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November 13, 2019

The Honorable Jared Huffman
United States House of Representatives
Chair, Natural Resources Subcommittee on Water,
Oceans and Wildlife
1324 Longworth House Office Building
Washington, DC 20515

Thank you for the follow up question regarding plastics' impact on greenhouse gas emissions. To put it simply, plastics reduce greenhouse gasses when compared to currently available alternative materials. As I mentioned the day of the hearing, plastics would be replaced with less sustainable options if bans on plastics were implemented. Life cycle analyses continuously show how plastics is the better choice to reduce greenhouse gas. Whether that is by light-weighting vehicles which increases fuel mileage and decreases emissions, or the fact that paper, woven polypropylene and cotton/canvas bags all have a higher carbon footprint than traditional plastic bags. I could go on, but I will let the science speak for itself. I've included several studies that illustrate what I am referencing. It cannot be overstated: plastic as a material improves the overall picture as it relates to greenhouse gasses when looking at the full life cycle of a product.

Plastics' lighter weight minimizes their environmental footprint by decreasing production of waste, energy use and carbon emissions through the full life cycle of the product. Beyond energy savings and water conservation, plastics help preserve the shelf-life of food, thereby preventing food waste, a huge problem worldwide. According to the EPA, most uneaten food decays in landfills, where it accounts for 34% of U.S. methane emissions (methane is a powerful greenhouse gas that is 21 times more harmful to the environment than CO_2.[1])

Many people think glass bottles are "greener" than plastic. But glass bottles require 46% more greenhouse gases and 55% more energy to produce than plastic bottles do.[2]

The American Chemistry Council (ACC) released several studies showing the positive impact plastics can have versus alternatives. In particular, a Franklin Associates studies, "Life Cycle Impacts of Plastic Packaging Compared to Substitutes in the United States and Canada" from April

[1] https://www.scientificamerican.com/article/earth-talk-waste-land/
[2] https://posterng.netkey.at/esr/viewing/index.php?module=viewing_poster&doi=10.1594/ecr2015/C-2599

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2018[3] and "Life Cycle Inventory of Packaging Options for Shipment of Retail Mail-Order Soft Goods" from April 2004, pgs. ES15-17.[4]

Additionally, a study by Trucost estimates that substitution of plastic components with alternative materials in passenger vehicles sold in North America in 2015 would lead to an increase in lifetime fuel demand for those vehicles of over 336 million liters (89 million gallons) of gasoline and diesel, and at an environmental cost of $2.3 billion. This equates to an environmental cost increase of $169 per gasoline or diesel passenger car sold in North America in 2015. As another example, improved skin-type plastic packaging for sirloin steak can cut food waste by almost half compared to conventional plastic packaging (34% waste to 18% waste) with environmental savings of $606 per metric ton of beef sirloin sold. This equates to environmental savings of over $2.2 million for every additional 1% of sirloin steak sold in improved packaging in the USA. This case study illustrates the significant environmental net benefits that plastic food packaging can deliver where it helps to avoid the waste of resource intensive food products.[5]

On a national level, to substitute the 14.4 million metric tonnes of plastic packaging in the six packaging categories analyzed in one study, more than 64 million metric tonnes of other types of packaging would be required. The substitute packaging would require 80% more cumulative energy demand and result in 130% more global warming potential impacts, expressed as CO_2 equivalents, compared to the equivalent plastic packaging.[6]

A study by Denkstatt which looked at the impact of plastic packaging on life cycle energy consumption and greenhouse gas emissions in Europe showed that substituting plastic packaging with other materials would on average increase the respective packaging mass by a factor 3.6. The study also showed life cycle energy demand would increase by a factor 2.2 or by 1,240 million GJ per year, which is equivalent of 27 Mt of crude oil in 106 VLCC tankers or comparable to 20 million heated homes.

Additionally, greenhouse gas emissions would increase by a factor 2.7 or by 61 million tonnes of CO_2-equivalents per year, comparable to 21 million cars on the road or equivalent to the CO_2-emissions of Denmark.[7]

[3] https://plastics.americanchemistry.com/Reports-and-Publications/LCA-of-Plastic-Packaging-Compared-to-Substitutes.pdf
[4] https://www.oregon.gov/deq/FilterDocs/LifeCycleInventory.pdf
[5] https://plastics.americanchemistry.com/Plastics-and-Sustainability.pdf
[6] https://plastics.americanchemistry.com/Education-Resources/Publications/Impact-of-Plastics-Packaging.pdf
[7] https://denkstatt.eu/download/1994/

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It is our conclusion that plastic is the best overall material to use for a variety of reasons and these studies show over and over again sustainability is a success story of our material.

Thank you again for the opportunity to testify and for your follow up question.

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