ATTACHMENT I

Comments from Federal Land Managers and EPA (with responses)

Attachment I

- Forest Service Comments on MANE-VU 2018 Modeling Draft Report and BenMAP Draft Report
- Department of Agriculture/Forest Service Comments on SIP Preparation
- Fish and Wildlife Comments on SIP Preparation

EPA comments
-CT RH SIP comments - 020409
-CT-BART(05-22-08)

FLM comments
-CT DOI RH SIP Comments
-CT Prelim DOI Comments
-Draft Comments for CT BART
-FS correspondence (2)
-Enc 1 Tech Comments CT RH SIP (3)
-Enc 2 10-13-06 Ltr (2)

EPA/FLM consultation notes
-FLMconsultation031809v2

Description of EPA Comments on Draft CTRHSIP
Description of Federal Land Manager Comments on Draft CTRHSIP
Description of Federal Land Manager Comments on Draft CTRHSIPNPSFWS

From: Angela King [aking@marama.org]
Sent: Wednesday, January 30, 2008 10:10 AM
To: Bodnarik, Andy; Underhill, Jeff; Martone, Charles H
Subject: FW: Opportunity to Comment on the MANE-VU 2018 Modeling Draft Report and the BenMAP Draft Report

From Charles Sams of the Forest Service

-----Original Message-----
From: Charles E Sams [mailto:csams@fs.fed.us]
Sent: Wednesday, December 26, 2007 1:22 PM
To: Angela King
Subject: Re: Opportunity to Comment on the MANE-VU 2018 Modeling Draft Report and the BenMAP Draft Report

Angela,
I found MANE-VU's "Modeling for Reasonable Progress" draft document to be informative and well organized. The distribution of SO2 emissions provided in Figure 1-5 was particularly interesting in light of MANE-VU's promotion of the S1 and S2 BOTW strategies. In Figure 1-5, the I-95 corridor stands out as one of the nation's dominant SO2 source regions during CY2002. It would be informative and perhaps helpful for the advancement of the S1 and S2 strategies to include within Section 5.1, in close proximity to the other figures in Section 5.1, another figure comparing the aerial
reductions of SO2 associated with those strategies. I may choose to make
further comments before January 9.
Thanks,
Chuck

Chuck Sams
Air Quality Program Manager
USDA Forest Service, Regions 8 and 9
626 E. Wisconsin Ave.
Milwaukee, WI 53202
414-297-3529, FAX-414-944-3964
csams@fs.fed.us
www.fs.fed.us/air

"Angela King"
<aking@marama.org
> To "'Angela King'" <aking@marama.org>
12/12/2007 12:09 cc
PM
Subject
Opportunity to Comment on the
MANE-VU 2018 Modeling Draft Report
and the BenMAP Draft Report

Opportunity To Comment

MANE-VU
(Mid-Atlantic/Northeast Visibility Union)
December 12, 2007

MANE-VU members, other states, and stakeholders are invited to comment on two draft reports.

MANE-VU is charged with coordinating regional haze planning in the Mid-Atlantic and Northeastern United States. The documents listed below will assist in this process. Please see below for brief descriptions and links to more information.

. MANE-VU Modeling for Reasonable Progress Goals: Model Performance Evaluation, Pollution Apportionment, and Control Measure Benefits
. Public Health Benefits of Reducing Ground-level Ozone and Fine Particle Matter in the Northeast U.S.: A Benefits Mapping and Analysis Program (BenMAP) Study

The comment period will be open through January 9, 2008. Comments and questions should be sent via email to Angela King of MARAMA at aking@marama.org.

MANE-VU Modeling for Reasonable Progress Goals Draft Report

The main purpose of this report is to assist states in developing effective solutions to regional visibility and fine particle problems and comply with requirements under the Regional Haze Rule. Northeast States for Coordinated Air Use Management (NESCAUM) conducted regional air quality simulations for calendar year 2002 and several future periods. This work was directed at satisfying a number of compliances goals under the Haze State Implementation Plan (SIP), including a contribution assessment, a pollution apportionment for 2018, and the evaluation of visibility benefits of control measures being considered for achieving reasonable progress goals and establishing a long-term emission management strategy for MANE-VU Class I areas.

This report describes efforts that form the foundation upon which MANE-VU states will base their haze SIP submissions. After the MANE-VU regional planning organization (RPO) considers the results provided here and consults with neighboring states and federal land managers, we anticipate that a final model simulation will be conducted to serve as a basis for calculating final reasonable progress goals.

Results show that sulfate aerosol, the dominant contributor to visibility impairment in the Northeast's Class I areas on the 20 percent worst visibility days, has significant contributions from states throughout the eastern U.S. These contributions are projected to continue in future years from all three of the eastern RPOs.

An assessment of potential control measures that would address this future contribution has identified a number of promising strategies that would yield significant visibility benefits. These measures include the adoption of low sulfur heating oil, implementation of Best Available Retrofit Technology (BART) requirements, and additional electric generating unit

(EGU) controls on select sources. The combined benefits of adopting all of these programs could lead to an additional benefit of between 0.38 and 1.1 deciviews at MANE-VU Class I areas on the 20 percent worst visibility days by 2018.

The draft document is available at:
http://filesharing.nescaum.org/download.php?file=31Modeling%20for%20Reasonable%20Progress%2012.10.07.doc

Public Health Benefits of Reducing Ground-level Ozone and Fine Particle Matter in the Northeast U.S. Draft Report

NESCAUM used the U.S. Environmental Protection Agency's (EPA's) Environmental Benefits Modeling and Analysis Program (BenMAP) to determine the magnitude and value of avoided adverse health endpoints in the northeast U.S. associated with various emission control programs in 2018. Future year air quality associated with implementation of various control strategies was simulated using two air quality modeling platforms, the Community Multi-scale Air Quality modeling system (CMAQ) and the California Photochemical Grid Model (CALGRID). NESCAUM examined the public health and monetary benefits of several potential emission control programs under consideration by the Ozone Transport Commission (OTC) and MANE-VU states. These programs include an EGU control strategy for nitrogen oxides (NOX) and sulfur dioxide (SO2) that increase the stringency of the current Clean Air Interstate Rule (CAIR) and SO2 emissions control strategies that would complement existing regulations to further reduce fine particle concentrations and improve visibility under the Regional Haze Rule. In addition, NESCAUM examined the benefits of achieving several different levels of the National Ambient Air Quality Standard (NAAQS) for 8-hour average ozone concentrations (NAAQS rollback).

The draft document is available at:
http://filesharing.nescaum.org/download.php?file=366BenMAP_report_draft%20final%2011.16.07.pdf

The Process

Comments will be reviewed and may result in changes to the draft documents. After reviewing comments, MANE-VU will post a summary response to those comments received by January 9, 2008. Comments received after that date will be considered as time permits.

Please send comments and questions to Angela King at aking@marama.org by January 9, 2008.

USDA United States Department of Agriculture | Forest Service | Eastern Region | 626 E. Wisconsin Suite 800 Milwaukee, WI 53202

File Code: 2580-2
Date: OCT 13 2006

Mr. Robert Scott
Director, Air Resources Division
New Hampshire Department of Environmental Services
6 Hazen Drive
Concord, NH 03301

Dear Mr. Scott:

Over the past several years, members of both our staff and yours have participated with neighboring states and tribes in the Central States Regional Air Partnership to develop best approaches and tools for preparing plans that will reduce haze in Class I areas. With preparation of your Regional Haze State Implementation Plan (SIP) at hand, we want to focus on collaboration with you and your staff to ensure success. As you know, consultation with you is required in the Regional Haze Rule (RHR). This is a priority for our air program.

Our focus will be on Class I wildernesses, which the United States Department of Agriculture (USDA) Forest Service (FS) is responsible for. We are coordinating with the other Class I area managers, the National Park Service, and the US Fish and Wildlife Service to facilitate a common message from all federal land managers (FLM). We anticipate leveraging strengths of each FLM to our joint advantage. Since the FLM will be seeking a close working relationship with every state in this SIP writing process, the expectation is to share ideas from across the nation. The objective of every SIP is to play a critical role in a national emissions reduction plan.

Enclosed are detailed perspectives pertinent to the SIP preparation. Any comments or questions should be directed to Ann Acheson, the principal FS point of contact, at (740) 373-9055 ext. 23 or aacheson@fs.fed.us. She will consult on your SIP throughout the required 60-day comment period, sharing our best insights and recommendations. Ann will also work with others on our staff, especially our National Haze Coordinator, Ann Mebane and the Department of Interior. Ann Mebane can be contacted at (307) 587-4597 or amebane@fs.fed.us.

As required in the RHR, please identify, at your earliest convenience, your key point(s) of contact. Send all correspondence electronically to both Trent Wickman and Ann Mebane to ensure a successful consultation and SIP.

Sincerely,

FOR RANDY MOORE
Regional Forester

Enclosure

Enclosure 1

Subject: New Hampshire and Regional Haze Rule Consultation with the United States Department of Agriculture (USDA) Forest Service (FS)
September 2006

The following perspectives are merely suggestions or recommendations not direction or requirements. They are deliberately very similar to those prepared by the Department of Interior to contribute to a common sense of purpose for improving haze in all Class I areas. We are sending these perspectives to each state. In so doing, we hope to facilitate inter-state coordination. At the same time, we fully acknowledge the discretion afforded in the Regional Haze Rule (RHR) for unique and creative solutions by individual states in writing plans that reduce haze.

Natural Condition and Uniform Rate
These factors apply mainly to states that have Class I areas. Other states that contribute to visibility impairment in Class I areas located in a different state might consider including discussion and conclusions on these factors in their individual plans.

The basic calculation of baseline, natural condition, and uniform rate builds the foundation for the entire RHR State Implementation Plan (SIP) process. Considerable discussion and debate at the science and policy level has occurred regarding appropriate methods to be used. As a consequence, several equations that include varying parameters or multipliers are available. Because these calculations can have a significant effect on the resulting progress goal, it is important to provide a detailed description of the methods used in the SIP. Calculations that include only portions of established methods or utilize unique approaches will be better understood if the rationale for these differences is fully explained in the SIP or its supporting documentation. We encourage states to use calculations that are based on equations recommended by the Interagency Monitoring of Protected Visual Environments (IMPROVE) steering committee and that are consistent with recommended approaches from the pertinent Regional Planning Organization (RPO) and the Environmental Protection Agency (EPA) region.

Emission Inventories
Given the complexities associated with modern comprehensive emission inventories, spending some considerable effort in describing how these inventories were developed and used will be important. Emission descriptions will be most informative if they include an evolutionary discussion that includes an actual, base-year inventory used to evaluate model performance; a typical base-year inventory that represents the five year, average state which establishes modeled visibility impacts; and various future year, controlled inventories that demonstrate future visibility conditions. Consider adding future year inventories that are clearly partitioned to delineate source types (by text, charts, or graphics) that are included in each model simulation. Benefits to future visibility conditions suggested in the SIP that are not also clearly linked to a future inventory or are not clearly included in future model analysis, will warrant additional discussion.

look at sfactr for sources

One part of your emission inventory includes the implementation of "Best Available Retrofit Technology" (BART) on a subset of pre-Prevention of Significant Deterioration sources. The BART source identification, elimination, and level determination will be of particular interest for review. We would prefer to see a clear progression through the three basic BART phases and a thorough description of the RHR prescribed factor analysis (if applicable). Consider discussing whether BART levels apply to individual or grouped source categories.

Area of Influence

The area of influence of significant visibility-impairing sources is an important SIP element. We suggest that that each state clearly identify and apportion by state, or other geographic means, the significant levels of pollutants contributed to each Class I area by source. Developing this information together with neighboring States and Tribes will facilitate consistency. Discussions of changing source area contributions at both the base- and future-year levels will help demonstrate SIP progress. Consider the benefits of presenting this information in the form of transported mass by pollutant or through individually calculated visibility impairment measures. Using a percentage or "Top 10" ranking for current contributions by geographic area may or may not clearly describe progress over time.

consistent

Reasonable Progress Goals and Long Term Strategy

Establishing reasonable progress goals for Class I areas in your state and/or acknowledging reasonable progress goals for Class I areas in other states that are affected by emissions from your state, as well as defining associated emissions strategies to meet these goals, form the basis of the SIP process under the RHR.

In developing the statute's required Long Term Strategy (LTS), your state is offered broad flexibility when determining reasonable progress goals and associated emissions. As noted earlier, the RHR includes a requirement for states to assess a uniform rate of progress and compare that rate to the reasonable progress goals set by those states with Class I areas. We feel that this uniform rate of progress assessment is useful in determining the geographic and economic extent a state can consider when developing the LTS associated with the reasonable progress goals.

In general, we will be looking at the degree to which the LTS is supported by RPO technical work and at the level of consistency among the contributing states. For Class I areas where your state is setting a year 2018 reasonable progress goal of equal or less impairment compared to the uniform rate of progress, our review will focus holistically on (1) whether strategies are applied equitably across source types; (2) if both local and regional emission strategies have been fully examined; and (3) how consistent assessments and strategies are applied regionally.

For Class I areas where the reasonable progress goal is more impaired than the uniform rate of progress, consider presenting information on a component basis. Components could consist of emission source category as before, but also include contributions from individual pollutants or by geographic source area. Our intent is to better understand where and why a strategy falls short of the uniform progress rate goal.

Because each region has focused their emission control strategy on different conditions, presenting results in a component format may assist in showing what level of progress was made in the focus area, verses other less controllable factors.

Wildland Fire

Your state has considerable flexibility as it addresses all anthropogenic sources of visibility impairment, including fire. The RHR requires consideration of smoke management techniques for agricultural and forestry management practices in the development of the LTS part of the SIP. On a short-term basis, fire has the potential to cause significant visibility reduction in Class I areas. If fire contributes to the index used to track long-term, reasonable progress in a Class I area, the visibility SIP should identify how it will be addressed. Your state may already have a smoke management program (SMP) that adequately describes how visibility impairment from fire will be addressed. If fire has been determined to contribute to visibility impairment, we suggest including a fire emissions inventory along with a comment about its reliability and a projection for changes to the future inventory. If your state has a SMP, is it a basic smoke management program or an enhanced smoke management plan? And has the SMP been certified by the Environmental Protection Agency (EPA) Interim Air Quality Policy on Wildland and Prescribed Fire? Identify the specific SMP requirements for minimizing visibility impairment in Class I areas. Are there differences in state regulation for the way in which smoke from agricultural burning and forest fires are treated? Is there a difference in the way emissions from wildfire, prescribed fire, and wildland-fire-use (WFU) fire are identified and treated on private, state, and federal lands?

Regional Consistency

The RPOs have been working toward regionally-consistent approaches to address visibility impairment throughout the SIP development process. There may be circumstances when different methods were used or impairment assessments reached different conclusions. The FLM understands that each state knows what emission control methods or air quality management strategies work best for its areas. Each state may wish to develop strategies that are independent from RPO or neighboring areas.

In this context, our review of "regional consistency" will have less to do with individual discretion each state has in making decisions, and more on how well a group of states identifies and addresses similar agreed upon goals for each Class I area within a common area of influence.

Regional consistency can also be difficult to evaluate if neighboring SIPs (or portions of SIPs) are released for review at different times. We expect that thorough inter-state consultation processes will lead to consistent descriptions of apportionment and emission control goals, thus resulting in development of similar progress goals, regardless of release dates.

Verification and Contingencies

Little emphasis has been placed in the RHR on verification and even less on contingency planning. By rule, each SIP must identify the monitoring data used to specify the original baseline and also as part of an ongoing progress review at five year intervals.

don't need to include - try to address how will deal w/ in future technology and change

Given the uncertain future of any individual monitoring site, we suggest that the SIP address the representation of both primary and alternative data sites for each Class I area.

Consider not only the data necessary to measure progress, but also how to account for and mitigate both unexpected and reasonably foreseeable emissions growth, changes to the geographic distribution of emissions, and substantive errors that may be found in emission inventories or other technical bases of the SIPs. These factors, as well as other unanticipated circumstances, may adversely affect your state's ability to achieve the emissions reductions projected by the SIP. Considering these factors through adaptive management or continual review strategies may assist in avoiding these circumstances.

Coordination and Consultation

The 1999 RHR requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR, SIP, or SIP revision (40 CFR 51.308(i). As named in the cover letter to this enclosure, a single FS air specialist has been assigned to your state.

J. UNDERHILL

United States Department of the Interior

FISH AND WILDLIFE SERVICE
National Wildlife Refuge System
Branch of Air Quality
7333 W. Jefferson Ave., Suite 375
Lakewood, CO 80235-2017

IN REPLY REFER TO:
FWS/ANWS-AR-AQ

August 1, 2006

Mr. Robert Scott
Director, Air Resources Division
New Hampshire Department of Environmental Services
P.O. Box 95
Concord, New Hampshire 03302-0095

Subject: Regional Haze Rule Consultation with Federal Land Management Agencies

Dear Mr. Scott:

Over the past several years, the U.S. Fish and Wildlife Service (FWS), National Park Service (NPS), and Forest Service have participated in regional planning efforts addressing ways for States, and Tribes if they so choose, to protect and improve visibility in Class I national parks and wildernesses through implementation of the Regional Haze Rule (RHR). Along with other stakeholders, we have had many opportunities to contribute to ongoing Regional Planning Organization (RPO) development of policy guidance and technical information. As States begin to develop their regional haze State implementation plans (SIPs) based on RPO work, we are interested in working directly with your staff to offer our perspective as managers of affected Class I areas and to maintain our support for an effective national regional haze program.

The primary purpose of this letter is to provide you general insights about FWS and NPS interests with respect to upcoming SIP development and consultation activities. It is not intended to dictate policy or guidance. Rather, in the enclosure to this letter we include discussion on a list of topics to enhance your understanding of our views on key SIP components. We also provide lead contacts for FWS and NPS staff that will be available to work with your staff during early phases of SIP development as well as coordinate the required formal 60-day review/consultation with the official Federal Land Manager (FLM) for the Department of the Interior.

The RHR requires States to inform the FLMs of the appropriate State contact for exchange of information regarding SIP development. Many States provided us with a contact person shortly after the RHR was published. It would be helpful if you could confirm your contact or provide a current single point of contact for your State to the individuals noted in the enclosure. Additional information regarding your SIP timelines would also be very helpful.

Our highest priority in working with you over the course of the next year and a half will be to help you develop a successful SIP. We understand the complexities of developing a plan reliant on non-linear relationships between emissions and subsequent visibility improvements. Our emphasis is to work with you and, as your partners, to ensure each plan utilizes all reasonable means to obtain realistic goals. We share the common goal of improving visibility in all Class I areas throughout the United States, and we would like to use this planning process to maximize goal achievement. Our hope is that through this communication we can complete the RHR requirement of formal consultation with ease and productivity.

We are looking forward to continuing our work with you and your staff as the regional haze SIPs are developed. Please don't hesitate to contact us with questions.

Sincerely,

Sandra V. Silva
Chief, Air Quality Branch
U.S. Fish and Wildlife Service

Christine L. Shaver
Chief, Air Resources Division
National Park Service

Enclosure

cc:
Forest Service: Rich Fisher, Donna Lamb
EPA Regional Air Division Directors
Regional Planning Organization Directors

Regional Haze State Implementation Plan Coordination
Fish & Wildlife Service and National Park Service
August 1, 2006

This document is designed to provide you general insights about U.S. Fish and Wildlife Service (FWS) and National Park Service (NPS) interests with respect to upcoming Regional Haze Rule (RHR) State Implementation Plan (SIP) development and consultation activities. It is not intended to dictate policy or guidance.

Baseline, Natural Condition, and Uniform Rate
These factors apply mainly to States that have Class I areas. Other States that contribute to visibility impairment in Class I areas should consider including discussion and conclusions on these factors in their individual plans.

As you know, the basic calculation of baseline, natural condition, and uniform rate builds the foundation for the entire RHR SIP process. Considerable discussion and debate at the science and policy level has occurred regarding appropriate methods to be used. As a consequence, several equations that include varying parameters or multipliers are available. Because these calculations can have a significant effect on the resulting progress goal, it is critical that the State provide a detailed description of the methods used in its SIP. If calculations include only portions of established methods or utilize previously undocumented or unsupported approaches, more justification should be included in the SIP or its supporting documentation. We encourage States to consider calculations that are based on equations recommended by the IMPROVE steering committee and that are consistent with recommended approaches from the appropriate RPO and Environmental Protection Agency (EPA) region.

Emission Inventories
Given the complexities associated with modern, comprehensive emission inventories, considerable effort should be placed on describing how these inventories were developed and used. We would like to see emission descriptions demonstrate an evolution that includes: an actual, base-year inventory used to evaluate model performance; a typical, base-year inventory that represents the five year, average condition which establishes modeled visibility impacts; and various future year, control scenarios (e.g., for required air pollution control programs or long term strategy measures) that demonstrate future visibility conditions. It would assist our review if future year inventories were clearly partitioned to delineate source types (by text, charts, or graphics) that are included in each model simulation. Improved future visibility conditions claimed in the SIP that are not also clearly identified in a future inventory or are not clearly included in future model analysis, will likely need additional and possibly considerable, attention and justification.

One part of your emission inventory includes the implementation of "Best Available Retrofit Technology" (BART) on a subset of pre-Prevention of Significant Deterioration sources. BART source identification, elimination, and control determinations will be of particular interest for review. We would prefer to see a clear progression through the

three basic BART phases and a thorough description of the RHR prescribed factor analysis (if applicable). Discussions should clearly identify whether BART control levels apply to individual or grouped source categories.

Area of Influence

As you are aware, the area of influence of significant, visibility-impairing sources is an important SIP element. This area should clearly be identified or apportioned by State, or other geographic means, to encompass emission sources that contribute significant levels of pollutants to each Class I area as identified in your regional haze SIP. As such, these areas should be developed in conjunction with neighboring States and Tribes. Discussions of source areas of influence at both the base- and future-year levels can help establish a strong showing for SIP progress. States should consider the benefits of presenting this information in the form of transported mass by pollutant or through individually calculated visibility impairment indices. Using a percentage or "Top 10" ranking for current contributions by geographic area may not clearly describe progress over time.

Reasonable Progress Goals and Long Term Strategy

As you also know, establishing reasonable progress goals for Class I areas in your State and/or acknowledging reasonable progress goals for Class I areas in other States that are affected by emissions from your State, as well as defining associated emissions strategies to meet these goals, form the basis of the SIP process under the RHR.

In developing the Long Term Strategy (LTS) required by the RHR, your State has broad flexibility when determining reasonable progress goals and associated emissions. As noted earlier, the RHR includes a requirement for States to assess a uniform rate of progress and compare that rate to the reasonable progress goals set by those States with Class I areas. We believe that this uniform rate of progress assessment is useful in determining the geographic and economic extent a State should consider when developing the LTS associated with the reasonable progress goals.

In general, we are looking at the degree to which the LTS is supported by RPO technical work and at the level of consistency among the contributing States. For Class I areas where the State is setting a 2018 reasonable progress goal of equal or less impairment compared to the uniform rate of progress, it would assist our review to present information on how local, regional, and national emission strategies were considered and applied to address visibility impairment broken down by source category.

For Class I areas where the reasonable progress goal is more impaired than the uniform rate of progress, States should consider presenting additional information on a component basis. Components could consist of emission source categories as before, but also include contributions from individual pollutants or by geographic source area. Our intent is to better understand where and why a strategy falls short of the uniform progress rate goal. Because each region has focused their emission control strategy on different conditions, presenting results in a component format may assist in showing what level of progress was made in the focus area, versus other less controllable factors.

Fire

Your State has considerable flexibility as it addresses all anthropogenic sources of visibility impairment, including fire. The RHR requires consideration of smoke management techniques for agricultural and forestry management practices in the development of the LTS part of the SIP. On a short-term basis, fire, both natural and anthropogenic, has the potential to cause significant visibility reduction in Class I areas. If anthropogenic fire contributes to the index used to track long-term, reasonable progress in a Class I area, the visibility SIP should identify how it will be addressed. Your State may already have a smoke management program (SMP) that adequately describes how visibility impairment from fire will be addressed. If fire has been determined to contribute to visibility impairment, the SIP should contain a comprehensive emissions inventory for all fire emissions and a statement relating to its accuracy. It should also identify whether or not fire emissions are projected to increase, decrease, or stay the same, and how these projections were determined. For those States with a SMP, the SIP should identify its type, i.e., a basic smoke management program or an enhanced smoke management plan, and if the plan has been certified consistent with EPA's *Interim Air Quality Policy on Wildland and Prescribed Fire*. It would also be useful to know specific SMP requirements for minimizing visibility impairment in Class I areas and classification of the various types of wildland fire (wildfire, prescribed fire, and wildland fire use fire) as either natural or anthropogenic. Any differences regarding the regulation of agricultural burning versus prescribed burning by private, State or Federal land managers should also be identified with discussion of the basis for any differences provided.

Regional Consistency

The Regional Planning Organizations (RPOs) have been working toward regionally-consistent approaches to address visibility impairment throughout the SIP development process. There may be circumstances when different methods were used or impairment assessments reached different conclusions. We understand that each State knows what emission control methods or air quality management strategies work best for its areas. Each State may wish to develop strategies that are independent from their RPO or neighboring areas.

In this context, our review of "regional consistency" will have less to do with individual discretion each State has in making decisions, and more on how well a group of States identifies and addresses similar goals for each Class I area within a common area of influence.

Regional consistency can also be difficult to evaluate if neighboring SIPs (or portions of SIPs) are released for review at different times. It is our hope that thorough inter-State consultation processes will lead to consistent descriptions of apportionment and emission control goals, thus resulting in development of similar progress goals, regardless of release dates.

Verification and Contingencies
Little emphasis has been placed in the RHR on verification and even less on contingency planning. Each SIP must identify monitoring data as part of the original baseline and should include continued monitoring data collection and assessment as part of an ongoing progress review at five year intervals. Given the uncertain future of any individual monitoring site, the SIP should address the representativeness of both primary and alternative data sites.

We encourage States to not only consider the need for these data to measure progress, but also how the plan accounts for and reconciles both unexpected and reasonably foreseeable emissions growth, changes to the geographic distribution of emissions, and substantive errors that may be found in emission inventories or other technical bases of the SIPs. These factors, as well as other unanticipated circumstances, may adversely affect your State's ability to achieve the emissions reductions projected by the SIP. Considering these factors through adaptive management or routine review processes may assist in mitigating these circumstances.

Coordination and Consultation
The 1999 RHR requires States to consult with the Federal Land Management agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)). Specifically, the Federal Land Manager (FLM) for the Department of the Interior (DOI) is the Assistant Secretary for Fish and Wildlife and Parks. However, assistance in the development and technical review of Regional Haze SIPs will be conducted by the FWS Branch of Air Quality and NPS Air Resources Division.

To help facilitate consultation with the FLMs, each Bureau has developed a review strategy that includes a single point of contact for all interaction with us. For your State, primary DOI contact names are:

Tim Allen
U.S. Fish & Wildlife Service

Mailing Address:
7333 W. Jefferson, Suite 375
Lakewood, CO 80235
Phone: 303-914-3802 Fax: 303-969-5444
Email: Tim_Allen@fws.gov

Bruce Polkowsky
National Park Service

Mailing Address:	Overnight Packages:
NPS-ARD	NPS-ARD
P.O. Box 25287	12795 W. Alameda Parkway
Denver, CO 80225	Lakewood, CO 80228
Phone: 303-987-6944	Fax: 303-969-2822

Email: Bruce_Polkowsky@nps.gov

All questions and inquires regarding formal or informal consultation can be directed to these contacts. We would appreciate communications in electronic form as much as possible. This will allow us to quickly share appropriate documents among staff and between agencies. The contacts listed above will also be able to inform you of additional resources and information we can provide. Resource and information examples include progress reports, discipline experts, or implementation advice. Although the RHR places a strong emphasis on individual discretion in developing these plans, the NPS and FWS would be happy to provide more specific suggestions or information, in a form most useful to you, upon request.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

April 3, 2009

David Wackter
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Dear Mr. Wackter:

On February 4, 2009, we received your draft Regional Haze SIP. EPA staff have reviewed this draft and you will find our comments in the Enclosure.

If you have any questions on these comments, please contact Anne McWilliams at (617) 918-1697.

Sincerely,

Anne Arnold, Manager
Air Quality Planning Unit

Enclosure

cc: Wendy Jacobs (CTDEP)

Enclosure

EPA Comments on Connecticut's
February 4, 2009 Draft Regional Haze SIP

Chapter 1: The Regional Haze Issue

1) Paragraph four on page 1-1 should be revised as follows:

> "The Regional Haze Rule calls for each state to ~~establish reasonable progress goals for visibility improvement and to~~ formulate a long-term strategy for meeting these goals."

2) On page 1-5, Connecticut states, "On the worst 20 percent days, visibility impairment in Northeast and Mid-Atlantic Class I areas ranges from about 25 to 30 dv (deciviews)." This statement is inconsistent with the data presented later in Table 4.2 in Section 4.2. The table lists the baseline 20% worst visibility for MANE-VU Class I areas as 21.7 to 29.0 dv. In addition, in the page 1-5 discussion, it would be helpful to include the visibility range in miles in order to give the reader a better frame of reference.

3) Paragraph four on page 1-6 should be revised as follows:

> "...about half of the worst visibility days in the New Hampshire Class I Areas occur in the summer when meteorological conditions are more conducive to the formation of sulfate from SO_2 and to the oxidation of organic aerosols. ~~In addition, winter and summer transport patterns are different, possibly leading to different contributions from upwind source regions. As a result,~~ The remaining worst visibility days are divided nearly equally among spring, winter and fall. In addition, winter and summer transport patterns are different, possibly leading to different contributions from upwind source regions."

Chapter 6: Emissions Inventories

4) Table 6.1 indicates that EGU Point SO_2 emissions were 2,438 tons in 2002. Table 6.2 indicates that EGU Point SO_2 emissions in 2018 are expected be 6,697 tons. Connecticut should explain why SO_2 emissions are expected to increase so significantly.

Chapter 8: Sources

5) The reference cited for Figure 8.11 appears inaccurate. Please correct this reference.

6) In the second paragraph of Section 8.3.1, Connecticut states, "Most states in the region showed declines in annual SO_2 emissions through 2002 compared with those previous inventories." Connecticut should include the data that support this statement, refer to another document that contains the supporting data, or remove the statement.

Chapter 9: Best Available Retrofit Technology (BART)

7) In Section 9.2.3, Connecticut should include a discussion of the available controls for each source category and the determination of the BART control level benchmark.

8) In Section 9.3, Connecticut states, "During the last few years Connecticut has developed additional regulatory measures aimed at reducing emissions of SO_2 and NOx from a large universe of in-state sources." Connecticut should include more information regarding the universe of sources impacted by these additional regulatory measures. Specifically, Connecticut should emphasize the number and size of non-BART sources that are subject to these measures.

Chapter 11: Long-term Strategy

9) In the second paragraph Section 11.4.2, Connecticut discusses possible logistical issues that may impact implementation of the low-sulfur oil strategy in the northern New England states. It is not clear why this discussion is included in Connecticut's SIP. The DEP should either explain how this might be relevant to Connecticut's ability to enact the MANE-VU low sulfur fuel oil strategy, or delete the discussion.

10) In the third paragraph of Section 11.4.2, Connecticut states that DEP will review the details of the low-sulfur fuel oil strategy in five years, "to ascertain that requiring the use of low-sulfur fuel remains viable for implementation by 2018." This appears inconsistent with the MANE-VU "Ask" for the other zone which calls for #2 distillate oil to be reduced to 0.05 percent (500 ppm) sulfur, by weight, by no later than 2014.

11) In Section 11.5, EPA recommends that Connecticut include a table of any verified source retirements or replacements, rather than referring the reader to the attachments.

12) The Section 11.9 discussion on Connecticut's share of emission reductions currently focuses on SO_2 reductions. Connecticut should also summarize any additional programs the state plans to implement that will lead to visibility improvements. For example, does Connecticut plan to adopt a rule for outdoor wood boilers, as has been done by several New England states?

13) Section 11.11 discusses enforceability of emission limitations. In order to ensure federal enforceability, Connecticut should submit to EPA as a SIP revision any regulations that the state considers part of its Regional Haze SIP. Also, section 11.11 includes the statement, "CTDEP will incorporate existing PM controls at the BART-eligible units into Title V permit renewals for BART purposes." This will not necessarily make BART federally enforceable unless the underlying requirement is federally enforceable.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
1 Congress Street, Suite 1100
BOSTON, MA 02114-2023

May 22, 2008

Wendy Jacobs
Bureau of Air Management
Connecticut Department of Environmental Protection
79 Elm Street, 5th Floor
Hartford, CT 06106-5127

Dear Ms. Jacobs:

On March 27, 2008, we received your preliminary draft of "Section 8 - Best Available Retrofit Technology (BART)" of your Regional Haze State Implementation Plan.

EPA staff have reviewed the draft and generally agree with Connecticut's approach. You will find the Agency's comments in the Enclosure. Our comments focus on areas of the draft that need clarification.

If you have any questions on these comments, please contact Anne McWilliams at (617) 918-1697.

Sincerely,

Anne Arnold

Anne Arnold, Manager
Air Quality Planning Unit

Enclosure

Enclosure

Comments on Connecticut's Draft Best Available Retrofit Technology (BART) section of the Regional Haze SIP (5/21/08)

1) Page 3, second bullet – The draft states that BART eligible facilities "were placed in operation between August 1962 and August 1977." The BART criteria, however, includes facilities that were built between August 1962 and August 1977.

2) Page 7, 4th paragraph – A reference is made to Attachment 1 which shows the 2001, 2002, and 2006 SO2 actual and potential (tons per year and tons per day) emissions for all units in the Post-2002 NOx Budget Program. This attachment needs to be submitted for review.

3) Page 8, Table 8-4 – This table and the accompanying discussion needs clarification. It is not clear if the purpose of the table is to show the resulting annual potential emissions from Connecticut's alternate plan or to establish a benchmark for case-by-case BART based on MANE-VU and EPA suggested control limits. Also, the table is labeled "SO_2 Annual Potential Emissions @ 8760 Hours (tpy)*." The draft indicates that the asterisk means that emissions are based on the lower of RCSA section 22a-174-19a regulatory limits or permit conditions. It does not appear, however, that this note should apply to the entire table, since two of the columns are labeled MANE-VU and EPA recommended BART. Also, it is not clear if the referenced permit conditions are federally enforceable.

4) Page 9, Table 8-5 – The comments outlined above also apply to Table 8-5.

5) Page 10, 2nd paragraph and Table 8-7 – A reference is made to Attachment 8-3, a map showing the potential emissions from all Post-2002 NOx Budget program sources. This attachment needs to be submitted for review. Also, the discussion regarding Table 8-7 needs clarification. It might be easier to follow if some of the data in the discussion was added to the table.

6) Page 13, 3rd paragraph – The draft states, "Connecticut has finalized its CAIR regulation for participation in the CAIR NOx Ozone Season Trading Program (CAIR Program) in 2009 and submitted its CAIR SIP revision to EPA." We suggest adding the statement, "This SIP revision was approved by EPA on January 24, 2008 (73 FR 4105)."

7) Page 16, 2nd paragraph – The draft states, "As part of its ozone attainment planning efforts, CTDEP is pursuing additional 24-hour NOx emission rate reductions from the EGUs and BART-eligible industrial boiler." Connecticut should clarify whether or not this measure is considered part of the Regional Haze SIP, as is done for the HEDD measures in the following sentence.

8) Page 16, last paragraph – Section 8.3.3 is labeled "Connecticut's PM Program for Alternative BART." Unlike Connecticut's approach for SO_2 and NOx, however, the approach outlined for PM is more of a five factor analysis, than an alternative BART demonstration. The draft discusses the current controls and permit levels in place, the cost of additional controls, and the expected visibility improvement. In order to make this a more robust analysis, you should consider including a brief discussion of MANE-VU's decisions not to consider the remaining useful life of the source and a short paragraph on energy and non-air quality environmental impacts. This additional text would in essence complete a cursory five factor analysis.

9) **Page 17, 3rd paragraph** – The PM discussion references RCSA section 22a-174-18. The current version of this rule, however, is not federally enforceable. If the BART demonstration will be relying on this regulation, then Connecticut should submit the rule to EPA as a SIP revision. Also, it is not clear if the permit limits referenced in this paragraph are federally enforceable.

United States Department of the Interior
NATIONAL PARK SERVICE
Air Resources Division
P.O. Box 25287
Denver, CO 80225

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

April 3, 2009

N3615 (2350)

Ms. Anne Gobin
Chief, Bureau of Air Management
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106

Dear Ms. Gobin:

On February 4, 2009, the State of Connecticut submitted a draft implementation plan describing your proposal to improve air quality regional haze impacts at mandatory Class I areas across your region. We appreciate the opportunity to work closely with the State through the initial evaluation, development, and, now, subsequent review of this plan. Cooperative efforts such as these ensure that, together, we will continue to make progress toward the Clean Air Act's goal of natural visibility conditions at all of our most pristine National Parks and Wilderness Areas for future generations.

This letter acknowledges that the U.S. Department of the Interior, U.S. Fish and Wildlife Service (FWS), and National Park Service (NPS) have received and conducted a substantive review of your proposed Regional Haze Rule implementation plan in fulfillment of your requirements under the federal regulations 40 CFR 51.308(i)(2). Please note, however, that only the U.S. Environmental Protection Agency (EPA) can make a final determination regarding the document's completeness and, therefore, ability to receive federal approval from EPA.

As outlined in a letter to each State dated August 1, 2006, our review focused on eight basic content areas. The content areas reflect priorities for the Federal Land Manager agencies, and we have enclosed comments associated with these priorities. We look forward to your response, as per section 40 CFR 51.308(i)(3). For further information, please contact Holly Salazer (NPS) or Tim Allen (FWS) at (814) 865-3100 and (303) 914-3802, respectfully.

Again, we appreciate the opportunity to work closely with the State of Connecticut and compliment you on your hard work and dedication to significant improvement in our nation's air quality values and visibility.

Sincerely,

Christine L. Shaver
Chief, Air Resources Division
National Park Service

Sincerely,

Sandra V. Silva
Chief, Branch of Air Quality
U.S. Fish & Wildlife Service

Enclosure

cc:
Anne McWilliams
U.S. EPA - Region 1
1 Congress Street
Suite 1100
Mail Code: CAQ
Boston, Massachusetts 02114-2023

National Park Service and U.S. Fish and Wildlife Service Comments Regarding Connecticut Draft Regional Haze Rule State Implementation Plan
April 3, 2009

On February 4, 2009, the State of Connecticut submitted a draft Regional Haze Rule State implementation plan (SIP), pursuant to federal requirements codified at 40 CFR 51.308(i)(2), to the U.S. Department of the Interior, National Park Service (NPS) and the U.S. Fish and Wildlife Service (FWS). The air program staff of the NPS and FWS have conducted a substantive review of the Connecticut draft plan, and have provided the comments listed below. We look forward to the Connecticut Department of Environmental Protection response as per section 40 CFR 51.308(i)(3). For further information regarding these comments, please contact Holly Salazer (NPS) at (814) 865-3100 or Tim Allen (FWS) at (303) 914-3802.

Overall Comments

We appreciate the hard work the State of Connecticut has done in submitting the draft Regional Haze SIP. In general, we are concerned the draft SIP does not include an analysis for the full adoption of the MANE-VU Ask (Ask). The draft SIP appears contradictory without such an analysis, because the State fully adopts the Ask as its long-term strategy early in the draft SIP, however, throughout the document the State only commits to pursuing certain elements of the Ask.

We also have concerns regarding best available retrofit technology (BART) requirements. The draft SIP is unclear with respect to the State's approach to meeting BART requirements. The SIP and supporting documentation are not sufficient for establishing a source-by-source BART emission limit. If the State wishes to rely on existing rules as the basis for an alternative to BART, then additional demonstrations of the adequacy of that alternative approach should be presented in the SIP. Please see our comments below regarding BART and the BART-alternative program.

Specific Comments

The remaining comments, below, are organized according to the priorities that we presented in our August 1, 2006, letter, which outlined the Regional Haze concepts that are of importance to the NPS and FWS. Many of the following comments will also provide direction towards building the narrative of the draft SIP to satisfy the documentation and content area deficiencies noted above.

Area of Influence

In Section 2.0 Areas Contributing to Regional Haze, the State needs to include a summary of the Contribution Assessment. The draft SIP states that Connecticut emissions have measurable impacts on Class I areas, but provides no details or comparison to other states' impacts in the region.

At a minimum, the State should include a discussion on the three criteria used by MANE-VU to determine consultation. This would at least provide context to what Connecticut determines as their contribution. In addition, the draft SIP should provide percent contributions of neighboring states to better understand the magnitude of the State's contributions.

Regional Haze Planning and Consultation
In Section 3.2.2, Connecticut agrees with the MANE-VU Ask and commits to pursuing emission reductions consistent with the Ask. However, in Section 3.2.2.2, Connecticut does not address all elements of the Ask, instead saying it will review the viability of the remainder of the Ask in the 2013 review. It is inconsistent language to conclude the State will pursue emission reductions consistent with the Ask but at the same time say it will continue to review the viability of certain measures of the Ask over the next five years.

In Section 3.2.3, Connecticut implies that addressing inconsistencies with emission inventories, both within MANE-VU and out, "caused" most States to miss the 2007 statutory submittal to EPA. This statement should be considered for accuracy and removed.

In Section 3.2.5, please include February 4, 2009, as the date of submission to FLMs.

Monitoring Strategy
In Section 5.0 Air Monitoring Strategy, Connecticut should include language that commits the State to continuing support of the IMPROVE network. Support, in this context means the State agrees IMPROVE is an appropriate monitoring network to track regional haze progress and that the State agrees to work with neighboring states and federal land managers in meeting the goals of the IMPROVE program.

Section 5.3 should be revised to reflect that Moosehorn Wilderness and Roosevelt Campobello International Park also share a monitoring site.

Emission Inventories
In Section 6.0, please provide for purposes of comparison an explanation as to why NH3 emissions go up in projected 2018 inventory (Best and Final inventory).

Reasonable Progress Goals and Long Term Strategy
In Section 11.2, the State references technical reports that were used to determine the level of emission reduction required by the State to achieve reasonable progress goals in Class I areas affected by its emissions. However, there is no statement or summary information identifying what the necessary reduction levels actually were.

For Section 11.5 Source Retirement and Replacement Schedule, please include Table B-5 from Attachment N in the text. As written, the draft SIP provides no information on source retirement in Connecticut.

In Section 11.9, please include what strategy is used to get the predicted 2018 results.

In Section 11.12 Prevention of Significant Deterioration, we appreciate the State making a clear link between its regional haze program and the importance of the PSD program in achieving reasonable progress goals. This link is especially important for protection of the twenty percent best visibility days.

Fire

The State concludes that there is no information suggesting smoke emissions will increase over the next decade (Section 11.7). Will the State track such emissions to determine if this assumption is correct?

The draft SIP states Connecticut has a smoke management program. Please include a brief summary of what that program entails. It is unclear why the State has a smoke management program, considering the draft SIP previously concludes that wood smoke is only a fraction of fine particle mass. Attachment FF is listed as Connecticut Smoke Management Documentation and does not include any information specific to the smoke management program.

BART

The State has done a commendable job in the overall level of control required of its BART-eligible sources (e.g., 0.3 percent sulfur fuel-oil). It stands out among all the states in the region in this regard. However, the State should better support its determination that existing rules provide an acceptable alternative to BART on a source-by-source basis.

The draft SIP lacks rigor required for comparison with a source-by-source BART determination. The EPA and MANE-VU 'benchmarks' as described in Section 9.2.3 as being BART are not necessarily BART. Since the overall level of control among Connecticut BART sources is significant, source-by-source BART determinations may conclude that additional controls are not cost-effective and the existing proposed controls are BART. Nevertheless, these BART determinations should be performed as an integral part of the demonstration of the "alternative measure" for BART as proposed by the State. 40 CFR 51.308 (e) (2) (i) (C) requires that a "determination of BART for each source" be performed. Approval by EPA of an "alternative method" may relieve the State from requiring *installation* of BART on certain sources, but it does not relieve the State from *performing* source-by-source BART determinations in developing a demonstration that justifies using an "alternative method".

Sulfur Dioxide

In attempting to comply with the 40 CFR 51.308 (e) (2) requirement that the State submit an "implementation plan" for the proposed "alternative measure", the State assumes that the EPA BART Guidelines[1] set SO_2 BART for oil-fired boilers as burning a 1.0 percent

[1] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized its BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on

sulfur fuel-oil. The State then used this definition as a de facto standard to show that a requirement of 0.3 percent sulfur fuel-oil resulted in "greater reasonable progress" and the ability to use an "alternative measure" for BART. The assumption that SO_2 BART is the use of 1.0 percent sulfur fuel-oil is not correct.

The EPA BART Guidelines state that you should "evaluate limiting the sulfur content of the fuel-oil burned to 1 percent or less by weight", but this is not to be interpreted that the use of 1 percent fuel-oil is considered to be BART for oil-fired boilers. It is only *a* presumptive BART alternative that should be considered. In the EPA BART Guidelines where the process for the analysis of control options for sources subject to BART is described, it is stated that, "Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by . . . [a BART-eligible source]. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance . . . and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."[2] For this reason additional feasible control alternatives should have been considered for each source in order to determine BART. Then, greater reasonable progress could be determined by comparing the BART for all BART-eligible sources against the across-the-board 0.3 percent sulfur in fuel-oil requirement.

Examples of additional control alternatives to be considered for SO_2 BART for each emission unit include the applicability of using progressively lower sulfur oils below 0.3 percent sulfur content (e.g., #2 distillate oils of 0.0015%, 0.05% sulfur content). The associated costs should be examined for each alternative. This would show a cost gradient as the sulfur in oil decreases and selection of BART would be based on the alternative presenting the most control where the cost remains reasonable. Dispersion modeling for a unit should also determine visibility impacts of that given unit on Class I areas for each viable fuel-oil alternative. In addition, the costs and visibility impacts of wet or dry flue gas desulphurization (FGD) techniques should be considered. Retrofit FGD systems can result in 90% - 95% reductions. FGD is a well-demonstrated technology on oil-fired utility units in some other countries (e.g., Japan, South Korea and Cyprus).

The full five-factor SO_2 BART determinations described above should be performed for the facilities at Middleton Power Units 3 and 4, Montville Power Unit 6, PSEG Bridgeport Harbor Station Unit 3, and PSEG New Haven Harbor Station Unit 1.

Nitrogen Oxides

Once again we commend the State for its past efforts in implementing the ozone reasonably available control technology (RACT) provisions in the 1990s and NO_x Budget

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July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.E.4.

[2] Ibid, See Section IV.A.

Program for the NO_x SIP Call to significantly reduce NO_x emission limits. Using the same line of reasoning as discussed above for SO_2, it is incumbent on the State to use a baseline emissions year (presumably 2001) and examine NO_x BART control alternatives for each BART-eligible source.

Even though the EPA BART Guidelines state that combustion control is "generally highly cost-effective and should be considered"[3] in a BART determination for oil-fired boilers, combustion controls are not a de facto BART standard. Alternative NO_x controls to achieve BART should be considered at each BART-eligible source to complete the full five-factor analysis. Oil-fired utility boilers have a variety of combustion controls available, such as, low excess air, low NO_x burners, over-fired air, flue gas recirculation and optimum staged combustion. Also, post-combustion alternatives such as Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) should be considered at facilities where they do not currently exist.

Particulate Matter

Regarding particulate matter (PM) controls at BART-eligible facilities, Table 9-16 presents cost ranges for installing electrostatic precipitators (ESP) on sources not currently controlled for PM. More documentation of these costs is necessary as provided in the EPA BART Guidelines which state, "The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the OAQPS Control Cost Manual...).[4] In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible. The Control Cost Manual addresses most control technologies in sufficient detail for a BART analysis."[5] Of course, the presented costs per ton ($64,000 at a minimum) of emissions reduced, if substantiated, would make such an installation uneconomical.

For the ESPs currently operating the State should analyze cost-effective ESP upgrade alternatives as per the EPA BART Guidelines, ". . . for retrofitting existing sources in addressing BART, you should consider ways to improve the performance of existing control devices, particularly when a control device is not achieving the level of control that other similar sources are achieving in practice with the same device. For example, you should consider requiring those sources with electrostatic precipitators (ESPs) performing below currently achievable levels to improve their performance."[6]

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[3] Ibid, See Section IV.E.5.

[4] U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards, OAQPS Control Cost Manual, Fifth Edition, February 1996, EPA 453/B-96-001.

[5] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized its BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.D.4.Step 4.a.5.

[6] Ibid, See Section IV.D.3.Step 3.4.

The State determined that two BART-eligible facilities (Norwalk Power Unit 2 and Cascades Boxboard Group) had a de minimis impact of less than 0.1 deciview on the nearest Class I area, so as to not be subject to BART. The NESCAUM exemption modeling that documents these conclusions should be included in the SIP as an appendix.

Considerations for the Alternative to BART Demonstration

If the State rules cited on page 9-2 of the draft SIP apply to sources beyond those subject to BART requirements and achieve more emissions reductions than the highest level of emissions reduction technology applied to only BART sources, the demonstration of an acceptable alternative to BART could be less rigorous than what we noted above. In such a case, the State should demonstrate the emissions reductions will occur during the first implementation period of the regional haze rule, 2000 through 2018. In addition, the expected emissions reductions from the non-BART facilities should not be substantially shifted geographically from where reductions would occur under a source-by-source approach to BART. Given the relatively small size of the State, the latter demonstration could be addressed by mapping locations of emission reductions expected from the program and inclusion of nearby Class I areas and highlighting the BART facilities.

Connecticut
Draft Regional Haze SIP Revision

Preliminary Department of the Interior (DOI) Comments
March 16, 2009

GENERAL ISSUES

Issues of concern are:

- No analysis available for the "full" adoption of the MANE-VU Ask. The draft SIP is contradictory in that earlier on CT fully adopts the MANE-VU Ask as a part of its long term strategy, however, throughout the document the State only commits to pursuing aspects of the Ask to determine if they are reasonable to adopt by 2018.
- State-specific program for BART equivalency (please see attached document)

GENERAL COMMENTS BY FLM TOPICS

Area of Influence

Section 2.0 Areas Contributing to Regional Haze – The State needs to include a summary of the Contribution Assessment. The draft SIP states that CT emissions have measurable impacts on Class I areas, but provides no details or comparison to other states in the region.

At a minimum, the State should include a discussion on the three criteria used by MANE-VU to determine consultation. This would at least provide context to what CT states as their contribution. In addition, the draft SIP should provide percent contributions of neighboring states to better understand the magnitude of the State's contributions.

Regional Haze Planning and Consultation

In Section 3.2.2, Connecticut agrees with the MANE-VU Ask and commits to pursuing emission reductions consistent with the Ask. However, in Section 3.2.2.2, Connecticut does not address all elements of the Ask, instead saying it will review the viability of the remainder of the Ask in the 2013 review. It is inconsistent language to conclude the State will pursue emission reductions consistent with the Ask but at the same time say it will continue to review the viability of certain measures of the Ask over the next five years.

In Section 3.2.3, Connecticut implies that addressing inconsistencies with emission inventories, both within MANE-VU and out, "caused" most States to miss the 2007 statutory submittal to EPA. This statement should be considered for accuracy and removed.

In Section 3.2.5, please include February 4, 2009 as the date of submission to FLMs.

Monitoring Strategy
In Section 5.0 Air Monitoring Strategy, Connecticut should include language that commits the State to continuing support of the IMPROVE network.

In Section 5.3, the statement is incorrect. Moosehorn Wilderness and Roosevelt Campobello International Park also share a monitoring site.

Emission Inventories
Section 6.0 is dedicated to the emission inventory development by MANE-VU and used by Connecticut. For comparison of Table 6.1 and 6.2, please include an explanation as to why NH3 emissions go up in projected 2018 inventory (Best and Final inventory).

Reasonable Progress Goals and Long Term Strategy
Section 11.2 – Technical Basis for Strategy Development – CT references technical reports that were used to determine the level of emission reduction required by CT to achieve reasonable progress goals in Class I areas affected by CT emissions. However, there is no statement or summary information identifying what the necessary reduction levels actually were.

Section 11.5 Source Retirement and Replacement Schedule – Please include Table B-5 from Attachment N in the text. As written, the draft SIP provides no information on source retirement in CT.

Section 11.9 Connecticut's Share of Emissions Reductions – Please include what strategy is used to get the predicted 2018 results.

Section 11.12 Prevention of Significant Deterioration – The State makes a clear link between its regional haze program and the importance of the PSD program in helping to meet the goals of that program.

Fire
The State concludes that there is no information suggesting smoke emissions will increase over the next decade (Section 11.7). Will the State track such emissions to determine if this assumption is correct?

The draft SIP states CTDEP has a smoke management program. Please include a brief summary of what that program entails. It is unclear why CTDEP has a smoke management program since the draft SIP already concludes that wood smoke is only a fraction of fine particle mass. Attachment FF is listed as Connecticut Smoke Management Documentation.

Comments/Issues Regarding the Best Available Retrofit Technology (BART) Provisions of the Connecticut Regional Haze SIP

The Connecticut Department of Environmental Protection (CDEP) has done a commendable job in the overall level of control required of its BART-eligible sources (e.g., 0.3 percent sulfur fuel-oil). It stands out among all the states in the region in this regard. The comments presented below center on the lack of a certain rigor in the BART determination process, and the need to perform source-by-source BART determinations. The EPA and MANE-VU 'benchmarks' used by CDEP as described in Section 9.2.3 as being BART are not necessarily BART. Since the overall level of control among Connecticut BART sources is significant, source-by-source BART determinations may conclude that additional controls are not cost-effective and the existing proposed controls are BART. Nevertheless, these BART determinations should be performed as an integral part of the demonstration of the "alternative measure" for BART as proposed by CDEP. 40 CFR 51.308 (e) (2) (i) (C) requires that a "determination of BART for each source" be performed. Approval by EPA of an "alternative method" may relieve the State from requiring *installation* of BART on certain sources, but it does not relieve the State from *performing* source-by-source BART determinations in developing a demonstration that justifies using an "alternative method".

In attempting to comply with the 40 CFR 51.308 (e) (2) requirement that the State submit an "implementation plan" for the proposed "alternative measure", CDEP made an assumption that the EPA BART Guidelines[1] set SO_2 BART for oil-fired boilers as burning a 1.0 percent sulfur fuel-oil. CDEP then used this definition as a de facto standard to show that a requirement of 0.3 percent sulfur fuel-oil resulted in "greater reasonable progress" and the ability to use an "alternative measure" for BART. The assumption that SO_2 BART is the use of 1.0 percent sulfur fuel-oil is not correct.

The EPA BART Guidelines state that you should "evaluate limiting the sulfur content of the fuel-oil burned to 1 percent or less by weight", but this is not to be interpreted that the use of 1 percent fuel-oil is considered to be BART for oil-fired boilers. It is only *a* presumptive BART alternative that should be considered. In the EPA BART Guidelines where the process for the analysis of control options for sources subject to BART is described, it is stated that, "Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by . . . [a BART-eligible source]. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance . . . and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."[2] For this reason additional feasible control

[1] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized it's BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.E.4.

[2] Ibid, See Section IV.A.

alternatives should have been considered for each source in order to determine BART. Then, greater reasonable progress could be determined by comparing the BART for all BART-eligible sources against the across-the-board 0.3 percent sulfur in fuel-oil requirement.

Examples of additional control alternatives to be considered for SO_2 BART for each emission unit include the applicability of using progressively lower sulfur oils below 0.3 percent sulfur content (e.g., #2 distillate oils of 0.0015%, 0.05% sulfur content). The associated costs should be examined for each alternative. This would show a cost gradient as the sulfur in oil decreases and selection of BART would be based on the alternative presenting the most control where the cost remains reasonable. Dispersion modeling for a unit should also determine visibility impacts of that given unit on Class I areas for each viable fuel-oil alternative. In addition, the costs and visibility impacts of wet or dry flue gas desulphurization (FGD) techniques should be considered. Retrofit FGD systems can result in 90% - 95% reductions. FGD is a well-demonstrated technology on oil-fired utility units in some other countries (e.g., Japan, South Korea and Cyprus).

The full five-factor SO_2 BART determinations described above should be performed for the facilities at Middleton Power Units 3 and 4, Montville Power Unit 6, PSEG Bridgeport Harbor Station Unit 3, and PSEG New Haven Harbor Station Unit 1.

Once again CDEP is commended for its past efforts in implementing the ozone reasonably available control technology (RACT) provisions in the 1990s and NO_x Budget Program for the NO_x SIP Call to significantly reduce NO_x emission limits. Using the same line of reasoning as discussed above for SO_2, it is incumbent on CDEP to use a baseline emissions year (presumably 2001) and examine NO_x BART control alternatives for each BART-eligible source.

Even though the EPA BART Guidelines state that combustion control is "generally highly cost-effective and should be considered"[3] in a BART determination for oil-fired boilers, combustion controls are not a de facto BART standard. Alternative NO_x controls to achieve BART should be considered at each BART-eligible source to complete the full five-factor analysis. Oil-fired utility boilers have a variety of combustion controls available, such as, low excess air, low NO_x burners, over-fired air, flue gas recirculation and optimum staged combustion. Also, post-combustion alternatives such as Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) should be considered at facilities where they do not currently exist.

[3] Ibid, See Section IV.E.5.

Regarding particulate matter (PM) controls at BART-eligible facilities, Table 9-16 presents cost ranges for installing electrostatic precipitators (ESP) on sources not currently controlled for PM. More documentation of these costs is necessary as provided in the EPA BART Guidelines which state, "The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the OAQPS Control Cost Manual…).[4] In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible. The Control Cost Manual addresses most control technologies in sufficient detail for a BART analysis."[5] Of course, the astronomical costs per ton ($64,000 at a minimum) of emissions reduced according to the amounts presented would make such and installation uneconomical.

For the ESPs currently operating CDEP should analyze cost-effective ESP upgrade alternatives as per the EPA BART Guidelines, ". . . for retrofitting existing sources in addressing BART, you should consider ways to improve the performance of existing control devices, particularly when a control device is not achieving the level of control that other similar sources are achieving in practice with the same device. For example, you should consider requiring those sources with electrostatic precipitators (ESPs) performing below currently achievable levels to improve their performance."[6]

CDEP determined that two BART-eligible facilities (Norwalk Power Unit 2 and Cascades Boxboard Group) had a de minimis impact of less than 0.1 deciview on the nearest Class I area, so as to not be subject to BART. The NESCAUM exemption modeling that documents these conclusions should be included in the SIP as an appendix.

[4] U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards, OAQPS Control Cost Manual, Fifth Edition, February 1996, EPA 453/B-96-001.

[5] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized it's BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.D.4.Step 4.a.5.

[6] Ibid, See Section IV.D.3.Step 3.4.

USDA United States Department of Agriculture | Forest Service | Eastern Region | 626 E. Wisconsin Suite 800 Milwaukee, WI 53202

File Code: 2580
Date: April 8, 2009

Ms. Anne Gobin
Chief, Bureau of Air Management
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106

Dear Ms. Gobin:

This letter is in response to the Connecticut Draft Regional Haze State Implementation Plan (SIP) dated February 4, 2009, which was submitted to the Federal Land Managers for review. Since you represent the responsible agency, we are providing our technical review comments (Enclosure 1) to you which focus on the eight content areas outlined in our October 13, 2006, letter to you (Enclosure 2).

We now have a new Air Resource Management Team available to work with you and your staff on all air resource issues that are of concern to the Forest Service's Eastern Region. Please add the Air Resources Specialist for Connecticut, Ralph Perron, rperron@fs.fed.us (802) 222-1444 to your Federal Land Manager list. Consultation and collaboration with our Agency, as required in the Code of Federal Regulations (CFR), can be maintained through Mr. Perron.

We look forward to working with you to improve air quality values, including progress towards the visibility goal set by Congress for our Class I areas. In spite of our legal involvement in this process, please be aware that only the United States Environmental Protection Agency can make a determination about the document's completeness and provide final approval.

We would appreciate a response regarding our comments per Section 51.308(i)(3) of the CFR. Please contact Mr. Perron if you have technical questions about the substance of our comments.

Sincerely,

/s/ Lee Nightingale (for)
KENT P. CONNAUGHTON
Regional Forester

Enclosures (2)

cc: Ralph Perron, Meg Mitchell, Tom Wagner, Richard Gillam

Enclosure 1

USDA Forest Service Comments Regarding
Connecticut Draft Regional Haze Rule State Implementation Plan (SIP)

The air program staff of the U.S. Forest Service has reviewed the Connecticut Draft Regional Haze State Implementation Plan (SIP) dated February 4, 2009, and has developed the comments listed below. We look forward to the Connecticut Department of Environmental Protection response to these comments, as required in the Code of Federal Regulations (CFR) per section 40 CFR 51.308(i)(3). For further information regarding these comments, please contact Ralph Perron at (802) 222-1444 (rperron@fs.fed.us) or Rick Gillam at (404) 347-5058 (rgillam@fs.fed.us). The comments below are categorized by the emphasis areas outlined in our letter to Ms. Anne Gobin dated October, 13, 2006, included as Enclosure 2. That letter discussed our perspectives relevant to Regional Haze SIP preparation.

Overall Comments:

We are interested in the Connecticut Regional Haze SIP because analyses conducted by MANE-VU have shown that air emissions sources located in Connecticut affect visibility in Forest Service Class I areas in the states of Vermont, New Hampshire, and West Virginia (see Table 2.1 of Draft SIP and Attachment B – MANE-VU Contribution Assessment). Overall, Connecticut has done a commendable job compiling the Regional Haze SIP and addressing the requirements of the Regional Haze Rule. The following sections provide our comments related to specific sections of the Draft SIP.

Specific Comments:

Natural Condition and Uniform Rate (Section 4 of Draft CT RH SIP)

- No comments.

Emission Inventories (Section 6 of Draft CT RH SIP)

- The discussion of emissions inventories is generic and only explains the work done by MANE-VU and NESCAUM. This section should include additional discussion of how the Connecticut specific emissions (presented in Tables 6.1 & 6.2) were generated.

- We would like Connecticut to commit to tracking emissions annually and reporting how the projected emissions compare to actual emissions in the mid-course review due in 2012 and required SIP revision due in 2018.

Area of Influence (Section 2 of Draft CT RH SIP)

- The discussion regarding Connecticut's contribution to visibility impairment at other States' Class I areas in Section 2 of the Draft SIP is brief. Section 8.2 of the Draft SIP provides additional information on Connecticut's contribution to sulfate impacts. It is suggested that additional discussion be added to Section 2, including a reference to Section 8.2.

Reasonable Progress Goals and Long Term Strategy (Sections 10 and 11 of Draft CT RH SIP)

- Since Connecticut has no Class I areas, it is acceptable to state that Connecticut agrees with the reasonable progress goals established by the States of Maine, New Hampshire, Vermont and New Jersey for their Class I areas. Even though the impacts are minimal, this section should also, at least, recognize that emissions from Connecticut sources impact Class I areas in West Virginia and Virginia as well.
- Section 11.5 of the Draft SIP discusses source retirement and replacement schedules and refers to Table B-5 in Attachment N for specific sources. Table B-5 in Attachment N does not specifically identify Connecticut sources that have been shutdown – it appears to list all sources in the MANE-VU region. A table identifying specific sources in Connecticut that have shut down should be added to Section 11.5. Are there any other sources that are planning to shut down before 2018? If information is available for any other sources that are expected to shut down before 2018, it should also be discussed in this section.

Wildland Fire (Section 11.7 of Draft CT RH SIP)

- We agree that based on existing inventories of smoke emissions from wildfires and prescribed fires, they are not a significant emission source for Connecticut or a significant contributor to regional haze in downwind Class I areas at this time. It would be helpful to add a reference to the specific sections in Attachment V which support this claim. Also, we request that Connecticut commit to track smoke emissions in the future to help determine the level of contribution for future planning periods.

Regional Consistency (Section 3 of Draft CT RH SIP)

- No comments.

Verification and Contingencies

- No comments.

Coordination and Consultation (Section 3 of Draft CT RH SIP)

- No comments.

Best Available Retrofit Technology (BART) (Section 9 of Draft CT RH SIP)

- No comments.

Additional Suggestions:

- Section 5 discusses the monitoring strategy being used to assess visibility conditions. Even though Connecticut does not have any Class I areas, this section demonstrates the importance of continued operation of the IMPROVE monitoring network. We ask that Connecticut add a statement expressing their support for continued operation of the IMPROVE network.

- In Sections 7.1 and 7.3, brief discussions of model performance would be helpful.

United States Department of Agriculture | Forest Service | Eastern Region | 626 E. Wisconsin Suite 800 Milwaukee, WI 53202

File Code: 2580-2
Date: October 13, 2006

Ms. Anne Gobin
Director, Bureau of Air Management
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Dear Ms. Gobin:

Over the past several years, members of both our staff and yours have participated with neighboring states and tribes in the Central States Regional Air Partnership to develop best approaches and tools for preparing plans that will reduce haze in Class I areas. With preparation of your Regional Haze State Implementation Plan (SIP) at hand, we want to focus on collaboration with you and your staff to ensure success. As you know, consultation with you is required in the Regional Haze Rule (RHR). This is a priority for our air program.

Our focus will be on Class I wildernesses, which the United States Department of Agriculture (USDA) Forest Service (FS) is responsible for. We are coordinating with the other Class I area managers, the National Park Service, and the US Fish and Wildlife Service to facilitate a common message from all federal land managers (FLM). We anticipate leveraging strengths of each FLM to our joint advantage. Since the FLM will be seeking a close working relationship with every state in this SIP writing process, the expectation is to share ideas from across the nation. The objective of every SIP is to play a critical role in a national emissions reduction plan.

Enclosed are detailed perspectives pertinent to the SIP preparation. Any comments or questions should be directed to Ann Acheson, the principal FS point of contact, at (740) 373-9055 ext. 23 or aacheson@fs.fed.us. She will consult on your SIP throughout the required 60-day comment period, sharing our best insights and recommendations. Ann will also work with others on our staff, especially our National Haze Coordinator, Ann Mebane and the Department of Interior. Ann can be contacted at (307) 587-4597 or amebane@fs.fed.us.

As required in the RHR, please identify, at your earliest convenience, your key point(s) of contact. Send all correspondence electronically to both Ann Acheson and Ann Mebane to ensure a successful consultation and SIP.

Sincerely,

/s/ Forrest L. Starkey (for)
RANDY MOORE
Regional Forester

Enclosure

Enclosure 1

Subject: Connecticut and Regional Haze Rule Consultation with the United States Department of Agriculture (USDA) Forest Service (FS)
September 2006

The following perspectives are merely suggestions or recommendations not direction or requirements. They are deliberately very similar to those prepared by the Department of Interior to contribute to a common sense of purpose for improving haze in all Class I areas. We are sending these perspectives to each state. In so doing, we hope to facilitate inter-state coordination. At the same time, we fully acknowledge the discretion afforded in the Regional Haze Rule (RHR) for unique and creative solutions by individual states in writing plans that reduce haze.

Natural Condition and Uniform Rate
These factors apply mainly to states that have Class I areas. Other states that contribute to visibility impairment in Class I areas located in a different state might consider including discussion and conclusions on these factors in their individual plans.

The basic calculation of baseline, natural condition, and uniform rate builds the foundation for the entire RHR State Implementation Plan (SIP) process. Considerable discussion and debate at the science and policy level has occurred regarding appropriate methods to be used. As a consequence, several equations that include varying parameters or multipliers are available. Because these calculations can have a significant effect on the resulting progress goal, it is important to provide a detailed description of the methods used in the SIP. Calculations that include only portions of established methods or utilize unique approaches will be better understood if the rationale for these differences is fully explained in the SIP or its supporting documentation. We encourage states to use calculations that are based on equations recommended by the Interagency Monitoring of Protected Visual Environments (IMPROVE) steering committee and that are consistent with recommended approaches from the pertinent Regional Planning Organization (RPO) and the Environmental Protection Agency (EPA) region.

Emission Inventories
Given the complexities associated with modern comprehensive emission inventories, spending some considerable effort in describing how these inventories were developed and used will be important. Emission descriptions will be most informative if they include an evolutionary discussion that includes an actual, base-year inventory used to evaluate model performance; a typical base-year inventory that represents the five year, average state which establishes modeled visibility impacts; and various future year, controlled inventories that demonstrate future visibility conditions. Consider adding future year inventories that are clearly partitioned to delineate source types (by text, charts, or graphics) that are included in each model simulation. Benefits to future visibility conditions suggested in the SIP that are not also clearly linked to a future inventory or are not clearly included in future model analysis, will warrant additional discussion.

One part of your emission inventory includes the implementation of “Best Available Retrofit Technology” (BART) on a subset of pre-Prevention of Significant Deterioration sources. The BART source identification, elimination, and level determination will be of particular interest for review. We would prefer to see a clear progression through the three basic BART phases and a thorough description of the RHR prescribed factor analysis (if applicable). Consider discussing whether BART levels apply to individual or grouped source categories.

Area of Influence
The area of influence of significant visibility-impairing sources is an important SIP element. We suggest that that each state clearly identify and apportion by state, or other geographic means, the significant levels of pollutants contributed to each Class I area by source. Developing this information together with neighboring States and Tribes will facilitate consistency. Discussions of changing source area contributions at both the base- and future-year levels will help demonstrate SIP progress. Consider the benefits of presenting this information in the form of transported mass by pollutant or through individually calculated visibility impairment measures. Using a percentage or "Top 10" ranking for current contributions by geographic area may or may not clearly describe progress over time.

Reasonable Progress Goals and Long Term Strategy
Establishing reasonable progress goals for Class I areas in your state and/or acknowledging reasonable progress goals for Class I areas in other states that are affected by emissions from your state, as well as defining associated emissions strategies to meet these goals, form the basis of the SIP process under the RHR.

In developing the statute's required Long Term Strategy (LTS), your state is offered broad flexibility when determining reasonable progress goals and associated emissions. As noted earlier, the RHR includes a requirement for states to assess a uniform rate of progress and compare that rate to the reasonable progress goals set by those states with Class I areas. We feel that this uniform rate of progress assessment is useful in determining the geographic and economic extent a state can consider when developing the LTS associated with the reasonable progress goals.

In general, we will be looking at the degree to which the LTS is supported by RPO technical work and at the level of consistency among the contributing states. For Class I areas where your state is setting a year 2018 reasonable progress goal of equal or less impairment compared to the uniform rate of progress, our review will focus holistically on (1) whether strategies are applied equitably across source types; (2) if both local and regional emission strategies have been fully examined; and (3) how consistent assessments and strategies are applied regionally.

For Class I areas where the reasonable progress goal is more impaired than the uniform rate of progress, consider presenting information on a component basis. Components could consist of emission source category as before, but also include contributions from individual pollutants or by geographic source area. Our intent is to better understand where and why a strategy falls short of the uniform progress rate goal.

Because each region has focused their emission control strategy on different conditions, presenting results in a component format may assist in showing what level of progress was made in the focus area, verses other less controllable factors.

Wildland Fire
Your state has considerable flexibility as it addresses all anthropogenic sources of visibility impairment, including fire. The RHR requires consideration of smoke management techniques for agricultural and forestry management practices in the development of the LTS part of the SIP. On a short-term basis, fire has the potential to cause significant visibility reduction in Class I areas. If fire contributes to the index used to track long-term, reasonable progress in a Class I area, the visibility SIP should identify how it will be addressed. Your state may already have a smoke management program (SMP) that adequately describes how visibility impairment from fire will be

addressed. If fire has been determined to contribute to visibility impairment, we suggest including a fire emissions inventory along with a comment about its reliability and a projection for changes to the future inventory. If your state has a SMP, is it a basic smoke management program or an enhanced smoke management plan? And has the SMP been certified by the Environmental Protection Agency (EPA) Interim Air Quality Policy on Wildland and Prescribed Fire? Identify the specific SMP requirements for minimizing visibility impairment in Class I areas. Are there differences in state regulation for the way in which smoke from agricultural burning and forest fires are treated? Is there a difference in the way emissions from wildfire, prescribed fire, and wildland-fire-use (WFU) fire are identified and treated on private, state, and federal lands?

Regional Consistency

The RPOs have been working toward regionally-consistent approaches to address visibility impairment throughout the SIP development process. There may be circumstances when different methods were used or impairment assessments reached different conclusions. The FLM understands that each state knows what emission control methods or air quality management strategies work best for its areas. Each state may wish to develop strategies that are independent from RPO or neighboring areas.

In this context, our review of "regional consistency" will have less to do with individual discretion each state has in making decisions, and more on how well a group of states identifies and addresses similar agreed upon goals for each Class I area within a common area of influence.

Regional consistency can also be difficult to evaluate if neighboring SIPs (or portions of SIPs) are released for review at different times. We expect that thorough inter-state consultation processes will lead to consistent descriptions of apportionment and emission control goals, thus resulting in development of similar progress goals, regardless of release dates.

Verification and Contingencies

Little emphasis has been placed in the RHR on verification and even less on contingency planning. By rule, each SIP must identify the monitoring data used to specify the original baseline and also as part of an ongoing progress review at five year intervals.

Given the uncertain future of any individual monitoring site, we suggest that the SIP address the representation of both primary and alternative data sites for each Class I area.

Consider not only the data necessary to measure progress, but also how to account for and mitigate both unexpected and reasonably foreseeable emissions growth, changes to the geographic distribution of emissions, and substantive errors that may be found in emission inventories or other technical bases of the SIPs. These factors, as well as other unanticipated circumstances, may adversely affect your state's ability to achieve the emissions reductions projected by the SIP. Considering these factors through adaptive management or continual review strategies may assist in avoiding these circumstances.

Coordination and Consultation

The 1999 RHR requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR, SIP, or SIP revision (40 CFR 51.308(i). As named in the cover letter to this enclosure, a single FS air specialist has been assigned to your state.

Federal Land Manager (FLM)/ CTDEP Regional Haze State Implementation Plan (SIP) Consultation (3/18/09)

Conference Call Participants
Holly Salazer – National Park Service
Bruce Polkowsky – National Park Service
Don Shephard
Pat Brewer – National Park Service
Scott Copeland- US Forest Service
Tim Allen – US Fish & Wildlife Service
Anne McWilliams- EPA Region I
Anne Arnold- EPA Region I
Dave Wackter – CTDEP
Wendy Jacobs –CTDEP
Paul Bodner-CTDEP
Susan Amarello-CTDEP
Ric Pirolli-CTDEP

Holly: These are the National Park Service and US Fish & Wildlife Service preliminary comments. The US Forest Service does not have preliminary comments but will send in final comments before the 60 day clock is over (April 6).

Regarding the MANE-VU ask and what the state is committing to with respect to the ask, there are contradictory statements in the SIP. CT needs to take ownership and say what actions the state will, may, or will not take and why. Bruce: This comment was a pretty uniform concern across the MANE-VU states. You need to say here are our sources and here's what will happen. Here is a list of regulations in place and here are the affected sources. Here are projected emissions. At the 5 year review say this is what actually happened. They need as much detail as we can describe. They want us to include a timetable so the FLMs can look at that when they review SIP.

Move information about CT contributions as compared with other states in Section 8 to Section 2 as well so it's right up front. Tim: For 2002 emission totals, show apportionment by dv. Provide 2018 apportionment to visibility. Abandon showing %. Not sure if the dv information is in the technical document. Pat: There is MANE-VU modeling work in the Contribution Assessment that includes information beyond %.

The SIP has to be clear about uncertainty regarding achieving reasonable progress goals. Section 10 talks about a four factor analysis.

Monitoring Strategy (Section 5) – FLMs want states to say that they support IMPROVE network with funding. They are talking about the IMPROVE network in Class I areas. Dave: We could encourage EPA to continue funding and say that we will continue to work with other states and the FLMs to continue the network if EPA funding goes away.

Source Retirement (Section 11.5) – Talk about uncertainty of units shutting down. Commit to talking about units that have shut down in 5 year review. Could include small NSR discussion. There is a linkage between PSD/NSR. Although we want a 20% reduction on the worst days, we also want reductions on the best days.

Section 11.9 – What inventory was used to get to the modeled results in 2018? CTDEP should identify the strategies they expect to have in place to reduce emissions to these levels by 2018.

Section 11.12 – Importance of the PSD NSR program. The FLM statement was more of an affirmatory comment. We don't need to do anything to address that comment. That was for their checklist purposes (to indicate that we included that in our SIP).

Smoke Management – Is it a voluntary program? Does CTDEP work with the Forestry Division on it? The FLMs need more information summarizing the program. CTDEP could explain how CGS 22a-174(f) came about and what it prohibits. We should say if Class I areas are not included as sensitive receptors. Organic carbon is the second largest contributor to regional haze, but the states don't really do anything about it. CTDEP could say that emissions are minimal and not expected to grow.

BART

CTDEP asserts that the alternative program vs. case-by-case determination is preferable. EPA's BART guideline recommendations and MANE-VU's presumptive levels are not necessarily BART until an analysis is conducted. There is a lack of a 5 factor analysis. In going through the pollutant by pollutant description, it makes it clear that we're not doing a case-by-case review. CTDEP should describe on a source-by-source basis existing and possible controls at each facility. You can't stop at saying that MANE-VU's and EPA's levels are BART. CTDEP should talk about the 5 factors as they apply to individual sources. CTDEP should provide a summary of what each facility has done and what each facility could have done. FLMs want numbers in $/ton or $/dv instead of $/year. For this company, NESCAUM modeling found this impact. Incorporate more specific 5 factor discussion. For PM, show that it's not cost-effective. MD used their Healthy Air Act. MD included a comparison about what plants could do. Anne Arnold – I'm confused about Tim not calling what CT is doing an alternative plan. EPA interprets what CT is doing as an alternative plan. Anne McWilliams reads language in 40 CFR 51.308(e)(2)(i)(C) about source specific and category wide information, as appropriate, being acceptable. Dave talks about extremely high electric rates in CT and how several of the BART-eligible facilities will likely be shutting down in a few years. Anne McWilliams – The NH SIP includes categories of units. The FLMs think we should say a little bit about site specific information. Tim: The FLMs will add some additional paragraphs to their preliminary comments. Tim thinks that we are further along (closer to where we need to be) than the preliminary comments would indicate.

Future schedules

We are already at 40 days on the clock. There are two options: 1) CTDEP can stop the clock, take the FLM preliminary comments, revise SIP, and provide the FLMs with another draft SIP before receiving formal FLM comments or 2) FLMs can proceed as is and submit formal comments before the clock ends. Dave suggested the second option because we want to get our SIP in as soon as possible and we can deal with additional comments through the hearing public comment process.

Tim: If Region I is willing to accept a generic BART discussion, another option is to get rid of the case by case headings (Table 9-4 categorical substitute of alternative program for case-by-case reference and other case-by-case references) and not go with the case-by-case discussions. The FLMs encourage case-by-case review though.

EPA will also provide written comments during the first week of April.

Description of Environmental Protection Agency (EPA) Comments on Connecticut's Draft Regional Haze State Implementation Plan (SIP) and Connecticut Department of Environmental Protection (CTDEP) Responses

CTDEP appreciates the time and effort put forth by EPA in the development of their comments on the Draft Regional Haze SIP. CTDEP looks forward to continuing the work with EPA, Federal Land Managers and other interested stakeholders to develop an approvable regional haze SIP for the State of Connecticut. CTDEP also looks forward to continuing the consultative process as we move forward regionally in addressing regional haze.

Chapter 1: The Regional Haze Issue

Comment

Paragraph four on page 1-1 should be revised as follows:

> *"The Regional Haze Rule calls for each state to ~~establish reasonable progress goals for visibility improvement and to~~ formulate a long-term strategy for meeting these goals."*

Response

CTDEP has revised paragraph four on page 1-1 in accordance with the comment.

Comment

On page 1-5, Connecticut states, "On the worst 20 percent days, visibility impairment in Northeast and Mid-Atlantic Class I areas ranges from about 25 to 30 dv (deciviews)." This statement is inconsistent with the data presented later in Table 4.2 in Section 4.2. The table lists the baseline 20% worst visibility for MANE-VU Class I areas as 21.7 to 29.0 dv. In addition, in the page 1-5 discussion, it would be helpful to include the visibility range in miles in order to give the reader a better frame of reference.

Response

CTDEP has revised the sentence "On the worst 20 percent of days, visibility impairment in Northeast and Mid-Atlantic Class I areas ranges from about 25 to 30 dv." on page 1-5 as follows:

"On the worst 20 percent of days, visibility impairment in Northeast and Mid-Atlantic Class I areas ranges from 21.4 to 29 dv (a visual range of about 30 to 14 miles)."

Comment

Paragraph four on page 1-6 should be revised as follows:

> *"…about half of the worst visibility days in the New Hampshire Class I Areas occur in the summer when meteorological conditions are more conducive to the formation of sulfate from SO_2 and to the oxidation of organic aerosols. ~~In addition, winter and summer transport patterns are different, possibly leading to different contributions from upwind source regions. As a result,~~ The remaining worst visibility days are divided nearly equally among spring, winter and fall. In addition, winter and summer transport patterns are different, possibly leading to different contributions from upwind source regions."*

Response

CTDEP has revised paragraph four on page 1-6 in accordance with the comment.

Chapter 6, Emissions Inventory

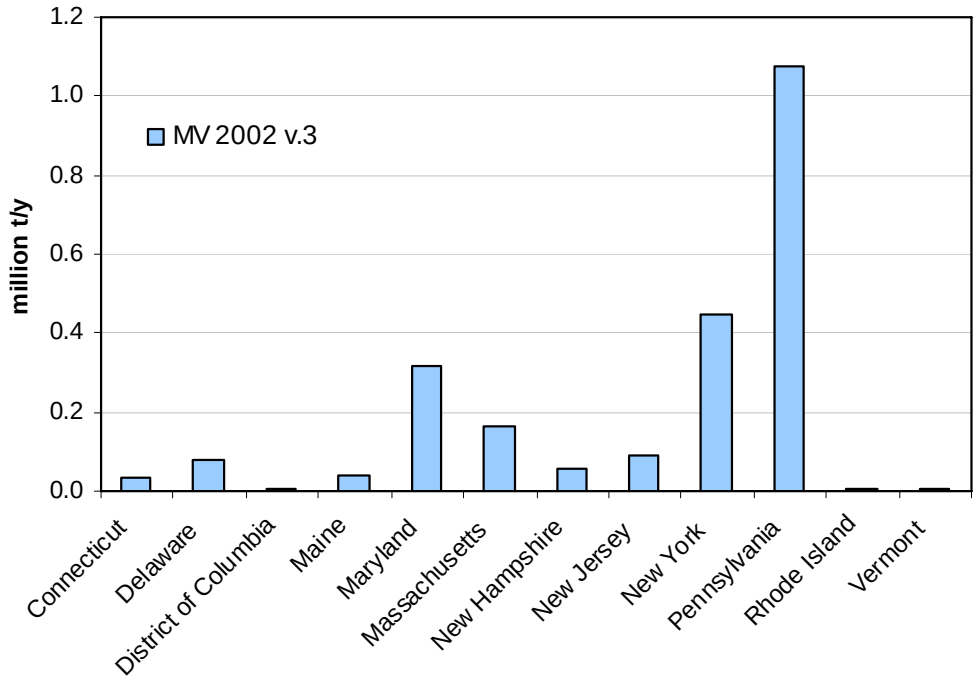
Comment
Table 6.1 indicates that EGU Point SO_2 emissions were 2,438 tons in 2002. Table 6.2 indicates that EGU Point SO_2 emissions in 2018 are expected to be 6,697 tons. Connecticut should explain why SO_2 emissions are expected to increase so significantly.
Response
The EGU Point and non-EGU Point SO_2 emissions in Table 6.1 were inadvertently reversed. The EGU Point SO_2 emissions in Table 6.1 should be 13,550 tons and the non-EGU Point SO_2 emissions in Table 6.1 should be 2,438 tons. CTDEP has corrected the tables.

Chapter 8: Understanding the Sources of Haze-Causing Pollutants
Comment
The reference cited for Figure 8.11 appears inaccurate. Please correct this reference.
Response
CTDEP has changed the (EPA, 2005) reference in Section 8.3.1, Sulfur Dioxide (SO_2) to (MARAMA, 2005).

Comment
In the second paragraph of Section 8.3.1, Connecticut states, "Most states in the region showed declines in annual SO_2 emissions through 2002 compared with those previous inventories." Connecticut should include the data that support this statement, refer to another document that contains the supporting data, or remove the statement.
Response
CTDEP has reorganized and revised the text after the first paragraph in Section 8.3.1, Sulfur Dioxide (SO_2) as follows:

"Figure 8.11 shows SO_2 emissions in the MANE-VU states as extracted from the 2002 MANE-VU inventory (MARAMA, 2005).

Figure 8.11: Annual Sulfur Dioxide (SO_2) Emissions, by State

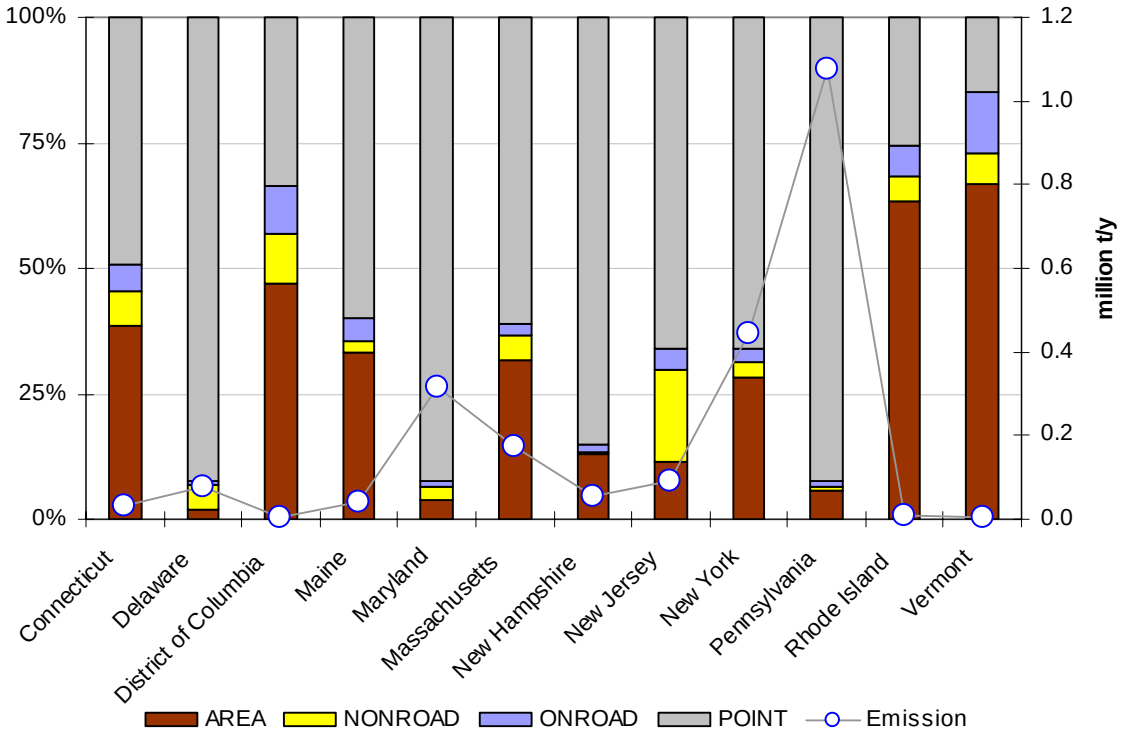


The bar graph in Figure 8.12 displays the percentage contributions from different emission source categories to annual SO_2 emissions in the MANE-VU states in 2002. The chart shows that point sources – consisting mainly of stationary combustion sources for generating electricity, industrial power, and heat – dominate SO_2 emissions in the region.

Figure 8.12: 2002 Sulfur Dioxide (SO_2) Emissions, by State

Bar Graph = Percentage Fractions of Four Source Categories

Line Graph = Total Annual Emissions (10^6 tpy)



As can be seen in Table 8.2 (EPA NEI database, 2008), most states in the region showed declines in annual SO_2 emissions through 2002 compared with those from previous inventories.

Table 8.2 MANE-VU 1990, 1996 and 2002 SO_2 Point Source Emissions (tpy)

	CT	DC	DE	ME	MD	MA	NH	NJ	NY	PA	RI	VT
1990	70,845	5,123	88,450	70,086	314,157	256,593	76,597	155,021	654,256	1,377,470	3,899	1,050
1996	44,055	1,717	83,836	28,128	275,360	121,119	58,605	133,862	404,465	1,156,280	2,664	2,117
2002	16,027	2,057	74,447	22,915	291,009	105,966	46,579	61,229	297,113	995,869	2,653	911

This decline can be attributed in part to implementation of Phase 2 of the Acid Rain Program, which in 2000 further reduced allowable emissions below Phase I levels and extended emission limits to a greater number of power plants.

Smaller stationary combustion sources, referred to collectively as area sources, are another important source category in the MANE-VU states. These include smaller industrial, commercial, and institutional boilers as well as residential heating sources. By contrast, on-road and non-road mobile sources make a relatively minor contribution to overall SO_2 emissions in the region (NESCAUM, 2001a)."

Chapter 9: Best Available Retrofit Technology (BART)

Comment

In Section 9.2.3, Connecticut should include a discussion of the available controls for each source category and the determination of the BART control level benchmark.

Response

Regarding a discussion of the available controls for each source category, CTDEP has added the following language to Section 9.2.3, Determination of what BART is for each source subject to BART:

"The following discussions describe the currently available NOx, SO_2 and PM control technologies for EGUs and Industrial Boilers, the EPA Guideline for BART Determinations, and the MANE-VU BART Workgroup recommended emission limits for NOx, SO_2 and PM.

Currently available control technologies for EGUs and Industrial Boilers

NOx

Firing Configurations and Firing Practices

Firing configuration and firing practices can result in a 5 to 60% reduction in NOx formation. Firing configuration is a design characteristic of the boiler. Firing practices include such things as low excess air, flue-gas recirculation, staged combustion, reduced air preheat, low NOx burners, and fuel substitution/alteration.

Operating at low excess air involves reducing the amount of combustion air to the lowest possible level while maintaining efficient and environmentally compliant boiler operation. NOx formation is inhibited because less oxygen is available in the combustion zone. These methods may change the normal operation of the boiler and the effectiveness is boiler-specific. Implementation of these techniques may also reduce operational flexibility; however, they may reduce NOx by 10 to 20% from uncontrolled levels.

Flue-gas recirculation involves reinserting a portion of the flue-gas into the combustion chamber. The reduced oxygen content of the reused air will inhibit the production of NOx.

Staged combustion involves a fuel-rich combustion zone, followed by a secondary combustion zone in which excess air is introduced.

Reduced air preheat involves bypassing the combustion air preheater and thus lowering the combustion temperature and reducing the formation of thermal NOx.

Low NOx burners are designed to control fuel/air mixing and increase heat dissipation. These alternative burners can be installed on new boilers or retrofitted on older units. Low NOx burners have been shown to reduce NOx formation by 35-55%.

Fuel substitution requires burning fuel with a lower nitrogen content to inhibit the production of fuel NOx. The lower the content of nitrogen in a fuel, the lower the resultant NOx emissions will be.

Overfire Air

Overfire air involves injecting a portion of the total combustion air above the burners. Overfire air limits NOx by (1) suppressing thermal NOx by partially delaying an extending the combustion process resulting in less intense combustion and cooler flame temperatures; (2) a reduced flame temperature that limits thermal NOx formation, and/or (3) a reduced residence time at peak temperature which also limits thermal NOx formation. Overfire air can reduce NOx emissions by 20-30%.

Water/Steam Injection

Water or steam can be injected into the boiler combustion zone to reduce the peak flame temperature. The lower temperature results in a lower rate of formation of thermal NOx.

Selective Non-Catalytic Reduction (SNCR)

SNCR is a post-combustion technique that involves injecting ammonia or urea into specific temperature zones in the upper furnace or convective pass. The ammonia or urea reacts with NOx in the flue gas to produce nitrogen and water. The effectiveness of SNCR depends on the temperature where reagents are injected; mixing of the reagent in the flue gas; residence time of the reagent within the required temperature window; ratio of reagent to NOx; and the sulfur content of the fuel that may create sulfur compounds that deposit in downstream equipment. There is not as much commercial experience to base effectiveness on a wide range of boiler types; however, in limited applications, NOx reductions of 35 to 60% have been achieved.

Selective Catalytic Reduction (SCR)

SCR is another post-combustion technique that involves injecting ammonia into the flue gas in the presence of a catalyst to reduce NOx to nitrogen and water. The SCR reactor can be located at various positions in the process including before an air heater and particulate control device, or downstream of the air heater, particulate control device, and flue gas desulfurization systems. The performance of SCR is influenced by flue gas temperature, fuel sulfur content, ammonia-to-NOx ratio, inlet NOx concentration, space velocity, and catalyst condition. NOx emission reductions of 75 to 90% have been achieved through the use of SCR on oil-fired boilers operating in the U.S.

$\underline{SO_2}$

Wet Flue Gas Desulphurization (FGD)

FGD processes use an alkaline reagent to absorb SO_2 in the flue gas and produce a sodium or a calcium sulfate compound. These solid sulfate compounds are then removed in downstream

equipment. Wet regenerable, meaning the reagent material can be treated and reused, FGD processes are attractive because they have the potential for better than 95% sulfur removal efficiency, have minimal waste water discharges, and produce a saleable sulfur product. Some of the current nonregenerable calcium-based processes can, however, produce a saleable gypsum product.

To date, wet systems are the most commonly applied. Wet systems generally use alkali slurries as the SO_2 absorbent medium and can be designed to remove greater than 95% of the incoming SO_2. Lime/limestone scrubbers, sodium scrubbers, and dual alkali scrubbing are among the commercially proven wet FGD systems.

Low-Sulfur Fuels

SO_2 emissions are directly related to the sulfur content of the fuel burned. Reducing the amount of sulfur in the fuel will reduce SO_2 emissions. The low-sulfur coal may be naturally occurring or the result of coal cleaning.

PM

Mechanical Collectors

Mechanical collectors, such as cyclones, are typically effective at collecting large particles. Smaller particles typically escape the cyclone along with the gases. Cyclones are best used in conjunction with other pollution control equipment. The collection efficiency for larger particulate matter (PM greater than 10 microns) typically runs around 85%.

Electrostatic Precipitators (ESPs)

When particle-laden gases pass through an ESP, the particles become charged. An electric field then acts on the particles and forces them to the sides of the precipitator. The particles can then be collected by washing the sides of the precipitator or knocking it so that the particles fall down into a collector. Existing ESPs are typically 40 to 60% efficient. New or rebuilt ESPs can achieve collection efficiencies of more than 99%.

Fabric Filters

Fabric filtration, or baghouses, incorporates multiple fabric bags/filters inside a structure. The particulate removal efficiency of the fabric filter system is dependent on a variety of particle and operational characteristics including particle size distribution, particle cohesion characteristics, and particle electrical resistivity. Operational parameters that affect collection efficiency include air-to-cloth ratio, operating pressure loss, cleaning sequence, interval between cleaning, and cleaning intensity. The structure of the fabric filter, filter composition, and bag properties also affect collection efficiency. Collection efficiencies of baghouses may be more than 99%.

Fuel Substitution

Cleaner fuels will result in less PM emissions.

Scrubbing Systems

Scrubbing systems involve the injection of chemicals and/or water into the flue gas to inhibit the physical or chemical absorption of particles or gaseous pollutants. Scrubbing systems have been shown to reduce PM emissions by 50-60%."

Sections 9.2, 9.2.1, 9.2.2, 9.2.3 and 9.2.4 of Connecticut's Regional Haze SIP encompass the discussion on the determination of the BART control level benchmark.

Comment

In Section 9.3, Connecticut states, "During the last few years Connecticut has developed additional regulatory measures aimed at reducing emissions of SO_2 and NOx from a large universe of in-state sources." Connecticut should include more information regarding the universe of sources impacted by these additional regulatory measures. Specifically, Connecticut should emphasize the number and size of non-BART sources that are subject to these measures.

Response

CTDEP has added a new table (9-4) to Section 9.3, Connecticut's Alternative Measures (see Attachment 1). The table lists all of the Post-2002 NOx Budget Program sources that are collectively referenced in the SO_2 and NOx programs for alternative BART discussed in Section 9.3. The list includes the size of the unit. CTDEP has added text describing or referencing the table, including specific numbers of sources impacted, to Sections 9.3, 9.3.1 and 9.3.2 as follows:

Section 9.3, Connecticut's Alternative Measures (added following sentence to end of paragraph)

"Table 9-4 lists the Connecticut sources, including Connecticut's seven BART-eligible sources (highlighted), that are addressed in the following discussions on Connecticut's SO_2 and NOx Programs for Alternative BART."

Section 9.3.1, Connecticut's SO_2 Program for Alternative BART

Added following parentheses to end of first sentence:

"(the approximately 59 sources referenced in Table 9-4)"

Added following parentheses to first sentence in summary of Tier 1:

"(all sources listed in Table 9-4)"

Added following parentheses to first sentence in summary of Tier 2:

"(30 boldfaced sources in Table 9-4)"

Added following parentheses to first sentence in fifth paragraph in Summary of RCSA section 22a-174-19a section:

"(subject sources are listed in Table 9-4)"

Section 9.3.2, Connecticut's NO_x Program for Alternative BART

Added following language to Summary of Revisions to RCSA sections 22a-174-22, 22a, 22b and 22c section:

Added following phrase to parentheses in third sentence of second paragraph:

"sources listed in Table 9-4"

Added following parentheses to second sentence of third paragraph:

"(listed in Table 9-4)"

Chapter 11, Long-Term Strategy

Comment

In the second paragraph of Section 11.4.2, Connecticut discusses possible logistical issues that may impact implementation of the low-sulfur oil strategy in the northern New England states. It is not clear why this discussion is included in Connecticut's SIP. The DEP should either explain how this might be relevant to Connecticut's ability to enact the MANE-VU low sulfur fuel oil strategy, or delete the discussion.

Response

CTDEP has deleted the discussion referenced in Section 11.4.2, Low-Sulfur Oil Strategy.

Comment

In the third paragraph of Section 11.4.2, Connecticut states that DEP will review the details of the low-sulfur fuel oil strategy in five years, "to ascertain that requiring the use of low-sulfur fuel remains viable for implementation by 2018." This appears inconsistent with the MANE-VU "Ask" for the other (sic) zone which calls for #2 distillate oil to be reduced to 0.05 percent (500 ppm) sulfur, by weight, by no later than 2014.

Response

CTDEP has revised the second paragraph (formerly the third paragraph) of Section 11.4.2, Low-Sulfur Oil Strategy, as follows:

> "The MANE-VU states agree that a fuel sulfur content limit on residual oil and distillate oil is reasonable to pursue over the next ten years. CTDEP will review the details of this strategy in five years, coincident with Connecticut's first regional haze SIP progress report. Section 16a-21a of the Connecticut General Statutes limits fuel sulfur content of heating distillate oil and off-road diesel oil to 500 ppm as of the date on which the last of the States New York, Massachusetts and Rhode Island limit the sulfur content of such fuels. Therefore, implementation of this strategy in Connecticut is dependent upon adjacent states' implementation. CTDEP continues to participate in consultations with other MANE-VU states to develop a low sulfur heating strategy consistent with the MANE-VU "Ask".

Comment

In Section 11.5, EPA recommends that Connecticut include a table of any verified source retirements or replacements, rather than referring the reader to the attachments.

Response

CTDEP has removed the reference to Table B-5 in Attachment N because Table B-5 does not contain any Connecticut sources. Based on modeling performed to support the development of an Integrated Resource Plan for the CT Department of Public Utility Control (CTDPUC), CTDEP strongly believes that under Connecticut's new forward capacity market, several large electric generating units will simply become too expensive to operate, thus forcing their economic retirement. As a result, CTDEP has added the following language to Section 11.5:
"While the output of the IPM model predicts that a certain number of older plants will be replaced by newer units to meet future electric growth and state-specific NO_X and SO_2 caps, Connecticut did not directly rely on the closure of any particular plant in establishing the 2018 inventory upon which the reasonable progress goals were set.

The modeling used to develop the 2018 emissions inventory appears to predict that several large EGUs in Connecticut, including five of the six BART-eligible EGUs (Middletown Power 3 & 4, Montville Power 6, Norwalk Power 2 and PSEG Power Connecticut New Haven Harbor 1) will retire by 2018. Table 11.1 shows two non BART-eligible EGUs in Connecticut that have retired since 2002."

Table 11.1 Retired EGUs

Unit	Capacity (MW)	Retirement Date
Devon 7	109	11/28/07
Devon 8	109	11/28/07

Comment

The Section 11.9 discussion on Connecticut's share of emission reductions currently focuses on SO_2 reductions. Connecticut should also summarize any additional programs the state plans to implement that will lead to visibility improvements. For example, does Connecticut plan to adopt a rule for outdoor wood boilers, as has been done by several New England states?

Response

CTDEP has added the following two paragraphs to the end of Section 11.9, Connecticut's Share of Emission Reductions:

"In terms of additional programs leading to visibility improvements, CTDEP recognizes the increased use of wood burning devices, as fuel prices rise and more people turn to wood as a primary or secondary fuel source. In 2005, the Connecticut General Assembly took initial steps to address some of the public health and environmental concerns, including visibility issues, caused by outdoor wood burning furnaces (OWBFs) through the adoption of minimum siting and operational restrictions.[23] While actively enforcing the statute, CTDEP continues to gather and evaluate information concerning OWBF emissions and to learn from the success of surrounding states with more stringent regulatory programs for OWBFs. Adoption of performance standards for new OWBFs would be most effectively pursued by EPA since the sales market includes the entire northern United States.

In addition, in 2005 CTDEP adopted RCSA section 22a-174-36b, Low Emission Vehicles II Program, which implements the California LEV II program beginning with model year 2008. The California LEV II program is more stringent than the federal Tier 2 motor vehicle emissions standards. An analysis provided by Cambridge Systemics for NESCAUM finds that the California LEV II program provides an additional emissions reduction benefit in light duty vehicle emissions (17 tons per day of NOx and VOC in CT, NJ and RI) over and above what the

[23] Section 22a-174k of the Connecticut General Statutes prohibits the construction and use of an OWBF unless the OWBF is located more than 200 feet from any residence, meets certain stack height criteria and the owner complies with certain operating practices, including a requirement to burn only clean wood.

federal Tier 2 program is expected to achieve. Reduced formation of secondary organic aerosol is likely another benefit of the California LEV II program."

Comment

Section 11.11 discusses enforceability of emission limitations. In order to ensure federal enforceability, Connecticut should submit to EPA as a SIP revision any regulations that the state considers part of its Regional Haze SIP. Also, section 11.11 includes the statement, "CTDEP will incorporate existing PM controls at the BART-eligible units into Title V permit renewals for BART purposes." This will not necessarily make BART federally enforceable unless the underlying requirement is federally enforceable.

Response

CTDEP has revised the fifth paragraph of Section 11.11 as follows:

With respect to control measures for visibility improvement under the Regional Haze Rule, the following enforceable provisions will apply to affected in-state BART-eligible units:

- Low-sulfur fuel limits in RCSA section 22a-174-19a have applied to all of the BART eligible units since 2002/2003 (0.5% fuel sulfur content or 0.55 lb/MMBtu quarterly SO_2 emission limit for non-EGUs; 0.5%/0.3% fuel sulfur content or 0.55 lb/MMBtu/0.33 lb/MMBtu quarterly SO_2 emission limits for EGUs). CTDEP has submitted the emission limits of RCSA section 22a-174-19a to EPA on November 18, 2008 in order to make such provisions federally enforceable. The approval request is pending.

- CTDEP has submitted RCSA section 22a-174-22(e)(3) to EPA on November 18, 2008 in order to make the 0.15 lb/MMBtu non-ozone seasonal NO_x emission limit (effective October 2003) federally enforceable. The approval request is pending.

- CTDEP will incorporate existing PM controls at the BART-eligible units into Title V permit renewals for BART purposes. Two of Connecticut's BART-eligible units with PM controls have federally enforceable New Source Review permits (see Table 9-16). In addition, CTDEP submitted the current version of RCSA section 22a-174-18 to EPA for SIP approval on December 1, 2004. The approval request is pending.

ATTACHMENT 1

Table 9-4: Universe of Sources Addressed in Connecticut's SO_2 and NOx Programs for Alternative BART (Post-2002 NOx Budget Program Source, Unit ID, Location, Size) (BART-eligible units are highlighted; Acid Rain Program units are boldfaced)

AES Thames, Unit A, Montville, 200 MW	**Milford Power Company LLC 1, Milford, 272 MW**
AES Thames, Unit B, Montville, 200 MW	**Milford Power Company LLC 2, Milford, 272 MW**
Algonquin Power Windsor Locks, 38 MW	**Montville Power LLC, Unit 5, Montville, 81 MW**
Connecticut Jet Power, Branford, 20 MW	**Montville Power LLC, Unit 6, Montville, 410 MW**
Bridgeport Energy 1, Bridgeport, 170 MW	**PSEG Power Connecticut LLC, Unit 1, New Haven, 465 MW**
Bridgeport Energy 2, Bridgeport, 170 MW	**Norwalk Power LLC, Unit 1, Norwalk, 172 MW**
PSEG Power Connecticut LLC, Unit 2, Bridgeport, 170 MW	**Norwalk Power LLC, Unit 2, Norwalk, 172 MW**
PSEG Power Connecticut LLC, Unit 3, Bridgeport, 410 MW	Norwalk Power LLC, Unit 10, Norwalk, 20 MW
PSEG Power Connecticut LLC, Unit 4, Bridgeport, 22 MW	Norwich DPUC, Norwich, 20 MW
Capitol District Energy Center, Hartford, 55 MW	Pfizer Inc, Boiler 5, Groton, 399 MMBtu/hr
Cascades Boxboard Group - Connecticut LLC, Versailles, 275 MMBtu/hr	Pfizer Inc, Boiler 8, Groton, 267 MMBtu/hr
Connecticut Jet Power, Cos Cob 10, Greenwich, 20 MW	Pratt & Whitney Cogen, East Hartford, 32 MW
Connecticut Jet Power, Cos Cob 11, Greenwich, 20 MW	CRRA, South Meadow 11A, Hartford, 20 MW
Connecticut Jet Power, Cos Cob 12, Greenwich, 20 MW	CRRA, South Meadow 11B, Hartford, 20 MW
Devon Power LLC, Unit 7, Milford, 109 MW	CRRA, South Meadow 12A, Hartford, 20 MW
Devon Power LLC, Unit 8, Milford, 109 MW	CRRA, South Meadow 12B, Hartford, 20 MW
Devon Power LLC, Unit 10, Milford, 20 MW	CRRA, South Meadow 13A, Hartford, 20 MW
Devon Power LLC, Unit 11, Milford, 40 MW	CRRA, South Meadow 13B, Hartford, 20 MW
Devon Power LLC, Unit 12, Milford, 40 MW	CRRA, South Meadow 14A, Hartford, 20 MW
Devon Power LLC, Unit 13, Milford, 40 MW	CRRA, South Meadow 14B, Hartford, 20 MW
Devon Power LLC, Unit 14, Milford, 40 MW	Connecticut Jet Power, Torrington Terminal, Torrington, 20 MW
Connecticut Jet Power, Franklin Drive, Torrington, 20 MW	FirstLight Power Resources Services, Tunnel, Preston, 20 MW
Lake Road Generating Company 1, Killingly, 264 MW	**Wallingford Energy 1, Wallingford, 50 MW**
Lake Road Generating Company 2, Killingly, 264 MW	**Wallingford Energy 2, Wallingford, 50 MW**
Lake Road Generating Company 3, Killingly, 264 MW	**Wallingford Energy 3, Wallingford, 50 MW**
Middletown Power LLC, Unit 2, Middletown, 117 MW	**Wallingford Energy 4, Wallingford, 50 MW**
Middletown Power LLC, Unit 3, Middletown, 245 MW	**Wallingford Energy 5, Wallingford, 50 MW**
Middletown Power LLC, Unit 4, Middletown, 400 MW	Waterside Power 4, Stamford, 23.2 MW
Middletown Power LLC, Unit 10, Middletown, 20 MW	Waterside Power 5, Stamford, 23.2 MW
	Waterside Power 7, Stamford, 23.2 MW

Description of Federal Land Manager (FLM) Comments on Connecticut's Draft Regional Haze SIP and Connecticut Department of Environmental Protection (CTDEP) Responses as Required by 40 CFR 51.308(i)(3)

CTDEP received preliminary comments on Connecticut's draft Regional Haze SIP from the U.S. Department of the Interior (DOI), National Park Service (NPS) and U.S. Fish and Wildlife Service (USFWS) on March 16, 2009. A conference call to discuss the agencies' comments was held on March 18, 2009, with representatives from NPS, U.S. Forest Service (USFS), USFWS, EPA, and CTDEP in attendance. Final comments from DOI – NPS and USFWS were received in a letter dated April 3, 2009. Final comments from USFS were received in a letter dated April 8, 2009. CTDEP's responses to the USFS' comments are described below (NPS and USFWS comments/responses are in a separate document).

CTDEP appreciates the effort put forth by the U.S. Department of Agriculture (USDA) in crafting these very helpful comments. CTDEP firmly supports, and is committed to, the interagency consultative process and looks forward to a continuing working relationship with the FLMs as we convey the myriad of technical requirements inherent in clean air regulations and other programmatic nuances in Connecticut's air pollution control programs.

USDA Forest Service comments
Section 6, Emissions Inventory
Comment
The discussion of emissions inventories is generic and only explains the work done by MANE-VU and NESCAUM. This section should include additional discussion of how the Connecticut specific emissions (presented in Tables 6.1 & 6.2) were generated.
Response
CTDEP has added references to locations of Connecticut-specific language for deriving emissions in Attachment M (Technical Support Document for 2002 MANE-VU SIP Modeling Inventories, Version 3) underneath Table 6.1:

"Descriptions of how the Connecticut 2002 specific emissions were generated can be found in Attachment M (EGU Point, Non-EGU Point – pages 20, 43; Area – pages 58-59; Mobile – pages 97-99; Non-Road Mobile – pages 77, 84; and Biogenic – page 117)."

CTDEP has added references to locations of Connecticut-specific language for deriving emissions in Attachment N (Development of Emission Projections for 2009, 2012 and 2018 for NonEGU Point, Area, and Nonroad sources in the MANE-VU Region) and Attachment O (Development of MANE-VU Mobile Source Projection Inventories for SMOKE/MOBILE6 Application) underneath Table 6.2:

"Descriptions of Connecticut-specific adjustments to the 2018 RPG (Best and Final) Emissions Inventory can be found in Attachment N (Non-EGU Point source growth factors – page 2-5, control measures – pages 5-3 through 5-6; and Area growth factors – page 3-4, control measures - pages 3-9, 5-20 through 5-22) and Attachment O (Mobile source activity input data and scenario input files – page 3, SMOKE-related files – page 4). No Connecticut-specific adjustments were made to the EGU Point, Non-Road Mobile and Biogenic inventories."

Comment

We would like Connecticut to commit to tracking emissions annually and reporting how the projected emissions compare to actual emissions in the mid-course review due in 2012 and required SIP revision due in 2018.

Response

While CTDEP would like to commit to the enhanced tracking and reporting as requested by USDA, given the state's current fiscal constraints we cannot support this effort at this time. However, if USDA would like to support this effort, CTDEP would be willing to track and report the requested information. In the alternative, CTDEP will continue to annually track and triennially report emissions, as follows by adding the following language to Section 6.4:

"CTDEP will be preparing a periodic emission inventory on a three year schedule as required by EPA and these emissions will be used to track how the projected emissions compare to actual emissions in the first five-year regional haze SIP progress report and required SIP revision due in 2018."

Section 2, Areas Contributing to Regional Haze

Comment

The discussion regarding Connecticut's contribution to visibility impairment at other States' Class I areas in Section 2 of the Draft SIP is brief. Section 8.2 of the Draft SIP provides additional information on Connecticut's contribution to sulfate impacts. It is suggested that additional discussion be added to Section 2, including a reference to Section 8.2.

Response

CTDEP has added the following language, some of which also appears in Section 8.2, Contributing States and Regions, to Section 2.1:

"Table 2.2 shows Connecticut's SO_2 annual impacts at northeast Class I Areas as compared with other MANE-VU states. Connecticut consistently has one of the smallest impacts on all northeast Class I Areas when considering all MANE-VU states.

Table 2.2: Percent Contributions (Mass Basis) of Individual States and Regions to Total Annual Sulfate Impacts at Northeast Class I Areas (REMSAD)

Contributing State or Region	Mandatory Class I Area						
	Acadia ME	Brigantine NJ	Dolly Sods WV	Great Gulf & Presidential Range – Dry River, NH	Lye Brook VT	Moosehorn & Roosevelt Campobello	Shenandoah VA
Connecticut	0.76	0.53	0.04	0.48	0.55	0.56	0.08
Delaware	0.96	3.20	0.30	0.63	0.93	0.71	0.61
District of Columbia	0.01	0.04	0.01	0.01	0.02	0.01	0.04
Maine	6.54	0.16	0.01	2.33	0.31	8.01	0.02
Maryland	2.20	4.98	2.39	1.92	2.66	1.60	4.84
Massachusetts	10.11	2.73	0.18	3.11	2.45	6.78	0.35
New Hampshire	2.25	0.60	0.04	3.95	1.68	1.74	0.08
New Jersey	1.40	4.04	0.27	0.89	1.44	1.03	0.48
New York	4.74	5.57	1.32	5.68	9.00	3.83	2.03
Pennsylvania	6.81	12.84	10.23	8.30	11.72	5.53	12.05
Rhode Island	0.28	0.10	0.01	0.11	0.06	0.19	0.01
Vermont	0.13	0.06	0.00	0.41	0.95	0.09	0.01
MANE-VU	36.17	34.83	14.81	27.83	31.78	30.08	20.59
MRPO	11.98	18.16	30.26	20.10	21.48	10.40	26.84
VISTAS	8.49	21.99	36.75	12.04	13.65	6.69	33.86
CenRAP	0.88	1.12	1.58	1.65	1.67	0.82	1.48
Canada	8.69	7.11	3.90	14.84	12.43	7.85	4.75
Other	33.79	16.78	12.70	23.54	18.99	44.17	12.48

Source: Table 8-1 of the MANE-VU Contribution Assessment

Note: Indicated percent contributions from VISTAS, CenRAP and Canada apply only to those portions lying within the modeling domain (see Figure 7.1). Actual contributions, especially from CenRAP, would be higher than stated.

The ranking of emission contributions to visibility impairment in the MANE-VU Class I Areas has direct relevance to the consultation process described in Section 3.0, Regional Planning and Consultation. Using results from the REMSAD model, MANE-VU applied the following three criteria to identify states and regions for the purposes of consultation on regional haze:

1. Any state/region that contributed 0.1 $\mu g/m^3$ sulfate or greater on the 20 percent worst visibility days in the base year (2002),
2. Any state/region that contributed at least 2 percent of total sulfate observed on the 20 percent worst visibility days in 2002, and
3. Any state/region among the top ten contributors on the 20 percent worst visibility days in 2002.

For the purposes of deciding how broadly to consult, the MANE-VU States settled on the second of the three criteria: any state/region that contributed at least 2 percent of total sulfate observed on the 20 percent worst visibility days in 2002. Connecticut, Rhode Island, Vermont, and the District of Columbia were not identified as being among the political or regional units contributing at least 2 percent of sulfate at any of the seven Class I areas. However, as participants in MANE-VU, those entities have agreed to pursue adoption of regional control measures aimed at visibility improvement on the haziest days and prevention of visibility degradation on the clearest days. Section 8.2 includes additional discussion regarding individual state contributions to regional haze at Class I areas."

Sections 10 and 11, Reasonable Progress Goals and Long Term Strategy

Comment

Since Connecticut has no Class I areas, it is acceptable to state that Connecticut agrees with the reasonable progress goals established by the States of Maine, New Hampshire, Vermont and New Jersey for their Class I areas. Even though the impacts are minimal, this section should also, at least, recognize that emissions from Connecticut sources impact Class I areas in West Virginia and Virginia as well.

Response

USDA is correct in asserting that emissions from Connecticut reach West Virginia (0.04 percent) and Virginia (0.08 percent). CTDEP has added the following language to Section 10.0:

"As referred to in Subsection 2.1, emissions from Connecticut sources also impact Class I areas in West Virginia and Virginia, albeit to a much lesser extent than impacts on MANE-VU Class I areas."

Comment

Section 11.5 of the Draft SIP discusses source retirement and replacement schedules and refers to Table B-5 in Attachment N for specific sources. Table B-5 in Attachment N does not specifically identify Connecticut sources that have been shutdown – it appears to list all sources in the MANE-VU region. A table identifying specific sources in Connecticut that have shut down should be added to Section 11.5. Are there any other sources that are planning to shut down before 2018? If information is available for any other sources that are expected to shut down before 2018, it should also be discussed in this section.

Response

CTDEP has removed the reference to Table B-5 in Attachment N because Table B-5 does not contain any Connecticut sources. Based on modeling performed to support the development of an Integrated Resource Plan for the CT Department of Public Utility Control (CTDPUC), CTDEP strongly believes that under Connecticut's new forward capacity market, several large electric generating units will simply become too expensive to operate, thus forcing their economic retirement. As a result, CTDEP has added the following language to Section 11.5:

"While the output of the IPM model predicts that a certain number of older power plants will be replaced by newer units to meet future electric growth and state-specific NO_X and SO_2 caps, Connecticut did not directly rely on the closure of any particular plant in establishing the 2018 inventory upon which the reasonable progress goals were set.

The modeling used to develop the 2018 emissions inventory appears to predict that several large EGUs in Connecticut, including five of the six BART-eligible EGUs (Middletown Power 3 & 4, Montville Power 6, Norwalk Power 2 and PSEG Power Connecticut New Haven Harbor 1) will retire by 2018. Table 11.1 shows two non BART-eligible EGUs in Connecticut that have retired since 2002."

Table 11.1 Retired EGUs

Unit	Capacity (MW)	Retirement Date
Devon 7	109	11/28/07
Devon 8	109	11/28/07

Section 11.7, Agricultural and Forestry Smoke Management
Comment
We agree that based on existing inventories of smoke emissions from wildfires and prescribed fires, they are not a significant emission source for Connecticut or a significant contributor to regional haze in downwind Class I areas at this time. It would be helpful to add a reference to the specific sections in Attachment V which support this claim. Also, we request that Connecticut commit to track smoke emissions in the future to help determine the level of contribution for future planning periods.
Response
CTDEP has added the following references to specific sections in Attachment V to the second paragraph of Section 11.7:
End of second sentence
(see Figure 2 in Subsection 4.1 of Attachment V)
End of fourth sentence
(see Figure 2 in Subsection 4.1 of Attachment V)

In addition, CTDEP added the following paragraph at the end of Section 11.7:

"CTDEP's Bureau of Air Management currently obtains wildfire and prescribed burning data, including number of acres burned, when the wildfire or prescribed burn occurred and the location of the wildfire or prescribed burn, from CTDEP's Forestry Division. The wildfire and prescribed burning data will be included in CTDEP's periodic inventory every three years. CTDEP will track smoke emissions from wildfires and prescribed fires and will assess if emissions from such activities are increasing in the first five-year regional haze SIP progress report and required SIP revision due in 2018."

Additional Suggestions

Section 5, Air Monitoring Strategy

Comment

Section 5 discusses the monitoring strategy being used to assess visibility conditions. Even though Connecticut does not have any Class I areas, this section demonstrates the importance of continued operation of the IMPROVE monitoring network. We ask that Connecticut add a statement expressing their support for continued operation of the IMPROVE network.

Response

While CTDEP would like to commit to the continued operation of the IMPROVE network as requested by USDA, given the state's current fiscal constraints we cannot support an unqualified statement of commitment at this time. However, if USDA would like to support this effort, CTDEP would certainly be willing to do so. In the alternative, CTDEP will continue to use these data sources and has added the following language to the end of Section 5.2, Monitoring Requirements:

"Assuming adequate resources, CTDEP will continue using these and other data sources for the purposes of understanding visibility impairment and documenting progress toward national visibility goals for Class I areas under the Regional Haze Rule. CTDEP agrees that the IMPROVE network is an appropriate monitoring network to track regional haze progress and encourages EPA to continue funding the IMPROVE network. CTDEP will work with other states and the FLMs to maintain the IMPROVE network to the extent resources are available."

Section 7, Air Quality Modeling

Comment

In Sections 7.1 and 7.3, brief discussions of model performance would be helpful.

Response

CTDEP understands that air quality modeling is sometimes difficult to follow and has added the following language to Section 7.1, Meteorology to help clarify the modeling effort:

"The analyses show that in general, the performance of the MM5 is reasonable both at the surface and in the vertical, thereby providing confidence in the use of these data in the CMAQ simulations."

CTDEP has revised Paragraph 2 of Section 7.3, Model Platforms, as follows:

NYSDEC performed an extensive model performance analysis to evaluate CMAQ model predictions against observations of ozone, $PM_{2.5}$, and other pollutant species. In general, the CMAQ results were best for daily maximum O3 and daily average PM2.5 and SO4 mass. Many other species vary tremendously over the course of a day, or from day to day, and small model over- or underprediction at low concentrations can lead to large biases on a composite basis. It is important to demonstrate that the model performs reasonably over the diurnal cycle, not just in terms of daily maximum or average values. Also, it is important to demonstrate that the model can reproduce concentrations above the ground level. This model performance evaluation is described in detail in NYSDEC's technical support document TSD-1e, "CMAQ Model Performance and Assessment, 8-Hr OTC Ozone Modeling," February 23, 2006 (Attachment S). Due to the simplified chemistry mechanism, REMSAD may not simulate atmospheric processes as well as CMAQ. However, advantages such as the tagging feature for sulfur, more efficient

modeling, and reasonable correspondence with measurements for many species, make REMSAD an important source apportionment tool for MANE-VU. A model performance evaluation for $PM_{2.5}$ species, aerosol extinction coefficient, and the haze index is provided in NESCAUM's report, "MANE-VU Modeling for Reasonable Progress Goals, Model Performance Evaluation, Pollution Apportionment, and Control Measure Benefits," February 7, 2008 (Attachment G).

Description of Federal Land Manager (FLM) Comments on Connecticut's Draft Regional Haze SIP and Connecticut Department of Environmental Protection (CTDEP) Responses as Required by 40 CFR 51.308(i)(3)

CTDEP received preliminary comments on Connecticut's draft Regional Haze SIP from the U.S. Department of the Interior (DOI), National Park Service (NPS) and U.S. Fish and Wildlife Service (USFWS) on March 16, 2009. A conference call to discuss the agencies' comments was held on March 18, 2009, with representatives from NPS, U.S. Forest Service (USFS), USFWS, EPA, and CTDEP in attendance. Final comments from DOI – NPS and USFWS were received in a letter dated April 3, 2009. Final comments from USFS were received in a letter dated April 8, 2009. CTDEP's responses to the NPS/USFWS' comments are described below (USFS comments/responses are in a separate document).

CTDEP appreciates the effort put forth by NPS and USFWS in crafting these very helpful comments. CTDEP firmly supports, and is committed to, the interagency consultative process and looks forward to a continuing working relationship with the FLMs as we convey the myriad of technical requirements inherent in clean air regulations and other programmatic nuances in Connecticut's air pollution control programs.

National Park Service and U.S. Fish and Wildlife Service comments

Overall Comments

Comment

In general, we are concerned the draft SIP does not include an analysis for the full adoption of the MANE-VU Ask (Ask). The draft SIP appears contradictory without such an analysis, because the State fully adopts the Ask as its long-term strategy early in the draft SIP, however, throughout the document the State only commits to pursuing certain elements of the Ask.

Response

See response to comment on Section 3.2.2 below.

Comment

We also have concerns regarding best available retrofit technology (BART) requirements. The draft SIP is unclear with respect to the State's approach to meeting BART requirements. The SIP and supporting documentation are not sufficient for establishing a source-by-source BART emission limit. If the State wishes to rely on existing rules as the basis for an alternative to BART, then additional demonstrations of the adequacy of that alternative approach should be presented in the SIP. Please see our comments below regarding BART and the BART-alternative program.

Response

See response to comment on Section 9 below.

Section 2, Areas Contributing to Regional Haze

Comment

In Section 2.0 Areas Contributing to Regional Haze, the State needs to include a summary of the Contribution Assessment. The draft SIP states that Connecticut emissions have measurable impacts on Class I areas, but provides no details or comparisons to other states' impacts in the region.

At a minimum, the State should include a discussion on the three criteria used by MANE-VU to determine consultation. This would at least provide context to what Connecticut determines as their contribution. In addition, the draft SIP should provide percent contributions of neighboring states to better understand the magnitude of the State's contributions.

Response

CTDEP has added the following language, some of which also appears in Section 8.2, Contributing States and Regions, to Section 2.1:

"Table 2.2 shows Connecticut's SO_2 annual impacts at northeast Class I Areas as compared with other MANE-VU states. Connecticut consistently has one of the smallest impacts on all northeast Class I Areas when considering all MANE-VU states.

Table 2.2: Percent Contributions (Mass Basis) of Individual States and Regions to Total Annual Sulfate Impacts at Northeast Class I Areas (REMSAD)

Contributing State or Region	Mandatory Class I Area						
	Acadia ME	Brigantine NJ	Dolly Sods WV	Great Gulf & Presidential Range – Dry River, NH	Lye Brook VT	Moosehorn & Roosevelt Campobello	Shenandoah VA
Connecticut	0.76	0.53	0.04	0.48	0.55	0.56	0.08
Delaware	0.96	3.20	0.30	0.63	0.93	0.71	0.61
District of Columbia	0.01	0.04	0.01	0.01	0.02	0.01	0.04
Maine	6.54	0.16	0.01	2.33	0.31	8.01	0.02
Maryland	2.20	4.98	2.39	1.92	2.66	1.60	4.84
Massachusetts	10.11	2.73	0.18	3.11	2.45	6.78	0.35
New Hampshire	2.25	0.60	0.04	3.95	1.68	1.74	0.08
New Jersey	1.40	4.04	0.27	0.89	1.44	1.03	0.48
New York	4.74	5.57	1.32	5.68	9.00	3.83	2.03
Pennsylvania	6.81	12.84	10.23	8.30	11.72	5.53	12.05
Rhode Island	0.28	0.10	0.01	0.11	0.06	0.19	0.01
Vermont	0.13	0.06	0.00	0.41	0.95	0.09	0.01
MANE-VU	36.17	34.83	14.81	27.83	31.78	30.08	20.59
MRPO	11.98	18.16	30.26	20.10	21.48	10.40	26.84
VISTAS	8.49	21.99	36.75	12.04	13.65	6.69	33.86
CenRAP	0.88	1.12	1.58	1.65	1.67	0.82	1.48
Canada	8.69	7.11	3.90	14.84	12.43	7.85	4.75
Other	33.79	16.78	12.70	23.54	18.99	44.17	12.48

Source: Table 8-1 of the MANE-VU Contribution Assessment

Note: Indicated percent contributions from VISTAS, CenRAP and Canada apply only to those portions lying within the modeling domain (see Figure 7.1). Actual contributions, especially from CenRAP, would be higher than stated.

The ranking of emission contributions to visibility impairment in the MANE-VU Class I Areas has direct relevance to the consultation process described in Section 3.0, Regional Planning and Consultation. Using results from the REMSAD model, MANE-VU applied the following three criteria to identify states and regions for the purposes of consultation on regional haze:

1. Any state/region that contributed 0.1 $\mu g/m^3$ sulfate or greater on the 20 percent worst visibility days in the base year (2002),
2. Any state/region that contributed at least 2 percent of total sulfate observed on the 20 percent worst visibility days in 2002, and
3. Any state/region among the top ten contributors on the 20 percent worst visibility days in 2002.

For the purposes of deciding how broadly to consult, the MANE-VU States settled on the second of the three criteria: any state/region that contributed at least 2 percent of total sulfate observed on the 20 percent worst visibility days in 2002. Connecticut, Rhode Island, Vermont, and the District of Columbia were not identified as being among the political or regional units contributing at least 2 percent of sulfate at any of the seven Class I areas. However, as participants in MANE-VU, those entities have agreed to pursue adoption of regional control measures aimed at visibility improvement on the haziest days and prevention of visibility degradation on the clearest days. Section 8.2 includes additional discussion regarding individual state contributions to regional haze at Class I areas."

Section 3, Regional Planning and Consultation
Comment
In Section 3.2.2, Connecticut agrees with the MANE-VU Ask and commits to pursuing emission reductions consistent with the Ask. However, in Section 3.2.2.2, Connecticut does not address all elements of the Ask, instead saying it will review the viability of the remainder of the Ask in the 2013 review. It is inconsistent language to conclude the State will pursue emission reductions consistent with the Ask but at the same time say it will continue to review the viability of certain measures of the Ask over the next five years.
Response
CTDEP has revised Sections 3.2.2.2, 11.4.2, 11.4.3, 11.9 and 11.10 as follows:
Section 3.2.2.2 (replaced with following section)
"Connecticut, being a MANE-VU member state, participated in the development of the MANE-VU "Ask" which was approved by the MANE-VU Board on June 20, 2007. Connecticut intends to meet the terms of this agreement as follows:

- By demonstrating BART equivalency through its existing regulations (for additional details, refer to Section 9.0, Best Available Retrofit Technology (BART)).

- All of Connecticut's BART-eligible sources, as well as all NO_x Budget Program/CAIR sources, meet the recommended residual oil content or use lower sulfur content residual oil than specified in MANE-VU's low-sulfur fuel oil strategy as a result of Regulations of Connecticut State Agencies section 22a-174-19a. In terms of a state-wide limitation of #4 residual oil to 0.25-0.5% by weight by no later than 2018, and of #6 residual oil to no greater than 0.5% sulfur by weight by no later than 2018, CTDEP has done a preliminary analysis of the potential number of sources impacted. Given regional fuel supply issues, such a limitation in Connecticut is dependent on multi-state implementation. CTDEP continues to participate in consultations with other MANE-VU states to develop a low sulfur heating strategy consistent with the MANE-VU "Ask".

- Section 16a-21a of the Connecticut General Statutes limits fuel sulfur content of heating distillate oil and off-road diesel oil to 500 ppm as of the date on which the last of the States New York, Massachusetts and Rhode Island limit the sulfur content of such fuels. Therefore, implementation of the 500 ppm limitation in Connecticut is contingent upon New York, Massachusetts and Rhode Island adopting a 500 ppm limitation for heating distillate oil and off-road diesel oil. Regarding the reduction of sulfur content of distillate oil to 15 ppm by 2018 component of the MANE-VU "Ask", Connecticut continues to work with other states in the region and the fuel industry to take steps to implement reductions consistent with the MANE-VU "Ask" in the most efficient and reasonable manner.

- None of Connecticut's EGUs fall on the list of the top 167 contributing EGU emission points.

- CTDEP is currently evaluating other control measures including energy efficiency, alternative clean fuels, and other measures to reduce SO_2 and NO_x emissions from all coal-burning facilities by 2018. CTDEP will evaluate new source performance standards for wood combustion.

CTDEP will provide an update of the progress towards meeting the MANE-VU "Ask" in its first progress report in support of this Regional Haze SIP, to be submitted five years from the date of final submittal of this SIP."

Section 11.4.2 (the second paragraph (formerly third paragraph) was replaced with following paragraph)
"The MANE-VU states agree that a fuel sulfur content limit on residual oil and distillate oil is reasonable to pursue over the next ten years. CTDEP will review the details of this strategy in five years, coincident with Connecticut's first regional haze SIP progress report. Section 16a-21a of the Connecticut General Statutes limits fuel sulfur content of heating distillate oil and off-road diesel oil to 500 ppm as of the date on which the last of the States New York, Massachusetts and Rhode Island limit the sulfur content of such fuels. Therefore, implementation of this strategy in Connecticut is dependent upon adjacent states' implementation. CTDEP continues to participate in consultations with other MANE-VU states to develop a low sulfur heating strategy consistent with the MANE-VU "Ask"."

Section 11.4.3 (the last two sentences of the third paragraph were replaced with the following sentence):
"CTDEP will continue to evaluate other control measures for EGUs and will provide an update on its evaluation in Connecticut's first five-year regional haze SIP progress report."

Section 11.9 (the last sentence of the second paragraph has been replaced with the following sentence):
"To further meet its obligation beyond those controls already adopted, CTDEP has agreed to pursue the following measures, consistent with the provisions of the MANE-VU "Ask":"

Section 11.10 (the first sentence of the second paragraph has been replaced with the following

sentence):
"CTDEP will continue to pursue these measures, consistent with the provisions of the MANE-VU "Ask", and will provide a status update in the first five-year regional haze SIP progress report."

Comment
In Section 3.2.3, Connecticut implies that addressing inconsistencies with emission inventories, both within MANE-VU and out, "caused" most States to miss the 2007 statutory submittal to EPA. This statement should be considered for accuracy and removed.
Response
CTDEP has revised the referenced statement as follows:
"Most states missed the required Regional Haze SIP filing date of December 17, 2007."

Comment
In Section 3.2.5, please include February 4, 2009, as the date of submission to FLMs.
Response
CTDEP has included the February 4, 2009 date in Section 3.2.5.

Section 5, Air Monitoring Strategy
Comment
In Section 5.0 Air Monitoring Strategy, Connecticut should include language that commits the State to continuing support of the IMPROVE network. Support, in this context means the State agrees IMPROVE is an appropriate monitoring network to track regional haze progress and that the State agrees to work with neighboring states and federal land managers in meeting the goals of the IMPROVE program.
Response
While CTDEP would like to commit to the continued operation of the IMPROVE network as requested by NPS and USFWS, given the state's current fiscal constraints we cannot support an unqualified statement of commitment at this time. However, if NPS and USFWS would like to support this effort, CTDEP would certainly be willing to do so. In the alternative, CTDEP will continue to use these data sources and CTDEP has added the following paragraph to the end of Section 5.2, Monitoring Requirements:

"Assuming adequate resources, CTDEP will continue using these and other data sources for the purposes of understanding visibility impairment and documenting progress toward national visibility goals for Class I areas under the Regional Haze Rule. CTDEP agrees that the IMPROVE network is an appropriate monitoring network to track regional haze progress and encourages EPA to continue funding the IMPROVE network. CTDEP will work with other states and the FLMs to maintain the IMPROVE network to the extent resources are available."

Comment
Section 5.3 should be revised to reflect that Moosehorn Wilderness and Roosevelt Campobello International Park also share a monitoring site.
Response
CTDEP has added the following sentence to Section 5.3, Monitoring Sites for MANE-VU Class I Areas:

"Moosehorn Wilderness and Roosevelt Campobello International Park also share a monitoring site."

Section 6, Emissions Inventory

Comment

In Section 6.0, please provide for purposes of comparison an explanation as to why NH3 emissions go up in projected 2018 inventory (Best and Final inventory).

Response

CTDEP has added the following two paragraphs to the end of Section 6.4, Summary of Emission Inventories:

"Note that total ammonia emissions in 2018 are projected to increase slightly from total ammonia emissions in 2002. This can likely be attributed to a projected increase in vehicle miles traveled and projected increase in EGU Point NH_3 emissions (possibly from projected installation of SCR controls on one or more units).

CTDEP will be preparing a periodic emission inventory on a three year schedule as required by EPA and these emissions will be used to track how the projected emissions compare to actual emissions in the first five-year regional haze SIP progress report and required SIP revision due in 2018."

Section 11, Long Term Strategy

Comment

In Section 11.2, the State references technical reports that were used to determine the level of emission reduction required by the State to achieve reasonable progress goals in Class I areas affected by its emissions. However, there is no statement or summary information identifying what the necessary reduction levels actually were.

Response

CTDEP has added the following paragraph to Section 11.2, Technical Basis for Strategy Development:

"As described in Attachment G, the "beyond on the way" scenario – defined by CAIR with other "on the books" measures and the limitation of fuel sulfur content to 500 ppm for all No. 2 "distillate" fuel oil sold in the MANE-VU region – is sufficient to achieve visibility improvement beyond the so-called "uniform rate of progress" defined by uniform visibility improvement between now and 2064, the planning horizon for the regional haze program. However, it should be noted that USEPA guidance for setting reasonable progress goals asks states to consider reviewing all measures identified through the four factor analysis process (see Section 10.2.1) and to adopt each measure that is determined to be reasonable."

Comment

For Section 11.5 Source Retirement and Replacement Schedule, please include Table B-5 from Attachment N in the text. As written, the draft SIP provides no information on source retirement in Connecticut.

Response

CTDEP has removed the reference to Table B-5 in Attachment N because Table B-5 does not contain any Connecticut sources. Based on modeling performed to support the development of an Integrated Resource Plan for the CT Department of Public Utility Control (CTDPUC),

CTDEP strongly believes that under Connecticut's new forward capacity market, several large electric generating units will simply become too expensive to operate, thus forcing their economic retirement. As a result, CTDEP has added the following language to Section 11.5: "While the output of the IPM model predicts that a certain number of older plants will be replaced by newer units to meet future electric growth and state-specific NO_X and SO_2 caps, Connecticut did not directly rely on the closure of any particular plant in establishing the 2018 inventory upon which the reasonable progress goals were set.

The modeling used to develop the 2018 emissions inventory appears to predict that several large EGUs in Connecticut, including five of the six BART-eligible EGUs (Middletown Power 3 & 4, Montville Power 6, Norwalk Power 2 and PSEG Power Connecticut New Haven Harbor 1) will retire by 2018. Table 11.1 shows two non BART-eligible EGUs in Connecticut that have retired since 2002."

Table 11.1 Retired EGUs

Unit	Capacity (MW)	Retirement Date
Devon 7	109	11/28/07
Devon 8	109	11/28/07

Comment
In Section 11.9, please include what strategy is used to get the predicted 2018 results.
Response
CTDEP added the following paragraph to Section 11.9, Connecticut's Share of Emission Reductions:
"As referred to in Section 11.2, the "beyond on the way" scenario described in Attachment G (defined by CAIR with other "on the books" measures and the limitation of fuel sulfur content to 500 ppm for all No. 2 "distillate" fuel oil sold in the MANE-VU region) is sufficient to achieve visibility improvement beyond the so-called "uniform rate of progress" defined by uniform visibility improvement between now and 2064, the planning horizon for the regional haze program. Section 16a-21a of the Connecticut General Statutes limits fuel sulfur content of heating distillate oil and off-road diesel oil to 500 ppm as of the date on which the last of the States New York, Massachusetts and Rhode Island limit the sulfur content of such fuels."

Comment
In Section 11.12 Prevention of Significant Deterioration, we appreciate the State making a clear link between its regional haze program and the importance of the PSD program in achieving reasonable progress goals. This link is especially important for protection of the twenty percent best visibility days.
Response
No response required.

Section 11.7, Agricultural and Forestry Smoke Management

Comment
The State concludes that there is no information suggesting smoke emissions will increase over the next decade (Section 11.7). Will the State track such emissions to determine if this assumption is correct?
Response
CTDEP added the following paragraph at the end of Section 11.7:
"CTDEP's Bureau of Air Management currently obtains wildfire and prescribed burning data, including number of acres burned, when the wildfire or prescribed burn occurred and the location of the wildfire or prescribed burn, from CTDEP's Forestry Division. The wildfire and prescribed burning data will be included in CTDEP's periodic inventory every three years. CTDEP will track smoke emissions from wildfires and prescribed fires and will assess if emissions from such activities are increasing in the first five-year regional haze SIP progress report and required SIP revision due in 2018."

Comment
The draft SIP states Connecticut has a smoke management program. Please include a brief summary of what that program entails. It is unclear why the State has a smoke management program, considering the draft SIP previously concludes that wood smoke is only a fraction of fine particle mass. Attachment FF is listed as Connecticut Smoke Management Documentation and does not include any information specific to the smoke management program.
Response
CTDEP has revised the last sentence of paragraph four of Section 11.7 as follows:
"Although CTDEP does not have a formal smoke management program, as a smoke management policy, CTDEP's Division of Forestry can only initiate prescribed burns when such activity has less significant impacts on air quality (see Attachment FF)."

Section 9, Best Available Retrofit Technology (BART)
Comment
The State has done a commendable job in the overall level of control required of its BART-eligible sources (e.g., 0.3 percent sulfur fuel-oil). It stands out among all the states in the region in this regard. However, the State should better support its determination that existing rules provide an acceptable alternative to BART on a source-by-source basis.

The draft SIP lacks rigor required for comparison with a source-by-source BART determination. The EPA and MANE-VU 'benchmarks' as described in Section 9.2.3 as being BART are not necessarily BART. Since the overall level of control among Connecticut BART sources is significant, source-by-source BART determinations may conclude that additional controls are not cost-effective and the existing proposed controls are BART. Nevertheless, these BART determinations should be performed as an integral part of the demonstration of the "alternative measure" for BART as proposed by the State. 40 CFR 51.308(e)(2)(i)(C) requires that a "determination of BART for each source" be performed. Approval by EPA of an "alternative method" may relieve the State from requiring installation of BART on certain sources, but it does not relieve the State from performing source-by-source BART determinations in developing a demonstration that justifies using an "alternative method".

Sulfur Dioxide

In attempting to comply with the 40 CFR 51.308(e)(2) requirement that the State submit an "implementation plan" for the proposed "alternative measure", the State assumes that the EPA BART Guidelines[1] set SO_2 BART for oil-fired boilers as burning a 1.0 percent sulfur fuel-oil. The State then used this definition as a de facto standard to show that a requirement of 0.3 percent sulfur fuel-oil resulted in "greater reasonable progress" and the ability to use an "alternative measure" for BART. The assumption that SO_2 BART is the use of 1.0 percent sulfur fuel-oil is not correct.

The EPA BART Guidelines state that you should "evaluate limiting the sulfur content of the fuel-oil burned to 1 percent or less by weight", but this is not to be interpreted that the use of 1 percent fuel-oil is considered to be BART for oil-fired boilers. It is only a presumptive BART alternative that should be considered. In the EPA BART Guidelines where the process for the analysis of control options for sources subject to BART is described, it is stated that, "Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by…[a BART-eligible source]. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance…and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."[2] For this reason additional feasible control alternatives should have been considered for each source in order to determine BART. Then, greater reasonable progress could be determined by comparing the BART for all BART-eligible sources against the across-the-board 0.3 percent sulfur in fuel-oil requirement.

Examples of additional control alternatives to be considered for SO_2 BART for each emission unit include the applicability of using progressively lower sulfur oils below 0.3 percent sulfur content (e.g., #2 distillate oils of 0.0015%, 0.05% sulfur content). The associated costs should be examined for each alternative. This would show a cost gradient as the sulfur in oil decreases and selection of BART would be based on the alternative presenting the most control where the cost remains reasonable. Dispersion modeling for a unit should also determine visibility impacts of that given unit on Class I areas for each viable fuel-oil alternative. In addition, the costs and visibility impacts of wet or dry flue gas desulphurization (FGD) techniques should be considered. Retrofit FGD systems can result in 90%-95% reductions. FGD is a well-demonstrated technology on oil-fired utility units in some other countries (e.g., Japan, South Korea and Cyprus).

The full five-factor SO_2 BART determinations described above should be performed for the facilities at Middletown Power Units 3 and 4, Montville Power Unit 6, PSEG Bridgeport Harbor Station Unit 3, and PSEG New Haven Harbor Station Unit 1.

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[1] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized its BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.E.4.

[2] Ibid, See Section IV.A.

Nitrogen Oxides

Once again we commend the State for its past efforts in implementing the ozone reasonably available control technology (RACT) provisions in the 1990s and NOx Budget Program for the NOx SIP Call to significantly reduce NOx emission limits. Using the same line of reasoning as discussed above for SO_2, it is incumbent on the State to use a baseline emissions year (presumably 2001) and examine NOx BART control alternatives for each BART-eligible source.

Even though the EPA BART Guidelines state that combustion control is "generally highly cost-effective and should be considered"[3] in a BART determination for oil-fired boilers, combustion controls are not a de facto BART standard. Alternative NOx controls to achieve BART should be considered at each BART-eligible source to complete the full five-factor analysis. Oil-fired utility boilers have a variety of combustion controls available, such as, low excess air, low NOx burners, over-fired air, flue gas recirculation and optimum staged combustion. Also, post-combustion alternatives such as Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) should be considered at facilities where they do not currently exist.

Particulate Matter

Regarding particulate matter (PM) controls at BART-eligible facilities, Table 9-16 presents cost ranges for installing electrostatic precipitators (ESP) on sources not currently controlled for PM. More documentation of these costs is necessary as provided in the EPA BART Guidelines which state, "The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the OAQPS Control Cost Manual…).[4] In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible. The Control Cost Manual addresses most control technologies in sufficient detail for a BART analysis."[5] Of course, the presented costs per ton ($64,000 at a minimum) of emissions reduced, if substantiated, would make such an installation uneconomical.

For the ESPs currently operating the State should analyze cost-effective ESP upgrade alternatives as per the EPA BART Guidelines, "…for retrofitting existing sources in addressing BART, you should consider ways to improve the performance of existing control devices, particularly when a control device is not achieving the level of control that other similar sources are achieving in practice with the same device. For example, you should consider requiring those sources with electrostatic precipitators (ESPs) performing below currently achievable levels to improve their performance."[6]

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[3] Ibid, See Section IV.E.5.

[4] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, OAQPS Control Cost Manual, Fifth Edition, February 1996, EPA 453/B-96-001.

[5] See 40 CFR Part 51, Appendix Y. The U.S. Environmental Protection Agency finalized its BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." See Section IV.D.4.Step 4.a.5.

[6] Ibid, See Section IV.D.3.Step 3.4.

The State determined that two BART-eligible facilities (Norwalk Power Unit 2 and Cascades Boxboard Group) had a de minimus impact of less than 0.1 deciview on the nearest Class I area, so as to not be subject to BART. The NESCAUM exemption modeling that documents these conclusions should be included in the SIP as an appendix.

Considerations for the Alternative to BART Demonstration

If the State rules cited on page 9-2 of the draft SIP apply to sources beyond those subject to BART requirements and achieve more emissions reductions than the highest level of emissions reduction technology applied to only BART sources, the demonstration of an acceptable alternative to BART could be less rigorous than what we noted above. In such a case, the State should demonstrate the emissions reductions will occur during the first implementation period of the regional haze rule, 2000 through 2018. In addition, the expected emissions reductions form the non-BART facilities should not be substantially shifted geographically from where reductions would occur under a source-by-source approach to BART. Given the relatively small size of the State, the latter demonstration could be addressed by mapping locations of emission reductions expected from the program and inclusion of nearby Class I areas and highlighting the BART facilities.

Response

CTDEP has added the following sentences to the "Timing" paragraphs of Sections 9.3.1 (Analysis of CT's Alternative BART Program for SO_2) and 9.3.2 (Analysis of CT's Alternative BART Program for NO_x), respectively:

"As can be seen in Tables 9-8 and 9-9, emissions reductions from Connecticut's Alternative BART Program for SO_2 occurred during the first implementation period of the regional haze rule, 2000 through 2018."

"As can be seen in Tables 9-13, 9-14 and 9-15, emissions reductions from Connecticut's Alternative BART Program for NO_x occurred during the first implementation period of the regional haze rule, 2000 through 2018."

Also, CTDEP has added maps including trends of potential emission reductions from the alternative SO_2 and NO_x programs with locations of the BART-eligible facilities and nearby Class I areas highlighted (Figures 9.5 and 9.7). CTDEP has added maps of actual emission trends for SO_2 (2001, 2006, 2006) and NO_x (1994, 2002, 2006) with locations of the BART-eligible facilities and nearby Class I areas highlighted to Attachment X.

In response to comments received from EPA, CTDEP has also added a discussion of available control technologies for EGUs and industrial boilers in Section 9.2.3 and a new table (9-4) to Section 9.3, Connecticut's Alternative Measures. The table lists all of the Post-2002 NOx Budget Program sources that are collectively referenced in the SO_2 and NOx programs for alternative BART discussed in Section 9.3. The list includes the size of the unit. CTDEP has added text describing or referencing the table, including specific numbers of sources impacted, to Sections 9.3, 9.3.1 and 9.3.2.

Finally, in response to a verbal concern voiced by the FLMs during the March 18, 2009 consultation telephone call between CTDEP, the FLMs and EPA, CTDEP has removed references to case-by-case BART determinations in the following locations of the revised draft SIP:

- Bottom of page 9-1
- Bottom of page 9-13
- Middle of page 9-16
- Heading of fifth and sixth columns in Table 9-5 on page 9-18
- Bottom of page 9-22
- Top of page 9-23
- Bottom of page 9-29

CTDEP has substituted the term “case-by-case” with a more categorical type of terminology (all sources subject to BART, presumptive BART, etc.).