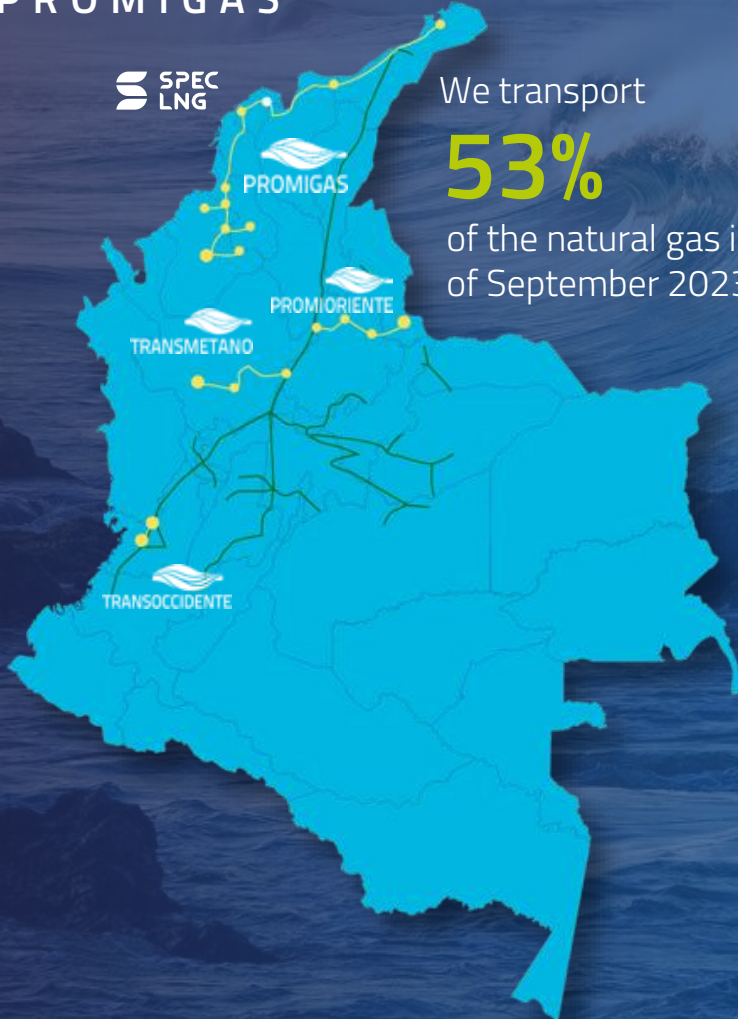


Promigas H2Lab Green Hydrogen and Natural Gas blending project

November 2022

WE ARE AN ENERGY SERVICES CONGLOMERATE, WITH 23 MIDSTREAM AND DOWNSTREAM COMPANIES AND A LEADING ROLE IN THE NATURAL GAS AND ELECTRICITY SECTORS OF COLOMBIA AND PERU

PROMIGAS



We distribute natural gas and electricity to

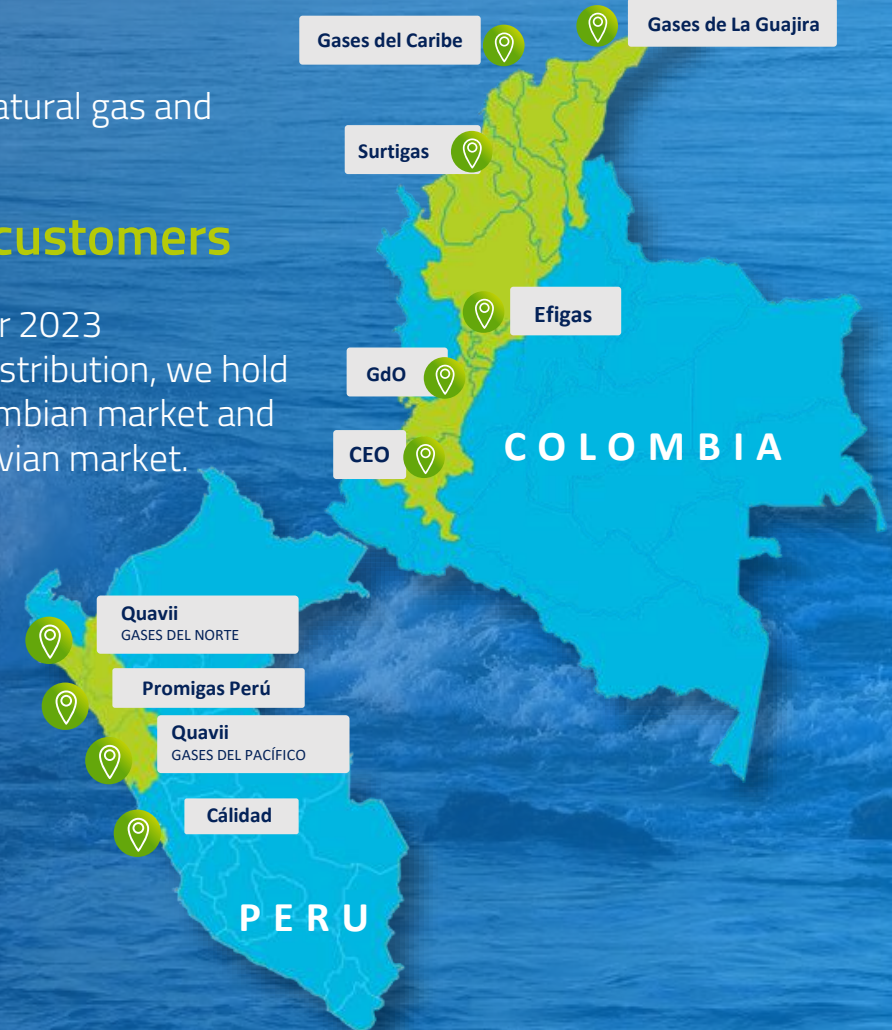
6.66 M customers

As of September 2023
In natural gas distribution, we hold 38% of the Colombian market and 94% of the Peruvian market.

We provide efficient and reliable energy solutions

80.9 MW*

65.6 MW Solar
15.3 MW Auto/co generación



* Includes commercial and contractual closures for 69.8 MW. End of year 2023 estimated.

Promigas – Research & Innovation Center



+25% Active Employees

2,4% Budget designated to R&D projects

26 I+D+i Employees Full time

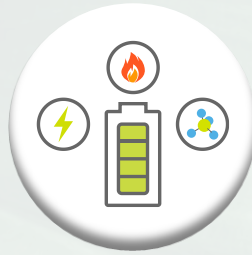
7,4% Financial contribution to company revenue

3 I+D+I formal units

1st Company in Latin America Certified in GIMI level 3

Growth Platforms for Energy Transition Innovation

Low-Carbon Solutions



Energy Storage



Sustainable Mobility



Energy Districts



Carbon Transport and Capture



CSP Systems

Green Gases



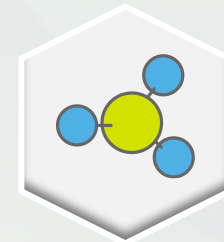
Hydrogen



Biomethane



SNG

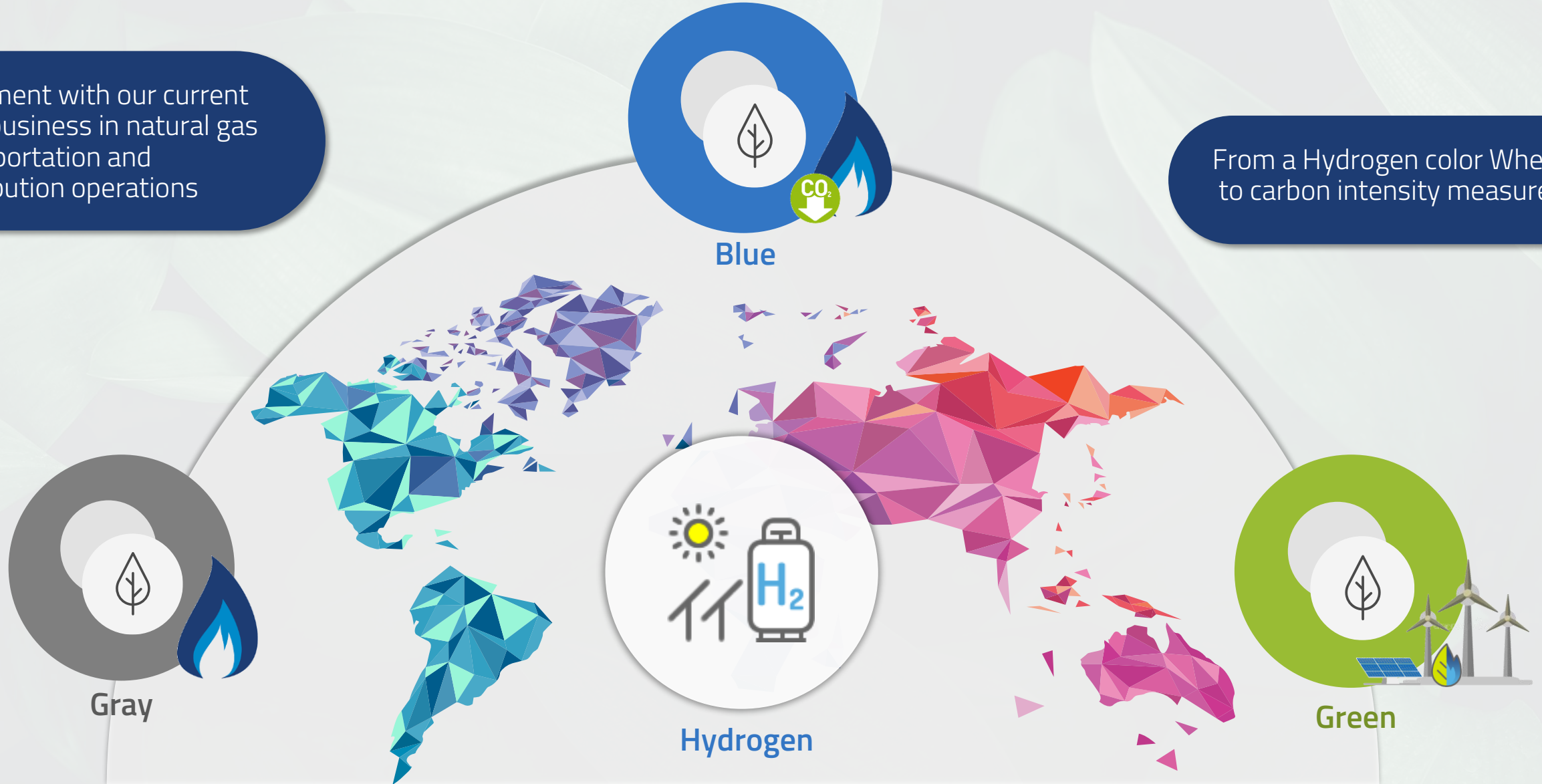


Ammonia

Integrating Hydrogen into the Natural Gas Business

Alignment with our current core business in natural gas transportation and distribution operations

From a Hydrogen color Wheel to carbon intensity measures

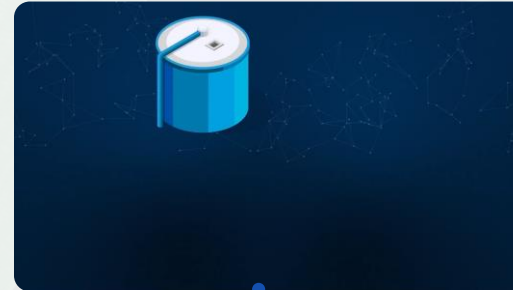


Target Market Segments for Hydrogen



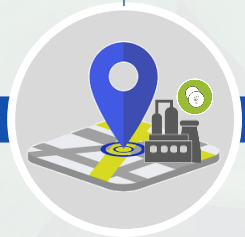
H2 Electric Mobility

We will boost the energy transition of transport sector with Hydrogen-based electric alternatives for greater autonomy and competitiveness.



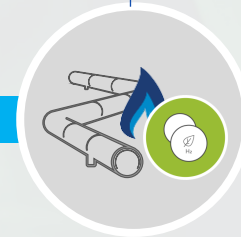
Distributed Generation

We will integrate distributed Generation systems for the concurrent Production of hydrogen, electricity and heat.



Decentralized Production

We will develop dedicated Hydrogen Production facilities for our customers.



Transmission and Distribution

We will Study our Infrastructure to transport and distribute mixtures of Hydrogen and natural gas.

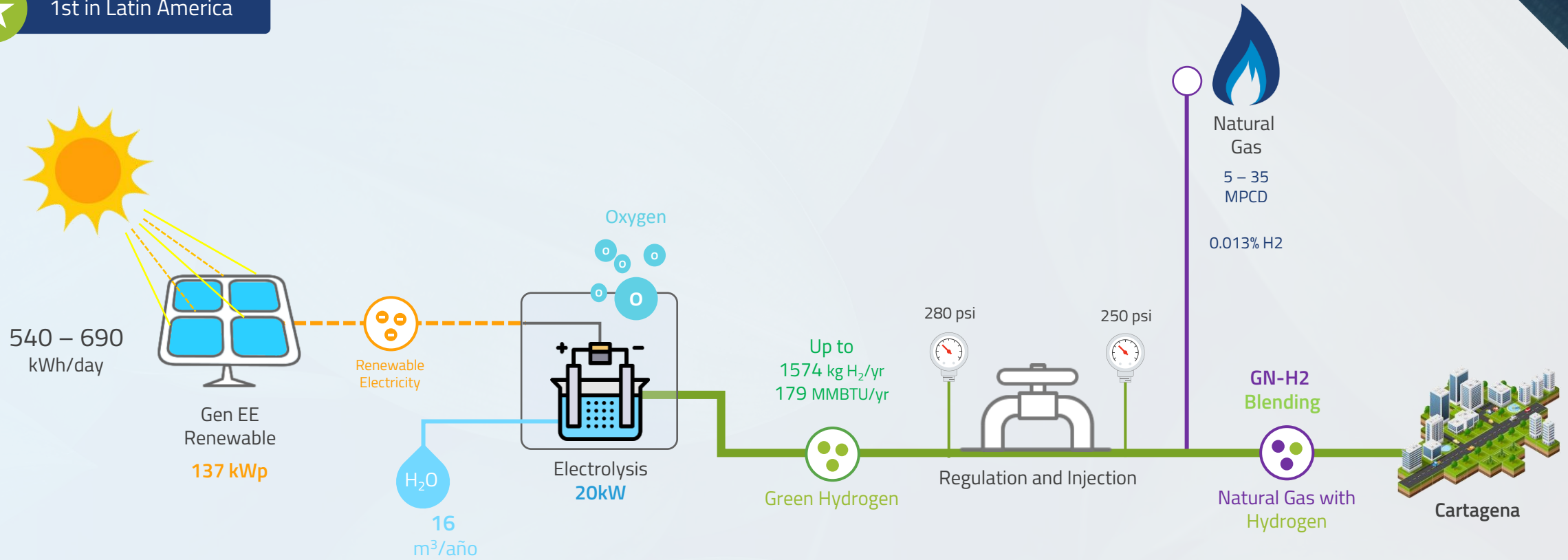


Design Principles for our Pilot Project Development



Infrastructure of Green Hydrogen Blending Pilot

★ 1st in Latin America



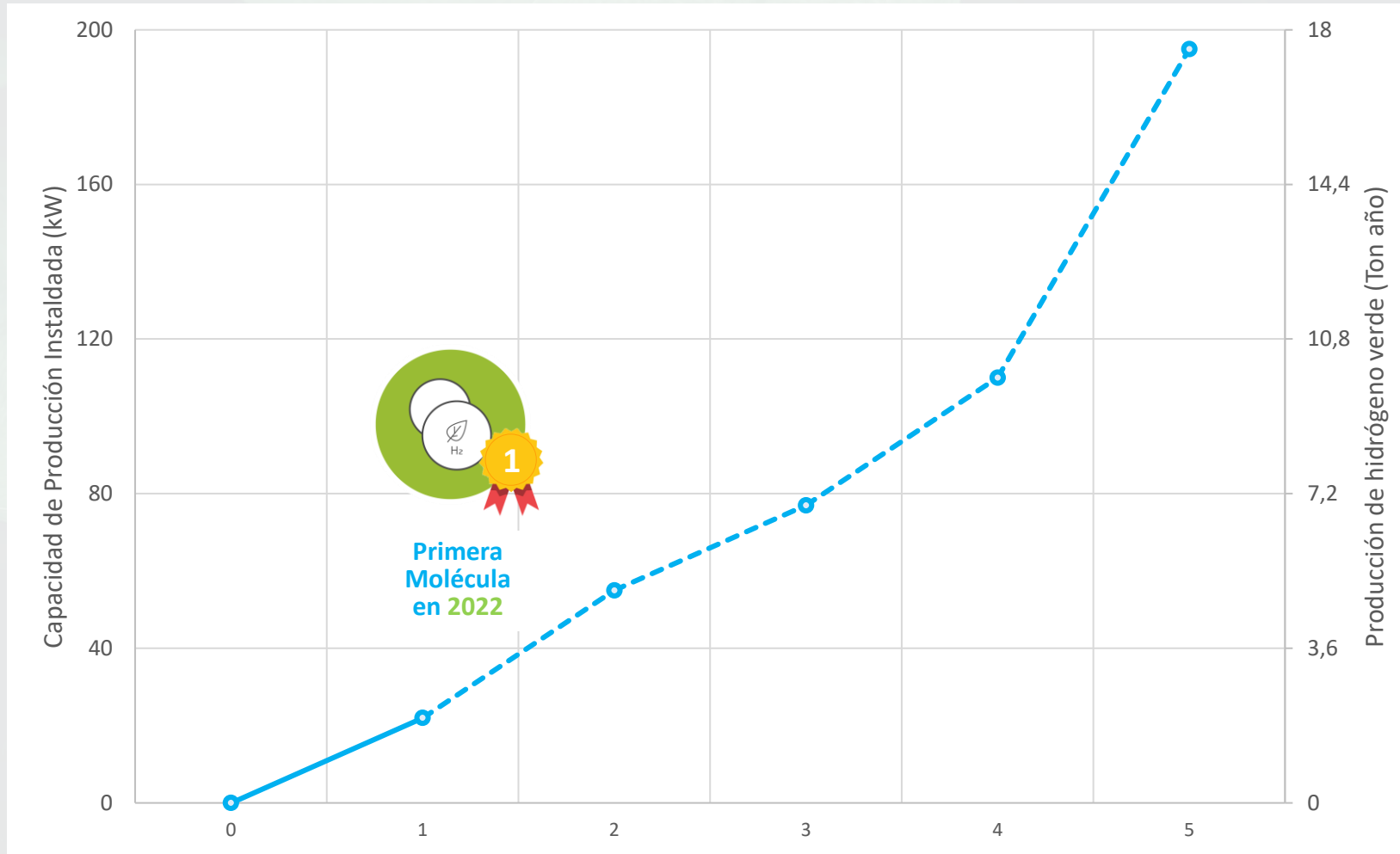
March 18th
2022



USD\$ 1.2M

Recognized by
MinCiencias
Res. No. 2958/2021

Pilot Scale-Up Potential



Producción Hidrógeno

18 Toneladas por año



Blending Natural Gas

0,2% Máxima proporción de H₂ en la mezcla



Renewable power generation

Until **1.5** MWp con FNCER



Potential Investment

10 - 12 MUSD until Fase 5

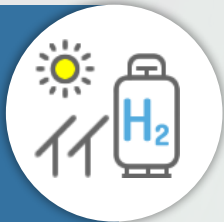


Piloto de Exploración

Piloto de Alto Desempeño

Escalamiento Pre-Comercial

| What limits the market development?



Hydrogen



Decarbonization of
terrestrial mobility

Gradual decarbonization
of Natural Gas

Precursor of
low-carbon fuels

Energy Storage

Challenges:

1

Prioritizing colors and technological prescription instead of LCA and Carbon Intensity.

2

Lack of incentives for capital (infrastructure) and demand incorporation for energy transition.

3

Technical and commercial enablement for hydrogen and natural gas blending.

4

Development of a national, plural, and interconnected (interdependent) Hydrogen market.

hidrógeno
COLOMBIA

ANDI | **MÁS PAÍS** | **NATURGAS**
ASOCIACIÓN COLOMBIANA DE GAS NATURAL
CÁMARA DE HIDRÓGENO
ANDI - NATURGAS

Participation in the Hydrogen Association and Chamber to build a National Hydrogen Ecosystem



Identification of new demands for hydrogen projects with application on fertilizers, fuels and food industries



Alliance with Sumitomo Corporation to develop a hydrogen mobility market



R&D on natural gas infrastructure materials and performance of integrated systems.



CIIEG

Centro de investigación
e innovación en
energía y gas