



Oil and Gas Market in Brazil and Rio de Janeiro

*Firjan's Institucional Presentation for OTC Houston 2022
May 2nd - 5th, 2022.*



ABOUT US



FIRJAN IN THE O&G MARKET

Our line of work and portfolio



SENAI INNOVATION AND TECHNOLOGICAL INSTITUTES

Your partner for the O&G Market Technological Development



BRAZILIAN O&G MARKET

Overview



RIO'S ENERGY PROJECTS RADAR

Potential projects



About us



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OUR MISSION

To promote corporate competitiveness, education and quality of life for workers and society, contributing to the development of the State of Rio de Janeiro.



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Firjan

Corporate Representation and Defense of Interests



- Firjan represents the industries of the State of Rio de Janeiro, regionally and nationwide, promoting the interests of member unions.
- Develops studies and research to guide the decision-making process by companies and suggest public policies.
- Acts as a forum for debates and information management aimed at the State's economic and social growth.

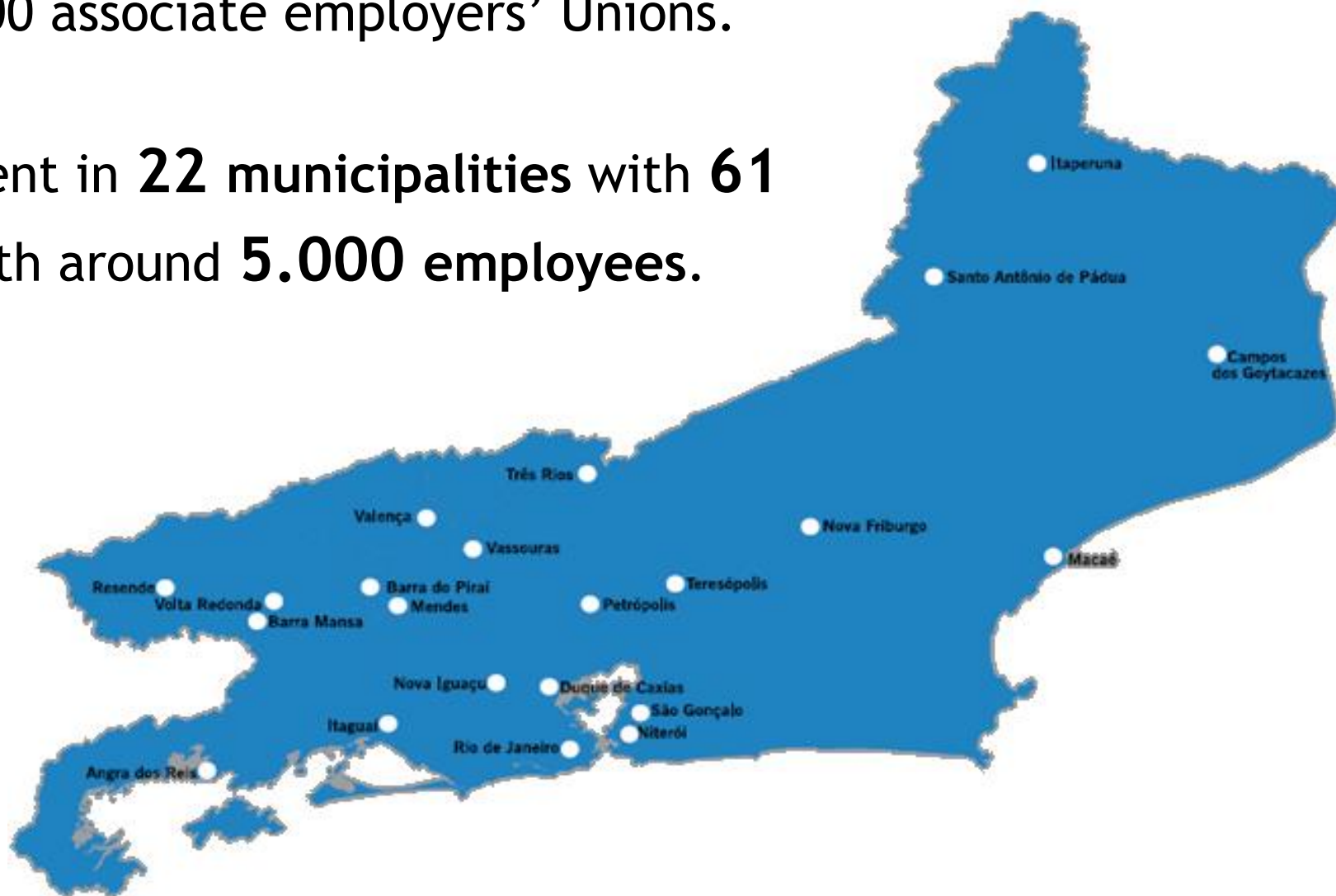


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We represent

all the companies in the Rio de Janeiro State &
100 associate employers' Unions.

We are present in **22 municipalities** with **61**
branches with around **5.000** employees.



Firjan CIRJ

Corporate Representation and Defense of Interests

- One of the largest volunteer entrepreneurship representation organizations in Brazil and South America.
- Customized service to associated companies, provided by a specialized team.
- Members can rely on several benefits of Firjan.



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Firjan SESI

Quality of Life and Citizenship



- Basic education, health, occupational safety, leisure, sports and cultural services.
- Programs for companies to improve the quality of life.
- Cultural consulting for companies.
- Citizenship projects for pacified communities.



Firjan SENAI

Professional Education, Higher Education and Technology and Innovation Services



Professional training to increase the productivity of your company

- Over 70 years of experience in professional training for industry.
- Theory and practice in state-of-the-art laboratories.
- Accredited Innovation Institutes
- Easy access: mobile units, online & in-company courses and flexible schedules.
- Customized courses for companies.
- Capabilities management program and professional certification.



Firjan IEL

Entrepreneurship and Corporate Qualification



- Executive education.
- Management events.
- Trainee program for companies.
- Industry business rounds.
- “Inova Talentos” program.



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Or send us an e-mail: petroleo.gas@firjan.com.br



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Firjan in the O&G Market

Our line of work and portfolio

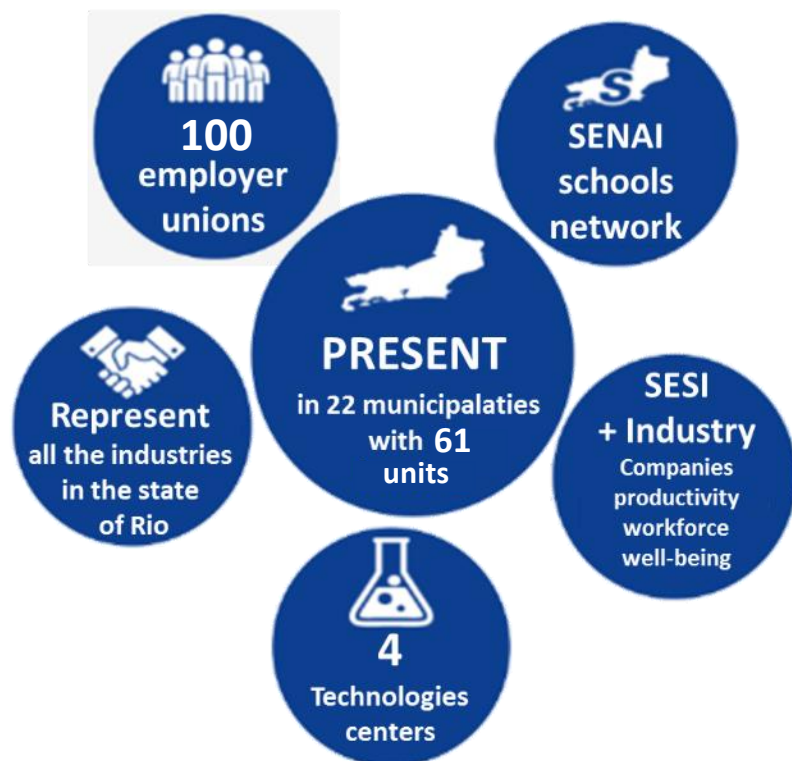


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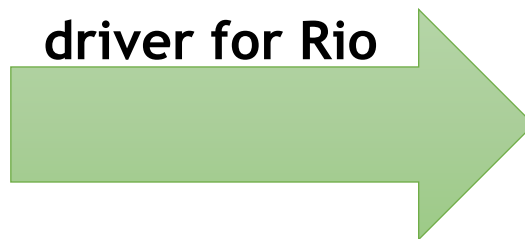
Firjan: Presentation

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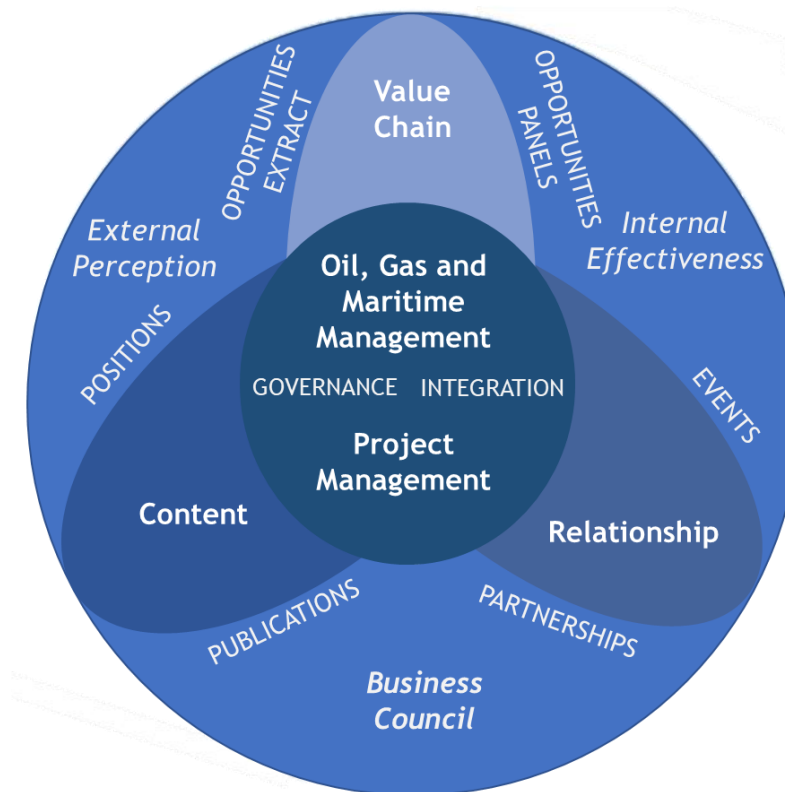
OUR OPERATIONS IN RIO DE JANEIRO



Being O&G an
economic
driver for Rio



FIRJAN'S OIL, GAS AND MARITIME MANAGEMENT



*Dedicated area to support the companies'
institutional positioning, as well as portfolio
development and Market approach*



Firjan's O&G Line of Action - Business Council

More than 50 companies in total represented in Firjan's Business Council and its Work Committees.

Work Committees

Market &
Regulation

RD&I

Natural Gas

Downstream

Mature
Fields

Maritime

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Firjan's O&G Line of Action - Fairs & Events

Events:

- *Challenges and Opportunities*
- *Market Trends*
- *Business Opportunities in O&G and Maritime*
- *Oil & Gas Webseries*

Participation in O&G Business fairs, like Rio Oil and Gas and OTC Houston

Firjan's O&G Line of Action - Content Creation

- Hotsite O&G
- Daily clipping
- Publications for the main subjects
- Papers on demand
- Market presentations
- Positioning papers

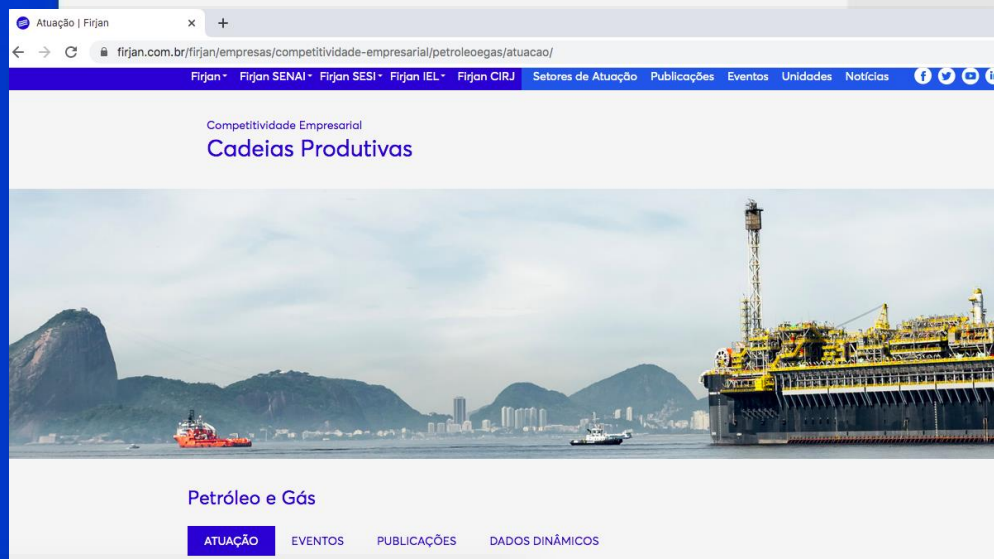
Publications Portfolio

- Oil Yearbook in Rio
- Natural Gas Perspectives in Rio de Janeiro
- Maritime Overview in Rio de Janeiro
- Mapping of Natural Gas Demand in Rio





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Atuação

Maior produtor de petróleo e gás no país, o estado do Rio de Janeiro possui relevância estratégica nesse mercado. A diversidade dos ambientes de exploração e produção no offshore proporcionam diferentes oportunidades de investimento para o nosso estado e indústria fluminense.

É fundamental destacar a importância do gás natural, como energético e insumo para indústria. A federação apoia o desenvolvimento desse mercado, com o intuito de impulsionar ainda mais a economia do estado e do país.

O mercado naval apresenta um potencial significativo para atender às demandas de petróleo e gás offshore, além dos segmentos de defesa, turismo, transporte de passageiros e cargas, entre outros. As oportunidades vão muito além da [Construção Naval](#), como é o caso das atividades de reparo e manutenção, que devem ser estimuladas que ocorram no Rio de Janeiro em função de sua localização estratégica.

Estratégias

Assim, por meio da gerência de Petróleo, Gás e Naval, a Firjan atua voltada para o desenvolvimento desses mercados, com foco em aumentar a competitividade do estado do Rio e promover a atração de mais projetos de investimentos ao longo das cadeias de valor e dos encadeamentos produtivos.

Para trabalhar as pautas estratégicas desses mercados, o [Conselho Empresarial de Petróleo e Gás](#) da Firjan possui núcleos específicos de trabalho na defesa de interesses de seus associados.

Já o acompanhamento das principais demandas e oportunidades desses mercados é promovido pela equipe técnica da gerência de Petróleo, Gás e Naval por meio de informações, estudos e análises qualificadas. Esses documentos podem ser acessados

Quer receber nosso
Informe PGN diariamente e
participar dos nossos
eventos? Clique aqui para se
inscrever.

Últimas Notícias

QUALIDADE DE VIDA
Conheça o Programa Testes Covid-19 da
Firjan Sesi

ECONOMIA DO RIO
Firjan: indústria recupera 51% dos
empregos perdidos nos meses mais
afetados pela pandemia

ECONOMIA
Petróleo e Gás: análise com propostas

QUALIDADE DE VIDA
Firjan Sesi lança programa de teste
molecular de coronavírus para
trabalhadores da indústria do Rio

Hotsite O&G

Institutional Website | Update News |
Publications Database | Access to Dynamics
Data

Online 24/7



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INFORME
PETRÓLEO, GÁS E NAVAL

18 Jan 2021
Ano IX Nº 12



Web série LGPD – Lives Setoriais: Desafios da LGPD nos setores de petróleo e gás

18/1 | 10h às 11h

EVENTO ON-LINE - CLIQUE PARA ASSISTIR

Indicadores (15/01)

Ibovespa	2,54%	R\$/US\$	5,2708	WTI US\$/Barril	52,36
Dólar	4,52%	R\$/€	6,3752	Brent US\$/Barril	55,10
Petróleo	3,52%	R\$/€	7,1623	Henry Hub US\$/MMBtu	2,74

[Petrobras ganha mais tempo para vender refinarias](#)
Fonte: Petróleo Hoje - 15/01/2021

[Mais tempo para SURF de Mero](#)
Fonte: Petróleo Hoje - 15/01/2021

[Eneva cede carretas de GNL para transportar oxigênio no Amazonas](#)
Fonte: Energia Hoje - 15/01/2021

Notícias Internacionais

[Total abandona associação com API por resistência à descarbonização](#)
Fonte: ephr - 15/01/2021

[Wintershall defende maior participação do gás na transição europeia](#)
Fonte: Petróleo Hoje - 15/01/2021

Destaque

Conheça alguém que vai gostar de fazer parte do mailing do Informe PGN? Então, clique aqui para indicá-lo! É só listar o nome e e-mail do contato!

Eventos

Em breve

Informações Relevantes

Ente	Número	Período de Consulta	Data da Audiência
		05/11/2020 a 03/02/2021	03/02/2021
ANP	19/2020	Obter subsídios e informações adicionais sobre minuta de Resolução para regulamentação da alocação de royalties para empresas de pequeno e médio porte.	
		22/11/2020 a 28/01/2021	03/02/2021
ANP	20/2020	Obter subsídios e informações adicionais sobre o pré-edital e a minuta do contrato de concessão referentes à 17ª Rodada de Licitações de Blocos para exploração e produção de petróleo e gás natural.	

Daily clipping

News | Headlines | Indicators

National and International News| Events

Consultations and Public Hearings|

Disclosure of Demands

Portuguese content

Shipping on business days since 2009

+ 1,800 subscribers

Special Editions - coverage of major events

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Potencial dos
Mercados de Petróleo,
Gás Natural e Naval
para o Rio de Janeiro

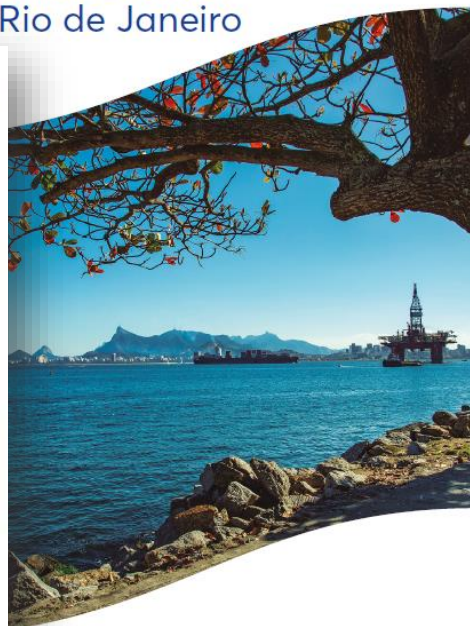


ESTUDO
Rio a todo gás



O papel estratégico
do gás natural na
retomada econômica
do Brasil pós-Covid-19

JUN. 2020



PARCERIA
 Organização Nacional
da Indústria do Petróleo

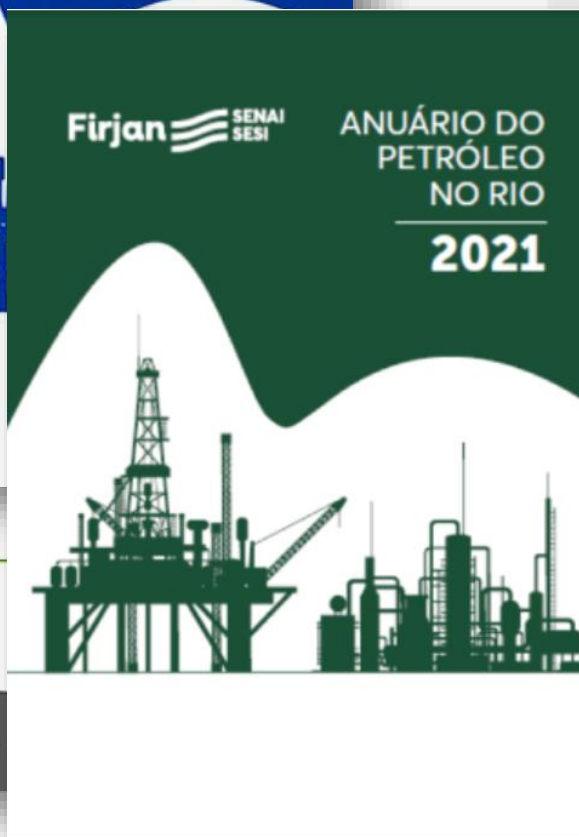
Papers on demand

Representative Data | Demand Projections |
Priority and Updated Agenda | Great interest
from the market | Technical content

Portuguese



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THE SUMMARY



Oil Yearbook in Rio de Janeiro

World and Brazil Panoram | Exploration and
Production | Supply | Research, Development
and Innovation | Socioeconomic Reflections |
Dynamic Data

since 2016

Portuguese and English

6 editions published

Market data and assessments



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THE SUMMARY



Perspectivas do Gás Natural no Rio de Janeiro

2019

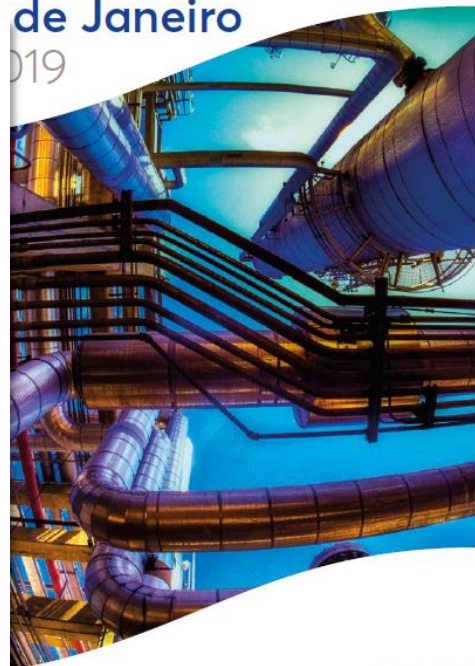


Perspectivas do Gás Natural no Rio de Janeiro 2019-2020



DEZ. 2019

Patrocinador
Naturgy



DEZ. 2018

Natural Gas Perspectives in Rio de Janeiro

Consumption | Statistic Data
| Tariff Competitiveness | Dynamic Data (2021)

Portuguese

4 editions since 2017



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THE SUMMARY



Panorama Naval no Rio de Janeiro 2020



DEZ. 2020

Maritime Overview in Rio de Janeiro

Context World and Brazil | Maritime Support

Defense Market | Merchant Marine

Tourism Market | Oil Market |

Shipbuilding and Repair |

Dynamic Data

Portuguese

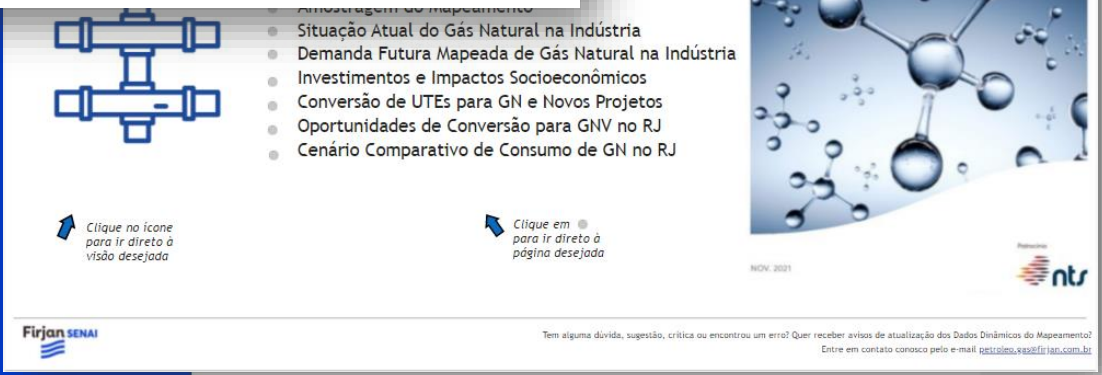
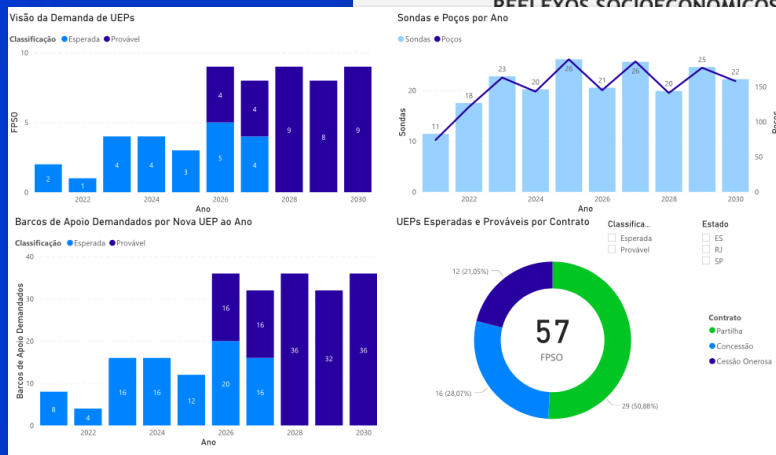
4 editions since 2015

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Dynamic Data

Update data | Dynamic and Interactive
Dashboard | Easy Accessibility | Thematic
| Reliable sources



Portuguese
BI platform
Oil, Gas and Naval



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Tendências para o Mercado de Petróleo e Gás – Inovação

Desafios e Oportunidades para o Mercado de Petróleo e Gás - Visão
Petrobras

Desafios e Oportunidades para o Mercado de Petróleo e Gás - Petrogal Brasil

Challenges and Opportunities | Market Trends

Priority Themes | Great Players |
Operators | Qualified Audience

Portuguese

In-person, Hybrid or Online

WHAT IS IT?

Meetings between suppliers and buyers in the oil, gas and maritime market

Gather buyers to present their demands, and service requirements needed by suppliers

PROPOSAL

GOAL

Assist entrepreneurs in decision making and business promotion

Business Opportunities in Oil, Gas and Maritime

Previous events in the How to do
Business Series:

- Petrobras: 305 presents
- SBM Offshore: 301 presents
- Kerui-Método: 150 presents
- Consórcio Villegagnon: 57 presents





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Oil & Gas Webseries

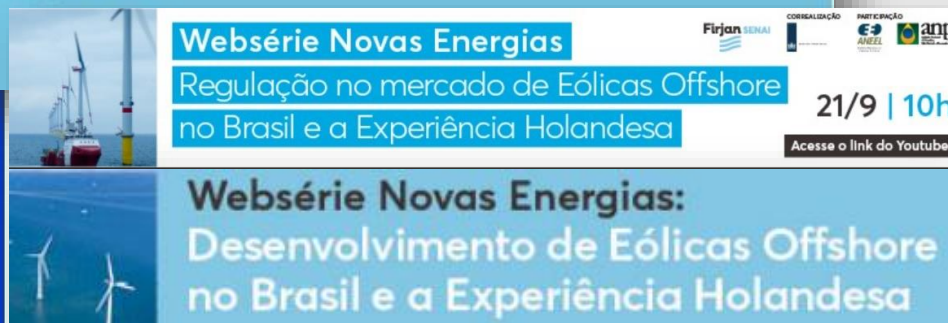


Priority Themes | Live Dynamics | Interactivity |
Top “players” in the sector | Qualified Audience

Portuguese

27 editions (2020)

+ 27 thousand views





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Or send us an e-mail: petroleo.gas@firjan.com.br



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SENAI Innovation and Technological Institutes

*Your partner for the O&G Market
Technological Development*



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Our units for Innovation & Techonology development

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INSTITUTO SENAI
DE TECNOLOGIA AUTOMAÇÃO INDUSTRIAL

Automation
Institute of Technology

INSTITUTO SENAI
DE TECNOLOGIA QUÍMICA E MEIO AMBIENTE

Chemestry and Environment
Institute of Technology

INSTITUTO SENAI
DE INOVAÇÃO SISTEMAS VIRTUAIS DE PRODUÇÃO

Virtual Production Systems
Institute of Innovation

INSTITUTO SENAI
DE TECNOLOGIA SOLDA

Welding
Institute of Technology

INSTITUTO SENAI
DE INOVAÇÃO QUÍMICA VERDE

Greem Chemestry
Institute of Innovation

+ CENTROS DE INOVAÇÃO Sesi

Innovation Center Sesi in
Occupational Health



**SENAI and Sesi in
Rio de Janeiro**
*7 units for
technology or
innovation
development*

INSTITUTO SENAI
DE INOVAÇÃO INSPEÇÃO E INTEGRIDADE

Inspection and Integrity
Institute of Innovation

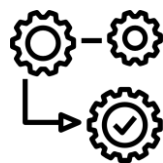
PETROLEUM AND PETROCHEMICAL PROJECTS



R\$ 16M total value
projects



30+ researches
involved



5 ongoing
projects



4 finished
projects

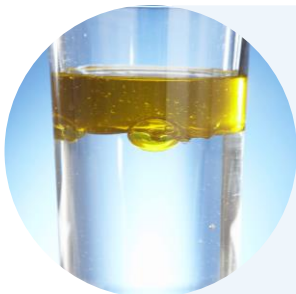


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PETROLEUM AND PETROCHEMICAL PROJECTS



Assessment of the factors that influence sheen formation over water



Evaluation of partition equilibrium and quantification of acidic species in production water



Development of analytical methods for field-monitoring of residual scale inhibitors



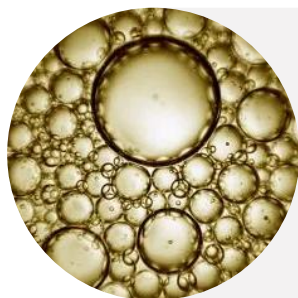


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PETROLEUM AND PETROCHEMICAL PROJECTS



Development of Correlation Models between methods for Oil and Grease monitoring in produced water

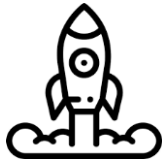


Development of a systematic approach to the characterization of emulsions



PETROLEUM AND PETROCHEMICAL PROJECTS

- Others partners



1 accelerated startup, focusing on oily water treatment



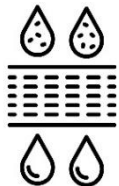
SENAI will share data and show a brief discussion on Produced Water Workshop 2021 and 2022



SENAI became a member of the Produced Water Club, reference group in the field



R\$ 4,8M revenue from services provided to offshore companies



R\$ 900k project with **Startup**, to develop a filtration system to remove oil from oily water, containing a filtering element that comes from renewable raw materials



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PETROLEUM AND PETROCHEMICAL PROJECTS



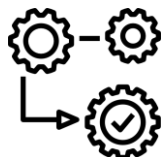
R\$4,5M

total value
projects



20+

researches
involved



1

ongoing
projects



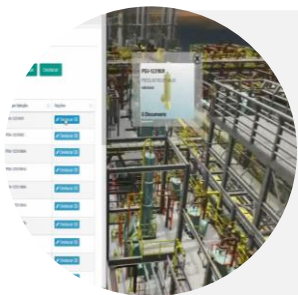
3

finished
projects



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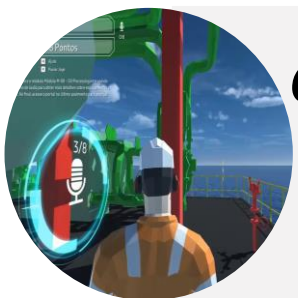
PETROLEUM AND PETROCHEMICAL PROJECTS



Virtual Reality Digital Twin for Floating Production Storage and Offloading (FPSO) Units (PredictMain4.0)



Digitization, visualization and virtual simulation of drillhole data with machine learning support (SMART ASSET-DIVISOR)



Operational safety training simulator, projects and processes for FPSO





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PETROLEUM AND PETROCHEMICAL PROJECTS



Mapping of the main sources that degrade the focus and increase the driller's stress level during well drilling activities, in order to develop support systems



PETROLEUM AND PETROCHEMICAL PROJECTS

- Highlights



1 accelerated startup, focusing on driller's stress conditions



Submission accepted for presentation at OTC 2022 - (SMART ASSET-DIVISOR)



PredictMain4.0 project as ANP Award Finalist



5 publications on R&D projects in the areas of Virtual Systems and AI



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Brazilian O&G Market

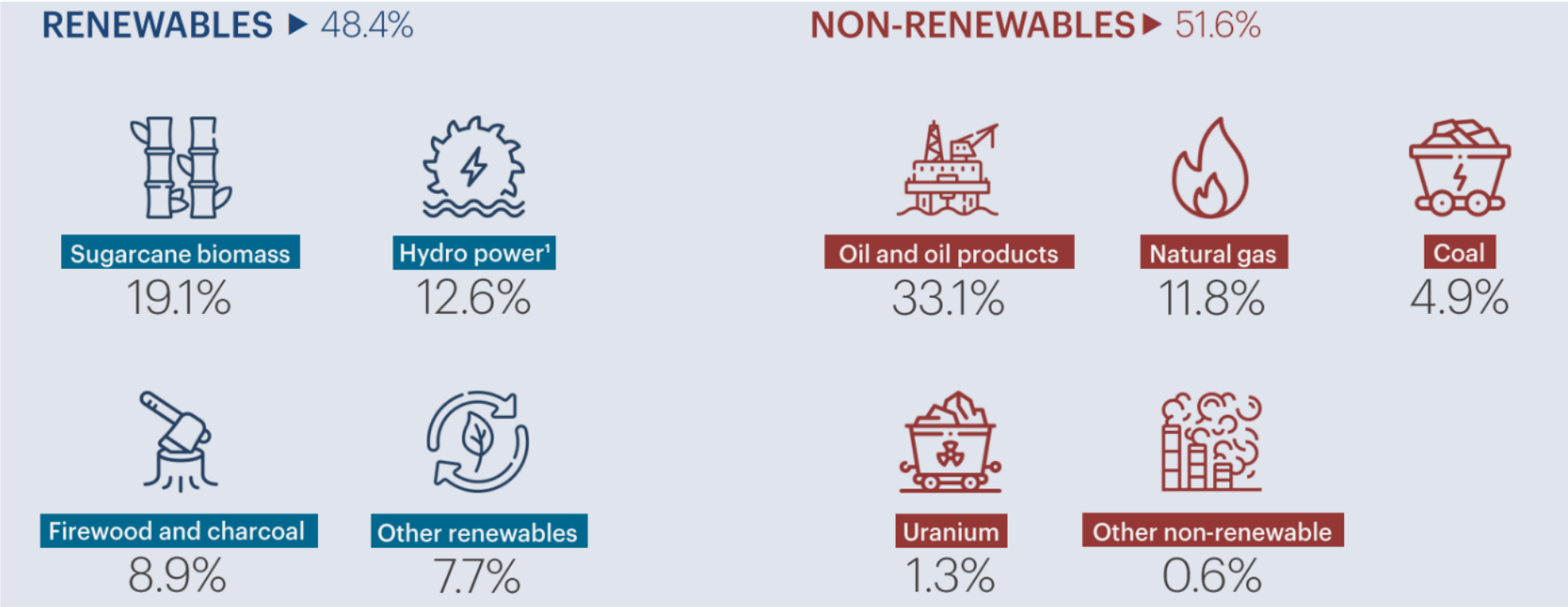
Overview



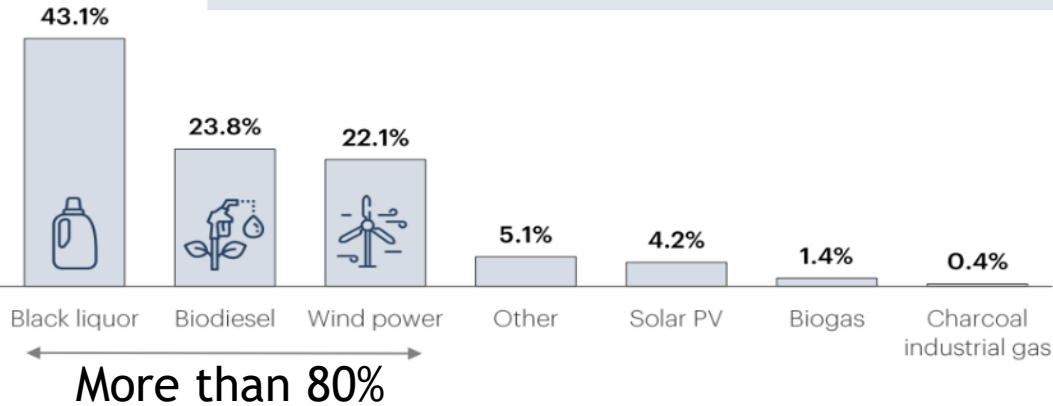
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Brazil's Energy Matrix

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Source: EPE, 2021



Other renewables are distributed among 7 categories of renewable sources.

Main Institutions for the O&G Market in Brazil

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Public Institutions

*National Energy
Policy Council*
CNPE

MINISTÉRIO DE
MINAS E ENERGIA



*Ministry of
Environment*
MMA

*Brazilian Institute
of Environment
and Renewables
Resources*
IBAMA



*Ministry of Mines
and Energy*
MME

MINISTÉRIO DE
MINAS E ENERGIA



*Energy
Research
Company*



*National Agency
of Petroleum,
Natural gas and
Biofuels*
ANP



*Brazilian Development
Bank*



*State Regulatory Agencies for
Natural Gas and also Environment*
**e.g.: Agenersa and
Inea in Rio**



Private Institutions



*Petroleum, Gas and Biofuels
Brazilian Institute*

*Brazilian Organization
of the Petroleum Industry*



*Federation of Industries of
the State of Rio de Janeiro*

*Brazilian Micro and Small
Company Support Service*



*National Cofederation of
Industries*

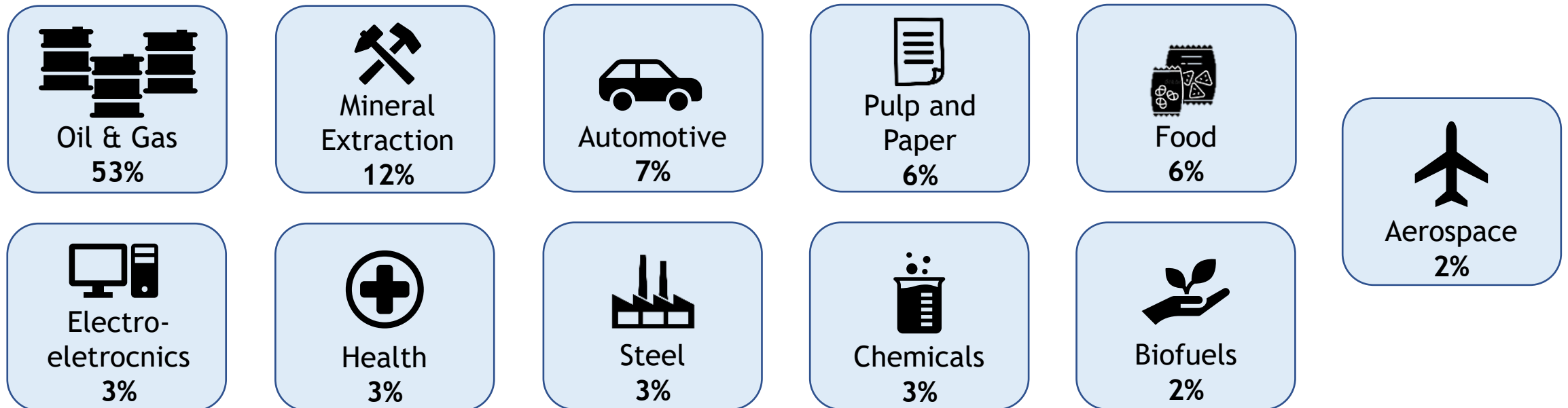
*Brazilian association of
independent oil and gas producers*



O&G is main destiny of investment of the country

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Investment Perspective per Industry 2019 - 2022



- O&G is responsible for 53% of Brazil's total industry investment
- Also for 28% from Brazil's total investment Project till 2022

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

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2021



8th

Crude Oil and
Condensate producer
(BP Statistical Review 2021)



86

E&P company groups,
~50% foreign

Production:



+2,9^{MM}

Bpd of oil production
(Feb 2022)



+133^{MM}

Bpd of oil production
(Feb 2022)

Reserves:



12^{Bi}

Bbl in proved oil reserves
(Dez 2020)



337^{Bi}

M³ in proved gas reserves
(Dez 2020)

Rio de Janeiro

In 2022,

82%



of the oil production

and



69%

of the gas
production



We use

75%

of our refining capacity

43

Offshore fields



Brasil 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)

Timeline of the Rounds from 2013 to 2022

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Bidding Rounds



Subtitle:



Concession



Production Sharing



Transfer of Rights Surplus

+ Open Acreage

O&G Exploration and Production Regimes

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		Concession	Production sharing	Onerous Assignment
<p>Opean Acreage is the newest model of Rounds, iniatiially stabilished only for marginal accumulations.</p> <p>Now, the Energy Policy National Council can also authorize the inclusion of areas this type of Rounds also for blocks usually offered trough concession and production sharing agreements.</p>	Exploration and Production rights	Areas onshore and offshore (outside Pre Salt area)	Pre salt areas and strategics area	Pre salt area with high pontential in Santos basin. Blocks: Sul de Tupi, Florim, Nordeste de Tupi, Franco, Sul de Guará, Entorno de Guará and Peroba
	Exploration Cost	Concessionary company assumes the risk of investing and finding - or not - oil or natural gas	Concessionary company assumes the risk of investing - which can be deducted in case of discovery	Petrobras assumes the risk of exploration and the costs
	Offer Formation	The company or consortium that presents the most advantageous bid, receives the right to explore that are. (bonus signature and propose a minimum exploratory program)	The winning company is the one that offers the Brazilian State the largest share of oil and natural gas (that is, the largest portion of the exceeding oil).	No bidding roud
	Royalties	5% to 10%	15%	10%
	Special Participation	Variable percentage as provided in Decree No. 2,705/1998	N/A	N/A
	Exceeding oil	N/A	According to offer bids.	N/A
	Petrobras Participation	Petrobras no obligation	Petrobras has the preference to be the operator of the blocks . When Petrobras expresses the interest of acting as the operator, it must inform in which areas it wants to exercise this right, indicating its participation in the consortium, which cannot be less than 30%	Petrobras owns the right to explore blocks.

N/A = no information available

The Natural Gas Market in numbers

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Supply

97 Million
M³ / day

National Production



LNG Imports



Bolivia Imports



Demand

93 Million
M³ / day

Consumption by sector

Industrial



Electric Generation



Automotive



Cogeneration



Others



Offshore gas potential

Huge gas potential in the pre-salt.



Onshore gas potential

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



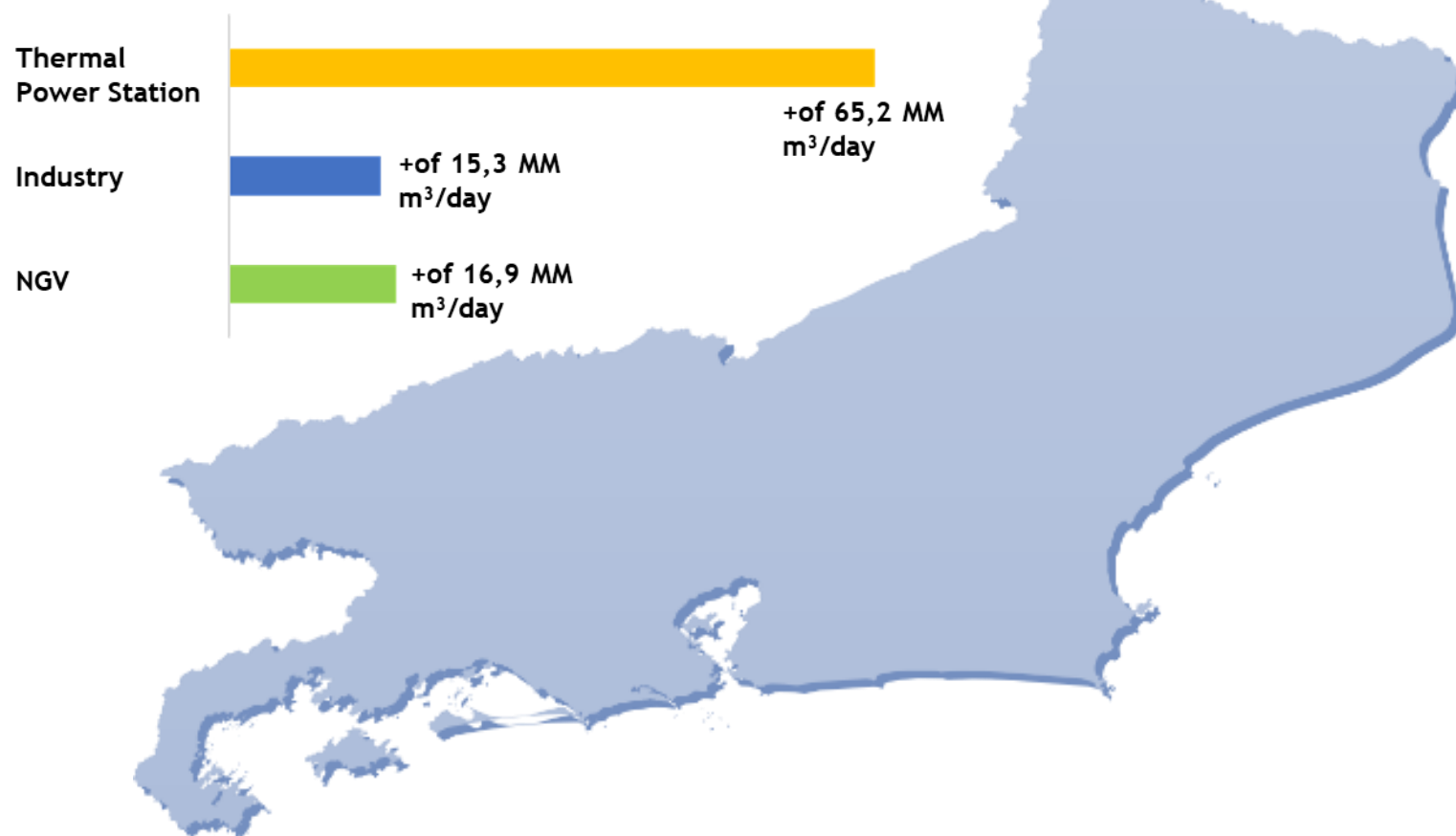
New gas market

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

Natural Gas Potential and Equivalent Demand in Rio

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100% Natural Gas



+of **97,5** MM m³ / day

- *Substitution of Other Fuels*
- *Demand Expansion*
- *New Projects*

Source: Rio de Janeiro's Natural Gas Demand Mapping

*Some regions don't expect new projects.

**In the 100% NG scenario, the economic viability of the projects isn't taken into account.



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Rio's Energy Projects Radar

Potential projects



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Rio de Janeiro Energy Radar

Expected and Potential



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US\$ 60 billions

*in O&G Exploration and
Production projects*

US\$ 1,2 billion

*in projects from the
Natural Gas Value
Chain*

**More than 45
potential**

*projects in Oil, Gas
and New Energies in
the long term*

New E&P production units

Distribution network investment

Offshore wind farms

Subsea and well drilling

Transportation network investment

Green Hydrogen plants

Mature Fields revitalization

Industrial and Power Plants

Solar power generation

Till 2025

Natural Gas infrastructure projects

Oil and Gas exploration blocks and
divestments

Project in partnership with APEX

Portfolio of Investments - Opportunities in Brazil



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Thorough publication of investment opportunities in Brazil for the O&G market

Initiative from APEX with collaboration from EPE, ONIP and Firjan

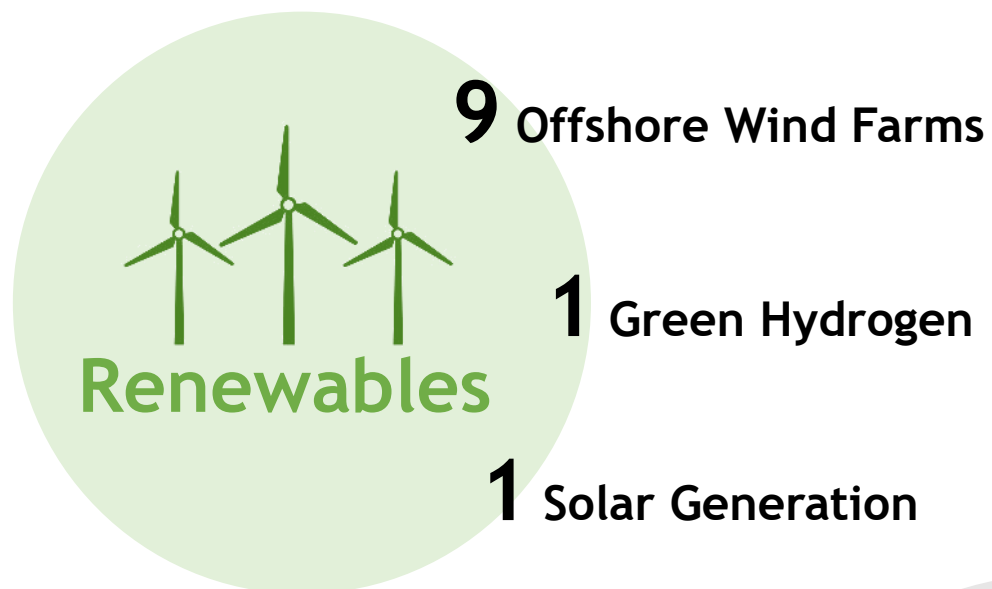
Also features, in details, the market dynamic in Brazil

Firjan collaborated with potential projects in Rio that have a higher level of certainty

Overview: Rio de Janeiro

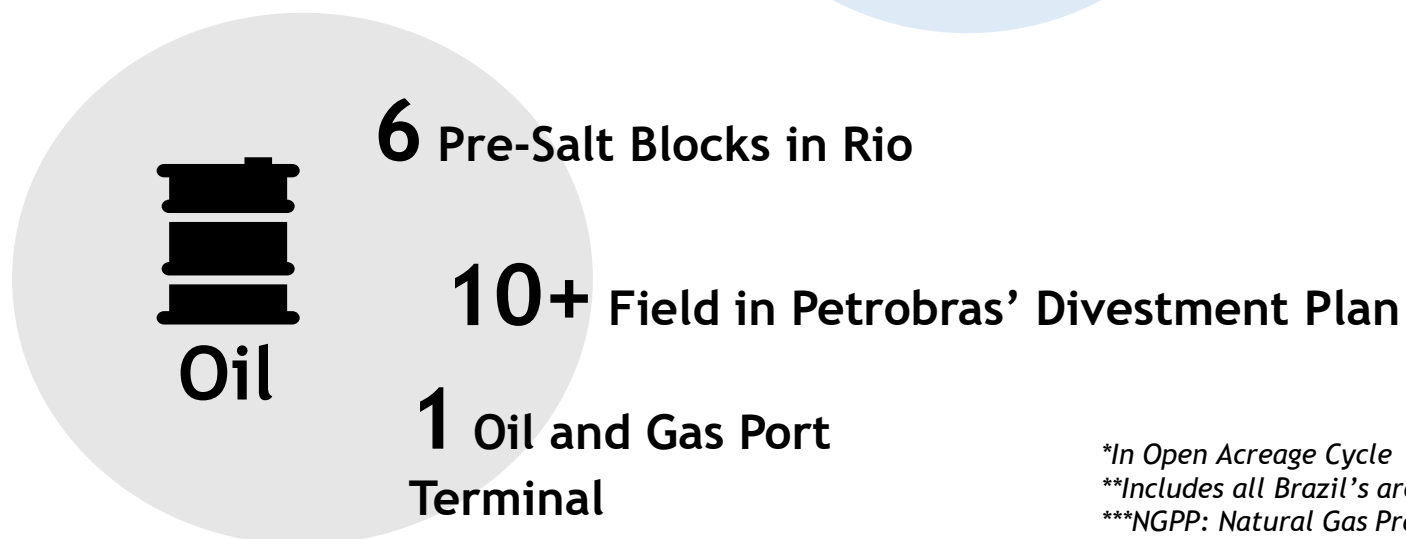
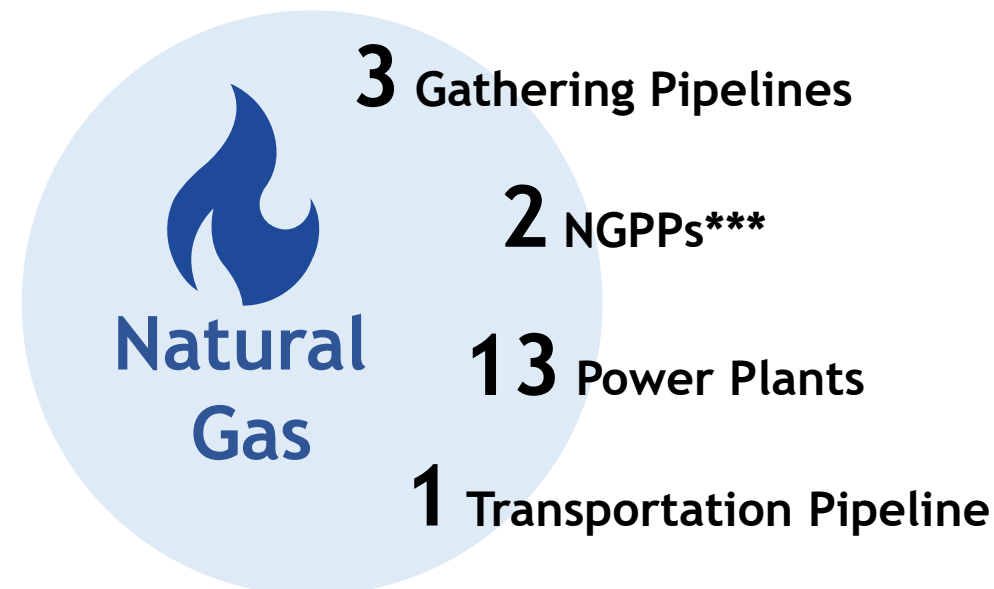
Potential Projects*

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THE SUMMARY



Others:
small refinery, fertilizers production plants, pelletizing and HBI plants, lubricant unit and others under NDAs

**includes more projects than the ones featured in the APEX publication, including projects with lower level of certainty*



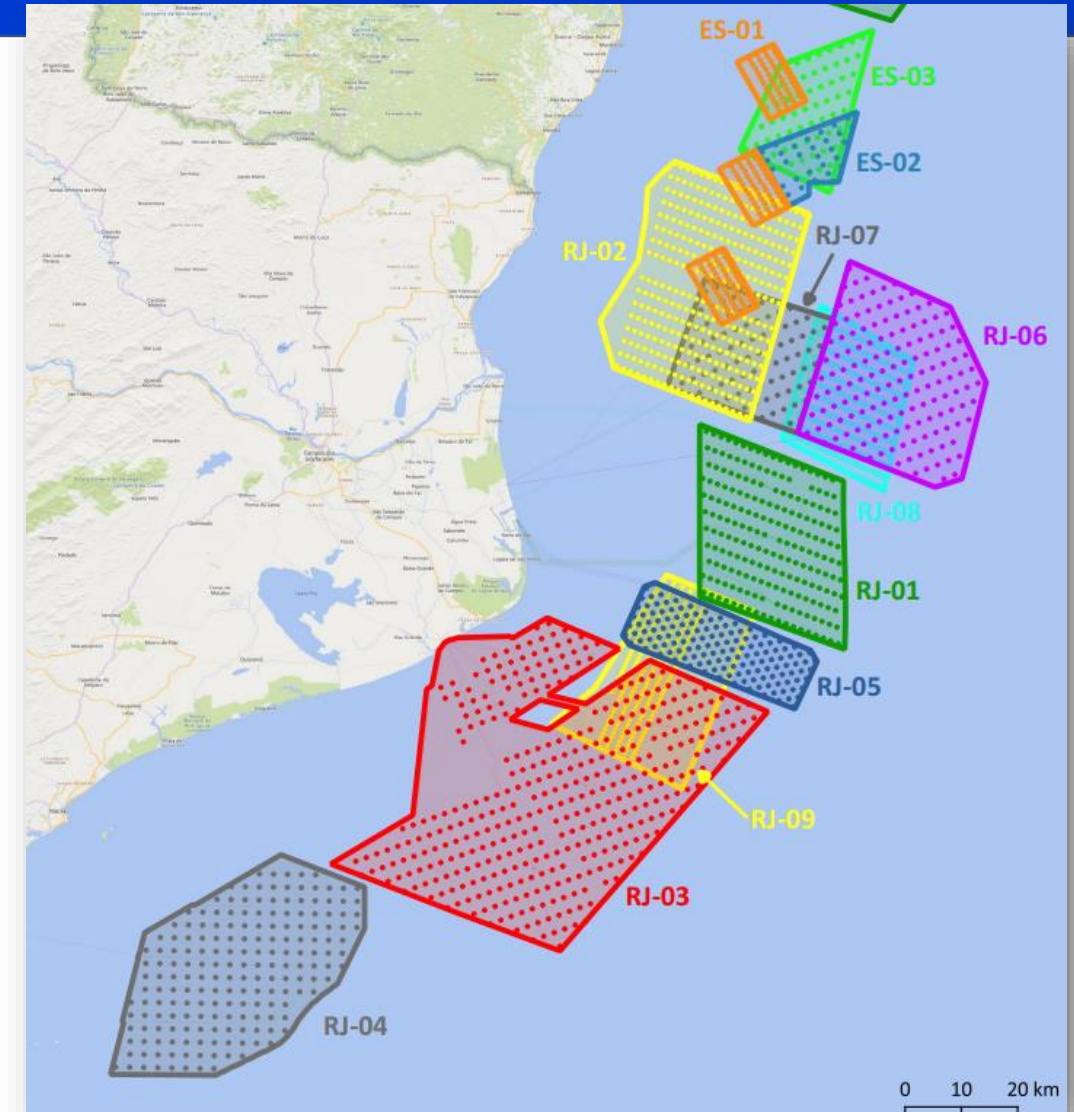
**In Open Acreage Cycle
**Includes all Brazil's areas
***NGPP: Natural Gas Processing Plants*

Offshore Wind Farms

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THE SUMMARY

OWF	Capacity
01: Maravilha	4GW
02: Aracatu	2GW
03: Ventos do Atlântico	5GW
04: Ventos Fluminenses	2,8GW
05: Ventos do Açú	2,1GW
06: Quaresmeira	2,9GW
07: Bromélia	1,7GW
08: Sopros do RJ	3 GW
09: Projeto Açú	3 GW

- ✓ Currently there are 55 environmental projects being licensed in Brazil, according to IBAMA
- ✓ Total of 9k wind turbines - potential of 133 GW in Brazil
- ✓ From those, 9 are located in Rio de Janeiro and represent more than 20% of total generation capacity



Offshore Wind Farms

 **RETURN TO
THE SUMMARY**

PROJECT TITLE	Maravilha Wind Farm
<i>Project Overview</i>	Capacity to generate 3 GW from four offshore wind farms. (750MW) trainers per 200 wind turbines of 15 MW each.
<i>Additional Information</i>	The total area is 77,096 ha plus 800 ha to submarine cables.
<i>Project Location</i>	São João da Barra/Campo de Goytacazes, Rio de Janeiro
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Força Eólica do Brasil - Neoenergia and Iberdola
<i>Address</i>	Praia do Flamengo, 78 - Flamengo, Rio de Janeiro - Rio de Janeiro, CEP 22210-904
<i>Website</i>	https://www.neoenergia.com/pt-br/Paginas/default.aspx
<i>Project Coordinator</i>	N/A

N/A = no information available

Offshore Wind Farms

 **RETURN TO
THE SUMMARY**

PROJECT TITLE		Aracatu Offshore Wind Farm
<i>Project Overview</i>		Offshore Wind Aracatu with capacity to generate 2 GW, with the potential to be increased to approximately 2.33 GW and 320 wind turbines.
<i>Additional Information</i>		The total area is 117300 ha.
<i>Project Location</i>		Between Rio de Janeiro and Espírito Santo
<i>Sectors</i>		Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>		N/A
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		the project is being licensed by IBAMA
<i>Institution responsible for the project</i>		Equinor Brasil Energia
<i>Address</i>		R. do Russel, 802 - Glória, Rio de Janeiro - Rio de Janeiro, CEP 22210-010
<i>Website</i>		https://www.equinor.com/en/what-we-do/wind.html?_ga=2.146535282.795533113.1644347529-60302568.1644347529
<i>Project Coordinator</i>		N/A

N/A = no information available

Offshore Wind Farms

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PROJECT TITLE		Ventos do Atlântico
<i>Project Overview</i>	Capacity to generate 5GW and 371 wind turbines.	
<i>Additional Information</i>	N/A	
<i>Project Location</i>	Northern Rio de Janeiro region	
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)	
<i>Total Project Cost</i>	N/A	
<i>Procurement</i>	Private	
<i>Nature of investment</i>	Private	
<i>Timeframe</i>	the project is being licensed by IBAMA	
<i>Institution responsible for the project</i>	Ventos do Atlantico Energia Eolica S.A.	
<i>Address</i>	R. 24 de Outubro, 1557 - 201 - Auxiliadora, Porto Alegre - RS, CEP 90510-003	
<i>Website</i>	https://www.oceanwinds.com	
<i>Project Coordinator</i>	N/A	

N/A = no information available

Offshore Wind Farms

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PROJECT TITLE	Ventos Fluminenses
<i>Project Overview</i>	Capacity to generate 2,8GW and 188 wind turbines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Northern Rio de Janeiro region
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Bosford Participações
<i>Address</i>	R. Libero Badaro 293 andar 21 conj 21-d sala 86, Centro, São Paulo - SP - CEP 01009-907
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

N/A = no information available

Offshore Wind Farms

 **RETURN TO
THE SUMMARY**

PROJECT TITLE		Ventos do Açú Wind Farm
<i>Project Overview</i>		Capacity to generate 2,16 GW from four offshore wind farms. Ventos do Açú 1, Ventos do Açú 2, Ventos do Açú 3 e Ventos do Açú 4 , each wind farm will have 36 wind turbines.
<i>Additional Information</i>		N/A
<i>Project Location</i>		São João da Barra/Campo de Goytacazes, Rio de Janeiro
<i>Sectors</i>		Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>		N/A
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		the project is being licensed by IBAMA
<i>Institution responsible for the project</i>		Prumo Logística
<i>Address</i>		Fazenda Saco Dantas, s/nº. Porto do Açú. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>		https://www.prumologistica.com.br/pt/imprensa/prumo-anuncia-projeto-para-desenvolvimento-de-parques-eolicos-offshore-no-norte-fluminense
<i>Project Coordinator</i>		N/A

N/A = no information available

Offshore Wind Farms

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PROJECT TITLE	Quaresmeira
<i>Project Overview</i>	Capacity to generate 2,96 GW and 148 wind turbines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Northern Rio de Janeiro region
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Bluefloat Energy do Brasil
<i>Address</i>	Rua José Silva de Azevedo Neto 00200 Blc 4 Sal 208,Barra da Tijuca, Rio de Janeiro Rio de Janeiro, CEP 22775-056
<i>Website</i>	https://www.bluefloat.com/
<i>Project Coordinator</i>	N/A

N/A = no information available

Offshore Wind Farms

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THE SUMMARY](#)

PROJECT TITLE	Bromélia
<i>Project Overview</i>	Capacity to generate 1,7GW and 85 wind turbines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Northern Rio de Janeiro region
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Bluefloat Energy do Brasil
<i>Address</i>	Rua José Silva de Azevedo Neto 00200 Blc 4 Sal 208,Barra da Tijuca, Rio de Janeiro Rio de Janeiro, CEP 22775-056
<i>Website</i>	https://www.bluefloat.com/
<i>Project Coordinator</i>	N/A

N/A = no information available

Offshore Wind Farms

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PROJECT TITLE	Sopros do RJ
<i>Project Overview</i>	Capacity to generate 3,0 GW and 200 wind turbines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Northern Rio de Janeiro region
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Totalenergies Petroleo&Gas
<i>Address</i>	Av Republica do Chile, 500, sala 1901 - Centro, Rio de Janeiro - RJ, CEP 20.031-170
<i>Website</i>	https://totalenergies.com.br/pt-br
<i>Project Coordinator</i>	N/A

N/A = no information available

Offshore Wind Farms

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THE SUMMARY

PROJECT TITLE	Projeto Açú
<i>Project Overview</i>	Capacity to generate 3,0 GW and 215 wind turbines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Northern Rio de Janeiro region
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	the project is being licensed by IBAMA
<i>Institution responsible for the project</i>	Shell Brasil
<i>Address</i>	Av. República do Chile, 330 - Centro, Rio de Janeiro - RJ, CEP 20031-170
<i>Website</i>	https://www.shell.com.br/
<i>Project Coordinator</i>	N/A

N/A = no information available

Rio's North Region overview

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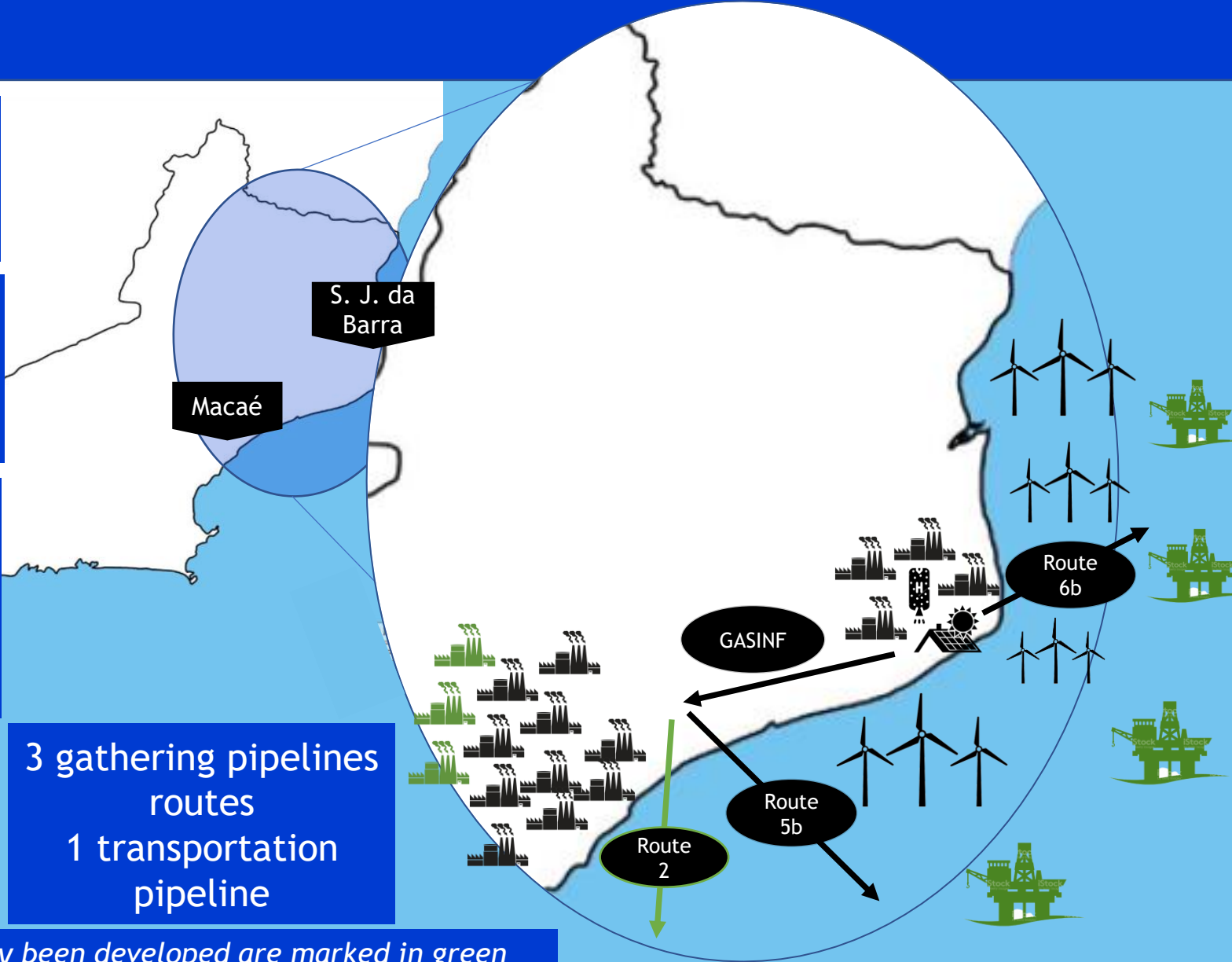


7 offshore wind project, total of 21GW

1 photovoltaic solar generation project e 1 green hydrogen plant project

3 thermal power plant in operations, 2 under construction and 13 projects being licensed

Potential Development of Fertilizer Plants and Steel Plants



3 gathering pipelines routes
1 transportation pipeline

Thermal Power Plant Açu Port

GNA I in operation

GNA II in construction

GNA III and IV - licensed

OWFs

Aracatu	Bromélia
Ventos do Açu	Ventos Fluminenses
Maravilha	Quaresmeira
Ventos do Atlântico	

Thermal Power Plant Macaé

Mário Lago e Norte Fluminense in operation

Marlim Azul in construction

Vale Azul II e III are being licesing

Norte Fluminense 2, N. S. de Fátima, Jaci, Tupã and Litos 1, 2, 3 and 4 are licensed

projects that have already been developed are marked in green

Natural Gas Projects



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THE SUMMARY

PROJECT TITLE	Route 5b
<i>Project Overview</i>	From BM-C-33 to Cabillionúnas Natural Gas Terminal
<i>Additional Information</i>	Pipe capacity 20 MMm ³ /d and length of 200 km. Delivery of natural gas directly to the transportation network
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	US\$ 0.68 billions* (EPE estimates)
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA
<i>Institution responsible for the project</i>	Equinor
<i>Address</i>	R. do Russel, 802 - Glória, Rio de Janeiro - Rio de Janeiro, CEP 22210-010
<i>Website</i>	https://www.equinor.com.br/pt/section/topic/bacia-de-campos.html
<i>Project Coordinator</i>	N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Natural Gas Projects



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THE SUMMARY](#)



PROJECT TITLE	Route 6b
<i>Project Overview</i>	From CM-101 block to Açu Port
<i>Additional Information</i>	Pipe capacity 12 MM m ³ /d and lenght of 118km .
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	US\$ 0.48 billions* (EPE estimates)
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Natural Gas Projects



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PROJECT TITLE	Natural Gas Processing Plant for Route 6b
<i>Project Overview</i>	Natural Gas Processing plant for route 6b
<i>Additional Information</i>	Potential for a Natural Gas Processing Plant as well
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	US\$ 0.5 billions* (EPE estimates)
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Natural Gas Projects

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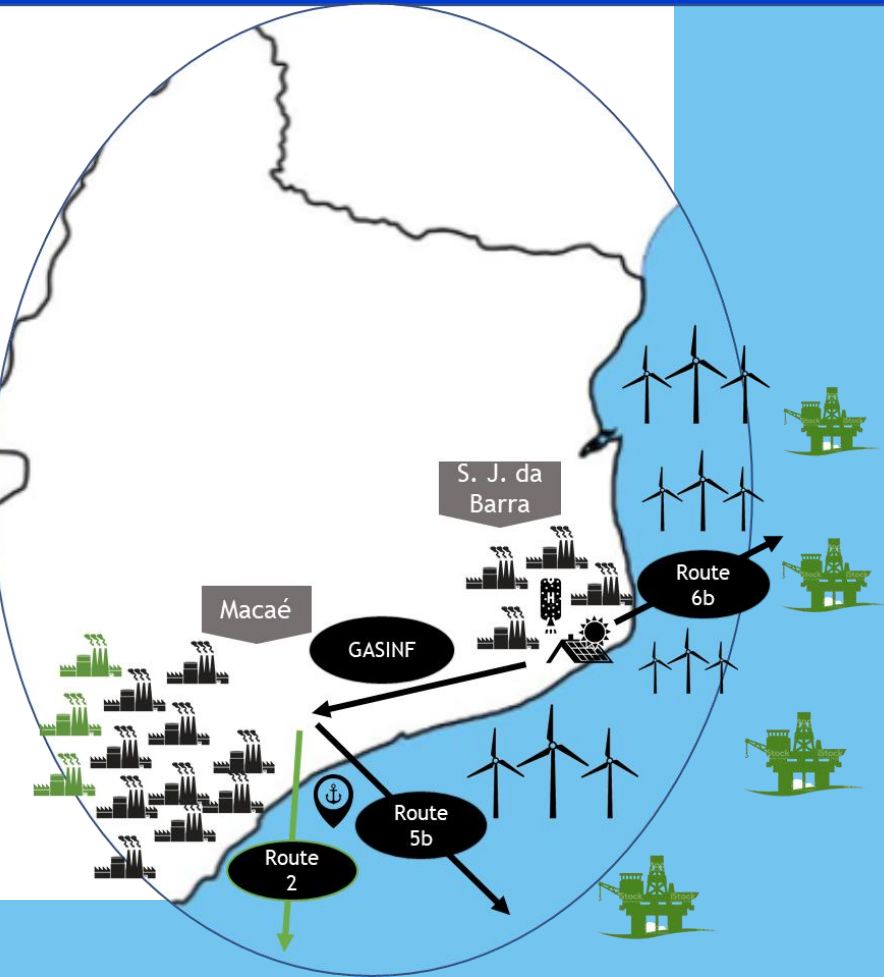


PROJECT TITLE	GASINF - Transport Pipeline
<i>Project Overview</i>	Project for the construction of a 101.2 km gas pipeline connecting Açu to Cabiúnas
<i>Additional Information</i>	Transportation Pipeline as well.
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

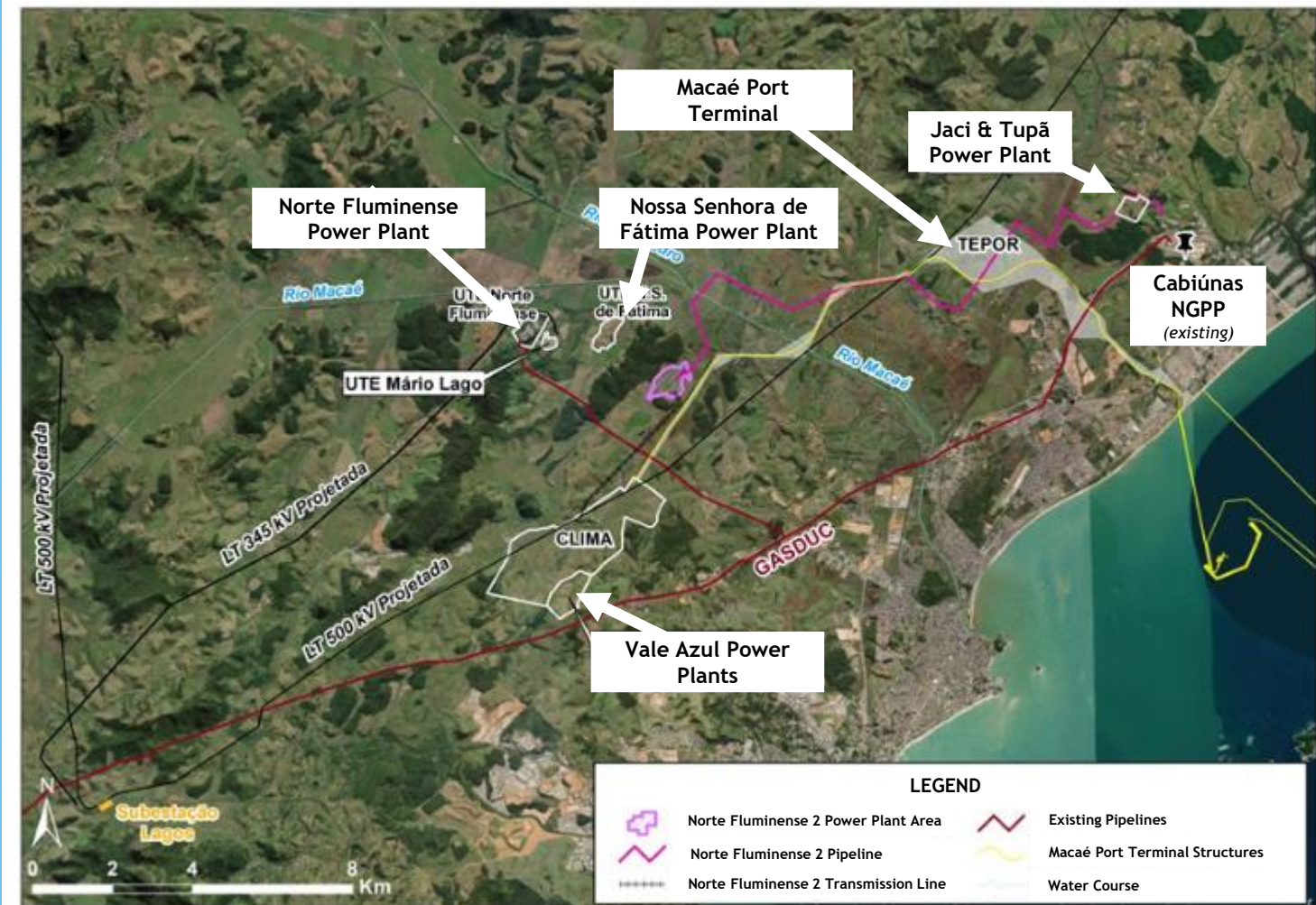
N/A = no information available

Rio's North Region Details

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Localização dos Empreendimentos Projetados e Implantados



Thermal Power Plant

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PROJECT TITLE		Norte Fluminense 2 Thermal Power Plant
<i>Project Overview</i>		Natural gas power plant - capacity to generate 1,7GW.
<i>Additional Information</i>		The approved project includes three gas turbines and a combined cycle steam turbine; dedicated 17.7 km pipeline; adductor and effluent emissary of 6.7 km; and 500kV transmission line, which will connect the Campos 2 Substation (in Campos dos Goytacazes) with the future Lagos Substation (in Rio das Ostras). Construction is expected to take 48 months to complete.
<i>Project Location</i>		Macaé, Rio de Janeiro
<i>Sectors</i>		Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>		N/A
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>		Electricité de France - EDF
<i>Address</i>		Torre Oeste - Av. República do Chile, 330 - 6° andar - Centro, Rio de Janeiro - Rio de Janeiro, CEP 20031-170
<i>Website</i>		http://edfnortefluminense.com.br/nossos-negocios/nf2/
<i>Project Coordinator</i>		N/A

N/A = no information available

Thermal Power Plant

 RETURN TO
THE SUMMARY

PROJECT TITLE	Nossa Senhora de Fátima Thermal Power Plant
<i>Project Overview</i>	Natural gas power plant - capacity to generate 1,35GW.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Macaé, Rio de Janeiro
<i>Sectors</i>	Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>	Eneva
<i>Address</i>	Praia de Botafogo, 501 - Botafogo, Rio de Janeiro - Rio de Janeiro, CEP 22250-040
<i>Website</i>	https://eneva.com.br/
<i>Project Coordinator</i>	N/A

N/A = no information available

Thermal Power Plant

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THE SUMMARY](#)

PROJECT TITLE Jaci Thermal Power Plant	
<i>Project Overview</i>	Capacity to produce 330MW
<i>Additional Information</i>	The total area is 13 ha.
<i>Project Location</i>	Macaé, Rio de Janeiro
<i>Sectors</i>	Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>	Global Participações em Energia S/A - GPE
<i>Address</i>	Alameda Salvador, 1057 Salvador Shopping Business Torre América, Sala 2407 - Caminho das Árvores, Salvador - BA, CEP 41820-790
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

N/A = no information available

Thermal Power Plant

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THE SUMMARY](#)

PROJECT TITLE	Tupã Thermal Power Plant
<i>Project Overview</i>	Capacity to produce 1850 MW
<i>Additional Information</i>	The total area is 13 ha.
<i>Project Location</i>	Macaé, Rio de Janeiro
<i>Sectors</i>	Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>	Global Participações em Energia S/A - GPE
<i>Address</i>	Alameda Salvador, 1057 Salvador Shopping Business Torre América, Sala 2407 - Caminho das Árvores, Salvador - BA, CEP 41820-790
<i>Website</i>	N/A
<i>Project Coordinator</i>	N/A

N/A = no information available

Thermal Power Plant

 RETURN TO
THE SUMMARY

PROJECT TITLE	Litos Thermal Power Plant Project
<i>Project Overview</i>	Four thermoelectric power plants with total capacity to generate 5275 MW
<i>Additional Information</i>	N/A
<i>Project Location</i>	Macaé, Rio de Janeiro
<i>Sectors</i>	Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>	Litos Energia LTDA
<i>Address</i>	R. Conselheiro Saraiva, Nº 00028 - Cob 01 no bairro Centro em Rio de Janeiro - Rio de Janeiro, CEP 20091-030
<i>Website</i>	https://litosenergia.com.br/ver-ap/
<i>Project Coordinator</i>	N/A

N/A = no information available

Thermal Power Plant

 RETURN TO
THE SUMMARY

PROJECT TITLE		GNA III and IV Thermal Power Plant
<i>Project Overview</i>		Capacity to generate 3.4 GW in total
<i>Additional Information</i>		GNA III aprox. 2.9 GW GNA IV aprox. 0.5 GW
<i>Project Location</i>		São João da Barra, Rio de Janeiro
<i>Sectors</i>		Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>		US\$ 1.6 billions *
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>		Gás Natural Açú S/A - GNA
<i>Address</i>		Praia do Flamengo, 66 - 13º andar - Flamengo, Rio de Janeiro - Rio de Janeiro, CEP 22210-030
<i>Website</i>		https://www.gna.com.br/a-gna/quem_somos
<i>Project Coordinator</i>		N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Thermal Power Plant

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PROJECT TITLE		Vale Azul II and III Thermal Power Plant
<i>Project Overview</i>		Capacity to produce 1.2 GW in total
<i>Additional Information</i>		N/A
<i>Project Location</i>		Macaé, Rio de Janeiro
<i>Sectors</i>		Power Gen/Natural Gas (CNAEs 35.1 and 35.2)
<i>Total Project Cost</i>		N/A
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		Project Licensed by IBAMA Construction not started and did not win any bid.
<i>Institution responsible for the project</i>		Vale Azul Group
<i>Address</i>		Rua Visconde de Inhauma, 77 -10º Andar, Centro, Rio de Janeiro - Rio de Janeiro, CEP 20091-007
<i>Website</i>		http://grupovaleazul.com.br/projetos/
<i>Project Coordinator</i>		N/A

N/A = no information available

Other Projects



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THE SUMMARY

PROJECT TITLE	Green Hydrogen Project
<i>Project Overview</i>	Construction of a green hydrogen plant with a capacity of 300 MW, with the potential to produce 250 thousand tons of green ammonia per year.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Macaé, Rio de Janeiro
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase MOA/MOU - Memorandum of Agreement signed between Açú Port and Fortescue
<i>Institution responsible for the project</i>	Açú Port
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açú. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br/fortescue-future-industries-e-porto-do-acu-unem-forcas-para-desenvolver-planta-de-hidrogenio-verde-no-brasil/
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects



RETURN TO
THE SUMMARY

PROJECT TITLE	Fertilizer Project
<i>Project Overview</i>	Potential project for fertilizer mixer plant in Porto do Açu.
<i>Additional Information</i>	N/A
<i>Project Location</i>	São João da Barra, Rio de Janeiro
<i>Sectors</i>	Fertilizers (CNAE 20.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase
<i>Institution responsible for the project</i>	Açu Port
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açu. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br/negocio/fertilizantes/
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects



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THE SUMMARY

PROJECT TITLE	Iron Ore Pelletizing plant
<i>Project Overview</i>	Potential project for Iron Ore Pelletizing plant in Açu Port.
<i>Additional Information</i>	N/A
<i>Project Location</i>	São João da Barra, Rio de Janeiro
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	US\$ 810 millions
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Not started.
<i>Institution responsible for the project</i>	Açu Port
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açu. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br/negocio/fertilizantes/
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects



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PROJECT TITLE	HBI plant
<i>Project Overview</i>	Potential project for HBI (hot briquetted iron) plant in Açu Port.
<i>Additional Information</i>	N/A
<i>Project Location</i>	São João da Barra, Rio de Janeiro
<i>Sectors</i>	Renewable /Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	US\$ 770 millions
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Not started.
<i>Institution responsible for the project</i>	Açu Port
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açu. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br/
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects

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PROJECT TITLE	Photovoltaic Solar Energy Cooperative - Cosolar
<i>Project Overview</i>	Project with 150 solar panels instalated to charge the cities of São João da Barra, Macaé and Campos de Goytcazes.
<i>Additional Information</i>	N/A
<i>Project Location</i>	São João da Barra, Rio de Janeiro
<i>Sectors</i>	Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	MOA/MOU - Memorandum of Agreement signed between Açú Port and Equinor
<i>Institution responsible for the project</i>	Açú Port and Equinor
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açú. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br/
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects

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PROJECT TITLE	Small Refinery Plant at Açu Port
Project Overview	Refinery there with an initial production capacity of 20 thousand barrels per day of light derivatives.
Additional Information	N/A
Project Location	São João da Barra, Rio de Janeiro
Sectors	Refinery (CNAE 19.2)
Total Project Cost	US\$ 300 millions
Procurement	Private
Nature of investment	Private
Timeframe	Signed agreement with Açu Port Still a Project, but intended to start operating in 2024
Institution responsible for the project	Oil Group
Address	R. México, 3 - Centro, Rio de Janeiro - Rio de Janeiro, CEP 20031-144
Website	https://oilgroup.com.br/en/oil-group-us-will-construct-refinery-in-porto-do-acu-brazil/
Project Coordinator	N/A

N/A = no information available

Other Projects

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PROJECT TITLE	Spot Project at Açú Port
<i>Project Overview</i>	Construction of 12 oil tanks, with a total capacity of 5.7M bbl and two pipelines.
<i>Additional Information</i>	N/A
<i>Project Location</i>	São João da Barra, Rio de Janeiro
<i>Sectors</i>	Oil (CNAE 06)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Advanced stage of development and licensing
<i>Institution responsible for the project</i>	Açú Port
<i>Address</i>	Fazenda Saco Dantas, s/nº. Porto do Açú. São João da Barra/Rio de Janeiro. CEP 28200-000.
<i>Website</i>	https://portodoacu.com.br
<i>Project Coordinator</i>	N/A

N/A = no information available

Other Projects

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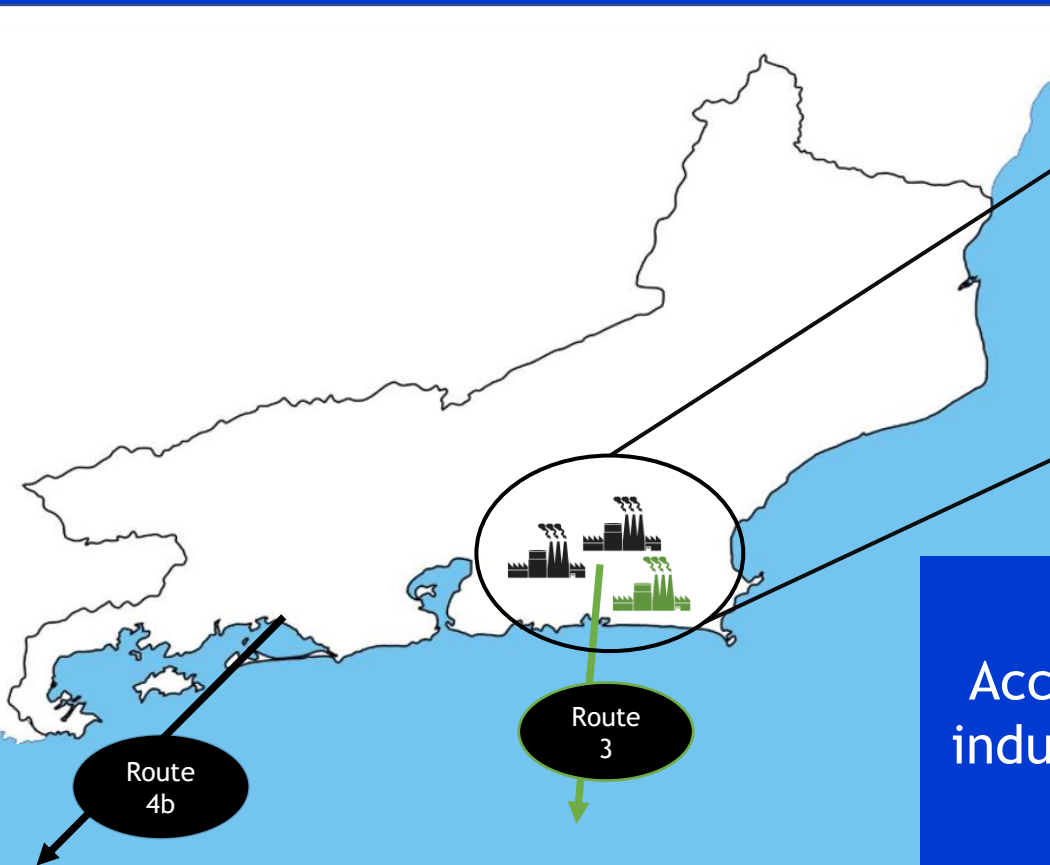
PROJECT TITLE		Macaé Port Terminal - Tepor
<i>Project Overview</i>	It will be a highly specialized terminal, to efficiently meet the demand of the industry to support oil and gas activities, in addition to presenting solutions for cargo transport from other sectors, as well as a Natural Gas Processing Plant.	
<i>Additional Information</i>	N/A	
<i>Project Location</i>	Macaé, Rio de Janeiro	
<i>Sectors</i>	Water Transport and Port (CNAEs 52.3 and 3317-1)	
<i>Total Project Cost</i>	US\$ 0.19 billions *	
<i>Procurement</i>	Private	
<i>Nature of investment</i>	Private	
<i>Timeframe</i>	Not started	
<i>Institution responsible for the project</i>	The company ENEVA showed intention to buy the Project.	
<i>Address</i>	Rod. Amaral Peixoto, 20519 - Lagomar, Macaé - Rio de Janeiro, CEP 27965-250	
<i>Website</i>	https://tepor.com.br/	
<i>Project Coordinator</i>	N/A	

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Other Natural Gas Projects in Rio

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GasLub Cluster

NGPP completion phase

Projects: Natural Gas Power plant and Lubricant Unit
Potential: Fertilizers and other industries

Other Mapped Projects

According to the Rio de Janeiro Natural Demand Mapping*, industries estimate around US\$ 2.9 billions** in investments in the next 10 Years.

**more details are under NDAs*

*** exchange rate of 5.12 R\$/US\$ on March 14th 2022*

projects that have already been developed are marked in green

Natural Gas Projects



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PROJECT TITLE	Route 4b
<i>Project Overview</i>	From Bacalhau field to Itaguaí Port.
<i>Additional Information</i>	Pipe capacity 20 MMm ³ /d and length of 299 km.
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	US\$ 0.87 billions*
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA
<i>Institution responsible for the project</i>	Equinor
<i>Address</i>	R. do Russel, 802 - Glória, Rio de Janeiro - Rio de Janeiro, CEP 22210-010
<i>Website</i>	https://www.equinor.com.br/pt/section/topic/bacia-de-campos.html
<i>Project Coordinator</i>	N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Natural Gas Projects

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PROJECT TITLE	Natural Gas Processing Plant for Route 4b
<i>Project Overview</i>	Natural Gas processing plant for route 4b
<i>Additional Information</i>	Potential for a Natural Gas Processing Plant as well
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Natural Gas (CNAE 35.2)
<i>Total Project Cost</i>	US\$ 0.68 billions* (EPE estimates)
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Project Licensed by IBAMA
<i>Institution responsible for the project</i>	Equinor
<i>Address</i>	R. do Russel, 802 - Glória, Rio de Janeiro - Rio de Janeiro, CEP 22210-010
<i>Website</i>	https://www.equinor.com.br/pt/section/topic/bacia-de-campos.html
<i>Project Coordinator</i>	N/A

N/A = no information available

*Exchange rate R\$5,12 on March 14th 2022.

Natural Gas Projects

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PROJECT TITLE	Petrobras Natural Gas Power Plant
<i>Project Overview</i>	Natural gas power plant at Gaslub Cluster.
<i>Additional Information</i>	N/A
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Power Generation (CNAE 35.1)
<i>Total Project Cost</i>	N/A
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase
<i>Institution responsible for the project</i>	Petrobras
<i>Address</i>	Av. República do Chile, nº 65 - Centro, Rio de Janeiro, RJ - CEP 20031-912
<i>Website</i>	https://petrobras.com.br/pt/nossas-atividades/principais-operacoes/refinarias/polo-gaslub-itaborai.htm
<i>Project Coordinator</i>	N/A

N/A = no information available

Natural Gas Projects



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PROJECT TITLE	Petrobras Lubricant Unit
<i>Project Overview</i>	Construction of lubricant plant at Gaslub Cluster.
<i>Additional Information</i>	Construction of a lubricant processing plant, based on interconnections of some units of the Complex with the Duque de Caxias Refinery - Reduc, allowing the production of high-quality lubricants and fuels from intermediate products of the refinery.
<i>Project Location</i>	Rio de Janeiro
<i>Sectors</i>	Lubricants, Refinery, Oil (CNAE 19.1)
<i>Total Project Cost</i>	US\$ 590 millions
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Research phase - it is expected for 2025
<i>Institution responsible for the project</i>	Petrobras
<i>Address</i>	Av. República do Chile, nº 65 - Centro Rio de Janeiro, RJ - CEP 20031-912
<i>Website</i>	https://petrobras.com.br/pt/nossas-atividades/principais-operacoes/refinarias/polo-gaslub-itaborai.htm
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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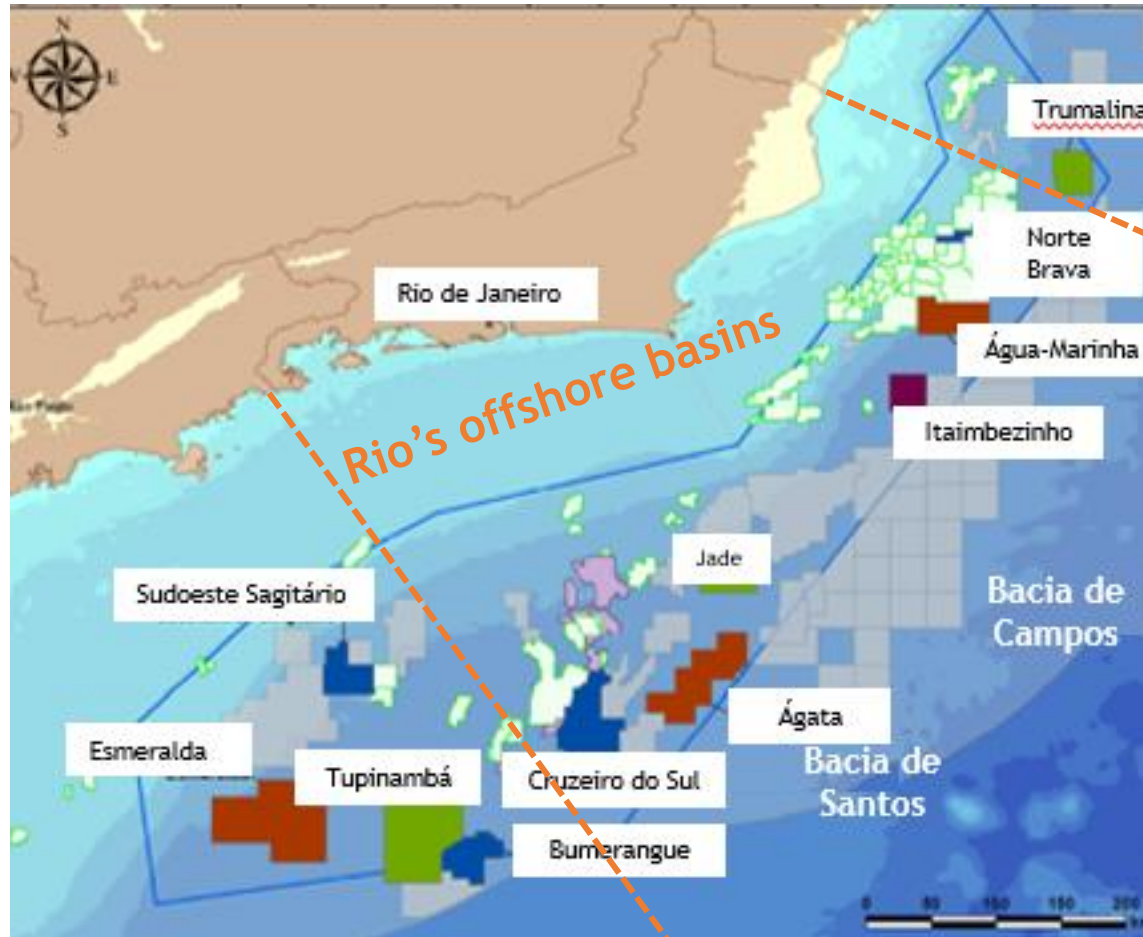


Image Source : MME

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Ágata Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was scheduled for the 7th and 8 th BID for Production Sharing Round
<i>Project Location</i>	Santos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150 billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Água Marinha Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was scheduled for the 7th and 8 th BID for Production Sharing Round
<i>Project Location</i>	Santos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150 billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Jade Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was scheduled for the 7th and 8 th BID for Production Sharing Round
<i>Project Location</i>	Santos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Itaimbezinho Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was not bought in the BID 4th and 6th for the Production Sharing Regime
<i>Project Location</i>	Campos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150 billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Norte de Brava Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was not bought in the BID 4th and 6th for the Production Sharing Regime
<i>Project Location</i>	Campos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150 billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Open Acreage

11 offshore blocks from Pre - Salt



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PROJECT TITLE	Cruzeiro do Sul Block
<i>Project Overview</i>	Exploration and production for oil, gas and hydrocarbon
<i>Additional Information</i>	This block was not bought in the BID 4th and 6th for the Production Sharing Regime
<i>Project Location</i>	Santos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$150 billions - ANP declared that together all 11 blocks could bring a total investment of US\$ 150 billions https://www.gov.br/economia/pt-br/orgaos/seppi/noticias-1/governo-autoriza-a-inclusao-de-11-blocos-exploratorios-das-bacias-de-campos-e-santos-na-oferta-permanente
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Fev/22 - Public Notice and Minutes are in approval by MME
<i>Institution responsible for the project</i>	N/A
<i>Address</i>	N/A
<i>Website</i>	https://www.gov.br/anp/en/rounds-anp/open-acreage/open-acreage
<i>Project Coordinator</i>	N/A

N/A = no information available

Petrobras Divestments



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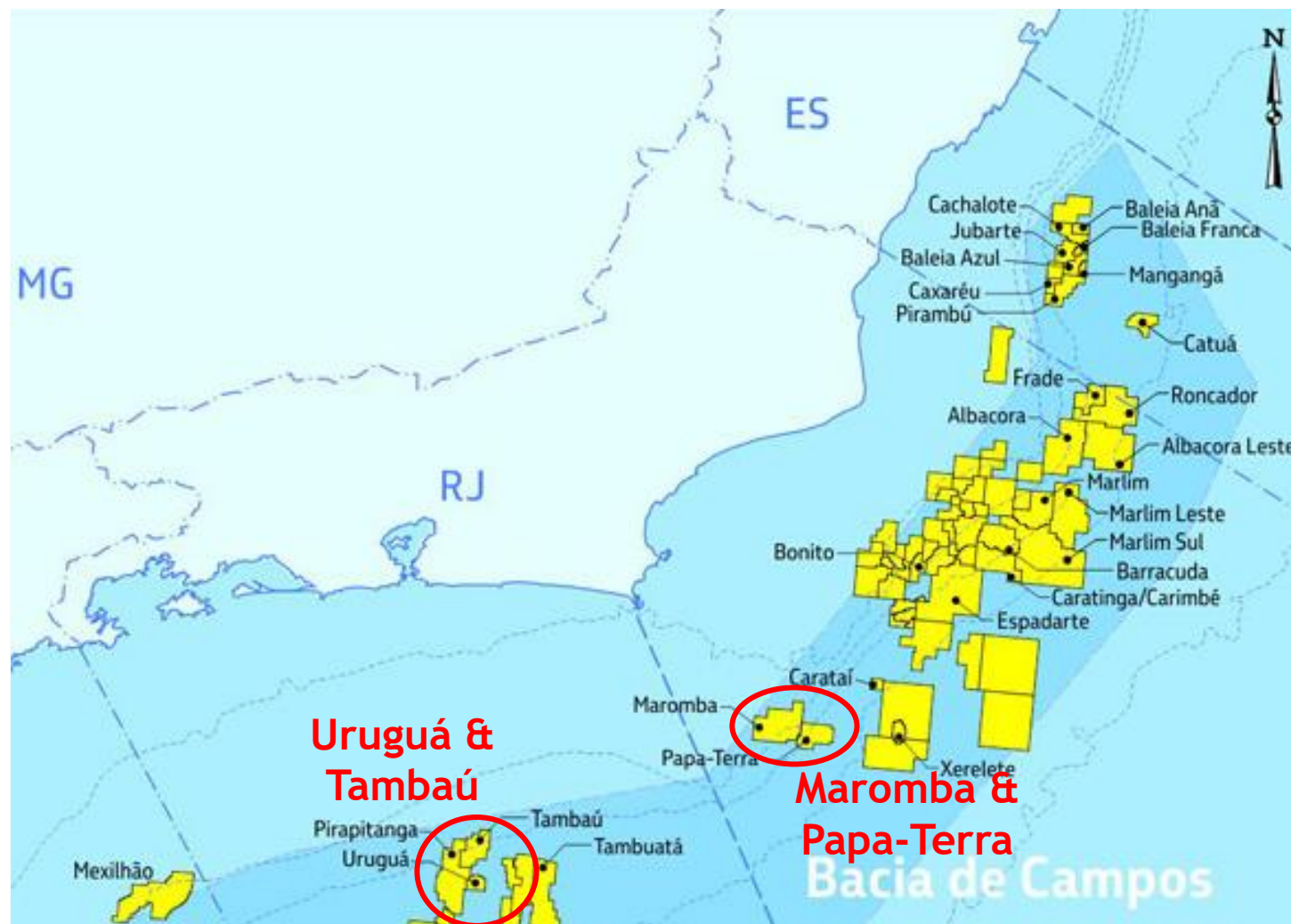


Image source: Petrobras

Petrobras Divestments

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PROJECT TITLE		Albacora, Albacora Leste, Uruguá, Tambaú and Shallow and Deep-water Fields
<i>Project Overview</i>		Exploration and production assets for those blocks.
<i>Additional Information</i>		N/A
<i>Project Location</i>		Campos basin, Rio de Janeiro
<i>Sectors</i>		Oil and Gas (CNAE 06)
<i>Total Project Cost</i>		N/A
<i>Procurement</i>		Private
<i>Nature of investment</i>		Private
<i>Timeframe</i>		Binding phase
<i>Institution responsible for the project</i>		N/A
<i>Address</i>		N/A
<i>Website</i>		https://www.investidorpetrobras.com.br/en/results-and-announcements/teasers/
<i>Project Coordinator</i>		N/A

N/A = no information available

Petrobras Divestments



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PROJECT TITLE	Papa-Terra Field
<i>Project Overview</i>	Exploration and production assets
<i>Additional Information</i>	It started its operation in 2013 and its average oil and gas production in 2021 was 17.9 T boe/day, through two platforms, P-61 and P-63. Petrobras is an operator of the field, with a 62.5% stake, in partnership with Chevron, with 37.5%
<i>Project Location</i>	Campos basin, Rio de Janeiro
<i>Sectors</i>	Oil and Gas (CNAE 06)
<i>Total Project Cost</i>	US\$ 105,6 millions
<i>Procurement</i>	Private
<i>Nature of investment</i>	Private
<i>Timeframe</i>	Signed waiting for closing
<i>Institution responsible for the project</i>	3R Petroleum
<i>Address</i>	R. Visc. de Ouro Preto, 5 - Botafogo, Rio de Janeiro - RJ, CEP 22250-180
<i>Website</i>	https://www.3rpetroleum.com.br
<i>Project Coordinator</i>	N/A

N/A = no information available



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