

The Oil and Gas Industry in **Brazil**

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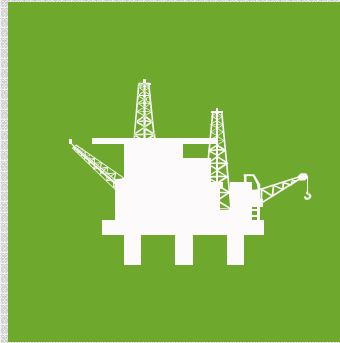
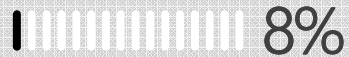
Three different E&P environments



Onshore

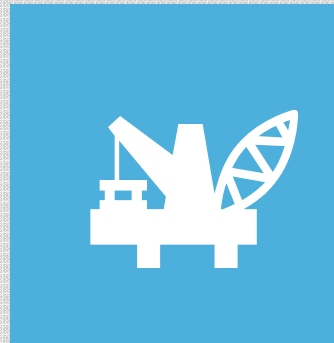
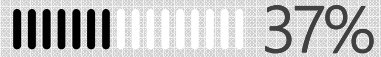
Mature Basins and New Frontier Basins (mostly gas prone). Potential for unconventional to be unleashed.

Production



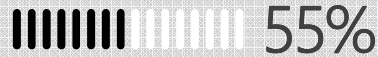
Conventional Offshore

All the East Margin besides the pre-salt region and Equatorial Margin, including new frontier areas and a significant number of large mature fields.



Pre-Salt

One of the World's hottest oil play, home to the largest offshore oil discoveries in the last decade.



Average oil production per well

16,713_{bpd}

88 wells

1,650_{bpd}

628 wells

16_{bpd}

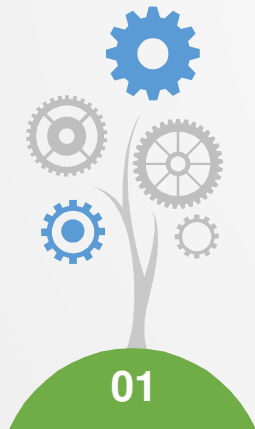
6,683 wells

* October/2018

Three main goals



01 Increasing the exploratory activities



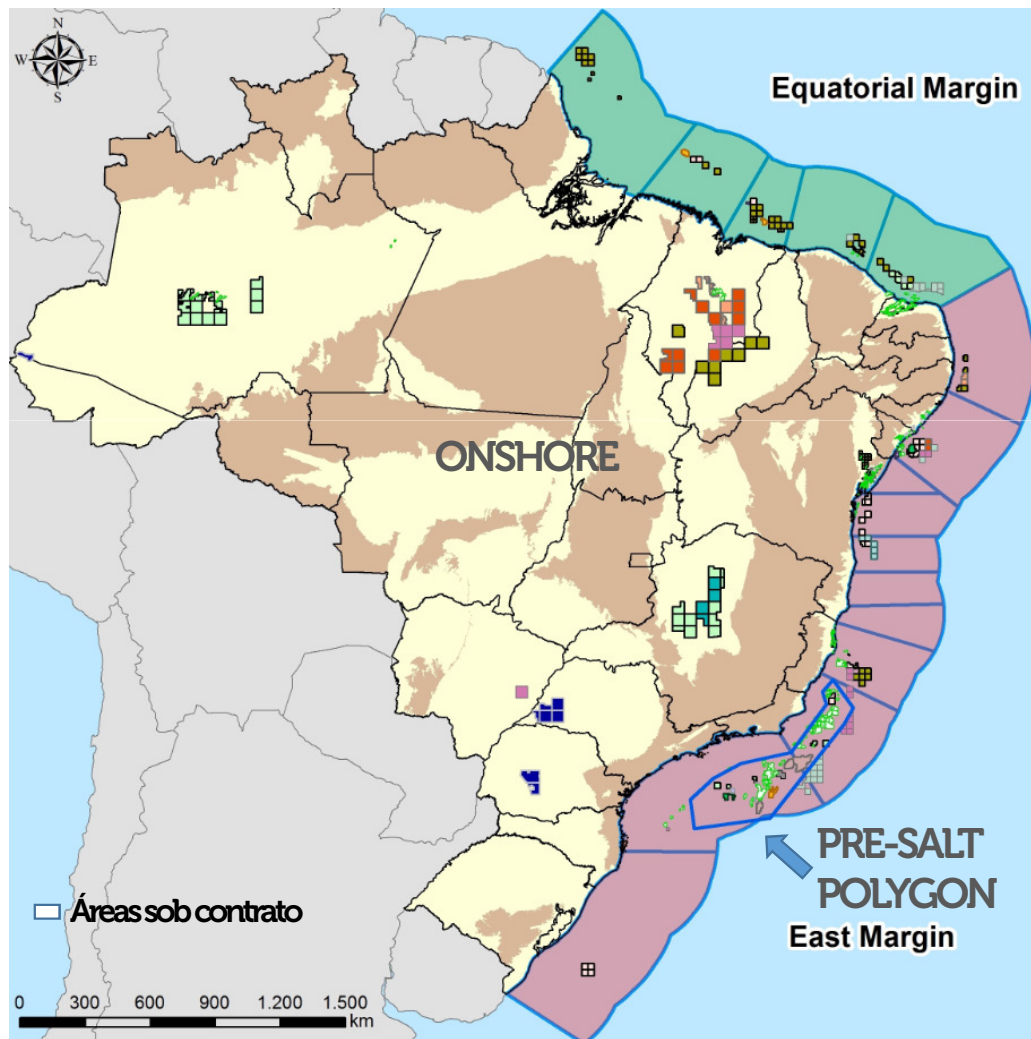
02 Maximizing production and reservoirs recovery factors



03 Attracting the right player for each environment



It is necessary to unlock the oil and gas potential



Brazil has a continental-size, but...



Less than **5%** of the sedimentary areas are contracted



2 Basins without a single well



Only **30,000** wells were drilled in Brazil

• 60,000 in Argentina
• 4 million in USA



And indeed a lot has been achieved...

Main Adopted Measures

Late **2016**

Petrobras: no longer sole operator for the pre-salt play
(Law 13,365/2016)

2017

New E&P Policies
(CNPE Resolution 17/2017)

Bidding Rounds Schedule until 2019
(CNPE Resolution 10/2017)

Exploratory Phase Extension (BID 11 and BID 12)
(CNPE Resolution 708/2017)

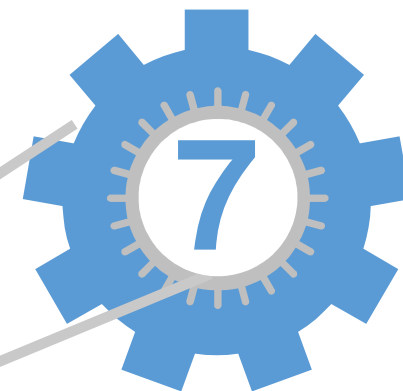
REPETRO Extension – fiscal regime
(Law 13,586/2017)

New Local Content Policy – future rounds
(CNPE Resolution 07/2017)

2018

LC waiver for contracts up to the 13th bidding round
(ANP Ordinance 726/2018)

Royalties Reduction for Incremental Production
(ANP Ordinance 749/2018)









Bidding Rounds
(in 2017/2018)





Bidding Rounds Results

Bidding Round	Acquired Blocks	Signature Bonuses (US\$ billion)	Registered Companies	Winners Companies	Premium
	37 (24 onshore e 13 offshore)	1.0	32	17	1,556%
	22	2.0	17	12	622%
	3	0.8	10	7	261%
	3	0.7	14	6	202%
	3	0.8	16	7	202%
	4	1.7	12	8	170%
Total	72	~US\$ 7.0	High competition and record results!		

And the potential results are ...



US\$ 112B

New Investments

US\$ 425B

Tax Revenues

2.5

Million bpd
(peak production)

~20

New Platforms



Hundreds of Wells



*Brent = US\$ 70/bbl
Exchange Rate = R\$ 4/US\$

Potential results for the following bidding rounds:

Brazil
14th Round
Oil & Gas Bidding Rounds

PRE-SALT
Brazil 2
PRODUCTION SHARE

PRE-SALT
Brazil 3
PRODUCTION SHARE

PRE-SALT
Brazil 4
PRODUCTION SHARE

PRE-SALT
Brazil 5
PRODUCTION SHARE

ROUND
Brazil 15
OIL AND GAS CONCESSIONS

Bidding rounds schedule



OPEN
ACREAGE
Brazil
OIL AND GAS CONCESSIONS

1st Wave

As from
November

2018

OPEN
ACREAGE
Brazil
OIL AND GAS CONCESSIONS

2nd Wave

1st
Semester

2019

ROUND
Brazil 16
OIL AND GAS CONCESSIONS

PRE-SALT
Brazil 6
PRODUCTION SHARE

3rd Q

ROUND
Brazil 17
OIL AND GAS CONCESSIONS

PRE-SALT
Brazil 7
PRODUCTION SHARE

2020

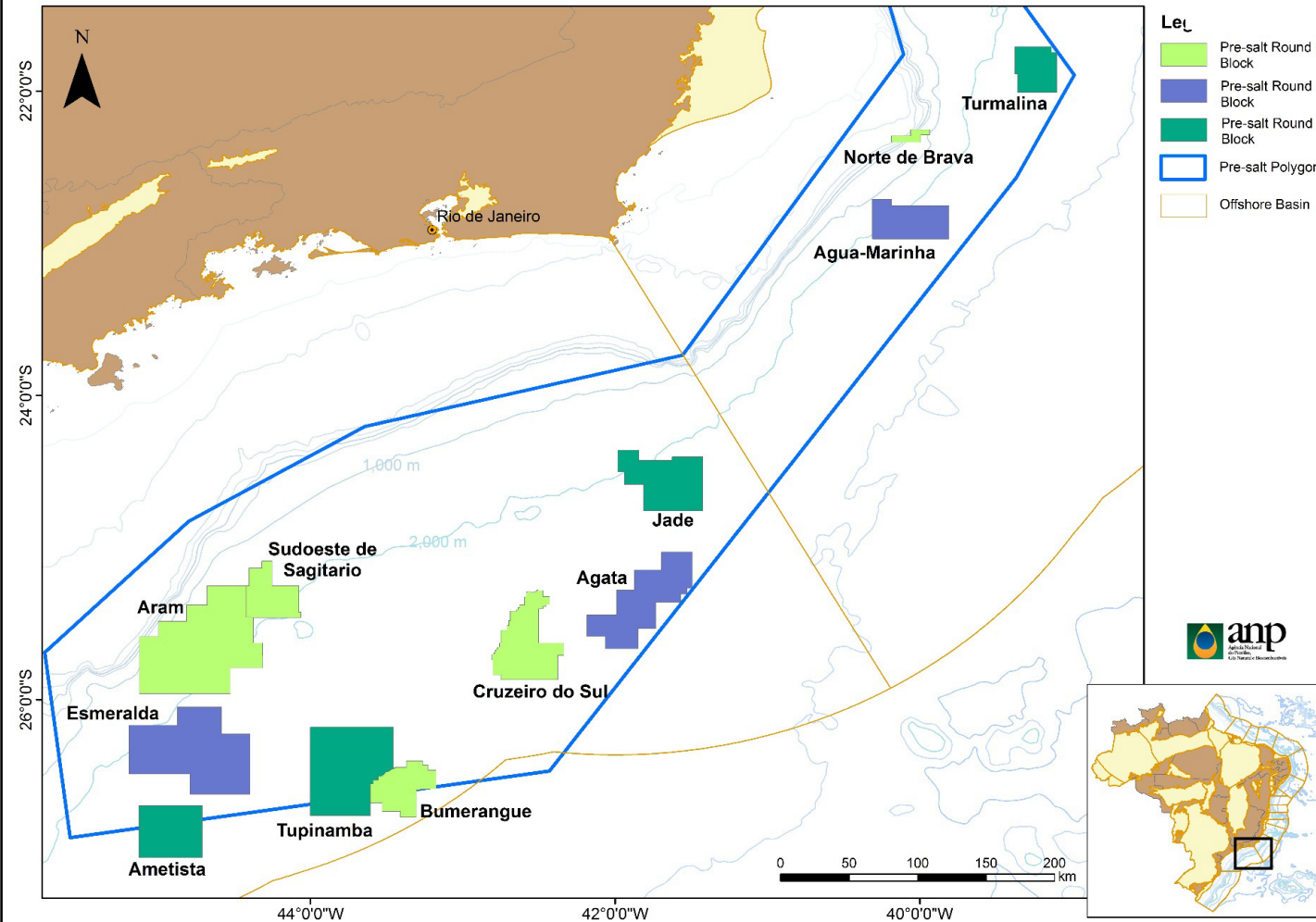
ROUND
Brazil 18
OIL AND GAS CONCESSIONS

PRE-SALT
Brazil 8
PRODUCTION SHARE

2021

TRANSFER OF
RIGHTS SURPLUS
Brazil
PRODUCTION SHARE

Pre-Salt Bidding Rounds 2019-2021



PRE-SALT
Brazil **6**
PRODUCTION SHARE

1. Aram
2. Sudoeste de Sagitário
3. Bumerangue
4. Cruzeiro do Sul
5. Norte de Brava

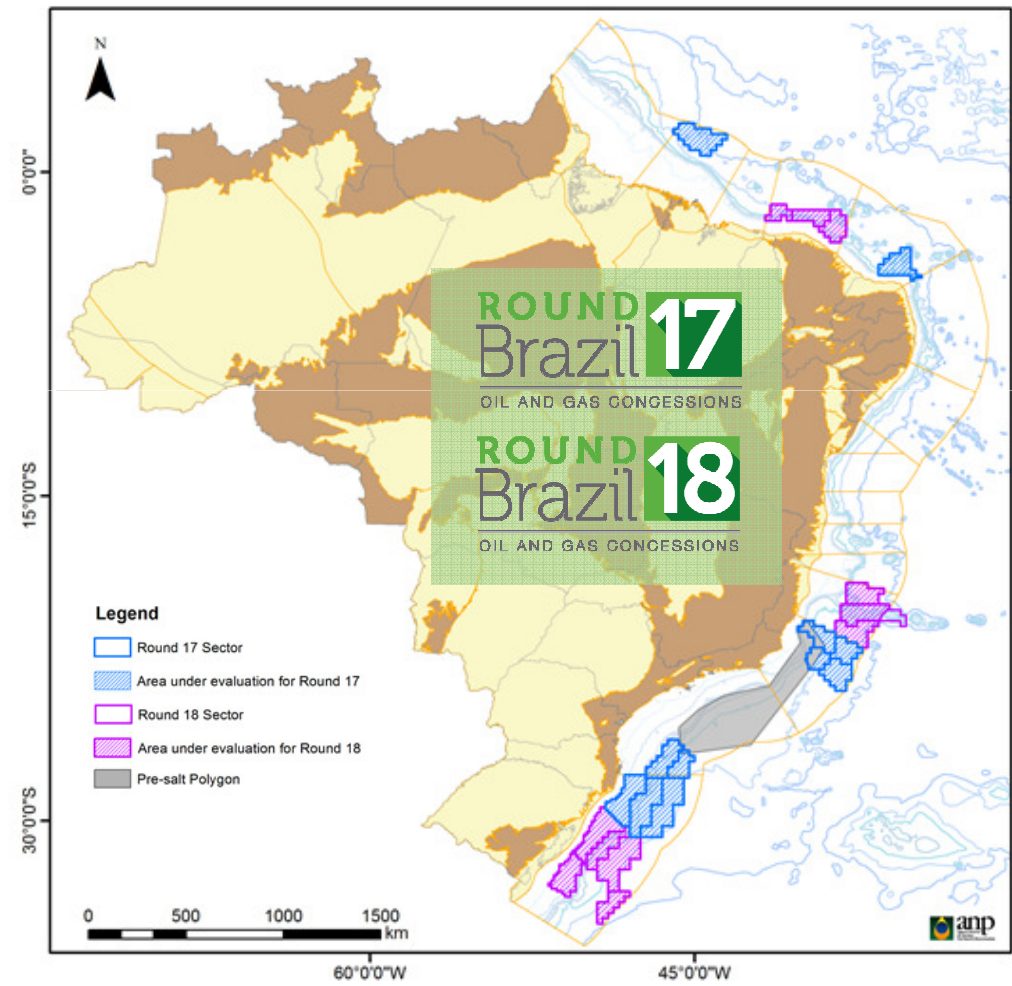
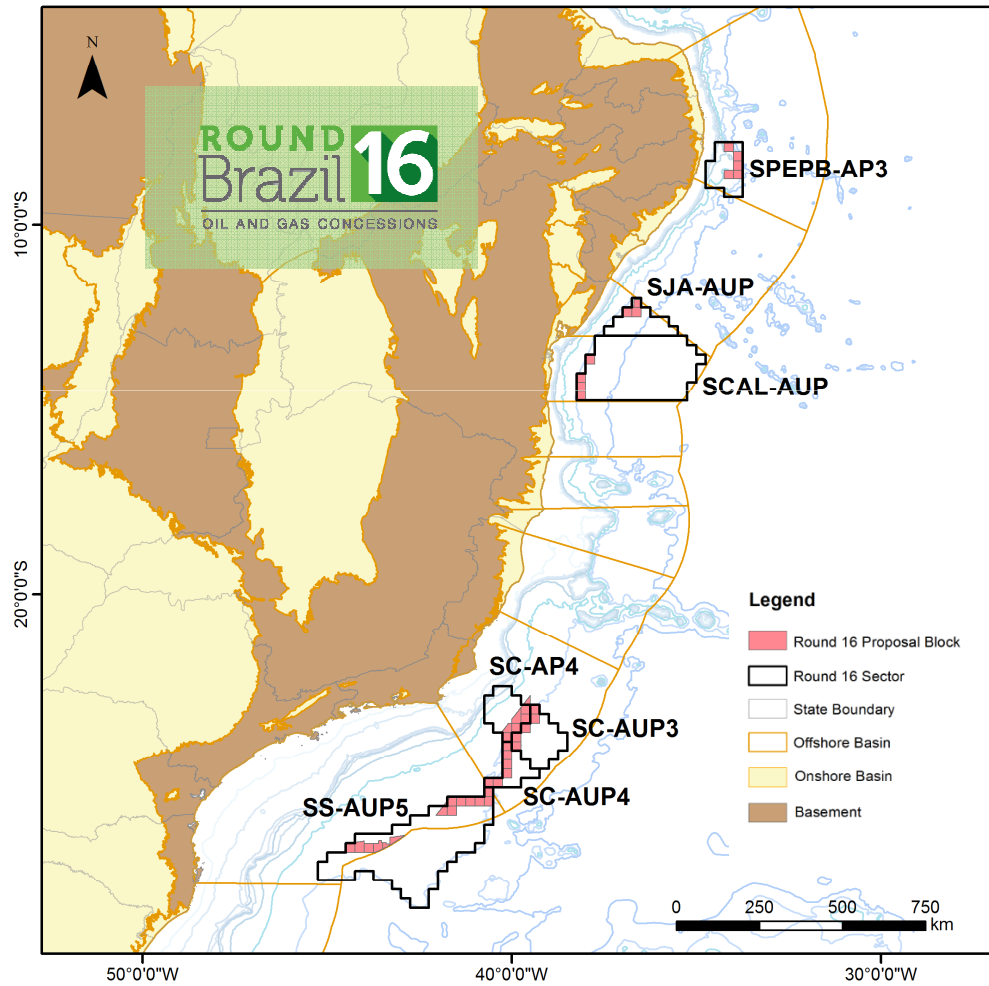
PRE-SALT
Brazil **7**
PRODUCTION SHARE

1. Esmeralda
2. Agata
3. Água Marinha

PRE-SALT
Brazil **8**
PRODUCTION SHARE

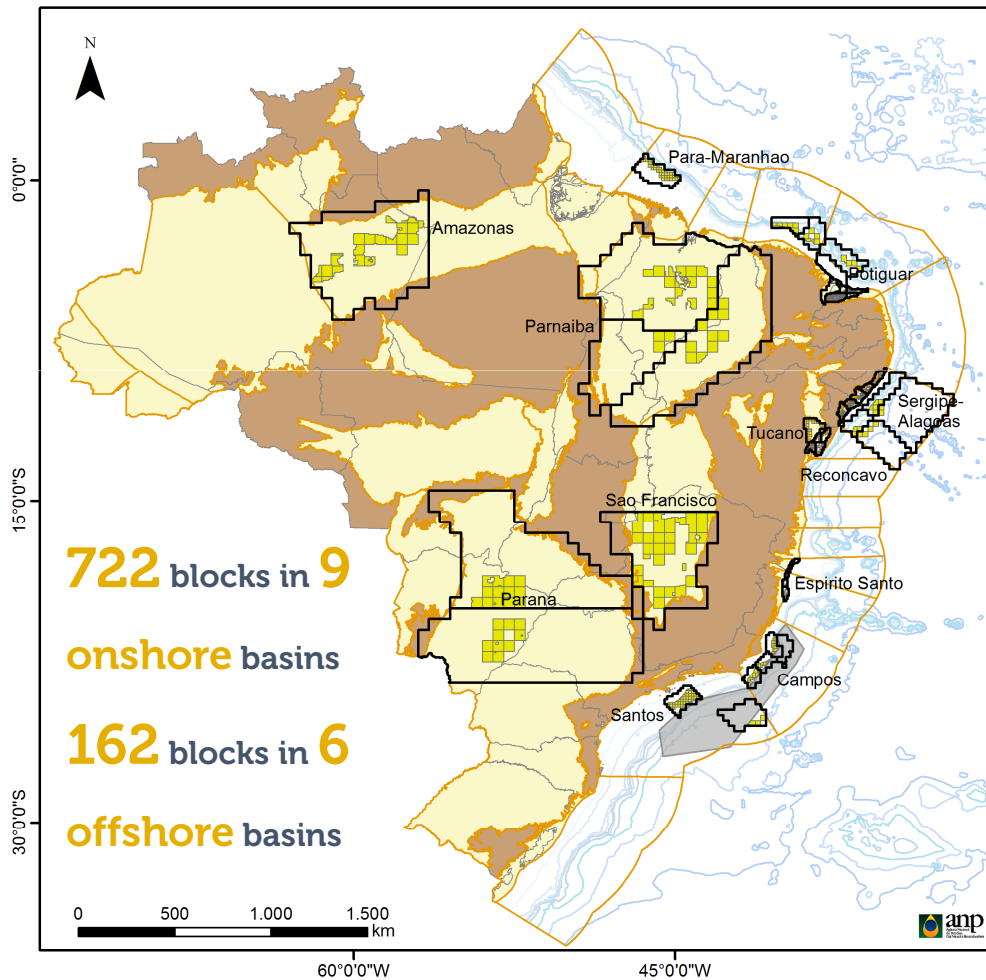
1. Ametista
2. Tupinamba
3. Jade
4. Turmalina

Concession bidding rounds 2019-2021

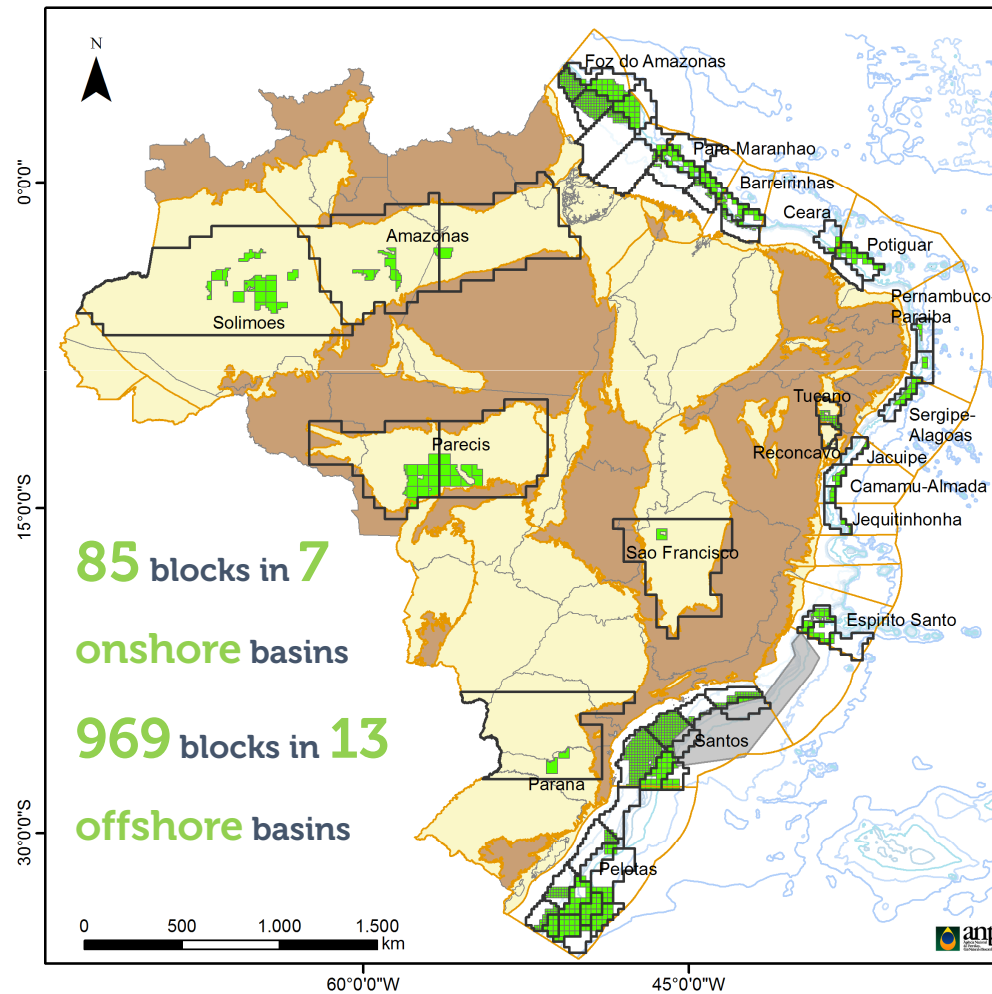


Open Acreage

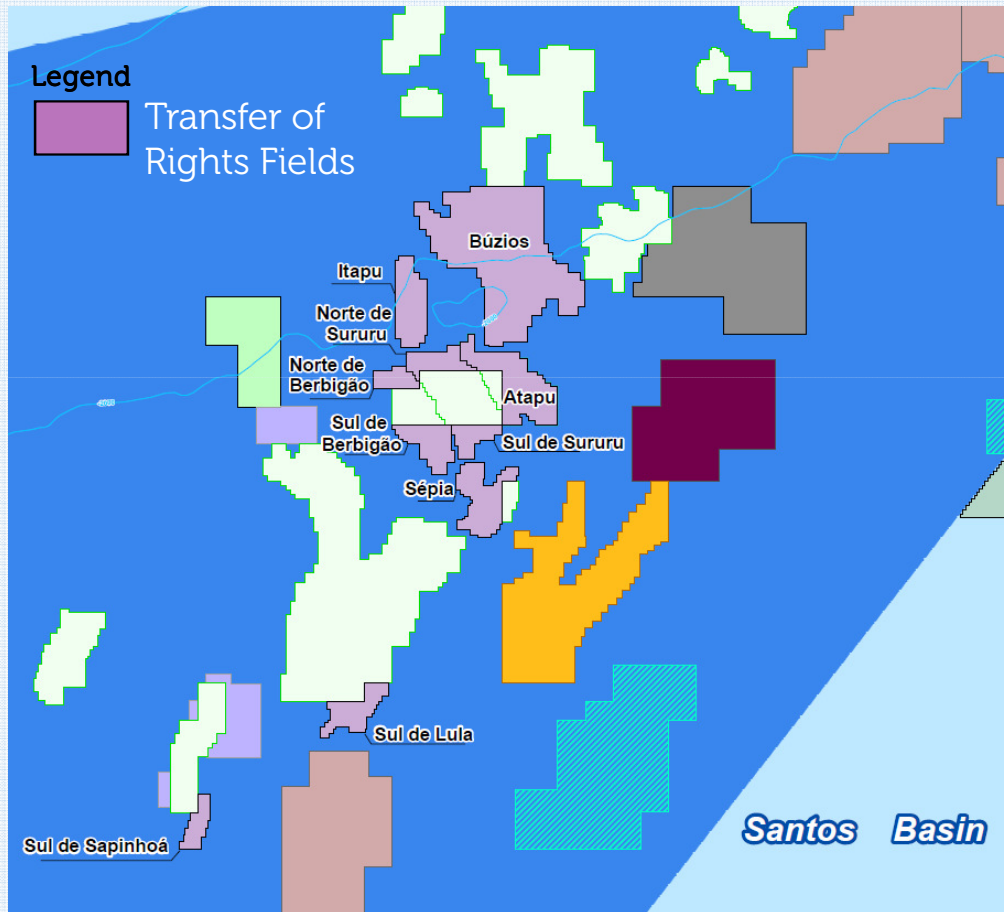
1st Wave



2nd Wave



Transfer of Rights Surplus Opportunities



10
Fields

US\$ 489^B
Tax Revenues

10.8
Billion boe
(GCA P50 recoverable volumes)

17
New Platforms

*Brent = US\$ 70/bbl
Exchange Rate = R\$ 4/US\$

Attracting the right players

Pre-Salt



Conventional Offshore



Onshore



-
- 01**
- Supermajors
 - Major Operators
-

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

-
- 03**
- Exploration specialists
 - Small accumulations development specialists
-

Supported by oilfield service companies, suppliers and financial institutions



Our potential



7.5^M
bpd

Potential forecast
production in **2030**

>60
New FPSOs

The most prominent
deep water environment

Mature
fields/
basins

Low average recovery factor.
High potential for attracting
new investments

New
Frontier
Basins

We barely know our
potential.
Unconventional
resources discussion
should progress

← **Contracted or in progress** →

← **Need to be unlocked** →

Potential impacts on the Brazilian economy



Bidding Round	Platforms*	Pick Production - (million bpd)	Nominal Investments (billion)**	Tax Revenue – nominal values (billion)
Until 2016	27	2.5	US\$ 130	US\$ 450
2017, 2018 and 2019	22	2.5	US\$ 126	US\$ 487
Transfer of Rights Surplus	17	2	US\$ 105	US\$ 489
Increase in RF of 5% (revitalization)	-	11 B boe new reserves	US\$ 90	US\$ 55 in royalties

* Planned to start production

** considers investments for platforms planned to initiate production after 2020

*** Brent at US\$ 70/bbl; Exchange: R\$4/US\$

Investments in Research, development and innovation Slightly less than US\$ 1 billion per year

Potential Tax Revenue
(from 2018 to 2054)

~US\$ 1.5 trillion
(ANNUAL AVERAGE OF US\$40 B)

Investments

~US\$ 450 billion



Unique E&P opportunity:

- . immediate reserves certification;
- . fast production development;
- . reserves and production growth

Next 10 years
Potential
Investment
US\$ 528
Billion

The **greatest** transformation in the Brazilian E&P sector, completing the opening which started in 1997

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