ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R09–OAR–2012–0345, FRL–9727–1]

Approval and Promulgation of Implementation Plans; State of Hawaii; Regional Haze Federal Implementation Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is issuing a final Federal Implementation Plan (FIP) to address regional haze in the State of Hawaii. This FIP addresses the requirements of the Clean Air Act (CAA or ''the Act'') and EPA's rules concerning reasonable progress towards the national goal of preventing any future and remedying any existing man-made impairment of visibility in mandatory Class I areas in the State of Hawaii.

The FIP establishes an emissions cap of 3,550 tons of sulfur dioxide (SO_2) per year from three specific fuel oil-fired, electric utility boilers on the Island of Hawaii beginning in 2018. The Hawaii Electric Light Company (HELCO) can minimize impacts on the ratepayers by meeting the cap through the increased use of renewable energy and energy conservation. EPA finds that this control measure, in conjunction with other emissions control requirements that are already in place, will ensure that reasonable progress is made during this first planning period toward the national goal of no man-made visibility impairment by 2064 at Hawaii's two Class I areas.

EPA worked closely with the State of Hawaii in the development of this plan and the State has agreed to incorporate the control requirements into the relevant permits. The State has indicated that it intends to take full responsibility for the development of future Regional Haze plans.

DATES: This rule is effective on November 8, 2012.

ADDRESSES: EPA has established docket number EPA–R09–OAR–2012–0345 for this action. Generally, documents in the docket are available electronically at *http://www.regulations.gov* or in hard copy at EPA Region 9, 75 Hawthorne Street, San Francisco, California. Please note that while many of the documents in the docket are listed at *http://www.regulations.gov,* some information may not be specifically listed in the index to the docket and may be publicly available only at the hard copy location (e.g., copyrighted material, large maps, multi-volume reports or otherwise voluminous materials), and some may not be available at either location (e.g., confidential business information). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed directly below.

FOR FURTHER INFORMATION CONTACT: Gregory Nudd, Air Planning Office (AIR–2), U.S. Environmental Protection Agency Region 9, 415–947–4107, *nudd.gregory@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document, wherever ''we,'' ''us,'' or ''our,'' is used, we mean the United States Environmental Protection Agency (EPA).

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I. Background and Purpose

A. Definitions

For purposes of this document, we are giving meaning to certain words or initials as follows:

1. The words or initials *Act* or *CAA* mean or refer to the Clean Air Act.

2. The initials b_{ext} mean or refer to total light extinction.

3. The initials *BART* mean or refer to Best Available Retrofit Technology.

4. The term *Big Island* refers to the Island of Hawaii.

5. The term *Class I area* refers to a mandatory Class I Federal area.[1]

6. The initials *DOH* refer to the Hawaii Department of Health.

7. The initials *dv* mean or refer to deciview(s).

8. The initials *EGU* mean or refer to Electric Generating Units.

9. The words *EPA, we, us* or *our* mean or refer to the United States Environmental Protection Agency.

10. The initials *FIP* mean or refer to Federal Implementation Plan.

11. The initials *FLMs* mean or refer to Federal Land Managers.

12. The words *Hawaii* and *State* mean or refer to the State of Hawaii.

13. The initials *HECO* mean or refer to the Hawaiian Electric Company.

14. The initials *HELCO* mean or refer to the Hawaii Electric Light Company.

15. The initials *IMPROVE* mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.

16. The initials *MECO* mean or refer to Maui Electric Company.

17. The initials *MW* mean or refer to megawatt(s).

18. The initials NO_X mean or refer to nitrogen oxides.

19. The initials *NP* mean or refer to National Park.

20. The initials *OC* mean or refer to organic carbon.

21. The initials *PM* mean or refer to particulate matter.

22. The initials $PM_{2.5}$ mean or refer to particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers (fine particulate matter).

23. The initials PM_{10} mean or refer to particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (coarse particulate matter).

24. The initials *PSD* mean or refer to Prevention of Significant Deterioration.

25. The initials *RAVI* mean or refer to Reasonably Attributable Visibility Impairment.

26. The initials *RP* mean or refer to Reasonable Progress.

27. The initials *RPG* or *RPGs* mean or refer to Reasonable Progress Goal(s).

28. The initials *SIP* mean or refer to State Implementation Plan.

29. The initials SO_2 mean or refer to sulfur dioxide.

30. The initials *tpy* mean or refer to tons per year.

31. The initials *TSD* mean or refer to Technical Support Document.

32. The initials *URP* mean or refer to Uniform Rate of Progress.

33. The initials *VOC* mean or refer to volatile organic compounds.

34. The initials *WRAP* mean or refer to the Western Regional Air Partnership.

[1] Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to ''mandatory Class I Federal areas.''

B. Overview

On May 29, 2012, the EPA proposed a FIP to address regional haze in the State of Hawaii. We proposed to determine that this FIP would meet the requirements of the CAA and EPA's rules concerning reasonable progress towards the national goal of preventing any future and remedying any existing man-made impairment of visibility in mandatory Class I areas.[2] A detailed explanation of the requirements for regional haze plans and an explanation of EPA's Plan are provided in our Notice of Proposed Rulemaking and are not restated here.[3]

In our Notice of Proposed Rulemaking, we proposed to find that there was only one source in Hawaii that was subject to Best Available Retrofit Technology (BART) requirements, the Kanoelehua Hill Generating Station (Hill) on the Island of Hawaii (the Big Island). We also proposed to find that the current level of pollution control at Hill was consistent with BART and no additional controls would be required to meet the BART requirement. In addition, the EPA proposed to find that sufficient emissions reductions were expected on Maui to make reasonable progress during the first implementation period of 2001–2018. We also proposed to find that additional SO_2 reductions were required on the Big Island to ensure reasonable progress. We proposed that those reductions should be derived from controlling emissions on three oil-fired power plants on the Big Island: Hill, Puna and Shipman. The proposed control measure would cap the emissions of these three plants at 3,550 tons of SO_2 per year beginning in 2018. EPA received several comments during the public comment period on our proposal. We have provided summaries of and responses to significant comments below. Following consideration of all comments, EPA has decided to finalize the Hawaii Regional Haze FIP as proposed with one clarification regarding the compliance date for the emissions cap. We will work with the Hawaii Department of Health on developing future regional haze plans.

II. EPA Responses to Comments

EPA held two public hearings in Hawaii on May 31 and June 1, 2012 to accept oral testimony and written comments on the proposal. The first meeting was held at Maui College in Kahului on the Island of Maui. Twenty people provided oral comments and four provided written comments at this hearing. The second hearing was at the Waiakea High School in Hilo on the Big Island. Four people provided oral comments at this hearing and one provided written comments. Verbatim transcripts of the public hearings are available in the public docket for this rulemaking, Docket ID No. EPA–R09–OAR–2012–0345, which can be accessed through the *www.regulations.gov* Web site.

We also received an additional 18 written comments through email, postal mail and the rulemaking docket. These comments are also available in the public docket for this rulemaking, Docket ID No. EPA–R09–OAR–2012–0345, which can be accessed through the *www.regulations.gov* Web site.

A. EPA Responses to Written Comments

EPA received 18 written comments on the proposal. Commenting organizations include: Friends of Haleakala National Park (FHNP), Alexander and Baldwin, the parent company of Hawaii Commercial and Sugar (HC&S), Maui Electric Company (MECO), Hawaii Electric Light Company (HELCO), National Park Service (NPS), Maui Tomorrow Foundation (Maui Tomorrow), Law office of Marc Chytilo on behalf of Preserve Pepe'ekeo Health and Environment and private citizens (Chytilo), Robert W. Parsons on behalf of the Office of the Mayor of Maui (Parsons) and Earthjustice on behalf of the National Parks Conservation Association, Sierra Club, and Blue Planet Foundation (Earthjustice). Seven private citizens also submitted comments on the proposal.

1. Baseline Visibility, Natural Visibility and Uniform Rate of Progress

Comment: Four commenters (Earthjustice, HC&S, HELCO, and MECO) believe that EPA's proposed analysis contains a fundamental flaw in including the contribution of the Kilauea Volcano in baseline visibility conditions, but excluding it from natural visibility conditions. The commenters asserted that EPA must revise its analysis and the resulting uniform rate of progress (URP) in the final FIP.

Two of these commenters (HELCO, MECO) stated that EPA's exclusion of volcanic emissions from the determination of natural visibility conditions is arbitrary and capricious. Another of the commenters (Earthjustice) stated that EPA's methods for incorporating volcanic emissions into its analysis are internally inconsistent and arbitrary. These commenters asserted that while emissions from the volcano vary from year to year, there is no reasonable basis for EPA to completely exclude them from the estimate of natural conditions.

According to two of the commenters (HELCO, MECO), EPA has expressed the opinion that Kilauea could stop erupting at any time and that natural visibility conditions in 2064 might not include emissions from the volcano. In the view of the commenters, this does not justify EPA's use of the default conditions developed by the Western Regional Air Partnership (WRAP) for western states in the continental United States to determine requirements for Hawaii; rather, it displays a fundamental misunderstanding of Kilauea's emissions profile. Based on a report attached to the comments, the commenters asserted that significant SO_2 emissions would continue venting from the volcano even if it were to stop erupting immediately because, although SO_2 output is greatest during eruptive events, Kilauea emits SO_2 at all times, even during non-eruptive periods. The commenters contend that a substantial amount of data on Kilauea's emissions has been collected, and EPA should, at a minimum, use existing data to develop a ''non-eruptive'' emissions profile. The commenters stated that like particulate emissions from fire, SO_2 emissions from Kilauea are naturally occurring and would continue to occur in the absence of human activities. Accordingly, the commenters asserted that EPA cannot simply ignore emissions from Kilauea.

These commenters (HELCO, MECO) stated that by including emissions from Kilauea in baseline visibility conditions but excluding them from natural visibility conditions, EPA has created an ''apples to oranges comparison'' that artificially inflates the amount of manmade emissions reductions necessary in Hawaii. As a result, the commenters asserted, the proposed FIP would establish reasonable progress goals that would be impossible to achieve through the reduction of

[2] Areas designated as mandatory Class I Federal areas consist of NPs exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of the Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to ''mandatory Class I Federal areas.'' Each mandatory Class I Federal area is the responsibility of a ''Federal Land Manager.'' 42 U.S.C. 7602(i). When we use the term ''Class I area'' in this action, we mean a ''mandatory Class I Federal area.''

[3] *See* 77 FR 31691 (May 29, 2012).

anthropogenic emissions, which is inconsistent with EPA's own guidance. The commenters conclude that EPA must revise its analysis and the URP based on a proper evaluation of volcanic emissions and EPA's failure to appropriately evaluate volcanic emissions is arbitrary and capricious and must be addressed in the final FIP. However, the commenters recognized that EPA may opt not to revise its reasonable progress analysis in this way during this planning period. In that event, the commenters requested that EPA commit to addressing Kilauea's emissions in the next planning period because continuing to exclude these emissions that are the dominant cause of visibility impairment would create untenable results—increasingly expensive controls in successive planning periods that would not result in perceptible improvements in visibility.

Another commenter (Earthjustice) stated that the goal of the haze program is to eliminate visibility impairment ''from manmade air pollution'' [citing 42 U.S.C. 7491(a)(1)]. According to the commenter, failing to include the volcano in natural conditions distorts the analysis of the impacts from human sources and the corresponding BART controls and reasonable progress goals to achieve natural visibility conditions. The commenter asserted that based on this ''skewed analysis,'' EPA summarily eliminated any controls for NO_X for the BART analysis and reasonable progress goals. The commenter contended that EPA avoided evaluating the actual URP for anthropogenic SO_2 pollution; instead, rejecting a URP inflated by volcano impacts (which the commenter termed a ''strawman of EPA's own making''), then proposing arbitrary progress goals of its own choosing. The commenter indicated that EPA's approach toward volcano conditions is unjustified and prevents the Agency from providing a rational and transparent justification for its pollution control determinations. According to the commenter, this approach also deprives the public of proper notice and opportunity to comment; in the commenter's view, EPA must rationally review and address impacts from human sources unskewed by volcano impacts and allow the public a meaningful opportunity to review and comment on such determinations.

The fourth commenter (HC&S) pointed out that under EPA's methodology, the URP incorporates reductions in visibility impairment that are sufficient to offset both the portion of baseline impairment that comes from anthropogenic emissions and the portion that is caused by the volcano. The commenter believes that to make a more accurate assessment of the reduction in emissions from anthropogenic sources necessary to achieve natural visibility conditions, emissions from Kilauea either need to be included in, or excluded from, both the estimate of baseline visibility conditions and the estimate of natural visibility conditions. The commenter recommended that EPA adopt the Hawaii DOH's proposed method to adjust the baseline visibility impairment to account for the impacts of volcano emissions as well as for the impacts of Asian dust. According to the commenter, under this approach, the URP target for 2018 would be 0.32 deciviews (dv), which is only slightly greater than what would be achieved through the proposed FIP.

Response: The central concern of these comments appears to be that the approach EPA used to determine the uniform rate of progress (URP), in particular how we considered volcanic emissions, led to inappropriate regulatory decisions in the proposal and/or may lead to inappropriate regulatory decisions in the future. EPA disagrees with this concern. The commenters mistakenly conclude that the URP sets a target or goal for the first planning period. In fact, the development of the URP is an analytical exercise that is intended to inform the setting of reasonable progress goals (RPGs) rather than a standard or presumptive target for the plan to meet.

In establishing RPGs, the states and EPA must ''consider'' both the URP and the emission reduction measures needed to achieve the URP.[4] More specifically, EPA has recommended that states use the following approach in setting their RPGs:

1. Establish baseline and natural visibility conditions.

2. Determine the URP (i.e., a straight line between baseline visibility in 2000–2004 for the worst 20 percent days and projected natural conditions for the worst 20 percent days in 2064).

3. Identify and analyze the measures aimed at achieving the URP.

a. Identify the key pollutants and sources and/or source categories that are contributing to visibility impairment at each Class I area.

b. Identify the control measures and associated emission reductions that are expected to result from compliance with existing rules and other available measures for the sources and source categories that contribute significantly to visibility impairment.

c. Determine what additional control measures would be reasonable based on the statutory factors and other relevant factors for the sources and/or source categories identified.

d. Estimate through the use of air quality models the improvement in visibility that would result from implementation of the control measures found to be reasonable and compare this to the URP.

4. Establish an RPG.

In this case, the commenters' concerns relate primarily to how EPA performed step 1 of this analysis. Specifically, the commenters object to EPA's inclusion of volcanic emissions in the baseline and exclusion of volcanic emissions in our estimate of natural conditions. EPA acknowledges the commenters' concerns, but does not agree that our approach is arbitrary or unjustified in this case. Rather, we have followed the statutory and regulatory requirements for Reasonable Progress analyses, while also accounting for unique circumstances in Hawaii that severely limit the utility of the URP as an analytical tool for setting RPGs for the state's Class I areas.

Pursuant to 40 CFR 51.308(d)(2), baseline visibility conditions must be calculated using actual monitoring data from 2000–2004. Therefore, the baseline conditions for Class I areas in Hawaii necessarily include volcanic emissions. It is difficult to include volcanic emissions as part of natural background visibility in 2064 because of the extreme variability in volcanic emissions from year to year. In this case, a 2064 projection would be little better than a guess. Therefore, in estimating natural conditions for purposes of this first planning period, we have not attempted to forecast the future contribution of the volcano to natural background visibility. Even if we could quantitatively estimate ''natural'' volcanic emissions and air quality effects in 2064 with any accuracy, the URP would be of very limited value in setting RPGs for Hawaii.

As explained in EPA's Reasonable Progress Guidance, the URP is intended to serve as a gauge against which to measure the improvement in visibility conditions that is projected to result

[4] In addition, as noted in our proposal, CAA section 169A and the RHR at 40 CFR 51.308(d)(1)(i)(A) require consideration of the following four factors in determining ''reasonable progress'': (1) The costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. The weighing of these four factors is sometimes referred to as a ''four-factor analysis'' to distinguish it from the ''five-factor analysis'' for BART determinations. Comments concerning the URP and related issues are addressed in this section. Other comments on our RP analysis are addressed below.

from implementation of reasonable control measures during the first planning period which ends in 2018.[5] However, the variability of volcanic emissions from Kilauea renders this type of analysis unhelpful for Hawaii's Class I areas. To understand why this is the case, it helps to look at Figure II.B–6 in EPA's technical support document (TSD). This figure shows the URP calculation for Hawaii Volcanoes National Park (NP). The points on the left side of the figure are the actual, measured visibility impairment at Hawaii Volcanoes for the past several years; these measurements vary by at least 13 dv, as compared to the difference between baseline conditions and natural conditions of 11.7 dv. This dramatic variation in visibility impairment on the worst 20 percent days is driven by the extreme variability of the volcanic emissions, which dominate visibility impairment on those days. Thus, the only way EPA could accurately estimate the improvement in visibility on the worst 20 percent days by 2018 is if we could accurately predict volcanic emissions on those days. In the absence of an accurate projection of volcanic emissions for 2018, there is no reasonable estimate of visibility conditions in 2018 to compare with the URP. Therefore, EPA has used a different method of gauging reasonable progress for this first planning period, as explained in Section F of the proposal, ''Reasonable Progress Goals for Hawaii.'' [6]

However, given the dominance of volcanic emissions on the worst 20 percent days in Hawaii, it may be appropriate for future plans to focus on other days when the proportion of anthropogenic contribution to visibility impairment is larger. We expect that the State of Hawaii will develop future regional haze plans, consistent with the CAA and EPA's implementing regulations. We plan to work with the State of Hawaii on those future plans and we will consider different approaches to gauging reasonable progress, and different approaches to determining the URP.

2. Estimating Natural Visibility Conditions

Comment: One commenter (NPS) noted that emissions from the Kilauea Volcano vary from year to year, making it difficult to project future emissions levels or the specific contribution of these emissions to visibility impairment in 2018 or 2064. For clarity, the commenter recommended that EPA revise the conclusion in section III.B.1 of the preamble to the proposed FIP (77 FR 31699, May 29, 2012) to read ''* * * in estimating natural conditions for purposes of this first planning period, we have not tried to forecast the future contribution of the volcano to natural background visibility'' rather than stating an assumption that there will be no visibility impact from the volcano.

Response: The NPS is correct in saying that EPA did not attempt to forecast the future contribution of the volcano to natural background visibility. However, since the default natural conditions do not include volcanic emissions, we implicitly assumed that there would be no visibility impact from the volcano in our URP analysis. EPA does not consider this implicit assumption to be problematic because the URP analysis is not useful in the case of Hawaii due to the infeasibility of accurately accounting for volcanic emissions in the 2018 projections (see Section II.A.1. of this notice).

We would consider a refined estimate of natural conditions at these Class I areas if the State of Hawaii were to propose such a change as part of the next Regional Haze plan for Hawaii. Any such estimate would need to be consistent with our guidance on this subject.[7]

3. Contribution Assessment According to IMPROVE Monitoring Data

Comment: One commenter (NPS) generally agreed with EPA's assessment of contributions to visibility impairment.

Response: EPA appreciates NPS' support of our contribution assessment, given their extensive expertise in this subject.

4. Impact of Fugitive Dust on Visibility Impairment in Hawaii Class I Areas

Comment: One commenter (Parsons) stated that EPA is incorrect in stating that there are no impacts or degradations in visibility to Haleakala NP as a result of fugitive dust. According to the commenter, EPA did not examine the impacts of particulate matter carried into the atmosphere from Maui's agricultural fields, which affects air quality on many days. The commenter asserted that Maui is subjected to strong trade winds on many days, and plantation practices of clearing and tilling hundreds of acres at a time means that tons of windborne topsoil are lost each year. The commenter believes that best management practices might help mitigate this loss, and preserve Maui's air quality, but plantations are exempt from the sort of requirements that would be applied to other land-altering activities, such as construction site grading. The commenter suggested that EPA may be able to work with the Hawaii Department of Agriculture and DOH to revise standards for dust control in order to protect the health and welfare of the community and near-shore coral reef ecosystems, and to help mitigate impacts that contribute to regional haze.

Two commenters similarly asserted that fugitive dust from the sugarcane fields affects the haze in Haleakala NP and is killing Maui's coral reefs. The commenter indicated that after harvest, the cane fields are left bare and the loose topsoil is picked up by the trade winds and carried across the island, coating everything in its path and eventually settling on and killing the coral reefs south of Maui.

Response: EPA disagrees with the commenter's assertion that we did not consider the impact of dust from agricultural activities when evaluating causes of haze at Hawaii's national parks. Dust from agricultural activities and other sources is measured at the IMPROVE monitors as coarse mass and soil. Section II.A.3. of the TSD discusses causes of haze at Haleakala NP. Section II.B.3 discusses the causes of haze at Hawaii Volcanoes NP. Both of these sections of the TSD address the contribution of coarse mass and soil to visibility impairment on the best and worst days. Coarse mass contributes about 9 percent to visibility impairment on the worst 20 percent days at Haleakala.[8] The source of the coarse mass measured at the IMPROVE site is unclear. It could be dust from the low elevations transported up to the park, or it could be from nearby sources such as unpaved roads.

EPA shares the commenters' concerns about the impact of dust emissions on public health, the loss of topsoil and possible impacts to water quality and marine life. However, in the context of this rulemaking, EPA does not consider it reasonable to require additional pollution control without clear evidence that the dust is causing or contributing to haze at the Class I area. Further analysis of the source of this coarse

[5] See Section 1–7 of ''Guidance for Tracking Progress Under the Regional Haze Rule'', Document No. EPA–R09–OAR–2012–0345–0003–B10.

[6] 77 FR 31707, May 29, 2012

[7] See ''Guidance for Estimating Natural Visibility Conditions under the Regional Haze Rule'' Document No. EPA–R09–OAR–2012–0345–0003–B9.

[8] See ''Technical Support Document for the Proposed Action on the Federal Implementation Plan for the Regional Haze Program in the State of Hawaii, Air Division, U.S. EPA Region 9'', [hereinafter TSD] p. 12, Document No. EPA–R09–OAR–2012–0345–0003–A3.

mass should be conducted as part of the reasonable progress review for the next planning period.

5. Subject to BART Analysis

Comment 1: Agreement with analysis to identify sources subject to BART.

Three commenters (HC&S, HELCO, and MECO) agreed with EPA's analysis to determine which sources should be subject to BART requirements. Their comments are summarized in the following paragraphs.

Two of the commenters (HELCO, MECO) noted that CAA section 169A(b)(2)(A) requires the relevant regulatory agency to review a state's BART eligible sources and determine whether they emit ''any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in [a Class I] area.'' These commenters cited the BART Guidelines (70 FR 39109, July 6, 2005) to add that if a source does not meet this threshold, it may be exempt from further BART review. Based on these principles, the commenters believe that EPA's analysis of which sources in Hawaii should be subject to BART is sound and consistent with the BART Guidelines, and they urged EPA to retain it for the final FIP.

These two commenters stated that the BART Guidelines provide regulatory agencies with three options for making a ''cause or contribute'' finding and that EPA reasonably chose to use an ''individual source attribution approach'' and a threshold of 0.5 dv in this case. According to the commenters, the BART Guidelines explain that the appropriate contribution threshold depends on the number and proximity of sources affecting a Class I area, and a threshold lower than 0.5 dv is justified where there are a large number of BART-eligible sources within the state and in proximity to a Class I area. The commenters added that in Hawaii there are few BART-eligible sources and they are not concentrated near a single Class I area. On this basis, one of the commenters (MECO) explicitly expressed agreement that 0.5 dv is the appropriate threshold.

These two commenters went on to note that, consistent with the BART Guidelines, EPA applied the 0.5 dv contribution threshold to the results of computer modeling that was used to predict visibility impacts from each BART-eligible source in Hawaii, with the result that six of the eight BART-eligible sources fell below the 0.5 dv contribution threshold.[9] The commenters agreed that EPA appropriately determined that only HELCO's Kanoelehua Hill Generating Station is subject to BART and exempted all other BART-eligible sources in Hawaii from further BART review. One of the commenters (HELCO) specifically stated that this analysis correctly excluded Hawaiian Electric Company's (HECO's) Waiau and Kahe facilities, and the other (MECO) stated that MECO's Kahului facility was appropriately excluded.

The third commenter (HC&S) also agreed with the proposed threshold (0.5 dv) used to assess whether the impact of a single source contributes to visibility impairment at the Hawaiian Class I areas. This commenter pointed out that of the six sources in Hawaii exempted from BART because their modeled impact is below 0.5 dv, none has a modeled impact of as much as half of this threshold level. The commenter also stated that the combined impact from all six sources is 0.715 dv at Haleakala NP, which is lower than the level (1.0 dv) at which the BART Guidelines consider a single source to ''cause'' visibility impairment. The commenter added that while this combined impact is somewhat higher than the proposed 0.5 dv contribution threshold, the BART Guidelines explicitly caution that visibility effects of multiple sources should not be aggregated and their collective effects compared against the contribution threshold, because this would inappropriately create a ''contribution to contribution'' test. The commenter concluded that it is therefore reasonable to conclude that these six sources do not cause or contribute to visibility impairment at Haleakala NP. The commenter also asserted that since the combined visibility impact of these six sources at the Hawaii Volcanoes NP totals 0.35 dv, it is reasonable to conclude that these sources do not cause or contribute to visibility impairment at Hawaii Volcanoes NP. The commenter noted that setting the contribution threshold at 0.5 dv for sources subject to BART will capture those BART-eligible sources responsible for more than half of the visibility impacts at Haleakala NP and nearly 90 percent of the visibility impacts at Hawaii Volcanoes NP while still excluding other sources with very small impacts. The commenter believes that given the relatively small number of BART-eligible sources potentially impacting Class I areas in Hawaii and the magnitude of both the individual sources' impacts and the combined impact from all sources proposed to be exempt from BART, the proposed 0.5 dv threshold for determining whether a single source contributes to visibility impairment is wholly consistent with the BART Guidelines and is therefore an appropriate threshold for use in the Hawaii FIP.

Response 1: EPA agrees that the determination of sources subject to BART was conducted appropriately and in accordance with the applicable regulatory requirements and guidance. EPA also agrees that the 0.5 dv threshold is appropriate for Hawaii.

Comment 2: Disagreement with part of the analysis.

Two commenters (FHNP, Parsons) disagreed with some aspects of EPA's analysis to determine which sources should be subject to BART requirements.

One commenter (FHNP) suggested that the MECO Kahului and HECO Kahe facilities should not be exempted from BART analysis. The commenter noted that EPA used a modeled increase of 0.5 dv at the Haleakala IMPROVE monitoring site (HALE) to identify candidates for BART analysis, and that the measured concentrations of pollutants taken at the Haleakala Crater monitoring site (HACR) are approximately half of those measured at HALE. According to the commenter, it is expected that the point sources analyzed in this report would contribute similar densities of non-anthropologic elements at both the HALE and the HACR sites (with the exception of some smoke sources) and that, hence, a point source modeled to produce a 0.25 dv change at HALE would be expected to produce an approximate 0.5 dv change at HACR in the Class I area. The commenter pointed out that the MECO Kahului site and the HECO Kahe site were modeled to produce changes of 0.232 dv and 0.221 dv, respectively, at HALE. The commenter believes that extrapolating these contributions to the HACR site suggests that these sources are very close to contributing 0.5 dv in the Class I area. The commenter concluded that since actions recommended in the report are projected to produce less than the target rate of progress, the MECO Kahului and HECO Kahe sites should not be exempted from BART analysis.

The second commenter (Parsons) objected to EPA's omission of the Kahului facility from BART requirements. The commenter stated that air emissions from MECO's Maalaea

[9] Six of the eight BART-eligible sources had a less than 0.5 deciview impact and so were exempted from BART. One of the remaining facilities, Hu Honua Bioenergy is no longer permitted to burn fossil fuels and is therefore also exempt from BART. This leaves one facility in Hawaii as subject to BART, the Kaneolehua Hill facility. See 77 FR 31704, 31705.

and Kahului facilities rank them as the fifth and seventh worst polluters in Hawaii. The commenter noted that EPA has not proposed additional pollution controls at either facility. According to the commenter, at the public hearing on May 31, 2012, EPA stated the belief that the Kahului facility will cease operations by 2018. The commenter asserted that this is conjectural and indicated that it would be prudent to apply more stringent pollution control standards to this facility, especially in the short term.

Response 2: We do not agree that the Kahului or Kahe facilities should be subject to BART.

As an initial matter, we would like to clarify that the modeling upon which we have based our subject-to-BART determinations did not use either the Haleakala (HALE) IMPROVE monitoring site or the Haleakala Crater (HACR) site as a receptor.[10] Rather the subject-to-BART modeling predicted visibility impacts at gridded receptor locations spaced approximately one kilometer apart within the Class I area domain.[11] Therefore, the modeled impacts cited by the commenter (i.e. 0.232 dv for Kahului and 0.221 dv for Kahe) represent the 8th highest delta-deciview values for the year modeled (2005) from all modeled receptors at Halekala National Park and do not reflect modeled impacts at either HALE or HACR.[12]

To the extent that the commenter is arguing that the subject-to-BART modeling should have used background conditions for HACR rather than HALE, we also disagree. Consistent with the BART Guidelines, the subject-to-BART modeling for Hawaii was performed against natural visibility conditions.[13] Natural conditions have not yet been established for the HACR site. Therefore, EPA reasonably relied on the available information regarding natural conditions at the HALE site for purposes of conducting subject-to-BART monitoring.

With respect to measured pollutant concentrations, the commenter (FHNP) correctly notes that the values of the measured concentration of pollutants taken at the HACR site are smaller than those measured at the HALE site (i.e., the HACR site is ''cleaner''). The commenter suggests that, therefore, a point source modeled to produce a 0.25 dv change at HALE would be expected to produce an approximate 0.5 dv change at HACR, and hence a 0.5 dv change in the Class 1 area. However, as noted by the commenter, doubling the source impact is a rough approximation of the effect of reducing the background light extinction by half. The effect of reducing the background extinction by half on the change in deciviews (delta dv) varies depending on the source extinction b_{ext} (source) and the background extinction, b_{ext} (bkg), but would be smaller than doubling the source impact. Therefore, the rough approximation proposed by the commenter (doubling the source impact) to estimate the potential change in visibility impacts from the facilities from using the new HACR site to calculate background light extinction would not be appropriate.[14] So, even if natural conditions for the HACR site had been available, we do not expect that the impact of the sources would approximate 0.5 dv. EPA therefore disagrees that these sources should be subject-to-BART. Nonetheless, because Kahului and Kahe are both significant sources of pollution and include non-BART-eligible units as well as BART-eligible units, they may be appropriate candidates for controls as part of future Regional Haze plans.

We also disagree with the commenter that the URP is relevant to whether Kahului and Kahe are subject to BART. Under the Regional Haze Rule (RHR), the determination of which sources are subject-to-BART is a separate analysis from the calculation of the URP and the setting of RPGs.[15] Moreover, as discussed in Section II.A.1 of this document, the URP is not a target and is particularly poorly suited for regulatory decisions in Hawaii.

Regarding the comments from Parsons, EPA agrees that the electric power plants Maalaea and Kahului are relatively large sources of pollution. However, as noted above, the modeled 98th percentile visibility impact of the BART-eligible Kahului source is 0.23 dv, less than one-half of the 0.5 dv subject-to-BART threshold. Due to the age of its equipment, the Maalaea power plant does not have BART-eligible units and therefore is not subject-to-BART.

EPA disagrees that we represented at the hearing in Maui that the Kahului Power Plant would no longer be operating in 2018. That assertion is not supported by the transcript.[16] Regardless, we did not base our decision on BART for the Kahului plant on future operation, but instead based it on the current emissions level for the facility.

Comment 3: Puunene Mill.

One commenter (HC&S) stated that the small contribution to visibility impairment from the Puunene Mill warrants a determination that the facility should not be subject to BART. While conceding that it was reasonable to use maximum actual 24-hour emissions to model worst-case visibility impacts, the commenter indicated that typical visibility impacts from the Puunene Mill are likely to be lower than the modeled results. The commenter noted that even so, modeling results for both coal and bagasse firing showed that the impact of the facility was well below the 0.5 dv contribution threshold at both Haleakala NP and Hawaii Volcanoes NP, at both the maximum 24-hour 98th percentile impact and the highest modeled impact. According to the commenter, the highest modeled impact for the facility (i.e., during coal firing) was less than half the contribution threshold at Haleakala NP and less than 20 percent of the threshold at Hawaii Volcanoes NP. The commenter added that modeling of the combined impacts of both BART-eligible (Boiler 3) and Reasonable Progress-eligible (Boilers 1

[10] See ''Subject-to-Best Available Retrofit Technology (BART) Modeling for the State of Hawaii, Application of the CALPUFF Modeling System; Prepared for: Hawaii State Department of Health, Environmental Management Division Clean Air Branch by Alpine Geophysics, LLC (March 3, 2010)'', Document No. EPA–R09–OAR–2012–0345–0006–C3d.

[11] *Id.* Section 3.2.4. These receptor locations were provided by the National Park Service and are available at *http://www2.nature.nps.gov/air/Maps/Receptors/index.cfm.*

[12] The Hawaii BART/RP Supplemental Modeling Results Report does include modeling results at individual receptors placed at the location of the Haleakala (HALE) IMPROVE monitoring site and Haleakala Crater (HACR) site. See Hawaii BART/RP Supplemental Modeling Results, Alpine Geophysics (March 29, 2010), (Document No. EPA–R09–OAR–2012–0345–0011-Attachment 1) Table 12. The predicted visibility impacts from the Kahului and Kahe BART-eligible sources at the HALE and HACR receptors were similar to predicted visibility impacts at the NPS receptors, and were below the 0.5 deciview threshold for all receptors. Specifically, the modeled 98th percentile delta deciview impact from the BART-eligible units at Kahului was 0.227 at HALE and 0.247 at HACR. Id. Table 15. The modeled 98th percentile delta deciview impact from BART-eligible units at Kahe was 0.262 at HALE and 0.255 at HACR. Id. Table 15. Therefore, even if we had used HACR as a receptor for purposes of subject-to-BART modeling, neither the Kahe nor the Kahului facility would have been found to be subject-to-BART.

[13] Specifically the modeling was performed against natural visibility baseline conditions for the best 20% of days. Use of either the best 20% days or average natural conditions is permissible under the BART Guidelines. See Memo from Joseph W. Paisie regarding Regional Haze Regulations and Guidelines for BART (July 19, 2006) (Document No. EPA–R09–OAR–2012–0345–0003–B15). However, use of the 20% best days is more conservative (i.e., it tends to increase the baseline impacts for a given source).

[14] EPA does not believe doubling the source impact is appropriate. However, EPA notes that doubling the source impact of 0.23 deciviews and 0.22 deciviews would result in values below the 0.5 dv threshold.

[15] Compare 40 CFR 51.308(d)(1) and 51.308(e).

[16] See transcript of Kahului hearing, Document No. EPA–R09–OAR–2012–0345–0022.

and 2) sources at the Puunene Mill demonstrated that the maximum 24-hour 98th percentile visibility impacts from the facility during both bagasse firing and coal firing scenarios are well below the 0.5 dv contribution threshold. The commenter believes that the modeling analysis clearly shows that even worst-case emissions from the Puunene Mill do not cause or contribute to visibility impairment at either Haleakala NP or Hawaii Volcanoes NP, and that additional controls are therefore not warranted.

In contrast, one commenter (Parsons) believes that with regard to the Hawaii Regional Haze FIP and for public health concerns, air emissions at HC&S's Puunene Mill should be subjected to BART determinations, Maximum Achievable Control Technology (MACT) Hammer standards and both continuous opacity monitoring systems (COMS) and continuous emissions monitoring systems (CEMS) guidelines. The commenter stated that the Puunene Mill is the second worst polluter in Hawaii with regard to air emissions. The commenter indicated that Boilers 1 and 2 at the facility predate the Act, and thus have been exempt from those standards for decades. The commenter also contended that EPA's ''revised MACT Hammer provisions'' have not been applied to these units because HC&S and sugar growers in Florida and Texas submitted a report replacing these emission limits with their own subcategory of bagasse-fired boilers. The commenter added that HC&S combusts 100,000 tons of coal annually without emission standards that apply to other coal-burning facilities. The commenter also stated that Boiler 3 at the facility has not been held to Federal standards required for COMS and CEMS or regulatory oversight by the Hawaii DOH.

Two other commenters also stated that EPA should include all of the HC&S smoke stacks in its review. In particular, the commenter asked that EPA review and closely monitor the electric power production emissions on the Puunene Mill.

Response 3: We reaffirm that the Puunene Mill is not subject-to-BART. In accordance with the BART Guidelines, the subject-to-BART modeling for Puunene Mill was performed using worst-case emissions from the Mill and best-case visibility (under natural conditions) at the parks.[17] This analysis assumed the Mill was powered entirely by coal, its most polluting fuel, for 24 hours. That worst-case 24-hour emission rate was then compared to the clearest days at Haleakala NP and Hawaii Volcanoes NP. This comparison of very high emissions at the Puunene Mill to very clean conditions at the park was modeled for every weather condition during the 365 days of the year. The resulting visibility impact was less than the 0.5 dv threshold that would make the facility subject to BART.[18] EPA reviewed this analysis and concurs with the results.

The commenter indicates that he believes the Mill should be subject to Federal guidelines for CEMS and COMS. We are confident that the methods used to calculate worst-case emissions are appropriate and conservative. Therefore, the absence of continuous monitors does not weaken the analysis.

The commenter also indicates that he believes the Puunene Mill should be subject to MACT controls. The applicability of MACT is outside the scope of this rulemaking.

Comment 4: Hu Honua and Tradewinds should be subject to BART controls.

One commenter (Chytilo) objected to the exclusion of the Hu Honua Bioenergy Facility and the Tradewinds Veneer Mill and Cogeneration Facility's electric generating EGUs from the proposed FIP. The commenter argued that these facilities should be subjected to BART controls and emissions limits. The commenter stated that even though neither source was operating during the baseline period, the emissions from each source are significant and will interfere with progress towards national visibility objectives.

The commenter also asserted that EPA improperly exempted these sources from controls, reporting and reasonable further progress based on what the commenter believes is the irrelevant and incorrect belief that each source is entirely biofueled. The commenter stated that emissions controls will be less successful for these facilities because steady state operations are more difficult to achieve and the operators contemplate diurnal fuel source changes and other operational shifts daily. The commenter added that biofueled sources still cause visibility impairment, and alleged that the FIP rulemaking offers no explanation for why biofueled sources should be exempted from haze controls. The commenter indicated that the two facilities are permitted to burn wood waste which, according to the commenter, is a variable fuel that actually produces increased emissions and should be subject to enhanced controls. The commenter believes that haze objectives cannot be met if these sources are exempted.

The commenter made the following additional points related to the Hu Honua facility:

- The emissions calculations for the Hu Honua facility are questionable. The commenter expressed agreement with EPA's comments on the facility's Covered Source Permit (Hawaii's term for a title V permit), which the commenter characterized as saying that unrealistic emissions factors were used and actual plant emissions are likely to be considerably higher.
- The facility's permit allows the use of conventional diesel fuel during startup and off-peak periods, so any exemption for biofuels is not warranted.
- Sulfur oxides (SO_X) emissions are not insignificant. The commenter asserted that SO_X emissions from the facility ''constitute nearly 93 percent of the * * * NAAQS,'' and that EPA's rationale that these emissions may be ignored due to background volcanic emissions is misplaced. The commenter stated that the Pepe'ekeo area is only affected by volcanic emissions during certain wind conditions, and during other periods the facility's SO_X and other visibility-impairing emissions will be significant and should not be exempted.

Response 4: The definition of BART-eligible facility may be found in 40 CFR 51.301. It provides a list of types of facilities that may be eligible for BART if they were built between 1962 and 1977. These types of facilities include ''fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input.'' When Hu Honua converted to biofuels, it was no longer ''fossil-fuel fired'' and therefore was no longer BART-eligible. The permit for this facility allows for it to be fueled by wood or biodiesel. Neither of these is a ''fossil fuel.'' Therefore, the facility is not eligible for BART. The Tradewinds Veneer cogeneration facility was not built between 1962 and 1977 and does not burn fossil fuels. Therefore, this facility is also not eligible for BART.

We note that the commenter's general concern about emissions from new large facilities possibly interfering with visibility goals is a common consideration in air quality planning and is not limited to these two facilities. Such emissions are regulated in large part under the CAA's Prevention of

[17] See Section 2.4 of ''Subject-to-Best Available Retrofit Technology (BART) Modeling for the State of Hawaii, Application of the CALPUFF Modeling System; Prepared for: Hawaii State Department of Health, Environmental Management Division Clean Air Branch by Alpine Geophysics, LLC (March 3, 2010)'', Document No. EPA–R09–OAR–2012–0345–0006–C3d.

[18] Id. Table 6.

Significant Deterioration (PSD) permitting program, which applies to new major sources and major modifications at existing sources for pollutants where the area in which the source is located has been designated attainment or unclassifiable with one or more of the NAAQS. Among other requirements, PSD review requires an air quality analysis, using dispersion modeling, of ambient concentrations that would result from the applicant's proposed project. The PSD regulations provide special protection of Air Quality Related Values, including visibility, in Class I areas, including oversight by and coordination between the permitting authority and the Federal land managers (FLMs). The RH rule also requires reviews of plans every 5 years and complete new regional haze plans every 10 years. The 5-year update of this plan will include a verification that emission trends on the Islands are consistent with reasonable progress and an analysis of whether anthropogenic visibility impairment is decreasing The next full plan, required in 10 years, will include a new reasonable progress analysis that would take into account these and any other new sources of pollution.

6. BART Determination for Kanoelehua Hill

Comment 1: General comments on BART for Hill.

One commenter (Earthjustice) stated that EPA's proposal to exempt the Hill facility from any BART controls neither meets the requirements of the BART program, nor promotes necessary visibility improvements at Hawaii's Class I areas. The commenter pointed out that even though EPA has stated that this facility is by far the largest source of anthropogenic SO_2 emissions on the Big Island (citing 77 FR 31706), no BART control is required. The commenter believes that this result lacks a reasoned and lawful justification. The commenter asserted that EPA must require demonstrably cost-effective controls, rather than readily relieving polluters of these obligations. The specific arguments made by the commenter related to nitrogen oxides (NO_X) and SO_2 are detailed in the following subsections.

In contrast, another commenter (HELCO) agreed that EPA appropriately determined that BART controls are not justified for the Hill facility. The commenter noted that EPA's analysis of the five statutory factors that must be considered in establishing BART was based largely on an analysis performed by a consultant for HELCO (''the Trinity BART report'' [19]) which, according to the commenter, was consistent with the BART Guidelines even though the guidelines are not mandatory for a facility the size of the Hill facility. However, because the BART Guidelines were designed for power plants, the commenter believes they are both an apt and a conservative guide in this instance.

Response 1: EPA disagrees with Earthjustice's comments with respect to our BART determination for the Hill facility. The EPA BART determination is appropriate for Hill for reasons detailed below. And, it is important to note that we are requiring SO_2 reductions from Hill and two other plants on the Big Island in order to ensure reasonable progress toward eliminating anthropogenic visibility impairment at Hawaii Volcanoes NP. EPA agrees with HELCO's comment that the BART analysis conducted by Trinity for HELCO was consistent with the BART guidelines, although EPA does not agree with the company's cost estimates for lower sulfur fuels.

Comment 2: HELCO's comments on particulate matter (PM) and NO_X.

One commenter (HELCO) agreed with EPA's determination that the Hill facility should not install NO_X or PM BART. The commenter stated that the Trinity BART report evaluated the available control technologies and that EPA, based on that report, found that the controls considered for PM would not be cost effective and that the controls considered for NO_X would not provide a measurable visibility benefit at Haleakala NP or Hawaii Volcanoes NP. Given what the commenter characterized as the high cost of controls and low degree of improvement in visibility that might result from controls, the commenter supports EPA's determination that ''no control for NO_X and PM at the Hill Plant is consistent with BART'' (citing 77 FR 31706).

Response 2: EPA agrees that the existing emission levels of PM and NO_X from Hill are consistent with BART, given the unique conditions in Hawaii.

Comment 3: Earthjustice comments on NO_X.

One commenter (Earthjustice) stated that EPA proposed no control as BART for NO_X even though HELCO admitted that the control option of low-NO_X burners (LNB) is cost effective and proposed them as BART (citing the Trinity BART report, p. 5–11). According to the commenter, EPA reached this conclusion based on the rationale that ''due to the overwhelming contribution of sulfate to visibility impairment at the nearby Hawaii Volcanoes Class I area, it is unlikely that reductions in NO_X would have a measurable impact on visibility at that area'' (citing 77 FR 31705). However, as detailed in section II.A.1., the commenter believes that EPA inflated the impact of sulfate by including the natural contributions of the Kīlauea Volcano in baseline conditions but not in natural conditions. The commenter believes that this approach ignores the goal of the haze program of controlling anthropogenic visibility impairment. The commenter asserted that EPA cannot justify dismissing a pollution control that the utility already acknowledged as BART by burying it within the background impact of the volcano.

The commenter also stated that EPA summarily dismisses post-combustion controls such as selective catalytic combustion (SCR) because ''they were not found to be cost effective'' in the Trinity BART report (citing 77 FR 31706). However, according to the commenter, that report showed that the cost effectiveness of SCR for Hill falls within the range established in EPA and state BART determinations. The commenter quoted the Trinity BART report as including SCR costs of $2,600 and $2,200/ton for the units at the Hill facility, while EPA's proposal for BART at the Four Corners Power Plant considered cost estimates of $4,887 to $6,170/ton to be cost-effective (citing 75 FR 64227, October 19, 2010) and states have established thresholds for cost-effectiveness such as $7,300 (Oregon), $7,000 to $10,000 (Wisconsin), $5,946 to $7,398 (New Mexico), and $5,500 (New York).

The commenter believes that, in any event, EPA has no basis for eliminating BART controls without engaging in the statutorily mandated five-factor BART analysis. According to the commenter, EPA simply waived any analysis, and any pollution reduction benefit, based on speculation. The commenter alleged that proper inquiry would confirm, for example, that LNB would prove much more effective at controlling NO_X than the relatively high figures the utility cited.

Response 3: EPA disagrees with the commenter's assertion that a full five-factor analysis was not conducted for NO_X controls at Hill. The Trinity BART report contains a complete five-factor analysis of NO_X controls at Hill, which is consistent with EPA requirements

[19] See ''BART Five-Factor Analysis Prepared for Hawaiian Electric Light Company, Trinity Consultants'' (April 12, 2010), Document No. EPA–R09–OAR–2012–0345–0010-attachment 3, [hereinafter ''Trinity BART Report''].

and guidance.[20] We have relied in large part on that analysis in conducting our own five-factor BART analysis for NO_X at Hill. As noted by Earthjustice, the Trinity BART Report found low-NO_X burners to be cost-effective at Hill.[21] The Trinity BART Report also estimated that installation of LNB would result in an improvement of 0.21 dv at Hawaii Volcanoes and 0.02 dv at Haleakala (based on the 98th percentile impacts).[22] However, the Trinity BART Report noted this projection ''does not reflect reality'' because it ''relies on an approach for establishing natural conditions that does not consider the local volcanic activity.'' [23] In other words, the actual visibility benefit of LNB will be significantly less than 0.21 dv, due to the impact of volcanic emissions. Taking this fact into account, EPA concluded that the costs of LNB were not justified by the visibility benefit that would actually result from installation of controls.

In particular, EPA considered the unique atmospheric conditions on the Big Island, which call into question the reliability of the benefits predicted by the air quality model. The air quality model used by Trinity compared the impact of the NO_X controls with estimated natural conditions consistent with EPA protocols. As described in Section II.A.1, above, the SO_2 emissions from the volcano were not included in those natural conditions. SO_2 emissions combine with ammonia in the atmosphere to form ammonium sulfate. NO_X emissions combine with ammonia in the atmosphere to form ammonium nitrate. These ammonia compound particles contribute to visibility impairment. In these complex chemical reactions, ammonia is more likely to combine with sulfur than with nitrogen.[24] As such, inclusion of SO_2 emissions from volcanoes in the modeling would reduce the amount of ammonia available to combine with NO_X to form ammonium nitrate. Given these baseline conditions at Hawaii Volcanoes NP, EPA finds that NO_X controls will be much less effective at improving visibility than SO_2 controls during this first planning period.

As a result, we find that the costs of LNB are not justified by the visibility benefit that would actually result from installation of controls due to the unique atmospheric conditions on the Big Island. We also find that substantially more expensive post-combustion controls, such as SCR, were not justified for the same reason. Although the costs for those post-combustion controls could be reasonable in some contexts, they are not reasonable for Hill, given the low visibility improvements that would result from installation of such controls at this time. Nonetheless, as anthropogenic contributions to visibility impairment decrease over time, further reductions in NO_X emissions may be required in order to ensure reasonable progress toward eliminating anthropogenic visibility impairment. Therefore, we expect the State of Hawaii to reevaluate the costs and visibility impacts of NO_X controls at Hill in future regional haze plans.

Comment 4: EPA's Determination of BART for SO_2.

One commenter (HELCO) agreed with EPA that the Hill Plant should not be required to install SO_2 BART, stating that the potential improvement in visibility that might result from installing SO_2 controls on Hill Units 5 and 6 is far outweighed by the excessive costs of the controls that would be imposed on HELCO and its customers. In contrast, another commenter (Earthjustice) stated that EPA's proposal to exempt the Hill facility from any BART controls falls short of the law's mandates by summarily eliminating any SO_2 controls based on the rationale that it may increase retail electric rates by 1 percent. According to this commenter, EPA must require demonstrably cost-effective controls, rather than readily relieving polluters of these obligations. Additional detail of these comments is presented in the paragraphs that follow.

The first commenter (HELCO) stated that there are no cost-effective control options available for the Hill facility. The commenter noted that the BART Guidelines state that the majority of BART-eligible units could meet the presumptive limits at a cost of $400 to $2,000/ton of SO_2 removed, and that the costs for Hill far exceed that range. According to the commenter, the Trinity BART report found that switching to 1 percent sulfur fuel would cost between $6,677 and $7,363/ton, while EPA's analysis estimated costs of $5,587/ton. The commenter believes that the Trinity BART report estimate is more accurate, but pointed out that EPA's estimate also exceeds the cost-effectiveness threshold established in the BART Guidelines.

This commenter also agreed with EPA's statement that imposing fuel switching at Hill as BART would ''unduly increas[e] electricity rates in Hawaii'' (citing 77 FR 31707). The commenter stated that fuel switching would increase both the cost of electricity produced by the Hill facility and the cost of electricity that HELCO purchases from independent power producers (IPPs) because most of the contracts with the IPPs are tied to HELCO's ''avoided cost'' of producing electricity; thus, as HELCO's fuel costs increase for Hill, the price that most of the IPPs receive for the renewable electricity they provide increases. The commenter pointed out that the BART Guidelines recognize that there may be circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology, including ''effects on product prices, the market share, and profitability of the source'' (citing 70 FR 39130, July 6, 2005). The commenter asserted that given that the electricity rates in Hawaii already are three times higher than the national average, the increased cost of electricity alone is a reasonable basis for determining that BART for the Hill Plant is no additional controls.

The second commenter (Earthjustice) quoted the proposal preamble as saying that the pollution control of switching to 1 percent sulfur fuel oil would produce a 0.5 dv benefit, which EPA acknowledges is ''a significant improvement in visibility'' (citing 77 FR 31707). In addition, the commenter believes that this benefit is understated because EPA derived the 0.5 dv figure from the Trinity BART report which started from a baseline impact of Hill of 1.56 dv (citing 77 FR 31705), but EPA cited a higher baseline impact of 2.334 dv from the state's consultants in finding Hill subject to BART in the first instance (citing 77 FR 31704, 31705).

This commenter also stated that the cumulative benefit of BART controls must be analyzed, contending that EPA and states have in numerous cases recognized and included such cumulative visibility benefits in BART determinations. The commenter pointed out that the Trinity BART report's 0.5 dv figure includes only the visibility impact on Volcanoes NP; it does not include the visibility impact and benefit to Haleakala NP. The commenter indicated that EPA cited an impact of 0.808 dv at Haleakala NP in finding Hill subject to BART, while the Trinity BART report cited a figure of 0.44 dv (citing 77 FR 31705 and EPA's TSD, p. 50, footnote 45). The commenter stressed that in either case, this impact is not negligible, yet EPA has failed to calculate the visibility benefits to Haleakala NP. In sum, the commenter believes that the ''significant

[20] See Trinity BART Report Chapter 5.

[21] See Trinity BART Report at 5–11.

[22] *Id.* Table 5–7.

[23] Trinity BART Report at 5–11.

[24] See ''Chemical coupling between ammonia, acid gases, and fine particles'', B.H. Baek et al./ Environmental Pollution 129 (2004) 89–98.

improvement'' of 0.5 dv constitutes a bare minimum level of visibility benefit.

The commenter also contended that EPA's cost-effectiveness figure of $5,587/ton is inflated because EPA quotes the cost of the 0.5 percent sulfur oil burned on Oahu as an upper limit, but then assumes it to be the cost of 1 percent sulfur oil (citing the TSD, pp. 52–53). The commenter believes that in all likelihood, 1 percent sulfur oil would cost less than the 0.5 percent sulfur oil upper limit. The commenter added that, conversely, if EPA uses the cost of 0.5 percent sulfur oil, it also should use the pollution reduction benefit of the same.

According to the commenter EPA did not determine its figure of $5,587/ton to be unreasonable as a general matter, but instead indicated that it does not believe the benefits justify the costs ''in this case'' (citing 77 FR 31707). The commenter alleged that the only grounds EPA provided for this conclusion are the following: ''We are particularly concerned about unduly increasing electricity rates in Hawaii, given that these rates are already three times the national average according to the Energy Information Agency'' (citing 77 FR 31707). The commenter asserted that this rationale falls short for the following reasons:

• EPA's reliance on electricity rate increases contradicts its previous rejection of this rationale as a metric for cost effectiveness. In its BART determination for the San Juan Generating Station in New Mexico, for example, EPA maintained that ''we do not consider a potential increase in electricity rates to be the most appropriate type of analysis for considering the costs of compliance in a BART determination'' (citing 76 FR 52400, August 22, 2011). Rather, ''cost effectiveness analyses are based on the cost to the owner to generate electricity, or the busbar cost, not market retail rates'' (citing 76 FR 52398).

• EPA calculated that the fuel change would bump up retail electricity rates by only 1 percent, which seems negligible on its face. EPA does not explain how 1 percent amounts to an undue increase in rates, or provide any method to gauge an undue increase other than its assertion. This amounts to an arbitrary conclusion that any control having an effect on rates is unreasonable.

• In proposing to eliminate BART based on electricity rate impacts, EPA is straying into policy decisions that are more appropriately left to the Public Utility Commission (PUC) of the State of Hawaii's authority and expertise, or the regulated utility and market. The PUC is best positioned to decide how Hill can be most cost-effectively deployed in relation to all other available resource options if EPA fulfills its duty of controlling Hill's air pollution and having Hill internalize the cost. By negating BART based on generalized rate impact concerns, however, EPA undermines both its own function of controlling pollution and the PUC's regulatory function of managing utility resource costs and rates.

• It is not true that requiring Hill to adopt pollution controls will necessarily increase electric rates. Several large wind plants on Hawaii Island are routinely curtailed, especially at night. (The commenter appended many pages of HELCO's reports of such curtailments.) Increasing the cost of Hill's operation would not necessarily result in Hill's generation remaining constant and costs proportionately rising. Rather, it may lead the utility to reduce Hill's use to save on the increased fuel costs and instead receive more wind energy, which has a zero fuel cost (as well as zero pollution impact). In that case, an actual reduction in costs and rates may result (along with an even greater pollution reduction and visibility benefit than EPA calculated).

• EPA's proposal would not help to avoid unduly increasing electric rates, as much as it would distort the relative costs of polluting and clean energy resources and unduly disadvantage the latter. EPA recognizes the goals of the state's ''Clean Energy Bill'' (i.e., the state's renewable portfolio standard [RPS] and energy efficiency portfolio standard), although it does not make clear how this contributes to its analysis. The RPS allows a waiver of its requirements, however, based on ''[i]nability to acquire sufficient cost-effective renewable electrical energy,'' Haw. Rev. Stat. § 269–92(d) (2011 Supp.), which highlights the need for polluting generation like Hill to incorporate the costs of cost-effective pollution controls to enable accurate comparisons with ''cost-effective'' renewable energy. In this regard, EPA's proposal not only forfeits cost-effective pollution control now, but also works against the State's cited clean energy goals overall by exempting Hill from such costs and thus artificially subsidizing it relative to clean generation.

The commenter (Earthjustice) concluded by asserting that at minimum, EPA's proposal and rationale fail to consider the overall benefits of adopting the cost-effective option of switching to low-sulfur fuel, including a potential reduction in electric rates. The commenter believes that this highlights the analytical and practical flaws in EPA's use of utility rates as a justification to avoid its responsibility of requiring cost-effective pollution controls.

Response 4: We reaffirm that our BART determination for SO_2 at Hill was reasonable. With respect to visibility impacts from Hill, EPA acknowledges that the modeling by the State's consultants estimated a higher baseline impact at Hawaii Volcanoes NP (2.334 dv) than the modeling in the Trinity BART report (baseline impact of 1.56 dv). However, EPA does not consider one estimate to be more reliable than the other. The Trinity modeling was performed in accordance with EPA guidance and based on appropriately developed meteorological modeling data.[25] Even if we were to assume that the State's consultant's modeling results were somehow more accurate, it would not change our determination. Assuming a baseline impact at Hawaii Volcanoes of 2.334 dv from Hill, the corresponding estimated visibility benefit of switching to 1 percent sulfur oil would be approximately 0.8 dv. We find that this benefit is not sufficient to justify the cost of $5,587/ton.

Regarding the ''cumulative benefit'' of BART controls, EPA notes that the RHR and the BART Guidelines do not prescribe a particular approach to calculating or considering visibility benefits across multiple Class I areas. Summing the total visibility benefits over multiple Class I areas is a useful metric that can further inform the BART determination. However, in this instance, the baseline impacts of Hill at the only other affected Class I area, Haleakala NP, were less than 0.5 dv, and the projected improvement of switching to 1 percent sulfur fuel was 0.2 dv.[26] We

[25] The Trinity CALPUFF modeling was performed using the current regulatory version of the model, CALPUFF version 5.8, level 070623. The meteorological modeling prepared by JCA for the Trinity CALPUFF modeling was based on the MM5 mesoscale meteorological model developed by scientists at Penn State University (PSU) and The National Center for Atmospheric Research (NCAR). The CALPUFF regional haze modeling domain was based on three of the MM5 modeling domains which were used as CALMET inputs. The first domain is a 9 km resolution 'State' grid encompassing the 8 major Hawaiian Islands and two domains are 3 km resolution grids encompassing the islands of Maui and the Big Island, respectively. The MM5 modeling period extends from January 1, 2005 to January 1, 2008. The results of the statistical analysis show the MM5 simulations for the state of Hawaii are in close agreement with acceptable benchmarks for all of the examined variables. For example, the wind speed agreement appears to be good, with typical bias below the recommended 0.5 m/s error. See also TSD pp. 48 and 50.

[26] See Letter from Brenner Munger, Manager, Environmental Department, Hawaiian Electric

Continued

have taken this benefit into account in making our BART determination, but have concluded that this benefit (in addition to the 0.5–0.8 dv benefit for Hawaii Volcanoes) is not sufficient to justify requiring 1 percent sulfur fuel oil as BART, given the costs of compliance for this control option.

With respect to the costs-of-compliance factor for Hill, EPA has primarily taken into account the average cost effectiveness of controls, as recommended by the BART Guidelines.[27] We do not agree with HELCO that the BART Guidelines set any ''cost-effectiveness threshold.'' Rather, the Guidelines set presumptive BART limits of 95 percent SO_2 removal, or an emission rate of 0.15 lb SO_2/MMBtu, for currently uncontrolled coal-fired EGUs greater than 200 MW in size located at power plants greater than 750 MW.[28] In the preamble to the Guidelines, EPA noted that the majority of BART-eligible units with these characteristics could meet the presumptive limits at a cost of $400 to $2,000 per ton of SO_2 removed.[29] However, EPA did not indicate that these cost-effective values constituted a ''threshold.'' Moreover, the BART Guidelines do not set a presumptive limit for EGUs that burn oil, but instead recommend that ''[f]or oil-fired units, regardless of size, you should evaluate limiting the sulfur content of the fuel oil burned to 1 percent or less by weight.'' [30]

In this case, we estimated the average cost effectiveness of limiting the sulfur content of the fuel oil burned at Hill to 1 percent, based on reasonable assumptions concerning fuel costs in Hawaii. As explained in Section VI.D.2 of the TSD, since data for the continental United States would not reflect transportation costs to Hawaii, EPA determined that it was appropriate to use fuel market data for the State of Hawaii. Currently, the power plants on Oahu burn oil that is no more than 0.5 percent sulfur by weight, while the power plants on Maui and the Big Island (including Hill) burn oil that is no more than 2 percent sulfur by weight. In addition, the 0.5 percent fuel oil burned on Oahu has significantly different mechanical properties than the fuel burned on the Big Island.[31] Power plants on the Big Island would not be able to use the Oahu fuel without extensive modification to barges, pipelines in the ground, storage tanks, and boiler fuel delivery systems. Therefore, use of the 0.5 percent oil used on Oahu is not a viable option for Hill or the other power plants on the Big Island. In addition, we were not able to find market data for Hawaii or for the continental United States for 0.5 percent fuel oil that could be used on the Big Island. Therefore, our SO_2 BART analysis for Hill focused on the costs of switching to 1 percent sulfur fuel oil.

In the absence of any reliable publicly available data on the cost of 1 percent sulfur fuel oil in the State of Hawaii, we determined that it was appropriate to use the price of the Oahu 0.5 percent oil as an upper limit to the cost of 1 percent sulfur fuel oil. In other words, we assumed that, if 1 percent sulfur fuel oil were available on Oahu, it would cost the same or less than the 0.5 percent sulfur fuel burned on Oahu. The six-year (2006–2011) average cost differential between 0.5 percent fuel oil used on Oahu and the 2 percent fuel oil used on Maui and the Big Island is 0.190 $/gal, so we assumed that 1 percent sulfur fuel oil will, on average, cost 0.190 $/gal more than the 2 percent sulfur fuel oil currently being burned. We recognize that this is a conservative assumption, but find it to be reasonable, in light of the lack of reliable, publicly available market data for 1 percent sulfur fuel oil in Hawaii.

Based on this and other reasonable assumptions, we estimated that the average cost effectiveness of limiting the sulfur content of the fuel oil burned at Hill to 1 percent would be approximately $5,587/ton. We have concluded that $5,587/ton is too expensive to justify the projected visibility benefit of approximately 0.5–0.8 dv at Hawaii Volcanoes NP and 0.2 dv at Haleakala NP.

In addition to average cost effectiveness, EPA also took into account the potential impact of controls on electricity rates on the Big Island. Contrary to the commenter's assertion, consideration of electricity rates is not impermissible as part of a BART determination. The BART Guidelines provide that:

> There may be unusual circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology. These effects would include effects on product prices, the market share, and profitability of the source. Where there are such unusual circumstances that are judged to affect plant operations, you may take into consideration the conditions of the plant and the economic effects of requiring the use of a control technology. Where these effects are judged to have a severe impact on plant operations you may consider them in the selection process, but you may wish to provide an economic analysis that demonstrates, in sufficient detail for public review, the specific economic effects, parameters, and reasoning.[32]

EPA has determined that the unique energy situation in Hawaii (island-specific power grid, no availability of natural gas, high electric rates) constitutes an unusual circumstance, and accordingly, has considered the potential economic effects of requiring lower sulfur fuel as BART. In doing so, EPA is not ''straying into policy decisions that are more appropriately left to the [PUC] * * * or the regulated utility and market.'' Rather, EPA is exercising its discretion to consider unusual economic circumstances as part of its BART analysis. EPA agrees that the ''PUC is best positioned to decide how Hill can be most cost-effectively deployed in relation to all other available resource options'' and our BART determination does not constrain the PUC's ability to exercise this authority in any way.

EPA's consideration of the potential impact on electricity rates on Hawaii does not contradict previous EPA's BART determinations. With respect to EPA's BART determination for Public Service Company of New Mexico's (PNM) San Juan Generation Station (SJGS), the commenter's quotation of EPA's responses to comments is misleading. While EPA did not calculate potential increases in electricity rates associated with BART for SJGS, we noted that ''our cost estimate, being about ⅓ that of PNM's, will result in significantly less costs being passed on to rate payers.'' [33] EPA's statement that ''cost effectiveness analyses are based on the cost to the owner to generate electricity, or the busbar cost, not market retail rates'' pertains to the appropriate way to calculate the cost of auxiliary power needed to run a selective catalytic reduction (SCR) system and is not a general statement on the relevance of electricity rates to BART determinations.[34] In addition, the unique circumstances in Hawaii where there is no grid interconnectivity between islands to mitigate costs to ratepayers were not present in New Mexico.

We also note that EPA has taken into account economic effects as part of its BART determinations for other power plants with unusual circumstances. For

Company to Tom Webb, U.S. EPA Region 9, October 11, 2011, Document No. EPA–R09–OAR–2012–0345–0011—attachment 4.

[27] 40 CFR part 51, Appendix Y, § IV.D.4.c.

[28] 40 CFR part 51, Appendix Y, § IV.E.4.

[29] 70 FR 39132. July 6, 2005.

[30] 40 CFR part 51, Appendix Y, § IV.E.4.

[31] See Trinity BART Report at pg. 4–2.

[32] 40 CFR Part 51, Appendix Y, BART Guidelines § IV.E.3.

[33] 76 FR 52400.

[34] 76 FR 52398.

example, the Four Corners Power Plant (FCPP) is located on the Navajo Nation and contributes annually to revenues to the Navajo government through lease payments and coal royalties. In response to concerns raised by the Navajo Nation that options considered for BART may cause FCPP to close, EPA conducted an affordability analysis for our proposed BART determination for FCPP.[35]

Finally, we acknowledge that additional factors could influence the ratepayer impacts of requiring lower sulfur fuel. As noted by Earthjustice, increased fuel costs at Hill could result in the increased use of other types of generation. At the same time, the cost of electricity that HELCO purchases from IPPs could also increase due to increases in HELCO's ''avoided cost'' of producing electricity. These factors are outside of the scope of our analysis, but we note that it is not clear whether the overall effect of switching to alternative sources of generation would be to further increase costs or to mitigate the impact to ratepayers. As such, our estimate of ratepayer impacts is far from certain. Therefore, while we have considered these impacts as part of our analysis, we do not rely upon them specifically as part of our final BART determination.

In sum, taking into account the five BART factors, and particularly the costs of control and expected visibility improvement, we conclude that BART for Hill is no additional controls.

7. NO_X Reasonable Progress Analysis for the State of Hawaii

Comment 1: Determining reasonable progress through island-specific emissions inventories.

One commenter (Earthjustice) objected to the fact that EPA limited its emissions inventories only to Maui and the Big Island in isolation. According to the commenter, EPA supported this approach by saying that ''trade winds tend to transport pollution from Oahu away from the Class I areas'' (citing 77 FR 31708). The commenter pointed out that the ''Kona'' winds often blow in the opposite directions, sometimes for as long as a week at a time, and asserted that general meteorological tendencies do not justify EPA summarily exempting all pollution sources from Oahu.

The commenter also quoted EPA as saying that modeling ''indicates that even very large sources on Oahu have relatively small visibility impacts on Haleakala'' (citing 77 FR 31708). The commenter stated that these visibility impacts are understated. According to the commenter, EPA's BART Guidelines recommend a minimum of three years of meteorological modeling for such analysis, while in this case, only one year of data were available. The commenter indicated that in other cases where only one year of modeling was conducted, it was established that the highest result, and not the 98th percentile result, should be used, and that in this case the highest result would have provided a visibility impact for two large plants on Oahu (Kahe and Waiau) of 1.28 and 0.57 dv at Haleakala NP, respectively, subjecting those plants to BART.

Response 1: The meteorological modeling for the analysis is based on one year of meteorological data, which represents the variety of meteorological conditions that occur throughout the year. This includes time periods when ''Kona'' winds are prevalent. Kona winds are from the west and southwest. These winds also direct emissions from Oahu away from the Class I areas.

EPA's BART Guidelines do not specify a minimum number of years of meteorological modeling for subject-to-BART analyses, but EPA agrees with the commenter that it is generally appropriate to use three to five years of meteorological data for such analyses. For Hawaii, the subject-to-BART modeling was performed using the best available meteorological modeling available at the time, which for Hawaii was one year of meteorological modeling.[36] Given the generally consistent Pacific trade wind patterns, EPA concludes that this meteorological modeling, based on one year of data, is adequate to sufficiently represent the range of meteorological conditions in Hawaii. Therefore, we find that it is appropriate to use the 98th percentile in the case of Hawaii for making subject-to-BART determinations. Based on the results of this modeling and information on prevailing winds, it is reasonable to assume that emissions from Oahu do not contribute to visibility impairment at the Class I areas on Maui or the Big Island.

Comment 2: EPA's reasonable progress analysis for NO_X sources on Maui and the Big Island.

One commenter (Earthjustice) indicated that EPA should not have eliminated controls for NO_X in its reasonable progress analysis. According to the commenter, EPA ignored its own guidance indicating that installation of LNB is ''highly cost-effective'' (citing 40 CFR part 51, Appendix Y), as well as the utilities' own analysis confirming the same (citing the Trinity BART report). The commenter asserted that EPA circumvented the legally mandated analysis for reasonable progress by misleadingly claiming a ''small contribution'' of NO_X in relation to SO_2 levels inflated by volcano impacts.

In contrast, two other commenters (HC&S, MECO) agreed with the proposal that sources on Maui and the Big Island should not be required to install NO_X controls. The commenters stated that such controls are not justified given the 20 percent net reduction in NO_X emissions anticipated from existing regulations and the small contribution of NO_X to visibility impairment in Hawaii's Class I areas. One of the commenters (MECO) also indicated that such controls are not justified due to the high cost of compliance.

Response 2: Based on our analysis of the reasonable progress factors, as set forth in section III.F.2. of our proposal,[37] and given the unique atmospheric conditions in Hawaii, as described in section II.A.6 above, EPA finds that the significant reductions in NO_X emissions from mobile sources are sufficient to show reasonable progress for the first planning period for both Maui and the Big Island. Additional controls on industrial NO_X sources may be required in future planning periods.

8. Reasonable Progress Analysis for SO_2 Emissions on the Big Island

Comment 1: Cap could/should be lower.

One commenter (NPS) believes that the proposed SO_2 cap for certain point sources on the Big Island is the minimum acceptable action to demonstrate reasonable progress for Hawaii Volcanoes NP. Given the reductions projected under Hawaii's Clean Energy Bill, the commenter believes that a lower SO_2 emissions cap is feasible and justified. The commenter also noted that EPA's analysis used the current costs for 0.5 percent sulfur fuel oil on Oahu to estimate the costs of 1.0 percent sulfur fuel oil on Maui and the Big Island, concluding that EPA likely overestimated the costs of switching to 1.0 percent sulfur fuel oil.

Another commenter (Earthjustice) stated that the proposed SO_2 cap on certain HELCO plants on the Big Island does not achieve progress toward eliminating anthropogenic visibility impairment, but instead largely

[35] 75 FR 64227, October 19, 2010.

[36] The Western Regional Air Partnership provided three years of meteorological modeling for the analysis for all western states, with the exception of Hawaii and Alaska. Because meteorological modeling was not provided for Hawaii, Hawaii DOH directed their contractor to prepare meteorological modeling for the subject-to-BART analysis.

[37] 77 FR 31708, 31709.

maintains status quo emissions levels (noting that the proposed cap level of 3,550 tpy is only 375 tpy less than the affected plants' current baseline SO_2 emissions of 3,875 tpy). The commenter questions why EPA does not adopt the State's clean energy mandates under which the HELCO plants' SO_2 emissions are projected to decline to around 1,000 tpy or less as part of the long-term strategy (and thereby make these reductions federally enforceable), particularly since they reflect the State's own legal mandates and judgments as to what is reasonable.

This commenter added that while the proposed cap serves as a minimal ''backstop'' against increased pollution, it does not fulfill the legal mandate of progress toward eliminating anthropogenic visibility impairment. The commenter stated that EPA must, first, calculate a meaningful URP that is unskewed by volcano conditions and second, require a rate of reasonable progress that is no less than the URP and reflects NO_X and SO_2 controls and state clean energy mandates. The commenter believes that EPA has not justified its failure to provide for achievement of a ''rationally based'' URP, or its failure to consider or provide for even greater progress, as its own rules and policies require.

Response 1: Based on our analysis of the reasonable progress factors, set forth in section III.F.4 of our proposal,[38] and given the unique atmospheric conditions in Hawaii, as described in section II.A.6 above, EPA finds that the proposed cap of 3,550 tpy is sufficient to ensure reasonable progress for this planning period. This cap provides a federally enforceable requirement to ensure that total emissions of SO_2 from the sources on the Big Island with the greatest anthropogenic visibility impacts on Hawaii Volcanoes NP will not increase over the course of the first implementation period. With the cap in place, total anthropogenic emissions of SO_2 on the Big Island are expected to decline during this period.

The Hawaii 2009 Clean Energy Omnibus Bill (Act 155 (09), HB1464, signed June 25, 2009, [hereinafter ''Clean Energy Bill'']) sets standards for renewable energy and energy conservation which would tend to reduce emissions at Hill, Shipman and Puna. However, it is unclear how those standards will be met and what new generation will be on line by January 1, 2018. The analysis of the bill provided by EPA in the proposal was intended to give the reader a qualitative understanding of the uncertainty in existing 2018 emission projections for these plants. It is up to the State of Hawaii to determine how the Clean Energy Bill is implemented and it is quite possible that Hill, Shipman and Puna will continue to operate at a similar capacity in 2018 as they do now. In light of this uncertainty, EPA finds it is reasonable to set a cap that could be met entirely by conversion to 1 percent fuel oil at the targeted plants, even if these plants did not have to reduce emissions under the Clean Energy Bill.

We also find that no additional reductions in anthropogenic SO_2 emissions are reasonable for this implementation period. As noted in our proposal, we estimate that meeting the cap through conversion to 1 percent fuel oil will cost approximately $7.9 million per year and $5,600/ton of SO_2 reduced.[39] We acknowledge that this cost estimate is conservative, but we find it to be reasonable for the reasons set forth in Section VI.D.2 of the TSD and Section II.B.6 above.

Finally, we do not agree that EPA must or should set RPGs for Hawaii that provide for a rate of improvement equivalent to or faster than the URP. As explained in Section II.A.1 above, the URP does not set a mandatory target for emissions reductions and is unhelpful in setting RPGs for Hawaii, given the unpredictability of volcanic emissions.

Comment 2: High cost of proposed cap outweighs possible benefits.

One commenter (HELCO) does not agree that a cap is required to meet reasonable progress goals. The commenters asserted that the costs and non-air quality and energy impacts of achieving SO_2 emissions reductions are excessive, and are unlikely to achieve any improvement in visibility; thus, the commenter believes that no controls should be required.

The commenter asserted that EPA has significantly underestimated the costs of switching to 1 percent sulfur fuel at the Hill, Puna, and Shipman Plants, noting that EPA estimated that the proposed emissions cap will cost $5,500/ton of SO_2 reduced annually (citing 77 FR 31711), while the commenter estimates that this control measure would cost approximately $7,354/ton at Hill, $7,204/ton at Shipman, and $7,205/ton at Puna. The commenter indicated that EPA's cost estimate fails to account for all of the costs associated with switching fuels at these facilities. As previously discussed in the section of this document on SO_2 BART (Section II.A.6.), fuel switching at the commenter's facilities will increase both the cost of electricity produced by the commenter's units and the cost of electricity that the commenter purchases from specific IPPs with avoided cost pricing. The commenter stated that EPA has not provided a reasoned basis for disregarding the commenter's cost estimates.

In addition, the commenter asserted that the visibility improvements anticipated by EPA do not justify the costs associated with complying with the proposed cap. The commenter made the following points in support of this assertion:

- EPA's proposal is based on modeling showing that Hill and Puna may be causing or contributing to impairment at Haleakala NP and that Shipman may be contributing to visibility impairment at Hawaii Volcanoes NP, using the same conservative assumptions used for MECO's Kahului Plant on Maui (citing 77 FR 31711). For Kahului, EPA's modeling was ''based on conservative assumptions that are unlikely to occur during normal operations'' (citing 77 FR 31709). Such tenuous connections to visibility impacts should not be the basis for imposing significant costs on HELCO's ratepayers.
- The proposed cap cannot be justified based on the ''slight improvement'' in projected visibility for 2018 at Volcanoes NP (0.18 dv) and Haleakala NP (0.29 dv) (citing 77 FR 31713). These levels are far less than either the level necessary for a perceptible improvement in visibility or the level of improvement EPA estimated in the BART analysis for the Hill Plant (citing 77 FR 31707).
- There is no reasonable basis for EPA's determination that a control cost of $5,500/ton of SO_2 and a 2 percent increase in electricity rates are justified for a visibility improvement of significantly less than 0.5 dv. In the BART analysis for the Hill Plant, EPA determined that a 0.5 dv improvement was outweighed by a control cost of $5,600/ton and a 1 percent increase in electricity rates (citing 77 FR 31707). EPA fails to explain why an emissions cap that achieves less at a greater cost to rate-payers is justified as a reasonable progress requirement, particularly since the degree of improvement in visibility is a factor in determining BART and is not a factor in determining reasonable progress [citing 40 CFR 51.308(d)].
- The high control costs for fuel switching are excessive for an aesthetic program such as Regional Haze. These costs far exceed the cost thresholds EPA recently applied in the Cross-State Air

[38] 77 FR 31710.

[39] 77 FR 31711, 31712. Table 23 in the proposal mistakenly listed the total cost as $7,859,89,'' but the text correctly reflects the estimated cost of $7.9 million.

Pollution Rule (citing 76 FR 48208, August 8, 2011), which is a health-based standard for which EPA selected cost-effectiveness thresholds of $500/ton for NO_X reductions and $500 or $2,300/ton for SO_2 reductions.

The commenter went on to assert that the proposed emissions cap is not necessary to meet reasonable progress goals because of the high likelihood that SO_2 emissions from the affected facilities will decrease absent any Regional Haze requirement due to Hawaii's Clean Energy Bill. According to the commenter, EPA guidance indicates that emissions reductions from local control measures are an important factor in establishing reasonable progress goals and may be all that is necessary to achieve reasonable progress in the first planning period for some states. Citing EPA's Reasonable Progress Guidance, the commenter stated that despite EPA's assertion to the contrary (citing 77 FR 31712), neither the BART Guidelines nor the statute requires that emissions reductions from state programs must be federally enforceable to be considered in a reasonable progress analysis.

Finally, the commenter stated the understanding that EPA believes anthropogenic controls are necessary because Kilauea could stop erupting at any time, leaving all resulting visibility impairment from anthropogenic emissions that must be addressed. As discussed earlier, the commenter believes that even if Kilauea stopped erupting tomorrow, SO_2 emissions from the volcano would continue. Rather than imposing controls and significant costs to address what the commenter believes is an unlikely hypothetical situation, the commenter suggested that EPA should conclude that controls are not necessary during this planning period to meet reasonable progress goals but must be re-evaluated during the next planning period. The commenter believes that such an approach ensures that any burdens imposed on the commenter's rate payers are justified by real-world environmental benefits.

Response 2: As an initial matter, we do not agree that we can rely solely on state and local measures to ensure reasonable progress under this Regional Haze FIP. Pursuant to CAA section 169A(b)(2), Regional Haze SIPs must include ''such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal * * *'' of achieving natural visibility conditions in all mandatory Class I areas. This statutory requirement is implemented through the RHR, which requires that the long-term strategy element of a Regional Haze SIP, ''* * * include *enforceable* emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals * * *''[40] Once approved by EPA into the applicable SIP, these emission limits, schedules of compliance and other measures become federally enforceable under the CAA.

In this regard, the commenter's selective quotation from EPA's Reasonable Progress Guidance is misleading. The Guidance notes that:

> One important factor to keep in mind when establishing a RPG is that you cannot adopt a RPG that represents less visibility improvement than is expected to result *from the implementation of other CAA requirements.* You must therefore determine the amount of emission reductions that can be expected from identified sources or source categories as a result of requirements at the local, State, and federal levels during the planning period of the SIP and the resulting improvements in visibility at Class I areas. Given the significant emissions reductions that we anticipate to result from BART, the CAIR, and the implementation of other CAA programs, including the ozone and $PM_{2.5}$ NAAQS, for many States this will be an important step in determining your RPG, and it may be all that is necessary to achieve reasonable progress in the first planning period for some States.[41]

Read in context, it is clear that the discussion in the Guidance of state and local measures refers only to measures resulting from implementation of other CAA requirements (i.e., federally enforceable requirements promulgated by EPA or submitted by the State and approved by EPA into the applicable SIP). Hawaii has not submitted the measures contained in the Clean Energy Bill for approval into the applicable SIP. Therefore, these are not federally enforceable and, in promulgating a Regional Haze FIP, we cannot rely on these measures to assure that reasonable progress is made during the first planning period. In addition, we note that the Clean Energy Bill is not intended to address regional haze and does not specifically target those sources found to cause or contribute to visibility impairment in Hawaii's Class I areas. While implementation of the Clean Energy Bill *may* lead to reductions in emissions of SO_2 emissions from such sources, it does not ensure that such reductions will occur. We expect that Hawaii will assess the actual effects of the Clean Energy Bill and consider incorporating some or all of these measures into the SIP as part of future Regional Haze plans. The RHR requires that regional haze plans ''ensure no degradation in visibility for the least impaired days over the [planning] period.''[42] As explained in our proposal, our reasonable progress analysis for Hawaii focuses on anthropogenic emissions of visibility-impairing pollutants, as measured through island-specific emissions inventories.[43] Without additional federally enforceable controls, anthropogenic emissions of SO_2 on the Big Island are projected to increase between 2005 and 2018.[44] SO_2 is the principal cause of visibility impairment on the best 20 percent days at the Hawaii Volcanoes NP.[45] If anthropogenic SO_2 emissions on the Big Island were to increase between 2005 and 2018, it is reasonable to assume that visibility on the best days would degrade. Therefore, additional control measures are needed to prevent such degradation.

With regard to the costs of compliance, EPA recognizes that there is a great deal of uncertainty in projecting the future costs of petroleum products. The EPA-estimated cost of $5,587/ton is conservative, and was presented as an upper bound on what the costs could be in order to inform as best as possible both EPA's decision making and public comment. Because it is a conservative estimate that likely does not represent the true cost of the cap, we believe it would not be appropriate to use this cost estimate as a benchmark for BART or reasonable progress decisions on other sources in Hawaii or other states. EPA is unable to describe our specific disagreements with the details of HELCO's cost analysis because the company claimed that analysis as confidential business information (CBI).[46] EPA agrees with HELCO that if the utility were to decide to meet the cap by purchasing more expensive fuel, the costs to the ratepayers may be greater than a 2 percent increase in rates. This is due to HELCO's contracts with independent power producers (IPPs) that specify that the IPPs would be paid based on avoided costs. Nonetheless, we expect that HELCO will be able to limit the impact on ratepayers by meeting the cap through increased use of clean power as

[40] 40 CFR 51.308(d)(3) (emphasis added).

[41] See Section 1–4 of ''Guidance for Tracking Progress Under the Regional Haze Rule'', Document No. EPA–R09–OAR–2012–0345–0003–B10 (emphasis added).

[42] 40 CFR 51.308(d)(1).

[43] See 77 FR 31707.

[44] TSD at 41–42.

[45] TSD at 24–25.

[46] EPA's regulations governing treatment of CBI are set out at 40 CFR Part 2, Subpart B.

mandated by the Hawaii Clean Energy Bill.

Finally, HELCO misstates EPA's position regarding the need to control anthropogenic SO_2 emissions in light of the fact that the emissions of the volcano are uncertain and variable. As noted above, the RHR requires that RPGs ''ensure no degradation in visibility for the least impaired days'' over the period of the implementation plan.[47] Given that SO_2 is the principal cause of visibility impairment on even the best days, limiting emissions of SO_2 from manmade sources is necessary to ensure no degradation. Whether the volcano continues to erupt or not is not directly relevant. EPA has identified Hill, Shipman and Puna as appropriate sources to control because modeling indicates that they contribute to visibility impairment at Hawaii Volcanoes National Park. We have selected the lowest cost emissions control method to set the emissions cap and have provided HELCO with substantial flexibility on how to meet that cap.

Comment 3: HELCO willing to accept a 24-month cap.

One commenter (HELCO) stated that in spite of disagreeing about the reductions necessary to meet reasonable progress goals, the commenter appreciates the flexibility that an emissions cap provides and is prepared to accept a cap on SO_2 emissions at its Puna, Hill, and Shipman facilities. However, the commenter asserted that it is critical to the commenter's ability to cost-effectively dispatch its system and maintain reliability that compliance with the cap be determined over a 24-month period (i.e., a rolling 24-month cap of 7,100 tons rather than a 12-month cap of 3,550 tons).

The commenter's primary concern is that the company be able to operate the five units subject to the proposed cap as much as necessary in the event of concurrent forced outages of a significant duration at multiple units within its system; this concern arises from historic events involving the IPPs that provide almost 90 megawatts of power to the commenter's system. In such a situation under the proposed 12-month cap, the commenter might find itself faced with two unacceptable options—violate the cap to maintain grid reliability or allow rolling blackouts. The commenter indicated that a 24-month cap would provide sufficient flexibility to ensure reliability without incurring CAA penalties.

The commenter added that a 24-month cap would diffuse the potential increase in electricity rates that may occur if multiple overlapping forced outages occurred under a 12-month cap, necessitating increased generation with higher-cost diesel-fired units. A 24-month cap would allow the commenter to operate its most cost-effective units as needed during an event and then offset the period of higher emissions during the remainder of the compliance period.

The commenter also stated that if EPA does not establish a 24-month cap, it is critical that EPA create an exemption to the 12-month cap in the event of concurrent forced outages of significant duration at multiple units in the system. Because its system is isolated, the commenter does not have the option of purchasing replacement power and must be able to operate its units as needed to maintain system reliability.

Finally, the commenter requested that if a 12-month cap is established, EPA confirm that compliance must first be demonstrated on December 31, 2018, rather than January 31, 2018. The commenter indicated that the difference is extremely important for planning and implementing compliance measures. The commenter is concerned that the proposed FIP is not clear on this matter [citing proposed 40 CFR 52.633(d)(4) and 77 FR 31718].

Response 3: EPA understands the commenter's concern for electric reliability, but moving to a 24-month rolling average would significantly weaken the control requirement by allowing for greater number of days in each year that have large 24-hour emission rates. We note that, under the BART Guidelines, emissions limits for EGUs are set as 30-day rolling averages in order to ensure that they are enforceable and consistent across sources. Because the SO_2 emission cap here is being set pursuant to reasonable progress requirements, rather than BART requirements, we have provided HELCO with the additional flexibility of a 12-month rolling cap, rather than a 30-day rolling average limit, in order to address concerns about costs and electric reliability. However, given that reasonable progress is measured by the best 20 percent days and worst 20 percent days on an *annual* basis, we do not agree that an averaging time greater than 12-months to be appropriate. Nonetheless, EPA may be willing to consider a modification of the control requirement that would allow for short-term exceedances of the cap in conditions where electric reliability is genuinely at risk. However, such an amendment to the rule would need to comply with all substantive and procedural CAA requirements for implementation plan revisions. Since this requirement is not scheduled to go into effect until 2018, there is adequate time for promulgation of such a revision via notice-and-comment rulemaking.

EPA confirms that HELCO would need to first demonstrate compliance with the cap on December 31, 2018. The rule language has been modified to clarify this issue.

Comment 4: Alternative approach.

One commenter stated that EPA's proposed SO_2 limits for the Big Island power plants appear to ignore the very large emissions from the volcano, which are much greater than those from the power plants. According to the commenter, adding cost to power generation that is already the highest in the nation with no benefit makes no sense and adds to the perception that EPA is not working in the best interest of the country. However, the commenter noted that because emissions from the volcano might decrease or stop in the future, some limit to power plant emissions would be appropriate.

To address this issue, the commenter suggested a ''second order'' limit that is tied to the amount of volcanic emissions. As explained by the commenter, the limit would consist of a constant limit that would not affect the visibility from the volcano should volcanic emissions stop (i.e., the current amount of emissions EPA considers appropriate should volcanic emissions stop), plus a variable amount that would be some fraction of emissions from the volcano (e.g., 2 percent of the volcanic emissions, an amount that would be undetectable given the volcanic emission variation and clearly would not impact visibility). The commenter believes such a limit would provide ''breathing room'' for HELCO and price relief for its customers, while at the same time meeting EPA's mandate to limit emissions to values that will not significantly affect visibility in national parks and not adding to the public perception that EPA is working against the citizens of this country.

Response 4: EPA appreciates the commenter's concerns, and the thought that went into this comment. However, we do not agree that our proposed emission cap ignores the very large emissions from the volcano. Rather, the cap is intended to limit the anthropogenic contributions to haze, consistent with the purpose and the requirements of the RHR. We agree with the commenter that accounting for the impact of the volcano presents a significant challenge for Regional Haze planning in Hawaii. Unfortunately, given the high variability and uncertainty of the volcanic emissions, the commenter's suggested approach

[47] 40 CFR § 51.308(d)(1).

would result in a situation where the electric utility would not know what their allowable SO_2 emissions would be until after the data on the volcanic emissions are available. This approach would not be workable.

Comment 5: Other comment.

One commenter stated that EPA is mistaken if it thinks that it is going to raise taxes or rates in Hawaii over what the commenter termed ''some ignorant climate change haze nonsense.''

Response 5: This rulemaking is required to meet requirements set under the CAA amendments of 1990 to move toward eliminating anthropogenic visibility impairment at Class I areas. It is not related to climate change. EPA is cognizant of the potential costs of the plan and so has designed it to minimize impact on the ratepayers as much as possible.

9. Point Source SO_2 Emissions on Maui

Comment 1: Puunene Mill emissions will go down.

One commenter (HC&S) disagreed with the EPA's projections that point source emissions of SO_2 on Maui will increase during the first planning period ending in 2018, and that much of this increase will come from the Puunene Mill (with projected emissions of 469 tons in 2018). The commenter noted that SO_2 emissions from the Puunene Mill are driven by coal consumption because bagasse, the primary fuel at the facility, contains negligible amounts of sulfur and fuel oil is a very small fraction of annual heat input. According to the commenter, SO_2 emissions from the facility averaged 409 tons per year from 2006 to 2011, and this average was inflated by historic lows in sugar production in 2008 and 2009. The commenter expects that sugar production will continue to rebound and coal consumption will continue to decline so that SO_2 emissions from the facility will be in the range of 280–300 tpy by 2018. Based on this, the commenter believes that SO_2 emissions from point sources in Maui are more likely to decrease by 2018 rather than to increase as projected in the proposal, resulting in a larger decrease in overall anthropogenic emissions than projected and in further improvements in visibility at Haleakala NP.

Response 1: The EPA appreciates this new information and believes that it supports our conclusion that it is not reasonable to require additional SO_2 reductions on Maui at this time. The EPA encourages the commenter to work closely with Hawaii DOH as they develop emission inventory projections for future updates of the Regional Haze plan to ensure that the best information is used in making emission inventory projections.

Comment 2: Reasonable progress analysis not warranted for Kahului.

Although supporting the EPA's conclusion that the Kahului facility should not be subject to controls, one commenter (MECO) disagreed that a reasonable progress analysis was warranted for the Kahului facility. According to the commenter, the EPA's finding that prevailing winds should transport Kahului's emissions away from Haleakala NP (citing 77 FR 31709) is a sufficient basis for the EPA to make a determination that controls are not required at Kahului; and no additional analysis should be necessary. The commenter stated that the visibility modeling upon which the EPA based its decision to conduct the reasonable progress analysis was based on conservative assumptions and unlikely to occur in normal operations (citing 77 FR 31709), and that Kahului's actual contribution to visibility impairment at Haleakala NP is likely considerably less and may not even be in the range of perceptibility. For this reason, the commenter believes that the EPA should have determined that Kahului should not be subject to reasonable progress requirements during this planning period.

Response 2: The EPA believes it was reasonable to consider additional SO_2 controls at the Kahului power plant, given four concerns: significant visibility impairment from sulfur compounds at Haleakala NP on both the worst and best visibility days, a projected increase in point source SO_2 emissions during the planning period, the very high SO_2 emissions from the facility, and significant modeled visibility impacts from the plant on Haleakala. However, based on our analysis, we determined that no additional controls for Kahului are reasonable at this time.

10. Reasonable Progress Analysis for SO_2 Emissions on Maui

Comment 1: Concurrence with proposal.

One commenter (HC&S) concurred with the EPA's analysis showing that existing requirements under the Act will result in net reductions of anthropogenic emissions of SO_2 on Maui during the first planning period (ending in 2018) and that it is therefore reasonable to assume that visibility at Haleakala NP on the worst visibility days will improve and on the best visibility days is not getting worse. In addition, the commenter concurred with the EPA's proposal to find that the projected level of emissions reduction is reasonable for this planning period. (See Section II.A.9. of this notice for the commenter's comments and our responses on projected point source SO_2 emissions on Maui.)

Response 1: The EPA appreciates the supportive comment. With anthropogenic emissions decreasing substantially in the first planning period, it is reasonable to assume that visibility impairment due to anthropogenic sources will improve during the planning period.

Comment 2: Cap emissions from Kahului and Maalaea.

One commenter (NPS) recommended that the EPA establish an SO_2 emissions cap for the Kahului Power Plant and the Maalaea Generating Station on Maui, which could be met by lower sulfur fuel, reduced plant utilization, or increased use of biofuels. The commenter noted that under Hawaii's Clean Energy Bill, SO_2 emissions from these two facilities are projected to be reduced by 83 percent by 2018. The commenter believes that a federally enforceable SO_2 emissions cap for the Kahului and Maalaea facilities is justified for reasonable progress and would provide incentive for early implementation of the Clean Energy Bill objectives. The commenter added that the visibility modeling demonstrated that the Kahului Power Plant contributes to visibility impairment at Haleakala NP, and that the EPA determined that costs for 1 percent sulfur fuel would be lower for Kahului Power Plant ($4,200 per ton) than for the electric generating facilities on the Big Island ($5,587 per ton) that are required to meet an SO_2 emissions limit. In addition, the commenter (NPS) disagreed with the EPA's reliance on the projected reductions in SO_2 emissions from marine shipping under the North American Emissions Control Area agreement (that requires lower sulfur fuels for marine shipping within 200 nautical miles of the U.S. coastline beginning in August 2012) to offset emissions from the electric generating facilities on Maui. The commenter contended that there is considerable uncertainty in the levels of baseline and future marine traffic and the extent that these emissions should be included in the island inventory.

Response 2: EPA disagrees with this comment. As explained in our proposal, due to the federally enforceable emissions reductions from mobile sources (including shipping), total anthropogenic SO_2 emissions on Maui are projected to decrease by nearly 8 percent between 2005 and 2018 without additional control measures. We also expect emissions reductions from the

Hawaii Clean Energy Bill, but we do not need to make those reductions federally enforceable in order to show reasonable progress. In addition, HC&S has indicated in their comments on the proposal that their 2018 emissions should be significantly lower than indicated on Table V–2 of the TSD.[48] Even without these additional reductions in point source emissions, anthropogenic SO_2 emissions on Maui are projected to decrease by nearly 8 percent between 2005 and 2018.

11. Agricultural Burning on Maui

Comment 1: Cane burning impacts visibility and should be addressed.

Eight commenters expressed concern over emissions from agricultural burning in the sugarcane fields of Maui. Four of these commenters (Earthjustice, FHNP, Maui Tomorrow, Parsons) specifically questioned EPA's conclusions that there is no evidence of agricultural burning contributing to haze at Class I areas and/or that no further controls on agricultural burning are reasonable at this time (77 FR 31715, May 29, 2012). In contrast, one commenter (HC&S) concurred with EPA's findings.

One commenter (Earthjustice) indicated that the community's direct experience and testimony have provided evidence that agricultural burning contributes to haze at Class I areas, specifically that smoke plumes from agricultural burning impair visibility within Haleakala NP when meteorological conditions are not optimal and that the smoke directly impairs the views of park visitors of the panoramic vistas of the island, coastlines, and ocean from the park, which is an integral part of the park experience. Given the serious community concerns, the commenter urged EPA to undertake a full reasonable progress analysis for this pollution source and adopt a plan incorporating best practices for controlling emissions.

Another commenter (Parsons) stated that on many days, his view of Haleakala NP from Wailuku is obscured by a cloud of cane smoke through the central valley of Maui, and that views from Haleakala NP would certainly be impacted likewise. The commenter expressed disappointment that EPA has done little to address environmental and health concerns over the ongoing practice of open burning of sugar cane despite considerable public outcry.

One commenter (FHNP) indicated that a significant portion of the visitor experience of Haleakala NP is the enjoyment of views from within the park to places outside of the park. The commenter stated that it is the nature of human perception to be acutely aware of changes in scenery that are not ''natural'' even when the events are short lived or spatially limited. The commenter believes that such events, particularly agricultural burning in the cane fields, may not be adequately captured by EPA's analysis and methodology. According to the commenter, these agricultural burning events have a significant negative impact on the view from Haleakala NP toward the West Maui Mountains and other surrounding areas. The commenter added that it is intuitively obvious that burning such large quantities of vegetation in close proximity to a Class I area will have some impact on the viewing quality in and from that Class I area, even though the analysis showed no direct correlation.

Another commenter (Maui Tomorrow) stated that cane field burning produces billowing clouds laden with toxins and fine particulates, which can blot out the sky and the natural vistas, and cause or contribute to a range of severe respiratory and cardiovascular illness. While recognizing that the major contributor to visibility impairment in Haleakala NP is volcanic emissions, the commenter quoted the NPS as saying ''sugar cane processing facilities and field burning * * * can affect air quality and visibility'' in Haleakala NP. The commenter noted that Hawaii has ''no smoke management plan as such'' (citing 77 FR 31715, May 29, 2012) and contended that cane field burning is among the largest anthropogenic sources of nitrogen dioxide, SO_2, VOC and PM pollution on Maui, concluding that it makes little sense to rule out practical and achievable limitations on emissions from stopping the burning of cane fields. The commenter added that the fact that SO_2 is the dominant visibility-impairing pollutant in Hawaii's two Class I areas does not mean that the agency should ignore the contribution of other pollutants at one of them.

This commenter also stated that work published by a National Oceanic and Atmospheric Administration (NOAA) researcher that EPA cites in its TSD indicates that ''Haleakala NP has greater impacts'' from smoke as compared to Hawaii Volcanoes NP (citing TSD quotations of M. Pitchford). According to the commenter, that study notes that, based on data from the Haleakala monitoring station, ''about half of worst-case days are associated'' with factors other than volcanic emissions, including smoke, and that recommendations for follow-on work include examination of the smoke factor with respect to burning (e.g., agricultural) events. The commenter concluded by stating that EPA's proposed determination to not restrict cane field burning on Maui under the Regional Haze FIP is not reasonable and urging EPA to reconsider its position in light of the available evidence.

Another commenter (HC&S) noted that agricultural burning in Hawaii is regulated under a permit program, and widespread and persistent haze conditions are used as a criterion for establishment of a ''no-burn'' period by the Hawaii DOH. According to the commenter, ''no-burn'' periods established by the DOH are most likely to occur on days when volcanic smog from the volcano is present on the island, and therefore the potential for visibility impacts at Haleakala NP from agricultural burning should be lowest on the worst visibility days. The commenter indicated that under its agricultural burning permit, HC&S operates an extensive network of weather stations in and around the plantation that provide real-time data both to burn managers and to a meteorological consultant who prepares daily micro-forecasts of anticipated weather conditions, expected smoke dispersion, and optimum times and locations for burning. On occasions when existing air quality or expected smoke dispersion have been judged to be unsuitable for burning, HC&S has elected not to burn even when a ''no-burn'' period has not been established by the Hawaii DOH.

This commenter added that agricultural burning at HC&S is conducted in a manner largely consistent with the Tier 2 Smoke Management Program (SMP) recommended by the U.S. Department of Agriculture's Agricultural Air Quality Task Force (AAQTF) in its Air Quality Policy on Agricultural Burning. According to the commenter, the AAQTF policy allows the use of fire as an accepted management practice, consistent with good science, to maintain agricultural production while protecting public health and welfare by mitigating the impacts of air pollution emissions on air quality and visibility, and the Tier 2 SMP is designed for areas where agricultural burning contributes to particulate matter NAAQS violations or visibility impairment in Class I Federal areas—neither of which is the case on Maui. On this basis, the commenter disagreed with the statement

[48] See written comments on proposal from Alexander and Baldwin Company, July 2, 2012, Document No. EPA–R09–OAR–2012–0345–0019.

in the proposal that ''there is no smoke management plan as such'' in Hawaii.

The commenter also pointed out that the proposal indicated that by far the biggest contributor to visibility impairment in Hawaiian Class I areas is SO_2 emissions from the Kilauea Volcano, with emissions of NO_X and coarse mass as secondary concerns, each contributing less than 10 percent of visibility impairment at Haleakala NP. According to the commenter, agricultural burning accounts for only about 3 to 4 percent of anthropogenic NO_X emissions on Maui, so the overall visibility impact of NO_X emissions from sugarcane burning is clearly negligible. The commenter noted that coarse mass emissions may result in part from agricultural burning but also arise from construction sites, roads, and other fugitive dust sources. Due to what the commenter termed the uncertainty with regard to contributions from various sources of coarse mass and the secondary importance of this pollutant with respect to visibility impairment at Haleakala NP, the commenter concurred with EPA's conclusion that it is not reasonable to recommend emission control measures for coarse mass at this time.

Noting that it has been postulated that elemental and organic carbon levels measured at the HALE site may be indicative of visibility impacts from agricultural burning, the same commenter asserted that the DOH's Haleakala National Park Visibility Assessment did not identify a significant correlation between measurements at this site and sugarcane burns, and suggested that this site may be impacted by small nearby emission sources rather than, or in addition to, agricultural burning. The commenter also stated that while organic carbon may also originate in part from agricultural burning, recent monitoring at HACR site has shown low contributions to visibility impairment from both organic and elemental carbon, and even at the HALE site (outside of the park) the contribution of elemental and organic carbon sources to visibility impairment is relatively low (and only a portion of this contribution is attributable to agricultural burning). On this basis, the commenter concluded that efforts to reduce visibility impacts of organic carbon from agricultural burning would appear to be unwarranted.

Two of the commenters (Earthjustice, Parsons) suggested that EPA install additional air quality monitors to assess the impacts from sugar cane burning. See section II.A.11. of this document for more on this topic.

Response 1: While not directly relevant to this rulemaking, EPA agrees that exposure to emissions from agricultural burning can pose health concerns. We note, however, that the $PM_{2.5}$ monitor in Kihei, typically downwind from the burning, has never recorded an exceedance of the health-based NAAQS. In addition, Hawaii DOH has promulgated a series of rules regulating agricultural burning, several of which have been approved into the Hawaii SIP.[49] EPA recently determined that the Hawaii SIP ''include[s] enforceable emission limitations and other control measures, means, or techniques * * * as may be necessary or appropriate to meet the applicable requirements of [the CAA]'' with respect to the 1997 and 2006 p.m.$_{2.5}$ NAAQS, as well as the 1997 ozone NAAQS.[50] EPA will continue to work with Hawaii DOH to ensure that the state's agricultural burning rules and permit program meet all applicable CAA requirements.

With respect to the visibility impacts of agricultural burning, we reaffirm that there is no evidence that smoke from the burns is causing visibility impairment in the park. If smoke from the burns were transporting up to the park, the HACR monitor (inside the park, close to the park entrance) would measure significant levels of black carbon along with significant levels of organic compounds when the sugar cane fields were burning. But there are no significant levels of organic compounds and black carbon at the HACR IMPROVE monitor in the park on those days when burning took place. There were significant levels of these pollutants measured at HALE (outside the park and down the mountain, closer to the isthmus where the cane is grown) on particular days, but those pollutants were not found in significant levels at HACR for those same days.[51] It is unclear what caused the high readings at HALE, but, given that the HACR monitor did not register similarly high readings, it is clear that the emissions causing the high readings did not reach the park from the direction of the HALE monitor, which is northwest of Haleakala. Without clear evidence that agricultural burning is impacting the Class I area, EPA does not consider it reasonable to impose additional controls as part of the Regional Haze plan.

Regarding Maui Now's reference to the comments by Marc Pitchford, we note that Dr. Pitchford found that Haleakala NP has comparatively more impact from all non-volcano factors, including smoke, than Hawaii Volcanoes NP.[52] Because Haleakala NP has a comparatively smaller impact from the volcano, the impact from the other factors (as a percentage) is larger. Dr. Pitchford recommends further examination of the smoke factor in addition to his recommendation of further examination of the attribution of dust, coarse mass, and the ''nitrate'' and ''sulfate/nitrate'' factors. EPA agrees that further examination of each of these factors will be useful for the development of the next plan. Dr. Pitchford's work was based on the Haleakala National Park (HALE) IMPROVE site. EPA believes that future work should be based on the more representative Haleakala Crater (HACR) IMPROVE site, and the focus of the work should be on the factors which contribute most to the impairment of visibility at that site.

The regional haze plan is designed to improve visibility within the park itself. Smoke outside of the park would certainly impact the views from the park, but, as explained below, views outside of the park are not covered under the regional haze program.

While not relevant to this rulemaking, EPA agrees with the commenters that additional monitoring of smoke impacts and evaluating its impact on the public would be helpful. We are working with Hawaii DOH to identify funding to install a new $PM_{2.5}$ monitor on Maui that will be located on the isthmus between the mountains on Maui where the cane is grown and where many people live.

Comment 2: TSD Sections II.A and II.B and the contribution of agricultural burning to visibility impairment.

One commenter (Maui Tomorrow) noted that the preamble to the proposed FIP cites sections II.A, II.B, and III.B of the TSD in support of EPA's assertion that there is ''no evidence of agricultural burning contributing to haze at Class I areas'' (citing 77 FR 31715, footnote 75, May 29, 2012). The commenter stated that section II.B is germane only to Hawaii Volcanoes NP, not to Haleakala NP. The commenter also contended that section II.A appears to establish the opposite result from that which EPA asserted in its proposed determination, namely that, at least in Maui, the contribution of organic carbon and elemental carbon pollution to visibility impairment is significant. According to the commenter, sugar cane burning in Maui is a principal contributor of these pollutants.

According to the commenter, readings from the HALE monitor, from which

[49] See 40 CFR 52.620(c).

[50] See 77 FR 47530, August 9, 2012.

[51] TSD pp 17–20.

[52] TSD at 34.

baseline year emissions for the 2001–2004 period were obtained, imply that 10 percent of visibility degradation derives from organic carbon pollution and 5 percent from elemental carbon (citing TSD pp. 12–13). While conceding that for recent years the HACR monitor has reported lower levels of organic and elemental Carbon readings than at the HALE monitor, the commenter asserted that even if the organic and elemental Carbon pollution contribution from agricultural burning and other sources to visibility degradation at Haleakala NP were half of that indicated from the HALE monitor readings (7.5 percent of visibility impairment rather than 15 percent) this would still be significant. The commenter added that EPA has provided no reason for deeming such an organic and elemental carbon contribution to regional haze over Haleakala NP to be of no concern whatever. According to the commenter, EPA indicated that recent monitoring at the HACR monitor shows a ''low contribution to visibility impairment from organic and elemental carbon'' (citing TSD p. 55), but fails to define what EPA means by ''low contribution.''

Response 2: EPA finds a lack of correlation between smoke measured at HALE and agricultural burning days. The measured levels of smoke-related compounds within the park (as monitored at HACR) indicate that there is no significant impact from smoke.[53] For example, the measured level of organic carbon is below 1 $\mu g/m^3$, and the measured elemental carbon is below 0.2 $\mu g/m^3$ for each day of 2009 and 2010.[54] The contribution to light extinction from organic carbon is below 2.7 Mm-1,[55] and the contribution to light extinction from elemental carbon is light extinction is below 1.4 Mm-1. For the same time period, the light extinction from all compounds ranges from 20 to 70 Mm-1 on the 20 percent worst days.

Comment 3: Monitoring for agricultural burning.

A number of commenters (Earthjustice, NPS, Parsons) provided comments related to air quality monitoring for pollutants released by agricultural burning on Maui.

One commenter (Parsons) noted that there is only one monitoring station on Maui, located in North Kihei, and that it tests for only $PM_{2.5}$ and not for NO_X or SO_2. The commenter believes that the overall air quality of Maui may be better addressed by installation of additional air quality monitoring devices to more accurately assess the harmful materials being emitted from cane burning and other sources.

One commenter (NPS) noted that there was considerable comment at the July 31, 2012 public hearing on the impact of cane burning on public health on Maui and visibility at Haleakala NP. The commenter stated that while there are days in the IMPROVE record at HALE with elevated organic and elemental carbon suggestive of biomass burning, the monitor location is not well suited for evaluating smoke impacts from cane burning. Accordingly, the commenter recommended that if EPA's objective is to characterize smoke incidence and potential health impacts from smoke, then a PM monitor sited closer to populated areas would be more useful than the HALE monitor.

Another commenter (Earthjustice) stated that EPA must provide the necessary monitors, particularly for $PM_{2.5}$, so that it can conduct deeper analysis and better informed determinations related to emissions from agricultural burning going forward. According to the commenter, EPA recognizes that the HALE monitoring site located outside of the Haleakala NP has higher levels of organic and elemental carbon than the HACR monitoring site located at higher elevation, which generally confirms the effects of agricultural burning (citing 77 FR 31716, May 29, 2012). Yet, the commenter believes neither location is suited for monitoring the impacts on the vistas from the park and this lack of data impedes reasonable progress on the impacts of agricultural burning on visibility and public health. The commenter asserted that EPA must develop a monitoring strategy as required by 40 CFR 51.308(d)(4) to address this deficiency.

Response 3: EPA agrees that additional monitoring for particulate matter on Maui would be helpful and is working with DOH to identify the resources needed to place a new $PM_{2.5}$ monitor on the island to be in a populated area on the isthmus near sugar cane fields.

EPA disagrees with the commenter and finds that HACR is sufficient for monitoring visibility within the park. EPA has reviewed the monitoring data and the Hawaii DOH analysis of data collected at the HALE and HACR monitoring sites.[56] Based on this review, EPA has found the HACR IMPROVE monitoring site to be representative of visibility conditions within the Haleakala NP.

Comment 4: Other issues related to agricultural burning on Maui.

One commenter (Parsons) asserted that open field burning of sugar cane amounts to an issue of environmental justice. According to the commenter, the health and welfare of the community are deemed secondary, and are subjugated to claims of the plantation's economic viability if forced to harvest without burning.

One commenter stated that cane burning hurts Maui's economy and health. Another commenter asserted that emissions from cane burning (as well as HC&S smokestacks and fugitive dust from the sugarcane fields) threaten public health, visibility and enjoyment of Haleakala NP, and the health of the ocean environment and coral reefs.

Response 4: We appreciate the commenters' concerns regarding the negative health impacts of emissions from cane burning. We agree that the same pollutants that contribute to visibility impairment can also harm public health. However, for purposes of this action, we are not authorized to consider these health impacts, and we have not done so. However, as noted above, EPA is working with Hawaii DOH to identify the resources needed to place a new $PM_{2.5}$ monitor on the Island of Maui to be sited in a populated area of the isthmus near sugar cane fields.

Regarding environmental justice, as explained in our proposal, Executive Order 12898,[57] establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. Our responsibilities under the Executive Order must be exercised in the context of our statutory authority under the CAA, which, in this case, is limited to addressing visibility impairment in Class I areas. Without evidence that agricultural burning is impacting visibility in Haleakala, it is not reasonable for us impose restrictions on agricultural burning as part of this rulemaking.

[53] TSD pp. 73–74.

[54] TSD pp. 17–20.

[55] Inverse megameter (Mm-1) is a measurement of light extinction; the amount of light lost as it travels over one million meters. This unit is most useful for relating visibility directly to particle concentrations in the air.

[56] TSD p. 69–72.

[57] 59 FR 7629, February 16, 1994.

12. Integral Vista Issue and Reasonably Attributable Visibility Impairment (RAVI)

Comment: One commenter requested contact information and supporting documents for the FLM finding of no integral vista in Hawaii under RAVI. The commenter assumed that the lack of finding of integral vista is the result of a lack of appropriate or timely responsiveness by the FLM.

The commenter stated that most Maui residents and visitors to Haleakala NP consider the panorama from within Haleakala NP to areas outside of Haleakala NP (the view of the peaks of Mauna Kea and Mauna Loa on the Big Island, the views of Maui's central valley, the views of the West Maui Mountains, and the surrounding oceans) an integral vista within the intent of the federal definition.

Response: Pursuant to EPA's regulations governing RAVI, the FLMs had the opportunity to identify any integral vistas on or before December 31, 1985. No such vista was identified for Haleakala NP. In promulgating the RHR in 1999, EPA declined to extend the integral vista concept to the regional haze program because:

> * * * regional haze is caused by a multitude of sources across a broad geographic area, and it can create a uniform haze in all directions. The regional haze program is designed to bring about improvements in regional visibility for the range of possible views of sky and terrain found in any Class I area. Accordingly, the program does not protect only specific views from a Class I area. To address haze, regional strategies will be needed, and emissions resulting from these strategies are expected to improve visibility across a broad region, not just within a Class I area. Thus, although the regional haze program does not include a specific provision regarding integral vistas, the long-term strategies developed to meet reasonable progress goals would also serve to improve scenic vistas viewed from and within Class I areas.[58]

13. Comments on the Monitoring Strategy

Comment 1: HALE and HACR.

One commenter (NPS) agreed with EPA's proposal to use the IMPROVE monitor at the Haleakala Crater (HACR) for future regional haze planning efforts because it more representative of the park's air quality and visibility than the HALE monitor, which is located at much lower elevation than much of the park area. The commenter has evaluated the IMPROVE data for both monitors for the period 2007 through 2010 and found the following: (a) sulfate concentrations are elevated on the same days at the two monitors, indicating that volcanic emissions from the Kilauea Volcano are impacting both monitors concurrently, although the concentrations are lower at the higher elevation (HACR) site; (b) in general, concentrations of nitrate, organic carbon, elemental carbon, and seasalt are lower at the higher elevation site; and (c) concentrations of soil and coarse matter at times are higher at the higher elevation site, suggesting possible international transport. The commenter is consulting with the IMPROVE network representatives to assure a representative data record for the regional haze process.

Another commenter (HC&S) also concurred with the conclusion that the HACR site is more representative of visibility conditions within the park and supported the proposal to base future regional haze planning efforts on data collected at the HACR site. This commenter stated that it was recognized as far back as 2005 that the HALE site was not appropriate for monitoring visibility at Haleakala NP since it is located well outside the park, is at a much lower elevation than a majority of the area of the park, and is impacted by emissions sources which are less likely to cause visibility impacts within the park.

However, a third commenter (Maui Tomorrow) stated that EPA's conclusion that the HACR monitoring data are more representative of visibility conditions within the Haleakala NP (citing TSD p. 74) is based on a misreading of studies from the Hawaii DOH. According to the commenter, the relevant Hawaii DOH study concludes only that, ''The available data indicates that HACR IMPROVE monitoring data could be more representative of visibility conditions within the Haleakala National Park.'' [59] The commenter indicated that the DOH also noted that, for one cane field burn undertaken by HC&S in 2007, the HACR monitor registered higher organic and elemental carbon increases than were recorded at the HALE monitor, and that the Department postulated that this and one other set of readings—showing higher impacts from agricultural and other burning inside Haleakala than outside the park—were ''not representative'' of HACR readings. Despite this, the commenter concludes that EPA's assertion that the higher readings from HALE are less representative than those at HACR do not reflect the careful views of the Hawaii DOH.

Response 1: EPA appreciates NPS's evaluation of the IMPROVE data for both the HALE and HACR monitors for the period 2007 through 2010, and agrees with their recommendation to use Haleakala Crater (HACR) for future regional haze planning efforts. EPA agrees (with Maui Tomorrow) that EPA's summary of DOH's study findings does not fully capture the depth of this careful analysis. Nevertheless, EPA believes that the Hawaii DOH's study's conclusion that ''[t]he available data indicates that HACR IMPROVE monitoring data could be more representative of visibility conditions within the Haleakala National Park'' is consistent with EPA's support for the use of the IMPROVE monitor at the Haleakala Crater (HACR) for future regional haze planning efforts because it more representative of the park's air quality and visibility than the HALE monitor.

Comment 2: Use image-based monitoring.

One commenter (FHNP) recommended that EPA use image-based techniques for monitoring, such as described by Graves and Neuman, *Using Visibility Cameras to Estimate Atmospheric Light Extinction,* IEEE Workshop on Applications of Computer Vision, 2011. According to the commenter, the University of Hawaii Institute for Astronomy already has several cameras, including one that is located near the summit and directed into Haleakala NP, and the Institute and the Mees Observatory take regular measurements of the atmospheric conditions at the summit of Haleakala. The commenter believes that these resources should be used to monitor progress toward the goal of reducing haze in Haleakala NP.

Response 2: EPA appreciates the thought that went into this comment. This is an interesting approach and the webcam pictures may be useful as supplemental information to understanding the visibility at Haleakala; we would encourage its use in the development of the next plan. However, we caution that this is a poor metric to use for tracking trends towards natural conditions. Visibility derived from photographs is complicated by the varied shading of the scene from clouds, which can cause high uncertainties. In addition, the relative humidity is not corrected for nor measured. Changing relative humidity will cause large changes in light extinction/visibility, further adding to the uncertainty in the visibility measurement and interpretation.

[58] 64 FR 35734 (July 1, 1999).

[59] Citing *Comparison of Haleakala NP HALE1 and HACR1 IMPROVE Monitoring Site 2007–2008 Data Sets,* March 30, 2012, State of Hawaii, Department of Health, Clean Air Branch, p. 14. Document No. EPA–R09–OAR–2012–0345–0005–C2f.

14. Other Comments

Comment 1: Broaden EPA's evaluation.

One commenter (Parsons) expressed understanding that the Regional Haze FIP for Hawaii considers only some of the overall factors and parameters of emissions into Maui's atmosphere. Nevertheless, the commenter urged EPA to broaden its determination of relevant impacts to Maui's air quality and regional haze to include the other common-sense environmental factors mentioned in his comments: (a) emissions from MECO's Kahului and Maalaea generating facilities, (b) emissions from HC&S's Puunene Mill, (c) HC&S's open field burning, and (d) fugitive dust.

Response 1: We appreciate the commenter's concerns about air quality generally. However, our authority in promulgating this FIP is limited by the provisions of the CAA and the RHR. Specifically, with regard to reasonable progress, we considered the following factors established in section 169A of the CAA and in EPA's RHR at 40 CFR 51.308(d)(1)(i)(A) and (B): (a) The costs of compliance; (b) the time necessary for compliance; (c) the energy and non-air quality environmental impacts of compliance; (d) the remaining useful life of any potentially affected sources, and (e) uniform rate of improvement in visibility and the emission reduction measures needed to achieve it. Based on our analysis of these factors, we determined that, for the sources named by the commenter, no additional controls were reasonable at this time.

Comment 2: Government control.

One commenter argued that volcanic emissions are the cause of visibility impairment in Hawaii, but EPA will use it as a vehicle to put sanctions on carbon dioxide, smoke from sugarcane harvesting, and methane emitted by cattle at Haleakala Ranch even though these substances are emitted naturally from breathing, burning, and bovine flatulence. The commenter objected to the imposition of additional government control. The commenter stated that Hawaiians should tell EPA to take its ''unattainable goals back to Washington and spare the Taxpayer expense.''

Response 2: This rulemaking is required to meet requirements established in the CAA amendments of 1990 to move toward eliminating anthropogenic visibility impairment at Class I areas. It is not related to climate change. EPA is not proposing any controls on breathing, burning, or bovine flatulence as part of this rulemaking.

Comment 3: Public hearing process.

One commenter asked that EPA provide details regarding the notice requirements for the public hearings. The commenter believes that the public hearing was held too soon to give the public a proper opportunity to review the plan and the technical support documents. The commenter requested that EPA confirm that it had complied with the notice requirements.

Response 3: In promulgating a FIP under CAA section 110(c), EPA is required to: ''give interested persons an opportunity for the oral presentation of data, views, or arguments, in addition to an opportunity to make written submissions; keep a transcript of any oral presentation; and keep the record of such proceeding open for thirty days after completion of the proceeding to provide an opportunity for submission of rebuttal and supplementary information.'' [60] In this case, EPA held two public hearings on its proposed FIP, one on Maui on May 31, 2012 and one on the Big Island on June 1, 2012. These hearings were announced in the **Federal Register** on May 11, 2012,[61] and a pre-publication version of the NPRM was posted on EPA's Web site on May 16, 2012. The proposal was published in the **Federal Register** on May 29, 2012,[62] and public comments were accepted through July 2, 2012.

B. Comments From the Public Hearings

EPA received written and oral comments on the proposal at the public hearings. Representatives of the following organizations provided oral or written comments: Maui Tomorrow Foundation (Maui Tomorrow), Alexander and Baldwin, parent company of Hawaii Commercial and Sugar (HC&S), the Ko Hawaii Pae Aina people, and Syntex Global (Syntex). Nineteen private citizens also provided oral or written comments at the public hearings. A summary of the major comments and EPA's responses are provided below.

Comment 1: Visibility impacts of cane burning.

The majority of the commenters at the hearing on Maui expressed concern that the proposed FIP does not require an end to the practice of agricultural burning in the sugar cane fields. These commenters generally indicated that they have witnessed thick smoke from cane burning that clearly impairs visibility, disrupting the scenic vistas on the island. For example, one commenter stated that during periods of cane burning, he cannot see Kihei from Haleakala NP or see the park from Kihei, and another similarly asserted that cane burning obscures the view from the top of Haleakala, especially over the valley. One commenter indicated that as many as three fires are lit in the morning, creating smoke plumes that fill the sky, and added that after the plumes of smoke dissipate, a brown film hangs in the air just under the inversion layer of the mountains. Seven of the commenters specifically objected to the proposed determination that no further controls on agricultural burning are reasonable at this time. One of these requested that EPA explore pollution controls to mitigate the impact of organic carbon from agricultural burning on visibility at Haleakala NP.

One of the commenters noted that EPA's analysis acknowledges that agricultural fire emissions occur over roughly 30,000 acres of cane fields, and added that this is among the largest anthropogenic sources of SO_2, VOCs and PM on Maui. (Another commenter indicated that the correct figure for cane fields in production is 35,000 acres.) This commenter alleged that the NPS has stated that sugar cane processing and field burning can affect air quality and visibility in Haleakala NP. The commenter also said that work published by NOAA researchers indicates that Haleakala NP has greater impacts from smoke as compared to Hawaii Volcanoes NP, and that about half of worst-case days are associated with factors other than volcanic emissions, including smoke.

Another commenter, citing a study by University of Hawaii meteorology Professor Andrews Daniels, stated that an average cane burning event releases approximately 200 to 600 tons of PM as compared to the estimated 700 tons of PM emitted each day in the Los Angeles basin. This commenter believes that PM should be considered in EPA's evaluation.

Response 1: EPA understands the concern of the commenters about the local visibility impacts of agricultural burning. However, as detailed in the responses above (II.A.11), the Regional Haze Rule is designed to protect visibility inside the National Park. EPA has no evidence that agricultural burning is impacting visibility inside the park; therefore, we do not consider it appropriate to restrict agricultural burning as part of this rulemaking.

Comment 2: Health effects of cane burning.

Many of the commenters at the Maui hearing expressed concern over the health effects that they believe result from PM and toxic pollutants released by cane burning on the island. Several

[60] See CAA section 307(d).

[61] 77 FR 27671.

[62] 77 FR 31692.

of these commenters noted that the plastic irrigation pipes are burned along with the cane waste, adding to the toxic content of the smoke. A number of commenters indicated that the same pollutants that cause haze also have health effects, and that health and visibility effects are not separable.

Some of these commenters recounted personal experiences with breathing problems or respiratory illness that they believe are attributable to smoke from cane burning. Other commenters expressed concern over the exposure that children are experiencing or the high incidence of asthma on the island. One commenter expressed dismay the sugar company is allowed to conduct cane burning simply to save money at, the commenter believes, the expense of public health.

Another commenter noted that cane burning was stopped in Florida because of its negative health effects. One commenter recommended that agricultural burning on Maui be suspended immediately so that its health and environmental impact can be studied. The commenter suggested that the burden should be placed on the growers to prove that the practice is not hurting the environment.

Response 2: As noted above, EPA agrees that exposure to emissions from agricultural burning can pose health concerns. We note however, that the $PM_{2.5}$ monitor in Kihei, typically downwind from the burning, has never recorded an exceedance of the health-based NAAQS. In addition, Hawaii DOH has promulgated a series of rules regulating agricultural burning, several of which have been approved into the Hawaii SIP.[63] EPA recently determined that the Hawaii SIP ''include[s] enforceable emission limitations and other control measures, means, or techniques * * * as may be necessary or appropriate to meet the applicable requirements of [the CAA]'' with respect to the 1997 and 2006 $PM_{2.5}$ NAAQS, as well as the 1997 ozone NAAQS.[64] EPA will continue to work with Hawaii DOH to ensure that the state's agricultural burning rules and permit program meet all applicable CAA requirements.

With respect to the visibility impacts of cane burning, there is no evidence that smoke from the burns is causing visibility impairment in the park. Without clear evidence that agricultural burning is impacting the Class I area, EPA does not consider it reasonable to impose additional controls as part of the Regional Haze plan.

Comment 3: Chemtrails.

Six commenters at the Maui hearing expressed the belief that a ''stratospheric aerosol geoengineering'' program that results in ''chemtrails'' that drift over Hawaii are responsible for some, or much, of the visibility impairment that is occurring. In the most extensive comments on this topic, one commenter stated that these effects are scientifically observable. The commenter indicated that he is able to observe the progress of these chemtrails through satellite images. He also stated that measurements from rainwater collected on the North Shore of Maui showed 30 to 200 parts per billion of aluminum and lesser amounts of barium and strontium, which according to the commenter are the chemical fingerprints of chemtrails. The commenter suggested a program of aerial sampling of the clouds drifting over Hawaii, and requested that EPA add aluminum, barium and strontium to the materials that it routinely monitors.

Another commenter similarly recommended that EPA broaden the scope of its analysis to include stratospheric aerosol spraying. The commenter believes that the waters of South Maui are impacted by such spraying, and that the spraying also causes health issues in people. The commenter also asserted that the spraying has introduced chemicals into the soils that are killing the plants in the area of Hana and Kipahulu.

Response 3: The commenters provided no evidence that the visibility impairment in the Class I areas are caused by sources that are not captured using the IMPROVE monitors on Maui. EPA reaffirms our analysis of the causes of haze addressed in the TSD.

EPA believes the current monitoring program is appropriate for Regional Haze. The IMPROVE program is a cooperative measurement effort governed by a steering committee composed of representatives from Federal and regional-state organizations. The IMPROVE monitoring program was established in 1985 to aid the creation of Federal and State implementation plans for the protection of visibility in Class I areas (156 national parks and wilderness areas) as stipulated in the 1977 amendments to the Clean Air Act.

The objectives of IMPROVE are:

(a) To establish current visibility and aerosol conditions in mandatory class I areas;

(b) To identify chemical species and emission sources responsible for existing man-made visibility impairment;

(c) To document long-term trends for assessing progress towards the national visibility goal;

(d) And with the enactment of the Regional Haze Rule, to provided regional haze monitoring representing all visibility-protected federal class I areas where practical.

Aluminum and strontium are measured as part of the IMPROVE program. The summary statistics for all data, including aluminum and strontium measurements, at individual monitoring sites are available at the VIEWS monitoring sites data statistics site *http://views.cira.colostate.edu/web/Statistics/SiteStatistics.aspx.*

Comment 4: Concerns about the BART ''exemptions'' and the 0.5 dv screening level.

Six commenters objected to the plan's proposal to exempt six of the eight BART-eligible sources from BART review,[65] stating that EPA should conduct full BART review of all BART-eligible sources until the amount of improvement needed to meet the uniform rate of progress (1.38 dv) can be achieved through federally enforceable control measures. Two of the commenters specifically asserted that the screening level of 0.5 dv used by EPA to determine which BART-eligible sources are subject to BART review is too high and should be reduced. One of the commenters stated that EPA has inappropriately used the highest allowable deciview threshold in the proposed FIP.

Without discussing the deciview screening level, another commenter similarly objected to the plan's proposal to exempt six of the eight identified BART eligible sources from further review under BART requirements. One commenter simply expressed opposition to exemptions and exceptions for some of Maui's major air polluters, and another objected to the exemptions made by EPA.

Response 4: As EPA addressed in Section II.A.1 above, the plan is not required to meet the URP. As we addressed in Section II.A.5, above, we find that the 0.5 dv threshold is appropriate for determining which sources should be subject to BART in Hawaii.

Comment 5: Control measures are insufficient.

Eight commenters stated that the proposed control measures are not sufficient to ensure that reasonable progress is made during the first

[63] See 40 CFR § 52.620(c).

[64] See 77 FR 47530.

[65] Six of the eight BART-eligible sources had a less than 0.5 deciview impact and so were exempted from BART. One of the remaining facilities, Hu Honua Bioenergy is no longer permitted to burn fossil fuels and is therefore also exempt from BART. This leaves one facility in Hawaii as subject to BART, the Kaneolehua Hill facility. See 77 FR 31704, 31705.

planning period. The commenters believe that additional control measures are necessary.

Response 5: EPA finds that the control measures are sufficient to ensure reasonable progress. Our reasoning is explained further in Sections II.A.7., II.A.8 and II.A.10. of this document.

Comment 6: Uniform rate of progress.

Six commenters objected to the proposal to determine that the uniform rate of progress for the implementation plan to attain natural conditions is not reasonable. The commenters asserted that this rate of progress is reasonable and that the FIP should require additional control measures as necessary to meet this rate of progress.

One commenter (HC&S) stated that the methodology used to determine the proposed uniform rate of progress unnecessarily skews this value high. The commenter noted that EPA chose to exclude emissions from Kilauea Volcano when estimating natural visibility conditions while including these emissions in the estimate of baseline visibility conditions. As a result, the commenter asserted, the uniform rate of progress includes reductions in visibility impairment from anthropogenic sources that are sufficient to offset baseline emissions caused by the volcano. The commenter recommended that EPA consider adopting the methodology proposed by the Hawaii DOH to adjust the baseline visibility impairment to account for the impacts of the volcano as well as Asian dust. The commenter stated that if EPA were to use this adjustment in the calculation of the uniform rate of progress, the uniform rate of progress target for 2018 could essentially be achieved through the emissions reductions projected to occur by 2018 under the proposed FIP.

Response 6: This comment was addressed in Section II.A.1, above.

Comment 7: Monitoring concerns.

Seven commenters stated that since the HALE monitor's data were used for the baseline visibility assessment, that monitor must be kept in place or replaced with new monitors at that location so that long-term visibility data comparable to baseline may be captured. Another commenter objected to plans to reduce the current ''measurements in place.''

Five commenters contended that the Hawaii DOH and EPA are choosing data from different monitors to conclude that organic carbon agricultural burning does not contribute to visibility degradation although, according to the commenters, Table 11 of the proposed FIP clearly indicates that it does. (Four of the commenters also cited Table III–1 of the TSD.) The commenters added that the Hawaii DOH and EPA should not be moving and placing monitors selectively. The commenters asserted that based upon the data, it is not acceptable to find that there is no evidence of agricultural burning contributing to haze.

One commenter stated that there is inadequate monitoring data backing up the proposal. The commenter indicated that emissions from cane burning, fugitive dust from agricultural operations, stack emissions from companies burning high-sulfur coal or emissions from bunker fuel are not monitored. The commenter believes that without such monitoring, there are no hard data to support the proposal, and no data on which to base public testimony.

One commenter stated that the surrogate approach of measuring different substances in the air does not directly address visibility. The commenter noted that a nephelometer can be used to measure visibility directly, and that nephelometers operated at two different frequencies can distinguish between smoke and water in the air.[66] The commenter concluded that the current monitoring instrumentation is inadequate and recommended that EPA set up two nephelometers in Kihei. The commenter believes that such a monitoring program would show that during cane burning days one cannot see Kihei from Haleakala or Haleakala from Kihei.

Another commenter similarly indicated that if the monitor in its current location is unable to measure what one can easily see, the monitor is insufficient. The commenter believes that the monitor should be moved, additional monitors should be added or the monitor should be replaced by one that can collect better information. The commenter stated that the monitor does not account for Kipahulu, the area of the park at sea level in East Maui. The commenter indicated that HC&S has increased production since 2004, concluding that the data presented is not accurate. The commenter also stated that the 24-hour period of measurement does not adequately represent the 1 to 3 hour burning time.

Response 7: Hawaii DOH, NPS and EPA are reviewing HALE and HACR data to develop methodologies to establish a 2000–2004 baseline estimate, which can be used to track continued progress at the site in a manner consistent with RHR requirements. Therefore, it is not necessary to continue operation of HALE to provide continuity with the baseline. In addition, since HACR is more representative of conditions in the park, and HALE is nearby, it is not a good use of resources to continue operation of HALE. EPA is working with Hawaii DOH to move the Federal funding currently used to support HALE to instead support the operation of a new $PM_{2.5}$ monitor to be sited in a populated area of the isthmus near sugar cane fields.

EPA is not selectively using data to justify a particular policy outcome. Data from both HALE and HACR were considered when determining if there was any evidence that smoke from agricultural operations was impacting visibility at Haleakala NP. This is explained in more detail in our discussion on agricultural burning in Section II.A.11 of this notice.

The tables in the proposal and the TSD referenced by the commenters indicate possible smoke impacts at the HALE monitor. As we discussed previously, there is no evidence that this smoke is from agricultural burning. Nor is there any evidence that the smoke measured at HALE (which is outside the park and at a significantly lower elevation) is impacting the park itself,

EPA believes the current filter-based monitoring instrumentation, based on the IMPROVE Program, is the appropriate approach to determine the visibility levels at Hawaii's National Parks. The IMPROVE Program is discussed in greater detail in the response to Comment 3: Chemtrails, above. Visibility levels can be estimated from aerosol monitoring filters. Understanding the characteristics of the aerosols in a haze can also help identify the type of sources that contributed to the haze. It is possible to statistically estimate what portion of haze is caused by each aerosol type. This approach, known as an extinction budget analysis, can narrow the list of possible sources responsible for visibility impacts.[67] Therefore, in addition to establishing visibility levels, the filter-based monitoring approach, which measures the characteristics of the aerosols in haze, can help identify the type of sources that contributed to the haze.

The commenter recommends that EPA set up two nephelometers in Kihei,

[66] Nephelometers directly measure light scattered by aerosols and gases in a sampled air volume, and, therefore would not be useful to estimate the visibility over a distance, such as Kihei from Haleakala. Transmissometers directly measure the light transmission properties of the atmosphere along a several kilometer sight path.

[67] See Section 2–15 of ''Visibility Monitoring Guidance'', June 1999 Document No. EPA–R09–OAR–2012–0345–0003–B5.

and such a monitoring program would show that on cane burning days one cannot see Kihei from Haleakala or Haleakala from Kihei. However, the regional haze plan is designed to improve visibility within the park itself. Smoke outside of the park could certainly impact the views from the park, but such views are not specifically protected under the regional haze program.

Regarding the concerns that a 24-hour average does not adequately capture the impacts from one to three-hour agricultural burns, the length of the burn is just one factor determining the percentage contribution to visibility impairment. A shorter burn, if it were impacting the monitor, could show up as a high percentage of visibility impairment if the source was heavily impacting the monitor for the duration of the burn.

Comment 8: Emissions from sugar mill.

Three commenters are concerned about the combustion of coal on Maui. One of the commenters asked EPA to consider that current permits allow over 100,000 tons of coal to be fired at the Puunene Mill each year. Another of the commenters submitted a photograph purportedly showing dark smoke being emitted from the mill's smokestacks. One commenter simply commented on the dense black smoke that comes from the mill's smokestack.

One commenter stated that the Puunene Mill's most recent permit application proposed increasing the amount of used motor oil combusted from 1.5 to 2 million gallons. The commenter asked that EPA consider the impacts that combustion of an additional 0.5 million gallons of used motor oil might have on haze-causing pollutant.

Four commenters objected to EPA's analysis discussed in the section titled ''Point Source SO_2 Emissions on Maui'' in the TSD for the proposal. These commenters asserted that the four-factor analysis must be applied to all point sources on Maui, especially the Puunene Mill.

Response 8: Section II.A.5 of this document includes a discussion of why the Puunene Mill is not subject to BART. This section also includes a discussion of the impacts of various fuels being burned at the Mill in that determination. The additional motor oil would not change the results of our analysis.

EPA selected sources for a full reasonable progress review based on their total emissions of visibility-impairing pollutants and computer modeling of the impact of the sources' emissions on visibility at the Class I areas. The Puunene Mill is a much smaller source of visibility impairing pollutants than the Kahului Power Plant (See TSD Table VII–2.1). And, the BART modeling for the mill showed an impact that was much lower than the 0.5 dv threshold. While we understand and share the commenters' concerns about visible emissions from the plant, there is no evidence that these emissions are contributing significantly to visibility impairment in the park, therefore it was reasonable to omit it from the reasonable progress analysis.

Comment 9: ''Reasonable to assume''.

Seven commenters disagreed with EPA statements in the TSD for the proposal that it is reasonable to assume that visibility at Haleakala on the best days is not getting worse and it is reasonable to assume that the visibility on the worst days will improve. Two of the commenters stated that in their experience in guiding tour groups through the Haleakala NP, visibility is not improving but is getting worse. Another commenter (Pearson) also asserted that the haze is not getting better on Maui.

Response 9: EPA acknowledges the imprecise language in our TSD cited by the commenters. The proposal should have said that with emissions of visibility impairing pollutants being significantly reduced during the first planning period, it is reasonable to assume that anthropogenic visibility impairment will be reduced during the first planning period.

Comment 10: Fugitive dust.

One commenter stated that fugitive dust contributes significantly to the haze and poor air quality on Maui, yet large agricultural operations are exempted from best management practices. The commenter recommended that EPA consider this in the FIP. Another commenter also stated that fugitive dust from agriculture contributes to poor visibility in the park, and to health concerns.

Four other commenters requested that EPA review the possible impacts of fugitive dust from agricultural operations, especially from equipment operating on unpaved roads, on visibility in Haleakala NP. The commenters noted that agricultural operations are not required to mitigate dust emissions as is required of similar construction operations.

Another commenter also expressed concern about how HC&S clears and plows its fields. The commenter stated that this commonly creates huge clouds of dust hundreds of feet in the air going across the Mokelele Highway and past the harbor. The commenter asserted that the reefs are devoid of fish and the coral is dying. The commenter questioned why HC&S does not use water trucks to mitigate dust emissions and asked who establishes rules for the amount of pollution that HC&S can emit.

Response 10: EPA shares the commenters concerns about impacts of fugitive dust on Maui. As explained earlier in Section II.A.4 of this document, coarse mass and soil do appear to be a relatively significant contributor to visibility impairment at Haleakala NP (and Hawaii Volcanoes NP to a lesser extent). However, the source of this pollutant is not clear.

Comment 11: Modeling.

One commenter stated that EPA's model is inadequate because it does not agree with his observation. The commenter noted that he has observed that the visibility between Kihei and the park is diminished when cane is being burned and concluded that if the model does not match that observation, the model is wrong and should be discarded. Another commenter indicated that she would challenge the models and assumptions being used for the analysis.

One commenter representing the HC&S and its parent company, Alexander & Baldwin, concurred that it is reasonable for EPA to use the highest emitting day between 2003 and 2007 for BART modeling of emissions from the Puunene Mill. However, the commenter pointed out that the typical visibility impacts from the facility are lower, no more than 20 percent of the selected threshold for BART review and reasonable progress prioritization. On this basis, the commenter supported the proposed determination that additional controls on the mill are not warranted.

Response 11: The model is not intended to measure visibility impairment at points outside the park; it is intended to estimate visibility impairment as measured inside the park. As explained above, the regional haze program does not specifically protect views outside of the park.

EPA understands that typical emissions can be lower than the maximum emissions used in the BART modeling. We affirm the determination that the mill should not be subject to BART.

Comment 12: Federally enforceable measures.

One commenter stated that the Hawaii Clean Energy Initiative [68] and

[68] The Hawaii Clean Energy Initiative is a broad strategy by the State of Hawaii and the U.S. Department of Energy to reduce Hawaii's dependence on fossil fuels. The Hawaii Clean Energy Bill, referenced elsewhere is a Hawaii

Continued

assumptions about reductions in emissions from automobiles are not federally enforceable for purposes of the proposed FIP.

Response 12: We agree that the Hawaii Clean Energy Initiative is not federally enforceable. Therefore, we did not rely upon emissions reduction expected to result from the Initiative for purposes of demonstrating reasonable progress.

With respect to reductions in emissions from automobiles, we note that the RHR provides that states ''may not adopt a reasonable progress goal that represents less visibility improvement than is expected to result from implementation of other requirements of the CAA during the applicable planning period.'' [69] Therefore, in setting RPGs for Hawaii, we took into consideration the anticipated net effect on visibility due to projected changes in point, area, and mobile source and shipping emissions expected to result from other CAA requirements, including Federal mobile source regulations, over the period addressed by the long-term strategy. Finally, we note that mobile source regulations are federally enforceable against vehicle and engine manufacturers, automobile dealers, fuel importers, and refineries.

Comment 13: NO_X emissions.

Two commenters objected to EPA's conclusion that it is unreasonable to require additional controls on NO_X emissions. The commenters indicated that the monitor data show that NO_X is a substantial contributing factor toward visibility impairment, and one (Andrews) added that NO_X is contributing 9 percent.

Response 13: EPA addressed this issue in some detail in Section II.A.7 above.

Comment 14: SO_2 controls.

One commenter objected to the proposal to determine that it is not reasonable to require additional SO_2 controls on Maui. The commenter asserted that such controls on point sources are necessary on Maui.

Response 14: EPA addressed this issue in some detail in Section II.A.10 above.

Comment 15: Integral vista.

One commenter objected to the finding of no integral vista at Haleakala NP. The commenter asserted that the panoramic view from within the park to areas outside the park, including Volcanoes NP on the Big Island and the view of central Maui and the surrounding oceans, is an integral vista within the meaning of the Federal regulations. The commenter added that his experience with guiding visitors at the Haleakala NP illustrates the importance of the panoramic view from within the park to areas outside to the overall visitors' experience at the park.

Response 15: The question of the designation of Integral Vistas was addressed in Section II.A.12, above.

Comment 16: HC&S generally concurs.

One commenter representing the HC&S and its parent company, Alexander & Baldwin, stated that the company generally concurs with the conclusions and recommendations of the proposal. The commenter commended EPA and the Hawaii DOH for the thorough review and analysis of available data.

Response 16: EPA appreciates the support.

Comment 17: Kanaka Maoli.

One commenter, stating that she represented the Kanaka Maoli people, objected to the FIP based on the supposition of jurisdiction. The commenter believes that it is unreasonable because it will afford a great opportunity to increase the reach into sacred burial sites and the sacred places of the Kanaka Maoli people. The commenter indicated that the plan does not address this issue and does not give any respect to the Kanaka Maoli people.

Response 17: As explained in our proposal, because we found in 2009 that Hawaii had failed to submit a Regional Haze SIP, as required under the CAA, we are required to promulgate a FIP to fill this gap. This FIP does not impose any new regulations directly on the Kanaka Maoli people. As to any ''supposition of jurisdiction'', we note that there is a ''presumption that Congress intends a general statute applying to all persons to include Indians and their property interests.'' [70] The CAA is a general statute applying to all persons and the commenter has not pointed to any specific right under a treaty or statute that is in conflict with the CAA. Finally, we note that this is not the first FIP to be promulgated for Hawaii.[71]

Comment 18: Aerial applications of fertilizer and pesticide.

One commenter indicated that, in addition to air contaminants from cane burning, coal combustion and geoengineering, aerial applications of fertilizer and pesticides contribute to the air quality problem. The commenter noted that he has seen white deposits from this practice many times and, within the last 8 months, aerial spraying by HC&S in Paia drifted over a public beach with children. The commenter believes that such things should be controlled and penalties should be imposed. The commenter noted that tourism suffers over these issues.

Response 18: EPA shares the commenter's concerns about the possible health impacts of agricultural operations. However, these issues are not within the scope of this rulemaking.

Comment 19: Emission sources.

One commenter suggested that EPA evaluate four emissions sources more fully: military actions, ship emissions, biofuel plants and geothermal plants. The commenter provided a written copy of her comments, which includes documentation for many of her points about military actions and ship emissions from sources such as environmental impact statements (EIS) and news reports.

The commenter stated that increased military actions are underway, and more are planned for Pohakuloa as the United States shifts forces to the Pacific. The commenter asserted that these activities will generate dust from construction, vehicles and troop movements, erosion, and possible fires that consume vegetation. The commenter believes that air quality problems may not be detected because Pohakuloa has no air-monitoring stations in the south and southwest, which is the most likely place to detect any problems since the prevailing winds come from the northeast. The commenter stated that when training was done at Makua, fires consumed thousands of acres, and inadequate fire prevention has been an ongoing problem with that training.

The commenter indicated that a second major action is the Stryker armored vehicle training, which is already taking place. According to the commenter, the EIS for this program indicates that there will be significant disturbance to soils and vegetation due to intensified on- and off-road maneuver training, leading to increased soil erosion that cannot be mitigated to less than significant, and PM_{10} dust emissions generated from wind erosion at the 23,000-acre Keamuku Parcel were expected to be a significant impact. The commenter added that the Strykers may cause fire risk.

Regarding ship emissions, the commenter is concerned that the shipping industry is trying to delay the August 1 implementation date of the North American Emission Control Area

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statute that puts many of the goals of the Initiative into law.

[69] 40 CFR 51.308(d)(1)(vi); see also, 40 CFR 51.308(d)(3)(v)(g).

[70] *Phillips Petroleum Co.* v. *U.S. E.P.A.* 803 F.2d 545, 556 (10th Cir. 1986) (citing *Federal Power Commission* v. *Tuscarora Indian Nation,* 362 U.S. 99, 116–18 (1960).

[71] See 40 CFR 52.632–633.

(ECA) regulations, which would reduce emissions by requiring fuel of less than 1 percent sulfur content when ships are 200 miles offshore. The commenter also is concerned about ships running their engines while in port instead of plugging into shore power, which is a less polluting source. While the commenter does not know of any port in Hawaii that offers such plug-in power, called Alternative Maritime Power, she indicated that naval vessels and Baltic ferries have used it for years, several North American ports are planning or already have it and some cruise ships can plug in. The commenter added that another alternative is an e-power barge that uses liquefied natural gas.

The commenter stated that some of the claims made by biofuels plants regarding their air and water emissions seem unfounded. The commenter added that emissions from all actions related to a biofuels plant need to be evaluated, not just emissions generated by burning biofuel: clearing land; transporting seed and fertilizer; planting, cultivating and harvesting trees or whatever is to be burned; transporting the biofuel to the plant; and preparing the fuel for burning. The commenter further noted that after burning the fuel, there is waste that must be disposed. The commenter stated that the Aina Koa Pono plant may get revived, so there may be more impacts than just from the Ho Honua plant.

The commenter indicated that geothermal technology is being pushed heavily, but there is extensive documentation of possible leaks that are not being detected. The commenter stated that nearby residents have reported unusual odors; corrosion of roofs, gutters and catchment tanks that has caused high levels of lead in drinking water; and health problems. The commenter contended that there have been unplanned releases, information pertaining to several of which are listed in her written comments.

The commenter requested that EPA look into the emissions from the Puna Geothermal Venture (PGV) plant. She noted that although the facility claims there are no leaks, the facility must replace the pentane used in the heat exchanger, and the commenter questioned why that is necessary if there are no leaks. The commenter also stated that PGV operates hydrogen sulfide monitors at the plant, but they are at a height of 6 feet while hydrogen sulfide is heavier than air and travels at ground level.

Response 19: EPA appreciates the comment about military activities. We commented on the recent EIS for Pohakuloa and expressed concerns about the need to mitigate the generation of fugitive dust. We will continue to work with the Army to mitigate pollution from their activities.

Regarding emissions reductions from the ECA, since these requirements are part of an international treaty, neither the State of Hawaii nor the EPA has the authority to delay implementation or grant waivers from the requirements. In the unlikely event that the treaty could be changed in the future to allow for higher emissions, the State of Hawaii would have to indentify equivalent emissions reductions from other sources in order to meet the requirements of this FIP.

EPA supports the implementation of shore power to reduce emissions from vessels while in port. However, EPA does not believe that it is necessary to require the use of shore power in order to show reasonable progress for the regional haze program.

EPA understands the commenter's concern about emissions from geothermal plants, but there is no evidence that these emissions are contributing to visibility impairment. As a result, we affirm that there will be no pollution control requirements on geothermal plants as part of this action.

Regarding biomass plants, this issue was addressed in Section II.A.5 regarding the Hu Honua and Tradewinds facilities. This discussion included a description of how future facilities will be addressed as part of the Regional Haze planning process. The concerns about land clearing operations are noted and EPA recommends that they be considered in the next plan as part of the analysis of the sources of coarse mass and soil impacting Volcanoes NP.

Comment 20: Night emissions from Hilo power plants.

One commenter who lives in Wainaku stated that early nearly every morning he has witnessed a blanket covering Hilo that dissipates when the sun rises and warms the mountain. The commenter believes that this blanket is composed of night emissions from the Hilo area power plants or other industrial activities. The commenter has documented on film these three power plants emitting black soot and smoke into the air. The commenter wonders whether these emissions are the cause of the morning blanket that he has witnessed, and whether these stack emissions are being registered by the State or EPA.

The commenter suggested that these three power plants should be retrofitted with monitors to track whether they are in compliance with their permits. The commenter noted that the plants only have to perform an emissions stack test once in a while. The commenter noted that most of the pollution that is visible is happening at night when it does not affect visibility in the parks. The commenter pointed out that the three power plants are within 5 miles of a population of 40,000 which is growing rapidly. The commenter indicated that for health-related concerns, it would be helpful to know the 24-hour cycle of emissions from the plants.

The commenter noted that the Ho Honua plant was excluded from EPA's review because of its conversion to biofuels, but indicated that there is a legal issue surrounding the claims made by the plant regarding its emissions and how they are dispersed by the wind. The commenter stated that the biofuel to be combusted at the Ho Honua plant is not necessarily a clean biofuel. The commenter recommended that EPA monitor emissions from the facility.

The commenter also noted that Wheelabrator has proposed a waste-to-energy plant in Hilo. The commenter asked whether that would be a factor in air quality in the park. Finally, the commenter suggested an anti-idling rule such as the commenter believes has been passed in California for county vehicles. The commenter noted that he frequently sees trucks, bulldozers and pickup trucks idling by the side of the road. The commenter believes that such a program would be easy to implement, would save the taxpayers' money and would reduce emissions.

Response 20: The emission rate used in the analyses of the larger power plants on the Big Island was calculated from fuel usage records and chemical analyses of the fuels burned. This is a very reliable way to calculate the emissions and does not require the use of smokestack monitors. So, the lack of monitoring does not put the validity of the analysis in question. The annual emissions cap set in this FIP will similarly be demonstrated through fuel usage and chemical analysis records. Addressing compliance with the limits of the permits for the power plants on Hilo is not within the scope of this rulemaking. In addition, the IMPROVE monitor in the park measures pollutants 24 hours per day. So, any nighttime emissions would be captured and were included in our analysis of the causes of haze at Hawaii's National Parks. There is an air quality monitor in Hilo which operates on a continuous basis and is intended to characterize air quality in Hilo.

EPA appreciates the comment regarding the biofuel and waste-to-

energy plants. The questions raised here were addressed in Section II.A.5. above.

EPA is very supportive of strategies to reduce idling vehicles. However, given the significant reductions from mobile sources in the first planning period due to existing regulations, EPA affirms that we are not requiring additional emissions reductions from this source category as part of this rulemaking.

Comment 21: Lack of concern for public.

One commenter stated that he has experienced worsening pollution on the Big Island over his lifetime, and no Federal, state or county government agency has done anything to prevent it. The commenter expressed concern that pollution is only an issue at this time as it relates to visibility in the Hawaii Volcanoes NP, and asked whether EPA is aware that people live on the island.

The commenter stated that EPA has indicated the HELCO would not have problems complying with EPA requirements and questioned whether this meeting is a show for the public. The commenter asked how the emissions from HELCO facilities are calculated, whether on a yearly basis without considering how many days or hours the plants were in operation, or how much pollution enters the atmosphere in 1 hour of operation.

The commenter stated that the electricity rate charged to consumers by HELCO is based on the cost of foreign import oil, but any oil price reductions are not passed on to consumers. The commenter asserted that all HELCO costs are passed on to the consumers with the approval of the Hawaii PUC with no input from the public. The commenter contended that one primary objective of the PUC is to ensure that HELCO gains a profit, and characterized this situation as a dictatorial condition approved by the state legislature and PUC, and now endorsed by EPA. The commenter does not support what he alleged are dictatorial procedures presented by the state—Federal, state, PUC and HELCO.

The commenter added that the smoke that an earlier commenter has seen at night is the result of a blow-back cleaning system that is used to clean the filters for the turbine engines at the HELCO plant on Railroad Avenue.

Response 21: EPA is very concerned about public health. EPA and the State of Hawaii protect public health through implementation of the NAAQS. In fact, EPA recently revised the NAAQS for SO_2 to be more stringent and more protective of public health. We are currently evaluating whether Hawaii and other areas of the country are in compliance with this new standard. In addition, EPA has been working with Hawaii DOH on using real-time data from the extensive SO_2 monitoring network on the Big Island to monitor the impacts of the volcano and to protect public health.

The methodology for calculating emissions was addressed in the previous comment.

Comment 22: Xtreme Fuel Treatment.

One commenter representing Xtreme Fuel Treatment manufacturer, Syntek Global, stated that the company's product reduces the burn rate of fuel, so that fuel burns more efficiently and less fuel is burned. The commenter contended that while the analysis looked just at power plants, a lot of the problems come from emissions from cars. The commenter suggested that EPA and the State of Hawaii conduct a test of the company's product with a generator or state or county transport system to see how emissions could be reduced.

Response 22: Given the extensive reductions in emissions from mobile sources due to existing regulations, EPA affirms that we are not requiring additional emissions reductions from this source category as part of this rulemaking.

III. Summary of EPA Actions

EPA is finalizing a Regional Haze FIP for the State of Hawaii. The FIP establishes an emissions cap of 3,550 tons of SO_2 per year from the fuel oil-fired boilers at the Hill, Shipman and Puna power plants, beginning in 2018 (with a demonstration of compliance required by the end of 2018). If HELCO chooses to meet the cap by switching to cleaner fuel, then the EPA estimates that the costs will be no more than approximately $7.9 million/year. This cap represents a reduction of 1,400 tons per year of SO_2 from the total projected 2018 annual emissions from these facilities. We find that this control measure, in conjunction with SO_2 and NO_X emissions control requirements that are already in place, will ensure that reasonable progress is made during this first planning period toward the national goal of no anthropogenic visibility impairment by 2064 at Hawaii's two Class I areas. We will work with the Hawaii DOH in developing future regional haze plans to ensure continued progress toward this goal.

IV. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review 13563

This action finalizes a FIP that will limit emissions of SO_2 from specific units at three sources in Hawaii. Since this action only applies to three named sources, it is not a rule of general applicability. This type of action is exempt from review under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* Under the Paperwork Reduction Act, a ''collection of information'' is defined as a requirement for ''answers to * * * identical reporting or recordkeeping requirements imposed on ten or more persons. * * *'' 44 U.S.C. 3502(3)(A). Because the FIP applies to just three facilities, the Paperwork Reduction Act does not apply. See 5 CFR 1320(c).

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control numbers for our regulations in 40 CFR are listed in 40 CFR Part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies

that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The three sources in question are electric generating plants that are owned by the Hawaii Electric Light Company, Inc. (HELCO), which is an electric utility subsidiary of HECO. Pursuant to 13 CFR 121.201, footnote 1, an electric utility firm is small if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours (MWH). In the fiscal year ended December 31, 2011, HELCO generated or purchased a total of 1,186.6 MWH.[72] Therefore, it is not a small business.

D. Unfunded Mandates Reform Act (UMRA)

The Hawaii Regional Haze FIP will limit emissions of SO_2 from specific units at three sources in Hawaii. This rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million by State, local, or Tribal governments or the private sector in any 1 year. Thus, this rule is not subject to the requirements of sections 202 or 205 of UMRA.

This rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments.

[72] Hawaiian Electric Industries, Inc. and Hawaiian Electric Company, Inc., Form 10–K for the fiscal year ended December 31, 2011 ''Generation Statistics'' available in the docket for this rulemaking.

E. Executive Order 13132: Federalism

The Hawaii Regional Haze FIP does not have federalism implications. This action will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. In this action, EPA is fulfilling its statutory duty under CAA Section 110(c) to promulgate a Regional Haze FIP following its finding that Hawaii had failed to submit a regional haze SIP. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

The Hawaii Regional Haze FIP will limit emissions of SO_2 from specific units at three sources in Hawaii. This rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this rule will limit emissions of SO_2, the rule will have a beneficial effect on children's health by reducing air pollution.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires Federal agencies to evaluate existing technical standards when developing a new regulation. To comply with NTTAA, EPA must consider and use ''voluntary consensus standards'' (VCS) if available and applicable when developing programs and policies unless doing so would be inconsistent with applicable law or otherwise impractical. EPA believes that VCS are inapplicable to this action. Today's action does not require the public to perform activities conducive to the use of VCS.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

We have determined that this rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. The Hawaii Regional Haze FIP will limit emissions of SO_2 from specific units at three sources in Hawaii.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Section 804 exempts from section 801 the following types of rules (1) rules of particular applicability; (2) rules relating to agency management or personnel; and (3) rules of agency organization, procedure, or practice that do not substantially affect the rights or obligations of non-agency parties. 5 U.S.C. 804(3). EPA is not required to submit a rule report regarding today's action under section 801 because this action is a rule of particular applicability. This rule finalizes a FIP that applies to three specific sources.

L. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by December 10, 2012. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See CAA section 307(b)(2).)

Approval and Promulgation of Implementation Plans; State of Hawaii; Regional Haze Federal Implementation Plan

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Particulate matter, Reporting and record keeping requirements, Sulfur oxides.

Dated: September 14, 2012.

Lisa P. Jackson,

Administrator.

40 CFR part 52 is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

■ 2. Amend § 52.633 by adding paragraph (d) to read as follows:

§ 52.633 Visibility protection.

* * * * *

(d) *Regional Haze Plan Provisions—*

(1) Applicability— This paragraph (d) applies to following electric generating units (EGUs) and boilers: Kanoelehua Hill Generating Station, Hill 5 and Hill 6; Puna Power Plant, Boiler 1; Shipman Power Plant, Boiler S–3 and Boiler S–4.

(2) *Definitions.* Terms not defined below shall have the meaning given to them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (d):

Owner/operator means any person who owns, leases, operates, controls, or supervises an EGU or boiler identified in paragraph (d)(1) of this section.

SO_2 means sulfur dioxide.

Unit means any of the EGUs or boilers identified in paragraph (d)(1) of this section.

(3) *Emissions cap.* The EGUs identified in paragraph (d)(1) of this section shall not emit or cause to be emitted SO_2 in excess of a total of 3,550 tons per year, calculated as the sum of total SO_2 emissions for all five units over a rolling 12-month period.

(4) *Compliance date.* Compliance with the emissions cap and other requirements of this section is required at all times on and after December 31, 2018.

(5) *Monitoring, recordkeeping and reporting requirements.*

(i) All records, including support information, required by paragraph (d)(5) of this section shall be maintained for at least five (5) years from the date of the measurement, test or report. These records shall be in a permanent form suitable for inspection and made available to EPA, the Hawaii Department of Health or their representatives upon request.

(ii) The owners and operators of the EGUs identified in paragraph (d)(1) of this section shall maintain records of fuel deliveries identifying the delivery dates and the type and amount of fuel received. The fuel to be fired in the boilers shall be sampled and tested in accordance with the most current American Society for Testing and Materials (ASTM) methods.

(iii) The owners and operators of the EGUs identified in paragraph (d)(1) of this section shall analyze a representative sample of each batch of fuel received for its sulfur content and heat value following ASTM D4057. The samples shall be analyzed for the total sulfur content of the fuel using ASTM D129, or alternatively D1266, D1552, D2622, D4294, or D5453.

(iv) The owners and operators of the EGUs identified in paragraph (d)(1) of this section shall calculate on a monthly basis the SO_2 emissions for each unit for the preceding month based on the sulfur content, heat value and total gallons of fuel burned.

(v) The owners and operators of the EGUs identified in paragraph (d)(1) of this section shall calculate on a monthly basis the total emissions for all units for the preceding twelve (12) months.

(vi) The owners and operators of the EGUs identified in paragraph (d)(1) of this section shall notify the Hawaii Department of Health and EPA Region 9 of any exceedance of the emission cap in paragraph (d)(3) of this section within thirty (30) days of such exceedance.

(vii) By March 1, 2019 and within sixty (60) days following the end of each calendar year thereafter, the owners and operators of the EGUs identified in paragraph (d)(1) of this section shall report to the Hawaii Department of Health and EPA Region 9 the total tons of SO_2 emitted from all units for the preceding calendar year by month and the corresponding rolling 12-month total emissions for all units.

(viii) Any document (including reports) required to be submitted by this rule shall be certified as being true, accurate, and complete by a responsible official and shall be mailed to the following addresses: Clean Air Branch, Environmental Management Division, State of Hawaii Department of Health, P.O. Box 3378, Honolulu, HI 96801–3378 and Director of Enforcement Division, U.S. EPA Region IX, 75 Hawthorne Street, San Francisco, CA 94105.

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