

# OTC2017 //

OFFSHORE TECHNOLOGY CONFERENCE  
1-4 May 2017 \\ Houston, Texas, USA \\ NRG Park  
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# LIBRA PROJECT

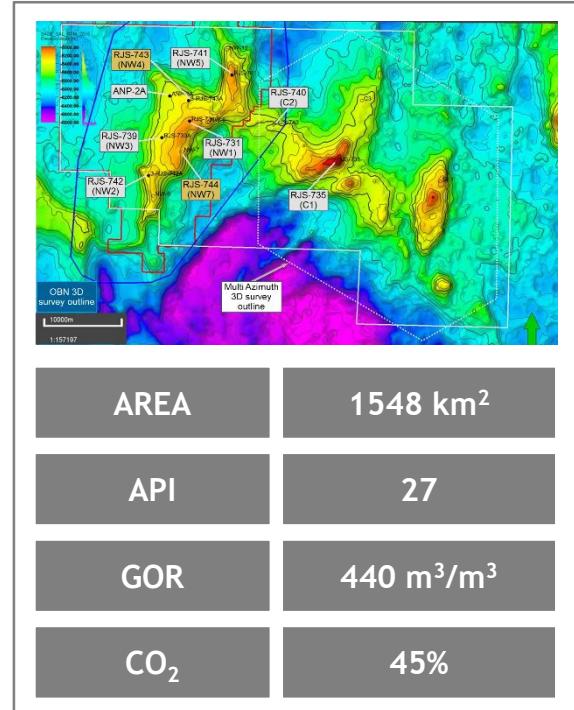
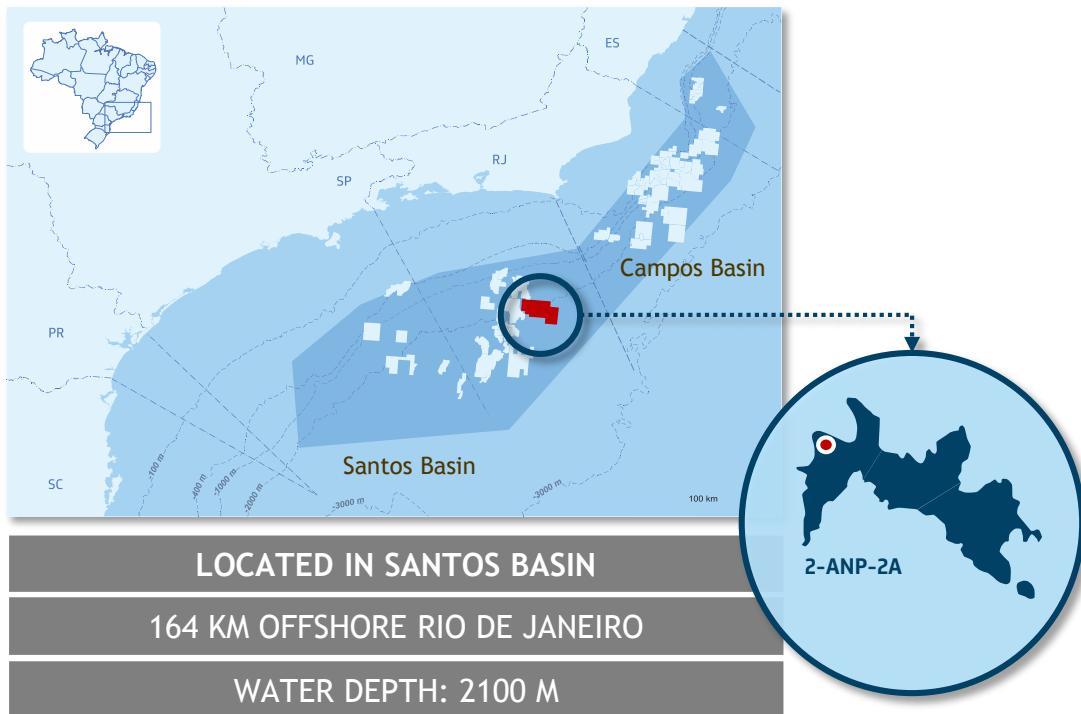
## Reducing Breakeven and Preparing for First Oil

Fernando Borges, Libra Project, Petrobras

Joint Venture Operator



# LIBRA IS A DEEP-WATER PRE-SALT PROJECT IN A GIANT STRUCTURE



# LIBRA PRODUCTION SHARING CONTRACT (PSC) - OVERVIEW

To maximize the contract's value it is necessary to create drivers to optimize cost recovery

## KEY DEFINITIONS OF CONTRACT

- Total duration of 35 years (not renewable).
- Exploration phase: 4 years, until Dec. 17, (extendable).



Fixed rate of 15 % of total production.

- 50% on the 1<sup>st</sup> and 2<sup>nd</sup> years, after 30%<sup>1</sup>
- Recovery begins after declaration of commerciality; Cost recognition depends on PPSA's approval;
- There is no monetary correction.

Federal Union share (41.65%), varying according to the wells' productivity and Brent price

Consortium's share:



## DRIVERS

- Advancing the commercial production to begin cost recovery
- Synchronizing the expenditure with the cost recovery (e.g. prioritization of charter contracts)
- Maximizing costs recognition to preserve the project's profitability
- Contracting dedicated resources for the project

1. Can be returned to 50% if there are unrecovered costs prior to 2 years

# LIBRA DEVELOPMENT STRATEGY IS DIVIDED IN TWO STAGES:

## DATA ACQUISITION AND PRODUCTION OPERATION

### PHASE 0 - DATA ACQUISITION (2014 - 2020)

#### Seismic

- Reprocessing of existing seismic;
- Acquisition of a new 3D seismic OBN.

#### Wells

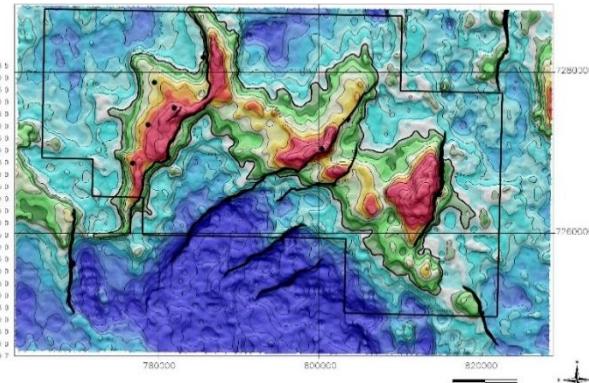
- 11 appraisal wells until Declaration of Commerciality;
- 5 wells between 2018 and 2021.

#### Production systems

- 1 Extended Well Test (EWT);
- 3 Early Production Systems (EPS);
- 1 Production System (Libra 1)

### PHASE 1 - PRODUCTION OPERATIONS (2021 - 2030)

- +3 Production Systems in the NW region
- Potential for deployment of additional production systems in the Central and Southeast regions (to be confirmed by 2019).



# WHAT WE HAVE DONE SO FAR

ACQUISITION OF 1,548 KM2 OF 3D SEISMIC

## WELLS:

	8	drilled
	2	drilling on going
	4	tested
	3	completed



# WHAT WE HAVE DONE SO FAR

2 RIGS 6TH GENERATION DP3 DRILLSHIP  
HIRED FOR LIBRA:



West Tellus



West Carina



LIBRA PAD FOR NW AREA (DISCOVERY  
EVALUATION PLAN) WAS SUBMITTED TO ANP.



ACQUISITION OF 4 X-TREES FOR THE EWT AND  
1ST EPS FROM PNBV TO LIBRABV.



# WHAT WE HAVE DONE SO FAR

## OCEAN BOTTOM NODES (OBN) CONTRACTED FOR LIBRA:



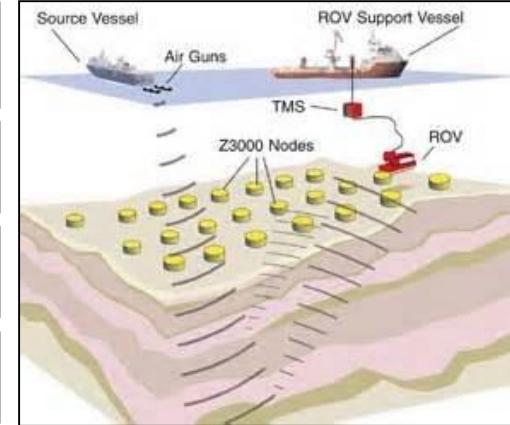
Full Azimuth



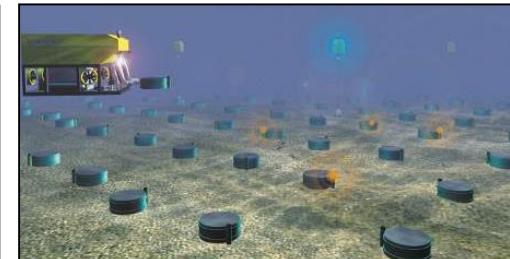
Broadband



Repeatability (4D)

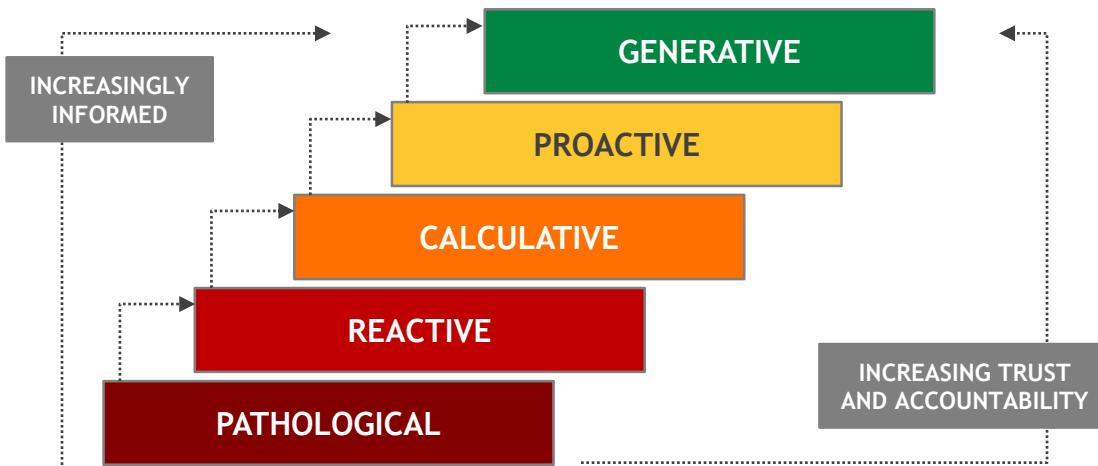
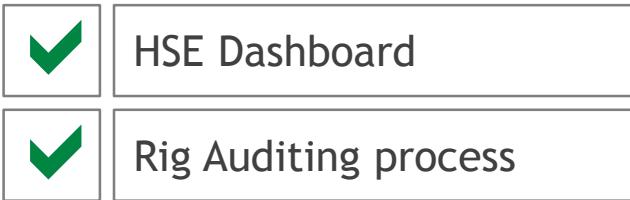


ISSUED PREVIOUS LICENSE (LP) FOR EWT  
WITH ASSOCIATED TECHNICAL OPINION



# WHAT WE HAVE DONE SO FAR

## HSE CULTURE:



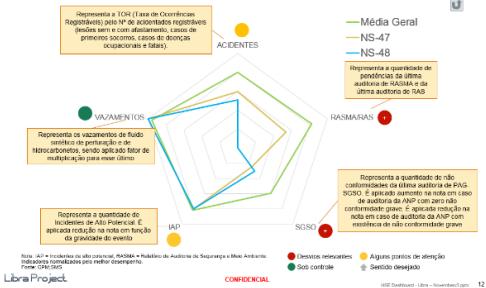
## Dashboard of Safety and Compliance

Updated to October/11

Rig process safety	Libra 15YTD	Goal/ Limit	Status Libra	Well process safety	Libra 15YTD	Goal/ Limit	Status Libra
<b>PRAR</b> % Execution of risk analyses	100%	100%	Green	<b>APIRI</b> Risk analysis compliance index	82,50%	100%	Green
<b>NASP</b> Num. of process safety acc./months	0	0	Green	<b>IMGP</b> Man. changes on wells exec. index	98,20%	100%	Green
<b>DRS</b> Drill program compliance index	98,26%	>90%	Green	<b>ICKC</b> Average number of kicks per well	0	0	Green
<b>IPoP</b> HSE incidents: dropped obj./month	0,42	<5,50 (total) 0,24 (Libra)	Yellow	<b>IEFP</b> Well Closing Efficiency / Index	95,83%	100%	Green
<b>Occupational safety</b>	Libra 15YTD	Meta/ Libra	Status Libra	<b>ICCP</b> Certification index in Well Control	96,32%	100%	Green
<b>TOR</b> Total recordable case frequency	9,14	<11,2	Yellow	<b>Compliance / Integrity</b>	Libra 15YTD	Goal/ Limit	Status Libra
<b>TECA</b> Lost time incident frequency	3,66	<14	Red	<b>TNC/ans</b> Non-compliance with ANP regulation	2	0	Yellow
<b>NAISO</b> # Infections: working environment	100%	100%	Green	<b>NAHSO</b> Number of infections on <b>ope</b> safety	0	0	Green
<b>Safety Pentagon</b>				<b>NAHSO</b> Number of infections on <b>ope</b> safety	0	0	Green

## Pentágono de Segurança

Resultado do Pentágono para a Carteira e Libra – Até Out/13



# WHAT WE HAVE DONE SO FAR

EWT FPSO SAILED AWAY FROM SINGAPORE



# WHAT WE HAVE DONE SO FAR

## PILOT FPSO CALL FOR TENDER:



The FPSO will have 180k bpd oil capacity, 12MMm<sup>3</sup>/d gas capacity and 225k bdp water injection capacity, and is certainly among the most complex FPSO projects in the industry.



# WHAT WE HAVE DONE SO FAR

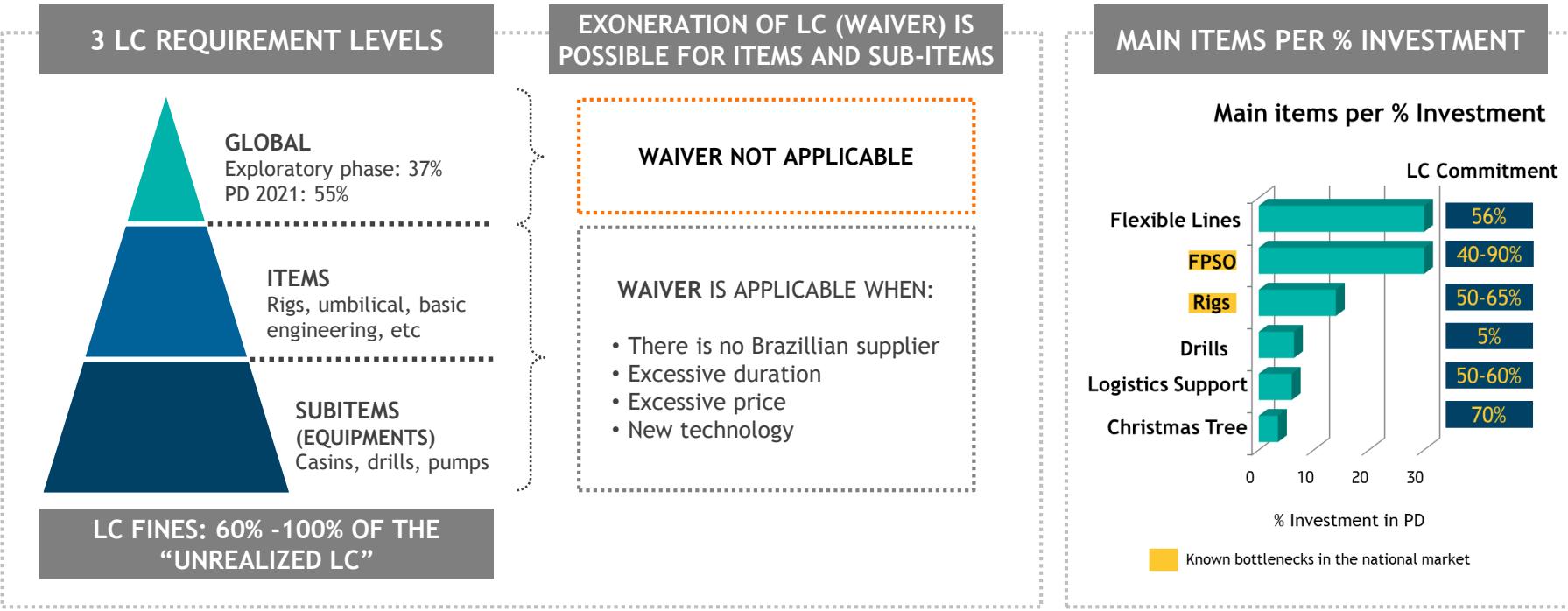
ISSUED INSTALLATION LICENSE (LI) FOR EWT WITH ASSOCIATED TECHNICAL OPINION

BEGINNING OF MOORING AND SUBSEA INSTALLATION FOR EWT



# LOCAL CONTENT COMMITMENTS

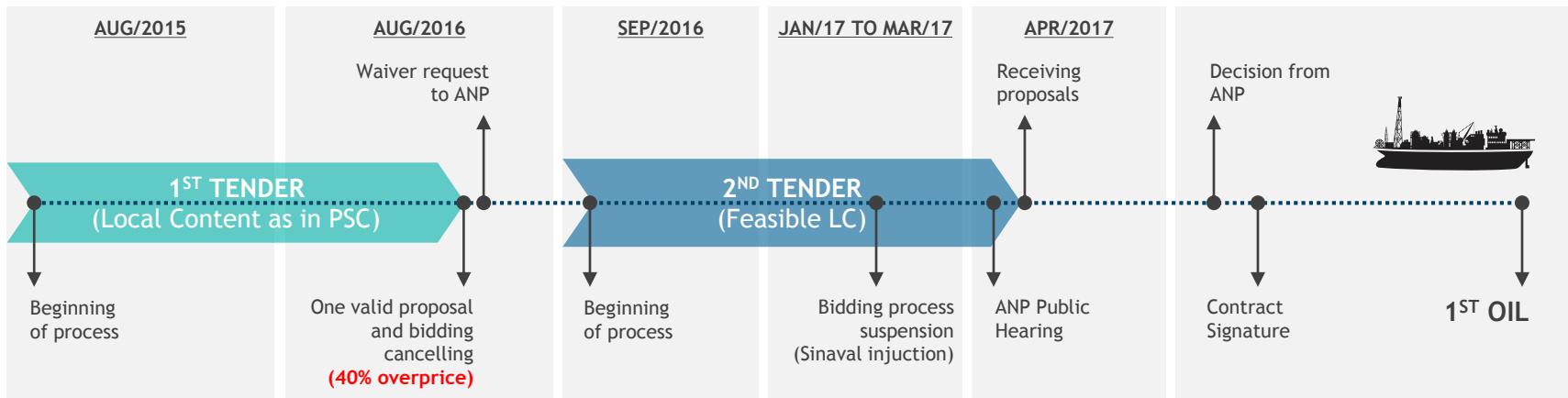
## Waiver negotiation with ANP is fundamental



# WAIVER REQUEST GUIDELINE

The PSC provides the possibility of the Libra Consortium being exempted from the obligation of compliance with the local content in relation to the contracting of goods and services by:

Absence of local suppliers;	Excessive prices;
Excessive delivery terms;	Technological replacement.



# LIBRA PARTNERS

Six different companies from different parts of the world with different backgrounds and different philosophies for project development and operations working together as a fully integrated team

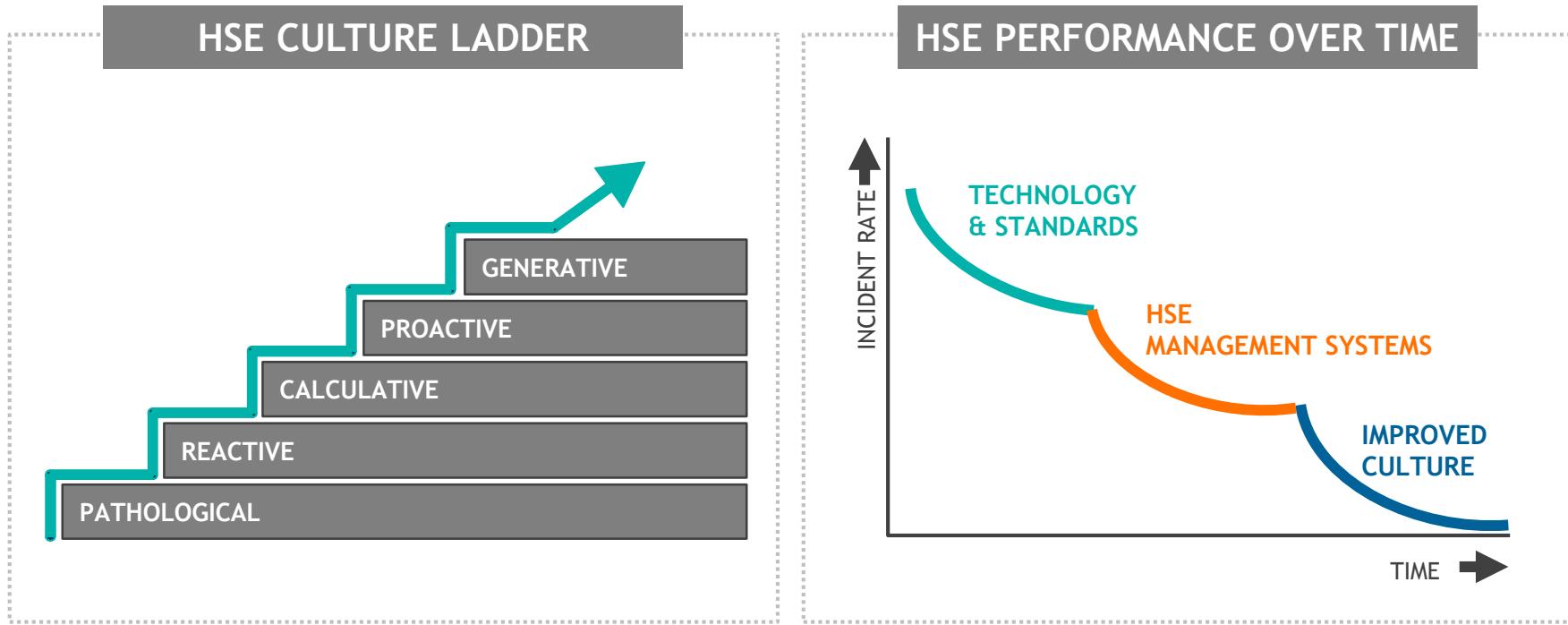


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# RESULTS OF COLLABORATION IN LIBRA

## HSE CULTURE PLAN



# TECHNOLOGY APPROACH

Libra benefits from the collaboration of major companies. We are a joint industry project in terms of project based technology development. Creating:

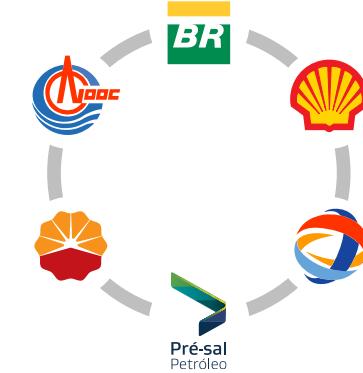
Global Technology Transfer

Technology Pull

Ownership for the Technology

Direct Application Link

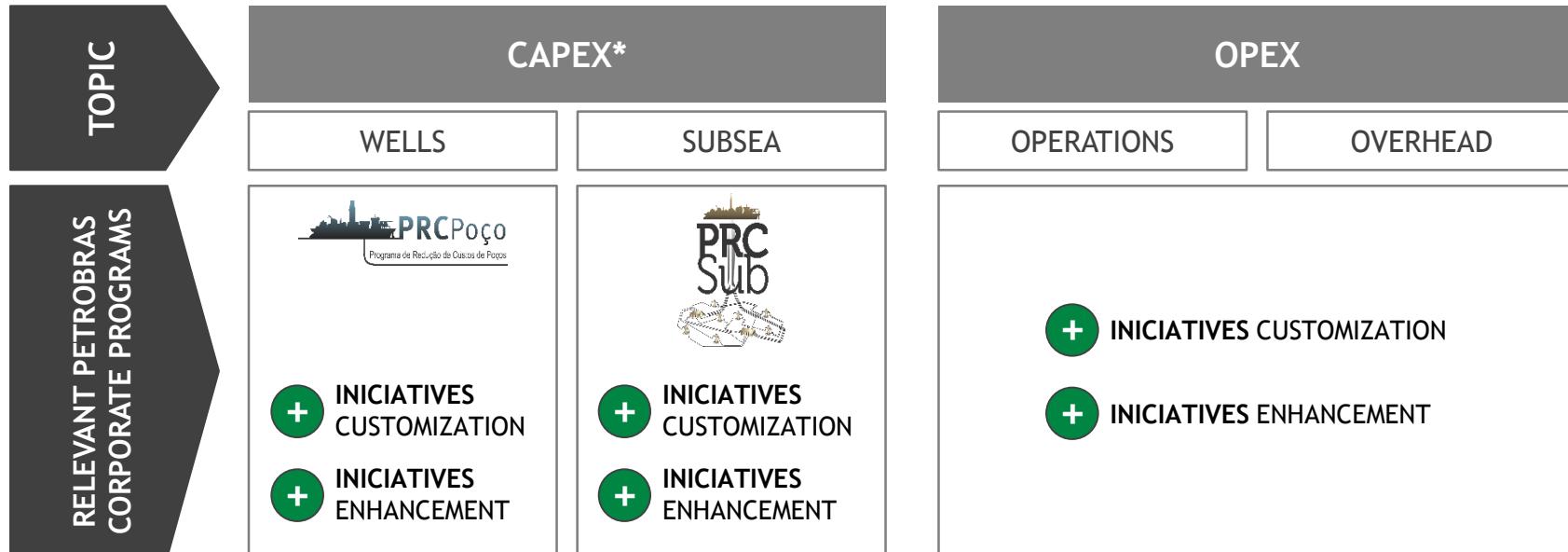
Easy Assessment of Technology Value



Libra leverages existing technology and aims to identify and close technology gaps in an integrated approach to maximize project value

# LIBRA @35

Initiative Leverages Existing Petrobras Corporate Cost Optimization Programs



The combined effect of cost reduction and increase in Recovery Factor  
can lead to competitive break-even prices

# LIBRA @35 STRATEGIC INITIATIVE AIMS AT ENSURING PROJECT'S COMPETIVENESS UNDER LOW OIL PRICES

Key levers to reduce break-even price are: CAPEX reduction and enhanced production

CAPEX reduction can come partially from declining prices from equipment and services

Goal is to achieve a break-even price of US\$35/bbl (all NW region - point forward)

## Closing Remarks

**The exploratory wells that have been drilled up until now demonstrate the great potential of Libra's Northwest area, which may hold up to 4 new production systems.**

The management of the projects in a **multidisciplinary and dedicated fashion** has brought **agility in the analyses and decisions**.

The presence of the **partners in the project team**, unprecedented in Brazil, **bring new points of view** on Petrobras' assumptions for project development, **enhancing the results** and bringing robustness to the project.

PPSA, as manager of the contract, has actively **participated** in the project **implementation discussions**.

Critical factors to keep and increase project profitability:

- **Costs** reduction
- **Production** increase
- **Successful LC waiver negotiations with ANP**

# FINAL CONSIDERATIONS

## COLLABORATION 2.0



FPSO PIONEIRO DE LIBRA  
EWT Program



First X-Tree installation

*“If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas.”*

George Bernard Shaw

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# Thank You



Joint Venture Operator



FPSO Sail Away (03.28.2017)

