Convention on Long-range Transboundary Air Pollution
61st session of the Working Group on Strategies and Review

Comments by Canada on the
"Draft guidance document on technical measures for reduction of emissions from shipping"
(ECE/EB.AIR/WG.5/2023/4)

August 25, 2023

Canada thanks the Task Force on Techno-economic Issues for this draft guidance document. Please see the following for some comments on the content of the document.

Paragraph 4 (c) - Canada recommends to include also the recently designated Mediterranean ECA, in addition to those mentioned for the Baltic Sea, North Sea, North American coastal waters and the Caribbean Sea.

Paragraph 7 – in referring to shipping emissions as a relatively clean modal transport compared to other types of transport, Canada would recommend that "relatively GHG efficient" be used instead. Using "relatively clean" can be misleading when the share of marine transport towards annual global NOx and SOx emissions is considered (approximately 13-15%). The focus throughout the paper should shift to air pollution with a reference to the co-benefits to greenhouse gases and climate. In addition, some statements made, like those referring to emissions from ships in harbours, should be qualified to which global region they are being applied to, as this may vary by region. If further references are needed, Canada submitted a paper (MEPC 80/5/1) to the International Maritime Organization (IMO) pointing out the issue of vessels not meeting the NOx Tier III standards at low loads which is resulting in higher-than-expected NOx emissions in ECAs close to ports and populated areas.

Paragraph 10 – in referring to regulations being essential drivers to achieve emission abatement, Canada is supportive of this statement and would like to highlight a 2021 paper published by Canadian scientists which could be referenced to support this statement. Canada conducted a North American Emission Control Area (NA ECA) impact study, which was published in 2021. This study concluded that the NA ECA has resulted in significant air quality improvements in five Canadian port cities (Halifax, Vancouver, Victoria, Montreal, and Quebec City). Link to the 2021 publication: https://doi.org/10.1016/j.scitotenv.2021.147949 . Further, the 70 per cent of shipping emissions referenced in this paragraph seems to be a bit outdated, and varies significantly depending on the type of ship. It is also unclear if the reference to shipping emissions includes NOx, SOx and GHGs. This should be clarified.

Paragraph 11 – in referring to no specific rules being established in port areas by international regulations, it could be worth adding a caveat that the SOx and NOx regulations by the IMO are enforced, when applicable, by Port States as well. Regional authorities such as the ones mentioned in this paragraph can apply standards that are stricter than global (IMO) regs.

Paragraph 12 – in referring to the sulphur content of highly distillate marine fuels the authors could consider comparing this to on-road diesel fuel sulphur content for context.

Paragraph 16 – The authors may want to consider adding in other factors that led to the rise of LNG (liquified natural gas) in this sector including shale gas boom and regulatory gaps at the IMO level, which do not consider methane in the measures (at this time).

Paragraph 18 - the authors may wish to consider adding that another important reason this is a drawback (using LNG) is that due to methane's global warming potential, methane slip need only be a modest percent to overwhelm CO2 benefits.

Biofuels section – Biofuels contribute to an increase in NOx emissions, which has not been mentioned in this paper as a potential drawback of using biofuels. Canada recommends more information be added to explain this important consequence to the use of biofuels.

Table on Emission reductions (per cent) by fuel switch technique – recommend that the NOx drawbacks for biofuels be included in the table. In addition, water-in-fuel is not described in the text as a fuel switch technique (as in the title of the table) but as a combustion modification. The authors may wish to review this. Also for NH3, Canada would like to highlight that there is bunkering infrastructure available at this time, the authors may wish to consider this in the document.

Paragraph 32 – include also that there are co-benefits in reducing methane slip, as well as reductions in PM and black carbon.

Paragraph 40 – in referring to Norway electrifying its ferries since 2015, the authors may wish to add a Canadian example including that there are several hybrid (battery-LNG) vessels (especially ferries) in operation in British Columbia as well.

Paragraph 45 - Suggest referencing a Canadian paper or report by the International Council on Clean Transportation (ICCT) in this document on a scientific literature review that was conducted to advise on appropriate emission factors to air and water from ships using scrubbers. The ICCT published their study in November 2020 with a report entitled Air Emissions and Water Pollution Discharges from Ships with Scrubbers. In 2022, Canada submitted an INF paper (PPR 9/INF. 21) to the IMO and the ICCT report is included as annex to this paper. The ICCT report found that, scrubbers can substantially reduce SO2 emissions, with emissions from ships using 2.6% sulfur HFO with a scrubber averaging 31% lower than 0.07% sulfur MGO; for other pollutants, including CO2, PM, and BC, using HFO with scrubbers results in higher emissions than MGO; all scrubbers—open loop, closed loop, and hybrid—discharge water that is more acidic and turbid than the surrounding water.

Paragraph 48 - There is a comprehensive scientific analysis by the International Council for the Exploration of the Seas on the potential impacts of scrubber wash-water on the marine environment. This document was submitted to the IMO as document MEPC 76/9/1. Suggest referencing this document in this paragraph. In addition, the ports/countries that are listed as examples of areas that have banned

wastewater discharge in this paragraph could also include Canada as this is the case for the Port of Vancouver, Port of Prince, and Port of Sept-Îsles as well.

Paragraph 56 – The authors may wish to consider that most commercial selective catalytic reduction technology is ineffective in reducing NOx to the desired levels, at low temperatures (below 250 degC), which are relevant when engines are at low loads. This low load issue is discussed in a paper that was submitted by Canada to the IMO recently (MEPC 80/5/1) that could be referenced if appropriate.

Paragraph 63 – referring to reduction techniques for ships proving efficient in the ports of Los Angeles and Long Beach. These have also impacted relatively positively in Canadian port cities as well as demonstrated in a study by Health Canada. See: Air quality in Canadian port cities after regulation of low-sulphur marine fuel in the North American Emissions Control Area - ScienceDirect