

Colombian Energy Policy

Achievements and opportunities



#LaNUEVAENERGÍA



Offshore wind and energy efficiency Mission
Danish Energy Transition Initiative

 @MLoteroRobledo  Miguel Lotero Robledo

National Policy focus

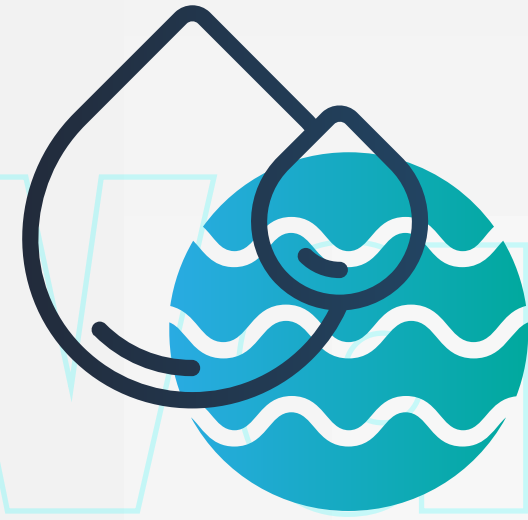


**Efficiency and
competitiveness**

**Closing the energy
access gap**

**Sustainability and
fight against
climate change**

Colombia has world-class renewable energy resources



Water

More than 740.000 watersheds and a multianual flow of 52 m³/s. We are in the top 10 countries that concentrate 46% of the water supply.



Wind

25 GW of potential installed capacity in the country. In La Guajira, we have a wind speed of 9 m/s, double than the world average.



Sun

Colombia surpasses the world average solar radiation, **reaching 4.5 kWh/m².**



We designed an attractive framework for energy transition investments

According to EIRA Report 2020, Colombia scored 37 (low risk) in "Unpredictable Policy and Regulatory Change"



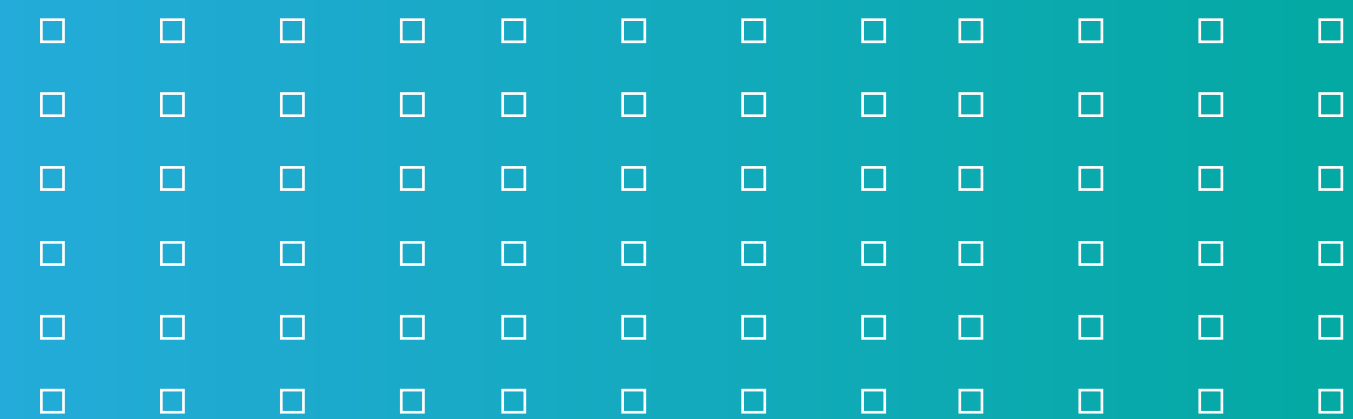
National Development Plan

1. 10% Renewable Purchase Obligation for distribution companies.
2. Deduction of taxable income: 50% of investments in renewable energy from 5 to 15 years
3. Acquisition of solar generation equipment is automatically exempt from VAT and customs rights.



Tax incentives

1. VAT paid on acquisition of capital assets is creditable against corporate income tax.
2. ICA (Industry and Commerce Tax) is 50% creditable against corporate income tax.



New framework for energy transition

1. Tax incentives are extended to blue and green hydrogen, geothermal, smart metering infrastructure and large scale energy storage.
2. New incentives for carbon capture storage and use technologies.
3. Accelerated depreciation (3 years straight line) for energy efficiency and renewable energy investment
4. Streamlining of environmental permitting for energy generation and transmission projects

Renewable energy auction program



2019 AUCTION

First double-sided auction for renewable energy in the world

14 Solar and wind projects
1.300 MW
— More than —
6.000 MW
◀◀◀ JOBS ▶▶▶

USD 2.256 million
in investments

Final price of aprox.
28 USD/MWh

Lowest average price of renewable energy auctions as of 2019

2021 AUCTION

Potential of solar and wind projects

with capacity between

3.000
and
4.000 MW

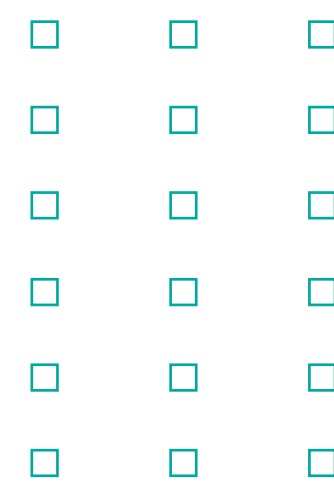
Operation date: January 2023

Award: October 2021

Estimated
28.000

◀◀◀ JOBS ▶▶▶

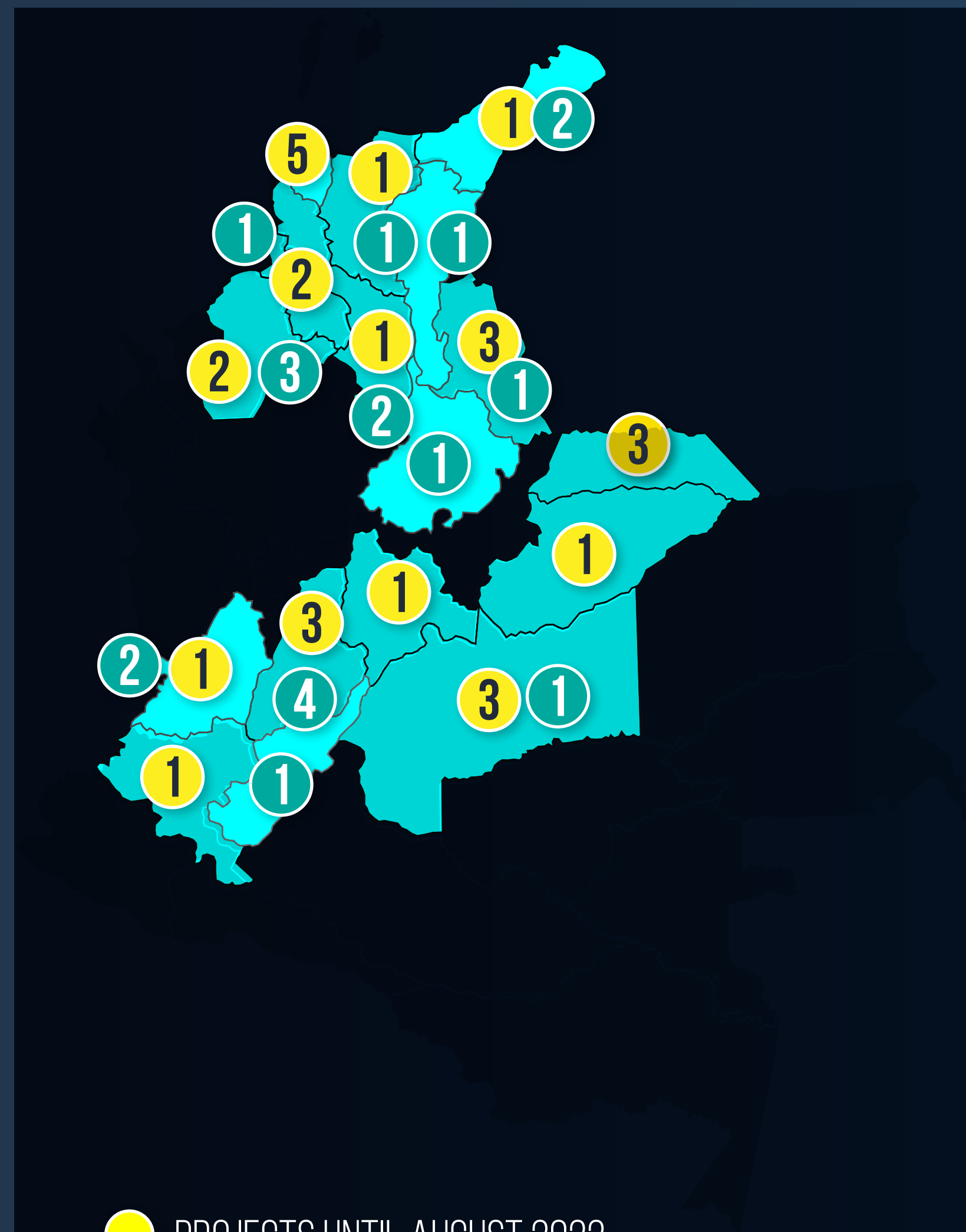
And investmens for
USD 3.9 millions



Accelerated integration of variable renewable energies



IN 2018
▶ **28,2 MW**
INSTALLED CAPACITY



▶ **1.600 MW**
+ 900 MW
UNDER CONSTRUCTION TO LEAVE
▶ **2.500 MW**
IN OPERATION BY THE END
OF THE 2022

LEGACY FOR 2023
▶ **3.788 MW**
CAPACITY

- PROJECTS UNTIL AUGUST 2022
- PROJECTS SECOND SEMESTER 2022 (AFTER AUGUST)

Large scale energy storage

Seeks to mitigate restrictions in transmission networks



First tender for storage systems in Latin America



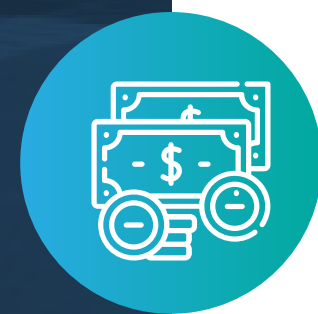
Awarded: July 2nd, 2021 (Canadian Solar Energy)



Operation Date: October, 2023



Capacity of 45MW



Investment of USD 18.6 Million

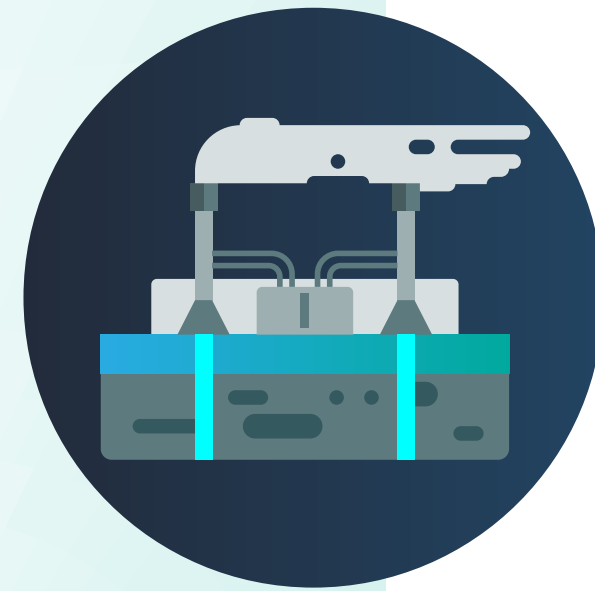


Location: Atlantico



We are boosting the integration of new clean energy technologies

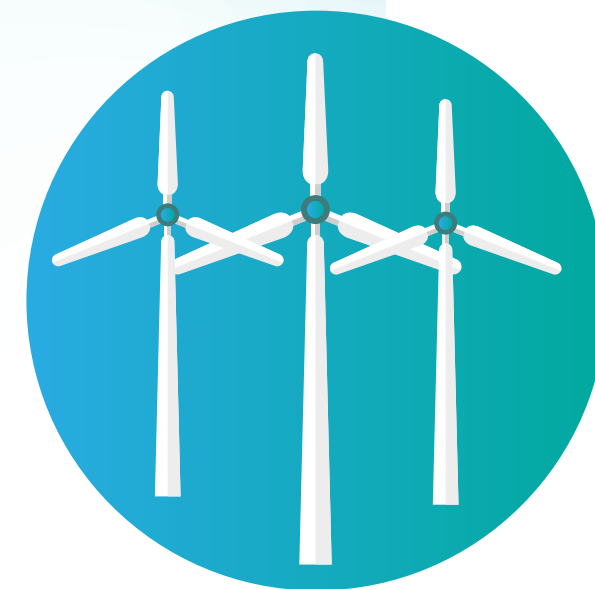
This will help us accomplish our climate goals and reach net-zero by 2050



Geothermal Energy

In the first half of 2021, two pilot projects started with the private company Parex. A third one will be launched this year with Ecopetrol.

Capacity: +40,000 kWh/day
Investment: USD 4 Million



Off-shore wind

With the support of the World Bank, in 2022 Colombia will launch its road map for off-shore wind that will assess the deployment of this technology in the country.

Also key alliances have been made with Denmark for technical support and United Kingdom for strengthening capacities



Hydrogen

Colombia has favorable conditions to produce hydrogen

▼
We launched the hydrogen roadmap in September 2021

- 1.** Legal and regulatory enablers
- 2.** Market development instruments
- 3.** Support for infrastructure development
- 4.** Promotion of technological and industrial development

2030 Goals

Production Goals

1- 3GW electrolysis

1,7 USD/kg - green LCOH

50 kt H2 blue hydrogen production

Demand Goals

1.500 - 2.000 light fuel cell vehicles

1.000 - 1.500 heavy fuel cell vehicles

100 - 150 hydrogen stations

Cross-cutting Objectives

USD 2.5 Billion in investments.

Investments in H2 production and demand projects during the 2020/30 decade

2.5 - 3 Mton CO2eq

Reduction of emissions during the 2020/30

40% Hydrogen low emissions

Blue and green hydrogen on the total hydrogen consumption in the industry

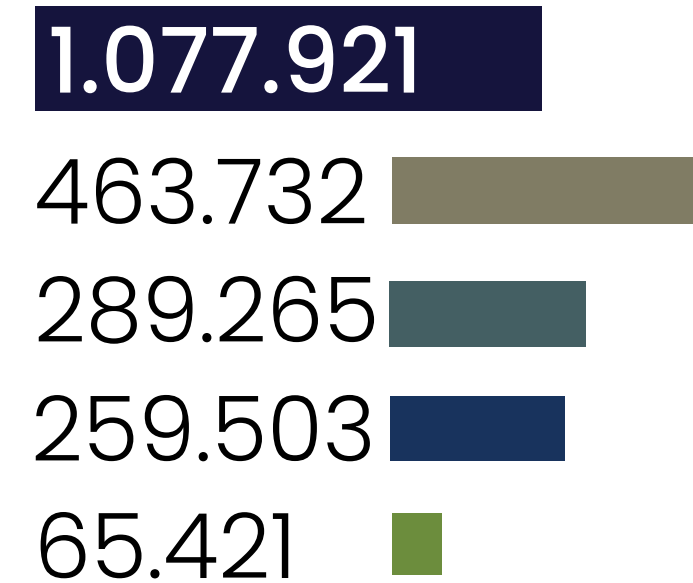
Currently working with:

Germany, Australia, Spain, South Korea, Chile, to develop hydrogen opportunities.

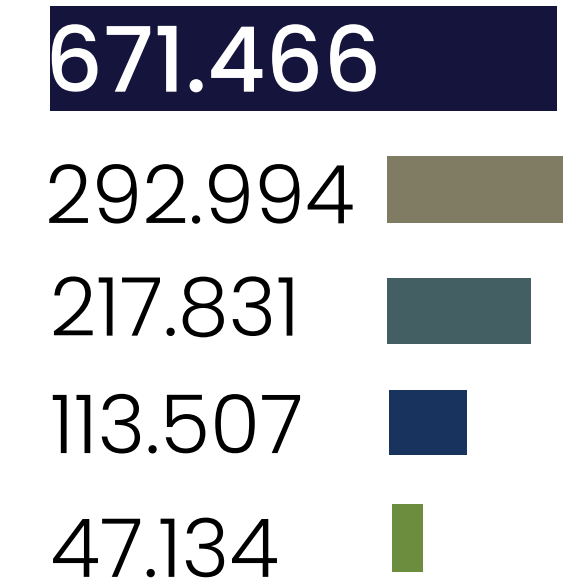
Energy Efficiency

Final energy with the best technology available (BAT) national and international (UPME, 2018)

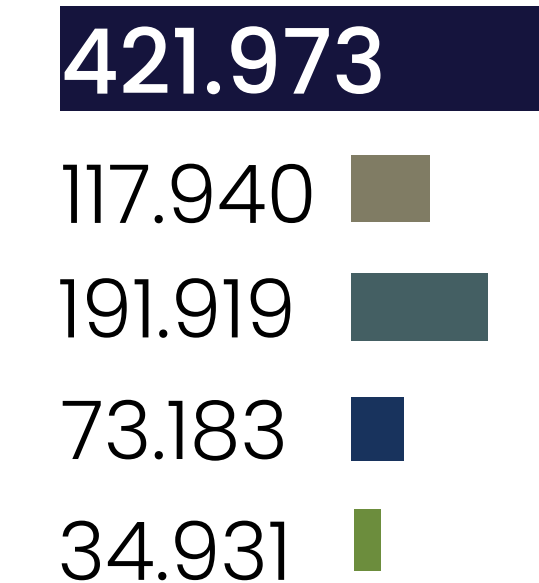
Final energy FE (TJ)



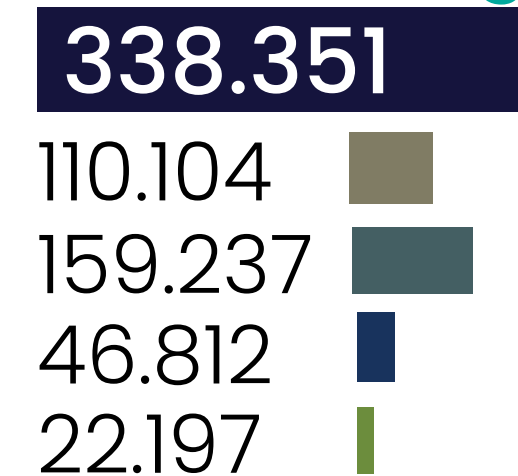
FE (BAT national) (TJ)



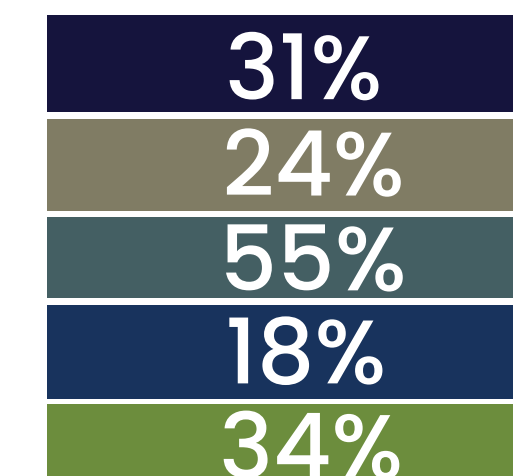
FE (BAT international) (TJ)



Useful energy (TJ)



Useful energy / Final Energy (%)



Transport Industry Residential Services

Goals

- ▶ Our energy efficiency targets set energy savings between **2017** and **2022** of 9%, mainly in the most energy intensive sectors.
- ▶ In terms of energy efficiency and smart grids, the government has set a target of achieving at least 75% of users with advanced metering systems (AMI) by **2030** with an estimated investment over USD **\$1.500 million**



Closing the energy access gap with renewables



In just three years



We have brought electricity to **59,166 families**



20,154 families gained energy access with solar panels



Our goal is to reach **100,000** Colombian households by 2022

Off-grid solutions



- ▶ We are creating new business models to enhance the participation of the **private sector**



Our Sustainable Mobility Strategy

First program for 20% biodiesel blends approved

In 2021

- Sales of electric and hybrid vehicles grew 58%, compared to 2020*
- We have more than 1.500 heavy-duty gas-powered vehicles.
- We have more than 800 NGV refueling stations.

Comparing Jan-Aug, 2021 Vs. Jan-Aug, 2020



Vehicle tax may not exceed 1% of the commercial value of the vehicle.



VAT: 5%.
Customs 0
Consumption Tax: 0%.



10% discount on SOAT

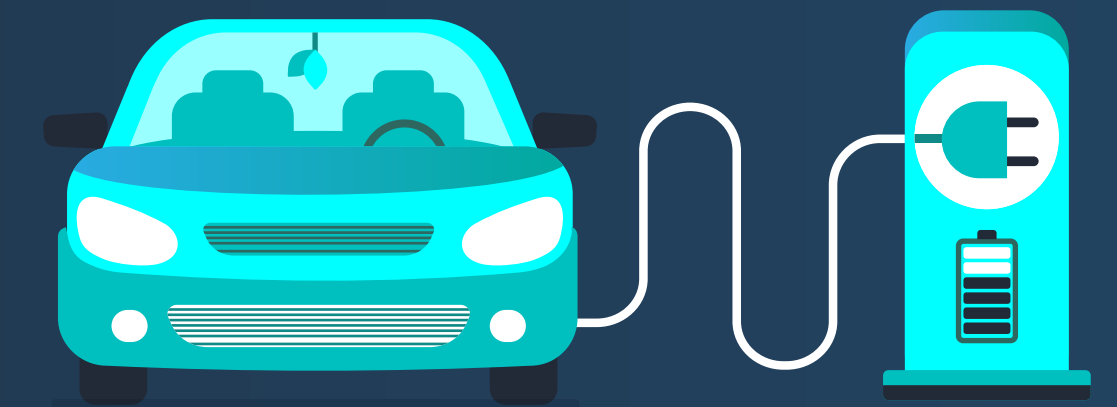


Discount on the technical-mechanical inspection

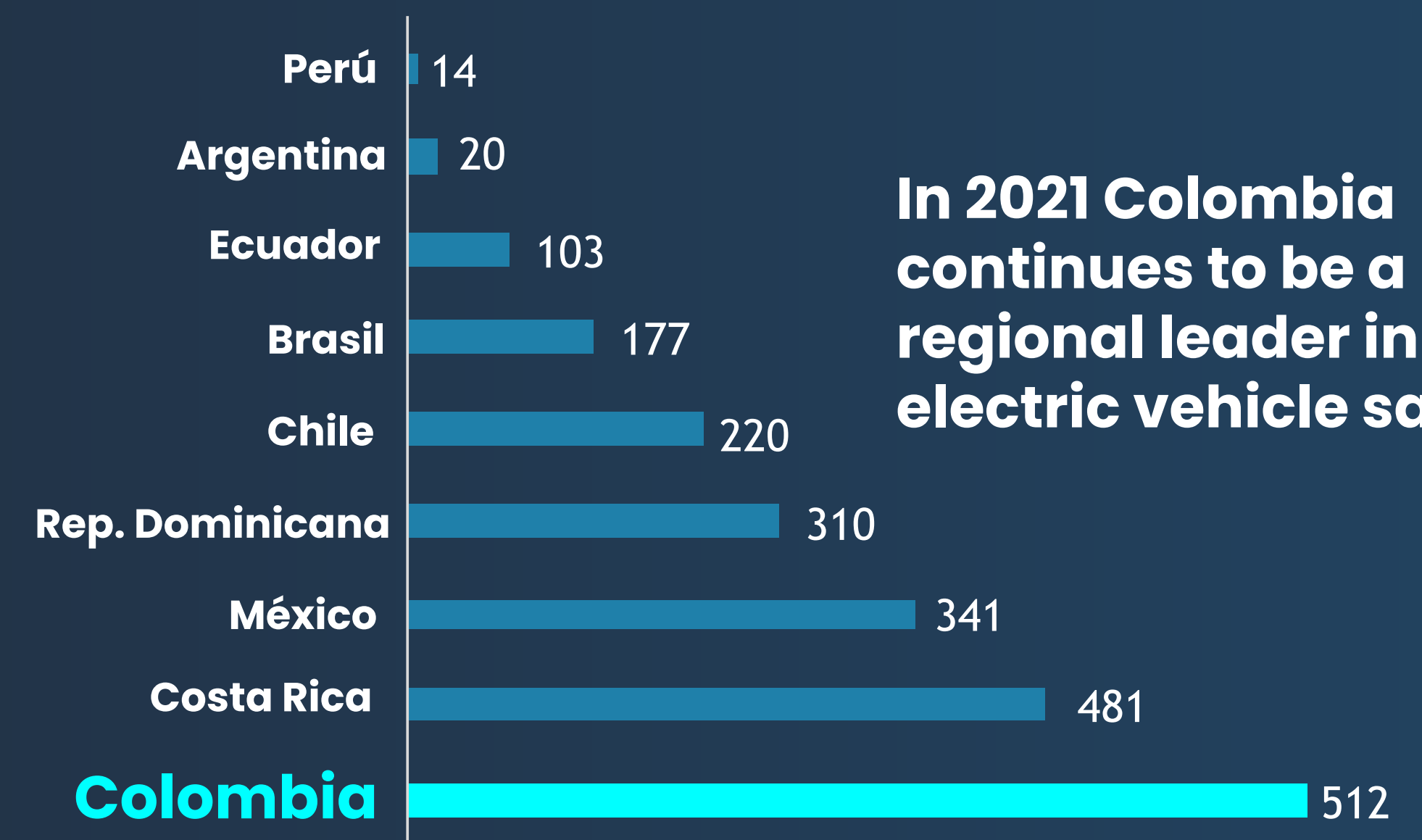


Exemptions from vehicle traffic restriction measures

Target
600
thousand
Electric vehicles
by 2030



Electric vehicles sales in Latam (January - June, 2021)



In 2021 Colombia continues to be a regional leader in electric vehicle sales

Colombia Round 2021

Colombia is a top destination for investments in the oil & gas industry

Features:

- Fourth cycle of the Continuous Process of Area Nominations – PPAA
 - **28 blocks offered by the ANH**
 - **20 E+Ps – Exploration and Production Contract (green blocks on the map)**
 - **8 TEAs – Technical Evaluation Agreement (red blocks on the map)**
- Available blocks defined by the ANH
- New contract model

Areas located in **Sinu, Urabá, Valle del Magdalena, Llanos Orientales and Chocó**

OPPORTUNITIES:

OFFSHORE EXPLORATION
E&P (PUTUMAYO)
YNC PILOT PROJECTS



▶ **35**

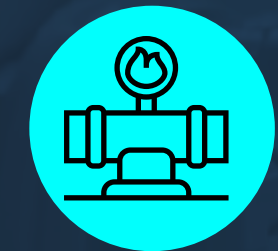
CONTRACTS

Buenaventura Regasification Terminal and Pipeline

To be awarded in the last quarter of 2021 by UPME

The project must begin operating 58 months after it is awarded.

- 1. Plant/Terminal Capacity:** 170,000 m3 LNG, Natural gas, and condensates
- 2. Plant Technology** Up to the investor (off-shore/on-shore)
- 3. Investment** USD700 Million.
- 4. Plant/Terminal Location** Puerto Solo, Buenaventura
- 5. Pipeline location** Bay, in the Pacific coast Buenaventura -Yumbo
- 6. Lifetime** 20 years
- 7. Pipeline Technology** Buried gas pipeline (110 km)





Miguel Lotero Robledo

Deputy Minister of Mines and Energy of Colombia

Sustainable development of the mining-energy sector with a social, environmental and governance sense to transform Colombia.



@MLoteroRobledo



Miguel Lotero Robledo

#LaNUEVAENERGÍA