Cold ironing – hot topic

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Providing moored vessels with electricity is becoming a heated debate for seaports and the shipping industry. The revised European rules on Alternative Fuels Infrastructure and the newly developed FuelEU Maritime Regulation force ports to provide onshore power supply (OPS) systems by 2030 and require vessels to connect while berthed. The interplay of both legislation sets is supposed to remove the risk of constructing stranded assets.

Decarbonizing the shipping industry is a global task, given its international nature. However, as the 76th meeting of the International Maritime Organization's (IMO) Marine Environmental Protection Committee (MEPC) in June 2021 did not deliver satisfying results, the European Commission (COM) no longer refrained from proposing regional measures in July 2021. The so-called Fit for 55 package contained a comprehensive set of rules, among others, the Proposal for a Regulation on the deployment of alternative fuels infrastructure (AFIR) and the Proposal for a Regulation on the use of renewable and low-carbon fuels in maritime transport (FuelEU Maritime Regulation).

In ports, the complex interrelation of both Regulations is supposed to ensure the timely deployment of sufficient OPS capacity, combined with an obligation for vessels to cold iron for all their electrical power demand at berth by 1 January 2030. After having being approved by the Union's legislators in late July 2023, both legal instruments were recently published in the Official Journal, the AFIR as Regulation 2023/1804 (OJ 2023 L 234/1) and the FuelEU Maritime Regulation as Regulation 2023/1805 (OJ L 2023 234/48). Ports should commence planning procedures, as AFIR applies to various types of cargo and passenger vessels.

Infrastructure requirements

European rules on alternative fuel infrastructure are not novel. In 2014, a Directive contained a framework for the EU Member States to develop such infrastructures. Yet, it failed to deliver the desired results: higher electricity costs – as compared to power generated on board – and the absence of compulsory use prevented the emergence of a business case and, thus, the construction of OPS systems on a larger scale.

With the new set of rules, this deficit shall be resolved. Notably, they come in the form of a Regulation, which is directly applicable and enforceable in all EU Member States and, hence, has a much higher legal reach-through than a Directive.

According to Article 9 AFIR, the EU Member States shall ensure that a minimum shore-side electricity supply for seagoing container and passenger ships is provided in TEN-T maritime ports, both

[1] *This article represents the author's personal views.*

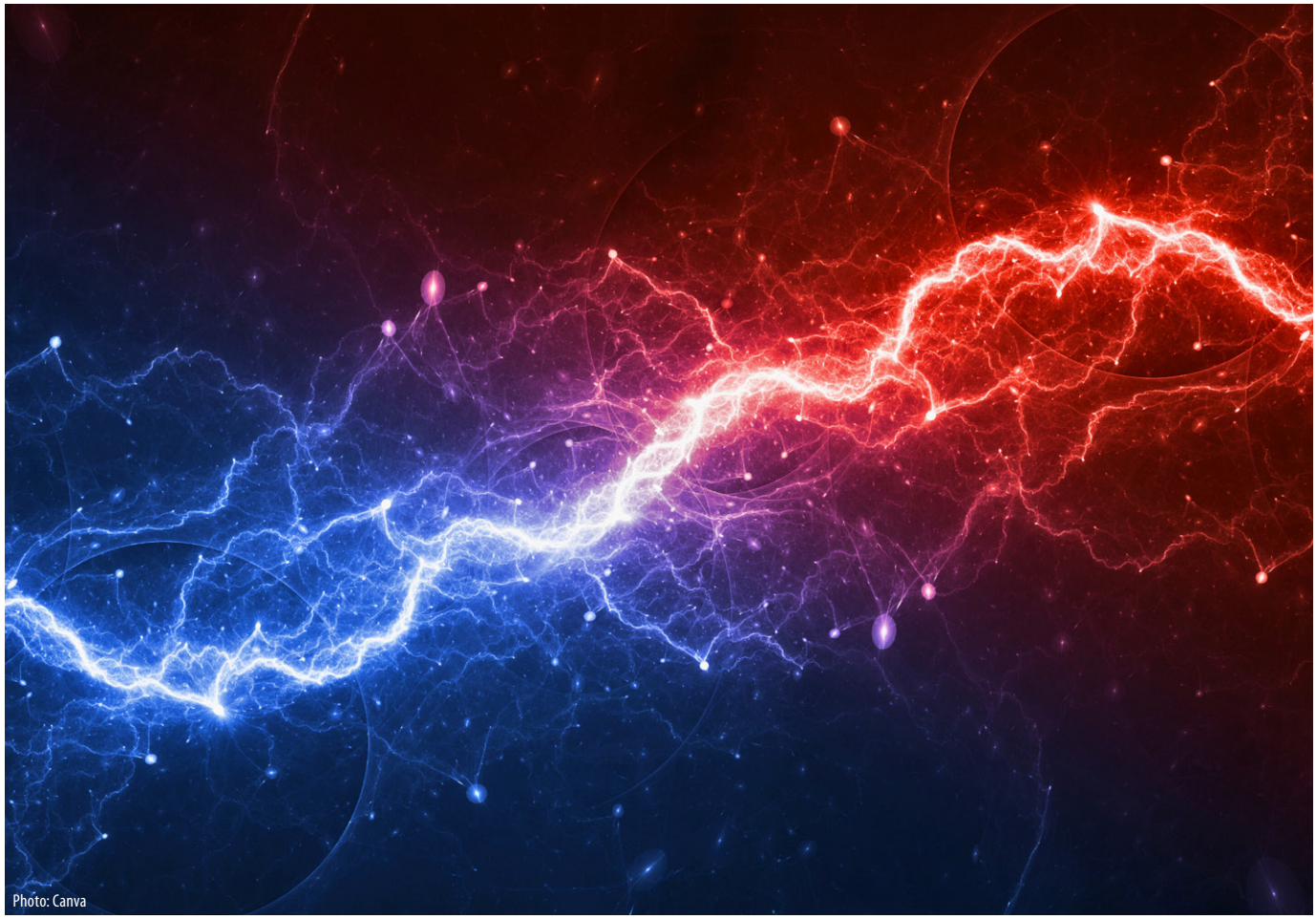


Photo: Canva

Core and Comprehensive ones. The due date for the readiness of the installations is 31 December 2029.

Concerning container ships, a port has to provide shore-side electricity supply for at least 90% of the total number of port calls per year – as soon as the port receives more than 100 box-carrying vessels annually (averaged over the last three years). The same obligation applies to ro-ro passenger ships or high-speed passenger crafts – as soon as the port receives more than 40 vessels/year.

For cruise ships ("seagoing passenger ships other than seagoing ro-ro passenger ships and seagoing high-speed passenger craft"), the threshold triggering the obligation to provide OPS is even lower. Once the number of calls averaged over the last three years is above 25 annually, the obligation to provide shore-side electricity supply for at least 90% of the total number of port calls per year kicks in. Only vessels above gross tonnage (GT) of 5,000 are covered in all supply scenarios.

Regarding the calculation of the calls necessary to trigger the obligation to provide OPS, it is interesting to note that the relevant reference is "port calls" – not "terminal calls." Considering that OPS systems are installed at specific berths on specific terminals – unless a port relies on fully mobile solutions – the reference to port calls might cause a less targeted and potentially wider obligation to provide cold ironing than a terminal-specific approach.

Further, it is unclear which specific period the term "averaged over the last three years" refers to. The three years before the AFIR enters into force (i.e., 2020-2022)? Or did the legislator intend a dynamic calculation (generally the last three years, independent of the year of entry into force)? Especially for small ports, a lot can change between now and 2030, given the dynamic development of maritime trade. Hence, a precise definition of the relevant years of reference is required because significant and time-critical investment decisions depend on it.

When it comes to calculating the number of calls, Article 9 §2 excludes certain port calls from the count, referring to exceptions listed in Article 6 §5 FuelEU Maritime Regulation: (a) extremely short mooring; (b) use of approved zero-emission technologies; (c) unscheduled port call due to unforeseen circumstances beyond the control of the ship; (e) unavailability of OPS due to risks for the grid stability; and (g) use of onboard electricity due to specific emergency situations.

According to Article 21 and Annex II, the following technical specifications apply: shore-side electricity supply for seagoing ships (including the design, installation and testing of the systems) shall comply at least with the technical requirements of the IEC/IEEE 80005-1:2019/AMD1:2022 standard for high-voltage shore connections (§5.1). Plugs, socket outlets and ship couplers for high-voltage shore connection shall comply at least with the technical specification of the IEC 62613-1:2019 standard (§5.2).

While an older draft clarified that only OPS installations deployed or renewed after the entry into force of AFIR have to comply with those standards, the final version does not include such clarification. That puts a question mark behind existing OPS systems, which have been developed for certain point-to-point ferry connections and (deliberately) do not comply with the standards defined above. In light of the principle of protection of legitimate



Photo: Ports of Stockholm

expectation and the absence of retroactive applicability of AFIR, such installations should enjoy grandfathering.

Shipping lines' obligations

The FuelEU Maritime Regulation is a novel instrument without a predecessor in European Law. Its main purpose is to limit the greenhouse gas intensity of energy used on board by a ship, introducing reduction targets that increase in a steplike arrangement, ultimately requiring an 80% reduction by 2050. This decarbonization instrument includes an obligation to use OPS or zero-emission technologies in ports under the jurisdiction of an EU Member State.

According to the central Article 6, container and passenger ships above GT 5,000, which are moored at the quayside in a port of call covered by Article 9 AFIR, shall connect to OPS and use it for all their electrical power demand at berth as of 1 January 2030 – regardless of the flag. In this context, "container ship" means a vessel designed exclusively for the carriage of containers in holds and on deck. A "passenger ship" can be any vessel carrying more than 12 passengers (so also certain ro-ro vessels). This relatively narrow scope excludes notably tankers, bulkers, vehicle carriers and general cargo ships, all of which typically do not carry passengers.

EU Member States may oblige container and passenger ships unilaterally from 1 January 2030 until 31 December 2034 to use OPS also in ports not covered by Article 9 AFIR, provided the EU Member State notifies its decision to the COM a year prior to the application thereof. As of 1 January 2035, this notification requirement is dropped. Ships moored at the quayside in a port of call not covered by Article 9 AFIR and where the quay is equipped with available OPS shall connect to that facility and use it for all its electrical power demand at berth without further preconditions. EU Member States may extend the obligations applying to container and passenger vessels moored at the quayside – also to ships at anchorage under the condition of prior notification.

Article 6 §5 contains a comprehensive list of exceptions, most of which have been mentioned above (a, b, c, e and g). In addition to those, a vessel is exempted from the obligation to connect to OPS where (d) connection points are unavailable; where (f) an incompatibility of systems prevents the vessel from connecting – provided that the onboard installation is certified in accordance with the technical specifications set out in Annex II to AFIR; or (h) maintenance or functional tests require the use of onboard energy generation.

One of these exceptions should be highlighted: if a vessel uses zero-emission technologies that comply with the general requirements for such solutions provided for in Annex III of the FuelEU Maritime Regulation, it is not obliged to connect to OPS (Article 6 §5 (b)). That way, the Regulation prioritizes OPS but at the same time recognizes that this technology is not the only solution for reducing emissions at berth. Opening the regulatory door to other solutions comes close to the ports' demand for a technology-open approach. However, the list of technologies permitted by Annex III is currently somewhat concise.

As of 1 January 2035, the regime of exceptions is further tightened by Article 6 §10, which allows vessels to apply exceptions

provided for in Article 6 §5 (d), (e) and (f) (connection points are unavailable, unavailability of OPS due to risks for the grid stability, incompatibility of systems not being the vessel's fault, respectively) only to a maximum number of port calls, corresponding to 10% of a ship's total number of port calls that took place during a reporting period, or to a maximum of 10 port calls during the relevant reporting period (whichever is lower). By limiting the availability of certain exceptions to a maximum number of port calls, vessels are incentivized to call at ports where compatible OPS connection points are available (and the grid stability is not an issue) because non-compliant port calls for which a vessel cannot claim an exception, will be penalized. This, in turn, puts a certain economic pressure on ports to offer proper OPS connection points to avoid losing traffic.

Ships shall inform ports about their intention to connect to OPS or use a zero-emission technology. Ships that intend to 'plug in' shall also indicate how much power they expect to require during that port call. Upon receipt of the information, a confirmation to the ship whether an OPS connection is available or not shall be given.

Coherence of policies

With the FuelEU Maritime Regulation, the COM explicitly pursues the goal of reducing the greenhouse gas intensity of energy used (Article 1), a task which is directly derived from the commitments made in the 2015 Paris Agreement and, building on those, the European Climate Law (Article 1 of Regulation 2021/1119). From that angle, tackling climate change means targeting ships' CO_2 emissions during voyage and at berth.

From the ports' point of view, OPS does very little to reduce overall CO_2 emissions as the vast bulk of these occur during the voyage – not at berth. Only in the case of cruise vessels, the emission distribution between voyage and berth is almost even. For ports, OPS is a crucial tool to comply with air quality requirements by targeting ships' NO_X, SO_X and particulate matter (PM) emissions, especially at berths where critical values are reached. This motivation is at least acknowledged by Recital 45 of AFIR, according to which "infrastructure be deployed where the maximum return on investment and occupancy rate result in the highest environmental benefits in terms of greenhouse gas emissions reductions and air pollution reductions."

However, while the FuelEU Maritime Regulation gives EU Member States the flexibility to oblige vessels to connect to OPS also in ports that are not covered by Article 9 AFIR, its limited scope leaves quite a lot of ships unregulated (those under GT 5,000 and vessels other than container ships and passenger ships). This deliberate omission translates into a 'permission to pollute' for vessels not covered and, quite naturally, creates friction with the ports' goal of reducing air pollutants.

This problem is exacerbated by the planned recast of the European Ambient Air Quality Directives (2004/107/EC and 2008/50/EC). In its proposal (COM(2022)542, 26.10.2022), the COM aligns the EU air quality standards more closely with the 2021 WHO recommendations, particularly PM and nitrogen dioxide, leading to a considerable lowering of the critical values. The revised limit and target values will enter into force in 2030; even tighter limits will be anticipated for 2050. In this respect, ports face an unpleasant dilemma: how can they achieve compliance if the OPS obligation for vessels at berth is incomplete – not to mention emissions occurring during manoeuvring? It seems that EU climate policy and environmental policy are not as coherent as ports would wish.

Evaluation and open questions

In 2021, we asked whether the European Green Deal will make the ports' future more sustainable. With a view to the AFIR and FuelEU Maritime Regulation, the answer is "yes" – but not without certain reservations.

The recast of the Energy Taxation Directive 2003/96/EG (see COM(2021) 563, 14.7.2021) will likely add financial incentives once the complex legislative procedure that touches upon the EU Member States' right to taxation is completed. The proposal contains a tax exemption for electricity directly supplied to vessels berthed in ports and removes favorable taxation for fossil fuels to make the price of shore power more attractive.

But even with additional tax incentives in place, significant questions remain: who will make the OPS investment and who will run the operations? Port authorities as infrastructure providers are the most likely candidates for the investment; still, as terminal operations are significantly affected by the process of connecting and supplying energy at berth, it might be wise to get terminal operators on board with the investment – or at least the operation of OPS systems.

The obligation to connect to OPS creates a business case and should allow investors to recoup their investment, avoiding the risk of stranded assets – but only from 2030 onwards. Before that date, investors have to pre-finance the installations, which in most cases won't be possible without state subsidies. Article 56b of the General Block Exemption Regulation (Regulation 651/2014, last amended by Regulation 2023/1315, OJ 2023 L 167) continues to exempt state subsidies for recharging and refueling infrastructure – formerly known as "alternative fuel infrastructure" – from the notification requirement under Article 107 TFEU, treating such facilities as port infrastructure. However, OPS money must be available in public budgets – which must finance many Green Deal-related projects.

Finally, ports with OPS systems ready before 2030 to meet air quality requirements are faced with the question of who will pick up the bill for the energy supplied. As long as electricity supplied via OPS competes with that generated on board ships, owners – without an obligation to connect – will mostly choose the cheaper energy source, leaving OPS systems significantly underutilized. EU Member States would have to subsidize cold ironing costs as well as to incentivize vessels to connect. That is certainly not a desirable scenario for ports and EU Member States doing more and faster than AFIR requires.

Mounting international pressure, not only from the EU, led the IMO to reconsider its wishy-washy approach. On 7 July 2023, MEPC adopted Resolution MEPC.377(80), which revises IMO's much-criticized position and contains a much more ambitious course. With a view to ports, the resolution obliges the IMO to "consider and analyze measures to encourage port developments and activities globally to facilitate reduction of GHG emissions from shipping, including provision of ship and shoreside/onshore power supply from renewable sources (…)." In light of the abovementioned Regulations, European ports do not need such encouragement. ■



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