# Uruguay Offshore Energy Projects: Oil & Gas + Energy Transition

**International Prospecting Center (IPC)**
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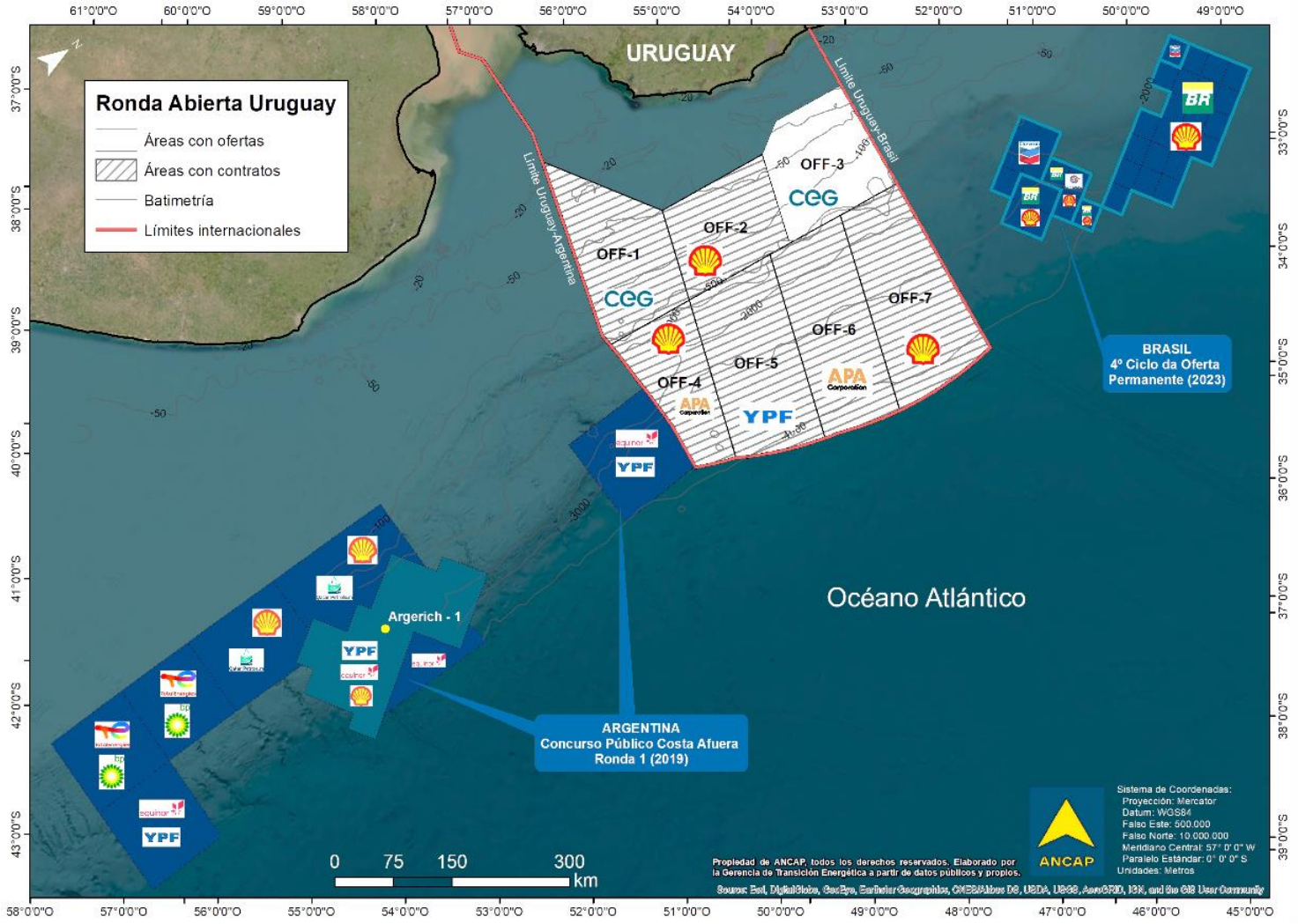
EAGE Annual 85th Conference & Exhibition

Oslo, 11th June 2024

MSc. Pablo Gristo, Gerencia de Transición Energética, ANCAP

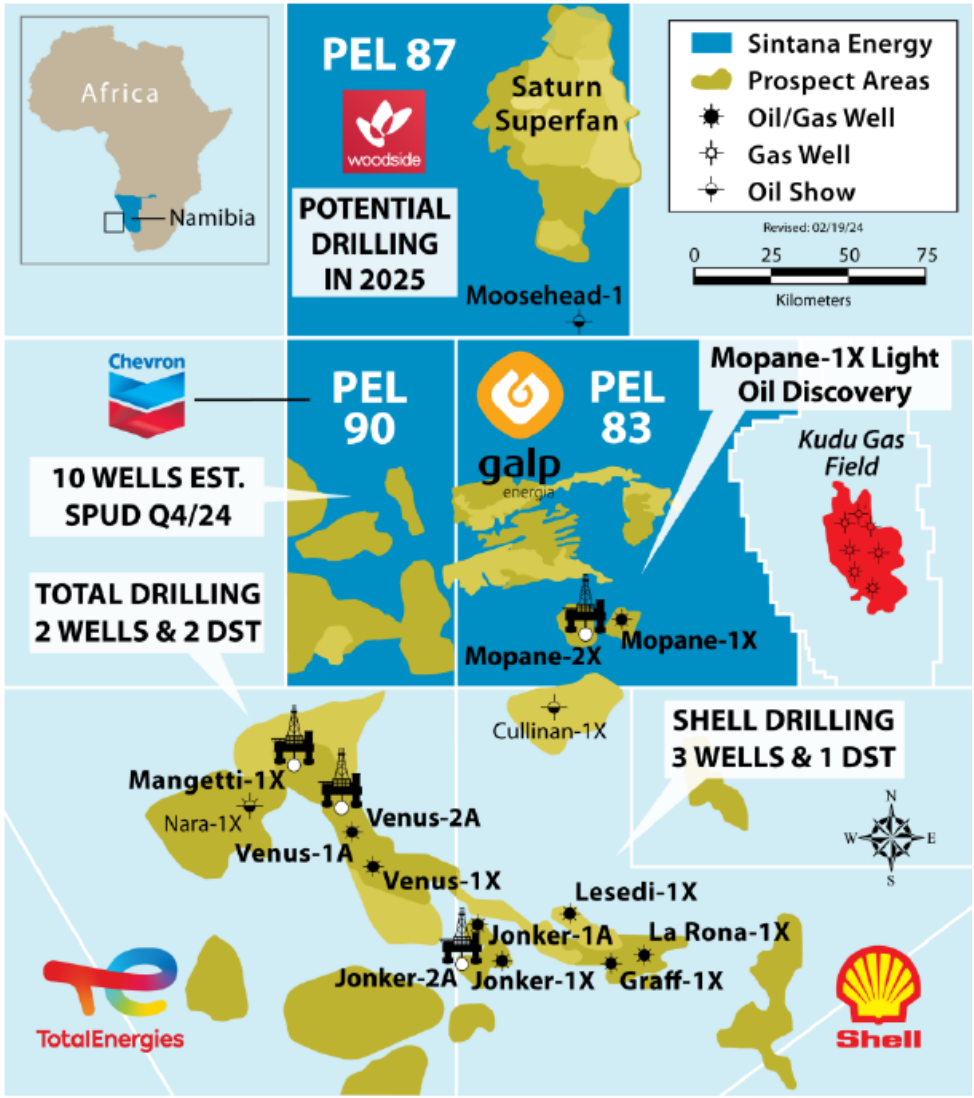
# Western South Atlantic: O&G exploration




Next 5-10 years a bloom of exploration is expected in the region: south Brazil (Pelotas basin, 44 blocks awarded in the 4th cycle of permanent offers, 2023), Uruguay (Pelotas, Punta del Este & Oriental del Plata basins, 7 blocks awarded under Open Uruguay Round since 2019) and North Argentina (Salado, Colorado & North Argentina basins, 7 blocks awarded under the offshore Round, 2019).

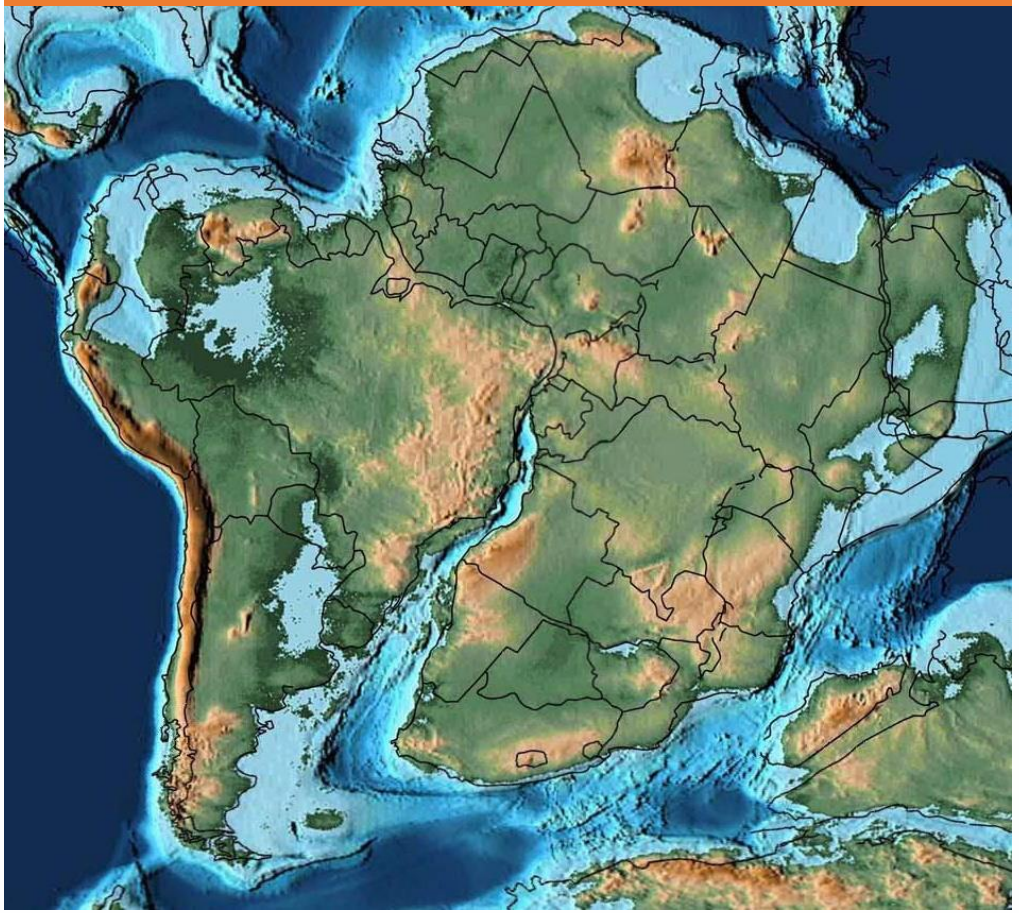
~ 200,000 km$^2$ deep & remote offshore to be explored

# The driver: Namibia (Orange basin) discoveries




Sintana Energy (2024)

Barremian – Aptian (130 - 110 Ma)



Scotese (2014)

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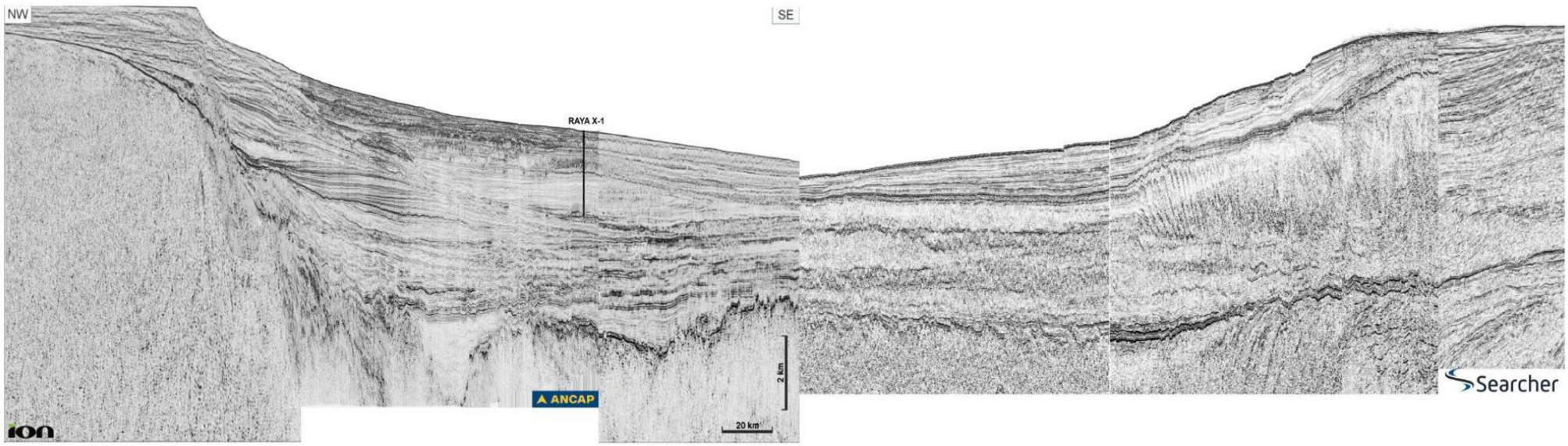
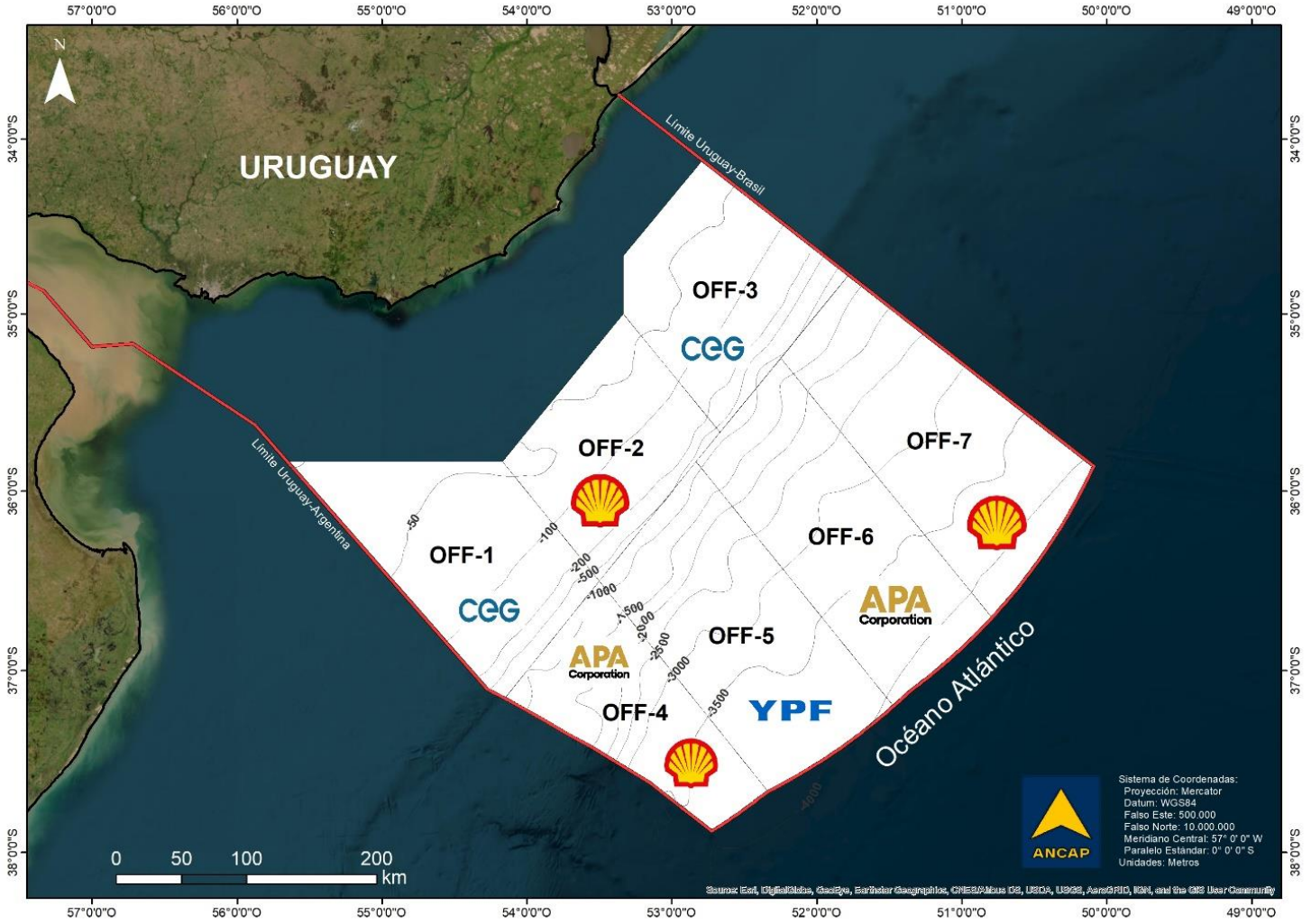



*Rodriguez et al (2022)*

Remarkable analogies of the Uruguayan offshore basins with the Orange basin (Cretaceous post-rift) evolution and petroleum systems.

# Western South Atlantic: O&G exploration



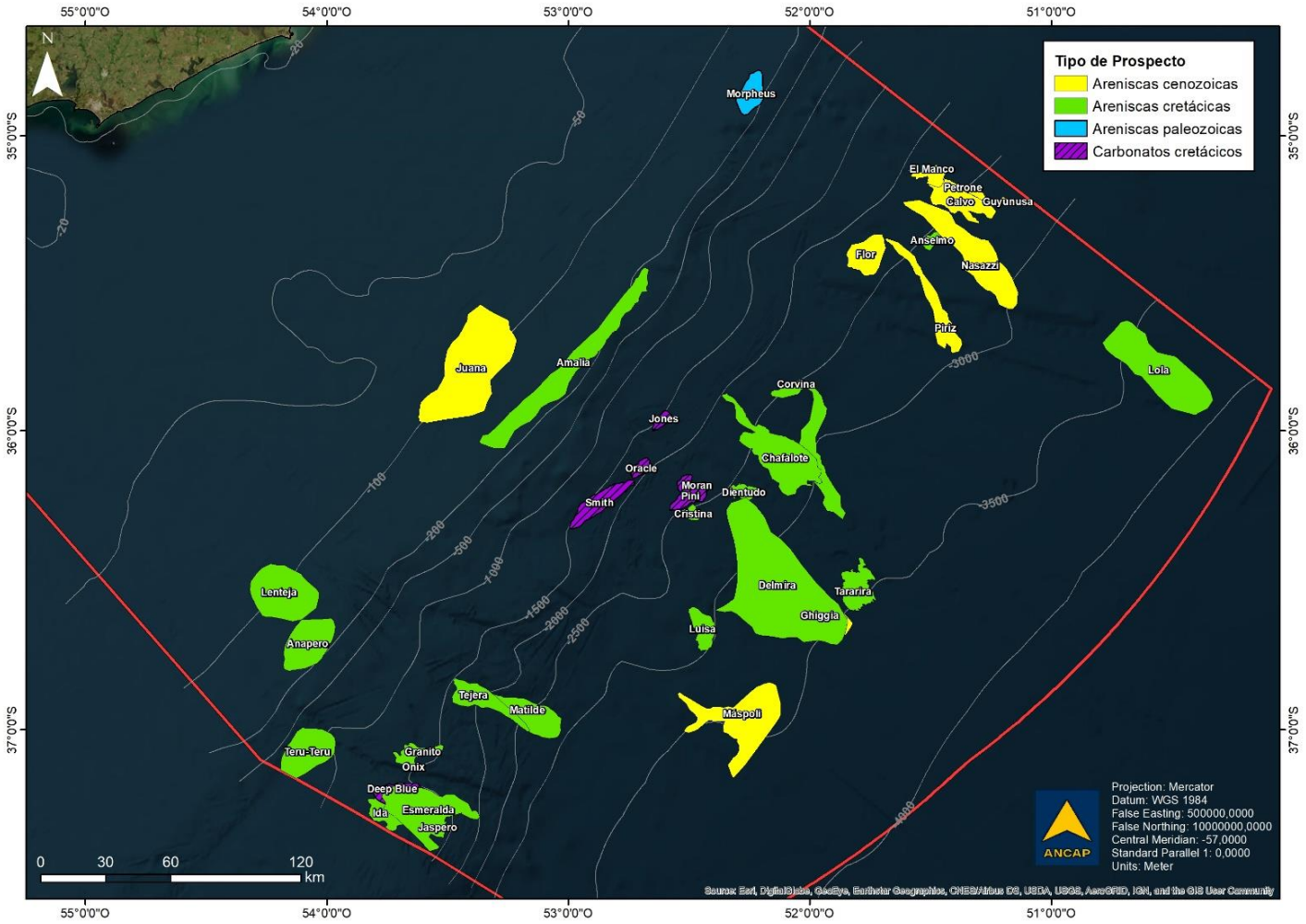

All (7) blocks awarded (~100,000 km$^2$)

APA, CEG, Shell, YPF… and more companies entering via farm-in (e.g. Chevron at OFF-1)

Nominal Exploration Commitment: 127 million US$, including 3D seismic (OFF-4) & ultra-deep well (OFF-6)

Multiclient agreements for 3D seismic: CGG, PGS, Searcher, TGS.

# Offshore Uruguay: prospective resources




37 leads & prospects assessed, 30,082 MMBOE (Pmean), COS= 3,3 – 23,4%.

Main play concept: Cretaceous Aptian source rock + post rift deep water reservoirs (Graff or Venus alike)

Also potential for post rift Tur/Cen, rift Barremian and Paleozoic source rocks, and carbonate build up reservoirs

*Gristo et al (2022), Conti et al (2023)*

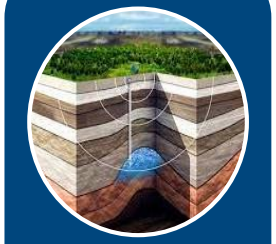
# ANCAP: Responsible energy transition

Avoiding and reducing emissions

Offshore wind to Hydrogen


Synthetic fuels ($H_2$ + biogenic $CO_2$)

2nd gen. biofuels: HVO (HEFA)



Underground storage: CCUS, H2, gas

Natural Hydrogen


Ethanol to SAF (Jet)

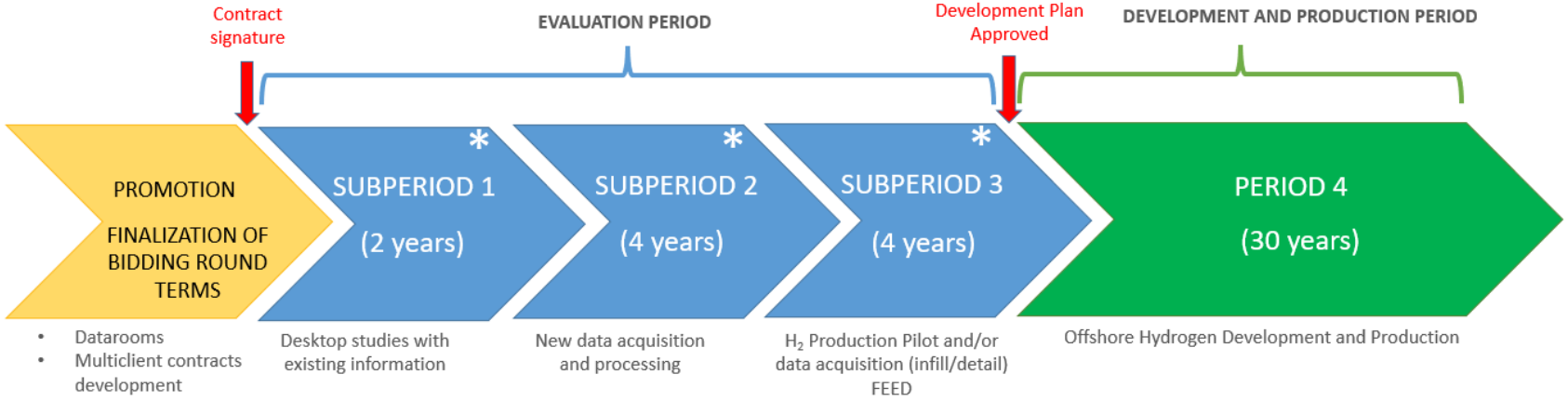
**#ResponsibleTransition**

# H2U offshore

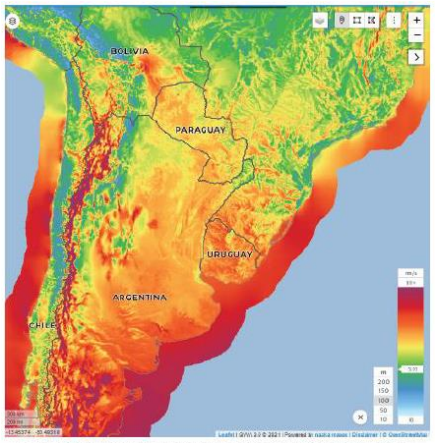

ANCAP is planning to tender offshore areas for energy companies to carry out feasibility studies and potential installation of infrastructure for the production of H2 from offshore renewable energy, at their own cost and risk entirely.

Bid terms & contract model: similar to O&G, longer period for evaluation & investment decision

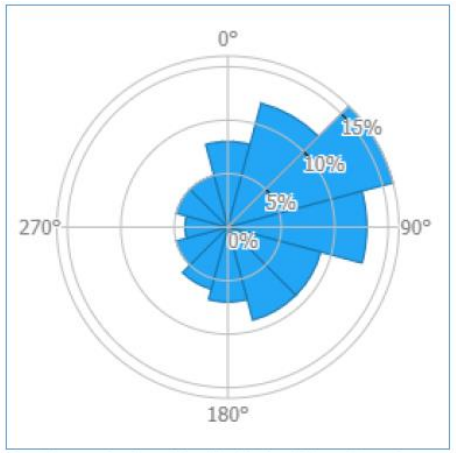
*TRACTEBEL (2019)*



# H2U offshore: offshore wind 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"

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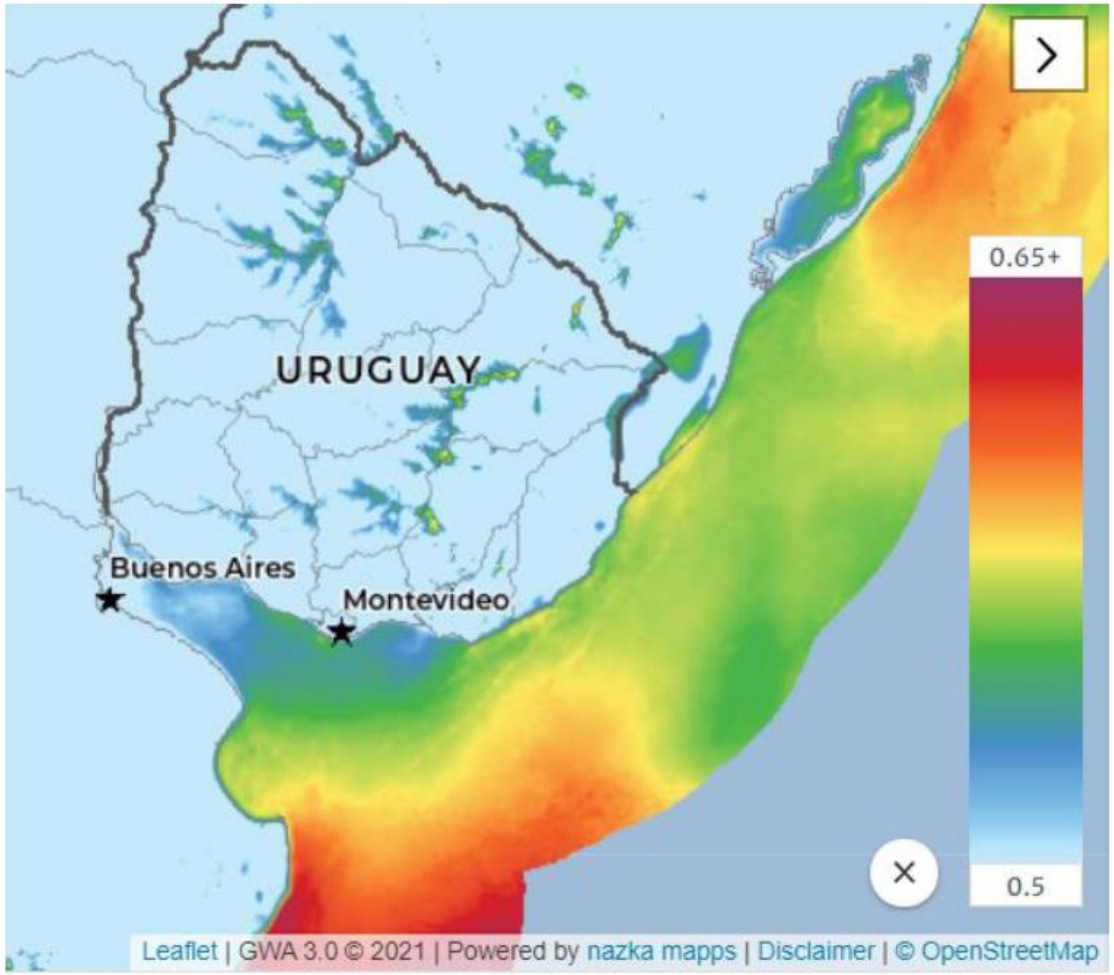


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Large technical potential for bottom fixed offshore wind (190 GW)

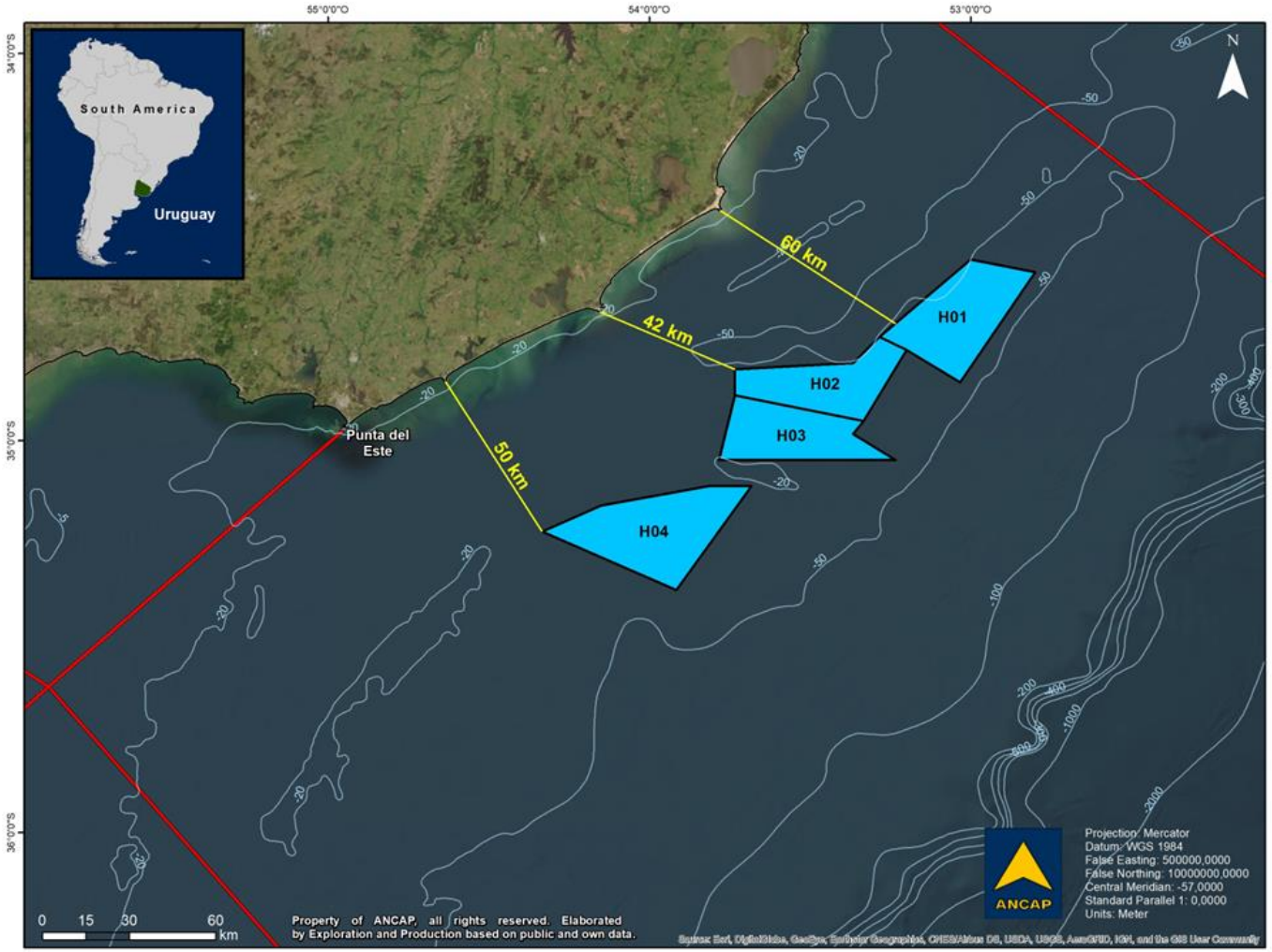
High load factors (> 55%)

Wind speed 9.5 m/s annual avg (@ 100 m)

>> quantity, quality & uniformity than onshore

*ESMAP (2020)*

# H2U offshore: areas



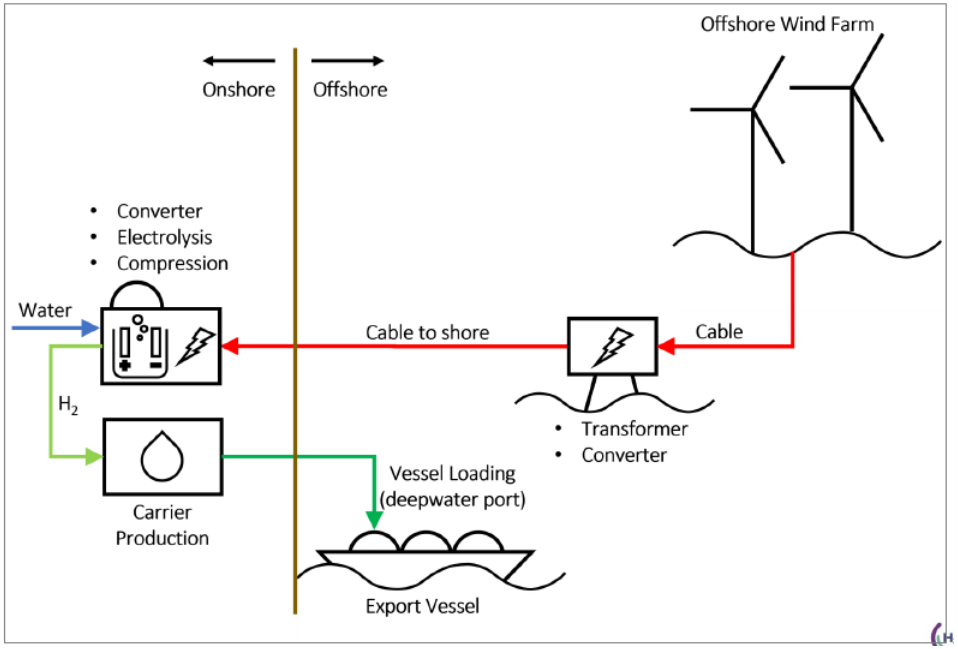

4 areas planned to be included in the first H2U bidding round.

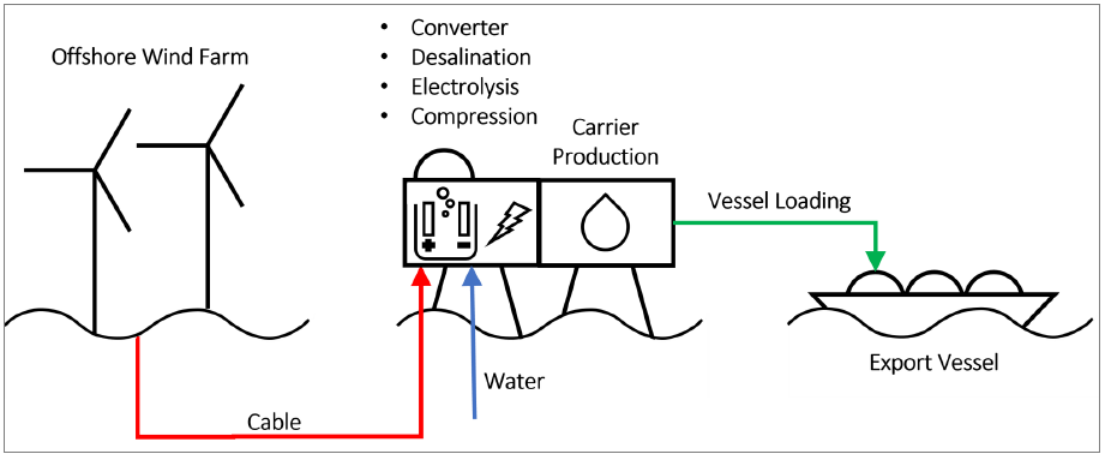
Bottom fixed offshore wind potential (< 60 m WD).

Selected to avoid areas of high environmental concern, and to minimize overlap with shipping & maritime operations, fisheries, tourism & other uses/ activities.

Each area ~ 750 km2; estimated 3.2 GW offshore wind farm, production of ~ 200,000 ton$H_2$/year.

# H2U offshore: flexibility




FLEXIBILITY for the contractor:

Development concept & $H_2$ production: centralized/ decentralized Offshore OR Onshore

Project scale (phases)

$H_2$ Carrier: $NH_3$, $LH_2$, e-fuels, etc.

Market/Off-taker

Up to 10 years of evaluation period before committing to development, and phased evaluation from desktop studies to site investigation.

*Tomasini et al (2020)*

# References


Conti, B., P. Rodríguez, J. Marmisolle, R. Novo, and P. Gristo, 2023, Probability of Geological Success (PoS) for Offshore Uruguay Plays and Prospects, in AAPG International Conference & Exhibition, 6-8 November, Madrid, Spain: American Association of Petroleum Geologists (AAPG).

ESMAP, 2020, Offshore Wind Technical Potential in Uruguay: Washington, DC, USA, 2 p.

Gristo, P., B. Conti, P. Rodríguez, R. Novo, J. Marmisolle, and H. de Santa Ana, 2021, Evaluación de Recursos Prospectivos de Petróleo y Gas en Uruguay. Primera versión en español, Exploración y Producción, ANCAP: Montevideo, Uruguay, 131 p.

Gristo, P., B. Conti, P. Rodríguez, R. Novo, J. Marmisolle, and H. de Santa Ana, 2022, Volumetric Assessment of Oil and Gas Prospective Resources in the Offshore of Uruguay, in 11° Congreso de Exploración y Desarrollo de Hidrocarburos (Conexplo), 8-11 de noviembre, Mendoza, Argentina: Instituto Argentino del Petróleo y del Gas (IAPG).

Rodriguez, K., N. Hodgson, P. Rodríguez, B. Conti, and H. de Santa Ana, 2022, The Rise of Venus in Uruguay's Pelotas Basin: GEO ExPro, p. 66–72.

Scotese, C. R., 2014, Atlas of Early Cretaceous Paleogeographic Maps, PALEOMPA Atlas for ArcGIS, volume 2, The Cretaceous, Map 23-31, Mollweide Projection, PALEOMAP Project: Evanston IL.

Sintana Energy, 2024, Corporate Presentation, February 2024: Toronto, Canada, 25 p.

Tomasini, J., P. Gristo, S. Ferro, and R. Novo, 2022, Assessment of the Potential for Hydrogen Production from Bottom Fixed Offshore Wind in Uruguay, in Offshore Technology Conference: Society of Petroleum Engineers, doi:10.4043/31879-MS.

TRACTEBEL, 2019, Hydrogen production takes system to new levels: p. 2: <https://tractebel-engie.com/en/news/2019/400-mw-offshore-hydrogen-production-takes-system-to-new-levels> (accessed June 6, 2024).

# Thank you for your attention!
# Q&A

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