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European Environmental Laws: Some Considerations for Mediterranean Cruise Ports

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In recent years, European directives concerning the environment have attracted the attention both of academics and operators in the sector. In particular, Directives 2009/28/EC and 2012/33/EU have dealt, increasingly, with the maritime industry.

European Directive 2009/28/EC concerning renewable energy establishes that by the year 2020, 20% of the total energy of each member state of the European Community shall be renewable. This directive is relevant for the member states when they

appraise the different solutions for reducing emissions in both land and sea transport. Directive 2012/33/EU, which modifies a previous Directive (1999/32/EU), requires European countries, including Italy, to reduce the sulphur content in marine fuels in the area of territorial seas. With reference to the marine fuels used, the maximum sulphur content is to be 3.5% starting from June 2014. On 1st January 2020, this limit will be lowered to 0.5%. The innovations introduced by the aforementioned measures also concern some new obligations for governments. These consist of informing the Commission about the availability of relevant marine fuels. This information shall be supplied every year by the state ministries responsible for the environment, after receiving reports from their harbour offices and by port authorities responsible for keeping registers of suppliers of marine fuels. Besides, there is the obligation to forward reports of cases in which a ship cannot find fuel conforming to regulations during its voyages. Finally, all member states have to ensure the availability of regulation marine fuels on their territory. This directive introduces an important novelty consisting of the requirement for an inquest for operators who, despite using due diligence, were unable to refuel with regulation marine fuel during their voyages.

Regarding the Italian situation, the Legislative Decree no. 112 of 16th July 2014, which implements Directive 2012/33/EU, states that in cases in which there is a violation of rules concerning the sulphur content of marine fuels, the ship owner or master can present to the competent authorities at the port of destination a report on all measures adopted before and during the voyage in order to obtain regulation fuel for their sailing plan and, if such fuel was unavailable in the foreseen port of call, the actions taken to obtain the fuel from other sources (Legislative Decree 112/2014 Article 10.4). The report has to demonstrate that such actions were performed with the utmost diligence possible, but they do not include the obligation to change the planned course or delay the voyage to obtain the required fuel.

Another important factor is the time between presentation of the report and access to zones under the national jurisdiction of the authorities competent for controls. If the report is presented at least 48 hours prior to entering the aforementioned zone, the authorities who assesses the diligence of the responsible person can decide not to perform an inspection thanks to the presence of a cause exempting from the violation.

In addition, a further Directive of interest for the ports is the Directive 2012/27/EU on energy efficiency. In this case, the European Commission expressly requires member states to develop and adopt within two years entry into force of the directive a "National Planning Policy Framework" for the development of alternative fuels in the transport sector and the construction of the infrastructures. In this direction, the recent Directive 2014/94/EU of 22nd October 2014 deals with the creation of infrastructures for alternative fuels so as to reduce to a minimum the dependence on oil-producing countries and thus attenuate environmental impact in the transport sector. At point 42 of the preamble of the directive, the European legislator urges operators in the maritime sector to use LNG defined as an "attractive fuel" to allow ships to meet the requirement to reduce the sulphur content in marine fuels, as required by the aforementioned Directive 2012 /33/ EU. The modalities for the supplying of natural gas for transport are defined in Article 6. It establishes that as concerns LNG for maritime purposes, member states shall ensure, within the frame of the national strategy, that seaports shall be equipped with an appropriate

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number of LNG refuelling points to allow vessels (whether for sea transport or transport on inland waters) that use LNG to circulate through the central TEN-T network by 31st December 2025.

Finally, the adoption of the regulations should be based on a cost/benefit analysis including environmental benefits. The Port Authorities should use all the tools at their disposal providing the competencies and adequate infrastructures in order to promote the development of the LNG supply chain.

The main effect of environmental directives on mediterranean ports for cruise ships

Concerning Directive 2012/33/EU, all ports have to meet its obligations. More specifically, port authorities will have to keep a register of marine fuel suppliers pursuant to Article 295, paragraph 12 of Legislative Decree 152/2006, which contains the list of fuel suppliers for maritime use in the areas for which they are competent, with the indication of the fuels supplied and their maximum relative sulphur content. Moreover, if present, the port authority will have to draw up annual reports concerning the availability of marine fuels conforming to the limits set and shall produce a report to be sent to the ministry for the environment by 31st March of each year. The only observation here is that the port authorities will have to hire more people to ensure that these obligations are respected and to avoid possible sanctions.

Regarding the directives dealing with renewable energy and energy efficiency required in the maritime transport sector, it is important to verify concretely what a small port, and thus its port authority, can do to reduce the emissions of ships calling.

The new regulation considers that, up to today, the reduction of ships' emissions can be implemented with two systems: cold ironing or shore power, that is, the system of electrified berths, or the use of LNG. Concerning shore power, installations remain quite costly: it is estimated that a single connection on a quay may cost the port authority about eight million euros, while a dual connection can cost about ten million euros. Furthermore, annual upkeep costs of these connections cannot be neglected, nor can be the cost of converting ships already circulating and those under construction so that they can berth at shore power quays. In small cruise ports, after the initial enthusiasm generated by the possible implementation of cold ironing, many of them backed up due to problems of cost and limitations on the space available in port. Another issue is coming from the directive on energy consumption (2009/28/EU), which requires member states to cover 20% of the energy they consume with renewable energy sources by 2020. This means that all energy systems for the reduction of emissions planned for ports must take this limit into consideration.

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Consequently, the main questions are: how is it possible for cruise ports to construct berths with shore power systems in order to reduce the emissions of gigantic cruise ships carrying 3000 passengers, that can be compared to floating towns?; What energy source could possibly be powerful enough to allow this? And, in any case, could this alternative energy source be renewable?

The implementation of cold ironing systems requires not only a space dedicated to cruise ship berths, but connection to an energy source which, depending on the ports, must be medium or large. In small ports, that do not receive many cruise ships, it may be easier to plan this, but there is an additional economic aspect to be considered. In times of budget constraints many cruise ports, such as Cagliari in Italy and others in the Mediterranean region, have been discouraged from implementing cold ironing systems.

As concerns the second system for reducing ships' emissions, through the use of LNG, it actually brings a series of questions. On the economic side, as building a site for LNG distribution for medium-sized ships inside a port may cost about 2.7 million euros and construction times are about 18 months. A recent study carried out by the Ministry of transport infrastructure in Italy on the use of LNG instead of +diesel to power the auxiliary engines of cruise ships underlines interesting prospects on the positive impact in terms of emissions during calls in some ports (for example Genoa and Naples).

According to a recent study on the Italian cruise ports in relation to use the LNG in ports, the two main ports in the Tyrrhenian sea to the supply of cruise ships for which data are available for this place, Genoa and Naples, have provided this type of ships about 17,000 tons of fuel oil equivalent to almost 15,000 tons of LNG. The presence of gas stations in these two ports could allow not only the gradual replacement of consumption from oil to natural gas liquid but also attract additional demand in the cruise sector. (National strategic plan on the use of LNG in Italy).

The document below summarizes previous results. The minimum values correspond to a demand that is likely initial LNG will come out no earlier than three years, subject to the possibility (if not necessary) to bring forward the project of an initiative for demonstration. The maximum values take into account the process of replacement of engines ship (by replacing or refitting of existing vessels) and infrastructure on the ground, which cannot be achieved before a decade.

The table no. 1 shows the minimum demand and maximum demand of LNG for the next five years related to some Italian seaports (e.g. Genoa, Savona, La Spezia, and Naples). The data highlight a relevant value for the demand of LNG by cruise ports.

Table 1. Estimates of the demand in LNG for Italian seaports.

LNG Estimated by area	Tonnage LNG min. (2018 – 2020)	Tonnage LNG max. (no earlier than 10 years)
- low scenario	62,000	760,000
- high scenario	82,000	1,000,000
Gulf of Naples	9,000	140,000
Ports of Genoa, Savona, La Spezia	36,000	500,000
Stretto di Messina	1,500	17,000
Cruises: Naples and Genoa	1,500	15,000

Source: National strategic plan on the use of LNG in Italy, 2015.

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Some final considerations

In the light of the foregoing discussion and of my executive experience at Cagliari's Port Authority and at Medcruise, as Medcruise's proxy for the environment, as well as contacts over the years with the principal Mediterranean cruise ports, I see a scenario that is not precisely positive, at least in the short run.

Cold ironing is a system for reducing ships' emissions that is still extremely difficult to implement, firstly and mostly due to economic reasons. In a time of crisis that Italy's ports are now undergoing, it is difficult for a port authority to invest millions of euros in the construction of electrified berths. Secondly, Italian ports are suffering from enormous bureaucratic problems, with concerns regarding the ministerial and environmental authorizations for implementing projects such as electrified berths.

I do recommend the use of the LNG system which, for the reasons outlined above, is a simpler and "more affordable" system for a small and large ports, as for port authorities, the required investment is more limited and the planning simpler. This can also be implemented for Italian's minor ports. However, as in every case, the support of the institutions is essential which, unfortunately in Italy, has been so far lacking.

Cite this article: Mangiarotti, V. (2015). European Environmental laws: Some Considerations for Mediterranean Cruise Ports. The Maritime Economist Magazine, Vol. 3 (October), pp. 16–20.

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