

Appendix D-16
RESPONSE TO COMMENTS
August 2012

In February 2012, the Massachusetts Department of Environmental Protection (MassDEP) proposed amendments to its December 30, 2011 Regional Haze State Implementation Plan (SIP) to address Best Available Retrofit Technology (BART) requirements and other emission reduction commitments for electric generating units (EGUs). MassDEP held public hearings and solicited oral and written testimony on the proposed SIP amendments in accordance with Massachusetts General Laws (M.G.L.) Chapter 30A. On February 21, 2012, MassDEP published notice of the public hearings and public comment period on the proposed amendments in the Boston Globe and the Springfield Republican, and notified interested parties via electronic mail. Public hearings were held on March 27, 2012 in Springfield and on March 28, 2012 in Boston. No oral testimony was provided at either hearing. The public comment period closed on April 9, 2012. MassDEP received several sets of written comments. A summary of written comments received and MassDEP's responses are provided below.

Commenters:

1. U.S. Department of the Interior, National Park Service, comments dated April 9, 2012 [NPS]
2. U.S. Department of Agriculture, Forest Service, comments dated April 9, 2012 [FS]
3. U.S. Environmental Protection Agency Region 1, comments dated April 4, 2012 [EPA]
4. Sierra Club, Massachusetts Sierra Club, and Conservation Law Foundation, comments dated April 9, 2012 [SC/CLF]
5. Dominion Energy New England, comments dated April 9, 2012 [Dominion]

1. Comment: MassDEP is proposing a Best Available Retrofit Technology (BART) Alternative that includes BART and non-BART EGUs. In a similar case regarding trading among BART and non-BART boilers, EPA required Wisconsin to follow EPA's economic incentive program (EIP) guidance. We believe that MassDEP's BART Alternative should be consistent with EPA's EIP policy and demonstrate a 10% "environmental benefit." [NPS]

Response: MassDEP's Alternative to BART does not involve emissions trading between sources, and therefore EPA's EIP policy is not applicable.

2. Comment: From the perspective of a Federal Land Manager, who has affirmative responsibility to protect the air quality related values in federal Class I areas, we are encouraged that a number of significant steps are being taken to reduce sulfur dioxide emissions. Some of the steps include the retirement of Somerset Power Unit 8 in 2010, the proposed retirement of Salem Harbor Units 3 and 4 in 2014, and MassDEP's proposed amendments to its low sulfur fuel oil regulation (which would require EGUs that burn residual oil to limit the sulfur content to 0.5% by weight beginning July 1, 2014). We also acknowledge your proposal to review EGU emissions in 2013, with the intent of a 90% reduction in sulfur dioxide emissions from EGUs from 2002 levels by 2018. (FS)

Response: MassDEP appreciates the Forest Service’s comments.

3. Comment: In Tables 16-19, for clarity, EPA suggests that the term “projected” be replaced with the term “estimated.” These emissions are not being projected for a specific future year, but are the estimated reduced emissions resulting from the application of either the BART benchmark or alternative BART. [EPA]

Response: MassDEP has made this change.

4. Comment: In Tables 17, 19, and 20, EPA recommends that MassDEP add a column which indicates the enforceable mechanism for the state SO₂, NO_x and PM₁₀ emission limits, respectively. [EPA]

Response: MassDEP has not added columns to the Tables due to limited space, but the enforceable mechanisms for the emission rates are described in the text surrounding these tables.

5. Comment: The first sentence of Section 8.11 states, “MassDEP’s proposed Alternative to BART does not cover PM₁₀ emissions.” EPA recommends that this statement be clarified to indicate that for PM₁₀, MassDEP undertook source-by-source BART determinations. [EPA]

Response: MassDEP has made this change.

6. Comment: MassDEP’s proposal includes several new Appendices, including one rule and several emissions control plan approvals. As these items are relied upon by MassDEP to implement BART, these Appendices need to be included in the final SIP revision and incorporated into the SIP. As such, if there are certain provisions of the rule or emission control plans that MassDEP does not want to be incorporated into the SIP, it should make that clear in the SIP revision. Conditions which MassDEP does not want to incorporate into the SIP should be struck out in the final submittal. [EPA]

Response: MassDEP has included the final emissions control plans (ECPs) and regulations it is relying on in the SIP as Appendices in the SIP, and has struck out those portions of the ECPs and regulations it does not want incorporated into the SIP.

7. Comment: Since a number of new Tables are being added to Section 8.10 and 8.11 of the SIP, the tables contained in Sections 9 and 10 of the final SIP submitted in December should be revised. This includes the revised “Table 19: Massachusetts Targeted EGUs” in proposed Section 10.5, which should be renumbered as Table 25. The references to Table 19 on pages 16 and 18 should likewise be changed to Table 25. [EPA]

Response: MassDEP has made these changes.

8. Comment: MassDEP’s proposed plan to address BART requirements for EGUs does not comply with the requirements of the Clean Air Act (CAA) and EPA’s implementing regulations, 40 C.F.R. Pt. 51. MassDEP impermissibly seeks to rely on a handful of state regulations as an alternative to requiring source-specific BART emission limits for subject-to-BART EGUs in

Massachusetts. However, not only does the plain language of the Clean Air Act preclude the use of such alternatives, but Massachusetts has also failed to meet its specific obligations under EPA's regional haze regulations to justify the use of these regulations to replace source-specific BART limits. [SC/CLF]

Response: MassDEP believes its SIP complies with the Clean Air Act and EPA's regional haze regulations. The Clean Air Act does not prohibit a state from developing an Alternative to BART program and EPA's implementing regulations at 40 CFR 51.308(e)(2) specifically allow a state to adopt an Alternative to BART provided that such alternative achieves greater reasonable progress toward natural visibility conditions than source-by-source BART. 40 CFR 51.308(e)(3) provides that an alternative program can be deemed to achieve greater reasonable progress than source-specific BART if the alternative program results in greater emission reductions, provided the geographic distribution of emissions is similar under the alternative measure and BART. EPA's regulations allowing an Alternative to BART have been upheld by the D.C. Circuit Court of Appeals. *CEED v. EPA*, 398 F.3d 653, 659-660 (D.C.Cir. 2005) In its SIP, MassDEP demonstrates that its Alternative to BART achieves greater emissions reductions than would source-specific BART, and that the distribution of emissions is similar. Therefore, MassDEP's Alternative to BART achieves greater reasonable progress and meets the requirements of EPA's regional haze regulations.

9. Comment: MassDEP has not included or referenced in its SIP revision the statutorily required source-by-source BART analysis for each emission unit subject to BART. Consequently, MassDEP cannot substantiate whether its proposed BART alternative results in greater reductions of haze-forming pollutants than would be achieved under source-by-source BART, as is required for MassDEP to rely on a BART alternative. EPA has promulgated detailed BART guidelines that lay out the five-step process that must be followed to determine BART for units at facilities with a capacity greater than 750 MW. MassDEP must follow that process here for Brayton Point, Canal, Mystic and Salem Harbor and must include these analyses in its SIP. In addition, for units at smaller facilities, the statute and regulations establish factors that MassDEP must consider in establishing BART. These analyses are missing from MassDEP's proposed regional haze SIP, and this deficiency must be remedied before MassDEP can purport to rely on its proposed BART alternative. [SC/CLF]

Response: Under EPA's regional haze regulations, if a state pursues an Alternative to BART program it must submit an analysis that includes a determination of BART for each source subject to BART and covered by the alternative as part of its SIP. However, there is one exception to this requirement where the "...alternative measure has been designed to meet a requirement other than BART (such as the core requirement to have a long-term strategy to achieve the reasonable progress goals established by States). In this case, the State may determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate." [see 40 CFR 308(e)(2)(i)(C)] MassDEP's alternative BART measures were designed for purposes other than BART and are part of Massachusetts' long-term strategy to meet reasonable progress goals. Therefore, EPA's regulations allow MassDEP to establish a BART benchmark to compare to its Alternative to

BART using assumptions for categories of sources, rather than determining source-specific BART for each BART-eligible source.

10. Comment: In seeking to demonstrate that its proposed BART alternative produces emissions benefits relative to source-specific BART, MassDEP improperly compared emissions reductions under its proposed BART alternative to those under MANE-VU's categorically derived presumptive BART. But presumptive BART is not BART, and is not a substitute for analyses that comply with the regional haze rule and BART guidelines for each subject-to-BART source. Because source-specific BART limits are often significantly lower than those identified by EPA as presumptive BART, MassDEP's comparison of its BART alternative to presumptive BART is impermissibly skewed in favor of the BART alternative. MassDEP must redo its analysis and compare emission reductions under the proposed alternative to those produced by full source-specific BART analyses. MassDEP must include in this analysis an evaluation of the impact of source-specific emission reductions on each affected Class I area. [SC/CLF]

Response: As noted in the response to Comment 9, EPA's regional haze regulations allow MassDEP to establish a BART benchmark to compare to its Alternative to BART based on an analysis that includes simplifying assumptions about BART control levels for sources within a source category, rather than determining source-specific BART for each BART-eligible source. At a minimum, MassDEP believes its BART benchmark should be based on EPA's presumptive limits for EGUs in its BART Guidelines. However, MassDEP has gone beyond EPA's presumptive BART Guidelines and based its BART benchmark on MANE-VU's more stringent recommended BART emission limits for EGUs. Therefore, MassDEP's BART benchmark appropriately and adequately represents what BART is likely to be for the category of EGU sources.

11. Comment: MassDEP cannot establish that its proposed BART alternative results in greater reasonable progress toward achieving natural baseline visibility conditions in Class I areas than would properly conducted source-by-source BART. MassDEP's comparison of the sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emission reductions under its proposed alternative and source-specific BART is fatally flawed because the agency ignores emission reductions already being achieved at subject-to-BART units and ignores enforceable emission reductions at units subject to its BART alternative that should be included as well in the source-specific BART benchmark case. The BART emissions benchmarks for SO₂ and NO_x included in Tables 16 and 18 of the SIP appear to significantly under predict emission reductions that would be achieved under properly conducted source-specific BART. For example, Brayton Point Units 1 and 2 already are achieving SO₂ emissions rates that are lower than the presumptive BART emission rate of 0.15 lb/MMBtu that MassDEP assumed in its BART Benchmark, so that emissions from these two units should be at most 1,811 tons, not 2,467 tons as MassDEP presumes, an overestimate of 656 tons. Brayton Point Unit 3 is installing a dry scrubber that could result in emissions of 778 tons, compared to the 2,725 tons of SO₂ presumed by MassDEP, which is an overestimate of 1,947 tons. In addition, MassDEP credits its BART alternative with 9,998 tons of SO₂ reductions from Salem Harbor Units 1, 2 and 3. This is improper since each of these units is subject to an enforceable consent decree between Conservation Law Foundation, Healthlink, and Dominion requiring the complete shutdown of Salem Harbor as a coal-fired power plant no later than June 1, 2014. Consequently, these emission reductions would have occurred under the

source-specific BART scenario just as they occur in MassDEP's BART alternative. MassDEP therefore cannot consider the emissions reductions occurring at Salem Harbor Units 1 through 3 only for its BART alternative, but must include the enforceable emission reductions for these units in its analysis of source-specific BART as well.

Likewise for NO_x, MassDEP underestimates the emission reductions that would be achieved under source-specific BART and improperly credits its proposed BART alternative with achieving thousands of tons of NO_x reductions from Salem Harbor that would occur under either scenario. In addition, MassDEP has not provided sufficient information in its regional haze SIP to evaluate or eliminate selective catalytic reduction (SCR) or selective non-catalytic reduction (SNCR) as control technologies for NO_x at Brayton Point Unit 2.

Correcting these errors reveals that in 2018 source-specific BART would result in SO₂ emissions reductions at least 8,600 tons greater than under the BART alternative and NO_x emissions at least 3,200 tons greater than under MassDEP's proposed alternative to BART. Consequently, MassDEP cannot demonstrate that its proposed BART alternative would result in greater reasonable progress toward achieving natural baseline visibility conditions in the areas protected by the regional haze rule, and MassDEP's BART alternative fails to meet the basic requirements of 40 CFR 51.308(e)(2). [SC/CLF]

Response: These comments assert that MassDEP significantly underestimated emissions reductions for SO₂ and NO_x in its BART benchmark, which assumes that the BART benchmark must be based on a source-specific BART determination for each BART-eligible source. However, as noted in the responses to Comments 9 and 10, the BART benchmark does not require a source-specific BART determination for each BART-eligible source, but may be based on an analysis that includes simplifying assumptions about BART control levels for sources within the source category being considered (i.e., EGUs). This is the case even if existing controls or future controls (including shutdowns) could result in more emissions reductions than estimated by the BART benchmark. The preamble to EPA's 2006 regional haze regulations (71 FR 60612) includes the following language that makes clear that source-specific BART determinations are not required under the Alternative to BART that MassDEP has established in its SIP, and that states may use EPA's presumptive BART limits in establishing a BART benchmark:

“In today's final rule, the regulations make clear that, with one exception, States must follow the approach for making BART determinations under section 51.308(e)(1) in establishing a BART benchmark. This includes the requirement for States to use the BART guidelines in making BART determinations for EGUs at power plants of a certain size. As discussed above, the one exception to this general approach is where the alternative program has been designed to meet requirements other than BART; in this case, *States are not required to make BART determinations under § 51.308(e)(1) and may use simplifying assumptions in establishing a BART benchmark based on an analysis of what BART is likely to be for similar types of sources within a source category.* [emphasis added] Under either approach to establishing a BART benchmark, we believe that the presumptions for EGUs in the BART guidelines should be used for comparison to a trading program or other

alternative measure, unless the State determines that such presumptions are not appropriate for particular EGUs. We note that this limitation on the use of the presumptions is most likely to apply only in a source-by-source determination under § 51.308(e)(1). *States establishing a BART benchmark based on simplifying assumptions as to the most-stringent BART for EGUs may rely on the presumptions, as EPA did in the CAIR rule.*” [emphasis added]

12. Comment: The Massachusetts SIP revision fails to demonstrate that the distribution of emission reductions under its proposed BART alternative will be similar to that under source-specific BART or conduct dispersion modeling showing that the BART alternative results in greater reasonable progress in areas protected by the regional haze rule. Although MassDEP asserts that the distribution of emissions is similar, its rationale is flawed and a further demonstration is required. Under EPA’s haze regulations, it is insufficient to simply compare the total emissions reductions from source-specific BART and a state’s BART alternative; the state must also take into consideration the location of these emission reductions. Where the distribution of emissions under BART and the alternative are substantially different, the state proposing to rely on a BART-alternative must conduct dispersion modeling to show the difference in visibility under each program for each impacted Class I area on the worst and best 20 percent of days. The modeling will demonstrate greater reasonable progress only if: (1) Visibility does not decline in any Class I area; and (2) There is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas. MassDEP does not offer dispersion modeling to compare the visibility improvements resulting from source-specific BART and its proposed BART alternative. Instead the agency claims that “the Alternative to BART achieves greater emissions reductions than BART and the geographic distribution of emissions reductions is nearly identical since all of the units subject to BART are included in the Alternative to BART.” But this reasoning is flawed. The mere fact that the subject-to-BART units are a subset of the alternative BART units says nothing about the similarity of emission reduction distributions under each scheme. Instead, to assess emission distributions MassDEP would have to compare the magnitude of emission reductions at units common to both schemes and evaluate whether the additional units covered by the BART alternative are proximate to subject to BART sources. MassDEP has not done so, and therefore cannot presume that its BART alternative produces a similar distribution of emission reductions. [SC/CLF]

Response: MassDEP believes that the geographic distribution of the emissions reductions from the Alternative to BART is not significantly different to the geographic distribution of emissions reductions from source-specific BART, and therefore comparison of the Alternative to BART and BART benchmark may be made on the basis of emissions alone in accordance with 40 CFR 51.308(e)(3). The Table below shows the geographic distribution of SO₂ and NO_x emission reductions for the BART benchmark and Alternative to BART. With the exception of emissions reductions at Mt. Tom in Western Massachusetts (which will help reduce visibility impacts at the Lye Brook Class I area in Vermont), all of the emission reductions that result from MassDEP’s Alternative to BART occur in Eastern Massachusetts, which is the same geographic area where emissions reductions would occur from source-specific BART (represented by the BART benchmark). On this basis alone, MassDEP believes that the distribution of emissions reductions is similar between the two approaches given the relatively small size of Massachusetts in the

context of regional haze, which is visibility impairment produced by a multitude of sources and activities located across a broad geographic area. The Alternative to BART results in a greater portion of overall emissions reductions in Northeast MA versus Southeast MA, compared to the BART benchmark, which could be beneficial since Northeast MA is closer in distance to the MANE-VU Class I areas. It should be noted that while the BART modeling performed by MANE-VU showed that emissions from Southeast MA had the greatest visibility impact at Class I areas in Maine (due to Brayton Point and Canal), the modeling of emissions from Northeast MA did not include Salem Harbor Units 1-3 because they are not BART units. Had emissions from Salem Harbor Units 1-3 been included in the MANE-VU BART modeling, the impact from Northeast MA would have been greater than reported in the original modeling.

SO₂ Emissions Reductions (in tons)		
Geographic Region	BART Benchmark	Alternative to BART
Northeast MA	3,097	12,363
Southeast MA	47,655	38,912
Western MA	0	3,710
Total	50,752	54,986
NO_x Emissions Reductions (in tons)		
Geographic Region	BART Benchmark	Alternative to BART
Northeast MA	526	2,376
Southeast MA	12,294	9,557
Western MA	0	1,184
Total	12,820	13,117

Notes: Northeast MA includes Salem Harbor and Mystic
Southeast MA includes Brayton Point, Canal, Somerset, and Cleary Flood
Western MA includes Mt. Tom
Totals shown may not add precisely due to rounding

13. Comment: MassDEP has not demonstrated that the state will achieve the reasonable progress goals established by MANE-VU for 2018. MANE-VU includes as a reasonable progress goal emission reductions of 90% from each of the 167 power plant stacks in the MANE-VU region whose SO₂ emissions were determined to significantly impair visibility in one or more MANE-VU Class I areas. The Massachusetts regional haze SIP fails to put the state on a path to achieve those reductions, even under the optimistic projections made by MassDEP, and fails to require enforceable commitments to achieve these reductions. Where a state has participated in a regional planning process, “the State must ensure it has included all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process.” 40 C.F.R. § 51.308(d)(3)(ii). However, under MassDEP’s proposed SIP, the state is not projected to achieve the 90% SO₂ reduction target by 2018 at major EGUs. Instead, MassDEP projects emission reductions of between 67 and 87% from the affected units. This is unacceptable given its regulatory obligation, and particularly in light of the levels of SO₂ emissions cost-effectively achievable from these units. To remedy this deficiency, the SIP at a minimum should include enforceable requirements that Mount Tom and Brayton Point operate their sulfur dioxide controls continuously and require an enforceable SO₂ emission limit of zero for Salem Harbor Units 1 and 2 consistent with the consent decree requiring the shutdown of the

Salem Harbor facility as a coal-fired power plant. When coupled with an enforceable shutdown of all units at Salem Harbor and the shutdown of Somerset Unit 8, the requirement of continuous operation of SO₂ controls at Brayton Point and Mount Tom should enable Massachusetts to meet its obligation of achieving an enforceable 90% reduction in SO₂ emissions from the stacks covered by the MANE-VU reasonable progress goal. [SC/CLF]

Response: As a point of clarification, the MANE-VU commitment to a 90% reduction in SO₂ emissions from 167 EGU stacks is not a reasonable progress goal, but is part of the long-term strategy MANE-VU states adopted to achieve the reasonable progress goals established by the Class I states (the reasonable progress goals for the Class I areas are described in Section 9 of the SIP). In addition, the MANE-VU commitment provides flexibility in achieving the emission reductions that were assumed for each state in the modeling that formed the basis of the reasonable progress goals. MassDEP has demonstrated that its long-term strategy includes all the measures needed to achieve its apportionment of emission reduction obligations agreed upon through the regional planning process, in accordance with 40 CFR 51.308(d)(3)(ii). Regarding the 167 EGU strategy, as described on page 18 of the proposed SIP revision, MassDEP's conservative 67% reduction projection for targeted EGUs results in 26,811 tons of SO₂ emissions in 2018, which is well below the 45,941 tons of SO₂ emissions that Massachusetts needs to meet the modeled 2018 reasonable progress goals for the Class I areas. Therefore, MassDEP has met the requirement of 40 CFR 51.308(d)(3)(ii) with regard to EGU emissions even under its most conservative projection. Fortunately, MassDEP projects that EGU SO₂ emissions reductions in 2018 will be much lower, by 87% or more.

14. Comment: We agree with MassDEP's proposed revisions to the Massachusetts Regional Haze SIP and urge you to finalize them as proposed with regard to the Amended Emission Control Plan Draft Approvals for Salem Harbor and Brayton Point. In particular, we also support MassDEP's Alternative to BART approach as part of the proposed revisions. Based on the provisions of 40 CFR 51.308(e)(2), we agree that Massachusetts has the authority to implement the proposed Alternative to BART. Furthermore, as shown in section 8.10 of the proposed SIP revision, MassDEP has demonstrated its alternative to BART will achieve greater emission reductions of SO₂ and NO_x than would be achieved through the installation and operation of BART alone. The Proposed Revision to the SIP also addresses BART for PM₁₀. However, MassDEP has determined that no additional controls are warranted for primary PM₁₀ because controls have been added to all but one of the (non-Dominion) facilities, and the additional cost of further control is not justified since there would be no significant visibility improvement. [Dominion]

Response: MassDEP has finalized the Amended Emission Control Plans for Salem Harbor and Brayton Point as proposed in the SIP revision. In addition, MassDEP has adopted its Alternative to BART as proposed.