The expected overall impact on trade from a maritime Market Based-Mechanism (MBM)[1]

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Executive Summary

The expected overall cost impact on global trade from a maritime MBM is estimated to be low, at less than 0.2% of the global trade value. This is equivalent to less than $2 for every $1,000 value of imported goods.

The comparatively high energy efficiency of shipping contributes to this low impact, making the maritime MBM relatively affordable. In reality, the cost impact is likely to be even lower: fuel savings arising from behaviour change and R&D investments generated by the MBM are ignored, while the MBM costs are counted at the prevailing carbon price applied to all maritime GHG emissions. Given this low cost impact, seaborne trade patterns are unlikely to be affected.

Overall impacts on trade

The global cost burden of an MBM depends on the volume of greenhouse gas (GHG) emissions subject to the MBM and the maritime emission price established by the MBM. Whether the price is established by an emission trading scheme, fuel levy or GHG contribution is irrelevant.

To calculate the maximum MBM cost burden, it is assumed that all GHG emissions from internationational maritime transport are subject to the prevailing carbon price per tonne of CO2. This results in a cost buden estimate of USD26.3 billion in 2020, based on emissions of 1,050 million tonnes of CO2 (MtCO2) and carbon price of $25/tCO2.

This cost burden is very small when compared with the value of seaborne trade measured in US$ trillions (see USDOT RITA BTS 2010). The maximum potential increase in the total value of seaborne trade, due to the above cost burden, is estimated to be under 0.2% in 2020, as shown in Table 1. This result is somewhat lower than the MBM cost impost on global trade in the order of 0.25% provided in the AGF Report 2010.

It could be argued that at this level, the potential impact of the MBM on seaborne trade is marginal. For an MBM applicable to a fraction of total emissions or at a fraction of the prevailing carbon price, the potential impact would be even lower. Fuel savings arising from behaviour change and R&D investments generated by the MBM are also ignored in calculations, and they could potentially eliminate some of the cost impacts.

Table 1 *MBM cost burden in relation to global seaborne trade (2020; author's estimate)*

Emissions[i] (MtCO2)	**MBM Cost**[ii] (US$ billion)	**Seaborne Trade**[iii] (US$ trillion)	**Cost/Trade**[iv] (%)
1,050	26.3	16.6 (60% of 27.7)	0.16

[1] A maritme MBM means a global Market-Based Mechanism or Measure for greenhouse gas (GHG) emissions from international maritime transport, such as a levy on shipping fuel or an Emission Trading System (ETS).

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In conclusion, owing to the high energy efficiency of seaborne transport, a maritime MBM would be easily affordable. Even assuming that all costs are passed on to the end customers, the potential increase in final price of imported goods would be very small at circa 0.2% (this is equivalent to only $2 for every $1,000 value of imported goods). Yet, the maritime MBM would bring significant environmental and supplemental benefits.

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[i] Emissions from international shipping in 2020 are calculated as 1,050 MtCO2, based on average scenario derived from the IMO 2010 report. An average emission growth in period from 2010-2030 of 2.1% annualy is used. Emissions in 2010 are set as 870 MtCO2, and equal the emissions in 2007 reflecting the economic downturn of 2008-2009. Emissions in 2020 are calcuated as 1,050 MtCO2, which is lower by circa 20MtCO2 of in-sector reductions attributed to the effect of implementing the MBM from 2015. The carbon price in 2015, 2020, and 2030 is assumed as (in US$/tCO2): 22.5, 25, and 40 respectively.

[ii] The MBM cost of US$26.3 billion is calculated by multiplying the shipping emissions (1,050 MtCO2) by the carbon price of US$25 t/CO2, used for 2020.

[iii] The value of seaborne trade is calculated from estimates of global trade and a share of seaborne trade in 2020 as follows. Global trade is estimated to at least double from the level of US$13.8 trillion reached in 2007 to US$27.6 trillion in 2020. This estimate is based on historical data, but takes into account the global downturn of 2008-2009, and potentially lower trade growth in the next decade (as validation, the annual growth rate for international merchandise trade from 1990-2008 was 9%, as per USDOT RITA BTS 2010; only eight years of such average growth is equivalent to doubling the trade). Share of seaborne trade, in value terms, is assumed to reach at least 60% of global trade in 2020 from the 56% in 2007. This 56% share of seaborne trade is calculated by dividing the global seaborne exports of US$7,723 billion by the global merchandise exports of US$13,849 in 2007 (data from USDOT RITA BTS 2010). Analysis of similar data for previous years shows that the share of seaborne trade, in terms of value, was rapidly growing over the last decade or so (from 44% in 1997 to 56% in 2007). Thus it is very likely to reach at least 60% in 2020. The seaborne trade in 2020 is conservatively estimated as US$16.6 trillion, from the estimated share of seaborne trade and global trade (60% of 27.6).

[iv] The cost burden (cost/trade ratio) is calculated by dividing the MBM cost (US$26.3 billion) by the value of seaborne trade (US$16.6 trilion), and thus equals 0.16%.