MANITOBA CHAMBERS OF COMMERCE

Climate Action Primer Series

Reducing Carbon via the Circular Economy

What is the circular economy?

Remarkably, out of 0.5 trillion tonnes of virgin materials used around the world, only 8.6% are circled back into new products (CGRi, 2022)!

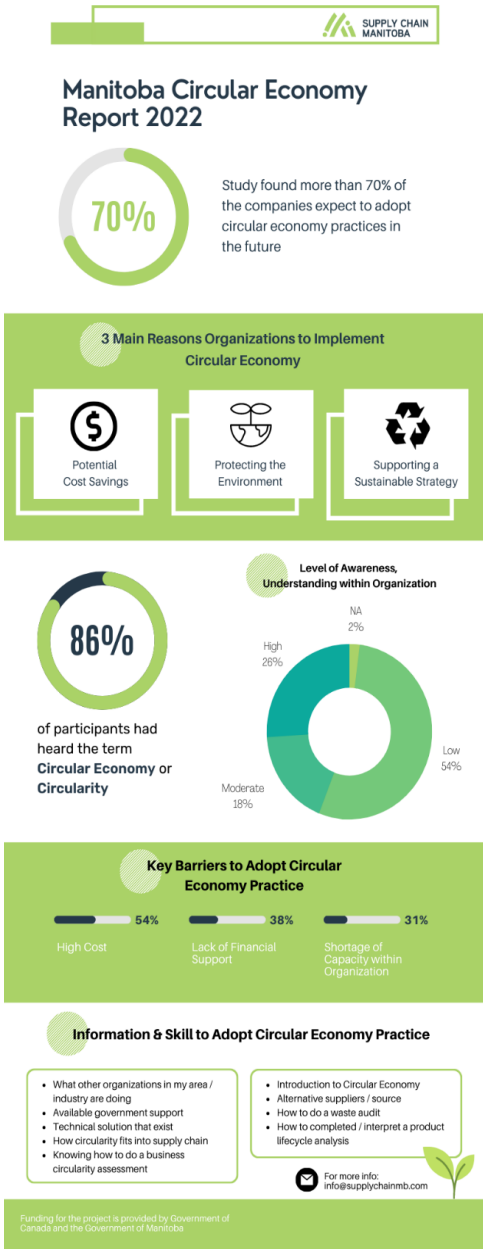
In its landmark study in 2022, Supply Chain Manitoba warns that **our current "linear economy" relies on large amounts of material and energy while producing lots of waste**. But a "circular economy" is an entirely different system (Supply Chain Manitoba, 2022):

The Circular Economy...maximizes the value of all materials and energy while also preventing waste across the entire product value chain.

In a circular economy, waste is reduced or eliminated, and the use of new resources is minimized by bringing traditional waste products back into production, by extending product life-cycles and by using renewable resources and energy.

As just one illustration, better plastics management using a circular economy approach can reduce 1.8 million tonnes of CO2 emissions in Canada, generate billions in revenue, and create approximately 42,000 jobs by 2030 (Gov. of Canada, n.d.).

More specifically, the Circular Economy "is a systems-based solution framework that can be applied at the local level to help businesses and communities implement sustainable practices and help tackle global challenges like climate change, biodiversity loss, waste and pollution" (Supply Chain Manitoba, 2022). While much of the current conversation around circularity is related to materials, the use of renewable energy sources is an integral part.



Tools for reducing carbon in a circular economy

There exist several approaches and tools for helping to achieve carbon reductions through a circular economy approach, including eco-design.

Eco-design

What is it? The concept of eco-design is a useful tool for improving product circularity. Specifically, eco-design **"aims to make products more durable and long-lasting; reduce energy, resources, and waste in their production process; and make them easier to reuse, repair, refurbish, remanufacture, or recycle** (Council of Canadian Academies, 2021, Charter, 2018).

How can I get started? This table provides some useful design tips for introducing circularity into your products and services and helping to reduce carbon emissions.

ECO-DESIGN	
Area of Focus	Options
Material Sourcing	• Reduce weight and volume of product • Increase use of recycled materials to replace virgin materials • Increase use of renewable materials
Manufacturing	• Reduce emissions to air, water, and soil during manufacturing • Reduce the number of parts • Use standardized elements
Transportation and Distribution	• Optimize transport and distribution in relation to fuel use and emissions • Increase use of recycled materials in packaging
Use	• Increase access to space parts • Maximize ease of manteinance • Maximize ease of materials recycling
End of Life	• Avoid design aspects detrimental to materials recycling • Design to facilitaate parts harvesting

For more detail see Council of Canadian Academies (2021) and Charter (2018)

How can I learn more about carbon reduction and the circular economy? Visit the following website for more information and training opportunities.

- Circular Economy Website **(Supply Chain Manitoba)**
- Circular Economy Website **(Gov. of Canada)**
- Climate Action Checklist for Manitoba Businesses
- BMO Radicle Climate Smart Training and Certification
- BizforClimate
- Efficiency Manitoba

Examples of businesses participating in the circular economy

Businesses across Manitoba are already taking a lead on participating in the circular economy and achieving carbon reductions through their **business operations** (their Home Game) and the **products and services** they offer (their Away Game).

Circularity Practice	Case Example
Designing for circularity	**Louisiana Pacific** (Swan Valley, Manitoba) manufactures a wood siding product called Smartside that is "carbon negative", made from renewable resources (fast growing local poplar) and designed/warrantied to last 50 years, (significantly longer than many competing products)
Product life extension	In collaboration with Red River Polytech's Applied Research department and New Flyer Industries, **Frontiers North** (Churchill, Manitoba) is using recycled batteries from NFI-built electric buses in its Tundra Buggy vehicles, extending the life of the batteries well beyond their original expected range
Regenerative practices	**Overton Environmental** (West St. Paul, Manitoba) receives potato scraps, starches, soil residue, water treatment digestate from a nearby Simplot Canada plant and processes the waste into compost which is then sold to farmers for soil regeneration.
Asset sharing	**Winnipeg Folk Festival** (Winnipeg, Manitoba) rents or borrows a significant proportion of the essential inputs used including vehicles, tent/structures, lighting, and power equipment, etc.
Shortened supply lines	**Gerdau** (Selkirk, Manitoba) operates a steel mill that sources scrap metal from across Manitoba, SK, and NW Ontario wherever possible as a way to reduce costs and minimize shipping and transport, and associated environmental impact.
Renewable energy	**Aki Energy** (Winnipeg, Manitoba) is a social enterprise that helps First Nations and communities plan, construct and manage renewable energy solutions that save money, reduce carbon and climate impact and bolster community self-reliance. Renewable energy sources, versus fossil-based energy sources, are an important element of a circular economy.
Product as a service	**Peg City Car Co-op** (Winnipeg, Manitoba) is a membership-based subscription service that offers businesses and individuals access to a vehicle on demand without the hassle and cost of ownership.
Waste reduction	**Hilton Homes** (Winnipeg, Manitoba) has implemented practices to reduce waste at various stages of the homebuilding process including use of I-Joists (innovation that reduces amount of wood used for structural beams), encouraging and training building crews on advanced framing techniques, and substituting less toxic paints, adhesives and other supplies where possible.
Recycling	**Mother Earth Recycling** (Winnipeg, Manitoba) dismantles discarded mattresses and ships the component materials to companies in Canada and US to be used as inputs and made into new products.

Source: Supply Chain Manitoba (2022) – Establishing Circular Economy Principles and Practices in Manitoba.

The MCC Climate Action for Manitoba Business Initiative

Led by the Manitoba Chambers of Commerce (MCC), in collaboration with Novel Futures Corporation, the International Institute for Sustainable Development, and the Manitoba Environmental Industries Association, and with funding from the Government of Manitoba's Conservation and Climate Fund, the MCC Climate Action initiative builds awareness and capacity among Manitoba's small-and-medium sized enterprises (SMEs) in Assessing Climate Risk and Enhancing Resilience, Reducing Carbon Emissions via the Circular Economy; and Using Nature-based Solutions.

IISD International Institute for Sustainable Development

Novel Futures Creativity Adaptability Sustainability

meia Manitoba Environmental Industries Association