



GHENOVA

ENGINEERING THE FUTURE

Retos y estrategias de la ingeniería naval hoy:
tecnología, recursos e internalización

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QUIÉNES SOMOS



DISEÑO

Nuestros ingenieros, técnicos y especialistas trabajan juntos para desarrollar una nueva versión de cada diseño.



DESARROLLO

La ingeniería de desarrollo proporciona las soluciones más adecuadas para la construcción.



CONSULTORÍA

Acompañamos al cliente y compartimos sus objetivos y políticas.



GESTIÓN

Nos involucramos en aspectos logísticos relacionados con el desempeño, medio ambiente y la comunidad del proyecto.



GHENOVA EN CONTINUO CRECIMIENTO



PROFESIONALES



OFICINAS

Repartidas en 8 países

- España
- Brasil
- Colombia
- Bolivia
- E.E.U.U.
- Reino Unido
- Australia
- Corea del Sur



NUESTRAS VERTICALES



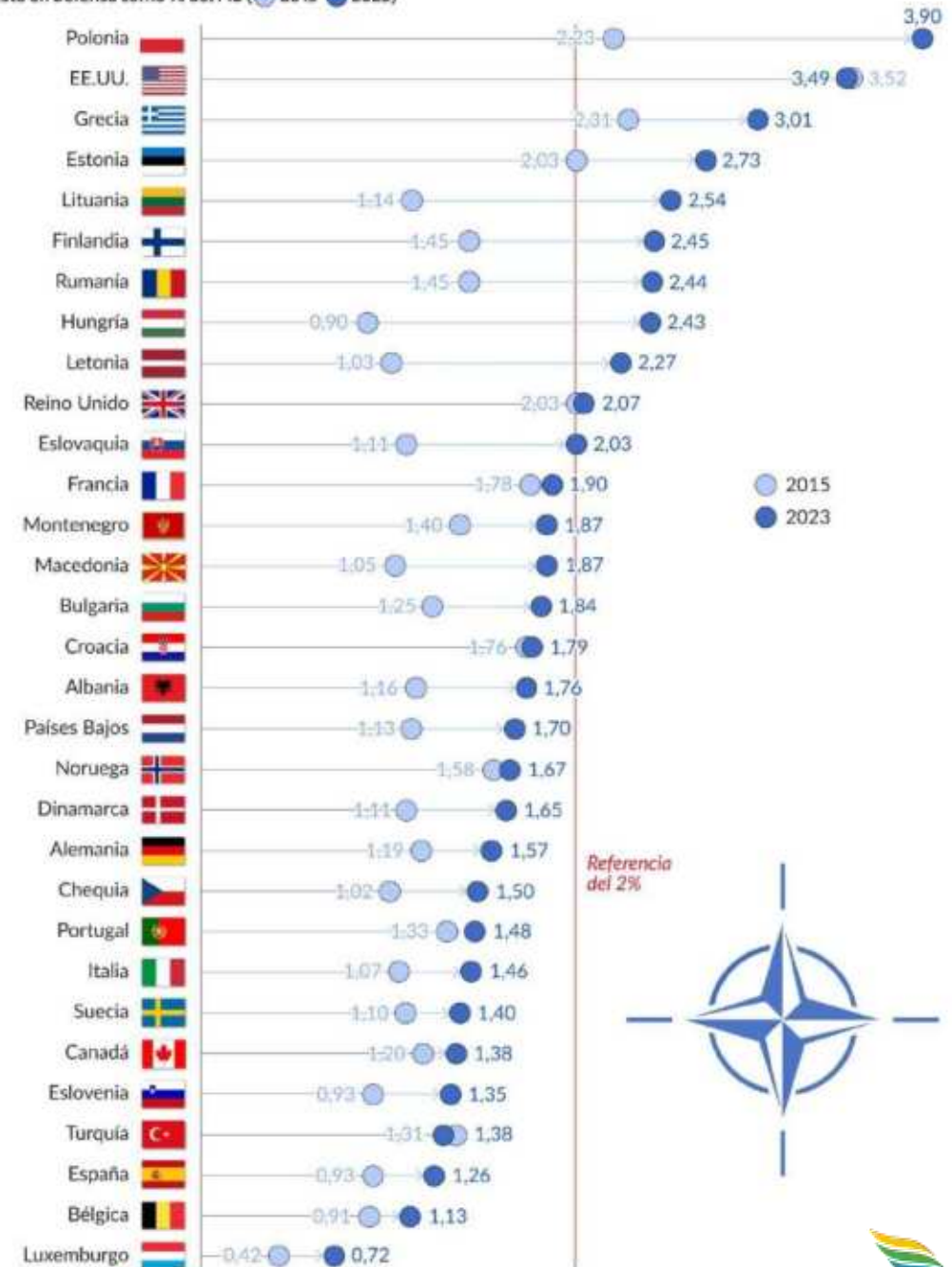
RETOS

□ Creciente carga de trabajo:

- **Defensa**
- Energía offshore
- Cruceros/yates
- Oil & Gas
- Digitalización

El presupuesto militar de los miembros de la OTAN

Gasto en Defensa como % del PIB (● 2015 ● 2023)



RETOS

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Current offshore supply chain capacity vs. capacity needed

Category	Current Capacity		Capacity needed to meet 2030 targets:
 Turbines	700 units/year	↗	Up to 1,300 units/year (x2)
 Foundations (bottom fixed)	Up to 300 units/year	↗	Up to 1,200 units/year (x4)
 Foundations (floating)	Up to 10 units/year	↗	Up to 100 units/year (x10)
 Vessels (installations, cable)	68 Vessels in operation	↗	124 Vessels in operation (x2)



RETOS

- ❑ Escasez de ingenieros y técnicos
- ❑ Requisitos cada vez más exigentes:
 - Habilitaciones de seguridad
 - Manejo de SW específico
 - Especialización en disciplinas concretas
 - Ciberseguridad
 - ...



RETOS

- ❑ Tecnología en continua evolución: tanto en herramientas de cálculo y diseño como en soluciones para buques.
- ❑ Normativa igualmente en continua evolución: emisiones, ciberseguridad, combustibles, etc



RETOS

- ❑ Competencia global.



ESTRATEGIA GHENOVA

- ❑ Tamaño: acometemos grandes proyectos y programas que requieren músculo.



REFERENCES

NAVY & OTHER GOVERNMENTAL SHIPS



MAIN PROJECTS. LHD TYPE

MISTRAL

Shipyard: Chantiers de L'Atlantique

Owner: French Navy

Length: 199,90 m.

Type: LHD



JUAN CARLOS I

Shipyard: NAVANTIA

Owner: Spanish Navy

Length: 230,80 m.

Type: LHD



HMAS CAMBERRA

Shipyard: NAVANTIA

Owner: Royal Australian Navy

Length: 230,80 m.

Type: LHD



TCG ANADOLU (L-400)

Client: Navantia

Final Client: Turkish Navy

Engineering development : 2016-2019

Ship classification : Amphibious Assault Ship (LHD)



GHENOVA's scope of work:

Basic engineering support, detail engineering development.

- Basic project support, partial.
- Development of the complete 3D model, all disciplines.
- Full detail project development, all disciplines.

MAIN PROJECTS. FRIGATE TYPE

F110-FRIGATE

HNoMS FRIDJOF NANSEN

Shipyard: NAVANTIA
Owner: Royal Norwegian Navy
Length: 134,00 m.
Type: FRIGATE



HDMS ABSALON

Shipyard: Odense Steel Shipyard
Owner: Royal Danish Navy
Length: 137,60 m.
Type: FRIGATE



CRISTOBAL COLON (F105)

Shipyard: NAVANTIA
Owner: Spanish Navy
Length: 146,72 m.
Type: FRIGATE



HMAS HOBART (AWD)

Shipyard: NAVANTIA
Owner: Royal Australian Navy
Length: 146,72 m.
Type: DESTROYER



Customer: Navantia

Final customer: Spanish Navy

Engineering development: 2020-currently in development

Type of vessel: Frigate



GHENOVA's work scope:

Basic project development. Complementary tasks.

- Technical assistance for structure basic design .
- Basic design of the equipment area
- Basic design area of mechanical systems: propulsion and auxiliary systems.
- Basic design of electronic / combat systems area: navigation, communications, radars, countermeasures, submarine warfare and weapons.
- Basic design for the habilitation area.
- ILS Engineering to CDR (Critical Design Review)
- Detail design, all disciplines, zones 1,2,3,4,6 and 7. Replication on ELCANO platform.

MAIN PROJECTS. PATROL/CORVETTE

AL-JUBAIL (AVT 2200)

ANBV GUAICAMACUTO

Shipyard: NAVANTIA
Owner: Venezuela Navy
Length: 79,90 m.
Type: OCEANIC PATROL



SINES (P362)

Shipyard: WestSEA
Owner: Portuguese Navy
Length: 83,10 m.
Type: OCEANIC PATROL



XXXX CLASS

Shipyard: Israel Shipyard
Owner: Israel Navy
Length: XXX m.
Type: XXXXXX PATROL CORVETTE



SURFACE STRATEGIC PLATFORM (PES)

Shipyard: TBD
Owner: Colombian Navy
Length: TBD
Type: LIGHT FRIGATE



Client: Navantia

Final Client: Saudi Royal Navy

Engineering development : 2017-2019

ILS Development, documentation-Training: 2020-on going

Ship classification : Corvette



GHENOVA's scope of work:

Complete basic and detail design. ILS, documentation and training.

- Development of the complete basic project, all disciplines.
- Development of the complete 3D model, all disciplines.
- Full detail project development, all disciplines.
- Production engineering development.
- ILS engineering development
- Development of technical documentation.
- Crew familiarization training courses
- Naval technical training courses.

MAIN PROJECTS. MISCELLANEOUS

Fleet Solid Support _ H&W

***Client:** Navantia UK _ H&W*

***Final Client:** Royal Navy*

***Engineering development :** 2023 _ on going*

***Ship classification :** Support Vessel*



GHENOVA's work scope:

Basic project development.

- Technical assistance, hull basic design
- Equipment, Mechanical systems: propulsion and auxiliary. Electronic, combat system integration, accommodation
- Functional 3D model, all disciplines.

CANTABRIA

Shipyard: NAVANTIA

Owner: Spanish Navy

Length: 174,00 m.

Type: LOGISTIC SUPPORT



NUSHIP SUPPLY-AOR

Shipyard: NAVANTIA

Owner: Royal Australian Navy

Length: 174,00 m.

Type: LOGISTIC SUPPORT



POLAR SECURITY CUTTER

Shipyard: VT Halter Marine

Owner: US COAST GUARD

Length: 140,00 m.

Type: ICEBREAKER



JACQUES CHEVALLIER CLASS

Shipyard: Chantiers de l'Atlantique

Owner: French Navy

Length: 194,00 m.

Type: LOGISTIC SUPPORT



RESEARCH VESSEL

Shipyard: COTECMAR
Owner: GUARD DIMAR
(Colombian Government)
Length: 83,00 m.
Type: HYDROGRAPHIC



Navio de Apoio Antartico-NApAnt

Shipyard: Estaleiro Jurong Aracruz
Owner: Marinha do Brasil
Length: 93,90 m.
Type: OCEANOGRAPHER & DISCOVERER



NOAA AGOR VARIANT

Client: Technology Associates Inc.

Final Client: National Oceanic and Atmospheric Administration (NOAA)

Engineering development: 2020-2022

Ship Classification: Research Vessel



GHENOVA's scope of works:

Vessel detail design.

Hull structure: Shipconstructor 3D model, workshop drawings, cutting and bending information, 3D assembly drawings.

* Outfitting: Shipconstructor 3D model, workshop drawings, BOM.

ESTRATEGIA GHENOVA

- ❑ Tamaño: acometemos grandes proyectos y programas que requieren músculo.

NAVAL CIVIL

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Orient Express Silenseas

Cliente: Chantiers de L'Atlantique
Cliente Final: Accord
Desarrollo Ingeniería: 2024-2025
Tipo de Buque: Crucero-velero (54 suites)
Alcance de trabajos: Diseño y coordinación de detalles de equipamiento, 31 Lotes. Cálculos y diseño de tuberías y trancos. Cálculos de tensión criogénica del sistema de GNL.



Icon of the Seas

Cliente: Meyer Turku
Cliente Final: Royal Caribbean
Desarrollo Ingeniería: 2019-2021
Tipo de Buque: Crucero (5610 PAX)
Alcance de trabajos: Diseño de detalle.



Four Seasons

Cliente: Fincantieri
Cliente Final: Four Seasons
Desarrollo Ingeniería: 2022-2025
Tipo de Buque: Yate
Alcance de trabajos: Ingeniería funcional de plantas mecánicas y de dibujo de clasificación.



World Europa

Cliente: Chantiers de L'Atlantique
Cliente Final: MSC Cruises
Desarrollo Ingeniería: 2020-2021
Tipo de Buque: Crucero (6700 PAX)
Alcance de trabajos: Ingeniería de detalle de acero y armamento zonas 3 y 6. Cálculos de maniobras y de flexibilidad en tubería criogénica.



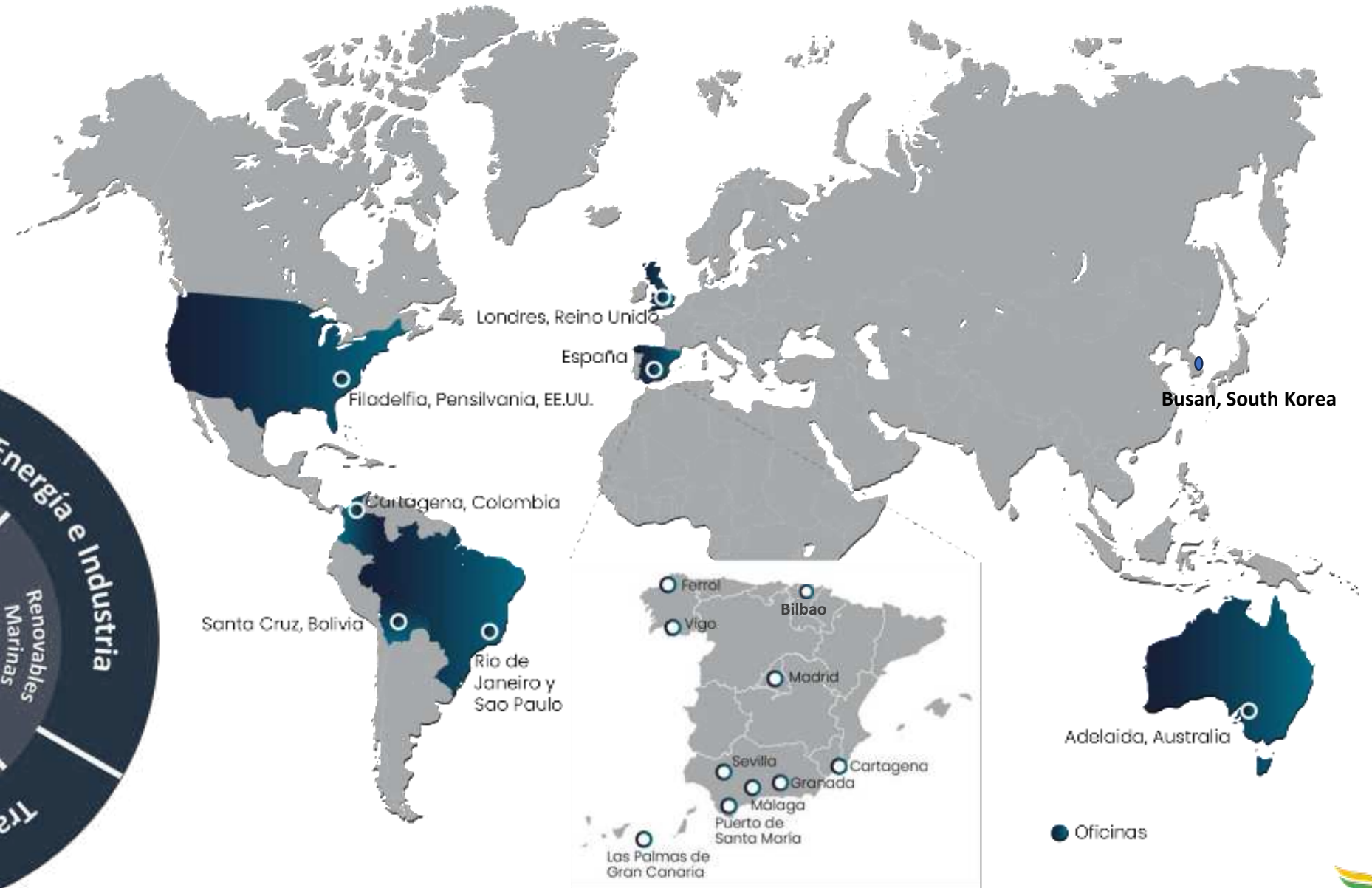
World Explorer

Cliente: Westsea
Cliente Final: Mystic Cruises
Desarrollo Ingeniería: 2018-2019
Tipo de Buque: Crucero Expedición
Alcance de trabajos: Diseño funcional y detalle.



ESTRATEGIA GHENOVA

- Diversificación geográfica y sectorial.



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■ GEK I. PREVIOUS PERFORMANCE [Technical Assistance for Shipowner]

PROJECT : 125K FSRU CONVERSION PROJECT (2nd)

- ◆ SHIPOWNER : xxxxx
- ◆ TYPE OF PROJECT : FSRU CONVERSION
(From MOSS TYPE LNGC To FSRU)
- ◆ MAIN PARTICULAR (CLASS : BV)
 - L.O.A. : 272 M
 - L.B.P. : 259 M
 - BREADTH : 47.2 M
 - CARGO TANK : 125,000 M3
 - REGAS CAPACITY : 4 x 21 mmscfd

SCOPE OF WORKS

- DRAWING REVIEW AND APPROVAL (FOR ALL)
- ATTENDANCE OF FAT FOR EQUIPMENT, CRYOGENIC VALVES, ETC.
- INSPECTION ON SITE/ONBOARD (CARGO & ELECTRICAL DISCIPLINES)
- TECHNICAL SUPPORT FOR GAS TRIAL PROBLEM
- ETC.



GHENOVA ENGINEERING KOREA CO.

I. PREVIOUS PERFORMANCE [Technical Assistance for Shipowner]

PROJECT : 263K FSRU REGAS CAPACITY UPGRATING

- ◆ SHIPOWNER : xxxxx
- ◆ TYPE OF PROJECT : UPGRADING HP VAPORIZER CAPA.
(To 200 mmscfd x 5 sets)
- ◆ MAIN PARTICULAR (CLASS : BV)
 - L.O.A. : 345 M
 - L.B.P. : 333 M
 - BREADTH : 55.0 M
 - CARGO TANK : 263,000 M3
 - REGAS CAPACITY : 5 x 200 mmscfd
- ◆ SCOPE OF WORKS
 - SUPPORT FOR DOCK SPECIFICATION
 - DRAWING REVIEW AND APPROVAL (FOR ALL DISCIPLINES)
 - ATTENDANCE OF FAT FOR HP VAPORIZER, CRYOGENIC VALVES, ETC.



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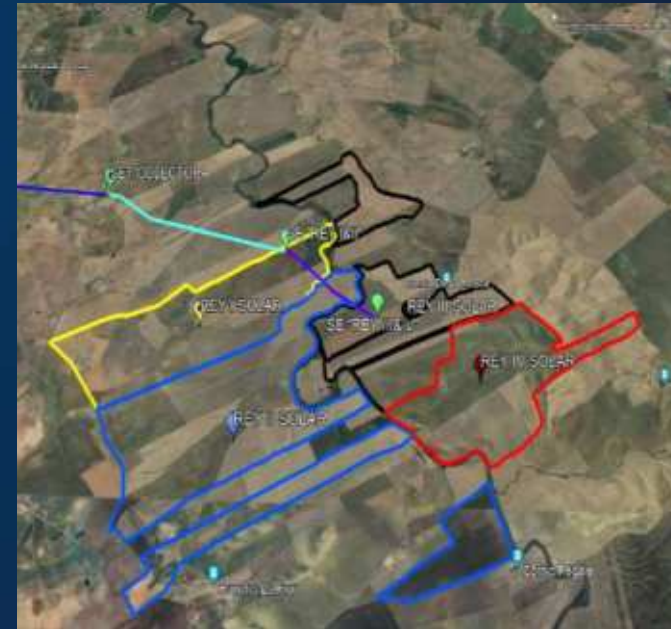
- Diversificación geográfica y **sectorial**.



Planta WTE – SINGAPORE



Planta WTE – Hong Kong



PSFV Rey Solar 447 MW + SET + LAAT





IA aplicado a procesos

Monitorización/Integración IoT



ESTRATEGIA GHENOVA

- ❑ Acercarnos al talento. Oficinas donde hay posibilidad de acceder a recursos.
- ❑ Impulso iniciativas internas



ESTRATEGIA GHENOVA

- ❑ Trabajo descentralizado
- ❑ Modalidad de Teletrabajo
- ❑ Ofrecer oportunidades a los ingenieros:
 - Transversalidad
 - Movilidad internacional
 - Movilidad multisectorial
 - Plan de carrera





GHENOVA ingeniería



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