



European flagship Action for cold ironING in ports



Co-financed by the Connecting Europe
Facility of the European Union

Activity 3 FEED Studies

EALING Mid-Term Event

29th April 2022



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Activity 3 – Next Steps

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Activity 3. Introduction

MILESTONES

- ✓ •M13 – Activity 3 Kick-off meeting
- ✓ •M14 – Progress Meeting
- M15 - Activity 3 Final Meeting
- M16 – Front-end engineering design studies and other necessary technical studies feeding directly the tender specifications in the ports of the consortium.

DELIVERABLES

- Front-end engineering design studies and other necessary technical studies feeding directly to the tender specifications for the following ports: Valencia, Barcelona, Huelva, Gijon, Venice & Chioggia, Ancona, Trieste & Monfalcone, Burgas, Constata, Rafina, Varna, Leicoes, Portos dos Acores and Dublin and/or Cork.
- For the Port of Piraeus: Technical design studies leading to project tender documents for the connecting points "Perikleous", "Ietiona" and "Poseidonos".
- For the Port of Koper: Technical studies (IDZ/IDP – conceptual/technical design; DGD – documents to obtain building permit, PZI – executive design) leading to project tender for the connecting point "VNT / RO-R) in Basin III

Objectives

- Execute the detailed technical design studies for the electrification infrastructure necessary for the ports of the consortium.
- The implementation of front-end engineering design (FEED) studies providing the fully defined engineering package needed to enable ports launching the works phase right after the end of the Action.
- FEED studies will include:
 - ✓ specifications for main primary and secondary equipment
 - ✓ cost estimation for procurement and erection of the future cold ironing and electric bunkering infrastructure
 - ✓ technical design studies providing planning design, final specifications for equipment and infrastructure, and final budget.

Electrical studies-Tasks

- Design study of the port electrical system expansion, to ensure robust power supply to the port network
- Load flow analysis, to ensure efficient operation and size properly power equipment, in terms of continuous ratings
- Short circuit study, to size properly power equipment, in terms of short-circuit withstand and breaking capability
- General design of protection and interlock schemes, to ensure secure operation upgraded port network
- General design of the substation automation system (SAS), to ensure complete control and monitoring of the upgraded port network
- Cost estimation, to provide a budget for equipment procurement, erection works and required detailed studies

Main Concerns

- The existing infrastructure of the ports' electrical network is incapable to meet the energy demands. Existing, old substations, as well as spatial planning problems.
- The points that are supplied with 1MVA are border line of low and high voltage. Low voltage require more cables while medium voltage require retrofitting from the side of the ships.
- Spatial planning problems regarding the CMS.
- Container ships are required by the standard to provide the cables of the CMS to the port.
- Cable rooting from the S/S to the shore connections and the interfering with the existing port infrastructure.

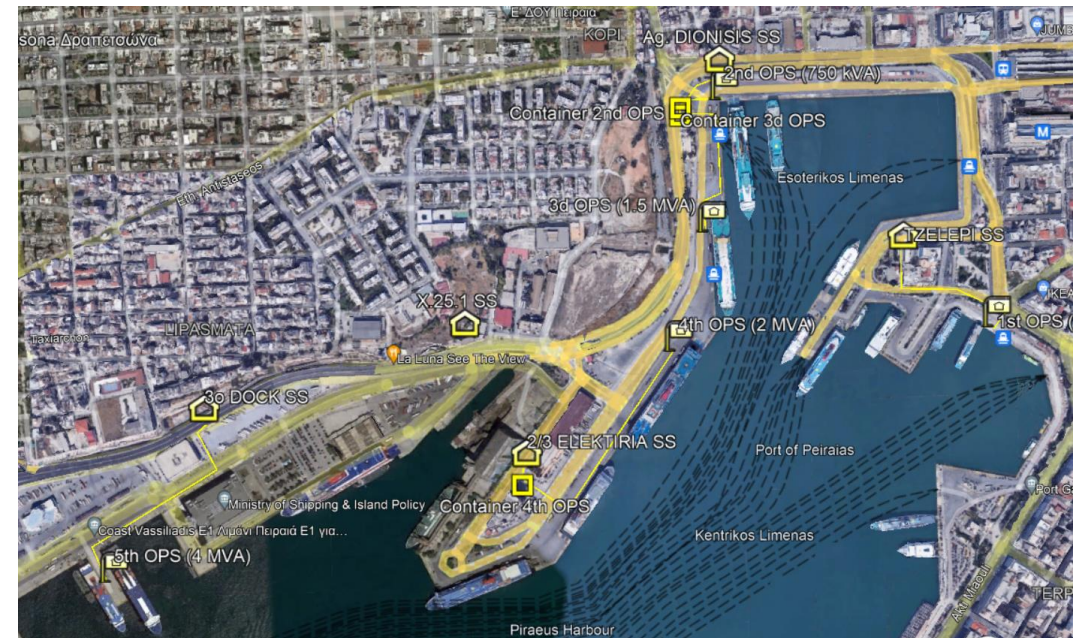
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Activity 3. FEED Studies

Progress of the FEED Studies for the port of Piraeus, Rafina, Constanta, Burgas and Varna.

FEED Studies for the port of Piraeus

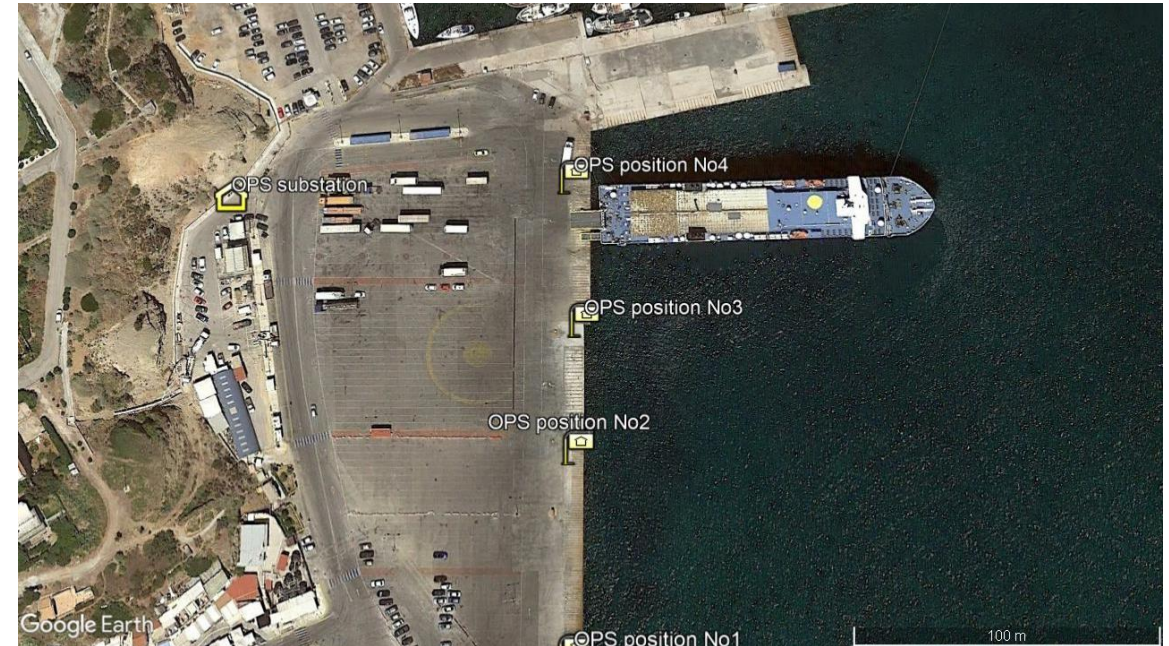
- Total Power: 13.5 MVA
- Installation of MV Panels, TRs & F.C.
- Containerized Solution
- Existing Building



ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	0.5	Passenger - RoRo
2	1	Passenger - RoRo
3	4	Passenger - RoRo
4	4	Passenger - RoRo
5	4	Passenger - RoRo

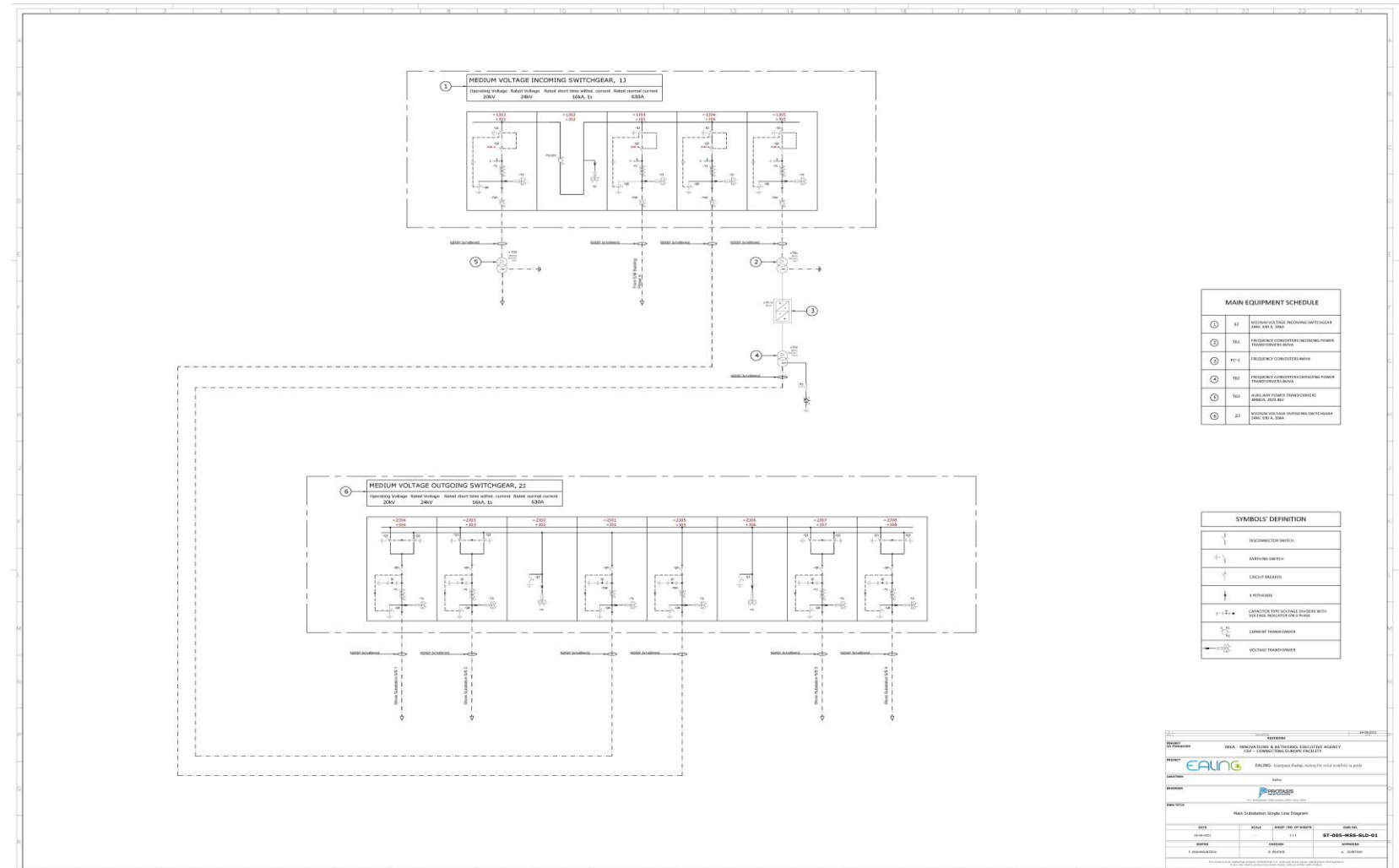
FEED Studies for the port of Rafina

- Main cold ironing Substation
- Building 200 m²
- Total Power 4 MVA
- 2 HVSC positions (1.5 MVA)
- 2 LVSC positions (0.5 MVA)

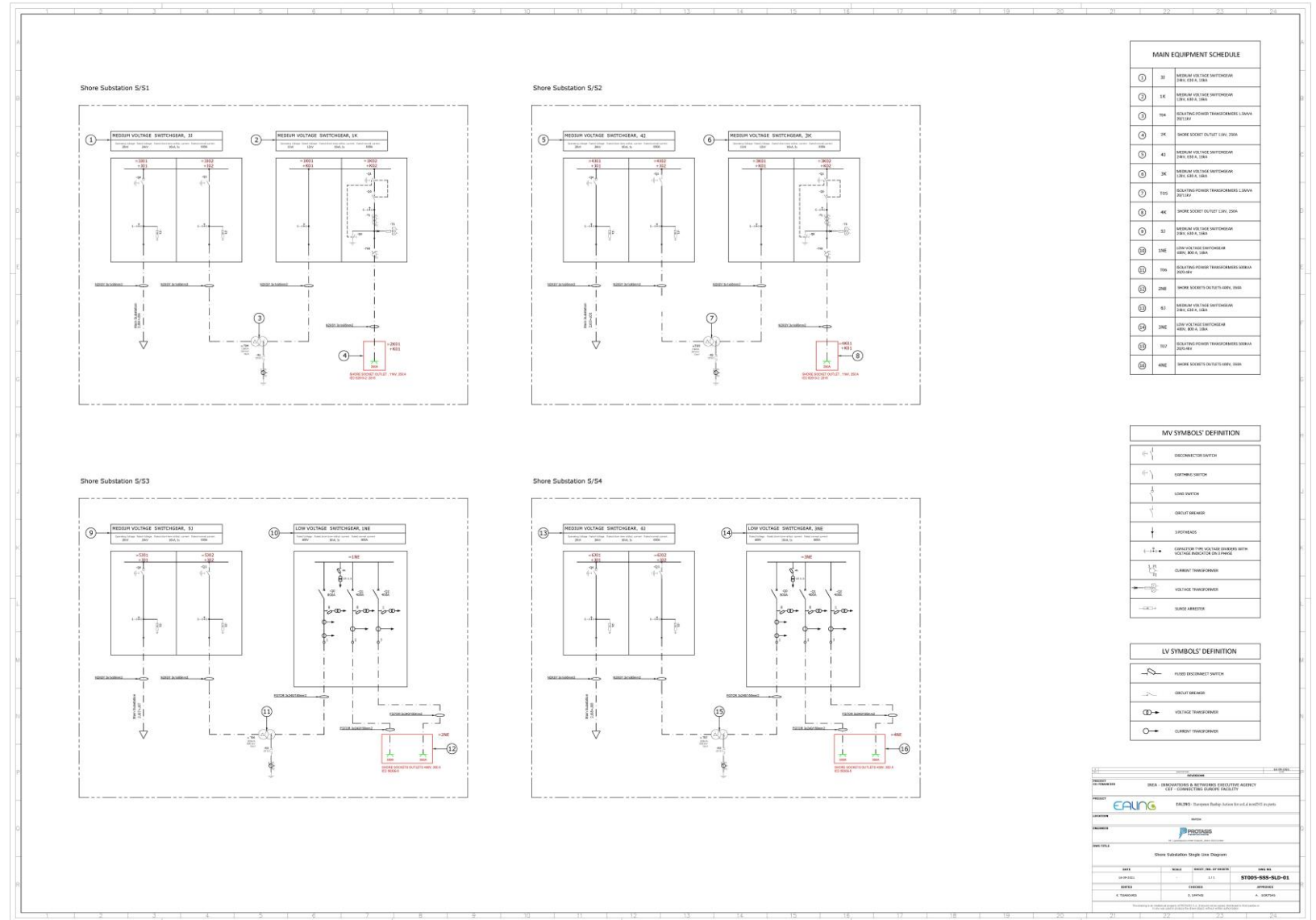


ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports			
OPS points	Power (MVA)		Serving Vessels
1	1.5		Passenger - RoRo
2	1.5		Passenger - RoRo
3	0.5		Passenger - RoRo
4	0.5		Passenger - RoRo

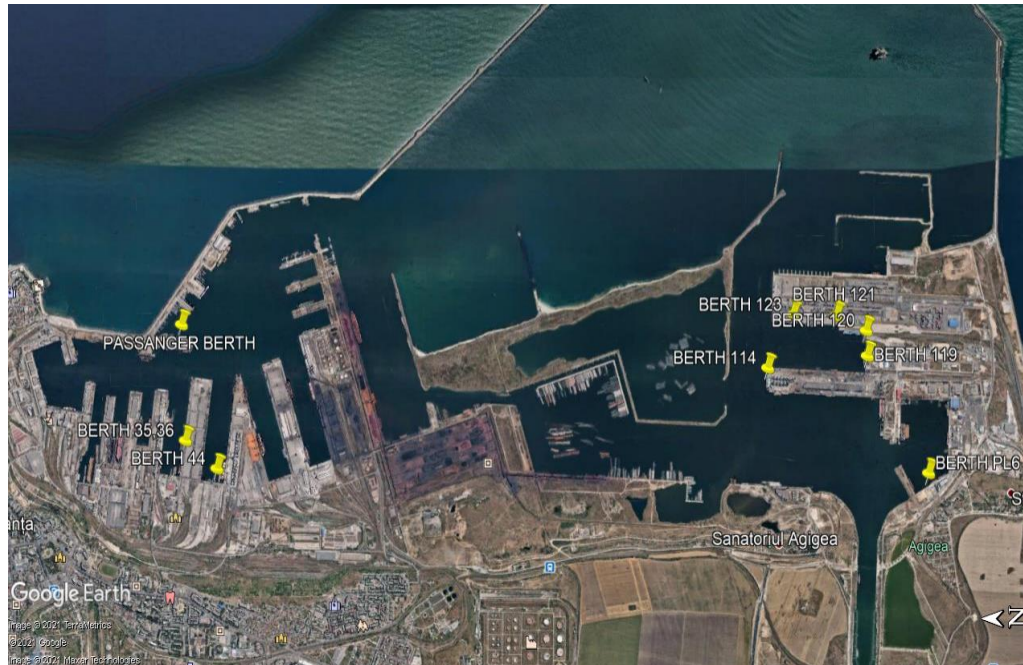
OPS Positions



OPS Positions



FEED Studies for the port of Constanta



ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	5	Container
2	1	Ro-Ro
3	1	Ro-Ro
4	5	Passenger
5	3	Bulk
6	5	Container
7	1	Multipurpose
8	1	Multipurpose
9	1	Multipurpose
10	5	LNG

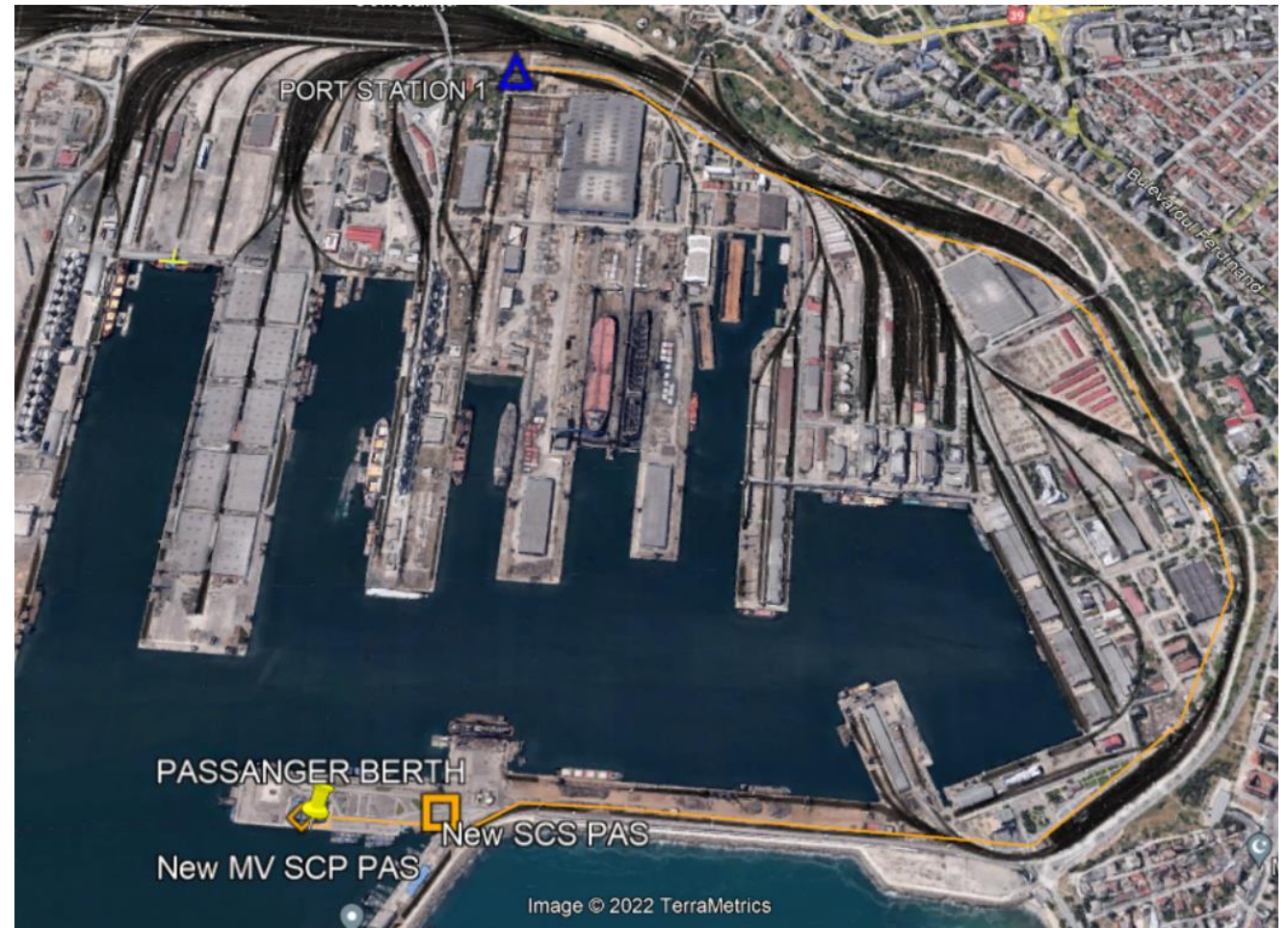
Berth 121 & 123

- Container Ships
- 2 HVSC positions (5 MVA)
- PTC1
- CMS from the ships to shore



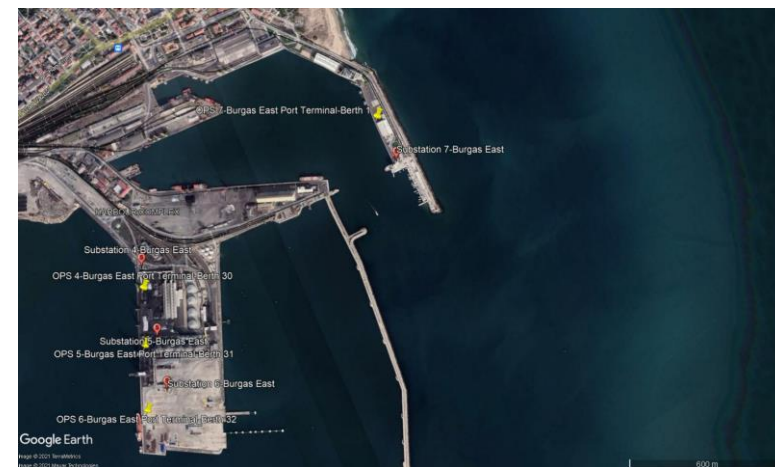
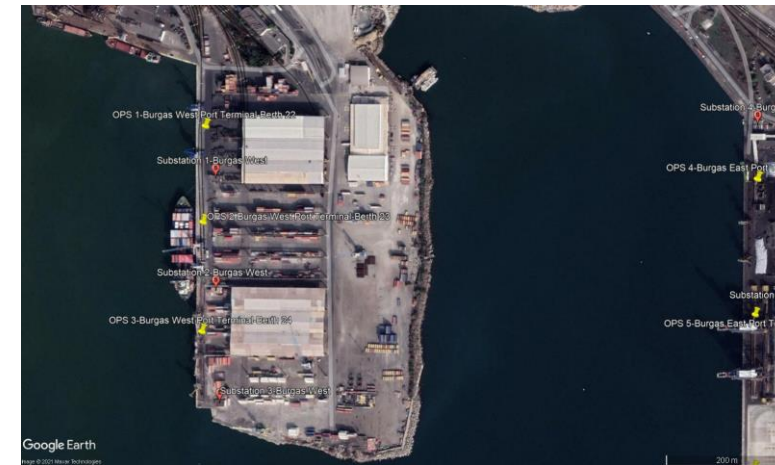
Passenger Berth

- Passenger Ships
- 1 HVSC position (5 MVA)
- Port Station 1
- CMS from the shore to ship



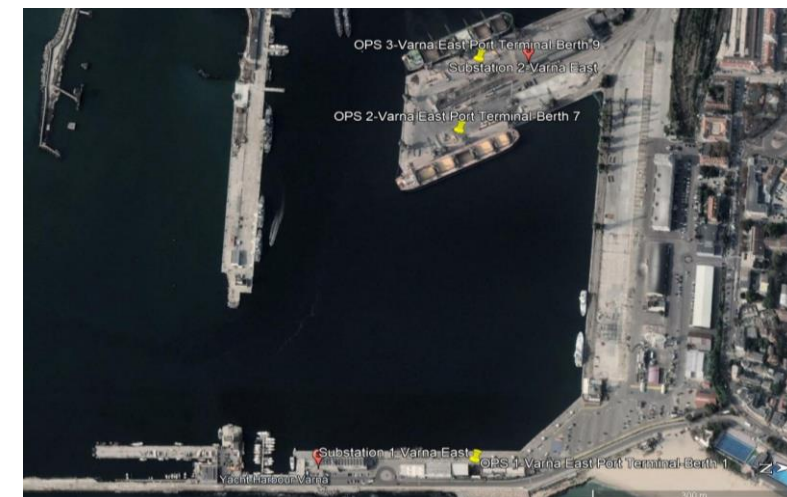
FEED Studies for the port of Burgas

OPS points	Power (MVA)
Burgas West	
1	3
2	3
3	1
Burgas East	
1	1
2	1.5
3	2
4	2



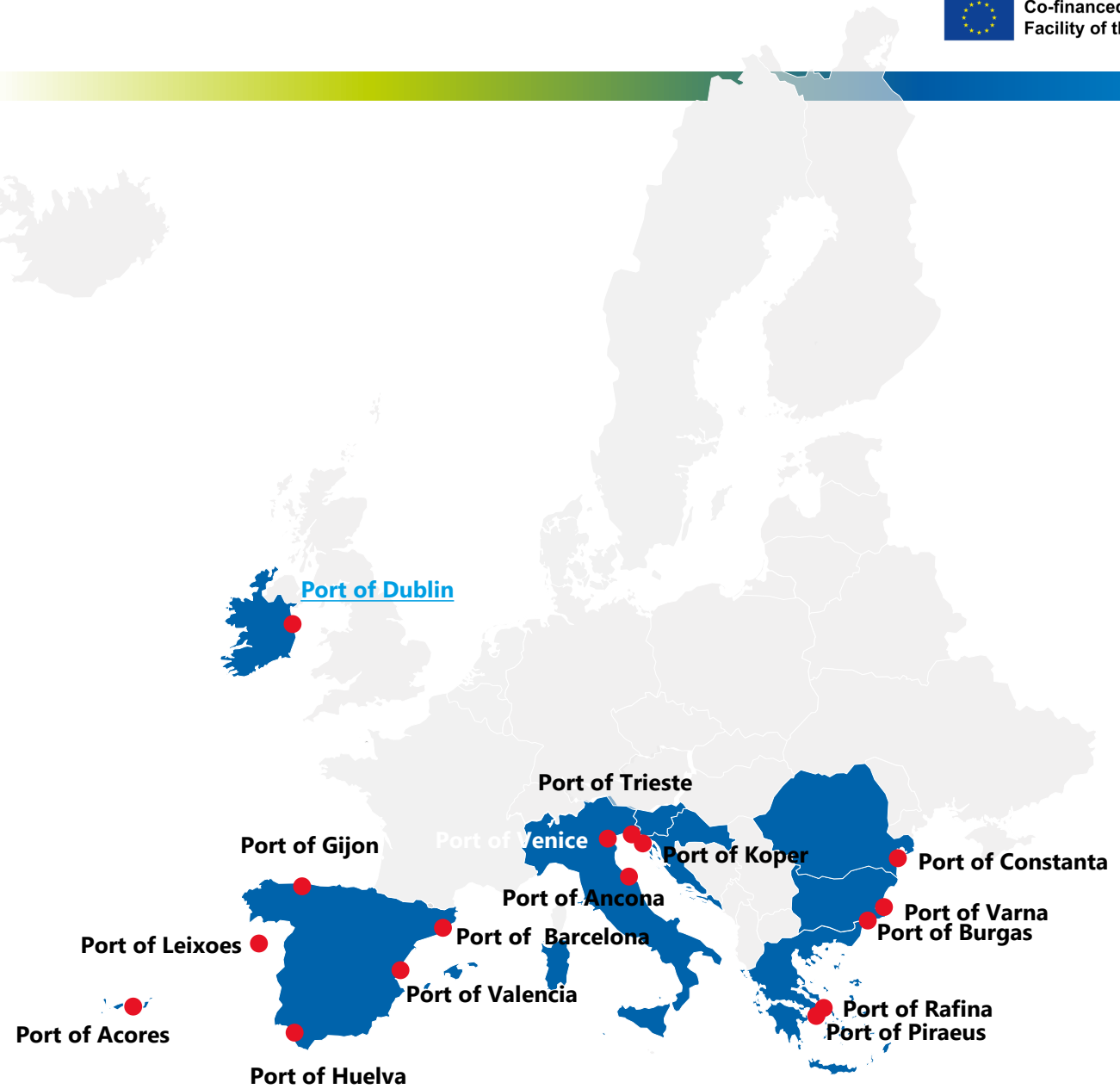
FEED Studies for the port of Varna

OPS points	Power (MVA)
Varna West	
1	3
2	1
3	1.5
4	1
5	1.5
6	3
Varna East	
1	2
2	2
3	1.5



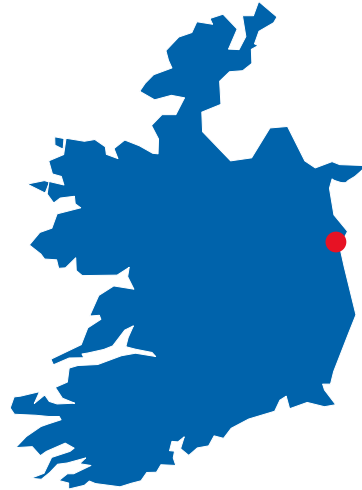
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Activity 3. FEED Studies for the ports of the Consortium

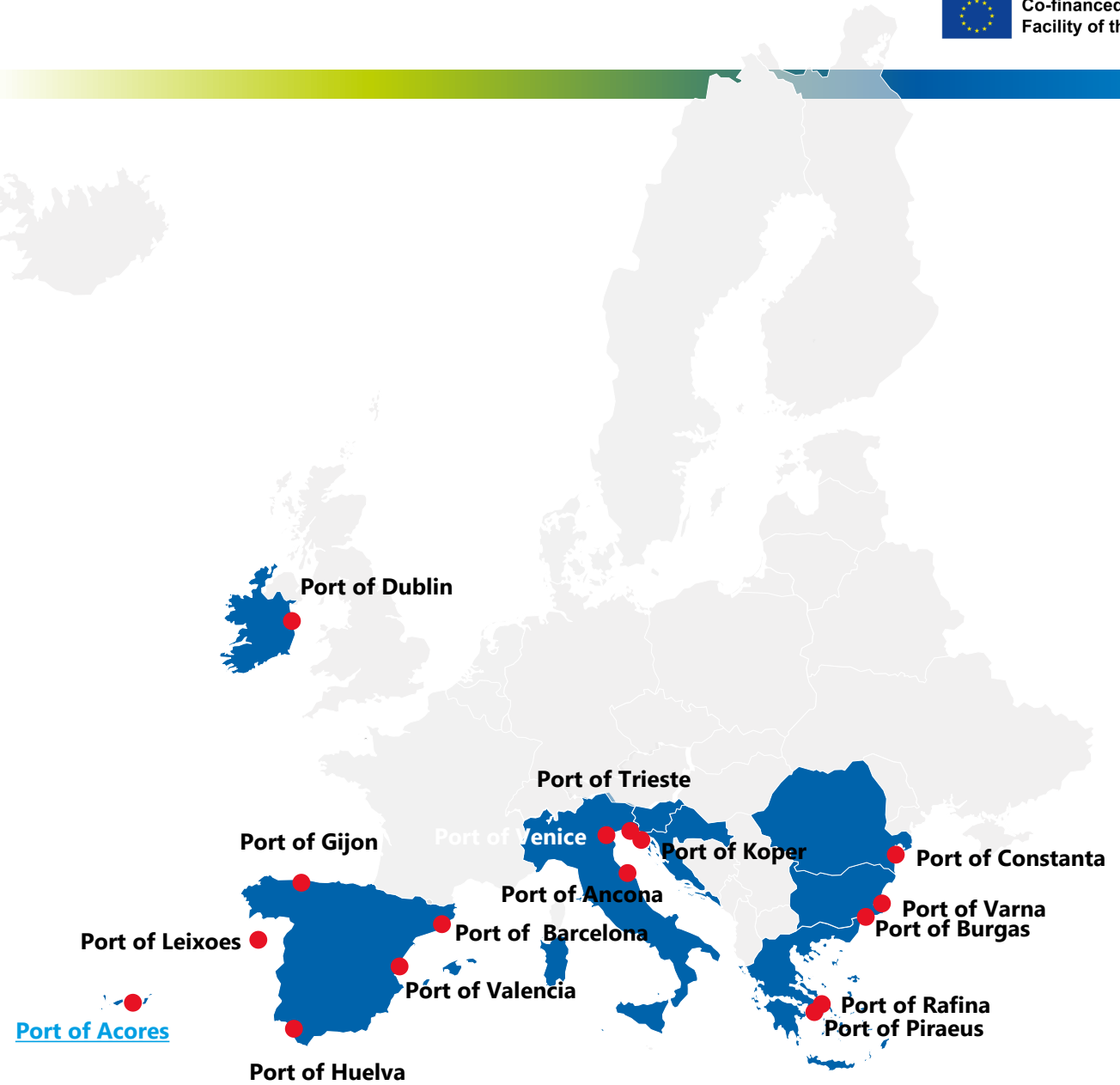




FEED Studies for the port of Dublin, Ireland



ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	0.5 (estimate)	RoRo and Container
2	0.5 (estimate)	Container
3	0.5 (estimate)	Liquid Bilk
4	0.5 (estimate)	general cargo
5	5 (estimate)	Passenger
6	0.5 (estimate)	general cargo

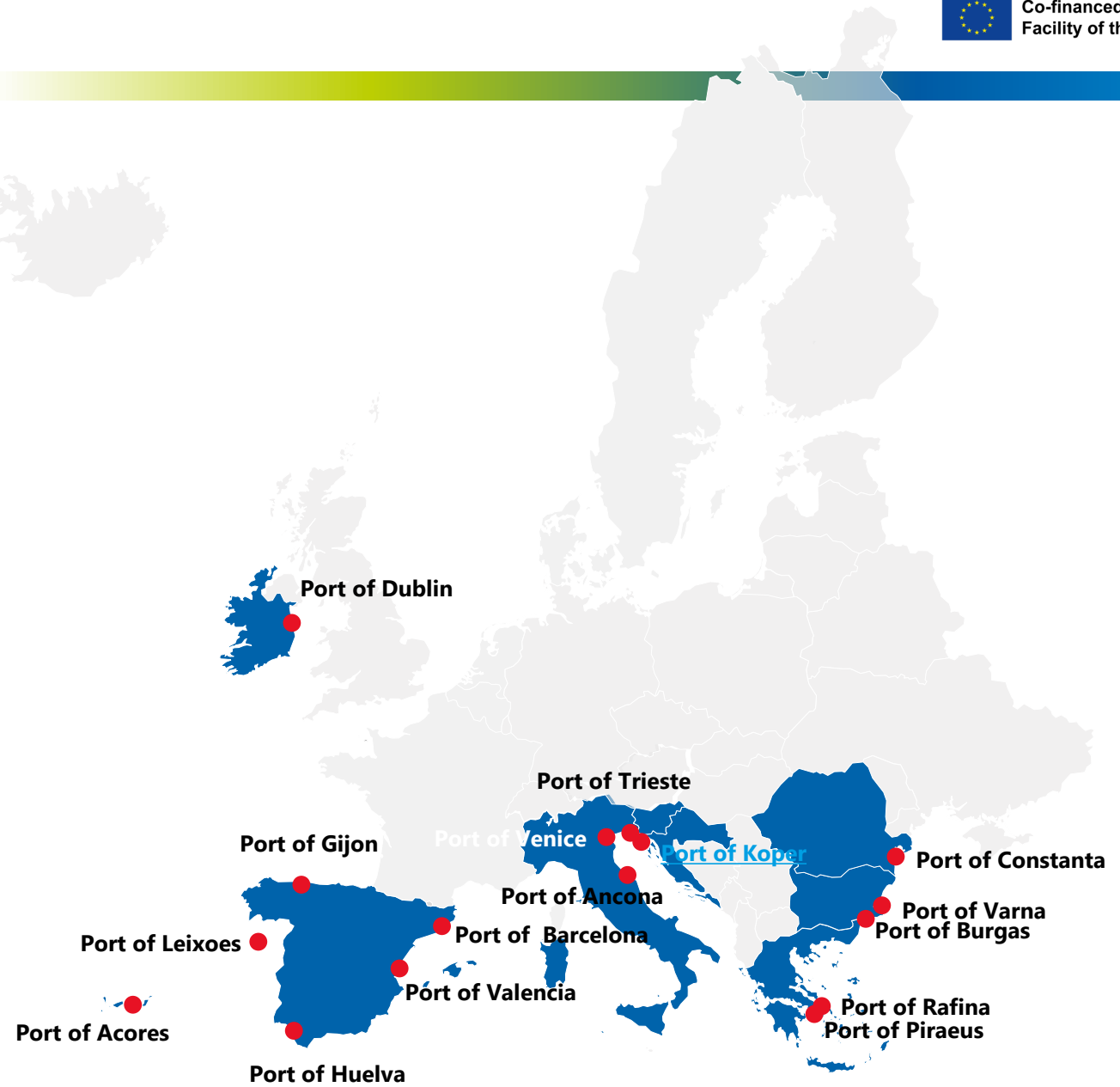


[Port of Acores](#)

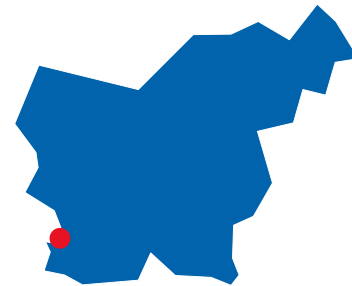
FEED Studies for the port of Açores, Portugal



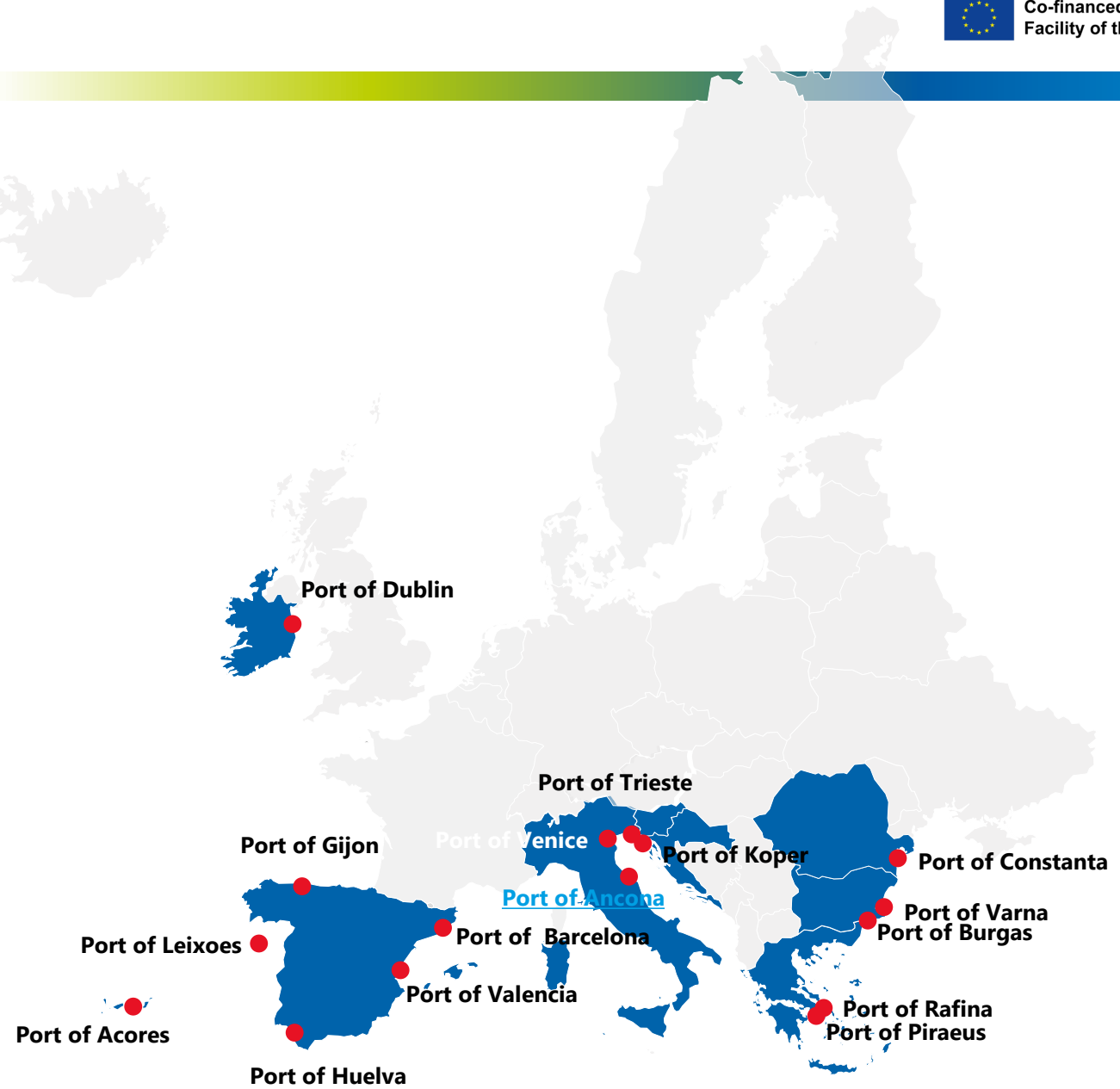
ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports			
OPS points	Power (MVA)	Serving Vessels	Terminal
1	3.5	Containership	Port of Ponta Delgada - Commercial quay
1	3.5 or 7	Containership	Port of Ponta Delgada - Commercial quay
1	16	Passenger	Port of Ponta Delgada - Cruise quay
1	3	Ropax/Ferry	Port of Ponta Delgada - Ferry quay
1	3.5 or 7	Containership	Port of Praia da Vitória - Commercial quay
1	3.5 or 7	Containership	Port of Praia da Vitória - Commercial quay
1	16	Passenger	Port of Praia da Vitória - Commercial quay
1	3	Ropax/Ferry	Port of Praia da Vitória - Ferry quay
1	3.5 or 7	Containership	Port of Horta - Commercial quay
1	3	Ropax/Ferry	Port of Horta - Commercial quay
1	16	Passenger	Port of Horta - Cruise quay
2	3	Ropax/Ferry	Port of Horta - Ferry quay



FEED Studies for the port of Koper, Slovenia



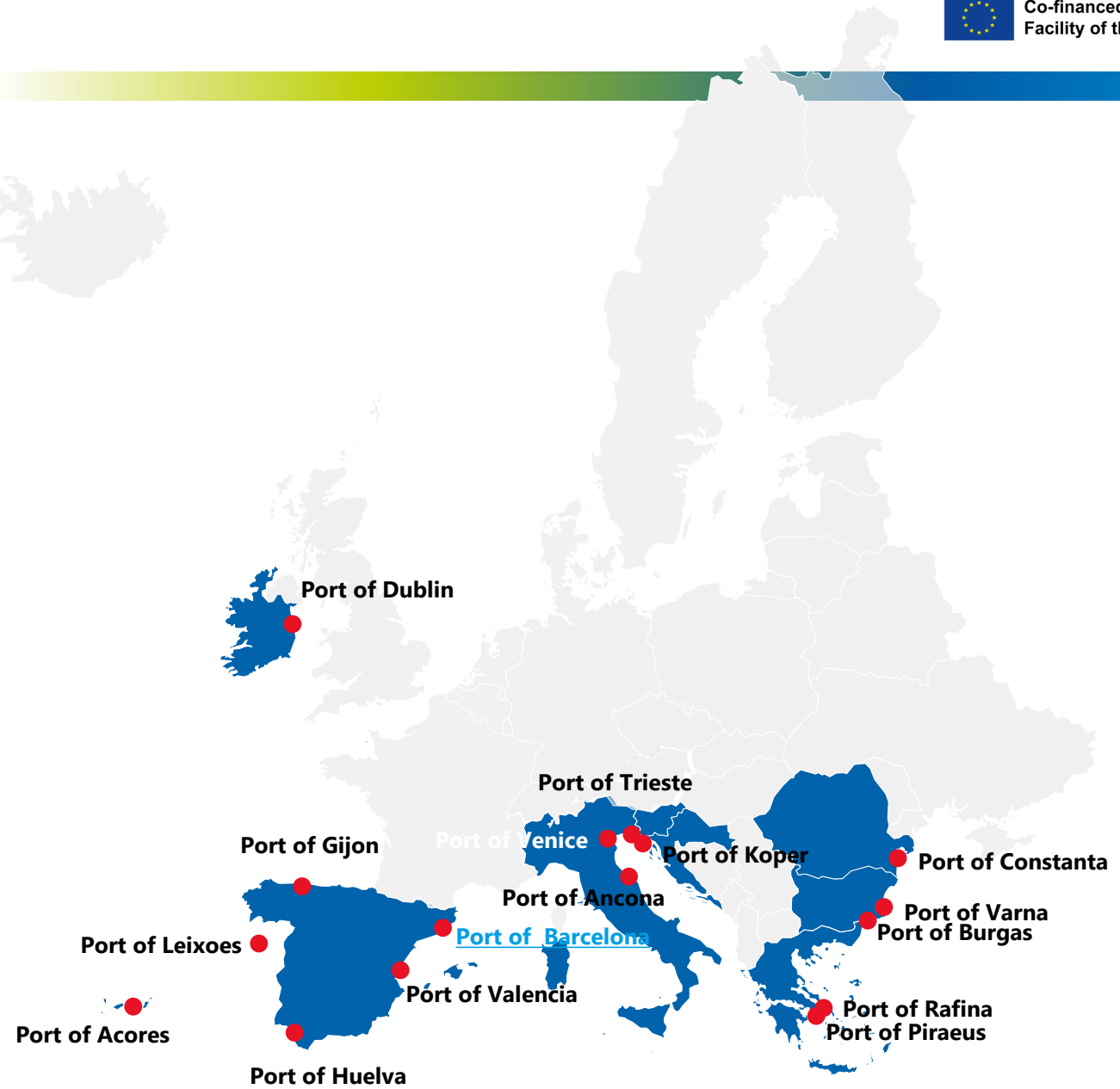
ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	2	RO-RO (Car Carrier)
2	2	RO-RO (Car Carrier)
3	2	RO-RO (Car Carrier)



FEED Studies for the port of Ancona, Italy



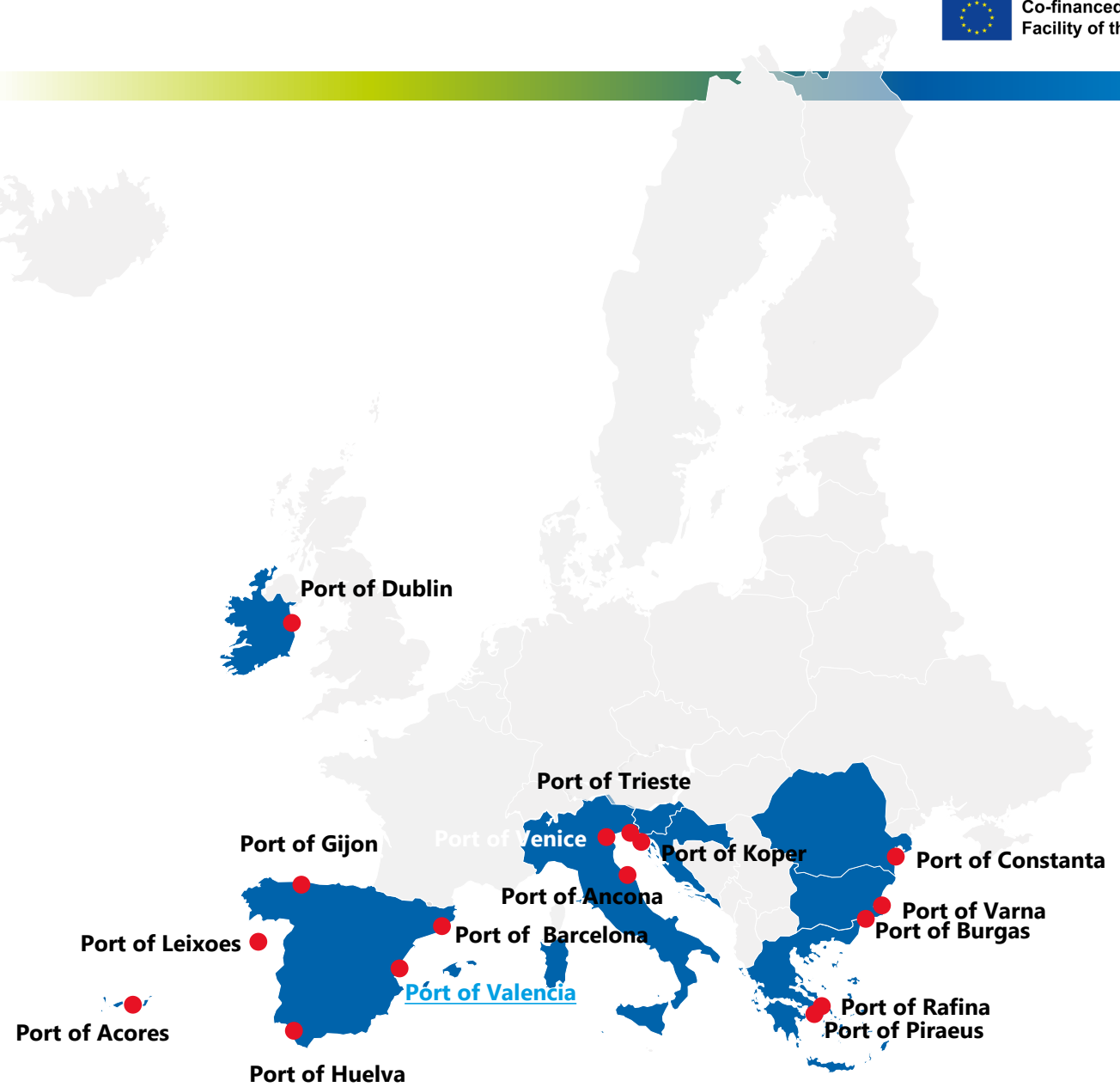
ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	70 kW	offshore supply vessels
2	70 kW	offshore supply vessels
3	70 kW	offshore supply vessels
4	28 kW	research boat
5	3-4	pilot units
6	3-4	tug boats
7	3-4	service boats (eg boats dedicated to waste collection)



FEED Studies for the port of Barcelona, Spain



ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	3.5	Containership
2	3.5 or 7	Containership
3	16	Passenger
4	16	Passenger
5	16	Passenger
6	16	Passenger
7	16	Passenger
8	3	Ropax/Ferry



FEED Studies for the port of Valencia, Spain

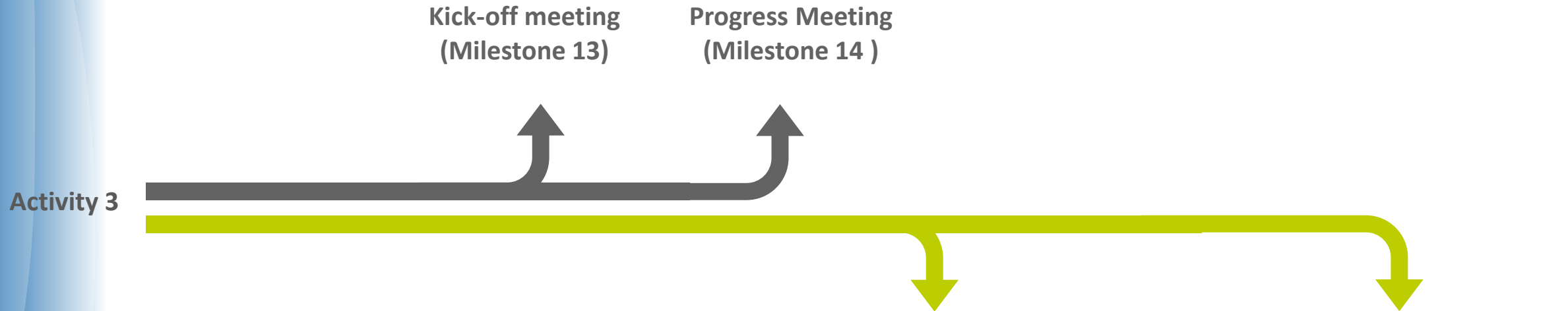


ACTIVITY 3.- Technical studies for the electrification infrastructure of the participating TEN-T maritime ports		
OPS points	Power (MVA)	Serving Vessels
1	7.5	Containership
2	7.5	Containership
3	16	Passenger
4	16	Passenger
5	4	Ropax/Ferry
6	3	Ropax/Ferry

A large, bold, blue number '4' is positioned on the left side of the slide. The background is a gradient of blue and green, with a white curved shape on the right side.

Next steps

Timeline of Activity 3



By the end of the project...

- 16 European Ports
- more than 90 OPS positions
- Over 200MW will be installed

Activity 3 Final Meeting
(Milestone 15)

Front-end engineering design studies and
other necessary technical studies feeding
directly the tender specifications in the
ports of the consortium.
(Milestone 16)

Thanks!



European flagship Action for coLd ironING in ports

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Discover more at

www.ealingproject.eu



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