



January 29, 2021

**SUBMITTED VIA EMAIL TO CLIMATE.STRATEGIES@MASS.GOV**

Sharon Weber  
Massachusetts Department of Environmental Protection  
1 Winter Street  
Boston, MA 02108

**Re: Comment of Environmental Defense Fund on the Massachusetts Department of Environmental Protection’s Program Review, Emergency Regulation, and Proposed Amendments to 310 CMR 7.73, Reducing Methane Emissions from Natural Gas Distribution Mains and Services**

Dear Ms. Weber:

Environmental Defense Fund (“EDF”) respectfully submits this comment to the Massachusetts Department of Environmental Protection (“MassDEP”), in the matter of its Program Review, Emergency Regulation, and Proposed Amendments to 310 CMR 7.73, Reducing Methane Emissions from Natural Gas Distribution Mains and Services (“Gas Distribution Methane Standard” or “Standard”).

Requiring gas utilities to report year-over-year declining methane emissions from their distribution systems is valuable and MassDEP is correct to extend this Standard through 2024. But the Gas Distribution Methane Standard—including the Emergency Regulation and Proposed Amendments—is not itself driving reductions in methane emissions because the Standard is tied directly to preexisting pipe replacement programs. As the Commonwealth of Massachusetts seeks to achieve ambitious climate targets, a business-as-usual approach to gas utility regulation will not be sufficient to achieve the required reductions in greenhouse gas (“GHG”) emissions. MassDEP should update the Standard to require use of advanced leak detection technology and data analytics (“ALD+”) by gas utilities to identify and remediate super-emitting gas leaks that are a major source of methane. ALD+ is an effective, available tool that can identify and measure leaks with greater accuracy than traditional technologies. Additionally, this comment responds to unfounded criticisms of the Weller et al. (2020) study.

## **I. The Gas Distribution Methane Standard Does Not Require Utilities to Institute New Practices to Reduce Methane Emissions and Does Not Consider Leak Repair**

The Standard (including the Emergency Regulation and Proposed Amendments) sets methane emission limits for each gas utility based on pipe replacement programs, which disregards the opportunity to reduce methane emissions through leak repair. MassDEP should set more aggressive, annually declining methane emission limits that require utilities to use advanced leak detection and report reductions achieved through leak repair.

The Standard does not require gas utilities in Massachusetts to implement specific practices to reduce their GHG emissions—instead, it establishes a reporting framework that tracks changes in the utilities’ pipe material as they implement pipe replacement programs (and continue to expand their distribution systems).<sup>1</sup> Gas utilities seek approval from the Massachusetts Department of Public Utilities (“DPU”) for their Gas System Enhancement Plans (“GSEPs”) “to replace aging leak-prone natural gas pipeline and services with newer pipe material over the course of a series of years.”<sup>2</sup> MassDEP calculates the annual methane emission limits in this Standard for each utility based on the number of miles of pipe the utility has received approval to replace through its GSEP and the projected growth of the distribution system.<sup>3</sup> Each utility reports its annual methane emissions to MassDEP using calculations based on pipe material (not on actual emissions monitoring), so if the utility has replaced the pipe per its GSEP, then it can report compliance with the MassDEP Standard. Thus, the Gas Distribution Methane Standard does not require a gas utility to take any additional action to remediate methane emissions beyond the GSEP.

MassDEP explains the direct connection between the GSEP program overseen by DPU and the Gas Distribution Methane Standard, stating: “GSEPs are leading to a decline in methane emission leaks, and the resulting reductions are the basis of the declining annual emission limits proposed under this regulation.”<sup>4</sup> MassDEP specifically explains that the Standard imposes no economic burden on gas utilities because they are already taking these actions to comply with their GSEPs: “MassDEP expects minimal economic impacts from 310 CMR 7.73 beyond those

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<sup>1</sup> See Massachusetts DEP, Emergency Regulation: 310 CMR 7.73(5) (issued Dec. 18, 2020), <https://www.mass.gov/doc/310-cmr-773-emergency-regulation-showing-changes-december-2020/download>.

<sup>2</sup> Massachusetts DEP, Program Review Report and Technical Support Document on Proposed Amendments to 310 CMR 7.73 *Reducing Methane Emissions from Natural Gas Distribution Mains and Services* at p3 n.1 (Dec. 2020) (“TSD”), <https://www.mass.gov/doc/310-cmr-773-technical-support-document/download>. All GSEPs are expected to be complete by 2039. *Id.* at p6.

<sup>3</sup> See MassDEP, Appendix A accompanying TSD (Dec. 2020); Gas Utility Responses to MassDEP Data Request (submitted Sept. 17, 2020), <https://www.mass.gov/doc/gas-utility-responses-to-massdep-data-request/download>.

<sup>4</sup> *Id.*

already expected from implementation of the GSEP orders because MassDEP has designed the proposed regulation with emission limits aligned with the GHG emissions reductions resulting from the gas operators' GSEPs.”<sup>5</sup> While the GSEPs have led to a decline in methane emissions, there are additional means by which further emissions reductions can be achieved, as discussed below. Business-as-usual regulatory frameworks must be revisited in order to place the Commonwealth on a path towards its net-zero GHG emissions future.

By directly connecting the Standard to pipe replacement, MassDEP fails to incorporate another important opportunity to reduce methane emissions from the gas distribution system: leak repair. Utilities are required to conduct regular leak surveys and repair leaks to maintain system safety, and as MassDEP acknowledges, the DPU—in consultation with MassDEP—has implemented a program to require gas utilities to identify and repair Grade 3 (nonhazardous) leaks that have a “significant environmental impact.”<sup>6</sup> MassDEP recognizes that in addressing Grade 3 leaks, “gas operators will be able to accelerate the decline in emissions of methane from natural gas infrastructure,” but the MassDEP Standard does not establish lower annual methane limits based on this emission reduction potential.<sup>7</sup> A gas utility will satisfy its methane emissions limit under the Standard merely by replacing pipe pursuant to its GSEP, and thus the Standard creates no incentive or requirement for utilities to further reduce methane emissions by repairing gas leaks.

To demonstrate this problem with an example, in the Emergency Regulation extending the Standard, MassDEP requires that NSTAR Gas Company d/b/a Eversource Energy reduce its methane emissions by 1,727 metric tons of carbon dioxide equivalent (“MT CO<sub>2</sub>e”) by 2022.<sup>8</sup> This requirement is calculated based on the number of miles of leak-prone pipe that Eversource Energy plans to replace according to its GSEP, and any planned expansion to the distribution system. MassDEP will determine whether Eversource has complied with this standard based on the number of miles of pipe that Eversource reports, because that is how the company will calculate and report its emissions. The Standard completely disregards Eversource’s leak repair efforts, including the Grade 3 leak repair program. Consideration of the Grade 3 leak repair program in the Standard could provide Eversource and other utilities the opportunity to receive credit for additional methane emission reductions achieved through leak repair.

The manner in which utilities may modify their annual methane limits under the Standard (including the Emergency Regulation and Proposed Amendments) demonstrates the ease with which a utility may seek to increase its methane limit. A gas utility may petition MassDEP to

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<sup>5</sup> *Id.* at p17.

<sup>6</sup> *Id.* at p6 (citing Session Law: Chapter 188 of the Acts of 2016, an Act to Promote Energy Diversity, Section 13; 220 CMR 114).

<sup>7</sup> TSD at p6.

<sup>8</sup> MassDEP, Emergency Regulation: 310 CMR 7.73(4), Table 6 (issued Dec. 18, 2020). MassDEP’s proposed annual methane limits set Eversource’s 2021 maximum allowable methane emissions at 23,939 MT CO<sub>2</sub>e, and set its 2022 maximum allowable methane emissions at 22,212 MT CO<sub>2</sub>e. Thus, the company is required to reduce its methane emissions by 1,727 MT CO<sub>2</sub>e by 2022.

modify its annual methane emission limit—under the revised Emergency Regulation, the utility can do so by submitting its annual U.S. Pipeline and Hazardous Materials Safety Administration report, which documents the miles of main and number of services on the distribution system.<sup>9</sup> Thus, a utility might seek an increase in its annual methane limit because it increased the size of the gas distribution system more than planned, or because it did not replace as much leak-prone pipe as planned.

For example, in April 2019, NSTAR Gas Company d/b/a Eversource Energy filed its 2018 annual report, explaining that MassDEP had approved the company’s petition to increase its emissions cap from 28,606 MT CO<sub>2</sub>e to 28,764 MT CO<sub>2</sub>e “due to a change in pipeline miles and/or number of services.”<sup>10</sup> The report went on to state that Eversource had exceeded that revised emissions cap by an additional 3 MT CO<sub>2</sub>e, and explained that the Company intended to file another petition accordingly.<sup>11</sup>

While expansion of the gas distribution system may be needed to maintain safe and reliable service—subject to other regulatory approvals as appropriate—the MassDEP should consider such expansion alongside additional opportunities to reduce methane emissions from elsewhere on the system. Instead of approving a petition for an increased emissions cap in isolation, MassDEP could require that utilities demonstrate compliance with the annual limit by documenting methane emission reductions on another part of its system—i.e., by engaging in leak surveying and repair of super-emitting leaks, as discussed in Part II below. Where the objective of the Gas Distribution Methane Standard is to reduce greenhouse gas emissions in order to mitigate the harmful effects of climate change, MassDEP should be prepared to exercise its authority to establish and enforce meaningful, declining methane emission limits for gas utilities.

## **II. The Standard Should Account for Methane Reductions Beyond Pipe Replacement, and MassDEP Should Require Use of ALD+**

By disregarding methane emission reductions that are achieved or could be achieved through leak repair or other changes to the gas distribution system, MassDEP is centering the Standard around pipe replacement and not incentivizing utilities to focus their efforts on identifying and remediating high-emitting gas leaks. MassDEP should incorporate a requirement that, in addition to reporting methane emission reductions achieved through leak-prone pipe replacement, gas utilities must report on methane emission reductions resulting from repair of large leaks, which could be most accurately identified and measured with ALD+. The decreasing annual methane

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<sup>9</sup> Massachusetts DEP, Emergency Regulation: 310 CMR 7.73(4)(c)(3), Table 6 (issued Dec. 18, 2020).

<sup>10</sup> Eversource Energy, Letter to Ms. Sharon Weber at MassDEP, Re: Eversource 2018 Annual Report per 310 C.M.R. 7.73(5) (Apr. 15, 2019) (obtained by EDF via public records request and attached to this comment as Attachment 1).

<sup>11</sup> *Id.*

emission limits for each utility should not be determined solely based on pipe replacement assumptions, and should be coordinated with other Massachusetts climate programs.

*A. The Standard Should Account for Other Sources of Methane Reductions, Which May be Optimized Through Coordination with Other Climate Programs*

The purpose of the Gas Distribution Methane Standard is to “assist the Commonwealth in achieving [its] greenhouse gas emissions reduction goals . . . by reducing methane (CH<sub>4</sub>) emissions from natural gas distribution mains and services.”<sup>12</sup> This purpose is not limited to leak-prone pipe replacement, and the Standard should also incorporate consideration of methane emission reductions achieved through leak repairs.

One pathway to improve and incorporate utility reporting on leak emissions could be to increase coordination between this Standard, the Grade 3 leak repair program overseen by Massachusetts DPU, and the lost and unaccounted-for (“LAUF”) gas reporting program also overseen by DPU.<sup>13</sup> As MassDEP acknowledged in the TSD, “DPU’s [LAUF] program required additional reporting that MassDEP has found useful in reviewing the 310 CMR 7.73 program.”<sup>14</sup> And DPU’s Grade 3 leak program appears to contemplate incorporating the use of ALD+ or other advanced leak technologies, stating: “A Gas Company is not precluded from proposing to the Department a more rigorous method of designating environmentally significant Grade 3 leaks based on field data or tested and proven technologies that may become available from time to time.”<sup>15</sup>

An example of such a reporting structure can be found in recent legislation enacted in Washington State, which requires gas utilities to file annual leak reports and permits the state Public Utility Commission to require those reports to detail the “volume of each leak, measured in carbon dioxide equivalents and thousands of cubic feet.”<sup>16</sup> The Commission “must use the data reported by gas pipeline companies under this section, as well as other data reported by gas pipeline companies to the commission and to the department of ecology, to estimate the volume of leaked gas and associated greenhouse gas emissions from operational practices in the state. The commission may request additional information by order.”<sup>17</sup> Beginning in 2021, the

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<sup>12</sup> 310 C.M.R. 7.73(1) (Dec. 18, 2020).

<sup>13</sup> See 220 C.M.R. 115 (Dec. 27, 2019).

<sup>14</sup> TSD at p6.

<sup>15</sup> 220 C.M.R. 114.07(1)(a).

<sup>16</sup> Act: Natural Gas Transmission and Distribution, State of Washington Ch. 32, Laws of 2020, § 3(3)(d) (effective June 11, 2020), <http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/House/2518-S2.SL.pdf?q=20210126175158>.

<sup>17</sup> *Id.* § 3(4).

Commission is required to publish annual aggregate data regarding the GHG emissions volume and causes of gas leaks.<sup>18</sup>

Additionally, MassDEP should continue to coordinate with other state agencies and consider other processes underway that this Standard could contribute to. For example, instituting a requirement for utilities to incorporate advanced leak detection into their operations and report on quantifiable, achieved reductions in methane emissions from the distribution system could contribute to the objectives of the Massachusetts 2050 Decarbonization Roadmap. The Roadmap states that “[r]educing emissions to achieve Net Zero by 2050 is the Commonwealth’s primary and most important line of defense in preventing the significant threats presented by a changing climate,” and it acknowledges the ongoing push to reduce methane leakage, stating: “Leaks from distribution pipes will continue, however, as long as any part of the gas system remains pressurized.”<sup>19</sup> MassDEP should also coordinate to ensure that implementation of the Standard aligns with the long-term planning proceeding for gas utilities underway before the DPU.<sup>20</sup>

### *B. The Standard Should Require Use of ALD+*

In its previous comment to MassDEP in this proceeding, EDF provided the agency with information about the effectiveness of advanced leak detection technology and data analytics to identify and measure gas leaks.<sup>21</sup> ALD+ is an available, effective, and economically feasible technology that can identify additional and different leaks from traditional survey methods,<sup>22</sup> and MassDEP should require the use of ALD+ by Massachusetts gas utilities. Specifically, MassDEP should require that utilities use ALD+ to survey their service territories on an annual basis, identify high-emitting gas leaks, remediate the leaks, and report on the methane emission reductions achieved.

As a guiding example, PG&E in California has integrated ALD+ into its operations with a Super Emitter program that seeks to identify the largest leaks on its system (responsible for the most methane emissions) and address those leaks quickly to maximize emissions reductions. PG&E—working with ALD+ service provider Picarro—uses a statistical model to prioritize geographic plats based on a likelihood of finding the most leaks, allowing PG&E to increase the number of

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<sup>18</sup> *Id.* § 3(5).

<sup>19</sup> Massachusetts 2050 Decarbonization Roadmap at p4, 71 (Dec. 2020), <https://www.mass.gov/doc/massachusetts-2050-decarbonization-roadmap/download>.

<sup>20</sup> See Mass. Office of the Attorney General, Petition Requesting an Investigation, Mass. DPU Docket 20-80 (June 4, 2020).

<sup>21</sup> Comment of Environmental Defense Fund on the Massachusetts Department of Environmental Protection’s Program Review of 310 CMR 7.73, Reducing Methane Emissions from Natural Gas Distribution Mains and Services (Sept. 18, 2020).

<sup>22</sup> See Weller, Zachary et al., *Vehicle Based Methane Surveys for Finding Natural Gas Leaks and Estimating their Size: Validation and Uncertainty*, Environmental Science & Technology, 2018, 52, 20, 11922–11930, <https://pubs.acs.org/doi/10.1021/acs.est.8b03135>.

leaks found by 15% to 80% while surveying 25% to 50% fewer services.<sup>23</sup> In 2018, PG&E identified and repaired 220 Super Emitter leaks, estimating that the program achieved an emissions reduction of 90 Mscf (million standard cubic feet) for 2018 and is expected to result in further emissions reductions in the future.<sup>24</sup> PG&E is also incorporating these statistical models into an analysis of the number of unknown leaks in their system, which they plan to use to estimate total GHG emissions from leaks in their system, a figure that is incorporated into their annual greenhouse gas emissions inventory.<sup>25</sup>

Using ALD+ to estimate a baseline systemwide leak flow rate could result in a higher estimate of methane emissions than Massachusetts utilities are currently reporting. This can and should be viewed as an opportunity to pick low-hanging fruit to reduce GHG emissions, because it allows utilities to identify and prioritize areas (i.e., super-emitting leaks) where they can cost-effectively mitigate GHG emissions using proven technologies and methods. Furthermore, integration of ALD+ into the Gas Distribution Methane Standard will allow for greater transparency, providing MassDEP with helpful, real-time data to track emissions and achieved reductions on a regular basis.

Incorporating information about methane emission reductions achieved through leak repair, specifically ALD+, into MassDEP's Gas Distribution Methane Standard would improve the accuracy of the emission data reported and allow gas utilities to achieve greater reductions in methane emissions. This outcome would align with the objectives of the Massachusetts Global Warming Solutions Act and the Commonwealth's ambitious goals to act on climate and achieve net-zero carbon emissions.<sup>26</sup>

### **III. The Massachusetts Local Distribution Companies and MassDEP Mistakenly Interpreted Some Aspects of the Weller Study**

EDF and other stakeholders submitted for MassDEP's consideration in this proceeding a recent 2020 study by Weller et al., *A National Estimate of Methane Leakage from Pipeline Mains in Natural Gas Local Distribution Systems* ("Weller Study").<sup>27</sup> The study calculates a national methane emissions estimate that is approximately five times greater than the U.S. EPA's GHG

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<sup>23</sup> François Rongere, PG&E, Presentation: Risk Based Leak Surveys (Oct. 2019).

<sup>24</sup> Pacific Gas and Electric Company, Natural Gas Leakage Abatement Report, California Public Utilities Commission Rulemaking 15-01-008, at 9 (June 17, 2019).

<sup>25</sup> François Rongere, PG&E, Presentation: Risk Based Leak Surveys (Oct. 2019).

<sup>26</sup> See MASS. GEN. LAWS ch. 21N, §§ 3-4 (2019); *Kain v. Mass. Dep't of Env'tl. Prot.*, 49 N.E.3d 1124, 1142 (Mass. 2016); Governor Charles Baker, Executive Order No. 569, Establishing an Integrated Climate Change Strategy for the Commonwealth (Sept. 16, 2016), <https://www.mass.gov/doc/executive-order-569-mass-register-1323/download>.

<sup>27</sup> Weller et al., *A National Estimate of Methane Leakage from Pipeline Mains in Natural Gas Local Distribution Systems*, *Environmental Science & Technology*, 2020, 54, 8958–8967 (June 2020), <https://pubs.acs.org/doi/10.1021/acs.est.0c00437> ("Weller Study").

inventory estimate, and observes: “[A] small number of emission sources, so-called ‘super-emitters,’ account for the majority of emissions across the NG supply chain. Observing these rare but large sources is an important part of accurately characterizing emissions factors[.]”<sup>28</sup>

MassDEP (in the TSD), and a coalition of Massachusetts Local Distribution Companies (“LDCs”) (in their comments on the Program Review), leveled a number of criticisms at the Weller Study in the course of this proceeding. Those criticisms are addressed in this section and do not present a basis to undermine the Weller Study, which has been scientifically peer-reviewed.

In the TSD, MassDEP mistakenly expresses concern that the Weller Study “did not directly measure emissions from pipelines.”<sup>29</sup> This is incorrect—the Weller Study is based on quantifying emissions from more than 4,000 leak indications collected during advanced mobile leak detection surveys, as detailed in a previous study.<sup>30</sup> The emissions quantification method was calibrated with controlled methane releases and then validated on actual natural gas leaks using independent validation measurements.<sup>31</sup> MassDEP expresses concern that the Weller Study “used a database rather than in-field confirmation to attribute the likely pipeline material associated with each leak,”<sup>32</sup> but the study takes steps to ensure the accuracy of pipeline material data. The GIS database the study relies on for pipeline infrastructure information consists of data reported directly by gas utilities and several data quality checks were used to exclude pipelines that were incorrectly categorized in the GIS database (e.g., cast iron installed in 2005). Furthermore, the study incorporated a formal uncertainty analysis to improve accuracy compared to previous analyses.<sup>33</sup>

The LDCs assert that there were “various methodological issues” with the study that “render it inappropriate” as a basis for MassDEP’s emission factors. The LDCs assert that the Weller Study used GIS data to determine material types; that it did not include the age of the infrastructure material, nor did it incorporate vintage plastic infrastructure into its analysis; that it did not verify the material of any mains; that the data was extrapolated nationally, and some correction factors were applied; that data that should have been counted as outliers were also included, such as a leak caused by a dig-in.<sup>34</sup>

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<sup>28</sup> *Id.* at 8959.

<sup>29</sup> TSD at 13.

<sup>30</sup> Weller Study at p8959-60 (citing Weller, Z., D., Yang, D. K., & von Fischer, J. C., *An open source algorithm to detect natural gas leaks from mobile methane survey data*. Plos One, 14(2), e0212287 (2019), <https://doi.org/10.1371/journal.pone.0212287>).

<sup>31</sup> *Id.*

<sup>32</sup> TSD at 13.

<sup>33</sup> Weller Study at p8959.

<sup>34</sup> LDC Initial Comments, MassDEP 310 CMR 7.73 Program Review, at p7 (Sept. 18, 2020).



The so-called “issues” asserted by the LDCs are unfounded. The analysis in the Weller Study used the year of pipeline installation as a proxy for pipeline age, which is an acceptable estimation method. The Weller Study used the pipeline material listed in the GIS database, and pipeline infrastructure that was coded incorrectly in the GIS system, such as cast iron installed in 2005, was excluded from the analysis. It is not clear what is meant by “vintage plastic” in the LDCs’ comment, but the Weller Study included plastic pipe with an installation age of up to 50 years old. The Weller Study did not include any leaks that were attributable to dig-ins. It used a very large (n = 4,220) sample size of leak indications in its analyses. Previous research has shown that the majority (74%) of leak indications from these advanced leak detection surveys are attributable to natural gas leaks.<sup>35</sup> Furthermore, the Weller Study did not include any leak indications that were not in close spatial proximity (<40m) to a natural gas pipeline main.

The LDCs further assert that a study by Lamb et al., from 2015<sup>36</sup>—which is the basis for certain emission factors used by MassDEP and the EPA GHG Reporting Program—does not suffer from these purported flaws and thus should be relied on to the exclusion of the Weller Study.<sup>37</sup> This narrow view is incorrect and fails to consider the advancement of research on methane emissions from gas leaks. The Lamb Study, while an important contribution to understanding gas leaks, relies on utility leak inventories to compute activity factors, which is a weakness because more recent work has demonstrated that these inventories undercount natural gas leaks.<sup>38</sup> Additionally, the Lamb Study used a limited number of observations (n = 211) to estimate emission factors for mains and services. For safety reasons, it also did not measure emissions from any Grade 1 leaks, which may be a source of bias.

The scientifically peer-reviewed Weller Study is now part of the best available information on leak emission factors. The LDCs are incorrect that MassDEP should disregard the Weller Study in its development of emission factors and rely solely on the Lamb Study. The results of the Weller Study should be considered as part of a calculation to update emissions factors. For example, a simple approach to incorporate both results would be for MassDEP to average the emission factors calculated by the Weller Study and Lamb Study.

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<sup>35</sup> Weller, Zachary D., et al. *Vehicle-based methane surveys for finding natural gas leaks and estimating their size: validation and uncertainty*. *Environmental Science & Technology* 52.20 (2018): 11922–11930, <https://pubmed.ncbi.nlm.nih.gov/30234975/>.

<sup>36</sup> Lamb, B. et al., *Direct Measurements Show Decreasing Methane Emissions from Natural Gas Local Distribution Systems in the United States*, *Environmental Science & Technology*, 2015, 49, 8, 5161–5169 (2015), <https://pubs.acs.org/doi/10.1021/es505116p>.

<sup>37</sup> LDC Initial Comments, MassDEP 310 CMR 7.73 Program Review, at p7 (Sept. 18, 2020).

<sup>38</sup> See Plant, G., et al., *Large Fugitive Methane Emissions From Urban Centers Along the U.S. East Coast*. *Geophys. Res. Lett.* 2019, 46, 8500–8507 (July 2019), <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2019GL082635>; Weller, Zachary et al., *Vehicle Based Methane Surveys for Finding Natural Gas Leaks and Estimating their Size: Validation and Uncertainty*, *Environmental Science & Technology*, 2018, 52, 20, 11922–11930 (Sept. 2018), <https://pubs.acs.org/doi/10.1021/acs.est.8b03135>.

#### **IV. MassDEP’s New Requirement to Categorize Pipeline Mileage by Material Type and Age in Annual Reporting is an Improvement to the Standard**

The Emergency Regulation incorporates a new requirement, that gas utilities report annually “[t]he miles of mains and number of services owned, leased, operated, or controlled by the gas operator and located in Massachusetts by age and each material type.”<sup>39</sup> In the TSD, MassDEP explains that the Weller Study “pointed out that gas operators’ current reporting of pipeline mileage by material type does not subdivide pipeline mileage by age. Therefore, in order to track progress on eliminating the oldest pipeline, the Emergency Regulation includes a new requirement for gas operators to categorize their pipeline mileage by material type and age in their annual reports to MassDEP.”<sup>40</sup>

MassDEP’s decision to require the inclusion of pipeline mileage categorized by material type and age in annual reporting by gas utilities is a positive step that improves the Standard. The Weller Study found a clear interaction between pipeline material and age, with the leakiness of all material types increasing with age. The study’s modeling found that pipe age, material, and their interaction affect the leak indication rate, with the interaction being an important predictor of leak activity.<sup>41</sup> Bare steel was found to exhibit the strongest estimated aging effect.

#### **V. Conclusion**

Requiring gas utilities to report year-over-year declining methane emissions from their distribution systems is valuable and MassDEP is correct to extend this standard through 2024. But as is apparent in the original Standard and subsequent Emergency Regulation, Proposed Amendments, and TSD, the Gas Distribution Methane Standard is not itself driving reductions in methane emissions because the Standard is tied to preexisting pipe replacement programs. MassDEP should incorporate consideration of methane reductions from leak repairs into the annual emission limits. To achieve the most accurate, quantifiable emission reductions, MassDEP should reform the Standard to require use of ALD+ to identify and remediate super-emitting gas leaks that are a major source of methane. ALD+ is an effective, available tool that can identify and measure leaks with greater accuracy than traditional technologies.

EDF looks forward to continuing to engage with MassDEP and other stakeholders to improve the Gas Distribution Methane Standard and achieve greater reductions in methane emissions from the natural gas distribution system.

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<sup>39</sup> Massachusetts DEP, Emergency Regulation: 310 CMR 7.73(5)(b)(6) (issued Dec. 18, 2020).

<sup>40</sup> TSD at p12.

<sup>41</sup> Weller Study at 8962.

Dated: January 29, 2021

/s/ Erin Murphy

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Attachment 1

Eversource Energy, Letter to Ms. Sharon Weber at MassDEP,  
Re: Eversource 2018 Annual Report per 310 C.M.R. 7.73(5)  
(Apr. 15, 2019)

April 15, 2019

Ms. Sharon Weber  
Deputy Division Director, Air & Climate Programs  
Department of Environmental Protection  
One Winter Street 7th Floor  
Boston, MA 02108

Re: Eversource 2018 Annual Report per 310 C.M.R. §7.73(5)

Dear Ms. Weber:

In October 2017, the Massachusetts Department of Environmental Protection (“MassDEP”) issued its final methane emissions cap regulations codified as 310 C.M.R. § 7.73 (“Methane Regulations”). Under the provisions of the Methane Regulations, NSTAR Gas Company d/b/a Eversource Energy (“Eversource” or the “Company”), along with the other Massachusetts local distribution companies (“LDCs”) having a Gas System Enhancement Program (“GSEP”) Plan, is subject to an annually declining methane emissions cap that was calculated by multiplying the mileage of main and number of services on the Company’s natural gas distribution system by constant emission factors, as developed by the Environmental Defense Fund (“EDF”), for each pipe material type. 310 C.M.R. § 7.73(4)(a) Table 6.

Under 310 C.M.R. §7.73(5), Eversource is required to file an annual report with the MassDEP by April 15<sup>th</sup> regarding the emissions that occurred on the Company’s system the previous year. On March 22, 2019, the MassDEP issued a template reporting form and spreadsheet to be populated by each LDC consistent with the reporting requirements contained in 310 C.M.R. §7.73(5). This filing represents the Company’s 2018 methane emissions annual report (“2018 Report”).

On February 15, 2019, the MassDEP approved Eversource’s petition, pursuant 310 C.M.R. §7.73(4)(c)3.a. and §7.73(4)(c)4.a., to modify its methane emissions cap due to a change in pipeline miles and/or number of services, which was initially filed on May 30, 2018 and subsequently amended. Consistent with its approval, the MassDEP increased Eversource’s Maximum Annual CH<sub>4</sub> Emission Limit for 2018 from 28,606 metric tons of carbon dioxide equivalent to 28,764 metric tons.

As shown in the Company’s 2018 Report, it has exceeded its revised 2018 methane emissions cap by three metric tons. Consistent with the provisions and timing conventions of 310 C.M.R. §7.73(4)(c)3.a. and §7.73(4)(c)4.a., the Company intends to file a petition within 30 days of receipt of the order issued by the Department of Public Utilities (the “Department”) on the Company’s 2018 GSEP Reconciliation (“GREC”) filing. The Company will file its 2018 GREC on May 1, 2019 and anticipates a Department order on or before October 31, 2019.

Consistent with the LDCs’ May 10, 2018 joint comments and proposals regarding the timing conventions of 310 C.M.R. §7.73, particularly the timing associated with the filing for cap modification petitions, the Company takes this opportunity to reiterate that, as currently structured, the cap modification petition procedures is at cross purposes with the filing, approval and implementation of the Company’s GSEP. Under the Company’s next opportunity to file a petition for a cap modification, the 2018 GSEP Investment Year will have been closed, from an operational standpoint, for 11 months. The GREC proceeding before the Department is to approve the reconciliation of the 2018 GSEP expenditures and any necessary changes to the

Gas System Enhancement Reconciliation Adjustment Factor (“GSERAF”). The GREC proceeding in no way impacts the Company’s distribution system inventory of leak-prone infrastructure that drives emissions: the 2018 GSEP replacements are complete and in service for the benefit of the Company’s customers consistent with the Commonwealth’s environmental policies. The Company anticipates continuing to work with the MassDEP in calculating the emissions caps for 2021 and beyond to develop a workable solution that effectively and efficiently coordinates between the Company’s responsibilities under its GSEP and 310 C.M.R. §7.73 in order to continue to advance the Commonwealth’s crucial environmental goals.

Should you have questions or require further explanation of the Company’s 2018 Report, please do not hesitate to contact Tracy Gionfriddo at [tracy.gionfriddo@eversource.com](mailto:tracy.gionfriddo@eversource.com).

*“I certify that I have personally examined the report for this facility and am familiar with the information contained in that report and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment.”*

Sincerely,

A handwritten signature in blue ink, appearing to read "Ellen Angley".

Ellen Angley,

Vice President, Supply Chain, Environmental Affairs & Property Management



Annual Methane Emissions Reporting Form for Gas Operators under 310 CMR 7.73

**A. Basic Information**

**Important:**  
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



**Gas Operator/Organization Information:**

NSTAR Gas Company dba Eversource Energy

Company/Organization Name

157 Cordaville Rd

Mailing Address

Southborough

City/Town

MA

State

01772

ZIP Code

157 Cordaville Rd

Physical Address

Southborough

City/Town

MA

State

01772

ZIP Code

**Location of Physical Records and Documents:**

157 Cordaville Rd

Physical Address

Southborough

City/Town

MA

State

01772

ZIP Code

**Gas Operator Designated Representative:**

Robert Buffone

Contact Name

Manager, Gas Engineering

Contact Title

157 Cordaville Rd

Mailing Address

Southborough

City/Town

MA

State

01772

ZIP Code

508-305-7036

Telephone Number

robert.buffone@eversource.com

Email Address

**Alternate Contact (optional):**

Tracy A Gionfriddo

Contact Name

Senior Environmental Specialist

Contact Title

107 Selden St

Mailing Address

Berlin

City/Town

CT

State

06037

ZIP Code

860-665-5762

Telephone Number

tracy.gionfriddo@eversource.com

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**Notes:**

- Report is due April 15 after each calendar year. The first report is for 2018 and is due April 15, 2019.

**B. Emissions Reporting Year**

Emissions Reporting Year
2018



**Annual Methane Emissions Reporting Form for Gas Operators under 310 CMR 7.73**

**C. Annual Miles of Mains, Services, and Emissions**

**Notes:**

- **Actual Miles and Services** as reported to PHMSA and entered in the blue boxes on the gas operator's reporting spreadsheet that must be submitted with this form.
- **Emissions** as calculated in the green boxes on the gas operator's reporting spreadsheet that must be submitted with this form.
- **Emissions** should be rounded to whole numbers.

<b>Mains</b>	<b>Actual Miles (PHMSA)</b>	<b>Emissions (metric tons CO<sub>2</sub>e)</b>
<b>Steel</b> Cathodically Unprotected and Uncoated	248	5030
<b>Steel</b> Cathodically Unprotected and Coated	390	7910
<b>Steel</b> Cathodically Protected and Uncoated	0	0
<b>Steel</b> Cathodically Protected and Coated	377	680
<b>Plastic</b>	1960	423
<b>Cast or Wrought Iron</b>	317	9086
<b>Ductile Iron</b>	0	0
<b>Copper</b>	0	0
<b>Other</b>	0	0
<b>Services</b>	<b>Actual Services (PHMSA)</b>	<b>Emissions (metric tons CO<sub>2</sub>e)</b>
<b>Steel</b> Cathodically Unprotected and Uncoated	19232	2492
<b>Steel</b> Cathodically Unprotected and Coated	9252	1199
<b>Steel</b> Cathodically Protected and Uncoated	0	0
<b>Steel</b> Cathodically Protected and Coated	19087	1069
<b>Plastic</b>	156777	805
<b>Cast or Wrought Iron</b>	8	1
<b>Ductile Iron</b>	0	0
<b>Copper</b>	591	72
<b>Other</b>	0	0





Annual Methane Emissions Reporting Form for Gas Operators under 310 CMR 7.73

**D. Certification Statement**

**Note:** The authorized signature of a designated representative of the gas operator is required by 310 CMR 7.73(5)(b)8.

"I certify that I have personally examined the report for this facility and am familiar with the information contained in that report and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment."

  
\_\_\_\_\_  
Authorized Signature  
Ellen  
\_\_\_\_\_  
Printed Name  
Angley  
\_\_\_\_\_  
Title  
Vice President, Supply Chain, Environmental  
Affairs and Property Management

Source of Signatory Authority:

If a Corporation:

- President
- Secretary
- Treasurer
- Vice President (if authorized by corporate vote)
- Representative of the above (if authorized by corporate vote and if responsible for overall operation of the facility)

# Calculation of Gas Operator Emissions for 310 CMR 7.73

**ENTER Gas Operator Company Name:**

**NSTAR dba Eversource**

**ENTER Reporting Year:**

**2018**

Miles

Steel, Cathodically Unprotected and Uncoated  
 Steel, Cathodically Unprotected and Coated  
 Steel, Cathodically Protected and Uncoated  
 Steel, Cathodically Protected and Coated  
 Plastic  
 Cast or Wrought Iron  
 Ductile Iron  
 Copper  
 Other  
 Miles Total

ENTER	Actual Miles	Metric Tons CO2e Emissions
	248.00	5030
	390.00	7910
	0.00	0
	377.00	680
	1960.00	423
	317.00	9086
	0.00	0
	0.00	0
	0.00	0
	3292	23129

kg/scf=MT CH4/1000scf  
 GWP

0.0192  
 25

Services

Steel, Cathodically Unprotected and Uncoated  
 Steel, Cathodically Unprotected and Coated  
 Steel, Cathodically Protected and Uncoated  
 Steel, Cathodically Protected and Coated  
 Plastic  
 Cast or Wrought Iron  
 Ductile Iron  
 Copper  
 Other  
 Services Total

ENTER	Actual Services	Metric Tons CO2e Emissions
	19232.00	2492
	9252.00	1199
	0.00	0
	19087.00	1069
	156777.00	805
	8.00	1
	0.00	0
	591.00	72
	0.00	0
	204947	5638

**Table 9 - Methane Emission Factors by Material Type**

	scf/mile-yr	metric ton CO2e/mile-yr
<b>mains</b>		
cast iron	59,715	28.663225
unprotected steel	42,254	20.281978
protected steel	3,758	1.804054
plastic	449	0.215583
<b>services</b>		
unprotected steel	270	0.129589
protected steel	117	0.055982
plastic	11	0.005136
copper	254	0.121920

**Total**

**28767**