Energy Projects Offshore Uruguay

H2U Offshore Round

7 MAY 2025 | NRG PARK
HOUSTON, TEXAS, USA

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ANCAP

The information included in this presentation and all other communication material regarding bidding terms, contract model, schedule, regions and areas is tentative and should be considered as a draft. Official and final version of this information will be released once the bidding terms are approved and published. May 2025

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Introduction

ANCAP: HYDROCARBONS **AND** SUSTAINABLE FUELS

E&P of hydrocarbons

Decarbonization of current operations

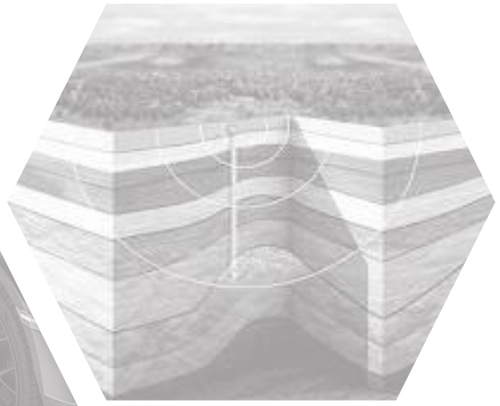
Green H2 production offshore

ALUR: bioethanol and biodiesel production

HVO / SAF Production

Natural / geologic H2 E&P

E-fuels Production



CO2 storage in saline aquifers

INTRODUCTION

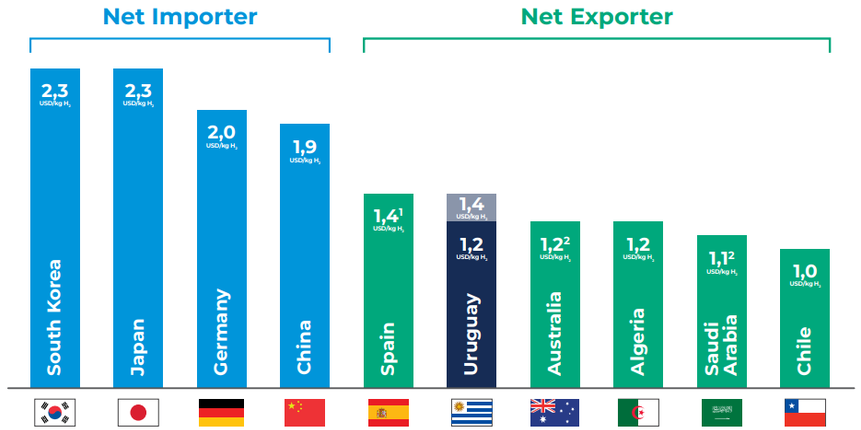
Uruguay:

- Successful first Energy transition (power sector)
- Government support for green hydrogen
- Country stability and reputation
- Good interinstitutional coordination

H2U offshore bidding round:

- Timely and innovative, first mover

Hidrógeno verde: una oportunidad para Uruguay https://bit.ly/3uYEyDP



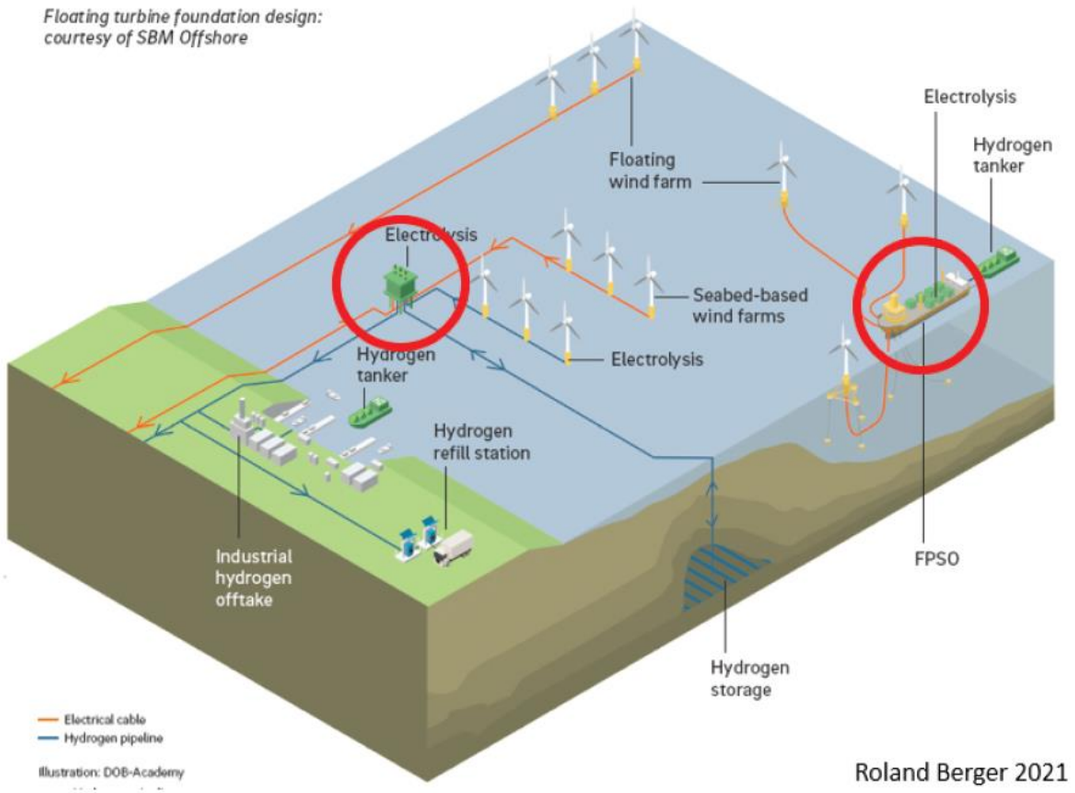
MIEM 2023; Uruguay´s Roadmap for Green Hydrogen and Derivatives

H2U OFFSHORE

Gemini Advanced (2024). Renewable Hydrogen Production Offshore

ANCAP is launching a tender for offshore areas for energy companies to carry out feasibility studies and potential installation of infrastructure for the production of H2 and/or derivatives from offshore renewable energy, at their own cost and risk entirely.

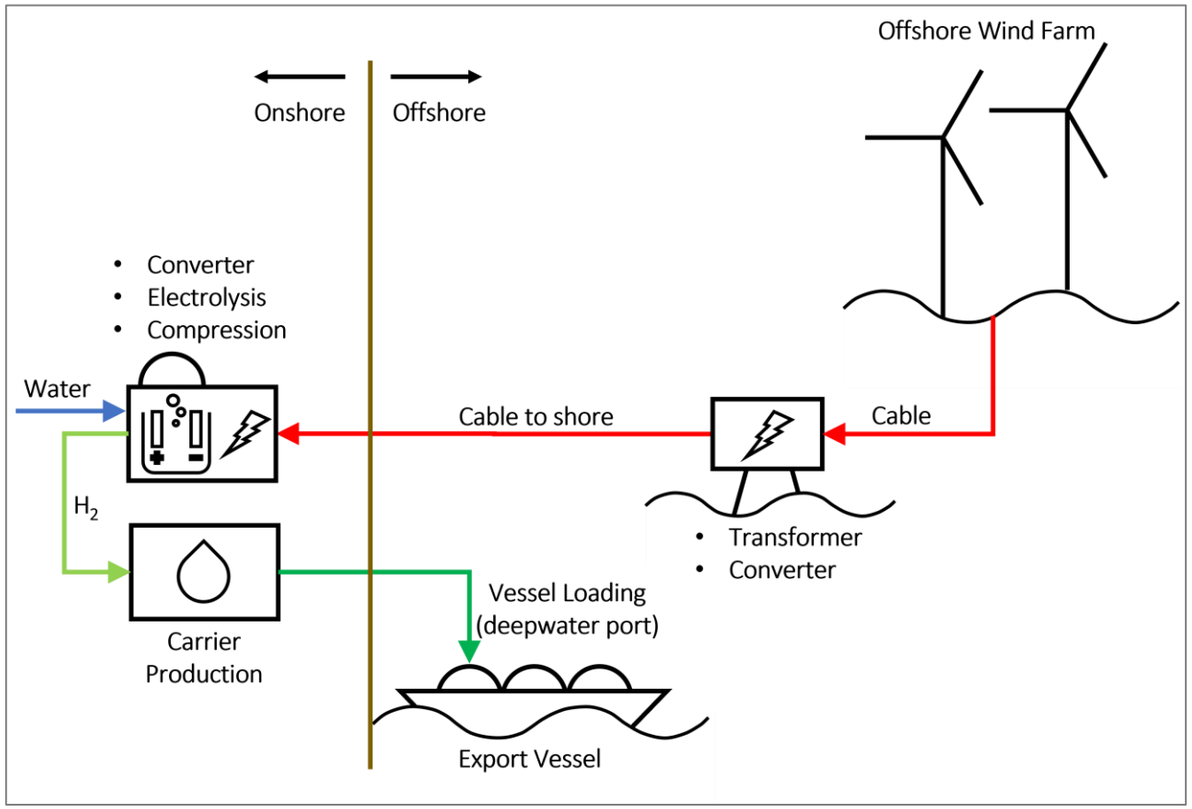
DEVELOPMENT CONCEPT

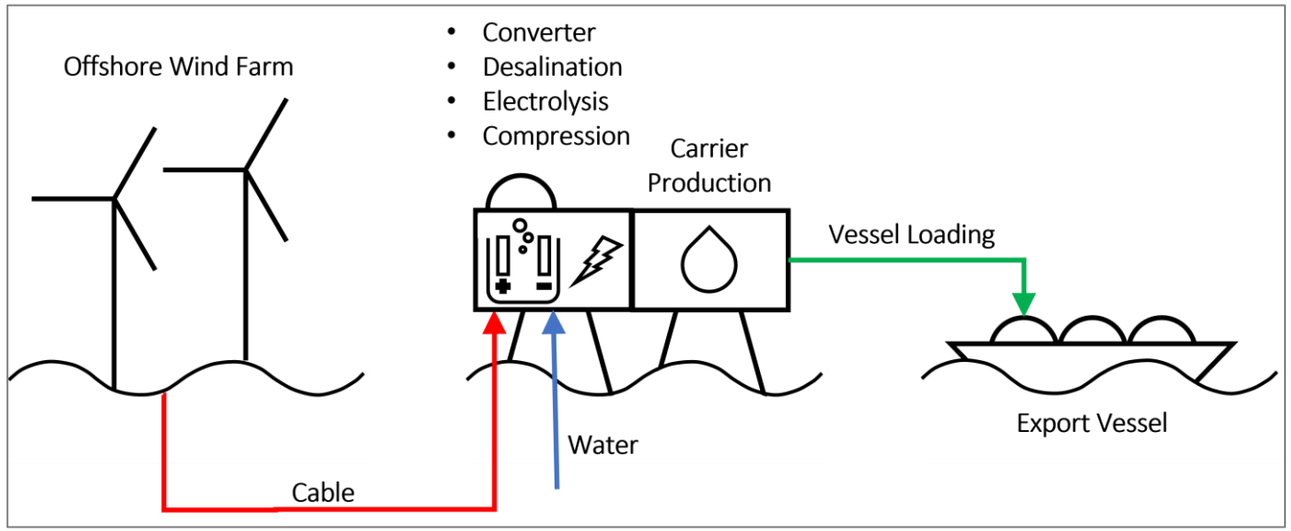


Flexibility for the contractor to propose development concept including:

- Offshore / Onshore Electrolysis
- Project scale (phases)
- Type or H2 Carrier (NH3, LH2, etc)
- Market/Off-taker
- Development committed only after 10 years of evaluation period

DEVELOPMENT CONCEPT





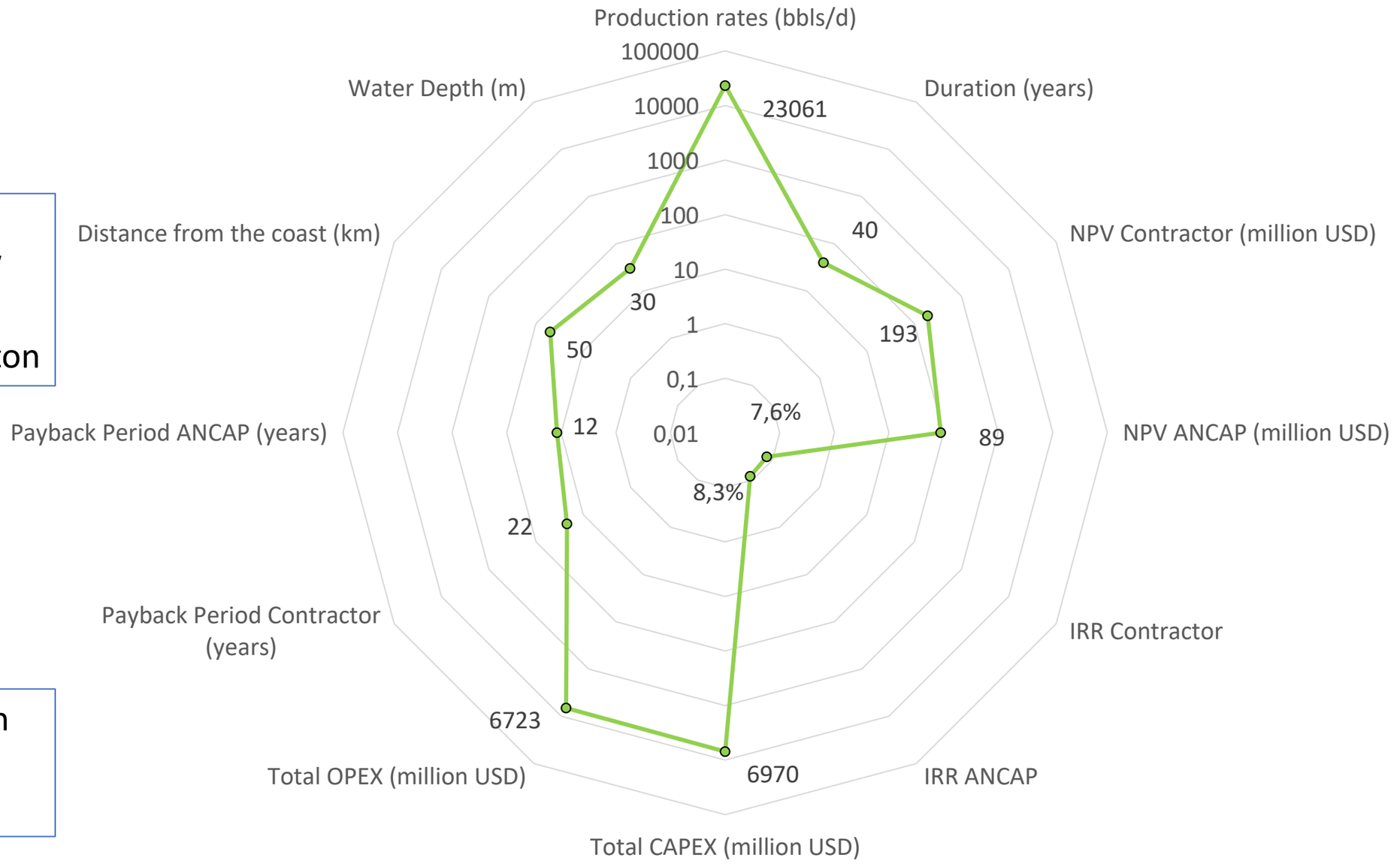
Tomasini, Juan, Gristo, Pablo, Ferro, Santiago, and Rodrigo Novo. "**Assessment of the Potential for Hydrogen Production from Bottom Fixed Offshore Wind in Uruguay**." Paper presented at the Offshore Technology Conference, Houston, Texas, USA, May 2022. doi: https://doi.org/10.4043/31879-MS

Ferro, Santiago, Tomasini, Juan, Gristo, Pablo, and Rodrigo Novo. "**Analogies from the E&P Business Model Applied for Green Hydrogen Developments Offshore Uruguay**." Paper presented at the Offshore Technology Conference, Houston, Texas, USA, May 2023. doi: https://doi.org/10.4043/32560-MS

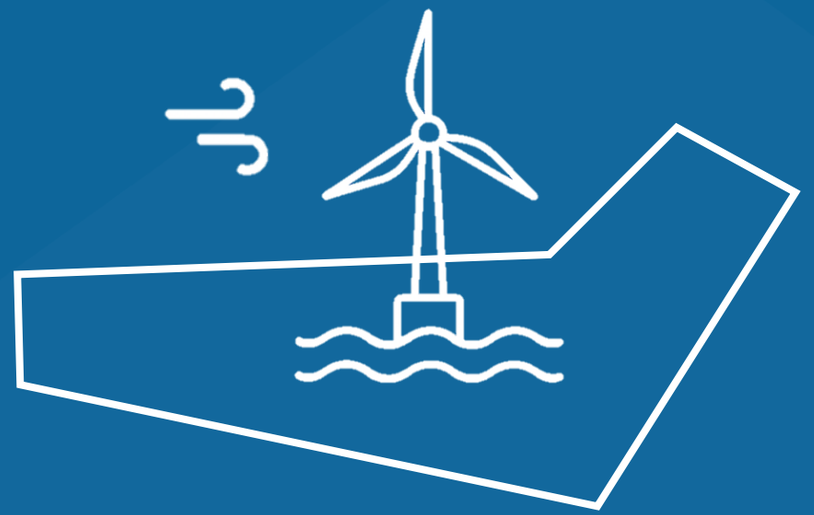
FEASIBILITY

Ammonia Case:		
Electrolysis	1,35	GW
WACC	8%	
Ammonia Price	1500USD/ton	

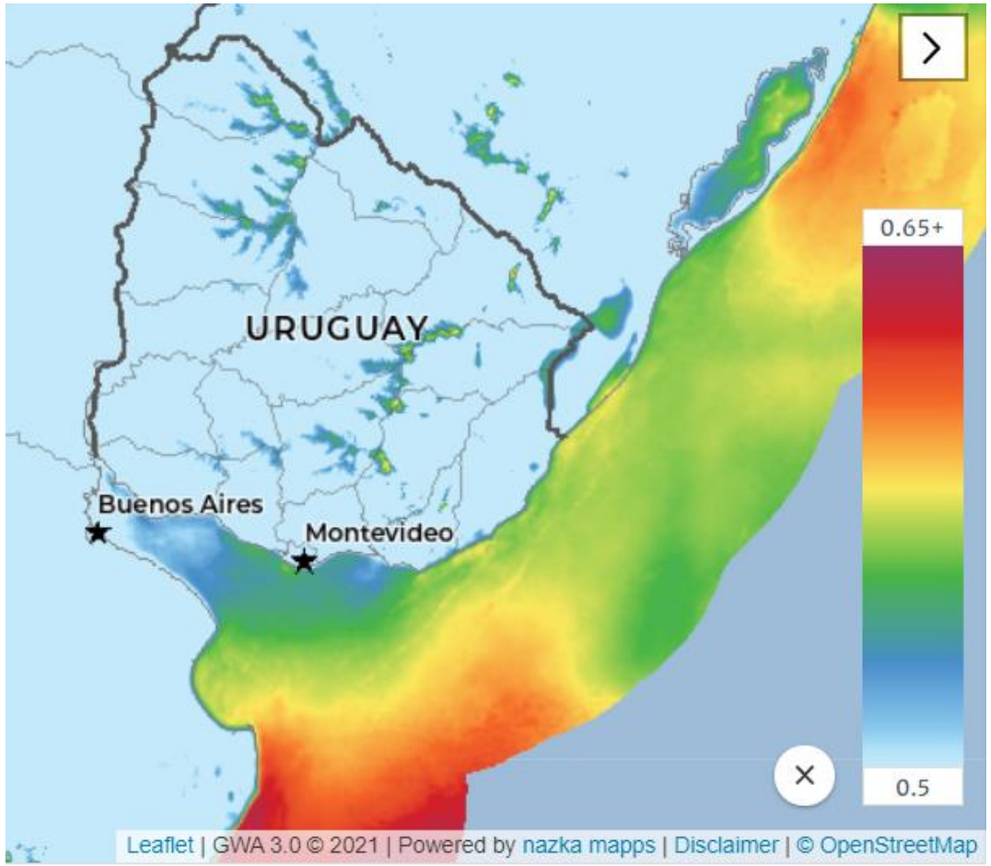
LCOE	78	USD/MWh
LCOH	5,6	USD/Kg
LCOA	1144	USD/Ton



Areas and Potential

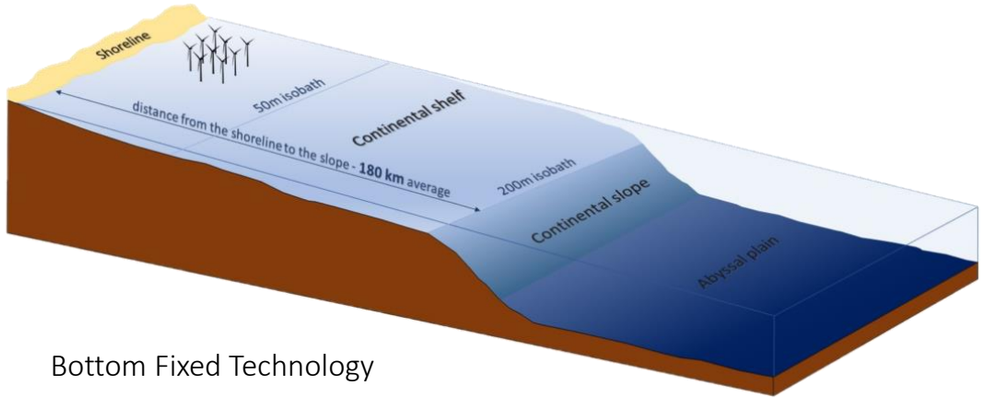


OFFSHORE URUGUAY WIND RESOURCE POTENTIAL

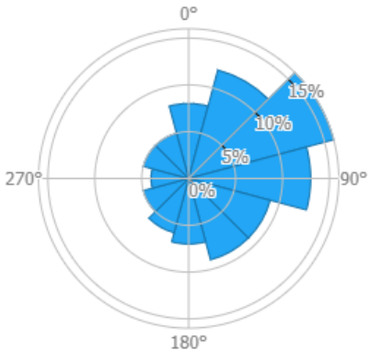


[Data/information/map obtained from the] "Global Wind Atlas 3.0, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas 3.0 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info"

- Mean wind speed (exceeding 8.7 m/s at 100 m hub height) (1)
- Capacity factors (higher than 51% for IEC Class I) (1)
- ESMAP assessed a technical potential in Uruguay of 275GW including 190GW for fixed and 85GW for floating technologies (2)
- Main direction: NE -> SW (1)



Bottom Fixed Technology



(1) Global Wind Atlas 2022
(2) ESMAP 2020

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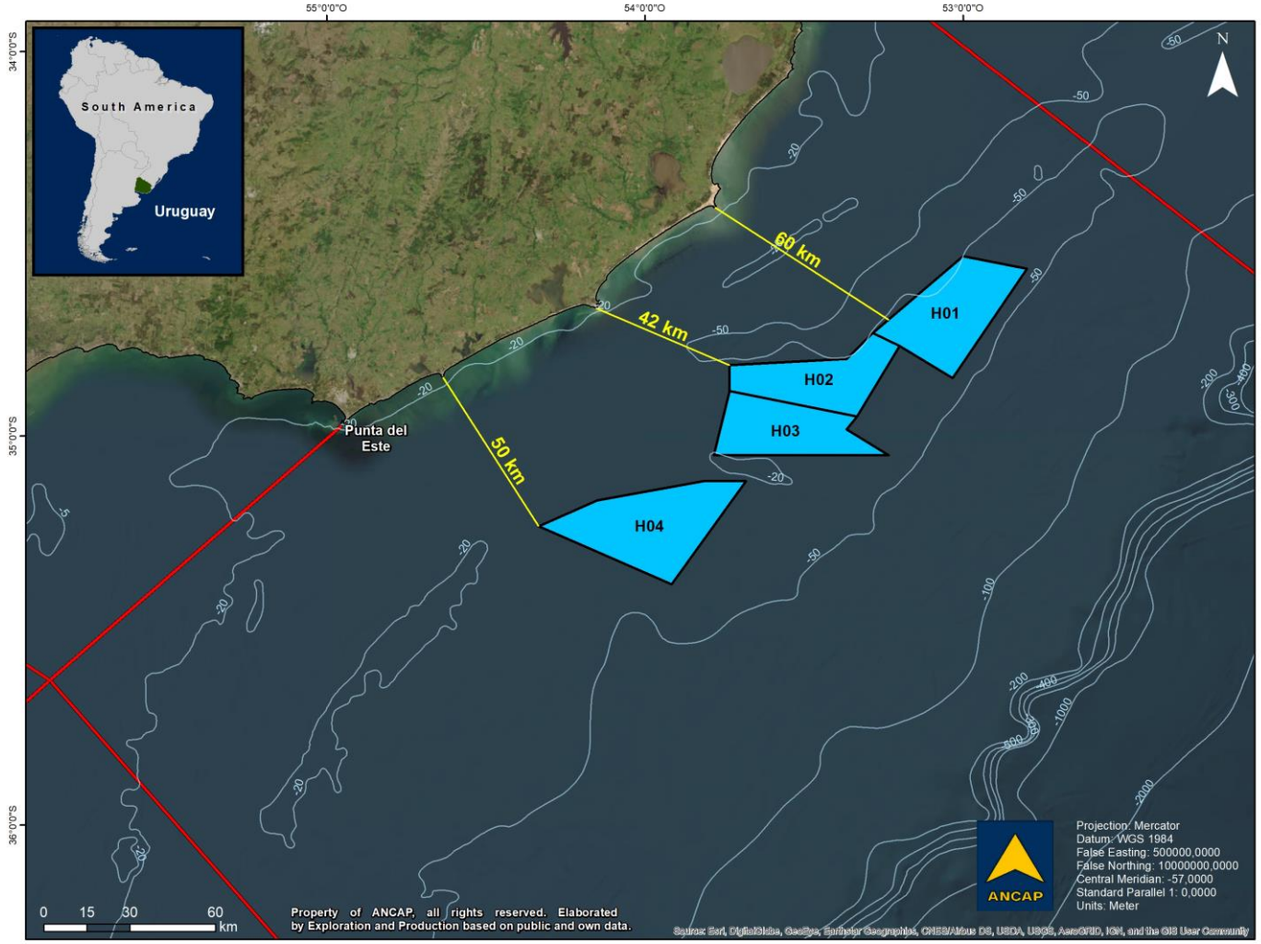
OFFERED AREAS



Areas defined considering relevant ecological settings, minimized interference with human activities (maritime transit and operations, fisheries, submarine cables) and the input from the industry.

Average Surface Area: 700km^2

Estimated Potential:

3 GW → 200 kTonH2/year*

** Based on conservative estimations*
A: 500km^2; D: 6 MW/km^2; F: 46%; E:60 kWh/kg

ANCAP

OFFERED AREAS

IE/694.

Ministerio
de Industria,
Energía y Minería

MINISTERIO DE INDUSTRIA, ENERGÍA Y MINERÍA
MINISTERIO DE RELACIONES EXTERIORES
MINISTERIO DE DEFENSA NACIONAL
MINISTERIO DE TRANSPORTE Y OBRAS PÚBLICAS
MINISTERIO DE GANADERÍA, AGRICULTURA Y PESCA
MINISTERIO DE VIVIENDA Y ORDENAMIENTO TERRITORIAL
MINISTERIO DE AMBIENTE

SECRETARÍA DE ESTADO
SÍRVASE CITAR
357/22
XN.

Montevideo, 23 DIC. 2024

VISTO: la gestión realizada por la Administración Nacional de Combustibles, Alcohol y Portland (ANCAP) a fin de regular el mecanismo por el cual se asignarán áreas "costa afuera" (*offshore*) de la República Oriental del Uruguay para la evaluación de factibilidad y potencial producción de hidrógeno verde y/o derivados, lo que implica reglamentar el artículo 5 de la Ley N° 17.033, de 20 de noviembre de 1998;----------

On 01/07/2025, decree No. 351/024 was published: REGULATION OF ART. 5 OF LAW 17.033, AUTHORIZING ANCAP TO USE OFFSHORE AREAS, IN THE CONTIGUOUS ZONE AND EXCLUSIVE ECONOMIC ZONE OF URUGUAY, IN THE DEFINITION OF FEASIBLE AREAS FOR THE PRODUCTION OF GREEN HYDROGEN AND/OR DERIVATIVES
https://medios.presidencia.gub.uy/legal/2024/decretos/12/miem_694.pdf

Available Data and Information

AVAILABLE DATA AND INFORMATION

ANCAP´s propietary and public data from the offshore of Uruguay is available for performing feasibility studies reports

Available to Schedule

After Purchase of Bidding Terms

After Contract Signature

- 1 week duration
- Several simultaneous users
- Access to ArcGis Project and Reports

- Confidentiality Agreement required

- For desktop studies (Period 1)
- 1+1 years

DATABASE - AVAILABLE DATA FOR DATA-ROOMS

Available Data for Data-Rooms
CTD profiles
ADCP current profiles
Meteorological and oceanographic data in general.
Hydrochemistry: images, description and results of physicochemical analyses.
Samples of seabed and marine sediments: images, description and results of geochemical and physicochemical analyses.
Macrofauna: images and description of samples.
Plankton: images, description and results of sample analysis
Marine Fauna Observer (MFO) Records.
Data from meteorological and oceanographic buoys.
Processed data from multi-beam bathymetry and echosounder.
Meteorological data recorded on board vessels.
Other spatial data: limits and maritime jurisdictions, fisheries, environments and sensitive marine and coastal protected species, submarine cables, maritime traffic and areas of operations.
Other data and information of the Uruguayan maritime territory, or derived from the interpretation of the data listed above, carried out by the Exploration and Production department or by other authors.
Selected 2D seismic lines (by ANCAP) up to a maximum of 15,000 km
Illustrative images (i.e.: screenshots) selected from the Information listed above that are provided to the Recipient, in accordance with Energy Transition department.

Bidding Round Terms

BIDDING ROUND TERMS

ANCAP invites energy companies interested in carrying out feasibility studies and potential installation of infrastructure for the production of hydrogen and/or derivatives from offshore renewable energy, at their own cost and risk entirely.

Legal, financial and technical qualification of companies to have the right to submit offers

Award criteria based on objective and simple parameters to be offered by energy companies:

- Work program (WU)
- Share of profit for ANCAP (P)
- ANCAP´s participation (A)

Comparison of offers based on equation:

Score = 20%*(WU/WUmax)+40%*(A/Amax)+40%*(P/Pmax)

Qualification of Companies

QUALIFICATION OF COMPANIES

Two qualification roles:

1. Operator:
   - Working interest 100%, **or**
   - Partnership in Consortium (≥ 30% participation)
2. Non-Operator:
   - only for Consortium (partner)
   - ≥ 10% participation

QUALIFICATION OF COMPANIES – LEGAL ASPECTS

Documents providing the existence and representation of the company

QUALIFICATION OF COMPANIES – ECONOMIC / FINANCIAL ASPECTS **(FOR OPERATORS AND NON-OPERATORS)**

Contract Period for which the Qualification is submitted	Required:
Evaluation Period	- Average Equity > 100 MMUS$ + 30 MMUS$ for each additional area; **or** - Average Assets > 300 MMUS$ + 100 MMUS$ for each additional area
Evaluation Period + Development and Production Period	- Average Equity > 500 MMUS$ + 200 MMUSD for each additional area; **or** - Average Assets > 1500 MMUSD + 600 MMUSD for each additional area

QUALIFICATION OF COMPANIES – TECHNICAL ASPECTS **(FOR OPERATORS ONLY)**

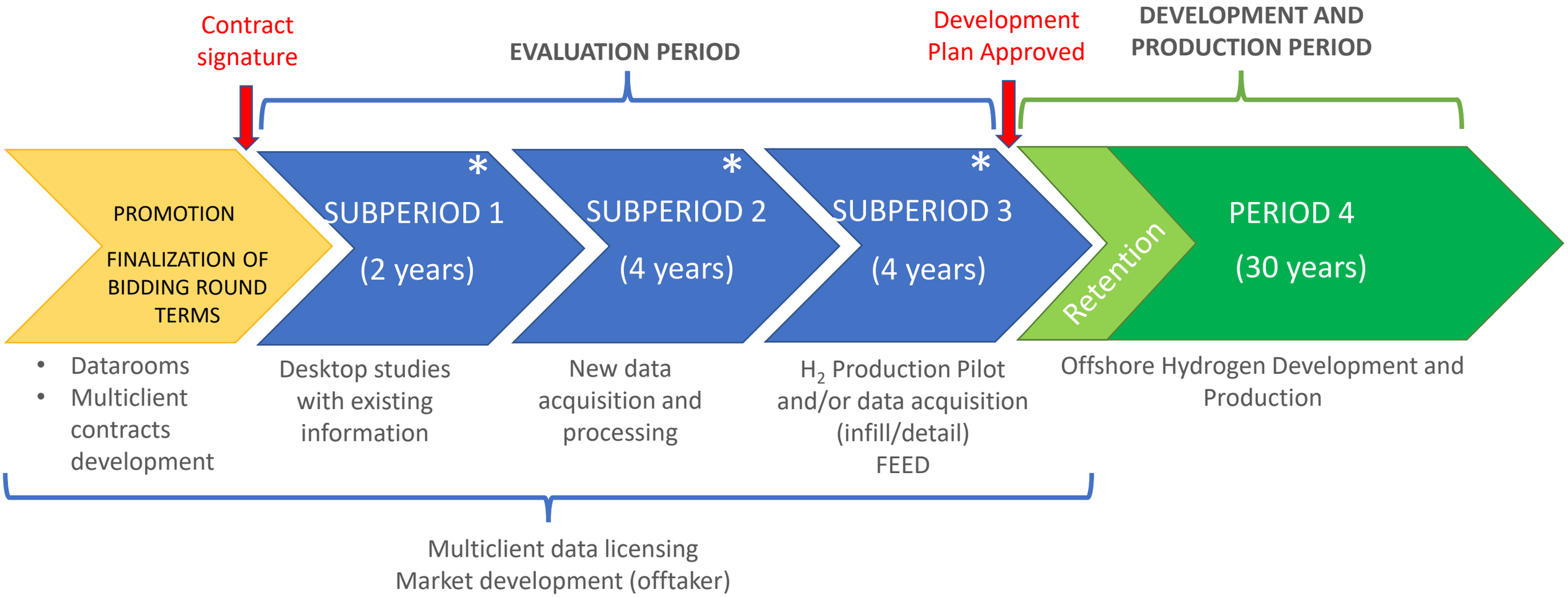
Contract Period for which the Qualification is submitted	Required:
Evaluation Period	- Be (or have been in the last 5 years) an owner, developer, or operator of an offshore wind farm with a capacity greater than 50MW, in operation, **or** - Have production of green H2 by electrolysis, as an owner or operator, exceeding 50 tons/year (or its equivalent in derivatives of green H2), **or** - Have (or have had in the last 5 years), as an owner or operator, offshore production of oil and/or natural gas exceeding 8,000 BOE/day
Evaluation Period + Development and Production Period	- Be (or have been in the last 5 years) an owner or operator of an offshore wind farm with a capacity greater than 50MW, **or** - Have production of green H2 by electrolysis, as an owner or operator, exceeding 250 tons/year (or its equivalent in derivatives of green H2), **or** - Have (or have had in the last 5 years), as an operator, offshore production of oil and/or natural gas exceeding 40,000 BOE/day

QUALIFICATION OF COMPANIES – TECHNICAL ASPECTS **(FOR OPERATORS ONLY)**

In order to qualify on technical aspects as Operator, companies must submit their policy and commitments in relation to QHSE, as well as the latest corporate sustainability report.

Contract Model

CONTRACT TERMS



*Advancing from one Period to the next is the company´s right (after fulfilling commitments)

CONTRACT MODEL

Items in sky blue are biddable, so IECs control the Risk and Reward values of the equation

H2 Production Sharing Contract

- The contracts commends the contractor to carry out feasibility studies and the potential installation of infrastructure for the production of green hydrogen (and/or derivatives) from offshore renewable energy sources.
- Exclusive right
- Contractor assumes all risks, costs and responsibilities of the activity.

Contract Term

- Periods of investigation and evaluation of the resource up to 10 years
- IECs carry out Committed Evaluation Program
- 30 years Development and Production period

ANCAP's Association Option

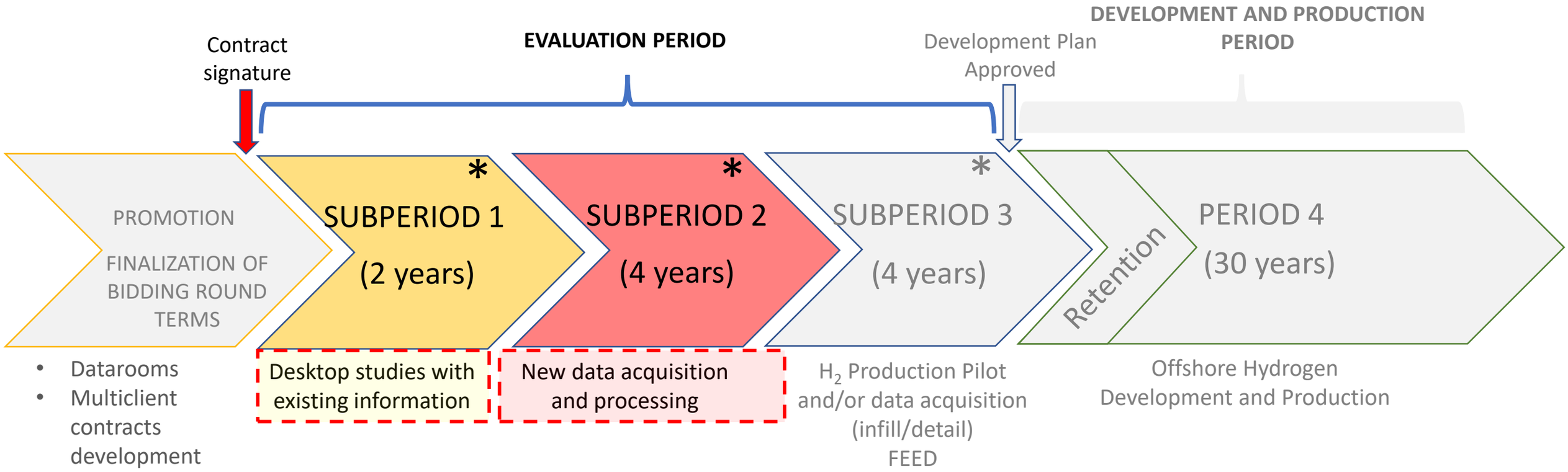
- Limit of ANCAP's association is biddable
- ANCAP´s right is exercised after approval of Development Plan

Contractor's Economy

- Production split in 3 portions:
  - Cost Contractor (CAPEX and OPEX)
    - Cost Recovery Limit: 80%
- Profit sharing regarding an R factor sliding scale
  - Profit Contractor
  - Profit ANCAP
- Profit subject to Income Tax 25%

Work Program

WORK PROGRAM



EVALUATION PLAN

Period 1

Four (4) mandatory desktop studies w/ available data: Physical Media, Biological Media, Anthropic Media and Technical/ Economical.

Optional studies: up to four (4) additional specific studies.

Period 2

Five (5) mandatory studies (reconnaissance or site investigation) comprising the acquisition, processing/ analysis and interpretation of field data:

- Geological, Geophysical & Hydrographic
- Geotechnical
- Metocean & Resources
- Environmental
- Human & Socio-Economic

https://www.windsystemsmag.com/us-wind-deploys-floating-lidar-buoy-in-maryland-lease-area/

EVALUATION PLAN: SUB-PERIOD 1

Desktop Study	Objective/ Description/ Data & Reports	Valuation (WU)
Physical Media	Mandatory. Characterize the conditions, risks and potential impacts in the physical media associated w/ construction and operation. Assessment of geological, geotechnical aspects, bathymetry and seabed morphology, sedimentary processes and hydrodynamics in the Area, w/ available data and information.	20
Biological Media	Mandatory. Characterize the conditions, risks and potential impacts in the biological media associated w/ construction and operation. Identification and assessment of relevant species in the Area (presence, distribution, abundance and behavior of birds, marine mammals, turtles, fishes, and benthic fauna, among others), habitats and environmental areas of special interest, w/ available data and information	20
Anthropic Media	Mandatory. Characterize the conditions, risks and potential impacts in the anthropic media (human activities and communities) associated w/ construction and operation. Identification and assessment of human activities (fisheries, marine traffic and operations, tourism and recreation, submarine cables, etc.), & issues of particular interest for the community (heritage & archaeology, landscape & visual, economy, etc.), within the area and areas of influence of the project, w/ available data and information.	20
Technological-Commercial	Mandatory. Identify and assess the technologies w/ potential to produce renewable energy in the Area & for the production, storage and transport of hydrogen and derivatives. Forecast price and market for hydrogen, derivatives and other products, under different technological scenarios.	20
Other Studies	Optional. Bidder can propose other specific studies to assess the conditions, risks and potential impacts associated w/ construction and operation, within the Area and areas of influence of the project, not included in the abovementioned mandatory studies.	10

Sub-Period 1: Minimum WU: 80 (4 mandatory desktop studies)
Maximum WU: 120 (only 4 other studies to be valuated)

EVALUATION PLAN: SUB-PERIOD 2 (1/2)

Survey/ Study	Objective/ Description/ Reports	Data	Unit (u)	WU (WU/u)	∑ WUmin
Geological, Geophysical & Hydrographic	G&G: water depth, stratigraphy of shallow sediments, sea floor bathymetry, identify seabed features and obstructions of any kind, assess geohazards and any other risk from development and operation. H: present day sedimentary processes, possible effects in the seabed and subsurface. Specific reports + final G&G&H report of the Area.	Ultra-High Resolution 3D Multi-Channel Seismic (3DUHRS)	km2	0.50	400 (*)
		Ultra-High Resolution 2D Multi-Channel Seismic (2DUHRS)	km	0.20	
		Sub-Bottom Profiler (SBP)	km	0.10	
		Multibeam Echosounder (MBES)	km	0.05	
		Side-Scan Sonar (SSS)	km	0.10	
		Marine Magnetometry (MAGN)	km	0.02	
		3D Geological & Geophysical Earth Model		100	
Geotechnical	Following G&G&H to target soil/rock strata boundaries and engineering properties or specific sea floor features. Specific reports + final Geotechnical report of the Area.	Piezocone/ Seismic or Temperature Cone Penetration Tests (PCPT/ SCPT/ TCPT)	stations	4.00	350 (*)
		Temperature Equilibrium Tests (TET)	stations	2.00	
		Pore Pressure Dissipation Tests (PPDT)	stations	2.00	
		Core Sampling (Vibrocores)	stations	2.00	
		Borehole Drilling Samples	stations	7.00	
		Borehole Logs	stations	2.00	
		3D Geological, Geohpysical & Geotechnical Earth Model		100	
Metocean & Resources	Contribute to the conceptual engineering plan of the project, forecast energy generation, define from a required conditions for development and operation. Specific reports + final Metocean and Resources report in the Area.	Continuous Wind data w/ Seawatch Wind LiDAR Buoy (SWLB) or similar	station-year	200.00	400
		Continuous Atmospheric data (T, P, lightening, visibility) w/ Metocean Buoy or similar	station-year	100.00	
		Continuous Oceanographic data (Wave, Currents, Tidal) w/ Metocean Buoy or similar	station-year	100.00	

EVALUATION PLAN: SUB-PERIOD 2 (2/2)

Survey/ Study	Objective/ Description/ Reports	Data	Unit (u)	WU (WU/u)	∑ WUmin
Environmental	Presence, distribution, abundance and behavior of species, assess the effects and risks associated with the development and operation. Specific reports (group of species and habitats) + final Environmental report of the Area.	Marine Mammal Observations	observation hours	0.10	300
		Turtles Observations	observation hours	0.10	
		Ornithological Observations	observation hours	0.10	
		Benthic fauna & habitat characterization	samples	2.00	
		Other relevant Necton fauna characterization	samples	2.00	
Human & Socio-Economic	H: Identify & assess effects on the population and specific communities, associated w/ development and operation, within the area and on adjacent areas. S-E: Identify & assess effects focused on the economy and society , at country and relevant specific sectors level. Specific reports + final H&S-E report.	Landscape & visual assessment	Study	5.00	50
		Noise assessment	Study	5.00	
		Maritime Traffic & Operations	Study	5.00	
		Military	Study	5.00	
		Aviation	Study	5.00	
		Fisheries	Study	5.00	
		Dredging	Study	5.00	
		Recreational & Tourism	Study	5.00	
		Heritage & Archaeology	Study	5.00	
		Coastal	Study	5.00	
		Socio-Economic Assessment	Study	5.00	
		Social Perception	Study	5.00	

Sub-Period 2: Minimum WU: 1,500 (*) (UTmin for the 5 mandatory studies/ surveys)
Maximum WU: 3,000 (surplus data from UTmin)

Key Takeaways:

KEY TAKEAWAYS:

- Uruguay is a reliable and stable country (above ground risks minimized)
- Successful first energy transition, strong drive for H2
- Excellent wind resource offshore Uruguay
- Minimum risk and capital commitment for energy companies
- Energy companies could hold a contract area for 10 years before submitting a development plan (or relinquish)
- Data rooms available

https://www.ancap.com.uy/hidrogeno

Thank you for your attention!

H2Uoffshore@ancap.com.uy

ANCAP