

Inflation Reduction Act Methane Emissions Charge: Overview and Developments

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SUMMARY

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Inflation Reduction Act Methane Emissions Charge: Overview and Developments

On August 16, 2022, President Biden signed H.R. 5376 (P.L. 117-169), a budget reconciliation measure commonly referred to as the "Inflation Reduction Act of 2022" (IRA). Among other provisions, IRA amended the Clean Air Act (CAA) by adding Section 136. Section 136 directs EPA to impose and collect a "waste emissions charge" (WEC) for methane emissions from specific types of facilities that are required to report their greenhouse gas (GHG) emissions to the EPA's Greenhouse Gas Emissions Reporting Program (GHGRP). The charge starts at \$900 per

metric ton of methane, increasing to \$1,500 after two years. These values equate to \$36 and \$60 per metric ton of carbon dioxide equivalent, respectively. This charge is the first time the federal government has directly imposed a charge, fee, or tax on GHG emissions.

Since its inception, the methane charge has received considerable attention from some Members of Congress and a range of stakeholders. Some groups have raised concerns about economic impacts resulting from the methane charge, including impacts on natural gas prices. Some policymakers are concerned about the charge in the context of EPA regulations to address methane emissions from the same categories of new and existing facilities. Others point out that methane mitigation should be a key component of U.S. climate policy due to methane's shorter-term climate impacts compared to other GHGs.

On November 18, 2024, EPA issued a final rulemaking to implement the WEC. EPA's WEC rulemaking received attention under the Congressional Review Act. In February 2025, both the House and the Senate passed a joint resolution (H.J.Res. 35) disapproving of EPA's WEC rule. President Trump signed the measure on March 14, 2025, enacting the resolution (P.L. 119-2). It is uncertain what effect the enacted joint resolution will have on the implementation of the WEC, which is required by statute.

In the 118th Congress, several Members introduced a number of proposals that would have repealed particular IRA provisions, including the methane emissions charge. Two such bills—H.R. 1 and H.R. 1023—passed the House. In the 119th Congress, some Members have introduced bills that would repeal CAA Section 136 (e.g., S. 143 and H.R. 313). In addition, a number of Members have expressed an interest in repealing the WEC through a budget reconciliation process. For example, a February 2025 press release from the Chairman of the Senate Committee on the Budget (Senator Graham) regarding a framework for a FY2025 budget reconciliation bill stated one of the goals of the bill would be "stopping" the WEC.

Clean Air Act Section 136 includes several provisions that narrow the scope of facilities and methane emissions that would be subject to the WEC. In 2022, 2,112 petroleum and natural gas facilities reported methane emissions under EPA's GHGRP. After applying the applicability provisions in Section 136, EPA estimated that 364 of these facilities would be subject to the WEC. Based on this analysis, EPA estimated that the WEC would apply to approximately 20 million metric tons of carbon dioxide equivalent (MMTCO₂e) of methane emissions, which represents 0.3% of total U.S. GHG emissions in 2022.

In addition, Section 136 allows for an exemption from the WEC if future, final EPA regulations addressing methane emissions (1) are "in effect in all states," and (2) will "result in equivalent or greater emissions reductions as would be achieved" by a November 2021 proposed rule for methane emissions from the oil and natural gas sector. On March 8, 2024, EPA finalized this rulemaking, establishing new source performance standards and emissions guidelines for facilities in the oil and gas sector. EPA estimated this rule would likely be in effect in 2029. Therefore, the conditional WEC exemption would not be applicable until that time.

EPA's 2024 regulatory analysis included a range of estimated effects from the WEC. For example, EPA estimated WEC would result in annual average methane emissions reductions of about 6 MMTCO2e between 2024 and 2027. EPA estimated revenue from the WEC payments would average about \$525 million between 2024 and 2027 (in nominal dollars). EPA estimated that the WEC would increase the price of natural gas by 0.01% in 2024 and 2025, and by 0.04% in 2026 and 2027.

A range of factors could play a role in determining the scope of emissions subject to the methane charge and its ultimate effects on GHG emissions levels and economic metrics, including the timing of the conditional exemption, facility changes to equipment or operations, funding for technological improvements, and related IRA climate and energy provisions. IRA includes a range of climate and energy-related provisions that will likely affect the portfolio of fuels and sources of energy used in various economic sectors.

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Introduction

On August 16, 2022, President Biden signed H.R. 5376 (P.L. 117-169), a budget reconciliation measure commonly referred to as the "Inflation Reduction Act of 2022" (IRA). Among other provisions, IRA includes a charge on methane emissions from selected entities in the oil and gas sector.¹

IRA amended the Clean Air Act (CAA) by adding Section 136.² Section 136 directs EPA to impose and collect a "waste emissions charge" (WEC).³ The charge applies only to methane emissions from specific types of facilities that are required to report their greenhouse gas (GHG) emissions to the EPA's Greenhouse Gas Emissions Reporting Program (GHGRP). The charge starts at \$900 per metric ton of methane, increasing to \$1,500 after two years. These values equate to \$36 and \$60 per metric ton of carbon dioxide equivalent, respectively.⁴ The charge first applies to methane emissions reported in 2024. This charge is the first time the federal government has directly imposed a charge, fee, or tax on GHG emissions.⁵

EPA proposed a rulemaking to implement the WEC on January 26, 2024.⁶ EPA issued a final rulemaking on November 18, 2024.⁷ Under EPA's final rule, fees from methane emissions subject to the final rule would be due to EPA by September 2, 2025 (based on methane emissions released in 2024).

CAA Section 136 includes a conditional exemption from the WEC. This exemption is tied to the development of a separate EPA CAA rulemaking that governs methane emissions from many of the same categories of facilities that are subject to the WEC. EPA finalized this rulemaking in March 2024,⁸ but EPA estimates that the rule would not be in effect until 2029 at the earliest.⁹ Until this rule is in effect, the conditional exemption from the WEC would not be available.

¹ In earlier versions of the bill, this methane charge was called a methane "fee." The IRA methane emissions charge provisions are nearly identical to provisions in the House version of H.R. 5376 (117th Congress), often referred to as the Build Back Better Act, which passed the House on November 19, 2021.

² The Clean Air Act is codified as 42 U.S.C. 7401 et seq. Section 136 is codified at 42 U.S.C. §7436.

³ The phrase "waste emissions charge" is used in the statute and is also the term EPA uses in its rulemakings implementing the charge.

⁴ A carbon-dioxide-equivalent measure is often used to compare different GHG emissions. Methane's global warming potential (GWP) is 28 times greater than that of an equivalent mass of CO₂. GWP is an index that allows comparisons of the heat-trapping ability of different gases over a period of time, typically 100 years. Consistent with international GHG reporting protocols, EPA's most recent GHG inventory (April 2024) uses the GWP values presented in the Intergovernmental Panel on Climate Change (IPCC) 2013 *Fifth Assessment Report*. Therefore, in EPA's inventories and in this report, a metric ton of methane equates to 28 metric tons of CO₂ when averaged over a 100-year time frame.

⁵ For almost 20 years, some Members have put forth various legislative proposals that would attach a price to GHG emissions through carbon taxes, emission fees, or cap-and-trade programs. For more information, see CRS Report R45472, *Market-Based Greenhouse Gas Emission Reduction Legislation: 108th Through 118th Congresses*, by Jonathan L. Ramseur.

⁶ EPA, "Waste Emissions Charge for Petroleum and Natural Gas Systems," proposed rule, 89 *Federal Register* 5318, January 26, 2024.

⁷ EPA, "Waste Emissions Charge for Petroleum and Natural Gas Systems: Procedures for Facilitating Compliance, Including Netting and Exemptions," final rule, 89 *Federal Register* 91094, November 18, 2024 (hereinafter, "EPA, WEC Final Rule").

⁸ EPA, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review," final rule, 89 *Federal Register* 16820, March 8, 2024.

⁹ In its analysis of the rule, EPA bases this effective date estimate on the timing involved in several procedural steps. For instance, states have 24 months to submit their state plans implementing the rule. EPA must approve or deny state (continued...)

EPA's WEC rulemaking received attention under the Congressional Review Act (CRA). This act created a legislative process that allows Congress to overturn—under specific conditions—certain federal agency actions. 10 In February 2025, both the House and the Senate passed a joint resolution (H.J.Res. 35) disapproving of EPA's WEC rule. 11 President Trump signed the measure on March 14, 2025, enacting the resolution (P.L. 119-2). Therefore, EPA's final rule will not take effect. In addition, a rule subject to an enacted joint resolution of disapproval under the CRA "may not be reissued in substantially the same form, and a new rule that is substantially the same ... may not be issued, unless the reissued or new rule is specifically authorized by a law enacted after the date of the joint resolution." It is uncertain what effect the enacted joint resolution will have on the implementation of the WEC. The CRA disapproval does not alter CAA Section 136, which directs EPA to implement the WEC. Accordingly, EPA may have to determine how to comply with Section 136 without adopting a rule that is substantially the same as the disapproved rule.13

Since its inception, the methane charge has received considerable attention from some Members of Congress and a range of stakeholders. For example, some groups have raised concerns about economic impacts resulting from the methane charge, including impacts on natural gas prices.¹⁴ Some are concerned about the charge in the context of March 2024 EPA regulations—first proposed in 2012 during the Obama Administration—that address methane emissions from the same categories of new and existing facilities. Others point out that methane mitigation should be a key component of U.S. climate policy due to methane's shorter-term climate impacts relative to other GHGs, 15 and the availability of relatively cost-effective mitigation options. 16

plans within 12 months. At the conclusion of this process, the states generally phase-in a rule's requirements over several years. See EPA, Regulatory Impact Analysis of the Waste Emissions Charge, 2024.

¹⁰ For more details, see CRS In Focus IF10023, The Congressional Review Act (CRA): A Brief Overview, by Maeve P. Carey and Christopher M. Davis.

¹¹ For the House debate on this resolution, see House of Representatives, Congressional Record, "Providing for Congressional Disapproval of the Rule Submitted by the Environmental Protection Agency Relating to the Waste Emissions Charge for Petroleum and Natural Gas Systems: Procedures for Facilitating Compliance, Including Netting and Exemptions," daily edition, February 26, 2025, p. H845, https://www.congress.gov/119/crec/2025/02/26/171/38/ CREC-2025-02-26-pt1-PgH845-5.pdf.

^{12 5} U.S.C. §801.

¹³ A few agencies have reissued rules following disapproval under the CRA, including two agencies that were under a statutory mandate to regulate on a certain issue. In the latter two cases, the agencies looked to the legislative history of the disapproval resolution that overturned the rule to understand Congress's specific objections. The agencies then focused on changing those aspects of each rule when reissuing them. For more information, see CRS Report R43992. The Congressional Review Act (CRA): Frequently Asked Questions, by Maeve P. Carey and Christopher M. Davis.

¹⁴ See, for example, American Gas Association et al., Letter to Congressional Leaders, September 2021, https://www.aga.org/globalassets/letter-to-congress-on-methane-fees-090721 final.pdf; Eweline Czapla, "Methane Fees for Petroleum and Natural Gas Systems," American Action Forum, November 2021, https://www.americanactionforum.org/insight/methane-fees-for-petroleum-and-natural-gas-systems/; Americans for Tax Reform, "Dem Reconciliation Bill Contains \$8 Billion Home Heating Tax," November 2021, https://www.atr.org/ dem-reconciliation-bill-contains-8-billion-home-heating-tax.

¹⁵ See, for example, Sen. Whitehouse, Senate debate, "Providing for Congressional Disapproval under Chapter 8 of Title 5, United States Code, of the Rule Submitted by the Environmental Protection Agency Relating to the Waste Emissions Charge for Petroleum and Natural Gas Systems: Procedures for Facilitating Compliance, Including Netting and Exemptions," Congressional Record, daily edition, vol. 171 (February 27, 2025), p. S1413.

¹⁶ For more information on these options and related issues, see CRS Report R48424, Methane Emissions: U.S. and International Mitigation Efforts, by Kathryn G. Kynett.

In the 118th Congress, several Members introduced a number of proposals that would have repealed several IRA provisions, including the methane emissions charge. Two such bills—H.R. 1 and H.R. 1023—passed the House.

In the 119th Congress, some Members have introduced bills that would repeal the methane emissions charge (e.g., S. 143 and H.R. 313). In addition, a number of Members have expressed an interest in repealing the WEC through a budget reconciliation process. For example, a February 2025 press release from the Chairman of the Senate Committee on the Budget (Senator Graham) regarding a framework for a FY2025 budget reconciliation bill stated one of the goals of the bill would be "stopping" the WEC.¹⁷

This report discusses the scope and applicability of the IRA methane charge. The first section of this report provides background about methane emissions in the United States. The second section discusses the scope and applicability of the methane charge and its rate structure. The last section includes estimated effects of the methane charge.

U.S. Methane Emissions and Sources

Methane (or CH₄) is the primary component of natural gas, which can be used as either a fuel or as a feedstock for the chemical industry. Natural gas is generally produced from geologic formations in the ground through drilling and extraction activities by the oil and gas sector. As natural gas travels through the interconnected systems of exploration, production, processing, storage (sometimes), and transmission, that deliver natural gas from the wellhead to the consumer, methane emissions are released into the atmosphere in a variety of ways, including

- intentional venting from equipment (e.g., pneumatic devices); 18
- unintentional equipment leaks, worker error, or malfunctions;
- routine maintenance of equipment; and
- flaring (burning) of excess natural gas at a petroleum production site, which can result in both uncombusted methane and carbon dioxide (CO₂) emissions.

Methane is a potent GHG. When averaged over a 100-year time period—the time period often used in annual GHG inventories—methane's global warming potential (GWP) is 28 times greater than that of an equivalent mass of CO₂. ¹⁹ Over a 20-year time period, methane's GWP is 84 times greater than that of CO₂. ²⁰ Due to methane's shorter-term climate impacts, some scientists

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¹⁷ Chairman of the Senate Committee on the Budget, "Chairman Graham Unveils FY 2025 Budget Resolution To Secure The Border, Revitalize Our Military, Unleash American Energy Production And Begin The Process Of Restoring Fiscal Sanity," press release, February 7, 2025, https://www.budget.senate.gov/chairman/newsroom/press/chairman-graham-unveils-fy-2025-budget-resolution-to-secure-the-border-revitalize-our-military-unleash-american-energy-production-and-begin-the-process-of-restoring-fiscal-sanity.

¹⁸ Methane emissions from pneumatic devices have been one of the largest sources of vented methane emissions from the industry. See EPA, *Options For Reducing Methane Emissions From Pneumatic Devices In The Natural Gas Industry*, 2006, https://www.epa.gov/sites/default/files/2016-06/documents/ll_pneumatics.pdf.

¹⁹ Global warming potential (GWP) is an index that allows comparisons of the heat-trapping ability of different gases over a period of time, typically 100 years. Consistent with international GHG reporting protocols, EPA's most recent GHG inventory (April 2024) uses the GWP values presented in the Intergovernmental Panel on Climate Change (IPCC) 2013 *Fifth Assessment Report*. Therefore, in EPA's inventories and in this report, a metric ton of methane equates to 28 metric tons of CO₂ when averaged over a 100-year time frame.

²⁰ EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, 2024, Annex 6, Table A-233, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

contend that "methane mitigation [is] one of the best opportunities for reducing near term [global] warming."²¹

As illustrated in **Figure 1**, methane emissions in the United States accounted for 11% of total U.S. GHG emissions in 2022 (the most recent year of comprehensive GHG data).²² The figure identifies the range of sources that produced these methane emissions. Methane emissions from enteric fermentation (e.g., in livestock)²³ accounted for the largest amount, followed by emissions from natural gas systems. If EPA's estimates of methane emissions from natural gas and petroleum systems were grouped together, they would account for the largest source of methane emissions, approximately 4% of total U.S. GHG emissions in EPA's inventory.

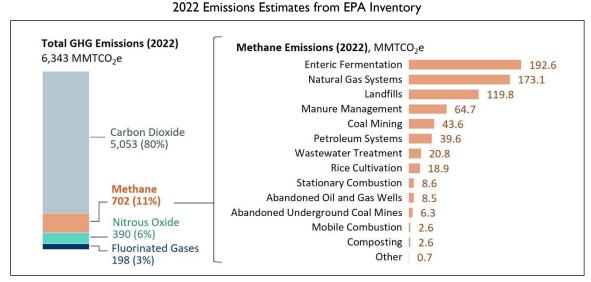


Figure 1. U.S. Total GHG Emissions by Gas and Sources of Methane Emissions

Source: Prepared by CRS; emissions data from EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, 2024, Table 2-1, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022.

EPA produces the GHG emissions estimates in its annual inventories using commonly accepted emissions factors and activity levels to calculate aggregate estimates for all source categories. In recent years, the emissions estimates for the natural gas and petroleum system categories have received scrutiny from a range of stakeholders. Some have put forth competing—and sometimes conflicting—estimates. For example, some studies found EPA underestimates methane leaking from U.S. oil and gas operations by as much as 50%.²⁴

²¹ See, for example, EPA, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review," 86 *Federal Register* 63110, November 15, 2021. To support this argument, EPA cites statements from the Intergovernmental Panel on Climate Change (IPCC), *Sixth Assessment Report*, 2021, https://www.ipcc.ch/report/ar6/wg1/#SPM.

²² EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2019*, 2021, Table ES-2, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019.

²³ Enteric fermentation refers to the normal digestive process in ruminant animals, such as cattle, during metabolism and digestion, resulting in methane emissions. For more information, see CRS In Focus IF11404, *Greenhouse Gas Emissions and Sinks in U.S. Agriculture*, by Megan Stubbs.

²⁴ See, for example, Jeffrey S. Rutherford et al., "Closing the Methane Gap in US Oil and Natural Gas Production Emissions Inventories," *Nature Communications*, 2021; and Ramon Alvarez et al., "Assessment of Methane Emissions (continued...)

Inflation Reduction Act Methane Emissions Charge

Scope and Applicability

The WEC applies to methane emissions from specific types of facilities in the petroleum and natural gas industry that, under current regulations, are required to report their GHG emissions, including methane, to EPA's GHGRP.²⁵ Since 2011, EPA's GHGRP has collected annual emissions data from nearly 8,000 large industrial facilities and other sources in the United States.²⁶ The GHGRP requirements are codified in 40 C.F.R. Part 98. Part 98, Subpart W includes the detailed requirements for petroleum and natural gas facilities.

The WEC applies only to a subset of the petroleum and natural gas system facilities that are required to report GHG emissions in Part 98, Subpart W. The facilities subject to the charge include the following industry operations:

- offshore petroleum and natural gas production;
- onshore petroleum and natural gas production;
- onshore natural gas processing;
- onshore natural gas transmission compression;
- underground natural gas storage;
- liquefied natural gas storage;
- liquefied natural gas import and export equipment;
- onshore petroleum and natural gas gathering and boosting;²⁷ and
- onshore natural gas transmission pipelines.

Figure 2 illustrates the petroleum and natural gas system entities that are required to report their GHG emissions in EPA's GHGRP. The entities with red labels are subject to Subpart W reporting requirements. Not all of the entities that report emissions under Subpart W are subject to the WEC. Two facility categories that report emissions under Subpart W are not subject to the WEC: (1) natural gas distribution facilities and (2) facilities EPA describes as "other oil and gas combustion facilities." ²⁸

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from the U.S. Oil and Gas Supply Chain," *Science*, June 2018. For more discussion, see CRS Report R42986, *Methane and Other Air Pollution Issues in Natural Gas Systems*, by Richard K. Lattanzio.

²⁵ 42 U.S.C. §7436(d).

²⁶ For more information about the GHGRP, see CRS In Focus IF11754, *EPA's Greenhouse Gas Reporting Program*, by Angela C. Jones. See also EPA's GHGRP website, https://www.epa.gov/ghgreporting.

²⁷ According to EPA, "Gathering and boosting stations receive natural gas from production sites and transfer it, via gathering pipelines, to transmission pipelines or processing facilities.... Boosting processes include compression, dehydration, and transport of gas to a processing facility or pipeline" (EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, p. 3-95, 2024).

²⁸ EPA states these are "stationary fuel combustion emissions from facilities that are associated with the petroleum and natural gas industry, but that do not report process emissions from any of the above source categories." EPA, 2011-2020 Greenhouse Gas Reporting Program Sector Profile: Petroleum and Natural Gas Systems, 2020, https://www.epa.gov/ghgreporting/ghgrp-petroleum-and-natural-gas-systems-sector-profile.

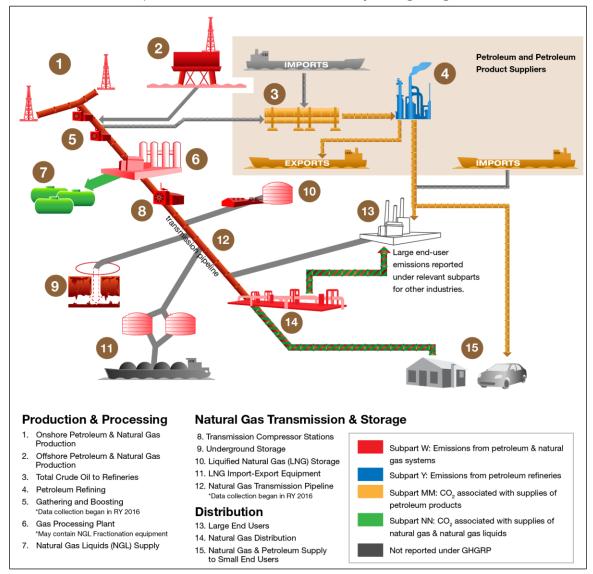


Figure 2. Petroleum and Gas Entities
Subject to EPA's GHG Emissions Reporting Program

Source: Reproduced from EPA, "GHGRP and the Oil and Gas Industry," https://www.epa.gov/ghgreporting/ghgrp-and-oil-and-gas-industry.

Note: "RY" refers to reporting year for EPA's GHGRP.

The reporting requirements in Subpart W apply to facilities that emit 25,000 metric tons of CO₂ equivalent (mtCO₂e) or more per year.²⁹ The WEC applies only to facilities that emit 25,000

²⁹ Typically, GHG emissions are measured in mtCO₂e because GHGs vary by global warming potential. GWP is an index developed by the Intergovernmental Panel on Climate Change (IPCC) that allows comparisons of the heat-trapping ability of different gases over a period of time, typically 100 years. Consistent with international GHG reporting requirements, EPA's most recent GHG inventory (published in 2024) uses the GWP values presented in the IPCC's 2013 *Fifth Assessment Report*. For example, based on these GWP values, a ton of methane is 28 times more potent than a ton of CO₂ when averaged over a 100-year time frame. See EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, 2024, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

mtCO₂e or more per year, regardless of any subsequent changes to the scope of EPA's reporting requirements.

As noted above, EPA's GHGRP covers a subset of U.S. methane emissions from petroleum and natural gas systems. It is uncertain what percentage of total emissions from this sector the reporting program covers, because EPA does not have a precise estimate of total methane emissions from petroleum and natural gas systems.³⁰

As a point of reference, **Table 1** lists the 2022 methane emissions estimates from EPA's emissions inventory for the petroleum and natural gas system activities that match the applicability of the IRA methane charge. For instance, methane emissions from natural gas distribution are not included in the table, as they are not subject to the fee. As the inventory estimates are intended to capture all of the methane emissions in petroleum and natural gas systems, the inventory estimates will be higher than the methane emissions reported under Subpart W.³¹ For example, the inventory estimates below include facilities that emit less than 25,000 MT of CO₂e per year.

Table I. EPA GHG Emissions Inventory Estimates of Methane Emissions from Petroleum and Natural Gas and Systems (2022)

Million Metric Tons CO2e

Activity	Methane Emissions
Total onshore petroleum and natural gas production	84.7
Onshore natural gas production	46.2
Onshore petroleum production	33.5
Total offshore petroleum and natural gas production	5.8
Offshore natural gas production	0.6
Offshore petroleum production	5.1
Natural gas gathering and boosting	42.8
Natural gas processing	15.1
Natural gas transmission and storage	39.6
Total of above activities	188.0

Source: Prepared by CRS; data from EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*, 2024, Table 3-44 and Table 3-73, https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

Narrowing the Scope of Emissions Subject to the Charge

Clean Air Act (CAA) Section 136 includes several provisions that narrow the scope of facilities and methane emissions that would be subject to the WEC. Pursuant to CAA Section 136, the scope of emissions subject to the WEC is based on (1) the facility's reported emissions under

³⁰ EPA stated in 2019 that the agency "does not have an exact estimate of what percent of U.S. emissions are covered under petroleum and natural gas systems at this time.... EPA will continue to analyze the emissions from reports as well as linking the information to the US GHG Inventory to identify what fraction of emissions from petroleum and natural gas systems are covered by the GHGRP." See EPA, Frequently Asked Questions, GHGRP, Subpart W, "What Percentage of Emissions from Petroleum and Natural Gas Systems Are Reported Under the GHGRP?" September 25, 2019, https://ccdsupport.com/confluence/pages/viewpage.action?pageId=189038686.

³¹ Some have argued that EPA's inventory estimates of methane emissions from these systems have underestimated the magnitude of emissions. See, for example, Ramon Alvarez et al., "Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain," *Science*, June 2018.

EPA's Subpart W, as described above; (2) the WEC threshold of 25,000 MTCO₂e; (3) an emissions and fuel sales threshold that varies by facility type; and (4) "netting" emissions across facilities under common ownership. **Table 2** identifies EPA's estimated effects of these provisions on the number of facilities that would be potentially subject to the WEC.³² Column A identifies the number of petroleum and natural gas facilities by category that reported their GHG emissions to EPA in 2022 pursuant to the regulations in Subpart W. (As discussed above, natural gas distribution facilities, which report emissions under Subpart W, are not subject to the WEC.)³³ Column A indicates 2,112 total facilities reported methane emissions under Subpart W. Onshore petroleum and natural gas production facilities accounted for 459 of the total facilities.

Table 2. EPA's Analysis of Number of Subpart W Reporting Facilities and Facilities with Emissions Subject to WEC After Applying Thresholds and Netting

Data from Greenhouse Gas Reporting Program Year 2022

	Α	В	С	D
Facility Type	Number of Facilities Reporting Subpart W Emissions	Number of Facilities with Emissions Subject to the WEC	Number of Facilities with WEC Emissions After Applying Thresholds	Number of Facilities with Emissions Subject to WEC After "Netting"
Onshore petroleum and natural gas production	459	393	226	202
Onshore petroleum and natural gas gathering and boosting	350	310	201	125
Onshore natural gas transmission compression	659	22	~5	~0
Onshore natural gas transmission pipeline	44	20	4	4
Natural gas processing	444	180	~53	~16
Offshore petroleum and natural gas production	116	23	17	16
Underground natural gas storage	51	1	1	1
Liquefied natural gas import and export equipment	11	7	0	0
Liquefied natural gas storage	5	0	0	0
Total Number of Facilities	2,112	954	~507	~364

Source: Prepared by CRS; based on Table 4-1 in EPA, Regulatory Impact Analysis of the Waste Emissions Charge, 2024. Column A includes facilities that are subject to the WEC.

Notes: Several of the numbers above include "~." In its analysis, EPA explained that for facilities in the natural gas processing and onshore natural gas transmission compression categories, EPA used estimates of natural gas and petroleum throughput (in lieu of using confidential business information) to determine the number of facilities subject to WEC after applying the thresholds and netting.

³² EPA estimated these effects in EPA, *Regulatory Impact Analysis of the Waste Emissions Charge*, 2024 (hereinafter, "EPA RIA"). Although EPA's final rule is no longer in effect, some of the information and analysis in the rule and its supporting documentation (e.g., *Regulatory Impact Analysis*) may provide instructive context for policymakers.

³³ According to EPA reporting data, 157 natural gas distribution facilities emitted approximately 11 MMTCO₂e of methane in 2022. If these facilities were subject to the charge, this group would rank third in methane emissions. See EPA Greenhouse Gas Reporting Program, Facility Level Information on Greenhouse Gases Tool (FLIGHT), https://ghgdata.epa.gov.

WEC 25,000 MTCO2e Emissions Threshold

Column B indicates the number of facilities with methane emissions that would be subject to WEC, based on the 25,000 MTCO₂e emissions threshold. In its WEC final rule analysis, EPA pointed out that many of facilities that report under Subpart W (listed in Column A) would not be subject to the WEC charge. The reason for this reduction is due to the differing emissions reporting thresholds in the GHGRP. For instance, a number of facilities release GHG emissions that are subject to multiple GHGRP subparts (e.g., stationary combustion, petroleum refineries), including Subpart W.³⁴ Although the total GHG emissions from these facilities trigger reporting for multiple subparts, including Subpart W, the Subpart W emissions from these facilities are below the 25,000 MTCO₂e threshold for the WEC. In its analysis, EPA determined (based on 2022 data) that about half of the facilities reporting Subpart W emissions would be subject to the WEC.³⁵ These 954 facilities are listed in Column B, and all report Subpart W emissions that exceed the 25,000 MTCO₂e threshold. The others report Subpart W emissions, but their emissions do not exceed the 25,000 MTCO₂e threshold.

Specific Emissions and Sales Thresholds

Column C in **Table 2** indicates the number of facilities that would be subject to the WEC after applying thresholds—based on both emissions and fuel sales—specific to facility types.

- For petroleum and natural gas production facilities, the charge applies only to the number of reported tons of methane that exceed 0.2% of the natural gas sent to sale from such a facility.
- For nonproduction facilities, such as gathering and boosting facilities, ³⁶ the charge applies to methane emissions that exceed 0.05% of the natural gas sent for sale from the facility.
- For natural gas transmission facilities, the charge applies to methane emissions that exceed 0.11% of the natural gas sent for sale from the facility.

These thresholds effectively allow for some amount of methane to be released from these facilities without being subject to the charge, thus decreasing the quantity of emissions reported under the GHGRP that are subject to the charge. This outcome would likely occur more frequently at facilities with comparatively high natural gas sales. Column C indicates that after applying the emissions thresholds for petroleum and natural gas production facilities, the number of these facilities subject to WEC would decrease from 393 facilities to 226 facilities.

Emissions Netting

The emissions thresholds described above also play a role in emissions netting, which further narrows the WEC scope. CAA Section 136 allows facilities "under common ownership or control" to "net" their emissions across different applicable segments, potentially reducing the

³⁴ EPA's GHGRP regulations include a number of subparts that apply to a range of emissions sources (e.g., electricity generation, cement production, and manure management). In some cases, a facility may need to report under multiple subparts.

³⁵ Table 4-1 of EPA RIA.

³⁶ According to EPA, "gathering and boosting facilities" refers to "pipelines and other equipment that collect petroleum/natural gas from onshore production gas or oil wells and then compress, dehydrate, sweeten, or transport the petroleum/natural gas" (EPA, 2011-2023 Greenhouse Gas Reporting Program Industrial Profile: Petroleum and Natural Gas Systems, 2023, https://www.epa.gov/ghgreporting/ghgrp-petroleum-and-natural-gas-systems-sector-profile).

total emissions that would be subject to the WEC.³⁷ If a facility's methane emissions are below the emissions threshold applicable to that facility category (e.g., onshore production), the facility can generate what EPA describes as "negative emissions." A facility can then apply these negative emissions to other facilities under a common ownership to reduce its potential WEC obligation at these other facilities. For example, consider a scenario in which an entity owns both an onshore natural gas production facility and a natural gas processing facility. In this scenario, assume that (1) the methane emissions at the onshore production facility exceed the emissions threshold by 100 metric tons, and are thus subject to the WEC; and (2) the methane emissions at the processing facility are below the threshold by 200 metric tons (i.e., negative emissions) and thus are not subject to the WEC. The entity that owns both of these facilities can combine ("net") the positive 100 metric tons with the negative 200 metric tons, resulting in a net of 100 negative metric tons for both of the entity's facilities. Therefore, none of this entity's methane emissions would be subject to the WEC. Column D in **Table 2** indicates EPA's estimates of the effects of netting. For example, after netting emissions the number of onshore petroleum and natural gas gathering and boosting facilities decreased from 201 to 125.

Table 3 includes EPA's estimates of the methane emissions that would be subject to WEC after considering each of the steps discussed above. For comparison purposes, the methane emissions are measured in million metric tons of carbon dioxide-equivalent (MMTCO₂e).³⁸ Column A includes the estimated methane emissions that facilities are expected to report under Subpart W. As in **Table 2** above, these facilities only include facilities potentially subject to the WEC.³⁹ Column A indicates methane emissions from these facilities would total approximately 59 MMTCO₂e.

³⁷ 42 U.S.C. §7436(f). In EPA's final rule, the agency decided to allow netting at the parent company level, rather than owners and operators of individual facilities as proposed.

³⁸ This term of measure is used because GHGs vary by global warming potential (GWP). GWP is an index developed by the Intergovernmental Panel on Climate Change (IPCC) that allows comparisons of the heat-trapping ability of different gases over a period of time, typically 100 years. Consistent with international GHG reporting requirements, EPA's most recent GHG inventory (published in 2024) uses the GWP values presented in the IPCC's 2013 *Fifth Assessment Report*. For example, based on these GWP values, a ton of methane is 28 times more potent than a ton of CO₂ when averaged over a 100-year time frame. EPA's inventory is available at EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks," https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

³⁹ As discussed above, two facility categories that report emissions under Subpart W are not subject to the WEC: (1) natural gas distribution facilities and (2) facilities EPA describes as "other oil and gas combustion facilities."

Table 3. EPA's Estimates of Subpart W Methane Emissions and Methane Emissions
Subject to WEC after Applying Thresholds and Netting

Emissions in Million Metric Tons of Carbon-Dioxide-Equivalent

	Column A	Column B	Column C	Column D
Facility Type	Methane Emissions Reported Under Subpart W	WEC Emissions from Facilities Subject to Subpart W	WEC Emissions After Applying Thresholds	WEC Emissions After "Netting"
Onshore petroleum and natural gas production	30.8	23.8	17.1	14.8
Onshore petroleum and natural gas gathering and boosting	15.1	11.8	7.8	3.9
Onshore natural gas transmission compression	4.5	0.5	0.2	0.1
Onshore natural gas transmission pipeline	2.4	0.8	0.4	0.4
Natural gas processing	2.7	1.2	0.8	0.3
Offshore petroleum and natural gas production	1.5	0.8	0.6	0.6
Underground natural gas storage	0.3	0.003	_	_
Liquefied natural gas import and export equipment	0.1	_	_	_
Liquefied natural gas storage	_	_	_	_
Total Emissions	58.8	39.2	26.9	19.9

Source: Prepared by CRS; based on Table 4-3 in EPA, Regulatory Impact Analysis of the Waste Emissions Charge, 2024. EPA noted that these estimates do not account for mitigation and market responses. Column A includes facilities subject to the WEC. EPA's estimates are for the reporting year 2024.

Notes: CRS converted metric tons of methane emissions into metric tons of carbon dioxide-equivalent emissions. This term of measure is used because GHGs vary by global warming potential (GWP). GWP is an index developed by the Intergovernmental Panel on Climate Change (IPCC) that allows comparisons of the heat-trapping ability of different gases over a period of time, typically 100 years. Consistent with international GHG reporting requirements, EPA's most recent GHG inventory (published in 2024) uses the GWP values presented in the IPCC's 2013 *Fifth Assessment Report*. For example, based on these GWP values, a ton of methane is 28 times more potent than a ton of CO₂ when averaged over a 100-year time frame. EPA's inventory is available at EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks," https://www.epa.gov/ghgemissions/inventory-usgreenhouse-gas-emissions-and-sinks.

Column B reduces this amount by only including the methane emissions that would be subject to WEC's 25,000 MTCO₂e emissions threshold. As discussed above, a number of facilities report methane emissions under Subpart W that are below the 25,000 MTCO₂e threshold for the WEC, and thus are not subject to the WEC. Column B identifies the Subpart W methane emissions that are above this threshold for each facility type. Column B indicates that the methane emissions from these facilities would total approximately 39 MMTCO₂e.

Column C includes EPA's methane emissions estimates after applying the facility-specific emissions and fuel sales thresholds (discussed above). As indicated in Column C, EPA estimated that the WEC thresholds would decrease the methane emissions subject to WEC to approximately 27 MMTCO₂e.

Column D includes EPA's methane emissions estimates after emissions netting (discussed above). As the column indicates, EPA estimated the netting process would result in approximately 20 MMTCO₂e of methane emissions subject to the WEC. This estimate can be compared to several points of reference for context. For example, after EPA applied the four steps discussed above (i.e., Columns A through D in **Table 3**), the 20 MMTCO₂e of methane emissions ultimately

subject to the WEC account for about 0.3% of the total U.S. GHG emissions in 2022 (6,343 MMTCO₂e as depicted in **Figure 1**).

Rate of Charge

The WEC starts in calendar year 2024 at \$900 per metric ton of methane, increases to \$1,200 in 2025, and increases to \$1,500 in 2026. The charge remains at \$1,500 in subsequent years. **Table 4** indicates the value of the methane charge rates in mtCO₂e, the measure commonly used in carbon tax and emission charge proposals. The methane charge rates below are comparable to the carbon tax and emission charge rates in recent legislative proposals.⁴⁰

Table 4. Methane Charge Rates

Methane Charge Measure	2024	2025	2026	After 2026
Dollars per metric ton of CH4 emissions	\$900	\$1,200	\$1,500	\$1,500
Dollars per metric ton of CO2 equivalent	\$32	\$43	\$54	\$54

Source: Prepared by CRS.

Notes: Dollars per metric ton of CO₂ equivalent calculated using a global warming potential (GWP) of 28. This term of measure is used because GHGs vary by global warming potential (GWP). GWP is an index developed by the Intergovernmental Panel on Climate Change (IPCC) that allows comparisons of the heat-trapping ability of different gases over a specified period of time, typically 100 years. Consistent with international GHG reporting requirements, EPA's most recent GHG inventory (published in 2024) uses the GWP values presented in the IPCC's 2013 *Fifth* Assessment Report. For example, based on these GWP values, a ton of methane is 28 times more potent than a ton of CO₂ when averaged over a 100-year time frame. EPA's inventory is available at EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks," https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

Conditional Exemption⁴¹

Section 136 allows for an exemption from the emissions charge if future, final EPA regulations addressing methane emissions (1) are "in effect in all states," and (2) will "result in equivalent or greater emissions reductions as would be achieved" by a November 2021 proposed rule. ⁴² Section 136 directs EPA to determine whether future methane regulations will meet these conditions.

On March 8, 2024, EPA finalized the 2021 proposed rulemaking for methane emissions from the oil and natural gas sector.⁴³ The final rule establishes new source performance standards and emissions guidelines for the oil and gas source category for methane emissions.⁴⁴ In the final rule,

⁴⁰ For more information, see CRS Report R45472, *Market-Based Greenhouse Gas Emission Reduction Legislation:* 108th Through 118th Congresses, by Jonathan L. Ramseur.

⁴¹ CAA Section 136 includes two other exemptions from the WEC. One exemption involves emissions caused by delays in environmental permitting for specific activities. EPA's analysis did not include an estimate of facilities that could take advantage of this exemption. The exemption other involves oil and natural gas wells that are permanently shut or plugged.

⁴² EPA, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review," proposed rule, 86 *Federal Register* 63110, November 15, 2021.

⁴³ EPA, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review," final rule, 89 *Federal Register* 16820, March 8, 2024.

⁴⁴ For more background, see CRS In Focus IF12217, *The Legal Framework for Federal Methane Regulation*, by Benjamin M. Barczewski.

EPA determined that facilities in compliance with the final rule will likely have emissions below the thresholds described above, and thus not subject to the WEC.

Another implementation determination for EPA was how to interpret the Section 136 phrase "in effect in all states." In its WEC proposed rule, EPA concluded that the conditional exemption would become available when "each and every state" that contained WEC applicable facilities had EPA-approved state plans implementing the final rule for methane emissions. In its 2024 WEC final rule, EPA altered this determination, deciding that states could be eligible for the WEC conditional exemption on an individual basis. Thus, if a state had an EPA-approved state plan in effect addressing methane emissions from the oil and natural gas sector, the WEC applicable facilities in that state could take advantage of the WEC exemption.

In its 2024 WEC final rule, EPA provided estimates regarding the timing of the conditional exemption. EPA noted that states have 24 months to submit state plans implementing the March 2024 methane emissions rule. EPA must approve or deny these plans within 12 months of receipt. EPA stated that state plan requirements are often phased in over three years; thus, EPA estimated that the conditional WEC exemption would not be available until 2029 at the earliest.

Several of the industrial segments covered by the WEC would not be subject to the 2024 methane emissions regulations. These segments include offshore production, LNG storage, LNG import and export, and transmission pipelines. Thus, methane emissions from these particular industrial segments would not be eligible for this conditional exemption if it becomes available.

Effects of the Methane Charge

A range of factors could play a role in determining the scope of emissions subject to the WEC and its ultimate effects on GHG emissions levels and economic measures, such as natural gas prices. A comprehensive analysis of these factors and their potential effects is beyond the scope of this report. Selected factors include the following:

- EPA Regulation of Petroleum and Natural Gas Systems. On March 8, 2024, EPA finalized regulations to address methane emissions from many of the same categories of new and existing facilities that are subject to the methane charge. As discussed above, when these regulations are "in effect in all states," WEC applicable facilities may be eligible for an exemption from the charge. The degree to which the regulations will affect the methane emissions charge depends on the scope and applicability of the final regulations.
- Changes to Equipment or Operations. A fee on methane emissions from petroleum and natural gas systems provides an economic incentive for facilities to modify their equipment and operations in order to avoid paying the charge. Economic theory suggests facilities will likely find ways to reduce onsite methane emissions until the costs associated with these changes reach the level of the charge. At that point, facilities will pay the charge for the remaining emissions. The degree to which facilities make such changes will likely be based on site-specific economic conditions.
- Funding for Technological Improvements. The Inflation Reduction Act includes supplemental appropriations of \$850 million to EPA to provide grants to facilities subject to the methane charge for a range of objectives, including "improving and deploying industrial equipment and processes" that reduce methane emissions. The act also includes supplemental appropriations of \$700 million for "marginal conventional wells" for the same purposes. These funds

- may lead to methane reductions at oil and natural gas facilities, thus affecting the impact of the WEC.
- Other IRA Climate and Energy Provisions. IRA includes a range of climate
 and energy-related provisions that will likely affect the portfolio of fuels and
 sources of energy that are used in various economic sectors: electricity,
 transportation, and industry. For example, some provisions may result in a
 decrease in the use of natural gas, which would affect the methane emissions
 subject to the WEC.⁴⁵

Estimated Effects from EPA's Regulatory Analysis

EPA's 2024 regulatory analysis of its final rule included estimates of effects that may be of interest to policymakers. Selected estimates are included below. EPA assumed that WEC would be in effect from 2024 to 2028, after which most facilities would be subject to the methane emissions regulations and thus exempt from WEC.

- EPA estimated WEC would result in a cumulative emissions reduction of 34 MMTCO₂e of methane emissions between 2024 and 2035. Most of the reductions occur between 2024 and 2027, during which the annual average reductions equate to about 6 MMTCO₂e. ⁴⁶ Nearly all (99.7%) of these reductions are due to mitigation activities (e.g., equipment replacement) taken to reduce WEC payments, rather than decreased production activity resulting from the final rule. ⁴⁷ EPA estimated that these mitigation activities would be less expensive than paying the WEC.
- EPA estimated revenue from the WEC payments would average about \$525 million per year between 2024 and 2027 (in nominal dollars). After this time period, EPA assumes that facilities would be in compliance with the methane emissions regulations, and would thus be exempt from the WEC.⁴⁸
- EPA estimated that the WEC would increase the price of natural gas by 0.01% in 2024 and 2025, and by 0.04% in 2026 and 2027.

Congressional Budget Office 2022 Cost Estimate

In its August 3, 2022, cost estimate ("score") of the Inflation Reduction Act, the Congressional Budget Office (CBO) provided another resource that may be informative. CBO estimated the revenue that the methane charge will generate over time. CBO's estimated revenue by fiscal year is provided in the first row of **Table 5**. As discussed below, CBO prepared these estimates before EPA issued its proposed rulemaking. Thus, CBO's estimates are based on different assumptions of the WEC scope and applicability.

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⁴⁵ For more information, see CRS Report R47262, *Inflation Reduction Act of 2022 (IRA): Provisions Related to Climate Change*, coordinated by Jonathan L. Ramseur; and CRS Report R47385, *U.S. Greenhouse Gas Emissions Trends and Projections from the Inflation Reduction Act*, by Jonathan L. Ramseur. See also Rhodium Group, "A Congressional Climate Breakthrough," July 28, 2022, https://rhg.com/research/inflation-reduction-act/; and Princeton University Rapid Energy Policy Evaluation and Analysis Toolkit ("REPEAT Project"), *Preliminary Report: The Climate and Energy Impacts of the Inflation Reduction Act of 2022*, https://repeatproject.org/.

⁴⁶ CRS calculations (using a GWP of 28 for methane) based on EPA's estimates in Table 5-8 of EPA RIA.

⁴⁷ Table 5-8 of EPA RIA and preamble discussion in the final rule (EPA, WEC Final Rule, p. 91155).

⁴⁸ Table 5-10 of EPA RIA.

CBO's analysis does not provide an estimate of methane emissions subject to the charge, but **Table 5** provides these estimates by applying CBO's revenue estimate and the dollars per metric ton of methane specified each year in the act. As CBO's revenue estimates are *net* revenue estimates, the second row includes an estimate of *gross* revenue from the methane charge. ⁴⁹ The annual gross revenue is divided by the rate of the methane charge (ranging from \$900 to \$1,500) to produce annual estimates of methane emissions (in metric tons of methane). The last row converts metric tons of methane into metric tons of CO₂e for comparison purposes (using a GWP of 28).

The estimated methane emissions subject to the charge—35 MMTCO₂e in FY2026 in **Table 5**—are about 75% higher than EPA's estimates (in **Table 3**).⁵⁰ CBO's estimated net revenue from the charge—\$850 million in FY2026—is also higher than EPA's revenue estimates (about \$525 million per year between 2024 and 2027).

Table 5. Estimate of Methane Emissions Subject to the Charge Based on CBO's August 2022 Cost Estimate Analysis of the Inflation Reduction Act

	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
CBO Revenue Estimate (Net)	\$850 million	\$1,350 million	\$1,400 million	\$1,200 million	\$1,050 million	\$500 million
Estimate of Gross Revenue from Methane Charge	\$1,133 million	\$1,800 million	\$1,867 million	\$1,600 million	\$1,400 million	\$667 million
Methane Charge (dollars per metric ton of methane)	\$900	\$1,200	\$1,500	\$1,500	\$1,500	\$1,500
Estimated Methane Emissions Subject to the Charge (million metric tons methane)	1.3	1.5	1.2	1.1	0.9	0.4
Estimated Methane Emissions Subject to the Charge (million metric tons CO ₂ e)	35	42	35	30	26	12

Source: Prepared by CRS; the data in the first row, "CBO Revenue Estimate (Net)," are from CBO, Estimated Budgetary Effects of H.R. 5376, the Inflation Reduction Act of 2022, August 3, 2022, https://www.cbo.gov/publication/58366.

Notes: Gross revenues are net revenues multiplied by 1.25. In the above estimates, the revenue collected in FY2026 accounts for methane emissions in calendar year 2024, during which the methane charge is \$900 per metric ton of methane; the revenue collected in FY2027 accounts for methane emissions in calendar year 2025, during which the methane charge is \$1,200 per metric ton of methane. Subsequent fiscal year collections involve a methane charge of \$1,500 per metric ton of methane.

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⁴⁹ CBO explains, "When excise taxes, customs duties, and other types of 'indirect' taxes are imposed on goods and services, they tend to reduce income for workers or business owners in the taxed industry and for others throughout the economy. Consequently, revenue derived from existing 'direct' tax sources—such as individual and corporate income taxes and payroll taxes—will also be reduced. To approximate that effect, the Congressional Budget Office (CBO), the Joint Committee on Taxation (JCT), and the Treasury Department's Office of Tax Analysis (OTA) apply a 25 percent offset when estimating the net revenue that legislation imposing some form of indirect tax is expected to generate." CBO, *The Role of the 25 Percent Revenue Offset in Estimating the Budgetary Effects of Legislation*, 2009, https://www.cbo.gov/publication/20110.

⁵⁰ To facilitate comparison with the estimates in EPA's RIA, CRS calculated the estimate methane emissions subject to the charge based on CBO's revenue estimates.

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