

NAVIGATING THE NEW DECADE OF BRAZIL O&G:
*AN OCEAN OF OPPORTUNITIES FROM ONSHORE TO
OFFSHORE, TRANSFER OF RIGHTS AND MORE*






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An unprecedented transformation

We continue to make progress in opening the O&G sector

E&P



A completely **diverse sector** will emerge from Petrobras Divestment Plan. All onshore and shallow water fields are being sold, as well as some great offshore post-salt concessions.

With new investments in mature fields, development of pre-salt fields, offshore blocks in the exploratory phase, and a calendar of new auctions, Brazil is ready to grow production and take a leading position in the sector.

Downstream



Half of the Brazilian refining capacity (REFAP • RNEST • REPAR • RLAM • LUBNOR • REGAP • REMAN • SIX) is being sold by Petrobras, paving the way for a **competitive and open refining** and fuel market for the first time ever.

ANP is taking measures to deal with the transition to this new environment and to bring competitiveness to the distribution sector.

Gas



First-ever **effective opening in the natural gas market** with Petrobras leaving the transport and distribution sectors.

A new legal framework has just been put in place for the gas market (Law 14,134/2021 and Decree 10,712/2021) and a strong regulatory agenda is underway to create opportunities for suppliers, free consumers and distributors. An open season calendar is set for this year.

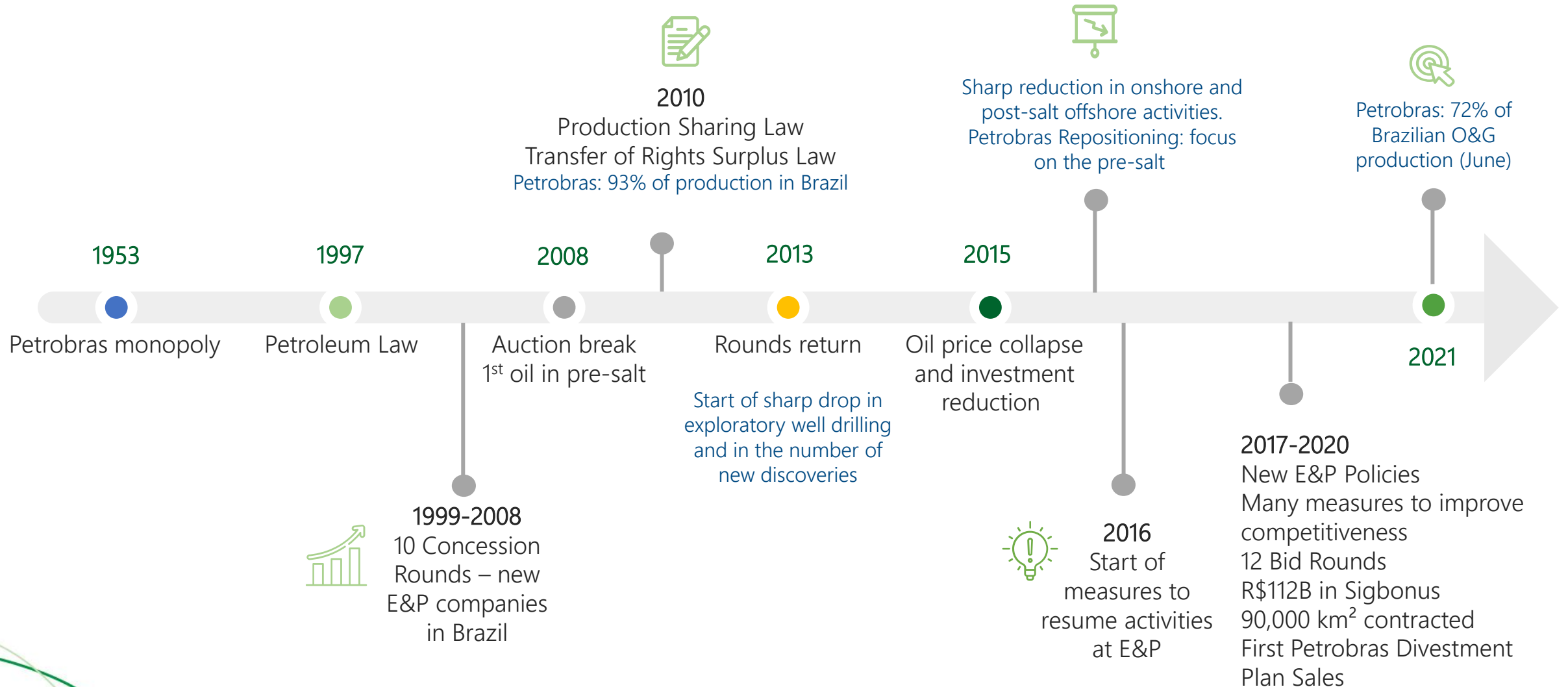


#1

Exploration & Production Overview

E&P history in Brazil

From a monopoly towards an open market



Even at challenging times, Brazil's O&G Industry has responded with remarkable resilience

2020



5% of production growth and exports record

Pre-salt high performance
Exports of oil and fuel oil with low sulfur content



2nd Cycle of Open Acreage

Performed in December: 18 areas sold



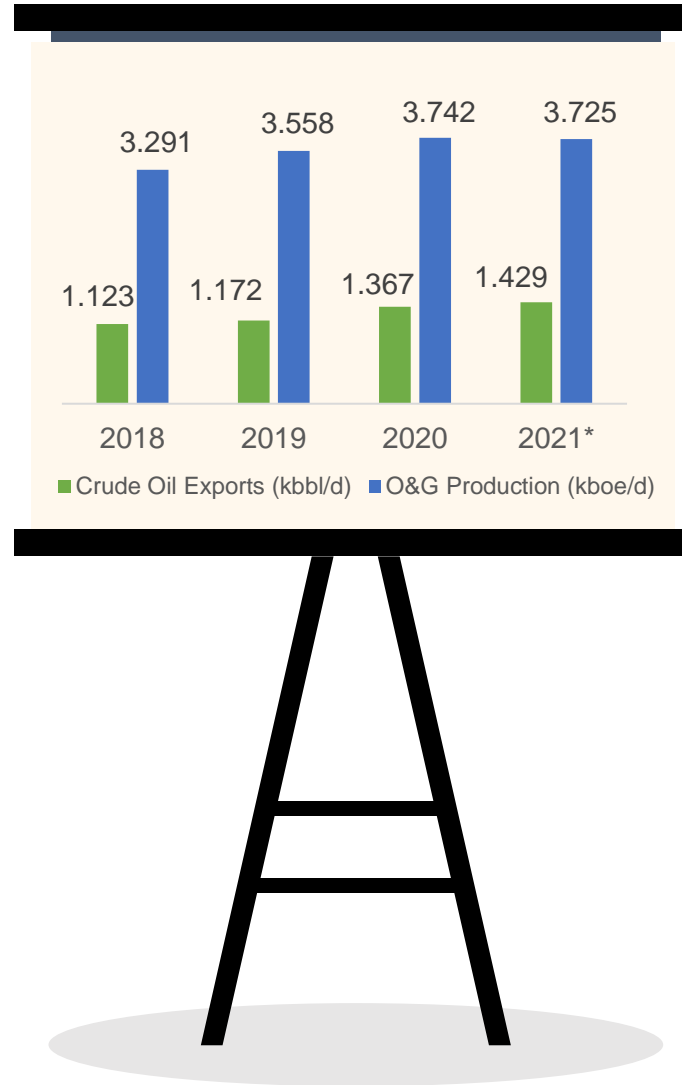
Assets Acquisition

50 M&As approved by ANP



COVID 19

Flexible emergency measures - supportive approach by ANP



2021



Maintenance of O&G production with another exports record

*1st Semester results as shown in the graph



2 or 3 Bidding Rounds

In the 2nd semester (total of 1,162 areas available, considering the Open Acreage)



Assets Acquisition increased

~50 M&As approved by ANP only up to July 2021



COVID 19

Returning to business-as-usual, but continued flexibility available where required

Brazil is taking a leading role in the E&P sector



2021



8th

Crude Oil and
Condensate
producer
(BP Statistical
Review 2021)



87

E&P company
groups, 50% foreign
(August 2021)

Production:

2.9M

Bpd of oil
production
(June 2021)

136M

M³ of gas
production
(June 2021)

Reserves:

12^B

Bbl in proved oil
reserves
(Dec 2020)

337^B

M³ in proved gas
reserves
(Dec 2020)

Forecast

Potential to reach
more than



5

million oil bpd in
2030 (EPE)

Potential to be the



5th

Largest crude oil
exporter in 2030
(EPE)

E&P at a glance



Pre-Salt

One of the best plays in the world and the most competitive deepwater assets.

72% of production
129 producer wells
21,043 Average well production (boe/d)

Prod: **2,714,509** boe/d

Post-Salt

Green and brownfields, deep and shallow waters.

22% of production
360 producer wells
2,236 Average well production (boe/d)

Prod: **805,067** boe/d

Onshore

Mature basins and new frontier basins (gas prone).

6% of production
5,971 producer wells
40 Average well production (boe/d)

Prod: **237,703** boe/d

26_B

Barrels equivalent of O&G produced to date

375

Fields under development or production

249

Exploratory Blocks

400+

Production Installations

50

Billion dollars E&P Investments Forecast 2021 – 2025

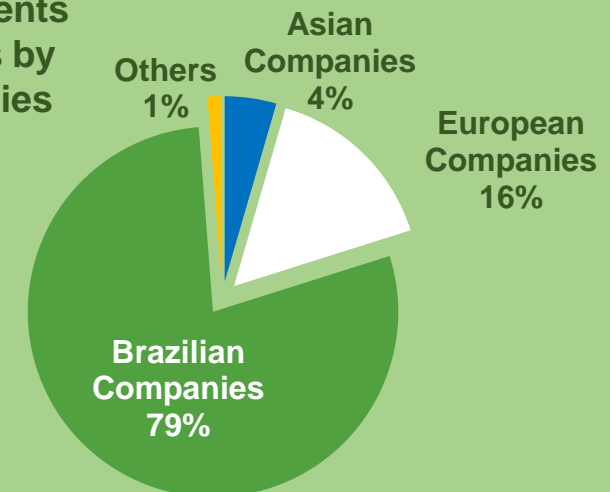
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Billion dollars Decommissioning Costs 2021-2025

30,000+
Wells drilled

19,000+
Km of O&G pipelines

Investments in Fields by Companies Origin



E&P strategic goals



RIGHT ASSETS IN THE RIGHT HANDS

Petrobras Divestment Plan plays key role in this goal.
Support small and medium producers market



INCREASE THE RECOVERY FACTOR

Brazil's Actual RF: 10%
This represents an enormous opportunity in the mature fields.
Need to reduce OPEX and decommissioning costs



INCREASE EXPLORATORY ACTIVITIES

The COVID-19 pandemic accelerated energy transition discussions and reinforced the sense of urgency in exploring our resources

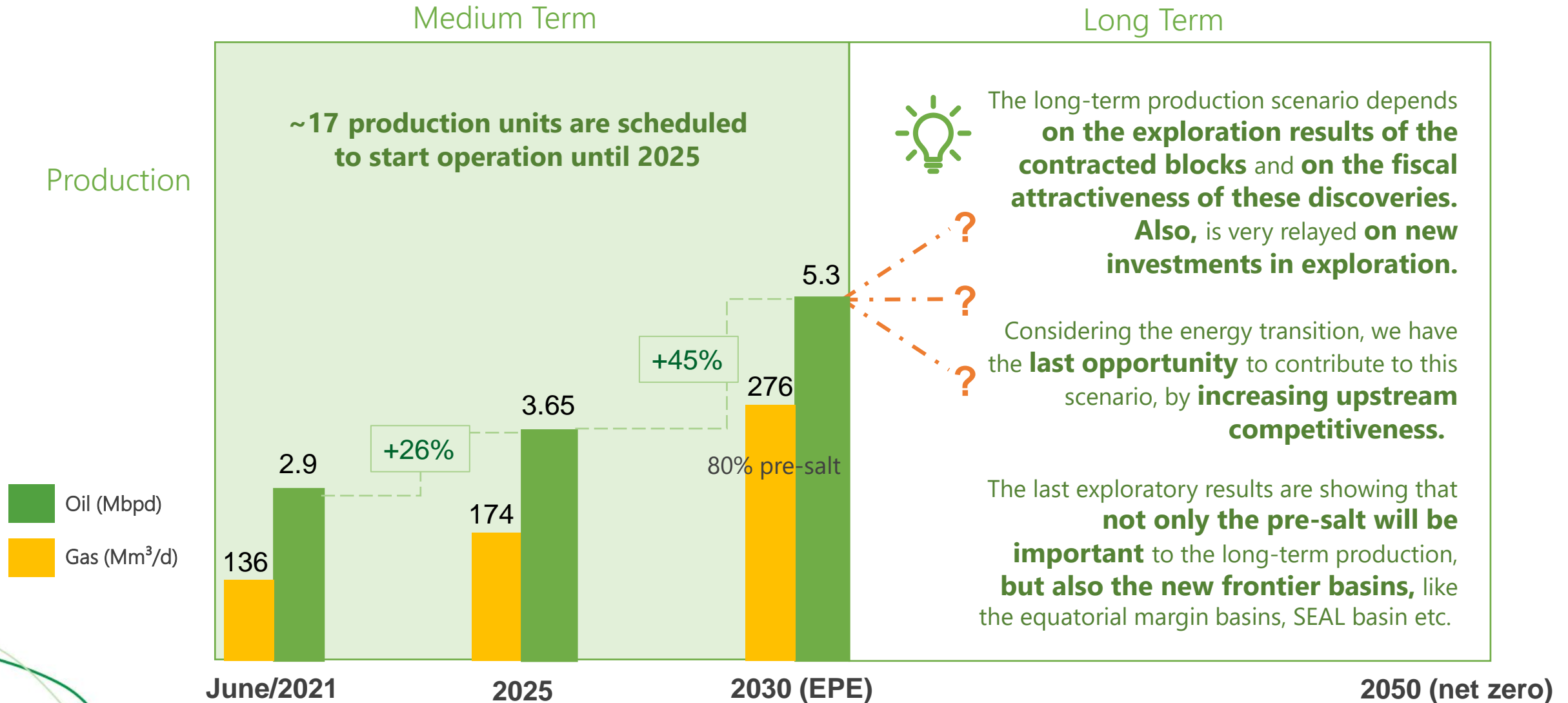


MAKE VIABLE THE MARGINAL DISCOVERIES

There are many marginal discoveries in the different environments that could be developed if we address the correct incentives to make them viable

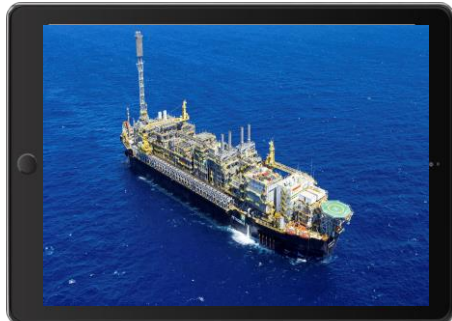
We need to keep increasing **above ground competitiveness** in order to achieve our main goals

Brazil is poised to be one of the key sources of growth over the medium term, but still need to keep taking measures for the long term



Offshore Projects to start operation until 2025

11 new FPSOs to develop the pre-salt and 6 new production units to revitalize and develop the post-salt



*Operated by non-Petrobras companies

Brazil is home to **most of the offshore projects** under development in the world

Offshore Highlights & Opportunities



PRE-SALT

Giant oil reserves **with lower costs and emission rates**. One well can produce more than 50,000 bpd of oil

| Well (July/21) | Oil (bpd) | Gas (km ³ /d) |
|----------------|---------------|--------------------------|
| 7-BUZ-10 | 55,064 | 1,874 |
| 7-BUZ-31D | 51,121 | 2,119 |

IHS yet to be found resources estimates in the pre-salt: more than 50Bboe



POST-SALT

All shallow water fields being divested, as well as some of the deepwater assets.

Independents, specialized in mature fields jumping into these opportunities.

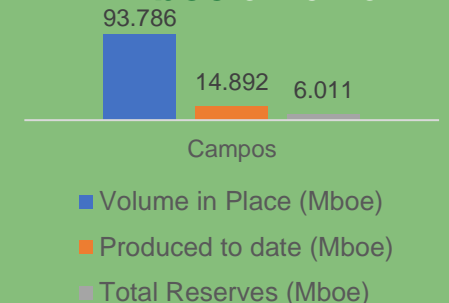
New operators are working on **reducing OPEX and decommissioning costs, revitalizing production facilities implementing IOR opportunities, and looking for tieback opportunities** to leverage existing underutilised facilities

Investment commitment of **more than 1.5 billion dollars** in the new Development Plans presented for shallow water assets of Trident, Perenco and BW.

CAMPOS BASIN: home to most opportunities of improving RF

Since the first discover in 1974 (Garoupa Field), we have produced only **16% of the volume in place** and we estimate 22% of RF.

Each 1% more in Campos Basin RF represents almost **1 Bboe** of new oil.



IHS Markit YTF resource estimates

| Basin name | Play name | Total (billion boe) |
|-----------------|-------------------------------------|---------------------|
| Sergipe-Alagoas | Deepwater cretaceous ⁽¹⁾ | 6.92 |
| Espirito Santo | Pre-salt | 1.60 |
| Campos | Post-salt ⁽²⁾ | 1.26 |
| | Pre-salt | 18.00 |
| Santos | Post-salt ⁽²⁾ | 1.78 |
| | Pre-salt | 36.01 |

Note: (1) Estimated in 4th quarter of 2019; (2) Estimated in 1st quarter of 2020.

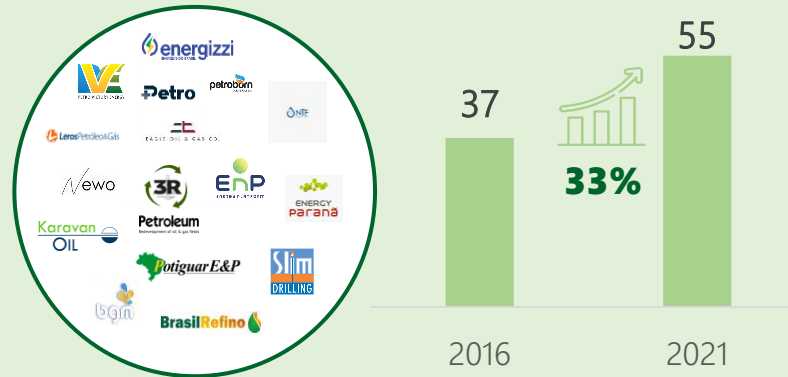
Source: IHS Markit

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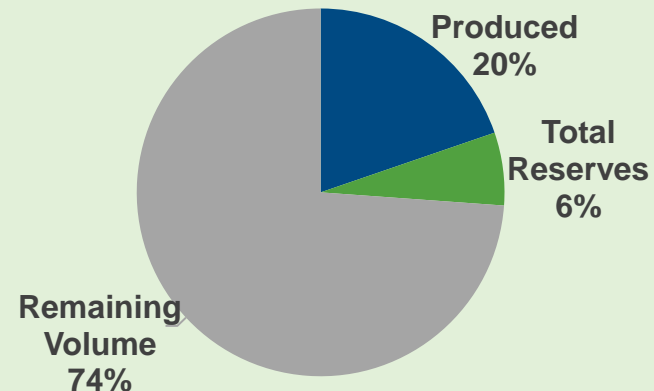
Also, a new onshore market is being set up

A new onshore market with small and medium companies is being established with Petrobras Divestment Plan, supported by foreign and national investors

Onshore E&P Groups in Brazil



Recovery Factor in Brazil



Key Messages

- All onshore fields are being sold by Petrobras
- The numbers of E&P groups acting in onshore activities increased more than **30%** since 2016
- New operators are increasing production by more than 30%
- Huge investment opportunities in mature fields (IOR/EOR). 1% more in the onshore RF means **200Mboe**



#2

Opportunities in the Bidding Rounds and ongoing measures

Ongoing measures to attract investments



KEEP OFFERING AREAS

17th Bidding Round
2nd ToR Surplus
Open Acreage
+
Ongoing Petrobras
Divestment Plan



ONSHORE DATA AVAILABLE FOR FREE

Download:
Reate.cprm.gov.br/anp
Studies in progress to also
public shallow water data



MARGINAL FIELD DEFINITION

Draft in preparation.
Expected public consultation
in the second semester of
2021. Specific incentives
should be discussed
afterwards



ROYALTIES REDUCTION FOR SMALL AND MEDIUM COMPANIES

New ANP Resolution to be
approved in the second half
of 2021



OTHER REGULATORY MEASURES TO REDUCE ABOVE GROUND RISKS AND IMPROVE FISCAL TERMS

Measures under REATE,
PROMAR and BIDSIM
programs, including studies to
improve environmental
licensing process and
competitiveness of marginal
discoveries

Already implemented:
contract extension, royalties
reduction for incremental
production

Opportunities in the 17th Bidding Round



92 blocks on offer

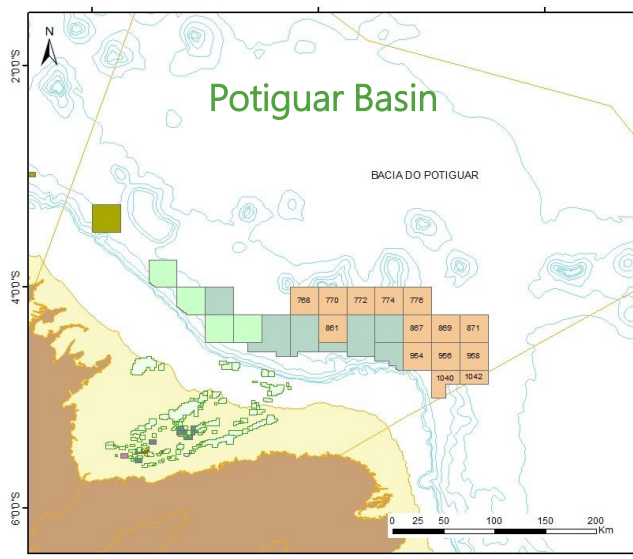
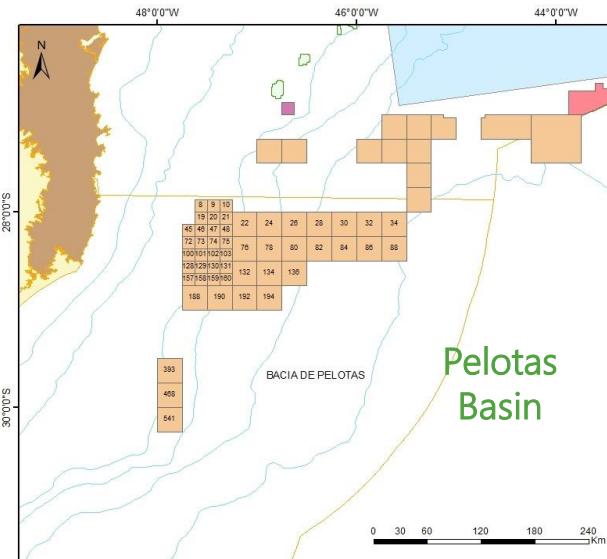
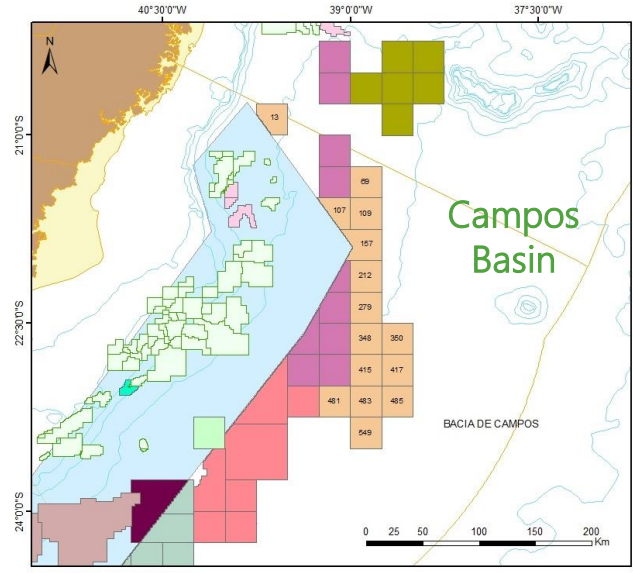
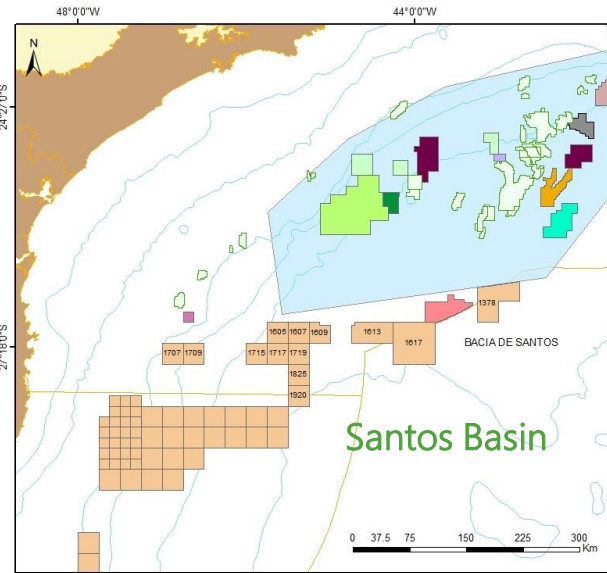
Potiguar, Campos, Santos and Pelotas Basins



October 7th



**Offshore Opportunities
in the pre-salt and in
the post salt**



Blocks on Offer



Opportunities in the 2nd ToR Surplus Round

TRANSFER OF RIGHTS SURPLUS
Brazil
PRODUCTION SHARE

SÉPIA

Pre-salt field
157km²

In Place Volume:



5.3 B bbl oil

124 B m³ gas

Signature Bonus:

US\$ 1,36 billion

Minimum Profit Share:



15,02%

First Oil: August 2021
(FPSO Carioca)

ATAPU

Pre-salt field
229km²

In Place Volume:



7.2 B bbl oil

179 B m³ gas

Signature Bonus:

US\$ 760 million

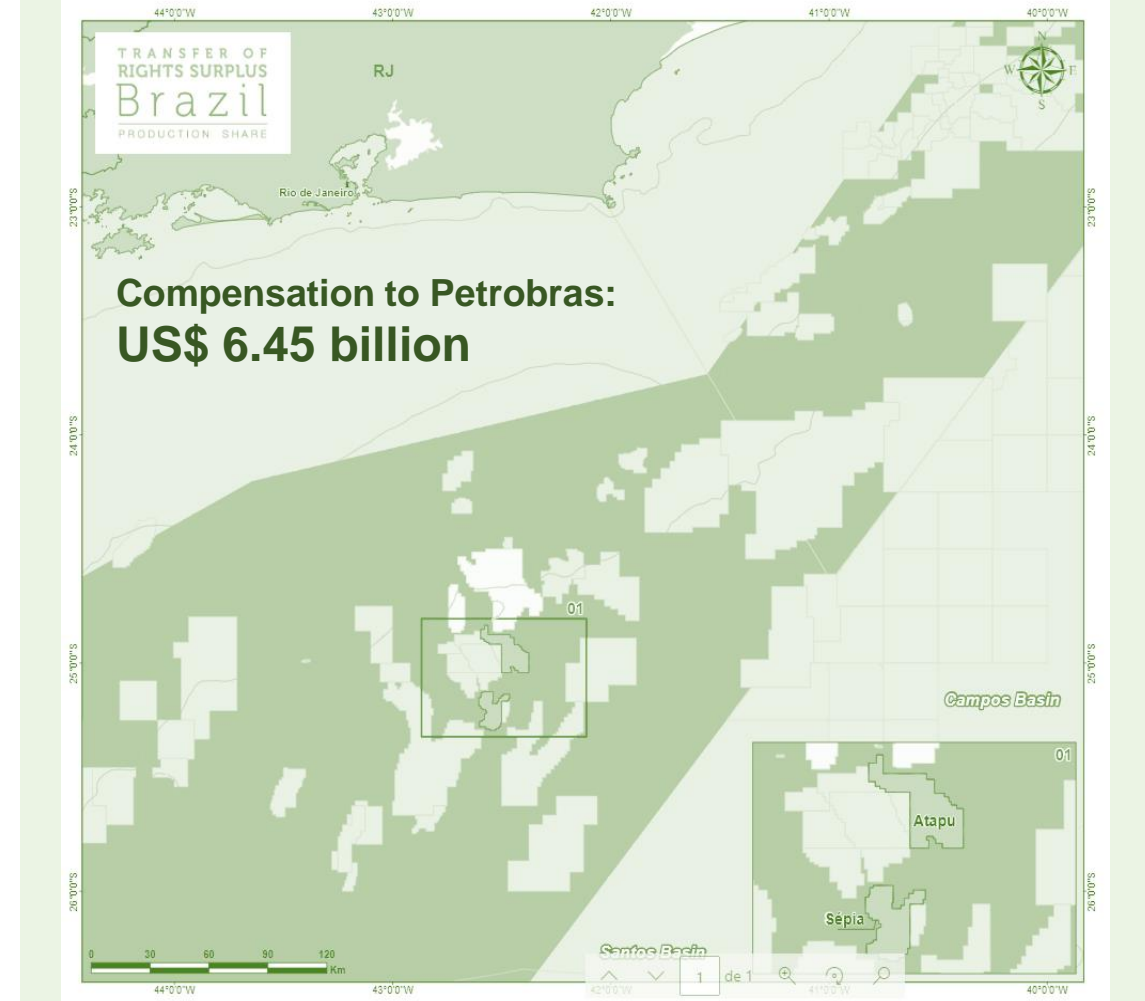
Minimum Profit Share:



5,89%

Prod June/21 (P-70):
Oil: 92 Kbpd
Gas: 3.2 Mm³/d

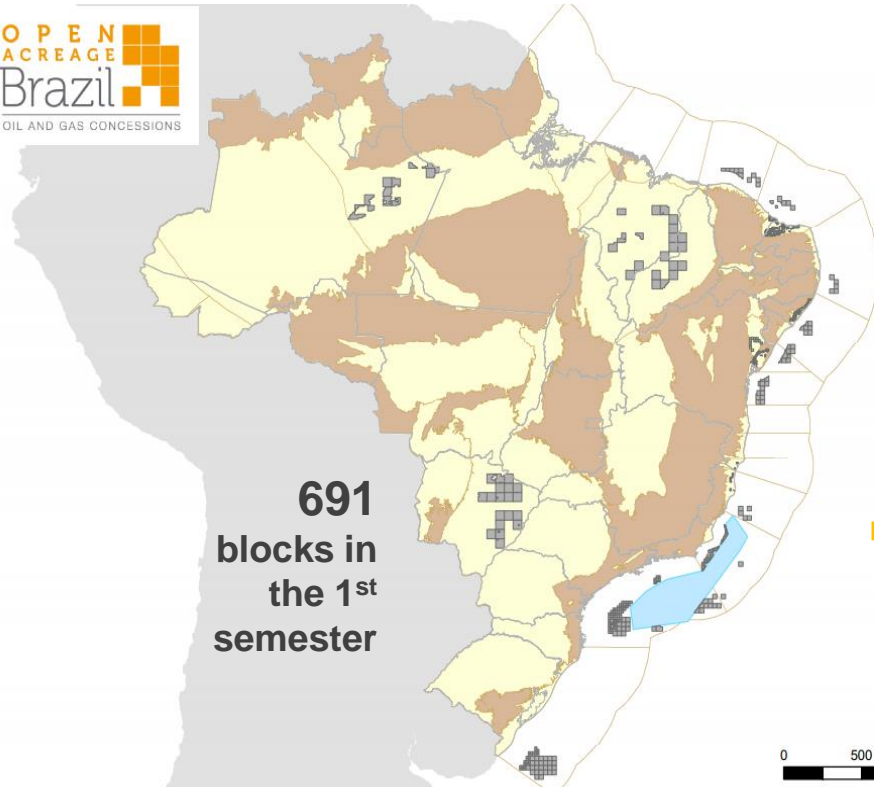
Auction: December 17th



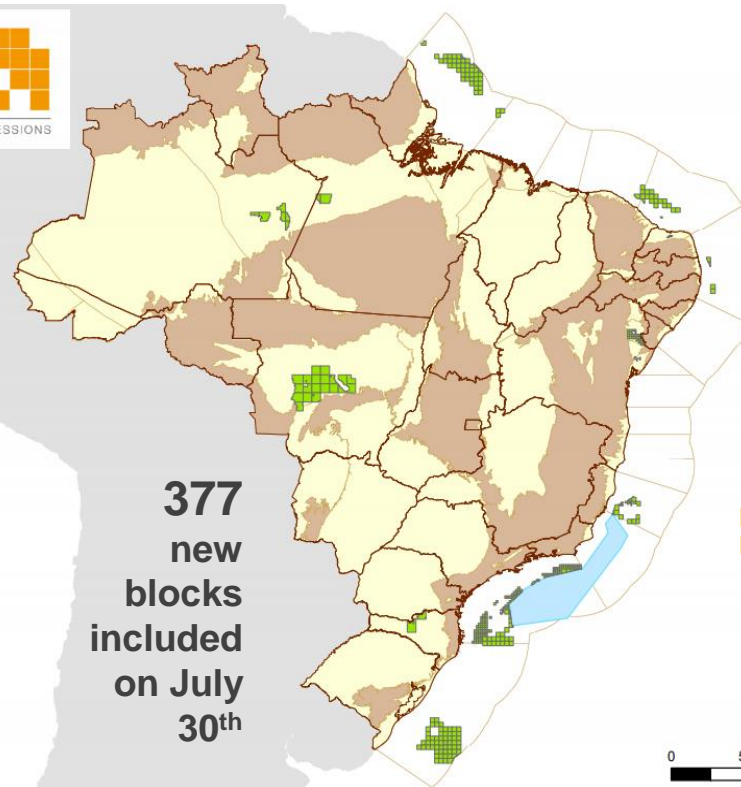
Opportunities in the Open Acreage

The Open Acreage allows the market to decide when bidding rounds will take place and what areas from the stock will be offered. 67 companies are already registered in the Open Acreage. The 3rd cycle will start when any registered company declares interest in at least one area. The objective of the Open Acreage is to decentralize exploratory investments in the country, with opportunities being available at any time.

OPEN
ACREAGE
Brazil
OIL AND GAS CONCESSIONS



OPEN
ACREAGE
Brazil
OIL AND GAS CONCESSIONS



1,068
blocks
already
available for
the 3rd cycle

Additional **350**
blocks and 11
marginal fields
under study to
be added in the
future

Onshore: 72
Offshore: 305
12 Basins

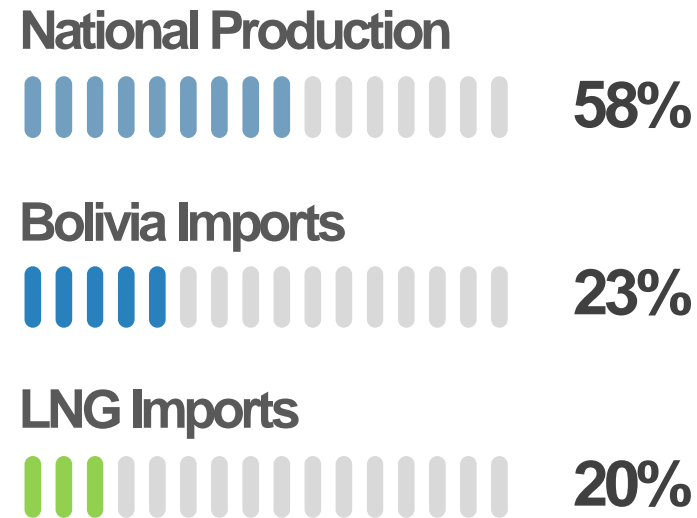
#3

Natural Gas Market

The natural gas market in numbers

Natural gas used in Brazil has a predominantly national origin and mainly is associated with oil produced in offshore fields
 Other sources include imports through pipelines from Bolivia and LNG through regasification terminals
 Only around 40% of the national production is consumed by the Brazilian market due to lack of demand/infrastructure and high gas prices

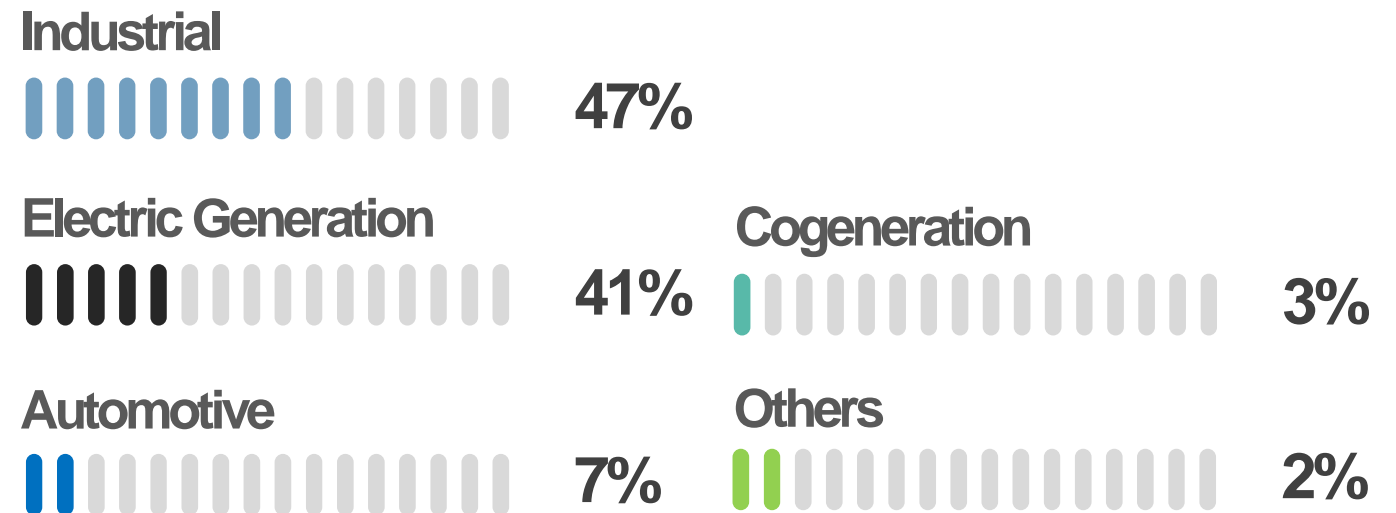
SUPPLY



DEMAND



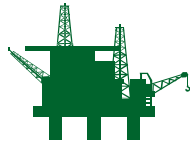
Consumption by sector



Natural gas: a big opportunity

Towards an open and competitive natural gas market

Offshore gas potential



Huge gas potential in the pre-salt.

All efforts are being made so that this gas can be monetized

Onshore gas potential



4 paleozoic basins with potential for natural gas: Parnaíba, Solimões, Amazonas, Paraná basins

Most of the onshore exploration in new frontier basins is to produce gas. Relevant reservoir-to-wire projects in Parnaíba and Amazonas Basins

New gas market



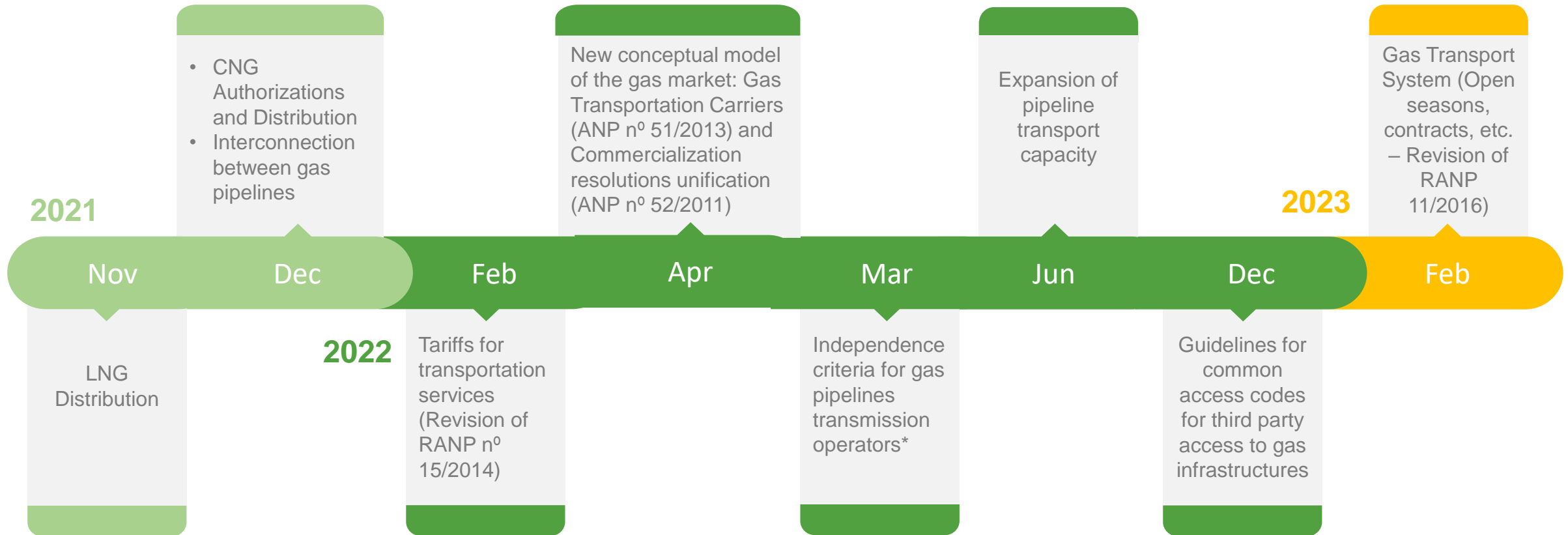
The new Gas Law (Law 14,134 / 2021) is a decisive step towards an open, liquid and competitive market

A robust regulatory agenda is underway to build the new natural gas market, which is creating big opportunities in Brazil

ANP regulatory agenda 2021-2023

A robust regulatory agenda is underway to implement the new NG market

Start of Public Consultation Forecast



* An initial draft of the Independence Criteria resolution has already been submitted to Public Hearing (Jan/21), but intense debates indicated the need for a second round of events

Open Season Calendar

| Annual Open Season to offer available capacity | | |
|--|----------------------------------|----------------------|
| | Tender and Contracts Publication | Estimated Conclusion |
| TBG | September/2021 | December 2021 |
| NTS | September/2021 | December 2021 |
| TAG | 2022 | |

| Incremental Open Season | | |
|-------------------------|----------------------------------|----------------------|
| | Tender and Contracts Publication | Estimated Conclusion |
| TBG | October/2021 | February/2022 |
| NTS | November/2021 | March/2022 |
| TAG | November/2021 | April/2022 |



#4

Energy Transition

Brazil is well-positioned in the energy transition



Renewables account for almost **50% the energy matrix**. Emissions in the energy sector are lower compared to the world average.



Since 2009, O&G production operated by Petrobras increased more than 40% without increasing emissions.
Petrobras goals: **25% reduction in absolute operating emissions by 2030; Zero routine flaring by 2030; 40Mton CO2 reinjection by 2025 in CCUS projects.**



Brazil is the **2nd largest producer and consumer of biofuels** and benefits from a longstanding well-established industry: 70% to 80% of our automobiles are flex-fuel; 30% of the vehicle matrix is fueled by renewables



Public policies like Renovabio Program show the country will continue to advance in this agenda. In 2020, more than **14 million tons of greenhouse gas emissions were avoided**. A new government program (**Fuel of the future**) is in place, dealing with advanced fuels.



#5

Final Remarks

Brazil is a country of great opportunities

The best moment to invest in the O&G Industry in Brazil is now



Our Strengths

Sanctity of Contract

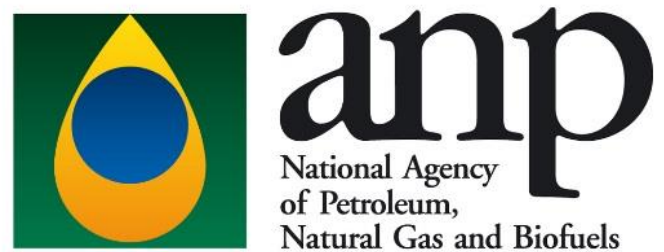
Geological potential

Pre-salt: world-class assets with low carbon intensity

Huge opportunities in onshore and post-salt offshore mature fields (Petrobras divestment plan)

Past and future bidding rounds (including open acreage)

Market Opening (New Gas Law etc)



<http://rodadas.anp.gov.br/pt/>

www.gov.br/anp/pt-br

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