

To: Warden and Members of County Council

From: Director of Public Works

Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills Discussion Paper, Environment and Climate Change Canada

RECOMMENDATION

1. That Oxford County Council endorse the submission comments in response to Environment and Climate Change Canada's discussion paper titled "Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills" as outlined in Report No. PW 2022-23.

REPORT HIGHLIGHTS

- Environment and Climate Change Canada (ECCC) is seeking public input on the objectives of proposed regulatory framework under the *Canadian Environmental Protection Act, 1999* (CEPA) to reduce methane emissions from municipal solid waste landfills.
- Municipal solid waste landfills are responsible for about 23% of Canada's methane emissions. ECCC's proposed development of a regulatory framework to reduce landfill methane emissions is intended to increase the number of landfills that control landfill gas emissions and maximize methane recovery of existing landfill gas collection systems.
- This federal initiative aligns well with the County's current undertaking of an organics resource recovery technology (ORRT) feasibility study that will consider treatment technologies such as composting, anaerobic digestion and advanced thermal technologies for landfill diversion of organic waste and resource recovery for beneficial use.
- The proposed federal regulatory framework will need to ensure complementary alignment with existing provincial landfill regulations which are currently based on landfill capacity thresholds. Criteria will need to be established to determine whether a given landfill site is subject to the proposed federal regulatory requirements and associated landfill gas emission control (gas capture) is required.

Implementation Points

Following Council endorsement of this report, staff will submit final comments, along with a copy of the Council resolution, to ECCC by April 13, 2022.

ECCC will consolidate comments and publish the results during the summer of 2022. Following this, ECCC will engage a technical working group to support in-depth discussion on the elements of federal regulations.

Staff will also continue to follow ECCC’s efforts in this area and will participate in any upcoming consultation sessions and report back to Council as needed.

The proposed regulatory framework is expected to be released for comment early in 2023.

Financial Impact







No financial impacts will result from adopting the recommendation contained in this report.

It is recognized that the installation and operation of traditional gas recovery systems at small closed landfill sites could pose a financial burden for many municipalities. The use of emerging technologies (i.e. biocovers) at applicable landfill sites may offer more economically feasible options to control emissions.

Communications

Report No. PW 2022-23 will be circulated to Area Municipalities for information.

Strategic Plan (2020-2022)

					
<i>WORKS WELL TOGETHER</i>	<i>WELL CONNECTED</i>	<i>SHAPES THE FUTURE</i>	<i>INFORMS & ENGAGES</i>	<i>PERFORMS & DELIVERS</i>	<i>POSITIVE IMPACT</i>
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DISCUSSION

Background

On January 28, 2022, ECCC posted a discussion paper, '*Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills*' (Attachment 1), for public consultation until April 13, 2022. The purpose of the discussion paper is to seek input on the objectives of proposed regulatory framework under the *Canadian Environmental Protection Act, 1999* (CEPA) to reduce methane emissions from municipal solid waste landfills.

The development of a federal regulatory framework to reduce landfill methane emissions is part of the Government of Canada's climate action plan *Strengthened Climate Plan – A Healthy Environment and a Healthy Economy* to reduce greenhouse gas (GHG) emissions in support of international initiatives and global GHG emission reduction targets.

The Intergovernmental Panel on Climate Change's (IPCC) *Special Report on Global Warming of 1.5°C* indicates that achieving net-zero GHG emissions by 2050 is necessary to avoid the worst impact of climate change. In response to this, the Government of Canada has committed to a 2030 GHG emission reduction target of 40 to 50% below 2005 levels and a net-zero emissions goal by 2050. In October 2021, the federal government also announced support for the *Global Methane Pledge* to reduce global methane emissions by 30% below 2020 levels by 2030.

ECCC reports that municipal solid waste landfills are responsible for about 23% of Canada's methane emissions and, despite significant efforts, this has not decreased for over a decade. The current approach to reduce landfill emissions varies across Canada and is not expected to achieve significant reductions to meet federal GHG reduction targets by 2030.

ECCC has estimated that by 2030 about half of the methane generated from landfills will be created by biodegradable waste that was disposed of prior to 2020 and, at current disposal rates, methane generation will continue to increase with population growth. To achieve 2030 emission reduction targets, more landfills across Canada will need to capture more of the methane they generate. Diversion of biodegradable waste, the source of landfill methane, is also needed to achieve longer-term landfill methane emission reductions.

In Ontario, installation of gas recovery systems to capture and control methane emissions is a landfill operations regulatory requirement based on capacity thresholds. The provincial government has also adopted a policy framework for organic waste diversion based on population thresholds and associated diversion targets by 2025, which are anticipated to be incorporated into a pending regulatory framework.

Landfill methane emissions are controlled at the Oxford County Waste Management Facility (OCWMF) through a gas collection and flaring system that was implemented in 2010. The methane is mechanically drawn from a series of 18 wells for combustion at the flare stack, which destroys the methane by converting it to carbon dioxide. Currently, the methane production at the OCWMF is not utilized for alternative fuel or energy due to low gas volumes and marginal gas concentrations.

In an effort to reduce and divert biodegradable landfill waste that would otherwise contribute to increased methane production, Oxford County continues to successfully implement various waste diversion and resource recovery programs (yard waste, biosolids, construction/demolition waste, plastic film, bulky styrofoam). Of note, Oxford County has landfill diverted approximately 20,000 tonnes of brush, leaf, and yard waste annually through numerous collection depots located throughout the County (with final processing at the County's Composting Facility), 7,000 tonnes of construction and demolition material annually (materials reuse) and 6,000 tonnes of municipal biosolids annually via land application. In addition to these programs, the County actively promotes backyard composting to reduce residential yard and food waste with over 3,700 units (composters and green cones) sold to residents over the last 5 years.

As part of the 2022 Business Plan and Budget, the County will be undertaking an ORRT feasibility study that will consider treatment technologies such as composting, anaerobic digestion and advanced thermal technologies for landfill diversion of organic waste and resource recovery for beneficial use.

Comments

It is anticipated that the proposed federal regulatory framework will complement and increase effectiveness of current provincial regulatory requirements and ensure a consistent approach nationally, which will further promote innovation and treatment technologies. Further, this federal initiative closely aligns with the goals and objectives of the County's Zero Waste Plan to divert landfill waste through resource recovery technologies and for beneficial use of end-products.

The proposed regulatory framework objectives also support the County's current ORRT feasibility study to determine preferred alternatives for organic waste processing to meet provincial diversion targets by 2025. The County will continue to promote backyard composting and green cone digesters for yard and food waste and will develop future food waste reduction strategies in support of organics diversion programs. These strategies would include promotion and education (meal planning, proper food storage, and consumer behaviour), food rescue and safe donation of surplus food programs, and collaboration with community partners.

ECCC has identified that methane emissions can be avoided entirely in the future by diverting organic waste for resource recovery and beneficial use (renewable energy, fuels, and soil amendments). However, methane generation as a result of decades of landfilling of biodegradable waste (food, yard waste, paper, wood, natural fiber textiles, etc.) is not expected to reduce significantly by 2030 even if current efforts to increase organic waste diversion are accelerated.

Landfill methane emissions can be reduced significantly by 2030 by increasing the number of landfills that recover methane and by maximizing methane recovery of existing landfill gas collection systems. Greater control of landfill emissions and increased diversion of biodegradable waste will reduce and eventually eliminate landfill methane emissions, as well as, preserve landfill capacity.

To reduce landfill methane emissions and meet 2030 reduction targets, ECCC has identified the following objectives for the development of a proposed regulatory framework.

- Increase the number of landfills that take action to reduce methane emissions.
- Ensure that regulated landfills maximize methane recovery.
- Achieve long-term emissions reductions through increased diversion of biodegradable waste.
- Increase utilization of landfill methane to create low-carbon energy and fuels.

ECCC is seeking input from the public as well as the waste management sector on the following key questions in relation to the proposed regulatory objectives:

- Should federal regulations be developed to increase the number of landfills that take action to reduce methane emissions? Which landfills should be regulated?
- How can the regulations be designed to ensure that regulated landfills maximize methane recovery?
- Should federal regulations be designed to require or stimulate the diversion of organic waste from landfills?
- Should federal regulations require or encourage the utilization of recovered methane to produce low-carbon fuels and energy?

Staff have prepared draft submission comments (Attachment 2) in response to ECCC's discussion paper and generally support the development of federal regulations to reduce landfill methane emissions.

As identified in the 2021 Annual Waste Management Report (Report No. [PW 2022-10](#)), staff are completing ongoing environmental investigations and establishing regular monitoring programs at the eight County-owned closed landfill sites. The on-going collection and monitoring of methane gas at the OCWMF landfill will continue as well through planned work activities to complete final landfill cover and limit the extent of the active landfill face. These activities will serve to further reduce landfill gas emissions. Weekly surface air monitoring for methane is also conducted around buildings and onsite facilities. This information will be beneficial to inform how proposed regulatory framework affect waste management operations.

In the interim, the County will continue to operate its landfill gas flare collection system and look for opportunities to maximize the performance of this system.

Conclusions

Reduction of landfill methane emissions through increased capture of landfill gas and diversion of biodegradable waste will support federal GHG emission reduction targets that are intended to mitigate the effects of global climate change. Utilization of landfill gas to produce low carbon fuels and/or renewable energy will offset the use of fossil fuel and associated environmental impacts.

ECCC has committed to additional public consultation in 2022 on the development of new requirements to reduce landfill methane gas emission at municipal solid waste landfill sites. Staff will ensure to monitor outcomes and participate in any subsequent consultations.

SIGNATURES

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Original signed by:

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Approved for submission:

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Michael Duben, B.A., LL.B.
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ATTACHMENTS

- Attachment 1: Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills Discussion Paper, Environment and Climate Change Canada
- Attachment 2: Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills Draft Oxford County Submission