



Position of the European Sea Ports Organisation
on the
Proposal for Alternative Fuels Infrastructure Regulation ('AFIR')

(COM (2021)559 final)

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Proposal on the use of renewable and low-carbon fuels in maritime transport
and amending Directive 2009/16/EC ('FuelEU Maritime')

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Introduction

The European Sea Ports Organisation (ESPO) fully supports the European Green Deal ambition and the 2030 and 2050 goals enshrined in the EU Climate Law. The transport sector as a whole has an important role in helping to lower EU greenhouse gas emissions, which should be achieved whilst guaranteeing a level playing field with other modes and avoiding a modal shift.

The greening of the shipping sector is a priority. The development and deployment of new fuels and energy solutions for the maritime sector is the most important pillar of this greening process. **The energy transition in the shipping sector will require investments on the ship side but will also imply significant investments in infrastructure on the landside, in particular in ports.**

The development of alternative fuels and technologies for shipping is still in an early stage, but progress is expected. It is however still not clear which fuels and technologies will be the most prevalent in the shipping sector. The choice of fuel or technology will likely be different for different shipping segments, and certain ships might even combine different fuels and technologies. This makes it very difficult for ports to have a long-term perspective on their investments.

Any legislative framework that regulates the supply of clean fuel infrastructure for shipping and sets requirements for ports must take this lack of a long-term perspective, as well as the multi-fuel future, into account. In order to avoid stranded assets with no results in terms of emission reduction, EU legislation should provide **a future-proof legislative framework that provides legal and investment certainty for ports.**

ESPO truly believes that **a goal-based approach which respects the polluter pays-principle would deliver best in terms of effectively reducing emissions, whilst maintaining a level playing field and avoiding the creation of stranded assets.**

In accordance with the requirements set out in the current Alternative Fuel Infrastructure Directive from 2014 (2014/94/EU), many European ports have already invested in fixed and mobile LNG refuelling infrastructure and shore-side electricity (SSE) facilities¹. While these SSE-investments help reduce emissions at berth when they are actually being used, installing and providing such infrastructure remains a complex and costly exercise, with a limited and slow return on investment for the managing body.

ESPO recognises that the greening of the shipping sector requires a review of the current Alternative Fuel Infrastructure Directive, and **welcomes in that respect a Proposal for a Regulation on the deployment of Alternative Fuel Infrastructure (hereinafter: 'AFIR')**.

Any requirement to provide shore-side electricity (SSE) in ports must be matched by corresponding requirements for the vessels to use this infrastructure, where ships should connect to SSE as soon as possible.

In this respect, **Europe's ports very much welcome the Proposal on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC (FuelEU Maritime)**. The proposal is necessary to match the available and future supply with demand by requiring vessels to use shore-side electricity (SSE) infrastructure at berth.

Full alignment between AFIR and Fuel EU Maritime is key

In order to green shipping in an effective way, the AFIR proposal cannot be considered in isolation. **A coordinated approach to match the supply of infrastructure with the demand for clean fuels and technologies is needed.** Europe's ports welcome that the review of the current AFIR proposal is accompanied by provisions in the new FuelEU Maritime proposal, which requires vessels to use shore-side electricity infrastructure at berth.

Below, ESPO outlines its position on port-relevant parts of the AFIR and FuelEU Maritime proposals. From a ports perspective, the new requirements for the provisions of on-shore power supply in all TEN-T maritime ports, as set out in Article 9, and the targets for the supply of LNG in maritime ports, as outlined in Article 11, are the most relevant provisions in the AFIR.

For FuelEU Maritime, Article 4 on greenhouse gas reductions for shipping, Article 5 mandating the use of shore-side electricity for certain shipping segments, and Annex III are the key provisions in the FuelEU Maritime proposal.

¹ Findings from the [ESPO 2021 Environmental Report](#) show that over 50 ports in Europe provide SSE at one or more of their berths. Whilst the majority of installations are fixed installations, around 14% of SSE is provided through mobile installations. The [2021 EMTER Report](#) finds that 31 ports in the EU have already implemented high-voltage SSE.

ESPO position on the AFIR

1. Targets for shore-side electricity supply² in maritime ports (Article 9 AFIR)

The Commission proposal (Article 9) foresees the provision of shore-side electricity for container, passenger and ro-ro passenger vessels in all TEN-T ports by 2030. The measure applies to all ports which exceed a minimum number of annual calls from vessels over 5000 gross tonnes in each of the relevant ship segments. Ships that spend a short time at berth (less than two hours) and/or that use specified alternative zero-emission technologies as well as unscheduled calls for safety reasons are excluded from the scope. Islands that are not directly connected to the grid are also exempted. When shore-side electricity has to be provided, ports have to provide “sufficient shore-power output to meet at least 90% of that demand”.

ESPO calls for shore-side electricity where it makes sense³. SSE is an important tool and part of the solution for greening the shipping sector. Even if the emissions at berth only count for 6% of overall shipping emissions⁴, it is an important technology to reduce GHG emissions in ports. However, SSE should not be seen as an end in itself. Ports take into consideration that other existing and potential future technologies which tackle emissions at berth and during navigation could also be used instead of shore side electricity.

Therefore, to ensure both a rapid deployment of SSE and avoid a waste of public funds, Europe’s ports must be able to **prioritise the deployment of SSE where it makes sense in terms of delivering cost-effective reductions of greenhouse gas emissions at berth.** In this respect, several different factors are of importance: shipping segment, regularity of calls (frequent users), geographical location, etc. Ships that regularly call at the same berth and have a long stay at the quay are for instance ideal candidates for using OPS.

To ensure the effective roll out of SSE in Europe’s ports:

- **ESPO proposes to define the scope** based on a minimum level of traffic volume **per terminal** (instead of per port) to prioritise busy terminals and avoid underused capacity being installed. Given the cost and complexity of the deployment of SSE, it seems to be very inefficient to oblige terminals and/or berths which are occasionally used or occasionally called at to be equipped with SSE. Whereas the provision for time at berth is feasible, it should be assessed whether it is environmentally efficient to provide SSE to ships that are at berth for a shorter time period. It is important to note that this delimitation of the scope through calls by terminal instead of port does not have any impact on the responsibilities to implement these requirements in the port, which depends on the governance and organisation of the port in the different Member States.

² The terms onshore power supply (OPS) and shore-side electricity (SSE) are often seen as equivalents, with regional differences in terms of the preferred term. In keeping with guidance developed by the European Maritime Safety Agency (EMSA) and the approach of the IMO OPS Guidelines, ESPO uses the term shore-side electricity as an overarching term that includes the different services provided (OPS, battery-charging, battery-swapping, port microgeneration, etc). The term is wider and provides more flexibility, capturing the various ways that ships connect to power supplied in ports. Crucially, the term shore-side electricity does not necessarily include the provision of “local power terminals, and grid connection/capacity”, which is included in OPS in accordance with the IEC/IEEE 80005 series.

³ ESPO Communication (2021): [Towards an intelligent legislative framework for Onshore Power Supply](#)

⁴ [2020 Annual Report on CO2 Emissions from Maritime Transport](#)

- **ESPO calls for shore-side electricity (SSE) to be assessed in good time against current and future alternative equivalent technologies provided in Annex III of FuelEU Maritime.** The list should be open and criteria should be put forward allowing future technologies to be taken into account (see below ESPO's proposals on the Fuel EU Maritime).
- Whilst all vessels should contribute to lowered emissions at berth, the **largest container vessel segment which has the most potential in reducing emissions at berth should be prioritised for SSE.** Terminals who are called on by large container vessels should fall in the scope of SSE requirements more easily. If a terminal serving large containers falls in the scope, it should also provide all other vessels above 5000 GT calling on the terminal with SSE. Terminals which accommodate the smaller container vessels should also be covered by SSE requirements, but should only come into the scope if they have a slightly higher number of calls overall.
- ESPO suggests to **make the distinction between cruise vessels and other passenger vessels clearer,** since they serve different markets, have different operating profiles and requirements, and call at different berths in ports.
- ESPO suggests changing the time of port calls in Article 9(a) to be based on **estimated time of departure and arrival,** in order to have a predictable scope of where to provide SSE, facilitate planning of investments and minimise administrative burden. In relation to the 2 hours at berth-requirement, consideration should be given to the fact that when vessels (such as feeders) make several short calls to load and unload at different berths in the same port, it could be counterproductive to connect/disconnect the vessel to SSE at each individual berth from an environmental standpoint. Therefore, based on the time and effort that is needed to connect a vessel to SSE at berth, it only makes sense to do so at the main berth called upon by the vessel.
- ESPO also proposes to simplify what ports and terminals need to provide for, once they fall in the scope of AFIR SSE requirements. To this end, ESPO proposes that, once in the scope, SSE has to be provided to serve at least **"90% of calls"** at the given terminal.
- Once a port has decided to install SSE, it has a strong interest in having it be fully used. The electric power to the SSE installation will mainly come from the grid connection outside the port. Frequency conversion issues and grid capacity limitations or power reserve issues are some issues related to the deployment of SSE. Oftentimes the grid connection available outside the port doesn't have enough capacity to meet the power demand from SSE, and it can take several years to upgrade or expand the grid infrastructure to meet the new demands. Over a transitional period, grid capacity limitations can therefore make it difficult to meet the '90% of calls requirement' at moments of peak demand, especially when there are seasonal peaks. Therefore, especially terminals accommodating various vessels at berth simultaneously (i.e., container and cruise vessels) might not be in a position to meet this requirement until enlargements of their SSE facilities are realised.
- **The energy production capacity in both islands and outermost regions of the EU might not always be enough to meet the demand for shore-side electricity** supply due to not having a connection to the main grid, or insufficient local capacity to generate renewable electricity. In the AFIR proposal, islands have an exception from the obligation to provide SSE in Article 9(3). Outermost regions should be treated in the same way as islands in AFIR, and be exempted from the requirement to provide SSE unless such an electrical connection with the main grid has been completed or there is a sufficient locally generated capacity from clean energy sources.
- It is crucial that Europe's ports have a **stable framework** to work in. The AFIR proposal should therefore define a moment on which the scope (where to provide SSE) is being determined. This cannot be challenged every year in function of changing port calls. Once a terminal falls

in the scope it remains in the scope, unless it concerns a temporary berth. The calculation of average number of port calls that decides whether a terminal in a port falls in the scope of shore side electricity requirements in accordance with Article 9 should be specified in the national policy framework. The calculation should also take into account changes in the number of calls due to port planning decisions and foreseeable market developments affecting the use of certain berths in a port. The time span should be decided (by 2025) in such a way that it leaves sufficient time for the deployment of the shore side electricity infrastructure.

- ESPO finally proposes to clarify the **definition of “ship at berth”** for the purpose of this Regulation. Providing SSE while mooring or at anchorage is not feasible from a safety and efficiency perspective, and should be excluded. It must be clear that ships should connect at the berth where goods/passengers are loaded and/or unloaded.

2. Connection to the grid, grid conversion and adequate grid capacity

The use of SSE by ships will require large amounts of grid capacity, and can even impact the power reserve in ports. In many cases, the requested capacity to be provided by a SSE installation cannot be handled by the existing port grid, meaning that strengthening of the port grid, and in many cases the general grid, will be needed. As an example, the energy needs of a cruise vessel at berth vary significantly between 4.8 and 20 MW. This means that a port providing 12 MW SSE at berth (which is sufficient for the vast majority of calls by cruise ships) will be able to serve most cruise ships individually, but could potentially struggle to meet the demand of several large cruise ships calling at the port at once with the shore-side electricity installations and grid capacity available in the port.

On top of that, **investments in frequency conversion** will be needed. Europe’s grids operate at a 50 Hz frequency, as a large part of the grids operated in the world, whereas some vessels require 60Hz when connecting to shore-side electricity. Unlike the US, whose grid operates in 60 Hz, existing and planned SSE installations in European ports use 50 Hz consistently with Europe’s grid. Therefore, the easiest way to avoid any incompatibilities would be for vessels calling on the EU to ensure that the installations onboard are aligned with the SSE installations at berth. Ports has not been designed and built with the objective to distribute electricity to vessels at berth. If a grid converter needs to be provided at berth in addition to the SSE installation (which might often be the case), it results in a doubling in total investment costs and in making the project more complex.

Additionally, **the demand of OPS in ports could see peaks** during certain periods (e.g., seasonality of certain traffics), which could coincide with peak demands in other sector of the economy, such as heavy industry located in and around ports, or peak demands in the neighbouring city, leading to a demand of energy which exceeds the local energy production capacity. Such potential (temporary) shortages of grid capacity should not be considered as failure by the terminal or port to supply SSE.

Currently, **the Commission AFIR proposal does not address the issues of grid connectivity, grid capacity and power reserve and frequency conversion, which are linked to the provision of SSE at berth.**

ESPO:

- Calls for **an explicit reference** in the AFIR proposal to grid connection and the need for sufficient grid capacity to be provided by the Member States.
- Believes that **potential (temporary) shortages of grid capacity should not be considered a failure to supply SSE.**

- Highlights that **grid converters and the upgrade of the grid can be required** to enable the supply of shore-side electrical power to certain vessels, which entails additional costs and complexity.
- Stresses **the need to get more accurate information about the power needs of a given ship at a given port**: whereas each ship might have an estimated power need at berth, the real power needs at a port of call can vary in function of load (e.g., reefer containers will need a lot more power to cool the goods) or number of passengers in case of a cruise vessel. In view of providing sufficient grid when different calls have to be served simultaneously, it is important to be informed of special (high) power needs at a given port, certainly in case the estimated needs exceed the normal needs. This is also important when ports, in view of optimisation, want to assess which calls make most sense, i.e., can generate the greatest emission reductions, when connected to SSE.

3. Targets for supply of LNG in maritime ports (Article 11 AFIR)

In the Commission proposal, Member States must ensure that an appropriate number of refuelling points for LNG are put in place at TEN-T core maritime ports to enable ships to circulate throughout the TEN-T core network by 2025.

Given the transitional role of LNG, **ESPO finds that the availability of LNG bunkering infrastructure in ports should in essence be demand driven**, in particular as regards new investments.

ESPO:

- therefore proposes to **more explicitly include the demand element in Article 11** which would ensure the availability of a core network of refuelling services for LNG by 2025 to serve the demand by seagoing ships. While ESPO recognises the transitional role of LNG, a top-down obligation to install LNG is no longer fit for purpose. The potential use of available LNG infrastructure for alternative uses such as the bunkering of bio- or synthetic LNG is a possibility.

4. Coherence between the different proposals of the Fit for 55-package

European ports underline the need for a holistic approach to addressing transport greening policy, as part of the recently published Fit for 55-package. There should also be an overarching impact assessment of the cumulative impact on the maritime and port sector of the various proposals introduced under Fit For 55.

In order for the package to be effective, the different proposals in the Fit for 55 must be aligned and coherent. This is certainly the case for the **AFIR and the FuelEU Maritime proposals**. Aligning FuelEU Maritime and AFIR will be key. The two different proposals must mirror each other to some degree, in order to ensure that the SSE installed in ports is used by ships at berth.

ESPO finds that:

- in view of achieving a fully coordinated approach between supply and demand, the **AFIR and FuelEU maritime proposals should be discussed in parallel** throughout the legislative process in Parliament and Council and ultimately adopted as one package.
- to encourage the deployment and use of SSE based on the strict requirements in AFIR and FuelEU Maritime, the proposals should be accompanied by **the introduction of an EU-wide**

permanent tax exemption for SSE in Article 15 of the proposal for a reviewed Energy Taxation Directive (COM) (2021563 final). Such an exemption would also ensure a level playing field in the maritime sector.

5. Need for coordination between all relevant stakeholders in individual ports for the implementation of Article 9 and 11 (AFIR) and Article 5 and Annex III in Fuel EU Maritime

To ensure an effective implementation of Article 9 and Article 11 of the AFIR proposal, a consultation mechanism should be set up at port level, obliging users to consult/inform the managing body, terminal operator and/or competent authority about their intentions to make use of SSE or one of the other technologies in Annex III, as well as their demands for LNG (where relevant). Moreover, in case of use of SSE, shipping lines should also properly inform the port of call about their exact power needs when calling at a given port, in particular when these exceed the average power needs of the given ship category.

In accordance with Article 9 of the AFIR proposal, SSE does not have to be provided in case other “zero-emission technologies” are used by vessels at berth. ESPO believes it is essential that the provider of the port infrastructure, e.g., the port managing body or - where relevant - the terminal operator or competent authority, and the users consult each other on current and future demands and needs with regards to SSE. Terminals and/or berths being used by shipping operators which use or expect to use one of the “zero-emission technologies” in the near future do not need to be equipped with SSE.

The same applies for LNG in accordance with Article 11, as it is important to know the future demand for LNG.

ESPO proposes:

- to consider a consultation and coordination mechanism between stakeholders at port level about 1) current and future needs of SSE and LNG, compared to other alternatives, 2) technical specifications in order to avoid incompatibilities between infrastructure provided at berth and technologies installed onboard and 3) specific power needs when using on shore power during a given port call, certainly when this demand exceeds the normal estimated needs.

6. The need for a comprehensive financing plan as part of National Policy Frameworks (Article 13 AFIR)

An ambitious SSE deployment plan in ports requires adequate funding, since every SSE facility installed so far has been supported by 50% or more public financing. Providing the funding needed to achieve 55% emission reductions by 2030 is crucial to the deployment of SSE infrastructure. Reaching this ambitious reduction target entails significant support from local, regional, national, and European funding instruments to support alternative fuels infrastructure, bunkering and production capacity, and the retrofitting of existing ships. The SSE installations themselves are very costly.

To give an indication, an SSE installation for container ships can cost between one to three million Euro, depending on the number of connection points needed, the cable management system, the distance to the power substation etc. For other ship types, the cost of installing an SSE system can be approximately double that.

This cost comes with no return on investment as long as there is no obligation to use. It is hence clear that the ports will have to pre-finance the SSE investment up to 2030. To facilitate such investments, vessels should be encouraged to use SSE, when available, already before 2030. To encourage the reduction of emissions in navigation and at berth in all ports and preserve the level playing field, it is important that ports outside of the TEN-T network can also apply for funding for SSE.

ESPO calls for:

- including a **comprehensive financing plan in the National Policy Frameworks** of the Member States.
- **dedicating sufficient public investments** to the deployment of SSE, including for investments going beyond AFIR requirements (e.g., ports outside the TEN-T Network).

7. The implementation of AFIR must consider the different governance models within the European port sector

The governance of port managing bodies in Europe is diverse. The implementation of the requirements put forward in the AFIR proposal will be the responsibility of EU Member States. Depending on the governance and organisation model of ports in the specific Member State, the implementation can include the port managing body, the terminal operator and/or the competent authority. This diversity in governance and organisation models has to be recognised in the AFIR, and reflected in the requirements for the provision of alternative fuels infrastructure.

ESPO position on FuelEU Maritime

1. Effective and significant emission reductions from shipping both during navigation and at berth must be achieved

ESPO calls for **an ambitious and effective emission reduction path** to be provided in Article 4 of the FuelEU Maritime proposal. Delivering on this should be achieved through significant reductions of emissions by all shipping segments both in navigation and at berth.

The **prioritisation** of certain shipping segments for the use of shore side electricity in Article 5 of FuelEU Maritime does not exempt other ship segments from the requirement to lower emissions at berth.

In order to ensure the effective use of the shore-side electricity infrastructure provided at berth, ESPO calls for **fewer exceptions from the requirements to use SSE** set out in Article 5. Standards for shore-side electricity are already available for the installations at berth, and additional guidance is currently being developed by the European Maritime Safety Agency (EMSA). Any guidance and new standards should be aligned with existing and future standards developed on the global level by the International Organization for Standardization (ISO) and the International Maritime Organization (IMO). By 2030, ships will have had ample time and opportunity to foresee and adapt to these long-standing standards when planning and investing in SSE onboard, thereby avoiding incompatibilities.

ESPO calls for:

- the contribution of the use of shore-side electricity (SSE) or other alternative solutions as outlined in Article 5 to be explicitly included, and accounted for, in Article 4;
- the engagement of all shipping segments towards lowering emissions at berth and in navigation by 2030 and beyond;
- limiting the exception in Art 5(3)e of FuelEU Maritime for incompatibilities between the shore-side electricity installation at berth and the installation onboard vessels to the case of frequency conversion;
- the European Commission together with relevant EU agencies such as EMSA to develop technical specifications for SSE installed onboard vessels, including, where applicable, frequency standardisation, plug specifications, and standard areas for plugs and flexible cable management system locations onboard.

2. Need for coordination between all relevant stakeholders in individual ports

Collaboration will be essential to boost the use of OPS and deliver on real emission reductions. ESPO calls for the introduction of a consultation mechanism for all stakeholders in individual ports, which will help ensure the use and compatibility of shore-side installations available onboard vessels and at berth.

Such consultations would help match the infrastructure supply that is planned and deployed in ports and at specific berths with the demand expected from vessels calling on these ports in line with the requirements from Article 9 of AFIR.

Moreover, there is a need for more information on the available SSE installations onboard vessels calling on ports in the EU. Such information is urgently needed to guarantee the effective

implementation of the AFIR requirements and to avoid making costly investments in SSE installations that will not be used.

3. Align the FuelEU requirements with AFIR provisions to enable planning and deployment of SSE

It is crucial that the FuelEU requirements mirror what is set out in AFIR in order for the sector to deploy SSE where it makes sense, and to ensure the use of installed SSE installations. The planning and installation of shore-side electricity at any given terminal in a port takes up to five years. Installing an SSE installation onboard a vessel can be done in a shorter time span.

ESPO supports:

- encouraging the uptake and use of available SSE at berth by vessels before 2030 to improve the pre-financing of the necessary SSE installations required in AFIR.
- aligning the time for review set out in Article 28 of FuelEU Maritime with AFIR (Article 22), calling for a review of the requirements for use of SSE at berth by 2026.
- changing the time of port calls in Article 5(3a) of FuelEU Maritime to be based on estimated time of departure and arrival, in order to facilitate planning and minimise administrative burden.
- having the managing body of the port of call, or where relevant the terminal operator or the competent authority, to issue the Certificate of Compliance as set out in Annex IV of FuelEU Maritime, depending on the governance model of the port.

4. Foresee criteria to future-proof list of alternatives to SSE (Annex III of FuelEU Maritime)

It should be possible for vessels to use equivalent technologies to SSE. The list provided in Annex III of the Fuel EU Maritime proposal is limited and does not cater for new upcoming solutions and technologies. To stimulate innovation and guarantee future proof legislation, the proposal should be complemented and if possible be accompanied by criteria allowing new technologies to be accepted as equivalent alternative solutions. Such criteria for alternative solutions such as use of alternative fuels should also consider upstream emissions. In addition, there should be a review clause included in the Annex to ensure that it can be updated over time.

5. To be fit for 55, there is a need to fund for 55% emission reductions

Significant emission reductions through the ambitious deployment of shore-side electricity in ports require adequate funding. Every SSE facility installed so far has been supported by 50% or more public financing. To this end, significant support from local, regional, national, and European funding instruments must support alternative fuels infrastructure, bunkering and production capacity, and the retrofitting of existing ships.

ESPO calls for:

- **revenues from a maritime EU Emission Trading System (EU ETS) and the penalties levied under Article 21 of FuelEU Maritime** to be used to promote the distribution and use of renewable and low-carbon fuels and technologies in the maritime sector, and where relevant, the production of renewable fuels in the port area;

- penalty revenues resulting from failure to connect to OPS to be partially used to finance the necessary investments in shore-side electricity, whose return on investment largely depend on the use of the infrastructure;
- projects aiming to deploy shore-side electricity to be eligible for funding from the Innovation Fund;
- the FuelEU Maritime proposal to be accompanied by the introduction of **an EU-wide permanent tax exemption for SSE** in Article 15 of the proposal for a reviewed Energy Taxation Directive (COM) (2021563 final).

ESPO and its members look forward to further discussing these proposals with EU decision-makers in view of agreeing an AFIR and FuelEU package which delivers in the most effective way the reduction of maritime GHG emissions through the deployment and use of alternative fuels.



The European Sea Ports Organisation (ESPO) represents the port authorities, port associations and port administrations of the seaports of 22 Member States of the European Union and Norway at political level. ESPO also has observer members in Albania, Iceland, Israel, Ukraine and the United Kingdom. ESPO is the principal interface between the European seaport authorities and the European institutions. In addition to representing the interests of European ports, ESPO is a knowledge network which brings together professionals from the port sector and national port organisations. ESPO was created in 1993.