

It sounds good, but turning garbage to energy has downsides, critics say

By Kristine Owrarn

(CP) - Drastically reducing the amount of garbage going to landfills while creating a clean energy source in the process - it sounds like the perfect solution to the world's environmental woes.

But critics argue that the process of heating garbage to create a gas that can then be used to produce heat and electricity - a process known as garbage gasification - is an unsustainable solution to the problem of overflowing landfills that will ultimately cause more harm than good to the environment and human health.

Garbage gasification is not a new concept, but a full-scale gasification plant has yet to be built anywhere in North America. Some cities, including Toronto, have rejected the idea as too dangerous, too unreliable or too costly.

Toronto briefly considered gasifying its garbage in 2002 when the city's Keele Valley landfill was about to close, but it was rejected in favour of a green bin program, which diverts organic waste from the dump to be composted instead.

That decision followed an outcry from residents, who were concerned about the environmental implications of a gasification plant, said Toronto city councillor and environmentalist Gord Perks.

"It is a law of physics that matter is neither created nor destroyed," said Perks.

"We have to remember that incinerators and gasifiers don't destroy the elements that go in, all they do is recombine them in new ways, some of which are more hazardous than what was going in in the first place."

Garbage gasification is a two-step process. First, solid waste is heated anaerobically, or without oxygen, to extract a synthetic gas. That gas is then burned to produce heat or electricity that can be added to a city's regular grid.

The byproducts include ash and, depending on the plant's emission controls, greenhouse gases and other particles that can be hazardous to human health.

Paul Connett, a retired professor of chemistry with St. Lawrence University in Canton, N.Y., says gasification is no different from incineration, and anyone who believes otherwise is being "hoodwinked."

"Basically what you're doing is destroying materials that we should be sharing with the future. We buy things today, we destroy them tomorrow. That's a non-sustainable way of living on a finite planet."

In addition to greenhouse gases, gasification creates what Connett calls "toxic nano-particles" which, when inhaled by humans, can cause degenerative diseases that affect tissues, including the brain.

"When you incinerate, you're converting tons and tons of material into trillions of tiny particles, and those tiny particles by definition contain every toxic element that we use in commerce," he said.

But despite critics' warnings, the technology seems to be growing in popularity, and two major Canadian cities are moving ahead with projects to convert their garbage to energy.

More than two decades after a city councillor first proposed the idea, Edmonton hopes to open a gasification facility in 2010.

The city already diverts approximately 60 per cent of its waste from landfill through well-established recycling and composting programs, and it hopes to increase that number to an impressive 90 per cent - by far the highest in the country - with the first large-scale gasification plant in North America.

"We're still left with maybe about 75,000 tonnes a year of material that either can't be recycled or can't be composted, that's what we call residuals," said Garry Spotowski, a spokesman for the city's waste management division.

"We felt that of all the examples of recovering energy from waste, this was the one that suited us best."

While gasification facilities do produce some pollutants, they're still far cleaner than the alternatives, Spotowski added.

"That energy that we can produce, when you net it out against coal-fired electricity generation, for example, it reduces greenhouse gases by about 150,000 tonnes a year. It's the equivalent of removing 37,000 cars from Edmonton's streets."

In Ottawa, a demonstration facility that uses a similar technology is currently being tested and is expected to be processing 70 tonnes of garbage a day by next month. The technology, created by Ottawa-based Plasco Energy Group, uses plasma torches to refine the gas that is produced. It has "extremely low" emissions, and most of the leftover slag can be used for roadwork or building projects, said Plasco President and CEO Rod Bryden.

From every tonne of waste input, the Ottawa plant will be able to generate enough electricity to power a household for two months. In total, between the emissions saved from coal-powered plants and the methane gas that won't be produced by garbage rotting in a landfill, Plasco's technology will eliminate 2.5 tonnes of carbon dioxide from the air for every megawatt of power produced, Bryden said.

Ottawa city councillor Jan Harder is unfailingly optimistic about the technology, calling it the "no-fail opportunity of a lifetime."

But Perks remains unconvinced. Officials, he said, are asking the wrong question about gasification.

"The question they're asking is, how can we make this garbage that we've created go away? And there's no answer to that question - you can't," he said.

"The right question is, how do we not create this garbage? And until we start asking the right question, we'll keep getting the wrong answer."