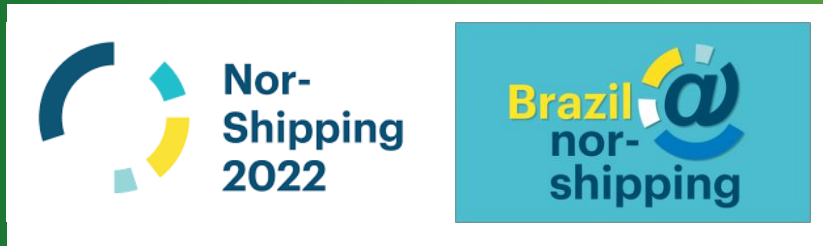





# The new Brazilian O&G sector – opportunities for Norwegian players



**Rodolfo Saboia**  
Director-General

5<sup>th</sup> April 2022

# #Disclaimer

-  This ANP institutional presentation is based on current and reliable information, but no representation or warranty is made as to its accurateness and completeness, and it should not be relied upon as such. All and any such responsibility and liability is expressly disclaimed.
-  Readers are cautioned that these statements are only projections and may differ materially from actual future results or events.
-  Forward-looking data, information, projections and opinions expressed during the presentation are subject to change without prior notice.

## About ANP

The **regulatory body** for the oil, natural gas and biofuels industry in Brazil



### Regulation

ANP needs to assure **free competition, national supply, and consumers protection** in terms of price, quality and product offer.



### Contracting






Besides carrying out the **bidding rounds for E&P activities** and **signing the contracts**, on behalf of the Federal State, ANP also **grants authorizations** for the O&G and biofuels activities



### Inspection

ANP enforces the **standards and rules** by the regulated industry. It covers the administrative process, judgment and sanction.

ANP is responsible for implementing the energy public policies, aside from **subsidizes**, technically, the Brazilian National Council for Energy Policy (CNPE)

-  Brazil's overview
-  E&P Activities
-  Natural Gas Market
-  Energy Transition
-  Final Remarks

# Brazil at a glance

**213**

million people  
(6<sup>th</sup> largest  
population)

**1.44**

Trillion USD GDP  
2020  
(13<sup>th</sup> largest  
economy)

**7<sup>th</sup>**

Largest Crude **Oil  
Exporter**  
(MME 2021)

**8<sup>th</sup>**

Largest Crude Oil  
and Condensate  
producer  
(BP Statistical  
Review 2021)

**7<sup>th</sup>**

Largest **Oil Products  
Consumer**  
(BP Statistical Review  
2021)

**2<sup>th</sup>**

Largest  
**hydroelectric  
power generation**  
(Our World in Data  
2020)

**86**

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

**2.9**

million bpd of oil  
production  
(Feb 2022)

**133**

Million m<sup>3</sup> of gas  
daily production  
(Feb 2022)

## Forecast

Potential to reach  
more than



**4**

Million bpd of oil in  
2025 (PAP 2022)

**5**

million bpd of oil in  
2030 (EPE)

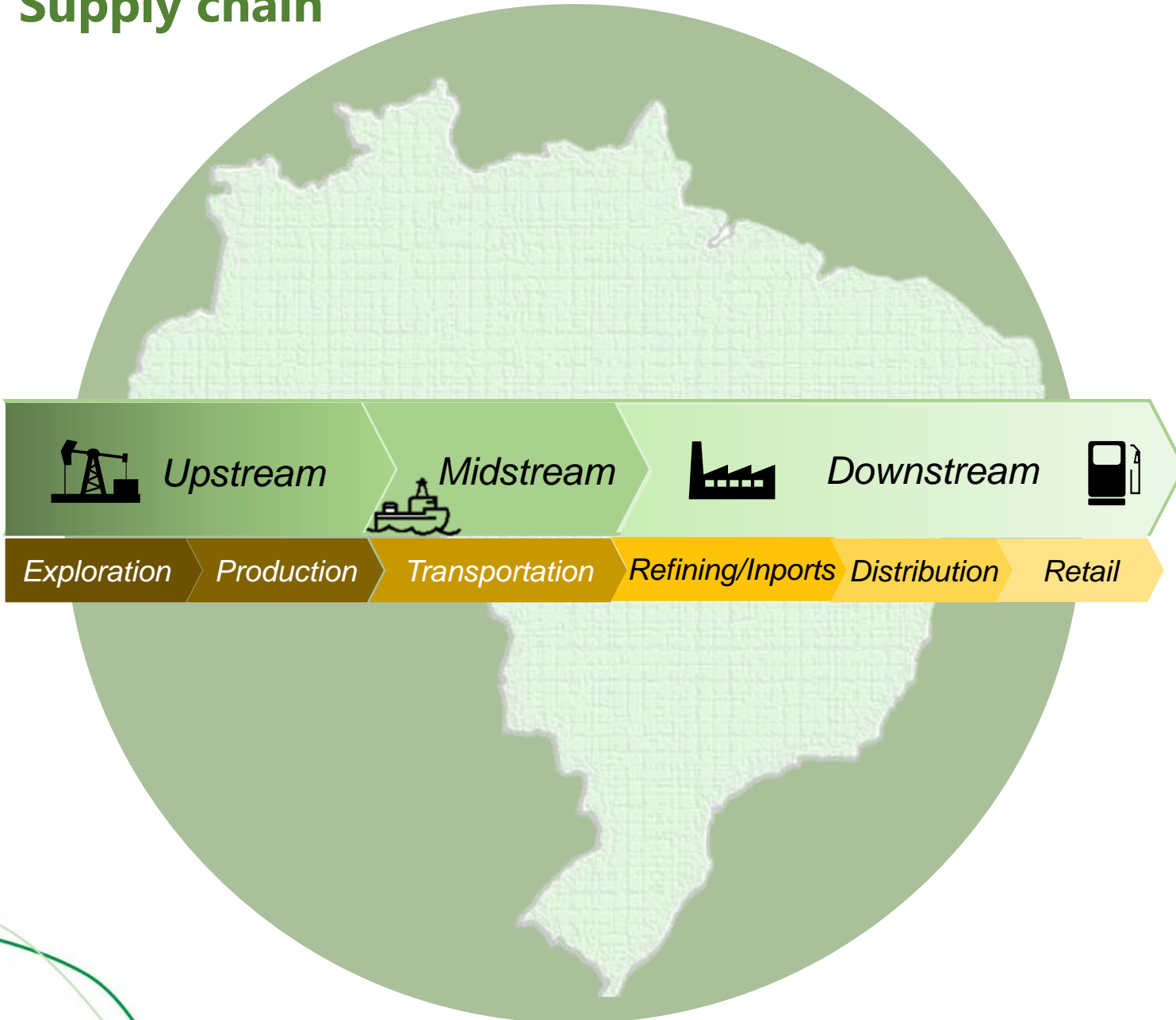
Potential to be the



**5<sup>th</sup>**

Largest crude oil  
exporter in 2030  
(EPE)

# Supply chain



**125,438**

Retailers and regulated players

**242**

Fuels Distributors

**652**

Importers & Exporters

**156**

Lubricant Producers and Re-refiners

**19**

Refineries

**2.4**

Million bpd Refining Capacity

**62**

Billion liters of Diesel B (with 10% to 13% of biodiesel in the fossil fuel), consumed in 2021

**7.4**

Million tons of LPG consumed in 2021

# Brazil still needs a lot of fuel imports

Importation (2022 - average):

**GASOLINE**

**9%**

**DIESEL**

**24%**






**LPG**

**17%**



Refineries by regions (19)



-  Brazil's overview
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# Many measures have already been taken to encourage E&P activities

- A bidding round schedule
- New Local Content
- New E&P Policies
- Exploratory Phase Extension for 11th and 12th Rounds
- REPETRO Extension

2017

- Open Acreage
- Unlocking the Transfer of Rights auction

2019

- Local Content waivers
- Royalty reduction on the incremental production
- RBL and M&A made easier
- Mandatory investment or M&A in onshore and shallow water fields; deadline for Petrobras divestment

2018

- A new type of action: Open Acreage
- ANP Resolutions: Flexibility as a result of the pandemic

2020

2021

- Royalties reduction for S&M companies
- Adjustment Agreement to Local Content
- Area nomination
- Decommissioning Guarantees



Bidding Rounds  
(em 2017/2021)

# Even at challenging times, the E&P 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



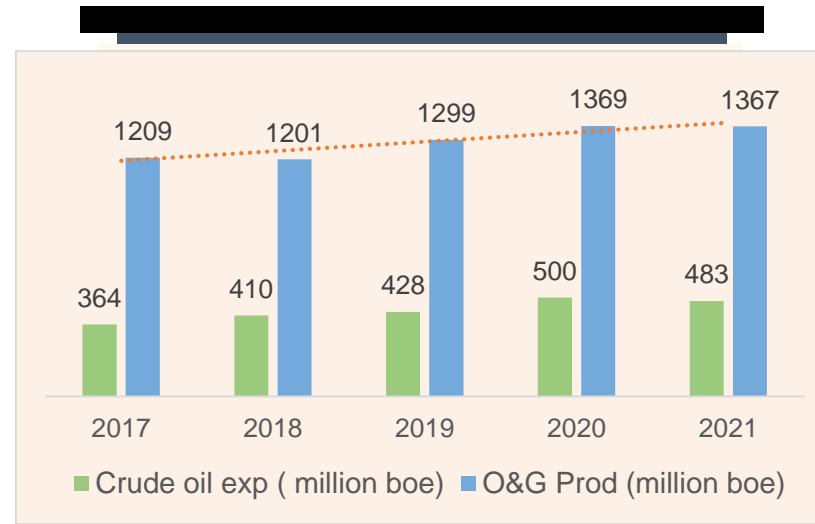
### 2<sup>nd</sup> Cycle of Open Acreage

Performed in December: 18 areas sold



### Assets Acquisition

50 M&As approved by ANP



## 2021



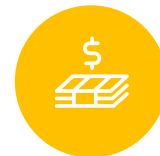
### Pre-Salt

Record in the annual production.



### 2 Bidding Rounds

5 areas sold in the 17<sup>th</sup> Round  
ToR BID scheduled to Dec 2021



### Assets Acquisition increased

118 M&As approved by



COVID 19

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

# E&P at a glance



## Pre-Salt

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

**76%** of production  
**134** producer wells  
**21.206** Average well production (boe/d)

Prod: **2,841,634** boe/d

## Post-Salt

Green and brownfields, deep and shallow waters.

**19%** of production  
**348** producer wells  
**2,284** Average well production (boe/d)

Prod: **758,366** boe/d

## Onshore

Mature basins and new frontier basins (gas prone).

**5%** of production  
**5,716** producer wells  
**33** Average well production (boe/d)

Prod: **236,111** boe/d

**26<sub>B</sub>**

Barrels equivalent of O&G produced to date

**476**

Fields & development areas

**246**

Exploratory Blocks

**14**

Billion USD in government take (2021)

**86**

Billion dollars E&P Investments Forecast 2022 – 2026

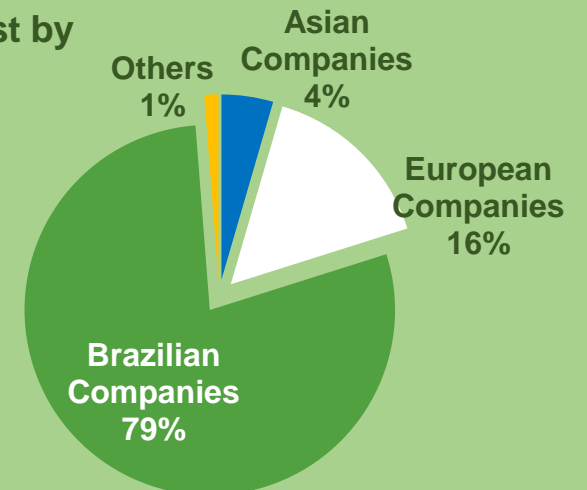
**9**

Billion dollars Decommissioning Costs 2022-2026

**30,000+**  
Wells drilled

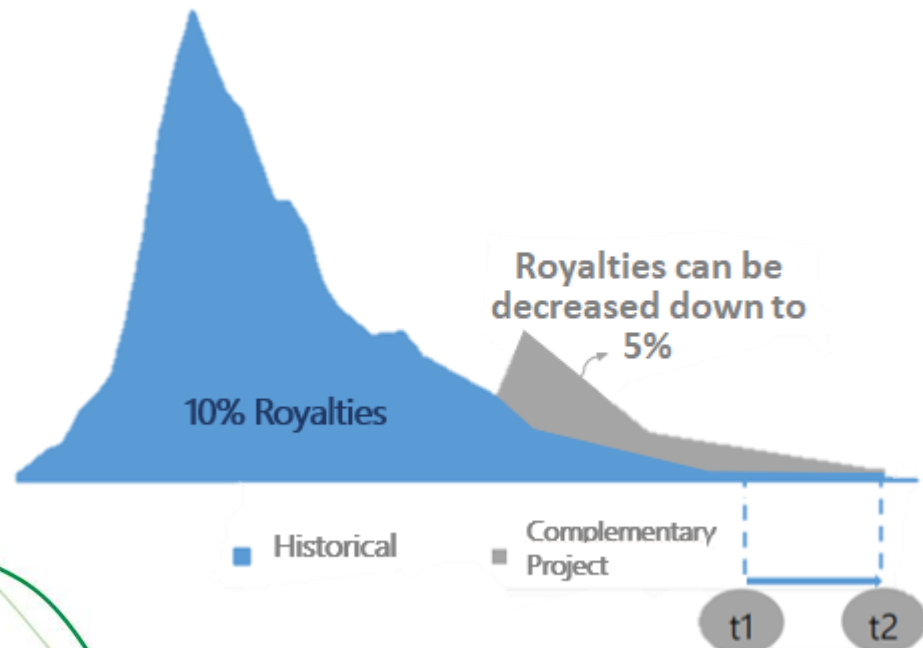
**19,000+**  
Km of O&G pipelines

Investments Forecast by Origin



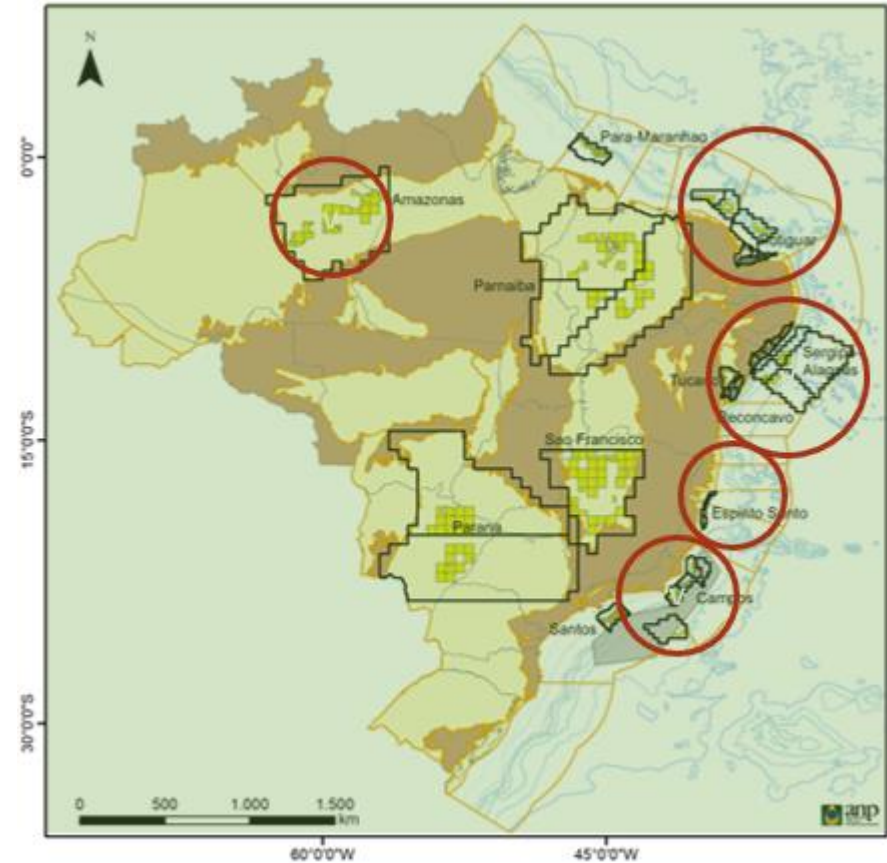
# Mature fields

- ❖ Those fields with 25 years of production or those that had already produced 70% or more, considering estimated recovery of 1P reserves.
- ❖ Royalties Reduction up to 5% on Incremental Production in Mature Fields:
  - 24 fields with approved projects
  - Number of eligible fields: 298



**~900.000 Bbl/d**

**13 sedimentar basins**



# Recovery Factor

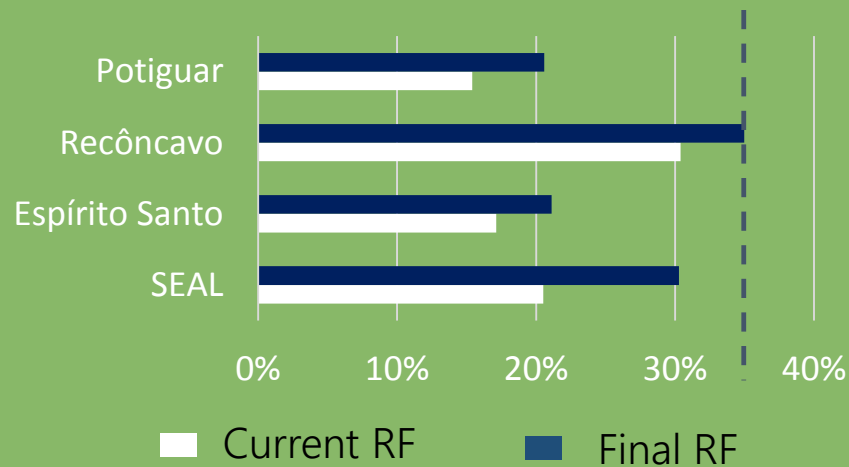
1% addition in the Onshore recovery factor:

**200**  
Million boe

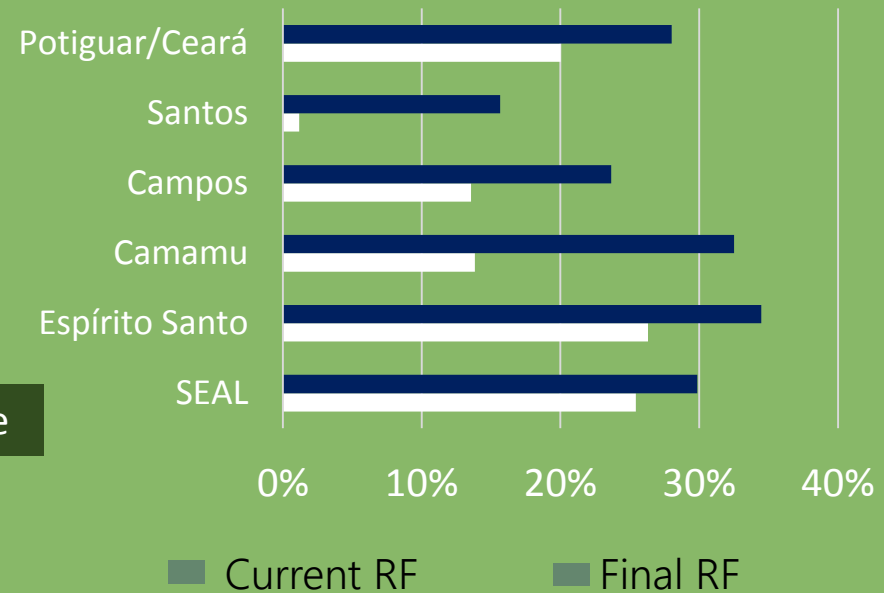
New Reserves

World Average

Onshore Recovery Factor per basin



Offshore Recovery Factor per basin

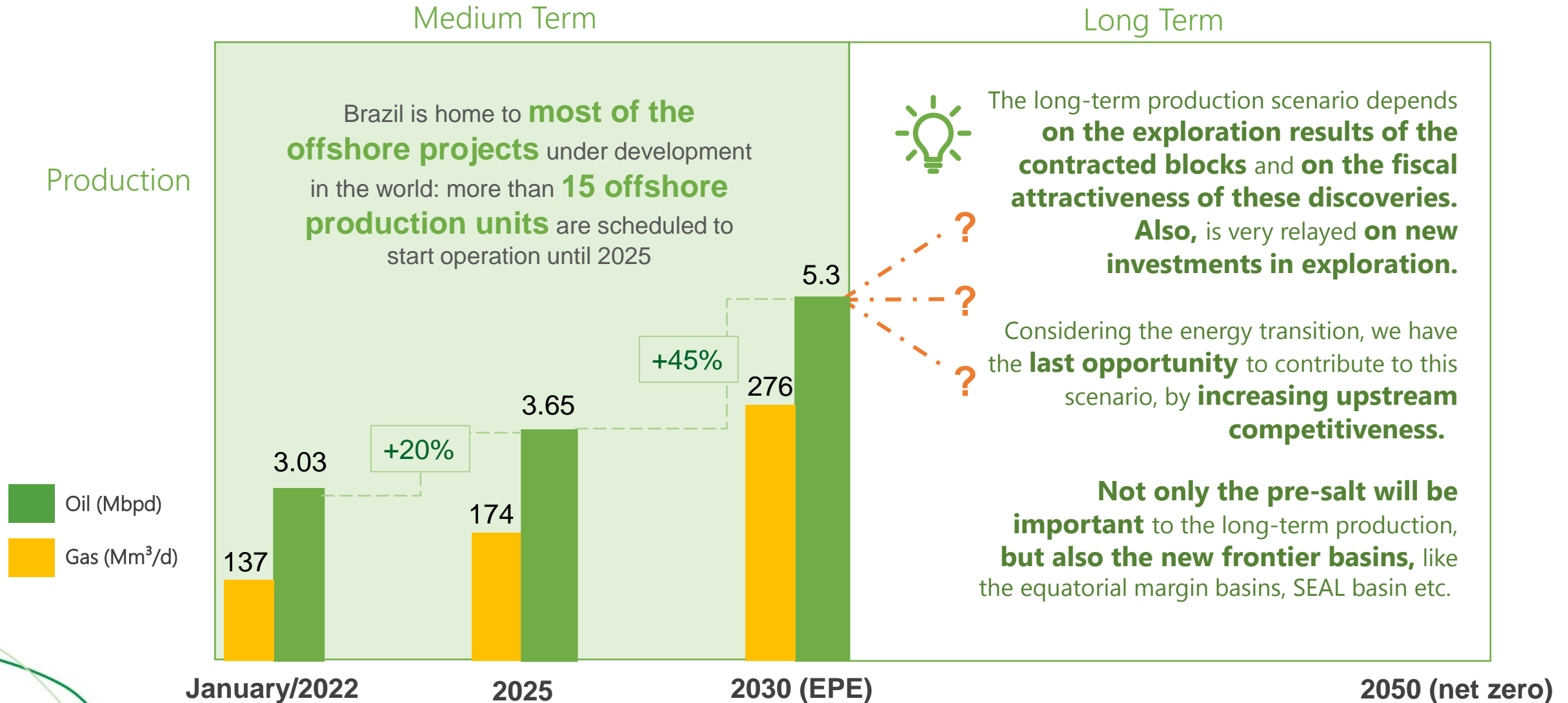


1% addition in Conventional Offshore recovery factor:

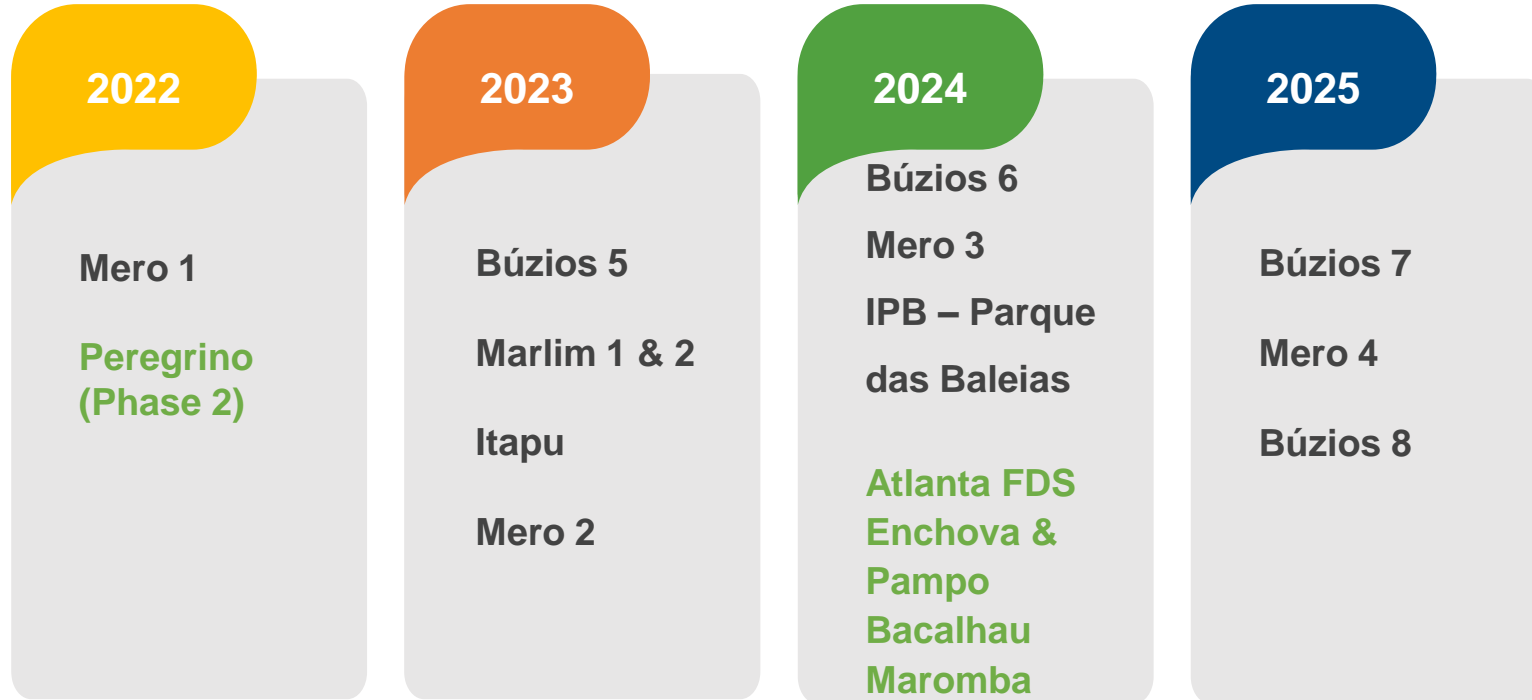
**970**  
Million boe

New Reserves

# 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



\*Operated by non-Petrobras companies

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

# 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 Current 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



# Ongoing measures to attract investments



## KEEP OFFERING AREAS

Open Acreage

+

Ongoing Petrobras  
Divestment Plan  
(Only in 2021 US\$5.6  
billion was sold in  
assets up to 3QR/2021)



## DATA AVAILABLE FOR FREE

Download:  
[Reate.cprm.gov.br/anp](http://Reate.cprm.gov.br/anp)

offshore data available  
soon



## MARGINAL FIELD DEFINITION

Draft under public  
consultation. Specific  
incentives should be  
discussed afterwards



## ROYALTIES REDUCTION

Encourage small  
and medium-sized  
companies.

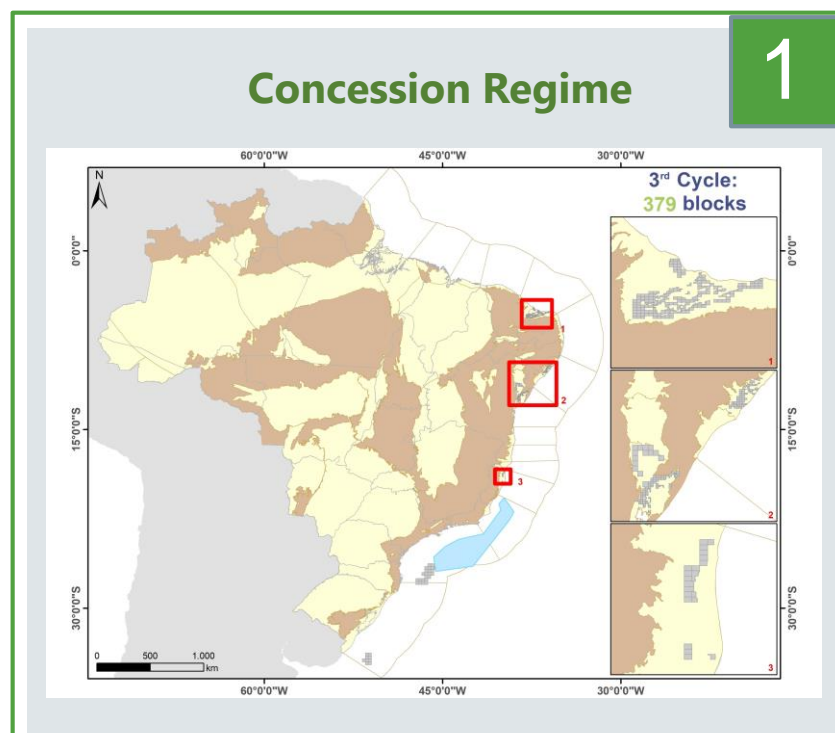
Reduce royalties  
on incremental  
production.



## OTHER REGULATORY MEASURES

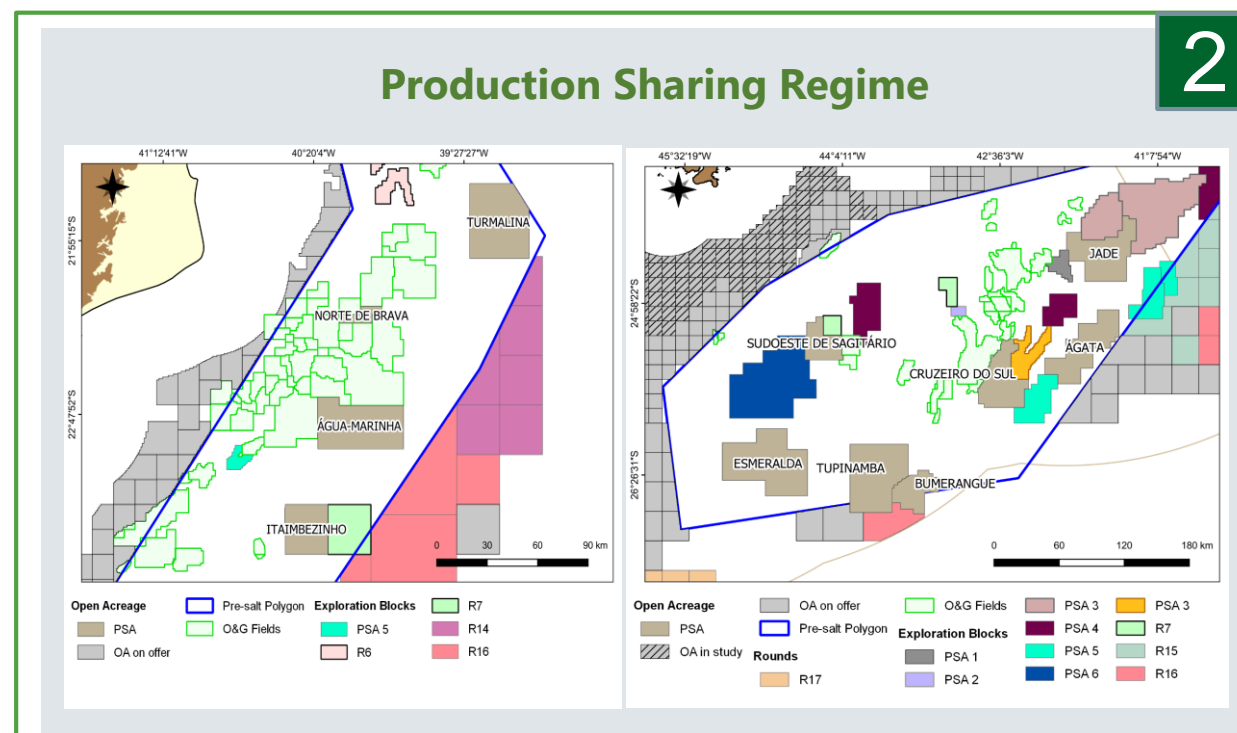
Government  
programs,  
including studies to  
improve  
environmental  
licensing process  
and  
competitiveness of  
marginal  
discoveries.

# Opportunities in the 3rd cycle of the Open Acreage








1068 areas  
800 blocks in study

3<sup>th</sup> Cycle **April 13<sup>th</sup>, 2022**  
379 blocks in offer



Forecast date: **2<sup>th</sup> semester/2022**

# Agenda

-  **Brazil's overview**
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-  **Natural Gas Market**
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# The natural gas infrastructure

Current infrastructure is limited for such a large country

## 9,406

km of transmission gas pipelines

## 2,246

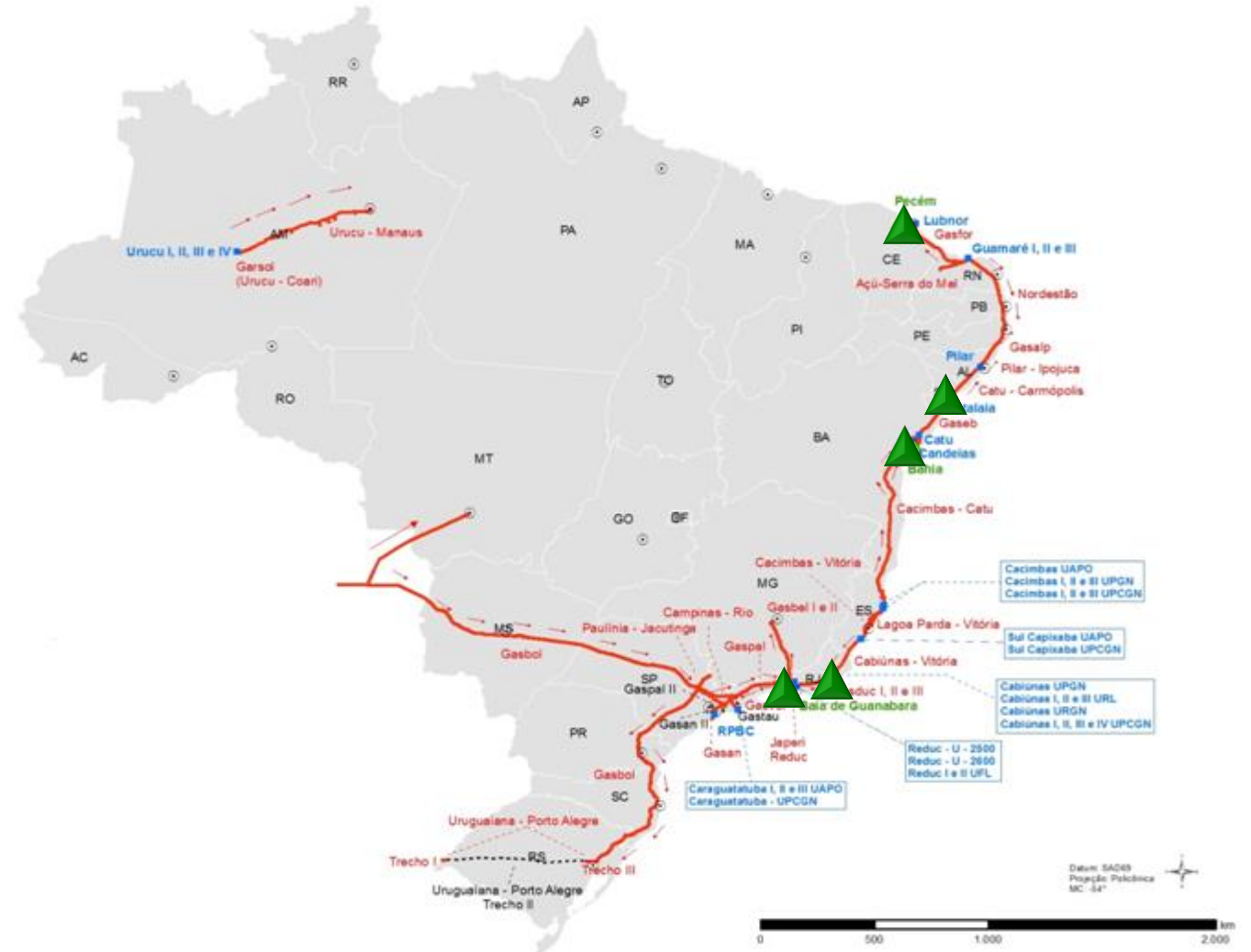
km of transfer gas pipelines

## 15

NG processing plants  
Capacity: **108** Million m<sup>3</sup>/d

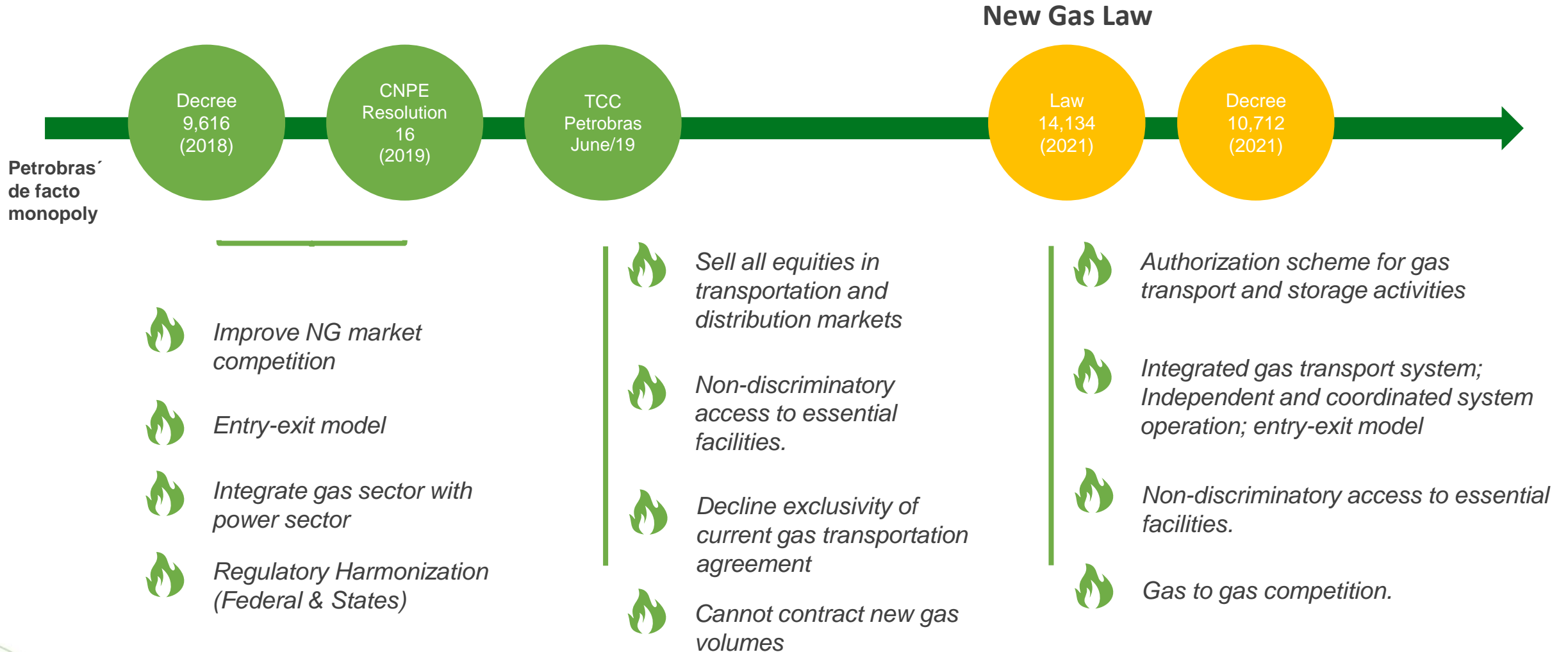
## 5

LNG Terminals  
Capacity: **99** Million m<sup>3</sup>/d



Source: ANP Statistical Yearbook (2020)

# Brazil is moving towards a competitive gas market



# Main regulatory challenges in the new gas market



## Lack of competitive forces

More suppliers, carriers and free consumers are needed



## Lack of third-party access

Essential Facilities Doctrine



## Lack of market driven gas price mechanisms

Trade hubs and exchanges



## Lack of transportation infrastructure

Authorization of new pipelines infrastructure



## ANP's Conceptual Model of the Gas Market

The document deals with commercialization and shipping of natural gas as well as balancing mechanisms (3 workshops were promoted by ANP throughout 2021)

ANP is working on a new resolution dealing with 3<sup>rd</sup> Party Access (Multi study group dedicated to this subject)

Open seasons are being conducted considering 1 year contracts

ANP expects the new granting regime established by the new Gas Law will give rise to new pipelines

# Opportunities in the Gas Market

01

Petrobras Divestment Plan in the Transport and Distribution Sectors (CADE agreement)

02

New legislation already approved moving towards an opening and competitive gas market (Law 14,134/2021 and Decree 10,712/2021)

03

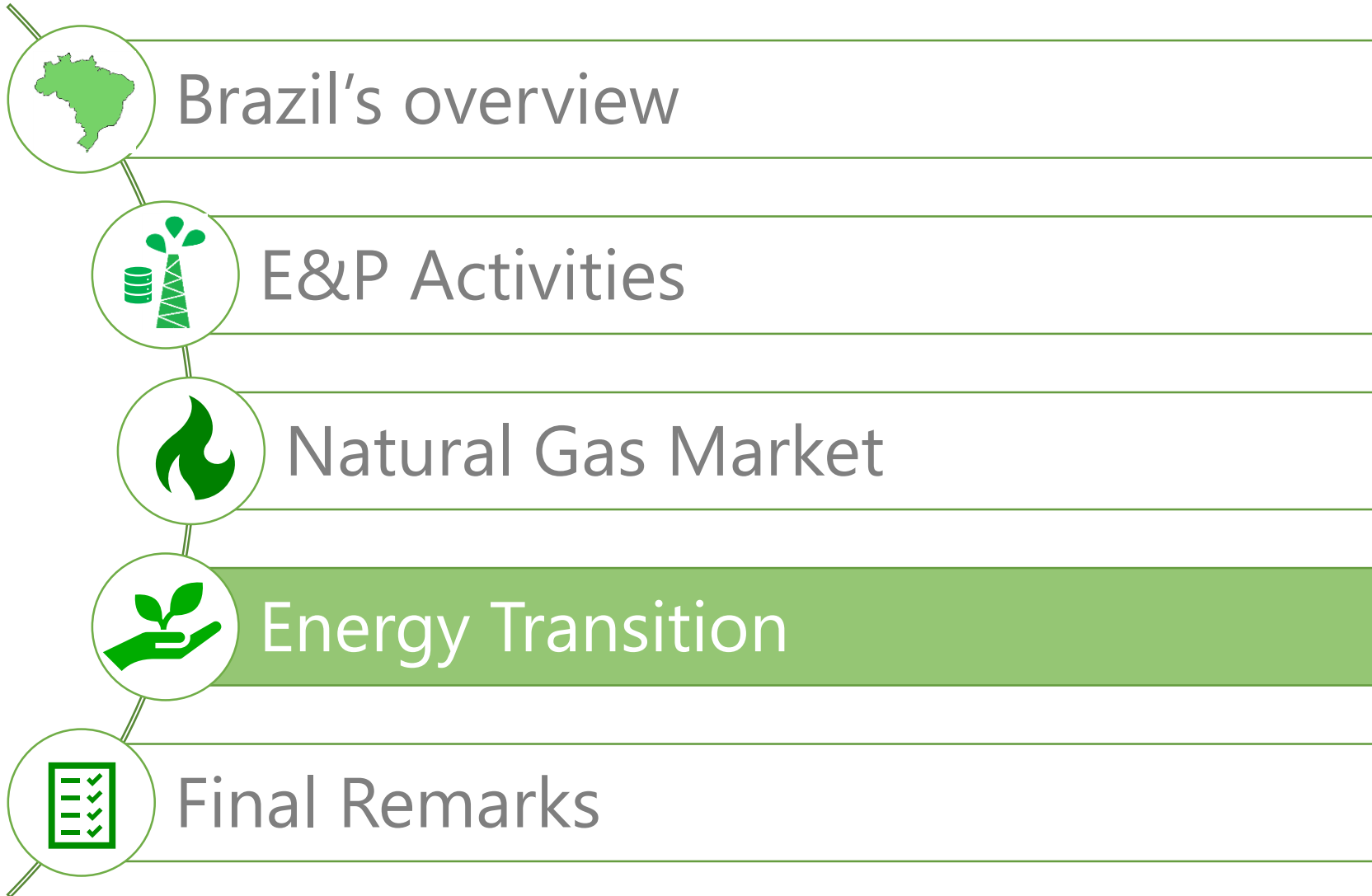
National gas production expected to almost double until 2030, with a variety of suppliers

04

Great potential to increase the national gas demand if the market offers competitive prices



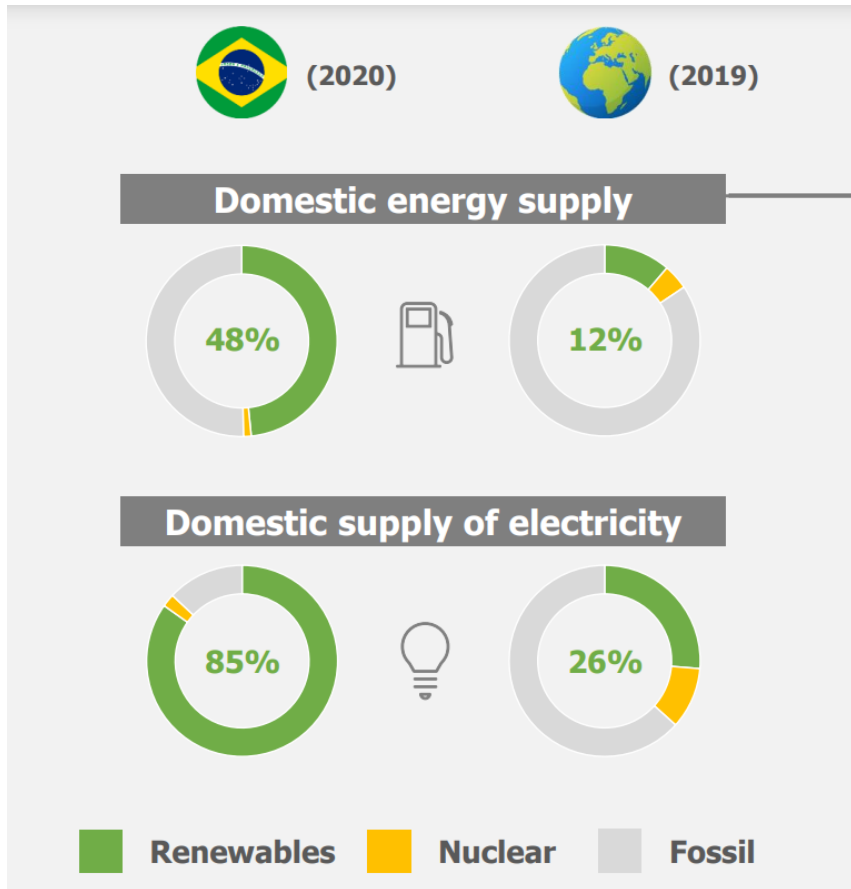
# Agenda





# Brazil in the energy transition context: a leader

Iceland, Norway and Brazil have the largest share of primary energy from renewables sources in the world

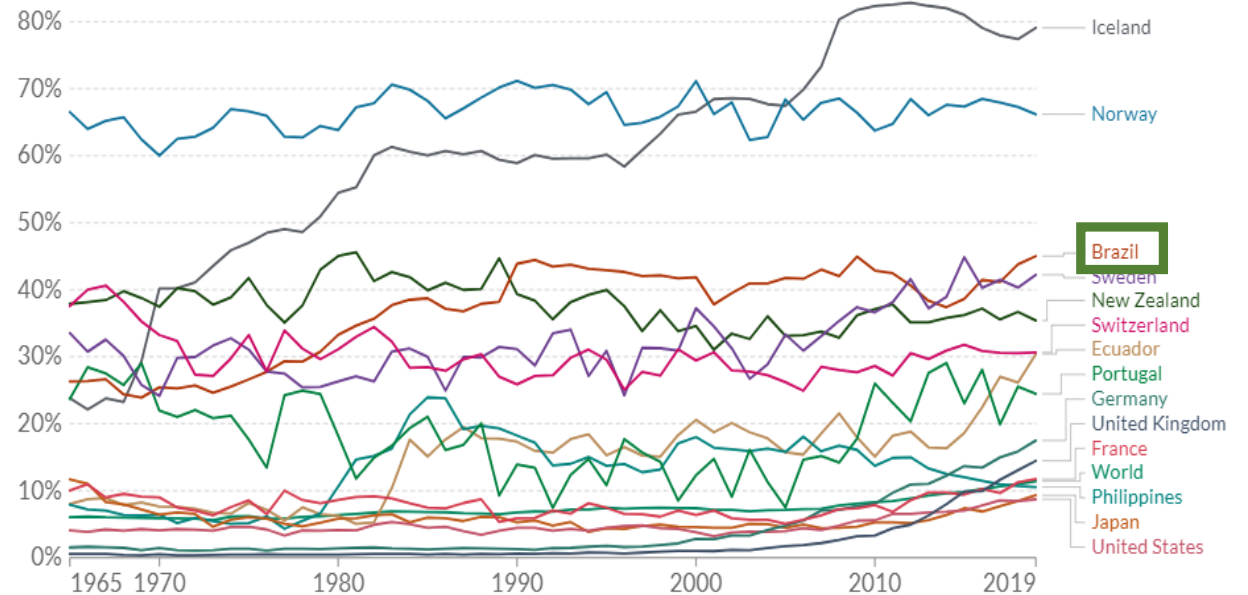


## Share of primary energy from renewable sources

Renewable energy sources includes hydropower, solar, wind, geothermal, bioenergy, wave and tidal. It does not include traditional biofuels, which can be a key energy source especially in lower-income settings.

Our World in Data

+ Add country



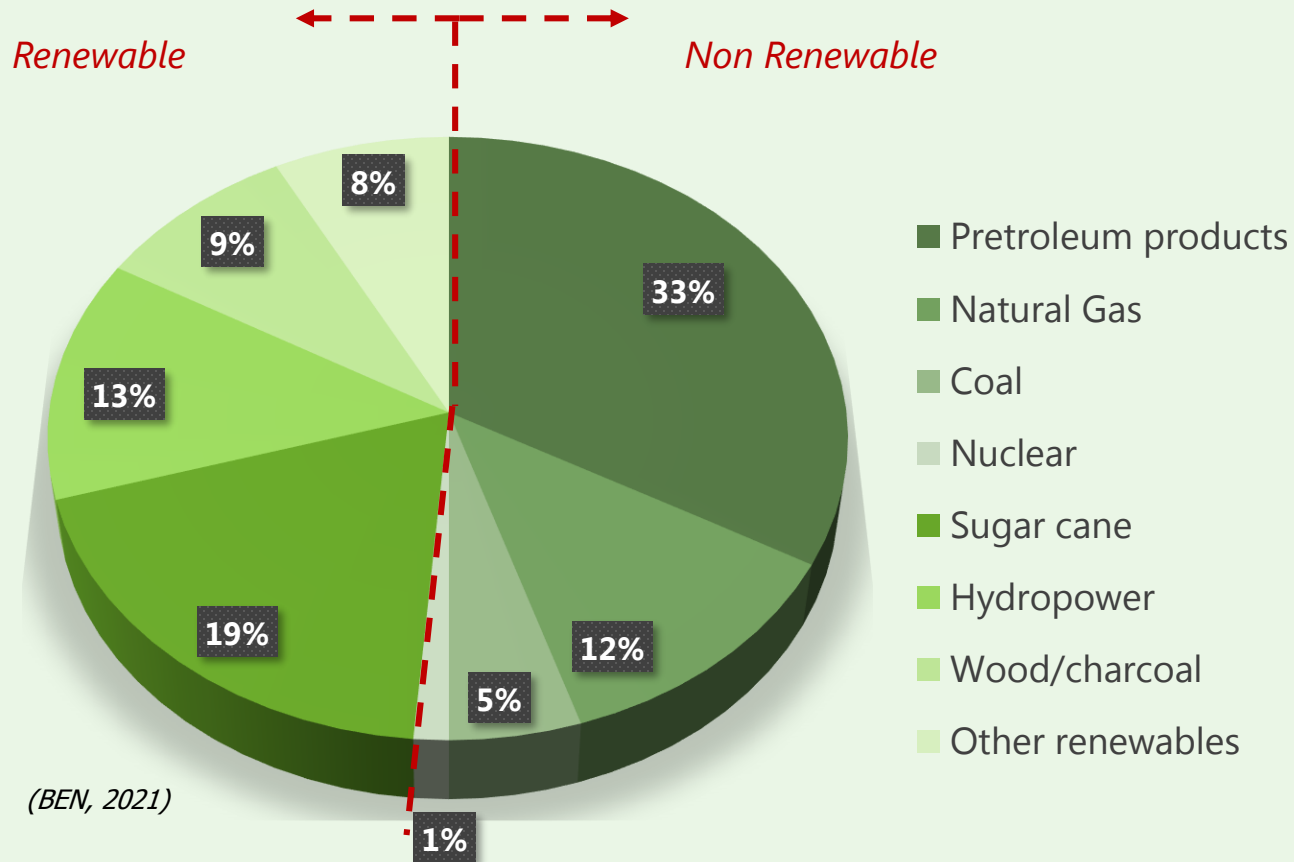
Source: Our World in Data based on BP Statistical Review of World Energy (2020)

OurWorldInData.org • CC BY

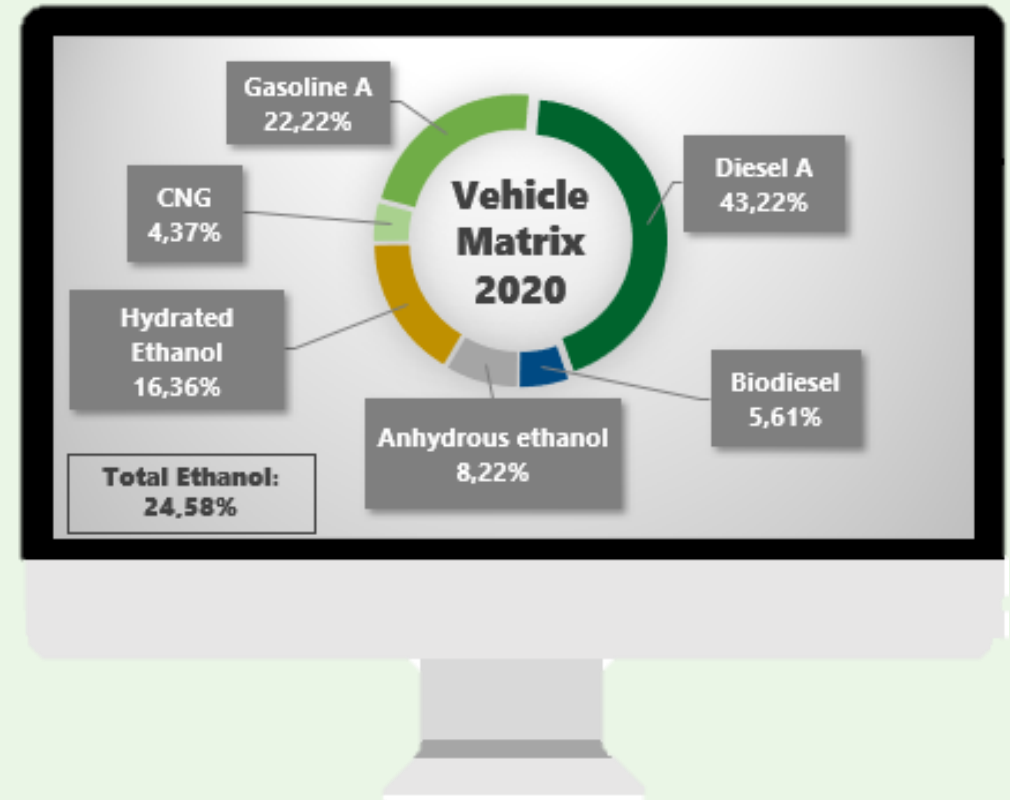
Note: Primary energy is calculated using the 'substitution method' which takes account of the inefficiencies energy production from fossil fuels.

Source: EPE; Our World In Data

# Brazil's Energy Matrix (2020)

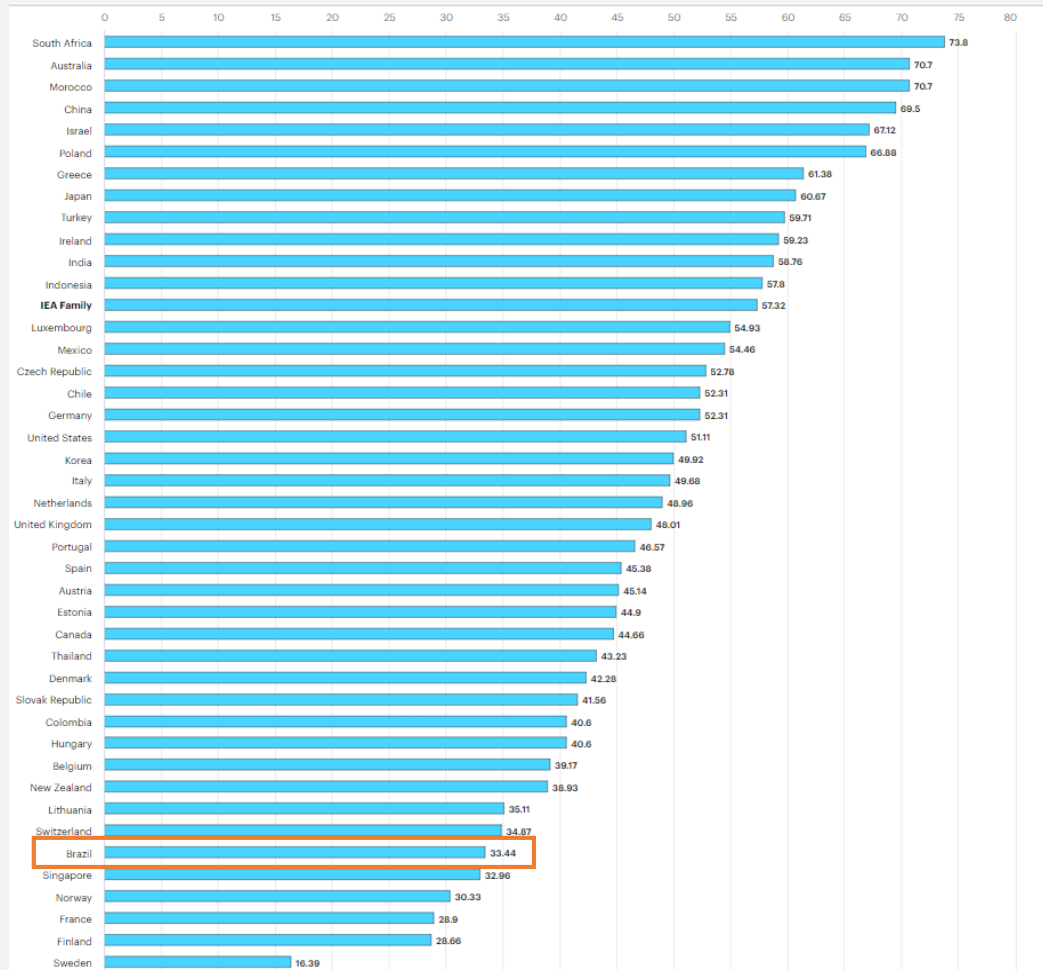


Brazilian vehicle matrix with relevant participation of biofuels: **30%**

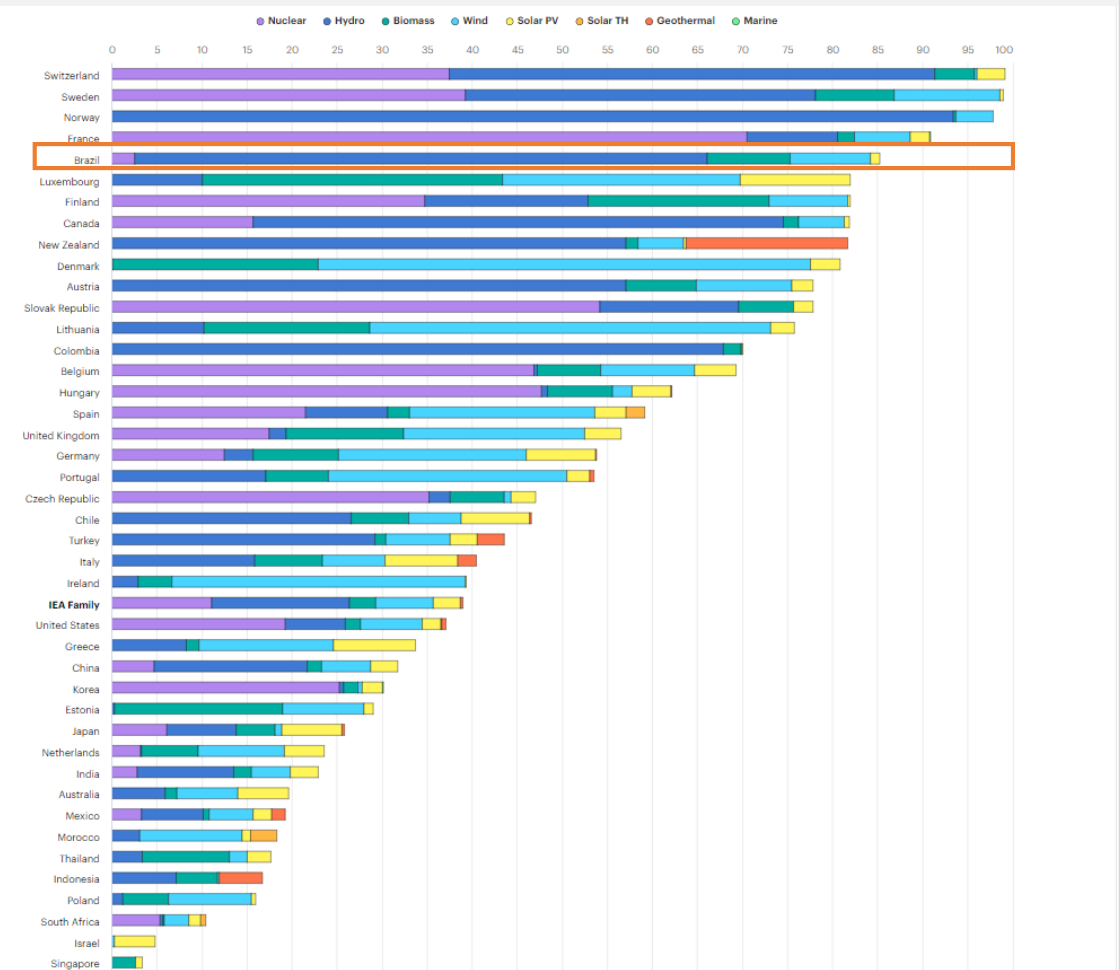


# Brazil has one of the cleanest energy mix in the world

## CO2 intensity of energy mix, 2019 – TCO2/TJ



## Low-carbon electricity generation share by source, 2019



# Brazil has huge and diverse potential for renewables

Brazil is currently among the five most attractive emerging markets for investments in renewable energy. (<https://global-climatescope.org/>)

Oil majors are also betting on the Brazilian renewables market. We believe they will integrate their portfolio with cleaner energy projects, while capitalizing on synergies and tapping the huge potential in Brazil for renewable energy projects.



## Biofuels

Brazil has large experience in producing biofuels and benefits from a longstanding well-established industry. Shell (Raízen) and BP (BP Bunge Bioenergia) are betting high in this market.



## Biogas/ Biomethane

Biogas has every condition to achieve greater participation in the Brazilian energy matrix. The sugarcane industry represents a large opportunity for biogas generation. One example is the Raízen Geo Biogas plant.



## Hydrogen

National Hydrogen Program has been established recently. Possible investments in green hydrogen announced so far in Ceará, Pernambuco and RJ States are only from companies in the renewable energy sectors.



## Solar



Solar and Wind energies represent a good proportion of our energy matrix. Total operates three solar plants and is developing new wind projects through its affiliate Total Eren. Also, the first solar plant in Equinor's global portfolio is located at Ceará State (Apodi solar power plant).



## Wind

Brazil enjoys great potential for offshore wind plants. Brazil's shallow waters alone hold potential for 700GW of offshore wind generation. Equinor plans to install 4GW of offshore wind energy in Rio and Espírito Santo States.

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# An unprecedented transformation in 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, pre-salt fields and offshore blocks in the exploratory phase, 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 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.

# The role of the O&G Industry in the pathway to low emissions



## O&G will continue to play an important role

O&G play critical roles in today's energy and economic systems (more than 50% of primary energy), and that affordable, reliable supplies are necessary parts in the pathway to net zero.



## Carbon reduction is imperative in the O&G sector

Emissions reductions isn't an option if the sector wants to retain its social license to operate.



## Energy Security or crisis

The gas, coal, and electricity crisis shows that investments in traditional sources are still needed if there is demand.

# Brazil is a country of great opportunities



## Our Strengths

Sanctity of Contract

Geological potential

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

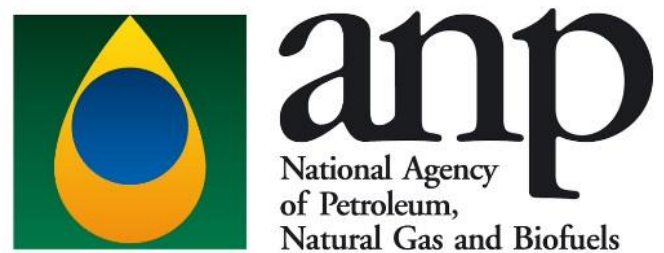
Huge opportunities in Petrobras divestment plan (brownfields opportunities with cash flow)

Market Opening in the midstream (New Gas Law) and downstream

One of the largest fuel market

Great Potential for renewables





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

[www.gov.br/anp/pt-br](http://www.gov.br/anp/pt-br)

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