

Plain Language Description of Advanced Recycling Proposal

Intent of the regulatory changes

The ministry is proposing changes to the environmental assessment (EA) requirements for thermal treatment sites which are engaged in advanced recycling. The proposed changes are intended to:

- Update the regulatory terminology related to thermal treatment to include advanced recycling and the resulting recovery of materials.
- Distinguish between thermal treatment technologies utilized for disposal, energy recovery, and advanced recycling purposes, by adjusting the existing categories of designated waste projects to separate advanced recycling from other thermal treatment. The current EA framework provides a streamline pathway for recovering energy from waste but does not recognize the valuable resources that can be recovered from advanced recycling technologies whose current EA pathway is the same as that for thermal treatment used for disposal of waste.
- Establish specific thresholds for advanced recycling sites that will be subject to an environmental assessment process (i.e., comprehensive environmental assessment or environmental screening process).
- Remove the fuel component from the description of establishing a thermal treatment site that generates energy from waste and including it in the description of establishing an advanced recycling site. As a result, the specific thresholds proposed below would determine the environmental assessment requirements for establishing an advanced recycling site if not all of fuel generated at the site is used to dispose of the waste.

Current Regulatory Requirements

The Waste Management Projects Regulation (O. Reg. 101/07), under the Environmental Assessment Act (EAA), defines thermal treatment to include incineration, gasification, pyrolysis or plasma arc treatment and defines a thermal treatment site as one where thermal treatment is used. The definitions and provisions do not differentiate between thermal treatment for disposal and thermal treatment for recovery of material other than fuel:

- Thermal treatment sites that produce energy or fuel from waste have a streamlined environmental assessment process regardless of the amount of waste treated.

- Thermal treatment sites that recover materials other than energy or fuel are subject to the same environmental assessment requirements as those that dispose of waste and do not recover any materials. Therefore, establishing a site that treats 10 tonnes or more of waste per day is subject to an individual environmental assessment regardless of the recovery of material from the treatment.

The table below sets out the current environmental assessment requirements for establishing a waste disposal site that uses thermal treatment, and which does not recover energy or fuel (including one that recovers material) and does not use coal, oil or petroleum coke as a fuel for thermal treatment.

Amount of waste thermally treated (tonnes per day)	Current Environmental Assessment Requirement
Less than or equal to 10	Environmental Screening Process
Greater than 10	Individual Environmental Assessment

Proposed Designations

Relevant Terminology

The ministry is proposing to distinguish sites that utilize thermal treatment and produce material that may include fuels from other thermal treatment sites, including those that produce energy from waste. The following are proposed updates to regulatory terminology that may be used to distinguish between the various types of thermal treatment and determine the appropriate environmental assessment requirements:

- **Advanced recycling site:** A waste disposal site where thermal treatment is used to recover materials which meet the criteria described below for a recovered material and whose primary purpose is processing of waste to generate recovered material rather than waste disposal
- **Recovered material:** An output from the thermal treatment of waste would be a recovered material if there is a demonstrated market demand, and the output material meets the following criteria:
 - If the material is not a fuel:
 - It is capable of being wholly used as a feedstock to completely or partially replace existing inputs in an agricultural, commercial, manufacturing or industrial process or operation whether or not the process or operation uses any virgin feedstock; or

- It meets a recognized national or international standard (e.g., ASTM D2827-19 Standard Specification for Styrene Monomer).
- If the material is a fuel, it meets any of the following conditions:
 - It is a gaseous fuel that will be upgraded to replace the use of natural gas (e.g. biogas or hydrogen gas):
 - It is capable of being accepted without any further processing by an existing distribution system, where it meets its standards; or
 - It meets an ASTM International or equivalent fuel standard (e.g., Federal Renewable Fuels Regulations SOR/2010-189).

An output material from the thermal treatment of waste at a site would not be considered a recovered material if the output is:

- Heat or energy used at the site for any purpose.
- Heat or electricity used to dispose of waste.
- An energy source used to pre-process any waste brought onto the site.
- An alternate fuel used for an energy-from-waste site or a cement kiln.
- An output that does not meet a realistic market demand.
- A material that is sent to disposal, either directly or indirectly.

Establishing an Advanced Recycling Site

The ministry is proposing to adjust the current designations to establish thresholds for environmental assessment requirements for establishing an advanced recycling site that does not use coal, oil or petroleum coke as fuel:

- Advanced recycling sites where the mass of recovered material is **80% or more** of the original mass input into the system:

Amount of waste thermally treated (tonnes per day)	Proposed Environmental Assessment Requirement
Less than or equal to 100	No environmental assessment required (i.e., not a designated project for the purposes of the proposed regulation)
Greater than 100 and less than or equal to 1000	Environmental Screening Process
Greater than 1000	Comprehensive Environmental Assessment

- Advanced recycling sites where the mass of recovered material is **less than 80%** of the original mass input into the system:

Amount of waste thermally treated (tonnes per day)	Proposed Environmental Assessment Requirement
Less than or equal to 10	No environmental assessment required (i.e., not a designated project for the purposes of the proposed regulation)
Greater than 10 and less than or equal to 100	Environmental Screening Process
Greater than 100	Comprehensive Environmental Assessment

This proposal utilizes an 80% recovery rate as the threshold between the two proposed regulatory pathways. Applying a recovery threshold for advanced recycling is expected to incentivize advanced recyclers to ensure the majority of the material processed at their sites is going into new products and is not sent to landfill.

The 80% recovery rate is proposed to recognize the benefits of facilities that recover a high portion of inputs with limited residual material while acknowledging that recovery rate is also influenced by operational challenges including obtaining high-quality post-consumer plastics to use as a feedstock.

Calculating the Recovery Rate

The recovery rate of an advanced recycling facility will be calculated as follows:

$$\frac{\text{The mass of the recovered material resulting from thermal treatment}}{\text{The mass of the waste processed}} \times 100 = \% \text{ of recovered material produced}$$

When assessing the advanced recycling site’s process to determine its expected performance, the percentage of recovered material will be determined as the daily average over the entire year. The mass of the waste processed will be the amount proposed to be processed by the advanced recycling facility. This mass will not include any material that will be removed during pre-processing of the waste prior to the thermal treatment (for example, steel removed from tires).

It is proposed that, similar to other thermal treatment sites, establishing an advanced recycling site that uses coal, oil or petroleum coke as a fuel will continue to be required to undertake a comprehensive environmental assessment, due to the potential environmental issues associated with their emissions.

Changes to an Advanced Recycling Site

The proposed regulation will also address site changes at established facilities (e.g., going from disposal to advanced recycling, increasing capacity, alterations in recovery rate) by designating certain changes to a thermal treatment site based on the following factors: the type of process, the amount of waste, or the recovery rate of the advanced recycling facility.

We are proposing to designate the following changes in relation to an advanced recycling site:

- Changing a thermal treatment site that is not engaged in advanced recycling to a site engaged in advanced recycling. The EA requirements would be determined in accordance with the criteria and thresholds set out in the section above, based on the site as proposed to be changed.
- Changing the site from advanced recycling site to disposal. The EA requirements would be the same as the current EA requirements for establishing the site.
- Increase in daily processing capacity that would cause the site to cross a tonnage threshold set out in the section above. The EA requirements would be determined in accordance with the criteria and thresholds set out in the section above, based on the site as proposed to be changed.
- Altering the process and/or material used in an existing advanced recovery site which originally achieved an 80% or greater recovery rate and after the change the anticipated recovery rate is less than 80%. The EA requirements would be determined based on the daily processing capacity and in accordance with the table above for advanced recycling sites with a recovery rate of less than 80%.

Proposed amendments to Part B of the Guide to Environmental Assessment Requirements for Waste Management Projects

We are also proposing to update Part B of the Guide to Environmental Assessment Requirements for Waste Management Projects to require projects relating to advanced recycling sites to include the following information in the Environmental Screening Report:

- The expected recovery rate of the advanced recycling site, including how the expected recovery rate was determined.
- The anticipated end receivers or material recovered by the advanced recycling site and uses for the material.
- An explanation of how the recovered material would meet the criteria described in this proposal for determining what output is a recovered material

Related Existing Regulatory Requirements for Waste

A site that does not meet the classification of advanced recycling will be subject to the applicable requirements within the proposed new comprehensive environmental assessment regulation (e.g., a site that disposes all waste received).

We are proposing that if an advanced recycling site would produce energy (electricity) from waste, and all of that energy is used on-site (but not all of this energy is used on-site for disposing the waste) the environmental assessment requirements for advanced recycling would apply. We are not otherwise proposing to change the existing environmental assessment requirements for a waste disposal site that produces energy (electricity) from waste where not all of the energy is used to dispose of waste.

Regardless of the recovery of material that may be obtained through the thermal treatment of waste, all thermal treatment sites that treat waste will be required to obtain an Environmental Compliance Approval (unless they meet an existing or future exemption under the Environmental Protection Act).