

BUSINESS PLAN UPDATE

2020 - 2022



March, 2020

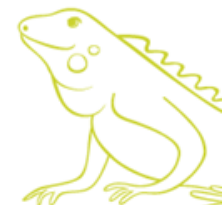


LEGAL DISCLOSURE

This document was prepared by Ecopetrol S.A. (the “Company” or “Ecopetrol”) with the purpose of providing the market and interested parties certain financial and other information of the Company.

This document may include strategy discussions and forward-looking statements regarding the probable development of Ecopetrol’s business. Said projections and statements include references to estimates or expectations of the Company regarding its future and operational results. Potential investors and the market in general should be aware that the information provided herein does not constitute any guarantee of its performance, risks or uncertainties that may occur or materialize. Actual results may fluctuate and differ from those provided herein due to several factors outside of the control of the Company. Such forward-looking statements speak only as at the date in which they are made and neither Ecopetrol nor its advisors, officers, employees, directors or agents, make any representation nor shall assume any responsibility in the event actual performance of the Company differs from what is provided herein. Moreover, Ecopetrol, its advisors, officers, employees, directors or agents shall not have any obligation whatsoever to update, correct, amend or adjust this presentation based on new information or events occurring after its disclosure. Additional factors that may affect the future results of Ecopetrol are set forth in the section entitled “Risk Factors” in the Company’s Report on Form 20-F for the year ended December 31, 2018 and in the Company’s other filings with Securities and Exchange Commission (the “SEC”), which are available at www.sec.gov.

This presentation is for discussion purposes only and is incomplete without reference to, and should be viewed solely in conjunction with, the oral briefing provided by Ecopetrol. Neither this presentation nor any of its contents may be used for any other purpose without the prior written consent of Ecopetrol.



Key Messages

Strategy
on Track



Focused
Growth



Value
Creation
to
Society

Delivery ahead of our plans

Disciplined capex execution, strong
ROACE and robust capital structure

Leader in mature and emerging basins
in Colombia

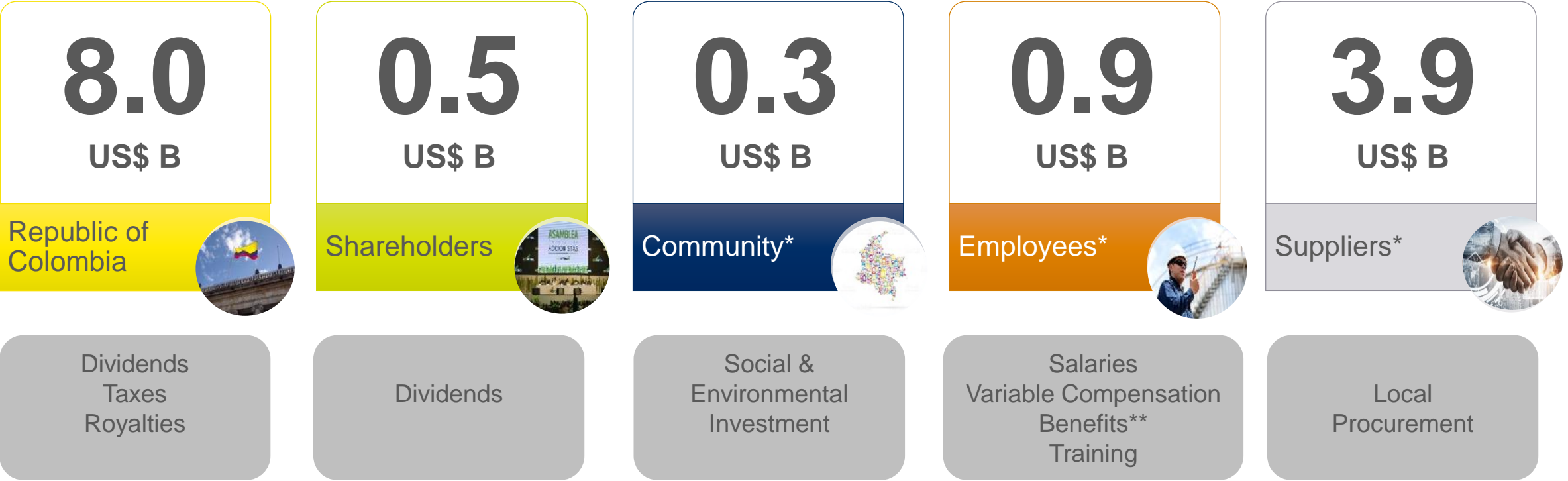
Expanding international footprint in
highly prospective basins with world
class partners

Responsible with the environment and
committed to creating shared
prosperity in the communities where
we operate



Creating Value to Society

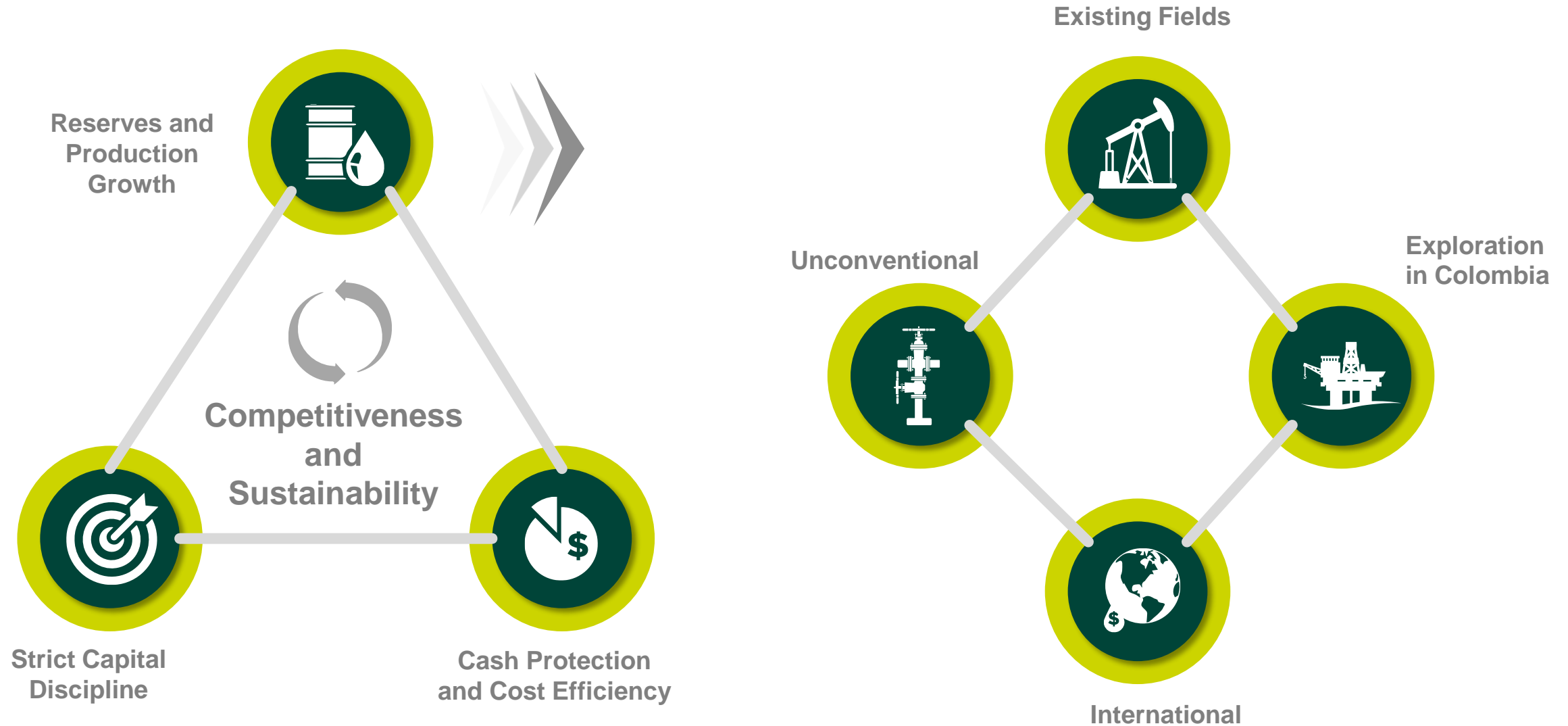
13.7 US\$ B
Contributed in 2019



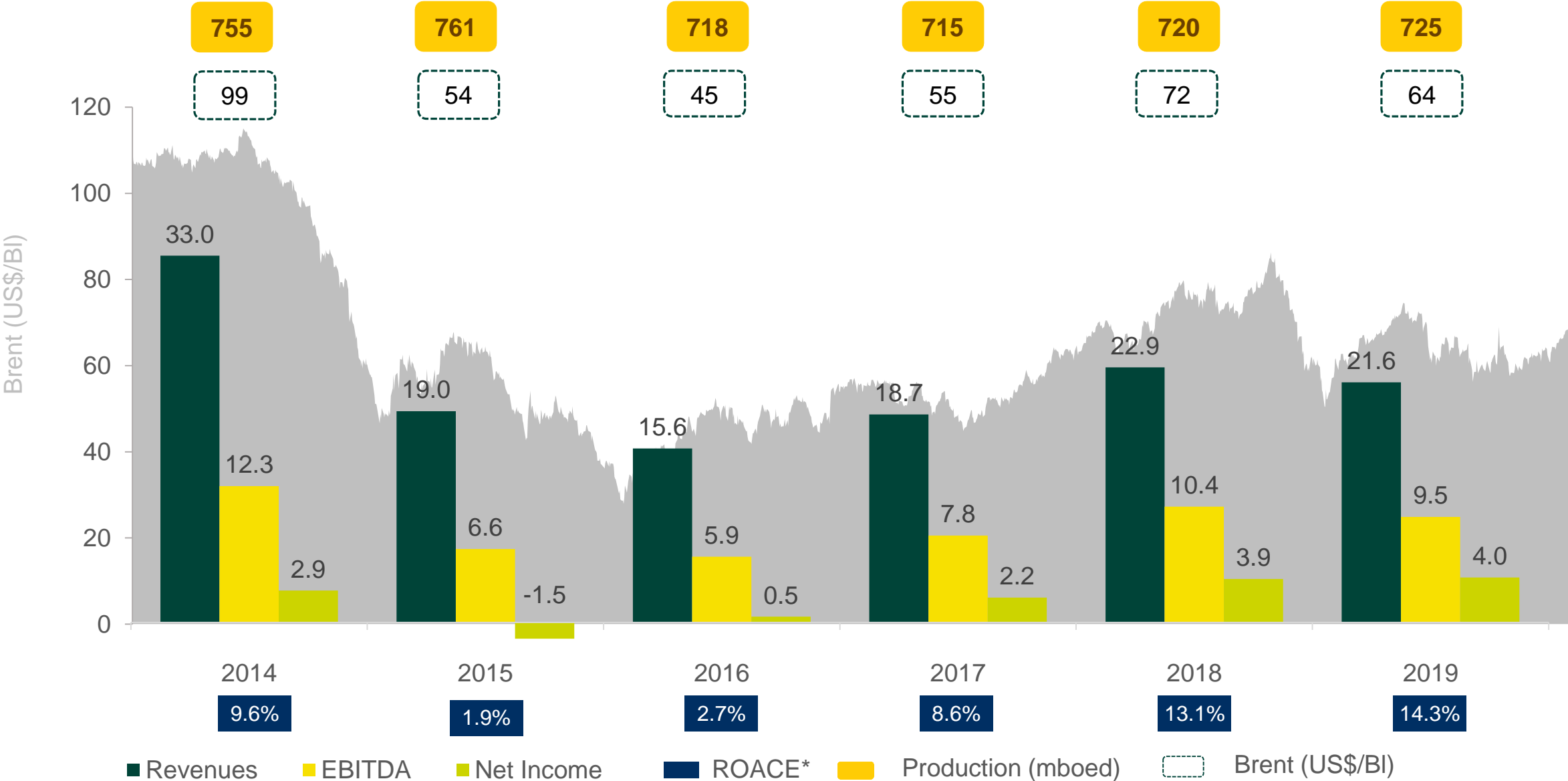
*Ecopetrol S.A. figures. **Includes: Health and Safety, Education, Loans, Savings and Investments. Calculated with an average exchange rate for 2019 of 3,281 COP/US\$.



Strategy Remains Focused on Value Generation





Improving Returns Amid Price Volatility



Revenues, EBITDA and Net Income in US\$ B. Figures calculated with the average exchange rate of each year. *Figure calculated in COP.

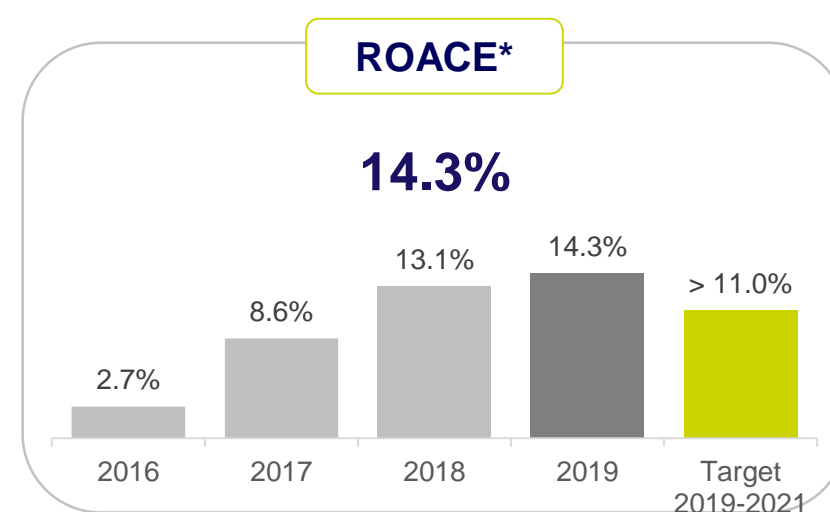
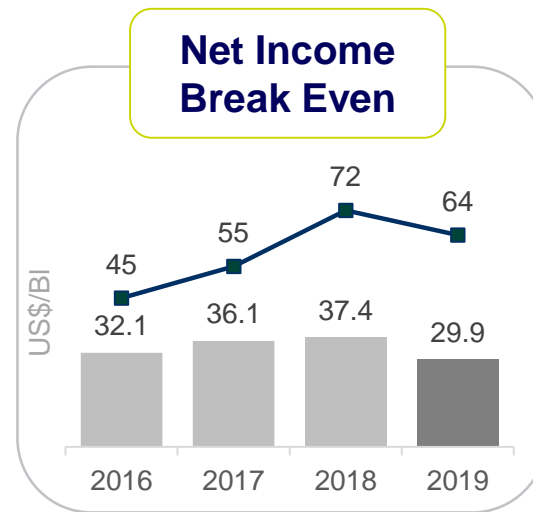
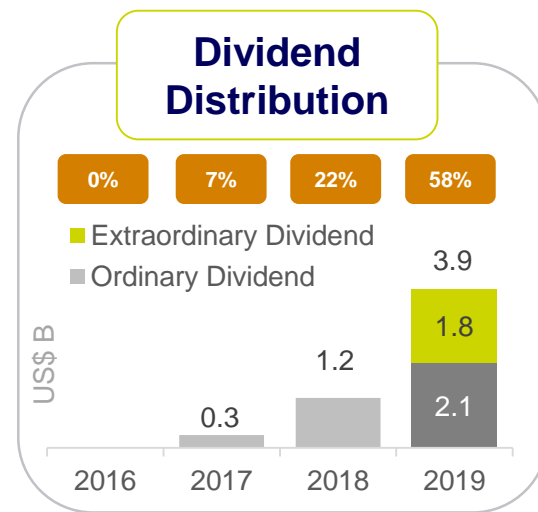
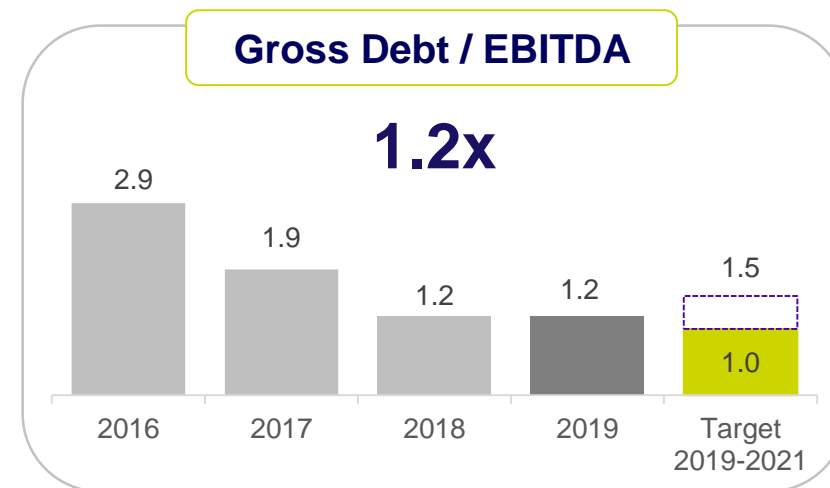
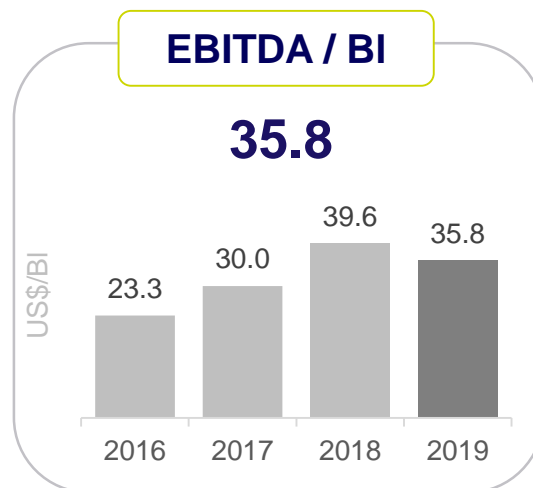
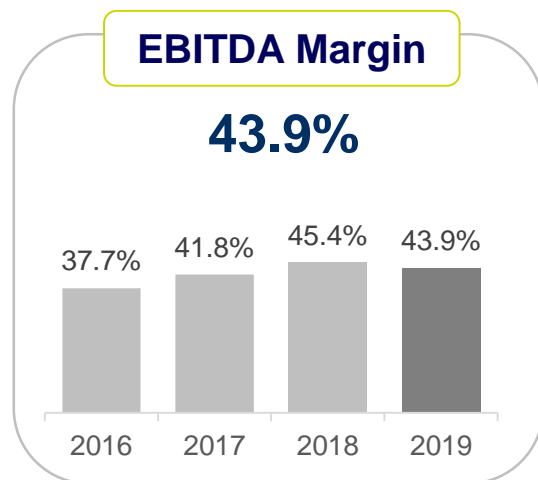


Fulfilling the Value Promise

Metric		2019 Target	2019 Real
 Financial	EBITDA (US\$ B)		9.5
	Net Income (US\$ B)		4.0
	ROACE* (%)	> 11	14.3
	Gross Debt / EBITDA (x)	< 1.5	1.2
	Dividend Payment 2019 (US\$/Share)		0.10
 Operational	Reserves Replacement Ratio (%)	100%	169%
	Exploratory Wells	12	20
	Production (mboed)	720 - 730	725
	Throughput (mbd)	370 - 400	374
	Transported Volume (mbd)	1,100 - 1,250	1,153
Transformation Plan Savings (US\$ B)		0.7	1.0



Financial Delivery: Our Track Record



■ Total Dividend / CFFO

■ Brent

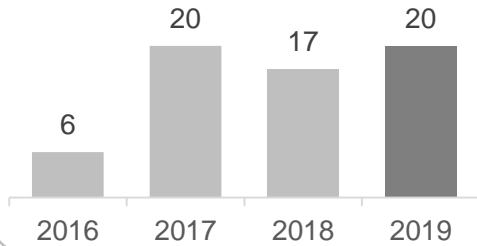


Operations and ESG: Highlights

Operations

Exploration (Wells Drilled)

20



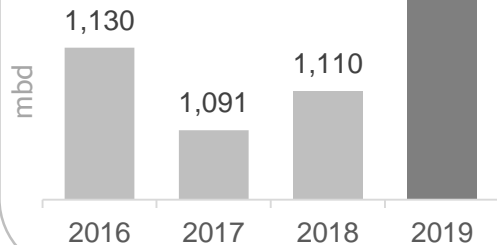
Production

725



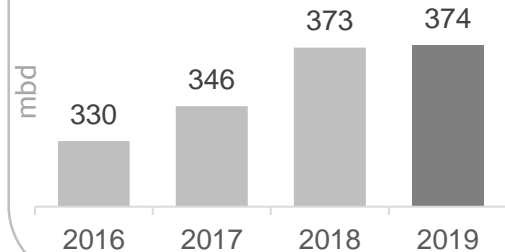
Midstream (Transported Volume)

1,153



Downstream (Throughput)

374

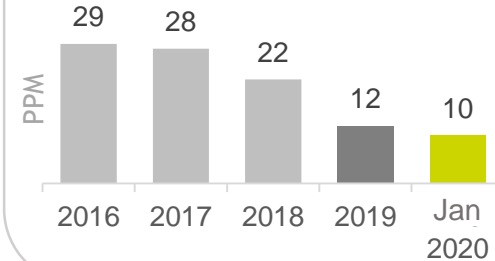


ESG

Sulphur Content

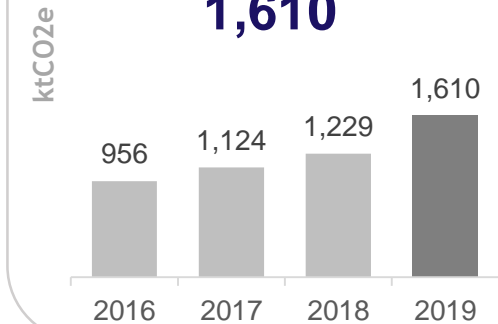
(Diesel b2 - National Average)

12



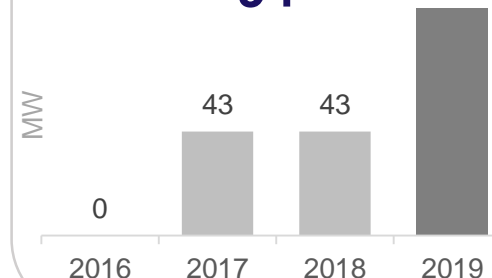
Emissions Reduction

1,610



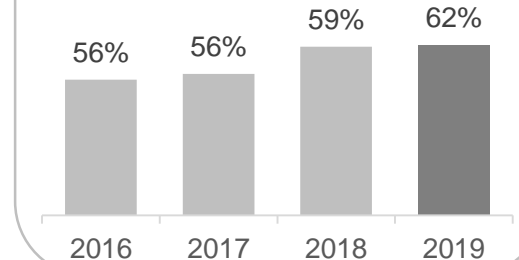
Renewable Energies

94*



Water Reutilization

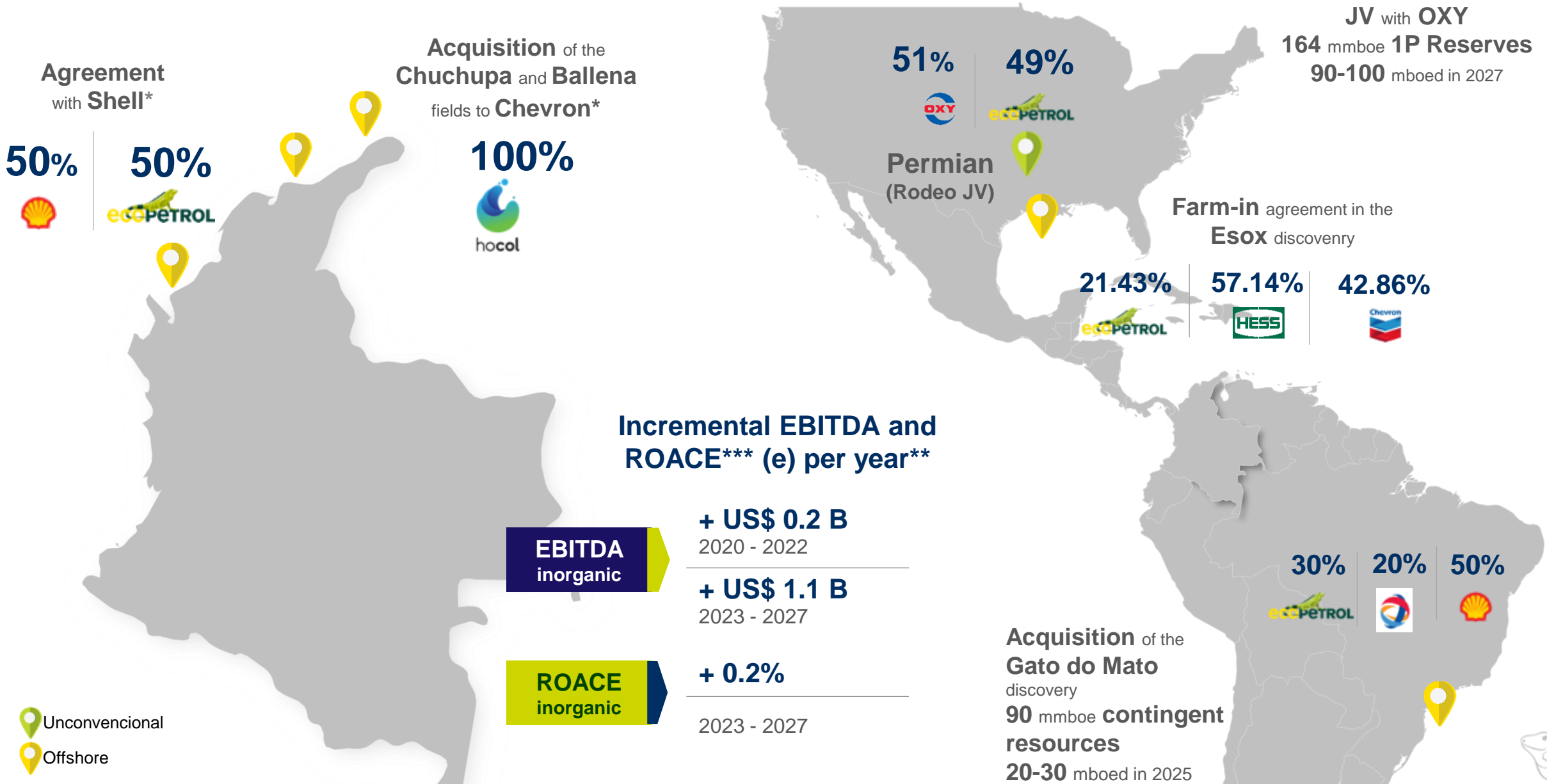
62%



*Includes 64 MW of self-generation and 30 MW awarded in the renewable energy auction.



Value Accretive Inorganic Growth Aligned With Strategy



* Subject to regulatory approvals. ** Includes Permian and Gato do Mato at plan price

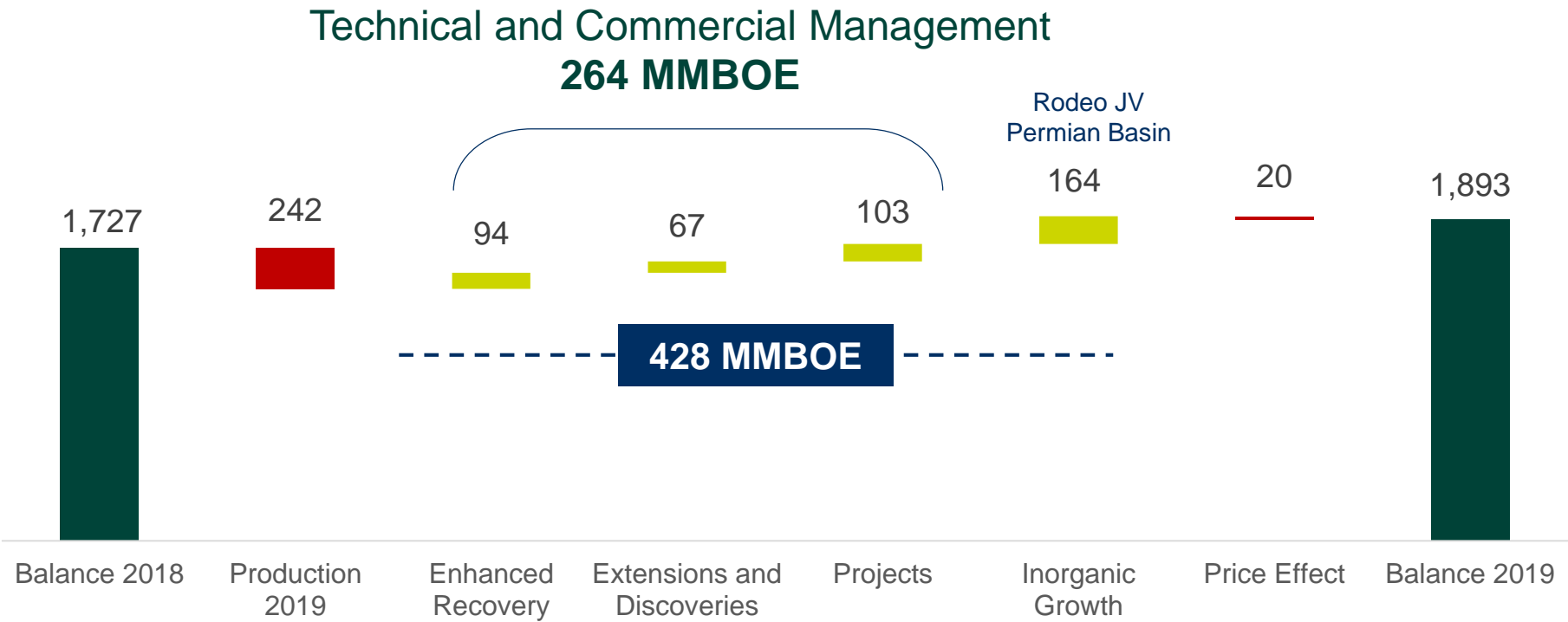
Consistent Reserves Growth



Incorporated Proven
Reserves
408 MMBOE

Reserves
Replacement Ratio
169%

Average Reserve
Life
7.8 Years



Disciplined organic and inorganic incorporation
+33% vs. 2018 incorporation





2020 – 2022 Business Plan

2020 – 2022 Plan

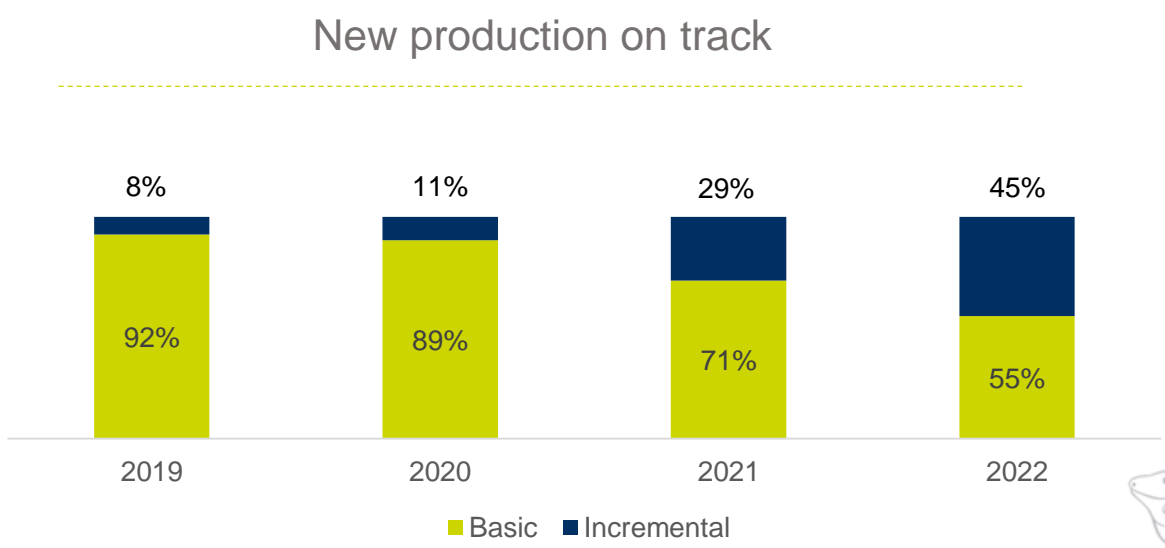
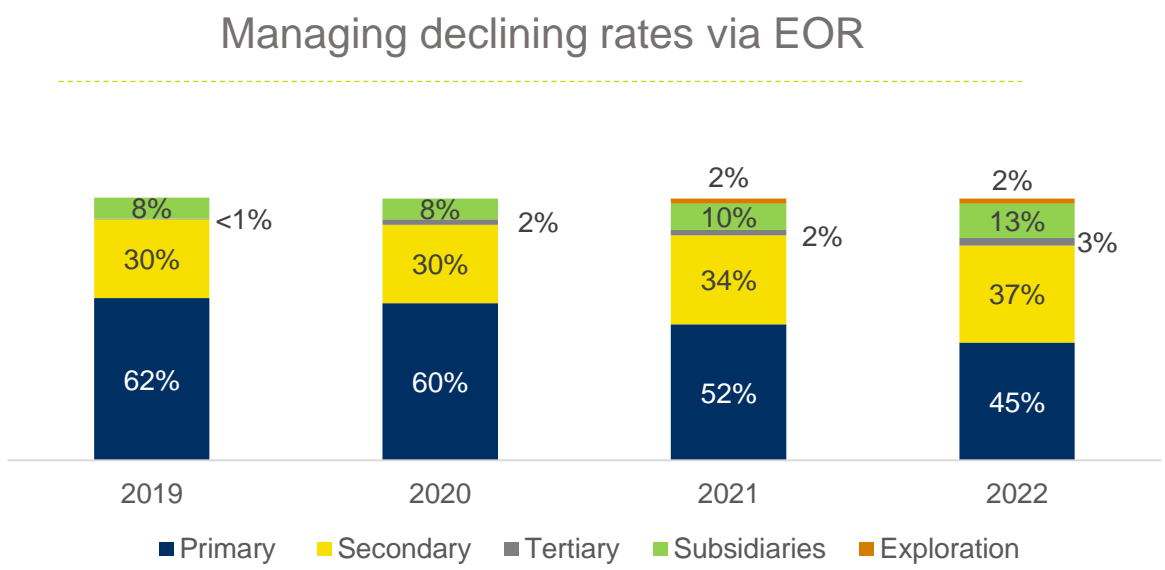
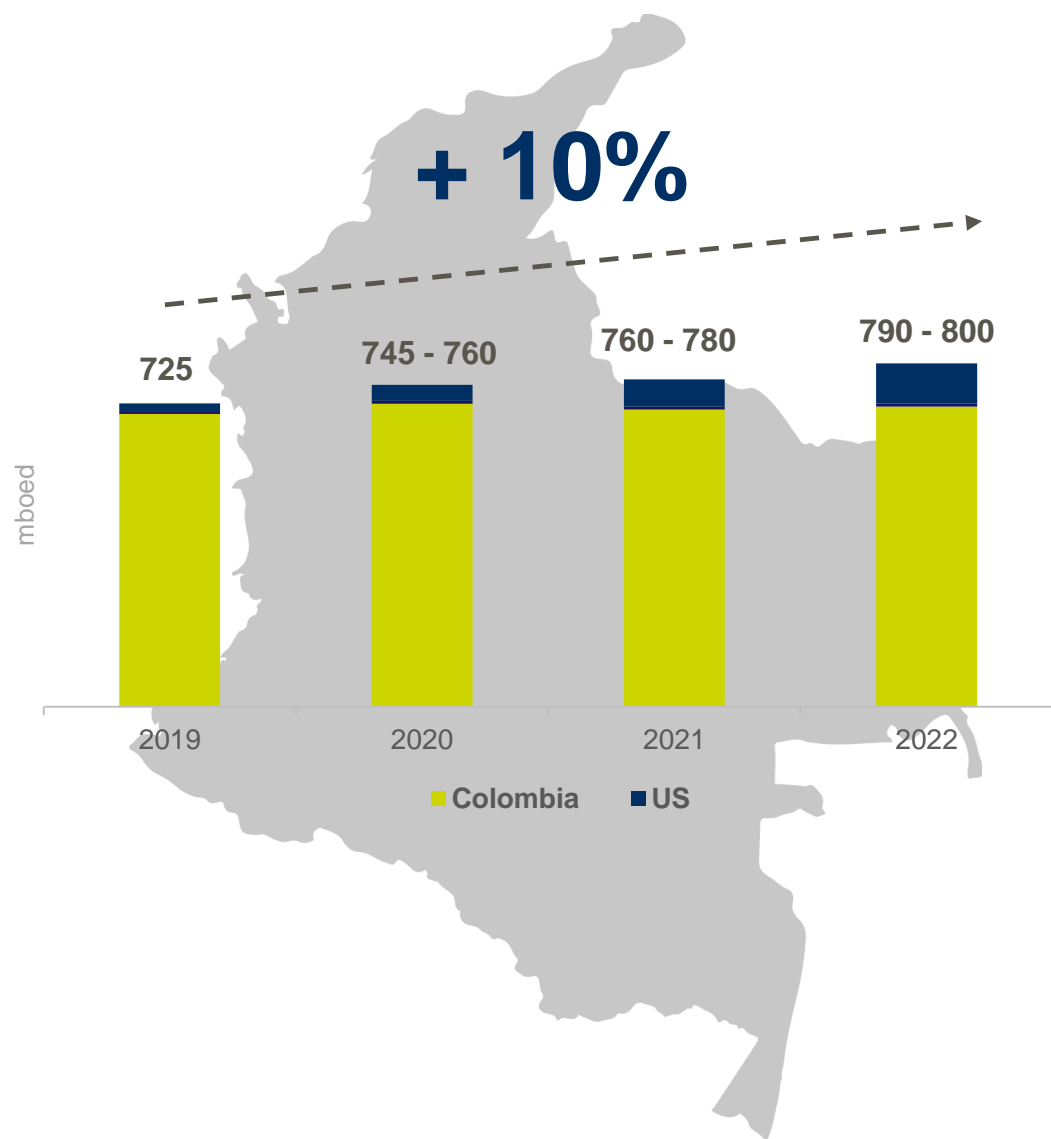
Financial	Operational	ESG
<p>Capex</p> <p>US\$ 13-17 B</p> <p>2019 – 2021 Target: US\$ 12 – 15 B</p>	<p>Production</p> <p>745 – 800 mboed</p> <p>2019 – 2021 Target: 720 – 770 mboed</p>	<p>Decarbonization</p> <p>1.8 – 2.0 MtCO₂e by 2022</p>
<p>Operating Cash Flow</p> <p>US\$ 21 – 22 B @57 Brent/US</p> <p>2019 – 2021 Target: US\$ 22 B @ 65 Brent/US</p>	<p>Transported Volume</p> <p>1,100 – 1,250 mbd</p> <p>2019 – 2021 Target: 1,100 – 1,250 mbd</p>	<p>Renewable Energies*</p> <p>~ 300 MW</p>
<p>ROACE**</p> <p>> 11%</p> <p>2019 – 2021 Target: > 11%</p>	<p>Refining Throughput</p> <p>370 – 420 mbd</p> <p>2019 – 2021 Target: 370 – 400 mbd</p>	<p>Social & Environmental Investment</p> <p>US\$ 320 – 500 M</p>
<p>Gross Debt / EBITDA</p> <p>1.0 – 1.5x</p> <p>2019 – 2021 Target: 1.0 – 1.5 x</p>	<p>RRR</p> <p>100%</p> <p>2019 – 2021 Target: 100%</p>	<p>TRIF (HSE)</p> <p>< 0.6</p>



Upstream

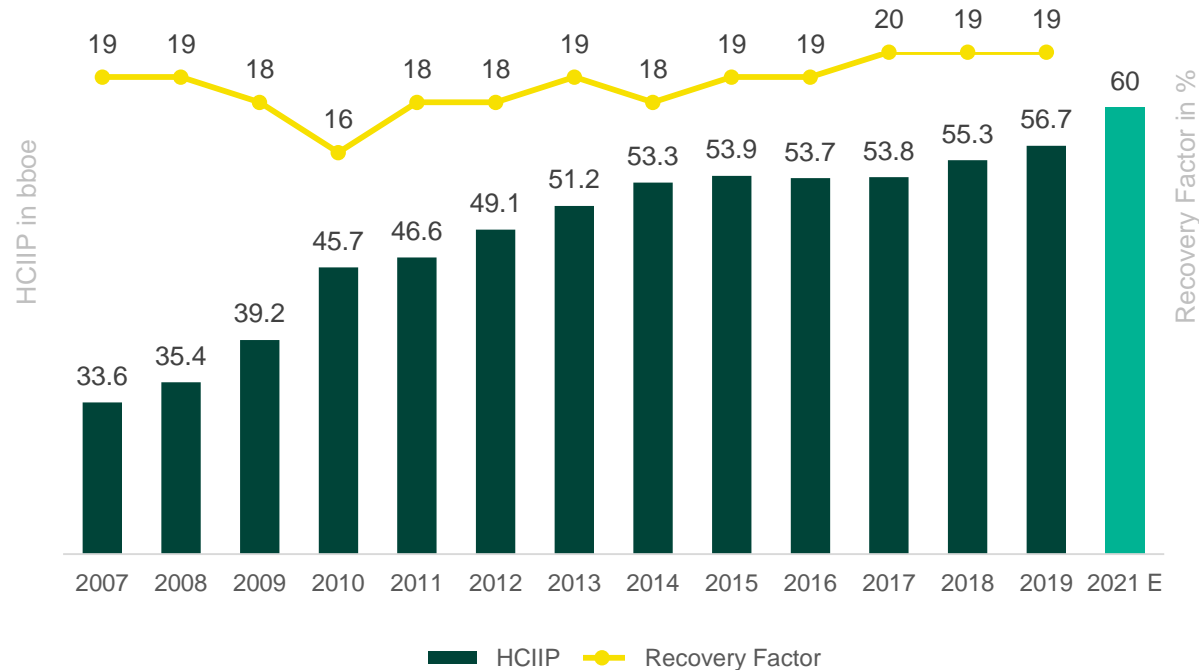
A blue-tinted photograph of an oil field. In the center, a large, complex wellhead structure is visible. Two workers in full safety gear, including hard hats and gloves, are positioned around the wellhead. One worker is crouching on the left, holding a tool, while the other is standing on the right, leaning over and working on a valve. The background shows a chain-link fence and a clear sky.

Expected 10% Production Growth by 2022, Underpinned by Incumbent Position in Colombia and Growth in the US



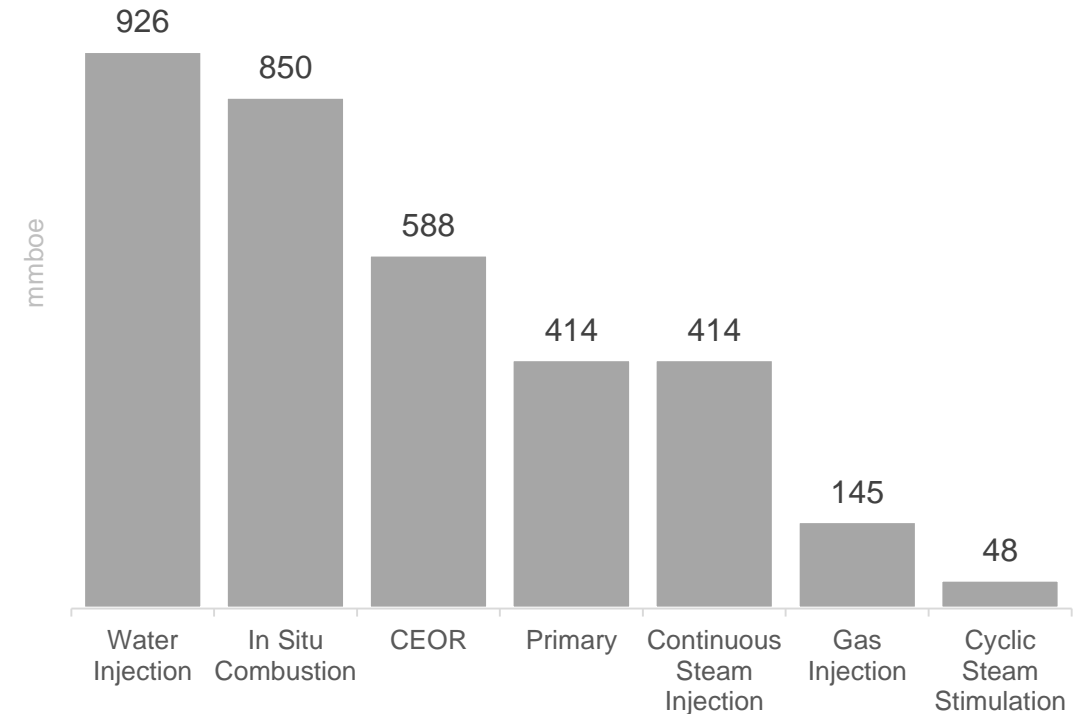
Sustained Increase in HClIP Demonstrates Potential of Current Fields

HClIP and Recovery Factor Ecopetrol S.A.



- 68.5% increase in HClIP from 2007 to 2019
- Expected Recovery Factor of 21% in 2022

Potential* Progress to Reserves

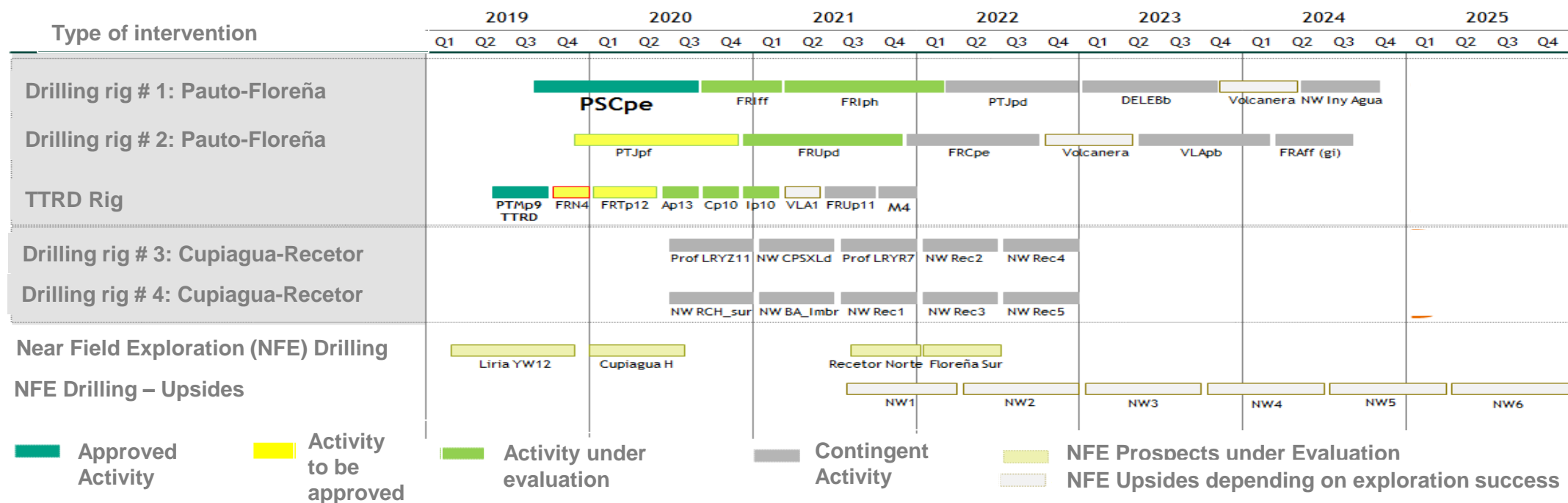


- 3.4 bboe beyond 3P reserves

* Potential not risked by volume, neither participation nor royalty percentages. Opportunities with medium-high level of uncertainty. Studies, pilots or analogies are needed before materializing an expansion.

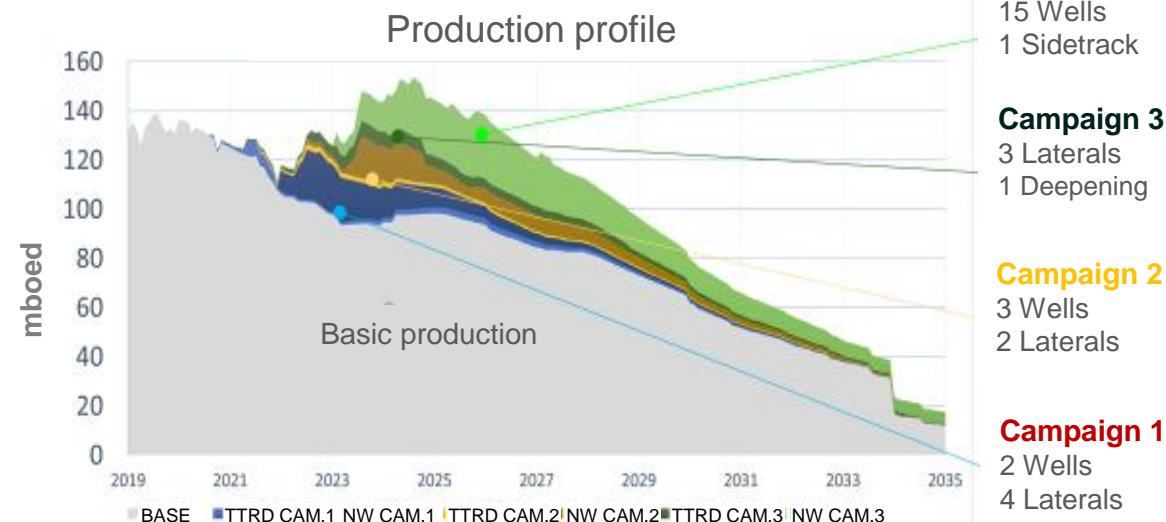


Piedemonte Secondary Development Plan



Key figures

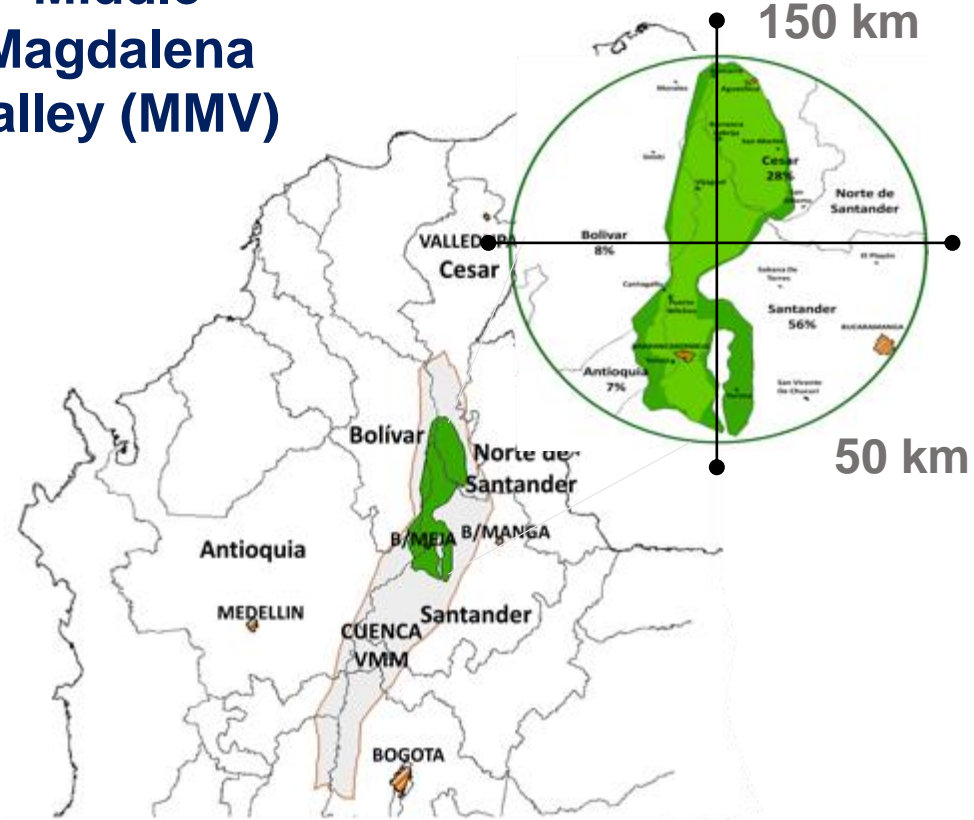
- Expected gas recovery factor* to **63%** from **27%**
- Expected crude oil recovery factor* to **51%** from **44%**
- Investments 2020-2022: **US\$724 M**
- Incremental oil between **30 - 90 MMBO**
- Incremental gas between **0.3 - 0.5 TCF**



*Expected Recovery Factor was calculated with Dec 2019 In Place Volumes, without taking into account new appraisal areas

Beyond Successful Pilot Tests: Unconventional Potential in the Middle Magdalena

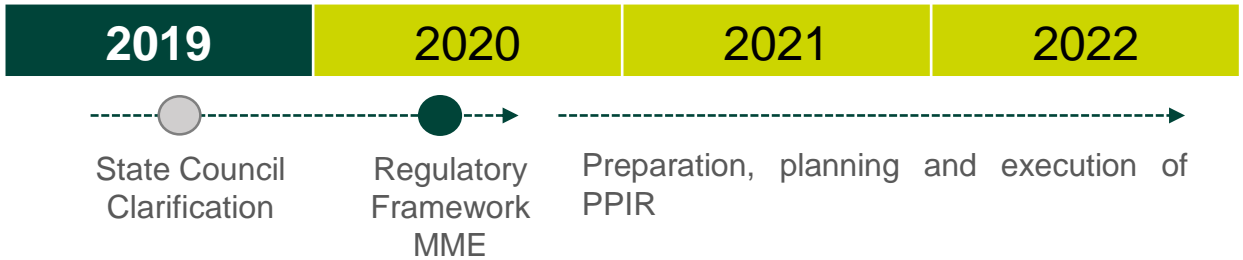
Middle Magdalena Valley (MMV)



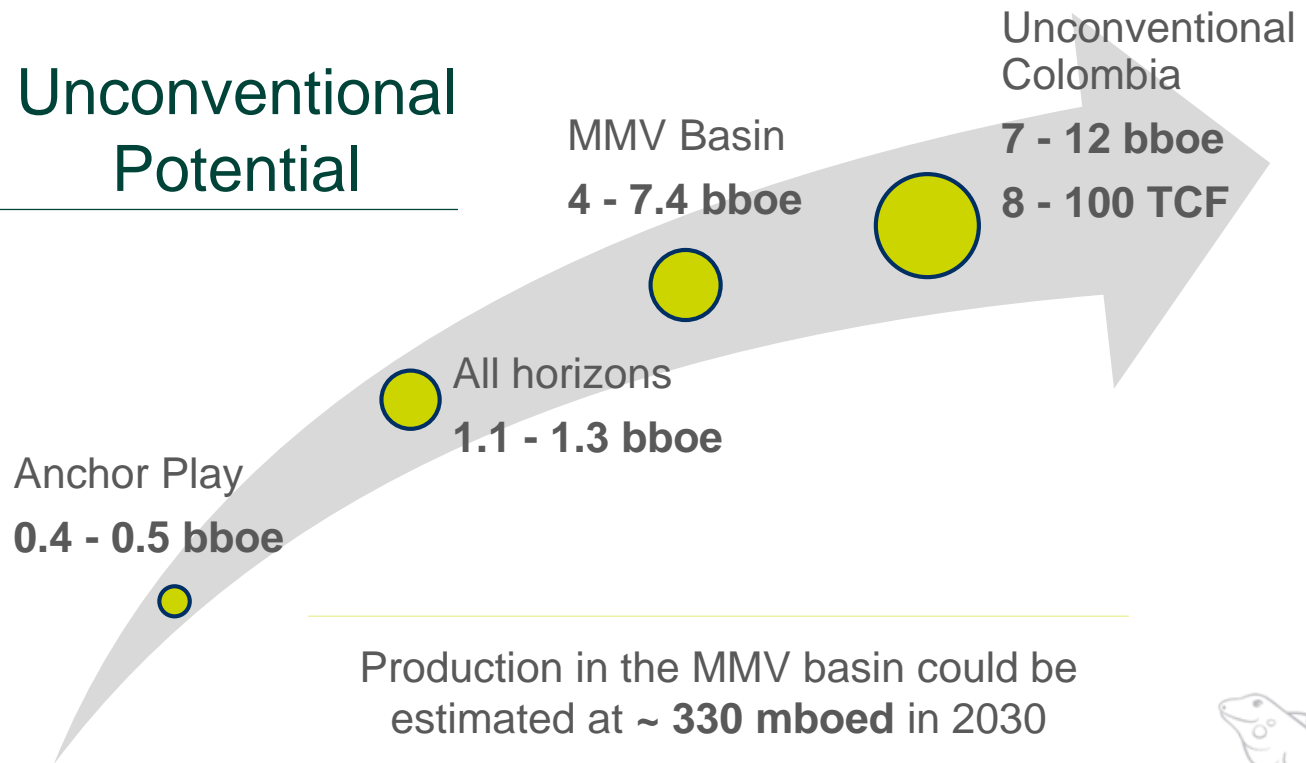
Prospective Area
1.3 m acres

Ecopetrol's Area
~730 k acres

Ecopetrol prepares for PPIR



Unconventional Potential



Production in the MMV basin could be estimated at ~ **330 mboed** in 2030



Rodeo JV: Permian Value Well on Track

2019 Key Facts

1P Reserves Incorporation

164
mmboe



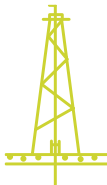
Operated Rigs

2
Active



Operated Wells

13 / 4
Spud / Online



Purchase Price

750
US\$ M



2020 Guidance

Net Production Ecopetrol

7 – 9
mboed

Operated Rigs

4
Active

Operated Wells

~ 90 / 50
Spud / Online

Capex Ecopetrol + Carry 2020

~ 700
US\$ M

Secondees

2

On Field



25

May, 2020

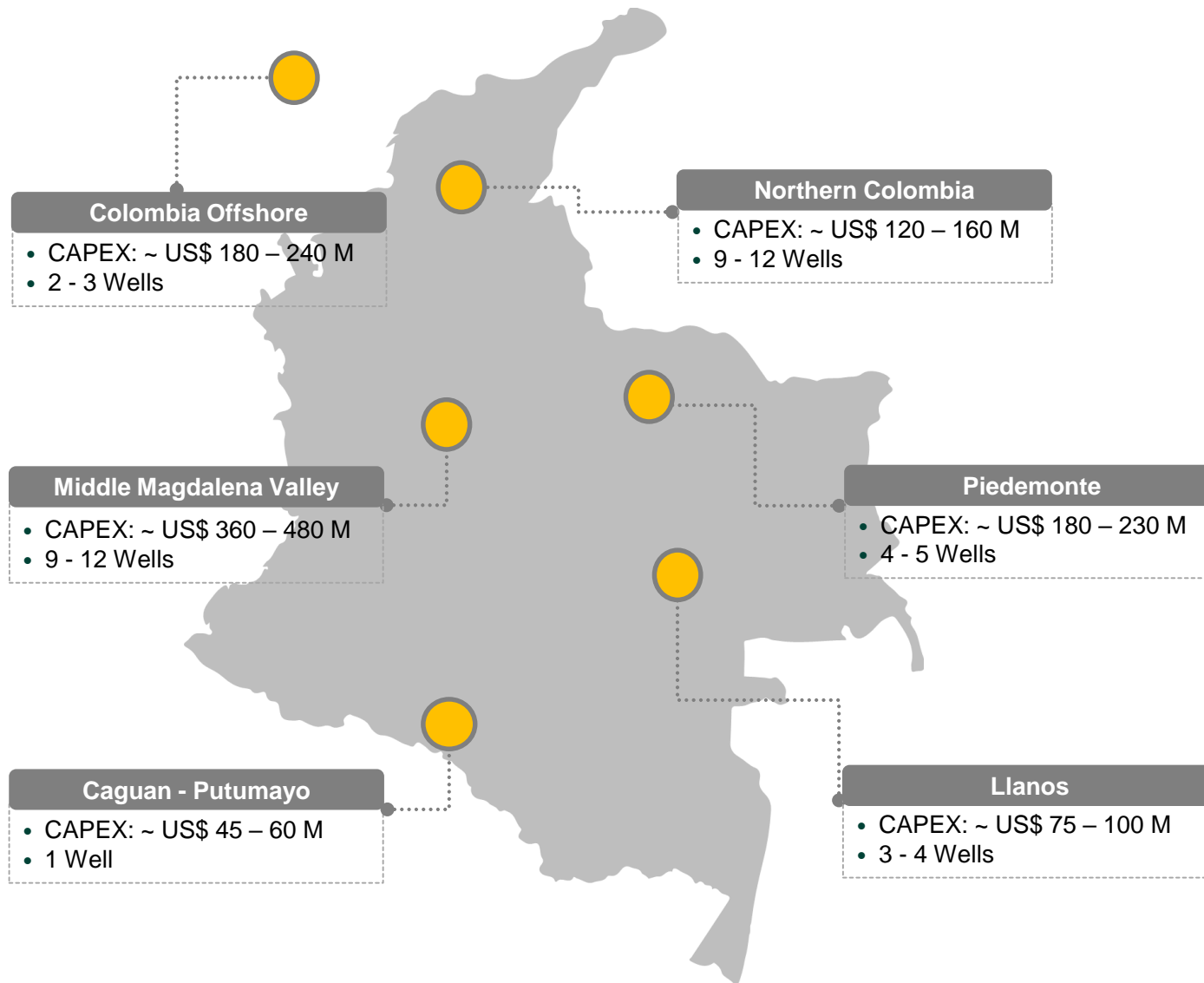


19

Ecopetrol Employees



Exploration Emphasis on Domestic NFE, Strengthening Natural Gas and Selected International Opportunities



Resources to Delimit

530 - 715 mmboe

Exploratory Wells

+30

Production (mboed)

2021 ~ **13 – 15**

2022 ~ **17 – 19**

Seismic Activity

2D (kms) ~ **375 – 500**

3D (kms2) ~ **3,000 – 4,000**

International Activity



- CAPEX: ~ US\$ 700 – 940 MUSD
- 3 Wells



- CAPEX: ~ US\$ 115 – 150 M
- 3 Wells



- CAPEX: ~ US\$ 117 – 150 M
- 2 Wells

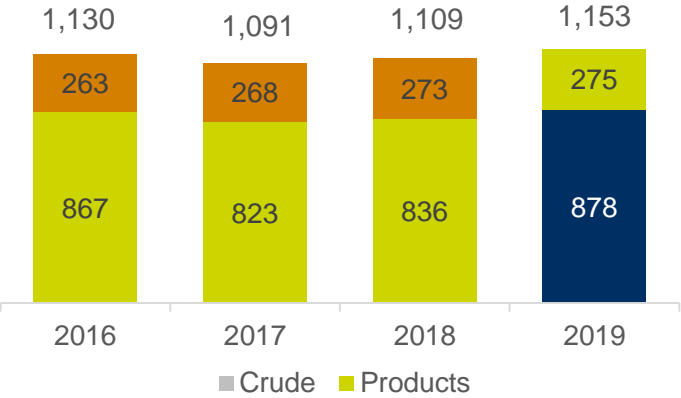




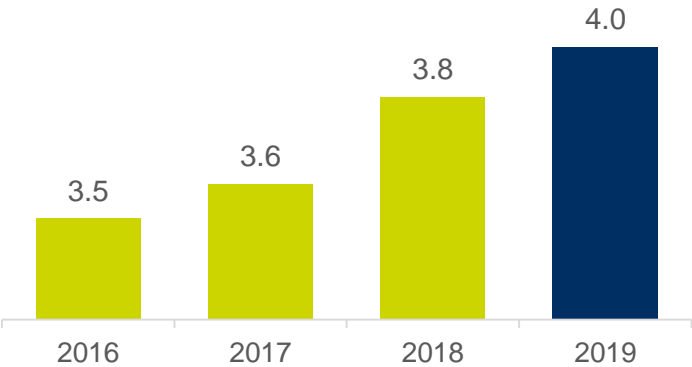
Midstream

Proven Track Record of Profitable Growth

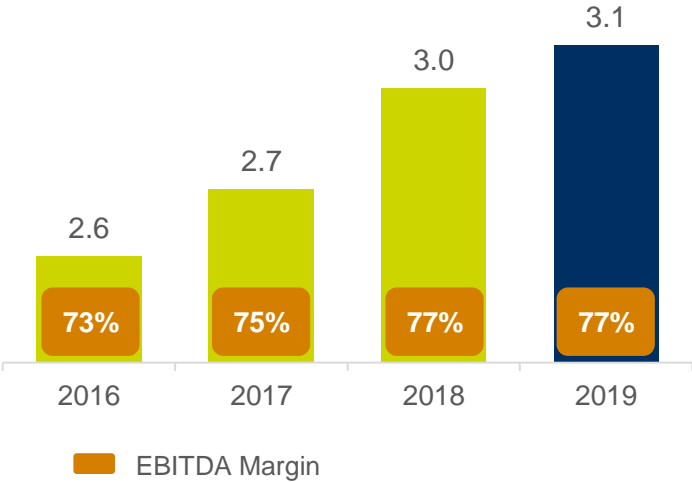
Transported Volume (mbd)



Revenues (US\$ B)



EBITDA (US\$ B)

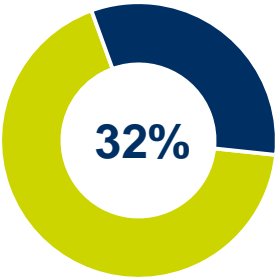


2019 Milestones



Crude Transportation Tariff Negotiation

Assures segment's stability
4 years period: until June 30, 2023



32% Contribution to the Group's EBITDA

Constant cash contributor
Stable results with low uncertainty



Commercial Strategy

Increase volumes
through pipelines versus trucks

Figures calculated with the average exchange rate of each year.



Pursuing Higher Efficiency and Growth Opportunities in Multipurpose Pipelines

2020 – 2022 Targets



1,100 – 1,250

Transported Volumes (mbd)

Ensuring a continuous, reliable,
efficient and safe operation



75% – 80%

EBITDA Margin

Maintaining profitability



US\$ 0.7 - 0.9 B

Capex

Capex Growth and
Operational Continuity

Multipurpose Pipelines

**Growth
Opportunities**



- Support demand growth (CAGR 2%)
- Pipeline operating plan that allows a 2% increase in the service factor
- **Protect market share and increase reliability through strategic investments**

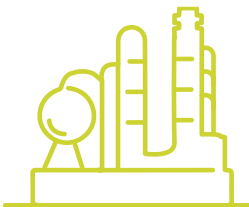


Downstream



Capturing Value from Current Assets and Making Profitable Investments in Response to Market Conditions

2020 – 2022 Targets



370 – 420

Throughput (mbd)

Maximizing value from existing assets



10 – 15 US\$/BI

Refining Margin

Higher Profitability



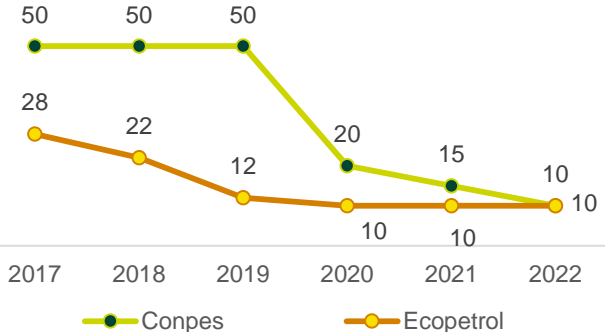
US\$ 1.5 – 2.0 B

Capex

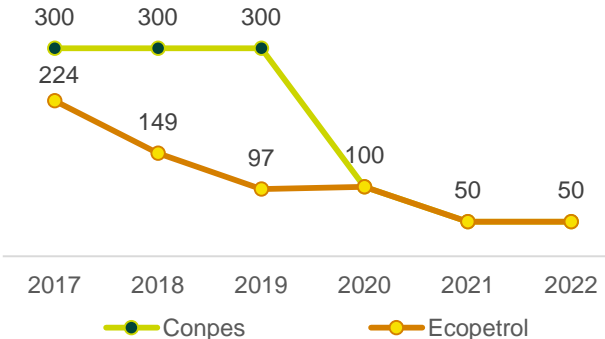
Operational Continuity

Fuels Quality

**Diesel b2 – Transition to Euro V/VI
(Sulphur Content - PPM)**



**Gasoline – Transition to Euro IV
(Sulphur Content - PPM)**



2023+

Growth Opportunities

Barrancabermeja
Increase of
conversion capacity

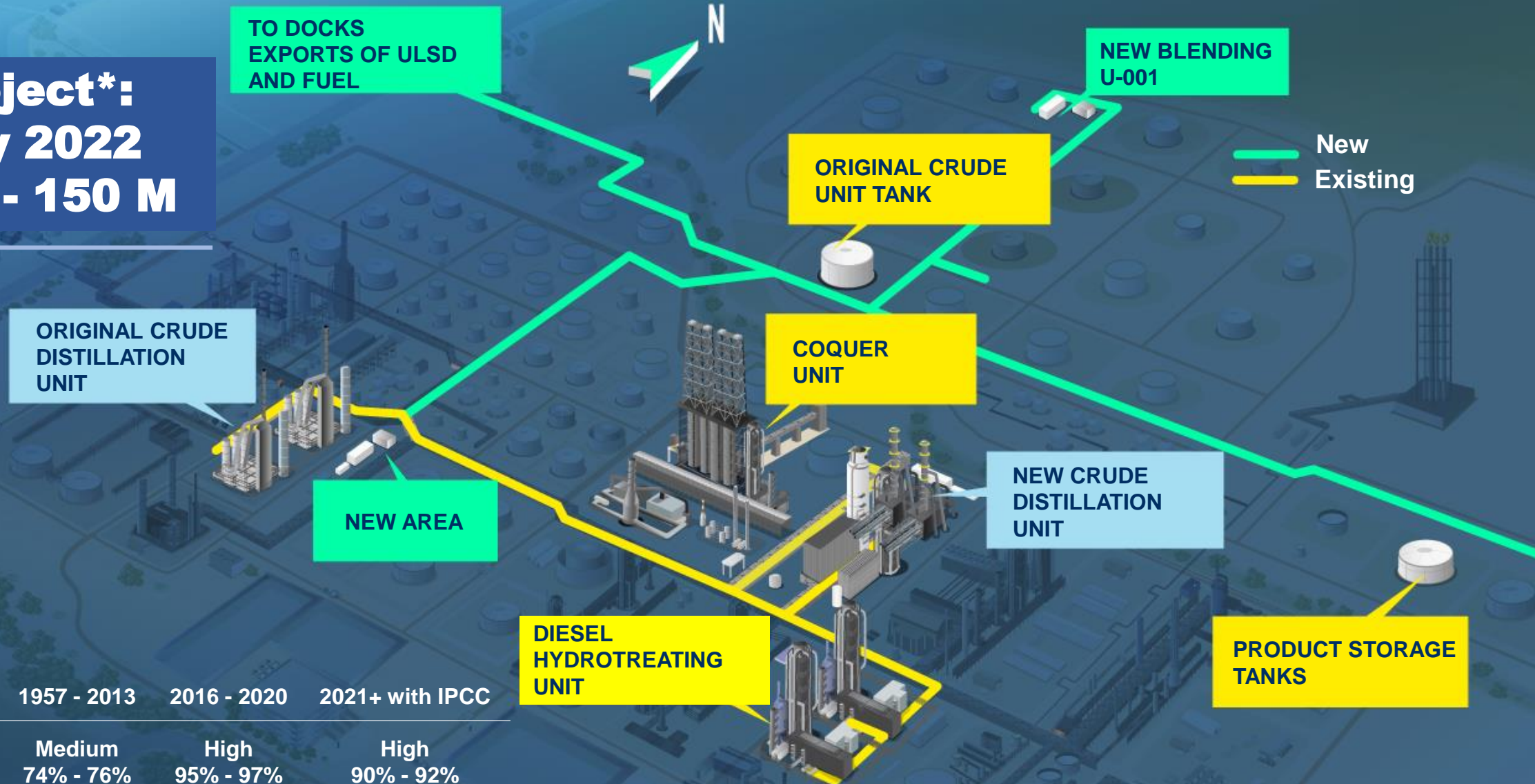


Cartagena
Asset optimization and
higher value of gasoline
components

**Maximize synergies
between refineries**



IPCC Project*: Capex by 2022 US\$ 140 - 150 M



Year	1957 - 2013	2016 - 2020	2021+ with IPCC
Conversion	Medium 74% - 76%	High 95% - 97%	High 90% - 92%
Slate	80 mbd	150 mbd	200 mbd
Type of Crudes	Light and Medium	Medium and Heavy	Medium and Heavy
Process Units	8	34	35

*IPCC: Interconnection of Cartagena Crude Units

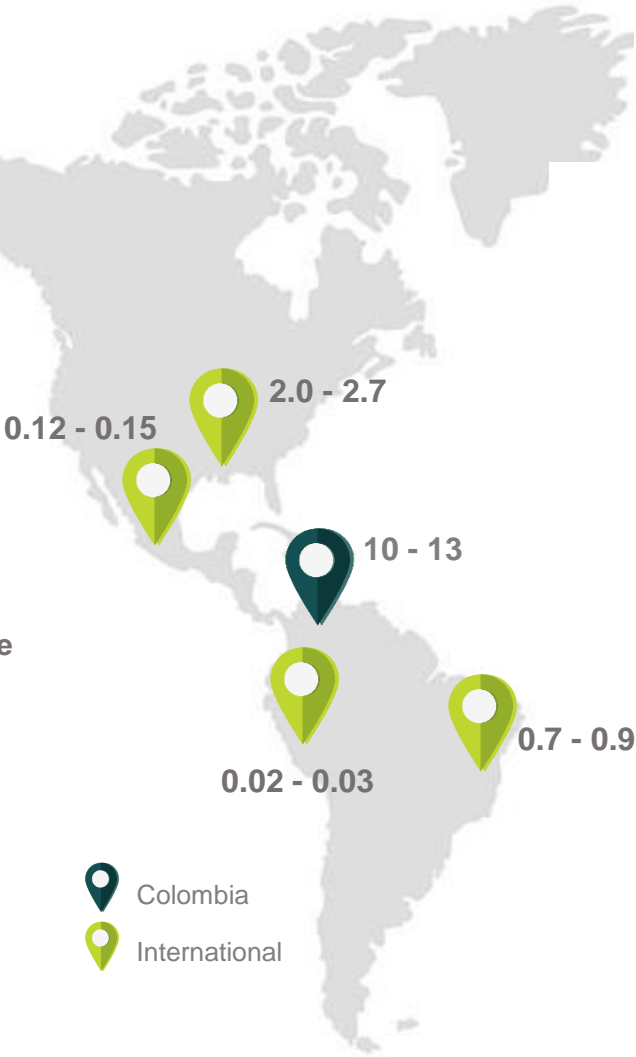
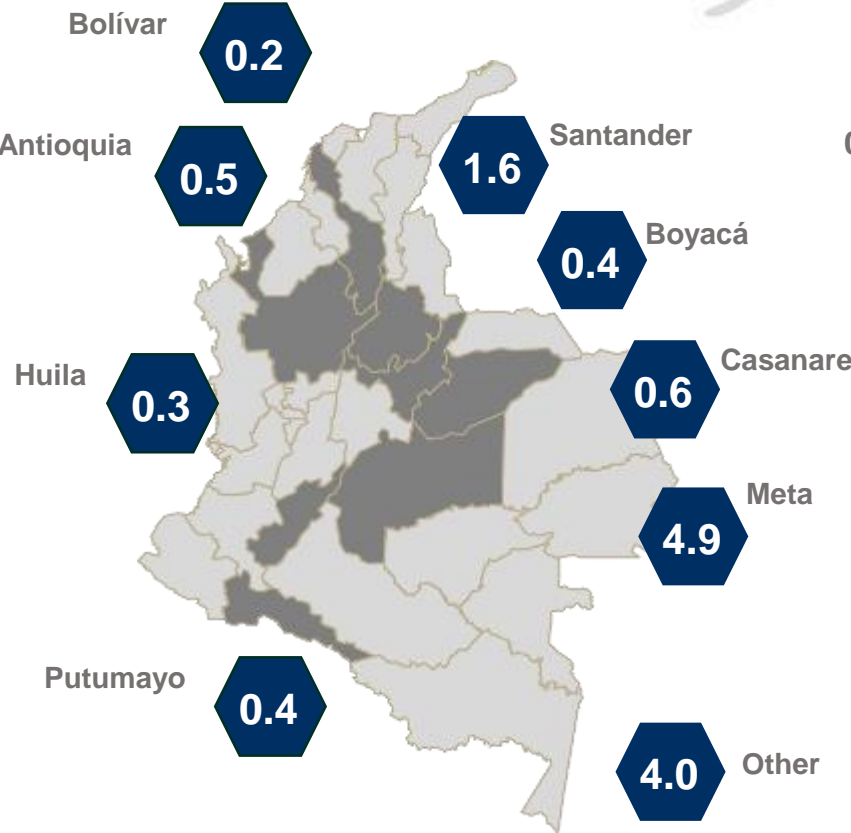


Financials

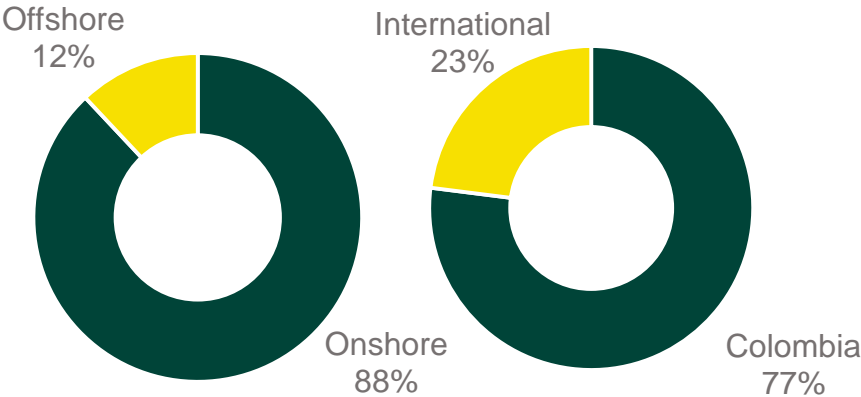
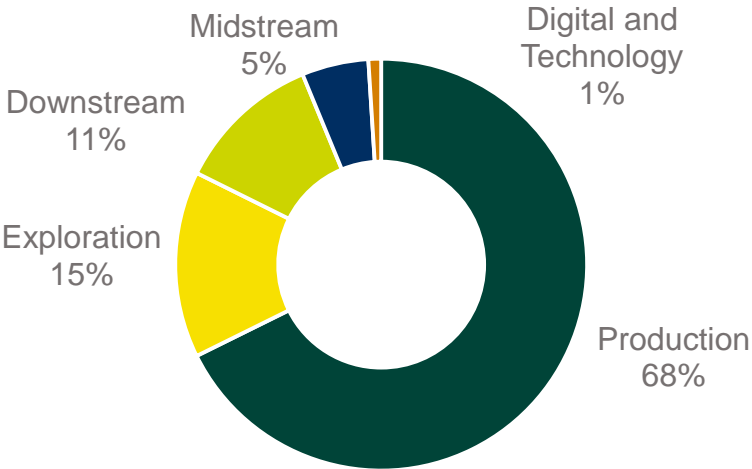


Investments* in Colombia in the ~ US\$ 10 - 13 B range and ~ US\$ 3 - 4 B internationally, focused in US and Brazil

Investment by Region
Figures in US\$ B



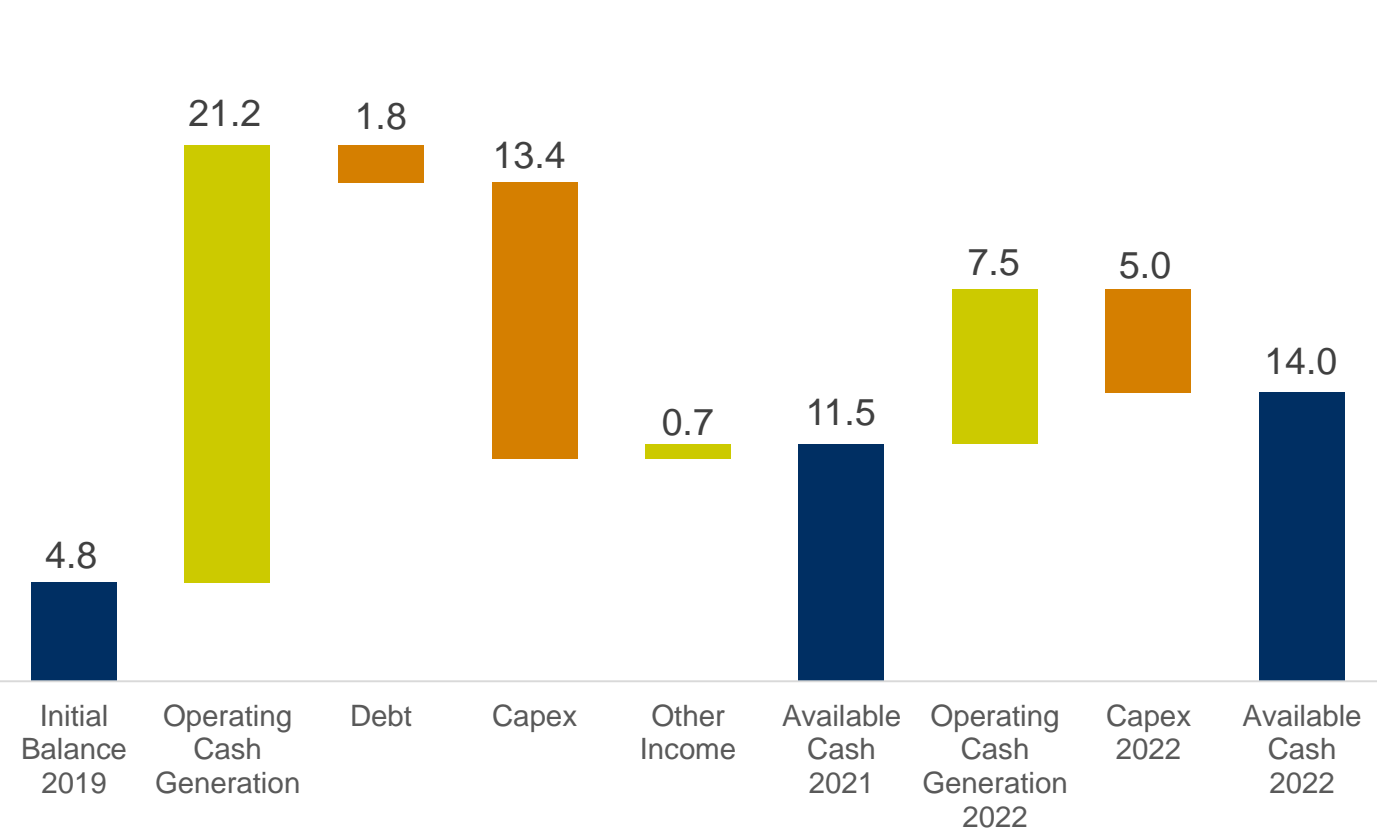
Colombia
International



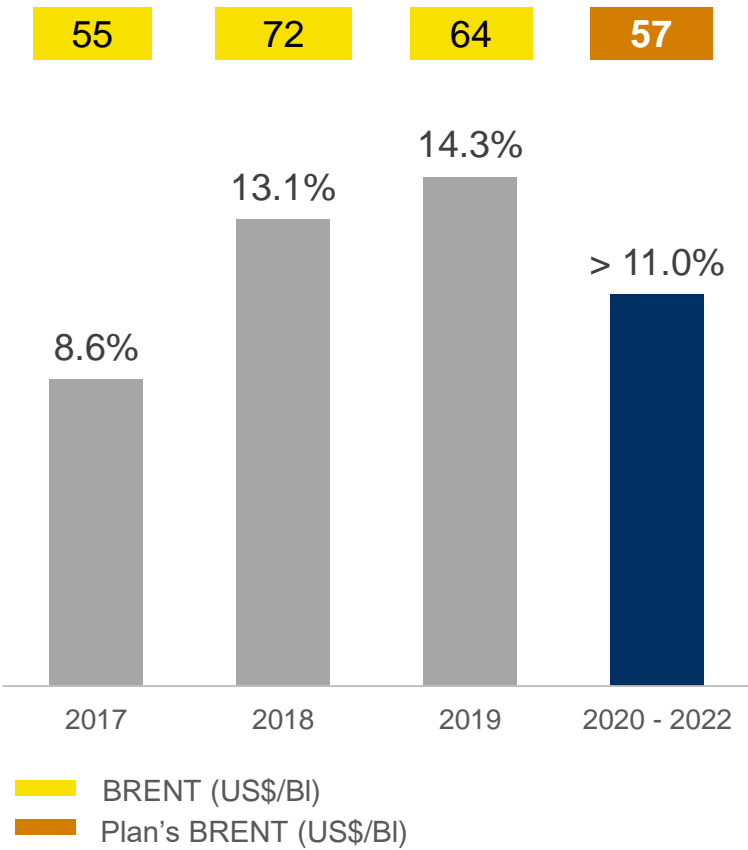
* Organic Investments.

Continued Focus on Cash and Value Generation

Cash Flow (US\$ B)



ROACE*

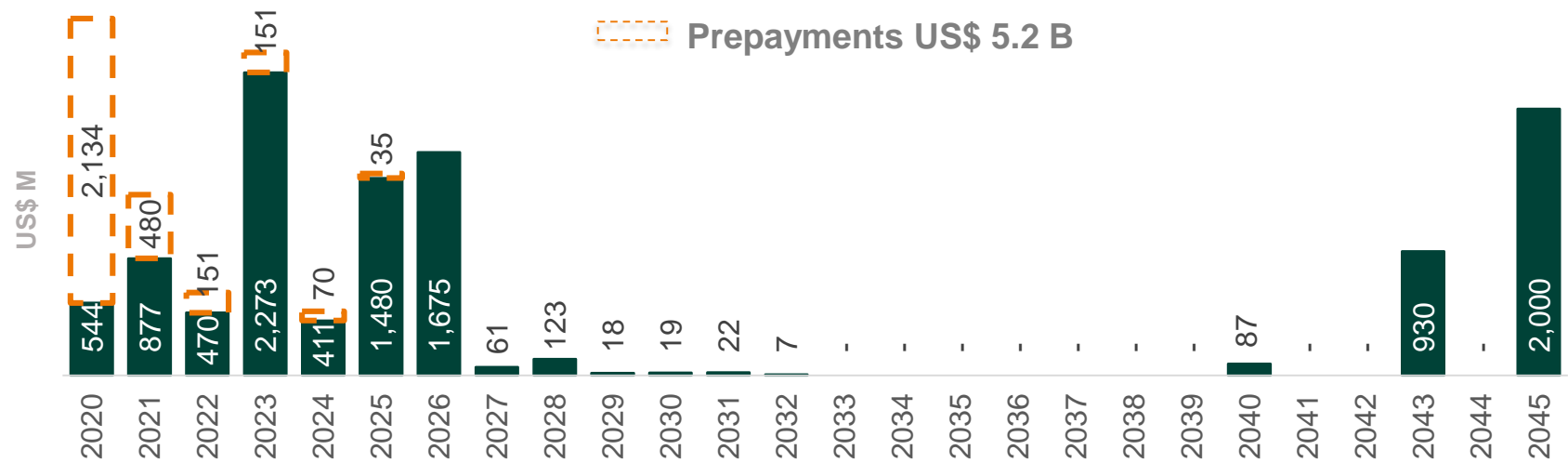


Business Plan focused on attractive value generation at 57 US\$/BI Brent

*Figure calculated in COP.



Debt Profile



Group's Consolidated Debt - December 2019

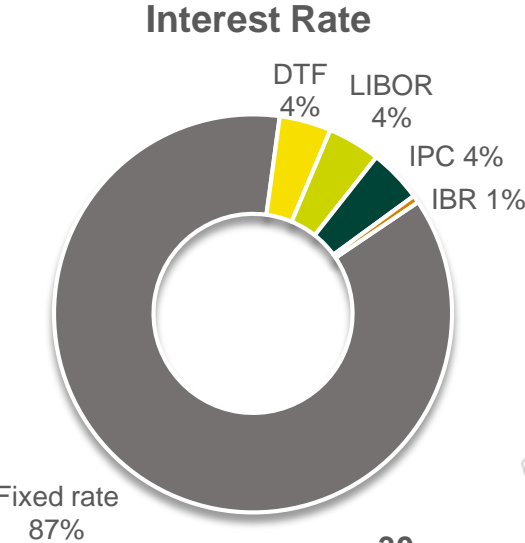
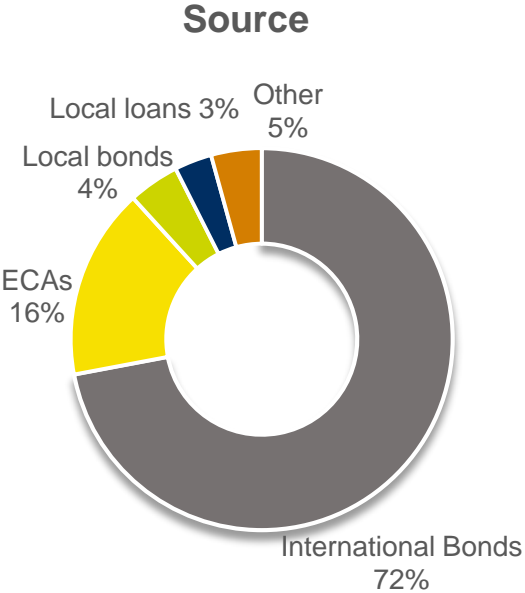
Company	Debt in US\$*	Debt in COP*	Total*
Ecopetrol	9,403	471	9,874
Bioenergy	-	124	124
Ocesa	500	-	500
Bicentenario	-	305	305
Invercolsa	-	99	99
ODL	-	94	94
Total	9,903	1,093	10,996
%	90%	10%	100%

*Nominal Value in US\$ M

Average Life
10 Y

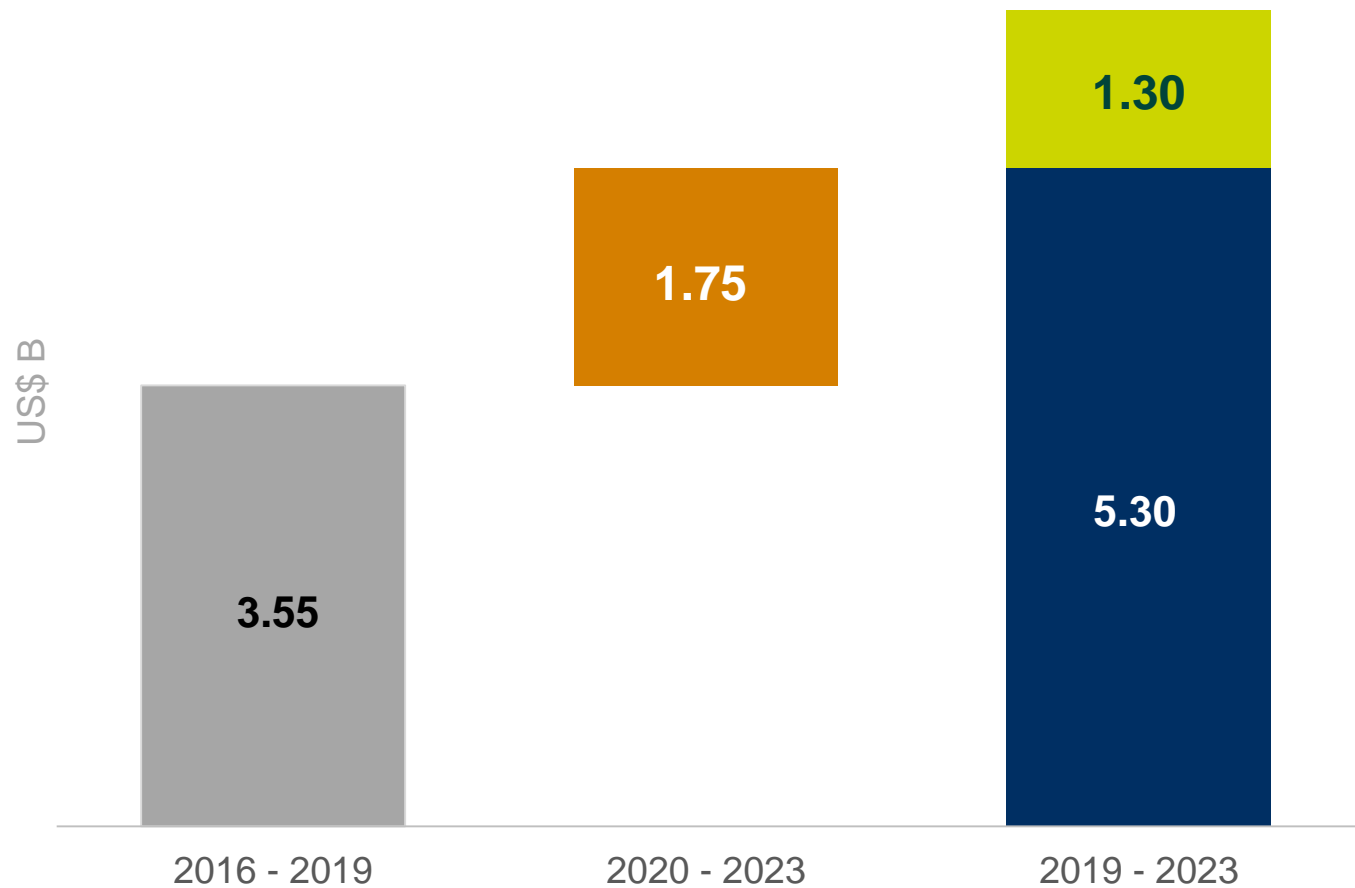
Average Cost in COP
9.9%

Average Cost in US\$
4.9%

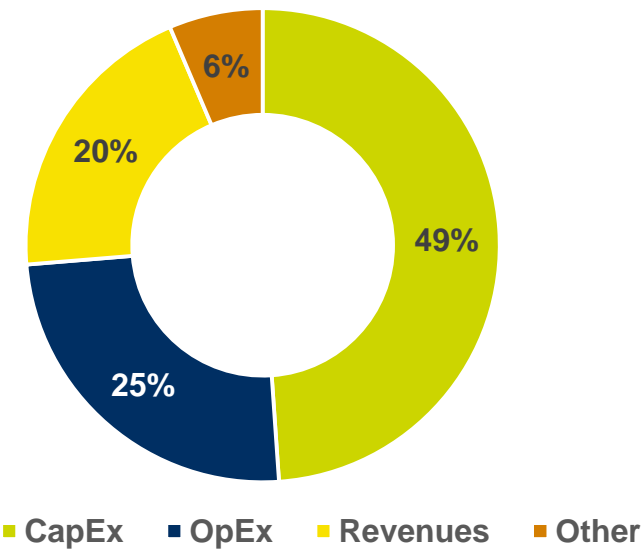


Business Transformation Through Greater Efficiencies

Efficiencies
2019 – 2023



87%
Structural Efficiencies

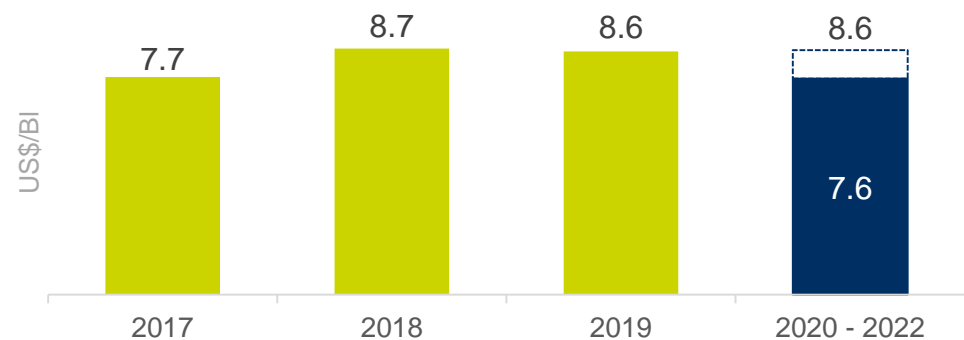


FOCUSED ON:
OpEx
CapEx
Revenues strengthening



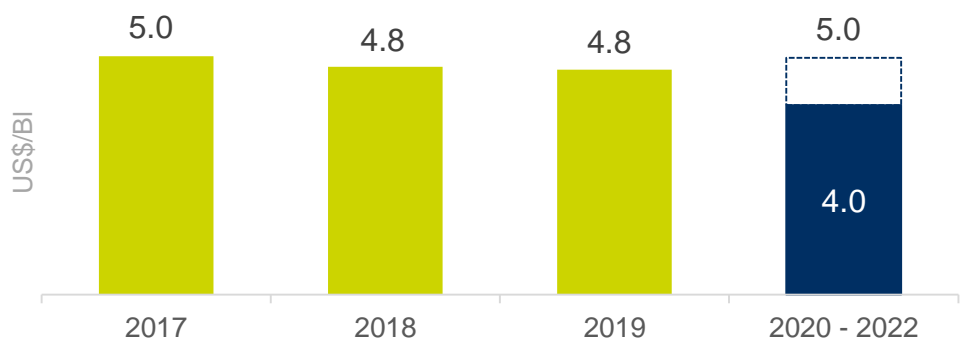
Continue Focus on Cost Efficiency

Lifting Cost



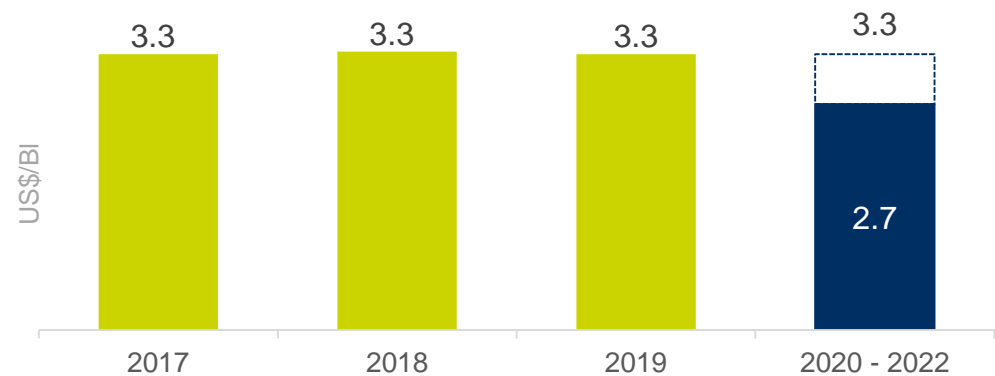
Efficiencies in operational processes (Energy, Subsurface and Dilution) and entry of new production facilities

Refining Cash Cost



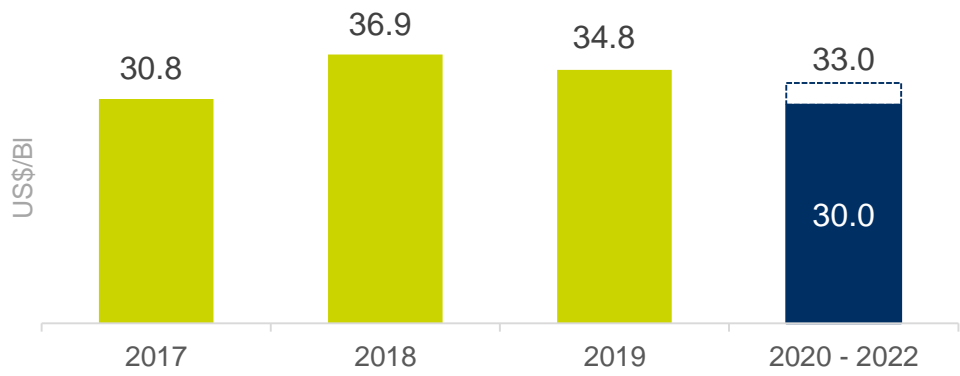
Operational efficiencies and capture of synergies between both refineries

Transported Barrel Cost



Costs and expenses optimization

Total Cost*



Following the premises of the business transformation plan

* Includes: Cost of Transport, Operational Expenses, Operational Costs. Calculated over Barrels Sold.



Enablers

A wide-angle, high-angle photograph of an industrial refinery complex. In the foreground, a large, curved metal pipe runs diagonally across the frame. Numerous workers in dark uniforms and hard hats are walking across the paved ground. In the background, there are large storage tanks, distillation columns, and other industrial structures. The entire image is overlaid with a semi-transparent yellow filter.

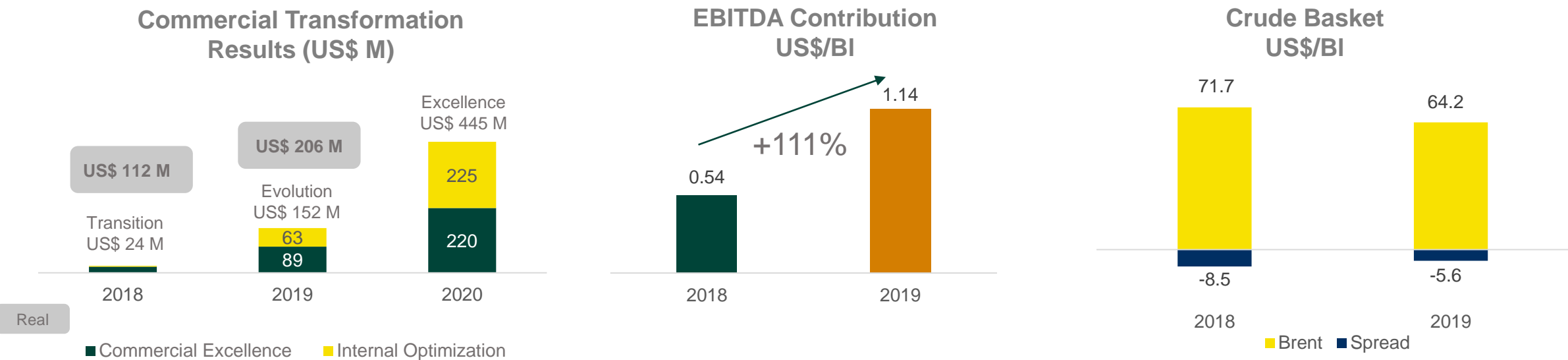
Consolidation of a Sustainable Digital Strategy



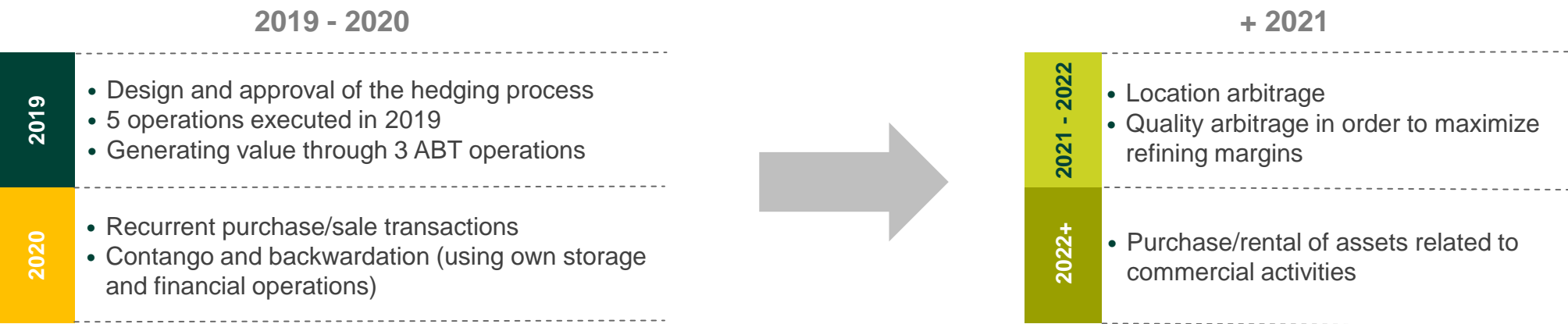
- ▶ **Beginning of digital transformation** (Digital Vice Presidency **Creation**)
- ▶ **Optimization** of infrastructure and applications
- ▶ **Definition** of the digital agenda First Wave
- ▶ **Sanction of Digital Agenda** projects:
 - ▶ Integrated Fields and Volumetric Management
 - ▶ Gross Refining Margin
 - ▶ Digital Petrotechnical
 - ▶ GREAT: Midstream Planning and Programming
 - ▶ Integrated Commercial Cycle
 - ▶ Investment Management
 - ▶ Financial Close
 - ▶ Procure to Pay
 - ▶ Legal Management
 - ▶ Document Management
- ▶ **Wave Two** definition
- ▶ Develop agile capital value processes



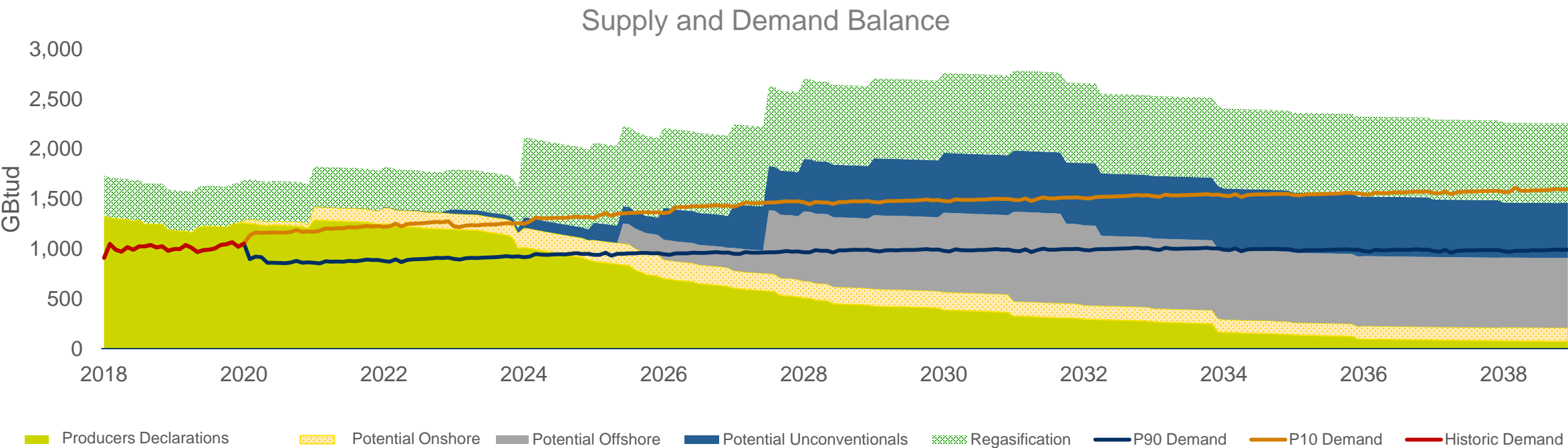
Evolving to Optimize the Commercial Value Chain



Asset Backed Trading



Gas Provides Material Growth Opportunities to the Group



Source: Ecopetrol. As of December, 2019

Competitiveness of Gas Prices

US\$/Mbtu

Colombia

4.1*

Henry Hub

2020 2030

2.3 – 3.5

@ Cartagena

6.0 – 7.5

Gross Operating Margin of Gas

55%

2019

Investment 2020 - 2022

767

US\$ M

2030

35%

Expected share of natural gas in the production

36

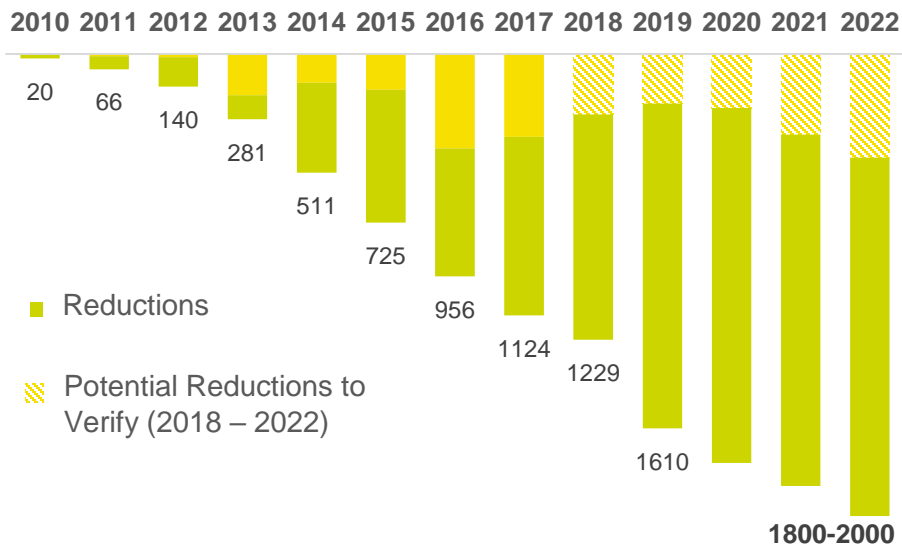
*Average price of natural gas in Colombia reported by the Market Manager

A photograph of three people smiling outdoors. In the foreground, a woman with dark hair tied back is smiling. Behind her, a man with a beard and mustache is smiling. To the right, another man wearing a wide-brimmed hat, glasses, and a lanyard with a university ID is smiling and holding a clipboard. The background shows trees and a building.

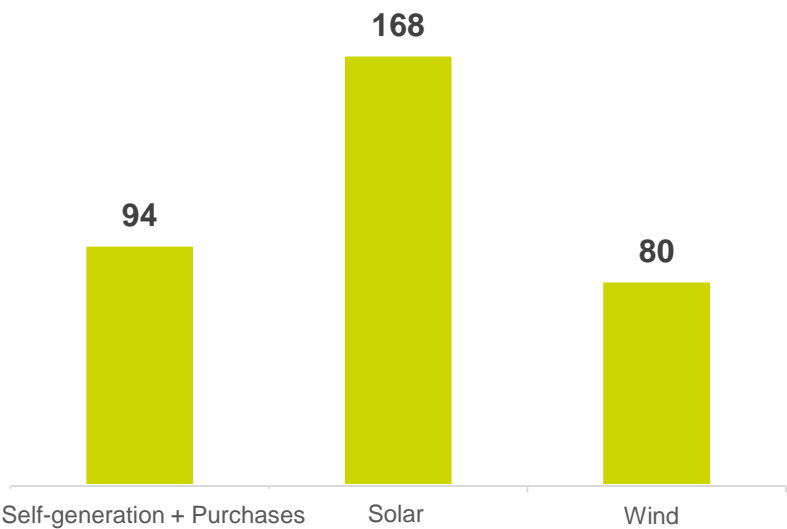
ESG Initiatives

Progress in the Decarbonization Plan

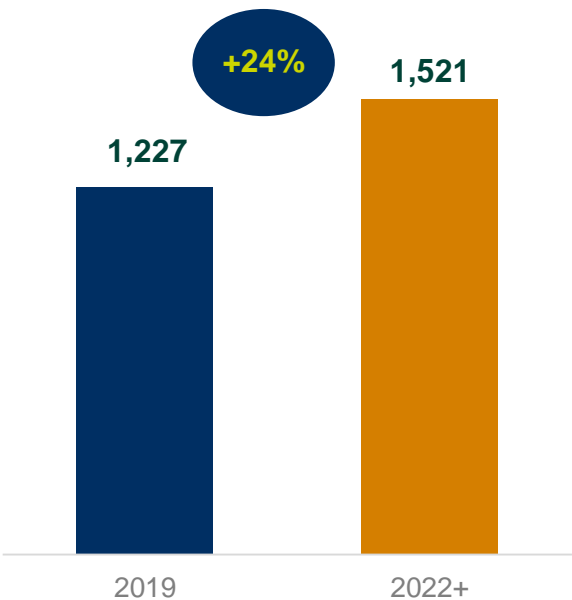
Reduction of Greenhouse Emissions
KtCO2e



Renewable Energies in the
Energy Matrix by 2022 (MW)



Total Generation Capacity (MW)
Strong Growth in Renewables

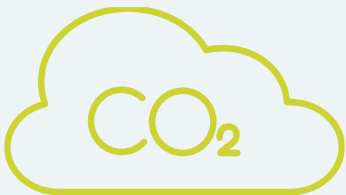


2020 - 2022

- Annual reduction between 1.8 - 2.0 MtCO2e of greenhouse gas emissions in 2022
- Significant reduction in gas flaring
- 20% self-generation capacity with renewable energy
- Increase of between 2% and 3% in energy efficiency

2030

- Zero routine flaring
- 20% reduction of CO2e
- Nature based solutions portfolio in place



Making Progress in Diversity and Inclusion

Gender

- Women participation in leadership and core positions
- Work/life balance
- Gender based violence prevention

72%

Vacancies of leadership positions with women as final candidates

38% in 2018

Disability

- Inclusive labor environment
- Taking care of Caregivers
- Moving from integration to inclusion

7.6%

People with disability*

Victims of Internal Conflict, Veterans and Ex-Combats

- Economic, social and cultural inclusion
- Equal opportunities

2.9% 0.2%

Victims of internal conflict*

Veterans*

Ethnicity and Other Social Conditions

- Cultural awareness
- Equal opportunities and entrepreneurship

4.0%

of people identify themselves as part of an ethnic minority group*

Sexual Orientation

- Awareness, training and information
- Friendly labor places for SOGI community free of discrimination
- Equal opportunities







6

Ongoing initiatives with 28 volunteers



Fully Committed to Best Corporate Governance Practices

Board of Directors

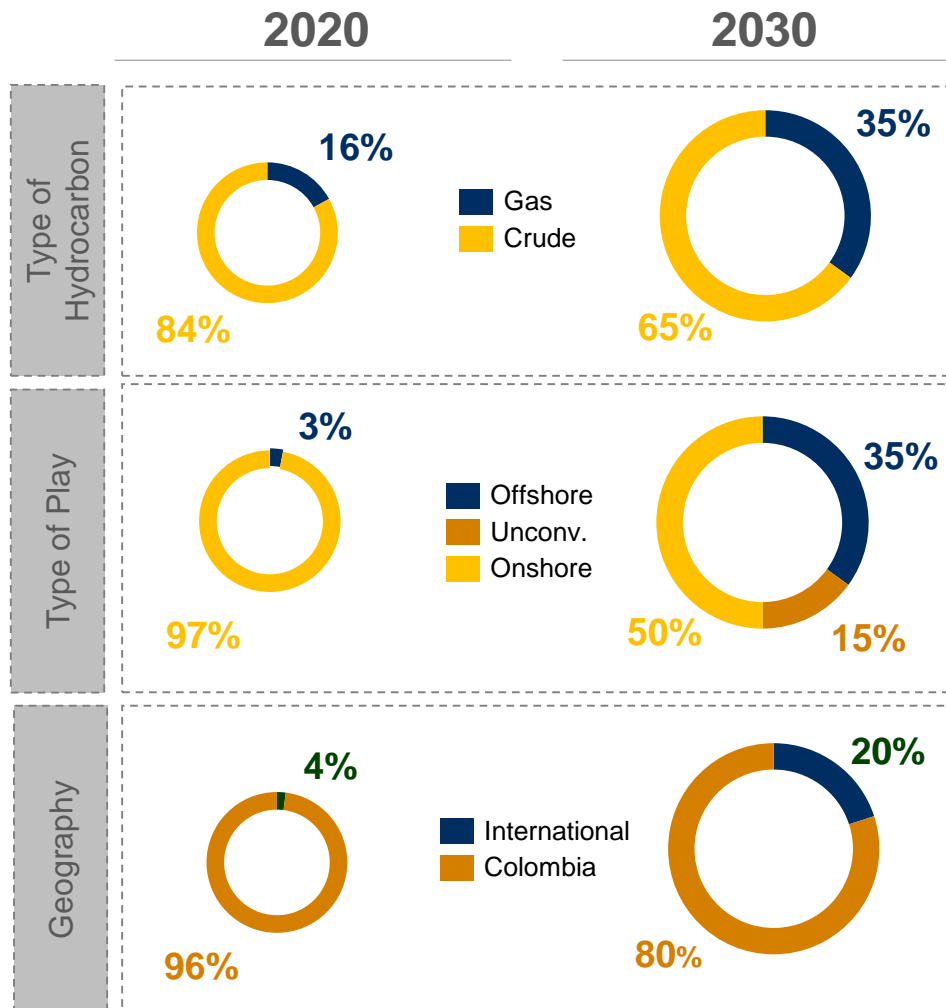
	Orlando Ayala Independent
	Luis Guillermo Echeverri Independent
	Juan Emilio Posada Independent
	Sergio Restrepo Independent
	Luis Santiago Perdomo Independent
	Esteban Piedrahita Independent
	Germán Quintero Non Independent
	Hernando Ramírez Independent
	Carlos Gustavo Cano Independent

Board Oversight	Ethics and Compliance	Protection of Minority Shareholders	Corporate Governance Model
<ul style="list-style-type: none"> • Best Corporate Governance Practices • Remuneration and Nomination • HSE • Innovation and transformation to digital leadership • Strategy and New Business • Succession planning policy 	<ul style="list-style-type: none"> • Commitment to Transparency • Training in Ethics aspects • Multiple venues to look for guidance or whistleblowing • Preventive surveillance to prevent money laundering and terrorism financing • Fair and confidential investigation process 	<ul style="list-style-type: none"> • Independent directors: from four in 2008 to eight in 2019 • A position in the Board of Directors nominated by the ten largest minority shareholders • A position in the Board of Directors nominated by hydrocarbon producing regions in Colombia • No director with ministerial rank following OECD recommendations • Clear and timely information to shareholders • Shareholder's Office 	<ul style="list-style-type: none"> • New Corporate Governance Model that underpins the execution of the business plan



The Road Ahead

Focused Diversification in Line with Strategic Priorities



Approach to Energy Transition

1

Optimization of Upstream Portfolio

- Accelerate development of existing fields
- Shift towards gas assets
- Priority to short-cycle and low-cost projects

2

Climate Change

- Decarbonization: ~ 20% reduction of GHG emissions by 2030
- Cleaner fuels to Colombia, < 10 ppm of Sulphur in diesel b2 and gasoline
- Renewable energy into the energy matrix

3

Evaluate new business opportunities aligned with the energy transition scenario



Definitions

Acronym	Definition
bboe	Billion barrels of oil equivalent
Bl	Barrel
boed	Barrels of oil equivalent per day
CAGR	Compound Annual Growth Rate
CEOR	Chemical Enhanced Oil Recovery
CFFO	Cash Flow From Operations
EOR	Enhanced Oil Recovery
ESG	Environmental, Social and Governance
Gbtud	Giga BTU per day
GHG	Greenhouse Gas
HCIP	Hydrocarbons Initially In Place
JV	Joint Venture
KtCO2e	Thousand Metric Tons of Carbon Dioxide equivalent
mbd	Thousand barrels per day
mboe	Thousand barrels of oil equivalent
mboed	Thousand barrels of oil equivalent per day
Mbtu	Million BTU
MMSTB	Million Stock Tank Barrels
mm3	Million Cubic Meters
MtCO2e	Million Metric Tons of Carbon Dioxide equivalent
MW	Megawatts
NFE	Near Field Exploration
PPIR	Pilot Projects for Integral Research
PPM	Parts Per Million
ROACE	Return on Average Capital Employed
RRR	Reserves Replacement Ratio
SOGI	Sexual Orientation and Gender Identity
TCF	Trillion Cubic Feet
TRIF	Total Recordable Case Frequency
US\$ B	Billion dollars
US\$ M	Million dollars





Ecopetrol S.A. All rights reserved. The reproduction of this presentation is forbidden without the written authorization of Ecopetrol S.A.