

# **PROPOSED REVISIONS TO VERMONT'S STATE IMPLEMENTATION PLAN TO ADDRESS THE INTERSTATE TRANSPORT OF POLLUTANTS**

## **I. Introduction**

This revision to the Vermont State Implementation Plan (SIP) demonstrates that the State of Vermont has met its obligations to address the interstate transport of air pollution from Vermont sources as required by the federal Clean Air Act (CAA) and by the finding of the U.S. Environmental Protection Agency (EPA) that states failed to submit SIPs addressing transported air pollution within three years of the 1997 promulgation of new National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter (PM<sub>2.5</sub>).

## **II. Background on SIP Requirement**

### **A. Clean Air Act Requirements**

On July 16, 1997, EPA issued the 8-hour ozone and PM<sub>2.5</sub> NAAQS. Section 110(a)(1) of the CAA requires that within three years after EPA promulgates a NAAQS, each state must adopt a SIP that provides for the implementation and maintenance of the new or revised standard. Implementation of the new NAAQS for ozone and PM<sub>2.5</sub> was delayed for years due to litigation. EPA did not finalize attainment/nonattainment designations for the ozone standard until June 2004,<sup>1</sup> and for the PM<sub>2.5</sub> standard until April 2005.<sup>2</sup> Consequently, states were not able to submit SIPs within the three-year time frame required by Section 110(a)(1).

In March 2004, Environmental Defense and the American Lung Association initiated legal action against EPA for failure to determine whether states had submitted SIPs following promulgation of the new NAAQS. As part of a consent decree in that action, EPA issued a rule in April 2005 finding that all 50 states had failed to submit SIPs satisfying Section 110(a)(2)(D)(i) requirements related to interstate transport.<sup>3</sup> If EPA did not approve a state's SIP as being in compliance with Section 110(a)(2)(D)(i) by May 25, 2007, EPA may propose a Federal Implementation Plan (FIP) to address the state's transported air pollution.

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<sup>1</sup> The entire state of Vermont is designated as attainment under the 8-hour ozone NAAQS.

<sup>2</sup> Vermont was designated as an attainment area for the 1997 PM<sub>2.5</sub> NAAQS. EPA revised the 24-hour PM<sub>2.5</sub> NAAQS in December 2006 and designated Vermont as attainment for the revised PM<sub>2.5</sub> NAAQS in December 2008. This document, however, relates only to the 1997 NAAQS.

<sup>3</sup> U.S. EPA, Finding of Failure to Submit Section 110 State Implementation Plans for Interstate Transport for the National Ambient Air Quality Standards for 8-hour Ozone and PM<sub>2.5</sub>, 70 Fed. Reg. 21147 (April 25, 2005).

Section 110(a)(2) of the Clean Air Act sets out specific requirements for SIPs, and includes Section 110(a)(2)(D)(i), which pertains to the interstate transport of emissions. It requires that SIPs contain provisions adequate to prohibit emissions within a state from:

- (1) Contributing significantly to nonattainment in another state, or interfering with maintenance of a NAAQS by any other state; or
- (2) Interfering with another state's plans to prevent significant deterioration of air quality or to protect visibility.

### **B. Transport SIP Guidance**

On August 15, 2006, EPA issued guidance<sup>4</sup> for states to use as they developed SIPs to meet their outstanding obligations under Section 110(a)(2)(D)(i) for the 8-hour ozone and PM<sub>2.5</sub> NAAQS. The guidance outlines the four elements states should address in their SIPs:

- (1) Significant contribution to nonattainment;
- (2) Interference with maintenance;
- (3) Prevention of significant deterioration; and
- (4) Protection of visibility.

Sections III through V below present data and information, as suggested in EPA's guidance, that demonstrate Vermont meets the interstate transport requirements of Section 110(a)(2)(D)(i).

### **III. Analysis of Significant Contributions of Nonattainment or Interference With Maintenance of 8-hour Ozone and PM<sub>2.5</sub> NAAQS**

The Clean Air Act contains a "good neighbor" provision that requires states to submit SIPs that include provisions prohibiting emissions of air pollutants which "contribute significantly to nonattainment in, or interference with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard . . . ." CAA §110(a)(2)(D)(i)(I). The modeling conducted by EPA to determine which states should be included in the Clean Air Interstate Rule (CAIR) demonstrates that emissions from Vermont do not contribute to nonattainment or interfere with maintenance of the 1997 8-hour ozone and PM<sub>2.5</sub> standards.<sup>5</sup> Furthermore, there are no nonattainment areas in Vermont for these standards.

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<sup>4</sup> Memorandum from William T. Harnett, Director, Air Quality Policy Division, to Regional Air Division Directors, Regions I – X on Guidance for SIP Submissions to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the 8-Hour Ozone and PM<sub>2.5</sub> National Ambient Air Quality Standards (Aug. 15, 2006) (hereinafter "Transport SIP Guidance").

<sup>5</sup> U.S. EPA, Office of Air Quality Planning and Standards, Technical Support Document for the Final Clean Air Interstate Rule, Air Quality Modeling (March 2005). *See also* U.S. EPA, Office

## **A. 8-Hour Ozone NAAQS**

In the air quality modeling conducted to support CAIR, EPA utilized two different techniques (source apportionment and zero-out modeling) to quantify the impact of emissions in specific upwind states on projected downwind nonattainment areas for 8-hour ozone. The zero-out and source apportionment modeling techniques provide different technical approaches to quantifying the downwind impact of emissions in upwind states. Zero-out modeling provides an estimate of downwind impacts by calculating the difference between the model estimates from a base case run to the estimates from simulation in which the base case man-made emissions are removed from a specific State. In source apportionment techniques, the contributions from many individual source areas (or categories) to ozone formation are estimated in a single model run. Source apportionment modeling tends to show a greater magnitude and frequency of contributions than the zero-out modeling, but neither technique is clearly superior to the other for evaluating contributions to ozone from various emissions sources.

Using the zero-out and source apportionment techniques, EPA determined which states contribute significantly to nonattainment in the 40 downwind receptor counties that were modeled. Of the 31 states EPA included in its assessment of interstate ozone contributions, Vermont was one of six states that EPA found to not make a significant contribution to downwind ozone nonattainment.<sup>6</sup>

## **B. PM<sub>2.5</sub> NAAQS**

State by state zero-out modeling was also used as the modeling technique to quantify the contribution from SO<sub>2</sub> and NO<sub>x</sub> emission in individual states to future PM<sub>2.5</sub> nonattainment in other states. As part of the zero-out modeling technique, EPA removed the 2010 Base Case anthropogenic emissions of SO<sub>2</sub> and NO<sub>x</sub> from 37 states in the east on a state-by-state basis in different CMAQ modeling runs. EPA then used the modeled contribution from each upwind state to PM<sub>2.5</sub> at each of the 113 2010 Base year “modeled plus monitored” nonattainment sites in other states. The maximum contribution from among the set of downwind contributions was then selected as the maximum downwind contribution.

EPA used a criterion of 0.2 µg/m<sup>3</sup> for determining whether SO<sub>2</sub> or NO<sub>x</sub> emissions in a state make a significant contribution to PM<sub>2.5</sub> nonattainment in another State. Of the 37 states analyzed, EPA found that the maximum downwind contribution of 28 states and the District of Columbia was 0.2 µg/m<sup>3</sup> or more and therefore make a significant contribution to PM<sub>2.5</sub> nonattainment in other States. EPA also found that Vermont does

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of Air Quality Planning and Standards, Clean Air Interstate Rule Emissions Inventory Technical Support Document (March 2005).

<sup>6</sup> Technical Support Document for the Final Clean Air Interstate Rule, Air Quality Modeling at 36.

not make a significant contribution to downwind PM<sub>2.5</sub> nonattainment because Vermont's maximum downwind contribution was less than a 0.05 µg/m<sup>3</sup>.<sup>7</sup>

#### **IV. Prevention of Significant Deterioration**

As discussed above, states are required to submit SIPs that include provisions prohibiting emissions of air pollutants which “interfere with measures required to be included in the applicable implementation plan for any other State . . . to prevent significant deterioration of air quality . . . .” CAA § 110(a)(2)(D)(i)(II).

EPA regulations require each SIP to include a preconstruction review program for major sources to satisfy the requirements of section 110(a)(2)(D)(i). In nonattainment areas, the preconstruction review program is known as nonattainment new source review (NNSR). In attainment areas, preconstruction review is part of the prevention of significant deterioration (PSD) program. Vermont has an EPA-approved PSD program for stationary sources of air pollution that it has successfully implemented for many years. Vermont's PSD permitting program requirements are set forth in sections 5-501 and 5-502 of Vermont's Air Pollution Control Regulations.<sup>8</sup>

EPA's Transport SIP Guidance states that, because current PSD and NNSR permitting programs “require a demonstration that new or modified sources will not cause or contribute to air pollution in excess of the NAAQS in neighboring states or that sources in nonattainment areas procure offsets, EPA believes that states need not make an additional SIP submission containing rule changes or modeling demonstrations” to address the above requirement for the 8-hour ozone and PM<sub>2.5</sub> NAAQS.<sup>9</sup>

EPA's Transport SIP Guidance states that for 8-hour ozone, states need only confirm that major sources are currently subject to PSD and NNSR permitting programs (as applicable) that implement the 8-hour ozone standard and that the state is on track to meet the June 15, 2007 deadline for SIP submissions adopting the requirements of the Phase II ozone rule.<sup>10</sup> Vermont confirms that major sources in the state are currently subject to a PSD permitting program that implements the 8-hour ozone standard. Vermont was not required to revise its SIP to adopt the requirements of the Phase II ozone rule because its approved PSD program already has a threshold for ambient impact evaluations of 50 tpy of NO<sub>x</sub> for major sources and 40 tpy of NO<sub>x</sub> for major modifications.

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<sup>7</sup> Technical Support Document for the Final Clean Air Interstate Rule, Air Quality Modeling at 42-43.

<sup>8</sup> All of Vermont's Air Pollution Control Regulations are available at: <http://www.anr.state.vt.us/air/docs/apcregs.pdf>.

<sup>9</sup> Transport SIP Guidance at 6.

<sup>10</sup> Transport SIP Guidance at 8.

EPA's Transport SIP Guidance states that for PM<sub>2.5</sub>, states need only confirm that major sources are subject to PSD and NNSR permitting programs (as applicable) implemented in accordance with EPA's interim guidance calling for use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> in the PSD and NNSR programs.<sup>11</sup> Vermont confirms that major sources in the state are subject to a PSD permitting program that applies PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> in accordance with interim EPA guidance.

## **V. Protection of Visibility**

States are also required to submit SIPs that contain adequate provisions prohibiting emissions of air pollutants which "interfere with measures required to be included in the applicable implementation plan for any other State . . . to protect visibility." CAA § 110(a)(2)(D)(i)(II).

EPA adopted a phased approach to visibility protection, issuing regulations in 1980 addressing reasonably attributable visibility impairment and regulations in 1999 addressing regional haze,<sup>12</sup> which require states to submit Regional Haze SIPs.

In response to the requirement to submit Regional Haze SIPs, Vermont has been working with MANE-VU (Mid-Atlantic Northeast Visibility Union), the regional planning organization for the Northeast states, to develop emission reduction/visibility improvement goals that provide for reasonable progress towards achieving natural visibility by 2064 in Class 1 areas in the MANE-VU region. The reasonable progress goals for the first ten-year planning period will ensure improvement in visibility for the 20 percent most impaired days each year, and also ensure no degradation in visibility for the 20 percent least impaired days each year. The long-term strategy will include enforceable emission limitations, compliance schedules and other measures necessary to achieve the reasonable progress goals established by the states in which the protected areas are located. The emission reduction obligations of each state will be based on an analysis of monitoring and modeling data through a consultative process with the other states, MANE-VU and other regional planning organizations.

In the Transport SIP Guidance, EPA concluded that it is "premature to determine whether or not State SIPs for 8-hour ozone or PM<sub>2.5</sub> contain adequate provisions to prohibit emissions that interfere with measures in other States' SIPs designed to address regional haze."<sup>13</sup> Vermont agrees with EPA that "it is not possible at this time to assess whether there is any interference with measures in the applicable SIP for another state

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<sup>11</sup> Id.

<sup>12</sup> See 40 C.F.R. §§ 51.300-51.308

<sup>13</sup> Transport SIP Guidance at 9.

designed to ‘protect visibility’ for the 8-hour ozone and PM<sub>2.5</sub> NAAQS until regional haze SIPs are submitted and approved.”<sup>14</sup>

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<sup>14</sup> Transport SIP Guidance at 9-10.