

concentrations of PM<sub>2.5</sub>. Emissions of NO<sub>x</sub> and/or VOC will lead to formation of organic particles and the precursors of particulate nitrate, as well as ozone. The presence of ozone is an important factor affecting PM<sub>2.5</sub> formation; as ozone builds up, so do OH radicals which are instrumental in oxidizing gas phase SO<sub>2</sub> to sulfuric acid. The sulfuric acid may be converted to sulfate particles, increasing the PM<sub>2.5</sub> concentration. Further, the local ozone concentrations may be decreased by the reaction of ozone with nitric oxide; thus, in some large urban areas, a decrease in local NO<sub>x</sub> emissions can result in higher local ozone concentrations, leading to higher OH radical concentrations and increases in secondary PM<sub>2.5</sub>. Because the precursors for ozone and PM<sub>2.5</sub> may be transported hundreds of kilometers, regional scale impacts may also need to be considered.

## 2. What Guidance Has EPA Provided Regarding Ozone, PM<sub>2.5</sub> and Regional Haze Interaction?

As described in an earlier section of today's proposed rulemaking, States must develop ozone attainment demonstrations for many nonattainment areas. General criteria for attainment demonstrations are contained in 40 CFR part 51, appendix W (i.e., "EPA's Guideline on Air Quality Models"). EPA's May 1999 draft "Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-Hour Ozone NAAQS" provides a set of general requirements that an air quality model should meet to qualify for use in an attainment demonstration for the 8-hour ozone NAAQS. The draft guidance encourages States to integrate ozone control strategies with strategies designed later to attain the NAAQS for PM<sub>2.5</sub> and to meet reasonable progress goals for regional haze. In addition, the draft guidance presents some modeling/analysis principles to help States develop data bases and capabilities for considering joint effects of control strategies for ozone, PM<sub>2.5</sub> and regional haze. Because emissions and meteorological conditions vary seasonally, the guidance recommends assessing the effects of an ozone control strategy on annual PM<sub>2.5</sub> concentrations by estimating effects on mean PM<sub>2.5</sub> for each season and using the resulting information to estimate annual impacts. Emission estimates for VOC, NO<sub>x</sub>, primary PM<sub>2.5</sub>, sulfur dioxide and ammonia will be needed. In addition, the modeling should separately estimate the effects of the ozone strategy on the major components of PM<sub>2.5</sub>: mass associated with sulfates, nitrates, organic carbon, elemental carbon, and

all other species. We believe that this approach is adequate to ensure that the 8-hour ozone standard will be implemented by States in a way that allows an optimal mix of controls for ozone, PM<sub>2.5</sub>, and regional haze.

Similarly, EPA's attainment demonstration guidance for PM<sub>2.5</sub> and regional haze states that models intended to address secondary PM problems should also be capable of simulating ozone formation and transport (January 2, 2001, "Guidance for Demonstrating Attainment of Air Quality Goals for PM<sub>2.5</sub> and Regional Haze"). The formation and transport of secondary PM are closely related to processes that are important in the formation and transport of ozone. Thus, it makes sense for programs designed to control ozone to be cognizant of programs to reduce PM<sub>2.5</sub> and improve visibility and vice versa. The PM<sub>2.5</sub> guidance suggests conducting a "mid-course review" of an approved PM<sub>2.5</sub> plan to review changes in air quality resulting from implementation of plans to reduce PM<sub>2.5</sub>, regional haze, and ozone. (EPA guidance on mid-course review of attainment demonstrations is described earlier in today's proposed rulemaking.)

We realize that in some cases development of control plans will be complicated by the need to assess the impact of the precursors of ozone, PM<sub>2.5</sub>, and regional haze. The question arises whether such areas may be provided more time to perform the more complicated analyses such that an effective multi-pollutant strategy may be developed. However, the statute provides no express relief for these situations. Thus, the State is still responsible for developing and submitting demonstrations which show that each standard will be attained by the applicable date or dates provided.

## 3. What Is EPA Proposing?

Today, we propose to continue the policy of encouraging each State with an ozone nonattainment area which overlaps or is nearby a PM<sub>2.5</sub> nonattainment area to take all reasonable steps to coordinate the required revisions for these nonattainment areas and meet reasonable progress goals for regional haze. Specifically, we encourage States conducting modeling analyses for ozone to separately estimate effects of a strategy on the following: mass associated with sulfates, nitrates, organic carbon, elemental carbon, and all other species.

## Q. What Emission Inventory Requirements Should Apply Under the 8-Hour Ozone NAAQS?

The Consolidated Emissions Reporting Rule (CERR) (67 FR 39602, June 10, 2002) has established basic emission inventory requirements. Specific SIP-related inventory issues will be detailed in a guidance document. An important difference between inventories submitted in response to the CERR and SIP inventories is the issue of approvability. While it is likely that an inventory submitted under the CERR would be identical to the inventory submitted as part of a SIP, the SIP inventory will need to go through public hearing and formal approval by EPA as a SIP element. This public process can be combined with the public process the State undertakes for other SIP elements. The following discussion presents more details on the emission inventory.

Emission inventories are critical for the efforts of State, local, and Federal agencies to attain and maintain the NAAQS that EPA has established for criteria pollutants including ozone. Pursuant to its authority under section 110 of title I of the CAA, EPA has long required States to submit emission inventories containing information regarding the emissions of criteria pollutants and their precursors. EPA codified these requirements in 40 CFR part 51, subpart Q in 1979 and amended them in 1987.

The 1990 CAA Amendments revised many of the provisions of the CAA related to attainment of the NAAQS and the protection of visibility in mandatory Class I Federal areas (certain national parks and wilderness areas). These revisions established new periodic emission inventory requirements applicable to certain areas that were designated nonattainment for certain pollutants. In the case of ozone, section 182(a)(3)(A) required that States submit an emission inventory every 3 years for nonattainment areas beginning in 1995 for calendar year 1993. The inventory must include emissions of VOC, NO<sub>x</sub>, and carbon monoxide (CO) for point, area, mobile (on-road and non-road), and biogenic sources.

In 1998, EPA promulgated the NO<sub>x</sub> SIP Call (§ 51.121) which calls on the affected States and the District of Columbia to submit SIP revisions providing for NO<sub>x</sub> reductions in order to reduce the amount of ozone and ozone precursors transported across State borders. As part of that rule, EPA established emissions reporting