b>3</b>	<b>6,130.78</b>	<b>0.768</b>	<b>14</b>	<b>6</b>
 <b>PRE-SALT Brazil 4</b> <small>PRODUCTION SHARE</small>	<b>3</b>	<b>3,521.04</b>	<b>0.849</b>	<b>16</b>	<b>7</b>
 <b>ROUND Brazil 15</b> <small>OIL AND GAS CONCESSIONS</small>	<b>22</b>	<b>16,400.3</b>	<b>2.009</b>	<b>17</b>	<b>12</b>
 <b>PRE-SALT Brazil 5</b> <small>PRODUCTION SHARE</small>	<b>4</b>	<b>2,860.75</b>	<b>1.838</b>	<b>12</b>	<b>8</b>
 <b>ROUND Brazil 16</b> <small>OIL AND GAS CONCESSIONS</small>	<b>12</b>	<b>11,762.78</b>	<b>2.235</b>	<b>17</b>	<b>10</b>
 <b>OPEN ACREAGE Brazil</b> <small>OIL AND GAS CONCESSIONS</small>	<b>33</b> (30 onshore and 3 offshore)	<b>16,730.43</b>	<b>1.873</b>	<b>47</b>	<b>10</b>
 <b>PRE-SALT Brazil 6</b> <small>PRODUCTION SHARE</small>	<b>1</b>	<b>4,475.68</b>	<b>1.295</b>	<b>17</b>	<b>2</b>
<b>Total</b>	<b>72</b>	<b>87,549.20</b>	<b>6.1</b>		

R\$/US\$ = 3,99

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Area equivalent to Portugal

R\$/US\$ = 3,99

# Estimated Impact from Recent Oil Auctions 2017 - 2019



**Brasil 14<sup>th</sup> Round**  
Oil & Gas Bidding Rounds

**ROUND 15**  
OIL AND GAS CONCESSIONS

**PRE-SALT 2**  
PRODUCTION SHARE

**PRE-SALT 3**  
PRODUCTION SHARE

**PRE-SALT 4**  
PRODUCTION SHARE

**PRE-SALT 5**  
PRODUCTION SHARE

**ROUND 16**  
OIL AND GAS CONCESSIONS

**TRANSFER OF RIGHTS SURPLUS**  
Brazil  
PRODUCTION SHARE

**PRE-SALT 6**  
PRODUCTION SHARE

RS/US\$ = 3.71  
Brent = US\$ 70



## Brazil's Current State

**9<sup>th</sup> largest oil producer in the world and the largest in Latin America**

**31<sup>th</sup> largest natural gas producer (2018)**

Oil Production ~ 3.1 MMbbl/d

Natural Gas Production  
~137 MMm<sup>3</sup>/d

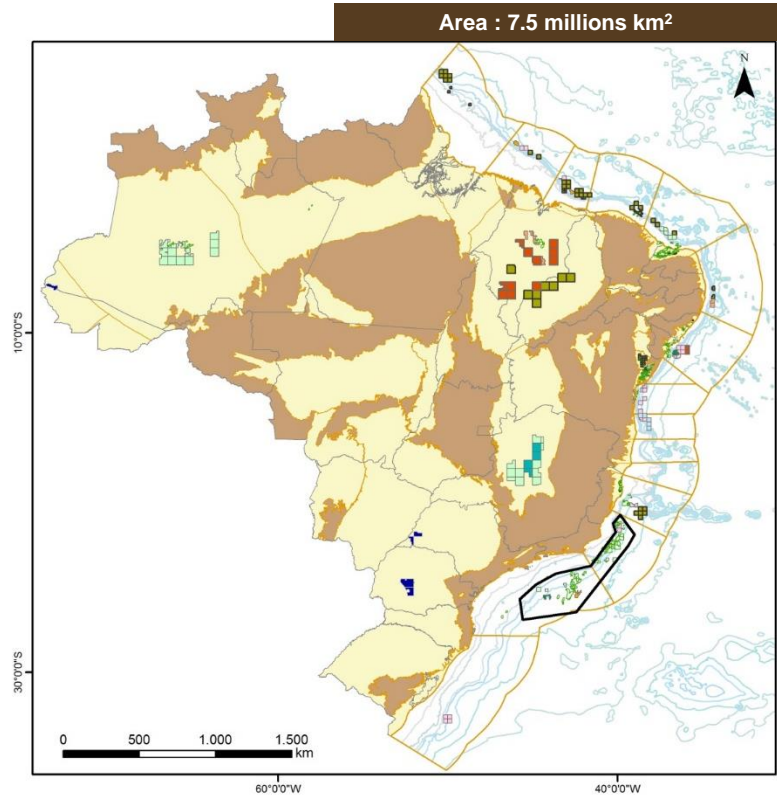
Total Production ~ 3.9 MMboe/d  
(Nov/2019)

Area under concession  
~ 280,000 km<sup>2</sup>

274 Blocks

52 areas in Appraisal Plan

435 fields



# Proven Reserves

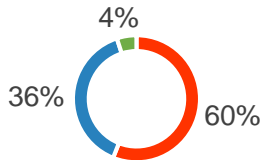
March, 2019

Oil  
**13.2** Billion bbl

Gas  
**~370** Billion m<sup>3</sup>

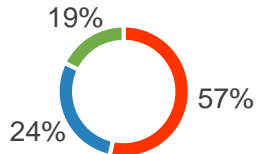
March, 2019

### Oil Proven Reserves



- Pre-Salt
- Conventional Offshore
- Onshore

### Gas Proven Reserves



- Pre-Salt
- Conventional Offshore
- Onshore

### Pre-Salt



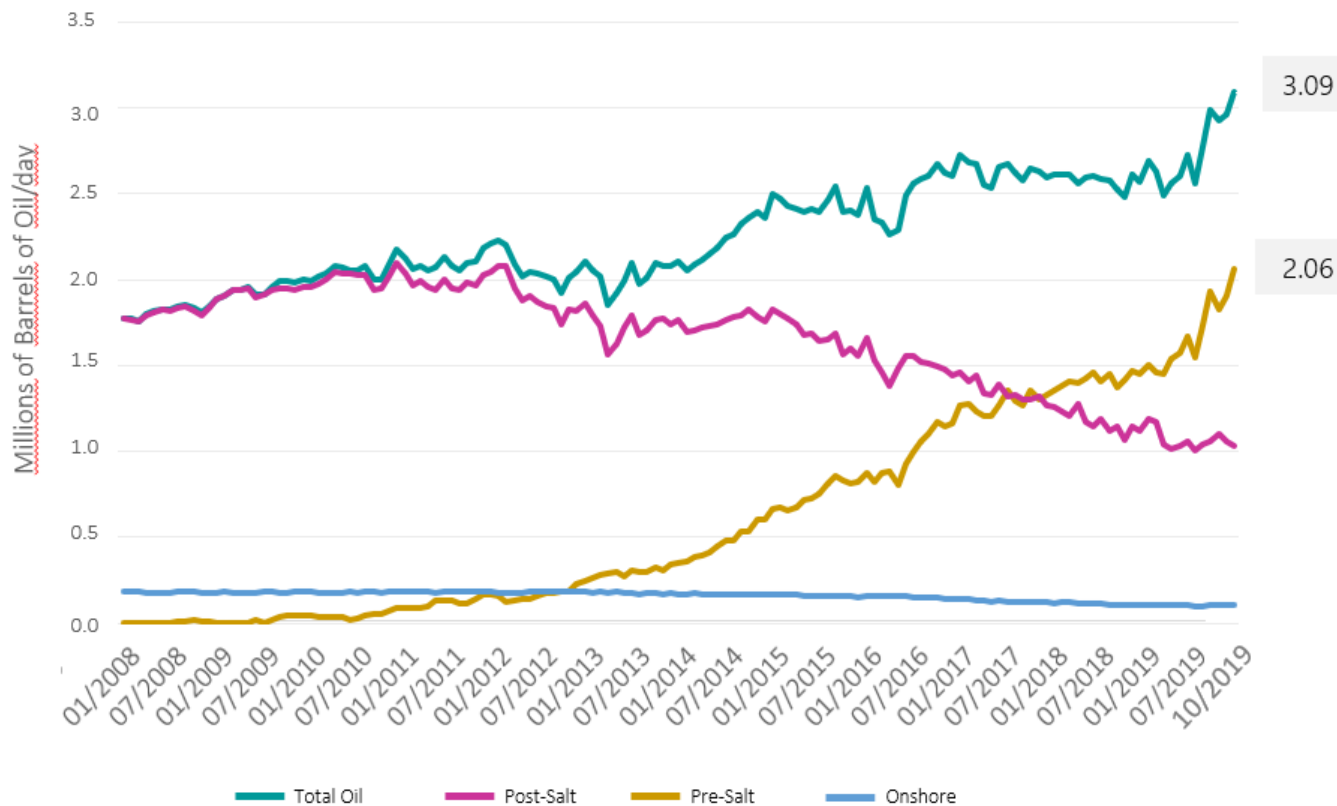
### Conventional Offshore



### Onshore

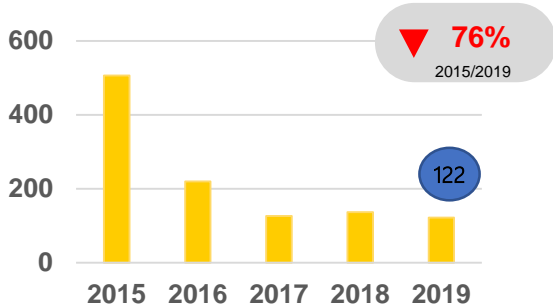


# Oil Production

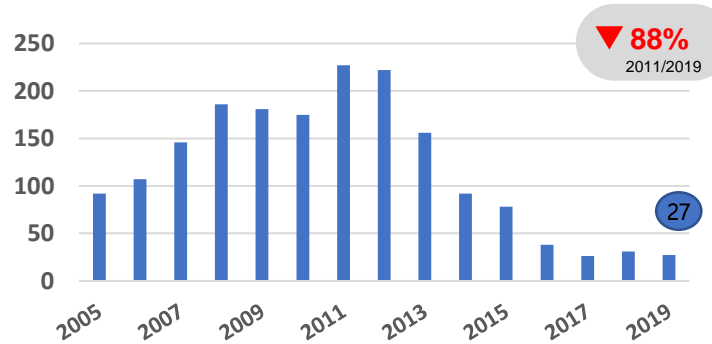


# Foster Conventional Production

## Development Wells Concluded

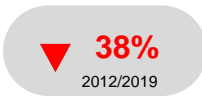


## Exploratory Wells Concluded



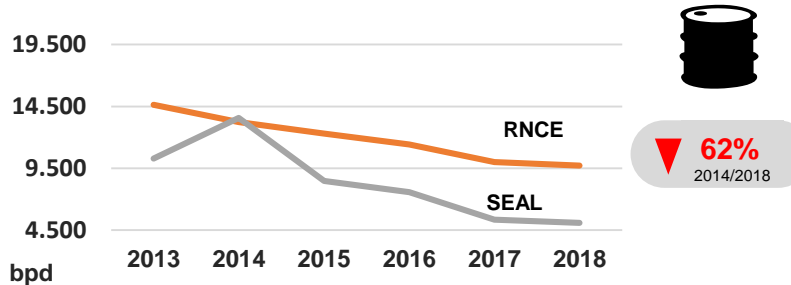
## Onshore Oil Equivalent Production

(Nov, 2019)



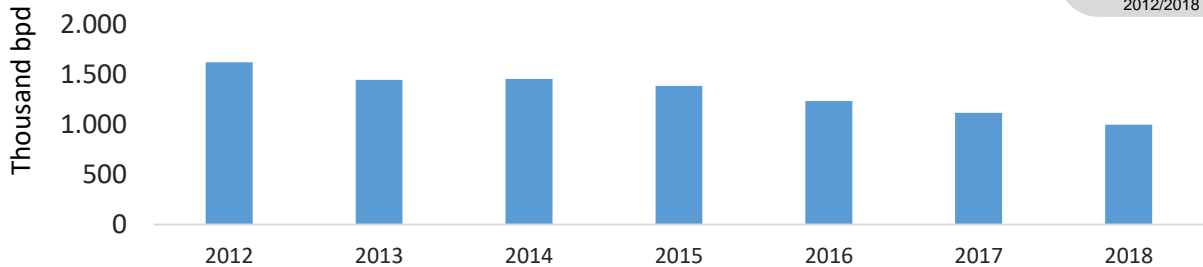
**269** Mboe/d

## Northeast Basins Offshore Oil Production



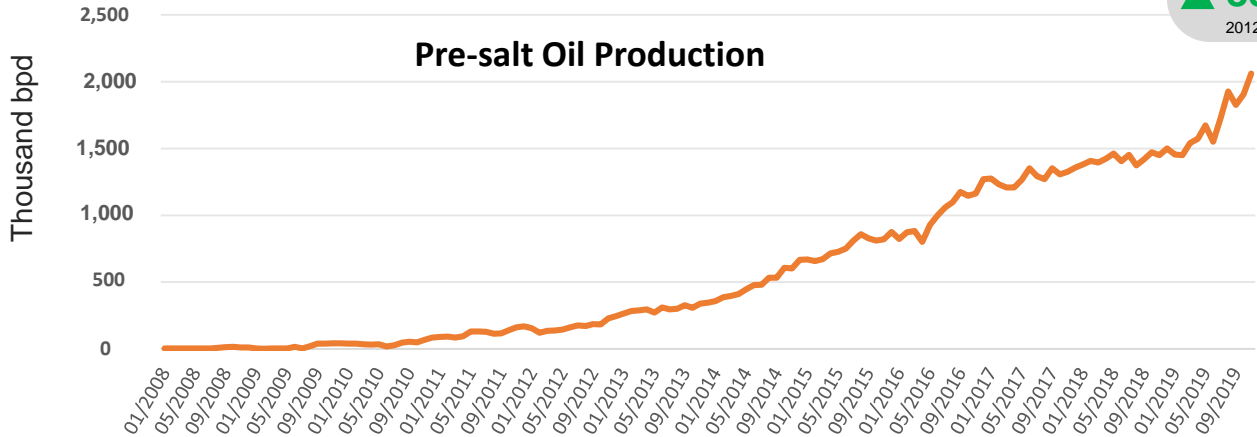
# Foster Conventional Production

## Post-Salt Campos Basin Oil Production



▼ **41%**  
2012/2018

## Pre-salt Oil Production



▲ **836**  
2012/2019

# Agenda

1 Brazillian E&P Scenario

2 Investment Opportunities

3 Closing Remarks



Average oil production per well

## Pre-salt

High quality **Carbonate Reservoirs** underneath the salt layer  
High **well productivity** more than 30,000 bpd in the beginning of production  
Potential for giant or supergiant field discoveries

**17,655 bpd**

85 wells

## Conventional Offshore

### **Eastern and Equatorial Margin**

Potential for oil discoveries from the Upper Cretaceous to Paleogene **turbidite** reservoirs

**1,650 bpd**

628 wells

## Onshore

### **Mature Basins** (Remaining Potential)

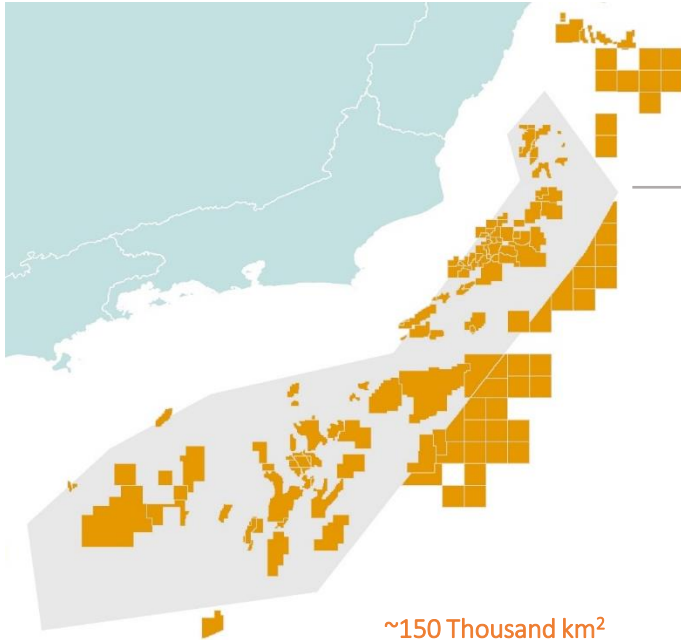
### **New Frontier Basins**

**Solimoes Basin:** Potential for light oil accumulations  
**Paleozoic and Proterozoic basins:** gas prone

**16 bpd**

6,683 wells

# The Pre-salt Play



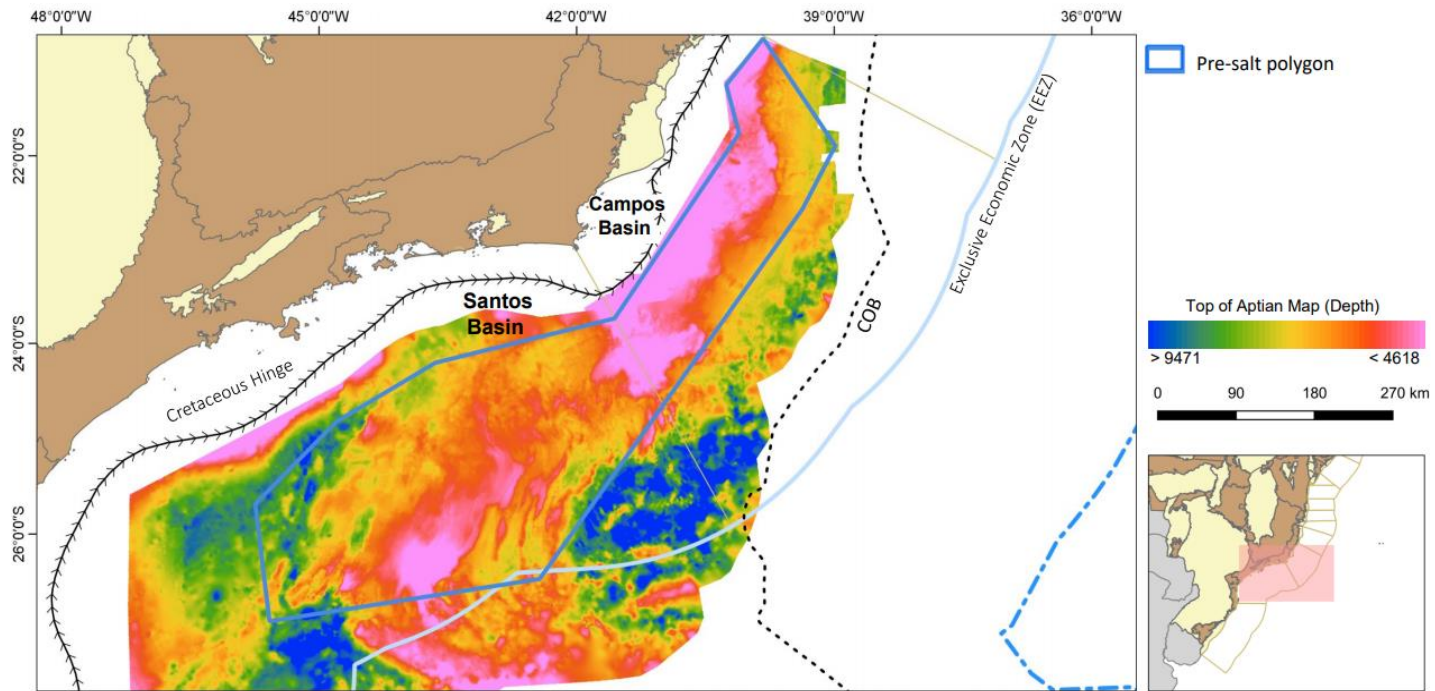
The **Pre-salt** Polygon is **3x**  
Larger than **Switzerland**





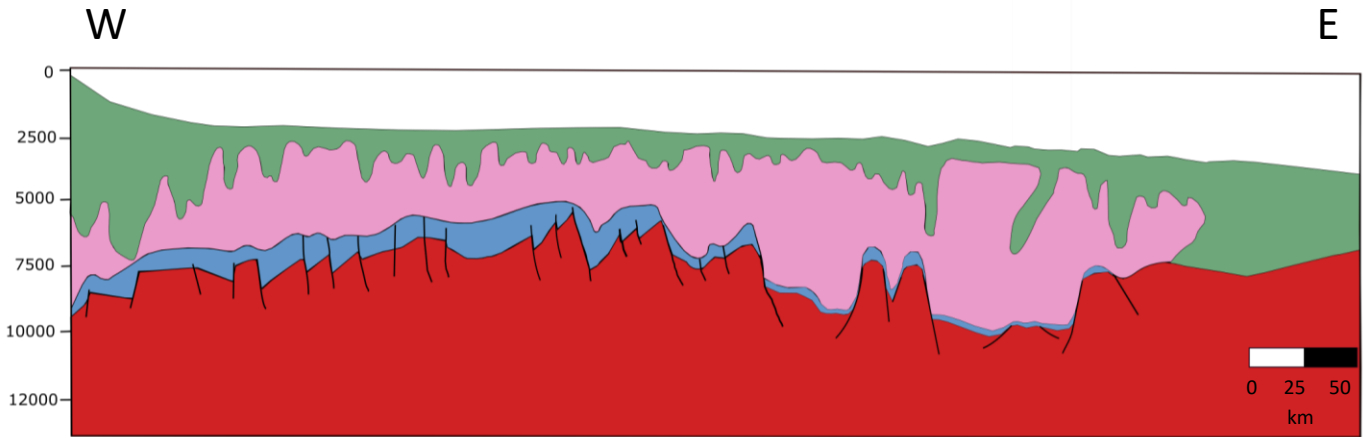
# The Pre-salt Play

## Base of Salt Structural Map



# The Pre-salt Play

## Schematic Profile



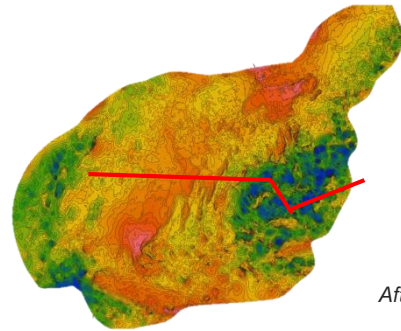
Post-Salt

Pre-salt

Aptian Evaporites

Economic Basement

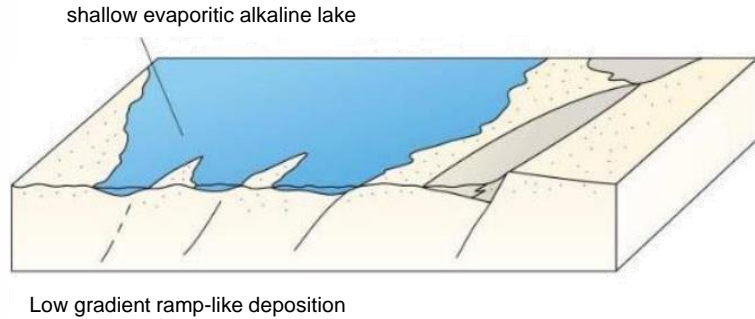
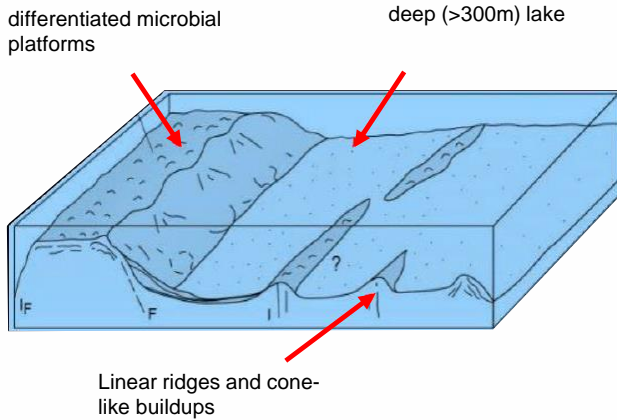
Fault



After Freitas, 2019

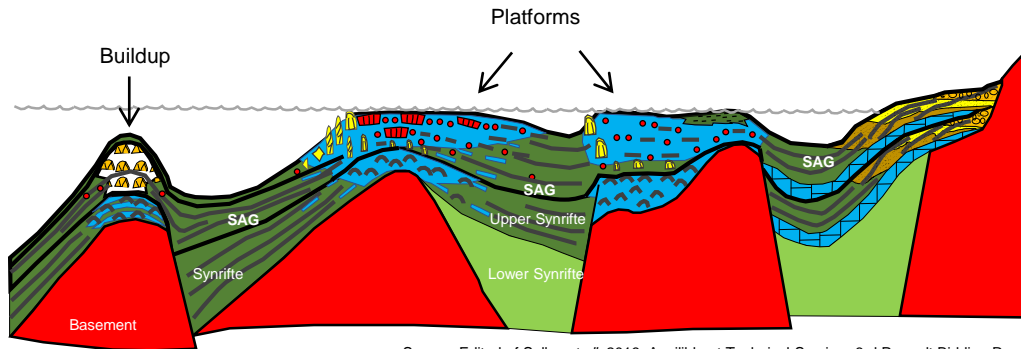
# The Pre-salt Play

## Depositional Model

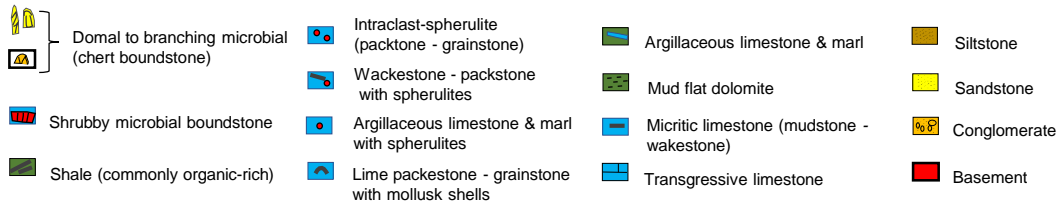


# The Pre-salt Play

## Depositional Model

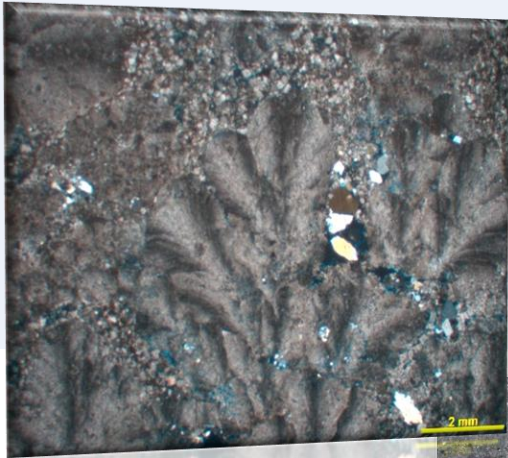


Source: Edited of Saller et al, 2016. Available at Technical Seminar 3rd Pre-salt Bidding Round



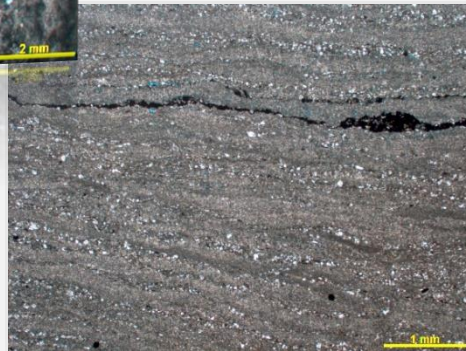
# The Pre-salt Play

## Depositional Textures



Stromatolite Shrub-like  
(arborescent)

Grainstone



Laminite



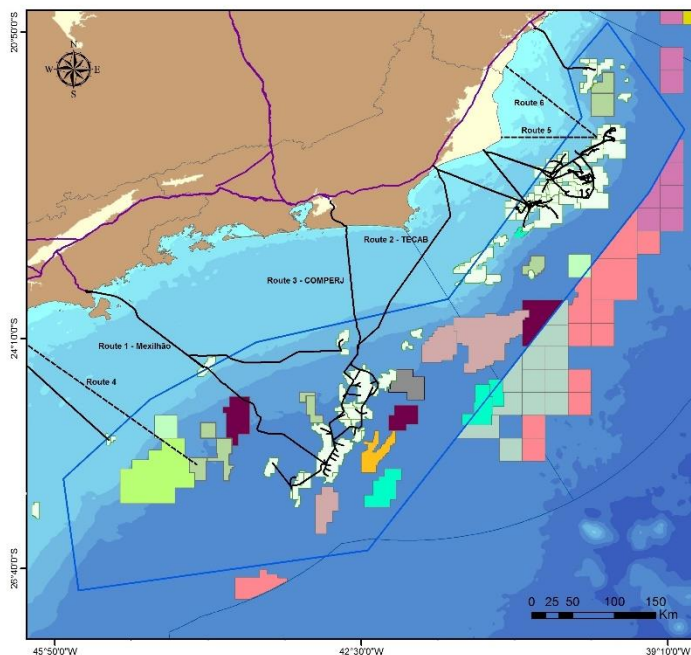
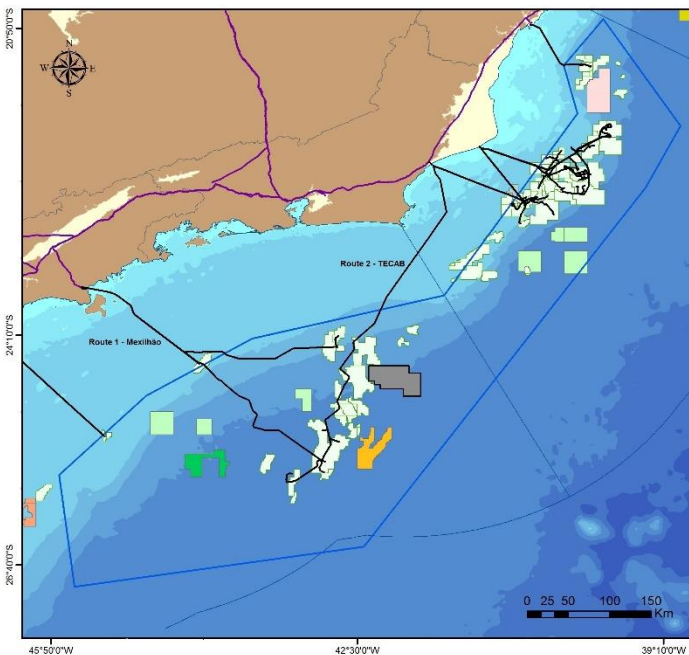
Spherulites

*Thin sections from pre-salt wells*

# Pre-salt Exploration Scenario

## Before 2017

## Currently



- 1st Sharing Bidding Round
- 2nd Sharing Bidding Round
- 3rd Sharing Bidding Round

- 4th Sharing Bidding Round
- 5th Sharing Bidding Round
- 11th Bidding Round

- 14th Bidding Round
- 15th Bidding Round
- 2nd Bidding Round

- 3rd Bidding Round
- 6th Bidding Round
- 7th Bidding Round

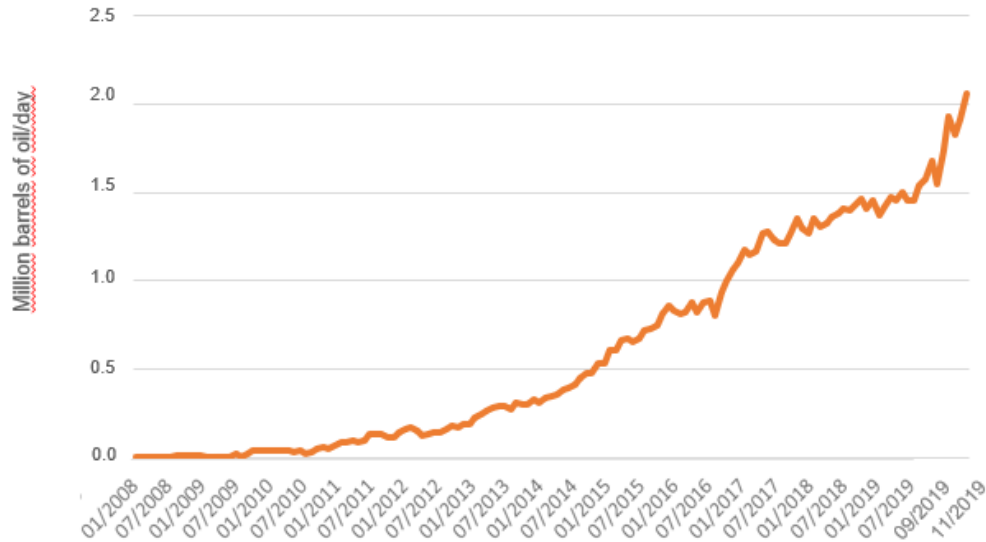
- PAD
- Pre-salt Polygon

- Transport Pipeline
- Flow Pipeline
- Planned Pipeline

- Terrestrial Basins
- Marine Basins
- Basement

# The Pre-salt Play Production

~2.1 million barrels of oil/day

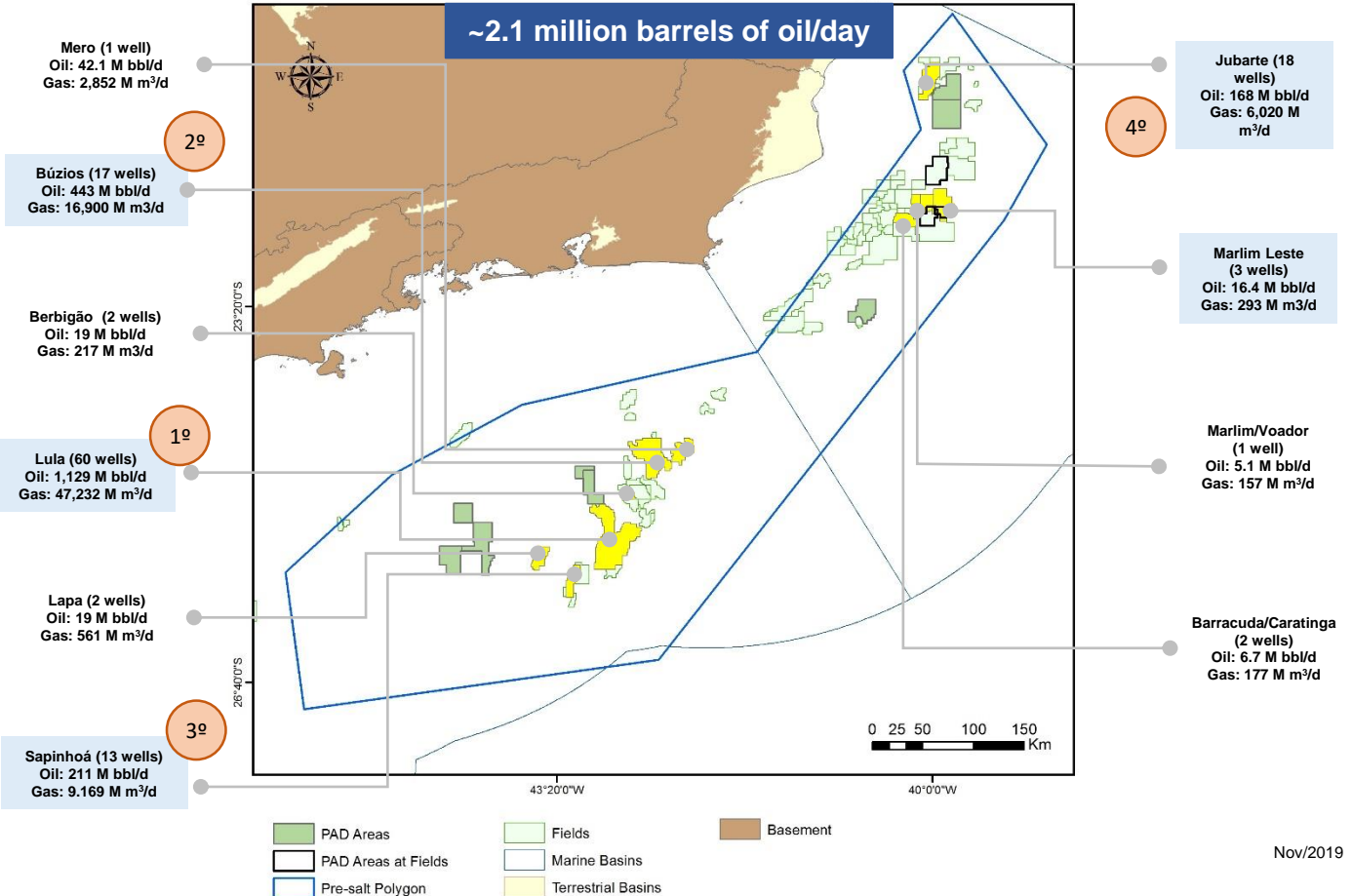


The Pre-Salt production comes from 114 wells:

90 in Santos Basin  
24 in Campos Basin



# The Pre-salt Play Production





## Most productive oil wells in Pre-Salt

- 1º 7-BUZ-24D-RJS - Búzios – Santos Basin **50.84** Mbb/d
- 2º 7-BUZ-31D-RJS - Búzios – Santos Basin **49.79** Mbb/d
- 3º 7-BUZ-10-RJS - Búzios – Santos Basin **43.00** Mbb/d
- 4º 3-BRSA-1305A-RJS - Mero – Santos Basin **42.13** Mbb/d
- 5º 9- BRSA-1191-RJS - Búzios – Santos Basin **40.13** Mbb/d



**The Pre-Salt comprises huge accumulations underneath the salt layers;**

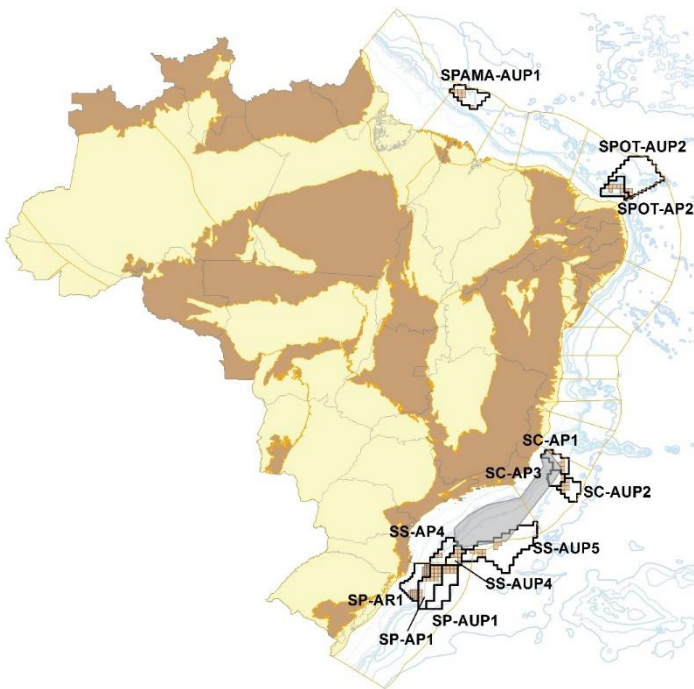
**Light Oil with excellent quality accumulations and high commercial values;**

- ✓ Great prospectivity, potential for giant and supergiant oil fields;
- ✓ High well productivity related to high quality carbonate reservoirs and extensive and thick production zones.

# Bidding Rounds Schedule



## 17th Bidding Round (2020)

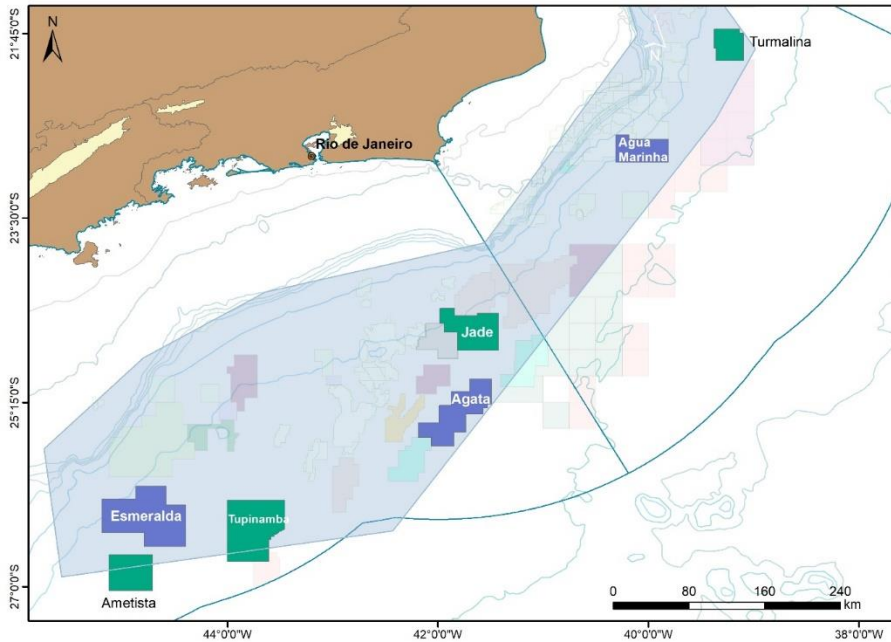


128 Offshore blocks

~64,105 km<sup>2</sup>

*Pará-Maranhão, Potiguar,  
Campos, Santos and  
Pelotas basins*

# Next Pre-Salt Bidding Rounds



**7** Blocks up for Offer

**3** in the 7<sup>th</sup> Bid

**4** in the 8<sup>th</sup> Bid

Round 7 Pre-salt

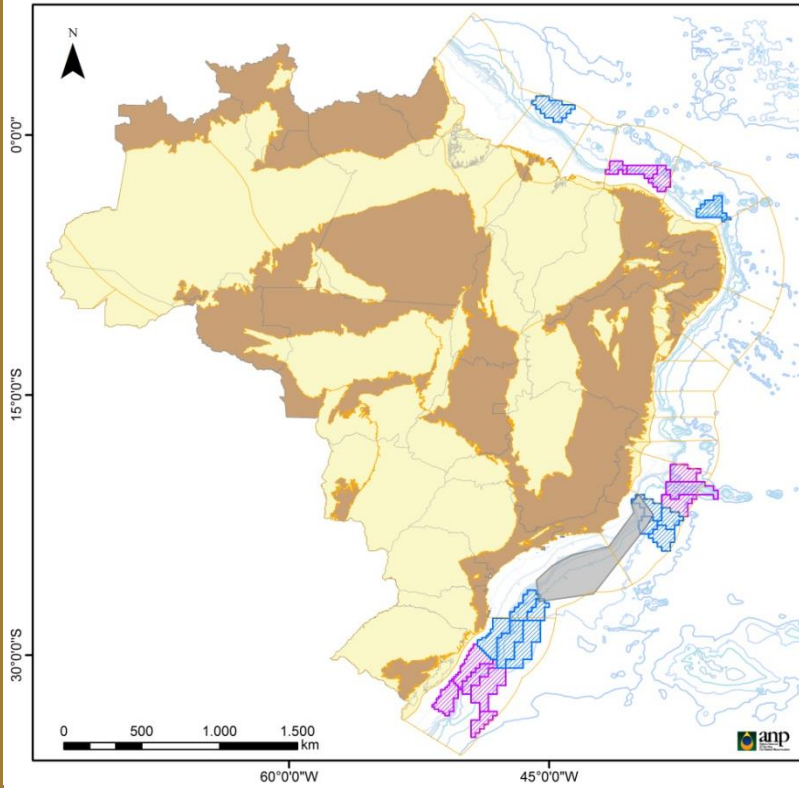
Round 8 Pre-salt

Pre-salt Polygon

Offshore Basin

# Sectors Under Examination for 18<sup>th</sup> Bidding Rounds

2021  
Ceará, Espírito Santo & Pelotas Basins



## Open Acreage

Continuous offer of blocks and mature fields.

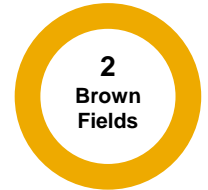
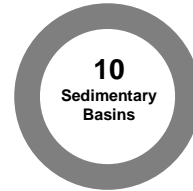
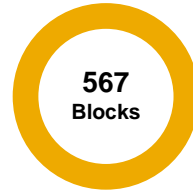
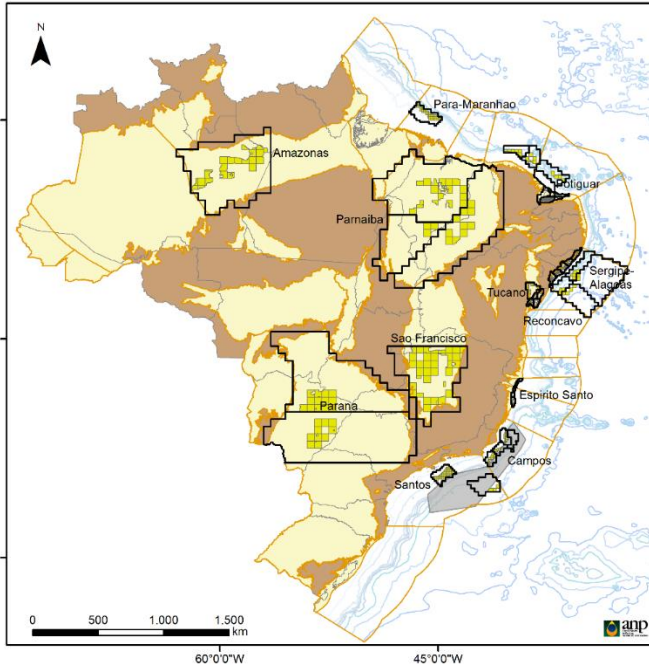
Companies can bid on blocks not sold in previous auctions.

Applications can be submitted anytime and not just at designated points.

It will promote exploration activity especially in onshore areas.



# Open Acreage



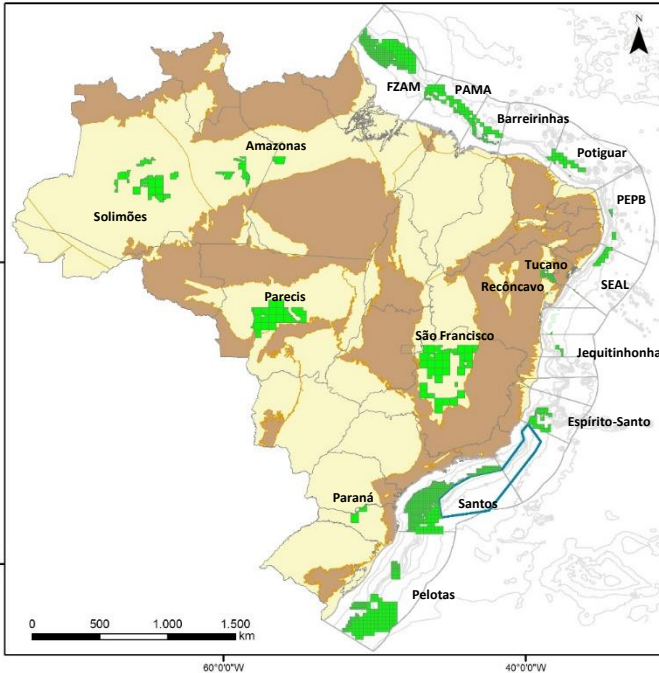
Available for nomination

+ 173 Blocks and 1 Brown Field

Available Soon



# Open Acreage Under Study



**19**  
Sedimentary  
Basins

Technical and Economical  
Parameters under study

**990**  
Blocks

185 blocks in 8 onshore basins

805 blocks in 11 offshore basins

# Agenda

1 Brazillian E&P Scenario

2 Investment Opportunities

3 Closing Remarks



# Attract Suitable Players

## Pre-Salt



## Conventional Offshore



## Onshore



**01** ➤ Supermajors  
➤ Major Operators

**02** ➤ Major Operators  
➤ Exploration Specialists  
➤ Mature Field Players

**03** Small and mid -  
sized Companies

Supported by Oilfield Service Companies, Suppliers and Financial Institutions !

# Final Remarks

## Attract the Right Players

- ❖ Giant Fields
- ❖ New Frontiers
- ❖ Mature Fields
- ❖ Onshore

Promote a Predictable and Stable Regulatory Framework, that Attracts New Investments and Accelerates the Development of the Pre-Salt, Conventional Offshore and Onshore E&P Environment.

## Increase E&P Activities

- ❖ Accelerate Pre-Salt Development
- ❖ Improve Mature Fields Production
- ❖ Improve Recovery Factor
- ❖ Enhance Onshore Incentives
- ❖ Expedite Environmental Licensing

## Maximize Production

- ❖ Diversity of Players
- ❖ New RD&I Focus
- ❖ Financing Opportunities

## Create a Secondary Market

Attract mid/small-sized companies

**National Agency for Petroleum, Natural Gas and Biofuels – ANP**  
*Exploration Superintendence*  
Av. Rio Branco, 65, 19th floor

**Vivian Azor de Freitas**

*vafreitas@anp.gov.br*

**Additional Information**

*www.anp.gov.br*

