

2024



Offshore Technology Conference

LEADING THE GLOBAL ENERGY EVOLUTION

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**Broken Supply Chains: the quest to implement the World's
Largest Deepwater Production Development Portfolio**

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A Production System installed in deepwater contains multiple technical challenges of enormous complexity

TOPSIDE

- FPSO

LOGISTICS

- Aircrafts
- Maritime support vessels

SUBSEA SYSTEM

- PLSVs
- Other vessels
- Flexible lines
- Rigid pipelines
- Wet Christmas Trees

WELLS

- Rigs
- Materials and services for wells

FLOATING PRODUCTION STORAGE AND OFFLOADING (FPSO)

ANCHOR HANDLING TUG SUPPLY (AHTS)

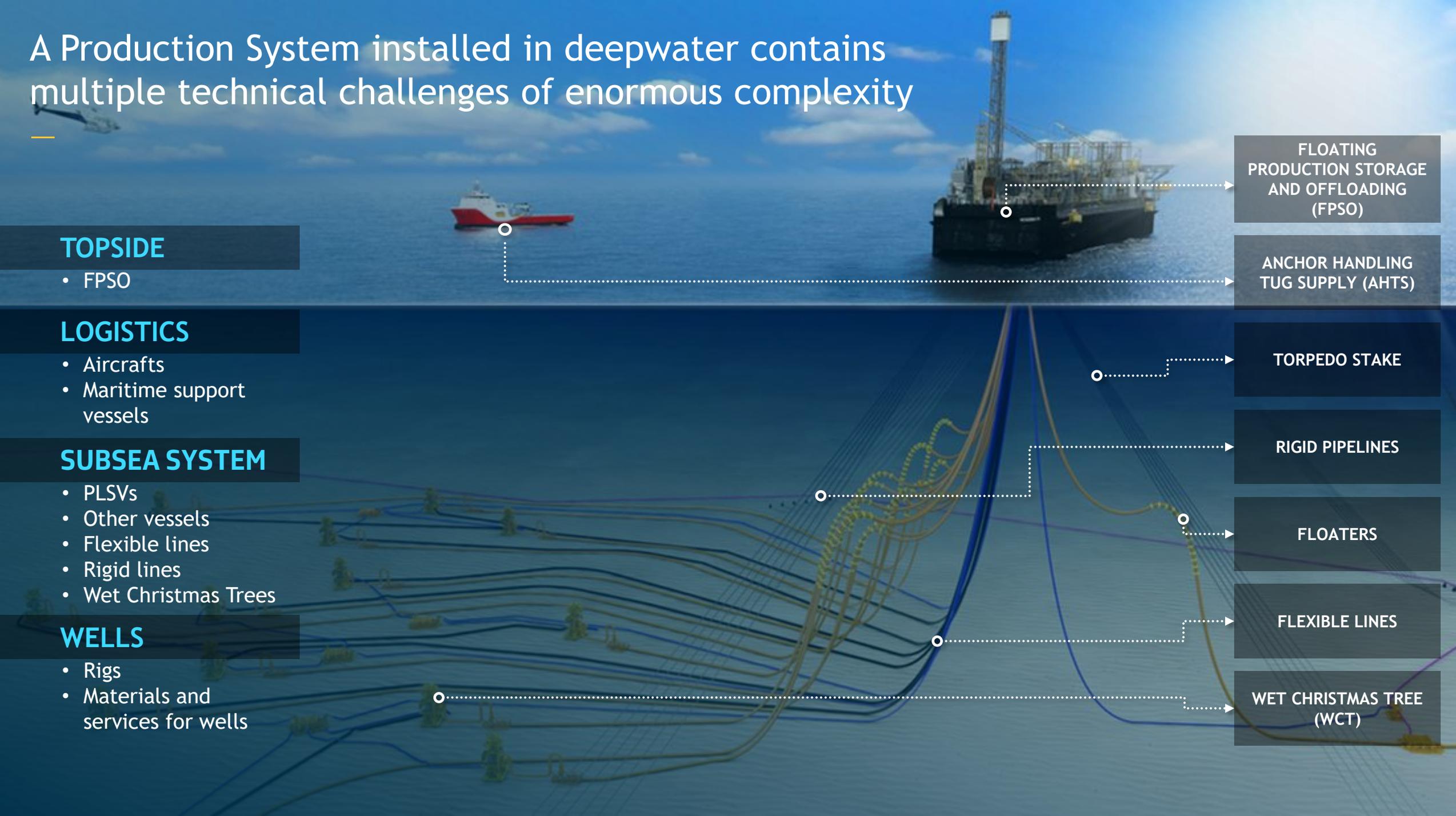
TORPEDO STAKE

RIGID PIPELINES

FLOATERS

FLEXIBLE LINES

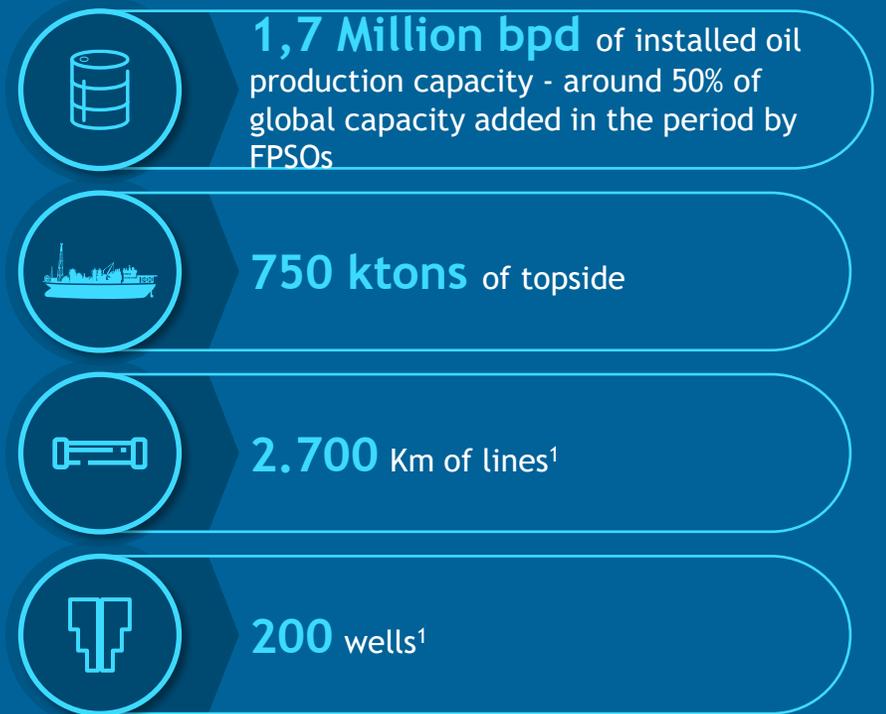
WET CHRISTMAS TREE (WCT)



In the last 5 years we have implemented 12 new production systems



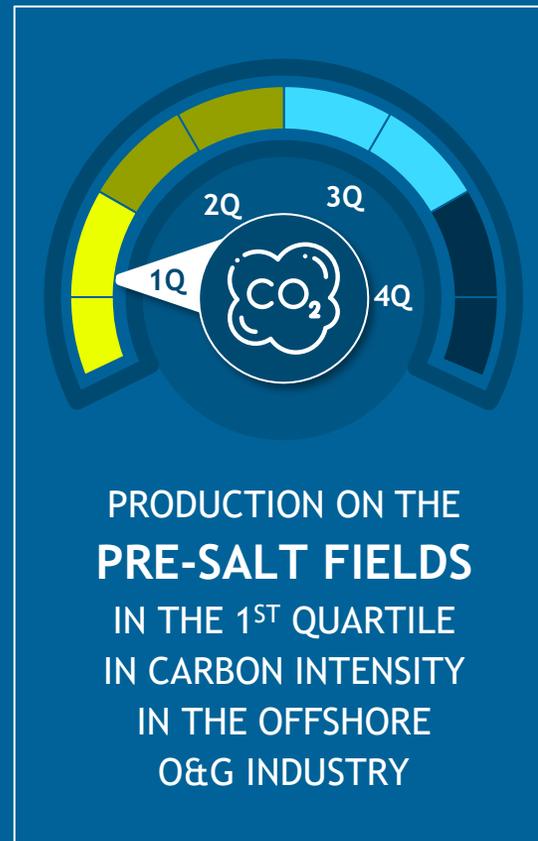
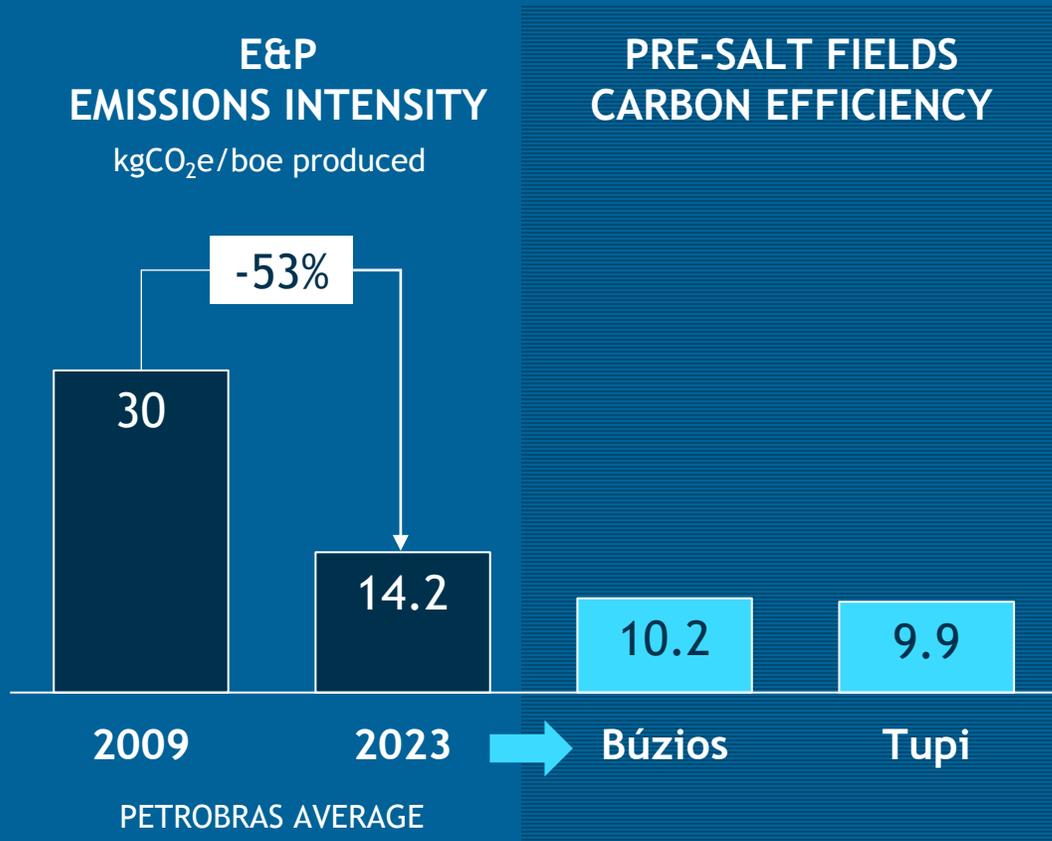
A relevant result representing nearly



Total scope of the systems presented, including lines to be laid and wells to be interconnected.

And we have increased the decarbonization of our oil

PETROBRAS IS AMONG THE MOST CARBON EFFICIENT IN THE WORLD



Results of past technological choices

Low flaring and high gas utilization
Gas utilization index
97.6% in 2023

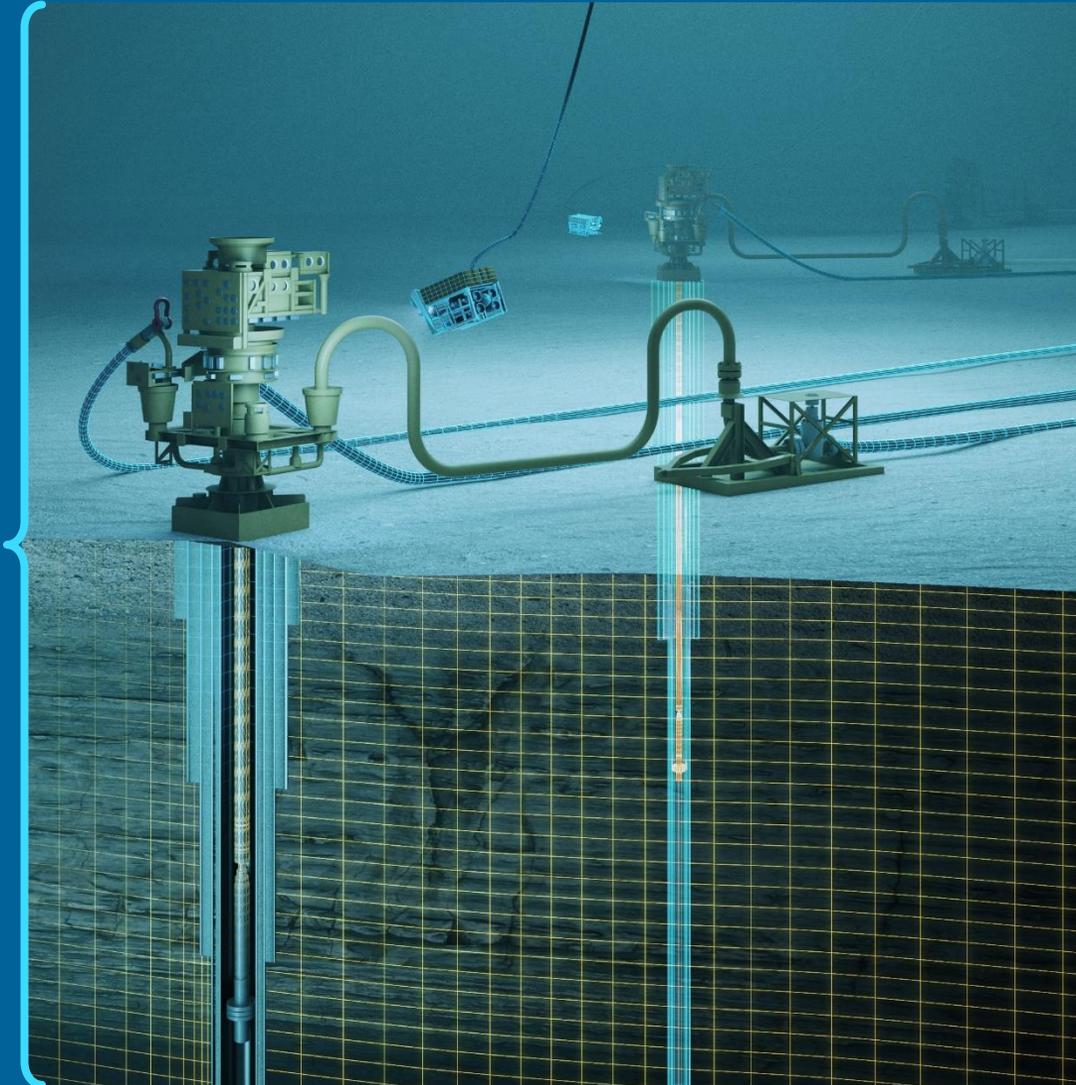
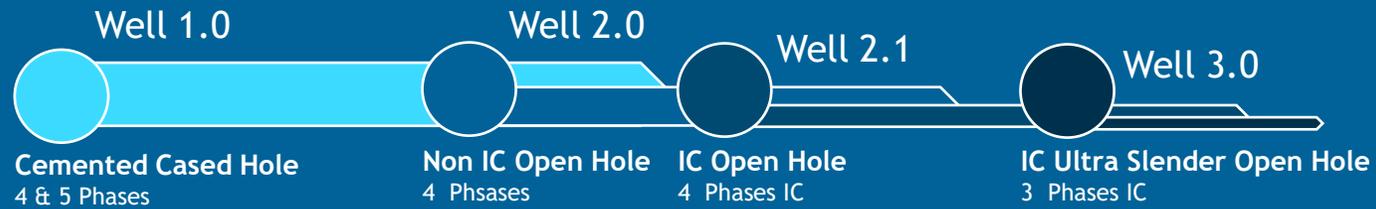
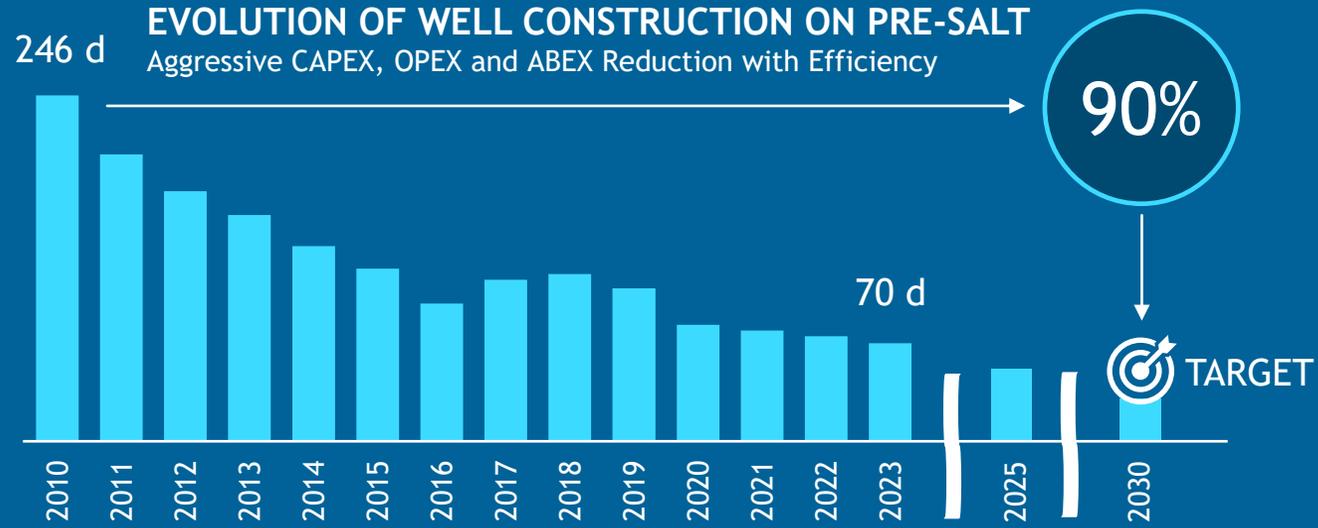


FPSO Project design progress



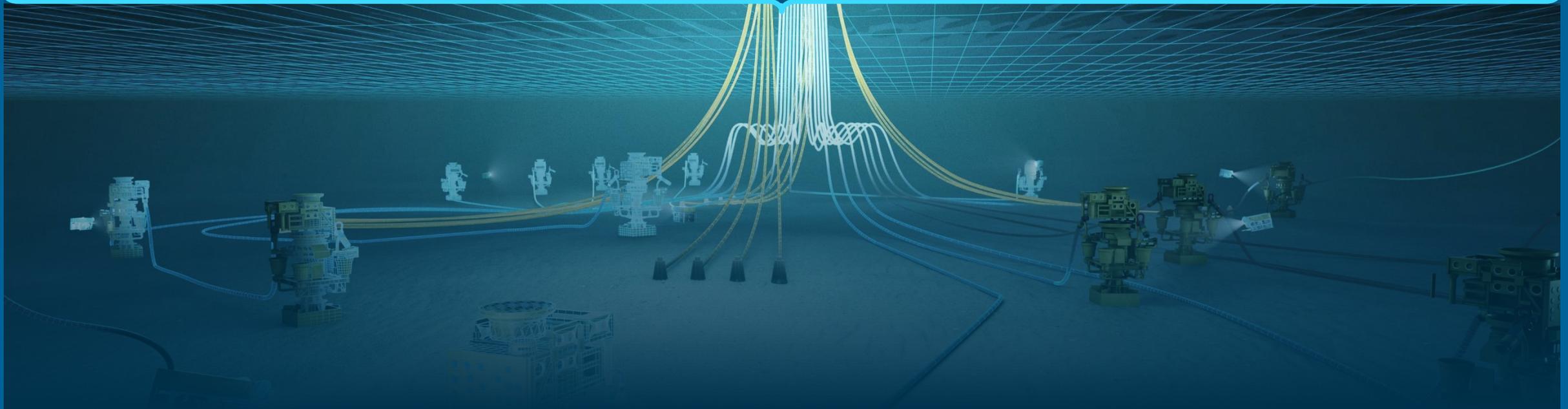
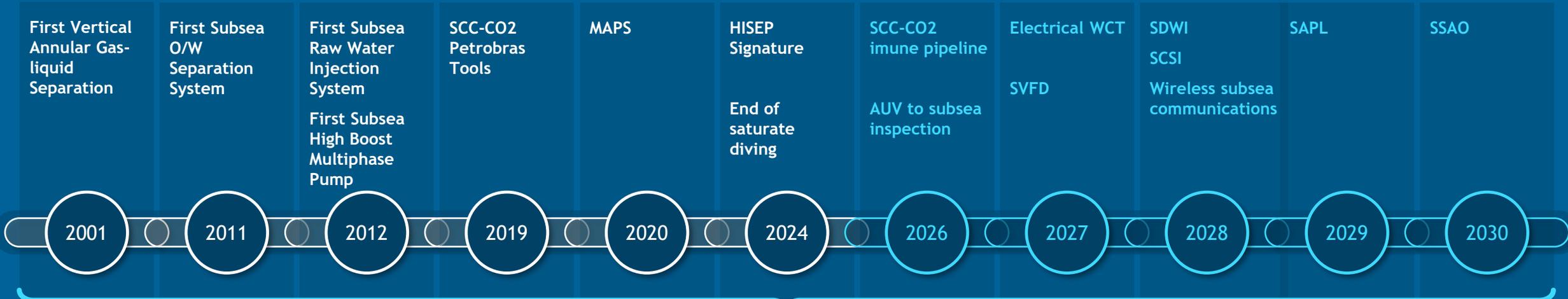
	PROCESSING CAPACITY (O&G)		2000	<180 kbpd <6 M Nm ³ /d	2010	150 - 180 kbpd 7 M Nm ³ /d	2020	180 - 225 kbpd 12 M Nm ³ /d	2030+
	CONTAMINANTS	H ₂ S		<70 ppmv		<170 ppmv		200 - 400 ppmv	
		CO ₂		<5%		<60%		<60%	
	GAS PRESSURE			<200 bar		<550 bar		>550 bar	
	POWER DEMAND			<75 MW		<100 MW (+ ~25MW TC ¹)		>150 MW	
	GHG EMISSION ²			<30 kgCO ₂ e/boe		<25 kgCO ₂ e/boe		<15 kgCO ₂ e/boe	
	TOPSIDES DRY WEIGHT			10 - 15 kt		20 - 30kt		40 - 60 kt	

Wells configuration progress



Subsea Innovations progress

A movement towards decarbonization with improved efficiency and safety of operations



Our challenges for the next years



New Production Frontiers - Equatorial Margin and Pelotas Basin



Cost Resilience



Complex Complementary Projects



Improve Operations & Production Efficiency and reduce Risk exposure



Energy Transition & Decarbonization

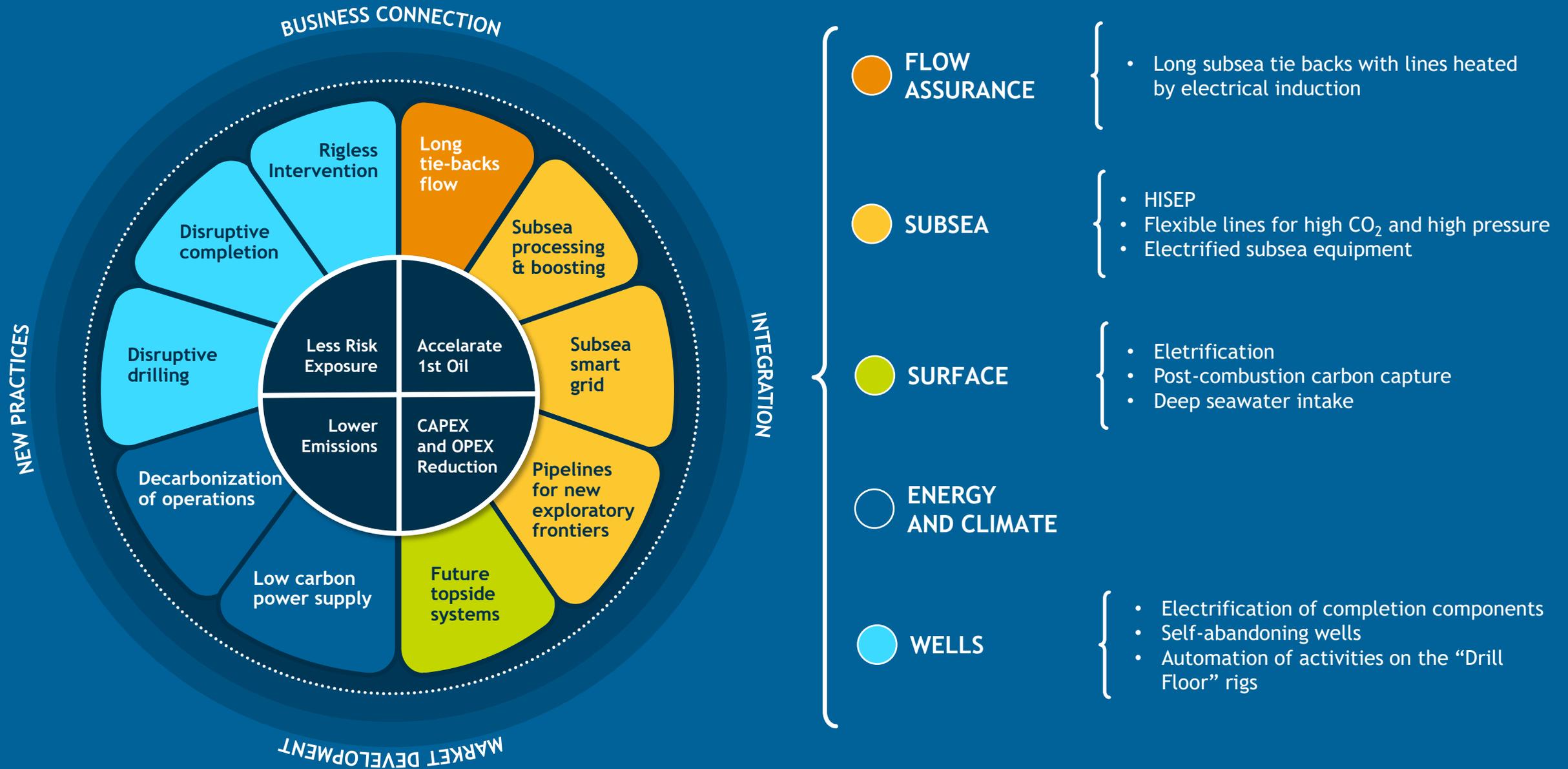


Decommissioning

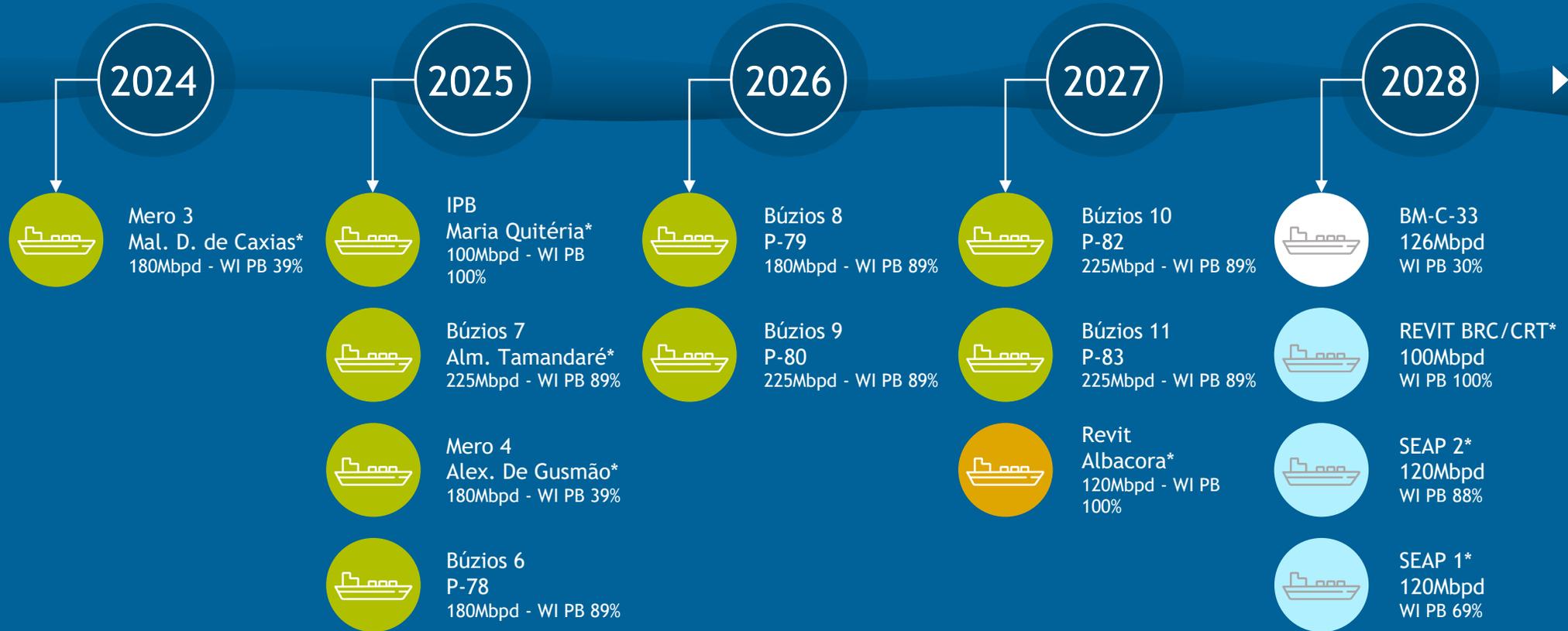


Opportunities for Innovation
R&D PORTFOLIO - E&P USD 2.3 billion (2024-2028)

Production system of the future technological initiative

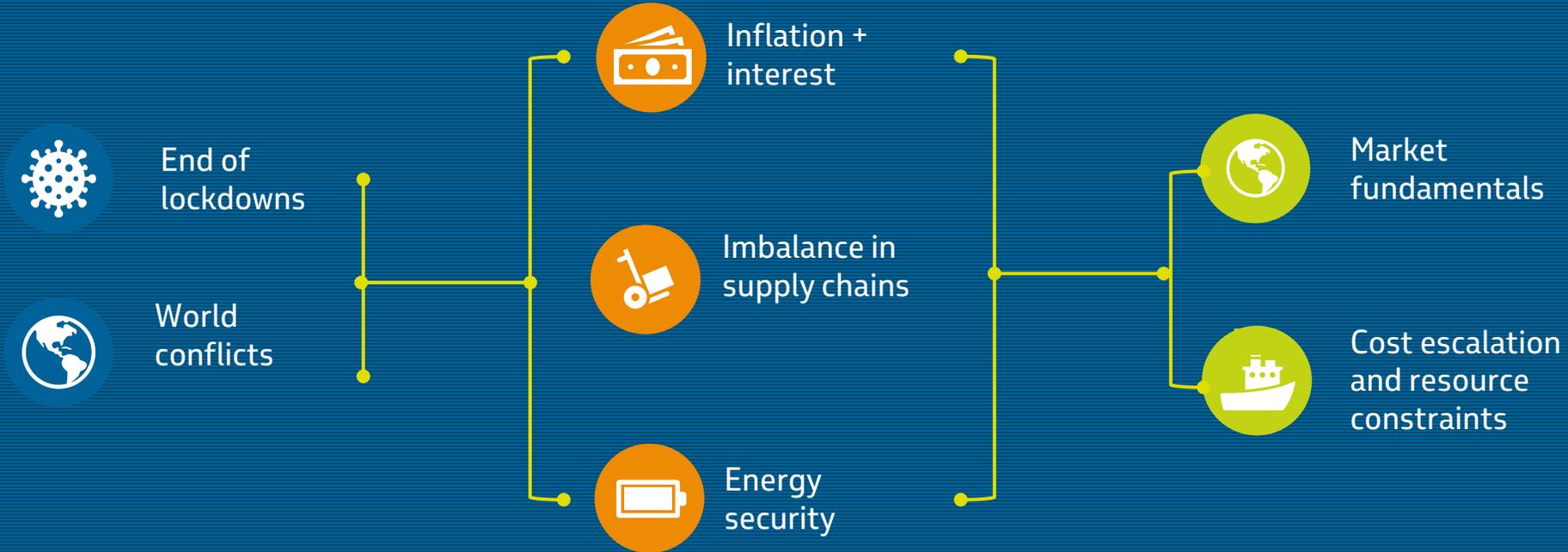


We will add 14 Production Systems in the 2024-2028 period



- Chartered units
- Pre-salt under implementation
- Pre-salt under procurement
- Post-salt under procurement
- Non-operated

Our procurements happen in a more challenging context



**PETROBRAS
ANSWERS**



Supply Market Partnerships

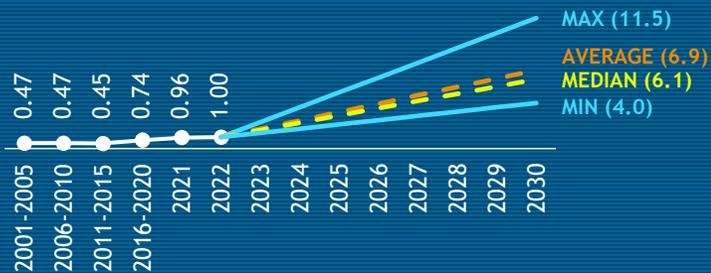
Search for efficiency

Technological innovations

The required increase in investment in clean energy may put pressure on the ratio of clean energy financing

Energy supply investments

RANGE OF ENERGY SUPPLY INVESTMENT RATIOS TO 2030

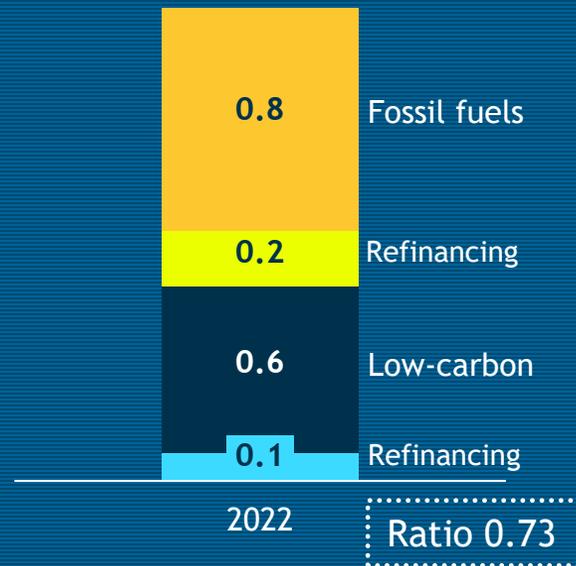


In 2022, investment activity reached parity between fossil fuels and low-carbon supply (Ratio 1)

The pace or scale required for the Paris agreement (limit global warming to 1.5C.) is to hit minimum 4:1

Energy supply financing

US\$ 1,7 trillion



In 2022, financing for low-carbon energy was 73% of that for fossil fuels

In 2024, American pension funds have filed shareholder proposals for some of the largest banks to fully report their ratios of clean energy to fossil fuel finance, as an essential part of their climate transition commitments

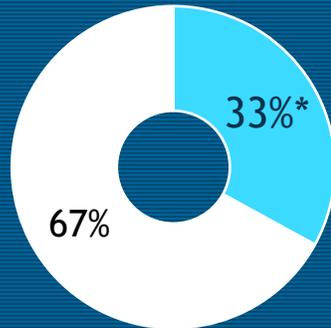
Source: Blommborg NEF - Citi, JPMorgan First Adopters of Energy Finance Ratio, 2024

Substantial project portfolio over the next 5 years: FPSO and Pipelines



14
NEW FPSOS

NEW FPSO: 2024-2028



■ NEW FPSOs PETROBRAS ■ NEW FPSOs OF OTHER PLAYERS

* 33% in absolute numbers, represents ~50% in production capacity of global demand

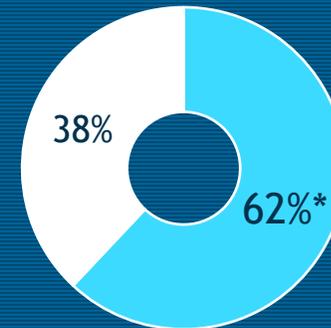
FINANCEABILITY CHALLENGE

21 SUPPLIERS BETWEEN EPCISTS AND CHARTERERS



~ 8.000 Km
OF PIPELINES TO BE LAID

FLEXIBLE PIPELINES MARKET: 2024-2028



■ PETROBRAS DEMAND ■ TOTAL MARKET CAPACITY

HIGH MARKET DEMAND

3 SUPPLIERS

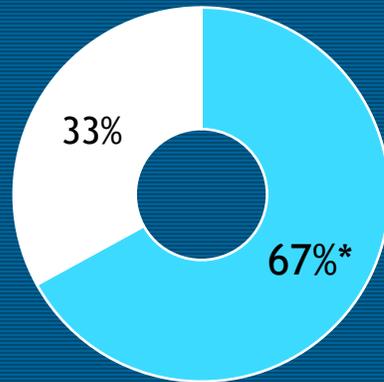
LOW COMPETITION IN THE SUPPLY MARKET

Substantial project portfolio over the next 5 years: Rigs



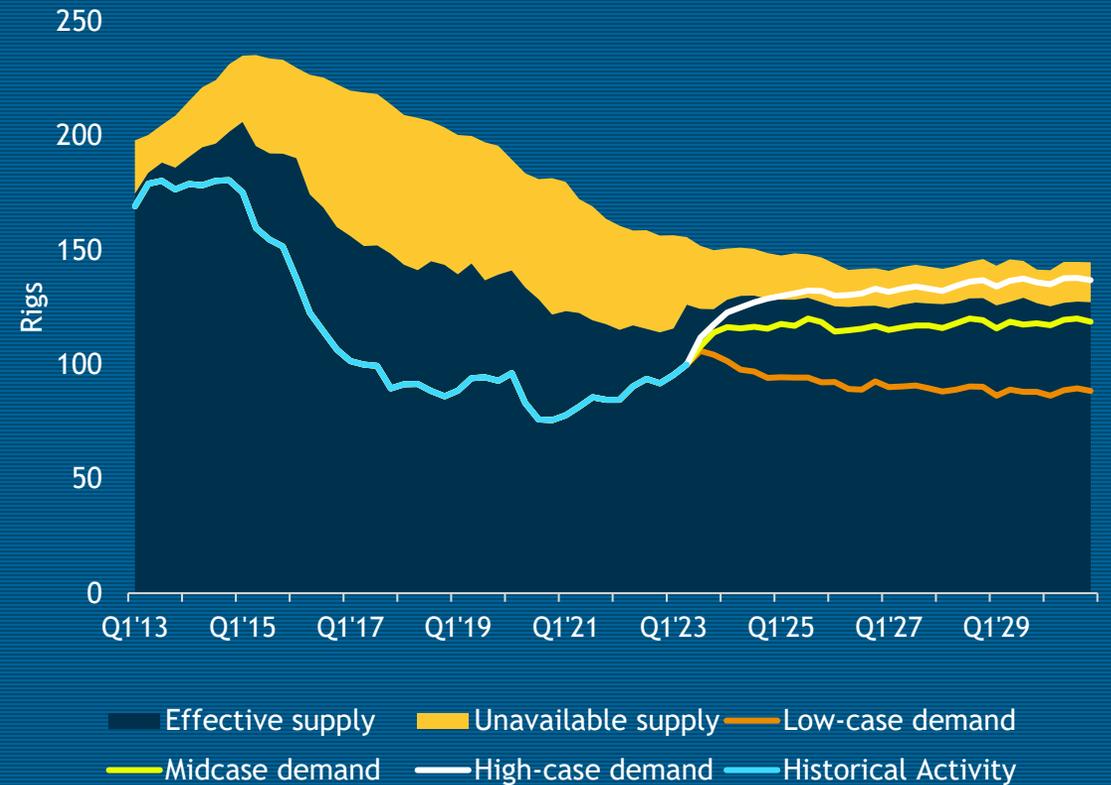
>350
OFFSHORE PRODUCTION DEVELOPMENT WELLS

RIGS MARKET: 2026-2027¹



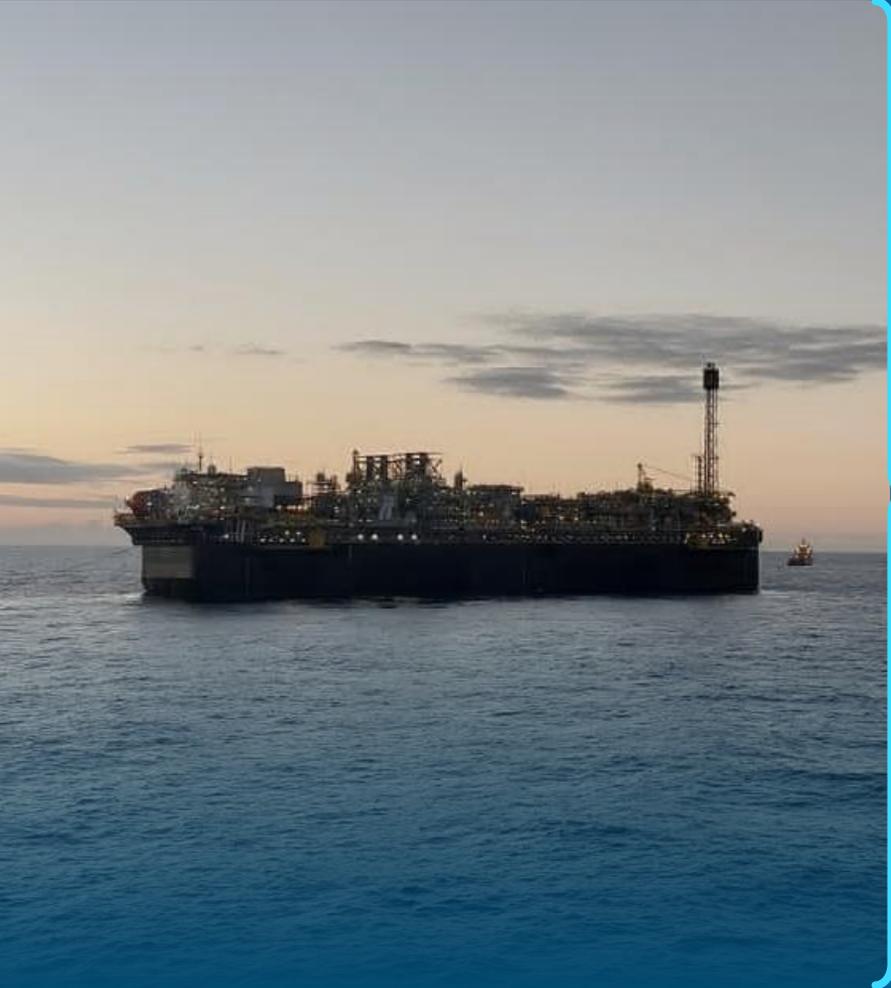
- PETROBRAS DEMAND
- AVAILABLE ON THE GLOBAL MARKET WITH REQUIREMENTS TO MEET PETROBRAS

DEEPWATER RIG SUPPLY AND DEMAND FORECAST



¹ For the initial years, the resources needed by Petrobras are already contracted | Sources: S&P Global Commodity Insights, IHS and Petrobras

Several initiatives seek to guarantee successful contracting of our next FPSOs



Purpose of promoting the competitiveness and attractiveness of contracting processes through actions involving optimization of FPSO projects and improvement of contracting processes

Mapping
attractiveness
constraint
factors

Structuring
action plans
focused on
factors



Initiatives to assure availability of subsea equipment are critical to successful project execution



Initiatives aiming to guarantee the supply of critical components and services of subsea systems throughout the entire life cycle of production fields



Strategy and Planning

- Integrated Planning, in “Real Time”
- Probabilistic Based Demand Analysis



Supply Chain Management

- “Market Intelligence”
- Development of New Suppliers



Engineering and Standardization

- Standardization of Subsea Lines and Equipment
- Maximization of the use of Digital Tools



Inventory Management

- Inventory Optimization
- Reutilization of Flexible Pipelines

Initiatives to improve rig availability address challenges in a changing market context

Change in the supplier's market context

Campaign plan maximizing the use of resources

Rig's Market Intelligence

STRATEGY



Go to the market at the proper timing

CONTRACTING



Prior analysis of companies' technical capacity

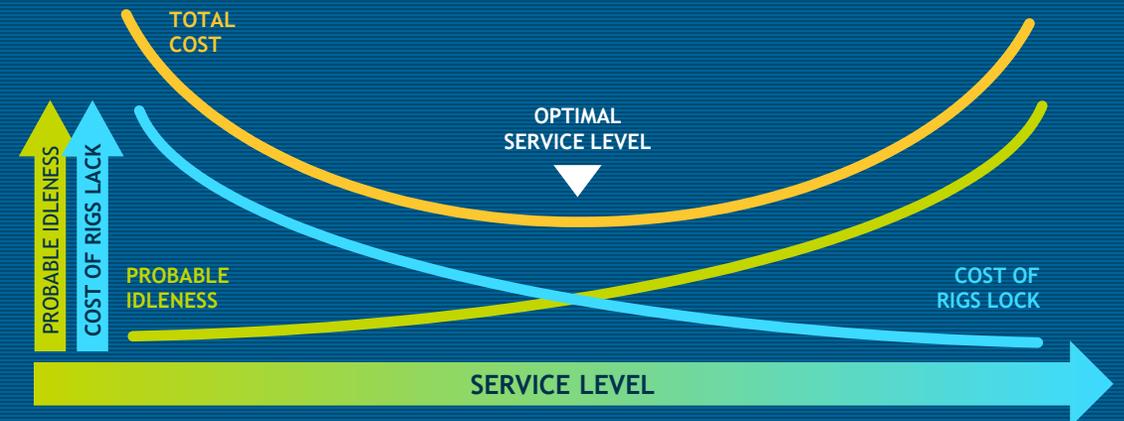
PREDICTABILITY



Expected rig intake's time based on recent events (heated market)

Broader rigs specifications to ensure greater flexibility to comply with the portfolio

DIMENSIONING



Optimal fleet cost maximizing project value

Petrobras contracting cases

DESING ONE, BUILD MANY

3 FPSOs contracted in a single procurement process

Petrobras “High Capacity” Basic Design

Relevant market players



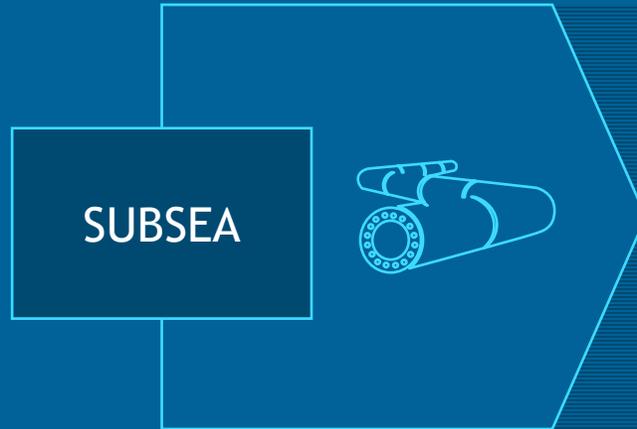
BUZIOS

SCC-CO2 IMMUNE FLEXIBLE PIPELINE

Contracting through pre-commercial procurement - model of joint development

Direct negotiations with 4 companies

Expected contract signing for 2H24 and 1st qualification for 2026



SUBSEA

ON GOING PROCESS

2 Leased FPSOs - Oil Capacity Production of 120 kbpd

Petrobras approved the prioritization of SEAPs platforms for the Merchant Marine Fund (FMM) - up to US\$ 1,6 Bi



SEAP

90% OF THE NEED ALREADY CONTRACTED

Expected increase in well construction and decommissioning activities for the period 24-28

Fleet increase is required to meet the demand



DRILLRIGS

Technological innovations create solutions



CHALLENGING CONTRACTING SCENARIO

High inflation, less credit offer, supply chain bottlenecks



PETROBRAS HAS A SUCESSFUL AND AWARDED HISTORY

In the development of technological innovations



DESCARBONIZATION PATH

We seek to accelerate the maturity of our suppliers in engaging in decarbonization



INNOVATION

We´ll keeping innovating to create solutions, implementing our megaprojetcs portfolio and overcome supply market challenges

Petrobras was 5 times awarded by OTC

2024

INNOVATIONS IN CAMPOS BASIN

2020

INNOVATIONS IN BUZIOS FIELD

2015

TECHNOLOGIES FOR PRE-SALT

2001

TECHNOLOGIES FOR RONCADOR FIELD

1992

TECHNICAL ACHIEVEMENTS FOR MARLIM FIELD



THE HIGHEST AWARD
IN THE GLOBAL OIL
AND GAS INDUSTRY



THANK YOU

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