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DOCUMENT DE TRAVAIL

De:	Secrétariat général du conseil
A:	Groupe "Transports maritimes"
N° Cion doc.:	ST 10327/21 ADD 1-3
Sujet:	Proposition de Règlement du Parlement Européen et du conseil relatif à l'utilisation de carburants renouvelables et bas carbone dans le transport maritime et modifiant la directive 2009/16/CE – Non-papier de la Présidence sur les Annexes I et II

Compte tenu des commentaires exprimés par les États membres jusqu'à présent, la Présidence a révisé le non-papier libellé WK 3260/2022. Toutes les nouvelles modifications portant sur ce non-papier sont indiquées en mode apparent et les précédentes propositions sont considérées, à ce stade, comme acceptées par la Présidence.

Article 9

Certification of fuels and emission factors

1. Where biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuels, as defined in Directive (EU) 2018/2001, are to be taken into account for the purposes referred to in Articles 4(1) of this Regulation, the following rules apply:
 - (a) biofuels and biogas that do not comply with the sustainability and greenhouse gas saving criteria set out in Article 29 of Directive (EU) 2018/2001 or that are produced from food and feed crops shall be considered to have the same emission factors as the least favourable fossil fuel pathway for this type of fuel¹;
 - (b) renewable fuels of non-biological origin and recycled carbon fuels that do not comply with the greenhouse gas emission savings thresholds set out in Article 25(2) of Directive (EU) 2018/2001 shall be considered to have the same emission factors as the least favourable fossil fuel pathway for this type of fuels.
2. On the basis of the Bunker Delivery Notes as complemented pursuant to Annex I, companies shall provide accurate and reliable data on the GHG emission intensity and the sustainability characteristics of biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuel, as certified under a scheme that is recognised by the Commission in accordance with Article 30(5) and (6) of the Directive (EU) 2018/2001.
3. Companies shall be entitled to divert from the default values for the well-to-tank emission factors reported in Annex II of biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuels delivered to the ship in the reporting period, provided that actual values are certified under a scheme that is recognised by the Commission in accordance with Article 30(5) and (6) of the Directive (EU) 2018/2001.
4. Companies shall be entitled to divert from the default values for the tank-to-wake emission factors defined in Annex II provided that actual values are certified by means of laboratory testing or direct emissions measurements. The Commission is empowered to adopt delegated acts in accordance with Article 26, in order to supplement this Regulation by

¹ Presidency has noted comments on this paragraph 1 point (a), and discussions should be held later on this point.

establishing the rules on conducting the laboratory testing and direct emissions measurements or by referring to ISO appropriate test standards in case such standards have been developed.

Article 14

Monitoring and recording

1. As of 1 January 2025, based on the monitoring plan referred to in Article 7, and following the assessment of that plan by the verifier, companies shall record, for each ship arriving in or departing from, and for each voyage to or from a port of call under the jurisdiction of a Member State, the following information:
 - (a) port of departure and port of arrival including the date and hour of departure and arrival and time spent at berth;
 - (b) for each ship that the requirement of Article 5(1) applies, the connection to and use of on-shore power or the existence of any of the exceptions listed in Article 5(3);
 - (c) the amount of each type of fuel consumed at berth and at sea;
 - (d) the well-to-wake emission factors for each type of fuel consumed at berth and at sea, broken down by well-to-tank and tank-to-wake, including fugitive and slipped emissions, covering all relevant greenhouse gases;
 - (e) the amount of each type of substitute source of energy consumed at berth and at sea.

Rest of the Article : omissis

ANNEX I

METHODOLOGY FOR ESTABLISHING THE GREENHOUSE GAS INTENSITY LIMIT ON THE ENERGY USED ON-BOARD BY A SHIP

For the purpose of calculating the greenhouse gas intensity limit of the energy used on-board a ship, the following formula, referred to as Equation (1) shall apply:

GHG intensity index	WtT	TtW
$GHG_{intensity} index \left[\frac{gCO_2eq}{MJ} \right] =$	$\frac{\sum_i^{n_{fuel}} M_i \times CO_{2eqWtT,i} \times LCV_i + \sum_k^c E_k \times CO_{2eqelectricity,k}}{\sum_i^{n_{fuel}} M_i \times LCV_i + \sum_k^c E_k}$	$\frac{+ \sum_i^{n_{fuel}} \sum_j^{m_{engine}} M_{i,j} \times \left[\left(1 - \frac{1}{100} C_{engineslip,j} \right) \times (CO_{2eqTtW,j}) + \left(\frac{1}{100} C_{engineslip,j} \times CO_{2eqTtWslippage,j} \right) \right]}{\sum_i^{n_{fuel}} M_i \times LCV_i + \sum_k^c E_k}$

Equation (1)

where the following formula is referred to as Equation (2):

$$CO_{2eqTtW,j} = \left(C_{fCO_2,j} \times GWP_{CO_2} + C_{fCH_4,j} \times GWP_{CH_4} + C_{fN_2O,j} \times GWP_{N_2O} \right)_i \text{ Equation (2)}$$

Term	Explanation
i	Index corresponding to the fuels delivered to the ship in the reporting period
j	Index corresponding to the fuel consumer units on board the ship. For the purpose of this Regulation the fuel consumer units considered are the main engine(s), auxiliary engine(s), boilers, fuel cells and waste incinerators
k	Index corresponding to the on-shore and off-shore power supply connection points
n	Total number of fuels delivered to the ship in the reporting period
c	Total number of on-shore and off-shore power supply connection points
m	Total number of fuel consumer units
$M_{i,j}$	Mass of fuel i consumed by fuel consumer unit j [gFuel]
E_k	Electricity delivered to the ship <i>per</i> on-shore or off-shore power supply connection point k [MJ]
$CO_{2eqWtT,i}$	WtT GHG emission factor of fuel i [gCO _{2eq} /MJ]
$CO_{2eqelectricity,k}$	WtT GHG emission factor associated to the electricity delivered to the ship at berth <i>per</i> on-shore or off-shore power supply connection point k [gCO _{2eq} /MJ]
LCV_i	Lower Calorific Value of fuel i [MJ/gFuel]
$C_{engineslip,j}$	Non-combusted fuel coefficient as a percentage of the mass of the fuel i consumed by fuel consumer unit j [%]. C_{slip} includes fugitive and slipped emissions.
$C_{fCO_2,j}, C_{fCH_4,j}, C_{fN_2O,j}$	TtW GHG emission factors by combusted fuel in fuel consumer unit j [gGHG/gFuel]
$CO_{2eqTtW,j}$	TtW CO ₂ equivalent emissions of combusted fuel i in fuel consumer unit j [gCO _{2eq} /gFuel] $CO_{2eqTtW,j} = \left(C_{fCO_2,j} \times GWP_{CO_2} + C_{fCH_4,j} \times GWP_{CH_4} + C_{fN_2O,j} \times GWP_{N_2O} \right)_i$
$C_{sfCO_2,j}, C_{sfCH_4,j}, C_{sfN_2O,j}$	TtW GHG emissions factors by slipped fuel towards in fuel consumer unit j [gGHG/gFuel]
$CO_{2eqTtWslippage,j}$	TtW CO ₂ equivalent emissions of slipped fuel i towards fuel consumer unit j [gCO _{2eq} /gFuel] $CO_{2eqTtWslippage,j} = \left(C_{sfCO_2,j} \times GWP_{CO_2} + C_{sfCH_4,j} \times GWP_{CH_4} + C_{sfN_2O,j} \times GWP_{N_2O} \right)_i$ where: $C_{sfCO_2,j}$ and $C_{sfN_2O,j}$ are set to zero.

$GWP_{CO_2}, GWP_{CH_4},$	CO ₂ , CH ₄ , N ₂ O Global Warming Potential over 100 years, <u>which are defined in Directive (EU) 2018/2001, Paragraph 4 of Part C of Annex V</u>
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For the purpose of this regulation the term $\sum_k^c E_k \times CO_{2eq_electricity,k}$ in the numerator of Equation (1) shall be set to zero².

Method for determining [M_i]

The [M_i] mass of fuel shall be determined using the amount reported in accordance with the framework of the reporting under Regulation (EU) 2015/757 for voyages falling within the scope of this Regulation based on the chosen monitoring methodology by the company.

Method for determining WtT GHG factors

The WtT emissions are determined on the basis of the methodology contained in this Annex as provided in Equation (1).

The WtT GHG emission factors ($CO_{2eqWtT,i}$) default values are contained in Annex II.

In the case of fossil fuels, only the default values in Annex II shall be used.

Actual values may be used for biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuel delivered to the ship in the reporting period, provided that they are certified under a scheme that is recognised by the Commission in accordance with Article 30(5) and (6) of the Directive (EU) 2018/2001, in application of Article 9(3).

² Presidency proposes to add the following subparagraph in Article 28 :

*The Commission shall report to the European Parliament and the Council, by 1 January 2030, and every five years thereafter, the results of an evaluation on the functioning of this Regulation and the evolution of the technologies and market for renewable and low-carbon fuels, **on-shore and off-shore power supply** and zero-emission technologies in maritime transport and its impact on the maritime sector in the Union. The Commission shall consider possible amendments including but not limited to:*

*[...] **(d) emission factor associated to the electricity delivered to the ship via on-shore and off-shore power supply.***

Fuel Bunker Delivery Note (BDN)

Under existing MARPOL Annex VI regulations, the BDN is mandatory and information to be included in the bunker delivery note is specified.

For the purposes of this regulation:

- 1) **BDNs including fuels other than fossil fuels used on board shall be complemented with the following information regarding those fuels:**
 - **WtT GHG emission factor CO_{2eq} [gCO_{2eq}/gFuel] and related certificate identifying the fuel production pathway,**
 - **Lower Calorific Value [MJ/g].**
- 2) **[In case of product blending, information required by this regulation shall be given for each product.]**

Electricity Delivery Note (EDN)

For the purposes of this regulation, relevant EDNs for electricity delivered to the ship shall contain at least the following information:

- supplier: name, address, telephone, email, representative
- receiving ship: IMO number (MMSI), ship name, ship type, flag, ship representative
- port: name, location (LOCODE), terminal/ berth
- on-shore or off-shore power supply connection point: connection point details
- on-shore or off-shore power supply time: date/time of commencement/finalisation
- energy supplied: power fraction allocated to supply point (if applicable) [kW], electricity consumption (kWh) for the billing period, peak power information (if available)
- metering

Method for determining TtW GHG factors

The TtW emissions are determined on the basis of the methodology contained in this Annex as provided in Equation (1) and Equation (2)

The TtW GHG emission factors ($CO_{2eq,TtW,j}$) default values are contained in Annex II.

In accordance with its monitoring plan referred to in Article 7 and upon assessment by the verifier, other methods, such as direct CO_{2eq} measurement, laboratory testing, may be used if it enhances the overall accuracy of the calculation, in application of Article 9(4).

Method for determining TtW fugitive and slipped emissions

Fugitive and slipped emissions are emissions caused by the amount of fuel that does not reach the combustion chamber of the combustion unit or that is not consumed by the energy converter. For the purpose of this Regulation, fugitive and slipped emissions are taken into account as a percentage of the mass of the fuel used by the engine. The default values are contained in Annex II.

Methods for determining the reward factors linked to substitute sources of energy

In case substitute sources of energy are installed on board, a reward factor for substitute sources of energy can be applied. In case of wind power such reward factor is determined as follow:

Reward factor for substitute sources of energy- WIND (f_{wind}) ³	$\frac{P_{Wind}}{P_{Prop}}$
[0,99]	[0,1]
[0,97]	[0,2]
[0,95]	[$\geq 0,3$]

Where:

- P_{Wind} is the available effective power of the wind assisted propulsion systems and corresponds to $f_{eff} * P_{eff}$ as calculated in accordance with the *2021 guidelines on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI and EEXI* (MEPC.1/Circ.896);
- P_{Prop} is the propulsion power of the ship and corresponds to P_{ME} as defined in the *2018 guidelines on the method of calculation of the attained energy efficiency design index (EEDI) for new ships* (IMO resolution MEPC.308(73), as amended) and the *2021 guidelines on the method of calculation of the attained energy efficiency existing ships index (EEXI)* (IMO resolution MEPC.333(76)). In case where shaft motor(s) are installed, $P_{Prop} = P_{ME} + P_{PTI(i),shaft}$.

The ship GHG intensity index is then calculated by multiplying the result of Equation (1) by the reward factor.

³ The Presidency notes that the values of the factors f_{wind} and of the factors P_{Wind}/P_{Prop} provided in this table may need to be adjusted, depending on the definition chosen for P_{Wind} and P_{Prop} , and with a view to design a reward factor taking into account actual benefits of wind assisted propulsion systems in a balanced way. Any additional suggestions from delegations, based on scientific data or analysis, will be welcome for further discussion.

ANNEX II

DEFAULT EMISSIONS FACTORS

The default emissions factors contained in the table below shall be used for the determination of the greenhouse gas intensity index referred to in Annex I of this Regulation, except when companies are entitled to divert from these default emissions factors in application of Article 9(3) and (4).

In the table:

- (1) TBM stands for To Be Measured
- (2) N/A stands for Not Available
- (3) The dash means not applicable
- (4) *E* is defined in Directive (EU) 2018/2001, Annexes V and VI

Where a cell indicates either TBM or N/A, the highest default value of the fuel class in the same column shall be used. Where, for a particular fuel class, all cells in the same column indicate either TBM or N/A, default value of the least favourable fossil fuel pathway shall be used.

Table 1 – Default factors

1	2	3	4	5	6	7	8	9
	WtT			TtW				
Fuel Class	Pathway name	<i>LCV</i> $\left[\frac{MJ}{g}\right]$	<i>CO_{2eqWtT}</i> $\left[\frac{gCO_2eq}{MJ}\right]$	Fuel consumer Class	<i>C_{fCO₂}</i> $\left[\frac{gCO_2}{gFuel}\right]$	<i>C_{fCH₄}</i> $\left[\frac{gCH_4}{gFuel}\right]$	<i>C_{fN₂O}</i> $\left[\frac{gN_2O}{gFuel}\right]$	<i>C_{slip}</i> As % of the mass of the fuel used by the engine
Fossil	HFO ISO 8217 Grades RME to RMK	0,0405	13,5	ALL ICEs	3,114	0,00005	0,00018	-

1	2	3	4	5	6	7	8	9
	WtT			TtW				
	LSFO	0,0405	13,2, crude 13,7 blend	ALL ICEs	3,151	0,00005	0,00018	-
	ULSFO	0,0405	13,2	ALL ICEs	3,114	0,00005	0,00018	-
	VLSFO	0,041	13,2	ALL ICEs	3,206	0,00005	0,00018	-
	LFO ISO 8217 Grades RMA to RMD	0,041	13,2	ALL ICEs	3,151	0,00005	0,00018	-
	MDO MGO ISO 8217 Grades DMX to DMB	0,0427	14,4	ALL ICEs	3,206	0,00005	0,00018	-
	LNG	0,0491	18.5	LNG Otto (dual fuel medium speed)	2,750	0	0,00011	3,1
				LNG Otto (dual fuel slow speed)				1,7
				LNG Diesel (dual fuel slow speed)				0,2
				LBSI				N/A
	LPG	0,046	7,8	ALL ICEs	3,030 Butane 3,000 Propane	TBM	TBM	
	H2 (natural gas)	0,12	132	Fuel Cells	0	0	-	-
				ICE	0	0	TBM	
	NH3	0,0186	121	No engine	0	0	TBM	-

1	2	3	4	5	6	7	8	9
	WtT			TtW				
	(natural gas)							
	Methanol (natural gas)	0,0199	31,3	ALL ICEs	1,375	TBM	TBM	-
Liquid biofuels	Ethanol Production Pathways of Directive (EU) 2018/2001	Value as set out in Annex III of Directive (EU) 2018/2001	$E - \frac{C_{fCO_2}}{LCV}$	ALL ICEs	1,913	TBM	TBM	-
	Biodiesel Production Pathways of Directive (EU) 2018/2001			ALL ICEs	2,834	0,00005 ¹ TBM	0,00018 TBM	-
	Hydrotreated Vegetable Oil (HVO) Production Pathways of Directive (EU) 2018/2001			ALL ICEs	3,115	0,00005	0,00018	-
	Biomethane as transport fuel Production Pathways of Directive (EU) 2018/2001			LNG Otto (dual fuel medium speed)	2,750	0	0,00011	3,1
				LNG Otto (dual fuel slow speed)				1,7
				LNG Diesel (dual fuels)				0.2
				LBSI				N/A
	Other Production Pathways of Directive (EU) 2018/2001			ALL ICEs	3,115	0,00005	0,00018	-

¹ The Presidency notes that only one of the numerical value or the “TBM” mention can remain.

1	2	3	4	5	6	7	8	9
	WtT			TtW				
Gaseous biofuels	Bio-H2 Main products / wastes / Feedstock mix	Value as set out in Annex III of Directive (EU) 2018/2001	N/A	Fuel Cells	0	0	0	-
				ICE	0	0	TBM	
Renewable Fuels of non-Biological Origin (RFNBO) - (e- fuels)	e-diesel	0,0427	N/A	ALL ICEs	3,206	0,00005	0,00018	-
	e-methanol	0,0199	N/A	ALL ICEs	1,375	TBM	TBM	-
	e-LNG	0,0491	N/A	LNG Otto (dual fuel medium speed)	2,750	0	0,00011	3.1
				LNG Otto (dual fuel slow speed)				1,7
				LNG Diesel (dual fuels)				0.2
				LBSI				N/A
	e-H2	0,12	N/A	Fuel Cells	0	0	0	-
				ICE	0	0	TBM	
	e-NH3	0,0186	N/A	No engine	0	N/A	TBM	N/A
	e-LPG		N/A					-
	E-DME		N/A					-
Others²	Electricity	-	EU ENERGY MIX	On-shore and off-shore power supply	-	-	-	-

Column 1 identifies the class of the fuels namely Fossils, Liquid Biofuels, Gaseous Biofuels, e-Fuels.

Column 2 identifies the name or the pathway of the relevant fuels within the class.

² The Presidency notes that Recycled Carbon Fuels are not addressed at this stage in the table whereas they are in Article 9.

Column 3 contains the Lower Calorific Value of the fuels expressed in [MJ/g]. For liquid biofuels, values of Energy content by weight (lower calorific value, MJ/kg) as set out in Annex III of Directive (EU) 2018/2001 shall be converted in MJ/g and used.

Column 4 contains the WtT CO_{2eq} emissions values in [gCO_{2eq}/MJ].. For liquid biofuels, the default values shall be calculated by using the values of *E* established in accordance with the methodologies laid down in Directive (EU) 2018/2001, Part C of Annex V for all liquid biofuels except bio-LNG and in Part B of Annex VI for bio-LNG, and on the basis of default values associated to the particular biofuel used as a transport fuel and its production pathway, laid down in that Directive, Part D and E of Annex V for all liquid biofuels except bio-LNG and in Part D of Annex VI for bio-LNG. However, the values of *E* need to be adjusted by subtracting the ratio of the values contained in column 6 (*c_f*_{CO₂}) and column 3 (LCV). This is required in this regulation, which separates the WtT and the TtW calculations, to avoid double counting of emissions.

For RFNBO, default values are to be calculated by using the methodology of the delegated act taken on basis of Article 28.5 of Directive (EU) 2018/2001 (or on basis of the corresponding provisions in the amended Directive, according to the progress of the co-legislators). Column 5 identifies the main types/classes of energy converters such as 2 and 4 strokes Internal Combustion Engines (ICE) Diesel or Otto cycle, Lean-Burn Spark-Ignited (LBSI) engines, gas turbines, fuel cells etc.

Column 6 contains the emission factor *C_f* for CO₂ in [gCO₂/gfuel]. Emissions factors values as specified in the Regulation (EU) 2015/757 shall be used. For all those fuels not contained in Regulation (EU) 2015/757, the default values are specified in the table.

Column 7 contains the emission factor *C_f* for methane in [gCH₄/gfuel]. For LNG fuels *C_f* for methane are set to zero.

Column 8 contains the emission factor *C_f* for nitrous oxide in [gN₂O/gfuel].

Column 9 identifies the part of fuel lost as fugitive and slipped emissions (*C_{slip}*) measured as % of mass of fuel used by the specific energy converter. For fuels such as LNG for which the fugitive and slipped emissions exist, the amount of fugitive and slipped emissions as presented in the table is expressed in % of the mass of fuel used (Column 9). The values of *C_{slip}* in the table are calculated at 50% of the full engine load.