UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

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OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

SUBJECT: 2002 Base Year Emission Inventory SIP Planning: 8-hr Ozone, $PM_{2.5}$ and Regional Haze Programs

FROM: for Lydia N. Wegman, Director
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TO: Regional Air Division Directors

The EPA anticipates that nonattainment designations for the 8-hour ozone national ambient air quality standards (NAAQS) will occur in 2004, and the designations for the fine particles ($PM_{2.5}$) NAAQS will occur in the 2004-2005 time frame. Within 3-4 years after designations are promulgated, States will need to submit new attainment demonstration State implementation plans (SIPs) for the new NAAQS. A key element in the overall SIP planning process is the need for updated statewide emission inventories. This memorandum identifies 2002 as the anticipated emission inventory (EI) base year for the SIP planning process to address these pollutants. Identifying the base year at this time gives certainty to States, and the selection of 2002 harmonizes dates for other reporting requirements, e.g., EPA's Consolidated Emissions Reporting Rule (CERR) that requires submission of EI every three years; 2002 is one of the required years for such updates.

The Agency encourages States to take early action to reduce emissions of pollutants that cause violations of the NAAQS for ozone (the 8-hour standard) and $PM_{2.5}$, and that cause regional haze. States will be able to take credit for emission reductions that occur after the 2002 base year, including reductions that occur before the deadlines for submission of these SIPs. As a matter of policy, EPA seeks to avoid penalizing States for moving forward early to address these problems. Attached is additional information.

The EPA is aware that some areas have already begun on a voluntary basis to model for purposes of the 8-hour ozone standard. These areas may continue to use modeling from previous base years for each set of meteorological episode conditions for use in their SIP submittals if these studies are still applicable for an attainment demonstration. The 2002 EI, however, needs

to be factored into this analysis. For example, the 2002 inventory would be a good choice for use in modeling "current" emissions. As described in the modeling guidance, predictions for the current emissions and predictions for the future year emissions are used in the modeled attainment test[1]. Furthermore, for reasonable further progress (RFP) purposes, the 2002 EI needs to be used as the base year.

Please make this guidance available to the appropriate contacts in your State and local air agencies. Questions on this should be directed to (for ozone) Annie Nikbakht at 919-541-5246 or (for $PM_{2.5}$) Rich Damberg at 919-541-5592.

cc: Lydia Wegman
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[1]U.S. EPA, (1999), "*Guidance onthe use of models and other analyses in attainment demonstrations for the 8-hour ozone NAAQS,*" DRAFT, May 1999, Web site: http://www.epa.gov/tnn/scram, under Guidance/Support, file name: O3TEST.

Attachment

Background

The EPA anticipates that designations for the 8-hour ozone NAAQS will occur in 2004, and the designations for the $PM_{2.5}$ NAAQS will occur in the 2004-2005 time frame. The Clean Air Act (CAA) requires States to submit attainment demonstration SIPs for the 8-hour ozone standard within 3 to 4 years (depending on classification), and within 3 years for the $PM_{2.5}$ standard. Therefore, EPA anticipates that SIPs will be due in 2007 or 2008[2] for both NAAQS programs. For regional haze, most States (i.e., those participating in regional planning organizations) will have SIPs due at the same time as $PM_{2.5}$ SIPs. We anticipate that technical analyses in support of these SIPs, such as regional scale air quality modeling, will need to begin no later than the 2004 time frame. Updated statewide emissions inventories will be an important component used in these analyses. In addition, for many of the required SIPs, emissions in upwind States will also be an important input to necessary technical analyses.

For the 8-hour ozone, $PM_{2.5}$, and regional haze program areas, there are statutory and regulatory provisions related to prospective and/or retrospective demonstrations of progress in reducing emissions and/or improving air quality, although the exact provisions differ somewhat across programs. We have considered the statutory and regulatory provisions applicable to each of these program areas, and have concluded that in each case 2002 is an appropriate base year for program requirements related to progress. In addition, there are practical reasons for choosing 2002, as explained below.

Therefore, even though EPA has not developed final rules or guidance for implementation of either the 8-hour ozone NAAQS or the $PM_{2.5}$ NAAQS, EPA believes that 2002 should be the base year inventory for these SIP planning efforts, including for regional haze SIPs. Using the 2002 inventory as the base year will also ensure that the inventory reflects one of the years used for calculating the air quality design values on which designation decisions are based, as well as one of the years in the 2000-2004 period used to establish baseline visibility levels for the regional haze program. Our reasoning is explained in more detail below for each program area.

The year 2002 is also suitable as the principle or one of the principle years used for air quality model validation.

The practical reasons for choosing 2002 have to do with the requirements of the CERR (67 Federal Register 39602), which was finalized on June 10, 2002, and with the schedule of EPA's own work on the National Emissions Inventory. The CERR requires States to submit

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[2]The EPA is still working on the implementation guidance that will address the extent to which subparts 1 and 2 of the CAA apply for purposes of the 8-hour ozone NAAQS. Subpart 1 provides up to three years after nonattainment designation for States to submit attainment and reasonable further progress (RFP) SIPs, while subpart 2 provides 3 to 4 years, depending on an area's classification, for States to submit those plans.

emissions inventories for all criteria pollutants and their precursors every three years, on a schedule that includes the emissions year 2002. The due date for the 2002 emission inventory is established in the CERR as June 2004. Therefore, each State should have information available some time before this date to develop the in-state emissions inventory needed for technical analyses during 2004. In addition, EPA plans to make its initial version of the 2002 National Emission Inventory (NEI) available to the states by December 2003, based on 2002 data on emissions from electric generating units, preliminary 2002 vehicle miles traveled information from the Federal Highway Administration, and growth and control projections starting with the 1999 NEI for other source types. This preliminary 2002 NEI can be used in 2004 by each State needing emission estimates for upwind States. The EPA's final 2002 NEI, which will merge and augment the state-by-state inventories received in 2004, will be ready by the summer of 2005. Depending on where they are in their work, States may wish to switch to the newer estimates of upwind-states' emissions, and certainly should at least consider how the emission estimates for upwind States have changed.

Alternatively, some regional groupings of States may exchange and merge their 2002 inventories directly, prior to completion of EPA's final 2002 NEI. We will be consulting with multi-state organizations about the 2002 inventory process so that work is not duplicated unnecessarily.

8-hour Ozone NAAOS

Under the 8-hour ozone standard, EPA anticipates that many areas designated nonattainment for the 8-hour ozone NAAQS will need to comply with the rate of progress (ROP) requirement in Subpart 2 of the CAA, which applies to areas classified moderate or above. Any area not subject to the subpart 2 ROP requirement would be subject to the more general requirement under subpart 1 to make RFP. Both ROP and RFP consider progress made from a baseline inventory. As enacted in 1990, Subpart 2 provided that the base-year inventory would be 1990. See, CAA section 182(b)(1)(B). Thus, for 1-hour ozone nonattainment areas classified moderate or higher, ROP reductions for the target of 1996 were considered to be a 15 percent reduction of volatile organic compound (VOC) emissions from the 1990 baseline year. Similarly, for each three-year period following 1996 up to its attainment date, a serious or above nonattainment area was required to achieve an additional 9 percent reduction in VOC emissions.[3] Under the 8-hour ozone standard, EPA anticipates that, consistent with the above discussion, a 2002 base year emission inventory would be used as the baseline from which future target levels ~~of emissions would be calcula~~ted. Therefore, any emission reductions that the State initiates after 2002 would be creditable toward the ROP or RFP requirements.

[3] The CAA provides that nitrogen oxides (NO) emission reductions may be substituted for VOC emission reductions for these subsequent three-year periods under prescribed circumstances. See CAA section 182(c)(2)(C).

For areas subject to the subpart 2 ROP requirement, section 182(b)(1)(D) places constraints on the use of emission reduction credits from certain pre-1990 programs even though those programs might achieve additional reductions in the years following 1990, i.e., the federal motor vehicle emission control program, Reid Vapor Pressure programs, corrections required to pre-existing reasonably available control technology (RACT) rules, and inspection and maintenance (I/M) program corrections. While these limitations would still apply for purposes of credit for SIPs designed to meet the 8-hour ozone NAAQS, EPA does not believe it is legally required and does not plan to expand the list of programs for which credit is precluded. Subpart 1 does not establish any limits on the creditability of measures for purposes of RFP and EPA does not anticipate establishing any regulatory limits on the creditability of emission reductions. Thus, EPA does not anticipate establishing any additional constraints on crediting emission reductions achieved in years following the 2002 base year. Therefore, apart from those programs listed in the CAA, we believe that States can take credit for other emission reductions that occur after the 2002 base year.

$PM_{2.5}$ NAAQS

The EPA anticipates that States will be required to implement the $PM_{2.5}$ NAAQS under Subpart 1 since the more specific provisions in Subpart 4 that address particulate matter expressly apply only to PM_{10}. As provided above, Subpart 1 does not place limits on the types of controls that are creditable for purposes of the RFP requirement. As with the 8-hour ozone NAAQS, EPA does not anticipate establishing any regulatory constraints limiting creditability of emission controls. Subpart 1 generally calls for States to submit plans including emission reduction measures designed to attain the NAAQS within 3 years after a nonattainment designation. It also includes a reasonable further progress (RFP) requirement, but does not have a specific percent reduction requirement as there is in the ROP requirement of Subpart 2. The exact form of the RFP requirement for $PM_{2.5}$ has yet to be established, but it is expected that any emission reductions that occur after the base year of 2002 would be credited toward the emission reductions needed by the State under its attainment demonstration and toward the reductions needed to meet the RFP requirement.

Regional Haze Program

The regional haze program calls for States participating in regional planning organizations to submit SIPs in 2007-8 that contain progress goals for every class I area and emission reductions strategies needed to meet these goals. Progress in improving visibility is tracked from baseline conditions (established using air quality monitoring for the 2000-2004 period). If 2002 is used as the base year for planning purposes, then States can take credit for emission reductions that are achieved before the 2007-2008 SIP due date.

~~Credits in General~~

It should be noted that EPA cannot provide "double credit" for an emission reduction for purposes of RFP or ROP. For instance, if a program or rule results in emission reductions prior to or in the base year, those reductions would be considered in calculating the base year emissions inventory and thus could not be counted as emission reductions from the base-year level. Such reductions would likely lower ambient pollutant concentrations, however, and would be important in terms of determining an area's designation and, if designated nonattainment, could affect the area's classification and thus its planning obligations. For example, emission reductions in NOx or VOC achieved prior to or during 2002 could have already resulted in the area having a lower ozone design value, which is the measure of whether the area is violating the 8-hour ozone standard and, if so, by how much. Reductions from such measures in years beyond the base year would be creditable towards ROP SIPs. These concepts of credit were discussed in the January 29, 2001, memorandum from John Seitz entitled "Near-Term Discretionary Emission Reductions for Ozone NAAQS–Clarification," which addressed the 1-hour ozone standard, but which are also conceptually applicable to implementation of the 8-hour ozone standard.

However, post-2002 emission reductions that benefit ozone, PM2.5 and regional haze can be credited toward the RFP requirements for each of these programs.