



Circular Economy 101

Prepared by the Recycling Council of Alberta

What is the circular economy?

In the circular economy, materials never become waste and nature is regenerated.

It is a new way to design, make, and use things within planetary boundaries.

Adapted from the [Ellen MacArthur Foundation](#).

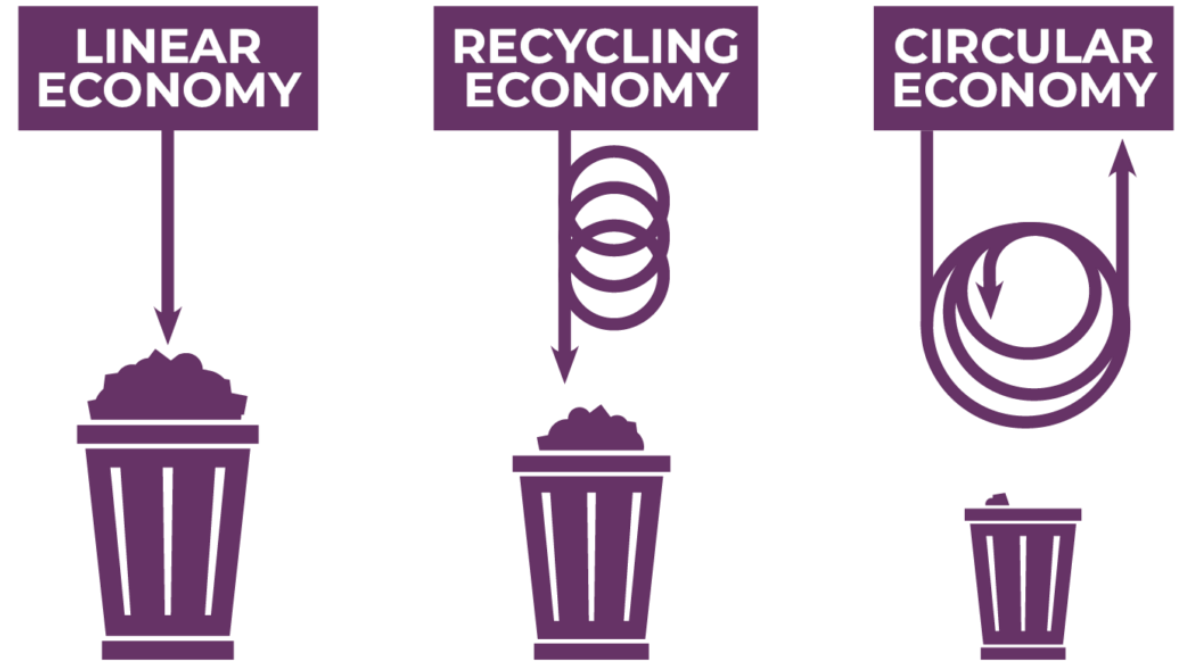


Illustration: [Circle Economy](#)

The circular economy is based on the principles of:

- Designing out waste and pollution
- Keeping products and materials in use
- Regenerating natural systems

Adapted from the [Ellen MacArthur Foundation](#).



The Traditional Way: Linear Economy

LINEAR ECONOMY



TAKE

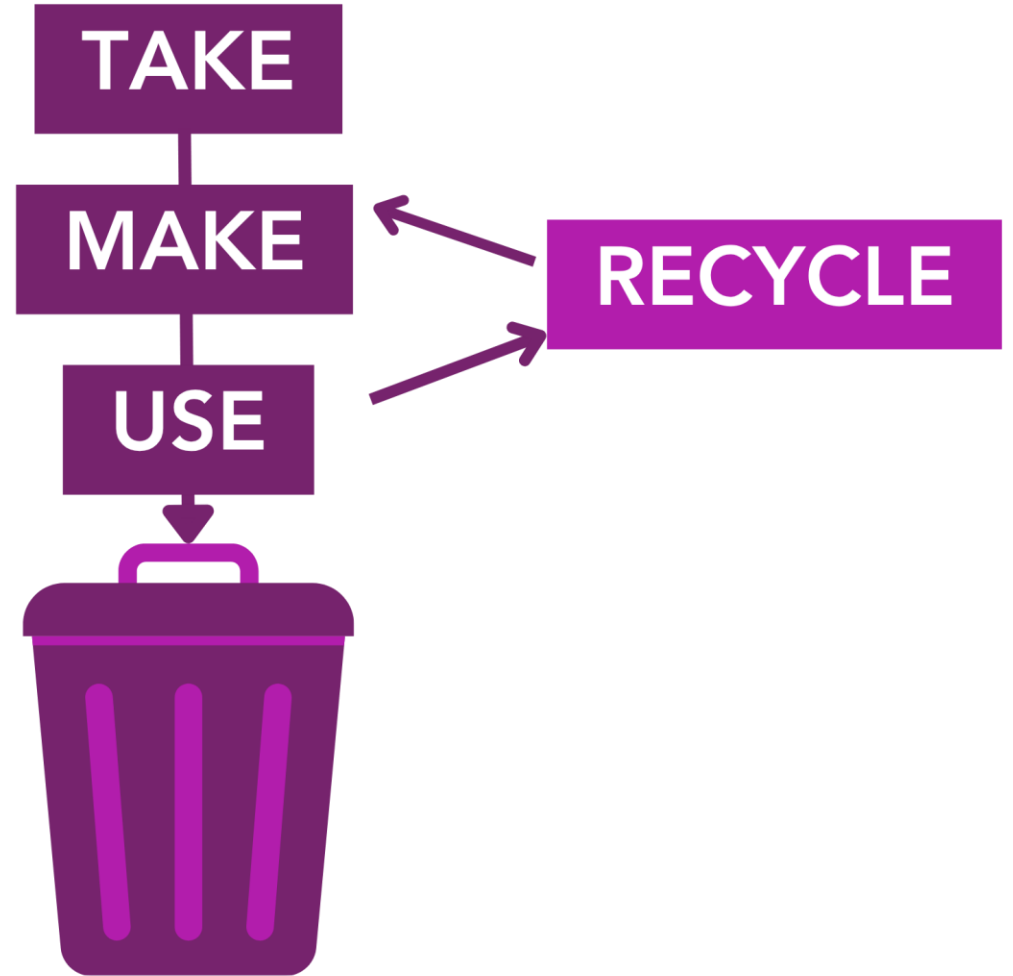
MAKE

USE



The Traditional Way: Recycling Economy

RECYCLING ECONOMY



Why does it matter?

- **Environmental reasons** (waste reduction, emissions cuts)
- **Economic reasons** (job creation, cost savings, innovation)
- **Social reasons** (community benefits, resilience)

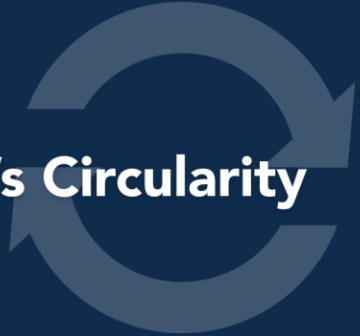
A linear economy burns through finite resources, contribute to pollution, and creates a lot of garbage. This is not good for the economy; it is not good for the environment, and it is not good for business.

Canada currently holds one of the highest per-capita consumption rates globally, yet, our circularity rate stands at a [mere 6%](#).

Why does it matter?

6%

**Canada's Circularity
Rate**

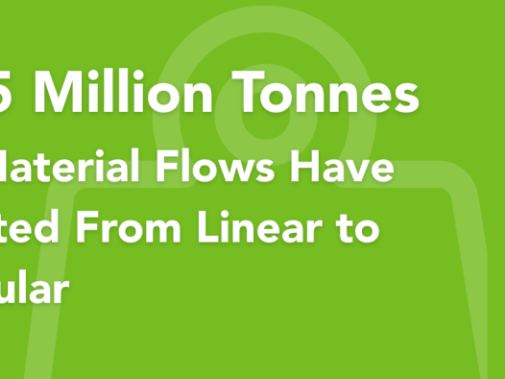


55%

**Of Businesses
Have CE Targets**

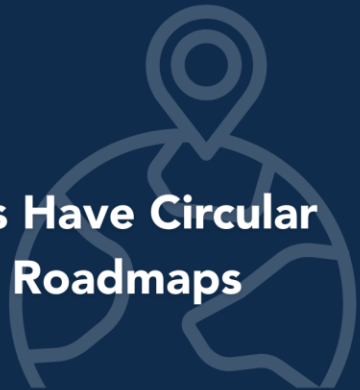


**225 Million Tonnes
of Material Flows Have
Shifted From Linear to
Circular**



75+

**Countries Have Circular
Economy Roadmaps**



200+

**Higher Education Institutions
Have Included Circular Economy
in Their Core Curriculum**



**\$194 CAD Billion
Estimated Total Capital
Has Been Mobilized for
the Circular Economy**



Why does it matter?

Why we need to urgently shift to the circular economy

WE'RE TAKING TOO MUCH



1.6 EARTHS

WE USE 60% MORE RESOURCES THAN THE EARTH CAN REGENERATE EVERY YEAR. AT THIS RATE, WE COULD NEED 3 EARTHS BY 2050.

WE'RE WASTING TOO MUCH



2B+ TONS

WE THROW AWAY BILLIONS OF TONS OF RESOURCES, INCLUDING \$62.5B IN ELECTRONICS, AND \$500B IN FASHION.

WE'RE EMITTING TOO MUCH



45% OF EMISSIONS

ALMOST HALF OF ALL EMISSIONS COMES FROM HOW WE PRODUCE CARS, CLOTHES, FOOD AND OTHER PRODUCTS.

KEEPING VALUABLE MATERIALS IN PLAY UNLOCKS A \$4.5 TRILLION OPPORTUNITY BY 2030



Why does it matter?



Alberta Context

The circular economy will benefit Albertans and Alberta's economy by boosting Alberta's economic resilience and mitigating the environmental impact of business activities while supporting job creation and economic growth.

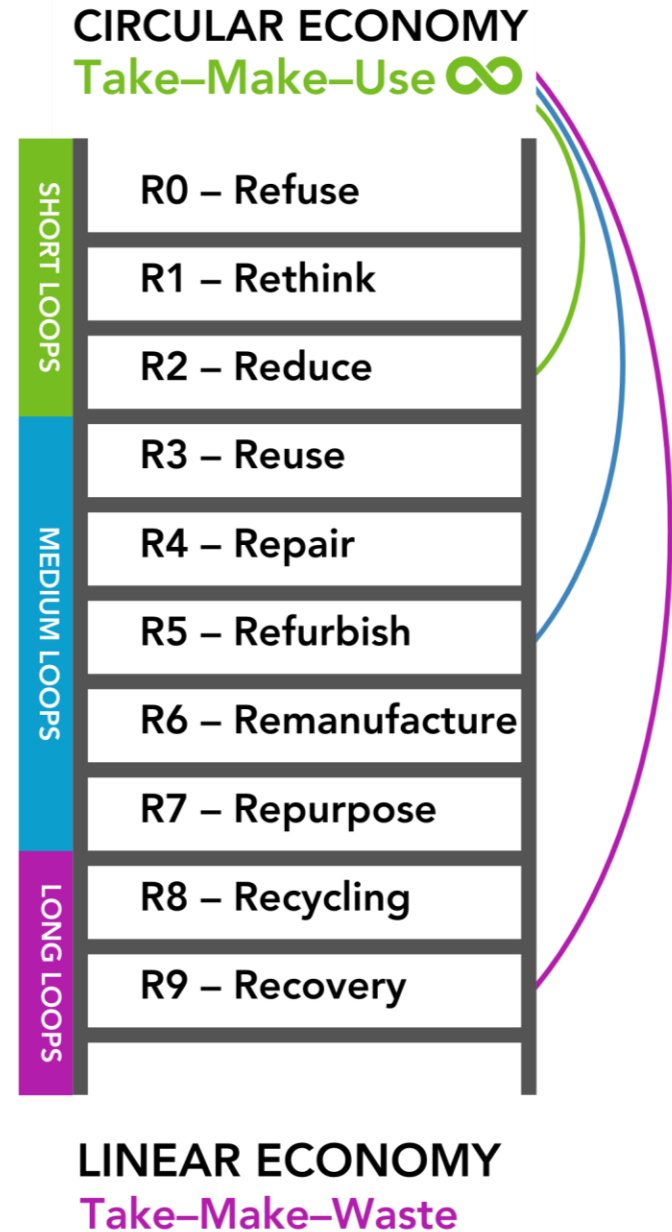
This can happen when investments and activities that reflect the circular economy focus on:

- reducing pressure on and extending the life of Alberta's natural resources,
- stimulating innovation in design, usage and the way materials or products are processed,
- creating opportunities for strengthened relationships between product or service providers and their customers (e.g., repair and reliability),
- enabling new ways to offer services (e.g., products as services),
- eliminating the need for low value and high-cost post-consumer material and resource management practices (e.g., landfilling, incineration) and
- helping to tackle climate change, biodiversity loss and pollution.



R-Strategies for a Circular Economy

Recycling Council of Alberta Adapted R-Ladder



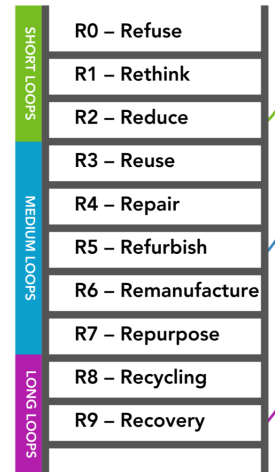
Adapted from: Circularise (<https://www.circularise.com/blogs/r-strategies-for-a-circular-economy>) and PBL (2017), Circular Economy: Measuring Innovation in the Product Chain, J. Potting, M. Hekkert, E. Worrell et al.

Short Loops

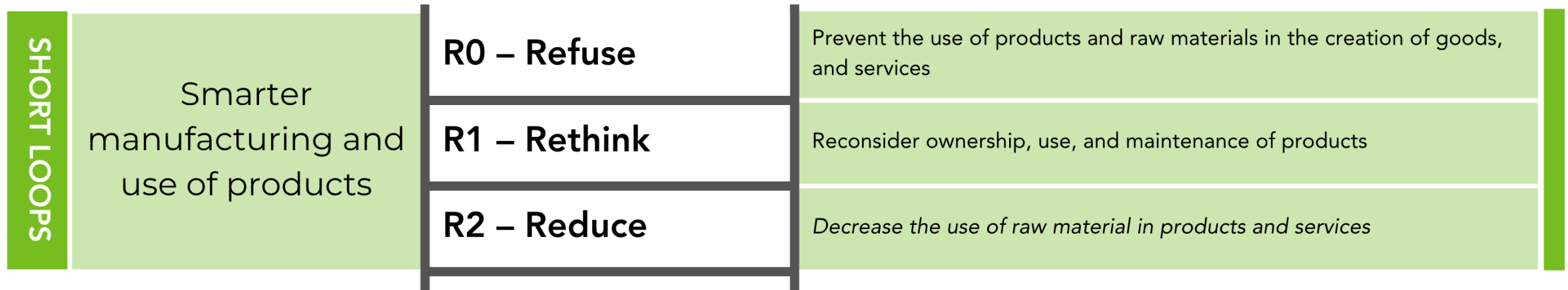
Smarter manufacturing and use of products

Short loops are higher up on the ladder since they are more circular approaches with shorter, more efficient loops that quickly return materials to productive use.

CIRCULAR ECONOMY
Take–Make–Use ∞



LINEAR ECONOMY
Take–Make–Waste

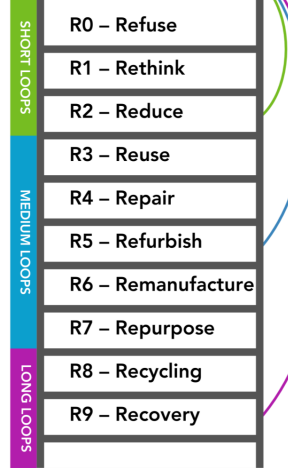


Medium Loops

Extending the life of a product

Medium loops sit in the middle of the ladder because they extend the life of products before materials need to be significantly altered or reprocessed.

CIRCULAR ECONOMY
Take–Make–Use ∞



LINEAR ECONOMY
Take–Make–Waste

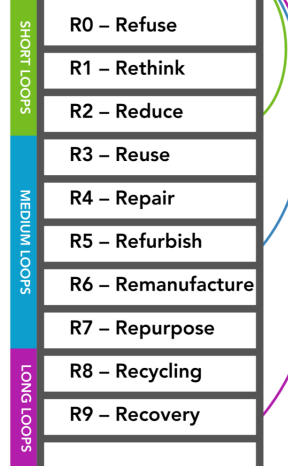
MEDIUM LOOPS	Extending the life of a product	R3 – Reuse	<i>Secondary use of products by another owner for the same intended purpose</i>
		R4 – Repair	<i>Maintain and repair existing products for extended use</i>
		R5 – Refurbish	<i>Restore and improve products to a satisfactory condition for extended use</i>
		R6 – Remanufacture	<i>Make more products with the same purpose with discarded products or parts</i>
		R7 – Repurpose	<i>Make new products with a different purpose with discarded products or parts</i>

Long Loops

Material processing and/or conversion

Long loops are lower on the lass since they are less circular approaches with longer loops, which take more time, energy, or resources to bring materials back into productive use.

CIRCULAR ECONOMY
Take–Make–Use ∞



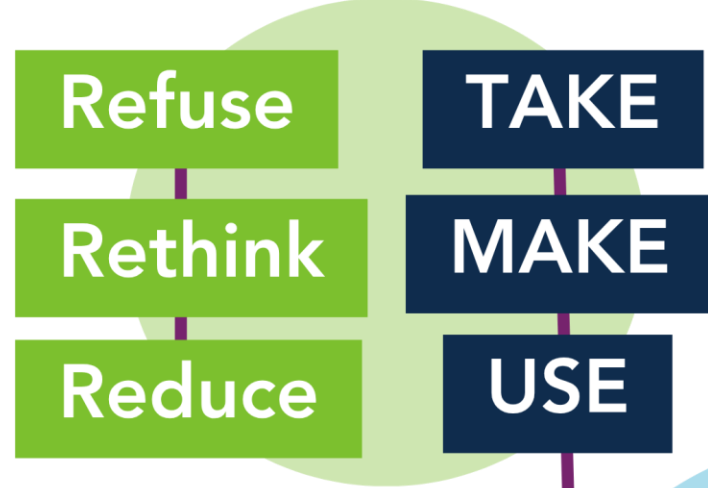
LINEAR ECONOMY
Take–Make–Waste

LONG LOOPS	Material processing and/or conversion	R8 – Recycling	Process waste into new products or materials that can be used for new products
		R9 – Recovery	Process waste to recover energy (e.g., anaerobic digestion, waste-to-fuel processes, bioreactors, landfill gas capture to electricity, incineration with electricity or heat generation capture/use)

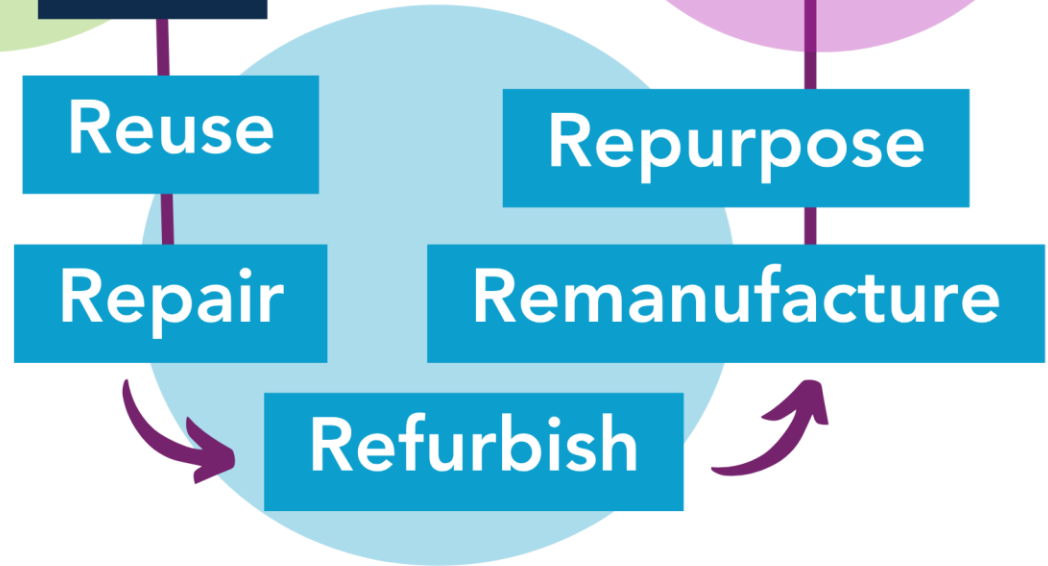
CIRCULAR ECONOMY



Short Loops



Long Loops



Medium Loops

Circular Economy in Action

Case Studies & Stories

Construction

99% of building materials can be salvaged through deconstruction.

40% of global CO₂ emissions associated with material production come from the construction industry.



Sources:

- [International Resource Panel. Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future.](#)
- [LightHouse. Blueprint for Change. 2023.](#)

Circular Construction Leaders

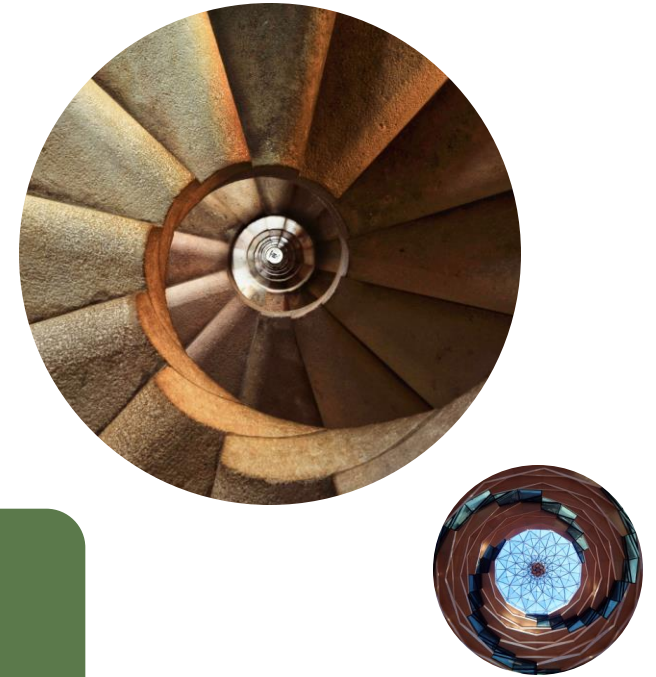
 <p>NORTHMARK MATERIALS</p>	 <p>Light House</p>	 <p>Alberta Waste and Recycling</p>
<p>Northmark Materials</p>	<p>Lighthouse</p>	<p>Alberta Waste and Recycling</p>
 <p>NORTHSTAR CLEAN TECHNOLOGIES</p>	 <p>Positively Affecting Where We Live NEW WEST GYPSUM RECYCLING We ARE Gypsum Recycling</p>	 <p>CIRCULAR ECONOMY LEADERSHIP CANADA</p>
<p>Northstar</p>	<p>New West Gypsum</p>	<p>CELC</p>

Food Waste

22% of global emissions and 30% of energy consumption come from the food sector.

1/3 of all food produced is wasted, and food waste continues to be the top product found in landfills.

Canadians waste \$20 billion, 2.3 million tonnes, and \$1300 per household annually on food.



Sources:

1. [The World Economic Forum \(WEF\)](#)
2. [Ellen MacArthur Foundation](#)
3. [Love Food Hate Waste Canada](#)

Food Waste Reduction Champions



The Connected Kitchen Project



Susgrainable



Altroot



RCA Circular Food Supply Chain

Textiles

148 tonnes

Of clothing will be thrown out by humanity by 2030



500 billion

is at stake by adopting circular fashion solutions



500k tonnes

Of textile waste is ending up in Canada's landfills each year.



Sources:

1. [The World Economic Forum \(WEF\)](#)
2. [Ellen MacArthur Foundation](#)
3. [Fashion Takes Action](#)

Textiles

-30% impact

By keeping clothes in use just
9 months longer



Less than 1%

Of textiles are recycled into
new clothing



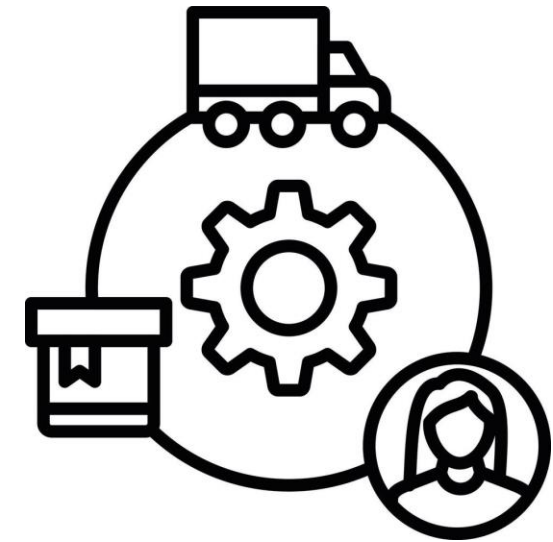
Source: [Love your clothes](#)

Textile Warriors

 <p>BLENDERZ GARMENT RECYCLERS</p>		
<p>Blenderz Garments</p>	<p>Unbelts</p>	<p>Last Shot Apparel</p>
 <p>SIXONE LABS</p>	 <p>Goodwill Industries of Alberta</p>	
<p>Sixone</p>	<p>Goodwill Industries of Alberta</p>	

Supply Chains

The last few years have exposed the fragility of global supply chains. By prioritizing domestic remanufacturing, reuse, and repair, the circular economy model directly enhances Canada's supply chain and economic resilience, creating new, durable, local jobs, and bolstering domestic value retention that is essential for long-term productivity gains.



There is no one-size-fits-all circular solution. Your approach will depend on several factors including your business model, sector, value chain, available resources and location. Start anywhere, but take a strategic approach to selecting your options.

Guide: National Zero Waste Council [Circular Economy Business Toolkit](#).



Economics

Circular Economy = £82B Boost

WRAP UK estimates a circular economy could add **£82 billion in Gross Value Added** and create **550,000 jobs** in the UK by 2030.

€1.8 Trillion Opportunity

Adopting circular principles could generate a **net economic benefit of €1.8 trillion** by 2030.

Sources:

1. [WRAP \(2022\). *Levelling Up Through a More Circular Economy*](#)
2. [McKinsey \(2022\). *Europe's Circular Economy Opportunity*](#)

Economic Risks and Opportunities

The problem: Traditional Linear Economy is Unstable

Extraction → Use → Disposal

Leads to resource scarcity, price volatility, vulnerable to trade and supply chain disruptions.

The solution: Circular Economy Builds Resilience

More efficient, less reliant on global volatile markets and virgin resources.

Reuse

£136M

Annual savings for producers
in pEPR costs

£314M – £577M

Annual system savings
(12 to 22% reduction)

13,000+ jobs

Net new jobs created

95% less packaging waste

300,000 tonnes per year
= 1,400 Boeing 747s



95% less CO₂e

800,000 tonnes saved per year = 1 million
return flights.

London ↔ New York



Reuse Heroes



Muuse



Sharewares



Circulr



Friendlier

Call to Action

How Can You Participate?

Everyday Actions



MEMBERSHIP BENEFITS

As a member you'll receive...



Community & Networking

350+ members including municipalities, businesses and individuals in the waste management and recycling sector across Alberta.



Education & Professional Development

Education through professional development and networking across industries and with peers!



Advocacy and Information

The RCA advocates for policies that reduce waste and advance opportunities in the circular economy.

Become an RCA Member!

Community Actions

- Join local initiatives
- Support circular businesses
- Advocate for policies



Sector & Organizational Actions

Design for circularity

Shift business models

Collaborate across supply chains

Make circular the default choice
(not the exception)

Resources

Where to Learn More

RCA Resources

Circular Communities Webpage

Work Integrated Learning (WIL) Hub

On-Farm Composting Guide

Food Rescue Supply Chain Project

RCA Municipal Lending Library Business Case

Municipal Zero Waste Planning Tool-Kit

RCA Resources: Circular Programs, Tools & Guides

Circular Communities Webpage

Work Integrated Learning (WIL) Hub

On-Farm Composting Guide

Food Rescue Supply Chain Project

Contact RCA for partnerships or projects

**Our Future
is Circular.**

Contact Us



www.recycle.ab.ca



(403) 879-5123



info@recycle.ab.ca



**“Together, we can advance
Alberta’s circular economy and
build a waste-free world.”**

RECYCLING
COUNCIL
OF ALBERTA

RCA

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[Recycling Council of Alberta](https://www.linkedin.com/company/recycling-council-of-alberta)



[Recycling Council of Alberta](https://www.facebook.com/recyclingcouncilab)