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**DEVELOPMENT OF DRAFT LIFECYCLE GHG AND CARBON INTENSITY GUIDELINES
FOR MARITIME FUELS (DRAFT LCA GUIDELINES)**

Proposals for finalizing lifecycle GHG and carbon intensity guidelines for maritime fuels

Submitted by WSC

SUMMARY

Executive summary: This document provides proposals to assist the Working Group to finalize fuel lifecycle analysis (LCA) guidelines. The LCA guidelines should accurately quantify lifecycle emissions on a Well-to-Wake (WTW) basis, as a prerequisite to facilitate informed decision-making by the Organization, regulators, and the industry. The development of LCA guidelines is separate and distinct from subsequent policymaking decisions and should not be conflated. LCA should accurately quantify Well-to-Wake lifecycle impact.

Strategic direction, if applicable: 3

Output: 3.2

Action to be taken: Paragraph 27

Related documents: ISWG-GHG 9/2, ISWG-GHG 9/2/3 and MEPC 77/WP.6

Introduction

1 ISWG-GHG 9 made further progress on the development of fuel lifecycle assessment (LCA) guidelines and supported continuing further work on the basis of documents ISWG-GHG 9/2 (Austria et al.) and ISWG-GHG 9/2/3 (Australia et al.), and that text from other relevant documents could be incorporated (MEPC 77/WP.6, paragraph 67).

2 WSC supports the way forward agreed by the Working Group. Document ISWG-GHG 9/2/3 provides an appropriate structure, while document ISWG-GHG 9/2 provides important information on LCA calculation methodologies which should be incorporated into the guidelines. WSC also supports considering other proposals from relevant documents.

3 This document provides proposals to guide the Working Group in finalizing the LCA guidelines, bearing in mind the progress already made.

Background

4 In the view of WSC, there is significant alignment between documents ISWG-GHG 9/2 and ISWG-GHG 9/2/3. In addition, at ISWG-GHG 9 there was general agreement on several key points:

- .1 LCA guidelines should address Well-to-Wake (WTW) emissions;
- .2 the LCA guidelines should include all IPCC GHGs;
- .3 environmental sustainability criteria should be incorporated;
- .4 IMO LCA guidelines should be aligned with IPCC guidelines;
- .5 the guidelines may bifurcate Well-to-Tank (WTT) and Tank-to-Wake (TTW) emissions, with total WTW emissions being the sum of the WTT and TTW components, i.e. $WTW = WTT + TTW$; and
- .6 upstream emissions could be provided by the supplier using a fuel lifecycle label (FLL) forming part of the bunker delivery note (BDN).

5 There are, however, significant differences between documents ISWG-GHG 9/2 and ISWG-GHG 9/2/3. Document ISWG-GHG 9/2 provides information on methodologies to analyse fuel pathways and development of emissions factors based on existing standards and guidelines used in other sectors and regulatory regimes, for example the ISO 14040 series. Document ISWG-GHG 9/2/3 proposes a source factor (S_f) concept to account for downstream TTW emissions.

6 With respect to Black Carbon (BC) and short-lived climate forcing agents, the Working Group agreed to proceed on the basis of GHGs, noting BC and other (short-lived) climate pollutants could be considered later if appropriate.

7 The Working Group considered whether analysis should be based on a one-hundred-year horizon (GWP100) or also consider GHG impact over a twenty-year horizon (GWP20) and supported using GWP100. However, interested Member States and international organizations were invited to provide concrete proposals on the implications of adding also GWP20 for comparison purposes (MEPC 77/WP.6, paragraph 29).

8 Document ISWG-GHG 9/2/3 proposed separating fuel categorization from fuel production pathways. However, several delegations called for a single consolidated table incorporating both the fuel categorization and production pathway. In addition, the Working Group agreed that further work was needed on the matter of default emission factors.

Discussion

9 Shipowners are already planning new building and conversion projects for low-emission ships utilizing alternative fuels. Clear and transparent LCA guidelines are essential to support informed decision-making, and the urgency of the matter cannot be overstated. The urgency of reducing GHG emissions, and the scale of investment required means that we cannot afford to make wrong choices based on a flawed understanding of lifecycle impact.

10 LCA guidelines should accurately quantify WTW lifecycle emissions, based on all IPCC GHGs. Unless LCA guidelines properly quantify WTW emissions, including the upstream WTT component, they will not be fit for purpose. To assist with practical implementation, it is considered appropriate to bifurcate assessment of WTT and TTW emissions, with WTW emissions being the sum of WTT + TTW.

11 The matter is complicated by the issue of accounting for emissions. WSC recognizes the importance of emissions reporting and that this will be considered by the Committee in due course. However, the task of the Working Group is to finalize LCA guidelines which accurately quantify WTW emissions. Concerns over the risk of double reporting of emissions are a reason for further discussions in the Committee on that subject, they do not alter the imperative to understand WTW lifecycle impact.

12 Development of future GHG reduction measures risks being conflated with finalizing LCA guidelines and delaying progress. WSC understands concern of some delegations that the Working Group is developing guidelines which may be used to support implementation of as yet unknown GHG reduction policy measures and offers observations and comments related to this concern in the following three paragraphs. They are separate and distinct matters which should be considered by the Committee, not by this Working Group, and should not be allowed to delay finalization of LCA guidelines.

13 There have been concerns that inappropriate use of LCA values in IMO instruments might punish early movers. WSC recognizes this concern and expects it to be discussed by the Committee, but it does affect the need to accurately quantify WTW emissions. For example, although technology pathways are still uncertain, hydrogen and hydrogen carriers are expected to play an important role in the energy transition. Most commercially available hydrogen is produced using energy intensive steam reforming of fossil fuel feedstocks, with hydrogen being necessary to produce ammonia. It may be necessary to accept higher lifecycle emissions as early movers using hydrogen-based fuels may face a situation where these fuels that are produced through 100% renewable energy are not yet available in the required quantities. When the Committee considers further GHG reduction measures, it will need to consider this transitional phase as production of truly green fuels is increased to meet demand, and avoid the risk that early movers might be penalized if available alternative fuels have high LCA values at the beginning of the transition. However, the task at hand is to develop LCA guidelines, not to develop policy instruments. It should be noted that other potential alternative fuels which may be proposed may need to go through a similar production transition to produce fuels with low TTW LCA values.

14 The lifecycle impact of biofuel products depends on the nature of fuel, feedstocks and production. ICCT analysis indicates that the emissions reduction potential of biofuels varies from an almost 100% reduction to being equivalent or even worse than MGO¹. Accordingly, it is impossible to establish whether biofuels will deliver meaningful reductions without quantifying upstream WTT emissions and including these in WTW LCA values.

15 The Organization will almost certainly use fuel LCA values to inform development of future GHG reduction measures. During these future deliberations it is expected that the Organization will consider matters such as ensuring that:

- .1 higher upstream WTT LCA values of available alternative fuels do not inhibit early movers, delaying the energy transition until low TTW LCA products are available in the required quantities; and

¹ ICCT, 2020, *The Potential of Liquid Biofuels in Reducing Ship Emissions*, figure 1, <https://theicct.org/sites/default/files/publications/Marine-biofuels-sept2020.pdf>

- .2 encouraging early movers to accelerate the energy transition does not disincentivize green production of alternative fuels.

16 However, development of future GHG reduction measures is separate and distinct from finalizing LCA guidelines. WSC would remind the Working Group that LCA guidelines are necessary regardless of which GHG reduction measures might be considered, and support for LCA guidelines does not prejudice positions for future policy development.

17 Document ISWG-GHG 9/2 posits that existing standards and guidelines applied in other sectors and regulatory regimes provide a sound basis for finalizing IMO LCA guidelines. WSC requests further clarification to fully understand the source factor concept and would welcome a more detailed overview to be delivered by the co-sponsors to the next meeting of the Working Group. Accordingly, the co-sponsors of documents ISWG-GHG 9/2 and ISWG-GHG 9/2/3 should be invited to present their proposals to this session to facilitate a more informed discussion.

18 LCA should include GHGs listed in IPCC AR6. WSC supports reducing BC emissions and has participated actively in the existing workstream of the PPR Sub-Committee. However, BC is not listed by IPCC as a GHG and does not have an IPCC assigned GWP value. As a matter of principle, IMO LCA guidelines should maintain alignment with the IPCC so far as is possible, to promote transparency and comparability. Should the IPCC assign GWP values to BC and other short-lived climate forcing agents, then they should be incorporated in a future revision of the guidelines.

19 On GWP, WSC does not object to providing GWP20 values as supplementary information. Should the IPCC introduce other GWP factors, then IMO should follow suit to maintain alignment.

20 At ISWG-GHG 9, WSC supported separating fuel categorization and fuel production pathways, however WSC notes that it would not affect the analysis if both parameters were included within a single consolidated table. Both options present the same information in different ways. WSC's preference is based on a concern that a single consolidated table would be large and unwieldy, and because separating fuel categorization and production pathways would be more flexible and responsive to future fuel development and changes in production processes. Whichever option is taken forward, it should properly address blended fuels.

21 WSC supports inclusion of default emission factors, subject to the guidelines also allowing actual emission factors derived from testing and analysis. Default values provide a conservative starting point, allowing use of lower values where supported by testing and analysis will incentivize further reductions in lifecycle footprint across the fuel chain.

22 WSC does not support development of interim guidelines. Developing interim guidelines would introduce uncertainty and might risk the very thing that the LCA guidelines are needed to avoid, i.e. lead to decision-making based on an inadequate understanding of fuel lifecycle GHG impact which might then need to be revised or even reversed.

Proposals

23 Further detailed technical consideration is necessary to finalize the guidelines. At ISWG GHG 9, WSC stated the importance of agreeing a common understanding of the intent of LCA guidelines as a prerequisite to facilitate detailed technical discussions. Accordingly, this document provides proposals to assist the working group in finalizing its work.

- 24 The Working Group is invited to finalize work based on the following proposals:
- .1 LCA guidelines should accurately quantify all GHG emissions on a WTW basis, providing the necessary information to guide future policy development and decision-making;
 - .2 concerns on double reporting of emissions are a matter for the Committee to consider later and do not alter the necessity to establish LCA values on a WTW basis;
 - .3 the LCA methodology should be scientific, accurate and verifiable;
 - .4 the LCA guidelines should include default emission factors, complemented by guidance to establish true emission factors based on testing and analysis;
 - .5 the guidelines should be finalized as definitive guidelines, interim guidelines would be counterproductive and undermine the intended purpose of LCA to guide decision-making and future policy development;
 - .6 finalizing LCA guidelines should not be conflated with a discussion of possible future GHG reduction measures; and
 - .7 IMO LCA guidelines should maintain alignment with IPCC as to which GHGs are to be included and their GWP values.

25 The matter is urgent. The Working Group should expedite finalization of LCA guidelines as quickly as possible, assigning the highest priority to this important work. Appropriate LCA guidelines are a pre-requisite for informed decision-making for GHG reduction measures.

26 Notwithstanding point 24.1 above, the report of the Working Group should include a statement drawing the Committee's attention to certain risks when using LCA values to guide future policy development or incorporating LCA values in future IMO instruments.

Action requested of the Working Group

27 The Group is invited to consider the proposals provided in paragraphs 24 to 26 and take action as appropriate.
