

This document has been prepared as part of the implementation project of **Legal Pathways to Deep Decarbonization** (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>

**Attachment 2**  
**LEGAL MEMORANDUM**  
**in support of Model Legislation**

## **1.0 Recommendation**

Recommendation: Congress should require all ships to track and then report all greenhouse gases emitted from the last port of call to the U.S. port of call, require that information to be made public, and support the development of efficiency rankings.

The above recommendation can be found in *Shipping*, by Aoife O’Leary, in Michael B. Gerrard and John C. Dernbach, eds., *Legal Pathways to Deep Decarbonization in the United States* (Environmental Law Institute 2019).<sup>1</sup>

## **2.0 Purpose**

The model legislation requires promulgation of U.S. regulations to require reporting to the United States of ship fuel oil consumption data and carbon dioxide (CO<sub>2</sub>) emissions data from ships calling on U.S. ports, and to make the data publicly available, referred to as a monitoring, reporting, and verification framework (MRV framework).<sup>2</sup> The model legislation accomplishes this through amendment to the Act to Prevent Pollution from Ships (APPS).<sup>3</sup> The model legislation includes elements of a CO<sub>2</sub> emissions data program implemented in the European Union, and can be viewed as complementing related reporting required under international law.

This memorandum first sets forth context of model legislation under international law. The memorandum then describes the greenhouse gas reporting program for ships that is presently required under international law, implemented in the United States through APPS. The memorandum then describes the existing European Union program, and its further scope. This is

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<sup>1</sup> Aoife O’Leary, *Shipping*, in Michael B. Gerrard and John C. Dernbach, eds., *Legal Pathways to Deep Decarbonization in the United States* (Environmental Law Institute 2019) (*Legal Pathways*) 455. The memorandum, along with notes in the annotated version of the model legislation, supplements the *Shipping* chapter. The memorandum is current through mid-August 2020.

<sup>2</sup> Monitoring is “the process of measuring or collecting environmental data.” Environmental Protection Agency, *Environmental Measurements and Modeling: Monitoring Programs* <<https://www.epa.gov/measurements-modeling/monitoring-programs>> Reporting is submission of an emissions report and relevant information to the regulating entity. Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC [2015] OJ L123/55 (EU MRV Regulation) art 11.1 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015R0757>> Verification is “confirmation, through provision of objective evidence that specified requirements have been fulfilled.” Environmental Protection Agency, *QA Handbook*, Vol II, 1, § 17.0 (2008) (emphasis omitted) <<https://www3.epa.gov/ttnamt1/files/ambient/pm25/qa/vol2sec17.pdf>>

<sup>3</sup> The Act to Prevent Pollution from Ships, 33 USC §§ 1901-1913 (APPS).

followed by a discussion of pertinent U.S. law, including APPS, as well as a discussion of other U.S. greenhouse gas reporting programs. Lastly, the Memorandum sets forth anticipated legal issues pertaining to the model legislation.

## 3.0 Legal Background

### 3.1 International Law

#### 3.1.1 GHG Reporting by Nations under International Agreements

Both the Paris Agreement,<sup>4</sup> and its parent framework agreement, the United Nations Framework Convention on Climate Change (UNFCCC),<sup>5</sup> require individual State Parties to routinely provide a publicly available “national inventory”<sup>6</sup> which includes self-reporting of greenhouse gases (GHG).<sup>7</sup> Such transparency is expected to lend itself to accountability, as States “track progress,”<sup>8</sup> towards the collective goal, in the case of the Paris Agreement, of limiting global average temperature to well below 2 °C above pre-industrial levels and seeking to limit global temperature increase to 1.5 °C.<sup>9</sup> This self-reporting and transparency framework, applicable to developed and developing countries, was adopted in 2008 as part of the Bali Action Plan, and has continued to evolve into a more comprehensive framework.<sup>10</sup>

International maritime transport, along with international aviation, represent the only sectors of the global economy excluded from State Party national inventory reporting and transparency

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<sup>4</sup> Paris Agreement (adopted Dec 12, 2015, entered into force Nov 4, 2016) FCCC/CP/2017/10/Add.1 (Paris Agreement).

<sup>5</sup> United Nations Framework Convention on Climate Change (adopted May 9, 1992, entered into force Mar 21, 1994) 1771 UNTS 107 (UNFCCC). The United States is an UNFCCC State Party. See United Nations Climate Change, *List of Parties* <<https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states>>. The United States has stated its intention to withdraw on November 4, 2020 from the Paris Agreement. The United States has not stated a similar intention with regards to the UNFCCC.

<sup>6</sup> Id art 12.1(a).

<sup>7</sup> Paris Agreement, art 13.7(a) (cited in note 4).

<sup>8</sup> Id art 13.7(b). See also art 4.2.

<sup>9</sup> Id art 2.1(a).

<sup>10</sup> The Bali Action Plan required mitigation actions to be “measurable, reportable and verifiable.” United Nations Framework Convention on Climate Change, *Bali Action Plan*, Decision 1/CP.13, FCCC/CP/2007/6/Add.1 (March 14, 2008) ¶1(b)(i) and (ii) <<https://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>> The measurement, reporting and verification framework has extended to several areas, including GHG emissions and mitigation actions, adaptation, finance, technology transfer, and capacity-building. The UNFCCC regime refers to the measurement, reporting and verification framework as the MRV framework. United Nations Climate Change, *What is Transparency and Reporting?* <<https://unfccc.int/process-and-meetings/transparency-and-reporting/the-big-picture/what-is-transparency-and-reporting>>

requirements.<sup>11</sup> These sectors were specifically included in drafts of the Paris Agreement until the final days.<sup>12</sup>

If a country, present data would have international maritime transport CO<sub>2</sub> emissions ranked higher than all but six nations, due to the sector's ubiquity.<sup>13</sup> And international maritime transport CO<sub>2</sub> emissions are anticipated to grow dramatically in the long term.<sup>14</sup> Yet the issue of

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<sup>11</sup> The sole reporting requirement for States pertaining to international maritime transport is accounting for the amount of marine fuel (bunker fuel) sold by a State, though this is not considered as part of State emissions. The categories for GHG emissions related to water-borne navigation under the Intergovernmental Panel on Climate Change (IPCC) guidelines are domestic water-borne navigation; international water-borne navigation (international bunkers), fishing (reported instead under the Agriculture/Forestry/Fishing category), military, and non-specified mobile. "Emissions from international water-borne navigation are reported separately from domestic, and not included in the national total." Intergovernmental Panel on Climate Change, *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (2006 IPCC Guidelines), vol 2, 3.55, §3.5.3 <<https://www.ipcc-nggip.iges.or.jp/public/2006gl/>> <[https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_3\\_Ch3\\_Mobile\\_Combustion.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_3_Ch3_Mobile_Combustion.pdf)> The 2006 IPCC Guidelines are to be read with the IPCC's 2019 Refinement. No change was made in the Refinement to this 2006 chapter. Intergovernmental Panel on Climate Change, *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* (2019 IPCC Refinement) Overview, 12 §6 <<https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html>> See also, e.g., Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018* 430-R-20-002 (2020) (U.S. GHG Inventory Report) ES-7, Table ES-2, (International Bunker Fuels descriptor) & n (b) <<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018>> The IPCC is presently in the process of aligning its work with the Paris Agreement global stocktake. Intergovernmental Panel on Climate Change, *IPCC Task Group on the Organization of the Future Work of the IPCC in light of the Global Stocktake* <<https://archive.ipcc.ch/organization/gst.shtml>>

<sup>12</sup> Beatriz Martinez Romera, *The Paris Agreement and the Regulation of International Bunker Fuels*, 25 Rev Eur Comp and Intl Envir L 215, 219-220 (2016) <<https://onlinelibrary.wiley.com/doi/abs/10.1111/reel.12170>> Aoife O'Leary argues that maritime shipping emissions are contained within the Paris Agreement due to the contribution of the emissions to rising global temperatures. O'Leary, *Shipping*, in Gerrard and Dernbach, *Legal Pathways*, 450 (cited in note 1). See also Romera at 221. See also Paris Agreement art 4.4, which calls for "economy-wide" emission reduction targets (cited in note 4).

<sup>13</sup> CO<sub>2</sub> represents the largest component of GHG. Intergovernmental Panel on Climate Change, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2014) 122 §1.2.5 <[https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc\\_wg3\\_ar5\\_chapter1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter1.pdf)> For 2018, domestic and international shipping combined accounted for 1,056 million tonnes of CO<sub>2</sub> emissions and 2.89% of annual GHGs on a Co2e basis. International Maritime Organization, Marine Environment Protection Committee, *Reduction of GHG Emissions from Ships: Fourth IMO GHG Study 2020 – Final Report (Pre-session Public Release)* MEPC 75/7/15 (July 2020) (Fourth IMO GHG Study). Available to public users through IMODocs (IMODocs) <<http://www.imo.org/en/About/Pages/DocumentsResources.aspx>>

With 1,056 million tonnes of CO<sub>2</sub> emissions, maritime CO<sub>2</sub> emissions would be the sixth highest emitter in the world, behind only China, the United States, India, the Russian Federation, and Japan (1.1 thousand MTCO<sub>2</sub>). International Energy Agency, IEA Atlas of Energy, *CO<sub>2</sub> Emissions from Fuel Combustion* <<http://energyatlas.iea.org/#!/tellmap/1378539487>>

If international maritime transport was instead a country, its lands would be experiencing a doubling of marine heatwaves; increasing surface acidification and surficial oxygen loss; sea level rise; salinity intrusion; adverse impacts to habitat area, biodiversity, and ecosystem functioning; increased extreme weather events; and a weakened Atlantic Meridional Overturning Circulation (AMOC); as well as other effects, plus absorbing more than 90% of the excess heat within the global climate system. Intergovernmental Panel on Climate Change, *Special Report on the Ocean and Cryosphere in a Changing Climate* (Sept 2019) *Summary for Policymakers*, A.2, A.3. A.6, B.2 <<https://www.ipcc.ch/srocc/>>

<sup>14</sup> The business as usual (BAU) scenarios in the Fourth IMO GHG Study assume attainment of the Paris Agreement goal of limiting global average temperature to well below 2 °C through an "energy mix of land-based sectors."

how to report and allocate international maritime GHG emissions by country has remained unaddressed since before the first UNFCCC Conference of the Parties (COP) due to the peculiarity of international maritime transport.<sup>15</sup>

The United States has a significant connection to international maritime transport. For example, more than half of U.S. imports by value arrive by ship.<sup>16</sup> The United States is the largest importer in the world, accounting for over 17% of all world merchandise trade.<sup>17</sup> The European Union is second, with 15%, followed by China at 14%.<sup>18</sup> More than a third of U.S. exports leave by ship.<sup>19</sup> China is the largest exporter, followed by the European Union, and the United States.<sup>20</sup> Together, these three represent almost half of all imports and exports worldwide.<sup>21</sup> A failure to report international maritime transport GHG emissions associated with U.S. ports (e.g., those related to U.S. imports and exports) could serve to diminish if not cancel out future U.S. domestic efforts.<sup>22</sup>

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Fourth IMO GHG Study, Annex 1, 29 (cited in note 13). Given that assumption, the anticipated CO<sub>2</sub> emission increase by 2050 range from 0 - 50% over 2018 levels and 90 - 130% over 2008 levels. Id. (This compares to the IMO commitment to reduce GHG by at least 50% from 2008 levels by 2050.) International Maritime Organization, Resolution MEPC.304(72) (Apr 13, 2018) Annex (IMO Initial GHG Strategy) ¶3.1.3 <<http://www.imo.org/en/OurWork/Documents/Resolution%20MEPC.304%2872%29%20on%20Initial%20IMO%20Strategy%20on%20reduction%20of%20GHG%20emissions%20from%20ships.pdf>>

And though international shipping activity has decreased due to the effects of the coronavirus pandemic, the longer-term impact of the pandemic is expected to be minimal. “Depending on the recovery trajectory, emissions over the next decades may be a few percent lower than projected, at most. In all, the impact of COVID-19 is likely to be smaller than the uncertainty range of the presented scenarios.” Fourth IMO GHG Study, Annex 1, 30.

<sup>15</sup> United Nations Framework Convention on Climate Change, *Report of the Conference of the Parties, on its First Session held at Berlin from 28 to 7 April 1995, Addendum Part Two: Action Taken by the Conference the Parties at its First Session*, Decision 4/CP.1, FCCC/CP/1995/7/Add.1 (June 6, 1995) ¶1(f).

<<http://unfccc.int/resource/docs/cop1/07a01.pdf>> Prior to the first COP, State Parties had considered allocation options, including, among others: allocation in proportion to national emissions, allocation based on bunker fuel sales, allocation based on ships’ flag States, and allocations based on cargo or passenger departures and arrivals. Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, *Matters Relating to Commitments Methodological Issues*, Addendum, “Allocation and Control of Emissions from Bunker Fuels,” A/AC.237/44/Add.2 (Jan 14, 1994) <<https://unfccc.int/resource/docs/a/44add2.pdf>>

<sup>16</sup> Matthew Chambers and Mindy Liu, *Maritime Trade and Transportation by the Numbers* (U.S. Department of Transportation Bureau of Transportation 2012) (U.S. Maritime Trade Statistics)

<[https://www.bts.gov/archive/publications/by\\_the\\_numbers/maritime\\_trade\\_and\\_transportation/index](https://www.bts.gov/archive/publications/by_the_numbers/maritime_trade_and_transportation/index)>

<sup>17</sup> European Union, *Eurostat Statistics Explained: EU and Main World Traders* (Eurostat World Trade Statistics)

<[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU\\_and\\_main\\_world\\_traders](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_and_main_world_traders)>

<sup>18</sup> Id.

<sup>19</sup> U.S. Maritime Trade Statistics (cited in note 16).

<sup>20</sup> Eurostat World Trade Statistics (cited in note 17).

<sup>21</sup> Id.

<sup>22</sup> See also Subsection 3.1.4.1 note 86 related to passengers. CO<sub>2</sub> represents 81% of U.S. GHG emissions. Environmental Protection Agency, *Greenhouse Gas Emissions Inventory of U.S. Greenhouse Gas Emissions and Sinks: About the Emissions Inventory* <<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>>

U.S. GHG emissions have not decreased above 1%. Emissions increases since 1990 have averaged 0.2% per year, though decreased 0.7% since 2005. U.S. GHG Inventory Report, 2-35 (cited in note 11).

The European Union has a CO<sub>2</sub> reporting program to document and encourage reductions of CO<sub>2</sub> shipping emissions associated with its ports on a per ship basis. See Subsection 3.1.4.1. The European Union found that its CO<sub>2</sub> emissions associated with its ports would amount to close to 4% of all EU CO<sub>2</sub> emissions. Subsection 3.1.4.2 at note 97.

### 3.1.2 Maritime Jurisdiction

Overlaying the operation of international maritime transport is the United Nations Convention on the Law of the Sea (UNCLOS), a framework convention.<sup>23</sup> The United States is not a Party to UNCLOS, though it has routinely acted in accordance with most UNCLOS provisions, including its jurisdictional framework.<sup>24</sup>

Primary responsibility for a ship flows to the State where the ship is registered. This is referred to as flag State jurisdiction.<sup>25</sup> UNCLOS requires flag States to ensure environmental compliance of their ships.<sup>26</sup> Yet the sole connection between a flag State and its ship can be as limited as the specific act of a State authorizing the ship to fly its flag, leading many ships to instead fly a “flag of convenience.”<sup>27</sup> The United States is not a flag of convenience State,<sup>28</sup> and presently flags a total of 182 oceangoing ships globally, which represents 0.4 % of the world fleet.<sup>29</sup>

UNCLOS also provides for port State jurisdiction,<sup>30</sup> which is associated with coastal State jurisdiction.<sup>31</sup> This includes a port State’s ability to condition entry on “requirements for the prevention, reduction and control of pollution of the marine environment,” for foreign-flagged ships entering their ports,<sup>32</sup> beyond those established “through the competent international

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<sup>23</sup> United Nations Convention on the Law of the Sea (adopted Dec 10, 1982, entered into force Nov 16, 1994) 1833 UNTS 3 (UNCLOS) <[https://www.un.org/depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf)>

<sup>24</sup> See for example, “United States Ocean Policy” of President Reagan, 19 Weekly Comp. Pres. Doc. 383–84, 383 (Mar. 10, 1983) after UNCLOS was opened for signature, wherein the President committed the United States to acting in accordance with UNCLOS with regards to “the balance of interests relating to traditional uses of the oceans,” including navigation <[https://www.gc.noaa.gov/documents/031083-reagan\\_ocean\\_policy.pdf](https://www.gc.noaa.gov/documents/031083-reagan_ocean_policy.pdf)> Presidents Clinton, George W. Bush, and Obama all sought U.S. accession. The Trump Executive Order states U.S. policy will be to “exercise rights and jurisdiction and perform duties in accordance with applicable domestic law and—if consistent with applicable domestic law— international law, including customary international law.” Executive Order Regarding the Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States, Executive Order 13840, (June 19, 2018), 83 Fed Reg 29431, 29431 (June 22, 2018).

<sup>25</sup> UNCLOS art 91(1) (cited in note 23).

<sup>26</sup> Id art 217(1).

<sup>27</sup> International Tribunal for the Law of the Sea judgment of *The M/V "Saiga" (No. 2) Case (Saint Vincent and the Grenadines v. Guinea)* ITLOS Reports, Judgment of 1 July 1999 (*The M/V "Saiga" Case*) ¶ 83 <[https://www.itlos.org/fileadmin/itlos/documents/cases/case\\_no\\_2/published/C2-J-1\\_Jul\\_99.pdf](https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_2/published/C2-J-1_Jul_99.pdf)> Flying a flag of convenience allows for leniency in environmental and labor regulations, as well as favorable tax implications. Patricia Birnie, Alan Boyle, and Catherine Redgwell, *International Law & the Environment* (OUP 2009) 398. Even aside from choosing its flag State, a ship will tend to be international. For example, in *The M/V "Saiga" Case*, the ship was owned by a Cyprus company, managed by a Scottish company, with an Ukrainian crew, chartered to a Swiss company, with its cargo (bunker fuel) owned by another Swiss company, and selling off the coast of West Africa, while temporarily registered in Saint Vincent and the Grenadines. *The M/V "Saiga" Case* ¶ 31.

<sup>28</sup> See 40 CFR Part 67.

<sup>29</sup> Bureau of Transportation Statistics, (*Oceangoing Self-Propelled, Cargo-Carrying Vessels of 1,000 Gross Tons and Above*) <<https://www.bts.gov/content/number-and-size-us-flag-merchant-fleet-and-its-share-world-fleet>>

<sup>30</sup> UNCLOS arts 3 and 11 (cited in note 23).

<sup>31</sup> A coastal State exercises sovereignty over its territorial sea (12 nautical miles from the baseline, typically the low-water line), and its internal waters (generally waters on the landward side of baseline). In addition, coastal States have sovereign rights to, inter alia, “conserving and managing the natural resources” within the exclusive economic zone (200 nautical miles from the low-water line), as well as jurisdiction for the “protection and preservation of the marine environment.” Outside coastal State jurisdiction is the High Seas. Id arts 3, 5, 8(1), 56(1), 57, and 86.

<sup>32</sup> Id art 211(3). UNCLOS also requires the port State to give adequate notice of its requirements, and additionally notify the IMO. Id.

organization.”<sup>33</sup> When a ship is voluntarily in port, a port State may enforce its domestic law, in addition to international law, for violations which occur within its territorial limits.<sup>34</sup> The most well-known example of port State jurisdiction existing outside of international requirements is the 1990 U.S. Oil Pollution Act requirement for oil tankers within U.S. waters to be double-hulled.<sup>35</sup>

### 3.1.3 International Convention for the Prevention of Pollution from Ships (MARPOL)

Primary responsibility in addressing international maritime GHG emissions presently rests with the International Maritime Organization (IMO),<sup>36</sup> a United Nations specialized agency and the “global standard-setting authority for the safety, security and environmental performance of international shipping,” and responsible for “the prevention of marine and atmospheric pollution by ships.”<sup>37</sup> Its GHG emission efforts occur through its Marine Environment Protection Committee (MEPC).<sup>38</sup>

In 2011, the IMO adopted its first climate change regulations, focusing on energy efficiency for ships.<sup>39</sup> The regulations were adopted under the International Convention for the Prevention of Pollution from Ships (MARPOL).<sup>40</sup> MARPOL is an international treaty, and contains annexes addressing specific sources of pollution, with each annex containing regulations.<sup>41</sup>

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<sup>33</sup> Id art 211(1). Different UNCLOS requirements apply if a ship is engaged in innocent passage, including, e.g., a ship in distress. See, e.g., Id arts 18, 19, 21, 25.

<sup>34</sup> Id art 220(1).

<sup>35</sup> 46 USC 3703a. For a discussion of port State Jurisdiction, see Robin Churchill, *Port State Jurisdiction Relating to the Safety of Shipping and Pollution From Ships—What Degree of Extra-Territoriality?*, 31 Int’l J. Marine and Coastal L. 442, 445 (2016) (“The jurisdiction of a port State over foreign ships in its ports is therefore in principle exactly the same as its territorial jurisdiction over other foreign means of transport (such as aircraft and road vehicles) and foreign nationals that are present within its territory.”)

<sup>36</sup> International Maritime Organization, *Historic Background*

<<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Historic%20Background%20GHG.aspx>>

<sup>37</sup> International Maritime Organization, *Introduction to IMO* <<http://www.imo.org/en/About/Pages/Default.aspx>>

The United States is a Member State. International Maritime Organization, *Member States*

<<http://www.imo.org/en/About/Membership/Pages/MemberStates.aspx>> IMO actions are accomplished through adoption by Member States.

<sup>38</sup> The MEPC is responsible for IMO environmental issues. International Maritime Organization, *Marine Environment Protection Committee (MEPC)*

<<http://www.imo.org/en/MediaCentre/MeetingSummaries/MEPC/Pages/Default.aspx>>

<sup>39</sup> See, e.g., International Maritime Organization, *Energy Efficiency Measures* (IMO Energy Efficiency Measures)

<<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Technical-and-Operational-Measures.aspx>>

<sup>40</sup> Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (adopted on Feb 17, 1978, entered into force in Oct 2, 1983) 1340 UNTS 61 (MARPOL).

<<https://www.jus.uio.no/english/services/library/treaties/06/6-05/ships-pollution.xml>> MARPOL was adopted at the IMO in 1973. Together with its related Protocol adopted in 1978, MARPOL, also referred to as MARPOL 73/78, entered into force. Its acronym derives from the words marine and pollution.

<sup>41</sup> The MARPOL annexes contain design, construction, manning, and equipment standards addressing maritime pollution from sources. See International Maritime Organization, *International Convention for the Prevention of Pollution from Ships (MARPOL)*

<[http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx)>

Annex VI addresses air pollution.<sup>42</sup> There are presently 98 State Party signatories to Annex VI, representing 96.76% of world shipping by gross tonnage.<sup>43</sup> The United States is a State Party to MARPOL and Annex VI.<sup>44</sup> Annex VI Chapter 3 focuses on air emission standards for ships.<sup>45</sup> Chapter 4 focuses on energy efficiency for ships.<sup>46</sup> Chapter 4 includes the IMO Data Collection System (IMO DCS) regulation, adopted in 2016, which requires collection and reporting of ship fuel oil consumption data.<sup>47</sup>

Because MARPOL annex regulations are continually evolving, MARPOL allows use of a “tacit acceptance” procedure. Under this procedure, amendments are accepted unless objected to by a specified number of State Parties.<sup>48</sup>

### 3.1.3.1 IMO Data Collection System

The IMO includes three measures as part of its efforts to address GHG emissions from ships in its Initial GHG Strategy, all focusing on energy efficiency for ships, and each included in Annex VI Chapter 4.<sup>49</sup> Chapter 4 regulations are expected to “result in reduction of emissions of any substances that originate from fuel oil and its combustion process, including those already controlled by Annex VI.”<sup>50</sup> The Energy Efficiency Design Index (EEDI) regulation phases fuel

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<sup>42</sup> Annex VI is contained in the MARPOL Protocol of 1997. Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships of 2 November 1973, as modified by the Protocol of 17 February 1978 <<http://www.admiraltylawguide.com/conven/protomarpol1997.html>>

<sup>43</sup> International Maritime Organization, *Status of Treaties* (identified as MARPOL PROT 1997) <<http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/StatusOfTreaties.pdf>> <

<sup>44</sup> See International Maritime Organization, *Status of Conventions, Ratifications by State* <<http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx>>

<sup>45</sup> MARPOL Annex VI, Regulations 12 - 18. See, e.g., Resolution MEPC. 321(74) (May 17, 2019) <<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/Documents/MEPC.321%2874%29.pdf>> See generally, International Maritime Organization, *Prevention of Air Pollution from Ships*.

<<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Air-Pollution.aspx>> A consolidation of the MARPOL Annex VI regulations is not available online, and must instead be purchased. However, the IMO provides a webpage with revisions listed by IMO Resolution. International Maritime Organization, *Index of MEPC Resolutions and Guidelines related to MARPOL Annex VI, Index Content of Resolutions and Guidelines* (IMO MEPC Index)

<<http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/Index-of-MEPC-Resolutions-and-Guidelines-related-to-MARPOL-Annex-VI.aspx#2>> Together, the regulations comprise the MARPOL Annex VI regulations (MARPOL Annex VI regulations).

<sup>46</sup> See MARPOL Annex VI, Regulations 19 – 23 (cited in note 45) See, e.g., Edmund Hughes, *A New Chapter for MARPOL Annex VI – Requirements for Technical and Operational Measures to Improve the Energy Efficiency of International Shipping* (Feb 2013)

<<http://www.imo.org/en/KnowledgeCentre/PapersAndArticlesByIMOSTaff/Documents/A%20new%20chapter%20for%20MARPOL%20Annex%20VI%20-%20E%20Hughes.pdf>>

<sup>47</sup> The IMO DCS rule, Regulation 22A can be found in Resolution MEPC.278(70) (Oct 28, 2016) <[http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/278\(70\).pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/278(70).pdf)>

<sup>48</sup> MARPOL art 16(2)(f)(ii) and (iii) and MARPOL Protocol art VI (cited in note 40). See also International Maritime Organization, *Introduction: Adopting a convention, Entry into force, Accession, Amendment, Enforcement, Tacit acceptance procedure* <<http://www.imo.org/en/About/Conventions/Pages/Home.aspx>>

<sup>49</sup> IMO Initial GHG Strategy ¶1.3.3 (cited in note 14).

<sup>50</sup> Resolution MEPC.203(62) preambular ¶ 5 (July 15, 2011)(Resolution MEPC.203(62)) <[http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.203\(62\).pdf](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.203(62).pdf)>

reduction into the construction of ships.<sup>51</sup> New ships built beginning in 2020 will generally have to attain a 15-20% reduction compared to 2008.<sup>52</sup> From 2025 and onwards, ships built will generally be required to meet a reduction of 30% from baseline.<sup>53</sup> The focus of the Ship Energy Efficiency Management Plan (SEEMP) is operational, and applies to existing ships.<sup>54</sup> Yet there is noted concern that the EEDI and SEEMP will not lead to significant reductions.<sup>55</sup>

The third Chapter 4 measure, IMO DCS, requires ship owners or operators with commercial ships of 5,000 gross tonnage and above,<sup>56</sup> which are foreign-flagged or voyage internationally,<sup>57</sup> to annually report ship-specific fuel oil consumption data to their respective flag States.<sup>58</sup> The IMO believes reporting ships represent approximately 85% of the total CO<sub>2</sub> emissions from international shipping.<sup>59</sup>

The information includes the ship's IMO number, the ship type, gross tonnage, net tonnage, weight designed to carry (deadweight tonnage), power output, any EEDI, its ice class, and the following aggregated data: distance travelled, hours underway, fuel oil consumed by fuel oil type, and the method for collecting the fuel data.<sup>60</sup> The flag State verifies the data,<sup>61</sup> and reports it to an anonymized IMO database.<sup>62</sup>

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<sup>51</sup> MARPOL Annex VI Regulation 21 (cited in note 45).

<sup>52</sup> Id table 1. In 2009, the United States had unsuccessfully proposed the introduction of an efficiency credit system in order incentivize energy efficiency for new and existing ships. United States, *Prevention of Air Pollution From Ships: Comments on MEPC 59/4/2 and MEPC 59/4/4 and an Additional Approach to Addressing Maritime GHG Emissions*, MEPC 59/4/48 (May 22, 2009). Available to public users through IMODocs (cited in note 13).

<sup>53</sup> MARPOL Annex VI Regulation 21 table 1 (cited in note 45).

<sup>54</sup> Id Regulation 22.

<sup>55</sup> See, e.g., O'Leary, *Shipping*, in Gerrard and Dernbach, *Legal Pathways*, 450-451 (cited in note 1). See also Subsection 3.1.4.2 at note 99. One basis for disagreement at the IMO is due to the friction between the IMO's non-discrimination rule, and the climate change regime's adoption of the principle of common but differentiated responsibilities. See, e.g., Sara Stefanini, *Shipping to Halve Carbon Footprint by 2050 under First Sector-Wide Climate Strategy* (Climate Home News, April 13, 2018) <<https://www.climatechangenews.com/2018/04/13/shipping-halve-carbon-footprint-2050-first-sector-wide-climate-strategy/>>

<sup>56</sup> Id Regulation 22A.1 (cited in note 45).

<sup>57</sup> Id Regulation 19.2.1. In addition, the ship must be propelled by mechanical means. Floating oil and gas platforms and drilling rigs are excluded. Id Regulation 19.2.2. Additionally, a warship, naval auxiliary or other ship owned or operated by a State and used only on government non-commercial service is also excluded, though States are to adopt consistent measures as far as is reasonable and practicable. MARPOL art 3(3) (cited in note 37).

<sup>58</sup> MARPOL Annex VI Regulation 22A.3 (cited in note 45).

<sup>59</sup> IMO Initial GHG Strategy ¶1.3.3 (cited in note 14).

<sup>60</sup> MARPOL Annex VI Regulation 22A.1, 22A.2, and Appendix IX. (cited in note 45).

<sup>61</sup> Id Regulation 22A.7.

<sup>62</sup> Id Regulation 22A.9. The database is the IMO Ship Fuel Oil Consumption Database, a component of the IMO's larger Global Integrated Shipping Information System (GISIS) platform. Id Regulation 22A.12; Resolution MEPC.293(71) (July 7, 2017) (IMO Database Guidelines) ¶1.4 <[http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Res\\_MEPC\\_293%2871%29\\_2017%20Guidelines%20IMO%20DCS%20database.pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/Res_MEPC_293%2871%29_2017%20Guidelines%20IMO%20DCS%20database.pdf)> The database must be "such that identification of a specific ship will not be possible." MARPOL Annex VI Regulation 22A.11 (cited in note 45). See International Maritime Organization, *User Guidance on the Ship Fuel Oil Consumption GISIS Module (IMO Ship Fuel Oil Consumption Database)* 9, for an example of the IMO DCS database <[http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/User%20Guidance\\_DCS%20module%20Rev\\_2\\_20180725.pdf](http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Documents/User%20Guidance_DCS%20module%20Rev_2_20180725.pdf)> A ship's flag State retains access to that ship's non-anonymized data for

Yet there is no indication of public availability of even the anonymized data.<sup>63</sup> Instead, the IMO DCS regulation refers to access to anonymized data, and limits it to State Parties.<sup>64</sup> The IMO will instead publish an annual report for the IMO MEPC, “summarizing the data collected, the status of missing data, and such other relevant information as may be requested” by the MEPC.<sup>65</sup>

The United States supported much of the language and substance of the IMO DCS, including use of an anonymized database.<sup>66</sup>

### **3.1.4 European Union Monitoring, Reporting, and Verification Program**

#### **3.1.4.1 EU MRV Regulation**

In 2013, the European Union set forth its strategy to address GHG emissions from the maritime transport sector.<sup>67</sup> It saw its first step as “a robust monitoring, reporting and verification (MRV) of emissions.”<sup>68</sup> The year prior to adoption of the IMO DCS, the European Union adopted its own regulation for the reporting of CO<sub>2</sub> emissions from ships calling on EU ports, called the

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at least a year. MARPOL Annex VI Regulation 22A.8. (cited in note 45). This means, for example, that the United States has access to non-anonymized information for 0.4 % of the world fleet. See Subsection 3.1.2 at note 29.

<sup>63</sup> See, e.g., European Commission, Commission Staff Working Document Impact Assessment accompanying the Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2015/757 in order to take Appropriate Account of the Global Data Collection System for Ship Fuel Oil Consumption Data [2019] COM(2019) 38 (EU MRV 2019 Assessment) 13, 14, 30, 54 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1591043449539&uri=CELEX:52019SC0010>>

<sup>64</sup> MARPOL Annex VI Regulation 22A.11(cited in note 45). The State Parties’ purpose is limited to use “strictly for their analysis and consideration.” Id. Information available to State Parties is limited to a ship’s annual data of fuel oil consumption, distance travelled and hours underway (rounded) coupled with the ship’s technical characteristics (rounded) with no other potentially identifying information (e.g. a ship’s flag State). Id and IMO Database Guidelines ¶¶ 3.1, 3.2, and 3.3 (cited in note 62).

<sup>65</sup> MARPOL Annex VI Regulation 22A.10 (cited in note 45). See IMO Database Guidelines ¶6 for minimum information to be included (cited in note 62).

<sup>66</sup> Japan, the Marshall Islands, Norway and the United States, *Further Technical and Operational Measures for Enhancing the Energy Efficiency of International Shipping: Draft amendments to MARPOL Annex VI – Full Textual Amendments for Chapter 4 Fuel Consumption Data Collection Programme*, MEPC 69/6/2 (Jan 15, 2016). Available to public users through IMODocs (cited in note 13).

<sup>67</sup> European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Integrating Maritime Transport Emissions in the EU's Greenhouse Gas Reduction Policies*, COM(2013) 479 final (EU GHG Strategy) <[https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/com\\_2013\\_479\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/com_2013_479_en.pdf)> See also, European Commission, Climate Action, *Reducing Emissions from the Shipping Sector* <[https://ec.europa.eu/clima/policies/transport/shipping\\_en](https://ec.europa.eu/clima/policies/transport/shipping_en)>

<sup>68</sup> EU GHG Strategy at 4 (cited in note 67). The nomenclature and concepts vary from that of the UNFCCC regime, which refers to measurement, reporting and verification (rather than monitoring, reporting and verification) and is focused specifically on a country’s communications, whereas the European Union considers an MRV framework as a preliminary component of its EU emissions trading system (EU ETS). See Subsection 3.1.1 note 10 and European Commission, Climate Action, *Monitoring, Reporting and Verification of EU ETS Emissions* <[https://ec.europa.eu/clima/policies/ets/monitoring\\_en](https://ec.europa.eu/clima/policies/ets/monitoring_en)> The international aviation monitoring, reporting, and verification program is also identified as an MRV program. See Subsection 3.2.3.3 note 163.

European Union Monitoring, Reporting and Verification regulation (EU MRV regulation).<sup>69</sup> It was to “serve as a model for the implementation of a global MRV system.”<sup>70</sup>

But the IMO instead adopted IMO DCS. The EU MRV regulation remains in place, however, and applies to similar types of ships.<sup>71</sup> Therefore, in European ports,<sup>72</sup> most ships that comply with IMO DCS must also comply with EU MRV.<sup>73</sup> In addition, EU MRV expands its scope to also include ships involved solely in domestic transport (which are greater than 5,000 gross tonnage).<sup>74</sup> The EU MRV system also requires data related to actual cargo weight, rather than the weight a ship is capable of carrying (deadweight) as in the IMO DCS.<sup>75</sup>

Though the IMO DCS and EU MRV have certain monitoring requirements in common, they diverge significantly in several respects. The EU MRV has three primary objectives: the

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<sup>69</sup> EU MRV Regulation (cited in note 2). Ships began monitoring under the regulation in January 2018. Id art 8. There have also been two Delegated Regulations and two Implementing Regulations. See European Commission, Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2015/757 in order to take appropriate account of the global data collection system for ship fuel oil consumption data COM(2019) 38 final, 2019/0017(COD) (Commission EU MRV Proposal) Proposal ¶6 <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52019PC0038>>

The EU MRV also serves as the European Union’s first step towards the inclusion of international maritime transport in the EU Emissions Trading System. EU MRV Regulation ¶1.

<sup>70</sup> EU MRV Regulation ¶34 (cited in note 2).

<sup>71</sup> The EU MRV includes ships above 5,000 gross tonnage whereas the IMO DCS includes ships 5,000 gross tonnage and above. Id at art 2(1) and MARPOL Annex VI Regulation 22A.1 (cited in note 45). The EU MRV regulation operates under port State jurisdiction. See Subsection 3.1.2 at note 30.

<sup>72</sup> The EU MRV defines port of call as “the port where a ship stops to load or unload cargo or to embark or disembark passengers...” EU MRV Regulation art 3(b) (cited in note 2). The EU MRV program is also implemented within the larger European Economic Area, which includes EU countries plus Iceland, Liechtenstein, and Norway. Commission Staff Working Document accompanying the Report from the Commission 2019 Annual Report on CO<sub>2</sub> Emissions from Maritime Transport \ SWD(2020) 82 (EU MRV Annual Report) 12 §2.2

<[https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/swd\\_2020\\_82\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/swd_2020_82_en.pdf)> European Free Trade Association, *European Economic Area (EEA) / Relations with the EU* <<https://www.efta.int/eea>> In addition, there is a “UK MRV” post-Brexit. *The Merchant Shipping (Monitoring, Reporting and Verification of Carbon Dioxide Emissions) (Amendment) (EU Exit) Regulations 2018*, 2018 No. 1388 <<https://www.legislation.gov.uk/ukdsi/2018/9780111171578>>

<sup>73</sup> EU MRV 2019 Assessment §1.0 (cited in note 63). The EU MRV regulation focuses on transport of cargo and passengers for commercial purposes, whereas the IMO DCS is not limited to cargo and passengers for commercial purposes. EU MRV Regulation, ¶14 and art 3(c)(cited in note 2). MARPOL Annex VI Regulation 22A.1 (cited in note 45). Fish catching and processing ships are excluded under EU MRV. Id art 2(2). The European Union determined that these ships had one of lowest average annual emission rates per ship. European Commission, Commission Staff Working Document Impact Assessment - Part 2, accompanying the Proposal for a Regulation of the European Parliament and of the Council on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport and amending Regulation (EU) N° 525/2013, [2013] COM(2013) 480 final, SWD(2013) 236 final, SWD(2013) 237 final (EU MRV 2013 Assessment), referenced in EU MRV 2019 Assessment, 26, EU MRV 2013 Assessment Table 1.4

<[https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/swd\\_2013\\_237\\_2\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/transport/shipping/docs/swd_2013_237_2_en.pdf)> The exclusion had strong support. EU MRV 2013 Assessment § 4.2.2. In addition, the European Union has a separate sustainable fishing program and fund. EU MRV 2019 Assessment 26. The exclusion affected 0.1% of ships above 5,000 gross tonnage calling at European ports. EU MRV 2013 Assessment Table VIII.1.

<sup>74</sup> EU MRV Regulation, art 2(1) (cited in note 2).

<sup>75</sup> Id art 9(1)(f). For passengers, it is the number of passengers. Id annex II(A)(1)(d).

collection of robust and verified CO<sub>2</sub> emission data, transparency and stimulation of energy efficiency, and support for future policymaking.<sup>76</sup>

The EU MRV focus is a ship's CO<sub>2</sub> emissions.<sup>77</sup> This contrasts with the IMO DCS focus on fuel oil consumption.<sup>78</sup> The EU MRV establishes monitoring methods,<sup>79</sup> and requires independent data verification.<sup>80</sup> Monitoring occurs both on a per voyage basis (voyages between EU ports, voyages to an EU port, voyages from an EU port, and while in port)<sup>81</sup> and annually.<sup>82</sup> Monitored data is reported to the European Union and to the ship's flag State.<sup>83</sup> Reporting elements common to both IMO DCS and EU MRV are ship identification and type, gross tonnage, any EEDI, distance travelled, hours underway, fuel oil consumed (by fuel oil type), and identification of the method for collecting the fuel data.<sup>84</sup>

And whereas the IMO DCS strictly limits public access, the EU MRV makes significant individual ship-specific information publicly available in an electronic database.<sup>85</sup> This includes

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<sup>76</sup> EU MRV 2019 Assessment, 5 (cited in note 63) and EU MRV Annual Report, 12 (cited in note 72).

<sup>77</sup> The emissions focus is solely on CO<sub>2</sub> emissions, and does not include other GHG. The EU MRV Regulation states that this singularity reduces the administrative burden on shipowners and operators by focusing on the "most relevant greenhouse gas emitted by maritime transport," and that monitoring equipment for ships for certain other GHGs is not sufficiently reliable or commercially available, which would therefore have delayed EU MRV implementation. EU MRV Regulation ¶¶ 20 and 23 and art 6(1) (cited in note 64). Though the IMO speaks more broadly of GHG in its Initial GHG Strategy, its focus is on CO<sub>2</sub> as well. See IMO Initial GHG Strategy ¶¶ 1.3.3, 1.6, 3.1.2, 3.1.3 (cited in note 14).

<sup>78</sup> The IMO focus on ship fuel oil consumption data is made obvious by the regulation title, "Collecting and Reporting of Ship Fuel Oil Consumption Data," with data to be submitted to the IMO Ship Fuel Oil Consumption Database. No CO<sub>2</sub> emissions data is required. MARPOL Annex VI Regulation 22A, Regulation 22A.9, and Regulation 22A Appendix IX (cited in note 45).

<sup>79</sup> EU MRV Regulation art 5(1) (cited in note 2).

<sup>80</sup> Id art 14(1).

<sup>81</sup> Id art 9(1). Article 9 requires the following monitoring on a port by port basis: (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) CO<sub>2</sub> emitted; (d) distance travelled; (e) time spent at sea; (f) cargo carried; (g) transport work (which distance multiplied by cargo quantity). Id art 9(1)(a)-(g) and annex II(A)(1). The EU MRV excludes, "stops for the sole purposes 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..." Id art 3(b).

<sup>82</sup> Annually monitored elements are: (a) amount and emission factor for each type of fuel consumed in total; (b) total aggregated CO<sub>2</sub> emitted within the scope of this Regulation; (c) aggregated CO<sub>2</sub> emissions from all voyages between ports under a Member State's jurisdiction; (d) aggregated CO<sub>2</sub> emissions from all voyages which departed from ports under a Member State's jurisdiction; (e) aggregated CO<sub>2</sub> emissions from all voyages to ports under a Member State's jurisdiction; (f) CO<sub>2</sub> 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. Id art 10.

<sup>83</sup> Id art 11(1).

<sup>84</sup> See Subsection 3.1.3.1 at note 60 for IMO DCS monitoring elements. For comparison of IMO DCS and EU MRV, see EU MRV 2019 Assessment, 16, table 2.2, and 53, annex 5 (cited in note 63). Terms and definitions vary slightly between IMO DCS and EU MRV. See Subsection 3.1.4.3 for potential EU MRV alignment revisions.

<sup>85</sup> EU MRV Regulation art 21(2) (cited in note 2). However, in certain specific circumstances, data, other than CO<sub>2</sub> emissions data, can be withheld if it "would exceptionally undermine the protection of commercial interests deserving protection as a legitimate economic interest overriding the public interest in disclosure..." In such a case, a modified aggregation must first be attempted. Id art 21(3). The database is located at the European Maritime

the data for those monitoring elements in common with IMO DCS (associated with a European port), and additionally, annual CO<sub>2</sub> emissions, the annual average fuel consumption and CO<sub>2</sub> emissions per distance travelled of voyages, and the annual average fuel consumption and CO<sub>2</sub> emissions per distance travelled and cargo carried on voyages (associated with a European port).<sup>86</sup> The European Union views data reporting and transparency as key to providing accurate, standardized, and comparable data on a per ship basis in order to remove existing barriers to improvements of energy efficiency,<sup>87</sup> encourage energy efficient technologies,<sup>88</sup> provide information needed to address market barriers,<sup>89</sup> and assist with policymaking.<sup>90</sup>

### 3.1.4.2 EU MRV Annual Report

The European Union issued its first EU MRV annual report, covering 2018, in May 2020.<sup>91</sup> The EU monitoring involved more than 11,600 ships,<sup>92</sup> representing 38% of the world fleet above 5,000 gross tonnage.<sup>93</sup> EU monitoring of ships over 5,000 gross tons calling at European ports resulted in coverage of a little more than half of ships at its ports, but about 90% of CO<sub>2</sub> emissions.<sup>94</sup> CO<sub>2</sub> emissions from container ships accounted for 30% of emissions, while bulk carriers accounted for 13%.<sup>95</sup>

Over 138 million metric tonnes of CO<sub>2</sub> associated with European ports was emitted.<sup>96</sup> This would be close to 4% of total EU CO<sub>2</sub> emissions, comparable to all CO<sub>2</sub> emissions in Belgium.<sup>97</sup>

The annual report additionally focused on energy efficiency and CO<sub>2</sub> emissions by various ship types.<sup>98</sup> The annual report found that the majority of ships built after 2015 calling at European

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Safety Agency, THETIS-MRV CO<sub>2</sub> Emission Report (THETIS-MRV CO<sub>2</sub> Emission Report)  
<<https://mrv.emsa.europa.eu/#public/emission-report>>

<sup>86</sup> Required public information is: (a) the identity of the ship (name, IMO identification number and port of registry or home port); (b) the technical efficiency of the ship (EEDI or EIV, where applicable); (c) the annual CO<sub>2</sub> emissions; (d) the annual total fuel consumption for voyages; (e) the annual average fuel consumption and CO<sub>2</sub> emissions per distance travelled of voyages; (f) the annual average fuel consumption and CO<sub>2</sub> emissions per distance travelled and cargo carried on voyages; (g) the annual total time spent at sea in voyages; (h) the method applied for monitoring; (i) the date of issue and the expiration date of the document of compliance; (j) the identity of the verifier that assessed the emissions report; (k) any other information monitored and reported on a voluntary basis. EU MRV Regulation art 21(2)(a)-(k).

As an example, the EU MRV database shows that in its 2018 travels (associated with a European port), the Queen Mary 2, an ocean liner with calls including New York, emitted 167,531 metric tonnes of CO<sub>2</sub>, and emitted an average of 1,781 kg CO<sub>2</sub> / nautical mile. See THETIS-MRV CO<sub>2</sub> Emission Report (cited in note 85). EU MRV information is provided for distance as well as cargo and distance. Id.

<sup>87</sup> EU MRV 2019 Assessment, 12 (cited in note 63).

<sup>88</sup> EU MRV Annual Report, 15 (cited in note 72).

<sup>89</sup> Id.

<sup>90</sup> EU MRV 2019 Assessment, 26 (cited in note 63).

<sup>91</sup> EU MRV Annual Report (cited in note 72).

<sup>92</sup> Id at 3.

<sup>93</sup> Id at 4. The Fourth IMO GHG Study used the EU MRV data as part of the study's data validation. Fourth IMO GHG Study, Annex 1, 16 (cited in note 13).

<sup>94</sup> EU MRV Annual Report 5 (cited in note 72).

<sup>95</sup> Id at 3.

<sup>96</sup> Id.

<sup>97</sup> Id at 40.

<sup>98</sup> Id at 41-62

ports already met EEDI requirements set for 2020-2025,<sup>99</sup> and that almost three-quarters of CO<sub>2</sub> emissions were from ships built prior to 2013.<sup>100</sup> Data was also used to verify information, such as the CO<sub>2</sub> reduction resulting from slow steaming,<sup>101</sup> and used to estimate other operational energy efficiency indicators, such as the commonly used Annual Efficiency Ratio, the ratio between CO<sub>2</sub> emissions and maximum transport work.<sup>102</sup>

The European Union has predicted that the EU MRV regulation could lead to a 2% reduction annually in CO<sub>2</sub> emissions due to reported data transparency.<sup>103</sup> Any reduction should become evident following the issuance of subsequent EU MRV annual reports.<sup>104</sup>

### 3.1.4.3 EU MRV Proposed Revision

The European Union has begun the process to determine whether its EU MRV regulation could be better aligned with IMO DCS.<sup>105</sup> The European Commission (Commission) issued an EU MRV revision proposal to the European Parliament (Parliament) and the Council of the European Union (EU Council) in February 2019 to begin the process.<sup>106</sup> The proposal is proceeding pursuant to the European Union ordinary legislative procedure,<sup>107</sup> which means Parliament and the EU Council will need to jointly agree on a revision in order for the regulation to be revised.<sup>108</sup> In October 2019, the EU Council Secretariat offered its view of the European Commission proposal and issued draft amendments.<sup>109</sup> In Parliament, a rapporteur for a

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<sup>99</sup> Id at 4.

<sup>100</sup> Id at 41. The annual report also used European Maritime Safety Agency positioning data together with EU MRV data to provide further analysis on voyages pertaining to European ports by ship type, as well as comparison of percentages to the global fleet. Id at 4.

<sup>101</sup> Id at 35.

<sup>102</sup> Id at 54.

<sup>103</sup> EU MRV 2019 Assessment, 7 (cited in note 63).

<sup>104</sup> Clean Cargo Initiative, whose members globally represent 80% of container cargo capacity, publishes an annual summary of its members' CO<sub>2</sub> emissions. It recently reported a 5.6% reduction in average CO<sub>2</sub> emissions per container per kilometer between 2018 and 2019. Business for Social Responsibility Clean Cargo Initiative, *2019 Global Container Shipping Trade Lane Emissions Factors: Clean Cargo* July 2020) 3 <<https://www.clean-cargo.org/news-and-insights/2020/7/17/new-data-shows-56-percent-reduction-in-co2-emissions-from-container-shipping-from-2018-to-2019>> The Clean Shipping Index also publishes CO<sub>2</sub> data. It issues certificates which allow a port to reduce a ship's port fees based on the ship's CO<sub>2</sub> emissions and other emissions. Ports include the ports of Vancouver and Prince Rupert, in British Columbia. Clean Shipping Index, *Benefits* <<https://www.cleanshippingindex.com/benefits/>>

<sup>105</sup> For status, see EUR-Lex, *Procedure 2019/0017/COD, COM (2019) 38: Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2015/757 in order to take appropriate account of the global data collection system for ship fuel oil consumption data* <<https://eur-lex.europa.eu/legal-content/EN/HIS/?uri=COM:2019:038:FIN&sortOrder=desc>> and European Parliament, Legislative Observatory, *2019/0017(COD): Carbon dioxide emissions from maritime transport: global data collection system for ship fuel oil consumption data* (European Parliament Legislative Observatory) <[https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2019/0017\(COD\)&l=en](https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2019/0017(COD)&l=en)>

<sup>106</sup> Commission EU MRV Proposal (cited in note 69).

<sup>107</sup> European Parliament Legislative Observatory (cited in note 105).

<sup>108</sup> EUR-Lex, Glossary of Summaries, *Ordinary Legislative Procedure (Codecision)* <[https://eur-lex.europa.eu/summary/glossary/ordinary\\_legislative\\_procedure.html](https://eur-lex.europa.eu/summary/glossary/ordinary_legislative_procedure.html)>

<sup>109</sup> Council of the European Union, General Secretariat of the Council to Delegations, Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2015/757 in order to take appropriate account of the global data collection system for ship fuel oil consumption data: Mandate for negotiations with the European Parliament [Oct 25, 2019] 2019/0017(COD) (EU Council Proposal)

parliamentary committee reviewed the Commission proposal and issued draft amendments in May 2020.<sup>110</sup> Both the EU Council Secretariat and the parliamentary committee tended to be in line with the Commission proposal, with the exception of the present EU MRV requirement of reporting cargo carried,<sup>111</sup> which the Commission alone had proposed making voluntary.<sup>112</sup> The next expected action is Parliament's first reading, anticipated to occur September 14, 2020,<sup>113</sup> after which it would proceed to the EU Council.<sup>114</sup> Proposed revisions to date have for the most part been limited to alignment with IMO DCS “in relation to ships covered, definitions, monitoring parameters, monitoring plans and templates.”<sup>115</sup> Changes beyond that scope are viewed as not in line with the EU MRV objectives.<sup>116</sup>

Since it is unlikely at this time that Congress would want to introduce a third MRV system for ships, it would be important to remain current of the end result of the EU legislation, when proceeding with U.S. legislation.

## 3.2 U.S. Law

### 3.2.1 Act to Prevent Pollution from Ships

MARPOL is generally implemented under U.S. law through the Act to Prevent Pollution from Ships (APPS),<sup>117</sup> which implements Annex VI, along with certain other annexes.<sup>118</sup> APPS also implements an annex of the Antarctic Protocol, which itself references MARPOL.<sup>119</sup> Annex VI was added to APPS in 2008.<sup>120</sup>

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<<https://data.consilium.europa.eu/doc/document/ST-12899-2019-INIT/en/pdf>> <[https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CONSIL%3AST\\_13475\\_2019\\_COR\\_1](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CONSIL%3AST_13475_2019_COR_1)>

<sup>110</sup> European Parliament Committee on Transport and Tourism, Opinion of the Committee on Transport and Tourism for the Committee on the Environment, Public Health and Food Safety on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2015/757 in order to take appropriate account of the global data collection system for ship fuel oil consumption data [May 29, 2020] COM(2019)0038 - C8-0043/2019 - 2019/0017(COD) (Parliamentary Committee Proposal)

<[https://www.europarl.europa.eu/doceo/document/TRAN-AD-641314\\_EN.html?redirect](https://www.europarl.europa.eu/doceo/document/TRAN-AD-641314_EN.html?redirect)>

<sup>111</sup> Parliamentary Committee Proposal amends 8, 11, 13 (cited in note 110). EU Council Proposal 2 (cited in note 109). See Subsection 3.1.4.1 at note 75 for cargo carried reporting requirement.

<sup>112</sup> Commission EU MRV Proposal 7, ¶5(2) (cited in note 69).

<sup>113</sup> European Parliament Legislative Observatory (cited in note 105).

<sup>114</sup> European Parliament, *Ordinary Legislative Procedure* <[https://www.europarl.europa.eu/infographic/legislative-procedure/index\\_en.html](https://www.europarl.europa.eu/infographic/legislative-procedure/index_en.html)>

<sup>115</sup> EU Council Proposal ¶10a (cited in note 109). Similarly, the Parliamentary committee views its amendments as “technical adjustments that relate to definitions as well as monitoring parameters, plans and templates.” Parliamentary Committee Proposal 3 (cited in note 110).

<sup>116</sup> EU Council Proposal ¶10a (cited in note 109); Parliamentary Committee Proposal 3 (cited in note 110).

<sup>117</sup> APPS (cited in note 3).

<sup>118</sup> APPS in addition implements Annexes I, II, and V. Id § 1901(a)(5). For a summary of U.S. implementation of MARPOL annexes, see United States Coast Guard, Office of Commercial Vessel Compliance, *International Convention for the Prevention of Pollution by Ships - MARPOL 73/78* <<https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Domestic-Compliance-Division/MARPOL/>>

<sup>119</sup> Protocol on Environmental Protection to the Antarctic Treaty (adopted Oct 4, 1991, entered into force Jan 14, 1998) 2941 UNTS 5778, Annex IV art 1(c) <<https://www.ats.aq/e/protocol.html>>

<sup>120</sup> Pub L No 110-280, 122 Stat. 2611 (2008).

Any future adopted MARPOL annex will require Senate approval of a resolution of ratification as well as requiring implementing legislation.<sup>121</sup> However, in line with MARPOL’s “tacit acceptance” procedure, newly adopted regulations under an existing annex do not require a subsequent act of Congress to be effective under APPS, if the U.S. Secretary of State does not make a declaration of nonacceptance to the regulation during the MARPOL prescribed time period.<sup>122</sup> For that reason, Chapter 4 does not in and of itself require implementing legislation.<sup>123</sup> Though APPS has not been amended regarding MARPOL since Chapter 4 became effective,<sup>124</sup> the United States is presently implementing the IMO DCS.<sup>125</sup>

Under APPS, authorities reside with the U.S. Coast Guard,<sup>126</sup> unless otherwise specified.<sup>127</sup> Therefore, with regards to MARPOL VI Chapter 3 (air emissions) regulations, APPS specifically gives authority to EPA to both prescribe and administer the regulations<sup>128</sup> as is evident from the

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<sup>121</sup> APPS §1909(a) (cited in note 3). APPS specifies Annexes I, II, V, and VI. APPS § 1901(a)(5).

<sup>122</sup> APPS §§1909(b) and (c) (cited in note 3). The ability of the United States to administer MARPOL annex amendments without the necessity of a further act of Congress was the subject of *Alaska v. Kerry*, 972 F. Supp.2d 1111, 1138-1139 (D. Alaska 2013), wherein the State of Alaska sued regarding U.S. enforcement of an emission control area for SO<sub>x</sub> (under Annex VI Regulation 14), which was adopted by MARPOL Parties after Congress’s inclusion of Annex VI Regulation 14 in APPS. Annex VI Regulation 14 (cited in note 45). The Court found that U.S. enforcement was proper under APPS §1909. See also U.S. Flag Compliance with MARPOL Annex VI International Energy Efficiency (IEE) Requirements, 78 Fed Reg 27982, 27983 (May 13, 2013): “The lack of updated regulations does not exempt ships from meeting the requirements of the amended MARPOL Annex VI.”

<sup>123</sup> The model legislation’s focus is the recommendation identified at the beginning of the memorandum. However, the model legislation includes modification of APPS § 1904 (pertaining to certificates) in order to reflect the addition of the International Energy Efficiency Certificate and the Fuel Oil Consumption Reporting Statement of Compliance, added in MARPOL Annex VI Chapter 4. See Subsection 3.2.1 note 127.

<sup>124</sup> Pub L No 112-81, 125 Stat 1355 (2011), passed December 31, 2011. Resolution MEPC.203(62) was adopted July 15, 2011, and entered into force January 1, 2013 (cited in note 50) and IMO MEPC Index (cited in note 45). APPS has been amended since 2011 in two of its provisions: a conforming amendment to APPS § 1908 and a correction to APPS § 1904. Pub L No 113-281, 128 Stat 3054 (2014), codified at APPS § 1908(g). Pub L No 115-232, 132 Stat 2328 (2018) codified at APPS § 1904(f).

<sup>125</sup> See e.g., United States Coast Guard, Marine Safety Information Bulletin, *Authorization of Classification Societies for the Issuance of Statements of Compliance – Fuel Oil Consumption Reporting*, MSIB Number: 05-18 (June 28, 2018), which authorizes classification societies to issue the statements of compliance <[https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/MSIB/2018/MSIB\\_005\\_18.pdf](https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/MSIB/2018/MSIB_005_18.pdf)>

<sup>126</sup> The provisions refer to “the Secretary of the department in which the Coast Guard is operating.” APPS §1901(a)(11) (cited in note 3). This would be the Secretary of Homeland Security.

<sup>127</sup> Id §1903(a). With regards to MARPOL certificates, the sole authority under APPS limited to EPA is the issuance of nitrogen oxides (NO<sub>x</sub>) Engine International Air Pollution Prevention (EIAPP) certificates (“The Administrator shall, and no other person may, issue ...”) Id §1903(b)(1). The EIAPP certificate certifies an engine’s compliance with the MARPOL NO<sub>x</sub> emissions requirements. MARPOL Annex VI Regulation 13.8 and NO<sub>x</sub> Technical Code § 2.1.1.1 (cited in note 45). All other certificates are issued under authority of the Coast Guard. APPS § 1904(a) (cited in note 3). This includes the International Air Pollution Prevention (IAPP) certificate, which otherwise certifies compliance with MARPOL Annex VI. MARPOL Annex VI Regulation 8.1 and appendix I. Two new MARPOL certifications, included in MARPOL Annex VI Chapter 4, are the International Energy Efficiency Certificate and the Fuel Oil Consumption Reporting Statement of Compliance. Id Regulation 6. See also United States Coast Guard, *Guidelines for Ensuring Compliance with Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78; Prevention of Air Pollution from Ships* (Feb 4, 2009) <<https://www.epa.gov/sites/production/files/2016-09/documents/cgpol0901.pdf>>

<sup>128</sup> APPS §§1903(b)(2) and (c)(2) (cited in note 3). It should be noted that APPS also lists Regulation 19, but this regulation was eliminated from Chapter 3 in late 2008. Resolution MEPC.176(58) (Oct 10, 2008) <[http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.176\(58\).pdf](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.176(58).pdf)> See also IMO MEPC Index (cited in note 45). A new regulation

EPA regulations, entitled, “Control of NO<sub>x</sub>, SO<sub>x</sub>, and PM Emissions from Marine Engines and Vessels subject to the MARPOL Protocol,” finalized in 2010,<sup>129</sup> and included in EPA’s subchapter on air pollution controls in Title 40.<sup>130</sup> APPS provides both the Coast Guard and EPA the authority to prescribe Chapter 3 regulations.<sup>131</sup> Prescribing any APPS regulation requires consultation between the Coast Guard and EPA.<sup>132</sup> As noted, administering the Chapter 3 regulations is assigned to EPA.<sup>133</sup>

With one exception involving shoreside jurisdiction,<sup>134</sup> enforcement for MARPOL VI remains with the Coast Guard unless referred by the Coast Guard to EPA.<sup>135</sup> However, MARPOL VI regulations limit ship inspections related to IMO DCS to verification of a valid statement of compliance issued from the ship’s flag State.<sup>136</sup>

### 3.2.2 Jones Act Ships

MARPOL Annex VI Chapter 4 regulations (EEDI, SEEMP, and IMO DCS) exclude from application ships of a flag State involved solely in domestic shipping transport.<sup>137</sup> In the United States, this would denote Jones Act ships.<sup>138</sup> Jones Act ships are U.S.-flagged ships built in the United States, owned by U.S. citizens, and having a U.S. crew, that transport cargo between U.S.

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numbered Regulation 19 is now contained in Chapter 4. Resolution MEPC.203(62) (cited in note 50). As noted in Subsection 3.2.1 at note 124, APPS was amended shortly after adoption of Chapter 4, and prior to its entry into force.

<sup>129</sup> 40 CFR Part 1043; 75 Fed Reg 23013 (Apr 30, 2010).

<sup>130</sup> 40 CFR Subchapter U.

<sup>131</sup> APPS §1903(c)(2) (cited in note 3).

<sup>132</sup> Id §1903(c)(3).

<sup>133</sup> Id §1903(b)(2). See e.g., 40 CFR 1043.50: “If we determine that your application conforms to the requirements of Regulation 13 of Annex VI, we will issue a certificate and notify IMO that your Approved Method has been certified.”

<sup>134</sup> APPS gives EPA alone enforcement authority where a violation of Regulation 17 (reception facilities) and Regulation 18 (fuel oil availability and quality) is shoreside. APPS §1907(f)(3) (cited in note 3).

<sup>135</sup> Id §1907(f)(2). Coast Guard and EPA coordination is addressed through a Memorandum of Understanding and other instruments. See, e.g., *Memorandum of Understanding Between United States Coast Guard and United States Environmental Protection Agency Regarding Enforcement of Annex VI as Implemented by the Act to Prevent Pollution from Ships* (June 2011) (USCG-EPA MOU)

<<https://www.epa.gov/sites/production/files/documents/annexvi-mou062711.pdf>> See also *United States Coast Guard and United States Environmental Protection Agency Revised Protocol on Referrals Under MARPOL Annex VI, as Implemented by the Act to Prevent Pollution From Ships* (June 2019) (Agency Referrals)

<<https://www.epa.gov/sites/production/files/2019-07/documents/annexvifonarrevreferralprotocolfinaljointexecuted.pdf>>

<sup>136</sup> MARPOL Annex VI Regulation 10.5 (cited in note 42). See also MARPOL Annex VI regulations 6.6 and 6.7 (related to flag State issuance of a ship’s IMO DCS compliance), 9.12 (requiring a ship’s statement of compliance be kept onboard) and appendix IX (setting forth the information to be submitted by the flag State to the IMO database) and appendix X (the statement of compliance form).

<sup>137</sup> Id 19(2.1).

<sup>138</sup> The Jones Act is §27 of the Merchant Marine Act of 1920, Pub L No 66-261, 41 Stat 988 (1920), codified at 46 USC § 55102.

ports.<sup>139</sup> There are presently 91 Jones Act-compliant ships of at least 5,000 gross tonnage.<sup>140</sup> Of these, 57 are tankers, and 24 are container ships.<sup>141</sup>

### 3.2.3 Additional GHG Reporting under U.S. Law

#### 3.2.3.1 The Inventory of U.S. Greenhouse Gas Emissions and Sinks

The latest U.S. Greenhouse Gas inventory was published in 2020.<sup>142</sup> Consistent with the Intergovernmental Panel on Climate Change (IPCC) Guidelines, the GHG inventory includes estimates of international bunker fuels, but does not include it within total U.S. emissions.<sup>143</sup> Specifically, the GHG inventory distinguishes between domestic and international maritime transport GHG emissions by relying on fuel consumption data in determining the domestic and international maritime emissions.<sup>144</sup> The 2018 CO<sub>2</sub> emission estimate for U.S. domestic maritime transport using bunker fuel was 13.9 million metric tons CO<sub>2</sub> equivalent (MMT CO<sub>2</sub>e),<sup>145</sup> though the inventory notes that for domestic maritime emissions, “large year over year fluctuations in emission estimates partially reflect nature of data collection for these sources.”<sup>146</sup> For international maritime GHG emissions (based on fuel purchased in the United States intended for international maritime transport), the 2018 CO<sub>2</sub> emission estimate is 31.4 MMT CO<sub>2</sub>e.<sup>147</sup>

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<sup>139</sup> Department of Transportation, Maritime Administration, *Domestic Shipping: U.S. Shipping in U.S. Waters* <<https://maritime.dot.gov/ports/domestic-shipping/domestic-shipping>> U.S. Department of Transportation, Maritime Administration, *United States Flag Privately-Owned Merchant Fleet Report: Oceangoing, Self-Propelled Vessels of 1,000 Gross Tons and Above that Carry Cargo from Port to Port (As of: March 12, 2020)* (Jones Act Ship Data). <<https://www.maritime.dot.gov/data-reports/data-statistics/data-statistics>> <[https://www.maritime.dot.gov/sites/marad.dot.gov/files/oictures/DS\\_USFlag-Fleet\\_20200312\\_Bundle.pdf](https://www.maritime.dot.gov/sites/marad.dot.gov/files/oictures/DS_USFlag-Fleet_20200312_Bundle.pdf)> See, generally, Congressional Research Service, *Shipping Under the Jones Act: Legislative and Regulatory Background*, R45725 (Nov 21, 2019) (CRS Jones Act Report) <<https://fas.org/sgp/crs/misc/R45725.pdf>>

<sup>140</sup> Jones Act Ship Data (cited in note 139). There is a total of 99 Jones Act-compliant ships. Id.

<sup>141</sup> Id.

<sup>142</sup> U.S. GHG Inventory Report (cited in note 11).

<sup>143</sup> See Subsection 3.1.1 at note 11.

<sup>144</sup> The GHG Inventory Report differentiates between domestic and international fuel use through partial reliance on U.S. Department of Commerce bunker fuel use data. U.S. GHG Inventory Report, 3-39 (cited in note 11). Countries typically levy tax and custom dues only on bunker fuel for domestic consumption, not international. 2006 IPCC Guidelines, vol 2, 3.51 (cited in note 11). The GHG Inventory Report subtracts domestic from total use to estimate domestic and international fuel consumption. “The feasibility of using domestic marine activity data to improve the estimates will continue to be investigated.” U.S. GHG Inventory Report, 3-39. The IPCC Guidelines include reporting of CO<sub>2</sub>, nitrous oxide, and methane for maritime transport. 2006 IPCC Guidelines vol 1, 4.8, table 4.1, (Fuel Combustion Activities - Transport - Water-borne Navigation) (cited in note 11) <[https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1\\_Volume1/V1\\_4\\_Ch4\\_MethodChoice.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_4_Ch4_MethodChoice.pdf)> No changes were made to these identified gases in the IPCC 2019 Refinement. 2019 IPCC Refinement vol 1, 4.9, table 4.1 (updated) (cited in note 11) <[https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/1\\_Volume1/19R\\_V1\\_Ch04\\_MethodChoice.pdf](https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/1_Volume1/19R_V1_Ch04_MethodChoice.pdf)>

<sup>145</sup> U.S. GHG Inventory Report, 3-26, table 3-13 (cited in note 11).

<sup>146</sup> Id note e.

<sup>147</sup> Id. U.S. domestic and international maritime transport GHG emissions for 2018 total 45.3 MMT CO<sub>2</sub>e. This compares to the EU reporting of more than 138 MMT CO<sub>2</sub> associated with European ports in 2018. See Subsection 3.1.4.2 at note 96.

### 3.2.3.2 Sector-Wide GHG Reporting

EPA's multisector GHG reporting program was triggered by Congress in 2008, as part of an appropriations bill. The bill required EPA to develop and finalize a rule within 18 months for "mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy of the United States."<sup>148</sup> EPA, under the Obama administration, thereafter promulgated the rule (EPA GHG Reporting Rule), relying on Clean Air Act (CAA) authorities.<sup>149</sup> EPA saw the primary purpose of its rule as informing future climate change policy, including informing future regulation.<sup>150</sup> The rule was explicit that it "does not require control of greenhouse gases."<sup>151</sup> The rule required reporting of numerous GHG.<sup>152</sup> For stationary sources, facilities subject to reporting are those with cumulative annual GHG emissions of 25,000 metric tons CO<sub>2</sub> equivalent (CO<sub>2</sub>e).<sup>153</sup> For mobile sources covered by the rule, reporting is directed at the manufacturers of new vehicles and engines.<sup>154</sup> For engines of oceangoing ships, GHG reporting is limited to CO<sub>2</sub>, and does not include reporting for nitrous oxide and

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<sup>148</sup> Consolidated Appropriations Act, 2008, Pub L No 110–161, 121 Stat 1844, 2128 (2008).

<sup>149</sup> Mandatory Reporting of Greenhouse Gases, 74 Fed Reg 56260, 56264 (Oct 30, 2009) (EPA GHG Reporting Rule), codified at 40 CFR Part 98. In the EPA GHG Reporting Rule, EPA relied exclusively on the Clean Air Act for its statutory basis, specifically CAA §114, 42 USC 7414 and CAA §208, 42 USC 7542. EPA declined to also include the appropriation act. 74 Fed Reg at 56264.

<sup>150</sup> Id at 56265.

<sup>151</sup> Id at 56260.

<sup>152</sup> The rule requires annual reporting of carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, perfluorocarbons and other fluorinated gases, and hydrofluorinated ethers. Id at 56264.

<sup>153</sup> Id at 56264. For comparison, reported EU CO<sub>2</sub> emissions ranged from below 100 to around 315,000 metric tonnes. See THETIS-MRV CO<sub>2</sub> Emission Report (cited in note 85). U.S. facility reporting is per facility, with data reported to EPA. EPA rejected corporate-level reporting (with the exception of certain suppliers and vehicle and engine manufacturers) as not providing sufficient detail for CAA GHG programs and policies. EPA GHG Reporting Rule, 74 Fed Reg at 56273. Suppliers who can report on a corporate level include importers and exporters of petroleum products with annual imports or annual exports that are equivalent to 25,000 metric tons CO<sub>2</sub>e or more per year. Id at 56267. Id at 56268 note 8. Id at 56342.

<sup>154</sup> Reporting is based on emissions testing of vehicles and engines. EPA GHG Reporting Rule, 74 Fed Reg at 56352 (cited in note 149). For oceangoing ships, the manufacturers are generally considered persons who manufacture an engine or vessel for sale in the United States, or otherwise introduce a new marine engine into U.S. commerce, as well as importers who import engines or vessels for resale. See e.g., 40 CFR 1042.2 and 40 CFR 1042.901. Also see Environmental Protection Agency, Fact Sheet, *Mobile Sources Final Rule: Mandatory Reporting of Greenhouse Gases (74 FR 56260)* <[https://www.epa.gov/sites/production/files/2015-07/documents/mobilevehicle\\_enginemanuf.pdf](https://www.epa.gov/sites/production/files/2015-07/documents/mobilevehicle_enginemanuf.pdf)> See EPA GHG Reporting Rule, 74 Fed Reg at 56352 note 23 for mobile source exclusions.

methane.<sup>155</sup> EPA viewed further GHG emission reporting as impracticable given unique aspects of the industry.<sup>156</sup>

Verification is performed by EPA, rather than through third party verification.<sup>157</sup> GHG data such as the facility name, type of emission (such as CO<sub>2</sub>), emission rate, and concentration is available to the public.<sup>158</sup> EPA now has two public databases that contain U.S. GHG emissions data: The Inventory of U.S. Greenhouse Gas Emissions and Sinks (which contains the U.S. GHG inventory), and the Greenhouse Gas Reporting Program (GHGRP).<sup>159</sup>

### 3.2.3.3 Sector GHG Reporting

Under the Obama Administration, the Federal Highway Administration (FHWA) expanded CO<sub>2</sub> emission data collection for certain mobile sources (FHWA Rule).<sup>160</sup> States and larger cities were required to estimate CO<sub>2</sub> emissions occurring state-wide on the National Highway System.<sup>161</sup> The FHWA Rule has since been revoked by the Trump Administration.<sup>162</sup>

The Federal Aviation Administration (FAA) operates a voluntary reporting program as part of U.S. implementation of an international aviation treaty, which is tied to CO<sub>2</sub> emissions

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<sup>155</sup> EPA GHG Reporting Rule, 74 Fed Reg at 56353. Category 3 marine diesel engines include large oceangoing ships. See, generally, DieselNet, Emission Standards, *United States: Marine Diesel Engines, Background* (“Category 3 marine diesel engines ... are very large marine diesel engines used for propulsion power on ocean-going vessels such as container ships, oil tankers, bulk carriers, and cruise ships.”) <<https://dieselnet.com/standards/us/marine.php>>

In its proposed rule, EPA noted that, Category 3 marine diesel engines “do not have any ‘hydrocarbon’ emission standards, and are not required to measure hydrocarbon or [methane] emissions.” EPA also requested comment on the “appropriateness and feasibility of requiring [nitrous oxide] measurement and reporting on the small number of engines represented by this category.” Environmental Protection Agency, Mandatory Reporting of Greenhouse Gases; Proposed Rule, 74 Fed Reg 16448, 16591 (Apr 10, 2009) (EPA Proposed GHG Reporting Rule).

<sup>156</sup> EPA viewed reporting beyond CO<sub>2</sub> for Category 3 marine diesel engines as impracticable, as “C3 marine engines are very large and manufacturers generally test them as they are installed into ships rather than in a laboratory setting. For this reason, we have determined that requiring the addition of new [nitrous oxide] and [methane] measurement equipment for C3 engines would not be practical, and, as proposed, are not requiring such reporting in this rule.” EPA GHG Reporting Rule, 74 Fed Reg at 56353 (cited in note 149).

<sup>157</sup> Id at 56282.

<sup>158</sup> The EPA GHG Reporting Rule states that, “...in general, emission data collected under CAA sections 114 and 208 shall be available to the public and cannot be withheld as [Confidential Business Information].” Id at 56268. See also Environmental Protection Agency, Disclosure of Emission Data Claimed as Confidential Under Sections 110 and 114(c) of the Clean Air Act, 56 Fed Reg 7042 (Feb 21, 1991) (Emission Data Disclosure), cited in EPA GHG Reporting Rule, 74 Fed Reg at 56287 (cited in note 149).

<sup>159</sup> Environmental Protection Agency, *Using GHG Inventory and GHGRP Data* (GHG Inventory and FLIGHT) <[https://cfpub.epa.gov/ghgdata/inventoryexplorer/data\\_explorer\\_flight.html](https://cfpub.epa.gov/ghgdata/inventoryexplorer/data_explorer_flight.html)>

<sup>160</sup> National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program, 82 Fed Reg 5970 (Jan 18, 2017) codified at 23 CFR Part 490.

<sup>161</sup> Id at 5974. State CO<sub>2</sub> emissions estimates were to be based on annual fuel sales, U.S. Department of Energy published emission conversion factors, and the percentage of statewide vehicle miles traveled on the National Highway System. Id at 5981.

<sup>162</sup> National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program, 83 Fed Reg 24920 (May 31, 2018).

offsetting.<sup>163</sup> The program applies to airplane operators (including corporations) who produce greater than 10,000 tonnes of CO<sub>2</sub> annually.<sup>164</sup> Monitoring methods are prescribed, and results must be independently verified.<sup>165</sup> The international aviation registry provides information publicly as to the operator name, country, total annual CO<sub>2</sub> emissions (as well as any offset requirements),<sup>166</sup> though the FAA views reported information as “business, safety, and/or security confidential” unless otherwise explicitly stated or required by law.<sup>167</sup>

#### 4.0 Anticipated Legal Issues

Elements of the Model Legal Document are based on the EU MRV program, which would result in a U.S. MRV. Like the EU MRV program, the Model Legal Document does not seek to regulate emissions. Its focus is on data collection from ships calling at U.S. ports. Below are some anticipated legal issues.

##### 4.1 Divergence from International Cooperation

The United States is an IMO State Party, and a State Party to MARPOL Annex VI.<sup>168</sup> The United States has remained very involved with IMO.<sup>169</sup> And specifically with regards to the IMO DCS regulation, the United States supported adoption of the IMO DCS program rather than

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<sup>163</sup> U.S. Department of Transportation, Federal Aviation Administration, FAA’s CORSIA Monitoring, Reporting & Verification Program, 84 Fed Reg 9412 (Mar 14, 2019). The program is referred to as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). For CORSIA discussion, see Aoife O’Leary, *Aviation*, in Gerrard and Dernbach, *Legal Pathways* at 424 (cited in note 1). The program remains voluntary until 2027.

International Civil Aviation Organization, Environmental Protection, 2. *What is CORSIA and how does it work?* <[https://www.icao.int/environmental-protection/Pages/A39\\_CORSIA\\_FAQ2.aspx](https://www.icao.int/environmental-protection/Pages/A39_CORSIA_FAQ2.aspx)> Its monitoring, reporting, and verification program is referred to as the CORSIA MRV Program. 84 Fed Reg at 9412.

<sup>164</sup> International Civil Aviation Organization, Annex 16 to the Convention on International Aviation, Environmental Protection, Volume IV, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (First Edition, Oct 2018) § 2.1.1.

<<https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx>>

<sup>165</sup> Id §§ 2.2.1.1, 2.2.3, and 2.4.1.1.

<sup>166</sup> International Civil Aviation Organization, Environment, *CORSIA at a Glance Series: Publication of Information and data from CORSIA Central Registry*, 2 <<https://www.icao.int/environmental-protection/CORSIA/Documents/CORSIA%20Leaflets/CorsiaLeaflet-EN-7-WEB.pdf>> The registry also provides total annual CO<sub>2</sub> emissions aggregated for all airplane operators on each flight pair by cities. Id.

<sup>167</sup> U.S. Department of Transportation, Federal Aviation Administration, Notice of CORSIA Monitoring, Reporting and Verification Program (Mar 6, 2019) 10

<[https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/research/environmental\\_policy/](https://www.faa.gov/about/office_org/headquarters_offices/apl/research/environmental_policy/)> (U.S. CORSIA MRV Program Statement)

<[https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/research/environmental\\_policy/media/corsia\\_mrv\\_program\\_statement.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/research/environmental_policy/media/corsia_mrv_program_statement.pdf)>

<sup>168</sup> See Subsection 3.1.3 at note 44.

<sup>169</sup> See, e.g., Department of Homeland Security, United States Coast Guard USCG, *IMO Homepage* (“The U.S. Coast Guard has been a key participant at the IMO for all policy development since the IMO Convention entered into force over 50 years ago,” with other identified federal agencies “...providing the technical support and guidance necessary to advocate U.S. positions on the important maritime issues.”)

<<https://www.dco.uscg.mil/IMO/International-Maritime-Organization-Sub-committees-HWT/>>

globalization of the EU MRV program.<sup>170</sup> In particular, the United States supported anonymized data, one of the primary distinctions between the IMO DCS and EU MRV.<sup>171</sup>

Though the EEDI and SEEMP and regulations were not unanimously adopted,<sup>172</sup> the IMO prefers to operate by consensus.<sup>173</sup> Especially since the IMO specifically chose not to adopt a program similar to the EU MRV, it is unlikely the IMO would promptly adopt a program more in line with it.<sup>174</sup> However, if Congress adopted a U.S. MRV, it could help spur IMO action. For instance, it was the U.S. requirement for double-hulled tankers which led towards IMO adoption.<sup>175</sup> And the U.S. President, as well as the Senate, in initially introducing MARPOL Annex VI, made clear that the agreement “does not, as a matter of international law, prohibit Parties from imposing more stringent measures as a condition of entry into their ports or internal waters, unless a particular regulation in Annex VI expressly imposes such a limitation.”<sup>176</sup>

#### 4.2 Replication of EU MRV Components into a U.S. MRV

A U.S. MRV program, implemented pursuant to the model legislation, would supplement the global IMO DCS program, and would be comparable to the EU MRV. The similarity of components between a U.S. MRV program and the EU MRV program would serve to limit any additional regulatory burden for those ships which call on both European and U.S. ports. Also, the EU MRV program has been in operation since January 2018,<sup>177</sup> and therefore can be used to

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<sup>170</sup> See Subsection 3.1.3.1 at note 63.

<sup>171</sup> *Id.*

<sup>172</sup> The countries of Brazil, Chile, China, Kuwait, and Saudi Arabia voted against the measures. IMO Energy Efficiency Measures (cited in note 39).

<sup>173</sup> The IMO Secretary-General remarked, “Although not by consensus – which of course would be the ideal outcome – the Committee has now adopted amendments ...” *Id.*

<sup>174</sup> The State Parties spent four and a half years trying to reach consensus with regards to EEDI and SEEMP. *Id.*

<sup>175</sup> Clear Seas Centre for Responsible Marine Shipping, *Double Hulls* <<https://clearseas.org/en/blog/double-hulls/>> See also *Oversight of the U.S. Role in the International Maritime Organization Hearing before the Subcommittee on Coast Guard and Maritime Transportation of the House Committee on Transportation and Infrastructure*, 105th Cong, 2d Sess 15 (1998) 15 (Testimony of Rear Admiral Robert C. North, Assistant Commandant for Marine Safety and Environmental Protection, U.S. Coast Guard). (“Since the late 1970's, the United States has taken the initiative to improve the international standards for maritime safety and protection of the marine environment... Over the past two decades, most of the vessel design, equipment, and operational standards adopted in IMO instruments have evolved to the point of substantial parity with U.S. requirements.”)

<[http://commdocs.house.gov/committees/Trans/hpw105-74.000/hpw105-74\\_1.HTM](http://commdocs.house.gov/committees/Trans/hpw105-74.000/hpw105-74_1.HTM)>

<sup>176</sup> Colin L. Powell, Secretary of State, *Letter of Submittal*, accompanying President George W. Bush, *Message from the President of the United States transmitting Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 thereto (hereinafter the "Protocol of 1997")*. *The Protocol of 1997, which would add Annex VI, Regulations for the Prevention of Air Pollution from Ships, to the International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 (hereinafter the "MARPOL Convention")*, was signed by the United States on December 22, 1998, *Letter of Transmittal*, Senate, 108<sup>th</sup> Cong, 1<sup>st</sup> Sess, Treaty Doc 108-7 (2003) VIII <<https://www.congress.gov/treaty-document/108th-congress/7/document-text>> See also Ex. Rept. 109-13 - Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 Relating Thereto (Treaty Doc. 108-7) S Exec Rep No 109-13 109<sup>th</sup> Cong, 2nd Sess (2006) <<https://www.congress.gov/congressional-report/109th-congress/executive-report/13/1>> See also APPS §§ 1902(i), 1911, and 1912 (cited in note 3).

<sup>177</sup> See Subsection 3.1.4.1 at note 69.

better inform U.S. efforts. In addition, a U.S. MRV program would increase the potential for IMO adoption of a global MRV program similar to the EU MRV program.<sup>178</sup>

Application of EU MRV and a U.S. MRV would be similar, though the EU MRV additionally excludes fish catching and processing ships that are domestically flagged and operated.<sup>179</sup> This exclusion was not included in the model legislation. The number of ships operating under the Jones Act is limited, and it does not seem likely there would be fish catching and processing ships greater than 5,000 gross tonnage carrying cargo between U.S. ports.<sup>180</sup>

Notably, the EU MRV requires solely CO<sub>2</sub> reporting with regards to GHG emissions, even under its proposed revisions, and does not require reporting for nitrous oxide and methane.<sup>181</sup> Nitrous oxide and methane represent two important non-CO<sub>2</sub> GHG emissions,<sup>182</sup> and are the two GHG included along with CO<sub>2</sub> under the IPCC Guidelines for maritime transport GHG reporting.<sup>183</sup> However, the model legislation would similarly specify solely CO<sub>2</sub> reporting with regards to GHG emissions, and therefore would not include reporting for nitrous oxide and methane.<sup>184</sup> This is due to the stated preference for consistency with the ongoing EU MRV program, coupled with the absence of nitrous oxide and methane reporting for oceangoing ship engines under the EPA GHG Reporting Rule.<sup>185</sup> Congress, however, could include reporting for nitrous oxide and methane in the legislation, based on further information regarding monitoring capabilities.<sup>186</sup>

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<sup>178</sup> See Subsection 4.1 at note 175.

<sup>179</sup> See Subsection 3.1.4.1 at note 73.

<sup>180</sup> There seem no fish catching and processing ships greater than 5,000 gross tonnage at present. There are at least two Jones Act fish catching and processing ships below 5,000 gross tonnage (7517698, 9010486). Jones Act Ships Data (cited in note 139). See also CRS Jones Act Report, 13-15 (cited in note 139).

<sup>181</sup> See Subsection 3.1.4.1 at note 77. The EU MRV 2019 Assessment stated that methane was “clearly out of the scope” of the consultation. EU MRV 2019 Assessment, 47 (cited in note 63). However, the EU long-term goal is to include monitoring for all air pollutants. EU GHG Strategy at 6 (cited in note 67). The *Legal Pathways* recommendation also included tracking and reporting all GHG. See Subsection 1.0.

<sup>182</sup> Using a 100-year timescale, methane has a global warming potential (GWP) 28–36 times that of CO<sub>2</sub>, and nitrous oxide has a GWP 265–298 times that of CO<sub>2</sub>. U.S. Environmental Protection Agency, Greenhouse Gas Emissions, *Understanding Global Warming Potentials* <<https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>> Ships using liquified natural gas (LNG) produce significant methane emissions. (“Of all the species analysed, [methane] emissions increased most strongly over the period studied, in particular growth was large relative to the increase in use of LNG as a fuel. Total LNG use in international shipping increased by 28-30% over the period 2012-2018, but over the same period emissions of methane are estimated to have increased by 151-155% ...”) Fourth IMO GHG Study, Annex 1, 134 (cited in note 13).

<sup>183</sup> See Subsection 3.2.3.1 note 144.

<sup>184</sup> See Model Legislation § 1903(c)(6)(A)(i)(II).

<sup>185</sup> See Subsection 3.2.3.2 at note 155.

<sup>186</sup> Several Congressional efforts with regards to climate change are presently underway. The Majority State Report from the House Select Committee on the Climate Crisis contains a section pertaining to maritime shipping GHG emissions. Though the Committee’s plan does not call for new Congressional action pertaining to maritime shipping GHG emissions, the Committee’s plan states, “EPA has authority under the Clean Air Act to set greenhouse gas emissions standards for non-road engines and non-road vehicles, including marine engines, if those emissions contribute to air pollution that “may reasonably be anticipated to endanger public health or welfare. A new president committed to climate action could exercise this authority.” House Select Committee on the Climate Crisis, *Solving the Climate Crisis: The Congressional Action Plan for a Clean Energy Economy and a Healthy, Resilient, and Just America* (June 2020) 136 (reference omitted) <<https://climatecrisis.house.gov/sites/climatecrisis.house.gov/files/Climate%20Crisis%20Action%20Plan.pdf>> See also Subsection 4.3 note 196.

Aside from legislation, EPA could in its discretion decide to include nitrous oxide and methane reporting in its U.S. MRV regulation, based on further information or input. The EU MRV legislation was adopted as an EU regulation (which is self-executing, and applies directly in EU countries) rather than adoption by EU directive (in which EU countries incorporate the directive objectives into their own domestic law).<sup>187</sup> Consequently, the EU MRV regulation is more definitive than would commonly be found in U.S. federal legislation. The model legislation therefore seeks to provide the needed specificity as to scope, but still reserves agency discretion. As CO<sub>2</sub> reporting is to be included as a minimum requirement, it allows other GHG, such as nitrous oxide and methane, to also be required in U.S. MRV reporting.

### 4.3 Placement of a U.S. MRV in APPS

To date, APPS has focused on implementation of international law.<sup>188</sup> And the primary U.S. authority for GHG reporting is CAA.<sup>189</sup> Yet this model legislation is placed in APPS, for a number of reasons. First, U.S. implementation of the IMO DCS is carried out through APPS.<sup>190</sup> Both IMO DCS and a U.S. MRV (which would have elements common to the EU MRV regulation) would have overlapping monitoring and reporting requirements, including, for example, ship particulars, technical characteristics, fuel oil consumption data, as well as some components of ship monitoring plans.<sup>191</sup> Reporting and compliance of the two programs would administratively be better implemented together.<sup>192</sup>

Second, though EPA is the federal regulating agency under CAA,<sup>193</sup> APPS provides a significant role for EPA with regards to environmental matters on covered ships.<sup>194</sup> APPS has an established regulatory framework involving both EPA and the Coast Guard.<sup>195</sup> The model legislation provides this role to EPA with regards to a U.S. MRV program, with authority to both administer and prescribe regulations.<sup>196</sup>

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<sup>187</sup> European Commission, *Types of EU Law* <[https://ec.europa.eu/info/law/law-making-process/types-eu-law\\_en](https://ec.europa.eu/info/law/law-making-process/types-eu-law_en)>

<sup>188</sup> See, e.g., APPS §§ 1901(a)(3), 1901(a)(4), and 1901(a)(5) (cited in note 3).

<sup>189</sup> See Subsection 3.2.3.2 at note 149.

<sup>190</sup> IMO DCS monitoring and reporting by U.S.-flagged vessels, as well as verification of foreign ships' IMO DCS compliance is carried out through APPS. See Subsection 3.2.1 at notes 125 and 136.

<sup>191</sup> See Subsection 3.1.4.1 at note 84. The model legislation includes aspects of the EU MRV regulation in effect, and includes alignment with IMO DCS where such would be likely if the EU MRV regulation is revised. See Subsection 3.1.4.3 at note 115.

<sup>192</sup> See Subsection 3.1.2 at note 32 regarding notice requirements.

<sup>193</sup> See, e.g., U.S. Environmental Protection Agency, *Overview of the Clean Air Act and Air Pollution* <<https://www.epa.gov/clean-air-act-overview>>

<sup>194</sup> See Subsection 3.2.1.

<sup>195</sup> *Id.*

<sup>196</sup> Though EPA required CO<sub>2</sub> reporting for engines of oceangoing ships as part of the EPA GHG Reporting Rule (see Subsection 3.2.3.2 at note 155), EPA has declined to issue an endangerment finding with regards to marine engines and vessels, which would have initiated a regulatory program establishing GHG emission standards for those sources. U.S. Environmental Protection Agency, Memorandum in Response to Petitions Regarding Greenhouse Gas and Other Emissions from Marine Vessels and Nonroad Engines and Vehicles (June 15, 2012) (EPA Nonroad Petition) 4,10,11 <[https://www.eenews.net/assets/2012/06/18/document\\_pm\\_06.pdf](https://www.eenews.net/assets/2012/06/18/document_pm_06.pdf)> In the EPA Nonroad Petition, EPA focused solely on domestic emissions, and determined EPA's resources would be better used elsewhere, stating, "In the meantime, EPA continues to believe that it is in the best interests of the United States and the international shipping transportation sector to first pursue a strategy of pursuing international approaches to achieve climate change goals, which will not only provide concrete results in the goal of reducing greenhouse gases

Further, there is critical need for involvement of the Coast Guard in international maritime transport.<sup>197</sup> Such a level of involvement is not found in the CAA. Clearly the overlay of maritime jurisdiction changes the dynamic for environmental law implementation.<sup>198</sup> Though CAA jurisdiction over oceangoing ships is broad,<sup>199</sup> its statutory focus is on new engines and vehicles.<sup>200</sup>

Lastly, U.S. MRV legislation does not raise to the level of its own act since the model legislation does not regulate emission levels, but is solely requiring information, and is focused on CO<sub>2</sub>.<sup>201</sup> Yet, this information would help inform the U.S. GHG Inventory as well as inform U.S. citizens,<sup>202</sup> allow for a more accurate reflection of U.S. contributions to international maritime transport GHG emissions,<sup>203</sup> and likely lead to a stimulation of energy efficiency in maritime transport for ships that call at U.S. ports.<sup>204</sup>

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from ships but will simplify the Agency's task of adopting any standards under the CAA in the future, should this prove appropriate." Id at 11. EPA's endangerment finding deferment does not affect EPA's ability to require GHG reporting even under CAA (as EPA has done for oceangoing vessel engines), as EPA has noted, its primary purpose in the GHG reporting is informing future climate change policy, including informing future regulation. See Subsection 3.2.3.2 at note 150. Indeed, "EPA's authority to request information reaches to a source not subject to the CAA, and may be used for purposes relevant to any provision of the Act." EPA Proposed GHG Reporting Rule, 74 Fed Reg at 16454 (cited in note 155). See also Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed Reg 66496, 66514 (December 15, 2009) (Motor Vehicle Endangerment Finding). "It is fully reasonable and rational to expect that events occurring outside our borders can affect the U.S. population... That is fully consistent with the CAA's stated purpose of protecting the health and welfare of this nation's population." See also *Spector v. Norwegian Cruiseline*, 545 U.S. 119 (2005), wherein the Supreme Court required American Disabilities Act requirements on foreign flagged ships in U.S. waters where such requirements did not interfere with a foreign flagged cruise ship's "internal affairs" (e.g., "permanent and significant structural modifications that did not conflict with international law or threaten safety"). EPA has declined to use authority outside of MARPOL to regulate air emissions applicable to foreign vessels, though it has used its authority outside of MARPOL to regulate discharge of sewage from foreign vessels in U.S. waters. 40 CFR 94.1(b)(2) and 33 CFR 159.3 (vessel).

<sup>197</sup> U.S. Coast Guard, *USCG: A Multi-Mission Force* <<https://www.gocoastguard.com/about-the-coast-guard/discover-our-roles-missions>>

<sup>198</sup> See Subsection 3.1.2.

<sup>199</sup> See e.g., *Pacific Merchant Shipping Association v. Goldstene*, 517 F.3d 1108 (9th Cir. 2008) wherein California's preliminary attempt to use its port State authority to regulate sulfur content in fuel was found to be preempted by CAA due to the California rule's explicit reliance on ship air emissions. See also e.g., present California regulations, falling outside CAA preemption. 13 Cal Code of Reg § 2299.2 and 17 Cal Code of Reg § 93118.2.

<sup>200</sup> CAA § 213(a)(4), 42 USC 7547(a)(4).

<sup>201</sup> The environmental act with the most notable monitoring and reporting component is the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 USC 11001 – 11050. Yet that act was in response to the worst industrial accident to date, includes significant planning provisions, and covers the reporting of over 600 chemicals. See Environmental Protection Agency, *What is EPCRA?* <<https://www.epa.gov/epcra/what-epcra>>.

<sup>202</sup> EPA noted its expectation that the GHG emissions would improve the U.S. GHG Inventory submitted to the UNFCCC Secretariat. EPA GHG Reporting Rule 74 Fed Reg at 56265 (cited in note 149).

<sup>203</sup> See Subsection 3.1.1 at notes 16, 17, and 19.

<sup>204</sup> See Subsection 3.1.4.1 at note 88.

#### 4.4 Inclusion of Jones Act Ships

Like the EU MRV regulation, the model legislation also includes domestically flagged ships over 5,000 gross tonnage that solely voyage domestically,<sup>205</sup> though these are excluded from IMO DCS.<sup>206</sup> In order to apply the port State requirements in a non-discriminatory manner,<sup>207</sup> as well as for parity and because these domestic emissions are included in the national GHG inventory (and would therefore help inform the inventory),<sup>208</sup> the domestic emissions would be reported alongside international maritime transport emissions in a U.S. MRV database.

#### 4.5 Confidentiality

A similar amount of information to that required under the model legislation is available under the EPA GHG Reporting Rule for facilities,<sup>209</sup> and reported in EPA's public GHG database.<sup>210</sup> In addition, U.S. import and export information is publicly accessible.<sup>211</sup>

Under the Freedom of Information Act (FOIA), information is publicly available unless otherwise exempt.<sup>212</sup> Exemption 4 covers trade secrets and commercial or financial information.<sup>213</sup> The U.S. Supreme Court recently addressed the scope of FOIA Exemption 4 in the case *Food Marketing Institute v. Argus Leader Media*.<sup>214</sup> The Court wrote that, "At least where commercial or financial information is both customarily and actually treated as private by its owner and provided to the government under an assurance of privacy, the information is 'confidential' within the meaning of Exemption 4."<sup>215</sup> Because certain information would be sought by both IMO DCS and a new U.S. MRV (and viewed as confidential under IMO DCS), the model legislation makes clear that the information is to be publicly available.

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<sup>205</sup> See Subsection 3.1.4.1 at note 74.

<sup>206</sup> See Subsection 3.1.3.1 at note 57.

<sup>207</sup> See Churchill, *Port State Jurisdiction* at 448 (cited in note 35). See also, e.g., UNCLOS art 227, *Non-Discrimination with respect to Foreign Vessels* ("In exercising their rights and performing their duties under this Part, States shall not discriminate in form or in fact against vessels of any other State.") (cited in note 23).

<sup>208</sup> See Subsection 3.2.3.1 at note 146.

<sup>209</sup> See Subsection 3.2.3.2 at note 158.

<sup>210</sup> See Subsection 3.2.3.2 at note 159.

<sup>211</sup> It is possible to track imports and exports per ship, for example through its bill of lading. See, e.g., Datamyne, *Bill of lading data added daily* <<https://www.datamyne.com/datamyne-cargos/>> or Port Examiner, *Trade Data from U.S. Customs* <<https://portexaminer.com>> The information is not readily available on U.S. government websites. Information on international maritime CO<sub>2</sub> emissions related to U.S. imports and exports can be gathered indirectly from other sources. See e.g., Caspar Trimmer and Javier Godar, *Calculating Maritime Shipping Emissions per Traded Commodity* (Stockholm Environment Institute, 2019) <<https://www.sei.org/publications/shipping-emissions-per-commodity/#download-pdf>>

<sup>212</sup> Freedom of Information Act, 5 USC §552. See, e.g., §552(a).

<sup>213</sup> Id §552(b)(4). The Department of Homeland Security FOIA regulations are found at 6 CFR Part 5. EPA FOIA regulations are found at 40 CFR Part 2.

<sup>214</sup> *Food Marketing Institute v. Argus Leader Media*, 139 S. Ct. 2356 (2019). *Argus Leader* involved a request for store-level Supplemental Nutrition Assistance Program (SNAP) data from the U.S. Department of Agriculture.

<sup>215</sup> Id at 2366.

#### **4.6 U.S. Liability Concerns**

Congress may be unwilling to acknowledge a direct U.S. connection to international maritime CO<sub>2</sub> emissions related to U.S. imports, exports, and passengers as such emissions have never been treated as allocated to a specific country.<sup>216</sup> In addition, this may lead some to believe that such an acknowledgement could lead to a modification of allocation for international maritime transport. Also, some may feel this acknowledgement could be viewed, by extension, as opening the door to further liability, for instance, for carbon embedded in imported goods.

Finally, when Congress is faced with its national CO<sub>2</sub> emission sources and priorities, it may choose not to venture further. Congress may choose not to begin to address U.S. GHG impact on the international maritime sector due to the smaller GHG emissions on an individual ship level. This would be unfortunate because GHG levels in totality and the U.S. contribution to those levels remain significant, and failure to act would undermine U.S. GHG efforts elsewhere.

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<sup>216</sup> See Subsection 3.1.1 at note 15.