



## Module: Recover

### Introduction

Sometimes, even after applying the first four “Rs”, Rethink, Reduce, Reuse, and Recycle, we still end up producing garbage. In the past, this garbage went to landfill. Today, Durham Region no longer relies on landfills as our primary way to dispose of garbage. That’s where the fifth “R” comes in, Recover. In this module, students will learn how the Region is recovering valuable resources that remain in our garbage and how recovery benefits the environment and our community.

### Learning Objectives

1. Define Recover
2. Illustrate where Recover falls within the Region’s Waste Management Hierarchy
3. Explain the benefits of Recover practices
4. Describe Recover options and provide examples

### Resource Materials

#### Videos:

- What happens to your garbage once it leaves the curb?
- Durham York Energy Centre virtual tour
- Durham York Energy Centre process overview

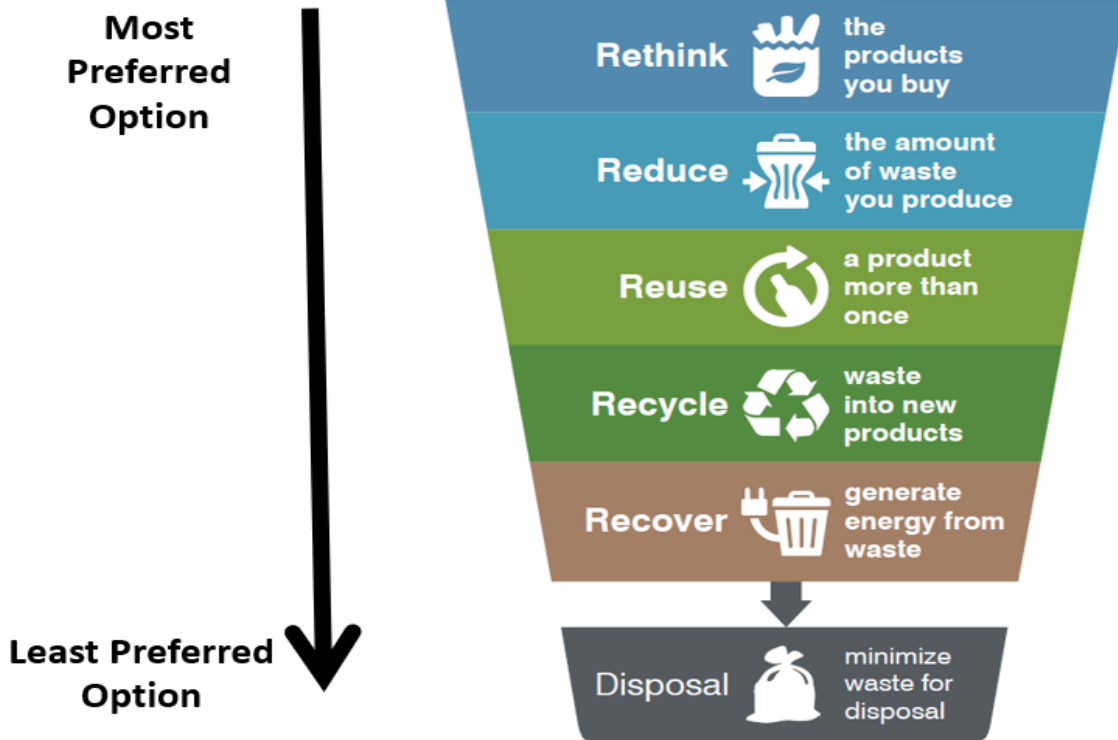
#### Websites:

- [Durham Region Waste Management](#)
- [Durham York Energy Centre](#)

### What is Recover?

Recover is the last “R” in the Region’s Waste Management Hierarchy, and it is the final step prior to disposal. Recovery uses technologies such as Energy from Waste (EFW) and Anaerobic Digestion (AD) to recover additional recyclable materials from the garbage that were not captured by existing diversion programs and to convert non-recyclable waste materials into an energy source such as electricity, heat, and fuel.

## 5Rs in the waste hierarchy



### What are the benefits of Recover?

By adding Recover to the Region's waste hierarchy, we can recover value from the waste that cannot be reused or recycled in our current diversion programs.

Recovery:

- Decreases the amount of waste going to landfill
- Converts non-recyclable waste materials into electricity, heat, or fuel
- Offsets the consumption of other fuels needed to produce energy
- Reduces the amount of methane produced by landfill sites
- Reduces overall greenhouse gas emissions

### Recovery in Durham Region

After all diversion efforts have been utilized, Rethink, Reduce, Reuse, and Recycle, non-recyclable plastics and materials that do not currently have an alternative diversion option remain. This waste is managed primarily through energy recovery at the Durham York Energy Centre (DYEC) in Clarington.

The DYEC began commercial operations in January 2016 and is owned by the Region of Durham and the Region of York. The facility produces energy from the combustion of garbage that remains after maximizing the Region's diversion programs. The facility is well suited for the disposal of non-hazardous, non-recyclable materials in an environmentally responsible way.

After combustion, the volume of waste is reduced by 90%, leaving ash and metal. Ferrous metals such as iron and steel and non-ferrous metals like aluminum and copper are separated and sold to be

### The Regional Municipality of Durham - Waste Management Services

If this document is required in an accessible format, please contact [schoolprograms@durham.ca](mailto:schoolprograms@durham.ca)

made into new products. The remaining ash is beneficially used at landfill sites as an alternative to clean topsoil which is used as a daily cover. This helps to reduce odour, prevents litter, and deters rodents and scavengers.

Through the EFW process, the DYEC generates enough electricity to power approximately 10,000 homes a year, captures residual metals and reduces the volume of waste going to landfill by up to 90 per cent.

In addition to recovery from the DYEC, AD is the preferred method for managing green bin material collected within the Region. AD is a natural decomposition process that produces a renewable natural gas and a nutrient rich digestate that can be used as fertilizer. The gas generated from anaerobic digestion has the potential to significantly reduce greenhouse gas emissions by replacing traditional fossil fuels.

Both energy from waste and anaerobic digestion are safe, proven technologies already used across North America and in the Greater Toronto Area.

Durham Region's integrated waste management system highlights the environmental leadership underway in Durham Region.

## Conclusion

While energy recovery is important, the Region is first committed to improving waste diversion rates through rethink and reduction initiatives, reuse, recycling, and organic waste programs. Recover provides the last opportunity to recovery value from the remaining waste, where these non-recyclable plastics and materials are managed in an environmentally responsible way until an alternative diversion option can be found.