Plastics: Delivering on Canada's Net-Zero Future

Responsibly managed plastic products are sustainable solutions for countless industries: they are integral to energy efficient buildings; lightweight, low emission and electric vehicles; and durable and light food packaging to prevent spoilage and extend shelf life of perishable foods. A low carbon circular economy for plastics will help Canada decarbonize and reach net-zero emissions by 2050.

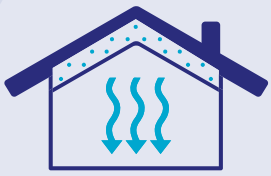
Plastics are key to a net-zero future

The federal government has committed to the goal of net-zero carbon emissions for all of Canada by 2050. Achieving this will require plastics-based solutions. With so many benefits and sustainable properties it's not surprising that global demand for plastics is set to triple by 2050.

With investments in recycling innovations and infrastructure, nearly 60 per cent of this demand can be met with recycled[1] plastics, helping reduce carbon and reach netzero emissions while making the most of a valuable resource.

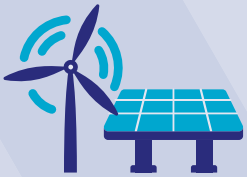
Plastics help all Canadians reduce emissions in key sectors:

Essential life saving medical equipment

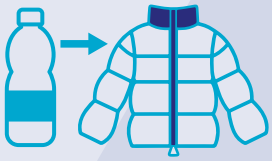


Innovative insulation to prevent heat and cooling loss in homes

Sustainable transportation by making vehicles, and cargo, lighter

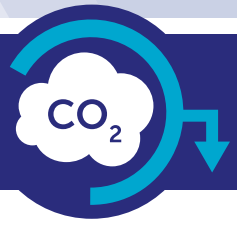


Clean energy such as solar and wind turbines



Sustainable Apparel: providing recycled content for your favourite clothing

Lightweight food packaging that prevents spoilage



A CIRCULAR ECONOMY FOR PLASTICS IN CANADA COULD RESULT IN AN ANNUAL GHG EMISSIONS SAVINGS OF 1.8 MT OF CO_2[ii].

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PLASTICS ESSENTIAL TO DECARBONIZATION

Reducing food waste carbon emissions

Plastic packaging allows for a higher percentage of food to move from the farm to the market without spoiling.

Using **plastics reduces GHG emissions** from food waste. According to the United Nations Environment Programme, 931 million tonnes of food waste was generated in 2019, which represents 17 per cent of total global food production.[iv]

The carbon cost of product substitution

Alternative materials can often have a greater environmental and GHG emissions impact than plastics.

Trucost[v] found that replacing plastics in consumer products and packaging with a mix of alternative materials that provide the same function would actually increase environmental costs to society up to four times from **$139 billion to $533 billion annually**. The finding is not surprising given the original drivers for using plastics: light-weight, energy efficient, moldable, durable, and cost effective.

Carbon lifecycle benefits

According to a life cycle assessment (LCA) performed by Polymer Engineering, dissolution technology creates **50 per cent less** carbon/kg CO2-eq than the production of virgin material.

A Life Cycle Assessment by Franklin Associates a division of ERG mandated by Loop Industries found its patented advanced recycling technology produces **60% fewer emissions** than the production of virgin material.[vi]

Needed investment in innovation and infrastructure

- Currently, the supply of recycled plastics only meets 6 per cent of real demand. According to Environment and Climate Change Canada, recycling infrastructure capacity gap will require a **capital investment of $4.6-$6.5 billion.**
- CIAC supports the federal government's commitment of $100 million for plastics innovation and infrastructure funding with the goal of developing the systems, infrastructure, and technologies required to create a **circular economy for plastics.**
- There is a $120 billion economic opportunity in Canada and the US directly connected to the commercialization of advanced recycling technologies that could double the amount of plastic packaging recycled compared to 2019 recycling rates.[vii]

[i]Hundertmark, T., Mayer, M., McNally, C., Simons, T. J., & Witte, C. (2019, October 28). How plastics waste recycling could transform the chemical industry. McKinsey & Company. https://www.mckinsey.com/industries/chemicals/our-insights/how-plastics-waste-recycling-could-transform-the-chemical-industry.

[ii]Deloitte, Economic Study of the Canadian Plastic Industry, Market and Waste, https://publications.gc.ca/collections/collection_2019/eccc/En4-366-1-2019-eng.pdf

[iii]Polystyvert, Life Cycle Assessment: Dissolution.

[iv]UNEP Food Waste Index Report 2021: https://www.unep.org/resources/report/unep-food-waste-index-report-2021

[v]Plastics and Sustainability: Trucost Report, "A Valuation of Environmental Benefits, Costs and Opportunities for Continuous Improvement" https://www.americanchemistry.com/better-policy-regulation/transportation-infrastructure/corporate-average-fuel-economy-cafe-emissions-compliance/resources/plastics-and-sustainability-a-valuation-of-environmental-benefits-costs-and-opportunities-for-continuous-improvement to-a-circular-system-for-plastics-assessing-molecular-recycling-technologies-in-the-united-states-and-canada-2/

[vi]Loop Industries / Franklin Associates, Accelerating the Circular Plastics Economy https://www.loopindustries.com/cms/wp-content/uploads/2022/07/Loop-Industries-Investor-Presentation-July-14-2022.pdf

[vii]Closed Loop Partners, Transitioning to a Circular System for Plastics: Assessing Molecular Recycling Technologies in the United States and Canada. https://www.closedlooppartners.com/research/transitioning-to-a-circular-system-for-plastics-assessing-molecular-recycling-technologies-in-the-united-states-and-canada-2/
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