Appendix F-4
State and VISTAS Consultation Documentation with MANE-VU

Appendix F-4a
MANE-VU Ask

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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STATEMENT OF THE MID-ATLANTIC/NORTHEAST VISIBILITY UNION (MANE-VU) STATES CONCERNING A COURSE OF ACTION IN CONTRIBUTING STATES LOCATED UPWIND OF MANE-VU TOWARD ASSURING REASONABLE PROGRESS FOR THE SECOND REGIONAL HAZE IMPLEMENTATION PERIOD (2018-2028)

The federal Clean Air Act (CAA) and Regional Haze rule require States that are reasonably anticipated to cause or contribute to impairment of visibility in mandatory Class I Federal areas to implement reasonable measures to reduce visibility impairment within the national parks and wilderness areas designated as mandatory Class I Federal areas. Most pollutants that affect visibility also contribute to ozone, fine particulate and sulfur dioxide (SO₂) air pollution. In order to assure protection of public health and the environment, any additional air pollutant emission reduction measures necessary to meet the 2028 reasonable progress goal for regional haze should be implemented as soon as practicable but no later than 2028.

According to the federal Regional Haze rule (40 CFR 51.308 (f)(2)(i) through (iv)), all states must consider, in their Regional Haze SIPs, the emission reduction measures identified by Class I States as being necessary to make reasonable progress in any Class I area. These emission reduction measures are referred to as “Asks.” If any State cannot agree with or complete a Class I State’s “Asks,” the State must describe the actions taken to resolve the disagreement in their Regional Haze SIP. This Ask by the MANE-VU Class I states, was developed through a collaborative process with all of the MANE-VU states. It is designed to identify reasonable emission reduction strategies which must be addressed by the states and tribal nations through their regional haze SIP updates. This Ask has been developed and presented at this time so that SIPs may be developed and submitted between July of 2018 and July of 2021.
The following states identified by MANE-VU as contributing to visibility impairment at MANE-VU Class I areas should address this “Ask” in their regional haze SIP updates in addition to any other Class I area state “Ask”; Alabama, Florida, Illinois, Indiana, Kentucky, Louisiana, Michigan, Missouri, North Carolina, Ohio, Tennessee, Texas, Virginia, and West Virginia. There is a separate “Ask” to address visibility impairing emissions from MANE-VU states. Contributing state methodology is documented in a MANE-VU report; “Selection of States for MANE-VU Regional Haze Consultation (2018)”, using actual 2015 emissions for EGUs and 2011 for other emission sources.

In addressing the emission reduction strategies in the Ask, states will need to harmonize any activity on the strategies in the Ask with other federal or state requirements that affect the sources and pollutants covered by the Ask. These federal and state requirements include, but are not limited to:

- The 2010 SO₂ standard,
- The Regional Greenhouse Gas Initiative (RGGI), if applicable,
- The Mercury and Air Toxics Standards (MATS), and

Because of this need for cross-program harmonization and because of the formal public process required by the federal CAA and state rulemaking processes, it is expected that there will be opportunities for stakeholders and the public to comment on how states intend to address the measures in the Ask.

To address the impact on mandatory Class I Federal areas within the MANE-VU region, the Mid-Atlantic and Northeast States will pursue a coordinated course of action designed to assure reasonable progress toward preventing any future, and remedying any existing impairment of visibility in mandatory Class I Federal areas and to leverage the multi-pollutant benefits that such measures may provide for the protection of public health and the environment. Per the Regional Haze rule, being on or below the uniform rate of progress for a given Class I area is not a factor in deciding if a State needs to undertake reasonable measures.

Therefore, the course of action for pursuing the adoption and implementation of measures necessary to meet the 2028 reasonable progress goal for regional haze include the following “emission management” strategies:

1. Electric Generating Units (EGUs) with a nameplate capacity larger than or equal to 25MW with already installed NOx and/or SO₂ controls - ensure the most effective use of control technologies on a year-round basis to consistently minimize emissions of haze precursors, or obtain equivalent alternative emission reductions;
2. Emission sources modeled by MANE-VU that have the potential for 3.0 Mm$^{-3}$ or greater visibility impacts at any MANE-VU Class I area, as identified by MANE-VU contribution analyses (see attached listing) - perform a four-factor analysis for reasonable installation or upgrade to emission controls;

3. States should pursue an ultra-low sulfur fuel oil standard similar to the one adopted by MANE-VU states in 2007 as expeditiously as possible and before 2028, depending on supply availability, where the standards are as follows:
   a. distillate oil to 0.0015% sulfur by weight (15 ppm),
   b. #4 residual oil to 0.5% sulfur by weight,
   c. #6 residual oil to 0.5% sulfur by weight.

4. EGUs and other large point emission sources larger than 250 MMBTU per hour heat input that have switched operations to lower emitting fuels – pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for SO$_2$, NOx and PM. The permit, enforcement agreement, and/or rule can allow for suspension of the lower emission rate during natural gas curtailment;

5. Each State should consider and report in their SIP measures or programs to: a) decrease energy demand through the use of energy efficiency, and b) increase the use within their state of Combined Heat and Power (CHP) and other clean Distributed Generation technologies including fuel cells, wind, and solar.

This long-term strategy to reduce and prevent regional haze will allow each state up to 10 years to pursue adoption and implementation of reasonable and cost-effective NOx and SO$_2$ control measures.

Signed on behalf of the MANE-VU states and tribal nations:

[Signature]
David Foerter, Executive Director
MANE-VU/OTC

August 25, 2017
Listing of emission units that have the potential for $3.0 \text{ Mm}^{-1}$ or greater visibility impacts at any MANE-VU Class I area using actual 2015 emissions for EGUs and 2011 for other emission sources. The complete contribution analyses report is available at http://www.otcair.org/manevu.

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Appendix F-4b

VISTAS Response to MANE-VU

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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January 27, 2018

David Foerter
Ozone Transport Commission
444 N Capitol St NW Ste 322
Washington DC  20001-1529

RE: MANE-VU Regional Haze Consultation

Dear Mr. Foerter:

This correspondence is being sent to you on behalf of the state air pollution control agencies in Alabama, Florida, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia (the seven VISTAS states). Comments are offered herein in response to the following documents:

- Selection of States for MANE-VU Regional Haze Consultation (2018) – 9/5/2017

As you know, the MANE-VU states have made available the documents above and have held four consultation calls with the seven VISTAS states and other states. Thank you for sharing your thoughts during these calls and especially for taking time to explain the technical assessment in detail.

At this time, it is not possible for the seven VISTAS states to provide a detailed technical response to the MANE-VU requests. However, this letter provides some initial thoughts and concerns for your consideration.

Timing.

The MANE-VU states have indicated their intent to file their regional haze SIPs by the original July 2018 deadline that EPA has more recently adjusted to July 31, 2021. The ten VISTAS states are working toward completion of their regional haze technical analysis in mid-2019 with the intention of submitting regional haze SIPs by July 2021. The differing schedules have resulted in the seven VISTAS states being asked to assess the MANE-VU analysis without the benefit of the forthcoming VISTAS technical work.
On January 18, 2018, EPA announced its decision to revisit aspects of the 2017 Regional Haze Rule Revisions. While the extent of the new review is uncertain, the potential exists that EPA could modify certain existing regional haze provisions prior to the SIP submittal deadline; hence possibly affecting state obligations under the rule.

The MANE-VU states should allow time for EPA to complete its revisit to the rule and for the VISTAS analysis to be completed and shared before submitting SIPs incorporating any new emission control presumptions directed at the VISTAS states.

Technical Analysis – Inventories, Modeling, and Evaluation.

The MANE-VU states’ analysis used emission inventories that are inconsistent with the recent EPA regional haze modeling platform. These inventories do not fully reflect emission reductions expected from southeastern EGUs by 2028 and perhaps from other sources as well. Modeling results derived from use of the outdated emissions inventory may not allow conclusive determinations of impacts, if any, from VISTAS states on Class I areas in the MANE-VU region. Additionally, the analyses may not meet EPA’s SIP approval criteria.

In many cases, the sources of the alleged contributions to downwind receptors are located thousands of miles away from the MANE-VU Class I areas. The MANE-VU states used the CALPUFF model and the Q/d screening approach to identify contributions that they allege are significant. CALPUFF should not be used for transport distances greater than 300 km since there are serious conceptual concerns with the use of puff dispersion models for very long-range transport which can result in overestimations of surface concentrations by a factor of three to four.

The preamble to the recent Revisions to the Guideline on Air Quality Models that modified appendix W of 40 CFR part 51 states, in part, “the EPA has fully documented the past and current concerns related to the regulatory use of the CALPUFF modeling system and believes that these concerns, including the well documented scientific and technical issues with the modeling system, support the EPA’s decision to remove it as a preferred model in appendix A of the Guideline.”

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1 https://www.epa.gov/visibility/epas-decision-revisit-aspects-2017-regional-haze-rule-revisions
2 Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts (December 1998)
3 Federal Register, Vol. 82, No. 10, Tuesday, January 17, 2017, Page 5195
The reliability of the Q/d screening approach diminishes over distance and especially beyond 300 km. If the MANE-VU states wish to evaluate emission impacts more than 300 km downwind from sources, a scientifically reliable approach is essential such as the CAMx model with the PSAT source apportionment method.

In response to our stated concerns about inaccuracies in the MANE-VU analysis during the December 18, 2018 technical call, the MANE-VU states suggested that the seven VISTAS states could reassess contributions using their own information to correct the MANE-VU analysis. The VISTAS states intend to conduct a thorough technical review of emission impacts during their forthcoming analysis. However, it is incumbent on the MANE-VU states to correct the errors inherent in their own analysis and reassess the states with which consultation is necessary.

The MANE-VU “ask” includes year-round use of effective control technologies on EGUs; a four-factor analysis on sources with potential for visibility impacts of 3.0 Mm$^1$ or greater at any MANE-VU Class I area; establishment of an ultra-low sulfur fuel oil standard; updated permits, enforceable agreements, and/or rules to lock in lower emission rates for EGUs and other large emission sources that have recently reduced emissions or are scheduled to do so; and efforts to decrease energy demand through use of energy efficiency and increased use of combined heat and power and other clean distributed generation technologies. This “ask” fails to recognize fully the improved controls, fuel switches, retirements, and energy demand reductions that have already been achieved in the Southeast. Further, the MANE-VU states suggest that the Southeast adopt control measures that would produce little if any visibility improvement at MANE-VU Class I areas. The MANE-VU states should refine their analyses and establish a sound basis for any actions requested of the seven VISTAS states and incorporated such expectations in MANE-VU SIPs.

**Permanent and Enforceable.**

Regional haze SIPs (including the reasonable progress goals that are set for each Class I area) should only include emission reductions that are permanent, quantifiable, and enforceable. Therefore, the MANE-VU states should only include in their regional haze SIPs emission control presumptions for the seven VISTAS states that are clearly necessary and effective and have been made permanent and enforceable via state rulemaking or permit revisions. To include emission controls that are not permanent and enforceable in MANE-VU states’ SIPs would be inconsistent with the Clean Air Act and the Regional Haze Rule and could result in adverse comments from the seven VISTAS states during the MANE-VU regional haze SIP public comment period.
The VISTAS states will be initiating technical work in the spring of 2018. When that work is completed, we will provide the MANE-VU states with a summary of our analysis. Early results may be available as early as late 2018 and certainly by the spring of 2019.

Please note that this letter is not intended to cover every issue that may be of concern to the seven VISTAS states. Any or all states represented by this letter may submit state-specific comments to you.

Thank you for your consideration of these concerns. We welcome further conversations at appropriate times as our collective work progresses.

Sincerely,

John E. Hornback
Executive Director
Metro 4/SESARM/VISTAS

Copies: VISTAS States Air Pollution Control
Agency Directors
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Appendix F-4c

West Virginia Response to New Jersey Proposed Regional Haze SIP

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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Mr. Francis Steitz, Air Quality Division Director  
New Jersey Department of Environmental Protection  
Attn: REGIONAL HAZE SIP 2018-2028  
Bureau of Evaluation and Planning  
401 East State Street, 2nd Floor  
Mail Code 401-7H  
P.O. Box 420  
Trenton, New Jersey 08625-0420  
Via electronic submittal to NJDEP-BAQP@dep.nj.gov  

Attention: REGIONAL HAZE SIP 2018-2028  

Dear Director Steitz:

The West Virginia Division of Air Quality (WVDAQ) appreciates the opportunity to provide comments on the New Jersey Department of Environmental Protection’s (NJDEP) proposed State Implementation Plan (SIP) For Regional Haze (proposed NJSIP), published for public comment on August 22, 2019. The purpose of the proposed NJSIP is to establish a Reasonable Progress Goal (RPG) for the second planning period (2018-2028) to achieve the goal of reaching natural background visibility levels by the year 2064 at the federally designated Class I area within New Jersey and other Class I areas impacted by emissions from New Jersey sources of air pollution. The proposed NJSIP also addresses other mandatory SIP requirements for regional haze, including:

A. Establishment of a baseline of natural visibility conditions at Brigantine Wilderness Area (Brigantine) of the Edwin B. Forsythe National Wildlife Refuge.  
B. Identification of states that contribute to the visibility impairments at Brigantine.  
C. Establishment of the 2028 RPG for Brigantine and meet the Uniform Rate of Progress (URP) requirement.  
D. Identification of New Jersey’s actions to reduce its contribution to visibility impairment at Class I areas.  
E. A demonstration that New Jersey will meet the 2028 URP goal set by the United States Environmental Protection Agency (USEPA), including the implementation of control measures in New Jersey contributing to visibility impairment at Brigantine, as well as requesting the same from upwind states.

This letter will focus on the requirements that would affect West Virginia as the proposed NJSIP is currently written, particularly requirements B and E. For requirement B, the NJDEP in
Section 4.2 of the proposed NJSIP identified West Virginia as an upwind state that contributes to visibility impairment at Brigantine\(^1\). In requirement E, New Jersey sought to identify sources in upwind states which impact visibility at Brigantine and suggests controls or other measures in the form of “Asks,” including seven specified as well as various general sources in West Virginia\(^2\). WVDAQ does not agree with this assessment nor with many of the methods employed by the NJDEP within the proposed NJSIP and contends the proposal should be updated to address these objections.

The Mid-Atlantic/Northeast Visibility Union (MANE-VU) regional planning organization (RPO), of which New Jersey is a member state, developed its projected visibility impairments for intra-RPO and nearby Class I areas via a combination of estimated emissions from upwind sources divided by the distance to the area (Q/d), the utilization of the California Puff Model (CALPUFF) Long Range Transport (LRT) model to calculate impacts from upwind sources, and Hybrid Single-Particle Lagrangian Integrated Trajectory (HYPLIT) back trajectories. WVDAQ contends these methods are not the most technically valid for such estimations. First, the NJDEP utilized actual 2015 emissions data for EGU\(s\) and actual 2011 emissions data for non-EGU sources. A more accurate estimation would utilize projected 2028 source emissions within the model runs, which is the current recommendation by USEPA\(^3\).

Second, CALPUFF has never been the USEPA preferred model for long-range impact estimations greater than 300 kilometers, as beyond this range the model tends to overestimate pollutant concentrations at receptor sites and skew calculated impacts higher than can be reasonable anticipated\(^4\). The USEPA removed CALPUFF as a preferred Appendix A model for LRT beyond 50 kilometers in the 2017 revision of Appendix W of Part 51\(^5\). The agency had previously determined via tracer studies “…the CALPUFF dispersion model had performed in a reasonable manner, and had no apparent bias toward over or under prediction, so long as the transport distance was limited to less than 300km.”\(^6\) It should be noted that MANE-VU has a history of using the CALPUFF model at ranges longer than recommended, as it did during the first round of regional haze SIPs, even after being reminded of this error. Interestingly, the closest physical location in West Virginia to Brigantine is almost exactly 300 kilometers away, which calls into question any modeling performed with CALPUFF demonstrating visibility impairment from any sources within the state. HYPLIT also has some limitations, including failure to incorporate chemical reactions and depositions between the emission point and the receptor site\(^7\).

\(^{1}\) State of New Jersey Department of Environmental Protection State Implementation Plan for Regional Haze, August 2019, p. 22

\(^{2}\) State of New Jersey Department of Environmental Protection State Implementation Plan for Regional Haze, August 2019: pp. 15-16, Table 3-2; pp.43-44, Table 6-2

\(^{3}\) Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, EPA-457/B-19-003, August 2019, p. 17

\(^{4}\) Documentation of the Evaluation of CALPUFF and Other Long Range Transport Models Using Tracer Field Experiment Date, p. 141 (https://www3.epa.gov/scram001/reports/EPA-454_R-12-003.pdf)

\(^{5}\) 82 FR 5182-5235 (https://www.govinfo.gov/content/pkg/FR-2017-01-17/pdf/2016-31747.pdf)

\(^{6}\) 70 FR 68218-68261 (https://www.govinfo.gov/content/pkg/FR-2005-11-09/pdf/05-21627.pdf)

\(^{7}\) HYPLIT Limitations (https://ready.arl.noaa.gov/hypub/limitations.html)
In Section 4.2 of the proposed NJSIP, the NJDEP listed five Inter-Asks for listed upwind states in item B above. These Inter-Asks were developed by MANE-VU and are directed at MANE-VU states (Intra-Asks) as well as non-MANE-VU states (Inter-Asks). The Inter-Asks include:

1. The year-round use of installed controls for NOx and/or SO2 at electric generating units (EGUs) with a nameplate capacity greater than 25 megawatts (MW).
2. The completion of four-factor analysis for reasonable installation of upgrade to emission controls at facilities identified in objective E, which MANE-VU identified as having the potential for 3.0 Mn⁻¹ or greater visibility impacts at any MANE-VU Class I area.
3. The implementation of an ultra-low sulfur fuel oil standard similar to the one adopted by states within MANE-VU.
4. EGU’s and “other large point emission sources” greater than 250 million British thermal units (MMBTU) per hour heat input which have switched to lower emitting fuels to pursue permits and other enforceable agreements to “lock-in” lower emission rates for SO2, NOx, and particulate matter (PM).
5. That each named state should consider mechanisms in their respective regional haze SIP to decrease energy use through energy efficiency measures and increase the use of combined heat and power (CHP) and “other clean Distributed Generation technologies including fuel cells, wind, and solar.”

These Inter-Asks are discussed individually below.

Inter-Ask One: The year-round use of installed controls for NOx and/or SO2 at EGUs with a nameplate capacity greater than 25 megawatts (MW). MANE-VU and the proposed NJSIP have identified SO2 and NOx as the primary drivers of visibility impairments at Class I areas within the MANE-VU area. This is an accurate assessment and these two pollutants should be properly addressed, particularly SO2. West Virginia has coal fired and natural gas fired EGUs, both of which emit these two pollutants to the atmosphere. However, all permitted and operating coal fired EGUs within West Virginia with nameplate capacity greater than 25 MW are equipped with NOx and SO2 controls which are required by their respective federally enforceable Title V Operating Permits to be operated year-round. Likewise, all West Virginia natural gas-fired EGUs of this size or larger are controlled for NOx with limits contained within federally enforceable Title V Operating Permits; SO2 emissions from pipeline quality natural gas-fired units are negligible in comparison to their coal fired counterparts. This includes the units the NJDEP listed within Table 6-2 of the proposed NJSIP, including the two listed units at Harrison Power Station (Harrison) and the two units at Pleasants Power Station. All units at these two facilities are equipped with Selective Catalytic Reduction (SCR) for NOx and with Flue Gas Desulfurization (FGD, or scrubbers) for SO2 control. These controls are typically in excess of 95% efficient and considered to be Best Available Retrofit Technology (BART) for these two pollutants. These controls are already in place to meet previous Clean Air Act (CAA) requirements, and they significantly reduce visibility impairing air pollution. As such, additional controls at these

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8 State of New Jersey Department of Environmental Protection State Implementation Plan for Regional Haze, August 2019, pp. 23-24
9 State of New Jersey Department of Environmental Protection State Implementation Plan for Regional Haze, August 2019, p. 13
10 Camnet (http://hazecam.net/poor-vis.aspx)
facilities would be extremely high cost with little benefit and are therefore not reasonable. Additionally, Harrison Power Station is subject to a federally enforceable permit regarding NOx emissions, which sets the emission limit at 0.2 pounds NOx per MMBTU heat input during ozone season and at 0.25 pounds NOx per MMBTU heat input during non-ozone season. Further, the facility is also subject to the Cross-State Air Pollution Rule (CSAPR) and does not have as many SO2 allowances as in previous years. Also listed within Table 6-2 of the proposed NJSIP are the Kammer Power Station (Kammer) and the Kanawha River Power Station, both of which were completely and permanently retired on June 1, 2015. MANE-VU is already aware of the Kammer retirement.

Inter-Ask Two: The completion of four-factor analysis for reasonable installation of upgrade to emission controls at facilities identified in objective (E). Table 4-2 of the proposed NJSIP lists five EGUs at two facilities in West Virginia as requiring four-factor analysis for reasonable installation of upgrades to emission controls. These are Harrison Units 1 and 2 and Kammer Units 1, 2 and 3. As stated above in the response to Ask One, all Harrison EGUs are controlled with BART for SO2 and NOx, and Kammer has been completely and permanently retired. Also as stated above, further reductions of these pollutants from the remaining units is not reasonably achievable from a cost or benefit standpoint.

Inter-Ask Three: The implementation of an ultra-low sulfur fuel oil standard similar to the one adopted by states within MANE-VU. Residual oil sales in West Virginia for 2017 were zero, and there are no known uses of this fuel at stationary sources within the state. Nationally, most residual oil sales are used in the transportation sector, almost exclusively by very large marine vessels, of which there are none in land-locked West Virginia. Distillate oil sales within West Virginia have been relatively steady from 2012 through 2017, the last year for which sales data are available. However, this sum includes on-road and off-road diesel fuel, which have recently transitioned to ultralow-sulfur blends of 15 parts per million (ppm) or less as required by federal law. Residential home heating oil use in West Virginia was never considerable and this small number has been in decline for decades, as most homes that once used this fuel have transitioned to cheaper, more convenient, and cleaner natural gas or electricity; in fact, less than 3% of homes in West Virginia are heated with residential oil. United States Energy Information Agency (EIA) data for 2017 states that 85% of residential heating oil sales for the entire United States

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13 US Energy Information Administration
14 US Energy Information Administration
15 US Energy Information Administration
16 Energy Information Administration
17 Diesel Fuel Standards and Rulemakings
18 Energy Information Administration
were within the MANE-VU RPO\(^{19}\). As such, it is completely reasonable for New Jersey to establish an Intra-Ask of its sister MANE-VU states to restrict sulfur content in residential oil sales. However, to extend this to an Inter-Ask of upwind non-MANE-VU states is non-productive. It should also be noted that residential heating oil sold in the West Virginia market is extremely likely to be sourced from the same suppliers which market it in the MANE-VU RPO, because of the proximity of the much smaller West Virginia market to the much larger MANE-VU market. Heating oil sold in the MANE-VU market is already nearly all ultra-low sulfur fuel\(^{20}\).

**Inter-Ask Four:** EGUs and “other large point emission sources” greater than 250 million MMBTU per hour heat input which have switched to lower emitting fuels to pursue permits and other enforceable agreements to “lock-in” lower emission rates for SO\(_2\), NO\(_x\), and PM. As stated above, all coal fired EGUs operating within West Virginia with nameplate capacity greater than 25 MW are equipped with NO\(_x\) and SO\(_2\) controls which are required to be operated year-round by their respective federally enforceable Title V Operating Permits; likewise these units are all equipped with PM controls that are also federally enforceable permit-required to be operated year-round. West Virginia natural gas-fired EGUs of this size or larger are equipped with NO\(_x\) controls and are subject to federally enforceable Title V Permits limiting NO\(_x\) emissions, and these units have negligible SO\(_2\) emissions as they are all fired on pipeline-quality natural gas. Table 3-2 of the proposed NJSIP lists “ICI Boilers” with an SO\(_2\) visibility impact on Class I areas. This list was compiled with 2011 emissions data and as such is significantly outdated. Three facilities within West Virginia were listed, and only one of those currently operates coal-fired boilers: Dupont Washington Works; these boilers are now split from Dupont and are part of a newly formed adjacent facility renamed Chemours. The Chemours facility is currently under a consent order with the WVDAQ to replace the coal fired boilers with low-NO\(_x\) natural gas-fired units by December 2021. Construction of this project is already well under way with an anticipated switchover date ahead of the required timeline. Likewise, in 2011 Bayer CropScience operated three coal-fired boilers; however, these units have been dismantled and replaced with two low-NO\(_x\) natural gas-fired units. Capital Cement–ESSROC Martinsburg is a large Portland cement manufacturing facility. There are no ICI boilers at this site, however coal is used to calcine cement from limestone. The kilns were replaced in 2009 and SO\(_2\) emissions subsequently decreased. However, it should be noted that SO\(_2\) emissions from cement kilns are inherently mitigated by the alkaline nature of the final product, which typically absorbs between 70% and 95% of the SO\(_2\) generated from the burning of the fuel and liberated from pyrite pockets within the raw limestone feedstock\(^{21}\).

**Inter-Ask Five:** Each state should consider in their respective regional haze SIPs mechanisms to decrease energy use through energy efficient measures and increase the use of combined heat and power (CHP) and “other clean Distributed Generation technologies including fuel cells, wind, and solar.” This is a quite noble plan which New Jersey has established for other states. It is beyond the scope of regional haze SIP development to suggest such fundamental changes to the energy market, especially in other jurisdictions without prior discussion. The USEPA currently has in place multiple national standards and programs that encourage energy efficiency.

\(^{19}\) US Energy Information Administration (https://www.eia.gov/energyexplained/heating-oil/use-of-heating-oil.php)


\(^{21}\) USEPA AP-42 (https://www3.epa.gov/ttn/npa/cp42/ch11/final/c11s06.pdf, p. 11.6-6)
These programs are already applicable and available to every state and region listed within the proposed NJSIP\textsuperscript{22}. Many electric utilities also administer their own efficiency programs in the form of rebates for customers\textsuperscript{23}, and the Internal Revenue Service (IRS) has historically offered multiple tax credit incentives for the adoption of energy efficient measures\textsuperscript{24}.

Additionally, New Jersey failed to consult with jurisdictions outside MANE-VU when developing its Inter-Asks. Section 51.308(f)(2) of the Regional Haze Rule requires SIPs to include “…enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress as determined pursuant to (f)(2)(i) through (iv).” Further, section 51.308(f)(2)(ii)(A) of the Regional Haze Rule states “The state must demonstrate that it has included in its implementation plan all measures agreed to during state-to-state consultations or a regional planning process, or measures that will provide equivalent visibility improvement.” New Jersey has neglected to consult with other states outside MANE-VU concerning this critical requirement when developing the proposed NJSIP, and as such each of the five Inter-Asks are invalid outside the MANE-VU RPO. These MANE-VU Inter-RPO Asks should be removed from the proposed NJSIP until such agreements have been secured with the named upwind states.

Further, Figure 2-2 of the proposed NJSIP illustrates the current trend of visibility impairment for the 20% most impaired days at Brigantine to be well below the URP\textsuperscript{25}. This is primarily a result of already reduced SO\textsubscript{2} and NO\textsubscript{x} emissions from upwind EGUs, reduced NO\textsubscript{x} emissions from nearby mobile sources, and reduced SO\textsubscript{2} emissions from fuel oil combustion sources since the first round of regional haze SIPs was completed over ten years ago. West Virginia appreciates New Jersey’s aggressive goal to be ahead of the URP, but it stresses the current path appears to be more than adequate without demanding unrealistic and unnegotiated goals of upwind jurisdictions.

Visibility Improvement – State and Tribal Association of the Southeast (VISTAS) has completed more accurate preliminary modeling utilizing Particulate Matter Source Apportionment Technology (PSAT). These model runs utilized projected total state-wide 2028 emissions NO\textsubscript{x} and SO\textsubscript{2} as inputs. Initial model results suggest much lower visibility impairment impacts on Brigantine than those modeled by MANE-VU (see attachment 1). Total West Virginia contribution for combined SO\textsubscript{2} and NO\textsubscript{x} visibility impairment for the 20% most impaired days was modeled to be 0.437 Mm\textsuperscript{-1} and for the 20% best days was modeled to be 0.044 Mm\textsuperscript{-1}. This is significantly below the 2.0 Mm\textsuperscript{-1} contribution threshold MANE-VU and the proposed NJSIP set for identifying upwind states reasonably expected to contribute to visibility impairment in MANE-VU Class I areas. This graphic demonstrates the impacts from the MANE-VU and Lake Michigan Air Directors Consortium (LADCO) RPO regions are expected to be considerably more significant when compared to the VISTAS region, which sums to 2.289 Mm\textsuperscript{-1} for the 20% most impaired days and to 0.320 Mm\textsuperscript{-1} for the 20% best days. Based on these

\textsuperscript{22} USEPA Energy and the Environment (https://www.epa.gov/energy(clean-energy-programs)
\textsuperscript{23} Database of State Incentives for Renewables & Efficiency (https://www.dsireusa.org/)
\textsuperscript{25} State of New Jersey Department of Environmental Protection State Implementation Plan for Regional Haze, August 2019, p. 10
preliminary model runs and the MANE-VU threshold for inclusion, West Virginia as well as the other VISTAS members should be completely excluded from the proposed NJSIP.

Finally, the WVDAQ does not have the authority to make unauthorized commitments within SIPs, either within or outside its jurisdictional boundaries. The WVDAQ must first draft and then the West Virginia Legislature must approve a rule prior to inclusion in a SIP. Final determinations of SIP completeness rests with the USEPA. Neither West Virginia nor any other jurisdiction is obligated to comply with the unnegotiated Inter-Asks within the proposed NJSIP. For the reasons outlined in this letter, West Virginia respectfully asks that New Jersey remove it from the list of states considered to be reasonable contributing to visibility impairment at Brigantine.

Again, the WVDAQ appreciates the opportunity to comment on the NJDEP’s State Implementation Plan (SIP) For Regional Haze, for the second implementation period from 2018 to 2028.

Sincerely,

Laura M. Crowder
Director
WV Division of Air Quality

cc: Ms. Susan Spielberg, USEPA Region 3
Mr. John Hornback, SESARM
Attachment 1: VISTAS modeled impairment for Brigantine using total 2028 projected emissions data from all SO\textsubscript{2} and NO\textsubscript{x} sources within the referenced area.
Appendix F-4d

West Virginia Response to New Hampshire Proposed Regional Haze SIP

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Promoting a healthy environment
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December 18, 2019

Craig Wright, Director  
New Hampshire Department of Environmental Services  
Air Resources Division  
29 Hazen Drive, PO Box 95  
Concord, New Hampshire 03302-0095  
Via electronic submittal to: Felice.Janelle@des.nh.gov, Catherine.Beahm@des.nh.gov

Re: West Virginia Comments on the New Hampshire Regional Haze Plan Periodic Comprehensive Revision

Dear Director Wright:

The West Virginia Division of Air Quality (WVDAQ) appreciates the opportunity to provide comments on the New Hampshire Department of Environmental Service’s (NHDES) proposed New Hampshire Regional Haze Plan Periodic Comprehensive Revision (proposed NHSIP), published for public comment on October 31, 2019. The purpose of the proposed NHSIP is to establish a Reasonable Progress Goal (RPG) for the second planning period (2018-2028) to achieve the objective of reaching natural background visibility levels by the year 2064 at the two federally designated Class I areas within New Hampshire, Great Gulf (GRGU) and Presidential Range – Dry River Wilderness Area (PRRA), and other nearby Class I areas impacted by emissions from New Hampshire sources of air pollution. The proposed NHSIP also addresses other mandatory SIP requirements for regional haze, including:

A. Establishment of baseline, current, and natural visibility conditions for the 20% most impaired days and the 20% clearest days at GRGU and PRRA.
B. Identification of New Hampshire’s long-term strategy to address regional haze for GRGU and PRRA as well as other Federal Class I areas outside New Hampshire.
C. Establishment of the 2028 RPG for GRGU and PRRA and meet the Uniform Rate of Progress (URP) requirement.
D. An assessment of the current monitoring strategy.

This letter will focus on the requirements that would affect West Virginia as the proposed NHSIP is currently written, particularly requirement B. For requirement B, the NHDES in Section 3.2.1 of the proposed NHSIP identified West Virginia as an upwind state that contributes to...
visibility impairment at GRGU and PRRA\textsuperscript{1}. Further, New Hampshire sought to identify sources in upwind states which impact visibility at GRGU and PRRA and suggests controls or other measures in the form of “Asks,” including five specified as well as various general sources in West Virginia\textsuperscript{2}. WVDAQ does not agree with this assessment nor with many of the methods employed by the NHDES within the proposed NHSIP and contends the proposal should be updated to address these objections.

The Mid-Atlantic/Northeast Visibility Union (MANE-VU) regional planning organization (RPO), of which New Hampshire is a member state, developed its projected visibility impairments for intra-RPO and nearby Class I areas via a combination of estimated emissions from upwind sources divided by the distance to the area (Q/d), the utilization of the California Puff Model (CALPUFF) Long Range Transport (LRT) model to calculate impacts from upwind sources, and Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) back trajectories. WVDAQ contends these methods are not the most technically valid for such estimations. First, MANE-VU utilized actual 2015 emissions data for electric generating units (EGUs) and actual 2011 emissions data for non-EGU sources. A more accurate estimation would utilize projected 2028 source emissions within the model runs, which is the current recommendation by USEPA\textsuperscript{3}. Second, CALPUFF has never been the USEPA preferred model for long-range impact estimations greater than 300 kilometers, as beyond this range the model tends to overestimate pollutant concentrations at receptor sites and skew calculated impacts higher than can be reasonable anticipated\textsuperscript{4}. The USEPA removed CALPUFF as a preferred Appendix A model for LRT beyond 50 kilometers in the 2017 revision of Appendix W of Part 51\textsuperscript{5}. The agency had previously determined via tracer studies “…the CALPUFF dispersion model had performed in a reasonable manner, and had no apparent bias toward over or under prediction, so long as the transport distance was limited to less than 300km.”\textsuperscript{6} It should be noted that MANE-VU has a history of using the CALPUFF model at ranges longer than recommended, as it did during the first round of regional haze SIPs, even after being reminded of this error. Interestingly, the closest physical location in West Virginia to PRRA is more than 740 kilometers and even further for GRGU, which calls into question any modeling performed with CALPUFF demonstrating visibility impairment from any sources within the state. HYSPLIT also has some limitations, including failure to incorporate chemical reactions and depositions between the emission point and the receptor site\textsuperscript{7}.

In Section 4.2.4 of the proposed NHSIP, the NHDES listed five Asks for listed upwind states in item B above\textsuperscript{8}. These Asks were developed by MANE-VU and are directed at MANE-VU states (Intra-Asks) as well as non-MANE-VU states (Inter-Asks). The Inter-Asks include:

\textsuperscript{1} New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision, October 31, 2019, p. 27
\textsuperscript{2} New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision, October 31, 2019: pp. 40-42, Table 4-7; pp.46-47, Table 4-9
\textsuperscript{3} Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, EPA-457/B-19-003, August 2019, p. 17
\textsuperscript{4} Documentation of the Evaluation of CALPUFF and Other Long Range Transport Models Using Tracer Field Experiment Date, p. 141 (https://www3.epa.gov/scram001/reports/EPA-454_R-12-003.pdf)
\textsuperscript{5} 82 FR 5182-5235 (https://www.govinfo.gov/content/pkg/FR-2017-01-17/pdf/2016-31747.pdf)
\textsuperscript{6} 70 FR 68218-68261 (https://www.govinfo.gov/content/pkg/FR-2005-11-09/pdf/05-21627.pdf)
\textsuperscript{7} HYSPLIT Limitations (https://ready.arl.noaa.gov/hypub/limitations.html)
\textsuperscript{8} New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision, October 31, 2019, pp. 45-47
1. Electric Generating Units (EGUs) with a nameplate capacity larger than or equal to 25MW with already installed NOx and/or SO2 controls - ensure the most effective use of control technologies on a year-round basis to consistently minimize emissions of haze precursors, or obtain equivalent alternative emission reductions;

2. Emission sources modeled by MANE-VU that have the potential for 3.0 Mm\(^1\) or greater visibility impacts at any MANE-VU Class I area, as identified by MANE-VU contribution analyses ... – perform a four-factor analysis for reasonable installation or upgrade to emission controls [see table 4-9 in proposed NHSIP];

3. States should pursue an ultra-low sulfur fuel oil standard similar to the one adopted by the MANE-VU States in 2007 as expeditiously as possible and before 2028, depending on supply availability, where the standards are as follows:
   a. distillate oil to 0.0015% sulfur by weight (15 ppm)
   b. #4 residual oil within a range of 0.25 to 0.5% sulfur by weight
   c. #6 residual oil within a range of 0.3 to 0.5% sulfur by weight.

4. EGUs and other large point emission sources greater than 250 MMBtu per hour heat input that have switched operations to lower emitting fuels – pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for SO\(_2\), NO\(_x\), and particulate matter (PM). The permit, enforcement agreement, and/or rule can allow for suspension of the lower emission rate during natural gas curtailment.

5. Each State should consider and report in their SIP measures or programs to: a) decrease energy demand through the use of energy efficiency, and b) increase the use within their state of Combined Heat and Power (CHP) and other clean Distributed Generation technologies including fuel cells, wind, and solar.

These Inter-Asks are discussed individually below.

Inter-Ask One: Electric Generating Units (EGUs) with a nameplate capacity larger than or equal to 25MW with already installed NO\(_x\) and/or SO\(_2\) controls - ensure the most effective use of control technologies on a year-round basis to consistently minimize emissions of haze precursors, or obtain equivalent alternative emission reductions. MANE-VU and the proposed NHSIP have identified SO\(_2\) and NO\(_x\) as the primary drivers of visibility impairments at Class I areas within the MANE-VU area\(^9\). This is an accurate assessment and these two pollutants should be properly addressed, particularly SO\(_2\)\(^10\). West Virginia has coal fired and natural gas fired EGUs, both of which emit these two pollutants to the atmosphere. However, all permitted and operating coal fired EGUs within West Virginia with nameplate capacity greater than 25 MW are equipped with NO\(_x\) and SO\(_2\) controls which are required by their respective federally enforceable Title V Operating Permits to be operated year-round. Likewise, all West Virginia natural gas-fired EGUs of this size or larger are controlled for NO\(_x\) with limits contained within federally enforceable Title V Operating Permits; SO\(_2\) emissions from pipeline quality natural gas-fired units are negligible in comparison to their coal fired counterparts. This includes the EGU’s the NHDES listed within Table 2-2 of the proposed NHSIP, including the two listed units at Harrison Power Station (Harrison). The two units at Harrison are equipped with Selective Catalytic Reduction (SCR) for

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\(^9\) New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision, October 31, 2019, p. 13

\(^10\) Camnet (https://hazecam.net/poor-vis.aspx)
NO\textsubscript{x} and with Flue Gas Desulfurization (FGD, or scrubbers) for SO\textsubscript{2} control. These controls are typically in excess of 95% efficient and considered to be Best Available Retrofit Technology (BART) for these two pollutants. These controls are already in place to meet previous Clean Air Act (CAA) requirements, and they significantly reduce visibility impairing air pollution. As such, additional controls at Harrison would be extremely high cost with little benefit and are therefore not reasonable\textsuperscript{11}. Additionally, Harrison Power Station is subject to a federally enforceable permit regarding NO\textsubscript{x} emissions, which sets the emission limit at 0.2 pounds NO\textsubscript{x} per MMBTU heat input during ozone season and at 0.25 pounds NO\textsubscript{x} per MMBTU heat input during non-ozone season. Further, the facility is also subject to the Cross-State Air Pollution Rule (CSAPR) and does not have as many SO\textsubscript{2} allowances as in previous years. Also listed within Table 2-2 of the proposed NHSSIP is the Kammer Power Station (Kammer) which was completely and permanently retired on June 1, 2015. MANE-VU is already aware of the Kammer retirement\textsuperscript{12}.

\textit{Inter-Ask Two: Emission sources modeled by MANE-VU that have the potential for 3.0 Mm\textsuperscript{1} or greater visibility impacts at any MANE-VU Class I area, as identified by MANE-VU contribution analyses \ldots perform a four-factor analysis for reasonable installation or upgrade to emission controls.} Table 4-2 of the proposed NHSSIP lists five EGUs at two facilities in West Virginia as requiring four-factor analysis for reasonable installation of upgrades to emission controls. These are Harrison Units 1 and 2 and Kammer Units 1, 2 and 3. As stated above in the response to Inter-Ask One, all Harrison EGUs are controlled with BART for SO\textsubscript{2} and NO\textsubscript{x}, and Kammer has been completely and permanently retired. Also as stated above, further reductions of these pollutants from the remaining units is not reasonably achievable from a cost or benefit standpoint\textsuperscript{11}.

\textit{Inter-Ask Three: States should pursue an ultra-low sulfur fuel oil standard similar to the one adopted by the MANE-VU States in 2007 as expeditiously as possible and before 2028, depending on supply availability, where the standards are as follows\ldots [see Inter-Ask Three details above].} Residual oil sales in West Virginia for 2017 were zero\textsuperscript{13}, and there are no known uses of this fuel at stationary sources within the state. Nationally, most residual oil sales are used in the transportation sector\textsuperscript{14}, almost exclusively by very large marine vessels\textsuperscript{15}, of which there are none in land-locked West Virginia. Distillate oil sales within West Virginia have been relatively steady from 2012 through 2017, the last year for which sales data are available\textsuperscript{16}. However, this sum includes on-road and off-road diesel fuel, which have recently transitioned to ultralow-sulfur blends of 15 parts per million (ppm) or less as required by federal law\textsuperscript{17}. Residential home heating oil use in West Virginia was never considerable and this small number has been in decline for

\textsuperscript{11} Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, EPA-457/B-19-003, August 2019, pp. 22-23
\textsuperscript{13} US Energy Information Administration (https://www.eia.gov/dnav/pet/pet_cons_821rsd_a_EPRR_VTE_Mgal_a.htm)
\textsuperscript{14} US Energy Information Administration (https://www.eia.gov/todayinenergy/detail.php?id=4250)
\textsuperscript{15} US Energy Information Administration (https://www.eia.gov/dnav/pet/pet_cons_821rsd_dcu_nus_a.htm)
\textsuperscript{16} Energy Information Administration (https://www.eia.gov/dnav/pet/pet_cons_821use_a_EPD0_VRS_Mgal_a.htm)
\textsuperscript{17} Diesel Fuel Standards and Rulemakings (https://www.epa.gov/diesel-fuel-standards/diesel-fuel-standards-and-rulemakings)
decades, as most homes that once used this fuel have transitioned to cheaper, more convenient, and cleaner natural gas or electricity; in fact, less than 3% of homes in West Virginia are heated with residential oil\(^{18}\). United States Energy Information Agency (EIA) data for 2017 states that 85% of residential heating oil sales for the entire United States were within the MANE-VU RPO\(^{19}\). As such, it is completely reasonable for New Hampshire to establish an Intra-Ask of its sister MANE-VU states to restrict sulfur content in residential oil sales. However, to extend this to an Inter-Ask of upwind non-MANE-VU states is non-productive. It should also be noted that residential heating oil sold in the West Virginia market is extremely likely to be sourced from the same suppliers which market it in the MANE-VU RPO, because of the proximity of the much smaller West Virginia market to the much larger MANE-VU market. Heating oil sold in the MANE-VU market is already nearly all ultra-low sulfur fuel\(^{20}\).

**Inter-Ask Four: EGUs and other large point emission sources greater than 250 MMBtu per hour heat input that have switched operations to lower emitting fuels – pursue updating permits, enforceable agreements, and/or rules to lock-in lower emission rates for SO\(_2\), NO\(_x\) and particulate matter (PM). The permit, enforcement agreement, and/or rule can allow for suspension of the lower emission rate during natural gas curtailment.** As stated above, all coal fired EGUs operating within West Virginia with nameplate capacity greater than 25 MW are equipped with NO\(_x\) and SO\(_2\) controls which are required to be operated year-round by their respective federally enforceable Title V Operating Permits; likewise these units are all equipped with PM controls that are also federally enforceable permit-required to be operated year-round. West Virginia natural gas-fired EGUs of this size or larger are equipped with NO\(_x\) controls and are subject to federally enforceable Title V Permits limiting NO\(_x\) emissions, and these units have negligible SO\(_2\) emissions as they are all fired on pipeline-quality natural gas. Table 4-7 of the proposed NHIIP lists industrial sources with an SO\(_2\) visibility impact on Class I areas. This list was compiled with 2011 emissions data and as such is significantly outdated. Three facilities within West Virginia were listed, and only one of those currently operates coal-fired boilers: Dupont Washington Works; these boilers are now split from Dupont and are part of a newly formed adjacent facility renamed Chemours. The Chemours facility is currently under a consent order with the WVDAQ to replace the coal fired boilers with low-NO\(_x\) natural gas-fired units by December 2021. Construction of this project is already well under way with an anticipated switchover date ahead of the required timeline. Likewise, in 2011 Bayer CropScience operated three coal-fired boilers; however, these units have been dismantled and replaced with two low-NO\(_x\) natural gas-fired units. Capital Cement–ESSROC Martinsburg is a large Portland cement manufacturing facility which uses coal to calcine cement from limestone. The kilns were replaced in 2009 and SO\(_2\) emissions subsequently decreased. However, it should be noted that SO\(_2\) emissions from cement kilns are inherently mitigated by the alkaline nature of the final product, which typically absorbs between 70% and 95% of the SO\(_2\) generated from the burning of the fuel and liberated from pyrite pockets within the raw limestone feedstock\(^{21}\).

**Inter-Ask Five: Each State should consider and report in their SIP measures or programs to: a) decrease energy demand through the use of energy efficiency, and b) increase the use within their**

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21 USEPA AP-42 (https://www3.epa.gov/ttn/chief/ap42/ch11/final/c11s06.pdf, p. 11.6-6)
**state of Combined Heat and Power (CHP) and other clean Distributed Generation technologies including fuel cells, wind, and solar.** This is a quite noble plan which MANE-VU and New Hampshire have established for other states. It is beyond the scope of regional haze SIP development to suggest such fundamental changes to the energy market, especially in other jurisdictions without prior discussion. The USEPA currently has in place multiple national standards and programs that encourage energy efficiency. These programs are already applicable and available to every state and region listed within the proposed NHSIP\(^{22}\). Many electric utilities also administer their own efficiency programs in the form of rebates for customers\(^{23}\), and the Internal Revenue Service (IRS) has historically offered multiple tax credit incentives for the adoption of energy efficient measures\(^{24}\).

Additionally, MANE-VU and New Hampshire failed to consult with jurisdictions outside MANE-VU when developing the Inter-Asks. Section 51.308(f)(2) of the Regional Haze Rule requires SIPs to include “…enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress as determined pursuant to (f)(2)(i) through (iv).” Further, section 51.308(f)(2)(ii)(A) of the Regional Haze Rule states “The state must demonstrate that it has included in its implementation plan all measures agreed to during state-to-state consultations or a regional planning process, or measures that will provide equivalent visibility improvement.” New Hampshire has neglected to consult with other states outside MANE-VU concerning this critical requirement when developing the proposed NHSIP, and as such each of the five Inter-Asks are invalid outside the MANE-VU RPO. These MANE-VU Inter-RPO Asks should be removed from the proposed NHSIP until such agreements have been secured with the named upwind states.

Further, Figure 1-6 of the proposed NHSIP illustrates the current trend of visibility impairment for the 20% most impaired days at GRGU to be well below the URP\(^{25}\). This is primarily a result of already reduced SO\(_2\) and NO\(_x\) emissions from upwind EGUs, reduced NO\(_x\) emissions from nearby mobile sources, and reduced SO\(_2\) emissions from fuel oil combustion sources since the first round of regional haze SIPs was completed over ten years ago. West Virginia appreciates New Hampshire’s aggressive goal to be ahead of the URP, but it stresses the current path appears to be more than adequate without demanding unrealistic and unnegotiated goals of upwind jurisdictions.

Visibility Improvement – State and Tribal Association of the Southeast (VISTAS) has completed more accurate preliminary modeling utilizing Particulate Matter Source Apportionment Technology (PSAT). These model runs utilized projected total state-wide anthropogenic and natural 2028 emissions of NO\(_x\) and SO\(_2\) as inputs. Initial model results suggest much lower visibility impairment impacts on GRGU and PRRA than those modeled by MANE-VU (see attachment 1). Total West Virginia contribution for combined SO\(_2\) and NO\(_x\) visibility impairment for the 20% most impaired days was modeled to be 0.188 Mm\(^{-1}\) and for the 20% best days was

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\(^{22}\) USEPA Energy and the Environment (https://www.epa.gov/energy/clean-energy-programs)

\(^{23}\) Database of State Incentives for Renewables & Efficiency (https://www.dsireusa.org/)


\(^{25}\) New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision, October 31, 2019, p. 10
modeled to be 0.004 Mm\(^{-1}\). This is significantly below the 2.0 Mm\(^{-1}\) contribution threshold MANE-VU and the proposed NHSIP set for identifying upwind states reasonably expected to contribute to visibility impairment in MANE-VU Class I areas\(^{26}\). This graphic demonstrates the impacts from the MANE-VU and Lake Michigan Air Directors Consortium (LADCO) RPO regions are expected to be considerably more significant when compared to the VISTAS region, which sums to 4.422 Mm\(^{-1}\) for the 20\% most impaired days and to 0.083 Mm\(^{-1}\) for the 20\% best days. Based on these preliminary model runs and the MANE-VU threshold for inclusion, West Virginia as well as the other VISTAS members should be completely excluded from the proposed NHSIP.

Finally, the WVDAQ does not have the authority to make unauthorized commitments within SIPs, either within or outside its jurisdictional boundaries. The WVDAQ must first draft and then the West Virginia Legislature must approve a rule prior to inclusion in a SIP. Final determinations of SIP completeness rests with the USEPA. Neither West Virginia nor any other jurisdiction is obligated to comply with the unnegotiated Inter-Asks within the proposed NHSIP. For the reasons outlined in this letter, West Virginia respectfully asks that New Hampshire remove it from the list of states considered to be reasonable contributing to visibility impairment at GRGU and PRRA.

Again, the WVDAQ appreciates the opportunity to comment on the NHIDES’s *New Hampshire Regional Haze Plan Periodic Comprehensive Revision*, for the second implementation period from 2018 to 2028.

Sincerely,

[Signature]

Laura M. Crowder
Director
WV Division of Air Quality

cc: Ms. Susan Spielberger, USEPA Region 3
Mr. John Hornback, SESARM

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\(^{26}\) *New Hampshire Department of Environmental Services Regional Haze Plan – Periodic Comprehensive Revision*, October 31, 2019, p. 27
Attachment 1: VISTAS modeled impairment for GRGU and PRRA using total 2028 projected emissions data from all SO₂ and NOₓ sources within the referenced area.