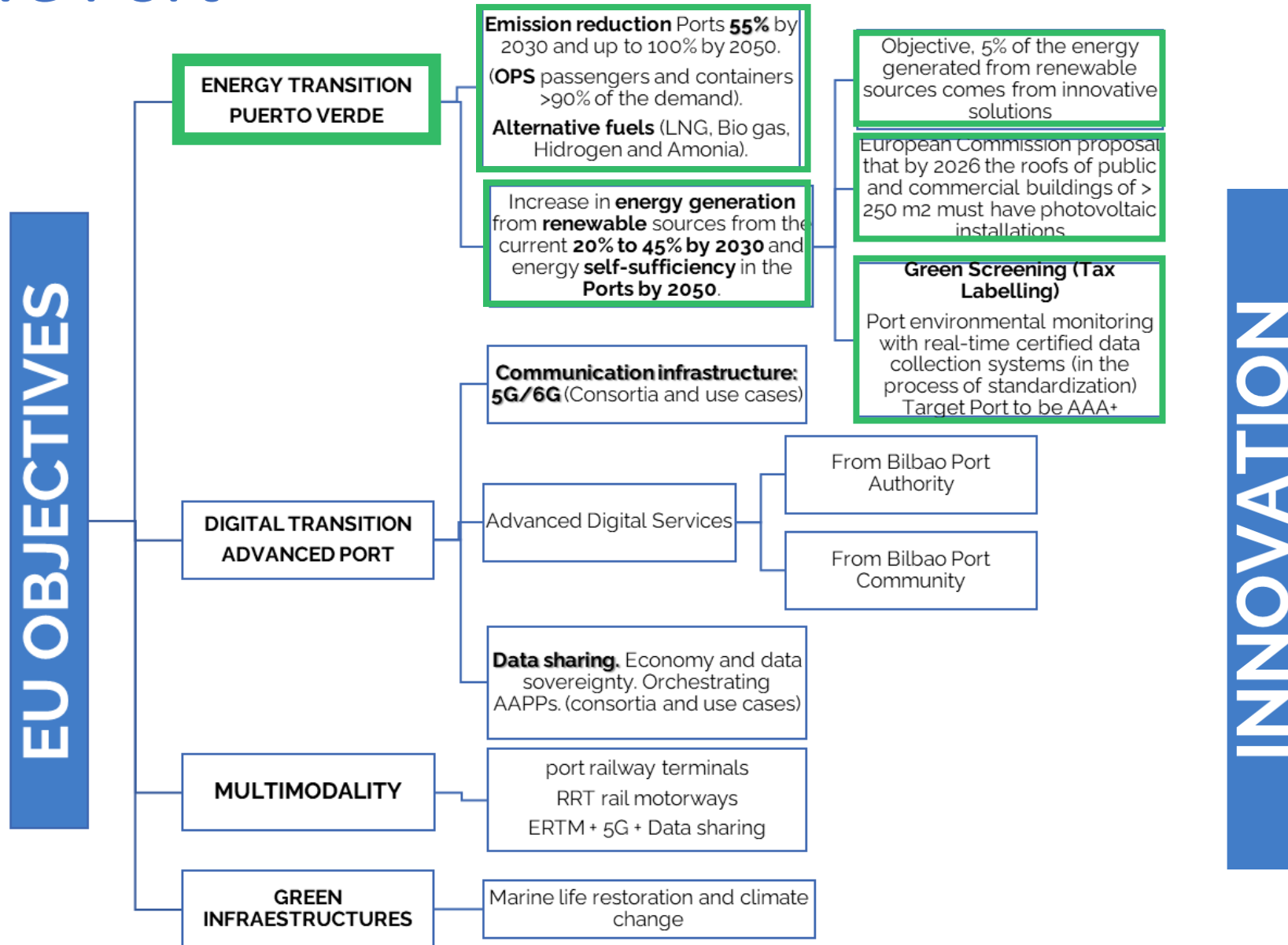




**ONSHORE POWER SUPPLY OPS PROJECT
FOR THE PORT OF BILBAO**



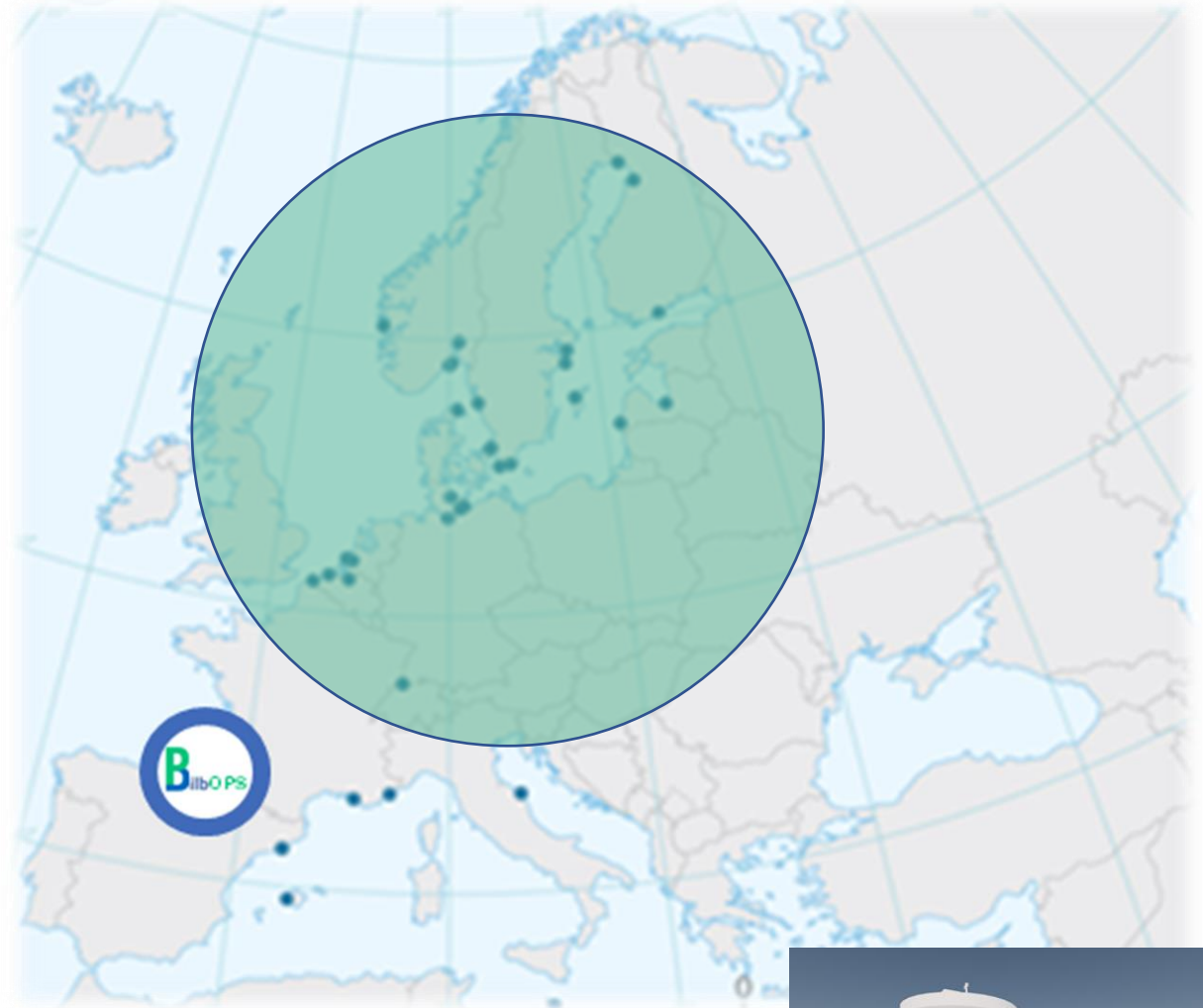
Proactive Port



- Strategic Investment.
- *“Fit for 55” Port.*
- Connected to the rest of European electric Ports of the Atlantic Corridor.
- Submitted to the CEF Transports 2021-2027 call. (A1,A2,A6,AZ3,Getxo1,2 y Getxo 3)
- OPS in wharves A5 financed by MRR.



- BilbOPS is part of the OPJ Master Plan for Spanish Ports coordinated by Puertos de Estado (the State Ports authority)



Resilient, green and innovative OPS services.



BilbOPS OPS INFRASTRUCTURE 2030

ALTERNATIVE FUELS SERVICES

- LNG (On service 1S-2022)
- OPS Infrastructure (2025)
- H₂ & e-Fuel Plant

OPS (ONSHORE POWER SUPPLY)

- **Phase 1 (CEF Transport)**
A1, A2, A6, AZ3, GETXO 1-2, GETXO 3
- |...| **Phase 2 (RRF)**
A5

GREEN ENERGY CO-GENERATION HUB

- Photovoltaic Solar Power (2025)
- Wind Power (Since 2006)
- Wave Power
- **Phase 3 (Future Quay)**
A3, A4
- ⚓ **Phase 4 (OPS Floating Power Platforms)**
Mobile Cold-Ironing



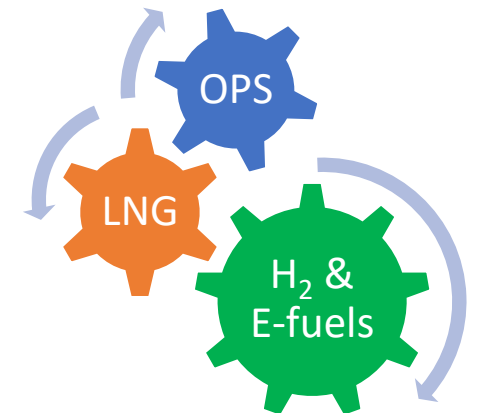
Services

Bilbao Port

Investment
(Phase 1 y 2) wharves



In Service by Power





1



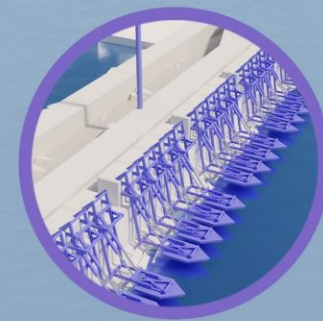
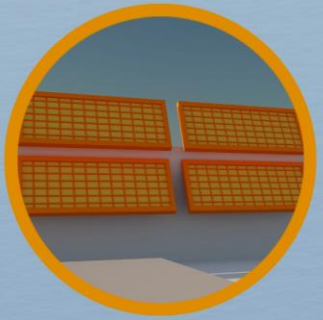
2



3



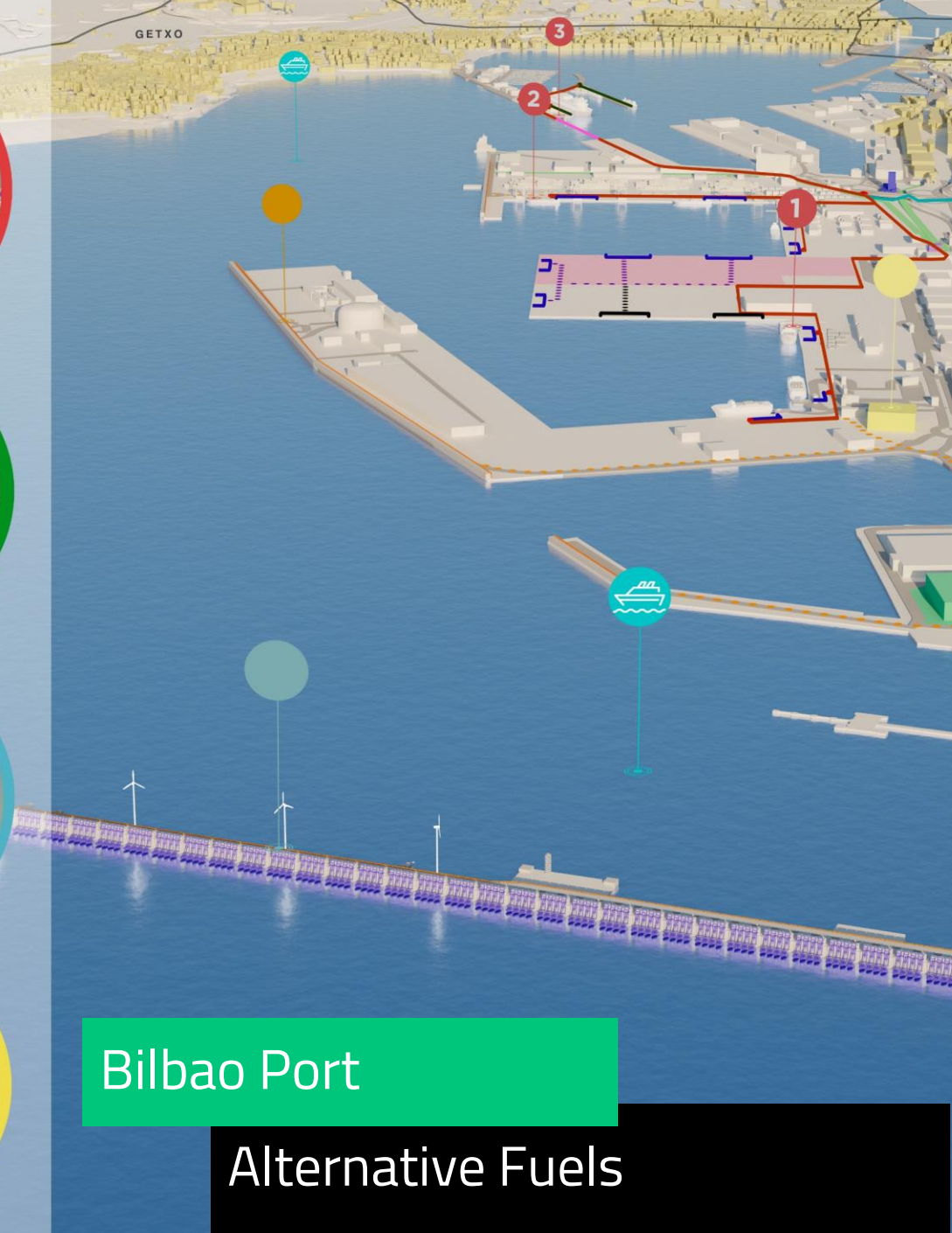
H₂



LNG

Bilbao Port

Alternative Fuels



OPS capacity of 30 MW by 2025

The Port of Bilbao is to add 30 MW of installed power capacity for OPS, scheduled to come in line in 2025.

To that end:

- The Iberdrola electrical substation in Santurtzi will be upgraded to 60 MW
- The port facilities will be connected to the Iberdrola electricity grid.
- Frequencies of 50 & 60 Hz
- 3 distribution centres will be installed.
- 11 OPS connection points (MV & LV)
- 20 take-offs for flexible service.
- 1 underwater cable (1.34 km)

The 30 MW renewables hub by 2027

- A 20 MW wind farm has been in place since 2006 (Energías Renovables del Abra).
- A PV plant is to be installed on four outer sea-walls with a rated power capacity of * Mz.
- A prototype wave energy plant using of the infrastructure at the port itself is to be installed, which could lead to an industrial scale plant providing up to 12 MW.

SERVICES

11
OPS
CONNECTION
POINTS

7
QUAYS

€51.8M

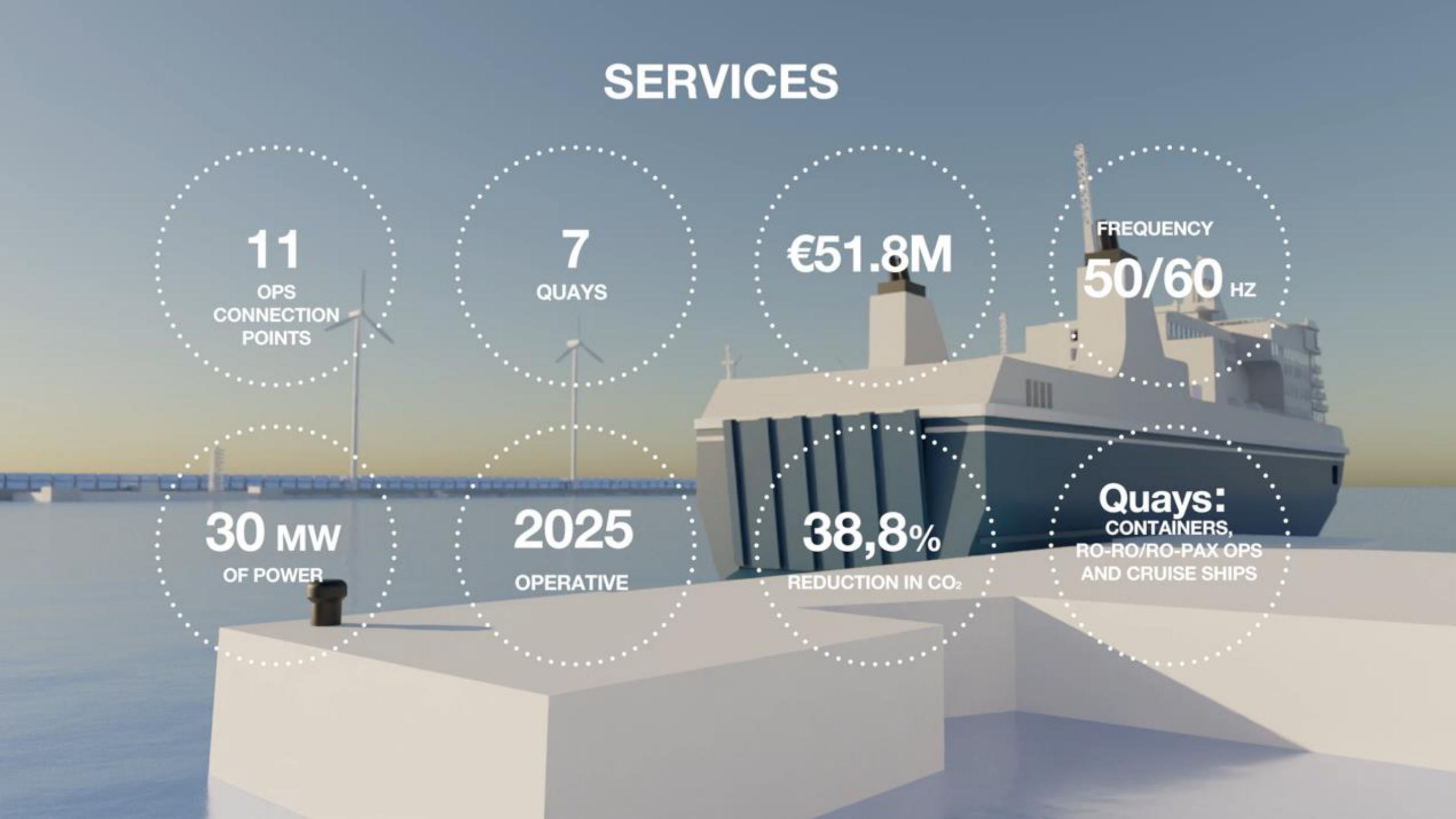
FREQUENCY
50/60 HZ

30 MW
OF POWER

2025
OPERATIVE

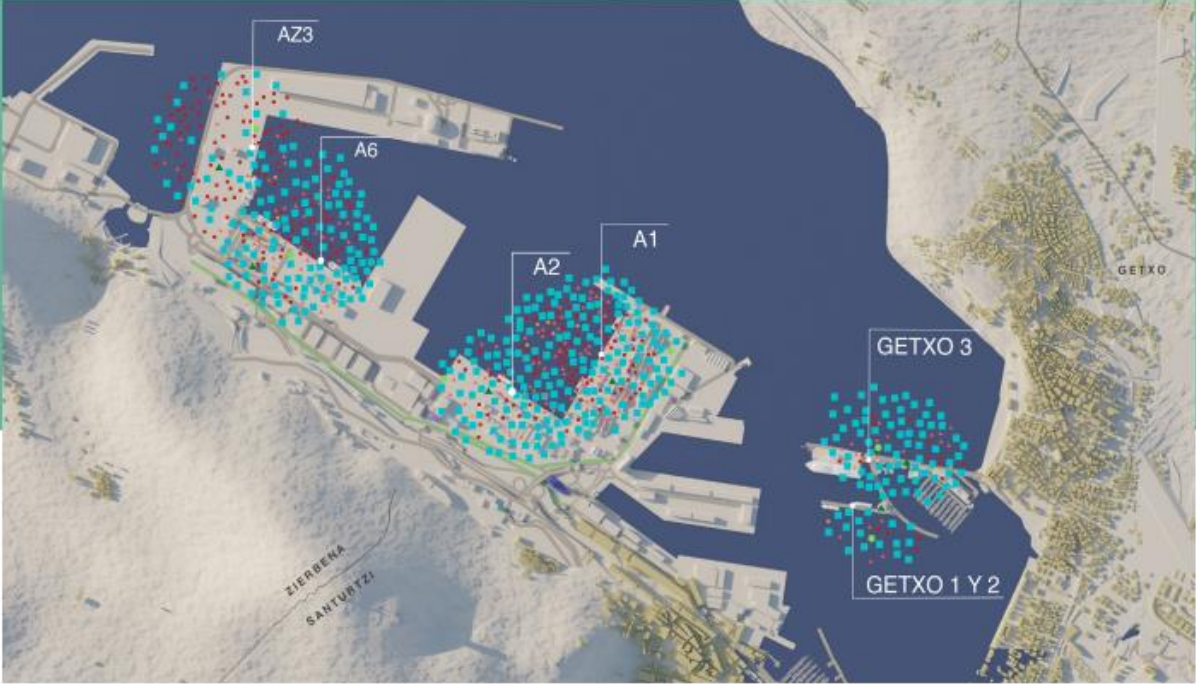
38,8%
REDUCTION IN CO₂

Quays:
CONTAINERS,
RO-RO/RO-PAX OPS
AND CRUISE SHIPS

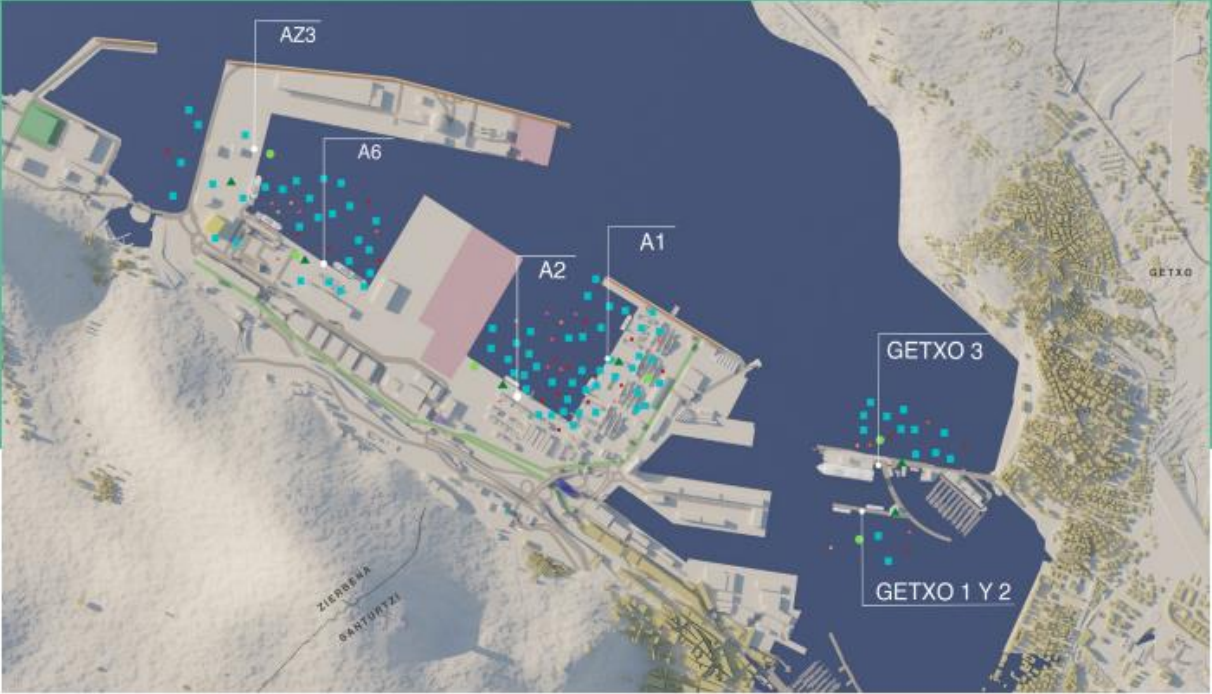


Reduction in Emissions

2019

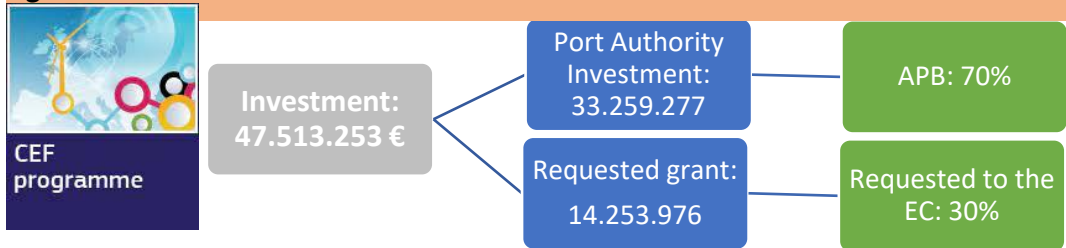


2030

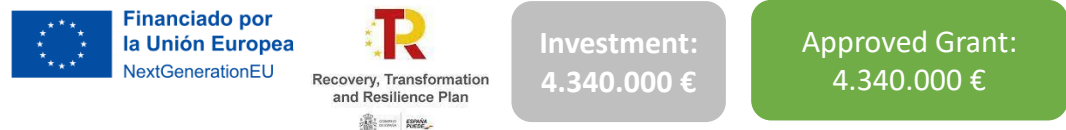


Strategic Project: Financing structure

CEF Transport 2021-2027: Submitted wharves A1,A2,A6,AZ3,Getxo1,2 y Getxo 3



Mecanismo Recuperación y Resiliencia: Approved wharf A5



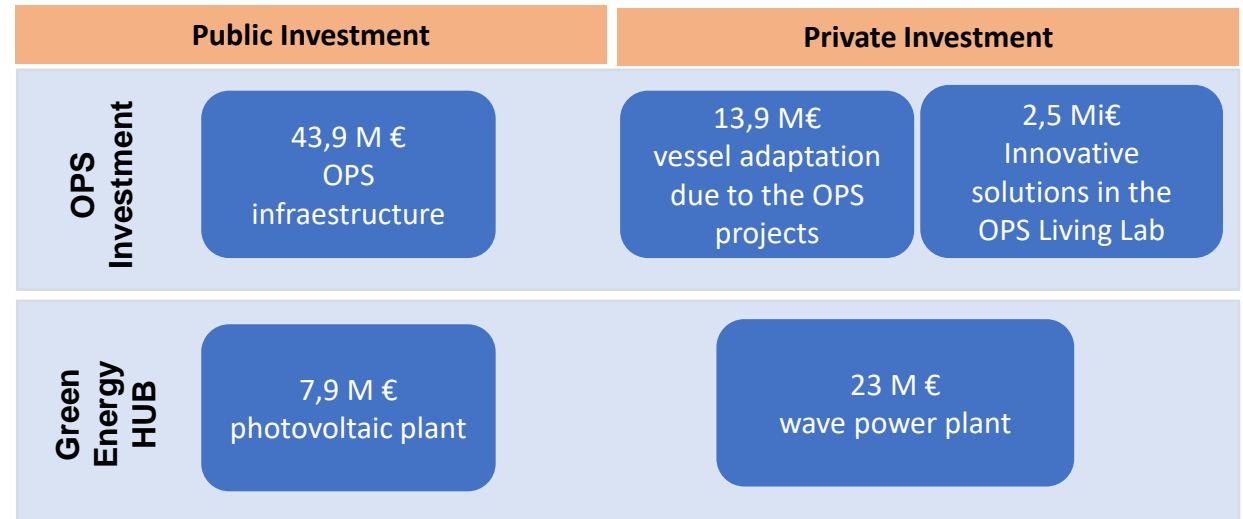
Economic-Social Output (EU Grant included)

Internal Rate Return (EER (K))	13,35%
Net Present Value (NPV)	68.082.199 €
Project Discount Rate (PDR)	3,00%

Financial Return PAB (EU Grant included)

Internal Rate Return (EER (K))	3,40%
Net Present Value (NPV)	-2.124.220 €
Project Discount Rate (PDR)	4,00%

Public-Private economic impact of OPS: 91 M €



Economic Performance

Socio-Economic: High (environment and public health)

Financial: negative, mitigated if grant is achieved.

OPS Strategic Project (91 M €): For the sector (ship owners, renewables etc.) and local innovation.

Public/Private alternative fuel investment (188 M €): Complementary to OPS (APB), LNG and H2 BH2C (Petronor/Repsol)

Fit for 55 regulation needs and tax exemptions.

Innovation Ecosystem: Living Lab



superconducting wires



Wave Power Technology



Second life batteries



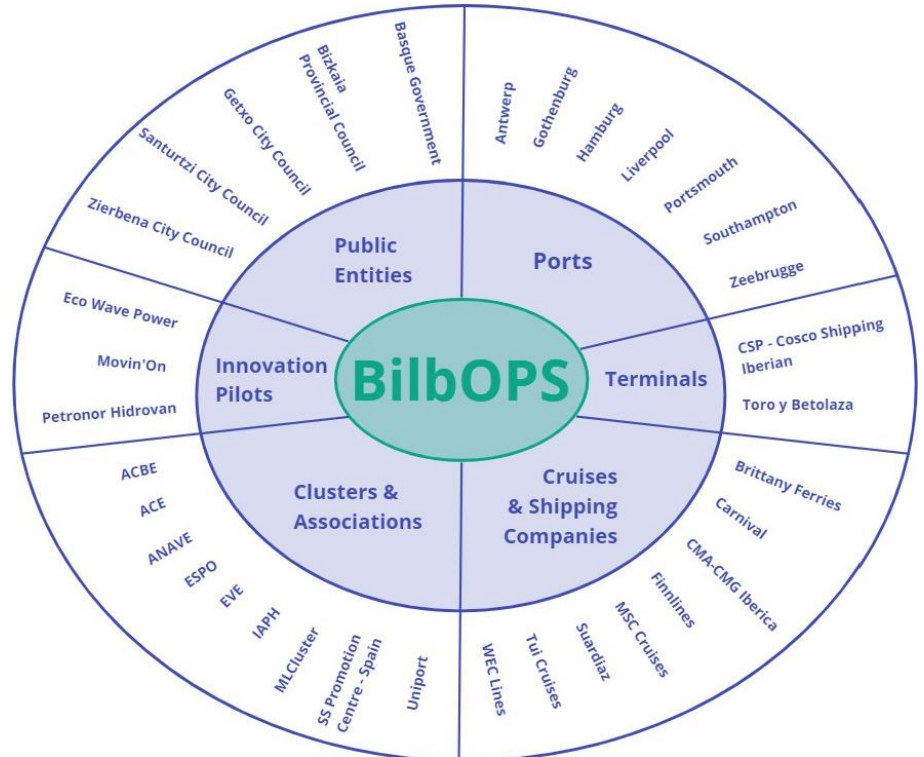
20 start-ups in 4 years



Corredor Vasco del Hidrógeno (BH2C)



Consensus and Cooperation: Network Effect



- 34 support letters
- Collaborating with European Ports, Puertos del Estado (OPS Masterplan) and Ship Owners: **BilbOPS Forum**
- Institutional support.

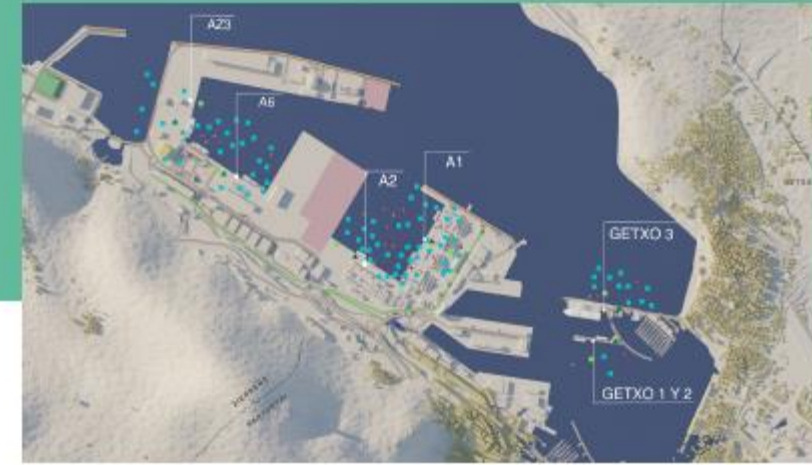
BilbOPS EMISSIONS MAP 2019



BilbOPS EMISSIONS MAP 2027



BilbOPS EMISSIONS MAP 2030



For people

Lower levels of emissions (nitrogen, sulphur dioxide), noise and vibrations. Direct improvements in living conditions for 125,000 residents in the neighbouring towns of Getxo, Santurtzi and Zierbena), 116,000 passengers and 10,000 workers at the port.



Planet

- A 38.8% drop CO2 emissions from the port
- A total decrease of 9,062 t of CO2 .



Profit

- OPS services for over 900 stopovers per year on the container, ferry and cruise liner wharves.
- Public/private investment:
 - Over €91 million (OPS & renewables)
 - Over €188 million (alternative fuels, H2, LNG & OPS)

BILBAO PORT

CONNECTED TO
THE EUROPEAN
NETWORK OF
ELECTRIFIED PIERS

