

red eléctrica
Una empresa de Redeia



Renewables
Grid Initiative 

Subsea Grids Supporting Marine Biodiversity

Underwater cable projects of Red
Eléctrica

October 26, 2023

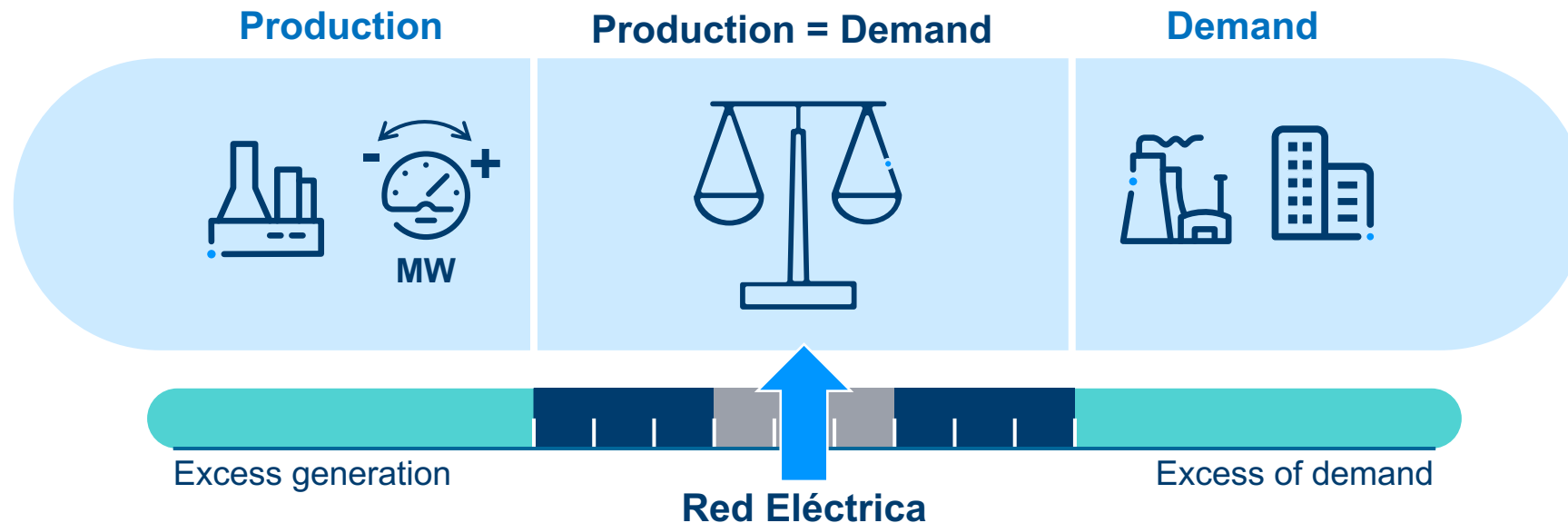
Red Eléctrica

1



Red Eléctrica is the sole transporter and operator (TSO) of the Spanish electricity system.

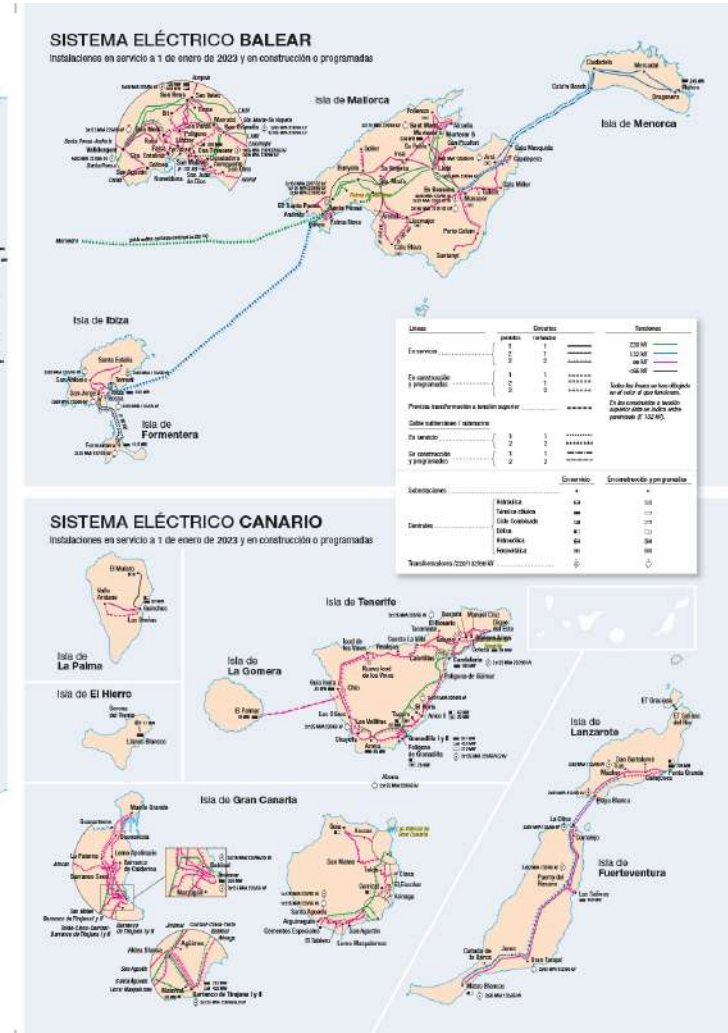
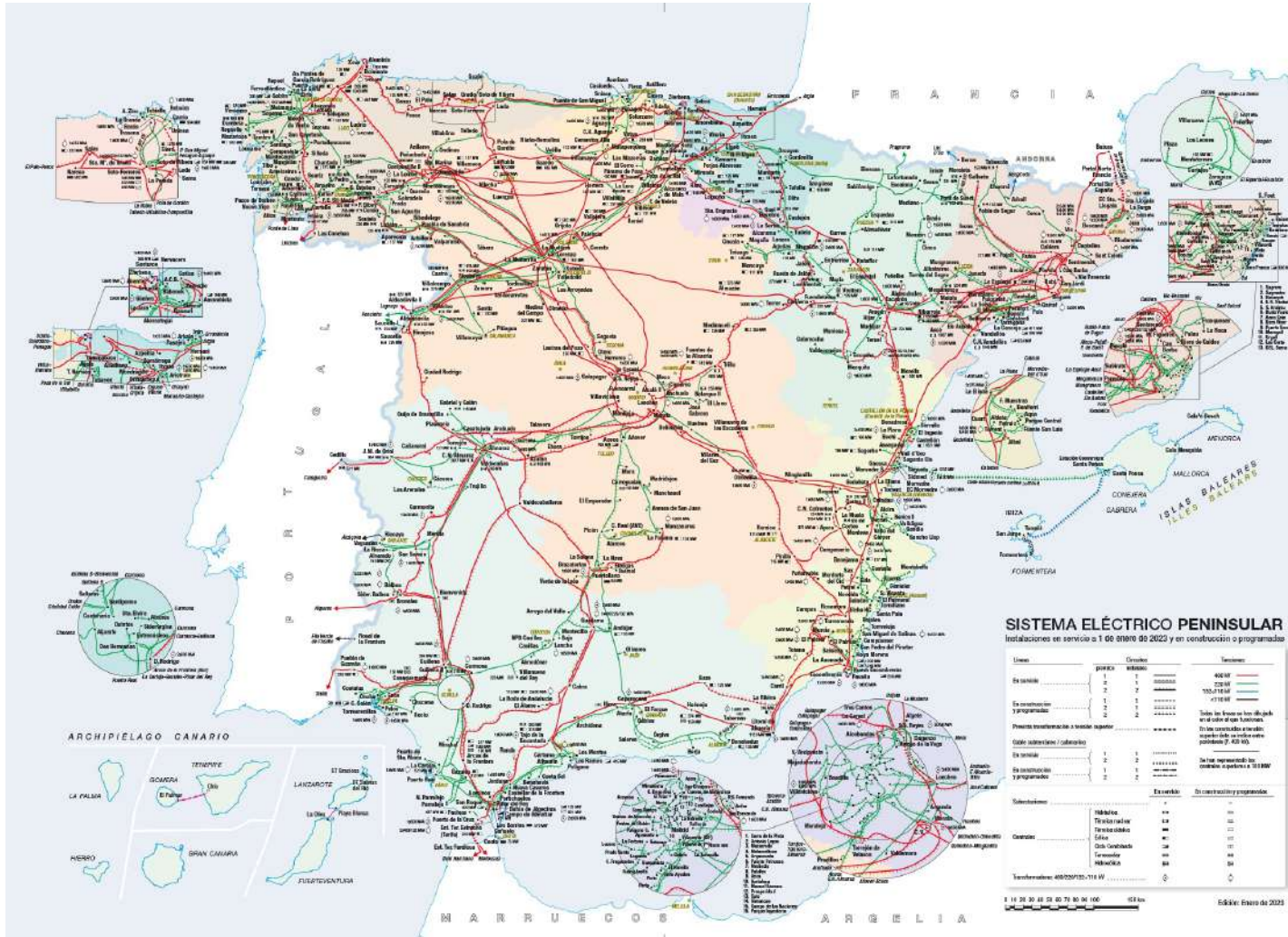
Our mission is to ensure the correct functioning of the Spanish electrical system and guarantee at all times the continuity and security of the electrical supply.



Electrical system map

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Red Eléctrica designs, builds, maintains and owns the national transportation grid. Management of the grid made up of 45,019 km of circuit



Underwater cables

2



Office studies

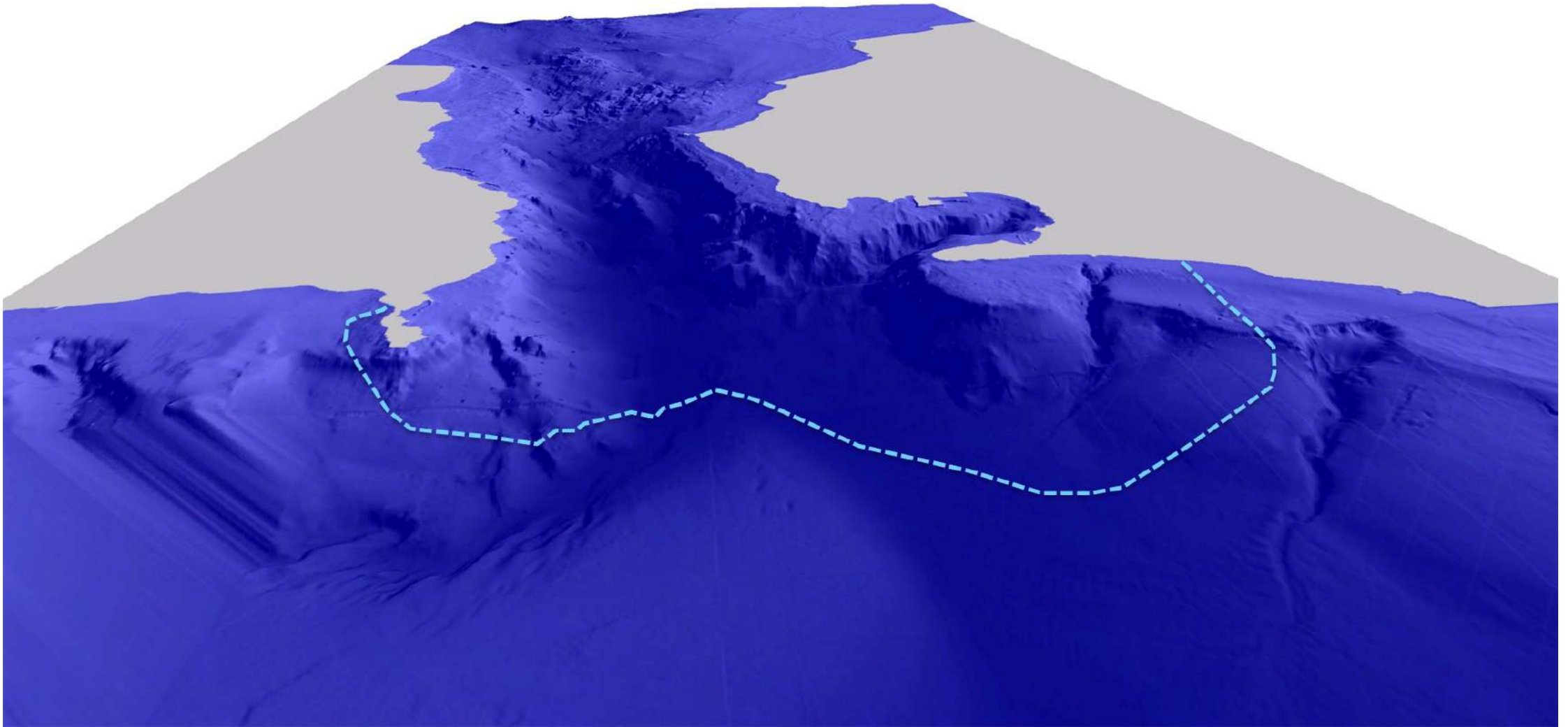


- **DeskTop Study (DTS)**
- **Territorial Diagnosis (Environment)**
- **UXO risks**
- **Fishing & Shipping**
- **Metoceanic**
- **Hydrosedimentary**
- **CBRA – Cable Burial Risk Assesment**
- **BAS – Burial Assesment Study**

Marine studies



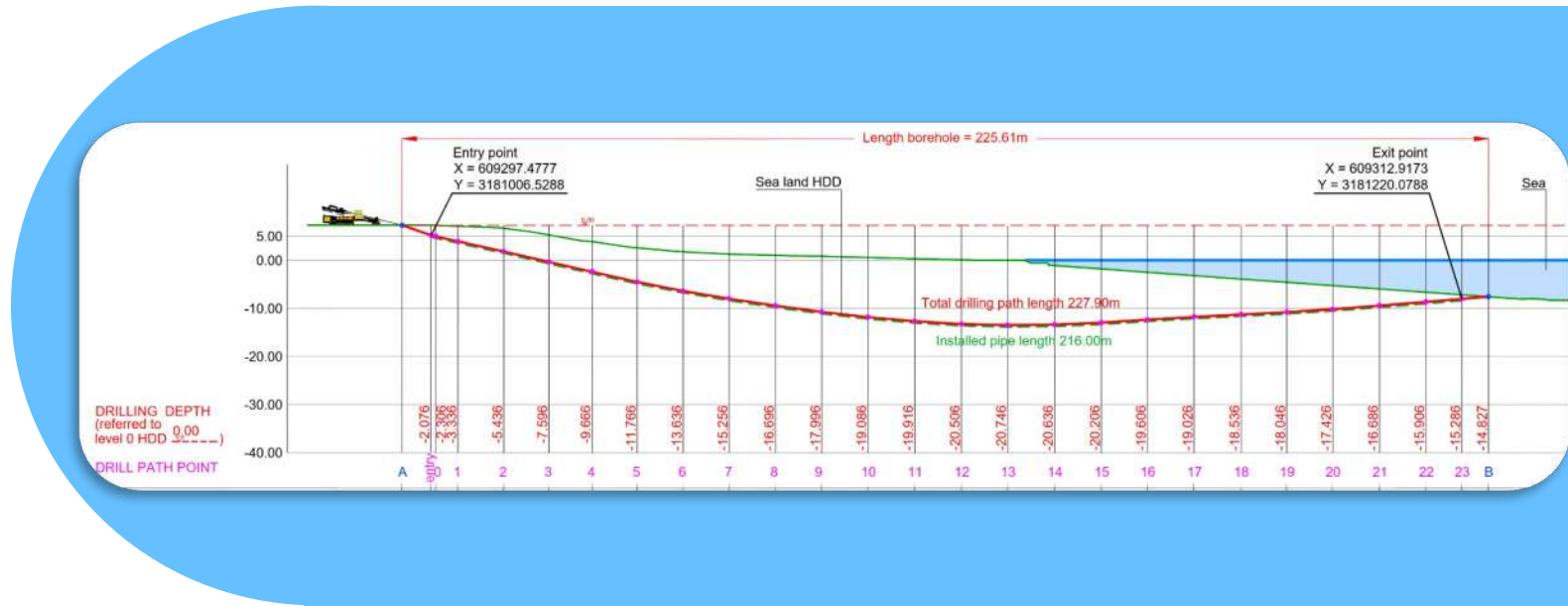
- **Environmental marine campaign**
- **Geophysical marina campaign (engineering)**
- **UXO campaign**
- **Geotechnical marina campaign (engineering)**
- **Feasibility study of the land-sea transition**





Open trench

Complicated works with more social and environmental impact

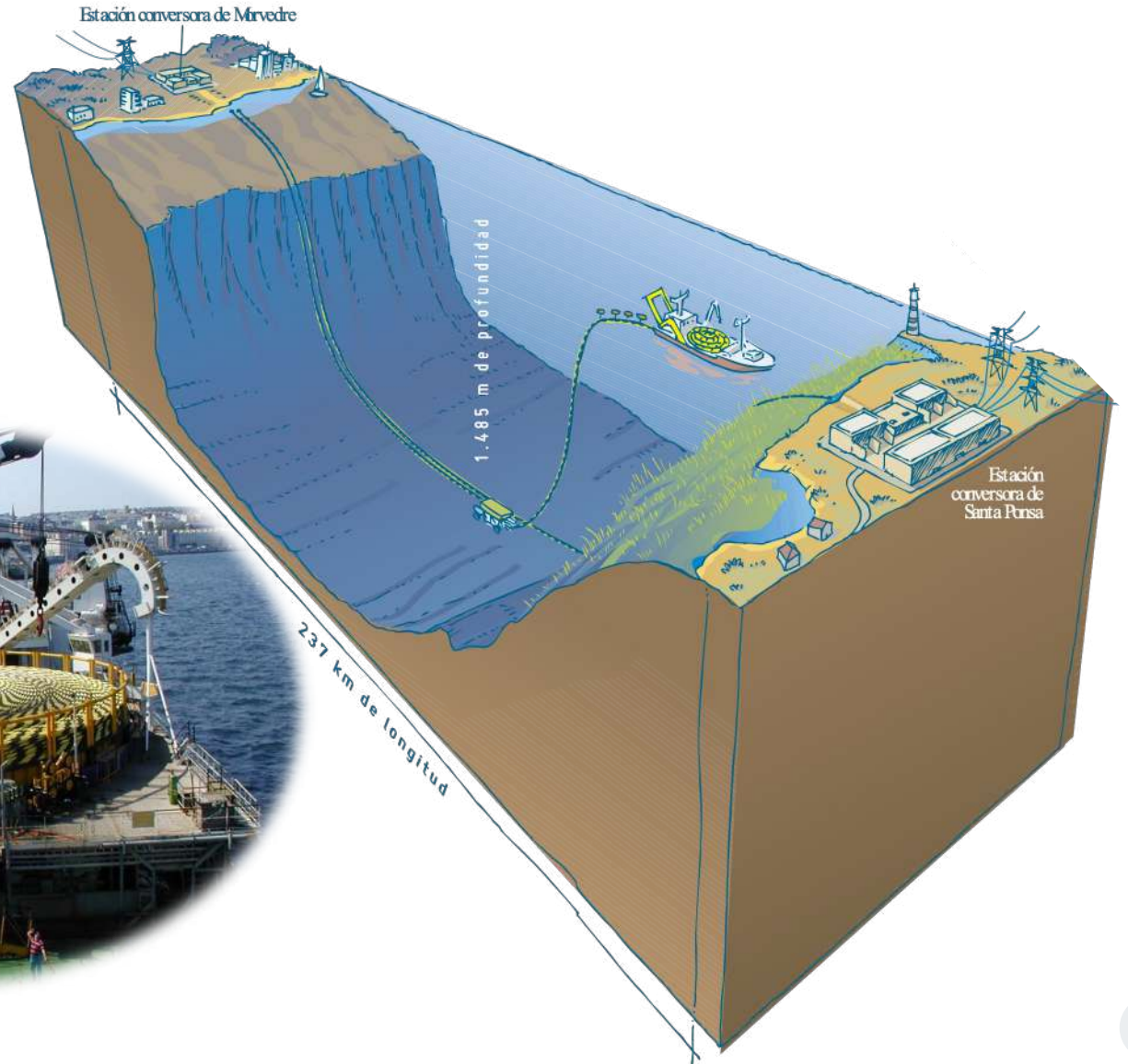


Horizontal Directional Drilling (HDD)

HDD allows to save interest area on the coastal strip as beaches and Protected habitats.

Cable laying

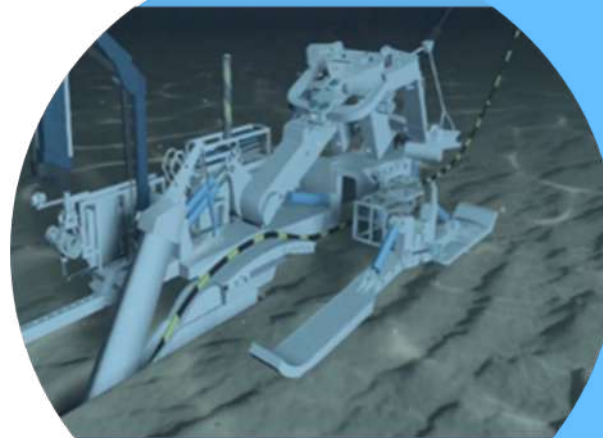
Few companies in the world are able to do these jobs





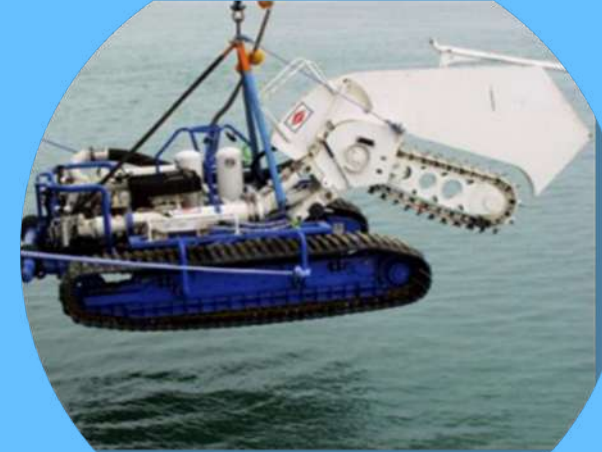
Jetting

Poorly consolidated/sandy materials.
Pressurized water jet.



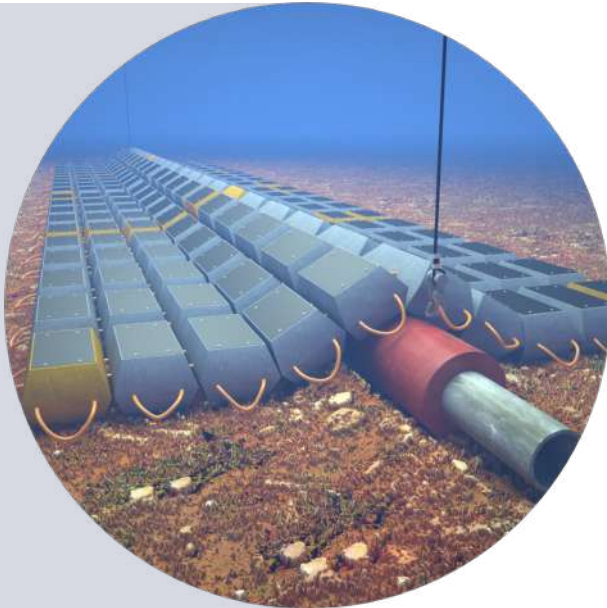
Ploughing

Poorly consolidated materials.
It works like a plough.



Trenching

Hard/rocky materials.
Mechanical cutting (like a saw)



Concrete Mattresses



Cast Iron Shells



Rock placement

Lanzarote – Fuerteventura interconnection

3



Lanzarote – Fuerteventura interconnection AC 132kV

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A boost to the decarbonization of the energy model in Canary Islands.



AC 132kV
Power of 120 MVA



14.5 km submarine cable
80 meters maximum depth



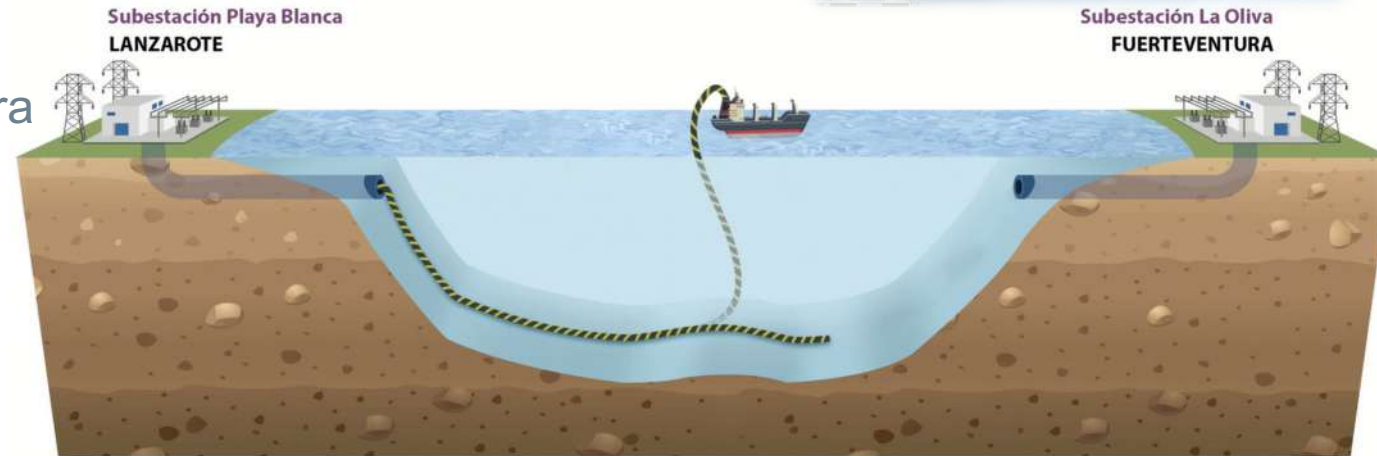
645 m land route in Fuerteventura
1.8 km land route in Lanzarote



Budget: 36 M€



Facilitates the integration of
renewable energies in the system



Extremely hard rock (basalt) complicate HDD: target distance don't achieve.



Excavator

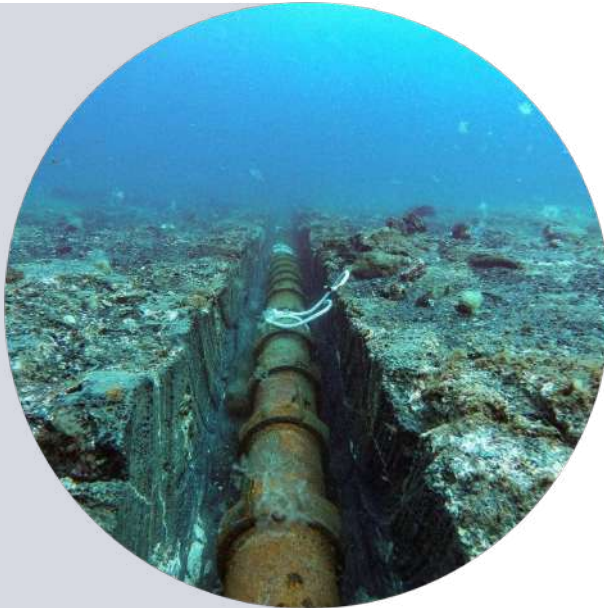
Excavator updated for underwater operations



Rock trench

Trench tool updated to work in shallow waters (2 to 8 m depth)

Extremely hard rock (basalt) complicate HDD: target distance don't achieve.



Trench result

Cable laid and protected with Cast Iron Shells



Innovative protection

Blocks of EConcrete to cover the trench.

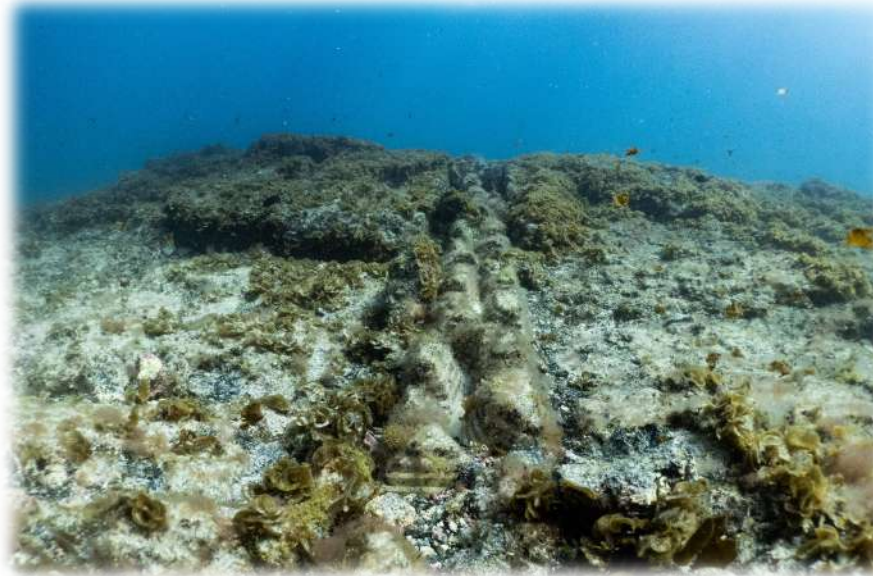


Nature-Positive Solution for Cable Protection

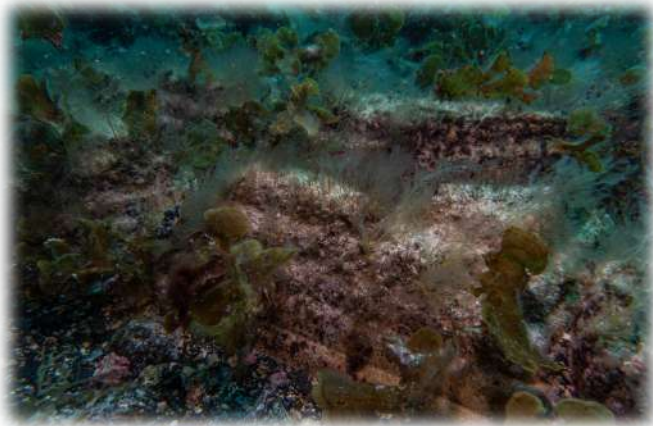
Environmental surveillance every 6 months.



Successfully mimics the local marine environment



Marine species use the infrastructure as their home



Red Eléctrica promote more actions to improve the marine conservation



Searching for new solutions

ECONcrete mattresses or alternative materials



Restoration of Posidonia

Development of new technical and restoration project

El Bosque Marino



Reef Restoration

Analysis of techniques to recover the discards of human activities



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El valor de lo esencial

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