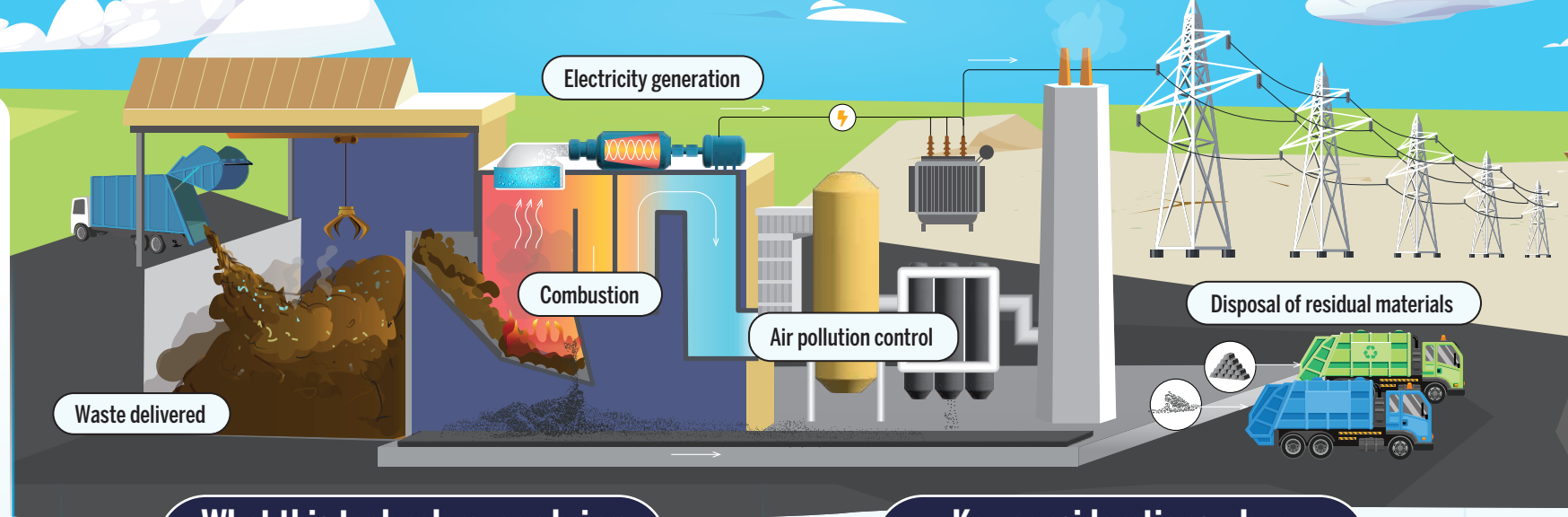


How does waste-to-energy work?

- Municipal solid waste is taken to a facility for sorting and separating, i.e., separating recyclables and reusables (such as metals, paper, cardboard) from non-recyclables, removing hazardous materials (e.g., chemical containers or batteries).
- The remaining waste is burned at high temperatures (i.e., 1,000°C or higher). Depending on the type of waste-to-energy system, either high pressure steam, or syngas is produced. The high-pressure steam is converted to electricity in turbine, while syngas is converted to electricity in gas engine. Residual energy can be used to heat homes and buildings connected to a district heating system.
- Air pollutants from combustion gases are removed before releasing to the atmosphere.
- The ash generated from combustion can be disposed of in a landfill.



What this technology can bring to your community

- Waste-to-energy technology, when combined with reduction and recycling programs, can be a solution to waste issue by reducing the amount of waste to be disposed of and capturing the energy within the waste.
- This type of system helps extend the life of landfills, slow down the filling up the landfills, and reduce wildlife activities in and around landfills by diverting waste that can be used to provide heat and electricity.
- Waste-to-energy systems can be used to heat clusters of buildings (as part of a district heating system).
- Waste-to-energy systems can help create local jobs and a local market for the purchase and sale of waste for energy generation.

Key considerations when implementing this technology

- Waste-to-energy facilities are expensive to build and operate. These costs can be reduced by partnering with neighbouring communities to spread the cost and increase the amount of waste collected for processing.
- It's important to have safety measures in place to prevent the release of harmful emissions from burning waste.
- Your community's existing waste removal infrastructure, such as garbage trucks and collection facilities, can be used to support your waste-to-energy system.
- If there is no existing waste removal infrastructure in your community, building a waste-to-energy system may be challenging.

Don't let your trash go to waste! Right now, most of the garbage produced in Canada ends up in local landfills, which are aging and filling up quickly. After reduction, reuse, and recycling strategies have been implemented, a waste-to-energy system can present a more sustainable and environmentally conscientious way to deal with municipal solid waste, turning it into usable forms of energy like heat and electricity.

Cost of waste-to-energy^{1,2}: \$\$\$\$

Waste-to-energy systems Transforming heat and power in Northern and remote communities

The bottom line Waste-to-energy systems can be part of a sustainable waste management program for Northern and remote communities, helping them reduce the amount of waste that ends up in landfills — and instead converting that waste into heat and electricity so they can cut back on their use of fossil fuels like diesel.

Want to learn more?

For more information, please send us an email:
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¹ The levelized cost of electricity (LCOE) measures the lifetime costs of running an energy source divided by how much energy it produces over that span (typically in megawatt-hours).

² LCOE range of \$270-\$310 (electricity only). Morrison Hershfield. (2011). Waste to Energy Business Case Analysis - Presented to Yukon Energy Corporation. <https://emrlibrary.gov.yk.ca/vec/waste-to-energy-business-caseanalysis-2011.pdf>. Additional costs may apply depending on location. Costing rating relative to estimates by Canadian Energy Regulator for other technologies: <https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/electricity/report/archive/2017-canadian-adoption-renewable-power/canadas-adoption-renewable-power-sources-energy-market-analysis-costs-trade-offs.html>.



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