

# Reducing Canada's landfill methane emissions

Proposed regulatory framework



# Purpose

Environment and Climate Change Canada (ECCC) is seeking input from interested parties on the development of regulations under the *Canadian Environmental Protection Act, 1999* (CEPA) to reduce landfill methane emissions. This document presents a proposed regulatory framework that outlines key requirements that may be included in the regulations. Feedback on potential regulatory elements is invited by May 19, 2023.

# Issue

Methane is a powerful greenhouse gas that is generated when biodegradable waste (e.g. food, yard and paper) is disposed in landfills. This process occurs over many years, which means that the methane generated in landfills today is the result of decades of disposal of biodegradable waste. In 2020, emissions from Canadian landfills accounted for 24% of national methane emissions.

Landfill methane emissions can be controlled by installing infrastructure and equipment at landfills to recover the gas, and either flare or use it to generate energy (both of which destroy methane by converting it to carbon dioxide through combustion). These approaches are well established and are technically feasible, commercially available and provide quantifiable methane emission reductions. Emerging approaches involve the use of specific landfill cover materials and design to facilitate the destruction of landfill methane through biological processes. Both approaches – referred to as landfill methane control systems in this framework – are capable of significantly reducing methane emissions from landfills.

Landfill methane emissions can fluctuate considerably in response to weather conditions and the presence of leaks in cover systems or breaks in landfill gas recovery infrastructure. Increasing the frequency of monitoring, adjustment and repair of methane control systems has been shown to increase the quantity of methane recovered (and thus reduce emissions).

The purpose of the proposed regulations is to reduce methane emissions from Canadian landfills to the greatest extent that is technically and economically achievable. The reductions will be achieved by increasing the number of landfills taking action to reduce their methane emissions and by improving the way methane emissions and leaks are monitored and mitigated.

# Context

In October 2021, Canada announced support for the [Global Methane Pledge](#), which aims to reduce global methane emissions by 30% below 2020 levels by 2030. The Government of Canada's *Faster and Further: Canada's Methane Strategy* underscored the commitment to taking comprehensive domestic actions to reduce methane, including in the waste sector. This commitment builds on the Government of Canada's [target](#) to achieve greenhouse gas emission reductions of 40-45% below 2005 levels by 2030 and net-zero emissions by 2050. This Strategy reiterated the intention to develop new federal regulations that will reduce landfill methane emissions.

In January 2022, Environment and Climate Change Canada (ECCC) published a discussion paper titled [Reducing methane emissions from Canada's municipal solid waste landfills](#) to seek input on

proposed objectives for regulations under the *Canadian Environmental Protection Act*, 1999. The paper proposed a number of objectives for consideration that would guide the elaboration of the new regulations. In September 2022, a “[What We Heard](#)” report was published which summarized the feedback received from interested parties on the discussion paper.

In October 2022, a Technical Working Group (TWG) was formed to support in-depth discussions on potential elements of federal regulations. ECCC sought specific feedback from TWG members by creating a venue for information and idea exchanges that assisted ECCC in shaping regulatory elements and options, and identifying technical barriers and opportunities that should be reflected in the proposed regulatory framework. TWG members provided meaningful feedback in key areas of the regulatory framework such as applicability of the regulations, landfill methane control technologies, monitoring and measuring methane, design standards, and cost and benefits of the proposed regulations.

## Proposed regulatory framework

The framework outlines who the regulations could apply to and potential requirements related to:

- Implementation of a landfill methane control approach
- Requirement for methane control monitoring and corrective action plan
- Notifications, record keeping and annual reporting

In the context of this document, a “landfill methane control approach” includes:

- an active or passive landfill gas recovery system and methane destruction devices, or
- an engineered biosystem (e.g. a biocover or biowindow), or
- a landfill design or operational plan that includes actions to reduce methane emissions.

### Application and assessment requirements

The intent of the regulations is to require landfills exceeding either a methane generation or a methane emission threshold to comply with regulatory requirements for controlling methane emissions. A tiered approach to identifying specific regulatory obligations is proposed and generally includes:

1. Applicability threshold based on quantity of municipal solid waste disposed
2. Methane generation assessment and threshold
3. Methane emission assessment and thresholds (optional approach)

This approach is in line with the way other North American jurisdictions have identified which landfills are required to take action to reduce methane emissions.<sup>1</sup>

#### **Applicability based on quantity of municipal solid waste disposed**

The regulations would apply to landfills that have received more than a specified quantity of municipal solid waste – that is waste generated by the residential; industrial, commercial and institutional (ICI);

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<sup>1</sup> [Reducing methane emissions from Canada’s municipal solid waste landfills: discussion paper](#)

construction, renovation and demolition (CRD) sectors. ICI sector waste includes waste from sources like office buildings, shopping malls, schools and hospitals.

The regulations would apply to landfills that meet the following criteria:

1. Closed landfills that accepted any quantity of municipal solid waste for disposal after January 1, 2009 and that have more than 450,000 tonnes of municipal solid waste-in-place (total waste disposed).
2. Open landfills that:
  - a. have more than 100,000 tonnes of municipal solid waste-in-place; or,
  - b. accepted more than 10,000 tonnes of municipal solid waste for disposal per year in any year following the coming into force of the regulations.

Landfills that meet these criteria would have requirements under the regulations. Some landfills would only be required to do minimal assessment, while others may have further obligations based on the results of the assessment(s).

### **Methane generation assessment and threshold**

Landfills that meet the applicability criteria described above would need to conduct a methane generation assessment using ECCC's Landfill Methane Estimation Model and report the results to ECCC within 90 days of the coming into force of the regulations (or by June 1 of the year following the year in which they become subject to the regulations by exceeding any of the waste disposal thresholds).

The purpose of the methane generation assessment is to determine whether a landfill generates more than a proposed annual methane generation threshold of 664 tonnes per year. This threshold is the most stringent North American threshold above which landfills are required to operate a landfill gas collection and control system <sup>2 3</sup>.

Once a methane generation assessment has been completed that demonstrates annual methane generation above the threshold, the regulations would require the implementation of a landfill methane control approach (as outlined below), unless the exemptions described in the next section apply.

Where the landfill methane generation rate is below the threshold, open landfills would be required to assess methane generation once per year until they either exceed this threshold or close. Closed landfills below the threshold would be exempt from further requirements under the regulations.

### **Exemptions based on measured values**

The regulations would allow certain landfills to demonstrate – through methane measurements collected at the landfill – that measured values are below thresholds that would exempt them from the requirement to implement a landfill methane control approach. There are two situations where this approach could be applied:

1. Landfills without an existing landfill methane control system where the concentration of methane at or above the surface of the landfill is below specified thresholds.

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<sup>2</sup> [California's Methane Emissions from Municipal Solid Waste Landfills Regulations](#)

<sup>3</sup> [Oregon's Landfill Gas Emissions Reduction 2021 Rulemaking](#)

2. Closed landfills with existing landfill gas recovery systems where the methane concentration in recovered landfill gas and surface methane emissions are below specified thresholds.

### ***Measured methane emissions***

In some cases, the landfill methane generation modeling may not accurately represent the scale of methane being generated and emitted at certain sites. Landfills that can demonstrate, through measurements collected at the landfill, that their emissions are below specified thresholds would be exempt from requirements to operate a landfill methane control system. If a landfill is open, methane generation may increase as more waste is disposed, so continued monitoring would be required to demonstrate methane concentrations remain below the thresholds.

Monitoring to demonstrate surface methane emissions are below specified thresholds would be required to take place three times per year (spring, summer and fall), and begin immediately after submission of the notification showing methane generation levels above the 664 tonnes per year threshold. Results of emission monitoring for each year would be submitted by June 1 of the following year.

Several approaches to identifying measured methane emission thresholds are under consideration including:

**Path-integrated methane concentrations** measured using a drone-based downward facing methane detector provide a measure of the concentration of methane in the atmosphere between the drone and the surface of the landfill. This technique holds promise to detect the same methane emission hotspots that may be measured using ground-based methods, but is less labor intensive, safer and offers the ability to more comprehensively measure the landfill surface. Drone-based surveys required under the regulations would need to be flown over all areas of the landfill under intermediate and final cover at a height of 5 m and on serpentine pattern with spacing of no more than 15 m.

Potential path-integrated methane concentration thresholds numerically equivalent to the surface methane concentrations are provided below as conservative proposed thresholds. As regulatory development continues, ECCC will continue to work towards developing standardized methods for both drone-based path-integrated surveys and to validate appropriate thresholds for use in this regulatory context. Stakeholders with data and information relevant to identification of these approaches or thresholds are invited to contact ECCC to support this analysis.

The regulations would require that an initial survey of methane emissions be conducted using this drone-based methodology. Where exceedances of the path-integrated methane concentration thresholds are identified, ground-based surface methane concentration measurement methods may be used to verify if the area exceeds specified thresholds. Areas with measurements below the proposed thresholds would not require ground-level verification.

**Surface methane concentrations** are measured using a hand-held methane detector where the inlet of the detector is placed no more than 5 cm above the surface of the landfill. Where a ground-based survey to verify drone-based exceedances is conducted, measurements would need to be collected on transect spacing of no more than 7.5 m.

Landfills with methane emissions below the following proposed thresholds would be exempt from requirements to implement a landfill methane control approach (however, in some cases continued monitoring would be required to demonstrate emissions remain below the thresholds):

- Open landfills where all path-integrated methane concentrations are below 200 ppm·m (or surface methane emission concentrations are below 200 ppmv, where ground-based monitoring used to verify drone-based results) would be required to continue monitoring once per year until either 1) the landfill closes or 2) the methane concentration thresholds are exceeded.
- Closed landfills where all path-integrated methane concentrations are below 200 ppm·m (or surface methane emission concentration are below 200 ppmv, where ground-based monitoring used to verify drone-based results) would have no further obligations or requirement to continue monitoring.

**Low methane content in recovered landfill gas**

Closed landfills that are operating an active landfill gas recovery system but that no longer generate a sufficient amount of methane to recover and destroy or utilize in a cost-effective manner would be able to demonstrate an exemption to the requirement to operate such a system. The requirement to control methane emissions would not apply at a closed landfill where the average annual methane concentration in any recovered landfill gas in the previous five years is less than 25% by volume.

These landfills may be required to conduct surface methane emissions monitoring progressively as the wellfield is decommissioned, and in advance of the final shut-down of the system, to confirm average surface methane emissions are below 25 ppm·m (or 25 ppmv, where measured using ground-based methods).

**Requirement to control methane emissions**

**Implementation of a landfill methane control approach**

Landfills that exceed the methane generation threshold of 664 tonnes per year, and are not exempt based on surface methane monitoring results, would be required to implement a landfill methane control approach that meets the performance standard described below, according to the following timelines:

Scenario	Timeline for compliance with performance standards
Landfills that <u>are operating an engineered methane control system</u> (landfill gas recovery system or biocover) as of the coming into force of the regulations	Within one year of the coming into force of the regulations.
Landfills that are not operating a methane control system as of the coming into force of the regulations, and <u>whose methane control approach does not require amendment to an existing provincial or territorial issued operating permit</u>	Within one year of submitting a notification showing the methane generation threshold was exceeded.

Scenario	Timeline for compliance with performance standards	
Landfills that are not operating a methane control system as of the coming into force of the regulations, and <u>whose methane control approach requires an amendment to an existing provincial or territorial issued operating permit</u>	Where the methane generation threshold is exceeded for any year before January 1, 2027 (and not exempt based on site monitoring results), by January 1, 2029	Where the methane generation threshold is exceeded for any year on or after January 1, 2027 (and are not exempt based on site monitoring results), within 2 years of the year in which the methane generation threshold is exceeded.
Landfills that <u>have conducted regular site emissions monitoring</u> to demonstrate an exemption and subsequently measure an exceedance of surface methane emission concentration threshold	Where the exceedance is detected before January 1, 2027 (and for a control approach requiring a permit), by January 1, 2029.	Within one year of the year in which the exceedance is detected (and for a landfill design/operational approach)
	Where the exceedance is detected on or after January 1, 2027 (and for a control approach requiring a permit), within 2 years of the year in which the exceedance is detected.	

ECCC is exploring options to allow landfills that have an offset project under the federal *Greenhouse Gas Offset Credit System* or provincial or territorial offset credit system to generate offset credits for as long as possible. For example, this could include providing an extended period of time before the regulations come into force.

**Performance standard – Surface methane emission limits**

Landfill methane control approaches must achieve an average surface methane concentration in all areas of the landfill under intermediate and final cover (including side slopes) of less than 25 ppm·m, measured three times per year (spring, summer and fall.) using a drone-mounted methane detector. The only area exempt from meeting this performance standard is the area of the landfill where active disposal of waste is taking place.

Averages would be calculated for individual zones of not more than 4,500 m<sup>2</sup> (50,000 square feet) in area. In zones where exceedances are measured using a drone-mounted methane detector, a ground-based survey can be conducted over the area of that zone to calculate a ground-based average. The performance standard for zones measured using a ground-based approach is an average of 25 ppmv.

**Exceptions**

These requirements would not apply during normal servicing, emergencies, construction or repairs impacting the operation of engineered portions of the methane control approach. During these periods, efforts would need to be made to minimize methane emissions.

## Requirements for methane destruction

All landfill gas that is recovered by a landfill gas recovery system or passively routed out of the landfill as part of landfill methane control approach design would need to be conveyed to one or more of the following methane destruction devices, treatment systems or delivery points:

- a flare (flares installed after the coming into force of the regulations would need to be enclosed, unless the flare is intended as a back-up destruction device or to combust recovered landfill gas that has a methane content below 25% or where only intermittent flaring of landfill gas will take place.);
- an internal combustion engine;
- a landfill gas upgrading system, which:
  - injects processed landfill gas into a natural gas pipeline; or
  - compresses and stores processed gas for use in transportation vehicles;
- a boiler or other combustion device;
- a pipeline conveying landfill gas to a boiler or combustion device or upgrading system located beyond the property boundary of the landfill; or
- an engineered biocover system, biofilter or any other device utilizing thermal or biological oxidation processes that can demonstrate at least a 90% destruction efficiency (i.e. 90% of recovered or passively routed methane is destroyed in the engineered system).

Monitoring of landfill gas flow to destruction devices, treatment systems or delivery points would need to be conducted continuously as per methods outlined in ECCC's *Technical Guidance Document for Estimating, Measuring and Monitoring Landfill Methane*.

### ***Destruction Efficiency***

Enclosed flares and rich-burn internal combustion engines would be required to achieve a 99% methane destruction efficiency. Lean-burn internal combustion engines would be required to maintain an outlet methane concentration below 3,000 ppmv, dry basis, corrected to 15 percent oxygen.

Process emissions from on-site landfill gas upgrading systems or treated landfill gas that cannot be injected to a pipeline would need to be flared or otherwise treated to achieve a 99% methane destruction efficiency.

Calculation of destruction efficiency would be required on an annual basis. Where destruction efficiency is measured to be above specified thresholds for three consecutive years, source testing would be required every three years. In the event that a future source test demonstrates destruction efficiency below the specified threshold, annual source testing would be required. Methods for the conduct of this source testing would be outlined in the regulations.

### ***Operation***

Devices and systems used to combust or process landfill gas on the landfill site would be required to be operated and maintained in accordance with the applicable recommendations of the manufacturer. For flares, they would need to be operated at or above the temperature identified in the most recent source test where 99% destruction efficiency is achieved. Monitoring of flare temperature would be required continually.



The valves on an active landfill gas recovery system would need to be closed within one hour of the landfill gas recovery equipment (i.e. blowers), destruction device or treatment system shut-down.

## **Requirement for methane monitoring and corrective action plan**

Methane control systems are integrated approaches that require consideration of: landfill design and operation; landfill cover type, installation timing and maintenance; leachate management; and landfill gas recovery infrastructure installation and operation. The regulations would require implementation of a methane control monitoring and corrective action plan to monitor, on specified intervals, parameters that inform adjustments, improvements or repairs to the integrated system. These plans may be new or updates to existing operating plans and manuals developed to support operation of methane control approaches.

The plans would include monitoring requirements for one or more of the following, as applicable:

- Monitoring landfill methane recovery systems
- Monitoring biosystems (biocovers)
- Monitoring to identify methane leaks

The plans would provide flexibility to landfill owners to identify the most appropriate action thresholds for some measured parameters, while thresholds informing follow-up actions for certain parameters would be specified in the regulations (e.g. definition of a methane leak).

The landfill would be required to develop and implement a methane control monitoring and corrective action plan (or adjust an existing plan or portion of a landfill gas recovery system operational plan) to include:

- Regulatory or site-specific action thresholds for monitored parameters in line with regulatory requirements, existing guidance and best practices
- Identification of procedures for follow-up actions once action thresholds are exceeded, and,
- Process to document exceedances and corrective actions taken.

For landfills where new landfill gas recovery systems are implemented under the regulations, the monitoring plan would need to be developed and implemented in any portion of the system upon start-up of that portion. Identification and corrective action for methane leaks across the whole site would be required in line with timing for the requirement to implement the control approach and meet performance standards.

For landfills with existing systems, the monitoring plan, including leak detection and repair requirements would be required to be implemented within one year of the coming into force of the regulations.

### **Monitoring landfill gas recovery systems**

Existing provincial regulatory requirements for monitoring the performance of a landfill gas recovery system provide relatively infrequent snapshots of operations. Where these requirements exist, they specify monthly monitoring for parameters that enable system operators to make adjustments that optimize methane recovery and reduce emissions.

The regulations would require implementation of a landfill gas recovery system monitoring plan to inform well vacuum adjustments, detect leaks and identify equipment malfunctions on a more frequent

basis than is currently required. Landfills with higher levels of methane generation could be required to undertake more frequent monitoring (e.g. weekly or continuously).

Landfills with active landfill gas recovery systems would be required to conduct monitoring in extraction wells and at the landfill gas recovery plant including:

- Monthly, weekly or continuous measurement of oxygen, nitrogen, liquid level and vacuum pressure in extraction wells. Options to identify required monitoring frequency are under consideration, but could include an approach as follows:
  - At open landfills,
    - Continuous monitoring required at landfills exceeding a specified methane generation rate (for example, more than 5,000 tonnes of methane generated), or
    - Every two weeks at landfills exceeding a specified methane generation rate (for example, more than 1,000 tonnes of methane generation)
  - Monthly monitoring at closed landfills and where not otherwise specified.
- Continuous measurement of oxygen at landfill gas recovery control plant would apply to all landfills.

Landfills would be required to develop site-specific action thresholds for parameters measured in the wellfield that would determine appropriate actions in response to measured exceedances of the thresholds. Existing guidance and regulatory requirements specifying potential thresholds include the [BC Landfill Gas Facilities Design Guidelines](#) and [Quebec's Regulation respecting the landfilling and incineration of residual materials](#), which identify performance standards for oxygen and nitrogen content of landfill gas measured in recovery wells and provide guidance on wellfield management.

### **Monitoring engineered biocovers/biosystems**

Monitoring requirements to ensure methane destruction via oxidation is maintained in biosystem designs are under consideration and could include:

- annual in situ testing to monitor temporal changes to microbial methane oxidation capacity relative to initial oxidation capacity at the time of installation
- annual monitoring of media properties including, but not limited to, bulk density, organic matter, moisture, C:N ratio
- semi-annual monitoring of the biocover surface to identify fissures and areas of erosion/scour, and confirm that surface contours promote drainage and discourage ponding

### **Monitoring to identify methane leaks**

The landfill methane control monitoring and corrective action plan would need to include methane leak detection and repair (LDAR) requirements to identify and eliminate preventable point source methane emissions at landfills. Regulations would require regular monitoring to identify methane leaks in landfill covers, at cover penetrations and from landfill gas recovery infrastructure.

The regulations would define a leak as:

- any landfill surface or landfill gas recovery system component location where the measured methane concentration exceeds 500 ppmv using a hand-held methane detector;
- in the case of methane emissions measured as a path-integrated methane concentration, a location where the measured path-integrated concentration exceeds 500 ppm·m. Where

exceedances are detected using drone-based detectors, monitoring at the surface of the landfill using a hand-held detector may be conducted to verify the detection of a leak.

Under the regulations, the following would be required on a monthly basis:

- visual inspection of the landfill surface to identify areas where methane leaks in the cover may be occurring (this could include drone-based inspections); and,
- monitoring of landfill gas recovery system well heads and components of the landfill gas recovery system under positive pressure, including any pipelines conveying untreated or upgraded landfill gas located on the landfill property using a portable methane detector (unless a continuous monitoring system capable of detecting such leaks is installed).

Drone-based monitoring of surface methane concentrations would be required three times per year (spring, summer and fall), with not less than 90 days between monitoring events. This monitoring would be required above all areas of the landfill surface under intermediate or final cover (including above all surface penetrations, accessible leachate control system components (manholes, drains, wells) and side slopes). Only areas inaccessible due to active landfilling operations are exempt from requirement for surface emission monitoring.

The regulations may reduce the frequency of monitoring to annually in areas of the landfill where landfill gas is not being recovered and where surface methane emissions are below the specified performance standard (25 ppm·m, where measured using drone-gased method or 25 ppmv, where measured using ground-based method) and where no leaks are detected in all monitoring events conducted over the course of one year. Subsequent exceedances of the average surface methane concentration or identification of a methane leak would require a return to triannual monitoring frequency.

The regulations may include requirements for corrective action to be taken in response to detection of a methane leak:

- if a leak is detected, corrective action must be taken to confirm the source of the leak and undertake necessary repairs;
- the leak must be repaired and the methane concentration re-monitored within 30 days after the leak was detected;
- if the re-monitoring indicates the leak has not been repaired, additional corrective action must be taken and repairs must be completed within six months after the leak was first detected.

The regulations may require these same corrective actions to be taken if the landfill owner receives a notification from ECCC indicating a third-party measurement (from a methane emissions monitoring system or survey) of methane emissions exceeding a specified threshold (e.g. 100 kg/hr) has been published or reported to ECCC.

### ***Alternative monitoring methods***

Landfills may implement an alternative LDAR approach (for example, a system that continuously measures atmospheric methane concentrations at the perimeter of the landfill) and would not be required to undertake the monthly/triannual monitoring program if they can demonstrate the alternative approach is capable of identifying at least the same number of leaks as the requirements outlined in the regulations. Landfills implementing an alternative LDAR approach would be required to submit

information on the alternative LDAR approach that demonstrates equivalent outcomes to the regulatory requirements.

Consideration may be given to allowing the development of a site-specific performance standard (for example a whole-site emission rate monitored continuously) to replace the surface methane average concentration performance standard, if equivalency can be demonstrated.

## **Notifications, record keeping and annual reporting**

### ***Notifications***

The regulations would include a requirement for submission of a methane generation report within 90 days of the coming into force of the regulations (or within 90 days of becoming subject to the regulations).

Where subsequent methane monitoring is conducted to demonstrate exemptions, the results of this monitoring would be required to be submitted by June 1 of the year following the year in which the monitoring takes place.

Landfills with existing landfill methane recovery systems that exceed the annual methane generation threshold would be required to submit a registration with information on methane destruction devices within 90 days of the coming into force of the regulations, or, where a new landfill methane control system is installed under these regulations, by June 1 of the year following the installation of these devices.

Notification of the preparation of a landfill methane monitoring and corrective action report would be required in line with the regulatory requirement to implement a landfill methane control approach and meet performance standards.

### ***Record keeping***

Any records required under the regulations would need to be maintained at the principle place of business of the responsible person of the landfill for five years and would include:

- the results of surface emission monitoring to assess the performance of the methane control approach
- the results of source testing to determine methane destruction efficiency
- the results of required monitoring conducted at wellheads and at the landfill gas recovery plant
- the results of methane leak detection monitoring, identification of exceedances and corrective actions taken

### ***Annual reporting***

An annual submission of data would be required under the regulations including information such as:

- operational status of landfill, annual waste received, waste-in-place at end of reporting year;
- modeled annual methane generation, total quantity of methane and methane content of landfill gas recovered and conveyed to each methane destruction device, treatment system or delivery point;

- updates to information on methane destruction devices; results of source testing to determine destruction efficiency of destruction devices
- description of any periods when the methane control system was shut down and reasons for shut down;
- exceedances of average surface methane emission monitoring; and
- identification of methane leaks and corrective actions undertaken.

## Methods

Interim methodologies for measuring surface methane concentrations using ground- and drone-based techniques; quantifying whole site methane emissions and measuring the methane content of recovered landfill gas are described in ECCC's *Technical Guidance Document on Estimating, Measuring and Monitoring Landfill Methane*. This document will be updated in advance of the coming into force of the regulations to reflect standardized approaches for measurement approaches that do not currently have published standardized methods. The document is available upon request – please send an e-mail to [ges-dechets-ghg-waste@ec.gc.ca](mailto:ges-dechets-ghg-waste@ec.gc.ca) to request a copy.

## Next steps and sending comments

ECCC is inviting interested parties to provide their feedback on the Proposed Regulatory Framework until May 19, 2023. Feedback can be sent to [ges-dechets-ghg-waste@ec.gc.ca](mailto:ges-dechets-ghg-waste@ec.gc.ca).

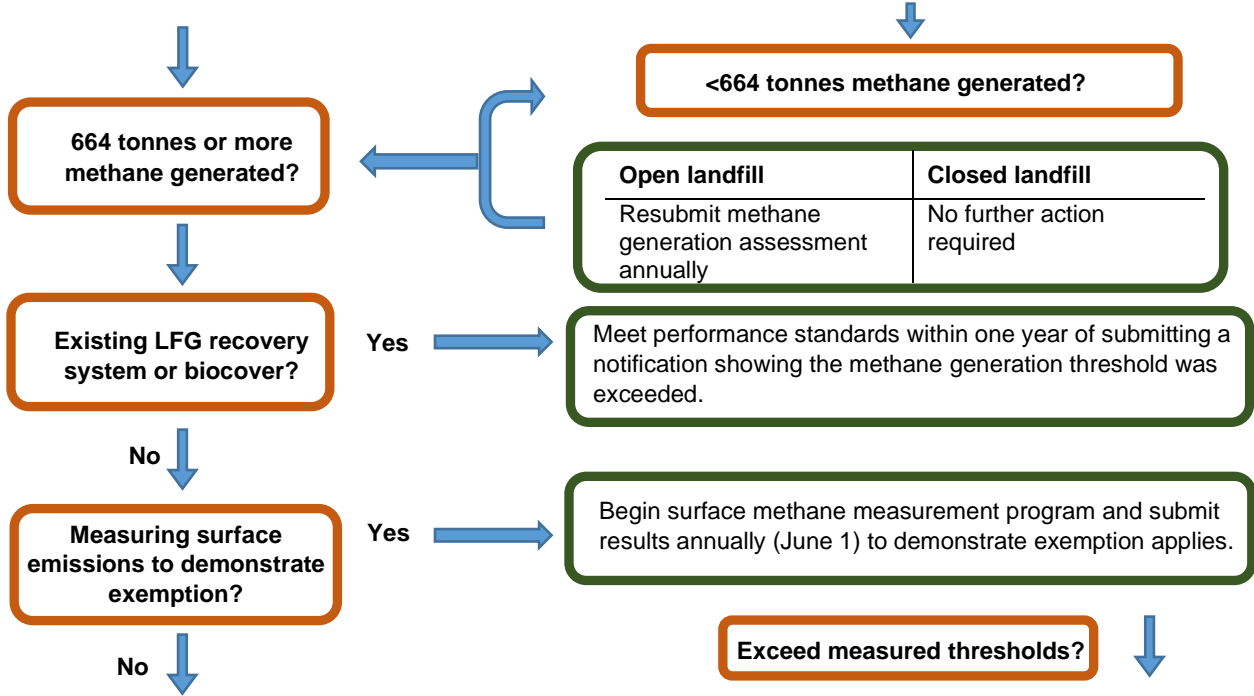
The next step in the consultation process is the publication of the proposed regulations in *Canada Gazette*, Part I in 2024 for a 60-day public comment period. The final regulations are expected to be published in *Canada Gazette*, Part II in 2024.

# Annex – Applicability and implementation timelines

**The regulations would apply to...**

- Closed landfills that accepted any quantity of municipal solid waste for disposal after January 1, 2009 and that have more than 450,000 tonnes of municipal solid waste-in-place.
- Open landfills that have more than 100,000 tonnes of municipal solid waste-in-place, or, accepted more than 10,000 tonnes of municipal solid waste for disposal per year in any after the coming into force of the regulations.

Submit a methane generation report within 90 days of the coming into force of the regulations (or by June 1 of the year following the year in which the applicability thresholds of the regulations (quantity of waste disposed) are exceeded.



Methane control approach	No exemptions demonstrated	Monitoring exceedance detected
<b>Methane control approach requires provincial or territorial permit (e.g. for an active landfill gas recovery system or biocover approach)</b>	Where the methane generation threshold is exceeded for any year before January 1, 2027, by January 1, 2029	Where the exceedance is detected before January 1, 2027, by January 1, 2029.
	Where the methane generation threshold is exceeded for any year after January 1, 2027, within 2 years of the year in which the methane generation threshold is exceeded.	Where the exceedance is detected before January 1, 2027, within 2 years of the year in which the exceedance is detected.
<b>Methane control approach <u>does not</u> require provincial or territorial permit (e.g. for certain landfill design/operational approaches)</b>	Within one year of the year of the coming into force of the regulations.	Within one year of the year in which the exceedance is detected