

Honda Comments – CARB ONMC ZEM Requirements

January 16, 2024

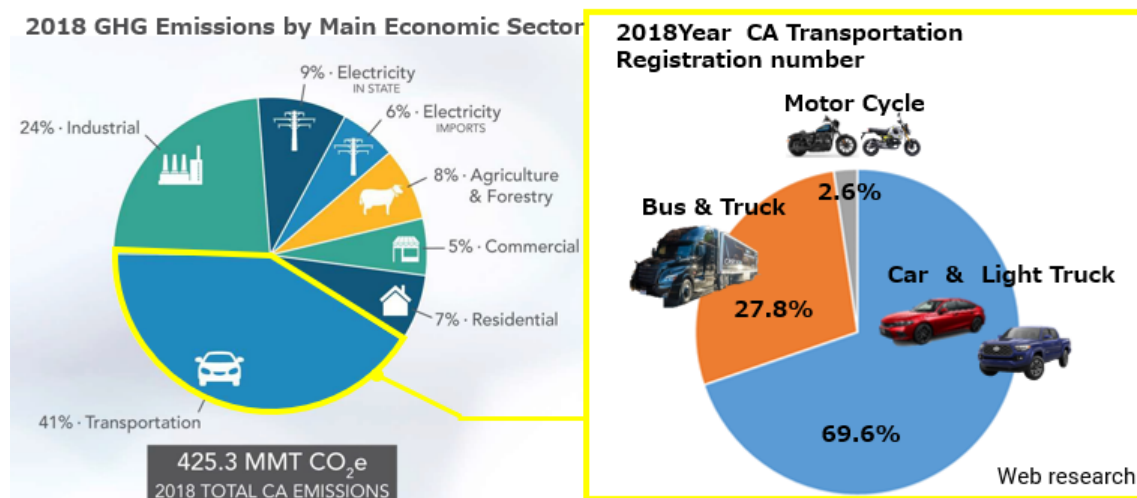
Introduction

Honda appreciates the opportunity to share our perspective on the ONMC proposed regulation language. We sympathize with CARB's efforts to reduce emissions and GHG and support CARB's important role as we look forward to a cleaner mobility future. Honda is committed to the goal of carbon neutrality. Also, we recognize the need for market readiness and program flexibilities in order to support a successful transformation. Thank you for your consideration of our comments and concerns.

Motorcycle Market Considerations

- ① The contribution of CO2 emissions (while driving) from mobile sources is 41%, of which motorcycles are very low at 2.3%, and the overall ratio is less than 1%.
- ② GHG emissions, especially CO2, should be evaluated in terms of complete life cycle assessment (LCA), not just during driving. If we do not evaluate everything from the mining of raw materials to manufacturing and the disposal of vehicles, we will not reach the actual reduction target.
- ③ The sales volume of ZEM (BEV) among MIC member companies was 0.6% and 0.4% in 2022 and 2023 calendar years, respectively. Market and customer demand are a primary concern and need to be present in order to support adequate ZEM sales. Strong incentives are critical to encourage and support customer adoption of zero-emission motorcycles.
- ④ It is important to analyze and understand the idiosyncrasies of the motorcycle market and purchaser. What is the market's enthusiasm for ZEM? Why are ZEM sales less than 1%? What products will the customer be excited to adopt? This needs to be studied and understood.
- ⑤ Following from the above points, implementing ZEM (BEV / FCV, etc.) design requirements as a countermeasure without conducting a complete assessment may hinder the intended progress and results in CA. Alternative methods should also be considered.
- ⑥ Clean and carbon-neutral fuels should be accepted as a category of zero-emission motorcycles. Allowing these technologies will help to ensure the broadest range of products for customers to choose from and flexibilities for manufacturers. Thus, enabling the market as a whole to access the most expedient and durable transition to clean-powered vehicles.

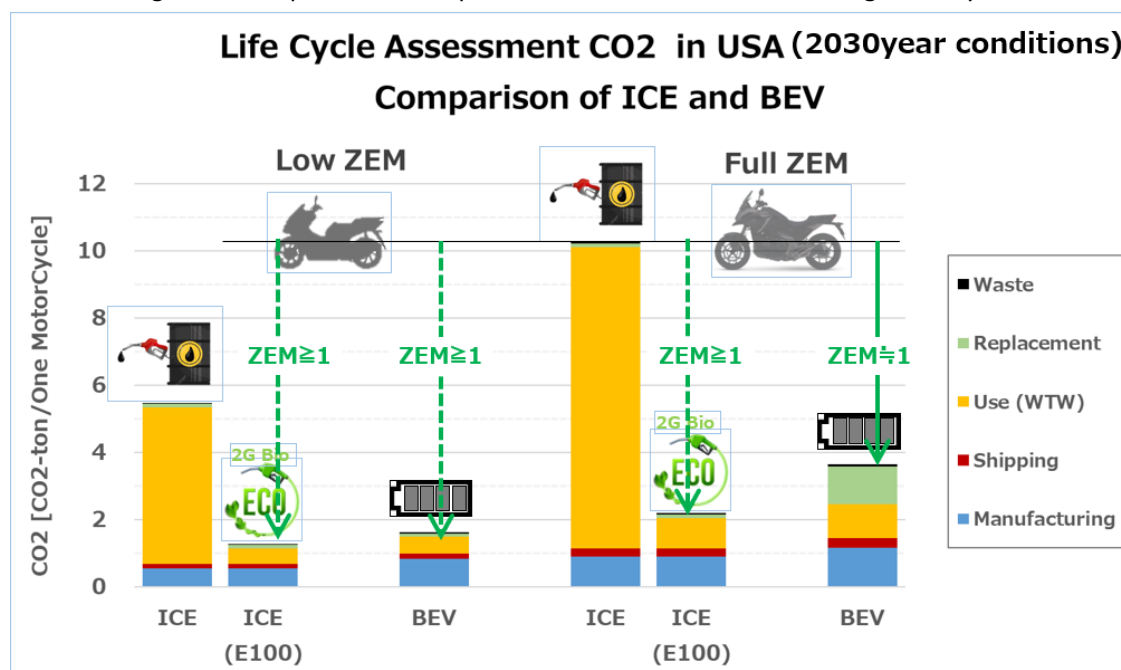
Life Cycle Assessment (LCA) results for CO₂ contribution



Source: IIHS "Motorcycles registered in the United States, 2002 – 2018" – January 2019

The proportion of motorcycles in mobile sources is only 2.3%. Even if all light-duty vehicles were to become BEVs, the CO₂ emissions of ICE motorcycles would still be overwhelmingly lower than the light-duty fleet in terms of overall Life Cycle Assessment (LCA).

The following is an example of LCA comparison between ICE and BEV among motorcycles.



Source: Honda internal evaluation

Based on LCA comparison between BEV and E100, as an example, clean and carbon-neutral fuel powered vehicles should be eligible for the same credit generation available for Full ZEM, as the total LCA CO₂ emissions are equal-to or less-than BEV. Then intention is to ensure that multiple pathways are provided to industry and the customer so that broad market-acceptance can be realized, and not be limited to a narrow, “one-technology” solution.

In summary, regulations must be technology-neutral in order to allow for multiple paths to GHG reduction and ensure that products have broad appeal to purchasers and the market. Strong incentives will be critical to help offset disparities in cost and overcome customer skepticism and reluctance and encourage market adoption of zero-emission motorcycles. The development of infrastructure is also essential for the broad adoption of zero-emission motorcycles. This includes infrastructure for electric vehicle charging as well as non-fossil / alternative fuel industries.