

# Solid Waste & Recycling

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## Toronto may take from curb to fuel tank

by [Kris Hornburg](#)

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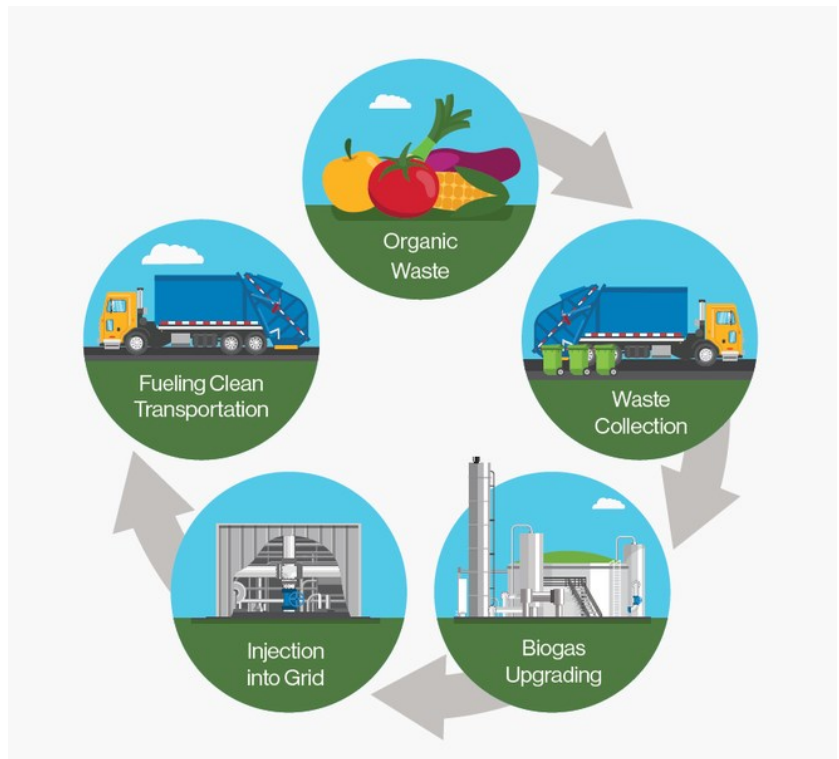
The City of Toronto is developing renewable natural gas (RNG) infrastructure that has the potential to represent a fully closed-carbon loop that could fuel its fleet from modified bio-gas processed at its anaerobic digestion facilities. That means the same collection trucks that pick up Toronto's organic waste could ultimately be fueled by that waste.

The City is currently in the process of expanding its Dufferin Organics Processing Facility to increase its organics processing capacity and build a biogas cleanup facility in order to produce RNG. It is expected that RNG production will begin sometime in 2019 with more announcements to come over the next couple of months. Solid Waste Management Services is also exploring the potential to produce RNG at three additional sites: the Disco Road Organics Processing Facility, the Keele Valley Landfill and the Green Lane Landfill.

It is estimated that Toronto could produce approximately 60 million litres of diesel equivalent, in the form of RNG, annually. This potential, coupled with a focus on a circular economy, provides the City with a tangible and effective method to reduce its carbon footprint, generate revenue and savings and foster innovation in sustainable solid waste management.

The City of Toronto's Solid Waste Management Services Division is responsible for managing approximately 1 million tonnes of waste each year, including approximately 140,000 tonnes of Green Bin Organics. The City of Toronto is also one of the first cities to formally announce its intention to reduce emissions by 80%, compared to 1990 baselines, by the year 2050 through the TransformTO project.

The Solid Waste Management Services Division has been using a triple-bottom line analysis to evaluate and ultimately select projects for future implementation. This framework ensures environmental and social outcomes are given the same importance as economic and financial drivers. A great example of this approach in action is the Division's move toward RNG production and utilization, which leverages the Division's innovative diversion technologies to generate additional environmental, economic, and social benefits for the City of Toronto.



City of Toronto

The 140,000 tonnes of organic waste generated each year could be used to create approximately 250-300 collection trucks every year. [Graphic by City of Toronto]

RNG is derived from the cleanup of raw biogas, which is a natural byproduct of operating anaerobic digestion facilities and landfill assets. Biogas consists of anywhere from 50% to 75% methane, with the remainder largely comprised of carbon dioxide (CO<sub>2</sub>) and other trace elements. By cleaning the raw biogas, the City can remove the CO<sub>2</sub> and other impurities to generate clean, renewable methane. After minor treatment, the purified gas can be injected directly into the existing natural gas grid and transported anywhere that the grid infrastructure extends. The City, for example, could inject RNG from a facility in the west end of Toronto and use it to fuel its fleet of collection trucks at yards in the east end.

A key benefit of developing RNG infrastructure is that it represents a fully closed-carbon loop. It is estimated that the 140,000 tonnes of organic waste generated each year could be used to create approximately 10 million litres of diesel equivalent, enough to fuel about 250-300 collection trucks every year. An August 2017 study, citing reports from the California Air Resources Board, confirmed that RNG derived from food and green waste is the lowest-carbon commercial vehicle fuel that exists today. In fact, RNG is actually carbon negative. In other words, the emissions reductions associated with displacing petroleum-based fuel, and the avoided emissions from sending organics to landfill, actually exceed the direct emissions associated with the production and use of RNG.

The move towards the development and use of RNG represents a more holistic approach to project evaluation and a large paradigm shift in the waste industry — which has traditionally been focused on electricity generation.

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