

# Energy Opportunities in Uruguay

Cecilia Romeu, MSc. Eng.  
Energy Transition Professional  
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- Introduction
- Open Uruguay Round: Oil & Gas E&P
- H<sub>2</sub>U Offshore Round: H<sub>2</sub> production from offshore renewable energy
- Power to Liquids / e-Fuels Project
- Conclusions

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# Why Uruguay?

## Leader in Latin America

- Ranked #1 in LAC in Political and Social stability (Democracy, Equity, Transparency, Rule of Law, Control of Corruption, etc)
- Sustained growth and stable in the long term
- Sustained improvement of credit rating (Now: Investment Grade BBB / Baa2)
- Reliable country for foreign investment
- Leader in generation of clean energies
- State of the art connectivity
- Strategic location
- Investment promotion regime
- Free zones
- Quality of life and Social Development (Prosperity Index, Quality of Life, etc)

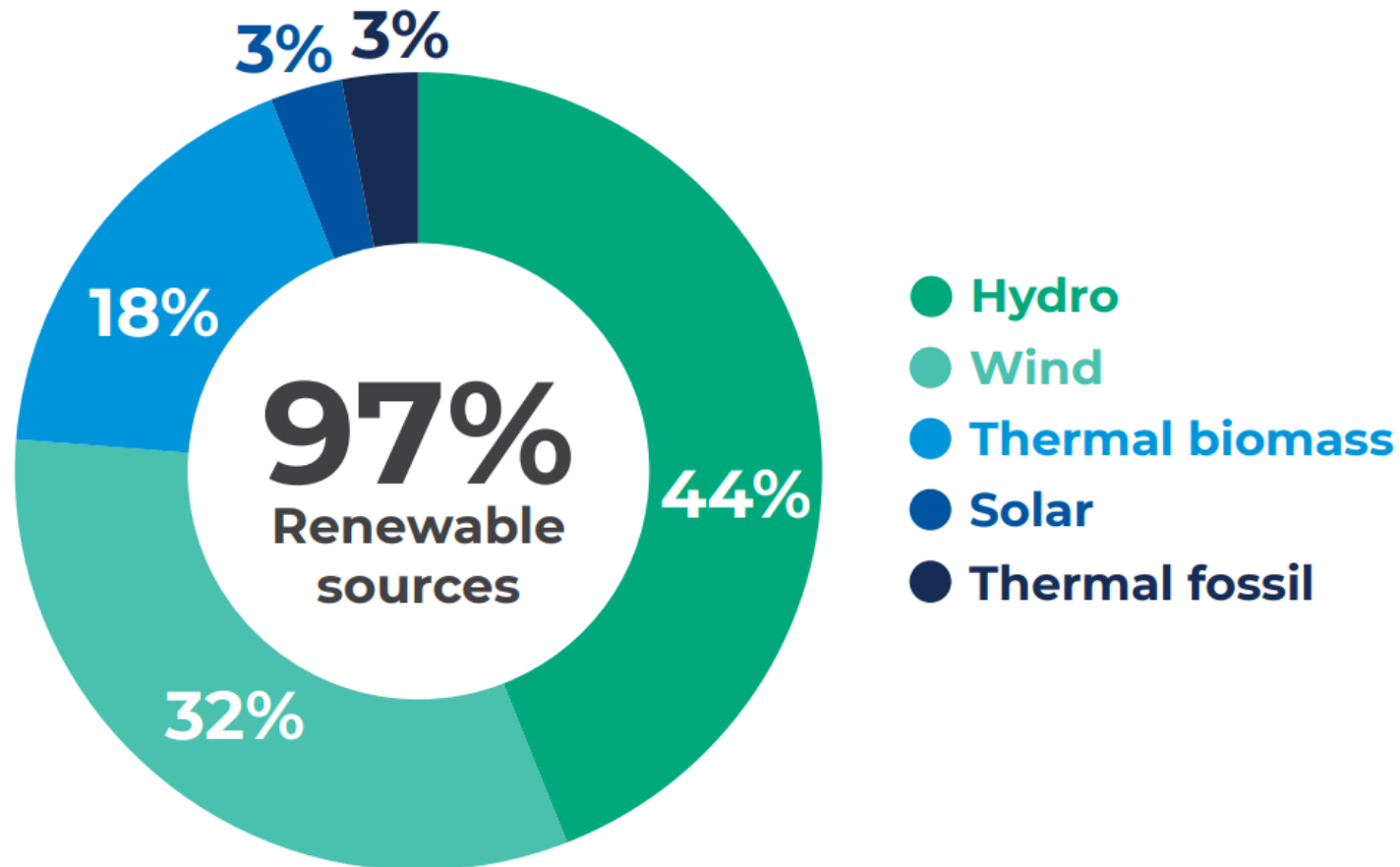
Source Uruguay XXI: <https://www.uruguayxxi.gub.uy/en/information-center/article/country-presentation/?download=en>



#1: Montevideo is the city with the best quality of life in Latin America (Mercer, 2020)



# Electric Power Generation in Uruguay



- Successful first energy transition (power sector)
- Strong drive from the Government for the second energy transition, one of whose pillars is green hydrogen

Electric power generation in Uruguay – Average for the years 2017 to 2020 (Green Hydrogen Roadmap)

<https://www.gub.uy/ministerio-industria-energia-mineria/comunicacion/noticias/green-hydrogen-roadmap-in-uruguay> )

# ANCAP

## Regulator of upstream business and operations



- Vertically integrated Oil Company
- ANCAP acts in coordination with DNE-MIEM as the “hydrocarbon agency” competent to manage the activities, business and operations of hydrocarbons industry, by itself or by third parties
- ANCAP will sign with the IOCs the Exploration-Exploitation Contract after approval and on behalf of the República Oriental del Uruguay Executive Branch



# ANCAP

## The largest industrial conglomerate in Uruguay

### Production and sale of energetics

- **Fuel**  
55.000 Bbl/day
- **Biofuel**  
130.000 m<sup>3</sup>/year
- **Lubricants**  
14.500 tons/year
- **Gas Stations**  
Network 285
- **Natural Gas**

### Production and commercialization of minerals

- **Cement**  
293.000 tons/year
- **Limestone**



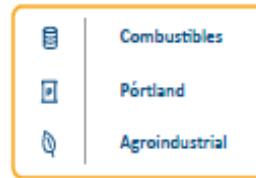
**Facilities:**  
#18 Industrial Locations  
#285 Gas Stations



**Employees:**  
#3300



**Financial Results 2021:**  
Revenue: 2.006 MMUSD  
Net Income: 88 MMUSD



### Montevideo



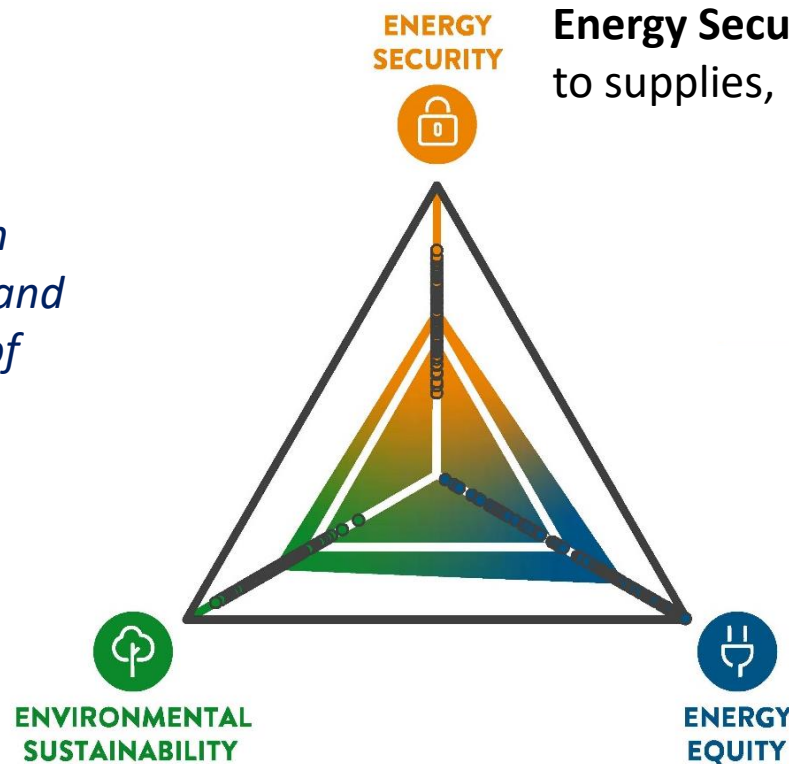


# Responsible Energy Transition for Uruguay

Healthy energy systems are secure, equitable and environmentally sustainable, showing a carefully managed balanced Trilemma between the three dimensions

*A responsible energy transition implies coexistence, competence and complementation of all forms of energy through some decades*

**Environmental Sustainability:** transition towards mitigating and avoiding potential environmental harm and climate change impacts



**Energy Security:** reliability, minimal disruption to supplies, resilience of energy infrastructure

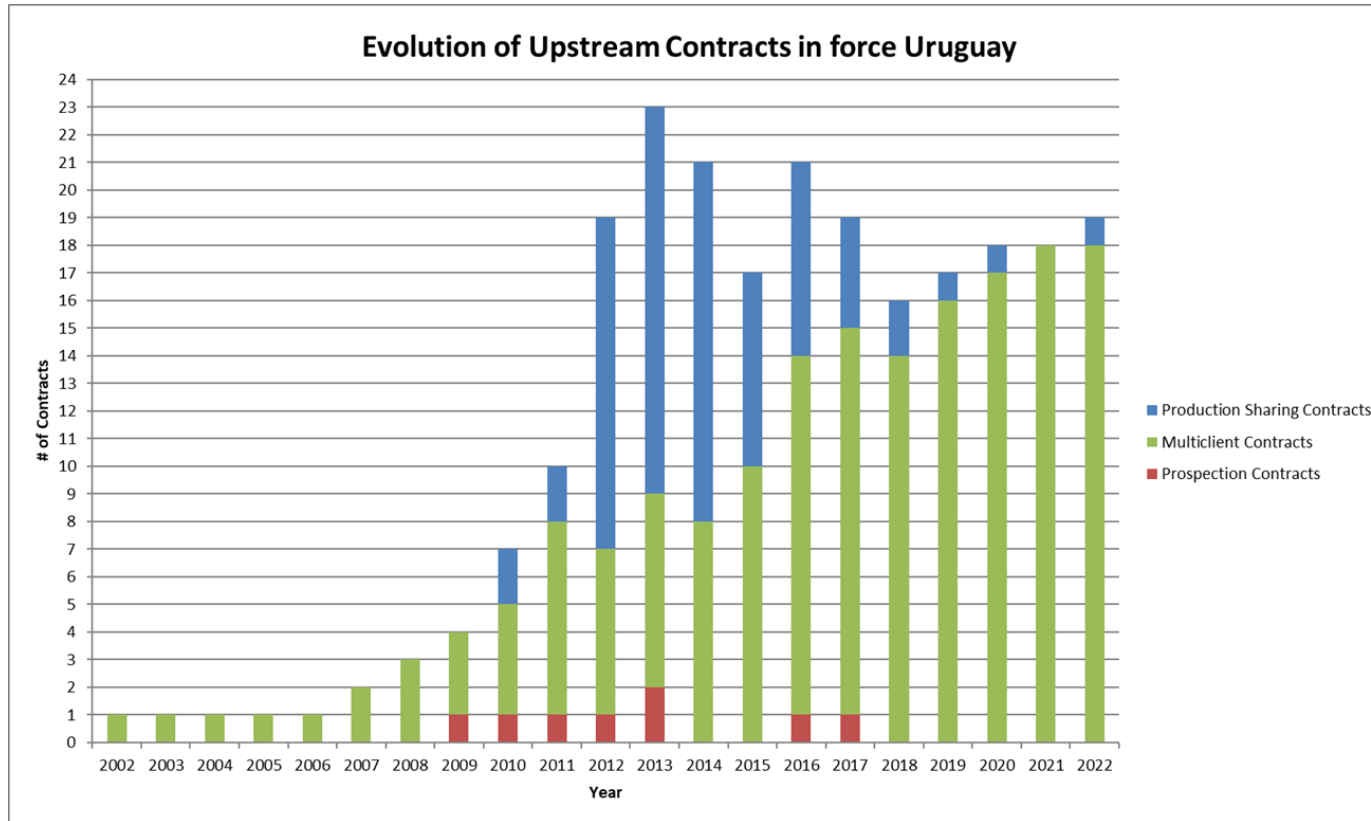
**Energy Equity:** universal access to reliable, affordable, and abundant energy (electricity, clean cooking fuels, gas and fuels)



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# Tens of Upstream Contracts Signed in the Last 15 Years



Over 1.2 Billion USD of investment in HC exploration by Oil & Gas and Service Companies



# Multiclient contracts in force

Company	Scope
	15.700 km <sup>2</sup> of 3D seismic offshore
	2D seismic reprocessing of UR70, UR71, UR74, UR75, UR82 & UR11 surveys (max. 16.002 Km)
	10.400 km of 2D seismic offshore
	Program of digital data from exploratory well logs
	2.800 km of 2D seismic offshore
	2D seismic reprocessing of UR07&UR08 surveys (10.000 Km)
	Reprocessing of 3D Seismic data which forms part of ANCAP's database ("Tannat Project")
	Petroleum Geology of Uruguay (2 Reports)
	Source rock characterization of the Norte Basin of Uruguay
	Raya-1 post-mortem well success/failure analysis
	Offshore 3D seismic reprocessing
	6.400 Km of 2D seismic UR11: AVO Study & Seismic Inversion
	Program for the micro-seeps detection of hydrocarbons into sediment samples in the offshore
	Program for the reprocessing of CSEM data offshore Uruguay
	Acquisition, processing, interpretation and marketing of Controlled Source Electromagnetic (CSEM) data offshore Uruguay
	Acquisition, processing, interpretation and marketing of SFD® data in the onshore/offshore Uruguay
	Acquisition, processing, interpretation and marketing of airborne magnetic, gravimetry, gravity gradiometry and magnetotelluric data over part Uruguay onshore

**#20  
multiclient  
contracts in  
force**

- Significant increase of the exploratory data of Uruguayan basins
- Worldwide promotion of exploratory opportunities in Uruguay

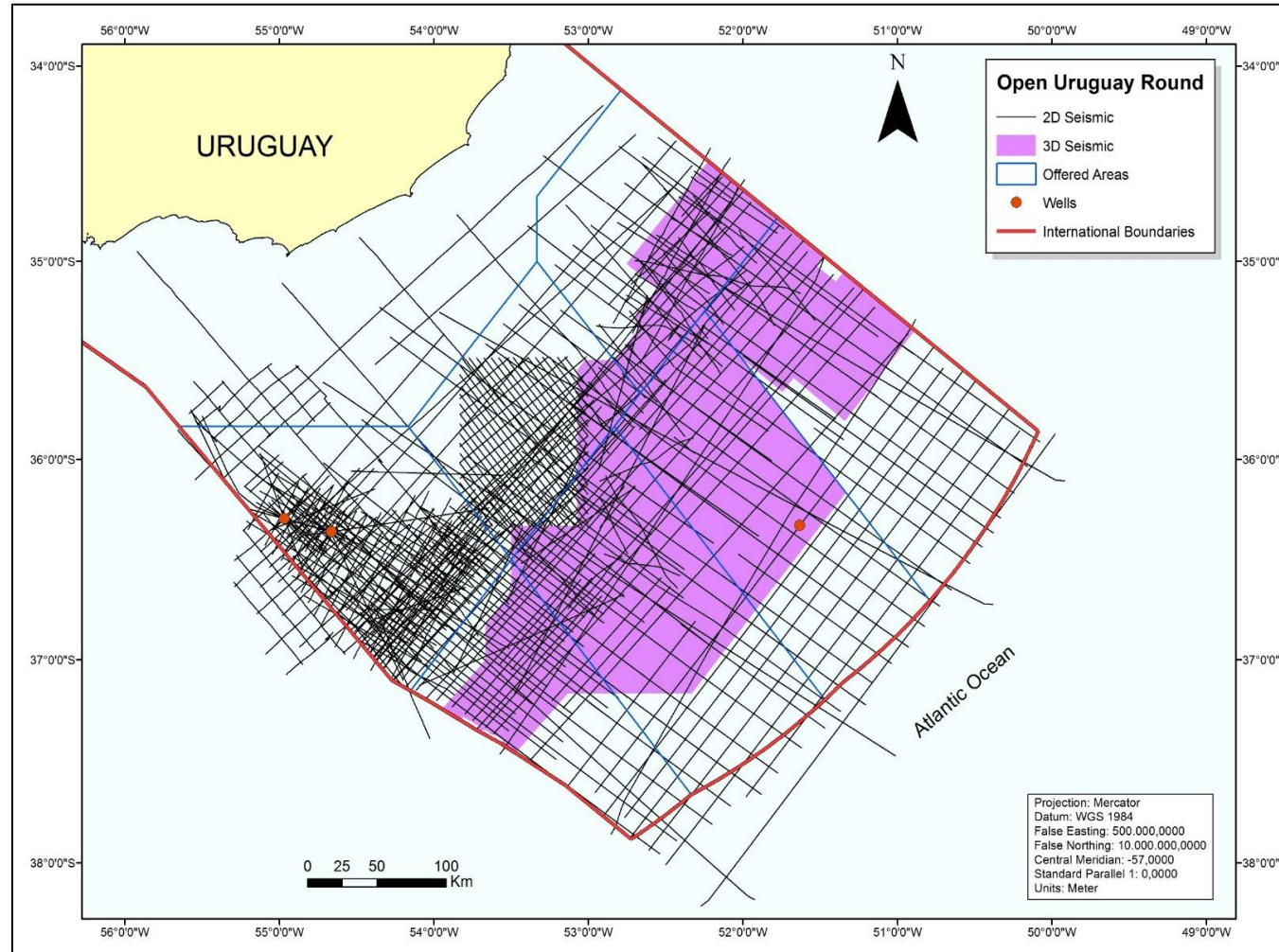
# Data has Increased Tremendously

## DATA BEFORE 2007

- 2 wells
- 13.000Km of 2D seismic

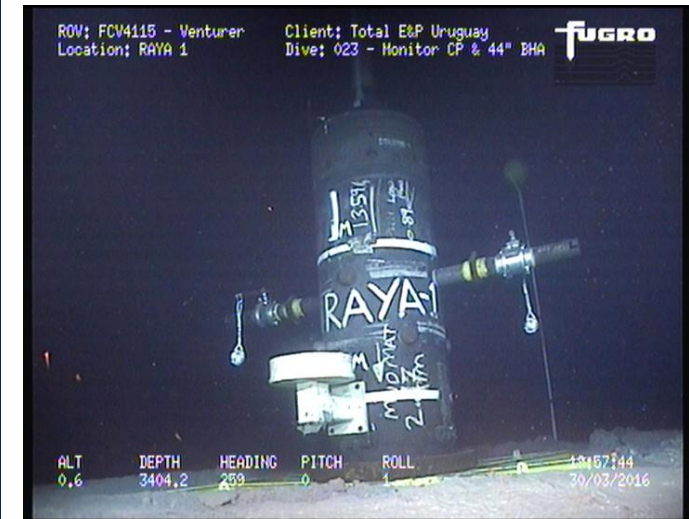
## NEW DATA SINCE 2007

- 1 well
- 28.000Km of 2D seismic
- 41.000Km<sup>2</sup> of 3D seismic
- 13.500Km<sup>2</sup> of 3D CSEM
- >200 Heat flow measurements and core samples



## RAYA WELL

- Drilled after 40 years
- World Record Water depth (3404 m)
- 100 days of operation: on time and budget
- Complex Logistics on Port
- Construction of Mud and Cement plants
- Imports and Exports authorized by ANCAP and DNA in coordination
- Success from operational, HSE, drilling engineering, etc. point of views

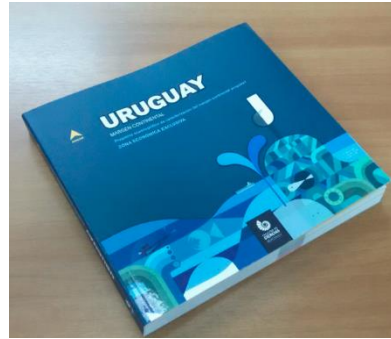




# Strong Emphasis on the Care of the Environment



HSE management plan required by ANCAP and DINAMA to the oil companies requires the use of the industry's best practices and technologies for each exploration operation. IE: MMO and PAM for offshore seismic



**2012-13: Environmental Base Line on the EEZ,** bibliographic review

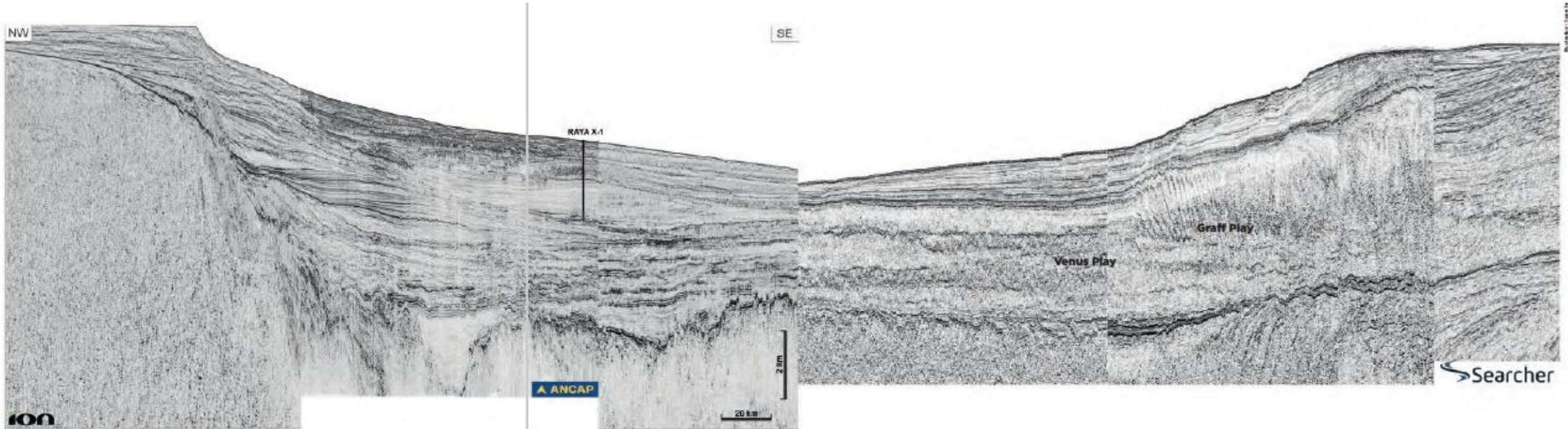


**2015-16: Environmental Base Line on the EEZ,** regional oceanographic survey for the acquisition, processing and interpretation of data



**Offshore Operations Manual:** ANCAP's guidelines, recommendations, requirements to design and execute the offshore exploration operations to assure their safety and environmental sustainability, in line with the international standards

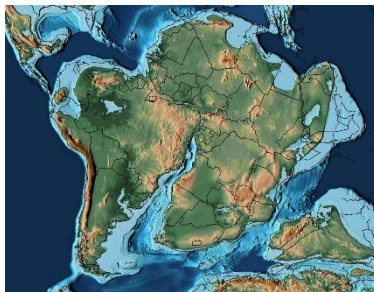
# Remarkable Analogies with Discoveries in Namibia



[https://assets.geoexpro.com/uploads/bb70b3ea-2e18-4a36-8064-8bdbf41ded86/GeoExPro\\_04-2022\\_FINAL\\_4web.pdf](https://assets.geoexpro.com/uploads/bb70b3ea-2e18-4a36-8064-8bdbf41ded86/GeoExPro_04-2022_FINAL_4web.pdf)



150 MM years



120 MM years

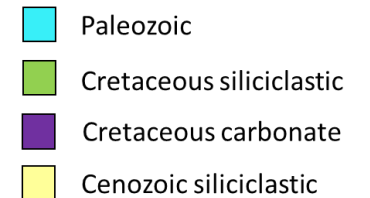
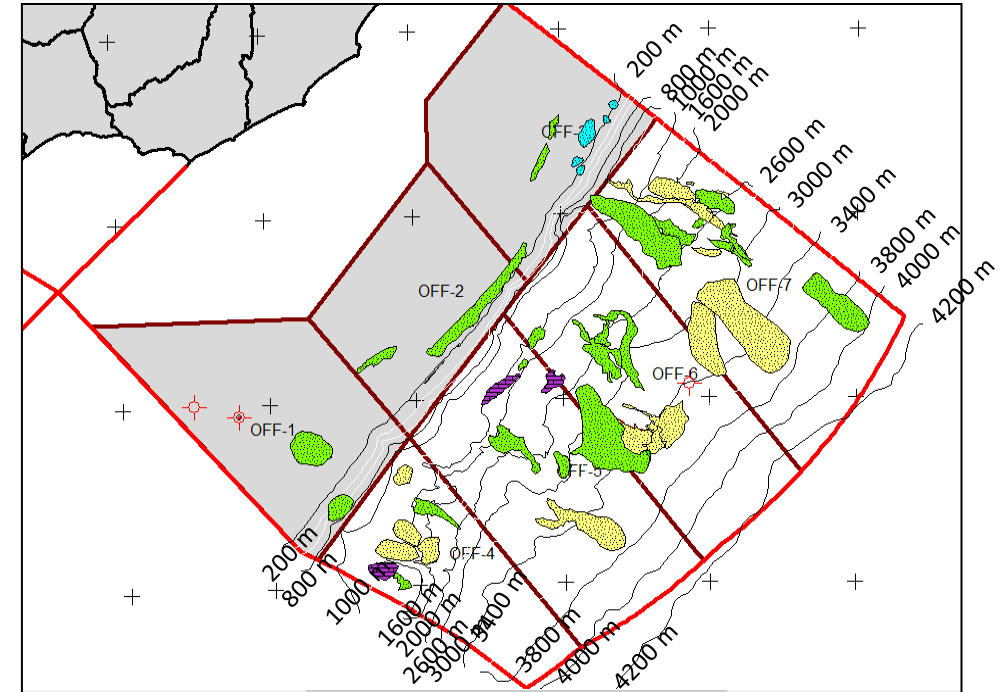
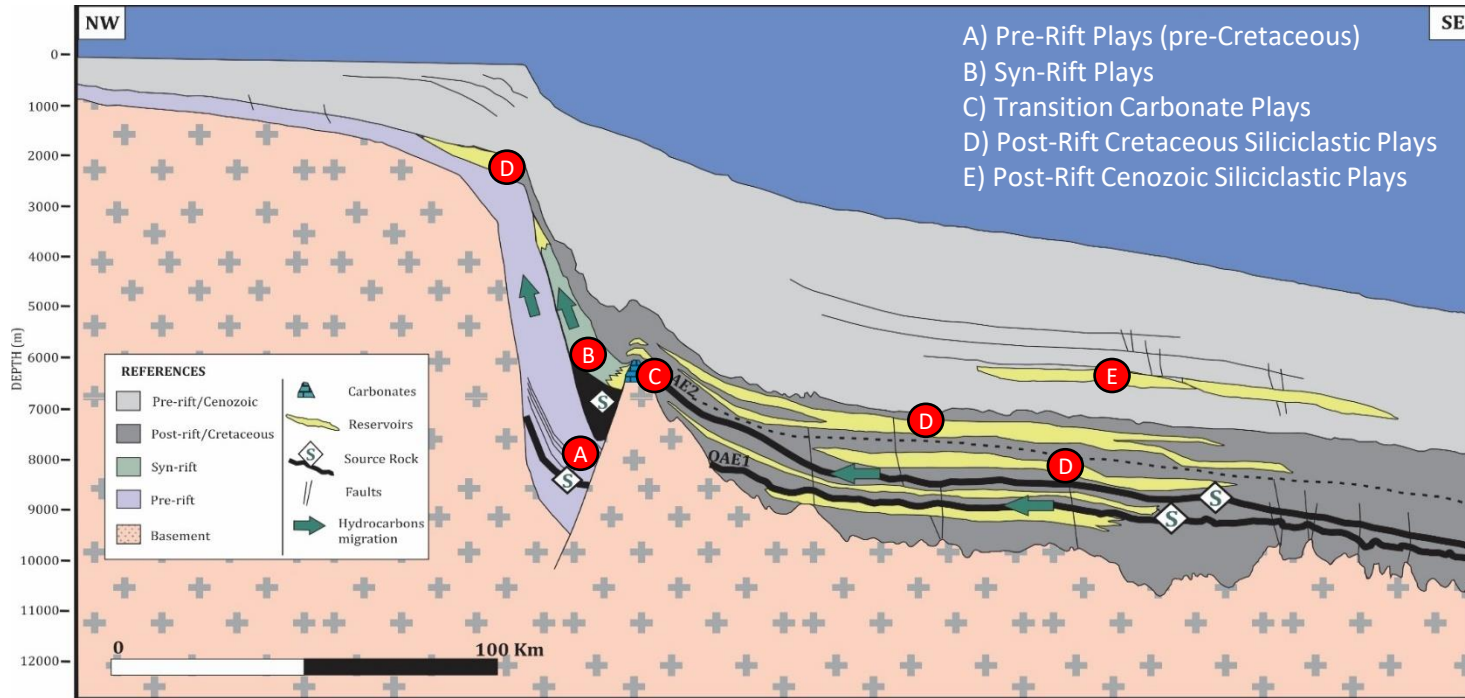


Present Day

- Dip seismic lines of Uruguay and Namibia combined at same scale
- Thick Aptian sequence (source rock of Venus and Graff discoveries), related to 2 depocenters
- In Uruguay there is a higher sedimentary thickness in Punta del Este Basin. Higher overburden of Aptian source rock, higher GOR and gas prone prospects expected in this offshore zone



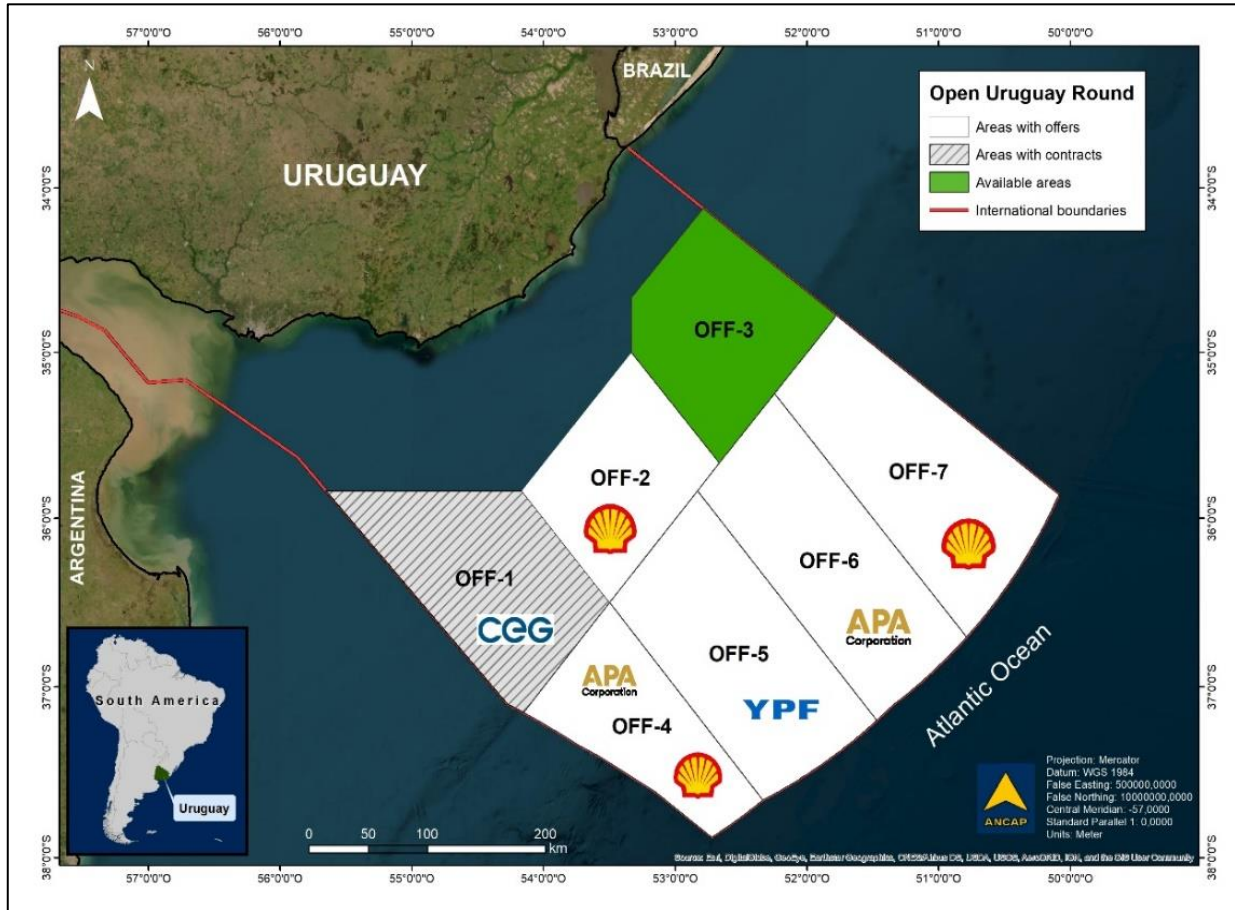
# Play Types and Prospects Offshore



- >60 offshore prospects and leads
- From shallow to ultra-deep water depths
- Different play types and on all offshore basins
- Prospective resources >20,000 MMBOEs (already assessed in just 13 prospects)



# Open Uruguay Round



Average Blocks size  $\approx 15.000\text{Km}^2$

Since RUA is in force 10 offers have been received:

- May 2019
  - Kosmos Energy for Areas OFF-2 and OFF-3
  - Due to financial difficulties, Kosmos Energy sold its frontier exploration assets and withdraw its offers in Uruguay
- May 2020
  - Challenger Energy (CEG) for Area OFF-1; 272 UT  $\leftrightarrow$  1,36 MMUSD of investment committed
- May 2022
  - APA Corporation for Areas OFF-2 and OFF-6
  - Shell for Areas OFF-2 and OFF-7
  - APA was awarded Area OFF-6 and Shell Areas OFF-2 and OFF-7,
  - Investment committed is 81,765 MMUSD (16.353 UT), 4,5 MMUSD (900 UT) and 7,55 MMUSD (1510 UT) respectively
- November 2022:
  - Consortium APA/Shell for Area OFF-4
  - YPF for Areas OFF-4 and OFF-5
  - APA/Shell was awarded Area OFF-4 and YPF Area OFF-5.
  - Investment committed is 30,67 MMUSD (6134 UT), 29,17 MMUSD (5834 UT) and 1,5 MMUSD (300 UT) respectively

# Future Exploratory Work Desktop – Workstation Studies

- Area OFF-1: Challenger Energy
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Reprocessing and interpretation of 2D Seismic
  - Licensing data
- Area OFF-2: Shell
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Gravimetric and magnetometric 3D model inversion
  - Licensing data
- Area OFF-4: APA Corp / Shell (APA Operator)
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Gravimetric and magnetometric 3D model inversion
  - Licensing data
- Area OFF-5: YPF
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Gravimetric and magnetometric 3D model inversion
- Area OFF-6: APA Corporation
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Licensing data
- Area OFF-7: Shell
  - Evaluation of Petroleum geology
  - Evaluation of Prospective Resources
  - Gravimetric and magnetometric 3D model inversion
  - Licensing data



# Future Exploratory Work

## New Field Operations

- Area OFF-4: APA Corp / Shell (APA Operator)
  - Acquisition, processing and interpretation of 2500Km<sup>2</sup> of 3D Seismic
- Area OFF-6: APA Corp
  - Drilling 1 exploratory well



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# H<sub>2</sub>U Offshore

## ANCAP's Vision for a Sustainable Future



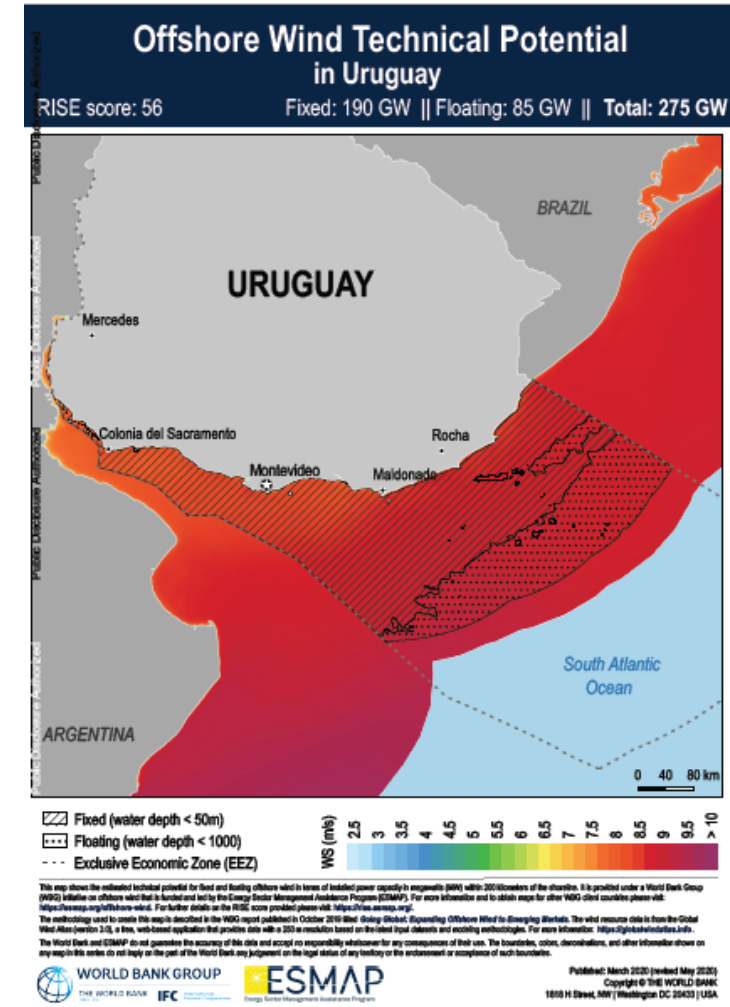
Source: <https://tractebel-engie.com/en/news/2019/400-mw-offshore-hydrogen-production-takes-system-to-new-levels>



In 2023 ANCAP is planning to tender **offshore areas** for energy companies to carry out feasibility studies and potential installation of infrastructure to produce H<sub>2</sub> from offshore renewable energy, at their own cost and risk entirely

# Excellent Conditions for Offshore Hydrogen Development in Uruguay

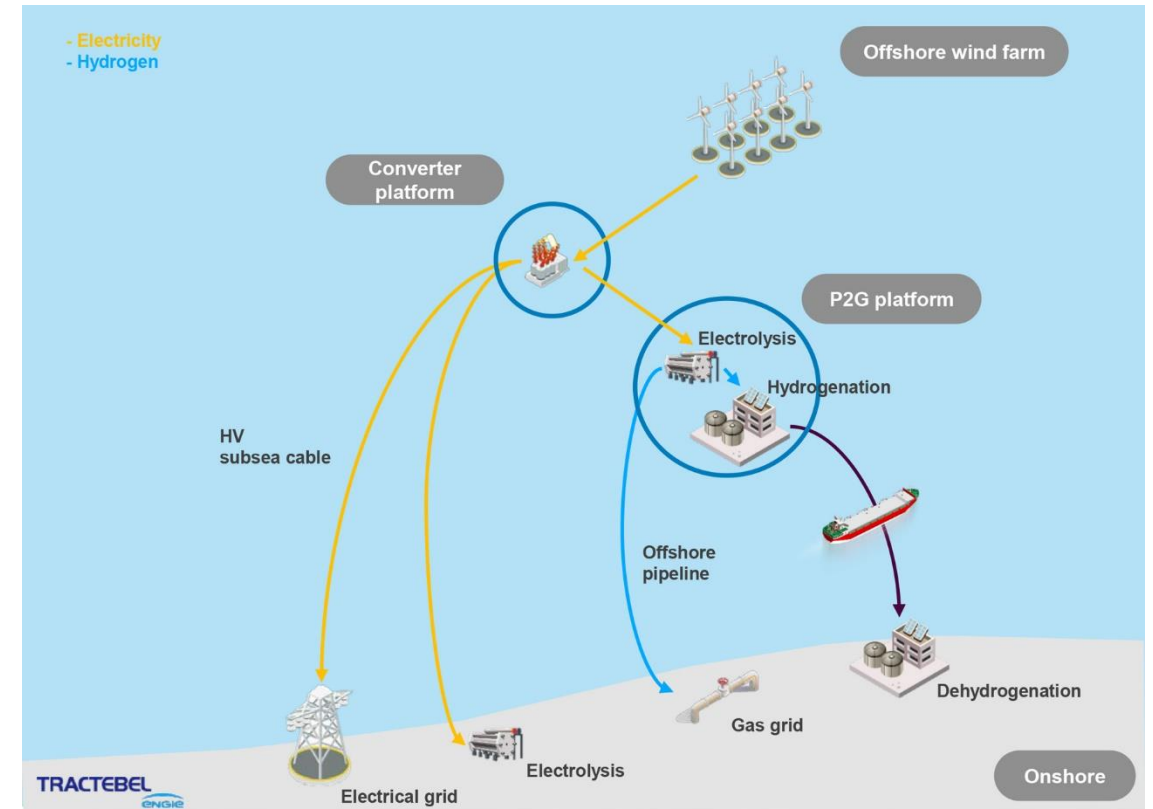
- Large offshore potential
  - Excellent Wind Conditions
  - Large Technical Potential (275 GW)
  - High capacity factors (> 55%)
  - Availability of large areas
- Wind speed at 100 m height
  - Between 8.5 and 9.5 m/s in annual average (up to 1000 m water depth)
  - Slight increase towards south
  - Much better quantity, quality, and uniformity than onshore



Source: ESMAP; "Offshore Wind Technical Potential in Uruguay". March 2020; The World Bank

# H<sub>2</sub> Production from Water Electrolysis Development Concepts

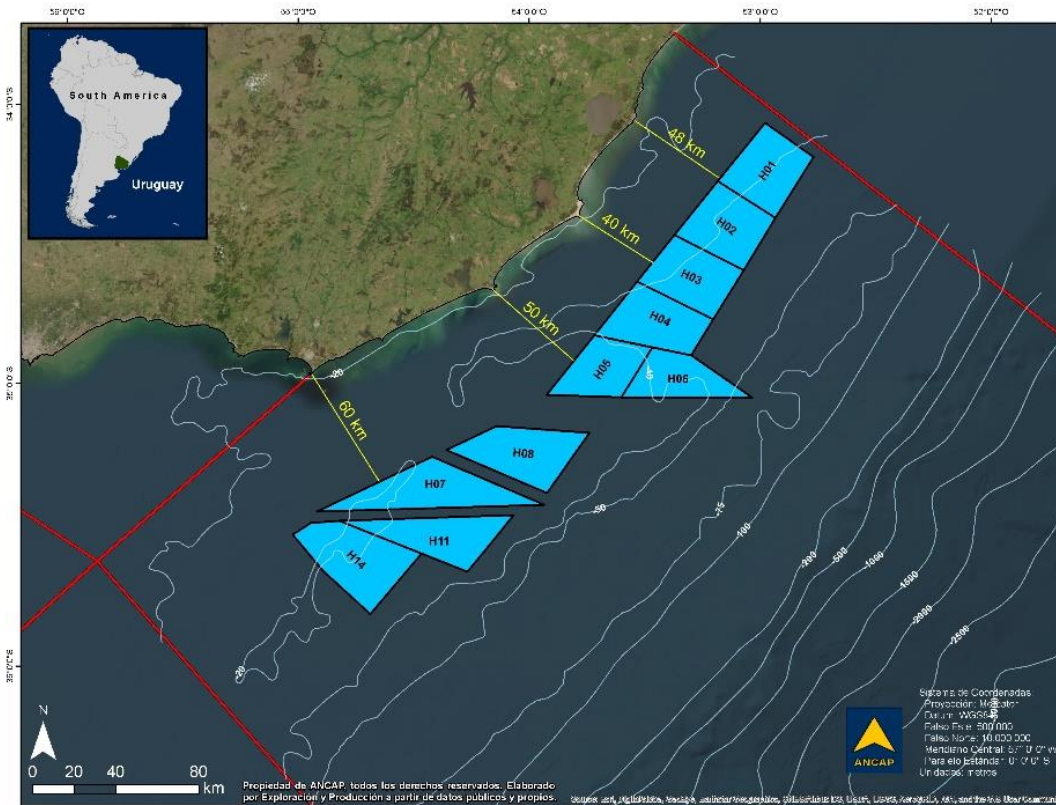
- FLEXIBILITY for the contractor to propose development concept including:
  - Offshore / Onshore Electrolysis
  - Project scale (phases)
  - Type or H<sub>2</sub> Carrier (NH<sub>3</sub>, LH<sub>2</sub>, etc)
  - Market/Off-taker
- WHEN?
  - With submission of Project Development Plan
  - After a 10 years (max) of evaluation periods



Source: <https://tractebel-engie.com/en/news/2019/400-mw-offshore-hydrogen-production-takes-system-to-new-levels>

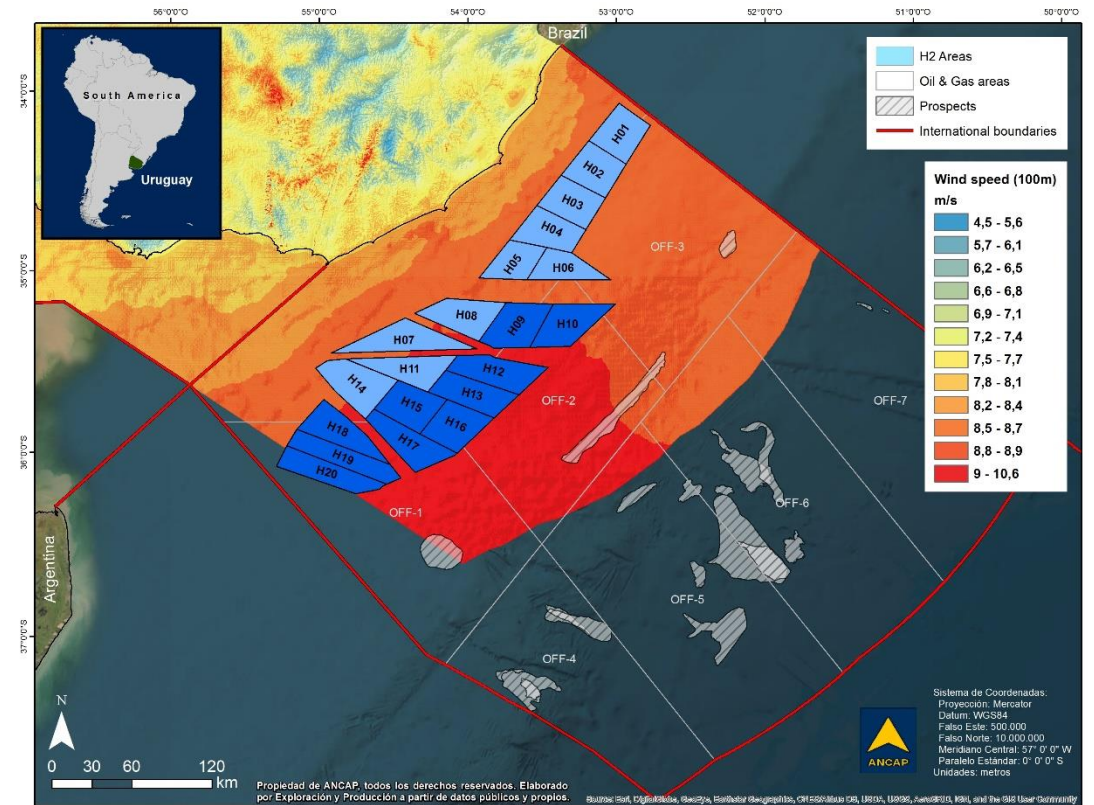


# Offered Areas



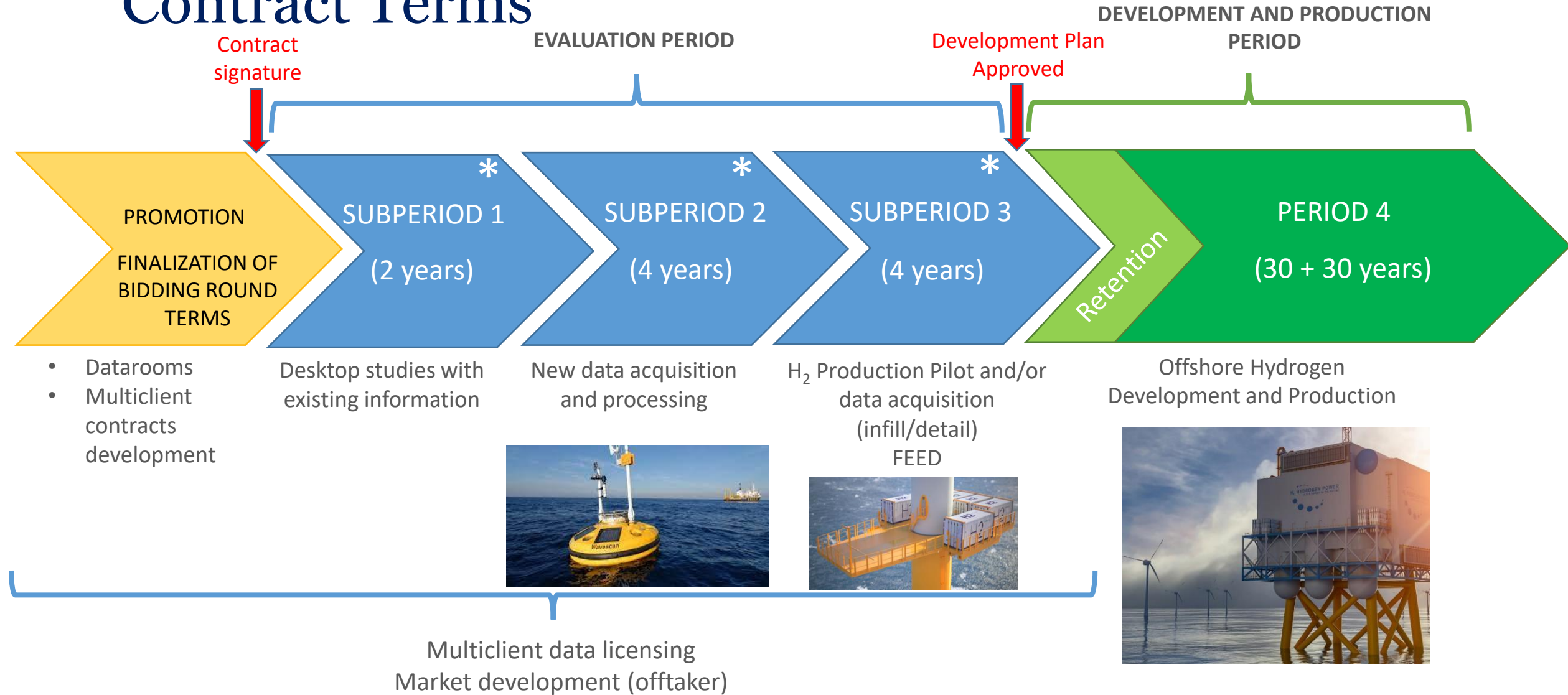
Estimated Potential for 760 km<sup>2</sup> (500 km<sup>2</sup> to avoid wake effect):

- Minimum 3,2 GW
- Production of  $\approx 160.000$  TonH<sub>2</sub>/year



- Areas defined considering relevant ecological settings, minimized interference with human activities (maritime transit and operations, fisheries, submarine cables) and the input from the industry
- No overlap with O&G prospects

# Contract Terms



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# ALUR

## A company member of the ANCAP Group

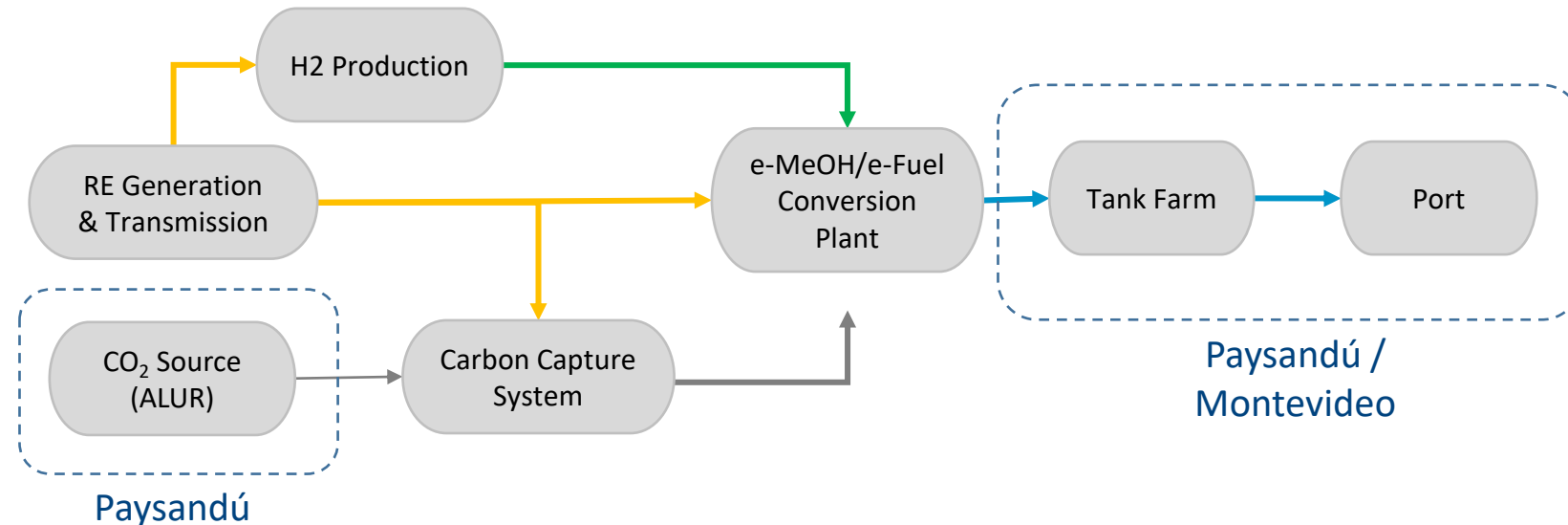
ALUR is dedicated to the sustainable agribusiness, with a high economic and social impact through the production of biodiesel, bioethanol, chemicals, energy and sugar.





# ALUR will launch a request for Expression of Interest for e-Fuels Project Developers

ALUR is looking for engaging with private companies or consortia to develop a Power-to-Methanol or Power-to-Fuel project using ALUR's biogenic CO<sub>2</sub> and ANCAP's group available infrastructure assets in Uruguay.



ALUR Plant in Paysandú

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# Conclusions

- Uruguay is a reliable and stable country, leader in generation of clean energies; above ground risks minimized
- E&P Open Uruguay Round already in place and starting to show results
  - ✓ Huge available database, reducing exploratory risks
  - ✓ Important analogies with giant discoveries offshore Namibia
- Green H<sub>2</sub> production from offshore renewable energy is the main project for ANCAP's future
  - ✓ Official bidding round terms and contract model in 2023
- Synergies between the two projects for energy companies
- Alur's power to e-fuels (or CH<sub>3</sub>OH) project receiving EOIs
- Open to discuss any other Energy Transition Projects



# WEB PAGE:

<https://exploracionyproduccion.ancap.com.uy/>

- Geological information about Uruguayan offshore and onshore basins
- Available E&P database
- Bidding Round terms
- Map of offered areas
- Posters
- Contract Models
- Contact information
- Presentations
- Spreadsheet for comparison of offers
- Virtual Data Rooms
- H<sub>2</sub>U Project web page will be available soon



# Thank you for your attention

Contact us at: [cromeu@ancap.com.uy](mailto:cromeu@ancap.com.uy); [h2uoffshore@ancap.com.uy](mailto:h2uoffshore@ancap.com.uy); [rondauruguay@ancap.com.uy](mailto:rondauruguay@ancap.com.uy)