

AFID and shipping: Shore-side electricity for ships

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Shipping has a range of different options available to improve the environmental performance of vessels, ranging from switches to carbon-free fuels like ammonia or hydrogen, to propulsion generated from electricity stored in batteries onboard. Provision of on-shore power supply (OPS) also known as shore-side electricity (SSE) to ships while they are moored in port is an efficient first step to preventing air pollution by allowing ships to switch off their engines and draw energy from the grid rather than continuing to burn air polluting fuels. Due to the size of most ships, the energy demand they have is high compared to say a truck or passenger vehicle. Therefore infrastructure dedicated to ships is required. This will also reduce ship GHG inside ports, which according to the EU MRV was about 8 million tonnes in 2018, bigger than total national emissions of Malta, Cyprus, Latvia or Luxembourg.

The AFID does not set targets for shore side electricity (SSE) for shipping- it leaves to MS to decide on the bases of availability of demand and cost-benefit analysis. This creates a chicken and egg problem, especially in cases where large scale SSE investments are needed to build the infrastructure required for ships to plug into. On the one hand, since only few ports provide SSE, ship owners have been reluctant to retrofit their ships with SSE compatible technologies. On the other hand, shipowners have no financial incentive to voluntarily use SSE, as it is more expensive than using dirty heavy fuel oil at berth; hence, the majority of existing ships are not SSE compatible. Consequently, when doing the cost-benefit analysis Member States that have financial constraints conclude SSE to be cost-ineffective leading to a vicious circle of chronic SSE non-availability in European ports.

To overcome this the AFID has concentrated on TEN-T Core Network ports, with the rationale that these ports attract most of the maritime traffic and cause the most air pollution and GHG emissions therefore these large ports should be prioritized. The problem with this logic is that the types of ships that could immediately be converted to battery-electric and battery-hybrid propulsion are roll-on/roll-off (RoRo) passenger and cruise ships and these ship types often do

not sail to core ports. Yet, core ports tend to take priority in national action plans, where public and private investments are directed. This creates a mismatch between where the investments are directed and where the investments are needed as a priority.

In addition, the AFID only addresses land-side aspect of infrastructure interface. In doing so, it mandates/encourages investment in ports, but does not require ships to use the infrastructure when calling at European ports. This not only creates a risk of stranded assets for ports but also delays the transition to carbon free maritime transport and the reduction of air pollution.

Another outdated element of the AFID is Article 6, which mandates LNG refuelling infrastructure in European ports. LNG is a fossil fuel and has [little](#) to no GHG benefits compared to the oil-based fossil fuels that it will replace. LNG does have a positive impact on reducing air pollution, but switch to [LNG](#) is not the only option in order to address ship air pollution. A more cost-effective option would be to further desulphurise¹ marine fuels to cut on SO_x and PM and require ships to install diesel particulate filters (DPF) and selective catalytic reduction (SCR) systems to reduce ship NO_x. These systems would allow ships using existing bunkering infrastructure in ports until such times that ships switch to carbon free fuels, such as liquid hydrogen and ammonia. Several NPFs (Finland, Italy) have set ambitious targets for LNG infrastructure deployment in maritime (Spain, Italy, France) and inland ports (Netherlands, Italy, Hungary) for the coming years.

Last but not least, AFID does not mandate the availability of marine refuelling stations compatible with carbon free fuels, such as liquid and/or compressed hydrogen and liquid ammonia, which some [shipowners](#) have already started to use to fuel the ships propulsion. This creates a perverse situation where a fossil fuel is being mandated while the cleaner alternatives are not.

¹ The most stringent marine sulphur standard (1000ppm) applicable in sulphur emission control areas (SECA) is a hundred times worse than the standard applicable to road fuels (10ppm). Ships sailing outside the SECAs have sulphur standard 3,500 times worse (35,000ppm) than the road diesel/petrol. In 2020, new marine standard (5000ppm) will be applied to ships sailing outside SECA, which will still be 500 times less stringent than road fuels.

Recommendation:

- Make SSE infrastructure mandatory in all ferry and cruise passenger terminals across Europe by 2023 and be adequate for propulsion of ships wherever appropriate.
- Require SSE infrastructure in all appropriate cargo ship terminals on a mandatory basis by 2025 at the latest.
- To ensure that ships actually use port-side alternative energy infrastructure, mandate operational CO2 standards, as well as zero-emission berth standards on ships.
- Shore-side electricity for ships could be exempt from energy taxes for a transitional period. However, applying CO2 charge to fossil marine fuel use via the EU Emissions Trading Scheme, as committed by the European Green Deal, should be the first priority.
- Discontinue mandating LNG refuelling infrastructure in EU ports.
- Mandate hydrogen and ammonia infrastructure in European ports, especially those that cannot battery-electrify ships calling at these ports.

Further information

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