



# ENERGY THAT TRANSFORMS





# 2040 CORPORATE STRATEGY

## COMPETITIVE RETURNS

**8%-10%** Return on capital (ROACE)

**< 2.5x** Gross debt / EBITDA

**13 - 20 TCOP**  
Annual transfer payments to the Nation \*

## CUTTING-EDGE KNOWLEDGE

**20 - 30 BUS\$**  
(~76 - 114 TCOP)

Cumulative EBITDA by 2040 enabled by technology and innovation

**70%** of personnel in reskilling by 2030 (to face new challenges)

## GROW WITH THE ENERGY TRANSITION

**13,000 - 14,000 MUS\$**  
(~49 - 53 TCOP)  
Annual EBITDA by 2040

**30%-50%**  
Share of low-emission business in GE EBITDA

## GENERATE VALUE THROUGH TEG

**Zero** CO2 emissions by 2050 (Scopes 1 and 2)  
-50% cutback of total emissions by 2050

**Zero** Water discharges by 2045

**230,000** Non-O&G positions by 2040

Assumptions: Brent (2025- 2040) 45 -55 US\$/Bl. Exchange rate: \$3,800/ cop

\*Includes: Royalties, taxes and dividends



# ECOPETROL AIMS FOR NET-ZERO CARBON EMISSIONS

BY 2050

TARGET BY

2030

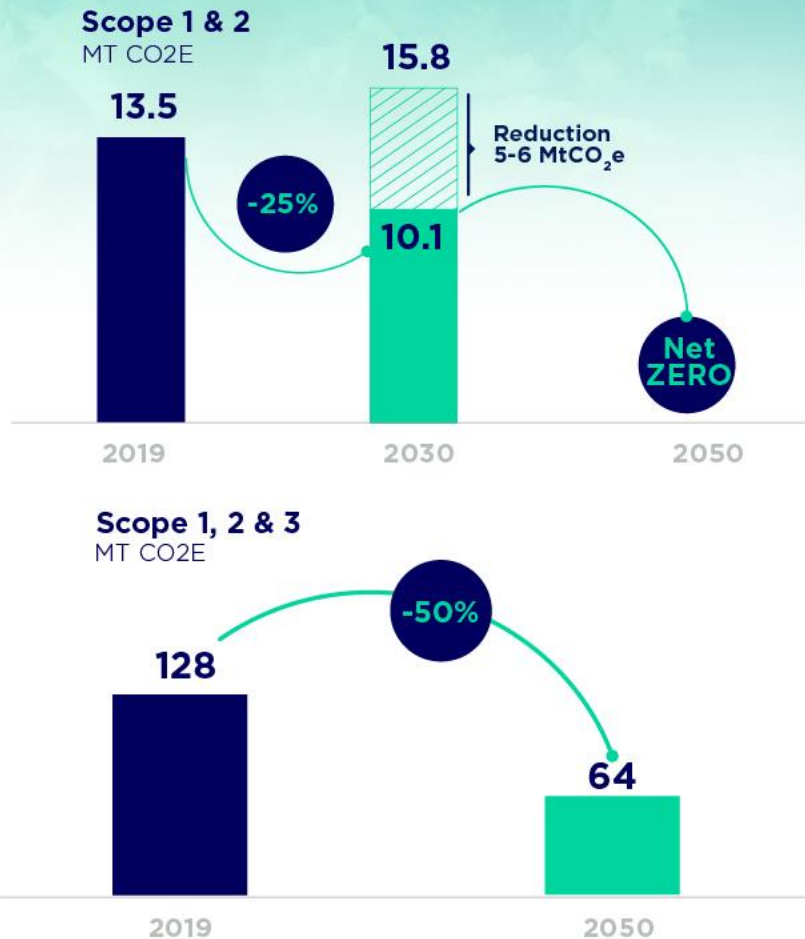
**REDUCTION**  
25% vs. 2019  
scope 1 & 2

TARGET BY

2050

**NET - ZERO  
EMISSIONS**  
scope 1 & 2

**REDUCTION**  
50% vs. 2019  
scope 1, 2 & 3



## INITIATIVES



**Reduction of fugitive**  
emissions, venting, and  
flaring



**Energy efficiency**



**Renewable energies** (solar,  
wind, geothermal and  
biomass)



**Hydrogen initiatives**



**Natural climate** solutions



**Carbon Capture, Usage and  
Sequestration**

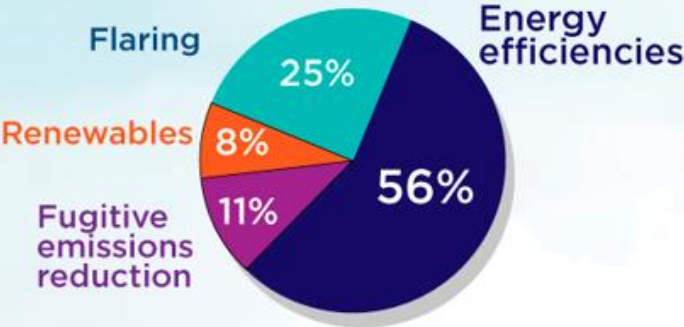


**Energy storage** in batteries

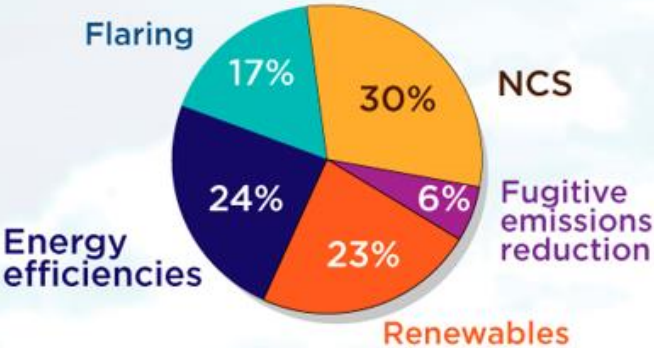
# ADVANCING IN OUR DECARBONIZATION GOALS

## DISTRIBUTION BY TYPE OF INITIATIVE

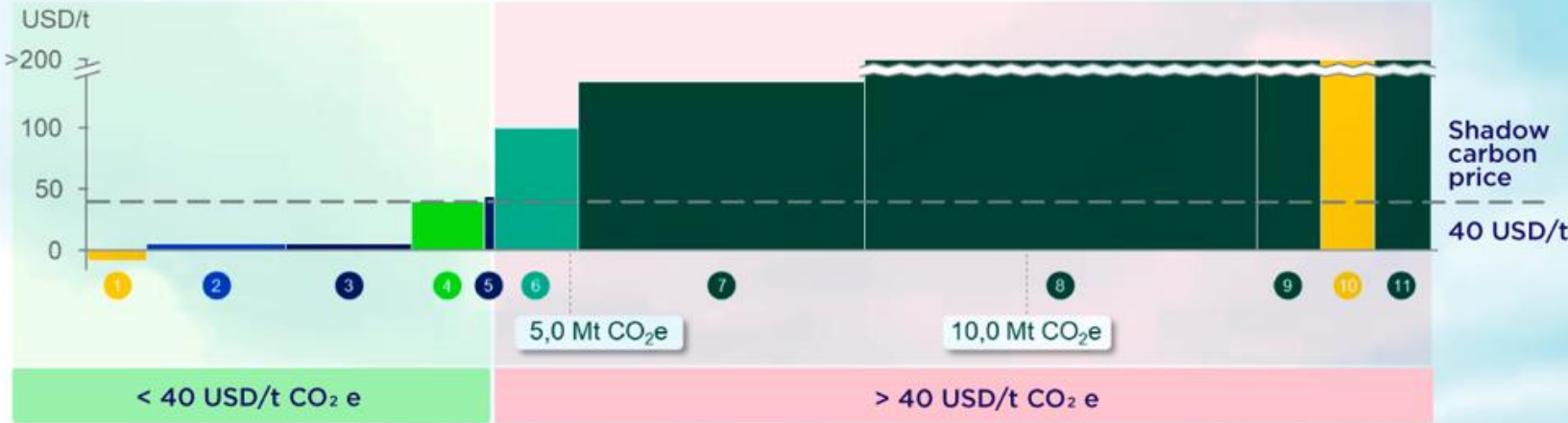
2025



2030



## ABATEMENT CURVE



### Initiatives


- |   |   |  |
|---|---|--|
| 1 Solar and wind power                    | 5 Heat recovery form combustion gases                               | 9 CCUS - Cartagena refinery Industrial Service capture & and EOR Venting |
| 2 Fugitive emissions, flaring and venting | 6 Green Hydrogen in Cartagena Refinery                              | 10 Solar and wind power with storage                                     |
| 3 Energy efficiency                       | 7 CCUS - Barranca Refinery capture Industrial Service & EOR Venting | 11 CCUS - Crude fields at a long distance from EOR                       |
| 4 Syngas from Biomass                     | 8 CCUS - Crude and gas fields at a low/mid distance from EOR        |  |

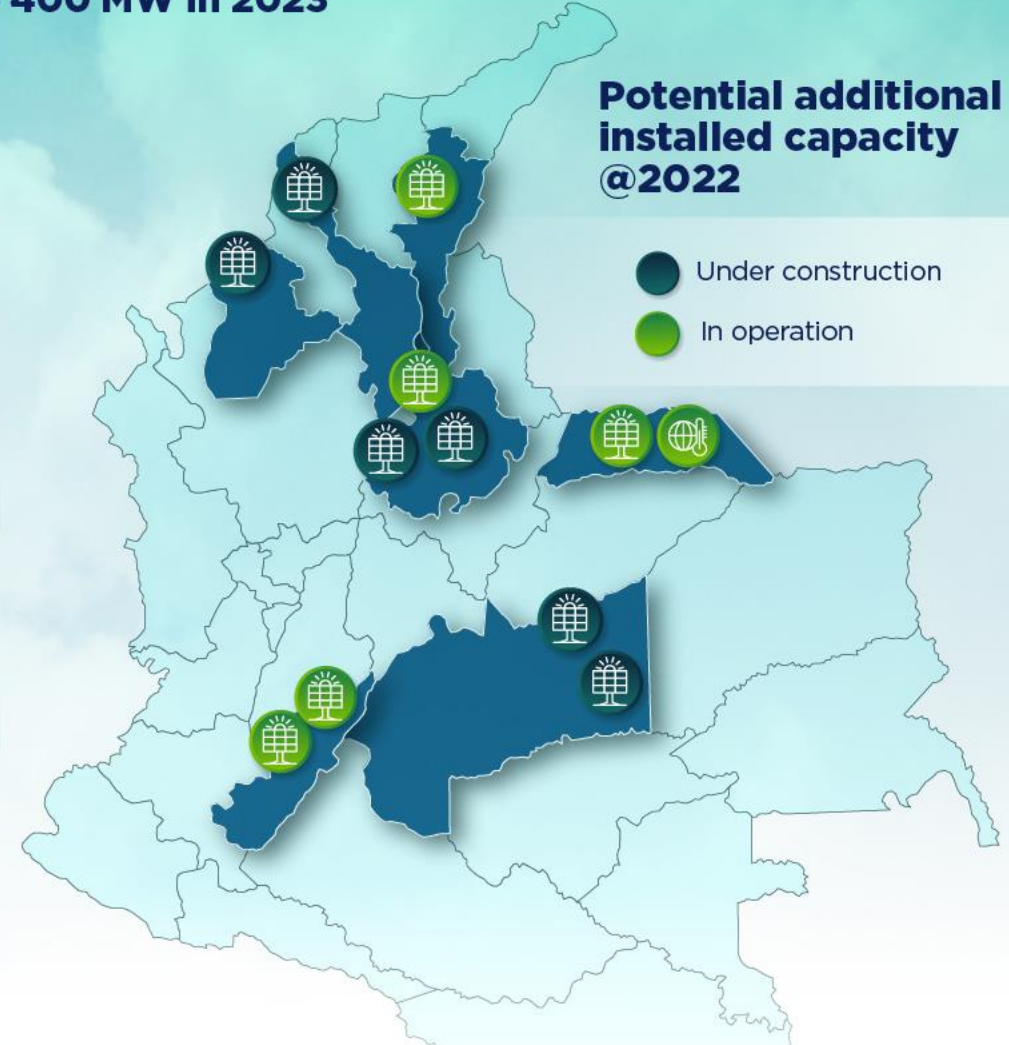
By 2030 Ecopetrol can reduce its emissions with competitive solutions below **\$40/t CO<sub>2</sub>e** (shadow price).



# PORTFOLIO OF RENEWABLE PROJECTS

Range of potential capacity **between 855 – 995 MW**. Our goal is to reach an installed capacity of **photovoltaic and geothermal energy up to 400 MW in 2023**

	Expanded portfolio		Core portfolio 400MW - 2023	
PPAS	375 – 405 MW	 <b>310 MW</b> (112.5 MW already in operation)  <b>5 MW</b>  <b>90 MW</b>	211 – 225 MW	 <b>220 MW</b> (112.5 MW already in operation)  <b>5 MW</b>
Partnership	140 - 170 MW	 <b>87 MW</b>  <b>80 MW</b>	70 - 87 MW	 <b>87 MW</b>
100% own projects	340 – 420 MW	 <b>160 MW</b>   <b>164 MW</b>  <b>71 MW</b>   <b>20 MW</b>  <b>5 MW</b>	128 – 134 MW	 <b>134 MW</b>



## +309 MW

Operation and construction @2022



Wind



Solar



Geothermal



Batteries



Biomass



Small Hydro

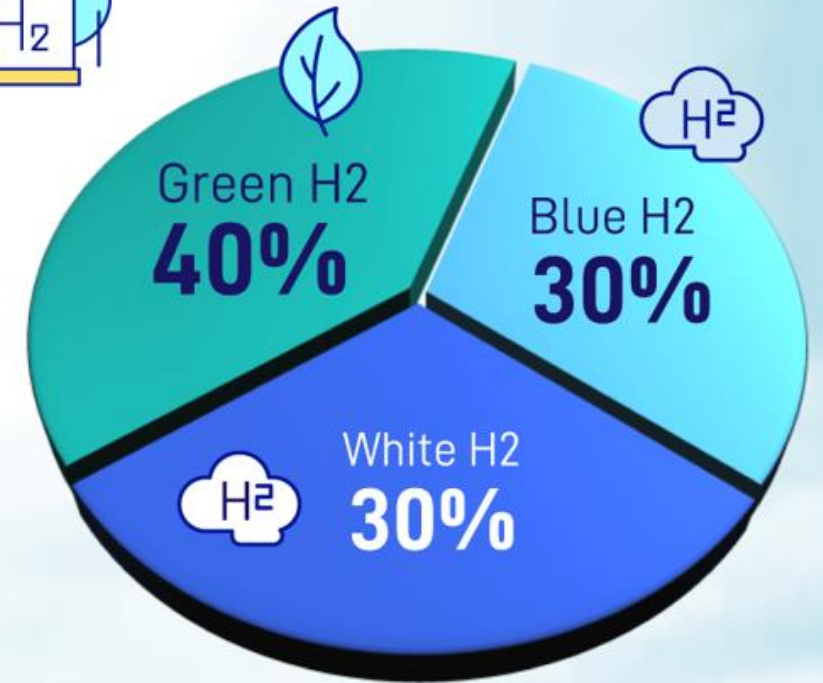
# LOW-CARBON HYDROGEN

TO DECARBONIZE AND DIVERSIFY OUR BUSINESS



9-11% contribution to the Ecopetrol Group's goal of emissions reduction by 2050<sup>1</sup>

**21** Mmboe/  
Year **2040**  
Production target



1. Scopes 1, 2 and 3

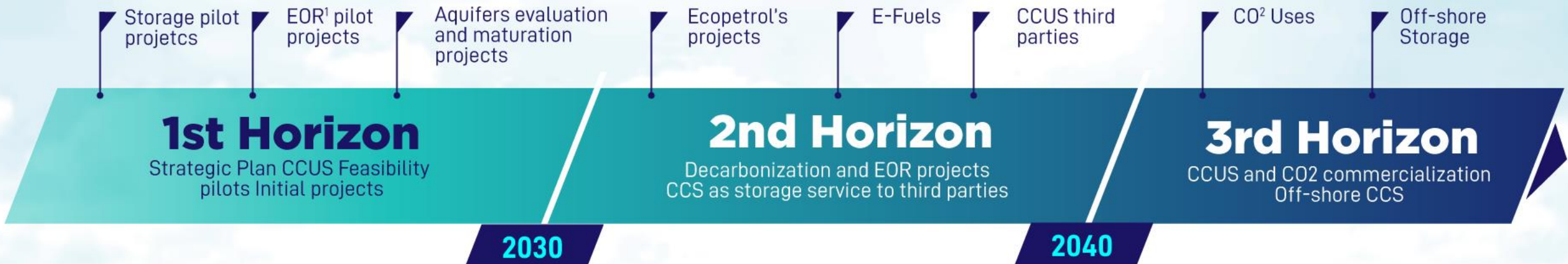
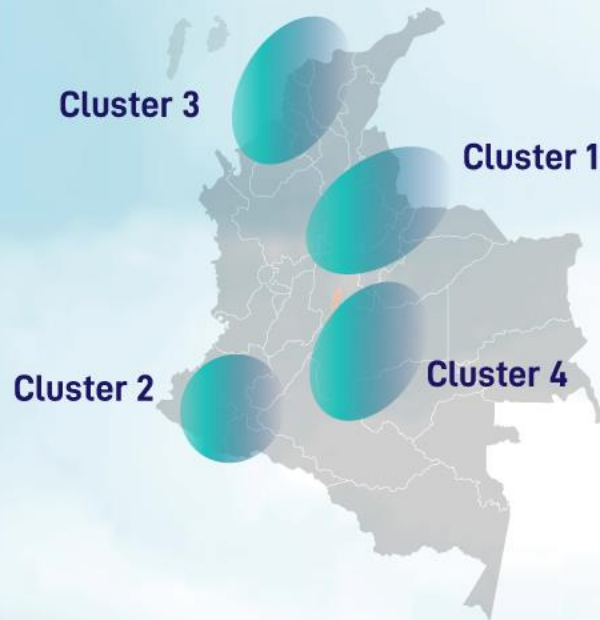
2. It may vary depending on the prospective and development of regulation for E&P of white hydrogen in Colombia

3. As defined by the International Energy Agency in its April 2021 technology report on Carbon Capture, Utilization and Storage (CCUS)



# CARBON CAPTURE, USAGE AND STORAGE (CCUS)

## KEY ENABLER OF DECARBONIZATION GOALS





# PROGRESS IN THE IMPLEMENTATION OF NATURAL CLIMATE SOLUTIONS

CAPTURE  
 **15** MILLION TON  
of CO<sub>2</sub>e

PLANTING OF  
**1.1** MILLION  
Trees

USD  
**\$40** MILLION  
Total investment

**Colombia is in a unique position for the competitive development of Natural Climate Solutions (NCS) projects**

## COLOMBIA HAS ADVANTAGEOUS CONDITIONS FOR NCS DEVELOPMENT

- **Forest suitability:** -70% of Colombia's continental surface is suitable for forestry, only -45% is covered today.
- **Regulatory framework:** Colombian regulation allows the accounting of NCS as carbon offsetting. An Emissions Trading System will be established soon.
- **Low land and labor costs:** Contribute to competitive projects in NCS.

|| We are looking for strategic partners to expand our portfolio of Natural Climate Solutions, with the objective of improving the supply of carbon credits in Colombia ||

## ECOPETROL'S NCS PROJECT PORTFOLIO

**80**

Identified carbon projects associated with NCS

**~50**  
MtCO<sub>2</sub>e/y

Emission reduction potential of identified projects

**5-10**  
US\$/tCO<sub>2</sub>e

Average cost of identified projects

## CONSERVATION AND RESTORATION

CONEXIÓN JAGUAR | isa

- Conservation and restoration of forests and wetlands in Santander and Antioquia



- Conservation and restoration of floodplains in Piedemonte Andino-Amazonico and Magdalena Medio basin

## RESTORATION



- Restoration projects in Meta and Caquetá with planting of trees and carbon monitoring



- Restoration of ecosystems and carbon monitoring in Magdalena Medio wetland ecosystems



# ISA'S SHORT TERM STRATEGY

**Growth capex**  
USD 8,100 million

**New energy businesses**  
(2030)  
**USD 2,000 million**  
(energy storage and energy distributed services)

**Energy transmission**  
USD 2,900 million

**Roads**  
USD 3,200 million

**Colombia**  
USD 2,044  
**34%**

**Peru**  
USD 215  
**4%**

**Chile**  
USD 1,789  
**29%**

**Brazil**  
USD 2,039  
**33%**

**Social & environmental impact**  
Offset **11 million** tons of CO<sub>2</sub>e

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## Area hectares



## Projects



## CO<sub>2</sub> Tons





# IN SUMMARY...



Decarbonization is a key pillar of the current business agenda



New partnerships across different industries will be critical



Net Zero goals are partially dependent on technologies still to be proven profitable



Capital Discipline will remain a key focus of Ecopetrol in order to generate sustainable value to all stakeholders



ISA adds value to the Group's energy transition proposition