

HOUSE BILL REPORT

E2SHB 1663

As Passed Legislature

Title: An act relating to reducing methane emissions from landfills.

Brief Description: Reducing methane emissions from landfills.

Sponsors: House Committee on Appropriations (originally sponsored by Representatives Duerr, Fitzgibbon, Ryu, Berry, Leavitt, Ramel, Thai, Walen, Valdez, Goodman, Gregerson, Macri, Peterson, Slatter, Tharinger, Kloba, Pollet, Harris-Talley and Hackney).

Brief History:

Committee Activity:

Environment & Energy: 1/11/22, 1/20/22 [DPS];
Appropriations: 2/4/22, 2/5/22 [DP2S(w/o sub ENVI)].

Floor Activity:

Passed House: 2/11/22, 57-40.
Senate Amended.
Passed Senate: 3/4/22, 30-17.
House Concurred.
Passed House: 3/9/22, 58-38.
Passed Legislature.

Brief Summary of Engrossed Second Substitute Bill

- Establishes certain requirements related to methane emissions from municipal solid waste landfills.
- Establishes surface methane emissions standards for covered landfills.
- Requires the owner or operator of a covered landfill with gas generation equivalent to 3.0 million British thermal units per hour to install and operate a gas collection and control system unless certain exceptions apply.
- Exempts municipal solid waste landfills that are subject to, and in

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compliance with, methane emissions requirements from coverage under the Climate Commitment Act.

- Expands the scope of permissible uses of funds within the Climate Commitment Account to include the installation of gas collection devices and gas control systems, and monitoring and reporting of methane emissions.

HOUSE COMMITTEE ON ENVIRONMENT & ENERGY

Majority Report: The substitute bill be substituted therefor and the substitute bill do pass. Signed by 8 members: Representatives Fitzgibbon, Chair; Duerr, Vice Chair; Berry, Fey, Harris-Talley, Ramel, Shewmake and Slatter.

Minority Report: Do not pass. Signed by 1 member: Representative Dye, Ranking Minority Member.

Minority Report: Without recommendation. Signed by 4 members: Representatives Klicker, Assistant Ranking Minority Member; Abbarno, Boehnke and Goehner.

Staff: Robert Hatfield (786-7117).

HOUSE COMMITTEE ON APPROPRIATIONS

Majority Report: The second substitute bill be substituted therefor and the second substitute bill do pass and do not pass the substitute bill by Committee on Environment & Energy. Signed by 19 members: Representatives Ormsby, Chair; Bergquist, Vice Chair; Gregerson, Vice Chair; Macri, Vice Chair; Chopp, Cody, Dolan, Fitzgibbon, Frame, Hansen, Johnson, J., Lekanoff, Pollet, Ryu, Senn, Springer, Stonier, Sullivan and Tharinger.

Minority Report: Do not pass. Signed by 13 members: Representatives Stokesbary, Ranking Minority Member; Chambers, Assistant Ranking Minority Member; MacEwen, Assistant Ranking Minority Member; Boehnke, Caldier, Chandler, Dye, Harris, Hoff, Jacobsen, Rude, Schmick and Steele.

Minority Report: Without recommendation. Signed by 1 member: Representative Corry, Assistant Ranking Minority Member.

Staff: Dan Jones (786-7118).

Background:

[The State and Federal Clean Air Acts.](#)

The Department of Ecology (Ecology) and seven local air pollution control authorities have each received approval from the United States Environmental Protection Agency (EPA) to administer aspects of the federal Clean Air Act in Washington. In addition to the federal Clean Air Act, Washington has also enacted a state Clean Air Act.

Local air pollution control authorities have the primary responsibility for administering both the state and federal Clean Air Act programs in counties which have elected to activate a local air authority or to form a multicounty air authority. In other areas of the state, Ecology is responsible for administering state and federal Clean Air Act programs.

Civil penalties of up to \$10,000 per violation are authorized by the state Clean Air Act.

California Air Resources Board—Methane Emissions from Municipal Solid Waste Landfills Regulation.

In 2010, the California Air Resources Board adopted rules to regulate methane emissions from municipal solid waste landfills. The rules apply to municipal solid waste landfills with 450,000 tons or more of waste in place. Landfills with 450,000 or more tons of waste in place and a landfill gas heat input capacity of 3.0 million British thermal units (BTUs) per hour or more must install and operate a gas collection and control system. Landfill gas heat input capacity is a measure of the thermal energy produced by the landfill based on the gas generated by the decomposition of materials deposited in the landfill.

Landfills with carbon adsorption systems must calculate their landfill gas heat input capacity by measuring the actual total landfill gas flow rate. Landfills without carbon adsorption systems must calculate their landfill gas heat input capacity according to an equation set forth in the rule that takes into account factors such as the total amount of waste in place, the amount of waste deposited during the previous year, and anaerobic decomposition rates. Surface methane emissions may not exceed 500 parts per million as determined by instantaneous monitoring and an average of 25 parts per million as determined by integrated monitoring.

Oregon Environmental Quality Commission—Landfill Gas Emissions Rulemaking.

In 2021, the Oregon Environmental Quality Commission adopted rules to regulate methane emissions from landfills. The rules apply to municipal solid waste landfills with 200,000 tons or more of waste in place. Landfills that generate 664 tons or more per year of methane are required to install gas control and collection systems. Surface methane emissions may not exceed 500 parts per million as determined by instantaneous monitoring and an average of 25 parts per million as determined by integrated monitoring.

Climate Commitment Act.

Under the Climate Commitment Act enacted in 2021, E2SSB 5126, Ecology must implement a cap on greenhouse gas emissions from covered entities and a program to track, verify, and enforce compliance through the use of compliance instruments (Cap and Invest Program, or Program), with the Program commencing by January 1, 2023.

The Program must consist of, among other things, annual allowance budgets that limit emissions from covered entities, and the creation of creating a Climate Investment Account for the deposit of receipts from the distribution of emission allowances.

A person that owns or operates a landfill utilized by a county or city solid waste management program is a covered entity beginning January 1, 2031, and in all subsequent compliance periods, if the landfill reported emissions for any calendar year from 2027 through 2029 and the facility's emissions equal or exceed 25,000 metric tons of carbon dioxide-equivalent.

Summary of Engrossed Second Substitute Bill:

Applicability.

The provisions of the bill apply to all municipal solid waste landfills that received solid waste after January 1, 1992.

The provisions of the bill do not apply to the following landfills:

- landfills that receive only hazardous waste, or are currently regulated under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. chapter 103; and
- landfills that receive only inert waste or non-decomposable wastes.

Implementing Rules.

Ecology must adopt rules to implement the provisions of the bill. The rules adopted by Ecology must be informed by landfill methane regulations adopted by the California Air Resources Board, the Oregon Environmental Quality Commission, and the EPA.

Definitions.

Multiple terms are defined, including:

- "gas collection system" means any system that employs various gas collection wells and connected piping, and mechanical blowers, fans, pumps, or compressors to create a pressure gradient and actively extract landfill gas;
- "gas control system" means any system that disposes of or treats collected landfill gas by one or more of the following means: combustion; gas treatment for subsequent sale; or sale for processing offsite, including for transportation fuel and injection into a natural gas pipeline; and
- "municipal solid waste landfill" means a discrete area of land or an excavation that receives household waste and that is not a land application site, surface impoundment, injection well, or pile.

Compliance Obligations.

Each owner or operator of an active municipal solid waste landfill having fewer than 450,000 tons of waste in place must submit an annual waste in place report to Ecology or

the local air pollution control authority. The waste in place report must be submitted annually until either:

- the municipal solid waste landfill reaches a size greater than or equal to 450,000 tons of waste in place; or
- the owner or operator submits a closure notification.

Each owner or operator of either an active municipal solid waste landfill having greater than or equal to 450,000 tons of waste in place or a closed municipal solid waste landfill having greater than or equal to 750,000 tons of waste in place must calculate the landfill gas heat input capacity and must submit a landfill gas heat input capacity report to Ecology or the local air pollution control authority.

If the calculated landfill gas heat input capacity is less than 3.0 million BTUs per hour recovered, the owner or operator must recalculate the landfill gas heat input capacity annually and submit an annual landfill gas heat input capacity report to Ecology or the local air pollution control authority until either of the following conditions are met:

- the calculated landfill gas heat input capacity is greater than or equal to 3.0 million BTUs per hour recovered; or
- if the municipal solid waste landfill is active, the owner or operator submits a closure notification.

If the landfill gas heat input capacity is greater than or equal to 3.0 million BTUs per hour recovered, the owner or operator must either:

- comply with the requirements of the bill and Ecology's implementing rules; or
- demonstrate to the satisfaction of Ecology or the local air pollution control authority that after four consecutive quarterly monitoring periods there is no measured concentration of methane of 200 parts per million by volume or greater using instantaneous surface monitoring procedures.

Based on the monitoring results, the owner or operator must do one of the following:

- if there is any measured concentration of methane of 200 parts per million by volume or greater from the surface of an active, inactive, or closed municipal solid waste landfill, comply with the requirements of the bill;
- if there is no measured concentration of methane of 200 parts per million by volume or greater from the surface of an active municipal solid waste landfill, recalculate the landfill gas heat input capacity annually until the owner or operator submits a closure notification; or
- if there is no measured concentration of methane of 200 parts per million by volume or greater from the surface of a closed or inactive municipal solid waste landfill, the requirements of this bill no longer apply, provided that a waste in place report and all instantaneous surface monitoring records are submitted to and approved by Ecology or the local air pollution control authority.

Gas Collection and Control Systems.

The owner or operator of any municipal solid waste landfill that has a calculated landfill gas heat input capacity greater than or equal to 3.0 million BTUs per hour recovered must install a gas collection and control system, unless the owner or operator demonstrates to the satisfaction of Ecology or the local air pollution control authority that after four consecutive quarterly monitoring periods there is no measured concentration of methane of 200 parts per million by volume or greater using instantaneous surface monitoring procedures.

If a municipal solid waste landfill partners with a third party to operate all or a portion of the gas collection and control system or energy recovery device, the obligation to comply with the requirements of the bill are the responsibility of the owner or operator of the relevant portion of the gas collection and control system or energy recovery device.

The gas collection and control system must handle the expected gas generation flow rate from the entire area of the municipal solid waste landfill and must collect gas at an extraction rate to comply with the surface methane emission limits set forth below. The gas collection and control system must be designed and operated so that there is no landfill gas leak that exceeds 500 parts per million by volume, measured as methane, at any component under positive pressure.

If a gas collection and control system uses a flare, it must achieve a methane destruction efficiency of at least 99 percent by weight and must use either an enclosed flare or, if the system uses an open flare, the open flare must comply with the following requirements:

- the open flare must meet the requirements of 40 C.F.R. Sec. 60.18 (as last amended by 73 Fed. Reg. 78209, December 22, 2008); and
- an open flare installed and operating prior to December 31, 2022, may operate until January 1, 2032, unless the owner or operator demonstrates to the satisfaction of Ecology or the local air pollution control authority that the landfill gas heat input capacity is less than 3.0 million BTUs per hour.

The owner or operator may temporarily operate an open flare during the repair or maintenance of the gas control system while awaiting the installation of an enclosed flare, or to address offsite gas migration issues. Any owner or operator seeking to temporarily operate an open flare must submit a written request to Ecology or the local air pollution control authority.

If the gas collection and control system does not use a flare, it must either route the collected gas to an energy recovery device or devices, or must route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. If a gas collection and control system routes the collected gas to an energy recovery device, the device must achieve a methane destruction efficiency of at least 97 percent by weight, except for lean-burn internal combustion engines that were installed and operating prior to January 1, 2022, which must reduce the outlet methane concentration to less than 3,000 parts per million by volume, dry basis corrected to 15 percent oxygen. If a gas collection and control system routes the collected gas to a treatment system that processes the

collected gas for subsequent sale or use, the treatment system must achieve a methane leak rate of three percent or less by weight.

The owner or operator of a municipal solid waste landfill must conduct a source test for any gas control device or devices subject to the requirements described above. If a gas control device is currently in compliance with source testing requirements as of the effective date of the bill, the owner or operator must conduct the source test no less frequently than once every five years. If a gas control device is currently not in compliance with source testing requirements, or if a subsequent source test shows the gas control device is out of compliance, the owner or operator must conduct the source test no less frequently than once per year until two subsequent consecutive tests both show compliance. Upon two subsequent consecutive compliant tests, the owner or operator may return to conducting the source test no less frequently than once every five years.

Methane Emissions Standards.

With certain specified exceptions, beginning on January 1 of the year following the year in which Ecology adopts its implementing rules, no location on a municipal solid waste landfill surface may exceed the following methane concentration limits dependent upon whether the owner or operator conducts instantaneous monitoring or integrated monitoring:

- 500 parts per million by volume, other than nonrepeatable, momentary readings, as determined by instantaneous surface emissions monitoring; and
- an average methane concentration limit of 25 parts per million by volume as determined by integrated surface emissions monitoring.

Ecology is authorized to provide for a longer compliance timeline than established in the bill, not to exceed two years after Ecology adopts rules, to accommodate significant technological improvements, which may include the installation of an energy recovery device or devices.

In the event of an exceedance, the owner or operator must record certain data regarding the exceedance, must take corrective actions, and must re-monitor the location or locations of any exceedance within 10 days.

Monitoring.

The owner or operator of a municipal solid waste landfill with a gas collection and control system must conduct instantaneous or integrated surface monitoring of the landfill surface.

The owner or operator of a municipal solid waste landfill with a gas collection and control system must monitor the gas control system and each individual wellhead according to the requirements specified in implementing rules adopted by Ecology.

Record-Keeping and Reporting.

The owner or operator of a municipal solid waste landfill must maintain records related to monitoring, testing, landfill operations, and the operation of the gas control device, gas

collection system, and gas control system. The records must be provided by the owner or operator to Ecology or the local air pollution control authority within five business days of a request from Ecology or the local air pollution control authority.

The owner or operator of a municipal solid waste landfill that ceases to accept waste must submit a closure notification to Ecology or the local air pollution control authority within 30 days of ceasing to accept waste.

The owner or operator of a municipal solid waste landfill must submit a gas collection and control system equipment removal report to Ecology or the local air pollution control authority within 30 days of well capping or the removal or cessation of operation of the gas collection, treatment, or control system equipment.

Capping or Removal of the Gas Collection and Control System.

Ecology or the local air pollution control authority must allow the capping or removal of the gas collection and control system at a closed municipal solid waste landfill, provided the following three requirements are met:

- the gas collection and control system was in operation for at least 15 years, unless the owner or operator demonstrates to the satisfaction of Ecology or the local air pollution control authority that due to declining methane rates, the municipal solid waste landfill will be unable to operate the gas collection and control system for a 15 year period;
- surface methane concentration measurements do not exceed prescribed limits; and
- the owner or operator submits an equipment removal report to Ecology or the local air pollution control authority.

Compliance Alternatives.

The owner or operator of a municipal solid waste landfill may request alternatives to the compliance measures, monitoring requirements, and test methods and procedures set forth in the bill, as well as Ecology's implementing rules. Any alternatives requested by the owner or operator must be submitted in writing to Ecology. Ecology must deny a request for alternative compliance measures if the request does not provide levels of enforceability or methane emissions control that are equivalent to those set forth in the bill or Ecology's implementing rules.

Civil Penalties.

Any person who violates the provisions of the bill or any rules that implement the bill may incur a civil penalty pursuant to the Clean Air Act. Ecology must waive penalties in the event the owner or operator of the landfill is actively taking corrective actions to control any methane exceedances. Penalties collected must be deposited into the Air Pollution Control Account and may be used only to implement the provisions of the bill.

Fees.

Ecology and local air pollution control authorities may assess and collect such fees as may

be necessary to recover the direct and indirect costs associated with the implementation of the requirements of the bill.

Exemption from Coverage under Climate Commitment Act.

Emissions from municipal solid waste landfills that are subject to, and in compliance with, the requirements of the bill are exempt from coverage under the Climate Commitment Act.

Use of Funds in the Climate Commitment Account.

The scope of permissible uses of funds within the Climate Commitment Account is expanded to include the installation of gas collection devices and gas control systems, monitoring and reporting of methane emissions, with a prioritization on funding needed for any activities by local governments to comply with the requirements of the bill.

Appropriation: None.

Fiscal Note: Available.

Effective Date: The bill takes effect 90 days after adjournment of the session in which the bill is passed.

Staff Summary of Public Testimony (Environment & Energy):

(In support) This bill is crucial to acting on climate. Methane is one of the most impactful greenhouse gases; it traps 86 times the heat of carbon dioxide over its lifetime. Methane represents 20 percent of overall greenhouse gas emissions. Landfills in Washington emit approximately 1.5 million metric tons of carbon dioxide equivalent each year.

Studies show that methane emissions from landfills are larger even than previously suspected. There will be a cost associated with implementing the requirements of the bill, but Washington cannot afford not to act. The bill represents a practical, well-established step to make a big difference and impact the curve of climate change.

Greenhouse gas emissions from landfills are significant, larger even than the emissions from the marine transportation sector. The bill would close a loophole in the federal methane regulations.

(Opposed) Landfill owners and operators support addressing strategies to address methane from landfills. The main concern is that the bill represents a significant unfunded mandate for local solid waste programs because there is no funding mechanism. It would be good to include resources to assist in complying with the requirements. Without funding, landfill owners and operators would have to pass the added costs on to ratepayers. Some of the testing requirements in the bill might duplicate existing testing requirements from the Environmental Protection Agency. The bill also could create disincentives for capturing and reusing landfill gas.

(Other) Solid waste management practices provide a significant opportunity to reduce greenhouse gases from landfills. The annual greenhouse gas emissions from landfills in Washington are equivalent to the emissions from approximately 320,000 cars. It also is a priority to reduce the amount of organic waste going into landfills in the first place.

Landfills are an essential public health facility. The materials managed by landfills are not produced by the solid waste management industry, but rather, the solid waste industry must manage waste materials that are generated by others. There is concern about the types of facilities that are addressed in the bill; for example, the bill could apply to facilities that have been closed for many years. It would be good for there to be certainty about when the bill's requirements would begin. It is also important to avoid duplication of existing regulations.

Some landfills do not generate enough gas to run a gas control system or energy recovery device; they could potentially have to add natural gas in order to run the system. Nationwide, landfills have reduced their methane emissions by approximately 40 percent over the years, while the volume of waste they manage has doubled.

There needs to be a longer timeline for compliance. The bill needs to make it clear that the owner of the landfill does not have to be the one producing the renewable natural gas or electricity.

The bill raises a question: will the energy available from landfills be harnessed and put to use, or will it be flared and wasted? Depending on what one does with the gas captured from a landfill, the emissions from that gas might or might not be subject to regulation, and that should be addressed.

Methane from landfills is a powerful fuel; it is often located near to electrical consumers and produces a reliable source of energy. It is important not to create disincentives for renewable natural gas. It would be better to instead set up a work group that can coordinate the regulation of landfill emissions with other laws such as the Clean Energy Transformation Act.

One public utility district is studying the feasibility of capturing gas from a nearby landfill. There is concern about possible unintended consequences that could result in disincentivizing renewable natural gas capture and use. Landfills are covered entities under the Climate Commitment Act unless they capture 75 percent of their emissions, which represents a great incentive for collaboration.

Staff Summary of Public Testimony (Appropriations):

(In support) The reason the state needs this bill is because methane is a serious climate pollutant. Greenhouse gas emissions from landfills are significant. Washington's most

recent greenhouse gas emissions inventory reported approximately 2.5 million tons of carbon dioxide equivalent emissions from landfills. There are landfills in Washington that are not required to manage their emissions because of loopholes in federal law. This bill would close those loopholes and require those landfills to control their methane emissions.

Over 20 years, methane traps 20 times as much heat as carbon dioxide. Landfills represent a significant source of both methane and particulate matter. The bill will create a cost-effective energy source through methane capture, which is useful for industries that are hard to electrify. The bill will help meet the state's climate goal of reducing greenhouse gas emissions 95 percent from 1990 levels by 2050.

This bill is well overdue. Organic material should not go in the landfill in the first place, but in the meantime, if there is methane coming from landfills, it is important to capture it. Rulemaking on a complicated technical issue like this does cost more than regular rulemaking.

(Opposed) There is support for addressing methane emissions from landfills. The main concern is that the requirements in the bill represent an unfunded mandate for local solid waste programs. Without funding, the cost of compliance would have to be passed on to ratepayers. It would be good to have more time to understand the ramifications of the bill.

(Other) There is general support for this policy, but there are concerns with some of the costs. There is support for the provisions of the bill that allow the methane to be used as a feedstock for renewable natural gas.

Persons Testifying (Environment & Energy): (In support) Representative Davina Duerr, prime sponsor; Deepa Sivarajan, Climate Solutions; Dylan Sullivan, Natural Resources Defense Council; and Heather Trim, Zero Waste Washington.

(Opposed) Paul Jewell, Washington State Association of Counties.

(Other) Dave Warren, Klickitat Public Utility District; Vicki Christophersen, Washington Refuse and Recycling Association; Kevin Ricks, Klickitat Public Utility District; Nicolas Garcia, Washington Public Utility Districts Association; Peter Godlewski, Association of Washington Business; Steve Taylor, Cowlitz Public Utility District; Becky Bogard, Republic Services; Martha Hankins, Department of Ecology; and John Chelminiak, Waste Management.

Persons Testifying (Appropriations): (In support) Kate White Tudor, Natural Resources Defense Council; and Deepa Sivarajan, Climate Solutions.

(Opposed) Paul Jewell, Washington State Association of Counties.

(Other) Peter Godlewski, Association of Washington Business.

Persons Signed In To Testify But Not Testifying (Environment & Energy): None.

Persons Signed In To Testify But Not Testifying (Appropriations): Heather Trim, Zero Waste Washington.