



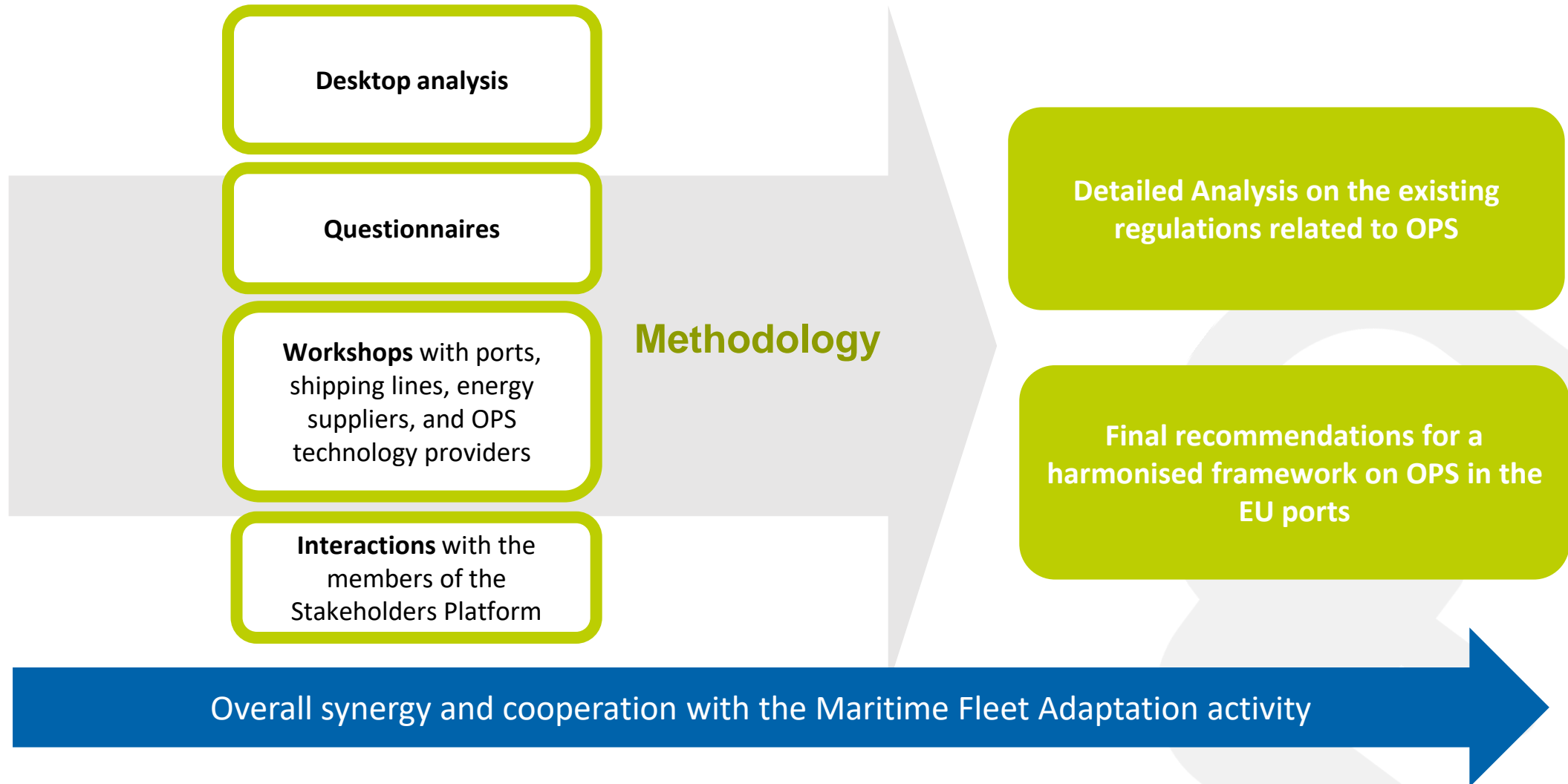
European flagship Action for cold ironING in ports

Harmonised Framework for the electrification of the participating TEN-T maritime ports

EALING Final Event

Alexio Picco

Valencia, 30 November 2023



54 ports surveyed, from
15 EU Member States

Port Questionnaire

A - GENERAL INFORMATION

It provided information to know the type of port or terminal under study (traffic type, governance model, etc.).

B - TECHNICAL ASPECTS RELATED TO OPS

It included technical data regarding the status of OPS implementation in the participating ports.

C - SPECIFIC REGULATORY AND ADMINISTRATIVE ASPECTS

It collected information on the relevant regulatory aspects at EU / national level and administrative procedures.

D - OTHER ASPECTS (SUCH AS FINANCING, BUILDING FACILITIES AND RESOURCES)

It provided information on other related aspects, such as financing or incentives schemes, barriers at construction level, and training needs and profiles.

E - ADDITIONAL INFORMATION

It included additional information freely provided by the respondent.

Port Questionnaire

54 ports surveyed, from
15 EU Member States

- 1** **Cost of installations** compared with cost of operation, cost of electrical power and economic viability of the service, lack of pricing and taxing framework
- 2** Status and capacity of the port electricity grid (power constraints, etc.)
- 3** Lack of technical and operational expertise about shore side electricity for ports (implementation). Estimation of the power demands in the ports, in particular per hours for different size of ships (different technical solutions and standards (i.e. 50 Hz or 60 Hz, 11 kV or 6.6 kV) for different types of berths/ships)
- 4** Defining role / responsibility / expectations of stakeholders, and split incentives
- 5** Lack of legislative drivers for OPS installation and operation (regulation of the service)
- 6** Selection of the service operator

Interactions with key port and shipping stakeholders



Event News

EALING Workshop with Shipping Lines – Towards a harmonised onshore power supply development in Europe

May 10, 2021



Event News

EALING Workshop with Associations – Towards a harmonised onshore power supply development in Europe

February 26, 2021



Event News

Webinar – Shore power in the Baltic and Mediterranean – development & challenges

February 17, 2021



News

EALING – OPS Solution Providers Workshop | 12th July 2022

July 14, 2022



News

EALING – Energy Suppliers Workshop | 5th July 2022

July 14, 2022



Event

EALING West Med Macro Regional Workshop | SeaFuture2021

August 12, 2021



Event

Best Practices exchange – EALING joins forces with Four Ports

August 4, 2021



Event

EALING West Med Macro Regional Workshop

July 26, 2021



News

EMSA Guidance on Shore-Side Electricity (SSE)

August 4, 2022



EALING Questionnaire for Ports & Terminals

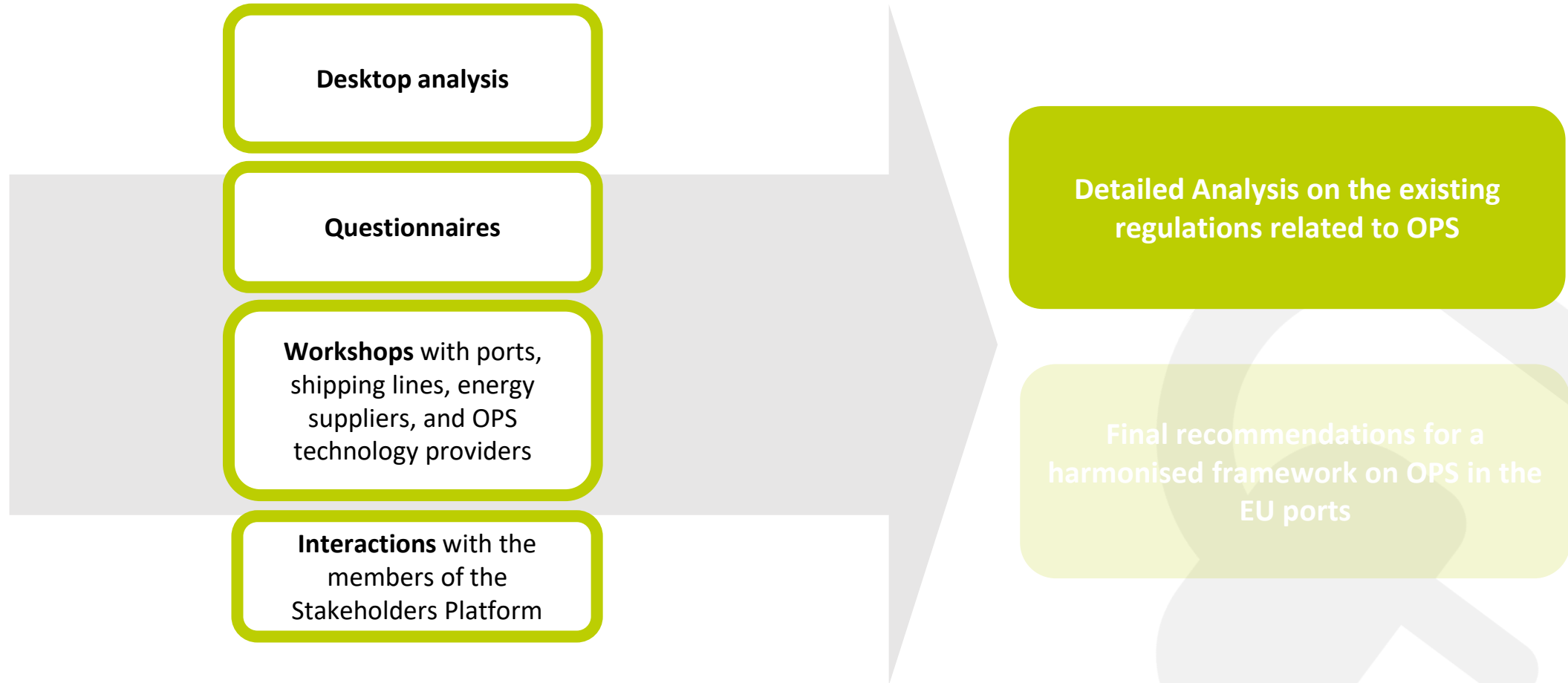
In the context of the European Green Deal, the "EALING" Motorways of Electricity contributes to the Global Project aiming to accelerate the transition to electrification of Onshore Power Supply (OPS) solutions in at least 16 EU maritimes. <https://ealingproject.eu>

News

The Online Consultation for Ports and Terminals started

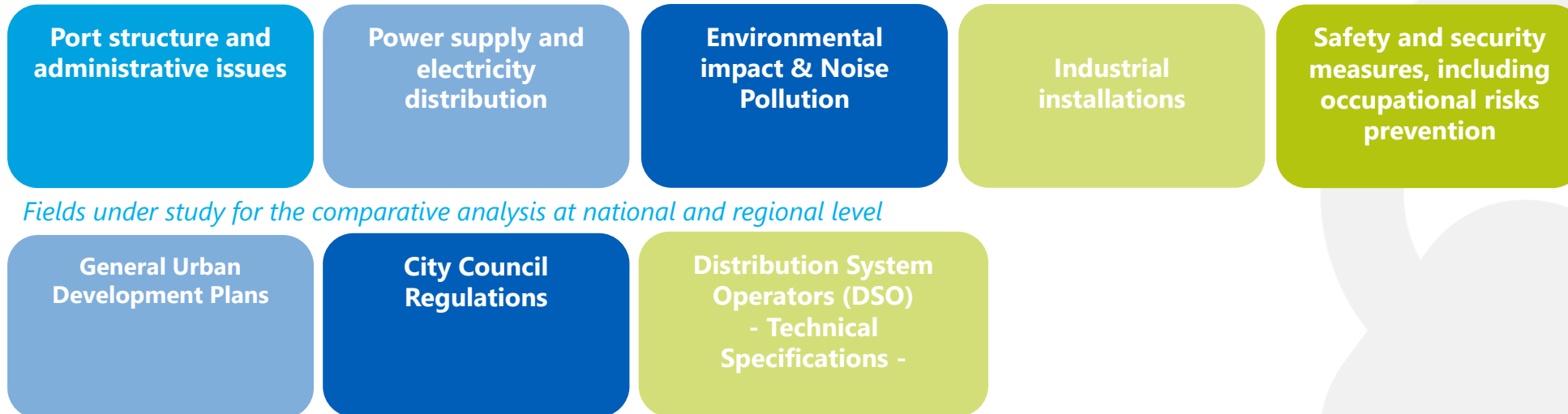
May 15, 2021

Detailed Analysis on the existing regulations related to OPS



Detailed Analysis on the existing regulations related to OPS

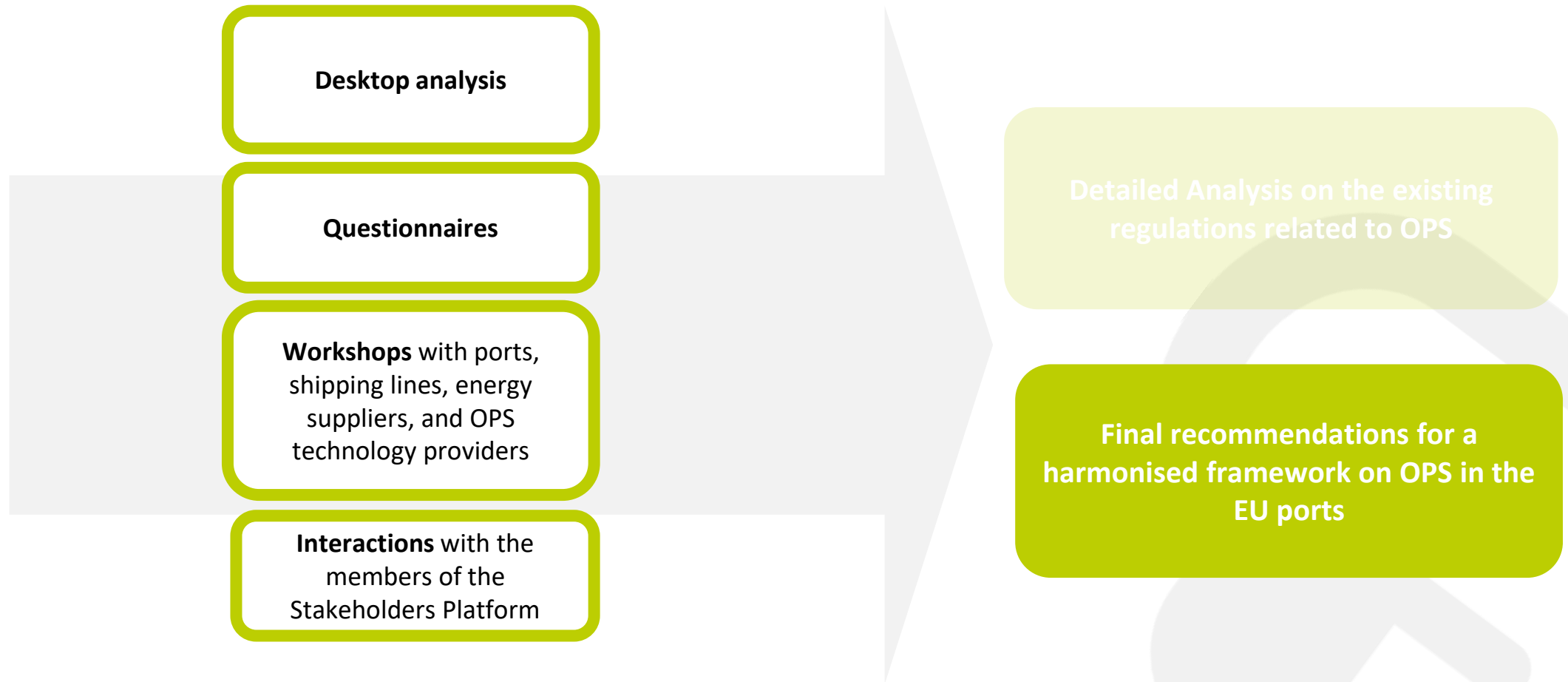
- INTERNATIONAL REGULATORY FRAMEWORK (standards, classification societies class notations, IMO)
- EUROPEAN REGULATORY FRAMEWORK (existing and future regulations affecting OPS, EMSA)
- NATIONAL, REGIONAL AND LOCAL REGULATORY FRAMEWORK - EALING PORTS:



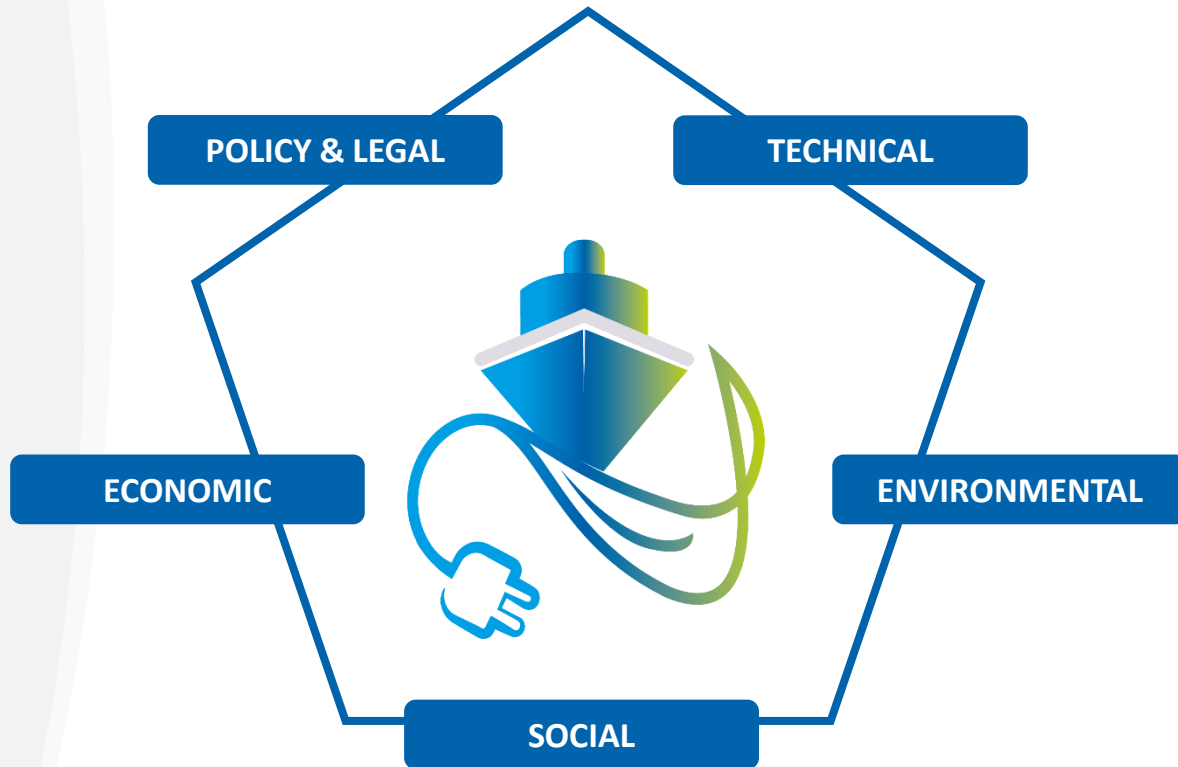
Fields under study for the comparative analysis at national and regional level

Fields under study for the comparative analysis at local level

Results on Final recommendations for a harmonised framework on OPS in the EU ports



Final recommendations for a harmonised framework on OPS in the EU ports



- Structure inspired in the PESTLE methodology
- List of 40 recommendations

Final recommendations for a harmonised framework on OPS in the EU ports

POLICY & LEGAL



- Simplify and harmonise **administrative burden at the national, regional, and local levels** (resulting from the application of regulations) to build and operate SSE infrastructures.
- **Facilitate the involvement of port authorities in the development and operation of their electricity distribution systems** to provide the necessary quantities of electricity to their end-users. This could be done by ensuring through Member States' legislation that this possibility exists and/or by allowing/promoting ports to become energy hubs and/or renewable energy communities, capable of injecting excess renewable energy production into the grid and trading it on the different electricity markets.
- Clarify in the forthcoming EU regulations **who will be responsible for what:** construction, operation, and maintenance of SSE facilities.
- Increase the intensity of **public funding**. In this sense, the revenues raised via the EU Emission Trading System (ETS) could be used to fund SSE installations.
- Include **tax exemption for electricity** provided to vessels at berth in the revised Energy Taxation Directive.

Final recommendations for a harmonised framework on OPS in the EU ports

TECHNICAL (1)



SSE connection at vessels	<ul style="list-style-type: none"> • There should be some standardisation or guidelines regarding the position of the SSE connection for each type of vessel. • Appropriate training is needed, especially on safety aspects regarding shore-ship compatibility. Operation manuals should be produced to help speed up the process onboard. IMO guidelines under preparation are expected to provide support on the safety aspects. • There is a need for technical and regulatory harmonisation when implementing SSE connection on board.
Tender processes	<ul style="list-style-type: none"> • Mandating joint ventures in the tender processes may not be a good approach because it will limit the participation of companies. To secure the feasibility of a project, the provider or company that will apply to the tender process may sign specific arrangements with the suppliers. • Experts should review the SSE project specifications to validate their feasibility before being included in tender terms of reference. • Requirements at the tender processes do not need to be very detailed because this will limit and exclude other possible and viable solutions. It is recommended to define good requirements, let the providers innovate and provide the best technical solutions to the tender calls.
Regulations and standards	<ul style="list-style-type: none"> • Promote regulatory sandboxes that allow designing and testing new, more flexible tariffs specifically for SSE service may facilitate recovering the investment. • Keep working on and improving the international standard for Shore Connection (IEC/IEEE 80005). • Broaden the scope of IEC 80005 to include Shore side Battery Charging and Shore Power Banking.

Final recommendations for a harmonised framework on OPS in the EU ports

TECHNICAL (2)



Assessment of power demand

- **Demand assessment studies** are highly recommended at different levels (port, terminal, berth) to reduce uncertainty and take decisions regarding future power and energy supply needs.
- **Load forecasting models** will be needed to reduce uncertainty in the day-to-day operation of energy supply, to balance supply with demand in advance and (perhaps) to reduce volatility energy price.
- Define proper power demand values to size the SSE infrastructure. Apply energy survey-based **power demand estimation**, including a representative set of port calls before the design phase. Confirm with representative ships their **operating profile at berth**, using questionnaires and considering the approved electric load balance of the different vessels to reference a maximum electrical power demand at berth.
- Define a methodology to obtain **simultaneity coefficients** and decide on design factors (diversity/simultaneity factor) based on documented exchange with operators.
- Produce and give access to a **public repository of SSE-ready vessels and their characteristics**.
- Build power demand curves and load duration curves for the different representative ships.
- In line with EMSA recommendations, **apply power allocation to specific ships**, with maximum power allocation associated with the compatibility assessment file.

Final recommendations for a harmonised framework on OPS in the EU ports

ECONOMIC (1)



- Develop detailed power demand studies at port level to know its **future energy needs**. Close cooperation between shipping lines and ports should be encouraged.
- **Develop a Cost-Benefit Analysis** before implementing any SSE infrastructure to avoid the misallocation of limited resources and ensure the feasibility of the investment. In the CBA, it is important to consider if the grid upgrade is needed to operate the SSE installations.
- Consider the following aspects in any **feasibility study for an SSE project** (market/financial/economic aspects): demand evaluation; customised/tailored contract; electricity pricing and opportunities; competitors; market and financial evaluation; evaluation of economic cost-benefit; and impact assessment of shore side electricity in port/local economic profile.
- Create additional **funding** mechanisms (e.g., maritime fund under the EU ETS) to cover a bigger part of the needed investments. Existing mechanisms (CEF, Recovery Funds) are not sufficient to reach the desired deployment.
- Increase the percentage of **funding** in existing mechanisms. 30-40% is still too little for the important investments needed in European ports.
- Have a permanent and comprehensive EU-wide **tax exemption** for the use of SSE in ports under the Energy Taxation Directive, which would put it on an equal footing with electricity generated on board ships and produced from tax-free marine fuel combustion.
- Encourage the application of **port fee rebates** for shipping companies at ports at the EU level.

Final recommendations for a harmonised framework on OPS in the EU ports

ECONOMIC (2)



- Establish and/or negotiate an electricity tariff at national level (or regional, depending on the context) that allows for competitive and predictable rates, thus encouraging shipping companies' decision to connect, especially in cases where they are not obliged to do so. **Specific rates for SSE** that consider its special characteristics (for instance, a variable power rate) would contribute to a better economic result.
- Incentivise, at EC level, the interaction between shipping companies, port authorities, solution providers and energy suppliers through specific **working groups**.
- Encourage EU ports to join the Environmental Ship Index (ESI), thus encouraging ships to connect to shore-side electricity.
- Consider the port as an **energy community** (as mentioned previously in the policy and legal scope section).
- Create a mechanism where the **price of energy depends on the destination of the energy**, favouring those consumers who contribute to meeting the objectives of the European Green Deal, as is the case with the SSE.

Final recommendations for a harmonised framework on OPS in the EU ports

ENVIRONMENTAL



- Promote the creation of an **environmental certificate** addressed to shipping lines, focusing on the use of electricity when at berth, following the example of ESI, Green Award, CSI, or Blue Angel label. Ports could use this index to reward ships with better environmental performance, especially for their compatibility with SSE beyond regulatory requirements.
- Encourage the registration of ships in the **Clean Shipping Index (CSI)**. Any vessels equipped onboard with the required SSE technology achieving a high score in CSI could access rebates in the participating European ports.
- Include in the **THETIS MRV scheme and IMO DCS** information on the technical specifications of each ship to facilitate the SSE service during the port calls.

Final recommendations for a harmonised framework on OPS in the EU ports

SOCIAL



- Incentivise, at EC level, **interaction and collaboration between all stakeholders**, especially shipping companies, port authorities, solution providers and energy suppliers.
- **Involve the public** in the port's SSE plans. Make them aware of the positive impact SSE will have and the importance of working together for the common benefit of improving the health of citizens, with the ultimate goal of gaining their acceptance and facilitating necessary future actions outside the port (e.g., grid expansion).
- Create a specific **working group at port level** involving all operational stakeholders to ensure proper coordination and management of the facilities.
- Develop 1) **operational manuals** to train port operators, and 2) **guidelines** to train port stakeholders on financing and regulation/legislation aspects related to SSE installations.
- Work closely with universities and vocational training centres to cover the training profiles needed for SSE operations.

Thanks!



European flagship Action for coLd ironING in ports

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Discover more at

www.ealingproject.eu



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