



# **Climate Impacts of Exemptions to EU's Shipping Proposals**

Arbitrary exemptions undermine integrity of shipping laws

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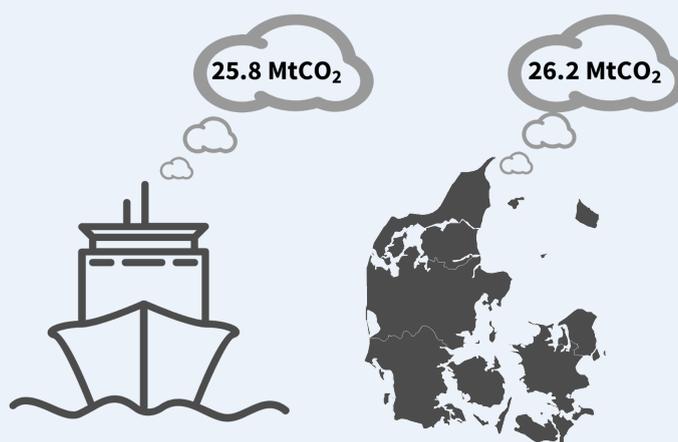
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## Executive Summary

In July 2021, the European Commission published a set of proposals to decarbonise the maritime sector. However, the proposed carbon pricing scheme (ETS) and the low GHG fuel standard (FuelEU Maritime) will only apply to ships above 5,000 GT and exclude a number of ship types such as offshore vessels, fishing vessels and yachts. The huge importance of these proposals for the future of the shipping sector necessitates a detailed look into the impact of the choice of the size threshold and exemptions. This study has therefore taken data on maritime emissions in Europe in 2019 from Marine Benchmark to investigate the emissions from vessels under 5,000 GT and in segments not covered by the EU's Monitoring, Reporting and Verification (MRV) Regulation. The geographical scope chosen is the same as the Commission's proposals, that is, 100% of emissions from voyages between EU ports and 50% of emissions from voyages between EU and non-EU ports.

### EU shipping proposals exempt as much pollution as Denmark's total annual CO<sub>2</sub> emissions



**Note:** Total excluded CO<sub>2</sub> emissions include 2019 emissions from all ships under 5,000 GT as well as emissions from fishing, service, offshore, yacht and military vessels. 2020 CO<sub>2</sub> emissions from Denmark from <https://ourworldindata.org/co2/country/denmark> using Global Carbon Project data (2021). This figure does not include Denmark's non-CO<sub>2</sub> emissions.

Figure E.1: EU shipping proposals exempt as many emissions as Denmark's annual CO<sub>2</sub> emissions

The study has found serious potential impacts of the current set of exemptions on the proposals' climate integrity. Total CO<sub>2</sub> emissions from the exempted vessels amounted to 25.8 Mt - comparable to the total CO<sub>2</sub> emissions of Denmark in 2020, 26.2 Mt. Ships under 5,000 GT make up a total of 19.7 MtCO<sub>2</sub>, while 16.1 MtCO<sub>2</sub> is exempted from ships of all sizes in segments not covered by the MRV (including offshore, service, yacht and vessels classed by Marine Benchmark as 'miscellaneous', mostly meaning military vessels). In particular, the exemption of 8.0 MtCO<sub>2</sub> from offshore ships (for

example those servicing offshore oil and gas installations or pipelines), is shown to be surprising given the high average emissions per vessel in this segment compared to bulk carriers and tankers. Similarly, ships just below the 5,000 GT threshold are shown to have higher average emissions and engine propulsion power than ships just above the threshold.

The European Commission justified its choice of the size threshold on the basis of administrative burden, claiming that it would exempt 45% of ships that operate in Europe but only 10% of emissions. Yet this study has found that total exemptions under 5,000 GT equate to 15% of total emissions from all vessels as per the proposed ETS geographical scope, with total emissions exempted almost 20% of total maritime emissions.

## Exempted emissions: small number of offshore vessels emit large amounts

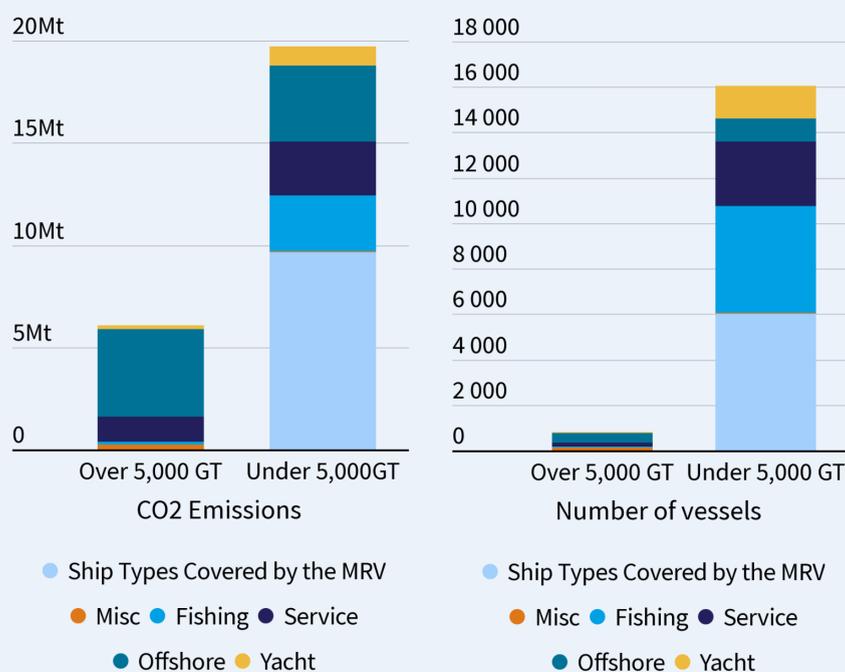
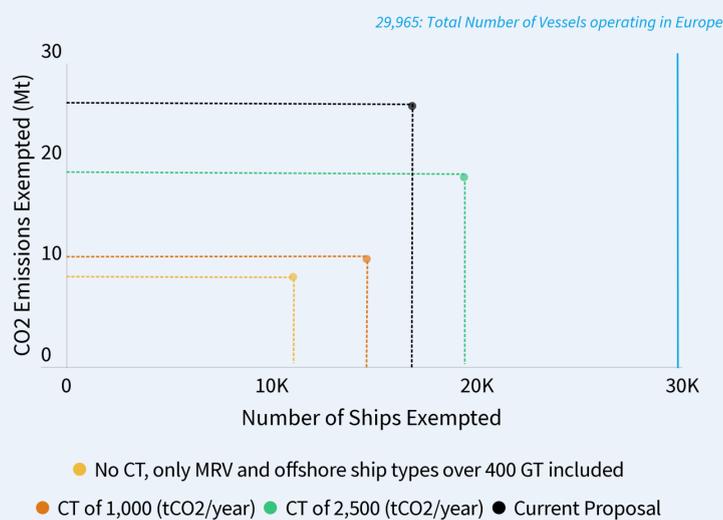


Figure E.2: Amount of exempted emissions and vessels on either side of the 5,000 GT threshold

This study has thus found that the current threshold proposal is untenable for its unintended climate effects. As a bare minimum, policy-makers should reduce the threshold to 400 GT and include offshore vessels in the shipping proposals. To further reduce administrative burden on vessels that do not operate much each year, policy-makers could consider a carbon threshold whereby vessels above 400 GT are only obliged to comply with the EU's ETS if they report more than 1,000 tCO<sub>2</sub> in the previous year's MRV.

The impact of a carbon threshold on the number of ships and amount of emissions exempted is shown in Figure E.3. The black line shows the CO<sub>2</sub> and number of ships exempted in the current proposals. The yellow line shows the exemptions if ships already covered under the MRV and offshore vessels above 400 GT were regulated. The orange line adds a carbon threshold of 1,000 tCO<sub>2</sub> to the yellow line. The difference between the black and orange lines show that implementing this policy in the ETS would **increase emissions coverage compared to the current proposals by 15.1 Mt to 120.5 Mt from a total of 15,337 ships (or just 2,214 additional vessels).**

### Emissions and number of ships exempted under current proposal and with or without a Carbon Threshold (CT)



**Note:** Remaining ships and emissions exempted under yellow line refer to ships under 400 GT and service, fishing, yacht and military vessels.

Figure E.3: Number of ships and amount of emissions exempted in different scenarios: current proposal, all ships and ship types except fishing, service and yachts over 400 GT regulated and the latter scenario with carbon thresholds

In light of these findings, Transport & Environment recommends that the EU policy-makers amend the threshold in all relevant shipping proposals (MRV, ETS, AFIR and FuelEU) to 400 GT. Policy-makers should also end the exemptions for other ship types (service, fishing, yacht and those classed as ‘miscellaneous’) but most importantly offshore vessels. Policy-makers could also consider a carbon threshold where only vessels polluting more than 1,000 tCO<sub>2</sub>/year are obligated to surrender allowances under the ETS. These would require minimal revisions to the proposed ETS Directive and the EU shipping MRV Regulation (2015/757).

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# 1. Introduction

In November 2021, the first commercial battery-powered zero emissions container ship entered into operation. Measuring at 3,221 GT, the Yara Birkeland is an excellent example of innovation in green shipping and model for future zero-emissions vessels (ZEVs)[1]. Designs for ZEVs around this size using hydrogen fuel cells rather than batteries are similarly being planned and approaching market-readiness. These projects nonetheless face one key obstacle; whereas ships above 5,000 GT will be obliged to pay for their greenhouse gas emissions under the EU's ETS and progressively transition to cleaner fuels under the FuelEU Maritime Regulation, ships under 5,000 GT will have no uniform European decarbonisation legislation. This means that ships like the Yara Birkeland that use greener but more expensive energy carriers will find it very hard to find a business case to compete against ships using cheap and abundant fossil fuels.

In order to better understand the potential climate impacts of exempted ships and ship types, Transport & Environment has undertaken an investigation into the emissions profile of ships exempted by the Commission's proposal using data from Marine Benchmark as well as information provided by shipping companies.

## 1.1 Legislative context

The forthcoming ETS and FuelEU Maritime legislations will regulate ships above 5,000 GT, on the basis of the 2015 EU shipping MRV regulation. This threshold was chosen with the justification that “*Ships above 5,000 GT account for around 55% of the number of ships calling into Union ports and represent around 90% of the related emissions*”[2]. Recent IMO legislation has followed in the EU's footsteps: the Data Collection System (DCS), modelled on the EU's MRV, applies to ships above 5,000 GT while the 2021 Carbon Intensity Index (CII) will also only apply to ships above this threshold.

On the face of it, gross tonnage is a peculiar choice as a parameter. GT does not in fact measure weight, but is calculated based on the moulded volume of all enclosed spaces of the ship thus includes the volume of space available to cargo, passengers, crew, stores and shelters within a ship. As such, the metric is not a true representation for a ship's power or its climate impact. This means that a range of features related to ship safety, efficiency and social standards may serve to increase the ship's gross tonnage, but not its deadweight tonnage (DWT), the measure of how much weight a ship can carry and a more traditional measurement of a ship's size.

Furthermore, looking at the legislative history, the choice of the 5,000 GT threshold is a curious one. There are no legislative precedents of a 5,000 GT threshold at the IMO or in the EU before the MRV. The EU's Ship Recycling Legislation applies to ships above 500 GT[3]; the European Directive on statistics for maritime transport includes an option exemption for vessels under 100 GT[4]; the 2004 Regulation on ship and port facility security similarly only applies to ships above 500 GT[5]. Similarly, the IMO's International Code for Ships Operating in Polar Waters (the Polar Code) adopted in 2014 is only mandatory for ships above 500

GT [6] and all IMO climate legislations before 2018 applied to ships above 400 GT: the Energy Efficiency Design Index (EEDI), the Energy Efficiency Existing Ship Index (EEXI), and the Ship Energy Efficiency Management Plan (SEEMP).

The legislation similarly exempts a number of shipping segments, including: fishing vessels, service and offshore vessels and yachts. While there are precedents for excluding military emissions from regulation, the exclusion of service and offshore vessels is less understandable. The Commission had previously defined maritime transport as including “offshore supply services”[7] implying that offshore vessels - those, for example, that service offshore oil and gas or lay gas pipelines - should be subject to regulations concerning maritime transport.

The European Commission has, however, recognised that the threshold may pose problems relating to competition, noting that “*if there were deliberate evasion of this type [to vessels under 5 000 GT], the Council and European Parliament could lower the relevant thresholds.*” As a result of the climate impacts, this Study suggests the Commission should reconsider the exemptions.

## 2. Climate Impact

In order to have a clear idea of the climate impact of the exemptions to the EU and IMO’s recent shipping proposals, T&E has obtained data from Marine Benchmark (see Annex) of vessels for the year 2019<sup>1</sup>. As per Figure E.1, emissions from exempted sectors amount to 25.8 Mt, comparable to the total annual CO<sub>2</sub> emissions of Denmark in 2020 [8].

These emissions come from a total of 16,842 vessels, compared to the 13,123 vessels reported by Marine Benchmark to be eligible for the MRV (i.e. ship types including containers, bulk carriers, tankers, ro-ro, cruise over 5,000 GT). Taking only the emissions exempted under the 5,000 GT threshold, there are 19.7 Mt of emissions or 15% of the total shipping emissions related to the EU in 2019.

Figure E.2 shows that ship types already covered under the MRV under 5,000 GT emitted 9.6 Mt of carbon in 2019 from a total of 6,006 ships. Offshore vessels emitted the next highest amount across ship types under 5,000 GT: 3.8 Mt across 986 ships. Service vessels (such as tugs and dredgers) under 5,000 GT polluted a total of 2.6 Mt from 2,857 vessels; fishing ships accounted for 2.7 Mt of pollution from the relatively greater 4,688 vessels. 1,459 yachts under 5,000 GT emitted 0.9 Mt, whilst military vessels (classed as miscellaneous) emitted a small amount: 0.06 Mt from 56 ships.

The amount polluted from offshore vessels above 5,000 GT is significant: 4.3 Mt from just 411 ships. Thus, the total amount of CO<sub>2</sub> emitted from offshore vessels - exempted in the shipping proposals - is striking:

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<sup>1</sup> Marine Benchmark data gives the total amount of emissions from ships above 5,000GT covered in the MRV from voyages between EU ports and 50% of emissions from voyages between EU and non-EU ports (the same geographical scope as the ETS and FuelEU Maritime proposals) as 105.1 Mt in 2019. The number for total shipping emissions in the same scope is 131.2 Mt.

8.0 Mt of emissions from just 1,397 ships, higher than the entire national emissions of Latvia in 2019[9].

## Average emissions per ship type

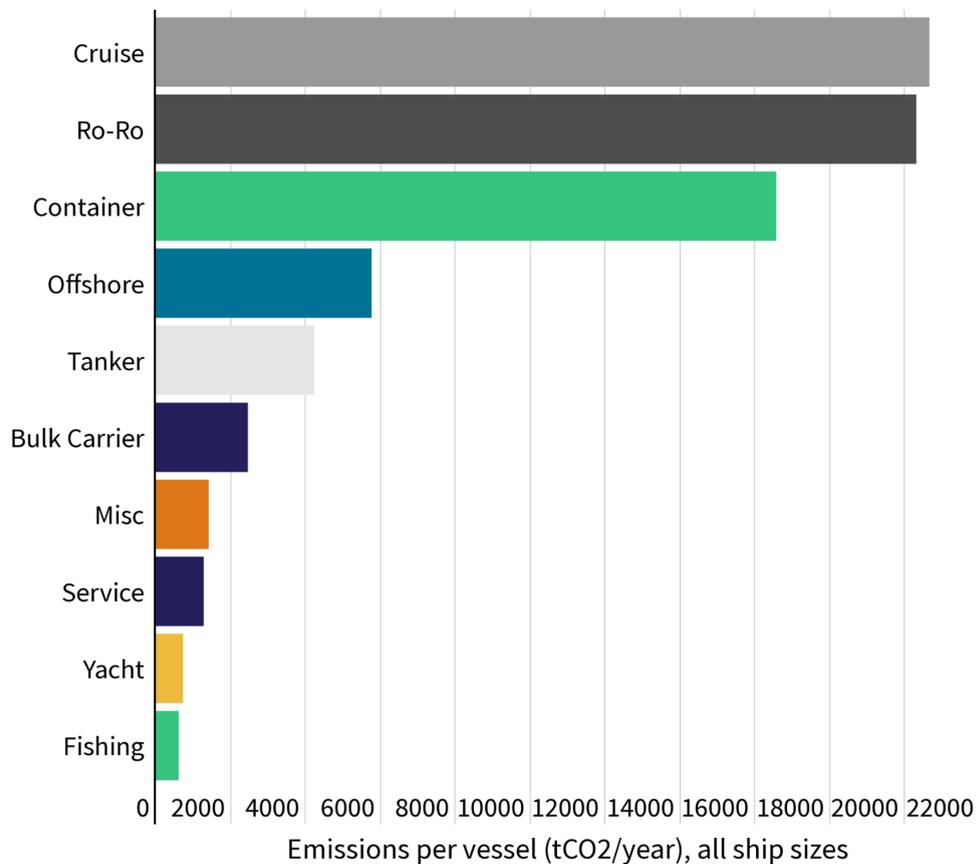


Figure 3: Average emissions per ship type for all ship sizes

As per Figure 3, emissions per vessel (for all sizes, not just those under 5,000 GT) are on average lowest for fishing vessels (608 tCO<sub>2</sub>/year) and yachts (725 tCO<sub>2</sub>/year). Bulk carriers and tankers have much lower individual emissions on average than cruise, ro-ro and container vessels. It is notable that offshore vessels have average emissions of 5,757 tCO<sub>2</sub>/year, almost double the average emissions of bulk carriers (2,454 tCO<sub>2</sub>/year).

## Offshore vessels under 5,000 GT have the highest average emissions of any ship type

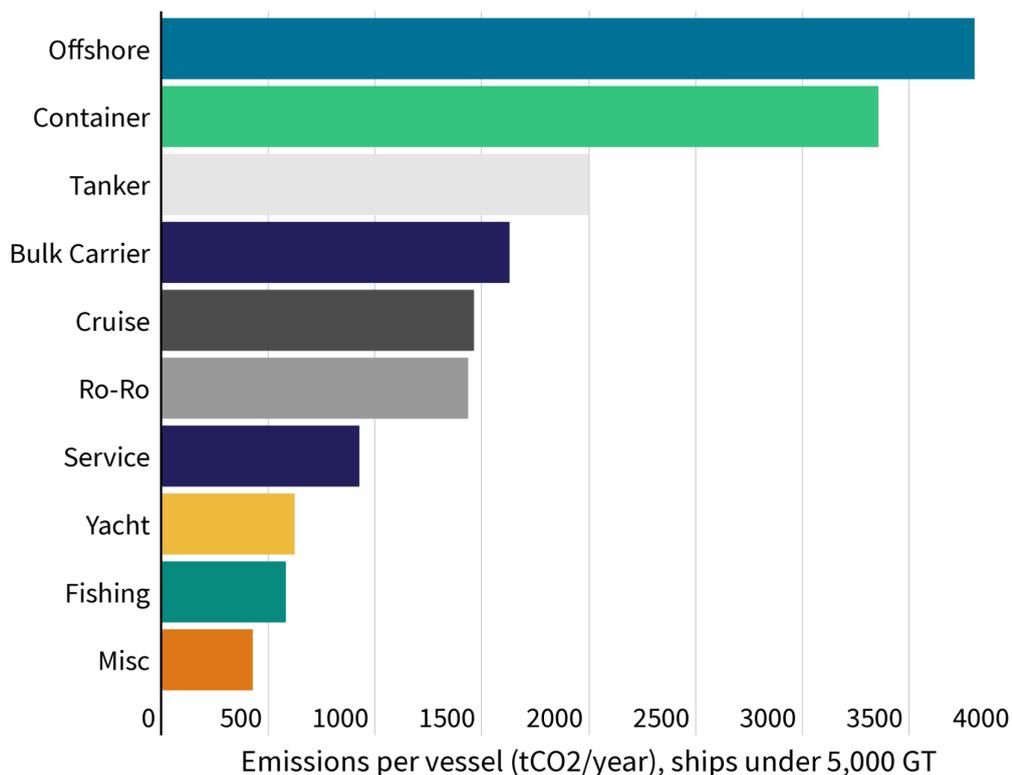


Figure 4: Average emissions per ship type for all ships below 5,000 GT

Figure 4 shows the average emissions per vessel for ships under 5,000 GT. Average emissions remain low for fishing vessels, at 579 tCO<sub>2</sub>/year. Vessels categorised as miscellaneous have the lowest average emissions under 5,000 GT. Taken with Figure 3, this shows that a small number of military vessels above 5,000 GT are highly polluting, while vessels under 5,000 GT do not emit so much per year. Notably, offshore vessels under 5,000 GT have the highest average emissions (3,805 tCO<sub>2</sub>/year), higher than containerships (3,355 tCO<sub>2</sub>/year) and more than double the average emissions of bulk carriers (1,627 tCO<sub>2</sub>/year), cruise ships (1,461 tCO<sub>2</sub>/year) and ro-ro vessels (1,433 tCO<sub>2</sub>/year). The high average emissions for containerships under 5,000 GT demonstrates the need for price signals and regulation in this segment to incentivise innovation such as that of the Yara Birkeland (whose gross tonnage, as a reminder, is 3,221).

## Higher average emissions and engine power for ships just over 5,000 GT shows how arbitrary EU shipping rules are

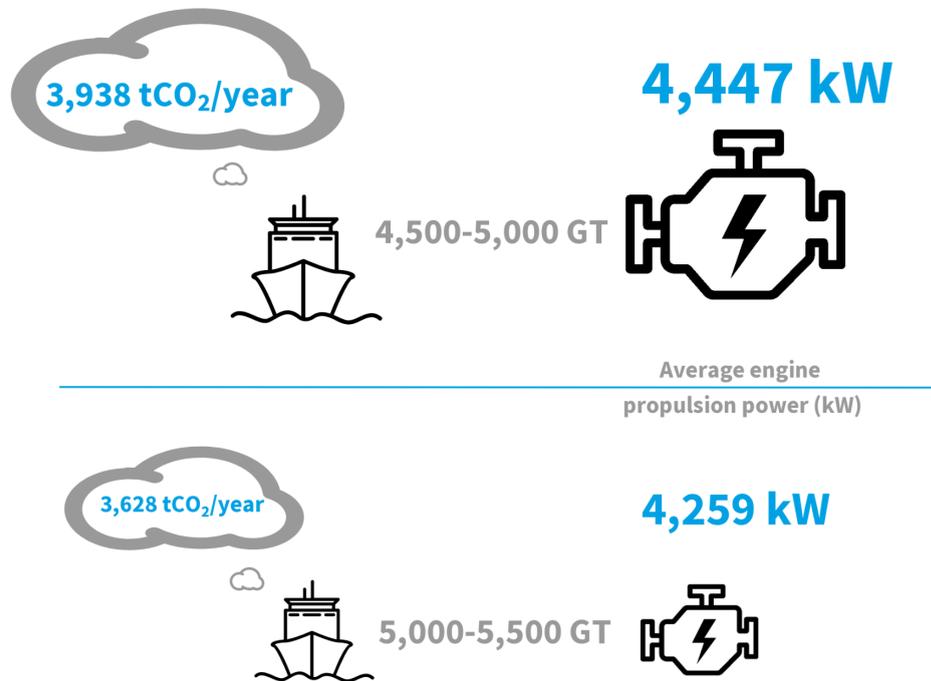


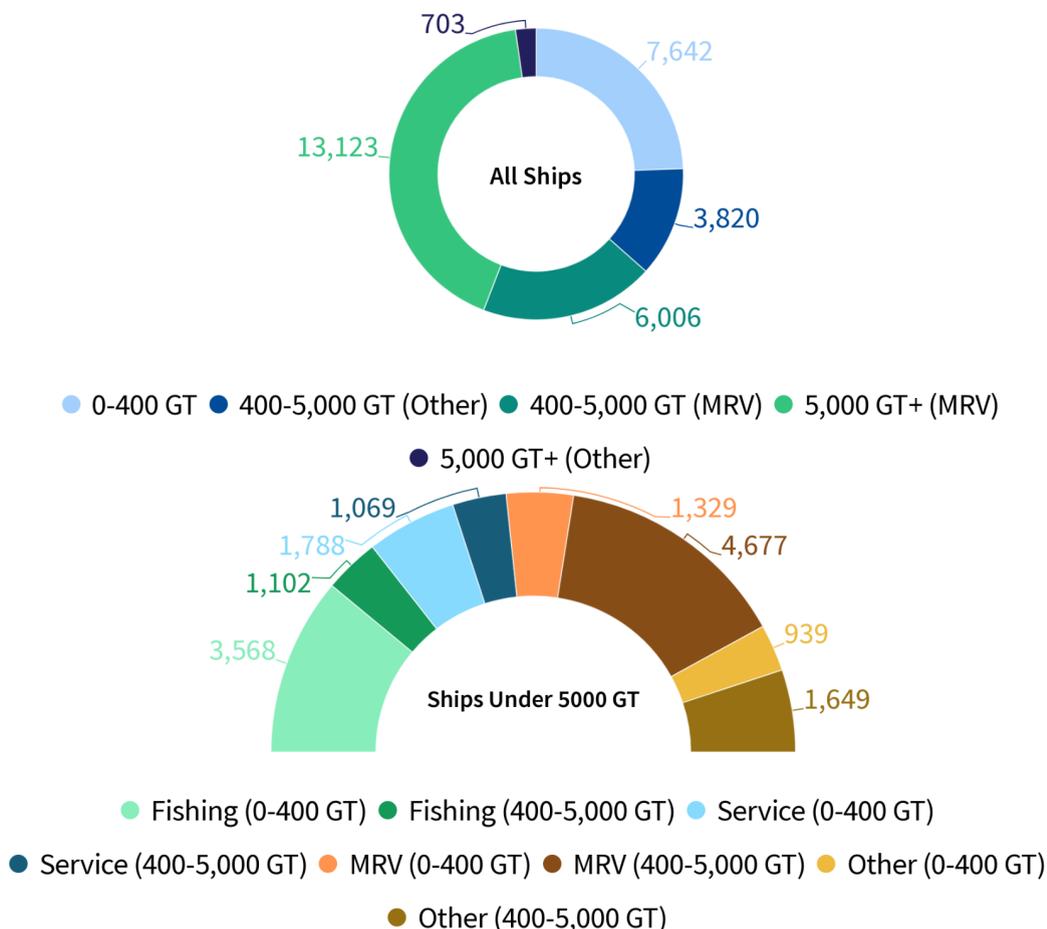
Figure 5: Average CO<sub>2</sub> and engine propulsion power for all ships types from 4,500-5,000 GT and 5,000-5,500 GT

Figure 5 shows average CO<sub>2</sub> emissions and engine propulsion power for all ship types on either side of the 5,000 GT threshold. While the ‘smaller’ ships between 4,500 and 5,000 GT emitted on average 3,983 t/CO<sub>2</sub> in 2019, the ‘larger’ ships emitted nearly 300 tCO<sub>2</sub> less, at 3,628. The comparison of average propulsion power further demonstrates the inadequacy of the 5,000 GT threshold: ships under the threshold had on average higher engine power (4,447 kW) than those above (4,259 kW).

### 2.1 Number of vessels

The European Commission’s justification for the 5,000 GT threshold hinges on the allegedly high number of vessels for a low amount of emissions. Looking at the number of ships under the threshold in each category demonstrates that the picture is more complicated.

## Number of ships per size and type



**Note:** "MRV" indicates the ship types (containerships, bulk carriers, tankers, ro-ro, cruise...) regulated under the EU MRV.

Figure 6: Number of ships per size and type

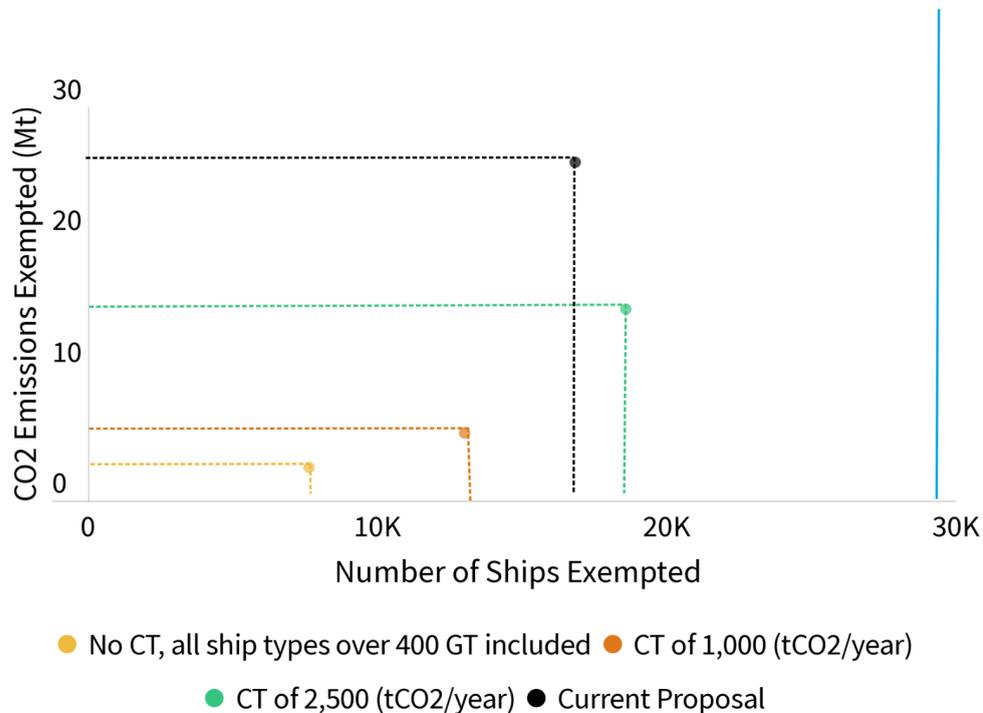
Figure 6 shows that the majority of ships under the 5,000 GT threshold are from ship types not covered in the MRV. Of the ship types covered under the MRV, only 6,006 ships are under 5,000 GT, or just 20% of the total ships. Of these 6,006 ships, 1,329 fall under 400 GT. This graph highlights that fishing and service vessels have the highest number of vessels under 5,000 GT. Fishing ships (4,670) and service ships such as tugs and dredgers (2,857) account for nearly half of the ships under 5,000 GT. Moreover, a majority of fishing and service vessels (71.16% of the total number of vessels in those ship types) are under 400 GT. An exclusion for these ship types on the basis of administrative burden might then be justified below the 400 GT limit, whereas an exclusion for offshore ships (accounting for only 715 vessels between 400 GT and 5,000 GT) is revealed to be unjustified.

## 2.2 Measures to address administrative burden

The issue of Small and Medium Size Enterprises (SMEs) has been an important consideration in the debate over the integration of shipping in the ETS. The European Community Shipowners' Association (ECSA), for instance, has called for EU proposals, in particular the ETS, to cater for the needs of SMEs in shipping that normally have higher marginal operating costs[10].

### Emissions and number of ships exempted under current proposal and with or without a Carbon Threshold (CT)

29,965: Total Number of Vessels operating in Europe



**Note:** The yellow line - showing ships and emissions exempted above 400 GT from **all** ship types - serves as a baseline to measure the effect of carbon thresholds in the orange and green lines.

Figure 7: Number of ships and amount of emissions exempted in different scenarios: current proposal, all ships and ship types over 400 GT regulated and all ships and ship types over 400 GT with carbon thresholds

One potential way to address the issue of SMEs is through a carbon threshold. This instrument would

work as such: ships above 400 GT would be obliged to report their fuel consumption in the MRV, but only vessels that report emissions over a certain amount (such as 1 000 tonnes) in the previous year's MRV would be subject to the ETS. Such a carbon threshold is already the case with stationary installations and planes in the ETS. For shipping, a carbon threshold would ensure only emitters with a large turnover - and therefore the financial and administrative means to operate in a carbon market - would be subject to the ETS.

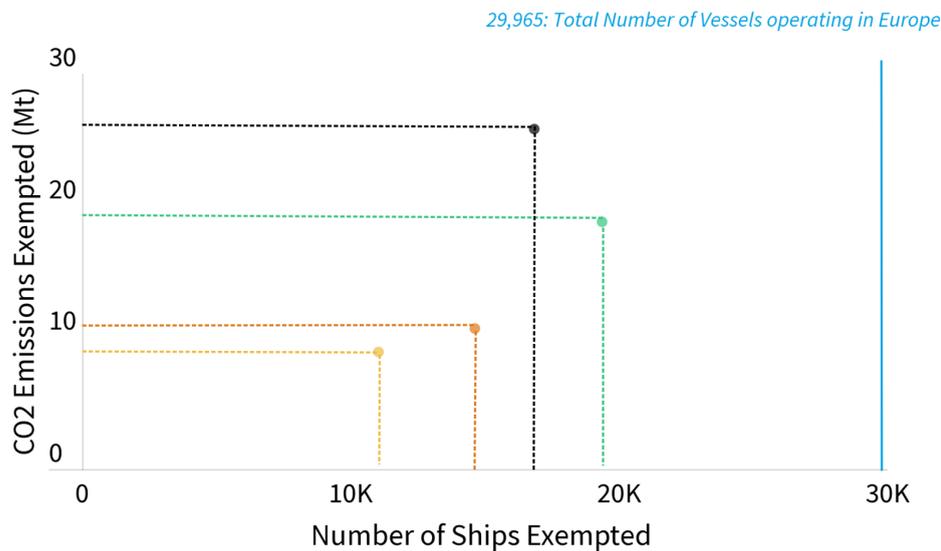
Figure 7 shows the relative coverage in terms of number of exempted vessels and emissions in different scenarios if all ships and ship types above 400 GT are included in the EU's proposals: no carbon threshold, a carbon threshold of 1,000 tCO<sub>2</sub> per year, a carbon threshold of 2,500 tCO<sub>2</sub> per year and the EU's current proposals.

The graph shows that if all ship types above 400 GT were included in the EU's shipping legislation, 7,642 vessels and 2.5 Mt of emissions would be exempted. If a carbon threshold of 1,000 tCO<sub>2</sub>/year were implemented, 13,091 ships and 5.2 Mt of emissions would be exempt. This would make total emission coverage 126 Mt, 20 Mt above current coverage, with just 56.5% of ships covered. If the carbon threshold were set at 2,500 tCO<sub>2</sub>/year, 18,593 would be exempted (62% of the total fleet). This would cover 116.6 Mt or 89% of total shipping emissions, over 10 Mt more emissions than currently proposed from fewer ships. Figure 7 reveals that a large number of the exempted ship types (service, fishing...) emit less than 2,500 tCO<sub>2</sub>/year. A carbon threshold would therefore be an equitable way to regulate emissions while avoiding undue financial burden to ships that do not perform so much business activity.

Figure 8 again displays the coverage of carbon thresholds, but this time with fishing vessels, services vessels, yachts and ships classed as miscellaneous exempted from coverage (these vessels thus appear within the yellow lines). Given that the excluded ship types (in particular fishing and service vessels) represent a high number of vessels, the baseline number of ships exempted - represented by the yellow line - is much higher than Figure 7. However, the amount of emissions exempted does not rise dramatically (from 2.5 Mt from 7,642 vessels in Figure 7 to 8.9 Mt from 11,039 vessels in Figure 8). The baseline in Figure 8 therefore covers 63% of ships and 93% of emissions.

A carbon threshold of 1,000 tCO<sub>2</sub>/year would exclude a further 3,589 vessels with only a relatively small amount of carbon coverage lost (1.8 Mt). The total number of ships exempted would be 14,628, around 50% of the fleet, with emissions coverage at 120.5 Mt or 92%. A carbon threshold of 2,500 tCO<sub>2</sub>/year would exempt 19,367 (65%) vessels while covering 112.4 Mt (86%). Integrating a carbon threshold into the ETS is therefore shown to be the most effective policy option in terms of emissions covered and administrative burden. Emissions coverage would increase by 15.1 Mt compared to the current proposals to 120.5 Mt from a total of 15,337 ships - just 2,214 additional vessels.

## Emissions and number of ships exempted under current proposal and with or without a Carbon Threshold (CT)



- No CT, only MRV and offshore ship types over 400 GT included
- CT of 1,000 (tCO2/year) ● CT of 2,500 (tCO2/year) ● Current Proposal

**Note:** The yellow line - showing ships and emissions exempted above 400 GT only from ship types covered by the MRV and offshore vessels - serves as a baseline to measure the effect of carbon thresholds in the orange and green lines.

Figure 8: Number of ships and amount of emissions exempted in different scenarios: current proposal, all MRV ships and offshore vessels over 400 GT regulated and the latter scenario with carbon thresholds

Figures 7 and 8 on carbon thresholds clearly show the ineffectiveness of the current threshold to tackle emissions. Including vessels under 5,000 GT and more ship types with a carbon threshold would ensure the polluter-pays principle is implemented without undue financial burden for ships with less business activity and so turnover.

It should be noted that a carbon threshold would reduce burden for SMEs but would mean those businesses should report only their annual fuel consumption in the MRV. This would in reality not amount to significant administrative burden given that every shipping company is keenly aware of its fuel consumption and fuel bills, so the reporting of this information would require no new monitoring.

An additional measure to make sure the shipping proposals do not have disproportionate impacts on citizens that rely on maritime transport (such as those living in islands or remote areas) would be an exemption for ships operating under Public Service Obligations (PSOs) or Public Service Contracts (PSCs). In this way vessels such as ferries servicing vulnerable communities would not increase their costs, while ensuring that the polluter-pays principle is implemented to the maritime sector. This would apply to a small number of ro-ro and ferries between 400 and 5,000 GT, which account for 1.1 Mt of emissions from 796 vessels. This would thus not undermine the climate impact of the proposal, although this Study did not investigate the impact of such an exemption.

### 3. Conclusions

This Study has shown the climate impacts of the exemptions in the European Commission's shipping proposals. The total emissions from exempted vessels has been shown to be significant: 25.8 Mt, including 19.7 Mt from vessels under 5,000 GT or 17.2 Mt from vessels between 400 and 5000 GT. While there are more vessels under the threshold, it has been shown that a significant proportion of the number of vessels are in the service and fishing sectors - currently exempted from regulation. Emissions from the offshore sector have been revealed to be particularly high.

This study has also shown that a carbon threshold could mitigate concerns about financial and administrative burden by ensuring that only ships with high business activity - and consequently high turnover - would be subject to shipping legislation. A carbon threshold of 1,000 tCO<sub>2</sub>/year would ensure both the environmental integrity of the proposals - increasing coverage by 15.1 Mt to 120.5 Mt - while mitigating any potential concerns over administrative burden, as only 2,214 additional vessels would be subject to the ETS compared to the current proposal.

It should be recalled that no shipping sector is currently liable for environmental costs as marine fuels are still exempted from tax. The proposal for a revision of the Energy Taxation Directive is tasked to change this, but faces significant challenges, given that the proposal can only pass if it receives unanimity of the EU member states in the Council. As such, a true implementation of the polluter pays principle putting all maritime transport in line with other transport modes would mean implementation of the ETS for all ship types and sizes.

Finally, as brought out by the example of the Yara Birkeland, the European Commission is losing a huge chance to kickstart maritime innovation by exempting ships under 5,000 GT. Battery and fuel-cell technologies will first be deployed in smaller vessels before being scaled up for use on larger vessels. As such, the decision to exempt these segments from price signals is a curious one, which will further delay decarbonisation in a sector that dearly needs regulatory direction to reduce its significant climate impact.

### 3.1 Recommendations

In light of these conclusions, T&E recommends:

- Include vessels over 400 GT in the EU's shipping legislation (i.e. ETS, FuelEU Maritime and AFIR);
  - This can be done with an 'MRV-lite' where shipping companies with vessels between 400 and 5,000 GT would only have to declare their fuel consumption and fuel specifications (type of fuel, its carbon factor and energy density) over the year;
- Include offshore vessels in the EU's shipping legislation;
  - As is the case for ro-ro vessels, an offshore vessel's DWT could be used as a proxy for its energy efficiency where needed;
- Policy-makers should consider including all vessels types (including fishing vessels, service vessels, yachts and military vessels) in shipping legislation given the lack of climate regulation in those sectors;
- If it is clearly demonstrated that there will be an overbearing administrative burden on SMEs, then policy-makers should consider a carbon threshold of 1,000 tCO<sub>2</sub> per year for the application of the EU legislation (i.e. ETS and FuelEU Maritime).

## Annex: Data (from Marine Benchmark)

Data provided from Marine Benchmark (<https://www.marinebenchmark.com/>). Marine Benchmark is a marine intelligence data provider, taking information from IHS Markit and the Global UN ship register.

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**Figure E.2: Exempted CO<sub>2</sub> emissions (tonnes)**

	<i>Ship Types Covered by the MRV</i>	<i>Misc</i>	<i>Fishing</i>	<i>Service</i>	<i>Offshore</i>	<i>Yacht</i>
<i>Over 5,000 GT</i>	n/a: not exempted by the Commission's proposals	219,482	167,345	1,212,937	4,290,242	170,525
<i>Under 5,000GT</i>	9,623,737	60,704	2,715,834	2,638,700	3,752,488	905,519

**Figure E.2: Exempted number of ships**

	<i>Ship Types Covered by the MRV</i>	<i>Misc</i>	<i>Fishing</i>	<i>Service</i>	<i>Offshore</i>	<i>Yacht</i>
<i>Over 5,000 GT</i>		143	47	163	411	26
<i>Under 5,000 GT</i>	6,006	56	4,688	2,857	986	1,459

**Figure 3: Average CO<sub>2</sub> emissions per ship (all ship sizes)**

<i>Cruise</i>	20,641.75
<i>Ro-Ro</i>	20,293.04
<i>Container</i>	16,555.44
<i>Offshore</i>	5,757.14

<i>Tanker</i>	4,221.60
<i>Bulk Carrier</i>	2,453.54
<i>Misc</i>	1,407.97
<i>Service</i>	1,275.38
<i>Yacht</i>	724.61
<i>Fishing</i>	608.91

**Figure 4: Average CO<sub>2</sub> emissions per ship (below 5,000 GT)**

<i>Offshore</i>	3,805.77
<i>Container</i>	3,355.23
<i>Tanker</i>	1,997.70
<i>Bulk Carrier</i>	1,627.19
<i>Cruise</i>	1,460.59
<i>Ro-Ro</i>	1,433.40
<i>Service</i>	923.59
<i>Yacht</i>	620.64
<i>Fishing</i>	579.32
<i>Misc</i>	424.51

**Figure 5: Average emissions and engine power for ships on either side of the 5,000 GT threshold**

	<i>4,500-500GT</i>	<i>5,000-5,500 GT</i>
<i>Average emissions (tCO<sub>2</sub>/year)</i>	3,938	3,628
<i>Average engine propulsion power (kW)</i>	4,447	4,259

**Figure 6: Number of vessels (all sizes)**

<i>0-400 GT</i>	7642
<i>400-5,000 GT (non-MRV)</i>	3820
<i>400-5,000 GT (MRV)</i>	4677
<i>5,000 GT+ (MRV)</i>	13123
<i>5,000 GT+ (non-MRV)</i>	703

**Figure 6: Number of vessels (under 5,000 GT)**

<i>Fishing (0-400 GT)</i>	3,568
<i>Fishing (400-5,000 GT)</i>	1,102
<i>Service (0-400 GT)</i>	1,788
<i>Service (400-5,000 GT)</i>	1,069
<i>MRV (0-400 GT)</i>	1,329
<i>MRV (400-5,000 GT)</i>	4,677
<i>Other (0-400 GT)</i>	939
<i>Other (400-5,000 GT)</i>	1,649

**Figure 7: CO<sub>2</sub> emissions and number of ships exempted under current proposal and with or without a carbon threshold**

	<i>Number of Ships</i>	<i>Emissions (Mt)</i>
<i>No CT, all ship types over 400 GT included</i>	7,642	2.5

<i>CT of 1,000 (tCO2/year)</i>	13,019	5.2
<i>CT of 2,500 (tCO2/year)</i>	18,593	14.6
<i>Current Proposal</i>	16,842	25.8

**Figure 8: CO<sub>2</sub> emissions and number of ships exempted under current proposal and with or without a carbon threshold**

	<i>Number of Ships</i>	<i>Emissions (Mt)</i>
<i>No CT, only MRV and offshore ship types over 400 GT included</i>	11,039	8.9
<i>CT of 1,000 (tCO2/year)</i>	14,628	10.7
<i>CT of 2,500 (tCO2/year)</i>	19,367	18.8
<i>Current Proposal</i>	16,842	25.8

## Ship types

Offshore	Service	Miscellaneous
Accommodation Platform, jack up	Anchor Handling Vessel	Accommodation Vessel, Stationary
Accommodation Platform, semi submersible	Articulated Pusher Tug	Aircraft Carrier
Accommodation Ship	Backhoe Dredger	Command Vessel
Anchor Handling Tug Supply	Bucket Ladder Dredger	Crane Vessel, non propelled
Crane Platform, jack up	Buoy & Lighthouse Tender	Deck Cargo Pontoon, non propelled
Crew Boat	Buoy Tender	Deck Cargo Pontoon, semi submersible
Crew/Supply Vessel	Cable Layer	Destroyer
Diving Support Vessel	Cable Repair Ship	Diving Vessel, Naval Auxiliary
Drilling Rig, jack up	Crane Vessel	Exhibition Vessel
Drilling Rig, semi submersible	Cutter Suction Dredger	Frigate
Drilling Ship	Dredger (unspecified)	Helicopter Carrier
FPSO, Oil	Dredging, Inland Waterways	Hospital Vessel
FSO, Gas	Fire Fighting Vessel	Infantry Landing Craft
FSO, Oil	Grab Dredger	Landing Ship (Dock Type)
Gas Processing Vessel	Grab Hopper Dredger	Logistics Vessel (Naval Ro-Ro Cargo)
Maintenance Platform, semi Submersible	Hopper, Motor	Minehunter
Offshore Construction Vessel, jack up	Hopper/Dredger (unspecified)	Minelayer
Offshore Support Vessel	Icebreaker	Minesweeper
Offshore Tug/Supply Ship	Icebreaker/Research	Mission Ship
Pipe Burying Vessel	Lighthouse Tender	Museum, Stationary
Pipe Carrier	Mooring Vessel	Other Activities, Inland Waterways
Pipe Layer	Patrol Vessel	Pontoon (Function Unknown)
Pipe Layer Crane Vessel	Pilot Vessel	Power Station Vessel

Pipe layer Platform, semi submersible	Pollution Control Vessel	Replenishment Dry Cargo Vessel
Platform Supply Ship	Pusher Tug	Replenishment Tanker
Production Platform, jack up	Research Survey Vessel	Restaurant Vessel, Stationary
Production Platform, semi submersible	Salvage Ship	Sail Training Ship
Standby Safety Vessel	Search & Rescue Vessel	Sailing Vessel
Support Platform, jack up	Stone Carrier	Sheerlegs Pontoon
Trenching Support Vessel	Suction Dredger	Submarine Salvage Vessel
Well Stimulation Vessel	Suction Hopper Dredger	Suction Dredger Pontoon
	Supply Tender	Tank Landing Craft
	Towing/Pushing, Inland Waterways	Torpedo Recovery Vessel
	Trailing Suction Hopper Dredger	Training Ship, Stationary
	Training Ship	Trans Shipment Barge, non propelled
	Tug	Unknown Function, Naval/Naval Auxiliary
	Utility Vessel	Vessel (function unknown)
	Waste Disposal Vessel	
	Water Injection Dredger	
	Work/Repair Vessel	

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