

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the monitoring, reporting and verification of [...] emissions **of carbon dioxide**, from maritime transport and amending [...] **Directive 2009/16/EC of the European Parliament and of the Council on port State control**

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national Parliaments,

Having regard to the opinion of the European Economic and Social Committee¹,

Having regard to the opinion of the Committee of the Regions²,

Acting in accordance with the ordinary legislative procedure,

¹ OJ C , , p. .

² OJ C , , p. .

Whereas:

- (1) The Climate and Energy Package³ calling for contributions of all sectors of the economy to achieving these emission reductions, including international maritime shipping, provides a clear mandate: "...in the event that no international agreement which includes international maritime emissions in its reduction targets through the International Maritime Organisation has been approved by Member States or no such agreement through the UNFCCC has been approved by the Community by 31 December 2011, the Commission should make a proposal to include international maritime emissions in the Community reduction commitment, with the aim of the proposed act entering into force by 2013. Such a proposal should minimise any negative impact on the Community's competitiveness while taking into account the potential environmental benefits."
- (1a) Maritime transport has an impact on the global climate and on air quality, as a result of carbon dioxide (CO₂) emissions and other emissions, including nitrogen oxides (NO_x), sulphur oxides (SO_x), methane (CH₄), particulate matter (PM) and black carbon (BC).**
- (1b) International maritime shipping remains the only means of transportation not included in the Union's commitment to reduce greenhouse gas emissions. According to the impact assessment accompanying the proposal for this Regulation, Union-related CO₂ emissions from international shipping increased by 48% between 1990 and 2007.**
- (1c) In the light of the rapidly developing scientific understanding of the non-CO₂ impact of maritime transport on the global climate, an updated assessment of that impact should be carried out regularly in the context of this Regulation. Based on its assessments, the Commission should analyse the implications for policies and measures in order to reduce those emissions.**

³ Decision n°406/2009/EC and Directive n°2009/29/EC

- (1e) The European Parliament's Resolution of 5 February 2014 on a 2030 framework for climate and energy policies called on the Commission and the Member States to set a binding EU 2030 target of reducing domestic greenhouse gas emissions by at least 40 % compared with 1990 levels. The European Parliament also pointed out that all sectors of the economy would need to contribute to reducing greenhouse gas emissions if the Union is to deliver its fair share of global efforts.**
- (1f) The European Council⁴ endorsed a binding EU target of an at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990. The European Council also stated the importance of reducing greenhouse gas emissions and risks related to fossil fuel dependency in the transport sector and invited the Commission to further examine instruments and measures for a comprehensive and technology neutral approach, inter alia, for the promotion of emissions reduction and energy efficiency in transport.**
- (1g) The 7th Environment Action Programme (EAP) underlines that all sectors of the economy will need to contribute to reducing GHG emissions if the Union is to deliver its fair share of global efforts. In this context the 7th EAP highlights that the White paper on transport of 2011 needs to be underpinned by a strong policy framework.**
- (2) In July 2011, the International Maritime Organisation (IMO) adopted technical and operational measures, in particular the Energy Efficiency Design Index (EEDI) for new ships and the Ship Energy Efficiency Management Plan (SEEMP), which will bring improvement in terms of reducing the expected increase in greenhouse gas emissions, but alone cannot lead to the necessary absolute emission reductions of greenhouse gases from international shipping to keep efforts in line with the global objective of limiting increases in global temperatures to 2°C.

⁴ Conclusions of the meeting of the European Council of 23 and 24 October 2014 in Brussels.

- (3) According to data provided by the IMO, the specific energy consumption and CO₂ emissions of ships could be reduced by up to 75% by applying operational measures and implementing existing technologies; a significant part of those measures can be regarded as cost-effective **and being such that they could offer net benefits to the sector**, as the reduced fuel costs ensure the pay-back of any operational or investment costs.
- (4) In order to reduce carbon dioxide emissions from shipping at Union level the best possible option remains setting up a system for monitoring, reporting and verification (MRV) of CO₂ emissions based on the fuel consumption of ships as a first step of a staged approach for the inclusion of maritime transport emissions in the Union's greenhouse gas reduction commitment, **alongside emissions from other sectors that are already contributing to that commitment. Public access to the emissions data will contribute to removing market barriers that prevent the uptake of many cost-negative measures which would reduce greenhouse gas emissions from the sector.**
- (5) The adoption of measures to reduce greenhouse gas emissions and fuel consumption is hampered by the existence of market barriers such as lack of reliable information on fuel efficiency of ships or of technologies available for retrofitting ships, lack of access to finance for investments into ship efficiency and split incentives as ship owners would not benefit from their investments into ship efficiency when fuel bills are paid by operators.
- (6) The results of the stakeholder consultation and discussions with international partners indicate that a staged approach for the inclusion of maritime transport emissions in the Union's greenhouse gas reduction commitment should be applied with the implementation of a robust MRV system for CO₂ emissions from maritime transport as a first step and the pricing of these emissions [...] at a later stage. This approach facilitates making significant progress at international level on the agreement of greenhouse gas emission reduction targets and further measures to achieve these reductions at minimum cost.

- (7) The introduction of a Union MRV system is expected to lead to emission reductions of up to 2% compared to business-as-usual and aggregated net costs reductions of up to 1.2 billion EUR by 2030 as it could contribute to the removal of market barriers, in particular those related to the lack of information about ship efficiency, **by providing comparable and robust information on fuel consumption and energy efficiency to the relevant markets.** This reduction of transport costs should facilitate international trade. Furthermore, a robust MRV system is a prerequisite for any market-based measure, [...] efficiency standard **or other measure**, whether applied at Union level or globally. It also provides reliable data to set precise emission reduction targets and to assess the progress of maritime transport's contribution towards achieving a low carbon economy. **In view of the international nature of shipping, the preferred and most effective method of reducing greenhouse gas emissions in international maritime transport would be by global agreement.**
- (8) All intra-Union voyages, all incoming voyages from the last non-Union port to the first Union port of call and all outgoing voyages from a Union port to the next non-Union port of call, **including ballast voyages**, should be considered relevant for purposes of monitoring. CO₂ emissions in Union ports including when ships are at berth or move within a port, should be covered as well, in particular as specific measures for their reduction or avoidance are available. These rules should be applied in a non-discriminatory manner to all ships regardless of their flag. **However, since this regulation focuses on maritime transport, it should not establish monitoring, reporting and verification requirements for ship movements and activities not serving the purpose of transporting cargo or passengers for commercial purposes, e.g. dredging, ice-breaking, pipe laying or offshore installation activities [...].**
- (8a) **To ensure a level-playing field for ships operating in less favourable climate conditions, it should be possible to include specific information relating to the ship's ice class and to navigation through ice to the data monitored on the basis of this Regulation.**

- (9) The proposed MRV system should take the form of a Regulation on account of the complex and highly technical nature of provisions introduced, the need for uniform rules applicable throughout the Union to reflect the international nature of maritime transport with numerous ships being expected to call at ports in different Member States, and to facilitate implementation throughout the Union.
- (10) A robust ship-specific Union MRV system should be based on the calculation of emissions from fuel consumed on voyages from and to Union ports as fuel sales data could not provide appropriately accurate estimates for the fuel consumption within this specific scope due to the large tank capacities of ships.
- (11) The Union MRV system should also cover other [...] relevant information allowing for the determination of ships' efficiency or further analyse the drivers for the development of emissions, **while preserving the confidentiality of commercial or industrial information.** This scope also aligns the Union MRV system with international initiatives to introduce efficiency standards for existing ships, also covering operational measures, and contributes to the removal of market barriers related to the lack of information.
- (12) In order to minimise the administrative burden for ship owners and operators, in particular for small and medium sized enterprises, and to optimise the benefits-costs-ratio of the MRV system without jeopardising the objective to cover a widely predominant share of greenhouse gas emissions from maritime transport, the rules for MRV should only apply to large emitters. A threshold of 5000 gross tonnage (GT) has been selected after detailed objective analysis of sizes and emissions of ships going to and coming from Union ports. Ships above 5000 GT account for around 55% of the number of ships calling into Union ports and represent around 90% of the related emissions. This non-discriminatory threshold would ensure that that the most relevant emitters are covered. A lower threshold would result in higher administrative burden while a higher threshold would limit the coverage of emissions and thus the environmental effectiveness of the system.

- (13) To further reduce the administrative effort for ship owners and operators, the monitoring rules should focus on CO₂ as the by far most relevant greenhouse gas emitted by maritime transport. [...]
- (14) The rules should take into account existing requirements and data already available on board of ships; therefore, ship owners should be given the opportunity to select one out of the following four monitoring methods: the use of Bunker Fuel Delivery Notes, bunker fuel tank monitoring, flow meters for applicable combustion processes or direct emission measurements. A ship specific monitoring plan should document the choice made and provide further details on the application of the selected method.
- (15) Any company with responsibility for an entire reporting period over a ship performing shipping activities should be considered responsible for all monitoring and reporting requirements arising in relation to this reporting period, including the submission of a satisfactorily verified emissions report. In case of change of [...] **company**, the new [...] **company** will only be responsible for the monitoring and reporting obligations related to the reporting period where the change of [...] **company** has taken place. To facilitate the fulfilment of these obligations, the new [...] **company** should receive a copy of the latest monitoring plan and document of compliance, if applicable. [...]
- (16) Other greenhouse gases, climate forcers or air pollutants should not be covered by the Union MRV system at this stage to avoid requirements to install not sufficiently reliable and commercially available measurement equipment, which could impede the implementation of the Union MRV system.
- (16a) The MARPOL Convention includes the mandatory application of the Energy Efficiency Design Index (EEDI) to new ships and the use of Ship Efficiency Management Plans (SEEMP) throughout the entire world fleet.**

- (17) To minimise the administrative burden for ship owners and operators, reporting and publication of reported information should be organised on an annual basis. By restricting the publication of emissions, fuel consumption and efficiency-related information to annual averages and aggregated figures, confidentiality issues should be addressed. **In order to ensure that the protection of legitimate economic interests overriding the public interest in disclosure is not undermined, a different level of aggregation should be applied in exceptional cases at the request of the company.** The data reported to the Commission should be integrated with statistics to the extent that these data are relevant for the development, production and dissemination of European statistics in accordance with Commission Decision 2012/504/EU of 17 September 2012 on Eurostat⁵.
- (18) Verification by accredited verifiers should ensure that monitoring plans and emission reports are correct and in compliance with the requirements defined by this Regulation. As an important element to simplify verification, verifiers should check data credibility by comparing reported data with estimated data based on ship tracking data and characteristics. Such estimates could be provided by the Commission. **In order to ensure impartiality,** verifiers should be independent and competent persons or legal entities and should be accredited by national accreditation bodies established pursuant to Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93⁶.
- (19) A document of compliance issued by a verifier should be kept on board of ships to demonstrate compliance with the obligations for monitoring, reporting and verification. Verifiers should inform the Commission on the issuance of such documents.

⁵ OJ L 251, 18.9.2012, p. 49

⁶ OJ L 218, 13.8.2008, p. 30.

- (20) Based on experience from similar tasks related to maritime safety, the European Maritime Safety Agency (EMSA) should, **within the framework of its mandate**, support the Commission by carrying out certain tasks.
- (21) [...] Enforcement of the obligations related to the MRV system should be based on existing instruments, namely those instituted in application of Directive 2009/21/EC of the European Parliament and of the Council on compliance with flag State requirements⁷ and Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control⁸, and on information on the issuance of documents of compliance. The document confirming compliance of the ship with the monitoring and reporting obligations should be added [...] to the list of certificates and documents referred to in Article 13(1) of Directive 2009/16/EC.
- (21a) Member States should endeavour to inspect ships which enter ports under their jurisdiction and for which the information on the document of compliance is not available.**
- (21b) Non compliance with the provisions of this Regulation should result in the application of penalties. Member States should lay down rules on penalties applicable to infringements of this Regulation. The penalties should be effective, proportionate and dissuasive.**
- (22) [...] In the case of ships having failed to comply with monitoring and reporting obligations for [...] **two or more consecutive reporting periods and where other enforcement measures have failed to ensure compliance**, it is [...] appropriate to provide for the possibility of expelling. This should be applied in such a way as to allow the situation to be rectified within a reasonable period of time.

⁷ OJ L131, 28.5.2009, p. 132.

⁸ OJ L131, 28.05.2009, p. 57.

- (22a) **Member States that have no maritime ports in their territory and which have no ships flying their flag and falling under the scope of this Regulation or which have closed their national ship registers should be able to derogate from the provisions of this Regulation relating to penalties, as long as no ship is flying their flag.**
- (23) [...]
- (24) The Union MRV system should serve as a model for the implementation of a global MRV system. A global MRV system is preferable as it could be regarded as more effective due to the broader scope. In this context, **and with a view to facilitate the development of international rules within the IMO for the monitoring, reporting and verification of greenhouse gas emissions from maritime transport**, the Commission should share relevant information on the implementation of this Regulation with the IMO and other relevant international bodies on a regular basis and relevant submissions should be made to the IMO. Where an agreement on a global MRV system is reached, the Commission should review the Union MRV system in view of aligning it to the global system.
- (25) In order to [...] **take account of relevant international rules and international and European [...] standards as well as technological and scientific developments**, the power to adopt acts in accordance with Article 290 of the Treaty should be delegated to the Commission in respect of reviewing certain technical aspects of monitoring and reporting of CO₂ emissions from ships and of further specifying rules for the verification of emission reports and the accreditation of verifiers. It is of particular importance that the Commission carries out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing-up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and Council.

- (26) In order to ensure uniform conditions for the use of automated systems and standard electronic templates for coherent reporting of emissions and other [...] relevant information to the Commission and involved States **and for the specification and revision of technical rules specifying the applicable parameters to categories of ships other than passenger ships, ro-ro ships and container ships**, implementing powers should be conferred on the Commission. Those necessary implementing powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by the Member States of the Commission's exercise of implementing powers⁹.
- (27) The objective of the proposed action, namely to monitor, report and verify CO₂ emissions from ships as first step of a staged approach to reduce [...] **greenhouse gas** emissions cannot be sufficiently achieved by the Member States acting individually, due to the international nature of maritime transport and can therefore, by reason of scale and effects of the action, be better achieved at Union level. The Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve those objectives.
- (28) The rules establishing the MRV system should comply with the provisions of Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data¹⁰ and with Regulation (EC) No 45/2001 of the European Parliament and of the Council of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and of the free movement of such data¹¹.

⁹ OJ L 251, 18.9.2012, p. 49

¹⁰ OJ L 281, 23.11.1995, p. 31.

¹¹ OJ L 8, 12.1.2001, p. 1.

(29) This Regulation should enter into force on 1 July 2015 to ensure that the Member States and relevant stakeholders have sufficient time to take the necessary measures for the effective application of this Regulation before the first reporting period starts on 1 January 2018.

HAVE ADOPTED THIS REGULATION:

CHAPTER I

GENERAL PROVISIONS

Article 1

Subject matter

This Regulation lays down rules for the accurate monitoring, reporting and verification of carbon dioxide (CO₂) emissions and other [...] relevant information from ships arriving at, within or departing from ports under the jurisdiction of a Member State in order to promote the reduction of CO₂ emissions from maritime transport in a cost effective manner.

Article 2

Scope

1. This Regulation applies to ships above 5000 gross tonnage in respect of **CO₂** emissions released during their voyages from the last port of call to a port under the jurisdiction of a Member State and from a port under the jurisdiction of a Member State to their next port of call, as well as within ports under the jurisdiction of a Member State.
2. This Regulation does not apply to warships, naval auxiliaries, fish catching or processing ships, wooden ships of a primitive build, ships not propelled by mechanical means and government ships used for non-commercial purposes.

Article 3

Definitions

For the purposes of this Regulation the following definitions apply:

- (a) 'emissions' means the release of CO₂ into the atmosphere by ships as provided for in Article 2;
- (aa) **'voyage' means any movement of a ship that originates from, or terminates in, a port of call [...] and that serves the purpose of transporting passengers or cargo for commercial purposes;**
- (b) 'port of call' means the port where a ship stops to load or unload cargo or to embark or disembark passengers; [...] **consequently**, stops for the sole purpose of refuelling, obtaining [...] supplies, [...] relieving the crew, **going into dry-dock or making repairs to the ship and/or its equipment, stops in port because the ship is in need of assistance or in distress, ship-to-ship transfers carried out outside ports, and stops for the sole purpose of taking shelter from adverse weather or rendered necessary by search and rescue activities are excluded;**
- (c) 'company' means the owner of a ship as provided for in Article 2 or any other **organisation or person**, such as the manager or the bareboat charterer, who has assumed the responsibility **for the operation of the ship** from the ship-owner [...];
- (d) 'gross tonnage' (GT) means the [...] gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex 1 to the International Convention on Tonnage Measurement of Ships, 1969, or any successor convention;

- (e) 'verifier' means a legal entity carrying out verification activities that is accredited by a national accreditation body pursuant to Regulation (EC) No 765/2008 of the European Parliament and of the Council¹² and this Regulation;
- (f) 'verification' means the activities carried out by a verifier to assess the conformity of the documents transmitted by the company with the requirements under this Regulation;
- (fa) 'document of compliance' means a ship-specific document, issued to a company by an accredited verifier, which confirms that the ship has complied with the requirements of the present Regulation for a specific reporting period;**
- (g) 'other [...] relevant information' means information related to **CO₂ emissions** from the consumption of fuels, transport work and energy efficiency of ships which allow for analysing emission trends and assessing ships' performances;
- (h) 'emission factor' means the average emission rate of a greenhouse gas relative to the activity data of a source stream assuming complete oxidation for combustion and complete conversion for all other chemical reactions;
- (i) 'uncertainty' means a parameter, associated with the result of the determination of a quantity, that characterises the dispersion of the values that could reasonably be attributed to the particular quantity, including the effects of systematic as well as of random factors, expressed in per cent, and describes a confidence interval around the mean value comprising 95 % of inferred values taking into account any asymmetry of the distribution of values;
- (j) 'conservative' means that a set of assumptions is defined in order to ensure that no under-estimation of annual emissions or over-estimation of distances or amounts of cargo carried occurs;

¹² OJ L 218, 13.8.2008, p. 30.

- (k) ‘tonnes of CO₂’ means metric tonnes of CO₂;
- (l) ‘reporting period’ means one calendar year during which emissions have to be monitored and reported. **For voyages starting and ending under two different calendar years, the monitoring and reporting data shall be accounted under the first calendar year concerned;**
- (la) ‘ship at berth’ means a ship which is securely moored or anchored in a port falling under the jurisdiction of a Member State while it is loading, unloading or hotelling, including the time spent when not engaged in cargo operations;
- (lb) ‘ice class’ means the notation assigned to the ship by the competent national authorities of the flag state or an organisation recognised by that state showing that the ship has been designed for navigation in sea-ice conditions.

CHAPTER II

MONITORING AND REPORTING

SECTION 1

Principles and methods for monitoring and Reporting

Article 4

Common principles for monitoring and reporting

1. **Pursuant to the requirements established in Articles 8 to 12**, companies shall monitor and report for each of their ship above 5000 GT the [...] **relevant parameters** during a [...] **reporting period** within [...] **all** ports under the jurisdiction of a Member State and for [...] voyages arriving [...] **at or** departing from a port located under the jurisdiction of a Member State in accordance with paragraphs 2 to 6.
2. Monitoring and reporting shall be complete and cover [...] CO₂ emissions from the combustion of fuels, **while the ships are at sea as well as at berth**. Companies shall apply appropriate measures to prevent any data gaps within the reporting period.

3. Monitoring and reporting shall be consistent and comparable over time. Companies shall use the same monitoring methodologies and data sets subject to changes and derogations approved by the verifier.
4. Companies shall obtain, record, compile, analyse and document monitoring data, including assumptions, references, emission factors and activity data, in a transparent manner that enables the reproduction of the determination of emissions by the verifier.
5. Companies shall ensure that emission determination is neither systematically nor knowingly inaccurate. They shall identify and reduce any source of inaccuracies.
6. Companies shall enable reasonable assurance of the integrity of emission data to be monitored and reported.
- 6a. **Companies shall endeavour to take account of the recommendations included in the verification reports issued pursuant to Article 13 in their consequent monitoring and reporting.**

Article 5

Methods for monitoring and reporting emissions **and other relevant information** on maritime transport

1. For the purposes of Article 4(1), (2) and (3), companies shall determine [...] for each of their ships above 5000 GT, **the CO₂ emissions** in accordance with any of the methods set out in Annex I **and other relevant information in accordance with the rules set out in Annex II.**

2. **The Commission may adopt delegated acts in accordance with Article 24 to amend the methods set out in Annex I and the rules set out in Annex II, in order to take into account relevant international rules as well as international and European standards. The Commission may also adopt delegated acts in accordance with Article 24 to amend the Annexes in order to refine the elements of the monitoring methods set out therein in the light of technological and scientific developments.**

SECTION 2

MONITORING PLAN

Article 6

Content and submission of the monitoring plan

1. By 31 August 2017, companies shall submit to the verifiers a monitoring plan indicating the method chosen to monitor and report emissions and other [...] relevant information for each of their ships above 5000 GT.
2. [...] **Notwithstanding** paragraph 1, for ships falling under the scope of this Regulation for the first time after [...] **31 August 2017**, the company shall submit a monitoring plan to the verifier without undue delay and no later than two months after their first call in a port under the jurisdiction of a Member State.
3. The monitoring plan referred to in paragraph 1 shall consist of a complete and transparent documentation of the monitoring methodology of a specific ship and shall contain at least the following elements:
 - (a) the identification and type of the ship including the name of the ship, its International Maritime Organisation (IMO) [...] **identification** number, its port of registry or home port and the name of the ship owner;

- (b) the name of the company and the address, telephone [...] and e-mail details for a contact person;
- (c) a description of the **following** emission sources on board of the ship: [...] main engines, auxiliary engines, **gas turbines**, boilers and inert gas generators, and the fuel types used;
- (d) a description of procedures, systems and responsibilities used to update the [...] list of emission sources over the [...] **reporting period** for the purpose of ensuring the completeness of monitoring and reporting of the emissions of the ship;
- (e) a description of the procedures used to monitor the completeness of the list of voyages;
- (f) a description of the procedures for monitoring fuel consumption of the ship, including:
 - (i) the chosen method as set out in Annex I for calculating the fuel consumption of each emission source including a description of the measurement equipment used, as applicable;
 - (ii) procedures for the measurement of fuel uplifts and fuel in tanks, a description of the measuring instruments involved and the procedures for recording, retrieving, transmitting and storing information regarding measurements, as applicable;
 - (iii) the chosen method for the determination of density, where applicable;
 - (iv) a procedure to ensure that the total uncertainty of fuel measurements is consistent with the requirements of this regulation, where possible referring to national laws, clauses in customer contracts or fuel supplier accuracy standards;

- (g) single emission factors used for each fuel type, or in the case of alternative fuels, the methodologies for determining the emission factors, including the methodology for sampling, methods of analysis, a description of the laboratories used (and confirmed ISO 17025 accreditation where relevant);
- (h) a description of the procedures used for determining activity data per voyage, including:
 - (i) the procedures, responsibilities and data sources for determining and recording the distance per voyage made;
 - (ii) the procedures, responsibilities, formulae and data sources for determining and recording the cargo carried and the number of passengers as applicable;
 - (iii) the procedures, responsibilities, formulae and data sources for determining and recording the time spent at sea between the port of departure and the port of arrival;
- (i) a description of the method to be used to determine surrogate data for closing data gaps;
- (j) **a revision record sheet to record all the details of the revision history.**

3a. The monitoring plan referred to in paragraph 1 may also contain information on the ice class of the ship and/or the procedures, responsibilities, formulae and data sources for determining and recording the distance travelled and the time spent at sea when navigating through ice.

4. Companies shall use standardised monitoring plans based on templates. **Templates, including the technical rules for their uniform application, [...]** shall be determined by means of implementing acts. Those implementing acts shall be adopted by the Commission in accordance with the procedure referred to in Article 25(2) of this Regulation.

Article 7

Modifications of the monitoring plan

Companies shall [...] check **regularly, and at least annually**, if the ship's monitoring plan reflects the nature and functioning of the ship and whether the monitoring methodology can be improved.

A company shall modify the monitoring plan in any of the [...] situations **set out in points (a) to €**:

- (a) where a change of [...] **company** occurs;
- (b) where new emissions occur due to new emission sources or due to the use of new fuels not yet contained in the monitoring plan;
- (c) where the change in availability of data, due to the use of new measuring instrument types, sampling methods or analysis methods, or for other reasons, [...] **may affect the** accuracy in the determination of emissions;
- (d) where data resulting from the previously applied monitoring methodology has been found incorrect;
- (e) where **any part of** the monitoring plan is **identified as** not in conformity with the requirements of this Regulation and the verifiers requests the company to modify it, **pursuant to Article 13(1)**.

Companies shall notify **to the verifiers** without **undue delay** any proposals for modification of the monitoring plan [...].

[...] Modifications of the monitoring plan **under points (b), (c) and (d) of this Article** shall be subject to assessment by the verifier, **pursuant to Article 13(1). Following the assessment, the verifier shall notify the company whether the modification is now in conformity.**

SECTION 3

MONITORING OF EMISSIONS AND OTHER RELEVANT INFORMATION

Article 8

Monitoring of activities within a reporting period

From 1 January 2018, companies shall, based on the monitoring plan [...] **that has been assessed** in accordance with Article 13(1), monitor emissions for each ship on a per-voyage and an annual basis by applying the appropriate method among those set out in part B of Annex I and by calculating emissions in accordance with part A of Annex I.

Article 9

Monitoring on a per-voyage basis

1. Based on the monitoring plan [...] **assessed** in accordance to Article 13(1), for each ship and for each voyage arriving to and departing from a port under a Member State's jurisdiction, companies shall monitor in accordance with part A of Annex I and Annex II the following information:
 - (a) port of departure and port of arrival including the date and hour of departure and arrival;
 - (b) amount and emission factor for each type of fuel consumed in total [...];

- (c) CO₂ emitted;
- (d) distance travelled;
- (e) time spent at sea;
- (f) cargo carried;
- (g) transport work.

Companies may also monitor information relating to the ship's ice class and to navigation through ice, where applicable.

- 2. By way of derogation from paragraph 1 and without prejudice to Article 10, ships are exempted from the obligation to monitor the information referred to in paragraph 1 on a per-voyage basis, if:**
- (a) all the ship's voyages during the reporting period either start or end at a port under the jurisdiction of a Member State; and,**
 - (b) the ship, according to its schedule, performs more than 300 voyages during the reporting period.**

Article 10

Monitoring on a yearly basis

Based on the monitoring plan [...] **assessed** in accordance to Article 13(1), for each ship and for each calendar year, the company shall monitor in accordance with part A of Annex I and Annex II the following parameters:

- (a) amount and emission factor for each type of fuel consumed in total [...];
- (b) total **aggregated** CO₂ emitted **within the scope of this Regulation**;
- (c) aggregated CO₂ emissions from all voyages between ports under a Member State's jurisdiction;
- (d) aggregated CO₂ emissions from all voyages which departed from ports under a Member State's jurisdiction;
- (e) aggregated CO₂ emissions from all voyages to ports under a Member State's jurisdiction;
- (f) CO₂ emissions which occurred within ports under a Member State's jurisdiction at berth;
- (g) total distance travelled;
- (h) total time spent at sea;
- (i) total transport work;
- (j) average energy efficiency.

Companies may monitor information relating to the ship's ice class and to navigation through ice, where applicable.

Companies may also monitor fuel consumed and CO₂ emitted differentiating on the basis of other criteria defined in the monitoring plan.

SECTION 4

REPORTING

Article 11

Content of the emission report

1. From 2019, by 30 April of each year, companies shall submit to the Commission and to the authorities of the flag States concerned, an emission report concerning the emissions and other [...] relevant information during the entire reporting period for each ship under their responsibility, which has been verified as satisfactory by a verifier in accordance with the requirements referred to in Article 14.
2. Where there is a change [...] **of company**, the new company shall ensure that each ship under its responsibility complies with the requirements of this Regulation in relation to the entire reporting period where it takes responsibility for the ship concerned.
3. companies shall include in the emission report referred to in paragraph 1 the following information:
 - (a) data identifying the ship and the company, including:
 - (i) name of the ship,
 - (ii) IMO [...] **identification** number,
 - (iii) port of registry or home port,
 - (iiia) the ice class of the ship, if included in the monitoring plan referred to in Article 6,**

- (iv) technical efficiency of the ship (the Energy Efficiency Design Index (EEDI) or the Estimated Index Value (EIV) in accordance with IMO Resolution MEPC.215 (63), where applicable)
 - (v) name of the ship owner,
 - (vi) address of the ship owner and his principal place of business,
 - (vii) name of the company (if not the ship owner),
 - (viii) address of the company (if not the ship owner) and his principal place of business,
 - (ix) address, telephone [...] and e-mail details for a contact person;
 - (x) **the identity of the verifier having assessed the emission report.**
- (b) information on the monitoring method used and the related level of uncertainty;
 - (c) the results from annual monitoring of the parameters in accordance with Article 10.

Article 12

Format of the emission report

1. The emission report referred to in Article 11 shall be submitted using automated systems and complete data exchange formats, including electronic templates.
2. Technical rules establishing the data exchange format including electronic templates referred to in paragraph 1 shall be determined by means of implementing acts. Those implementing acts shall be adopted by the Commission in accordance with the procedure referred to in Article 25(2) of this Regulation.

CHAPTER III

VERIFICATION AND ACCREDITATION

Article 13

Scope of verification activities and verification report

- [...]1. The verifier shall assess the conformity of the monitoring plan referred to in Article 6 with the requirements laid down in Articles 6 and 7. Where the assessment [...] **identifies non-conformities with the above-mentioned requirements**, the respective company shall revise its monitoring plan **accordingly and submit the revised plan for the final assessment by the verifier** before the reporting period starts. **Should such revisions to the monitoring plan be required, the company shall agree with the verifier on the timeframe necessary to introduce them, which in any event may not go beyond the beginning of the reporting period.**
- [...]2. The verifier shall assess the conformity of the emission report with the requirements laid down in Articles 8 to [...] **12** and Annexes I and II.
- [...]3. In particular the verifier shall [...] **assess whether** the emissions and other [...] relevant information included in the emission report have been determined in accordance with Articles 8, 9 and 10 and the monitoring plan referred to in Article 6. [...]
- [...]4. Where the **verification** assessment concludes [...] **with reasonable assurance from the verifier that** the emission report is free from material misstatements [...], the verifier shall issue a verification report **stating that the emissions report is verified as satisfactory**. The verification report shall specify all issues relevant to the work carried out by the verifier.

[...]5. Where the **verification** assessment concludes that the emission report includes [...] misstatements [...] or **non-conformities with** the requirements of [...] **this Regulation**, the verifier shall inform the company thereof [...] in a timely [...] **manner**. **In this case**, the company shall correct any [...] **misstatements or non-conformities** [...] so as to allow the verification process to be [...] **finalised in [...] time and shall submit the revised emission report and any other information necessary to resolve any non-conformities to the verifier**. **In its verification report**, the verifier shall [...] **state** whether the **misstatements or non-conformities identified during the verification assessment** have been resolved by the company [...]. **Where the communicated misstatements or non-conformities have not been resolved and, individually or combined, lead to material misstatements, the verifier shall issue a verification report stating that the emission report does not comply with the requirements of this Regulation.**

Article 14

General obligations and principles for the verifiers

1. The verifier shall be independent from a company or operator of the ship concerned and carry out the activities required under this regulation in the public interest. For that purpose, the verifier and any part of the same legal entity shall not be a company or ship operator, the owner of a company or owned by them nor shall the verifier have relations with the company that could affect its independence and impartiality.

2. When considering the verification of the emission report referred to in Article 11 and of the monitoring procedures applied by the company, the verifier shall assess the reliability, credibility and accuracy of the monitoring systems and of the reported data and information relating to emissions, in particular:
 - (a) the assigning of fuel consumption to voyages within the scope of this Regulation;
 - (b) the reported fuel consumption data and related measurements and calculations;
 - (c) the choice and the employment of emission factors;
 - (d) the calculations leading to the determination of the overall emissions;
 - (e) the calculations leading to the determination of the energy efficiency.

3. The verifier shall only consider reports submitted in accordance with Article [...] 12 if reliable and credible data and information allow the emissions to be determined with a [...] **reasonable** degree of certainty and provided that the following are ensured:
 - (a) the reported data is coherent in view of estimated data based on ship tracking data and characteristics such as the installed engine power;
 - (b) the reported data is free of inconsistencies, in particular when comparing the total volume of fuel purchased annually by each ship and the aggregate fuel consumption during voyages which fall within the scope of this Regulation;
 - (c) the collection of the data has been carried out in accordance with the applicable rules;
 - (d) the relevant records of the ship are complete and consistent.

Article 15

Verification procedures

1. The verifier shall identify potential risks related to the monitoring and reporting process by comparing reported emissions with estimated data based on ship tracking data and characteristics such as the installed engine power. Where significant deviations are found, the verifier shall carry out further analyses.
2. The verifier shall identify potential risks related to the different calculation steps by reviewing all data sources and methodologies used.
3. The verifier shall take into consideration any effective risk control methods applied by the company to reduce levels of uncertainty, considering the accuracy of the monitoring methods used.
4. The company shall provide the verifier with any additional information that enables it to carry out the verification procedures. The verifier may conduct spot-checks during the verification process to determine the reliability of reported data and information.
5. The Commission shall be empowered to adopt delegated acts in accordance with Article 24 in order to further specify the rules for the verification activities referred to in this Regulation [...]. **When adopting these acts, the Commission shall take into account the elements set out in Part A of Annex III.** These delegated acts shall be based on the principles for verification provided for in Article 14 and on relevant internationally accepted standards.

Article 16

Accreditation of verifiers

1. A verifier assessing monitoring plans and emission reports and issuing verification and compliance documents referred to in Articles 13 and 17 shall be accredited for activities under the scope of the present Regulation by a national accreditation body pursuant to Regulation (EC) No 765/2008.
2. Where no specific provisions concerning the accreditation of verifiers are laid in this Regulation, the relevant provisions of Regulation No EC 765/2008 shall apply.
3. The Commission shall be empowered to adopt delegated acts in accordance with Article 24, in order to further specify the methods of accreditation of verifiers. **When adopting these acts, the Commission shall take into account the elements set out in Part B of Annex III. These delegated acts shall be based on the principles for verification provided for in Article 14 and on relevant internationally accepted standards.**

CHAPTER IV

COMPLIANCE AND PUBLICATION OF INFORMATION

Article 17

Issuance of a document of compliance

1. Where the emission report referred to in Article 11 fulfils the requirements of Articles 11[...] to 15 and those laid down in Annexes I and II, on the basis of a verification report, the verifier shall [...] **issue** a document of compliance for the ship concerned.

2. The document of compliance referred to in paragraph 1 shall include the following information:
 - (a) the identity of the ship (name, IMO [...] **identification** number and port of registry or home port);
 - (b) name and address and principal place of business of the owner of the ship;
 - (c) the identity of the verifier;
 - (d) the date of issue of the document of compliance (the reporting period it refers to and its period of validity).
3. Documents of compliance shall be considered valid documents for a period of 18 months after the end of the reporting period.
4. Without delay, the verifier shall inform the Commission and the authority of the flag State on the issuance of any document of compliance and transmit the information referred to in paragraph 2 using automated systems and complete data exchange formats, including electronic templates established by the Commission in accordance with the procedure established in the present Regulation.
5. Technical rules establishing the data exchange format including electronic templates referred to in paragraph 4 shall be determined by means of implementing acts. Those implementing acts shall be adopted by the Commission in accordance with the procedure referred to in Article 25(2) of this Regulation.

Article 18

Obligation to carry a valid document of compliance on board

[...] **By 30 June of the year following the end of a reporting period, [...]** ships arriving at, within or departing from a port under the jurisdiction of a Member State, **and which have carried out voyages falling under the scope of this Regulation during that reporting period,** shall carry on board a valid document certifying the ship's compliance with the reporting and monitoring obligations [...], issued in accordance with Article 17.

Article 19

Compliance with monitoring and reporting obligations and inspections

1. Based on the information published in accordance with Article 21(1), each Member State shall **take all the measures necessary to** ensure the compliance with the monitoring and reporting requirements set out in Articles 8 to 12 by ships flying its flag **and shall regard the information that a document of compliance has been issued for the ship concerned, in accordance with Article 17(4), as evidence of such compliance.**
2. Each Member State shall ensure that any inspection of a ship in a port under its jurisdiction **carried out in accordance with Directive 2009/16/EC¹³** includes [...] **checking that [...]** a **valid** document of compliance [...] is carried on board.

¹³ **Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 no port State control (OJ L 131, 28 5 2009, p. 57).**

3. [...] For each ship in [...] **respect of which the information referred to in** Article 21(2) (j) and (k) **is not available and** which entered a port under jurisdiction of a Member State, the Member State [...] **may check that a valid** document of compliance [...] is carried on board.

Article 20

Penalties, information exchange and expulsion order

1. Member States shall [...] **set up** a system of penalties for failure to comply with the monitoring and reporting requirements set out in Articles 8 to 12 and shall take all the measures necessary to ensure that those penalties are applied. The penalties provided for shall be [...] effective, proportionate and dissuasive. Member States shall notify these provisions to the Commission by 1 July 2017, and shall notify any subsequent amendments affecting these provisions to the Commission without delay.
2. Member States shall establish an effective exchange of information and effective cooperation between their national authorities ensuring compliance with the monitoring and reporting requirements or, where applicable, their **authorities** entrusted with the sanctioning procedures. National sanctioning procedures [...] **against a specified ship** by any Member State shall be notified to the Commission, the European Maritime Safety Agency (EMSA), to the other Member States and to the flag State concerned.

3. For ships having failed to comply with the monitoring and reporting requirements for [...] **two or more consecutive reporting periods and where other enforcement measures have failed to ensure compliance**, the [...] **competent authority of the Member State of the port of entry** may issue an expulsion order which shall be notified to the Commission, EMSA, the other Member States and the flag State concerned. As a result of the issuing of such an expulsion order, every Member State shall refuse entry of this ship into any of its ports until the company fulfils its monitoring and reporting requirements in accordance with Articles [...] **11 and 18**, confirmed by the notification of a valid document of compliance to the **competent** national [...] authority which issued the expulsion order. **This paragraph shall be without prejudice to international maritime rules applicable in the case of ships in distress.**
- 3a. **The owner or operator of a ship or his representative in the Member States shall have a right to an effective remedy before a court or tribunal against the expulsion order and shall be properly informed thereon by the competent authority of the Member State of the port of entry. Member States shall establish and maintain appropriate procedures for this purpose.**
4. **If a Member State does not have any maritime ports in its territory and has closed its national ship register or has no ships flying its flag that fall within the scope of this Regulation, and as long as no such ships are flying its flag, that Member State may derogate from the provisions of this Article. Where a Member State intends to avail itself of this derogation, it shall notify the Commission at the latest on the entry into force of this Regulation. Any subsequent change shall also be communicated to the Commission.**

Article 21

Publication of information

1. By 30 June each year, the Commission shall make publicly available the **CO₂** emissions reported in accordance with Article 11 [...] **as well as the information set out in paragraph 2.**
2. The publication referred to in paragraph 1 shall include the following information:
 - (a) the identity of the ship (name, IMO [...] **identification** number and port of registry or home port);
 - (b) [...]
 - (c) technical efficiency of the ship (EEDI or EIV where applicable);
 - (d) annual CO₂ emissions;
 - (e) annual total fuel consumption for voyages falling within the scope of this Regulation;
 - (f) annual average fuel consumption and [...] CO₂ emissions per distance travelled of voyages falling within the scope of this Regulation;
 - (g) annual average fuel consumption and [...] CO₂ emissions per distance travelled and cargo carried on voyages falling within the scope of this Regulation;
 - (h) annual total time spent at sea in voyages falling within the scope of this Regulation;
 - (i) methodology for monitoring applied;
 - (j) the date of issue and the expiry date of the document of compliance;

- (k) the identity of the verifier having [...] **assessed** the emission report.
 - (ka) **any other information monitored and reported on a voluntary basis in accordance with Article 10.**
- 2a. **Where, due to specific circumstances, disclosure of a category of aggregated data under paragraph 2, which does not relate to emissions into the environment, would exceptionally undermine the protection of commercial interest deserving protection as a legitimate economic interest overriding the public interest in disclosure pursuant to Regulation 1367/2006, a different level of aggregation of that specific data shall be applied, at the request of the company, so as to protect such an interest. Where this is not possible, the Commission shall not publish the information.**
3. The Commission shall publish an annual report on emissions and other [...] relevant information from maritime transport, **including aggregated and explained results, with the aim to inform the public and allow for an assessment of the emissions and the energy efficiency of maritime transport per size, type of ships, activity, or any other category deemed relevant.**
- 3a. **The Commission shall assess biennially the maritime transport sector's overall impact on the global climate including through non-CO₂-related emissions or effects.**
4. **Within the framework of its mandate,** EMSA shall assist the Commission in its work to comply with Articles [...] 12, 17 and 21 of this Regulation, in accordance with Regulation (EC) No 1406/2002 of the European Parliament and of the Council¹⁴.

¹⁴ OJ L 208, 5.8.2002, p. 1.

CHAPTER V

INTERNATIONAL COOPERATION

Article 22

International cooperation

1. The Commission shall inform the IMO and other relevant international bodies on a regular basis of the implementation of this Regulation [...], **without prejudice to the distribution of competences or to the decision-making procedures as provided for in the Treaties.**
2. The Commission, **and Member States, where relevant,** shall maintain technical exchange with third countries [...], in particular the further development of monitoring methods, the organisation of reporting and the verification of emission reports.
3. Where an international agreement on a **global monitoring, reporting and verification system of greenhouse emissions or on** global measures to reduce greenhouse gas emissions from maritime transport is reached, the Commission shall review this Regulation and [...] **shall**, if appropriate, propose amendments to this Regulation **in order to ensure alignment with that international agreement.**

CHAPTER VI

DELEGATED AND IMPLEMENTING POWERS AND FINAL PROVISIONS

Article 23

[...]

Article 24

Exercise of delegation

1. The power to adopt delegated acts **is conferred on the Commission subject to the conditions laid down in this Article. It is of particular importance that the Commission follow its usual practice and carry out consultations with experts, including Member States' experts before adopting those delegated acts.**
- 1a. **The power to adopt delegated acts** referred to in Articles 5, 15 and 16 [...] shall be conferred on the Commission for a period of five years from 1 July 2015. **The Commission shall draw up a report in respect of the delegation of power not later than nine months before the end of the five-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension not later than three months before the end of each period.**
2. The delegation of power referred to in Articles 5, 15 and 16 [...] may be revoked at any time by the European Parliament or by the Council. A decision [...] **to revoke** shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.

3. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
4. A delegated act adopted pursuant to Articles 5, 15 and 16 [...] shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or the Council.

Article 25

[...] Committee procedure

1. The Commission shall be assisted by the Committee established by Article 8 of Decision 93/389/EC. That Committee shall be a committee within the meaning of Regulation (EU) N° 182/2011.
2. Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply. **Where the Committee delivers no opinion, the Commission shall not adopt the draft implementing act and the third subparagraphs of Article 5(4) of Regulation (EU) No 182/2011 shall apply.**

Article 26

Amendments to Regulation (EU) No 525/2013

[...]

Article 26a

Amendments to Directive 2009/16/EC

The following point shall be added to the list set out in Annex IV to Directive 2009/16/EC:

"[50.] Document of Compliance issued under Regulation (EU) No XXXX/XXXX on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport and amending Directive 2009/16/EC of the European Parliament and of the Council on port State control."

Article 27

Entry into force

This Regulation shall enter into force on 1 July 2015.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the European Parliament

The President

For the Council

The President

ANNEX I

Methods for monitoring and reporting [...] **CO2** emissions and other [...] relevant information

A. CALCULATION OF [...] **CO2 EMISSIONS** (Article 9)

For the purposes of calculating **CO2 emissions** [...] companies shall respect the following formula:

Fuel consumption x Emission factor

Fuel consumption shall include fuel consumed by main engines, auxiliary engines, **gas turbines**, boilers and inert gas generators..

Fuel consumption within ports at berth shall be calculated separately.

In principle, default values for emission factors of fuels shall be used unless the company decides using data on fuel quality set out in the Bunker Fuel Delivery Notes and used for demonstrating compliance with applicable regulations of sulphur emissions.

Default emission factors shall be based on latest available IPCC values. They can be derived from Annex VI to Commission Regulation (EU) No°601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council¹⁵.

Appropriate emission factors shall be applied in respect of biofuels and alternative non-fossil fuel fuels.

B. METHODS FOR DETERMINING EMISSIONS

The company shall define in the monitoring plan which monitoring methodology is used to calculate fuel consumption for each ship [...] under its responsibility and ensure that once it has been chosen, is consistently applied.

¹⁵ OJ L 181, 12.7.2012, p. 30-104

[...]

Actual fuel consumption for each voyage shall be used and be calculated using one of the following methods:

- (a) Bunker Fuel Delivery Note (BDN) and periodic stocktakes of fuel tanks;
- (b) Bunker fuel tank monitoring on board;
- (c) Flow meters for applicable combustion processes;
- (d) Direct emissions measurements.

Any combination of the above methods, approved by the verifier may be used if it enhances the overall accuracy of the measurement.

1. Method A:BDN (Bunker Delivery Notes) and periodic stock-takes of fuel tanks

This method is based on the quantity and type of fuel as defined on the BDN combined with periodic stock-takes of fuel tanks based on tank readings. The fuel at the beginning of the period, plus deliveries, minus fuel available at the end of the period and de-bunkered fuel between the beginning of the period and the end of the period together constitute the fuel consumed over the period.

The period includes time between two port calls or time within a port. For the fuel used during a period, the fuel type and the sulphur content need to be specified.

This approach shall not be used when BDN are not available on board of ships, especially when cargo is used as a fuel, for example, liquefied natural gas (LNG) boil-off.

The BDN is mandated under existing MARPOL Annex VI Regulations and relevant records are retained on board for 3 years after the delivery of the bunker fuel and be readily available. The periodic stock-take of fuel tanks on-board is based on fuel tank readings. It uses tank tables relevant to each fuel tank to determine the volume at the time of the fuel tank reading. The uncertainty associated with the BDN shall be specified in the monitoring plan referred to in Article 6. Fuel tank readings shall be carried out by appropriate methods such as automated systems, soundings and dip tapes. The method for tank sounding and uncertainty associated shall be specified in the monitoring plan referred to in Article 6.

Where the amount of fuel uplift or the amount of fuel remaining in the tanks is determined in units of volume, expressed in litres, the company shall convert that amount from volume to mass by using actual density values. The company shall determine the actual density by using one of the following:

- (a) on-board measurement systems;
- (b) the density measured by the fuel supplier at fuel uplift and recorded on the fuel invoice or delivery note.

The actual density shall be expressed in kg/litre and determined for the applicable temperature for a specific measurement. In cases for which actual density values are not available, a standard density factor for the relevant fuel type shall be applied upon approval by the verifier.

2. Method B: Bunker fuel tank monitoring on-board

This method is based on fuel tank readings for all fuel tanks on-board. The tank readings shall occur daily when the ship is at sea and each time the ship is bunkering or de-bunkering.

The cumulative variations of the fuel tank level between two readings constitute the fuel consumed over the period.

The period means time between two port calls or time within a port. For the fuel used during a period, the fuel type and the sulphur content need to be specified.

Fuel tank readings shall be carried out by appropriate methods such as automated systems, soundings and dip tapes. The method for tank sounding and uncertainty associated shall be specified in the monitoring plan referred to in Article 6.

Where the amount of fuel uplift or the amount of fuel remaining in the tanks is determined in units of volume, expressed in litres, the company shall convert that amount from volume to mass by using actual density values. The company shall determine the actual density by using one of the following:

- (a) on-board measurement systems;
 - (b) the density measured by the fuel supplier at fuel uplift and recorded on the fuel invoice or delivery note.
- (ba) the density measured in a test analysis conducted in an accredited fuel test laboratory, where available.**

The actual density shall be expressed in kg/litre and determined for the applicable temperature for a specific measurement. In cases for which actual density values are not available, a standard density factor for the relevant fuel type shall be applied upon approval by the verifier.

3. Method C: Flow meters for applicable combustion processes

This method is based on measured fuel flows on-board. The data from all flow meters linked to relevant emission sources shall be combined to determine all fuel consumption for a specific period.

The period means time between two port calls or time within a port. For the fuel used during a period, the fuel type and the sulphur content need to be monitored.

The calibration methods applied and the uncertainty associated with flow meters used shall be specified in the monitoring plan referred to in Article 6.

Where the amount of fuel consumed is determined in units of volume, expressed in litres, the company shall convert that amount from volume to mass by using actual density values. The company shall determine the actual density by using one of the following:

- (a) on-board measurement systems;
- (b) the density measured by the fuel supplier at fuel uplift and recorded on the fuel invoice or delivery note.

The actual density shall be expressed in kg/litre and determined for the applicable temperature for a specific measurement. In cases for which actual density values are not available, a standard density factor for the relevant fuel type shall be applied upon approval by the verifier.

4. Method D: Direct emissions measurement

The direct emissions measurements may be used for voyages within the scope of this regulation and for emissions occurring in ports located in a Member State's jurisdiction. CO₂ emitted shall include CO₂ emitted by main engines, auxiliary engines, **gas turbines**, boilers and inert gas generators. For ships on which reporting is based on this method, the fuel consumption shall be calculated using the measured CO₂ emissions and the applicable emission factor of the relevant fuels.

This method is based on the determination of CO₂ emission flows in exhaust gas stacks (funnels) by multiplying the CO₂ concentration of the exhaust gas with the exhaust gas flow.

The calibration methods applied and the uncertainty associated with the devices used shall be specified in the monitoring plan referred to in Article 6.

ANNEX II

Monitoring of other [...] relevant information

A. Monitoring on a per voyage basis (Article 9)

1. For the purposes of monitoring other [...] relevant information on a per-voyage basis (Article 9(1)), companies shall respect the following rules:

- (a)** The date and hour of departure and arrival shall be considered using Greenwich Mean Time (GMT). The time spent at sea shall be calculated based on port departure and arrival information and shall exclude [...] **anchoring**.
- (b)** The distance travelled can be the distance of the most direct route between the port of departure and the port of arrival or the real distance travelled. In the event of the use of the distance of the most direct route between the port of departure and the port of arrival, conservative correction factor should be taken into account to ensure that the distance travelled is not significantly underestimated. The monitoring plan referred to in Article 6 shall specify which distance calculation is used and, if necessary, the correction factor used. The distance travelled shall be expressed in nautical-miles.
- (c)** Transport work shall be determined by multiplying the distance travelled with the amount of cargo carried.
- (d)** For passenger ships, the number of passengers shall be used to express cargo carried. For all other categories of ships, the amount of cargo carried shall be expressed **either** as metric tonnes [...] **or as standard** cubic meters of cargo, **as appropriate**.
- (e)** **For ro-ro ships, cargo carried shall be defined as the number of cargo units (trucks, cars, etc.) or lane-meters multiplied by default values for their weight. Where cargo carried by ro-ro ships has been defined based on Annex B to CEN 16258 (2012), covering "Methodology for calculation and declaration of energy consumption and GHG emissions of transport**

services (freight and passengers)", this definition shall be deemed to comply with this Regulation.

- (f)** For the purposes of this Regulation, "ro-ro ship" means a ship designed for the carriage of roll-on-roll-off cargo transportation units or with roll-on-roll-off cargo spaces.
- (g)** For container vessels, cargo carried shall be defined as the total weight in tons of the cargo or, failing that, the amount of TEUs multiplied by default values for their weight. Where cargo carried by a container vessel is defined in accordance with applicable IMO Guidelines or instruments pursuant to the SOLAS Convention, this definition shall be deemed to comply with this Regulation.
- (h)** For the purposes of this Regulation, 'container ship' means a ship designed exclusively for the carriage of containers in holds and on deck.
- (i)** The determination of cargo carried for categories of ships other than passenger ships, ro-ro ships and container ships shall allow the taking into account, where applicable, of the weight and volume of cargo carried and the number of passengers carried. Those categories shall include, inter alia, tankers, bulk carriers, general cargo ships, refrigerated cargo ships, vehicle carriers and combination carriers.

2. In order to ensure uniform conditions for the application of this provision in paragraph 1 (i), the Commission shall adopt, by means of implementing acts, technical rules specifying the applicable parameters to each of the other categories of ships referred to under that paragraph.
3. These implementing acts shall be adopted by the Commission, not later than [31 December 2016] in accordance with the procedure referred to in Article 25(2) of this Regulation.

4. **The Commission, by means of implementing acts, may revise, where appropriate, the applicable parameters referred to in paragraph 1 (i). Where relevant, the Commission shall also revise these parameters to take account of amendments to this Annex pursuant to Article 5(2).**
5. **In complying with these rules, companies may also choose to include specific information relating to the ship's ice class and to navigation through ice.**

B. Monitoring on a yearly basis (Article 10)

For the purposes of monitoring other [...] relevant information on a yearly basis, companies shall respect the following rules:

The values to be monitored according to Article 10 should be determined by aggregation of the respective per voyage data.

Average energy efficiency shall be monitored by using at least four indicators, fuel consumption per distance, [...] fuel consumption per transport work, [...] CO₂ emissions per distance and [...] CO₂ emissions per transport work, which shall be calculated as follows:

Fuel consumption per distance = total annual fuel consumption / total distance travelled

Fuel consumption per transport work = total annual fuel consumption / total transport work

CO₂ emissions per distance = total annual CO₂ emissions / total distance travelled

CO₂ emissions per transport work = total annual CO₂ emissions / total transport work.

In complying with these rules, companies may also choose to include specific information relating to the ship's ice class and to navigation through ice, as well as other information related to the fuel consumed and CO₂ emitted, differentiating on the basis of other criteria defined in the monitoring plan.

ANNEX III

Elements to be considered for the delegated acts provided for in Articles 15 and 16

A. VERIFICATION PROCEDURES

- **Competencies of the verifiers;**
- **Documents to be provided by companies to verifiers;**
- **Risk assessment to be carried out by the verifier;**
- **Assessment of the conformity of the monitoring plan;**
- **Verification of the emission report;**
- **Materiality level;**
- **Reasonable assurance of the verifier;**
- **Misstatements and non-conformities;**
- **Content of the verification report;**
- **Recommendations for improvements;**
- **Communication company-verifier-Commission**

B. ACCREDITATION OF VERIFIERS

- **How accreditation for shipping activities can be requested;**
 - **How verifiers will be assessed by the national accreditation bodies in order to issue an accreditation certificate;**
 - **How the national accreditation bodies will perform the surveillance to confirm the continuation of the accreditation;**
 - **Requirements for national accreditation bodies in order to be competent to provide accreditation to verifiers for shipping activities, including reference to harmonised standards.**
-