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MassDEP Bureau of Air and Waste

Response to Comment on Proposed and Amended:

**310 CMR 7.73 *Reducing Methane Emissions from Natural Gas Distribution
Mains and Services***

**310 CMR 60.05 *Global Warming Solutions Act Requirements for
Transportation***

310 CMR 60.06 *CO₂ Emission Limits for State Fleet Passenger Vehicles*

August 2017

Regulatory Authority:

**M.G.L. c. 21A, §§ 2, 8 and 16, M.G.L. c. 21N, § 3(d),
and M.G.L. c. 111, § 2C and 142A – 142M**

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I. INTRODUCTION

This Response to Comment (RTC) document includes detailed responses to comments received on three regulations that establish limits starting in calendar year 2018:

- *Reducing Methane Emissions from Natural Gas Distribution Mains and Services* (310 CMR 7.73)
- *Global Warming Solutions Act Requirements for Transportation* (310 CMR 60.05)
- *CO₂ Emission Limits for State Fleet Passenger Vehicles* (310 CMR 60.06)

These regulations are part of a larger rule-making that includes six regulations designed to ensure compliance with the Global Warming Solutions Act (GWSA). The other three regulations are discussed briefly below to provide context, but detailed comments and responses are included in separate response to comment documents.

This RTC begins with a background section that describes all six regulations, explains how the various agencies coordinated in development of the regulations, and summarizes a 2016 court decision and Governor Baker's executive order that requires promulgation of these regulations. Detailed comment summaries and responses follow for comments received on 310 CMR 7.73, 310 CMR 60.05 and 310 CMR 60.06.

Additional information about the regulations is included in the Background Document (Technical Support Document or TSD) that was published when the Massachusetts Department of Environmental Protection (MassDEP) proposed the regulations in 2016.¹

¹ See *Background Document on Proposed New and Amended Regulations: 310 CMR 7.00 and 310 CMR 60.00, Air Pollution Control for Stationary and Mobile Sources* at <http://www.mass.gov/eea/agencies/massdep/air/climate/section3d-comments.html>.

II. LIST OF COMMENTERS

350 MA	Emerald Necklace	Metropolitan Area
Acadia Center	Conservancy	Planning Council (MAPC)
Archard, Kathryn	Environment	Massachusetts Institute of
Barber, Christine (Rep.)	Massachusetts	Technology (MIT)
Barthel, Carolyn	Environmental Defense	MIT Department of Civil
Bay State Gas Company	Fund (EDF)	and Environmental
Berkshire Environmental	Environmental League of	Engineering
Action Team	Massachusetts (ELM)	Morgan, Alex
Berkshire Gas Company	Eversource	Mothers Out Front
Better Environmental	Fitchburg Gas and Electric	Neste US, Inc.
Solutions	Light Company	Northeast Gas Association
Boston Climate Action	Garcia-Franks, Paula	(NGA)
Network (BCAN)	Health Care Without Harm	Office of Attorney General
Boston University (BU)	Hedgecock-Brian, Susan	(AGO)
Department of Earth and	Home Energy Efficiency	Perrette, Julien
Environment	Team (HEET)	Pioneer Valley Planning
BU Pardee Center for the	Helms, Susan	Commission (PVPC)
Study of the Longer-Range	Institute for Policy	Pollock, Nira
Future	Integrity at New York	Rodeo, Elizabeth
Britt, Carolyn	University School of Law	Rosenberg, Andra
Building Materials Reuse	(NYU IPI)	Salvucci, Frederick
Association	Jones River Watershed	Shopper, Evan
Canty, Leann	Association (JRWA)	Sierra Club
Citizens Against the	KoKorin, Claire	Sierra Club, MA Chapter
Rehoboth Compressor	Liberty Utilities	South Coast Neighbors
Station (CARCS)	Low Carbon Fuels	United
Clean Air Task Force	Coalition (LCFC)	Sowers, Betsy
(CATF)	Mardirosian, Raffi	Stafford, Sue
Clean Energy	Marum, Eileen	Swanson, Amy
Clean Water Action	Mass Energy Consumers	Toxics Action Center
Climate Action Brookline	Alliance (Mass Energy)	(TAC)
Climate XChange	Massachusetts Climate	Transportation for
Columbia Gas	Action Network (MCAN)	Massachusetts
Connelly, Maria	Massachusetts Water	Trimble, Suzanna
Conservation Law	Resources Authority	Union of Concerned
Foundation (CLF)	(MWRA)	Scientists (UCS)
Dean, Jack	Massachusetts Department	Wengronowitz, Bobby
Dow, David	of Transportation	Zamore, Wig
Ehrlich, Lori (Rep.)	(MassDOT)	[No last name provided],
Eldridge, Jamie (Sen.)	Medeiros, Rachel	Peggy

III. BACKGROUND

On May 17, 2016, MassDEP was directed by the Supreme Judicial Court in the Kain v. DEP decision, 474 Mass. 278 (2016) to adopt and implement regulations that comply with the requirements of Section 3(d) of the GWSA to ensure that the 2020 limit is met.

To ensure the directives of the Supreme Judicial Court in Kain would be met in a timely manner and to achieve other goals related to climate change, Governor Baker issued Executive Order No. 569 (“Establishing an Integrated Climate Change Strategy for the Commonwealth”) on September 16, 2016.

On December 16, 2016, MassDEP, as directed and approved by the Secretary of Energy and Environmental Affairs (EEA), and in consultation with the Department of Energy Resources (DOER), the Department of Public Utilities (DPU), and the Secretary of Administration and Finance (ANF), proposed six new regulations and amendments that limit or reduce GHG emissions in Massachusetts. These regulations, which target emissions from multiple categories of sources, were described in the TSD that was issued with the proposed new regulations. The regulations addressed sulfur hexafluoride (SF₆) emissions from gas-insulated switchgear, methane (CH₄) emissions from the natural gas distribution network, carbon dioxide (CO₂) emissions from electricity generation facilities, and CO₂ emissions from the transportation sector.

In the final regulations and Response to Comment documents, which have been prepared in consultation with DOER, DPU, and ANF, MassDEP is promulgating four non-electric sector regulations, and EEA and MassDEP are jointly promulgating two electric sector regulations. The non-electric sector regulations are: (1) amendments to 310 CMR 7.72 (SF₆ emissions from gas-insulated switchgear); (2) amendments to 310 CMR 60.05 establishing CO₂ limits on MassDOT operations; (3) new regulation at 310 CMR 60.06 (imposition of CO₂ limits on the state-owned fleet of passenger vehicles); and (4) new regulation at 310 CMR 7.73 (CH₄ limits on the natural gas pipeline distribution system). The electric sector regulations are: (1) new regulation at 310 CMR 7.74 (electricity generating facility CO₂ emissions limits); and (2) new regulation at 310 CMR 7.75 (Clean Energy Standard or CES), which are being promulgated by MassDEP and the Secretary.

MassDEP held seven public hearings in 2017 on February 6, 2017, (4 hearings) and February 8, 2017, (3 hearings) and set a public comment period extending to February 24, 2017, on the proposed regulations. Comments were submitted from over 900 stakeholders, including state agencies and authorities, regional transportation organizations, municipalities and municipal electricity organizations, owners and operators of investor-owned utilities, retail electricity sellers, competitive electricity suppliers, owners and operators of natural gas distribution systems, owners and operators of gas-insulated switchgear, trade and industry organizations, the New England regional transmission organization, municipal organizations, environmental advocates and citizens, individually and in affiliation with advocacy groups.

Many positive comments were received on all of the proposed non-electric sector regulations. In addition, MassDEP received helpful submissions of corrected and updated data from regulated parties that assisted the agency in finalizing achievable limits in all of these regulations, but also will ensure sufficient GHG emissions reductions by 2020 to meet the GWSA limit of 25% reduction in GHG emissions from 1990 GHG emissions levels. MassDEP also appreciates the constructive criticism contained in many comments that ranged from improving clarity to the substance of the program design. MassDEP has sought to improve the regulations in response.

Please see the Response to Comment document on regulations 310 CMR 7.74 and 7.75 for additional Background discussion, and for comments and responses that may be relevant for the other regulations, but were raised most often by commenters in relation to the electricity sector regulations.

IV. COMMENTS AND RESPONSES FOR 310 CMR 7.73 REDUCING METHANE EMISSIONS FROM NATURAL GAS DISTRIBUTION MAINS AND SERVICES

A. Applicability, Definitions and General Comments

1. **Comment:** Several commenters proposed extending the Individual Operator Limits beyond 2020. (AGO, MAPC, Mothers Out Front, Sierra Club) Other commenters expressed the need to protect the state from methane emissions. (South Coast Neighbors United)

Response: Under the Supreme Judicial Court’s decision in Kain and Governor Baker’s Executive Order 569, MassDEP is required to promulgate new regulations in accordance with Section 3(d) of the GWSA that establish declining aggregate GHG emissions limits on multiple categories of GHG emissions sources in the Commonwealth. While 310 CMR 7.73 establishes mass-based, annually declining limits on methane emissions through 2020, MassDEP recognizes that the regulation will likely need to be modified after that date and will eventually cover the time period beyond 2020. MassDEP believes that it will be better able to set the limits from 2020 going forward after obtaining compliance data from 2018-2020 and reviewing how the Gas System Enhancement Plans (GSEPs) evolve. Because this type of emission limit has not been set before, MassDEP does not have prior implementation experience to draw on and would benefit from evaluating the first years of implementation before determining whether to extend the limits beyond 2020.

2. **Comment:** The AGO notes that the GSEP program is voluntary and/or could be discontinued by the DPU, and therefore MassDEP should not limit the definition of “Gas Operator” in 310 CMR 7.73 to those gas companies which have a GSEP in place. (AGO)

Response: MassDEP agrees with this comment, and will make the following modifications to 310 CMR 7.73(2) and (3):

Gas Operator means every Massachusetts gas operator with a Gas System Enhancement Plan approved by the Massachusetts Department of Public Utilities pursuant to M.G.L. c. 164, § 145 **as of August 11, 2017.**

(3) Applicability. Every Massachusetts gas operator ~~with a Gas System Enhancement Plan approved by the Massachusetts Department of Public Utilities pursuant to M.G.L. c. 164, § 145.~~

3. **Comment:** The gas operators point out that there is an inadvertent error regarding the timing of the first annual report under the regulations. Specifically, the proposed regulations require each gas operator to submit an annual report to MassDEP for emissions that occurred during the previous calendar year, and lists April 15, 2018 as the due date of the first annual report, even though the regulations will not take effect until 2018.

Response: MassDEP agrees with this comment, and the regulations require that the first annual report be due on April 15, 2019.

4. **Comment:** The gas operators request an additional round of comments before the regulations are finalized.

Response: MassDEP appreciates the thoughtful comments of the gas operators and all other commenters, and believes that the quality of these comments demonstrates that, coupled with the stakeholder meetings held last fall, MassDEP has provided sufficient opportunity for comments and has had adequate time to respond to those comments.

B. Emissions Calculations for Natural Gas Systems: Data and Methodology

5. **Comment:** Several commenters support the use of measurement data to estimate emissions, rather than an emissions factor. (350 MA, BCAN, BU Department of Earth and Environment, CATF, Clean Water Action, EDF, Emerald Necklace Conservancy, Mothers Out Front, Private Citizens, Sierra Club) Included in these comments were the view that estimates of methane leaks should be from local studies or sources, such as those provided by Boston University and Harvard University, not based on national averages. Several commenters noted that Boston's natural gas infrastructure is much older and leakier than other systems, which must be taken into consideration in estimating emissions, and that "super emitters" have not been factored into the estimates. (CARCS, Environment Massachusetts, HEET, MAPC, Private Citizens)

Response: MassDEP disagrees that the methodology it applied to determine the annual volume of natural gas leaks to set as limits is flawed. MassDEP has utilized emission factors derived from the most up-to-date data sources, as described on page 18 and in footnotes 23 and 24 of the July 2016 *Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business As Usual Projection Update*.² These emission factors were recently updated as part of a nationwide effort coordinated by the Environmental Defense Fund (EDF), to improve understanding of emissions across the natural gas supply chain. Washington State University's Laboratory for Atmospheric Research led a nationwide field study to better characterize and understand methane emissions associated with the delivery of natural gas.

² Available at <http://www.mass.gov/eea/docs/dep/air/climate/gwsa-update-16.pdf>.

Researchers quantified methane emissions from facilities and pipes operated by 13 utilities in various regions. National Grid was among the cosponsors of the study, and sampling occurred in the following municipalities served by National Grid: Braintree, Burlington, Milton, Norwood, Acton, Ayer, Quincy, Waltham, Wellesley, and Weymouth. Cooperation was also provided by Eversource.

The study found “no statistical difference in [emission factors] by region” (Lamb, page 5166) in the United States, indicating, “We also examined the pipeline leak data for regional differences. As shown in Table S4.4, there were differences in the leak emission factors among different pipeline types, but the small sample size and the large degree of variability indicate that these differences are not significant. In particular, the occurrence of one large leak for a particular type of pipe in a region had a large effect on the mean emission rate for the region and pipeline type. Thus, for emission factors of methane emissions from pipeline leaks, there is no advantage to using regional emission factors for extrapolation purposes.” (Lamb, Supplemental Information p. S62)³

Overall emissions from the natural gas distribution system are determined by multiplying emission factors by Massachusetts-specific activity factors (i.e., miles of pipeline and number of services by type of material).

MassDEP notes that, under both the Federal Clean Air Act and State Clean Air Act, emissions from area sources such as the natural gas distribution network have typically been estimated using some type of calculation procedure. Generally, direct measurement of area source emissions is not practical because of technical and cost considerations. In the case of underground pipelines, gaining access for visual inspection or testing of pipe materials is not only costly but extremely difficult logistically because there are significant limitations in local bylaws and ordinances on the frequency and conditions of opening streets. The United States Environmental Protection Agency (US EPA) has published information that describes four basic approaches for developing an area source emission estimate: extrapolation from a sample set of the sources (surveys, permit files, or other databases); material balance method; mathematical models; and emission factors applied to activity levels (see https://www.epa.gov/sites/production/files/2015-08/documents/iii01_apr2001.pdf). The methodology employed by MassDEP in the proposed and final regulation is consistent with the approaches described by US EPA.

Given the reliance on the most up-to-date emissions factors available used to design this regulation, MassDEP is retaining the methodology for calculation of quantities of natural gas leakage in the proposed regulation.

- 6. Comment:** The data in the NatGasSystems tab of the 1990 Massachusetts Greenhouse Gas Emissions Inventory “shows dramatic changes in the miles of each type of pipeline since

³ “Direct Measurements Show Decreasing Methane Emissions from Natural Gas Local Distribution Systems in the United States,” Brian K. Lamb, Steven L. Edburg, Thomas W. Ferrara, Touché Howard, Matthew R. Harrison, Charles E. Kolb, Amy Townsend-Small, Wesley Dyck, Antonio Possolo, and James R. Whetstone, March 31, 2015, available at: <http://pubs.acs.org/doi/abs/10.1021/es505116p>

1990. These may be accurate, but MassDEP has not provided evidence to support them.” (Climate XChange, Clean Water Action and Health Care Without Harm US & Canada)

Response: This information has been required to be reported by distribution companies to state and federal regulators for decades and is compiled by the Pipeline & Hazardous Materials Safety Administration (PHMSA). PHMSA’s most recent inventory for Massachusetts can be accessed at: <https://www.phmsa.dot.gov/pipeline/library/data-stats/distribution-transmission-and-gathering-lng-and-liquid-annual-data>. The gas operators’ annual filings reflect any updates due to discovered discrepancies between the material of main and services listed in their records, and that found in the field. As noted in Lamb, “The primary reason for reductions in [miles of leak-prone pipe] is the replacement of older cast-iron and unprotected steel pipe with plastic (see SI Section 4.3 and Tables S4.5–8).” (Lamb p. 5166)

Given the comments about the reliability of data and methodologies for structuring the program design of the pipeline GHG limit, MassDEP notes available information about reclassification of pipe by material type (see 16-GREC-03, http://170.63.40.34/DPU/FileRoomAPI/api/Attachments/Get/?path=16-GREC-03%2fInitial_Filing.pdf pages 161 and 165 of 173; see also 17-GREC-03 Response to Information Request DPU-2-3, <http://170.63.40.34/DPU/FileRoomAPI/api/Attachments/Get/?path=17-grec-03%2fDPU23.pdf>, stating “Steel main segments installed before August 1971 may be reclassified from cathodically protected to non-cathodically protected if they are found to be deficient and no longer feasible for protection,” which MassDEP understands could constitute some 1600 miles of pipe in Massachusetts). Due to this, and among other issues as detailed in Comment 15 below, MassDEP has added to the final regulation a set-aside for unanticipated new sources of emissions in the pipeline system and a petition process by which gas companies can request additions to their GHG limits to account for these unanticipated new sources. In addition, MassDEP will receive annual reports, which the regulated utilities will be required to update with any other unanticipated needs to reclassify pipelines. MassDEP will re-evaluate the accuracy of data and methodologies in its 2020 program review as well.

7. **Comment:** MassDEP’s emissions calculation methodology used in the 1990 Massachusetts Greenhouse Gas Emissions Inventory should not be relied on to estimate methane emissions declines since 1990. (EDF, CLF and Private Citizens)

Response: The methodologies used in the 1990 Massachusetts Greenhouse Gas Emissions Inventory are outside the scope of this rule-making. The 1990 Massachusetts Greenhouse Gas Emissions Inventory went through the GWSA-required public comment periods previously and was not opened for public comment in December 2016. It is therefore not being revised at this time.

8. **Comment:** MassDEP should prioritize larger gas leaks to incentivize gas companies to minimize emissions. (EDF, Clean Water Action, Environment Massachusetts, JRWA, Mothers Out Front, Private Citizens)

Response: On August 8, 2016, Governor Baker signed into law An Act to Promote Energy Diversity (Energy Diversity Act). Section 13 of the Energy Diversity Act (Chapter 188 of the Acts of 2016) requires the DPU, in consultation with MassDEP, to open an investigation to establish specific criteria to identify Grade 3 gas leaks (i.e., non-hazardous gas leaks) that have a “significant environmental impact,” to establish a plan to repair such leaks, and to promulgate rules regarding the timeline and acceptable methods for remediation and repair of such leaks. On December 14, 2016, the DPU issued an Order seeking comments on a Straw Proposal which sets forth a proposed approach for identifying and planning the remediation and repair of leaks with a significant environmental impact. MassDEP offered comments on the Straw Proposal on January 13, 2017 and reply comments on January 25, 2017. MassDEP’s comments are principally focused on: (1) shortening the appropriate length of time a Grade 3 gas leak can be in existence before it is considered environmentally significant, (2) setting the timelines for repairs of environmentally significant leaks based upon the date of designation, and (3) clarifying how GSEPs are used in determining how long the gas companies have to repair environmentally significant leaks that are subject to a GSEP. MassDEP believes that the DPU process is the appropriate process to prioritize gas leaks and expedite the repair or replacement of leaking infrastructure based on the environmental significance of the gas leaks.

9. **Comment:** The AGO “recommends that MassDEP revise the proposed regulation to provide that MassDEP will effect an efficient transition from using emission factor calculations to using data derived from measurements of actual emissions to calculate the applicable mandatory methane emissions limits, as technology continues to develop for gathering and analyzing leak flow data,” and that “MassDEP include a provision for program review in 2020, which includes a public comment process, to assess the effectiveness of, and performance under, the regulation, and to establish next steps for addressing methane leaks in the Commonwealth consistent with any update to the Executive Office of Energy and Environmental Affairs’ Clean Energy and Climate Plan for reducing greenhouse gas emissions.” Similarly, CLF suggests that 310 CMR 7.73 “should be revised to require DEP to, by December 31, 2020: (i) commission or conduct a study that establishes for the Commonwealth a revised method of estimating gas distribution system GHG emissions based on best-available science, including updated emission factors and activity factors as well as methodologies that measure emissions from known leaks in Massachusetts; and (ii) complete a rulemaking that adopts and incorporates the recommendations of the study, including revising the statewide GHG Inventory and 310 CMR 7.73 as necessary and appropriate in light of the study’s findings, to ensure the Commonwealth’s methodologies for estimating and controlling methane emissions are based on the best available science.”

Response: MassDEP recognizes that the area of detection and measurement of methane leaks is a dynamic field, and it expects that more accurate methodologies will be developed and could impact the emissions limits set in 310 CMR 7.73. For that reason, MassDEP will add the following section to 310 CMR 7.73:

- (9) Program Review. Not later than December 31, 2020, the Department shall complete a review, including an opportunity for public comment on the program review, of the

requirements of 310 CMR 7.73 to determine whether the program should be amended. This review shall evaluate whether to require the use of feasible technologies to detect and quantify gas leaks and any other information relevant to review of the program.

10. **Comment:** The gas operators state that “DEP should not incorporate the Grade 3 leaks into its proposed methane regulations,” and they “recommend continued participation in the Grade 3 leak investigation on a parallel track with the methane emissions cap regulations.”

Response: MassDEP agrees that the Grade 3 leak regulations should proceed on a separate track. In the event, as expected, that the Grade 3 leak regulations result in reduced emissions, MassDEP anticipates that this will be taken into consideration under the program review to be conducted not later than December 31, 2020, as set forth above.

11. **Comment:** Revised projected pipeline mains and services reductions for Liberty and Eversource were provided in Attachments B and C, respectively, of the gas operator comments.

Response: The revised projected pipeline mains and services reductions that were provided by Eversource to MassDEP match those in DPU docket 16-GSEP-06 and Information Request response AG-1-7, and therefore have been incorporated into the calculation of the limits in attached revised Appendix A. The revised projected pipeline mains and services reductions that were provided by Liberty to MassDEP do not match those in DPU docket 16-GSEP-04, and therefore have not been incorporated into the calculation of the limits in attached revised Appendix A.

C. General Requirements for Gas Operators

12. **Comment:** The gas operators ask that the regulations be modified to “incorporate the inherent flexibility of the GSEPs.” The gas operators state that the emissions limits set forth in 310 CMR 7.73 “are based on static leak-prone material replacement schedules,” “essentially mandating the type of leak-prone material, in this instance, cast iron [they] must now prioritize” and fail to recognize that there are factors that affect the gas operators’ ability to meet the project completion timelines set forth in the GSEPs. The gas operators suggest that the emissions limits should be based on “60 percent of planned GSEP replacement in 2018, 65 percent of planned GSEP replacement in 2019, and 70 percent of planned GSEP replacement in 2020.”

Response: In developing the emissions limits, MassDEP relied on the leak-prone material types identified by the gas operators in their GSEP filings, or, in the one case where no material type was identified (Berkshire for 2020), on the existing proportion of material types; MassDEP did not mandate the type of leak-prone material to be prioritized, e.g., the regulation sets a performance standard for reduction of GHG emissions, but it does not dictate how a regulated party achieves that standard.

In order to set realistic and reasonable standards, MassDEP analyzed actual performance by the gas operators in 2015 and 2016 as compared to the planned GSEPs, as summarized in the

following table, which shows that the gas operators have been improving over time at matching their proposed miles of pipeline replacement to what they can achieve in the field. Thus, MassDEP does not believe that adjusting the annual emissions limits to 60%, 65%, and 70% of the planned GSEP replacement amounts in 2018, 2019 and 2020 is appropriate.

Gas operator	% Of Proposed Pipeline Mile Reductions Achieved		
	2015 Reductions (proposed in 2014)	2016 Reductions (proposed in 2014)	2016 Reductions (proposed in 2015)
National Grid (Boston+Colonial)	81%	93%	104%
Columbia	97%	105%	153%
Berkshire	168%	188%	152%
Unitil	121%	108%	92%
Liberty	83%	97%	88%
Eversource	78%	103%	117%
Overall	87%	110%	117%

In order to provide additional flexibility, the final regulation combines the limits of National Grid’s two subsidiaries, Boston Gas and Colonial Gas, to accommodate year-to-year variability in resources devoted to the two subsidiaries.

13. **Comment:** The gas operators state that “discrepancies in the projected mains and services data contained in Attachment A of the proposed regulations and used to develop the individual [gas operator] caps have been identified. Given the importance of the proposed regulations and the fact that the [gas operators] are subject to civil penalties under the proposed regulations, it is imperative that the data used to develop the caps is correct . . . The [gas operators] suggest a meeting with the DEP to discuss the distribution system composition data in order to ensure that the caps are correctly calculated.”

Response: As MassDEP indicated in the Background Document its intent to update limits by incorporating actual 2016 data on the miles of pipeline and number of services by material type, MassDEP has updated the limits. The attached Appendix A spreadsheet contains the calculations of these updated limits.

MassDEP’s December 2016 proposal relied on reductions contained in October 31, 2016 GSEP filings by gas operators. MassDEP reviewed and incorporated additional information provided in each gas operator’s GSEP docket from October 31, 2016 through the April 28, 2017 orders issued by DPU to each gas operator. The sources of the reductions data used to calculate the updated limits are documented in the Appendix A spreadsheet.

14. **Comment:** The gas operators suggest that the “DEP, consistent with its other regulations, must include a waiver provision in the regulations.” The gas operators point to proposed 310 CMR 7.72, which governs the reduction of Sulfur Hexafluoride (SF₆) Emissions from Gas Insulated Switchgear (GIS); specifically, proposed 310 CMR 7.72(7), which provides a waiver in certain limited, emergency conditions.

(a) A federal reporting GIS owner may exempt a particular release of SF₆ emissions from its annual calculation of the emissions limit (rate or mass) if the federal reporting GIS owner demonstrates that such release of SF₆:

1. Was caused by a sudden, unforeseeable emergency event, including, but not limited to: fire, flood, earthquake, or act of vandalism; and, could not have been prevented by the exercise of prudence, diligence, and care, and was beyond the control of the federal reporting GIS owner; or
2. Was necessary to avoid an immediate electrical system outage.

(b) In order for emissions to be exempted from the calculation of the emissions limit (rate or mass), the following information shall be included in the annual report submitted by the federal reporting GIS owner.

1. A detailed description of the emergency event or of the necessity to avoid an electrical system outage, including but not limited to the following:
 - a. The nature of the event (e.g., fire, flood, earthquake);
 - b. The date and time the event occurred;
 - c. The location of the event;
 - d. The GIS equipment that was affected by the event;
 - e. The amount of SF₆ released (in pounds);
2. Any other supporting documentation required to demonstrate compliance with 310 CMR 7.72(7)(a)1.-2.

(c) If the Department determines that the federal reporting GIS owner has failed to demonstrate that the event meets the criteria provided at 310 CMR 7.72(7)(a), the Department will notify the federal reporting GIS owner, and the federal reporting GIS owner shall amend the relevant annual emission report to include SF₆ emissions resulting from the event.

Response: GIS equipment is used in large electricity generation, transmission and distribution facilities, not in homes or other types of businesses. At present there are only two companies, Eversource and National Grid, which are subject to regulation under 310 CMR 7.72. In the most recent reporting year (2016), the total nameplate capacity for National Grid's GIS equipment was 115,283 pounds; the total nameplate capacity for Eversource was 144,275 pounds. Given the nature of the equipment subject to the regulation, MassDEP determined that it made sense to exempt some releases from regulation where the release was caused by a sudden, unforeseeable emergency event, since a single such event could lead to an exceedance of annual limits. MassDEP recognizes that the GSEP process provides for flexibility and therefore some variability in emissions, but this variability differs from the unforeseen circumstances which justify a waiver in the SF₆ regulations. MassDEP will not include a waiver but, as set out below, will include a procedural provision to address unforeseen circumstances. See the following comment and response, which addresses the concern raised by the gas operators in their waiver request.

15. **Comment:** The gas operators note that applying a static emissions cap to systems whose repair is governed by the more flexible GSEP process will limit the gas operators' ability to manage their systems consistent with the GSEP. The gas operators request that MassDEP address this by placing the cap at 60 percent of planned GSEP replacement in 2018, 65 percent of planned GSEP replacement in 2019, and 70 percent of planned GSEP replacement in 2020.

Response: MassDEP does not believe the proposed approach is necessary. The commenters assume an inability to meet the limits that is not borne out by the actual GSEP experience, as detailed in the Response to Comment 12 above. However, MassDEP does recognize that there may be a need to evaluate the impact of future approved GSEPs on emissions and, in addition, it is possible as more information is developed on pipeline systems over time, new miles of leak prone pipe materials may be discovered. Therefore, MassDEP is finalizing the regulation with a set-aside provision and a petition process to permit some flexibility and to account for the potential introduction of new sources of GHG leaks from the distribution system. Based on the analysis of actual performance by the gas operators in 2015 and 2016 as compared to the planned GSEPs (see the Response to Comment 12 above), MassDEP believes a 5% set-aside is warranted. In structuring the aggregate limits on GHG emissions with a set-aside, MassDEP will ensure that aggregate GHG emissions will decline each year in compliance with the Kain decision. MassDEP has revised the regulation as follows to supply this process:

(c) CH₄ Set-Aside and Petition Process for Modifying CH₄ Emission Limit

1. The Department has set-aside the following quantities of CH₄ for each calendar year for gas operators that petition to modify their limits in 310 CMR 7.73(4) based on one of the reasons in 310 CMR 7.73(4)(c)3.

Calendar Year	CH ₄ Emissions Set-aside (metric tons of carbon dioxide equivalent)	Maximum Annual Aggregate CH ₄ Emissions Limit
2018	40,417	227,908
2019	39,972	218,554
2020	39,509	208,829

2. Upon written petition from a gas operator, the Department may modify the CH₄ emission limits and allocate additional CH₄ in excess of the limits in 310 CMR 7.73(4)(a) provided that the set-aside amount of CH₄ in each calendar year in Table 8 is not exceeded.
3. The basis for the petition shall be one or more of the following:
 - a. A change in the pipeline miles or number of services to be addressed, by material type, as documented in the docket of a DPU-approved GSEP initial or reconciliation filing.
 - b. An increase in the growth of distribution system pipeline miles or services beyond that included in the limits in 310 CMR 7.73(4)(a).
 - c. Other unanticipated changes in pipeline miles or number of services, by material type, discovered outside a GSEP proceeding.
4. Requirements for the petition.
 - a. If the basis for the petition is 310 CMR 7.73(4)(c)3.a., the gas operator shall submit the petition to the Department no later than 30 days after issuance of a DPU order for a GSEP initial or compliance filing, and indicate where in the DPU docket the documentation can be found.

b. If the basis for the petition is 310 CMR 7.73(4)(c)3.b., the gas operator shall submit the petition to the Department no later than 30 days after the end of the calendar year in which the gas operator seeks to have additional CH₄ allocated, and provide a detailed explanation of the actual vs. anticipated growth of distribution system pipeline miles and services.

c. If the basis for the petition is 310 CMR 7.73(4)(c)3.c., the gas operator shall submit the petition to the Department no later than 30 days after the end of the calendar year in which the gas operator seeks to have additional CH₄ allocated, and provide a detailed explanation of the unanticipated change in pipeline miles or number of services, by material type.

d. The petition shall be signed and certified in accordance with the requirements at 310 CMR 7.73(5)(b)8.

5. In its sole discretion, the Department will approve or deny the petition in writing within 60 days of receipt of the petition. During the 60 day review period, the Department may request additional information from the gas operator. Depending on when the Department receives the information, and the volume of the information, the Department may extend the 60 day review period.

a. If the Department approves the petition, calculates a modified or new limit, and/or allocates additional CH₄, the modified CH₄ emission limit(s) in the approval letter shall be enforceable in lieu of the CH₄ emission limit in 310 CMR 7.73(4)(c).

b. If the Department denies the petition, the gas operator may request an adjudicatory hearing on the decision, by filing a notice of claim with the Department within 21 days of the date of issuance of the Department's denial of the petition pursuant to 310 CMR 1.01.

16. **Comment:** The gas operators claim that the regulation will have an adverse economic impact on municipalities and customers over and above the impacts caused by the GSEP orders.

Response: Because MassDEP has set the emissions limits matching the miles of pipe and number of services replaced as specified in the GSEP orders, the final regulations will not impose an additional economic burden.

D. Enforcement

17. **Comment:** The gas operators state that “the proposed regulations must be clarified to ensure that the [gas operators] are not subject to penalties if the aggregate emissions cap is exceeded.”

Response: MassDEP agrees that a gas operator should only be subject to penalties if its individual limits are exceeded. MassDEP has revised the regulation as follows to clarify this point:

(8) Enforcement.

(a) If a gas operator exceeds the ~~applicable Annual~~ Maximum Annual CH₄ Emissions limits set forth in the applicable table provided in 310 CMR 7.73(4)(a),

any such excess emissions shall be deemed to be a release of air pollutants into the environment without the authorization or approval of the Department, and shall be presumed to constitute a significant impact to public health, welfare, safety, and the environment.

V. COMMENTS AND RESPONSES FOR 310 CMR 60.05 GLOBAL WARMING SOLUTIONS ACT REQUIREMENTS FOR TRANSPORTATION

A. Transportation Comments

1. **Comment:** Many commenters support MassDEP's inclusion of transportation in the regulation as the transportation sector is the largest contributor to Massachusetts GHG emissions.

Response: MassDEP appreciates the support.

2. **Comment:** MassDEP should set transportation sector-wide targets beyond 2020 and out to 2050. (MIT, MAPC, Better Environmental Solutions, Rafi Mardirosian, LCFC, Acadia Center, Sierra Club)

Response: MassDEP may conduct a program review by December 31, 2020, including a public stakeholder process with an opportunity for public comment, of the requirements of 310 CMR 60.05 to consider whether the program should be amended or extended.

3. **Comment:** MassDEP should make the aggregate transportation sector GHG emissions targets enforceable. (Institute for Policy Integrity at NYU School of Law, CLF, 350 Massachusetts, Berkshire Environmental Action Team, ELM, Health Care Without Harm, MCAN, Mass Energy, Toxics Action Center, Sierra Club, UCS, UCS – individual form letters)

Response: MassDEP did not make this change in the final regulation. The aggregate target in the regulation is included for planning purposes and requires MassDOT to quantify aggregate transportation GHG emissions annually to demonstrate whether the aggregate emissions targets in Table 310 CMR 60.05(7) have been achieved. MassDEP will enforce the applicable requirements of 310 CMR 60.05 in accordance with the applicable federal and Massachusetts law, including, but not limited to M.G.L. c. 21A, §16; M.G.L. c. 111, § 2C; M.G.L. c. 111, §§ 142 A through 142M; M.G.L. c. 21N §7(d), and 310 CMR 5.00.

4. **Comment:** MassDEP should develop a low carbon fuel standard (LCFS) for Massachusetts to achieve GHG emissions reductions and not pre-select a specific fuel and/or vehicle technology. (Clean Energy, Neste US, Inc., Better Environmental Solutions, NGA, Rafi Mardirosian, LCFC, AGO)

Response: A LCFS may be a method to achieve reduction of GHG emissions; however, developing and implementing a LCFS is beyond the scope of this rulemaking. However,

MassDEP agrees with the commenters that more policy options should be developed for reducing GHG emissions over the longer term. As noted in the Response to Comment 7, MassDEP is engaged in discussions with regional and national organizations on the development of additional climate strategies for the transportation sector.

5. **Comment:** MassDEP should encourage public transportation throughout the state and include policy mechanisms to decrease Vehicle Miles Travelled (VMT) and drive a shift to sustainable modes of travel. (Carolyn Barthel, MIT, UCS, Climate Action Brookline, AGO, Frederick Salvucci)

Response: MassDEP agrees and continues to support and implement programs such as: 1) MassDOT's MASSRIDES commuter options program that works with employers and commuters to promote the use of sustainable commuting options in an effort to reduce traffic congestion and improve air quality; and 2) MassDEP's Rideshare Program that works with businesses and educational institutions to promote less polluting commuting options, thus reducing the number of vehicles on the road and VMT and improving air quality. In addition, 310 CMR 60.05 requires MassDOT and Metropolitan Planning Organizations (MPOs) to evaluate and track CO₂ emissions and impacts in regional transportation plans (RTPs), transportation improvement programs (TIPs) and the statewide transportation improvement programs (STIPs) to prioritize transportation projects that reduce GHG emissions. 310 CMR 60.05(6) also provides that MassDOT may adopt supplemental measures that could include programs to reduce VMT or measures to incentivize increased ridership on public transit.

6. **Comment:** MassDEP should provide incentives for electric vehicle use and provide infrastructure for consumers and public fleets. (Carolyn Barthel, MIT, UCS, NGA, Eileen Marum)

Response: MassDEP agrees and MassDEP has and will continue to support electric vehicles (EVs) and electric vehicle infrastructure deployment in the Commonwealth. MassDEP's Massachusetts Electric Vehicle Incentive Program (MassEVIP) Fleets provides funding for public entities to deploy EVs and publicly accessible charging stations in Massachusetts communities. MassDEP's Workplace Charging Program provides funding for employers in Massachusetts to deploy charging stations at their campuses thus increasing range confidence for potential EV owners. Massachusetts is a signatory to the multi-state memorandum of understanding (MOU) that commits eight states on the East and West coasts to putting 3.3 million zero-emission vehicles (ZEVs) on the road by 2025. Massachusetts' portion of the 3.3 million target is approximately 300,000 vehicles (<http://www.mass.gov/eea/docs/dep/air/priorities/zev-mou-final.pdf>). Finally, pursuant to 310 CMR 60.05(6), MassDOT can adopt supplemental measures to electrify vehicles within its fleet, and MassDOT and the regional and metropolitan planning agencies may consider electrification during the state-wide transportation planning pursuant to 310 CMR 60.05(5).

7. **Comment:** Many commenters said that MassDEP should consider a market based program, cap-and-trade program, excise tax and/or a carbon tax specific to transportation sector as an enforceable mechanism for meeting GHG emissions reduction mandates. MassDEP should consider restructuring vehicular excise tax as an incentive for fuel-efficiency. (350 MA,

MAPC, UCS, AGO, BU Pardee Center for the Study of the Longer-Range Future, Transportation for MA, Institute for Policy Integrity at NYU School of Law, Sierra Club)

Response: MassDEP agrees that additional strategies are needed to further reduce GHG emissions from the transportation sector. MassDEP is and will continue to be involved with regional and national organizations to address the issue of transportation GHG emissions. For example, the Transportation Climate Initiative, a collaboration of transportation, energy, and environmental agencies from the Northeast and Mid-Atlantic states, seeks to develop the clean energy economy and reduce GHG emissions from the transportation sector and is considering market based mechanisms for the transportation sector.

8. **Comment:** MassDEP includes MassDOT and Metropolitan Bay Transportation Authority (MBTA) in the definition for MassDOT emissions. The definition should include the regional transit authorities (RTAs) as they operate hundreds of buses throughout the state. (PVPC)

Response: MassDEP did not make this change in the final regulation because RTA-owned buses are not part of the MassDOT fleet. However, 310 CMR 60.05(5) and (8) require MassDOT and MPOs to evaluate and track CO₂ emissions and impacts in RTPs, TIPs and STIPs. The final regulation also requires MPOs to calculate aggregate transportation GHG emissions.

9. **Comment:** MassDEP needs to clarify meaning of supplemental measures and ramifications of not meeting emissions reductions. (Pioneer Valley Planning Coalition (PVPC))

Response: MassDEP agrees with the comment and has added the following language to the final regulation to clarify what supplemental measures means in 310 CMR 60.05(6)(b). “Supplemental measures taken by MassDOT include, but are not limited to, the following: 1) decrease vehicle miles travelled within the MBTA and MassDOT fleet; 2) promote Transportation Demand Management; 3) increase plug-in and plug-in hybrid electric vehicle use within the MBTA and MassDOT fleet; 4) promote plug-in and plug-in hybrid electric vehicle use by motorists; 5) increase energy efficiency of MBTA and MassDOT facilities; and 6) increase use of renewable energy at MBTA and MassDOT facilities.”

In addition, 310 CMR 60.05(9) addresses the ramifications for not meeting emissions reductions. In general, and in this regulation, MassDEP has a variety of enforcement options to use if there is a violation of its regulations. Administrative options include Notices of Noncompliance, Penalty Assessment Notices and Unilateral Orders.

10. **Comment:** One commenter suggested MassDEP promulgate regulations that promote building material reuse and use of local building materials to reduce transportation needs, especially since Massachusetts has the necessary raw materials to source building materials. (Building Materials Reuse Association)

Response: MassDEP does not have the authority to require the use of in-state materials. Therefore, MassDEP did not make this change in the final regulation. However, MassDEP

does agree that programs that promote the recycling and re-use of local building materials are important, and the agency already has recycling and solid waste programs that encourage re-use of such materials. For more information on these programs, please see MassDEP's Managing Construction & Demolition (C&D) Wastes (<http://www.mass.gov/eea/agencies/massdep/recycle/reduce/managing-construction-demolition-wastes.html>) webpage.

11. **Comment:** As a result of ongoing consultation between MassDOT and MassDEP in the development of the proposed amendments, MassDOT has continually provided updates to transportation data to MassDEP. The most recent updates demonstrate an estimated increase in GHG emissions over the GHG limits that were proposed in the regulation. MassDOT's estimates of GHG emissions increases derive from data on three projects as follows:

Impacts of/on changes in transit provision

The declining emission limits represent a constraint on the MBTA's ability to expand transit service beyond the levels provided in the base year (or put another way, increasing transit service provision presents a risk to the declining annual limits being breached).⁴

Examples that illustrate the approximate magnitude of increase in MassDOT/MBTA emissions from transit expansions relative to the required 10,000 metric ton reduction from MassDOT over three years include:

- The South Coast Rail Project: Increase MassDOT emissions by an estimated 4,600 metric tons per annum⁵

- The Silver Line Gateway Project: Increase MassDOT emissions by an estimated 2,700 metric tons per annum⁶

- The South Station Expansion Project: Increase MassDOT emissions by an estimated 14,800 metric tons per annum⁷

Expansion of the hours of operation of bus services (i.e. late night / early morning services), implementation of diesel multiple units to provide urban rail service and new ferry services are examples of other transit expansions/improvement ideas that would increase MassDOT/MBTA emissions if implemented.

In addition, MassDOT noted that "the source used to construct the proposed MassDOT cap underestimates" "non-MBTA building natural gas usage," "based on a comparison of the associated expenditures with records from MassDOT fiscal," correction of which would result in an increase of 0.001 million metric tons of CO₂ in the 2018, 2019 and 2020 limits.

MassDOT also noted in comments the agency's ongoing efforts to support GHG emissions reductions, which will mitigate against GHG emissions increases from new operations, including: 1) Working with planning organizations to ensure GHG impacts are taken into

⁴ From bus, commuter rail and ferry services. Expansions of electric powered subway and light rail service would not be affected because there are no tailpipe emissions.

⁵ Based on an Cambridge Systematics Estimate of an extra 2,150 daily transit vehicle miles and an emissions factor of 5.92 kg CO₂/transit vehicle mile.

⁶ Based on an Cambridge Systematics Estimate of an extra 5,640 daily transit vehicle miles and an emissions factor of 1.32 kg/CO₂ transit vehicle mile.

⁷ Based on an Cambridge Systematics Estimate of an extra 6,850 daily transit vehicle miles and an emissions factor of 5.92kg/CO₂ transit vehicle mile.

account for transportation projects; 2) Improving fleet efficiency; 3) Installing renewable energy on MassDOT properties; 4) Undertaking Energy Efficiency reviews on MassDOT facilities; 5) Funding MassRIDES; 6) Completing the implementation of all-electric tolling system; 7) Collaborating with DEP to nominate highways as electric vehicle corridors; 8) Investing in core MBTA system; 9) Implementing complete streets funding program; 10) Running public service advertisements to drive efficiently, take transit, and buy low emission vehicles; 11) Expanding transit service will increase MassDOT GHG emissions. (MassDOT)

Response: Of the three transit projects MassDOT provided additional information on, only the Silver Line Gateway is expected to be operational by 2020. Therefore, based on the information submitted by MassDOT, MassDEP increased the maximum allowable aggregate MassDOT GHG Emissions limits in Table 310 CMR 60.05(6) to account for the Silver Line Gateway. In addition, MassDEP increased the limits to account for underestimated non-MBTA building natural gas usage. The updated limits are as follows:

Table 310 CMR 60.05(6)

Maximum Annual Aggregate MassDOT GHG Emissions	
Calendar Year	Maximum Allowable Aggregate MassDOT GHG Emissions (million metric tons of CO ₂)
2018	0.303
2019	0.298
2020	0.293

These slight increases will ensure that the required limits anticipate new additional sources of GHG emissions within MassDOT operations and decline each year (requirements of M.G.L. c. 21N, § 3(d) and the Kain decision), without a material effect on the overall GHG emissions reductions that will be achieved by the combined set of proposed regulations.

12. **Comment:** MassDEP should consider taking an aggressive stance toward reduction of Black Carbon which has a 20 year Global Warming Potential of 3200 times that of CO₂ on a mass basis, particularly in regards to the MBTA and Logan Airport. (Wig Zamore)

Response: MassDEP has many diesel emission reduction programs that reduce black carbon. As indicated in the “Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business as Usual Projection Update,” (<http://www.mass.gov/eea/docs/dep/air/climate/gwsa-update-16.pdf>) *Black Carbon is one of the short-lived climate pollutants (SLCP).*⁸ *It is “the most strongly light-absorbing component of particulate matter (PM), and is formed by the incomplete combustion of fossil fuels, biofuels, and biomass.”*⁹ *Over 50% of the black carbon*

⁸ As indicated by the California Air Resources Board “Short-lived climate pollutants are powerful climate forcers that remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants, such as carbon dioxide (CO₂). Their relative potency, when measured in terms of how they heat the atmosphere, can be tens, hundreds, or even thousands of times greater than that of CO₂. The impacts of short-lived climate pollutants are especially strong over the short term. Reducing these emissions can make an immediate beneficial impact on climate change.” <http://www.arb.ca.gov/cc/shortlived/shortlived.htm>

⁹ See US EPA Black Carbon webpage at <https://www3.epa.gov/airquality/blackcarbon/> and EPA’s *Report to Congress on Black Carbon*, March 2012, at <https://www3.epa.gov/airquality/blackcarbon/2012report/fullreport.pdf>.

emissions in the U.S. come from mobile sources, particularly diesel engines. The Department, in partnership with federal, state and private entities, has been working to reduce diesel emissions from on- and off-road sources, implementing many grant programs to support installation of diesel retrofit controls (e.g., diesel particulate filters and diesel oxidation catalysts).

EPA projects that black carbon emissions will decline 86% from 2005 by 2030 largely due to controls on new diesel-fueled equipment required by already-promulgated regulations.¹⁰ As EPA indicates, “BC emissions from mobile diesel engines (including on-road, non-road, locomotive, and commercial marine engines) in the United States are being controlled through two primary mechanisms:

- Emissions standards for new engines, including requirements resulting in use of diesel particulate filters (DPFs) in conjunction with ultra low sulfur diesel fuel; and*
- Retrofit programs for in-use mobile diesel engines, such as EPA’s National Clean Diesel Campaign and the SmartWay Transport Partnership Program.”*

Combustion of biomass in industrial and residential wood combustion also contributes to black carbon emissions in Massachusetts. For industrial sources, available control technologies and strategies include direct particulate matter reduction technologies such as fabric filters (baghouses), electrostatic precipitators (ESPs), and diesel particulate filters (DPFs). Residential black carbon emissions from wood stoves in the Commonwealth have been addressed through rebate offers¹¹ to assist Massachusetts residents in replacing non-EPA-certified wood stoves with cleaner, more efficient EPA-certified wood or pellet stoves. Wild fires, which contribute substantially to black carbon emissions in many states, are not a significant source in Massachusetts.

13. **Comment:** Adopt regulations prohibiting construction activities during rush hour which would impact all vehicles. (Eileen Marum)

Response: MassDEP is not proposing to regulate construction activities. The structure of this regulation is to set performance standards that allow MassDOT and the regional and metropolitan planning agencies to develop the best options for reduction of GHG emissions from transportation in the planning process set forth in 310 CMR 60.05(5) and to reduce emissions from the MassDOT fleet and facilities.

14. **Comment:** DEP should enforce previous transportation agreements and plans that were never honored (e.g., there should be no increase in parking limit at Logan in the current State Implementation Plan). DEP should conduct a sensitivity analysis of the consequences of weakened federal regulation of auto fuel efficiency. (Frederick Salvucci)

Response: MassDEP regularly enforces its transportation related regulations. These regulations may be amended as needed through the MGL c. 30A regulatory process. At the

¹⁰ See <https://www3.epa.gov/airquality/blackcarbon/mitigation.html#US>.

¹¹ See the Commonwealth Wood Stove Change-Out program, a partnership between MassCEC, the Massachusetts Department of Environmental Protection and the Department of Energy Resources at <http://www.masscec.com/programs/commonwealth-wood-stove-change-out>

request of the Massachusetts Port Authority (Massport), MassDEP recently proposed and then finalized on June 30, 2017, amendments to 310 CMR 7.30 *Massport/Logan Airport Parking Freeze* to allow an additional 5,000 additional commercial parking spaces at Boston Logan International Airport. These amendments are designed to improve air quality by reducing the growing trend of drop off/pick up vehicle trips occurring due to inadequate parking availability. MassDEP has and will continue to review proposed/final federal transportation actions, including federal GHG standards for automobiles in order to understand their effect in the Commonwealth and notes that Massachusetts has adopted the California motor vehicle emission standard at 310 CMR 7.45 as required by MGL c 111 s 142K.

15. **Comment:** MBTA's Plymouth/Kingston line is overdue to be electrified, and currently contributes air pollution to the area. Move away from diesel use for the state's trains and DOT's trucks. (JRWA)

Response: As noted in Response to Comment 6, the planning processes outlined in 310 CMR 60.05(5) will allow MassDOT and the regional and metropolitan planning agencies to evaluate options for electrification, the need for the use of diesel vehicles, and other strategies for reducing GHG emissions from transportation. The regulation sets a performance standard for GHG emissions reductions. MassDEP also notes that although more hybrid and electric technologies are continually being developed and are assessed by agencies, at the present time there are few options for non-passenger electrified vehicles. The use of non-passenger vehicles is needed for Commonwealth operations, because such vehicles provide a wide range of necessary features to Commonwealth agencies, including off-road, emergency response, snow plowing, etc., and few appropriate advanced technology vehicle options are yet available.

B. Technical Changes

- MassDEP has changed the term “Aggregate MassDOT Transportation GHG Emissions” in the proposed regulation to “Aggregate MassDOT GHG Emissions” to better align with the definition of the term. The term includes use of heating fuels at MassDOT and MBTA facilities in addition to transportation fuels.
- Added inadvertently omitted reference in 310 CMR 60.05(4)(b), indicating that 2018 is the first calendar year that quantification and reporting requirements of 310 CMR 60.05(7) are in effect.

VI. COMMENTS AND RESPONSES FOR 310 CMR 60.06 CO₂ EMISSION LIMITS FOR STATE FLEET PASSENGER VEHICLES

A. General Comments in Support

1. **Comment:** MassDEP received comments from organizations which indicated support for Massachusetts' State Fleet Passenger Vehicles Regulations. (JRWA, Clean Water Action, Eversource)

Response: MassDEP appreciates the support.

B. Comments on the Regulatory Language

2. **Comment:** A Commenter recommended that there be increased clarity of the draft regulations in order to make them easier to implement. It was suggested that MassDEP:
- Broaden the definition of “emergency vehicles” to include “vehicles used for repairing damaged infrastructure such as water and sewer mains, electrical equipment, or communications equipment, as all of these have similar high priority 24/7 all-weather access requirements.”
 - Clarify what is included in the definition of “passenger vehicle” as it excludes “non-road” vehicles. “Does this include all-terrain vehicles, non-plated vehicles used only on a facility site, smaller natural gas or propane-powered vehicles not intended for use on public roads?” (MWRA)

Response: The vehicle examples suggested are considered non-passenger vehicles under the proposed regulation; therefore, no regulatory changes were made in response to this comment. Specifically:

- The definition of “Passenger Vehicle” includes the phrase “designed primarily for transportation of persons...” thereby excluding “vehicles used for repairing damaged infrastructure such as water and sewer mains, electrical equipment, or communications equipment, as all of these have similar high priority 24/7 all-weather access requirements” from the passenger vehicles requirements under 310 CMR 60.06.
- All-terrain vehicles are excluded from the definition of “Passenger Vehicle” as they are vehicles with “special features enabling off-road operation and use.” Non-plated vehicles used only on a facility site are non-road vehicles because by definition they are not legally allowed to travel on public roads; non-road vehicles are excluded from the definition of “passenger vehicle.” Natural gas or propane-powered vehicles not intended for use on public roads are excluded from the definition because they are non-road vehicles and not “designed primarily for transportation of persons.”

Please note that large vehicles are also considered non-passenger vehicles due to a technical change in the definition of passenger vehicles, dependent on whether a vehicle has a US EPA fuel economy sticker, as explained in the second “Technical Change” in Section E below.

3. **Comment:** The declining caps are quite ambitious. (UCS) Consider how to “fairly deal with changes in fleet composition, and in particular work functions moving from one segment of the fleet to the other.” (MWRA)

Response: MassDEP worked closely with the Executive Offices to analyze the state fleet inventories and the flexibilities needed to implement the proposed regulation. MassDEP acknowledges that there are sometimes valid reasons to change fleet composition. For example, if a new directive is imposed on an Executive Office to conduct field work, inspections or other work that requires a physical presence by agency staff, this can necessitate the purchase of a large number of new passenger vehicles in a short period of

time. In addition, given the complexity and geographical scope of some Executive Office operations, there is some possibility that passenger vehicles will be identified as part of the Executive Office fleet after the effective date of the regulations.

In order to account for the possible entry of significant numbers of new vehicles into a fleet, MassDEP has created a “set-aside” containing a certain number of pounds of CO₂ every year (listed in new Table 7). Each Executive Offices may petition MassDEP for an addition to their annual declining GHG limits, if they meet certain requirements and as long as the Maximum Annual Aggregate CO₂ Emissions Limit for all Executive Agencies combined (listed in new Table 7) is not exceeded. This will also allow Executive Offices to obtain approval of declining, annual GHG limits for their vehicle fleet, if that office becomes subject to 310 CMR 60.06 in the future by owning 30 or more passenger vehicles.

If MassDEP approves a petition of an Executive Office and calculates a new CO₂ emission limit, the modified CO₂ emission limit will become the enforceable limit in lieu of the limit in 310 CMR 60.06, and MassDEP will reduce the number of pounds of CO₂ that are in the set-aside.

4. **Comment:** As discussed in the Background Document, MassDEP worked closely with all Executive Offices to inventory their passenger vehicle fleet, and obtained more up-to-data since release of the proposed regulation. One topic on which MassDEP requested comment was whether it should exclude Executive Offices with a limited number of vehicles, that is, set a *de minimis* threshold for regulatory applicability. Three Executive Offices submitted information that the office has fewer than 30 passenger vehicles (Executive Office of Labor and Workforce Development has two vehicles; Executive Office of Housing and Economic Development has 23 vehicles; and Executive Office of Administration and Finance has 26 vehicles).

Response: In working with the Executive Offices, MassDEP confirmed that some Executive Offices have a low number of vehicles. Therefore, MassDEP is setting an applicability threshold of 30 or more passenger vehicles. Those Executive Offices with fewer than 30 passenger vehicles will be excluded from a declining annual CO₂ limit unless and until they own or lease 30 or more passenger vehicles. If an Executive Office that is currently subject to a CO₂ limit owns or leases less than 30 passenger vehicles in the future, it may petition MassDEP to be excluded from regulation. The CO₂ quantity no longer being used by such an Executive Agency will be transferred to the set-aside established in Table 7 and tracked by MassDEP to account for changes in vehicle fleets over time.

5. **Comment:** Revise 60.06 to include a requirement that Executive Offices purchase or lease only 100% Zero-Emission Passenger Vehicles after 2018. (CLF) Transform the state fleet so that all new cars acquired after 2020 are EV to the extent they are available in broad product categories. (Carolyn Britt)

Response: Although MassDEP supports the purchase of zero-emission and low emission passenger vehicles, MassDEP did not make this change in the final regulation. Executive Offices need to have flexibility to be able to comply with the declining limits in 310 CMR

60.06 and they may certainly purchase zero-emission and low emission vehicles in order to do that. MassDEP notes that 310 CMR 60.06 complements the “Fuel Efficiency Standard for State Fleet” policy at <http://www.mass.gov/eea/docs/eea/lbe/fuelefficiencystandard-final.pdf>.

6. **Comment:** Massachusetts can lead by example in reducing emissions from the state fleet, but the proposed regulations should be aligned with the long term requirements of the GWSA. Declining annual emissions limits should be established for years subsequent to 2025 in order to facilitate achievement of 2050 emissions. (Acadia Center)

Response: MassDEP did not make this change in the final regulation. MassDEP chose 2025 as the end year to be consistent with the 8-state ZEV MOU. However, MassDEP may re-visit the 2025 end date for passenger vehicles in the future or when it evaluates the non-passenger vehicle data that is submitted by the Executive Offices.

C. Comments on the Scope of the Limits on the State Vehicle Fleet or on Transportation Emissions

7. **Comment:** What additional policies is DEP looking at to achieve the proposed reductions from Executive Office passenger vehicle fleets? (UCS) Lead the way in purchasing EVs for state employee use. (Carolyn Barthel)

Response: The joint Operational Services Division-MassDEP-DOER policy titled: “Fuel Efficiency Standard for State Fleet,” will help to achieve CO₂ reductions. It requires that any new “eligible” vehicle that is acquired by a state agency must have a minimum fuel efficiency of 32 miles per gallon (MPG) for passenger cars and a minimum of 22 MPG for light duty trucks, passenger and cargo vans and sport utility vehicles. In addition under the policy, each state agency must acquire a minimum number of plug-in hybrid electric vehicles, battery electric vehicles, hybrid electric vehicles and/or alternative fuel vehicles.

8. **Comment:** We urge the DEP to set specific declining limits on emissions for the transportation sector. (Clean Water Action)

Response: In 310 CMR 60.05, MassDEP set a declining target for MassDOT on GHG emissions from vehicles that travel on highways and roads in Massachusetts. The aggregate target in the 310 CMR 60.05 regulation is included for planning purposes and requires MassDOT to quantify aggregate transportation GHG emissions annually to demonstrate whether the aggregate emissions targets in Table 310 CMR 60.05(7) have been achieved.

9. **Comment:** MassDEP received comments from organizations and private citizens indicating the need for “enacting transportation regulations to decrease pollution from state-owned vehicles.” (Peggy, Nira Pollock, Rachel Medeiros, David Dow, Jack Dean, Kathryn Archard, Suzanna Trimble, Carolyn Britt)

Response: MassDEP is promulgating 310 CMR 60.06 which decreases pollution from state-owned vehicles by setting annually declining limits on CO₂ emissions from passenger

vehicles that are owned or leased by Executive Offices. Each of the Executive Offices is required to calculate and report its annual CO₂ emissions for passenger vehicles it owns or leases. In addition, each Executive Office is required to track and report the number and type of non-passenger vehicles it owns or leases.

MassDEP's Low Emission Vehicle program regulation, 310 CMR 7.40, applies to all new light- and medium-duty vehicles in Massachusetts and requires automobile manufacturers to reduce GHG emissions over time from new vehicles.

10. **Comment:** MassDEP should require all state fleet vehicles to be zero emissions by 2020. (Environment Massachusetts)

Response: MassDEP supports the reduction of GHG in the Commonwealth, but there must be a balance between decreasing CO₂ emissions from the state fleet and ensuring that Executive Offices have vehicles to plow snow, respond to emergencies, etc. There are very few commercially available zero emission non-passenger vehicles at present, although more are expected to be available over time.

11. **Comment:** Establish mass-based, annually declining limits on CO₂ emissions from MassDOT and state fleet of vehicles, and transportation regulations to decrease GHG pollution from public transportation. (Carolyn Britt, David Dow)

Response: MassDEP is promulgating regulations at 310 CMR 60.05 that establish an annually declining limit on CO₂ emissions from MassDOT mobile equipment and facilities. 310 CMR 60.05 also requires MassDOT and MPOs to evaluate and track CO₂ emissions and impacts in RTPs, TIPs and STIPs. MPOs must also calculate aggregate transportation GHG emissions. Further, 310 CMR 60.06 sets annually declining limits on CO₂ emissions from the state fleet of passenger vehicles.

D. Infrastructure and Incentives

12. **Comment:** Commenter suggested three high level ways to reduce emissions: reduce vehicle miles traveled, use alternative fuel sources such as biofuels, and improve fuel economy. Using alternative fuels is the best way to affect state level impact. The State Biofuels Act of 2008 requires Massachusetts to enter into a low carbon fuel standard with other states in the region. (Rafie Mardgrobian) Encourage the Commonwealth's fleet to utilize low carbon diesel alternatives. (Neste US, Inc., LCFC)

Response: A low carbon fuel standard (LCFS) is a method to achieve reduction of GHG emissions, but developing a LCFS is beyond the scope of this rulemaking. However, MassDEP agrees with the commenters that more policy options should be developed for reducing GHG emissions from the transportation sector over the longer term. MassDEP has been engaged in discussions with regional and national organizations on the development of additional climate strategies for the transportation sector. In addition, MassDOT utilizes biodiesel as a fuel for its vehicles (see <http://www.massdot.state.ma.us/planning/Main/SustainableTransportation/EnvironmentalSte>

[wardship.aspx](#) and page 4-3 in https://www.massdot.state.ma.us/Portals/0/docs/GreenDOT/GreenDOT_Report2014/2014_GDOT_Rep_Chpt4_FINAL_01162015.pdf).

13. **Comment:** The commenters urged MassDEP to support electric vehicles, purchase electric vehicles for the state fleet and increase the number of electric vehicle charging stations. (350 MA, Environment Massachusetts, Alex Morgan, Carolyn Britt)

Response: MassDEP has and will continue to support electric vehicles (EVs) and electric vehicle infrastructure deployment in the Commonwealth. MassDEP's MassEVIP Fleets Program provides funding for public entities to deploy EVs and publicly accessible charging stations in Massachusetts communities. MassDEP's MassEVIP Workplace Charging Program provides funding for employers in Massachusetts to deploy charging stations at their campuses thus increasing range confidence for potential EV owners.

14. **Comment:** Aggressively pursue the availability of public transportation throughout the state, not just Boston, and encourage public transportation use. Financially support the necessary infrastructure overhaul of the MBTA so that it is more reliable and cost-friendly to commuters. (Carolyn Barthel)

Response: MassDEP agrees that encouraging and supporting public transportation is an important part of reducing GHG emissions, however MassDEP does not have direct control over providing or funding public transportation.

15. **Comment:** To help the deployment of alternative fuel vehicles, "Eversource is seeking opportunities to support the development of alternative fueling infrastructure." Eversource has proposed infrastructure installations to DPU, which, if approved, would help conversion to alternative fuel vehicle state fleet. (Eversource)

Response: MassDEP appreciates Eversource's efforts to increase deployment of alternative fuel vehicles.

16. **Comment:** MassDOT's efforts are in two major areas, equipment and planning: MBTA vehicle fleets are becoming cleaner (e.g., MBTA buses and MassDOT equipment such as snow plows, which are switching to hybrid and electric); and planning processes to move around in lower carbon ways. Other actions in addition to buses, are commuter rail, new locomotives, plug ins, installing solar panels on property, making facilities more efficient, travel demand management programs, the full introduction of all electronic tolling to reduce congestion, working with MassDEP for certification of roadways as electric vehicle corridors, improving state of good repair of MBTA, investing money in Complete Streets program to help walkers and bikers, funding 26 capital programs and training over 100 employees in Complete Streets programs. Excited to work with MassDEP. (MassDOT)

Response: Thank you for your comments.

17. **Comment:** What happens if the state is not able to achieve the reductions? (UCS)

Response: Under this regulation, MassDEP has the ability to take enforcement against a state agency that does not meet its CO₂ emission limits. In the overall reduction in GHG emissions, 310 CMR 60.06 is only expected to achieve a reduction of <0.01% in statewide GHG emissions from 1990 levels, and MassDEP believes that these reductions are achievable. Although this is not a significant amount of reduction, it is an important step for the Commonwealth to show its commitment to a greener vehicle fleet. When the Commonwealth “leads by example,” it creates a vision for other public and/or private fleets to follow.

18. **Comment:** Low emission vehicles are a near waste of resources when you project out the emissions reductions we need to make over the next couple of decades. Instead, the Commonwealth should be investing enormous sums into public transportation. (Bobby Wengronowitz)

Response: MassDEP agrees that investment in public transportation is an important method for reducing emissions. However, replacing higher emitting vehicles with low emission vehicles is an important strategy as well. In fact these two initiatives intersect in actions such as MassDOT increasing the share of low emission transit vehicles in its fleet. It is going to take a variety of policies, initiatives and regulations to achieve the statewide GHG emission limit of at least 80% below 1990 levels by 2050.

E. Technical Changes

- MassDEP amended the definition of “Executive Office” to adequately cover all quasi-public agencies that MassDEP intended to include in 310 CMR 60.06. MassDEP deleted the Massachusetts Water Resources Authority because it is now covered by the amended language, as are all other quasi-public agencies whose governing members or board include the Secretary of an Executive Office.
- MassDEP amended the definition of “Passenger Vehicle” because MassDEP’s methodology for determining the limits in 310 CMR 60.06 relies on fuel economy of existing vehicles as represented on US EPA-required fuel economy stickers pursuant to 40 CFR Part 600 *Fuel Economy And Greenhouse Gas Exhaust Emissions Of Motor Vehicles*. Vehicles that do not have a US EPA fuel economy sticker are considered non-passenger vehicles; examples of such vehicles include motorcycles, vehicles greater than 8,500 pounds Gross Vehicle Weight Rating prior to model year 2011, vehicles greater than 10,000 pounds Gross Vehicle Weight Rating in model year 2011 or later, and pickup trucks and cargo vans greater than 8,500 pounds Gross Vehicle Weight Rating in model year 2011 or later.
- As indicated on page 47 of the TSD, MassDEP updated the limits for each Executive Office in the final 310 CMR 60.06(6), incorporating 2016 vehicle use data where available. A spreadsheet detailing the limit calculation methodology is attached as Appendix B. Upon updating the limits, MassDEP observed a very large decline from 2016 emissions to 2018, due to the assumption that passenger vehicle travel from all vehicles more than 10 years old

would be replaced by 2018. Therefore, MassDEP interpolated from 2016 to 2020, in order to smooth the decline.

- MassDEP amended 310 CMR 60.06(4) and (7)(a) to clarify all the compliance and reporting deadlines in 310 CMR 60.06.

Appendix A. Calculation of Gas Operator Limits for 310 CMR 7.73

Appendix B. Calculation of Executive Office Limits for 310 CMR 60.06