ANCAP Energy Transition Roadmap: Case study of a National Oil Company in Latam

Rio de Janeiro, 25th November 2024

1st EAGE/SBGf Conference on the Roadmap to Low Carbon Emissions in Brazil

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ANCAP

Disclaimer

The concepts and ideas presented herein represent the opinion of the author and, therefore, do not involve or commit ANCAP.

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1. ANCAP: operations & emissions.
2. Strategy for energy transition.
3. Projects and initiatives.
4. Final remarks.

ANCAP: operations & emissions

18 industrial plants
285 gas stations

3.300 employees

USD 3.6 billion
(revenue, 2022)

Crude oil import & refining
(IC): ~ 50,000 bbl/d

Production of Biofuels (IC):
100,000 m3/y bioethanol +
83,000 m3/y biodiesel (*)

Lubricants (IC):
~ 16.000 m3/y

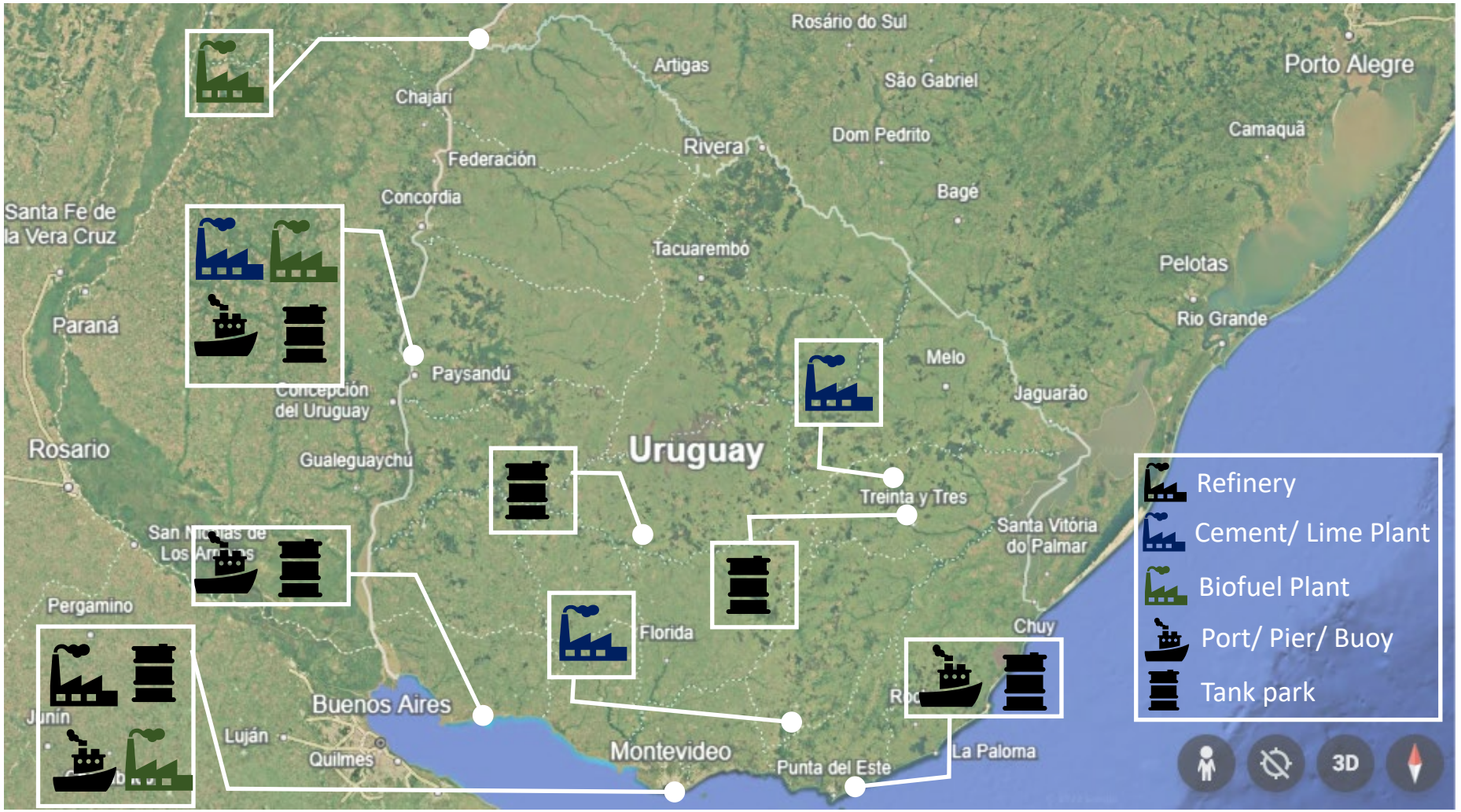
Natural Gas (all pipelines, IC):
~ 6 Mm3/d

Cement (2023):
184.000 ton/y

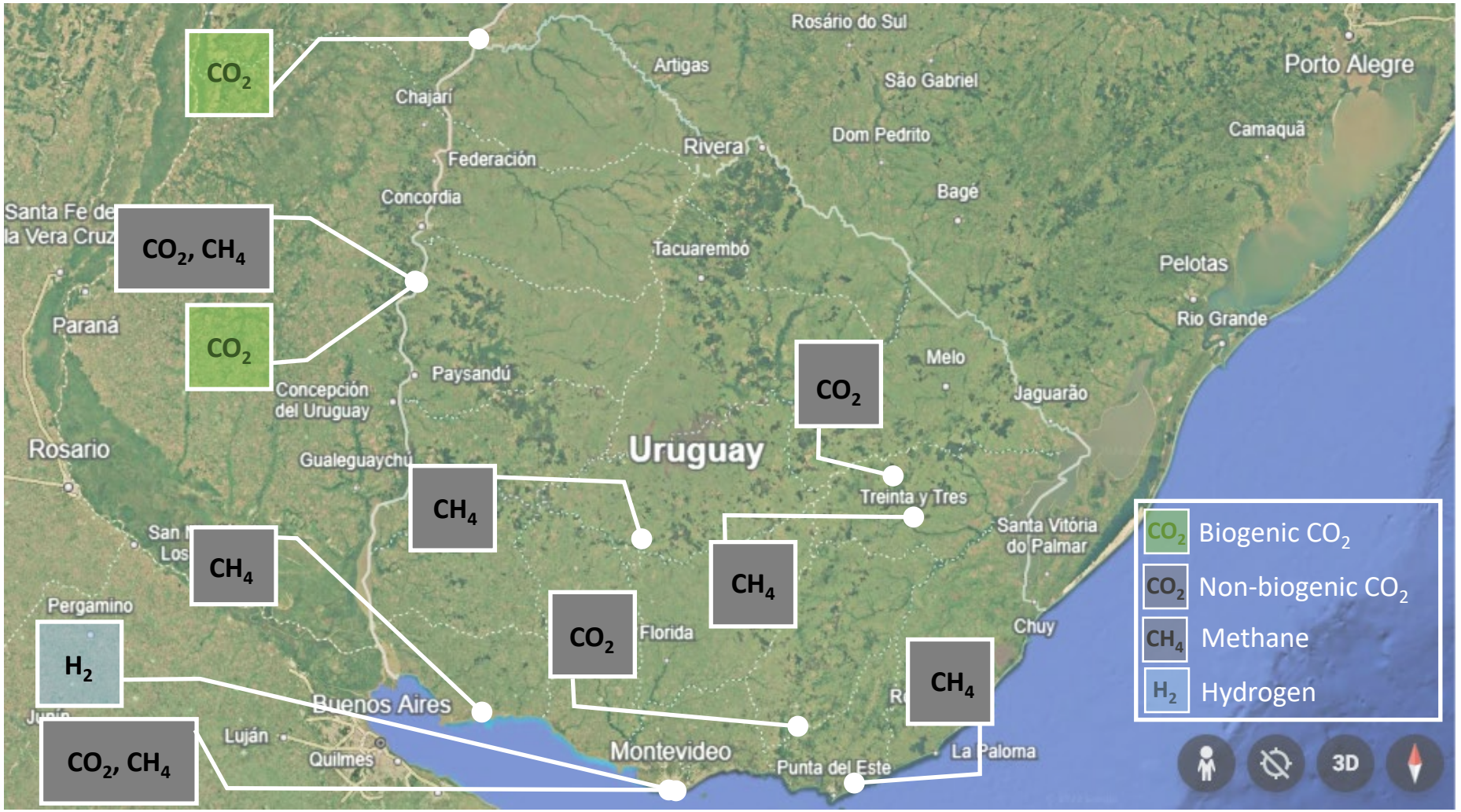
(*) IC: installed capacity

ANCAP (2024a), MIEM (2024b)

ANCAP: operations & emissions



ANCAP: operations & emissions



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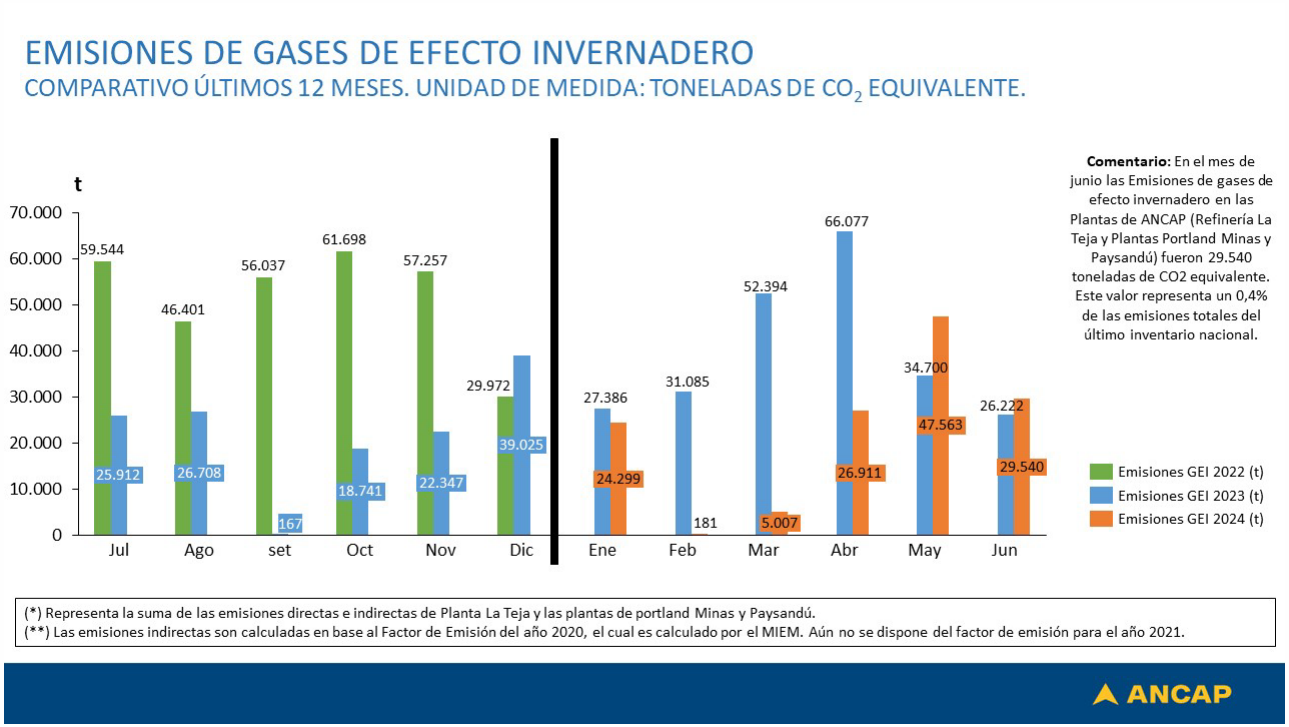
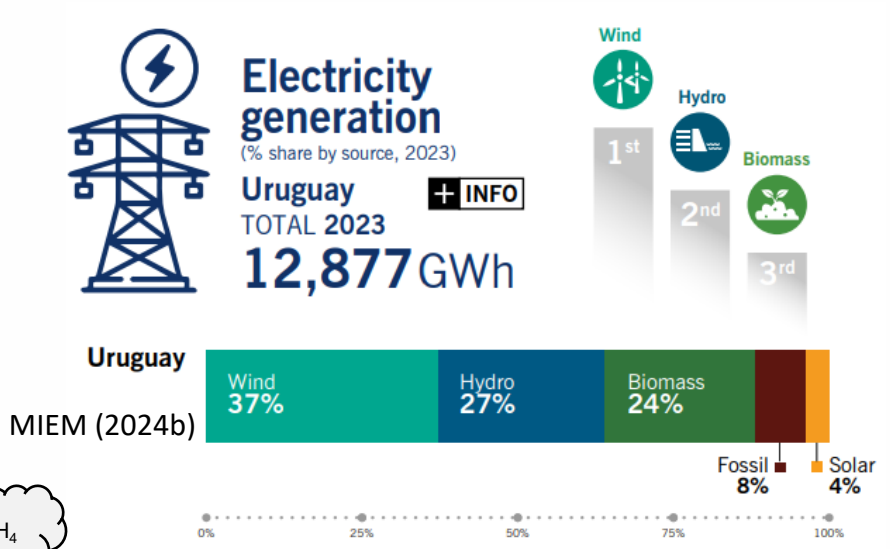


ANCAP (2024a)

Main industrial facilities of ANCAP (refinery and cement plants) emitted 371,000 tCO_2e in 2023 (scope 1 & 2), representing 1,4% of the GHG emissions of Uruguay in 2020.

ANCAP: operations & emissions



MIEM (2024b)

46.1% Enteric fermentation

21.5% Direct emissions of N_2O from agricultural soil

11.9% Transport

7.9% Farmland

Uruguay particulars:

- Already has a clean electricity matrix, weather dependant.
- Small & stable population.
- Main GHG emissions: agricultural sector (mainly, large livestock enteric fermentation, CH_4).
- Residual and somehow hard to abate emissions from industrial and transport sectors.

MVOTMA (2019)

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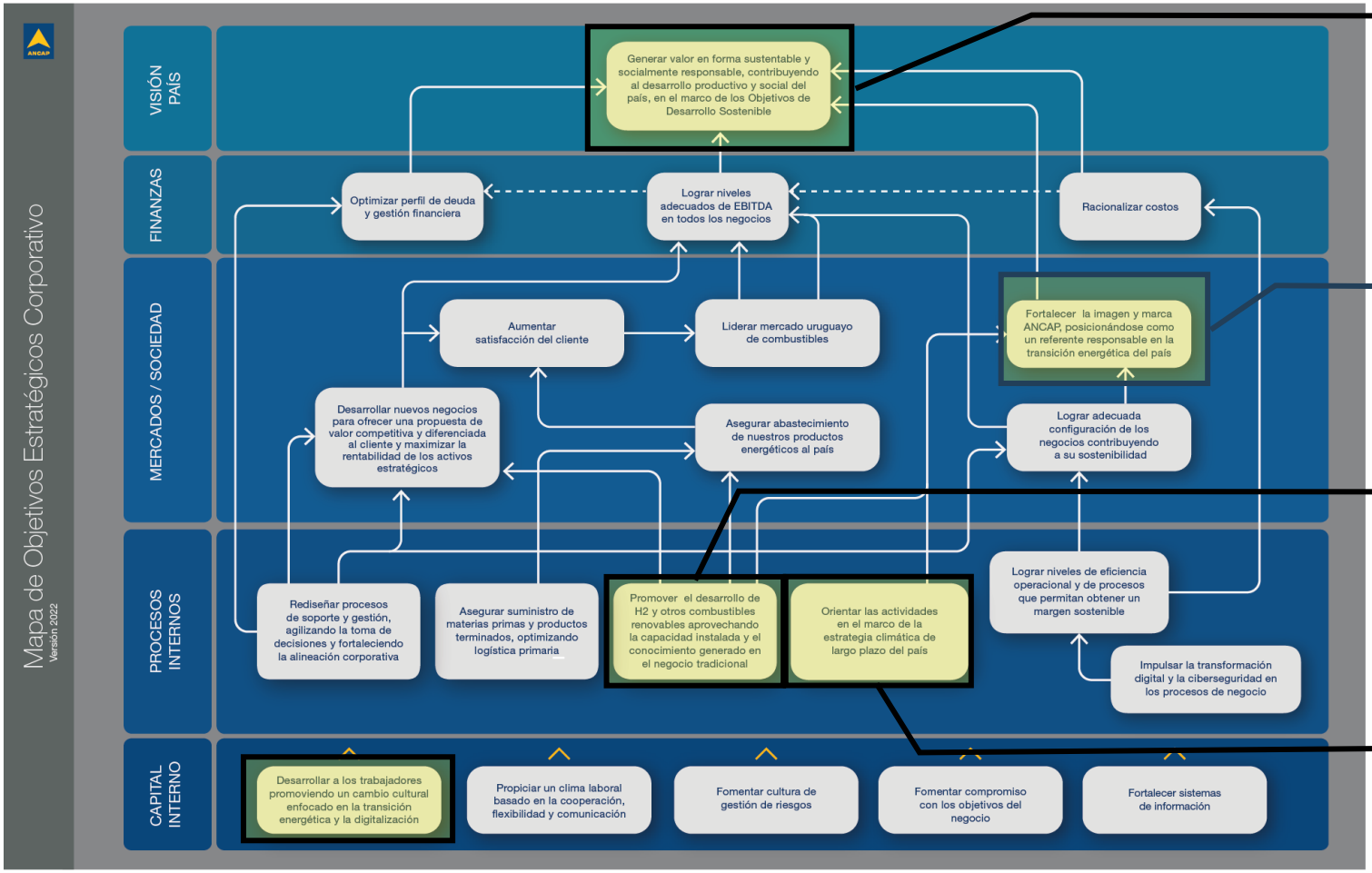
Strategy for Energy Transition



Strategic Objectives:

Generate value in a sustainable and socially responsible manner, contributing to the productive and social development of the country, within the framework of the Sustainable Development Goals.

Strengthen the ANCAP image and brand, positioning itself as a responsible reference in the country's energy transition.

Promote the development of hydrogen and other renewable fuels by taking advantage of the installed capacity and knowledge generated in the traditional business.

To run activities within the framework of the country's long-term climate strategy.

ANCAP Strategic Roadmap (2023) https://www.ancap.com.uy/1842/1/mapa-estrategico-corporativo.html

Strategy for Energy Transition

An addition more than a substitution.

All feasible technologies.

Look after security and affordability.

Procure a just transition.

#ResponsibleTransition

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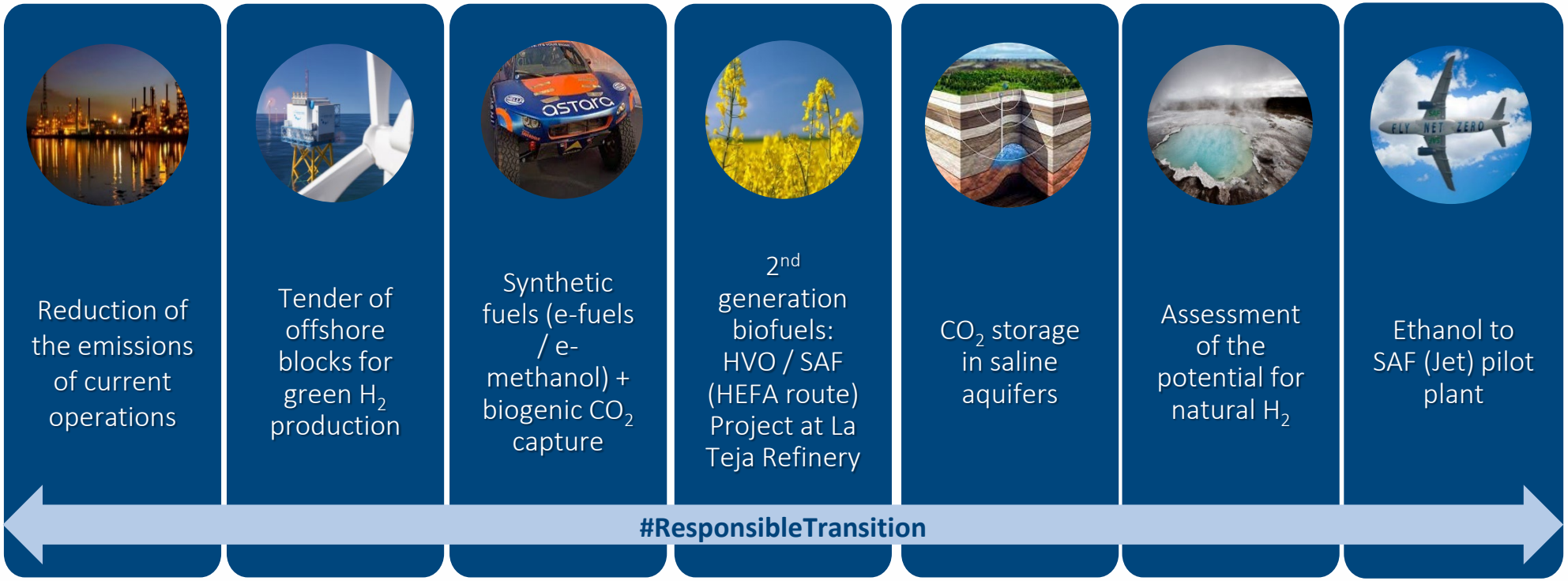
Projects & initiatives

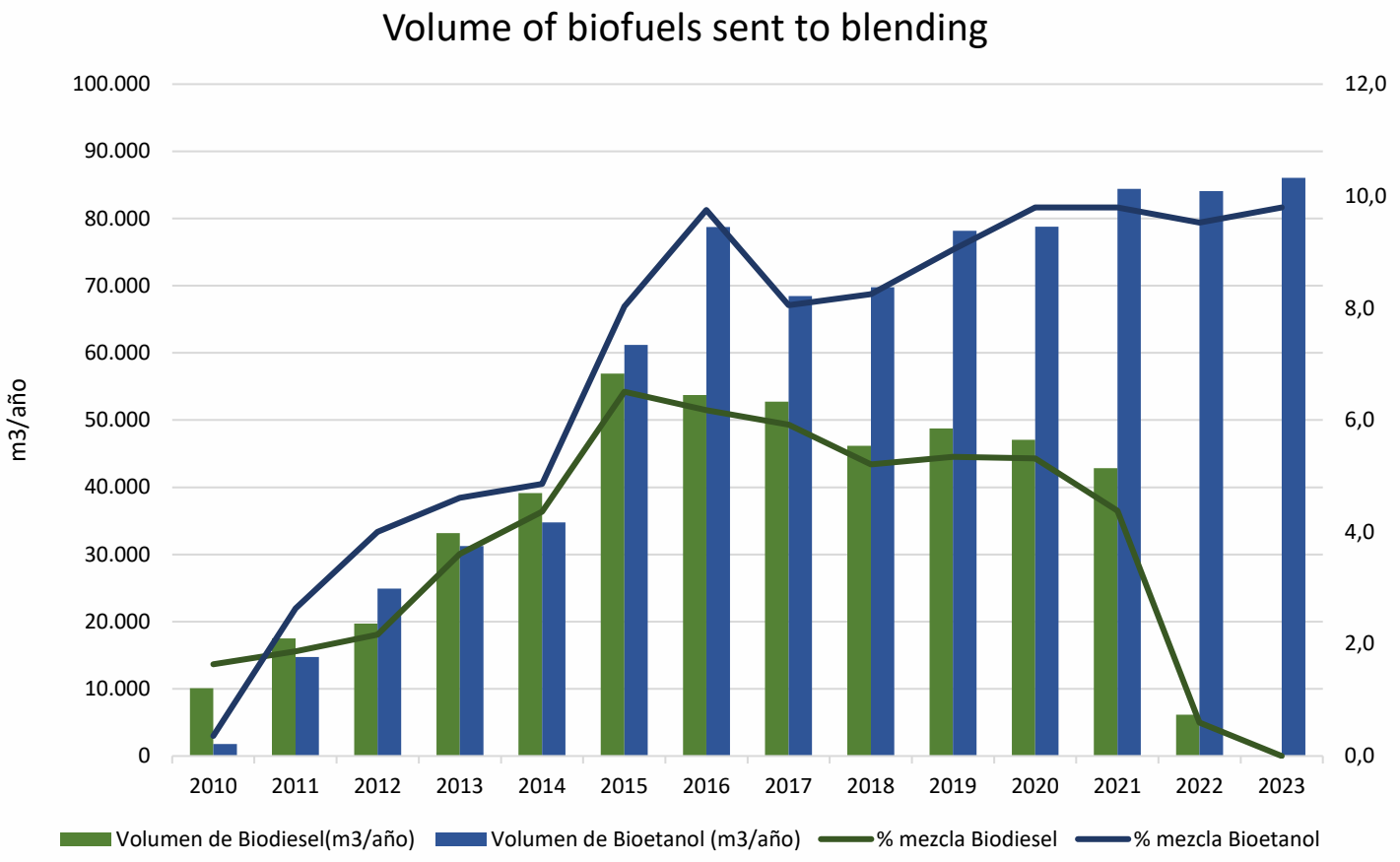


Stipanicic (2024)

Let’s see some examples of this projects and initiatives as follows …

Projects & initiatives

Biofuels



Since 2010 the production and blending of bioethanol (800 km3) and biodiesel (475 km3), at ALUR facilities, has represented an abatement of more than 2.3 MMtonCO2e (~ 60,000 EVs per year).

Stipanicic (2024)

Projects & initiatives

Mitigation opportunities at the Refinery

- Energy integration
- Online heaters cleaning
- Optimization of used fuels (↑ natural gas)
- Water usage rationalization

Reduction of emissions 2017-23 ~20%. Last year of operation ~ 80,000 tonCO2e were avoided.

Projects & initiatives

Mitigation opportunities at the Refinery

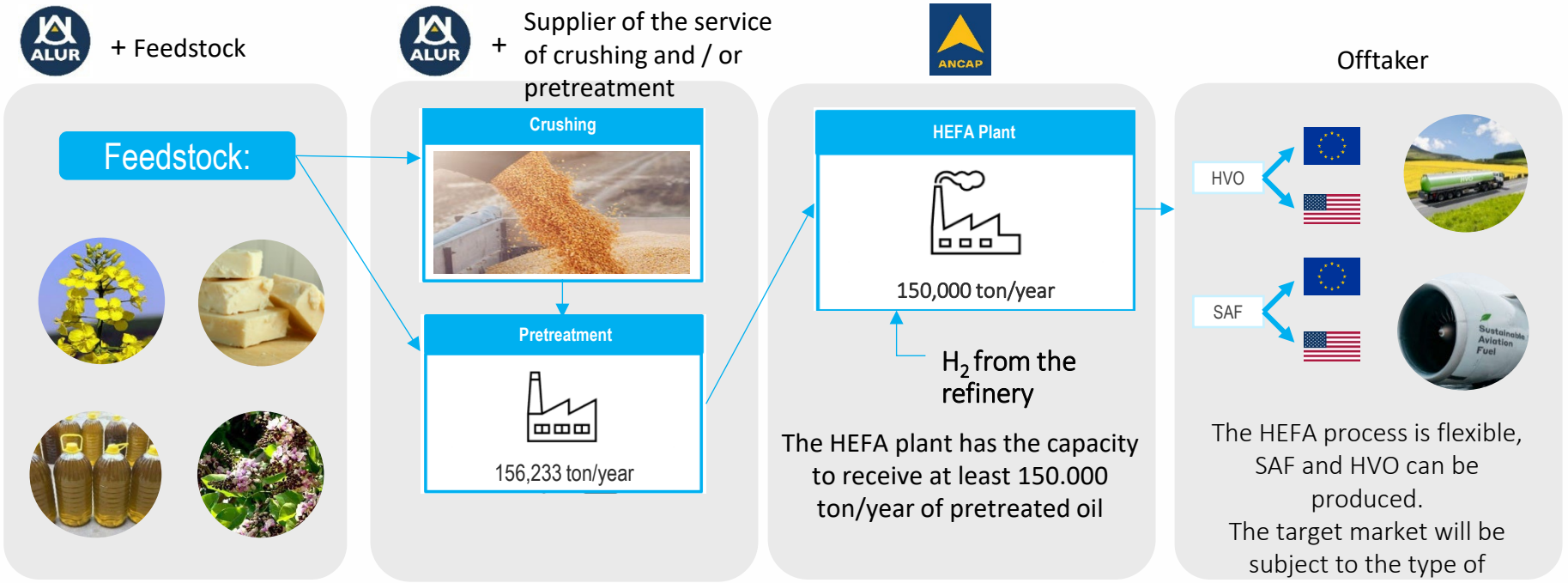
Substituting completely the use of fuel oil by natural gas in furnaces and boilers in the refinery would avoid ~ 90,000 tonCO2e/y. This mitigation measure equals to having introduced 45.000 EVs in Uruguay. In the period 2021-23 were imported 4,900 EVs in Uruguay.

Scherz Brener (2024), MIEM (2024a), Stipanicic (2024)

Projects & initiatives

Production of HVO / SAF (ANCAP & ALUR)

Value Chain of production of biofuels (SAF or HVO) through the HEFA route

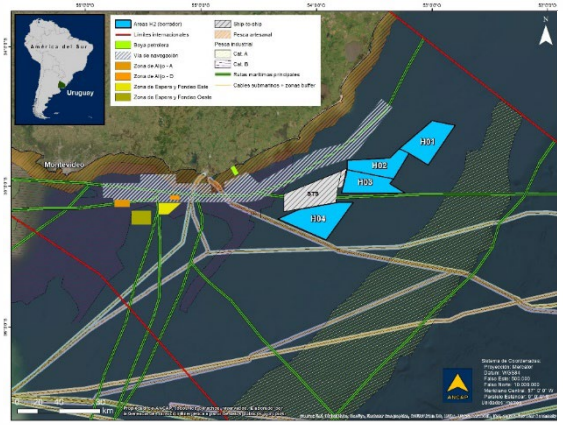


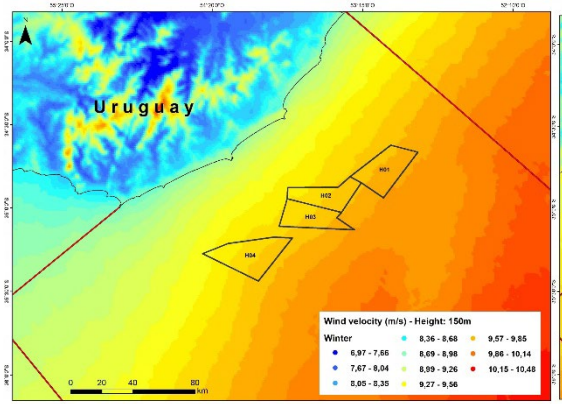
Stipanicic (2024)

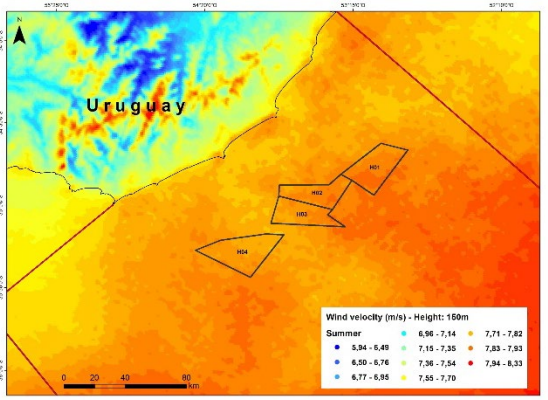
Projects & initiatives

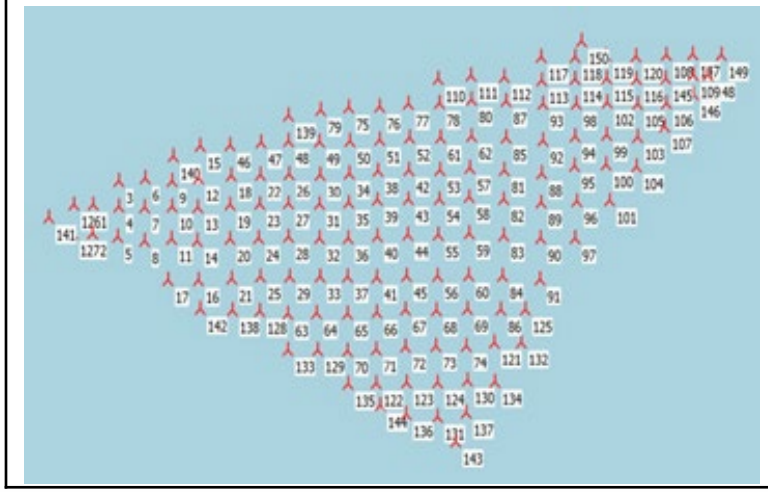
Offshore Hydrogen

Weschenfelder et al (2024)







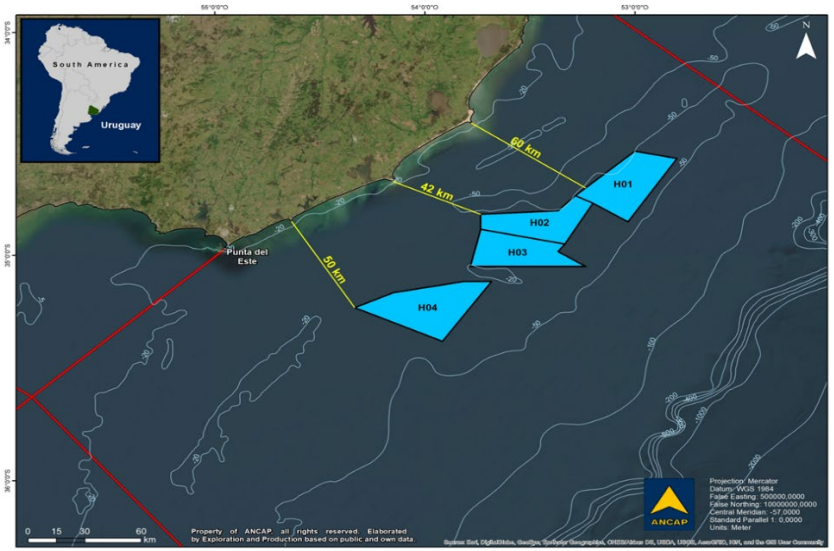


Wind speed (m/s) at 150 m	8.9
Gross P50 (GWh/year)	10.646
Wake and other losses (%)	5.6, 10
Net P50 (GWh/year)	9.045
Capacity factor - P50 (%)	45.7

Energy potential calculated for area H04 (layout and summary).

Projects & initiatives

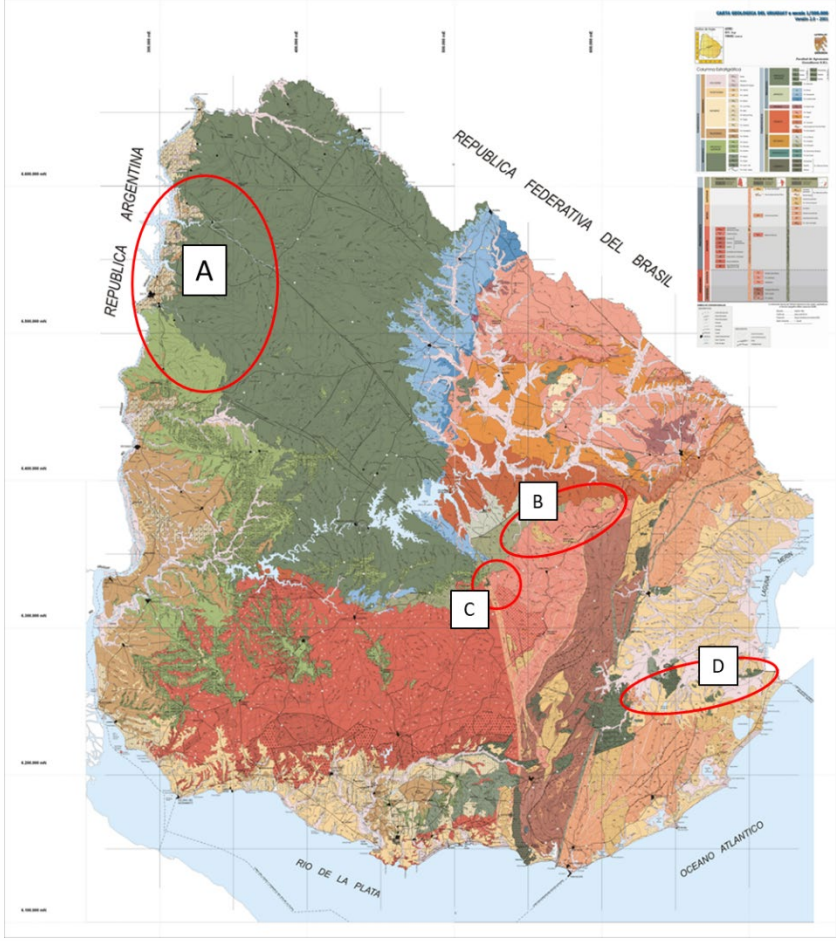
Offshore Hydrogen



ANCAP is aiming to tender offshore areas for the evaluation of projects for offshore renewable energy (e.g. offshore wind) to produce hydrogen.

Projects & initiatives

Exploration of Natural Hydrogen



During 2024 ANCAP performed in-house studies to understand the natural hydrogen geology and the potential in Uruguay, the legal and business background, and the service and exploration companies involved (research agreements in progress).

Next year the team will prepare and submit to the Ministry the contract model and bidding round terms (areas of exploration and production of natural hydrogen), and eventually multiclient agreements with service companies.

Bidding round of natural hydrogen and award of areas expected for 2026.

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Final remarks

- A corporate strategy for a responsible transition.
- Ingenuity to find solutions.
- Smart copy and paste.
- Innovation with in-house talent.
- Business oriented solutions.
- Take advantage of national & corporate resources, infrastructure and skills.

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