

Implementation of Ultra Low Sulfur Diesel Fuel in Brazil

*Calidad ambiental de diésel y otros combustibles:
Mejores prácticas internacionales*

Dec.2020

Chrystiane Maria Pereira de Souza
Downstream - Trading and Marketing Consultant

Copyright © 2020 Petróleo Brasileiro S.A. All rights reserved.

Disclaimer



The presentation may contain forward-looking statements about future events that are not based on historical facts and are not assurances of future results. Such forward-looking statements merely reflect the Company's current views and estimates of future economic circumstances, industry conditions, company performance and financial results. Such terms as "anticipate", "believe", "expect", "forecast", "intend", "plan", "project", "seek", "should", along with similar or analogous expressions, are used to identify such forward-looking statements. Readers are cautioned that these statements are only projections and may differ materially from actual future results or events. Readers are referred to the documents filed by the Company with the SEC, specifically the Company's most recent Annual Report on Form 20-F, which identify important risk factors that could cause actual results to differ from those contained in the forward-looking statements, including, among other things, risks relating to general economic and business conditions, including crude oil and other commodity prices, refining margins and prevailing exchange rates, uncertainties inherent in making estimates of our oil and gas reserves including recently discovered oil and gas reserves, international and Brazilian political, economic and social developments, receipt of governmental approvals and licenses and our ability to obtain financing.

We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events or for any other reason. Figures for 2020 on are estimates or targets.

All forward-looking statements are expressly qualified in their entirety by this cautionary statement, and you should not place reliance on any forward-looking statement contained in this presentation.

In addition, this presentation also contains certain financial measures that are not recognized under Brazilian GAAP or IFRS. These measures do not have standardized meanings and may not be comparable to similarly-titled measures provided by other companies. We are providing these measures because we use them as a measure of company performance; they should not be considered in isolation or as a substitute for other financial measures that have been disclosed in accordance with Brazilian GAAP or IFRS.

General View About PETROBRAS



- Publicly-held company operating on an integrated basis and specializing in the oil, natural gas and energy industry



Net Revenue
R\$ 302.2 billion

Net Profit
R\$ 40.1 billion

Shareholders
More than 500.000

Number of Employees
46,416



Daily Output
2.77 MMboed

Production Wells
6,587 (oil and gas)

Production Platforms
107



Refineries
13

Oil product production
1,873 MMbpd



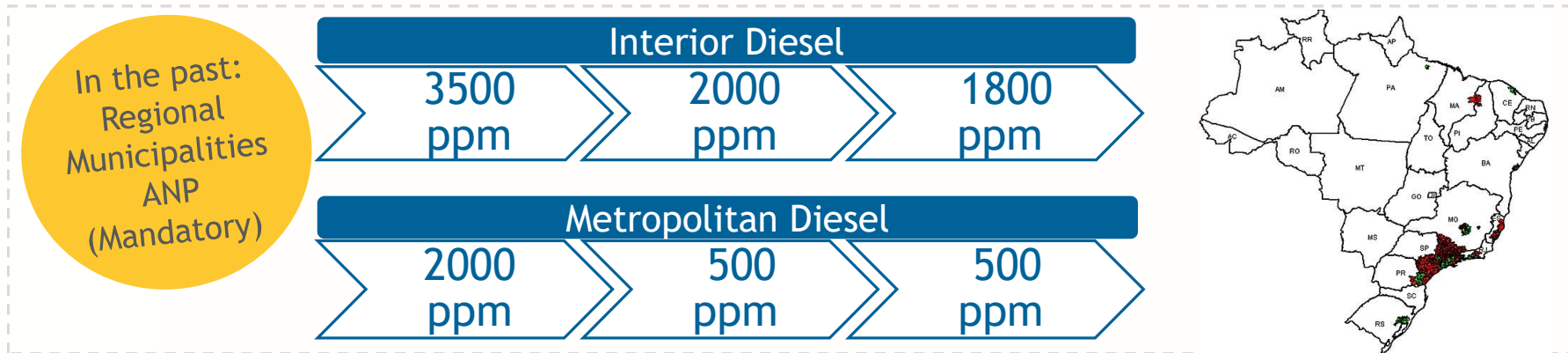
Biofuels
5 biodiesel plants

Thermoelectric Plants
20 operated plants

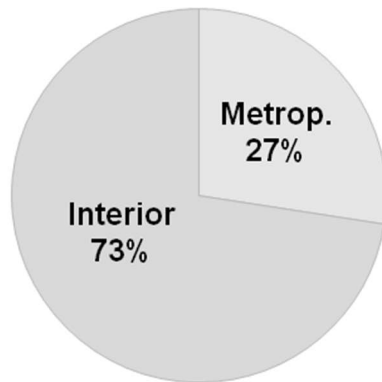
Wind Energy
Joint Ventures in 4 plants

Solar Energy
1 photovoltaic solar power plant

Historically, different types of diesel were sold in Brazil according to geographical reasoning



Dec. 2008 Shares

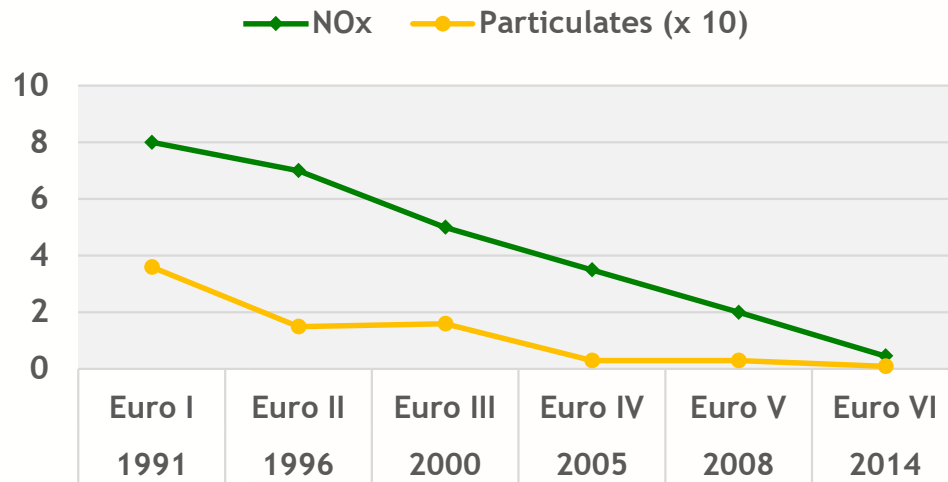


With the evolution of pollutant emissions standards, this scenario has changed ...

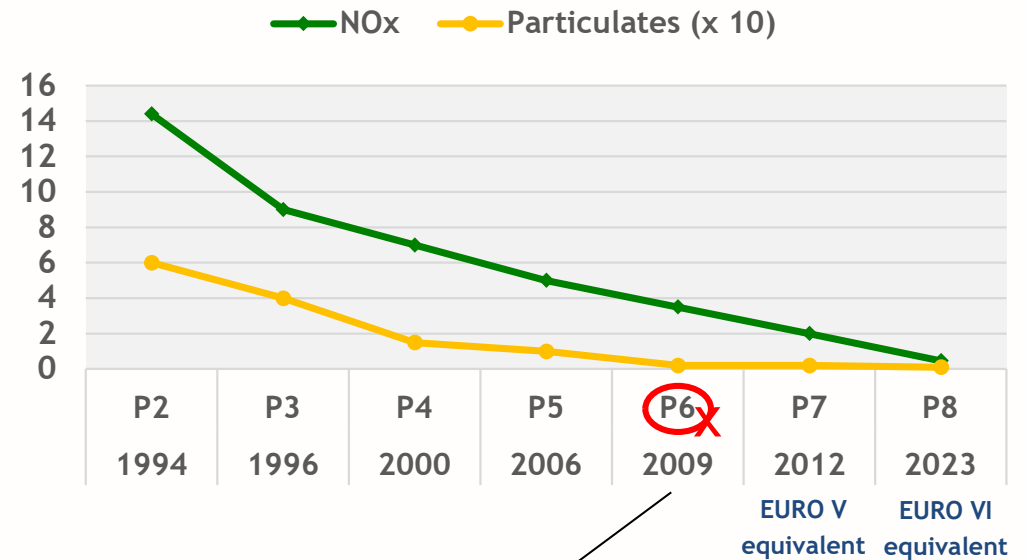
Stringent emission standards for heavy duty vehicles were introduced in the last years



Progression of European standards



Progression of Brazilian standards



Since phase P6 (EURO IV equivalent) was not implemented in Brazil, in October 2008 PETROBRAS, ANP, IBAMA and Vehicle Producers signed an Agreement with the Federal Public Ministry

Source: CONAMA

The Agreement signed in Oct. 2008 established great challenges to the Brazilian market



Agreement Guidelines

- ✓ Replacement of 1800 ppm by 500 ppm diesel (automotive applications)
- ✓ Introduction of Ultra Low Sulfur Diesel
- ✓ Launch of Off-Road Diesel on Jan. 2014



Regulatory Ambience

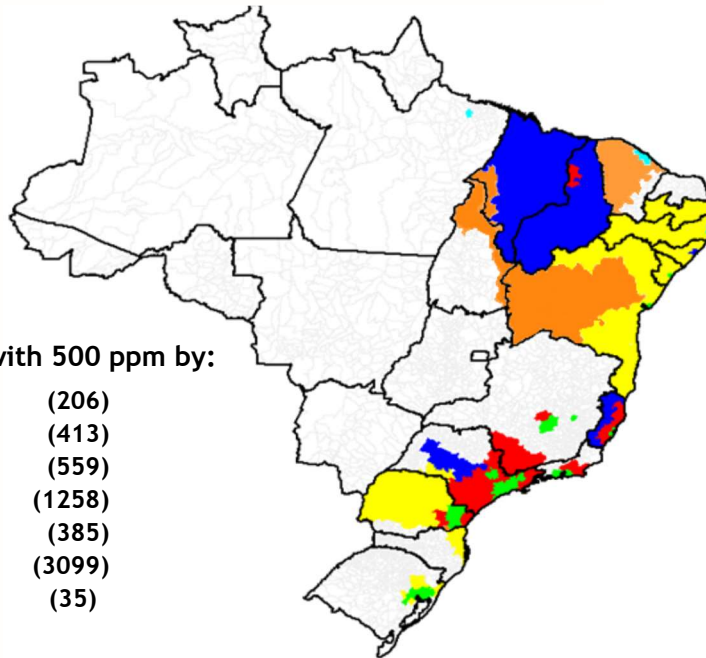
- ✓ ANP Supply Plan
- ✓ ANP Resolutions:
 - On-Road Diesel Specifications
 - Implementation Timetable
 - Off-Road Diesel Specification
- ✓ CONAMA Resolutions:
 - Disciplined requirements for P-7 phase
 - Air monitoring and selection of areas for the use of ULSD



Investment Plans

- Project portfolio associated with the accomplishment of quantity and quality
 - Refining units
 - New refinery
 - Logistics Adjustments
- Infrastructure adjustments for distributors and retailers

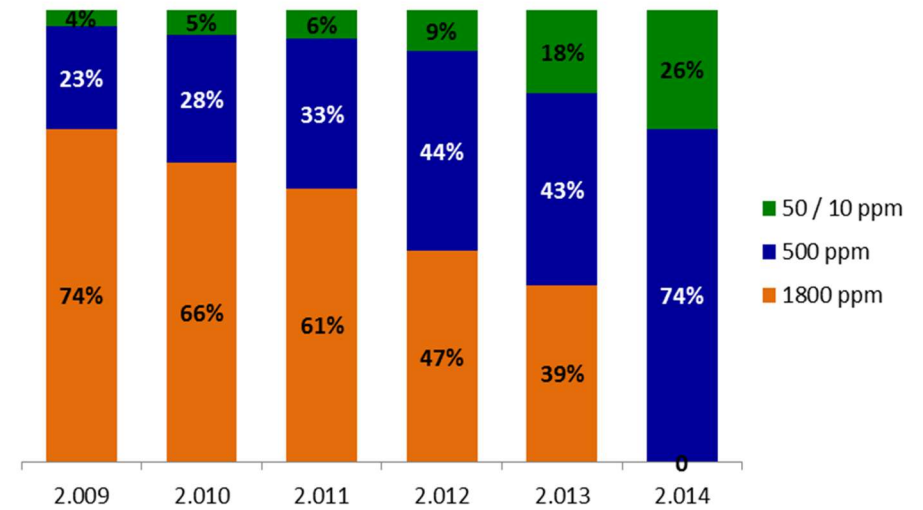
Regarding the replacement of 1800 ppm diesel by 500 ppm diesel, the targets set for each year were fully complied



Municipalities with 500 ppm by:

2009	(206)
2010	(413)
2011	(559)
2012	(1258)
2013	(385)
2014	(3099)
S-50 - 2009	(35)

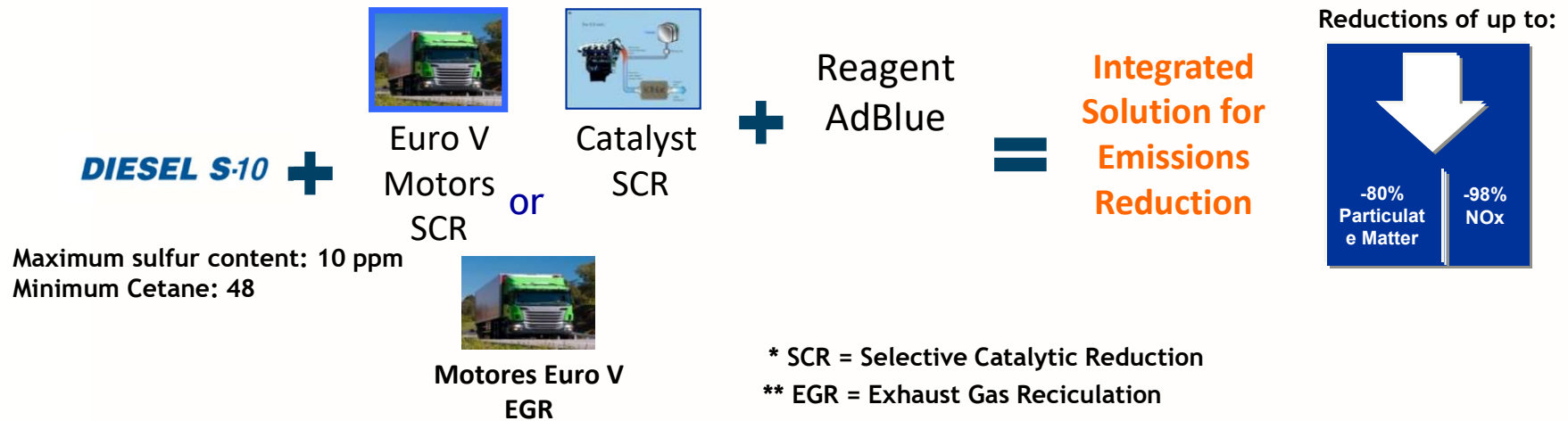
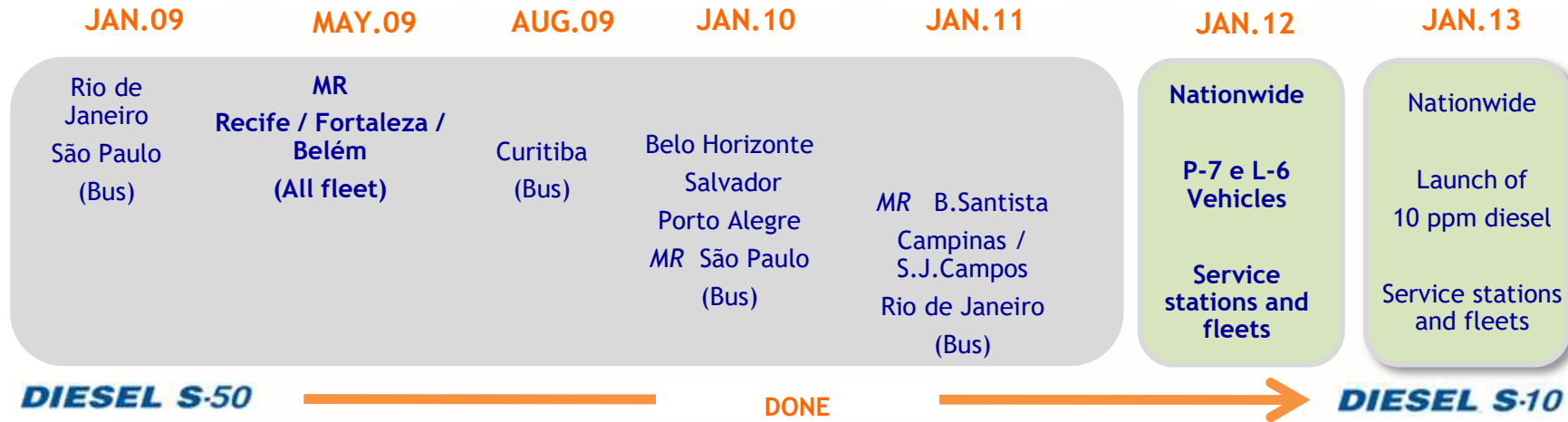
Diesel Oil Share - Petrobras' Sales



Complete replacement

✓ We replaced at about 574 kbpd of high sulfur diesel in 5.714 municipalities

The ULSD was sold to meet the specific regions and municipalities demands between 2009 and 2011. With the implementation of phase P7, the product became available in services stations across the country



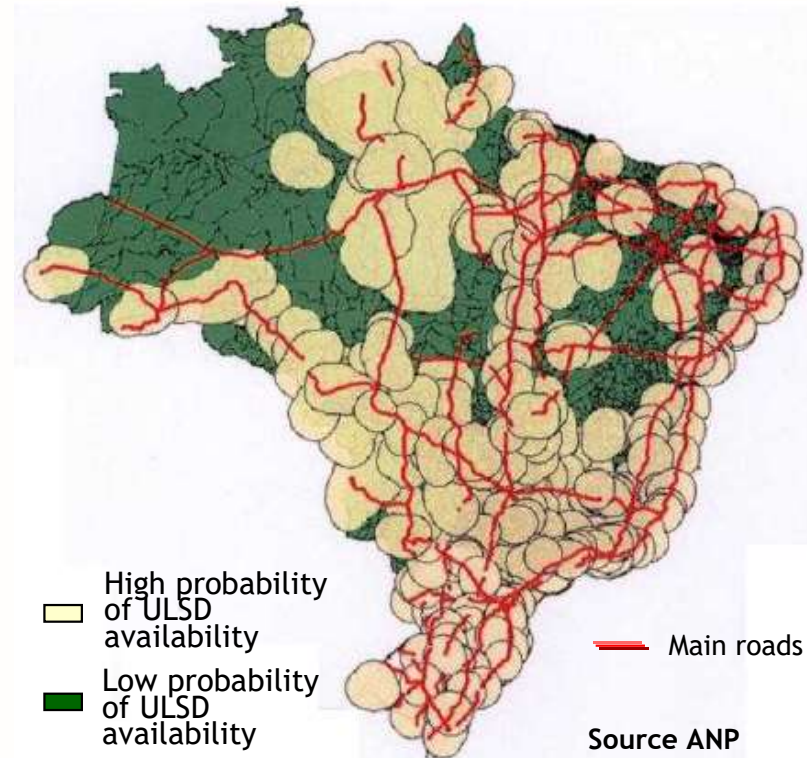
The implementation of ULSD in Brazil occurred with a high level of complexity



“Multigrade“ transition
3 grades of Diesel (2 with
high sulfur content).
S-50 gasoline started in 2014

Production/importation with 10
ppm and PB sales with 10 ppm

Long extension pipelines /
complex systems



To ensure the wide availability of the ULSD across the country, ANP promoted actions involving distributors and retailers

Additional Resolutions

- Defining criteria for mandatory offer of ULSD by service stations
 - Diesel Oil supply nozzles > Otto Cycle supply nozzles
- Fixing colorful plastic sticker to inform the type of diesel offered in each pump

Infrastructure Adjustments 2012

PETROBRAS



14 sale points
(among a total of 37)

DISTRIBUTORS



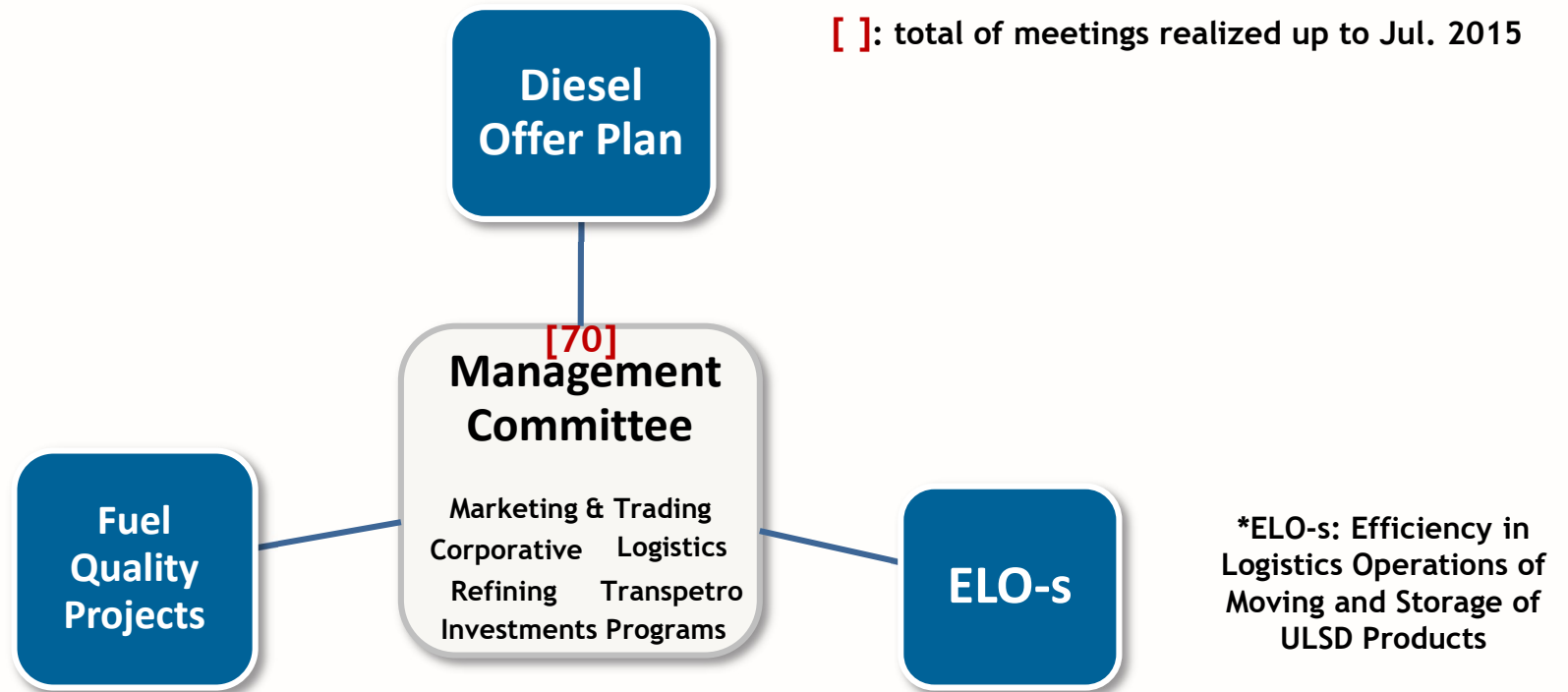
49 bases
(among a total of 280)

RETAIL



4,225 service stations
(among a total of 38 thousand)

To ensure the success of phase P7 and achieve environmental gains, Petrobras brought together a team of specialists



The Management Committee was created in Sep. 2009 with the objective to guarantee the fulfillment of the actions determined for Petrobras in the Agreement

Diesel Offer Plan informed the distributors and retailers the path to participate in a joint partnership



1ª Ed: Aug. 2010

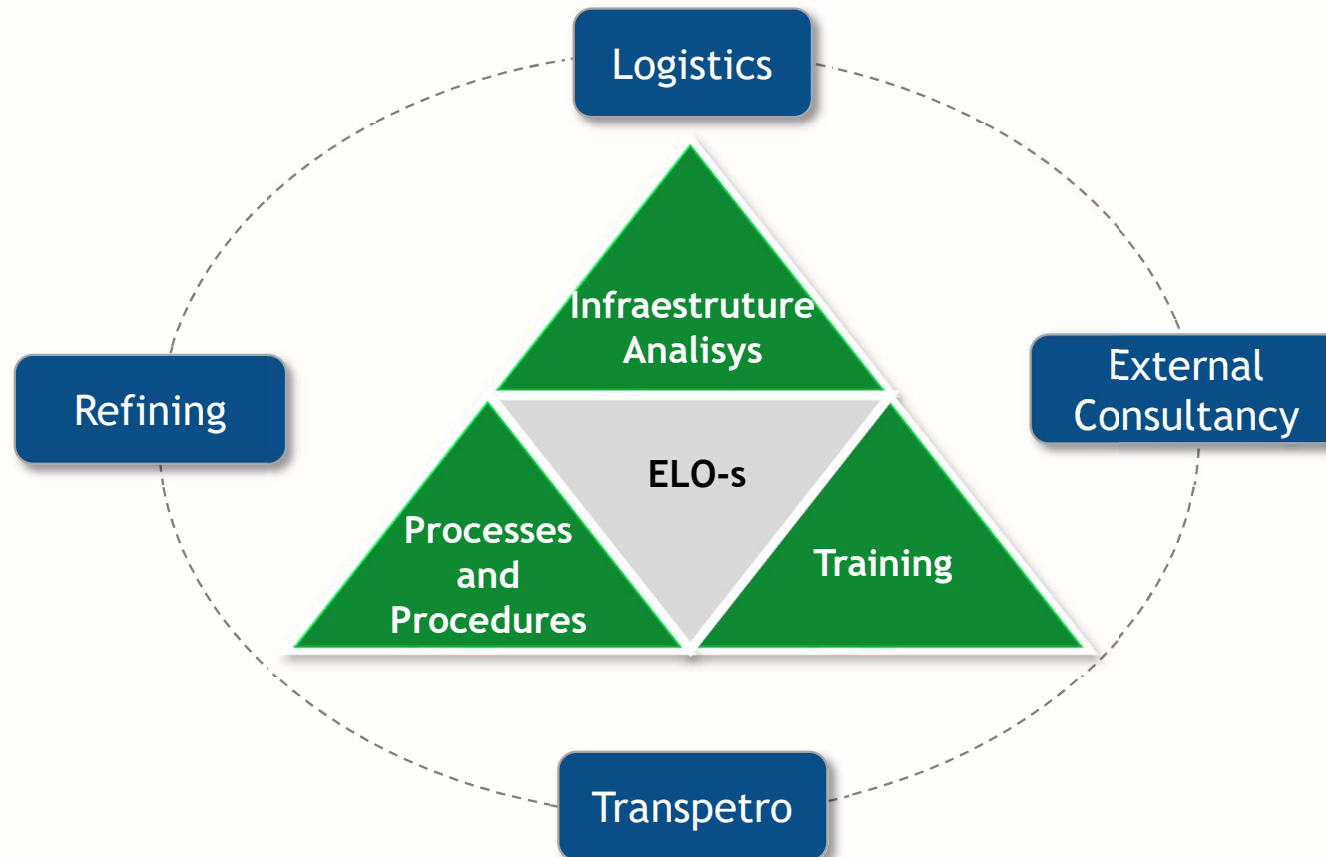
2ª Ed: May 2013



Content

- Details of the offer of several grades over the years
- Petrobras investments and schedule
- Necessary adjustments to distributors
- Local operating conditions

The ELO-s project was implemented in order to guarantee the efficiency in logistics operations related to the ULSD



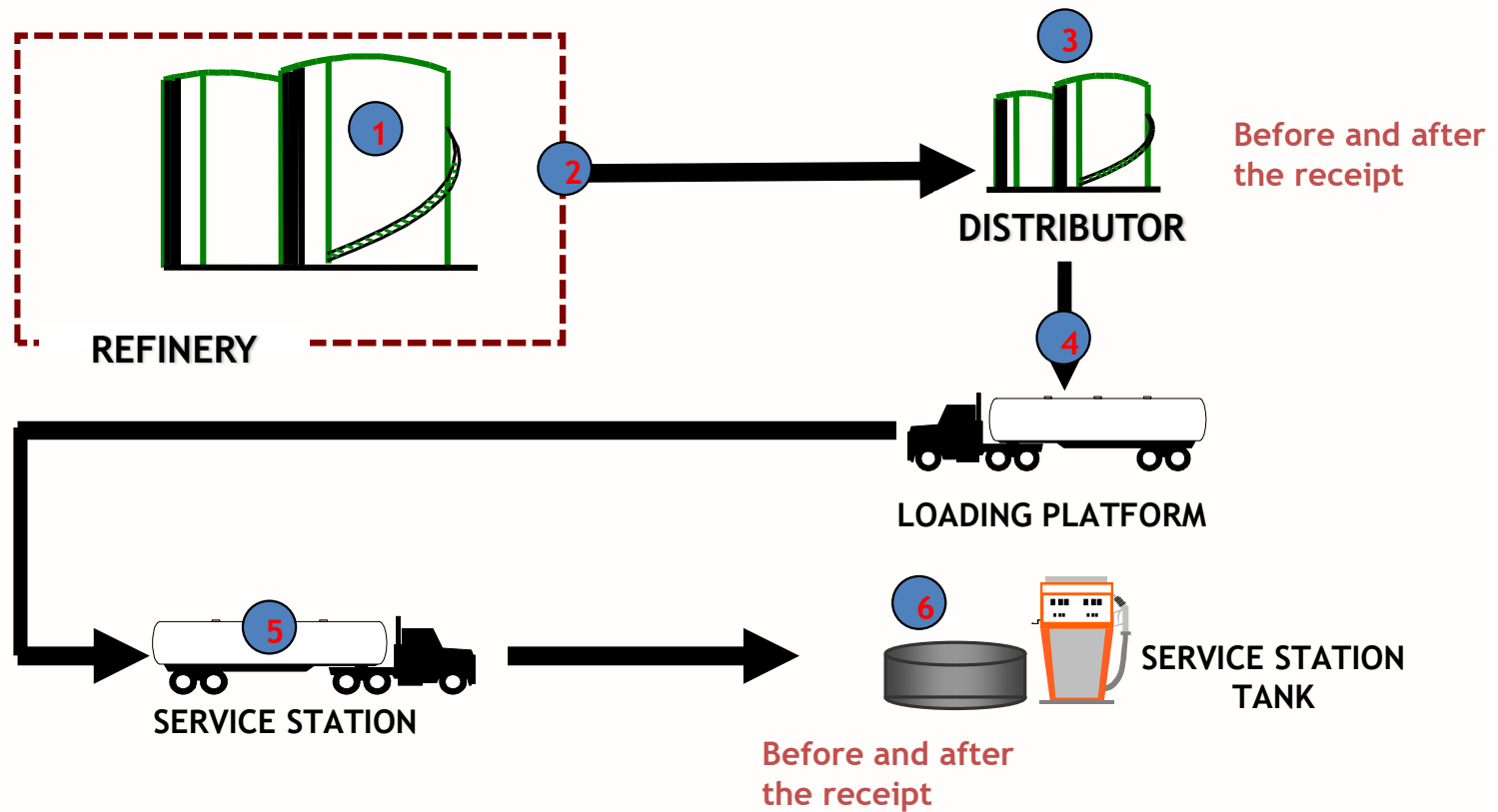
Successful introduction of ULSD across the country

*ELO-s: Efficiency in Logistics Operations of Moving and Storage of ULSD Products

Tests were performed to evaluate the evolution of the ULSD sulfur content along the supply chain



Sampling Points



Significant investments were done in production and logistics in order to ensure market supply



Between 2005 and 2019, more than US\$ 100 bi were invested in Downstream.

We estimate an additional US\$ 3.7 bi thru 2025.

Source: 2021-2025 Strategic Plan



Refining Capex: 2021-2025

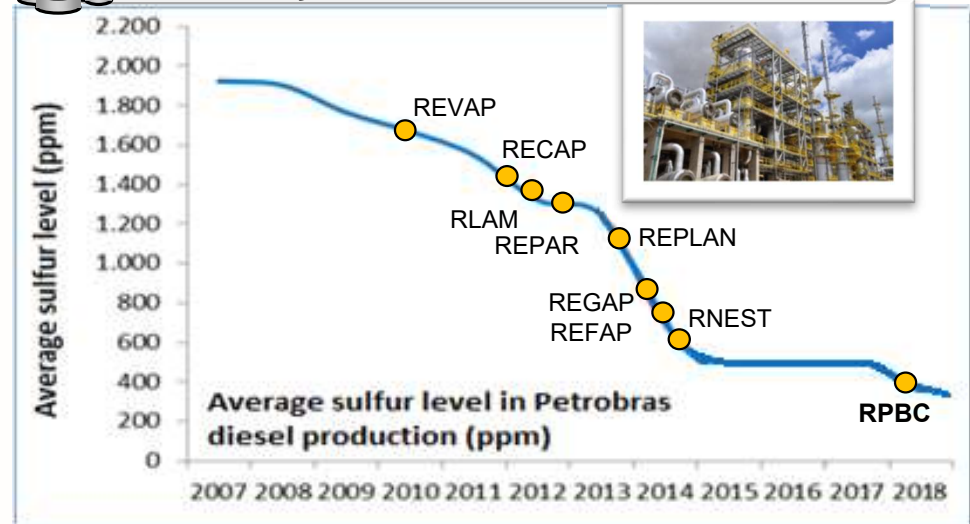
- OPERATIONAL EFFICIENCY
- HSE
- HCC GASLUB
- HDT REDUC, REVAP and REPLAN
- OPERATIONAL CONTINUITY
- OTHER



Logistics: Segregation adjustments in 25 terminals and installation of 235 valves



9 new HDT units since 2010 and internal adjustments in the refineries



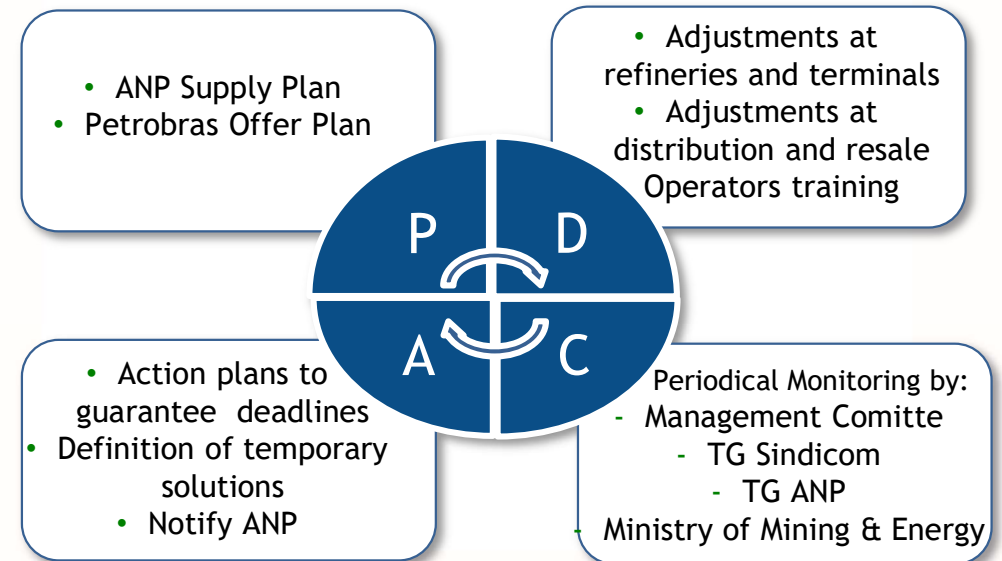
The Management Committee adapted a road map method of analysing the risks related to the fulfillment of the projects



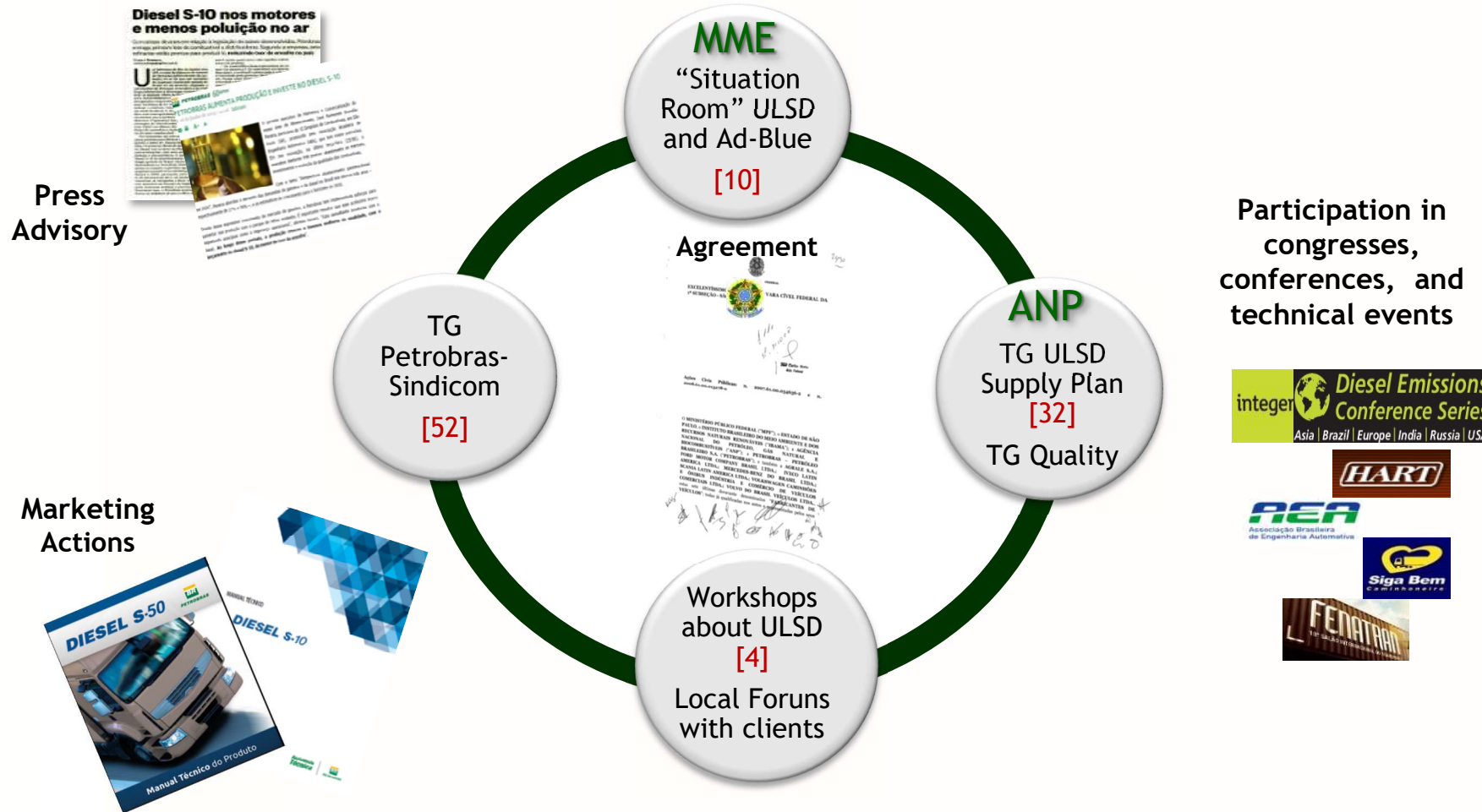
DIESEL CYCLE				
MARKET	LOGISTICS	ELO-S	REFINING	INTEGRATION
<ul style="list-style-type: none"> • Actions • Distributor Projects 	<ul style="list-style-type: none"> • Projetscs (Land and waterway terminals) 	<ul style="list-style-type: none"> • Actions 	<ul style="list-style-type: none"> • Projetscs (Refineries) 	<ul style="list-style-type: none"> • Projetscs (Pipelines refineries-terminals) • Interfaces other programs

- Concluded
- As expected or low probability of occurrence
- Tendency to delay or moderate probability of occurrence
- Expired or high probability of occurrence
- Risks addressed and treated

Implementation Process



It was dedicated effort by all players in a continuous communication process



[]: total of meetings realized up to Jan. 2014

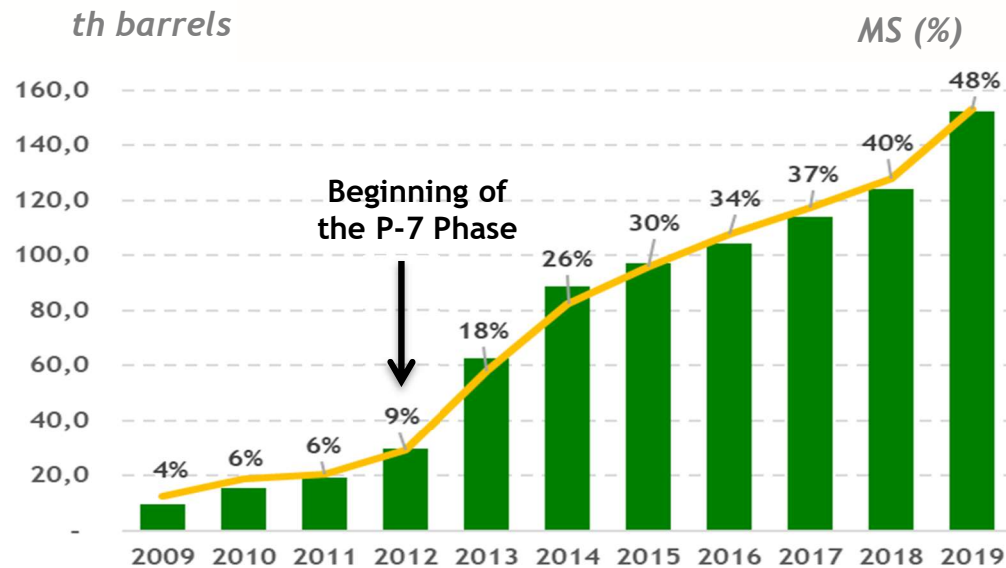
The success in the implemented strategy led to the outstanding results regarding the ULSD...



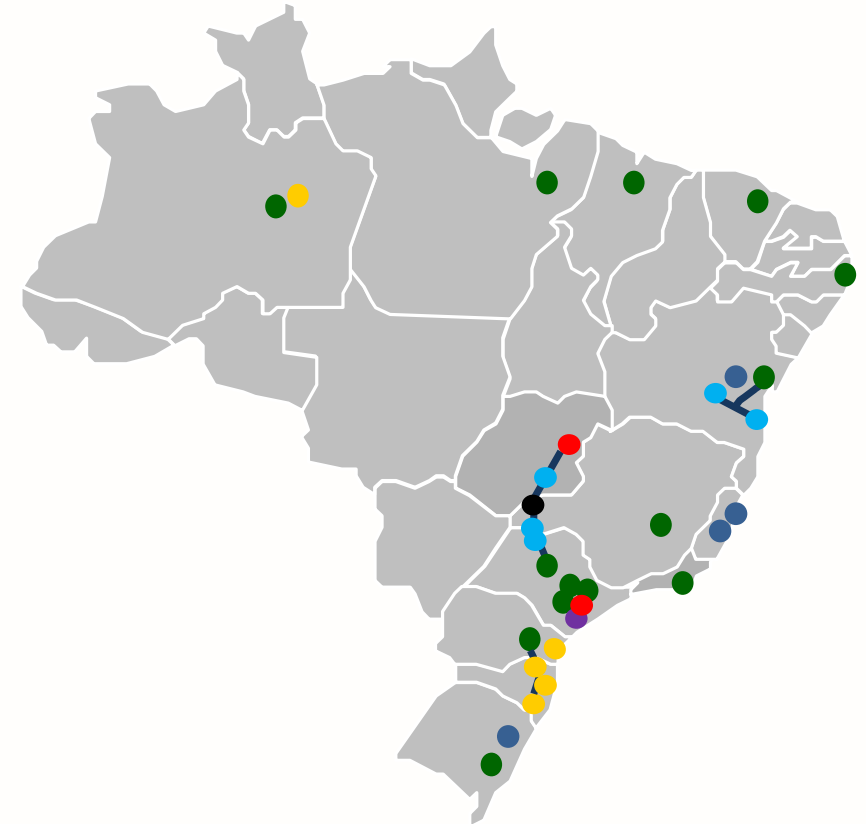
- ✓ 32 Petrobras points of sales
- 2012 ● 2013 ● 2014 ● 2015 ● 2019 ● 2020 ● 2021 (expected)

- ✓ Expansion of the retail network*:
 - 4.225 stations in 2012 vs. 32.773 in 2020

- ✓ Continued demand and market share growth*:




- Market-share in 2020 (up to october): 53%



- ✓ 2,7% of non-conformities in regard to diesel quality (Basis: jan-oct/2020)*
 - 21,000 samples

*Source: ANP

A woman wearing a white Petrobras polo shirt and a brown apron is smiling as she works on a pottery wheel. She is in an outdoor setting, possibly a beachside cafe or workshop, with a beach and palm trees in the background. The scene is brightly lit, suggesting a sunny day.

At Petrobras, respect for people and the environment is part of our vision, and it is deeply connected to our business. We work to ensure a sustainable future for the next generations and performing with social responsibility in all of our activities is a challenge we are proud to overcome everyday.

Thank You!

Gracias!

CHRYSTIANE MARIA PEREIRA DE SOUZA
Downstream - Trading and Marketing Consultant
PETROBRAS
E-mail: chrystiane.souza@petrobras.com.br