



Insight

Methane Fees for Petroleum and Natural Gas Systems

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Executive Summary

- The Build Back Better Act includes various provisions aimed at addressing climate change, including a methane fee that would be in effect as of 2023.
- As proposed, the methane fee would be specifically targeted at the natural gas and petroleum industries and charge a \$900-\$1,500 fee per ton of methane.
- The fee would result in an annual cost between \$39 billion and \$65.8 billion, and as much as \$337 million in fees per facility but would address only 2.6 percent of total annual reported greenhouse gas emissions.

Introduction

The Biden Administration has named regulating methane emissions a priority and included a commitment to do so in the United States nationally determined contributions as part of the Paris Climate agreement. To date, the key proposal to address methane emissions is the imposition of a “methane fee.”^[1] Yet while the fee is included in the most recent version of the Build Back Better Act (BBBA), it is absent from the administration’s Build Back Better framework document, released October 28, raising questions about its future.^[2]

Methane is colloquially known as natural gas. Thanks to technological improvements, natural gas production in the United States significantly grew throughout the past 20 years and it has increasingly been used to generate power. As a greenhouse gas (GHG), it contributes to climate change by trapping heat in the atmosphere like carbon dioxide.

The methane fee targets industries that produce, transport, and store natural gas throughout the United States or ship it abroad. The imposition of the fee would be one of a

series of actions taken to reduce the use of natural gas domestically and could result in between \$39 and \$65.8 billion of additional costs to consumers annually. Despite the high price tag, the policy would only address about 2.6 percent of GHG emissions reported under Environmental Protection Agency's (EPA) regulation.

Existing Regulation

The regulations promulgated to implement the Clean Air Act call for mandatory GHG emission reporting. Part 98 of the Code of Federal Regulations requires those facilities characterized as "large" due to their annual GHG emissions to report the quantities of carbon dioxide, methane, and other GHGs to the EPA on an annual basis. The threshold for reporting is currently 25,000 metric tons of carbon dioxide equivalent (MT CO₂e).[3] The provisions of the BBBA rely on the same facilities subject to this existing regulation.

Last week, the Biden Administration proposed a rule that requires facilities to adhere to emissions guidelines for methane. The rule applies to existing oil and natural gas production and distribution facilities (For more on the new regulation, see [Dan Bosch's analysis](#).) As a result, the methane fee would add to the Biden Administration's growing regulatory burden on the petroleum and natural gas industries.

Legislative Language

The BBBA would amend the Clean Air Act (CAA), creating Section 136 and fund its implementation by the EPA with a \$775 million appropriation. The provision would create a price for each ton of methane emitted as of 2023 expressed as CO₂e above a waste emissions threshold. The legislation relies on the existing CAA regulatory scheme to target the natural gas and petroleum facilities required to report under subpart W of part 98 of title 40 of the Code of Federal Regulations. The facilities subject to the new regulatory scheme include onshore and offshore petroleum and natural gas production, natural gas processing, transmission and compression, underground and liquefied natural gas storage, liquefied natural gas import and export equipment, onshore petroleum and natural gas gathering and boosting, and onshore natural gas transmission pipelines. Under the BBBA, these facilities are then to be categorized as either production, non-production, or transmission.[4]

The BBBA would impose an escalating methane fee beginning in 2023; the fee would be \$900 in 2023, \$1,200 in 2024, and \$1,500 in 2025 and beyond and would be applied to each ton of methane emitted from a facility above a threshold based on facility sales. For production facilities, the threshold would equal 0.20 percent of the natural gas sold from the facility. Alternatively, for production facilities that sell oil, the bill sets 10 metric tons of

methane per million barrels of oil as a threshold. For nonproduction facilities, such as processing, the threshold would be 0.05 percent of natural gas sold from the facility. Finally, for transmission facilities, such as onshore pipelines, the threshold would be 0.11 percent of the natural gas sold from the facility. In essence, the legislation defines the appropriate level of waste for facilities based on the role it serves in the natural gas market rather than the technology it employs.

In addition, the provisions amend the reporting requirement currently in the place from 25,000 metric tons of CO₂e per year to 10,000 metric tons per year. This would increase the number of facilities subject to the newly imposed Section 136. EPA would use the fees collected to fund the continued operation of the program as well as for “grants, rebates, contracts and other activities.”

Potential Impact

Due to the economic downturn associated with the COVID-19 pandemic, GHG emissions reported in 2020 were relatively lower than in 2019. In 2020, GHG emissions declined nine percent.^[5] As the economy continues to recover, petroleum consumption is projected to increase.^[6] As a result, this analysis was conducted using 2019 data for methane emissions and natural gas sales.

EPA’s facility level information on greenhouse gases tool (FLIGHT) contains the data reported under subpart W of part 98 of title 40 of the Code of Federal Regulations. According to FLIGHT, in 2019, methane contributed 8 percent of total GHG emissions measured as CO₂e^[7] And natural gas and petroleum systems were the second-highest emitters of methane, following waste facilities^[8] Natural gas and petroleum systems identified in the BBBA were collectively responsible for 347 million metric tons of CO₂e emissions in 2019, of which 74 million metric tons were associated with methane as demonstrated in the table below.

The EPA projects that the FLIGHT system represents about 85 to 90 percent of total U.S. GHG emissions.^[9] Yet in practice, the methane fee would only be addressing about 2.6 percent of FLIGHT reported GHG gas emissions in the United States on an annual basis. The EPA also maintains the Greenhouse Gas Inventory (GGI) which is, according to the EPA, a more complete depiction of the GHG emissions. Studies have shown, however, that the emissions captured in the GGI are also generally underreported for petroleum and natural gas systems.^[10]

Studies that relied on monitoring emissions through satellite systems and sensors, among other observational techniques, found that the emissions were underreported to the EPA by

60 percent on average across the petroleum and natural gas supply chain. The reporting was associated with not only poor monitoring but also regulatory requirements that permitted some emissions to go unreported. This analysis relies on the rates of emissions found by studies rather than those reported to determine the amount of waste methane emission subject to the BBBA’s proposed fees and the cost to the supply chain.[11] As the Biden Administration institutes its recently proposed methane monitoring regulations, the scope and accuracy of reporting under subpart W will change.

Costs to the Supply Chain

The analysis reflected in the table below was conducted on an industry basis rather than a facility basis. The costs rely on data from the Energy Information Administration to determine the sales from each category of facility throughout the supply chain. The number of reporting facilities is based on data from FLIGHT, which may increase as the threshold for reporting is reduced from 25,000 to 10,000 MT CO₂e.

Natural Gas and Petroleum Facility Methane Emissions (2019)[12]

Reporting Over 10,000 Metric Tons of CO₂e	Percentage of Total Reported GHG Emissions	2023 (\$900 fee)	2024 (\$1200 fee)	2025 (\$1500 fee)
Natural Gas & Petroleum Facilities	2.6%	\$39.5 billion	\$52.6 billion	\$65.8 billion
Production	1.6%	\$1.5 billion	\$2.1 billion	\$2.6 billion
<i>428 Reporting Facilities</i>		<i>\$3.6M/facility</i>	<i>\$4.9M/facility</i>	<i>\$6.1M/facility</i>
Non-Production	0.8%	\$4.8 billion	\$6.4 billion	\$8 billion
<i>318 Reporting Facilities</i>		<i>\$15M/facility</i>	<i>\$20M/facility</i>	<i>\$25M/facility</i>
Transmission	0.2%	\$33 billion	\$44 billion	\$55 billion
<i>164 Reporting Facilities</i>		<i>\$202M/facility</i>	<i>\$269M/facility</i>	<i>\$337M/facility</i>

The costs calculated assume that each ton of methane emissions is only subject to each fee

once except for transmission and compression cost values which reflect the transportation of each ton of methane through two pipelines and one compressor station in each. The facilities identified in the BBBA are interconnected as part of the interstate system that transports natural gas to generators, distribution companies, and ultimately, consumers. To meet the quality standards for transportation within a natural gas pipeline system, all domestically produced natural gas is processed upon being gathered. As a result, a producer's gas may be subject to fees at the wellhead, again in an affiliated gathering system and once again as it is processed by an affiliate. The legislative language does not provide clarity on the treatment of affiliated companies or the role of parent companies.

Similarly, fees associated with transmission are duplicative in the sense that compression is a component of all onshore pipelines. Compression of natural gas within pipelines by turbines at compressor stations is what moves natural gas at a rate beyond that of its natural flow in a pipeline. Would the BBBA subject all pipeline operators to fees for providing transmission services and then again for each compressor station through which the gas is transported? The BBBA currently does not address such practicalities. Varied interpretations can dramatically impact the final cost to industry.

Conclusion

The proposed methane fee is intended to address climate change by charging those who participate in the natural gas supply chain. Yet while it would add billions of dollars in additional cost to natural gas prices, it would address less than 3 percent of emissions.

[1] <https://energycommerce.house.gov/committee-activity/markups/markup-of-the-build-back-better-act-full-committee-september-13-2021>

[2] <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/28/build-back-better-framework/>

[3] <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98/subpart-A>

[4] For the purposes of this analysis, EPA's data was categorized as follows. Production - Offshore production, onshore production; Non-Production - onshore gathering, natural gas

processing , LNG storage, LNG import/export; Transmission - Onshore transmission pipelines, natural gas transmission compression, underground natural gas storage

[5]

<https://ghgdata.epa.gov/ghgp/main.do#/facility/?q=Find%20a%20Facility%20or%20Location&st=&bs=&et=&fid=&sf=11001100&lowE=-20000&highE=23000000&g1=1&g2=1&g3=1&g4=1&g5=1&g6=0&g7=1&g8=1&g9=1&g10=1&g11=1&g12=1&s1=1&s2=1&s3=1&s4=1&s5=1&s6=1&s7=1&s8=1&s9=1&s10=1&s201=1&s202=1&s203=1&s204=1&s301=1&s302=1&s303=1&s304=1&s305=1&s306=1&s307=1&s401=1&s402=1&s403=1&s404=1&s405=1&s601=1&s602=1&s701=1&s702=1&s703=1&s704=1&s705=1&s706=1&s707=1&s708=1&s709=1&s710=1&s711=1&s801=1&s802=1&s803=1&s804=1&s805=1&s806=1&s807=1&s808=1&s809=1&s810=1&s901=1&s902=1&s903=1&s904=1&s905=1&s906=1&s907=1&s908=1&s909=1&s910=1&s911=1&si=&ss=&so=0&ds=E&yr=2020&tr=current&cyr=2020&ol=0&sl=0&rs=ALL>

[6] https://www.eia.gov/outlooks/aeo/pdf/AEO_Narrative_2021.pdf

[7] <https://ccdsupport.com/confluence/display/ghgp/About+the+GHG+Reporting+Program>

[8]

<https://ghgdata.epa.gov/ghgp/main.do#/barSector/?q=Find%20a%20Facility%20or%20Location&st=&bs=&et=&fid=&sf=11001100&lowE=-20000&highE=23000000&g1=0&g2=1&g3=0&g4=0&g5=0&g6=0&g7=0&g8=0&g9=0&g10=0&g11=0&g12=0&s1=1&s2=1&s3=1&s4=1&s5=1&s6=1&s7=1&s8=1&s9=1&s10=1&s201=1&s202=1&s203=1&s204=1&s301=1&s302=1&s303=1&s304=1&s305=1&s306=1&s307=1&s401=1&s402=1&s403=1&s404=1&s405=1&s601=1&s602=1&s701=1&s702=1&s703=1&s704=1&s705=1&s706=1&s707=1&s708=1&s709=1&s710=1&s711=1&s801=1&s802=1&s803=1&s804=1&s805=1&s806=1&s807=1&s808=1&s809=1&s810=1&s901=1&s902=1&s903=1&s904=1&s905=1&s906=1&s907=1&s908=1&s909=1&s910=1&s911=1&si=&ss=&so=0&ds=E&yr=2020&tr=current&cyr=2020&ol=0&sl=0&rs=ALL>

[9] https://cfpub.epa.gov/ghgdata/inventoryexplorer/data_explorer_flight.html

[10]

<https://cfpub.epa.gov/ghgdata/inventoryexplorer/index.html#energy/naturalgasandpetroleumsystems/allgas/subcategory/current>

[11] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6223263/> ;

https://legacy-assets.eenews.net/open_files/assets/2020/04/23/document_ew_03.pdf ;

<https://pubs.acs.org/doi/10.1021/acs.est.5b01669>,

[12] For the purposes of the analysis displayed in the table below, the quantity of gas “sent to sale” from an underground storage facility will be represented by annual withdrawals rather than injections or quantity of working gas.