

Tackling Climate Change Series

How collecting landfill gas limits climate change

BIG MOVES

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Close the Loop on Waste

The connection between our landfill and climate change

What we throw in the garbage has a direct impact on climate change. In our community, **landfill waste accounts for 20% of greenhouse gas (GHG) emissions** because it's a source of methane gas, which is 26 times more potent than carbon dioxide. This is why the District of Squamish has identified the importance of closing the loop on waste as part of the [Community Climate Action Plan](#).

Methane is a byproduct of the airtight (or anaerobic) landfill environment, which forces organic materials like garden cuttings, wood, and food waste to break down quickly without oxygen. The Squamish Landfill currently generates approximately 680 tonnes of methane per year, and is expected to reach a peak of 710 to 860 tonnes per year by 2027.



Methane gas is 26 times more potent than carbon dioxide.

The District of Squamish is implementing a [Zero Waste Strategy](#) to address this climate change culprit. As a community, we're working to divert as much organic material from the landfill as possible and reduce the amount of overall waste created by each person in Squamish through reducing, reusing, recycling, and rethinking our purchasing behaviours.

The reality is that we will continue to generate at least some landfill waste for the foreseeable future. We have to manage the waste that is already in the landfill, so we need to address our methane problem by using infrastructure and technology that helps us capture and dispose of it safely. Even when we manage landfill gas emissions, it is important to continue diverting organic waste when possible as we aren't able to capture all of the methane.

Building a landfill gas collection system

What is it?

In 2021, Squamish installed a landfill gas (LFG) collection system, which is designed to capture methane gas. Because methane is an explosive and flammable gas, it must be contained through a flaring system that burns and converts it to carbon dioxide. Although carbon dioxide is also a GHG, it is far less potent than methane (about 26 times less)—think of it as the “lesser of the two evils.” Landfill gas also contains odourous and toxic gases that are present and powerful in small quantities (like hydrogen sulfide). They are, fortunately, also destroyed through flaring.

While the first step in LFG collection is to destroy the methane gas, we are planning for the future, when we can utilize methane gas as a renewable and low-carbon energy source.



The Squamish Landfill Gas Collection System is expected to capture up to 90% (or 774 tonnes) of methane gas at peak efficiency. That's the equivalent of 1.2 million total round trips from Squamish to Vancouver.

How it works:

Landfill gas is collected through a network of horizontal collectors and vertical drilled wells, placed throughout the landfill. The gas is then piped under vacuum to the flare station, where the gas is flared (or burned). In the future, this system can divert the collected methane into a gas conditioning process, which will turn it into a usable energy source.

Squamish Landfill Gas Flare and Collection System

