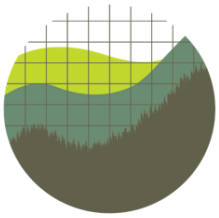

Institute *for*
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

November 6, 2023

To: Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation

Re: Pipeline Safety: Safety of Gas Distribution Pipelines and Other Pipeline Safety Initiatives, 88 Fed. Reg. 61,746 (proposed Sept. 7, 2023)

The Institute for Policy Integrity at New York University School of Law (Policy Integrity)[1] respectfully submits this comment letter to the Pipeline and Hazardous Materials Safety Administration (PHMSA) regarding its proposal (Proposed Rule) to require gas distribution pipeline operators to update their distribution integrity management program (DIMP) plans, emergency response plans, operations and maintenance (O&M) procedures, and other safety practices to better protect against safety risks from gas pipelines.[2] Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decision-making through advocacy and scholarship in the fields of administrative law, economics, and public policy.

Specifically, this comment offers the following insights and recommendations:

- **PHMSA appropriately uses breakeven analysis to support its conclusion that the Proposed Rule's benefits justify its costs. PHMSA should, however, consider expanding its analysis by discussing pipeline incidents beyond Merrimack Valley that the Proposed Rule could have prevented or mitigated.** Specifically, the agency should, to the extent feasible, identify the causes of those events and explain how the Proposed Rule could have helped.
- **PHMSA should further disaggregate its cost-benefit analysis** to show whether each of the Proposed Rule's provisions is independently cost-benefit justified.
- **PHMSA should expand its analysis of administrative severability.**
- **PHMSA should further explain its choice of a pre-statutory baseline for its cost-benefit analysis.** Additionally, PHMSA should consider identifying which elements, if any, of the Proposed Rule are discretionary and assessing these elements' costs and benefits against a post-statutory baseline.
- **PHMSA should provide a more robust quantitative and qualitative discussion of the Proposed Rule's environmental justice benefits.**

[1] This document does not purport to represent the views, if any, of New York University School of Law.
[2] Pipeline Safety: Safety of Gas Distribution Pipelines and Other Pipeline Safety Initiatives, 88 Fed. Reg. 61,746 (Sept. 7, 2023) [hereinafter Proposed Rule].

- **PHMSA should further discuss the social cost of methane estimates from the EPA's November 2022 Draft Update.**
- **PHMSA should clarify its data choices and estimates** by (1) more robustly explaining how and why it selected the figures in its cost estimates, (2) incorporating data from the past two years (or explaining why such data is not incorporated), and (3) more clearly explaining how it derived its work-hour estimates.
- **PHMSA should discuss additional effects stemming from pipeline leaks.**

Following a short background section, we expand upon these suggestions below.

Background

In 2018, a "catastrophic overpressurization" of the gas distribution system in the Merrimack Valley communities of Lawrence, Andover, and North Andover, Massachusetts, caused explosions and fires in homes and businesses.[3] Fifty thousand people evacuated, 130 structures were damaged, 20 people were hospitalized, and one person was killed.[4] The emergency response to the overpressurization and a subsequent National Transportation Safety Board investigation revealed gaps in emergency response protocols and procedures.[5]

Congress subsequently passed the Leonel Rondon Pipeline Safety Act, which requires PHMSA to update regulations governing operators of gas distribution systems.[6] In accordance with this mandate, PHMSA now proposes to revise its existing pipeline safety regulations (49 C.F.R. parts 190–99) to require operators of gas distribution pipelines to update their DIMP plans, emergency response plans, O&M procedures, and other safety practices.[7]

By statute, PHMSA may issue a pipeline standard "only upon a reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs."[8] In a regulatory impact analysis (RIA), PHMSA estimates costs for each provision of the Proposed Rule, which total $110 million annually at a 3% discount rate.[9] The agency also describes the Proposed Rule's safety and environmental benefits but is unable to "monetize or quantify" them.[10] Instead, PHMSA performs a breakeven analysis, finding that the Proposed Rule would break even (i.e., the benefits would equal the costs) if it prevents between one and two overpressurization incidents similar to Merrimack Valley—which had annualized damages of $62 million to $109 million—over the next 20 years.[11] PHMSA also estimates that a "high-consequence" leak occurs once every two years, and that these impose an average cost per incident of $163.69 million (excluding the Merrimack Valley incident).[12] This works out to

[3] *Id.* at 61,753–54.
[4] *Id.* at 61,746–47, 61,754.
[5] *Id.* at 61,772.
[6] These mandates are codified at 49 U.S.C. §§ 60102(r)–(t), 60105(b), and 60109(e)(7).
[7] Proposed Rule, 88 Fed. Reg. at 61,746–47.
[8] 49 U.S.C. 60102(b)(5).
[9] PHMSA, Preliminary Regulatory Impact Analysis, Pipeline Safety: Safety of Gas Distribution Pipelines 61 (Aug. 2023) [hereinafter RIA]. While PHMSA also analyzed costs under a 7% discount rate, we use only a 3% discount rate throughout this letter for ease of exposition.
[10] *Id.*
[11] *Id.*
[12] *Id.*

$81.845 million in annual costs stemming from those incidents,[13] suggesting the Proposed Rule would break even if it mitigates the equivalent of 134% of these annual costs.[14] Finally, PHMSA determines that "higher probability lower consequence events" cost $201 million annually and that the Proposed Rule would break even if it mitigates 58% of these annual costs.[15] Assuming no overlap between higher- and lower-consequence events, the total annual costs of these non-Merrimack Valley events is $282.845 million,[16] so the Proposed Rule would break even if it mitigates 39% of these annual costs.[17]

PHMSA performs a separate breakeven analysis specifically for the gas-transmission and gas-gathering operators. The annual burden imposed by the rule is $0.05–0.06 million for gas transmission operators and $0.35–0.36 million for gas gathering operators.[18] PHMSA estimates the average cost of a gas transmission pipeline emergency to be $7.5 million ($124 million annually, suggesting an average of 16.5 emergencies per year) and the average cost of a gas gathering emergency to be $1.7 million ($0.8 million annually, suggesting an average of 2.1 emergencies per year).[19] Therefore, PHMSA believes preventing merely one event over twenty years would cause the rule to break even for these two subsets of operators, given the low financial burden imposed by the rule.[20] For these operators, PHMSA notes that it "expects that . . . safety and environmental benefits . . . will likely outweigh the costs" of the rule.[21]

I. PHMSA Makes Appropriate Use of Breakeven Analysis, but It Could Bolster Its Assessment by Identifying Additional Prior Pipeline Incidents That the Proposed Rule Could Have Prevented or Mitigated

PHMSA's decision to use breakeven analysis is well justified. The Office of Management and Budget's Circular A-4, which provides "guidance to Federal agencies on the development of regulatory analysis,"[22] is clear that an agency should perform a "threshold" or "breakeven" analysis when some effects are quantified but others are not.[23] This breakeven analysis answers the question, "[h]ow small could the value of the non-quantified benefits be . . . before the rule would yield zero net benefits?"[24] The recent proposed revision to Circular A-4 similarly supports breakeven analysis, stating it may be included when "non-monetized benefits and costs are likely to be important."[25] Thus, PHMSA's use of breakeven analysis to assess whether benefits justify costs is consistent with best practices.

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[13] This figure corresponds to 0.5 multiplied by $163.69 million.
[14] This figure corresponds to $110 million divided by $81.845 million.
[15] RIA at 61.
[16] This figure corresponds to $201 million plus $81.845 million.
[17] This figure corresponds to $110 million divided by $282.845 million.
[18] RIA at 61.
[19] *Id.*
[20] *Id.*
[21] *Id.*
[22] OFF. OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS 1 (2003), https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A4/a-4.pdf [https://perma.cc/PJ7V-ALZ7] [hereinafter CIRCULAR A-4].
[23] *Id.* at 2.
[24] *Id.*
[25] OFF. OF MGMT. & BUDGET, CIRCULAR A-4: DRAFT FOR PUBLIC REVIEW 46 (Apr. 6, 2023), https://www.whitehouse.gov/wp-content/uploads/2023/04/DraftCircularA-4.pdf [https://perma.cc/C6S7-FHZ8] [hereinafter DRAFT CIRCULAR A-4 UPDATE].

Still, PHMSA can take several modest steps to bolster its already "reasoned determination that the benefits, including safety and environmental benefits, of the [Proposed Rule] justify its costs."[26] Using narrative descriptions and particular case studies, PHMSA can provide more reasons to expect that the Proposed Rule would achieve the "breakeven" levels of safety benefits—i.e., that the safety improvements would be expected to prevent "between 1 and 2 overpressurization incidents . . . of the magnitude of . . . Merrimack Valley over the 20-year analysis" or "approximately 58 percent" of "higher probability lower consequence events."[27]

PHMSA could also spell out that, per calculations presented in the Background section above, high-consequence events besides Merrimack Valley cost $81.845 million annually. The Proposed Rule would therefore also break even if it prevented the equivalent of 134% of these annual costs (i.e., $110 million divided by $81.845 million), on average. PHMSA could appeal to case studies of these kinds of incidents as well. Per other calculations in the Background section, PHMSA could also combine these lower- and higher-consequence events and conclude that the Proposed Rule would break even if it prevented 39% of all of these events' annual costs.

The RIA already explains how the Proposed Rule's changes could have prevented the failures leading to the Merrimack Valley incident.[28] For example, the RIA notes that Columbia Gas of Massachusetts (CMA) did not "promptly or effectively" communicate with the general public.[29] Therefore, the Proposed Rule's provision requiring gas distribution operators to establish communication systems with the general public and customers "could ensure that emergency responders and the public have the requisite information to make the most appropriate decisions."[30] In turn, this change "could reduce the risk of injuries and fatalities from" future incidents like Merrimack Valley.[31] PHMSA should consider providing similar narratives regarding the causes and consequences of other past incidents and explaining how the provisions of the Proposed Rule could have prevented these incidents or reduced the harm they caused. This would further support PHMSA's determination that the Proposed Rule would achieve breakeven benefit levels.

II. PHMSA Should Disaggregate Its Cost-Benefit Analysis for Each of the Proposed Rule's Provisions, to the Degree Feasible

The Proposed Rule's cost-benefit analysis robustly disaggregates costs. To bolster this analysis, PHMSA should also disaggregate each provision's benefits, to the degree feasible.

PHMSA's RIA presents costs for individual portions of the Proposed Rule. For instance, PHMSA provides tables listing individual requirements and associated costs for the proposed amendments to operators' emergency response plans, including the costs of revising emergency response plans across distribution pipelines, transmission pipelines, and Type A/Type C/Offshore gathering pipelines; the costs of changing employee training requirements; the costs of rupture identification and response-training; and more.[32] PHMSA provides similar

[26] 49 U.S.C. § 60102(b)(5).
[27] RIA at 60-61.
[28] *E.g., id.* at 50; Proposed Rule, 88 Fed. Reg. at 61,777.
[29] RIA at 50.
[30] *Id.*
[31] *Id.*
[32] *Id.* at 23–29 & tbls.7–13.

breakdowns for its proposed amendments to O&M manuals,[33] records for pressure control,[34] and the presence of qualified personnel during construction projects with potential to cause overpressurization.[35]

PHMSA could extend this disaggregation to its discussion of benefits, providing reasons to conclude that *each aspect* of the Proposed Rule would provide breakeven levels of expected benefits. Given the scrutiny to the RIA that may stem from PHMSA's applicable statutory standard,[36] it could be important to help show that the Proposed Rule is cost-benefit justified not only *as a whole*, but also *with respect to each provision*. PHMSA's claim that these provisions are severable, as discussed in the next section, suggests that they are sufficiently independent to be subject to this sort of disaggregation.

Moreover, in addition to presenting the breakeven level of benefits for each aspect of the Proposed Rule, PHMSA should discuss why it concludes that each provision would provide the requisite level of benefits. PHMSA currently does so only for some benefit categories, such as its DIMP amendment provision.[37] Other provisions' potential benefits, such as potential benefits of the addition of a detailed management of change (MOC) process in operators' O&M manuals and retaining records, are assessed at a high level in the broad category of "Other Safety Benefits."[38] To the extent feasible, PHMSA should go further. It should explicitly describe why it concludes that the benefits of *that individual provision* justify the costs of *that individual provision*, or it should explain why it cannot make such a determination.

III. PHMSA Should Expand Its Discussion of Administrative Severability

PHMSA provides a generic severability clause in its Preamble expressing its conclusion that that the various provisions of the Proposed Rule are severable and can function independently.[39] PHMSA can strengthen this clause by providing more details to help a reviewing court understand why the Proposed Rule is severable.[40]

Although its generic explanations offer some support for severability, PHMSA should add more specifics.[41] For a court to sever an invalid portion of a rule, it must find both (1) that the agency would have intended to promulgate the remaining portion, and (2) that the remainder can function independently.[42] PHMSA should provide more specific arguments as to why these

[33] *Id.* at 29–33.
[34] *Id.* at 33–34.
[35] *Id.* at 35–36.
[36] *See* 49 U.S.C. § 60102(b)(5) (allowing PHMSA to issue a standard "only upon a reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs").
[37] RIA at 46–48.
[38] *See id*. at 53.
[39] Proposed Rule, 88 Fed. Reg. at 61,800.
[40] *See* Adelaide Duckett & Donald L. R. Goodson, *Administrative Severability*, INST. FOR POL'Y INTEGRITY 3 (Sept. 2023), https://policyintegrity.org/files/publications/Administrative_Severability_Issue_Brief_v2.pdf [https://perma.cc/5TVY-FV4S] (encouraging agencies to provide detailed severability analysis).
[41] *See id.*
[42] K Mart Corp. v. Cartier, Inc., 486 U.S. 281, 294 (1988); Davis Cnty. Solid Waste Mgmt. v. Env't Prot. Agency, 108 F.3d 1454, 1460 (D.C. Cir. 1997); Charles W. Tyler & E. Donald Elliott, *Administrative Severability Clauses*, 124 YALE L.J. 2286, 2294–97 (2015).

two requirements are met, since courts are more likely to be persuaded by detailed severability analyses than generic ones.[43]

The structure and stated purpose of PHMSA's rulemaking support its severability conclusion. PHMSA's Preamble separates provisions into individual sections, and for each provision, the Agency consistently articulates the current requirements, the specific need for change, and the proposed amendments, unpacking how each amendment would create the desired change. PHMSA does not contemplate its Proposed Rule only as a whole, nor are PHMSA's proposed provisions deeply entangled.

Furthermore, PHMSA clearly speaks to the first prong of intent at the very outset of this rulemaking by saying in its Preamble that it intends for the various provisions of the Proposed Rule to be severable.[44] Because different safety procedures could, in some cases, affect each other, PHMSA should explain more explicitly why these particular procedures are sufficiently independent such that individual standards or procedures could be applied separately. PHMSA can draw on its expertise in the gas pipeline industry to describe features of the industry that render each of these provisions separately implementable.

IV. PHMSA Should Further Explain Its Use of a Pre-Statutory Baseline for Its Cost-Benefit Analysis, and It Should Consider Providing a Supplementary, Post-Statutory Analysis for Any Discretionary Provisions of the Proposed Rule

PHMSA uses a pre-statutory baseline for its cost-benefit analysis. When measuring the benefits and costs of a rule, agencies must measure against a baseline, which is an assessment of the way the world would look absent the proposed action.[45] Agencies may evaluate costs and benefits against a pre-statutory baseline, which reflects the state of the world in the absence of a regulation as well as the statute that gave rise to that regulation, or they may evaluate costs and benefits against a post-statutory baseline, which reflects the state of the world absent the regulation but where that statute was enacted.[46]

The RIA examines the Proposed Rule against a pre-statutory baseline.[47] This choice is appropriate given the guidance of Circular A-4, which advises agencies to use a pre-statutory baseline in cases where substantial portions of a rule simply restate statutory requirements that would be self-implementing, even in the absence of the regulatory action.[48] The recent proposed update to Circular A-4 retains this approach.[49] PHMSA should explain its choice to use a pre-statutory baseline and why it is well grounded in this guidance.

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[43] Duckett & Goodson, *supra* note 40, at 2–3 ("[B]oilerplate clauses have some value. But agencies hoping to craft the most effective severability clauses should learn from trends in the case law and draft detailed and specific severability clauses.").
[44] Proposed Rule, 88 Fed. Reg. at 61,800.
[45] CIRCULAR A-4, *supra* note 22, at 15.
[46] *See id.* at 15–16.
[47] *See generally* RIA.
[48] CIRCULAR A-4, *supra* note 22, at 15–16.
[49] DRAFT CIRCULAR A-4 UPDATE, *supra* note 25, at 13 ("In general, an agency's first regulatory action implementing a new statutory authority should be assessed in a manner that accounts for the effects of the statute itself—that is, assessed against a pre-statutory baseline.").

Much of the Proposed Rule's content is mandated by the Act.[50] Still, PHMSA should consider supplementing its analysis by identifying which, if any, provisions of the Proposed Rule are discretionary and assessing their costs and benefits against a post-statutory baseline. This is consistent with the draft Circular A-4 update, which notes that, when "an agency clearly has little (or no) regulatory discretion" for much of a rule, the agency "may use a post-statutory baseline . . . , focusing on the discretionary elements of the action."[51] PHMSA can further highlight that any such discretionary details are firmly rooted in the statutory authority provided by PHMSA's broad mandate under the Federal Pipeline Safety Statutes.[52]

V. PHMSA Should Provide a More Robust Quantitative and Qualitative Discussion of the Proposed Rule's Environmental Justice Effects

PHMSA properly incorporates environmental justice into its analysis of the Proposed Rule. To bolster its analysis, PHMSA should provide additional quantitative and qualitative details from the studies it already cites. Providing these details would strengthen the connection between the Proposed Rule and its goal of promoting environmental justice.

Executive Order 14,096 requires PHMSA, to the degree permitted by law, to make achieving environmental justice part of its mission, and to "identify, analyze, and address historical inequities, systemic barriers, or actions related to any Federal regulation, policy, or practice that impair the ability of communities with environmental justice concerns to achieve or maintain a healthy and sustainable environment."[53] In accordance with this directive, one of PHMSA's stated purposes for the Proposed Rule is promoting environmental justice for minority, low-income, and other underserved or disadvantaged communities who are particularly likely to live or work near higher-risk gas distribution pipeline systems.[54]

PHMSA briefly discusses three areas of environmental justice that the provisions of the Proposed Rule address: the unevenly distributed burdens of climate change; the concentration of older, leakier distribution systems in communities with environmental justice concerns; and emergency communications with low-English-proficiency communities during pipeline incidents. First, PHMSA cites studies and scientific assessments demonstrating the disproportionate burden of climate change on poorer and predominantly non-white communities, and it notes that the Proposed Rule is expected to reduce the frequency of and mitigate the effects of gas-pipeline accidents, thus reducing methane emissions that contribute to climate change.[55] Second, PHMSA notes that older cast-iron or bare-steel gas distribution pipelines, which are more vulnerable to overpressurization, are disproportionately concentrated in older

[50] For example, *compare* 49 U.S.C. § 60102(t)(2) (instructing PHMSA to require at least one qualified agent to monitor gas pressure at certain sites using adequate equipment), *with* Proposed Rule, 88 Fed. Reg. at 61,784 (implementing this provision's particular details).
[51] *Id.*
[52] These statutes grant PHMSA power to issue standards for the transportation of gas via any gathering pipeline regulated under 49 C.F.R. Part 192 to protect public safety and the environment. *See* 49 U.S.C. § 60101 *et seq.* Specifically, PHMSA is empowered to prescribe minimum safety standards for pipeline transportation and pipeline facilities which apply to all owners or operators of pipeline facilities, and "may apply to the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities." 49 U.S.C. § 60102(a)(2)(A)–(B).
[53] Exec. Order. No. 14,096, 88 Fed. Reg. 25,251, 25,253–54 (Apr. 21, 2023).
[54] Proposed Rule, 88 Fed. Reg. at 61,746–47.
[55] RIA at 82.

residential areas with large minority, low-income, and other historically underserved populations.[56] Finally, PHMSA briefly discusses the importance of providing emergency communications with the public that are accessible and that account for languages commonly understood by a significant concentration of non-English-speaking populations in a given service area.[57] The importance of language accessibility is highlighted by the Preamble's narrative account of the Merrimack Valley incident: as PHMSA notes, CMA did not fully account for the demographics of the affected communities (particularly in Lawrence, where the population is comprised of a relatively high proportion of non-English-speaking residents) when attempting to communicate following the incident.[58]

This discussion of environmental justice is well grounded in the cited studies, as well as applicable executive orders.[59] But to bolster this analysis, PHMSA should provide more details from the studies it briefly references in its RIA.[60] Some example findings that PHMSA could discuss from the studies it cites include:

- Emanuel et al. compare the density of transmission and gathering pipelines to social vulnerability on a county-by-county basis.[61] They use geospatial data for the U.S. natural gas gathering and transmission pipeline network and the Centers for Disease Control and Prevention's social vulnerability index, which "estimate[s] the potential for external factors to impact a community's ability to deal with human suffering and financial loss."[62] Through a quantitative comparative analysis, they find that, nationally, natural gas pipelines are negatively correlated with health-related outcomes.[63] They further find that air and water pollution, public health, and safety concerns stemming from such pipelines fall disproportionately on communities that already have limited capacities to deal with those challenges.[64]
- Weller et al.'s study of multiple metro areas used Bayesian spatial regression models to find that the average leak density (leaks per mile of pipeline) increases 37% when comparing census tracts with a predominantly white population to those with a

[56] Proposed Rule, 88 Fed. Reg. at 61,747.
[57] *Id.* at 61,774–75.
[58] *Id.*
[59] *See* Exec. Order. No. 14,096, 88 Fed. Reg.; Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994) (requiring federal agencies, to the extent practicable and permitted by law, make the achievement of environmental justice part of their mission); CIRCULAR A-4, *supra* note 22, at 14 ("Your regulatory analysis should provide a separate description of distributional effects . . . ."); *see also* Exec. Order No. 12,866, 58 Fed. Reg. 51,735, 51,735 ("[A]gencies should select those approaches that maximize net benefits (including . . . distributive impacts[] and equity) . . . ."); Exec. Order No. 13,563, 76 Fed. Reg. 3,821 (Jan. 21, 2011) (endorsing the same); Exec. Order No. 14,094, 88 Fed. Reg. 21,879, 21,880 ("Regulatory analysis, as practicable and appropriate, shall recognize distributive impacts and equity . . . ."); DRAFT CIRCULAR A-4 UPDATE, *supra* note 25, at 61 ("For some regulations, different groups of people may be impacted differently. Distributional analysis, whether quantitative or qualitative, can help illustrate these effects.").
[60] RIA at 82–83.
[61] Ryan E. Emanuel et al., *Natural Gas Gathering and Transmission Pipelines and Social Vulnerability in the United States*, GEOHEALTH 3, 5 (2021)
[62] *Id.*
[63] *Id.* at 6.
[64] *Id.*

predominantly nonwhite population.[65] The study also finds a 26% decrease in leak density between an average-income tract and a high-income tract.[66] In other words, in all metro areas combined, leak densities are higher in areas with more people of color and lower household incomes. Quantitative details such as these would bolster PHMSA's assertion that the poorer quality distributive systems are concentrated in communities with environmental justice concerns.

- Luna & Nicholas analyzed natural gas leaks across Massachusetts.[67] They used street-level records of gas leaks reported by natural gas utilities, which a nonprofit environmental organization geocoded (i.e., they transformed a description of a location into a location on the Earth's surface, represented as geographic features with attributes that can be used for mapping and spatial analyses).[68] Comparing the frequency of leaks across communities using census data, they found that people of color, limited-English-speaking households, and renters live in areas where the population-weighted mean age of unrepaired leaks is 6–19% higher than for the general population.[69] They also found that non-white groups and limited-English-speaking households are consistently more exposed to older unrepaired leaks in four out of six of their utility territories, including the three largest ones.[70]

These studies also provide qualitative details that can strengthen PHMSA's analysis. For instance, Emanuel et al. highlight the unique implications of pipeline regulations for indigenous communities in rural areas, noting the communities' identities are inextricably tied to certain landscapes, waterways, and other spaces.[71] They also note that pipelines may traverse these communities, potentially causing cultural harm by damaging "present-day or ancestral territories with religious, historical, or cultural significance."[72]

VI. PHMSA Should Also Report the Social Cost of Methane Estimates from the EPA's November 2022 Draft Update

PHMSA appropriately discusses the Interagency Working Group's (IWG's) valuations of the social cost of methane to conservatively estimate the Proposed Rule's climate benefit.[73] In addition, PHMSA should strengthen its analysis by discussing the Environmental Protection Agency's (EPA's) draft update to the social cost of greenhouse gases (Draft Update).[74]

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[65] Zachary D. Weller et al., *Environmental Injustices of Leaks from Urban Natural Gas Distribution Systems: Patterns Among and Within 13 U.S. Metro Areas*, ENVIRO. SCI. & TECH. 1, 4–5 (2022).
[66] *Id.*
[67] Marcos Luna & Dominic Nicholas, *An Environmental Justice Analysis of Distribution-Level Natural Gas Leaks in Massachusetts, USA*, ENERGY POL' Y 162, 1 (2022).
[68] *Id.*; *see also What is Geocoding?* ARCMAP (2021), https://desktop.arcgis.com/en/arcmap/latest/manage-data/geocoding/what-is-geocoding.htm [https://perma.cc/TU3J-J7KS].
[69] *Id.* at 13
[70] *Id.*
[71] Emanuel et al., *supra* note 61, at 7.
[72] *Id.*
[73] RIA at 57.
[74] EPA External Review Draft of Report on the Social Cost of Greenhouse Gases (Sept. 2022) (Docket No. EPA-HQ-OAR-2021-0317), https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf [hereinafter Draft SC-GHG Update].

PHMSA's discussion of the IWG estimates is legally justified and well grounded. The IWG developed its climate-damage valuations through a rigorous and transparent process incorporating the best available science available at the time of their initial development. Yet these climate-damage valuations are widely agreed to underestimate the full social costs of greenhouse gas emissions.[75] Despite this shortcoming, the IWG valuations remain appropriate to use as conservate underestimates because they have been applied in prior rulemakings[76] and upheld in federal court.[77]

In November 2022, the EPA released the Draft Update, which faithfully implements the roadmap laid out in 2017 by the National Academies of Sciences and applies recent advances in the science and economics on the costs of climate change.[78] PHMSA should also present the social cost of methane estimates from the Draft Update because they more fully account for the costs of climate change by incorporating the latest available research on climate science, damages, and discount rates. Given that the IWG estimates underestimate climate benefits, the true benefits of the Proposed Rule would likely be higher than suggested by the social-cost estimates PHMSA presents. Reporting the EPA Draft Updated Estimates and discussing their strengths would further support the agency's contention that the benefits of the Proposed Rule justify the costs, as discussed in the RIA's breakeven analysis.[79]

VII. PHMSA Should Clarify Its Data Choices and Estimates Along Several Dimensions

The RIA provides helpful data to help readers evaluate the Proposed Rule's costs and benefits. As detailed above, this information provides a solid basis for PHMSA's conclusion that the Proposed Rule's benefits justify its costs. Some of the above suggestions would reinforce that conclusion. PHMSA should also consider bolstering its analysis by clarifying and providing more support for data choices made in the cost-benefit analysis. This recommendation is expanded on in the following paragraphs.

A. PHMSA Should Be Consistent in Selecting Values for the Proposed Rule's Cost Estimates

When benefit and cost estimates are uncertain, PHMSA should more fully explain how it selects figures to use in its projections and, per Circular A-4, make sure to "characterize the evidence and assumptions underlying" its choice of figures in the RIA.[80] Where its method for choosing figures differs, it should explain the apparent inconsistencies or render its estimates consistent. For example, in its determination of how many small liquefied petroleum gas systems exist, the agency used the midpoint of the Transportation Research Board's estimates (i.e.,

[75] Interagency Working Group on the Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide – Interim Estimates under Executive Order 13,990 at 4 (2021); Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 NATURE 173 (2014) (note that co-author Kenneth Arrow was a Nobel Prize-winning economist).
[76] Peter Howard & Jason A. Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENV'T L. 203, 270–84 (2017) (listing all uses through mid-2016).
[77] Zero Zone v. Dept. of Energy, 832 F.3d 654, 679 (7th Cir. 2016).
[78] Draft SC-GHG Update, *supra* note 74.
[79] *See* RIA at 60–62.
[80] CIRCULAR A-4, *supra* note 22, at 18.

halfway between 3521 and 5463, or 4492 systems).[81] In other sections, in contrast, PHMSA uses a "conservative estimate" for its analysis and selects what is likely an overestimate for its projections.[82] In still others, the agency follows guidance from Circular A-4 and presents both "lower-bound" and "upper-bound" estimates, while sometimes deciding to proceed with the "lower bound estimate."[83]

PHMSA should explain why these various approaches are consistent, or, if they are not, it should consider aligning them. For instance, PHMSA might strengthen its conclusion that the Proposed Rule's benefits justify its costs by selecting the upper bound estimates for their cost projections and showing that the breakeven benefits values are *still* plausible.

B. PHMSA Should Incorporate Pipeline-Emergency Data from 2021 and 2022 or Explain Why Such Data Is Not Incorporated

PHMSA analyzes the costs and benefits of the Proposed Rule by looking at pipeline emergencies from 2010 to 2020.[84] However, PHMSA notes that "some operators may already be complying with some or all of the proposed requirements voluntarily" after the Merrimack Valley incident.[85] If operators—especially large-scale operators—have implemented the proposed changes after 2018, then data from 2021 and 2022 may be an important indicator of the efficacy of voluntary adoption of the proposed requirements. Data for those years appears to be available on PHMSA's website.[86] The agency should therefore include 2021 and 2022 data in its estimates or explain why it is not feasible to use.

C. PHMSA Should Explain How It Derived Its Work-hour Estimates

PHMSA provides thorough analysis regarding the additional work-hour burden placed on operators to comply with the requirements of this Proposed Rule.[87] This analysis includes discussions regarding the type or class of employee that would perform additional work because of the Proposed Rule,[88] as well as considerations regarding how operators' needs would differ based on size.[89] However, PHMSA does not provide much support for how it arrived at these numbers. The agency requests comment on its estimates on multiple occasions.[90] Therefore,

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[81] *Id*. at 16–17. PHMSA uses a midpoint estimate when evaluating the number of construction projects per operator as well. *Id*. at 35.
[82] *E.g.*, *id*. at 21. Here, PHMSA took information provided by the American Gas Association that evaluations of overpressure protection technology would take between 0.5-1.0 hours per district regulator station. PHMSA made a "conservative estimate" and used 4.0 hours of work per station as the figure in their cost analysis.
[83] CIRCULAR A-4 at 18. In their estimate for the number of gathering operators, PHMSA uses the "lower bound estimate." RIA at 19.
[84] *E.g.*, RIA at 51.
[85] *Id*. at 66. This language is used in an almost boilerplate manner to conclude sections of the Preamble laying out PHMSA's proposed amendments. *See, e.g.*, Proposed Rule, 88 Fed. Reg. at 61,783 ("PHMSA understands that *some gas distribution operators* may already comply with [the proposed requirement for gas distribution operators to identify and maintain traceable, accurate, and complete records of system characteristics pertinent to pressure control] . . . .") (emphasis added); *id.* at 61,785 (noting that "some operators" may already provide employees with stop-work authority, and "some operators" may already employ compliant maintenance and construction protocols).
[86] Pipeline & Hazardous Materials Safety Admin., *Pipeline Incident Flagged Files* (last updated Sept. 29, 2023), https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-flagged-files.
[87] *E.g.*, RIA at 15, 21–22.
[88] *E.g.*, *id*. at 8–30.
[89] *E.g.*, *id*. at 21.
[90] *E.g.*, *id*. at 29.

PHMSA could strengthen its analysis by incorporating the information it receives from regulated entities and providing more support for how it determined its overall burden-hour requirements.

VIII. PHMSA Should Discuss Other Benefits from Preventing Pipeline Leaks

PHMSA observes that the Proposed Rule would provide additional benefits, including physical and mental health benefits, through the reduction in pipeline leaks and incidents.[91] The agency could bolster this conclusion by providing further evidence of these benefits, as well as other potential benefits, such as benefits to trees and urban vegetation. In addition, the agency should explain how the Proposed Rule would provide *long-term* health benefits, including the prevention of latent physical health conditions.

The mental health effects of living near gas pipelines are documented in the scientific literature. One study published in the Journal of Environmental Psychology found that living in areas perceived as "industrial," which includes areas with "subjective appraisals of [poor] environmental conditions," leads to higher rates of "anxiety, depression and psychiatric comorbidity."[92] Researchers from the University of Southern California studying the long-term effects of the Porter Ranch gas leak hypothesized that a host of adverse health effects, including neurological effects, may flow from stress surrounding gas leaks because "[i]f there is a lot of stress, it triggers generic inflammation mechanisms in your body, which may lead to physical biological responses."[93] PHMSA should include this evidence of mental health effects in its analysis to further highlight the benefits of the Proposed Rule.

The negative physical and latent health effects of living near a gas pipeline leak are also well documented. While PHMSA details the Proposed Rule's short-term health benefits (e.g., a reduction of deaths and hospital benefits), the agency should further highlight the long-term health benefits of the Proposed Rule. For example, a 2018 study published in Environmental Science and Technology found the "mean ambient benzene, toluene, ethylbenzene, total xylene and total alkane concentrations" near gas leaks "were 41, 34, 35, 32, and 86 times higher" than baseline areas.[94] The researchers found these chemical concentrations led to a lifetime cancer risk over eight times the EPA's "upper bound risk level."[95] The agency should incorporate studies showing the long-term adverse health effects of living near pipeline leaks in order to provide further evidence of the Proposed Rule's beneficial impact.

Finally, the benefits to trees and other urban vegetation of preventing pipeline leaks are also well documented. One recent study found that exposure to elevated soil methane concentrations is associated with significant increased odds of tree death, which supports the idea that fugitive emissions from natural gas distribution systems harm the tree canopy and other

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[91] *E.g.*, *id.* at 46, 57, 81–82.
[92] Sibila Marques & Maria Luísa Lima, *Living in Grey Areas: Industrial Activity and Psychological Health*, 31 J. ENV'T POL'Y 314, 319 (2011).
[93] Zen Vuong, *USC Researchers Look at Long-Term Health Effects of Porter Ranch Gas Leak*, (Jan. 26, 2016), https://today.usc.edu/usc-researchers-to-study-long-term-health-effects-of-porter-ranch-gas-leak/ [https://perma.cc/CXY2-YWXJ].
[94] Lisa M. McKenzie et al., *Ambient Nonmethane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks*, 52 ENV'T SCI. & TECH. 4514, 4519 (2018).
[95] *Id*. at 4520.

urban vegetation.[96] Moreover, the urban tree canopy provides numerous documented benefits, including physical and mental health benefits resulting from improved air quality, moderating ambient temperature through shade, promoting activity and mental health, and increasing perceptions of public safety.[97] PHMSA could thus discuss avoided harm to the urban tree canopy as an additional environmental benefit of the Proposed Rule.[98]

Sincerely,

Isabelle Charo
Jack Lienke
Gunnar Stanke
Andrew Stawasz

[96] Claire Schollaert et al., *Natural Gas Leaks and Tree Death: A First-Look Case-Control Study of Urban Trees in Chelsea, MA USA*, ENV'T POLLUTION 6 (Aug. 2020).
[97] *Id.* at 1.
[98] *See also* OFF. OF INFO. & REGUL. AFFS., GUIDANCE FOR ASSESSING CHANGES IN ENVIRONMENTAL AND ECOSYSTEM SERVICES IN BENEFIT-COST ANALYSIS: DRAFT FOR PUBLIC REVIEW ii (Aug. 2023), https://www.whitehouse.gov/wp-content/uploads/2023/08/DraftESGuidance.pdf (showing examples of ecosystem services that may be affected by rules that affect or involve infrastructure, including linear infrastructure like pipelines).