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Particulate Matter ($PM_{2.5}$): National Ambient Air Quality Standards (NAAQS) Implementation

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Summary

On January 5, 2005, the U.S. Environmental Protection Agency (EPA) published a final rule designating geographical areas for the national ambient (outdoor) air standards for fine particulate matter or "$PM_{2.5}$" (particles less than 2.5 micrometers in diameter). EPA designated 225 counties in 20 states, and the District of Columbia, as "nonattainment areas;" those areas with (or contributing to) air quality levels exceeding the annual and 24-hour $PM_{2.5}$ standards, which limit the concentration of fine particle levels in the ambient air.

Particulate matter, including $PM_{2.5}$, is one of the six principal pollutants classified as criteria pollutants for which EPA has set National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA). NAAQS are designed primarily to protect human health with an adequate margin of safety. After several years of litigation and other delays, EPA is moving to implement the NAAQS for $PM_{2.5}$ promulgated in 1997.

The designation of geographical areas for attainment or nonattainment is a critical step in the implementation of the $PM_{2.5}$ NAAQS. $PM_{2.5}$ nonattainment areas will require the development of comprehensive implementation plans to meet the $PM_{2.5}$ standards. Some areas, which have not been designated as nonattainment under implementation of other NAAQS, are expected to be designated nonattainment for the first time.

At the end of June 2004, EPA recommended designating 244 counties in 21 states and the District of Columbia as "nonattainment areas" for the $PM_{2.5}$ NAAQS. The agency's recommendations were in response to submissions received from 18 states and the District of Columbia in mid-February 2004 designating 142 counties as nonattainment areas. EPA notified each of the affected states regarding their specific modifications to allow them sufficient opportunity to demonstrate why a proposed modification is inappropriate. EPA considered states' responses to the agency's proposal in making the final designations.

A number of issues will continue to be the topic of debate as the implementation of the $PM_{2.5}$ NAAQS progresses. Among the questions and concerns are: when and why the standards were established; what criteria were used to determine nonattainment; how boundaries of the nonattainment area were established; whether special provisions can be made for areas affected by pollution from upwind; what the deadline will be for reaching attainment; what grants or other funding might be available to assist areas in reaching attainment; and how nonattainment designation might affect economic development and transportation investments in an area.

The ongoing mandated periodic review of PM NAAQS, and currently pending court challenges that followed the recent release of the 8-hour ozone designations, could affect $PM_{2.5}$ NAAQS implementation. Legislation affecting various aspects of regulating air quality could also potentially alter the implementation process. This report will be updated as developments warrant.

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Introduction

On December 17, 2004, the U.S. Environmental Protection Agency (EPA) finalized the designations of geographical areas for attainment or nonattainment[1] of the national ambient (outdoor) air standards for fine particulate matter or "$PM_{2.5}$" (particles less than 2.5 micrometers (µm) in diameter). This action continues EPA's implementation of new National Ambient Air Quality Standards (NAAQS) for particulate matter promulgated in 1997 under authority of the Clean Air Act (CAA),[2] delayed until recently because of court challenges and other factors.

What Is $PM_{2.5}$?
$PM_{2.5}$ can be naturally occurring or manmade in the form of solid particles in soot, smoke, dust, and in some instances is in the form of liquid particles. $PM_{2.5}$ can come from various residential and industrial combustion activities, or they may result from the reaction of certain gas emissions with the atmosphere. Sources of $PM_{2.5}$ include vehicle and equipment exhaust, utility and other industrial plant emissions, burning wood, and fugitive dust emissions from roads or generated by various activities such as construction and agricultural operations. $PM_{2.5}$ has been linked to cardiovascular and respiratory health problems, and contributes to visibility "haze" and acidic deposition.

EPA announced the designation of all or part of 225 counties[3] in 20 states, as well as the District of Columbia, for nonattainment of the $PM_{2.5}$ NAAQS. The final designations were based, in part, on the EPA's review and consideration of recommendations previously provided by states and tribes.[4]

The final rule was published in the *Federal Register* on January 5, 2005 (70 *Fed. Reg*. 944-1019) and goes into effect April 5, 2005 (90 days from the date of publication). EPA could withdraw a nonattainment designation prior to this date if

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[1]Areas are identified as "nonattainment" when they violate or contribute to the violation of National Ambient Air Quality Standards (NAAQS), or "attainment/unclassified" when they meet the standard or the data are insufficient for making a determination of compliance with the NAAQS.

[2]62 *Federal Register* 38652-38896, July 18, 1997.

[3]Includes 7 cities: Baltimore, MD; St. Louis, MO; Alexandria, VA; Fairfax, VA; Falls Church, VA; Manassas, VA; and Manassas Park, VA.

[4]By the end of February 2004, 18 states and the District of Columbia had recommended 142 counties as potential nonattainment areas (see EPA's "$PM_{2.5}$ Designations" website at [http://www.epa.gov/pmdesignations]).

a state provides 2004 data, by February 22, 2005, suggesting that a change in designation is appropriate. Because monitoring data for 2004 was not available in time for EPA to meet its statutory deadline for $PM_{2.5}$ geographical area designations, the agency relied on three-year monitoring data from 2001 to 2003 to make the final designations.

Nonattainment designation begins a process in which states (and tribes) must develop and adopt emission control programs sufficient to bring air quality into compliance by an EPA-defined deadline. States are required to submit "implementation" plans for how they will meet the $PM_{2.5}$ NAAQS by early 2008, and must be in compliance by 2010 unless they are granted a five-year extension.

When the NAAQS was promulgated in 1997, EPA estimated that compliance with the $PM_{2.5}$ NAAQS was expected to result in the prevention of 15,000 premature deaths, 75,000 cases of chronic bronchitis, and 10,000 hospital admissions for respiratory and cardiovascular disease, as well as other benefits. These estimates, which reflect health effects prevented during a single year, have been the subject of significant debate and re-analyses. Although some stakeholders continue to question the substantiation of these benefits, EPA and others contend that more recent analysis suggest the actual benefits may be larger than the original estimates.[5]

Designating areas as nonattainment is expected to raise questions and concerns, particularly for those areas designated nonattainment for the first time. These questions and concerns include when and why the standards were established; what criteria were used to determine nonattainment; how boundaries of the nonattainment area are established; whether special provisions can be made for areas affected by pollution from upwind; what the deadline will be for reaching attainment; what grants or other funding might be available to assist areas in reaching attainment; and how designation might affect economic development and transportation investments in an area.[6]

This report provides a brief overview of the NAAQS implementation process in the context of the $PM_{2.5}$ standards, including links to sources of additional information. The report also discusses issues and legislation that could potentially alter the $PM_{2.5}$ NAAQS implementation process. For a detailed discussion of the

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[5] There is extensive and growing literature on the health effects of $PM_{2.5}$. For relevant EPA criteria and technical documents in support of the 1997 promulgation, as well as more recent analyses, see [http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_index.html]. For a discussion of estimated premature mortality, see Statement of Jonathan Levy, Harvard School of Public Health, at "Health Effects of $PM_{2.5}$ Emissions," Hearing, Senate Environment and Public Works Committee, October 2, 2002. Recent research indicates a correlation between particulate concentrations and infant mortality (*The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession*, Kenneth Y. Chay and Michael Greenstone, *Quarterly Journal of Economics*, Volume 118, Issue 3, August 2003).

[6] EPA's April 15, 2004, designation of areas in 32 states and the District of Columbia (474 counties) as "nonattainment areas" for a new ozone air quality standard (promulgated the same time as the $PM_{2.5}$ NAAQS in 1997) raised similar concerns. See CRS Report RL32345, *Implementation of EPA's 8-Hour Ozone Standard.*

history of the PM NAAQS, including an overview of relevant health effects studies and the status of the statutorily required periodic review, see CRS Report RL31531, *Particulate Matter Air Quality Standards: Background and Current Developments*.

Background

NAAQS are a core component of the CAA,[7] and the statute requires EPA to set primary standards at a level "requisite to protect the public health" with an "adequate margin of safety" (42 U.S.C. 7409(b)(1)), based on a review of the scientific literature. The CAA also requires setting secondary standards at a level "requisite to protect the public welfare" as defined by the act (42 U.S.C. 7409(b)(2) and 7602(h)). EPA has promulgated NAAQS for six principal pollutants classified by the agency as "criteria pollutants": sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, and lead. NAAQS for PM_{10} ("coarse particulate matter"), which have been in place since 1987, were maintained with some modification in the final 1997 rule that included adding the $PM_{2.5}$ standards (see discussion later in this report).

Since they were modified in 1997, the particulate matter standards (also referred to as the PM NAAQS) issued by EPA have been the source of significant controversy and national debate, which has led to the delay in their implementation. Congress has been especially interested in EPA's promulgation and implementation of these CAA standards and has held numerous hearings on particulate matter.

EPA is in the process of reviewing the PM standards promulgated in 1997. Every five years, according to the statute (but less frequently in practice), EPA is required to review the latest scientific studies and either reaffirm or modify the NAAQS. EPA's review of the 1997 PM standards began not long after the current standards were promulgated.[8] As part of the review process, on October 29, 2004, EPA released the report *Air Quality Criteria for Particulate Matter*. Referred to as a "criteria document," the report will provide the scientific basis for assessments and policy decisions regarding the adequacy of the existing PM NAAQS. EPA has targeted December 2005 for publishing its decision on whether or not to propose changes to the current PM standards.

The $PM_{2.5}$ Standards

Earlier regulation and monitoring of particulate matter under the CAA, beginning in 1971, focused primarily on total suspended particles (TSP) and later on,

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[7]Sections 108 and 109 of the Clean Air Act (CAA) govern the establishment, review, and revisions of NAAQS (42 U.S.C. 7408 and 7409). For an overview of NAAQS and the standard-setting process, see CRS Report RL30853: *Clean Air Act: A Summary of the Act and Its Major Requirements*, and CRS Report 97-722 ENR, *Air Quality Standards: The Decisionmaking Process*.

[8]For EPA's original plans for reviewing the PM NAAQS, see 62 *Federal Register* 55201, October 23, 1997.

coarse particles equal to or less than 10 micrometers in diameter (PM_{10}).[9] After extensive analysis and review, EPA revised the PM standards to provide separate requirements for fine particulate matter ($PM_{2.5}$) based on their link to several types of cardiovascular and respiratory health problems, including aggravated asthma and bronchitis, and links to premature death. EPA also revised the coarse particles designation (PM_{10}) to include particles larger than 2.5 but smaller than 10 micrometers ($PM_{10-2.5}$), so as to explicitly exclude fine particles, and as part of the 1997 rule, promulgated the 8-hour ozone standard.

The primary and the secondary $PM_{2.5}$ NAAQS requirements, which became effective September 16, 1997,[10] are the same. The $PM_{2.5}$ standards are set at:

1. an annual maximum concentration of 15 micrograms per cubic meter ($\mu g/m^3$) based on the three-year average of arithmetic $PM_{2.5}$ concentrations for one or more community-oriented monitors;[11] and

2. a 24-hour concentration of 65 $\mu g/m^3$, based on the three-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations at each population-oriented monitor[12] within the area.

In requiring both the annual and the 24-hour $PM_{2.5}$ standards, EPA reportedly considered the "combined effect of the standards rather than an approach that weighed short- and long-term exposure evidence, analyses, and standards independently."[13] EPA considers the annual standard the primary requirement for reducing total $PM_{2.5}$ risk. The 24-hour standard is intended to provide supplemental protection for days with peak $PM_{2.5}$ concentrations, localized "hot spots," and $PM_{2.5}$ risks arising from seasonal emissions.

EPA changed the "form" of the 24-hour standards to a concentration-based percentile form, indicating the percent of the time that a monitoring station can exceed the standard. For instance, a 99th percentile 24-hour standard indicates that a monitoring station can exceed the standard 1% of the time, or 3.65 days a year, if monitoring occurs every day. The previous form was known as the "one-expected-exceedance" form; monitoring stations could exceed the 24-hour PM NAAQS only once, averaged over three years. Although the limits of PM_{10} remained the same, the form of the PM_{10} 24-hour standard was changed to be based on a three-year average of the 99th percentile of 24-hour PM_{10} concentrations.

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[9]See 52 *Federal Register* 24640, July 1, 1987.

[10]62 *Federal Register* 38652-38896, July 18, 1997.

[11]Community oriented monitoring zones are defined as "an optional averaging area with well established boundaries such as county or census block" (40 *CFR* Part 58 Subpart A).

[12]Population-oriented monitoring (or sites) applies to "residential areas, commercial areas, recreational areas, industrial areas, and other areas where a substantial number of people may spend a significant fraction of their day" (40 *CFR* Part 58 Subpart A).

[13]U.S. EPA Fact Sheet: *EPA's Revised Particulate Matter Standards*, July 17, 1997.

Geographical Area Designation Process

The designation of geographical areas failing to comply with the NAAQS based on monitoring and analysis of relevant air quality data is a critical step in NAAQS implementation. The CAA establishes a process for designating nonattainment areas and setting their boundaries, but it allows the EPA Administrator some discretion in determining what the final boundaries of the areas will be. According to EPA's 2003 *Trends Report*, there were 124 areas designated as nonattainment for at least one of the six criteria pollutants (including particulate matter) and approximately 126 million people living in these areas, as of September 2002.[14] The number of nonattainment areas and associated population have increased since the 2003 *Trends Report*; the April 15, 2004, 8-hour ozone designated nonattainment areas alone include 159 million people.[15]

The designation process is intended as a cooperative federal-state/tribe process in which states/tribes provide initial designation recommendations to EPA for consideration. Tribes are not required, but were encouraged, to submit recommendations.[16] In Section 107(d)(1)(A) (42 U.S.C. 7407), the statute states that governors shall submit a list to EPA of all areas in the state, "designating as ... nonattainment, any area that does not meet (*or that contributes to ambient air quality in a nearby area that does not meet*)" an air quality standard (emphasis added).

$PM_{2.5}$ attainment or nonattainment designations are to be made primarily on the basis of three-year federally referenced $PM_{2.5}$ monitoring data.[17] At the time the new NAAQS were being finalized, EPA also developed methods for monitoring fine particles. Using funding specifically authorized for this purpose in EPA appropriations FY1998-FY2000,[18] the agency worked closely with states and tribes to initiate the deployment of a portion of the network of 1,200 monitors in January 1999. The majority of the monitors were not in place until January 2000. States/tribes were expected to rely on data collected during 2000-2002 for their

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[14]U.S. EPA, *National Air Quality Trends Report: 2003 Special Studies*, Chapter 4, pp. 59-61, September 2003, at [http://www.epa.gov/airtrends/pm.html].

[15]The EPA "Greenbook" lists areas of the country where air pollution levels persistently exceed the national ambient air quality standards and may be designated as nonattainment. For current information on the location of NAAQS nonattainment areas, visit EPA's website [http://www.epa.gov/oar/oaqps/greenbk.html].

[16]The area designation requirements under the CAA (section 107) are specific with respect to states, but not tribes. EPA plans to follow the same designation process for tribes per sections 110(o) and 301(d) of the CAA and pursuant to the 1988 Tribal Authority Rule, which specifies that tribes shall be treated as states in selected cases (40 *Code of Federal Regulations* Part 49). Six tribes have participated in the $PM_{2.5}$ designation recommendation process to date (see [http://www.epa.gov/pmdesignations]).

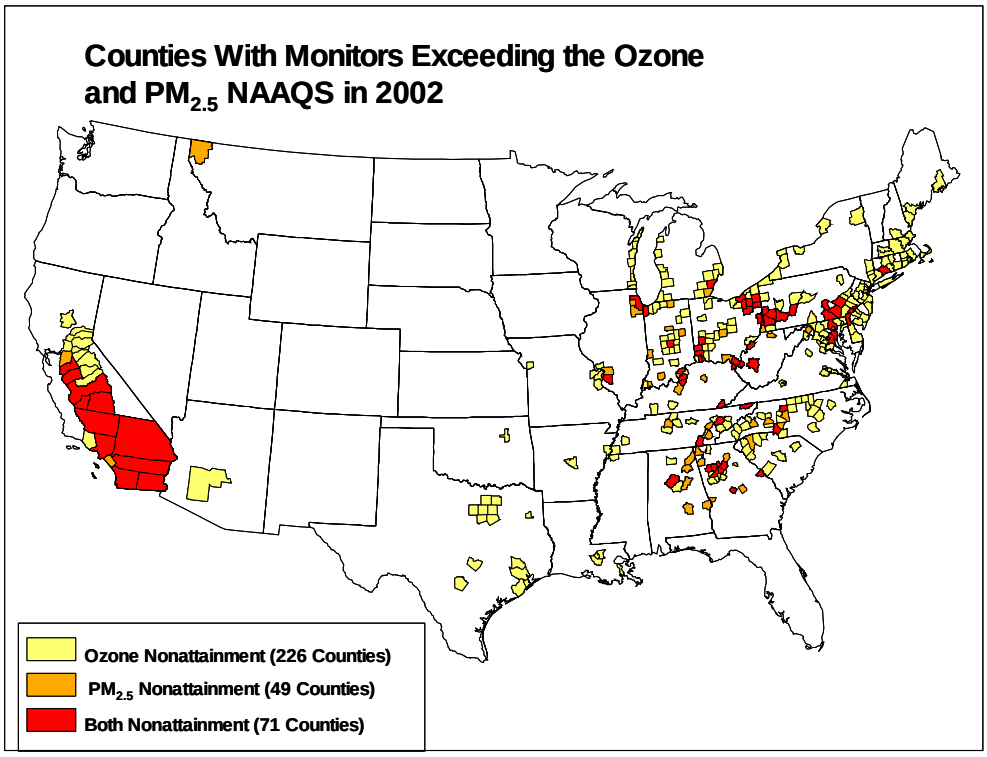
[17]A federally referenced monitor is one that has been accepted for use by EPA for comparison of the NAAQS by meeting the design specifications, and certain precision and bias (performance) specifications (40 *Code of Federal Regulations* Part 58).

[18]Appropriations for monitoring averaged roughly $50 million per year, P.L. 105-65, P.L. 105-226, P.L. 106-74.

recommendations. EPA considered the 2001-2003 data to make the final designations.

In its guidance document,[19] the EPA identified several factors that states/tribes and the agency would consider for determining attainment with the $PM_{2.5}$ NAAQS, and also specified data and conditions that would not be acceptable. The EPA's nonbinding guidance also includes a recommendation that states/tribes consider using the same boundaries for nonattainment for both the $PM_{2.5}$ and 8-hour ozone standards, to facilitate consistency in future implementation plans. Many of the $PM_{2.5}$ nonattainment areas are expected to overlap with the 8-hour ozone designations. **Figure 1** (below) shows EPA's estimates for violations of the $PM_{2.5}$ and 8-hour ozone NAAQS based on 2000-2002 monitoring data, and indicates the potential overlap of the two NAAQS. These data show at least one monitor measuring concentrations exceeding the $PM_{2.5}$ NAAQS in 120 counties. Final $PM_{2.5}$ designation areas were determined based on 2001-2003 monitoring data. Also, the map in Figure 1 only shows those counties with monitoring results above the standards; however, final nonattainment designation areas include other counties within a defined metropolitan statistical area.

Figure 1. EPA Estimates of Counties in Nonattainment of $PM_{2.5}$ and 8-Hour Ozone NAAQS
(based on 2000-2002 data)



Source: U.S. Environmental Protection Agency

[19]See EPA's NAAQS website at [http://www.epa.gov/ttn/naaqs/pm/pm25_guide.html].

$PM_{2.5}$ designations do not include nonattainment classifications based on severity as is the case with PM_{10} and ozone, which has seven classifications. The 1990 CAA Amendments include classifications of nonattainment based on the extent to which the NAAQS is exceeded, and establish specific pollution controls and attainment dates for each classification.[20] EPA interprets that those classification provisions in the act regarding particulate matter[21] explicitly apply to PM_{10}, but not $PM_{2.5}$, NAAQS implementation. $PM_{2.5}$ implementation is governed by the general nonattainment planning requirements of Title I of the act.[22]

EPA recognized that determining the geographic extent of nearby source areas that contribute to nonattainment would be complicated. The CAA is not specific regarding requirements to combine neighboring counties within the same nonattainment area, but it does require the use of metropolitan statistical area boundaries in the more severely polluted areas (Section 107(d)(4)(A)(iv)). Echoing this requirement, and similar to the 8-hour ozone approach, EPA recommended that Metropolitan Statistical Areas or Consolidated Metropolitan Statistical Areas[23] serve as the "presumptive boundary" for nonattainment areas under the $PM_{2.5}$ standards.

Metropolitan areas are generally treated as units, even where part of the area lies in a separate state or where part of the area does not have readings exceeding the standards. In the latter case, even though a specific county may not exceed the standards, the pollution generated there is likely to influence $PM_{2.5}$ levels elsewhere in the metropolitan area. In addition, including the entire metropolitan area avoids the creation of additional incentives for sprawl development on the fringes of urban areas. For rural areas in violation of the $PM_{2.5}$ standards, EPA's guidance presumes that the full county would be designated a nonattainment area.

Following state/tribe designation submissions, the EPA Administrator has discretion to make modifications, including to the area boundaries. As required by statute,[24] the agency must notify the states/tribes regarding any modifications, allowing them sufficient opportunity to demonstrate why a proposed modification is inappropriate, but the final determination rests with EPA.

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[20]These requirements can be found in Title I Part D Sections 171-193 of the act.

[21]Under subpart 4 of the CAA, PM_{10} nonattainment designations are either "moderate" or "serious," and each of these categories is subject to specified control requirements. Moderate areas require permits for new and modified major stationary sources of PM_{10} and must impose reasonably available control measures (RACM). Serious areas must impose best available control measures (BACM) and reduce definition of a major source of PM_{10} from 100 tons per year to 70 tons per year. For areas designated moderate, the deadline for attainment is six years after designation; for serious areas, the deadline is ten years after designation (Section 188 of Part D subpart 4 of Title I in the CAA; 42 U.S.C. Sec. 7513).

[22]CAA Title I Part A, and Part D subpart 1.

[23]As defined by the Office of Management Budget. For more information on the definitions of metropolitan areas, see [http://www.census.gov/population/www/estimates/metroarea].

[24]CAA section 107(d)1(B)(ii).

Detailed information regarding EPA's guidance for $PM_{2.5}$ designation can be obtained from EPA's $PM_{2.5}$ Implementation website at [http://www.epa.gov/ttn/naaqs/pm/pm25_index.html] and its Policy and Guidance website at [http://www.epa.gov/ttn/oarpg].

$PM_{2.5}$ NAAQS Geographical Area Designations

By the end of February 2004, 18 states and the District of Columbia had recommended 142 counties as potential nonattainment areas.[25] After completing its review of the state/tribe attainment designation recommendations, EPA recommended modifications resulting in nonattainment designations for 244 counties in 21 states and the District of Columbia at the end of June 2004. As required by statute, the EPA notified each of the affected states regarding their specific modifications to allow sufficient opportunity to provide new information and demonstrate why a proposed modification is inappropriate. Some states responding to the EPA's proposal continued to support their original recommendations.

EPA's final designations of 225 counties in 20 states, and the District of Columbia, reflect minor modifications to its June 2004 proposal. The modifications are primarily the result of removing 19 counties from the list of nonattainment areas, and redefining other counties by designating only specified geographical locations ("partial") within the county as nonattainment. Taking into consideration factors defined in the agency's guidance in conjunction with the additional information provided by the states, in some cases EPA determined that only those portions of a county that contained the significant sources of emissions should be considered as contributing to the violations. In other cases, the agency determined that if emissions from a large identifiable source in a county were contributing to the violations in a nearby area, the portion of the county where the source was located would be designated nonattainment, even if it is not contiguous with the remainder of the designated area. The boundaries for these "noncontiguous" portions are based on legally recognized government boundaries, such as townships, tax districts, or census blocks.

The designated nonattainment areas are primarily concentrated in the central, mid-Atlantic, and southeastern states east of the Mississippi River, as well as in California, which has established its own $PM_{2.5}$ standards.[26] The map in **Figure 2** on the next page, obtained from EPA's website ([http://www.epa.gov/pmdesignations/nonattaingreen.htm]), highlights the $PM_{2.5}$ nonattainment designation areas. More than 2,900 counties were designated as attaining compliance for the $PM_{2.5}$ NAAQS or as unclassifiable. Some public interest groups maintain that at least 150 additional

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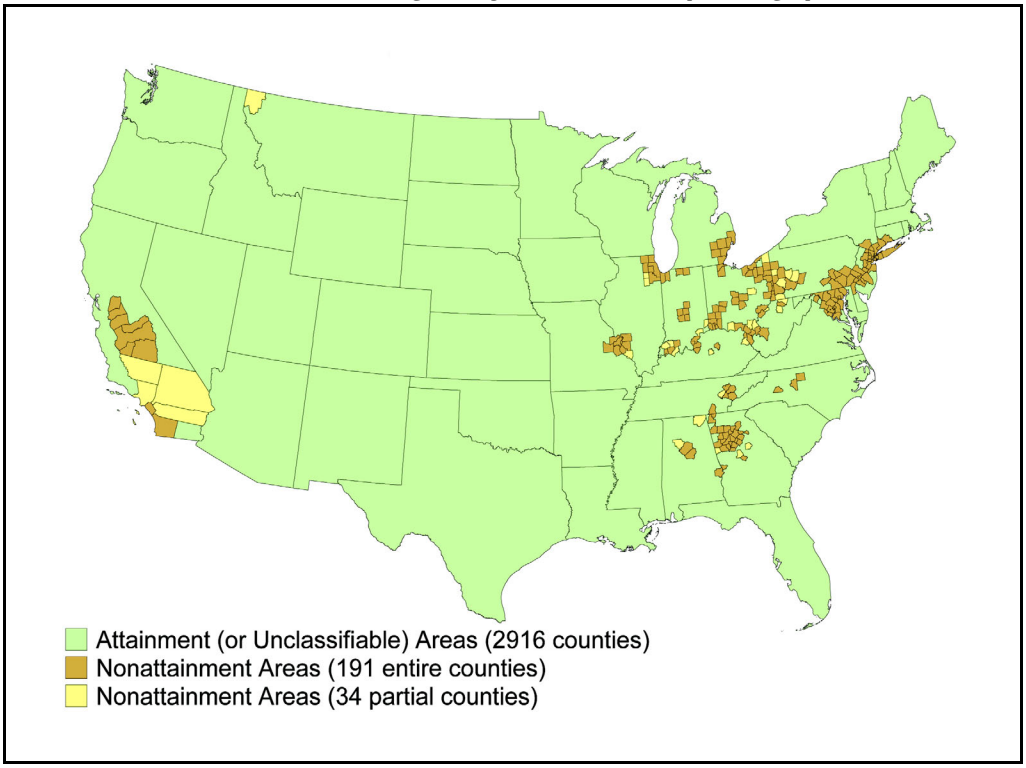
[25]For EPA's proposed $PM_{2.5}$ geographical designation recommendations and those from individual states and tribes, see EPA's "$PM_{2.5}$ Designations" website at [http://www.epa.gov/pmdesignations].

[26]For more information regarding California's $PM_{2.5}$ standards, see CRS Report RL31531, *Particulate Matter Air Quality Standards: Background and Current Developments* (p. 28-29), or visit the California Air Resources Board website at [http://www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm] (visited November 16, 2004).

counties warranted nonattainment designations on the basis of emission sources within those areas.[27]

Figure 2. U.S. Environmental Protection Agency Designations of Attainment and Nonattainment Areas for the $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS)



Based on 2001-2003 monitoring data.
Source: U.S. Environmental Protection Agency, December 17, 2004 ([http://www.epa.gov/pmdesignations/nonattaingreen.htm]).

Some states and stakeholders continue to contend that several counties should not be designated nonattainment, particularly when taking into account 2004 $PM_{2.5}$ monitoring data. EPA's final designations are based on monitoring data for the three-year period 2001-2003. Monitoring data for 2004 were not available in time for EPA to meet its statutory deadline (see discussion later in this report) for $PM_{2.5}$ geographical area designations. The final $PM_{2.5}$ designation rule allows states to submit no later than February 22, 2005, certified, quality-assured 2004 monitoring data that suggests a change in designation is appropriate for consideration (70 *Fed. Reg*. 948). A nonattainment designation could be withdrawn if the EPA agrees that the additional data warrants such a change.

[27] *American Lung Association*, December 17, 2004, press release, "No One Should Have to Breathe Unsafe Air," available at [http://www.lungusa.org].

Demonstrating Attainment: The State Implementation Plan

Following designation of an area as nonattainment, the state where the area is located must develop a State Implementation Plan (SIP) that demonstrates how attainment with the $PM_{2.5}$ standards will be achieved. Under Section 110 of the CAA, the states must submit their SIPs to EPA within three years of designation. To be approved, a SIP must demonstrate that the area will reach attainment of the standards by a specified deadline. SIPs include pollution control measures that will be implemented by federal, state, and local governments, and rely on models of the impact on air quality of projected emission reductions to demonstrate attainment. EPA plans to propose an "implementation" rule later in 2005 that will establish the planning and control requirements for $PM_{2.5}$ for those areas designated as nonattainment.

EPA has concluded that in many cases, $PM_{2.5}$ attainment will be reached as the result of implementing strategies developed under the 1999 visibility protection regulations ("Regional Haze Rule"[28]); voluntary diesel engine retrofit programs; new federal standards on cars, light trucks, and heavy duty diesel engines that are scheduled to be implemented between 2004 and 2010; and the 1998 regional strategy to reduce nitrogen oxides from eastern states referred to as the "NOx SIP Call."[29] Although primarily designed to meet the ozone NAAQS, EPA predicts the NOx SIP call will also provide benefits in terms of reduced levels of nitrate fine particles.

According to a December 2004, EPA report, *The Particle Pollution Report: Current Understanding of Air Quality and Emissions through 2003*, monitored concentrations of $PM_{2.5}$ have decreased 10 percent, and PM_{10} have decreased 7 percent since 1999, primarily in areas with the highest concentrations.[30] EPA attributes a large portion of these decreases to the Acid Rain Program.

Other, proposed, legislation (not enacted) and EPA regulations for controlling coal-fired electric power plants' emissions, such as "Clear Skies"/multi-pollutant legislation and the proposed "Clean Air Interstate Rule" (CAIR, also referred to as the Interstate Air Quality (IAQ) Rule),[31] to be implemented between 2004 and 2015, are also expected to contribute national and regional measures for attaining $PM_{2.5}$ standards. The EPA predicts that, of an estimated 120 eastern counties out of compliance with $PM_{2.5}$ NAAQS in 2002, the Clean Air Interstate Rule would bring 28 more counties into compliance in addition to the 58 counties predicted to come

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[28]64 *Federal Register* 35714, July 1, 1999. EPA recently published a proposal revising the regional haze rule, intended to provide guidelines for state and tribal air quality agencies to use in determining how to set air pollution limits (69 *Federal Register* 25184, May 5, 2004).

[29]64 *Federal Register* 35714, October 27, 1998.

[30]U.S. Environmental Protection Agency, EPA 454-R-04-002, December 2004. Revised report posted on EPA's website at [http://www.epa.gov/airtrends/pm.html],December 23, 2004.

[31]69 *Federal Register* 4572, January 30,2004.

into compliance under existing programs.[32] The extent of pollution reduction that is projected as a result of these proposals has been the subject of considerable debate among stakeholders, and some Members of Congress.

If new, or revised, SIPs for $PM_{2.5}$ attainment establish or revise a transportation-related emissions allowance ("budget"), or add or delete transportation control measures (TCMs), they will trigger "conformity" determinations. Transportation conformity is required by the Clean Air Act, Section 176(c) (42 U.S.C. 7506(c)), to ensure that federal funding and approval are given to highway and transit projects that are consistent with ("conform to") the air quality goals established by a SIP, and will not cause new air quality violations, worsen existing violations, or delay timely attainment of the national ambient air quality standards.[33] The initial conformity rule was promulgated by EPA November 24, 1993 (58 *Federal Register* 62188), and has subsequently been amended several times. The most comprehensive amendments, clarifying and streamlining the 1993 rule, were published August 15, 1997 (62 *Federal Register* 43780).

Transportation conformity, under EPA's previous rules, applied to ozone, PM_{10}, CO, and NOx, but did not include $PM_{2.5}$. On July 1, 2004, EPA published a final rule[34] making transportation conformity regulations explicitly applicable to $PM_{2.5}$ nonattainment areas, and including criteria and procedures for the new $PM_{2.5}$ and 8-hour ozone NAAQS. Conformity determinations must be submitted to EPA within one year of the effective date designating an area as nonattainment. Since the transportation conformity requirements could apply in $PM_{2.5}$ nonattainment areas prior to the availability of SIP emission budgets, EPA included provisions in the rule for interim emissions tests for conformity determinations.[35]

Given the complexities associated with the final conformity rule, EPA provided guidance to accompany the rule. The guidance, entitled *Companion Guidance for the July 1, 2004, Final Transportation Conformity Rule: Conformity Implementation in Multi-Jurisdictional Nonattainment and Maintenance Areas for Existing and New Air Quality Standards*,[36] expands on the final conformity rule by including additional detailed examples, and interpretations for generic scenarios that are present in the field and that are expected to occur under the new standards. EPA has provided other

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[32]For a further discussion, see CRS Report RL31779, *Air Quality: Multi-Pollutant Legislation in the 108th Congress*; and CRS Report RL32273, *Air Quality: EPA's Proposed Interstate Air Quality Rule.*

[33]For additional information on conformity, see CRS Report RL32106, *Transportation Conformity Under the Clean Air Act: In Need of Reform?*

[34]69 *Federal Register* 40004. The final rule was signed on June 14, 2004. EPA uses the *Federal Register* publication date when referring to a rule for information purposes.

[35]See 69 *Federal Register* 40014-40015. July 2004.

[36]U.S. Environmental Protection Agency, July 2004, EPA420-B-04-012. Transportation and Regional Programs Division, Office of Transportation and Air Quality. Available at [http://www.epa.gov/otaq/transp/conform/420b04012.pdf], viewed November 22, 1004.

fact sheets and summary tables, and is conducting training sessions for implementers, to further assist understanding of the requirements of the rule.[37]

$PM_{2.5}$ NAAQS Implementation Timeline and Delays

Due to legal challenges, lack of a national monitoring network, and other factors, implementation of the new standards has been delayed since they were promulgated. The timeline presented in **Table 1** reflects the most recent key milestone dates for $PM_{2.5}$ implementation. The current implementation schedule is based primarily on statutory requirements. An initial milestone schedule was outlined in an April 21, 2003, memorandum to EPA Regional Administrators, which also provides the non-binding guidance for implementation of the $PM_{2.5}$ designations.[38] Recognizing there may be potential efficiencies associated with states and tribes being able to harmonize future control strategies, the initial $PM_{2.5}$ schedule was intended to be similar to the 8-hour ozone program.

Table 1. Estimated Schedule for $PM_{2.5}$ NAAQS Implementation

Date	$PM_{2.5}$ NAAQS Milestones
February 2004 (completed)	State/tribal area designation recommendations (based on 2000-2002 monitoring data)
June-July 2004 (completed)	EPA notifies states/tribes regarding modifications to states/tribes' recommendations
January 5, 2004 (completed) (published in the 70 *Fed. Reg.* 944)	EPA promulgates final area designations (required 1 year after states/tribes' recommendations)
February 2005	EPA proposes $PM_{2.5}$ implementation rule
January 5, 2006 (1 year after the final designation effective date)	States must submit transportation conformity determination within one year of the effective date of nonattainment designation (per EPA's final "conformity rule," published July 1, 2004)
Early 2006	EPA promulgates final $PM_{2.5}$ implementation rule
January 2008 (3 years after final area designations)	States/tribes submit revised implementation plans (SIPS) to achieve $PM_{2.5}$ compliance in nonattainment areas
2010-2015 (5-10 years after final area designations)	NAAQS statutory compliance deadline for attainment

Source: Prepared by the Congressional Research Service based on U.S. Environmental Protection Agency fact sheets and guidance documents, and relevant *Federal Register* Notices.

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[37]For EPA fact sheets, Q&As, training and training material, regarding the July 2004 conformity rule, see EPA's Office of Transportation and Air Quality website [http://www.epa.gov/otaq/transp/conform/2004training.htm], viewed November 22, 2004.

[38]EPA memorandum, April 21, 2003, from EPA's Office of Air and Radiation Assistant Administrator Jeffrey R. Holmstead to EPA Regional Administrators, available on EPA's NAAQS website at [http://www.epa.gov/ttn/naaqs/pm/pm25_guide.html].

The $PM_{2.5}$ requirement of three years of monitoring data to determine whether or not areas are meeting the established limits is one factor responsible for delaying implementation. Comprehensive monitoring data sufficient to make this determination and the attainment designations were not available in 1997. Recognizing this dilemma, in the 1998 Transportation Equity Act for the 21st Century (TEA-21),[39] Congress revised the statutory deadline requirements for the new NAAQS, predicated on a previously released EPA Interim Implementation Policy. TEA-21 required states to submit designation recommendations within one year after receipt of three years of data meeting defined federal protocols, and EPA to promulgate designations within one year after state recommendations are due but not later than December 31, 2005.

As discussed earlier, operation of the network of monitors was phased in from 1999 through 2000, making three-year monitoring data available at different points depending on area location. Rather than a staggered designation schedule which would likely result in hampering cross-coordination of implementation plans, the EPA proposed a single date for state/tribal recommendations and final EPA designations.

In addition to the delay in establishing a monitoring network, the NAAQS standards were challenged in District Court by the American Trucking Associations, the U.S. Chamber of Commerce, and several other state and business groups. An initial May 1999 opinion by the District Court partially in favor of the plaintiffs, was reversed by the Supreme Court in February 2001.[40]

Whether the EPA has exceeded its authority by extending deadlines for existing nonattainment areas, and whether the statutory requirements should be made more flexible has been an issue of recent debate.[41] In its "Clear Skies" bill (H.R. 999/ S. 485) and in its regulatory guidance, the Administration proposed additional flexibility for areas designated nonattainment beyond what exists currently in the CAA. Congress amended the CAA in the FY2004 omnibus appropriations (P.L.108-199) mandating the current $PM_{2.5}$ deadlines of February 15, 2004, for Governors to submit their $PM_{2.5}$ designation recommendations, and December 31, 2004, for EPA to promulgate designations for each state.

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[39]P.L. 105-178, Title VI.

[40]United States Court of Appeals for the District of Columbia Circuit, argued December 17, 1998; decided May 14, 1999 (No. 97-1440). *American Trucking Associations, Inc., et al., Petitioners v. United States Environmental Protection Agency*; *Whitman v. American Trucking Associations*, U.S. Supreme Court, No. 99-1257 and No. 99-1426, February 27, 2001 (121 S. Ct. 903). See CRS Report RS20860, *The Supreme Court Upholds EPA Standard Setting Under the Clean Air Act: Whitman v. American Trucking Assn's*.

[41]See CRS Report RS21611, *Ozone and Particulate Air Quality: Should the Deadline for Attainment Be Extended?* for detailed discussion of scheduling issues regarding NAAQS for $PM_{2.5}$ and 8-hour ozone.

Issues

1997 Ozone NAAQS. The final PM NAAQS was signed by the EPA Administrator at the same time as new NAAQS for ground-level ozone, on July 16, 1997. The two NAAQS were jointly published on July 18, 1997 (62 *Federal Register* 38652-38896). Generally referred to as the 8-hour ozone standard, the new standard for ground-level ozone requires a more stringent concentration limit (0.08 parts per million vs. the previous 0.12), but it averages the ozone concentrations measured over 8 hours rather than the previous 1 hour. (See CRS Report RL32345: *Implementation of EPA's 8-Hour Ozone Standard*).

Following their joint promulgation in 1997, both the ozone and the PM NAAQS were the subject of many of the same challenges and litigation, including a Supreme Court decision in 2001 (see discussion earlier in this report). Implementation of the 8-hour ozone standard currently precedes the PM NAAQS implementation. On April 15, 2004, EPA designated areas in 32 states and the District of Columbia (474 counties in all) as "nonattainment areas" for the new ozone air quality standard (69 *Fed. Reg*. 23857-23951). The EPA designations, and the new implementation rule (69 *Fed. Reg.* 23951-24000) that accompanied the designations, have been challenged for being too lenient by several states and various public interest groups, and too restrictive by industry groups.

Although the two are parallel, $PM_{2.5}$ implementation is not expected to generate the level of controversy associated with the recent 8-hour ozone action. A number of general issues, such as cost and interpretation of boundaries, are expected to be similar, but the CAA requirements regarding $PM_{2.5}$ are deemed by the EPA to be less complicated, relative to ozone requirements. The $PM_{2.5}$ implementation rule will be new rather than a transformation of an existing one, as in the case of 8-hour ozone. In addition, fewer areas have been designated $PM_{2.5}$ nonattainment areas than were designated under the 8-hour ozone NAAQS. Implementation of the 8-hour ozone NAAQS, as well as associated challenges or other delays, will likely impact the implementation of the PM NAAQS.

Boundaries. Some states/tribes disagree with EPA's final designations. EPA has generally used its discretion to expand the size of nonattainment areas, or to combine areas that a state listed as separate areas into a single larger unit. In implementing other NAAQS, for example, EPA has combined nonattainment counties across state lines into the same nonattainment area, if the counties are part of the same metropolitan area. Pursuant to the statutory requirements for working with states, EPA staff in the regions and the agency's Office of Air Quality Planning and Standards have been made available for assistance and consultation throughout the designation process according to the agency.

Spatial Averaging. Some concern has been raised regarding the option available to states to use spatial averaging of monitoring data to determine attainment for the annual standard.[42] Spatial averaging allows calculation of the average

[42]Spatial averaging applies only to the annual standard, and does not apply the 24-hour (continued...)

arithmetic mean over three years using data from multiple monitoring sites within a monitoring planning area, versus data from a single monitor. There is concern that by allowing averaging of locations well below the $PM_{2.5}$ annual standard with locations substantially above, spatial averaging could potentially lead to a designation of attainment in the defined area while failing to provide adequate health protection. On the other hand, it has been suggested that spatial averaging is consistent with epidemiological studies used in the determination of the $PM_{2.5}$ standards and could reflect a better characterization of area-wide exposure in some circumstances. In addition, states have stressed the need for flexibility given the variability in the nature and sources of $PM_{2.5}$.

As a means of protecting against inappropriate use of spatial averaging, certain criteria must be met and conditions demonstrated.[43] Monitors must be specifically designated in monitoring plans prior to data collection and analysis, and sufficient opportunity for public comment must be provided in advance of final approval.[44]

Upwind Pollutant Contributions. One of the more frequently raised issues in nonattainment areas is whether any special consideration can be given to areas whose air quality is adversely affected by pollution from upwind areas. Unlike the larger coarse particles which generally settle more rapidly and fall near their source of emission, the smaller $PM_{2.5}$ particles frequently remain in the atmosphere longer and can travel significant distances from their original source. The transport of $PM_{2.5}$ can contribute to, and in some cases be the primary cause of nonattainment, in areas downwind of the emission source.

Recent EPA attempts to extend the deadlines for ozone attainment in an effort to provide additional time for areas affected by upwind pollution (seven areas regulated for ozone under Subpart 2), have been overturned by court decisions in three separate circuits.[45] Subpart 1 of the CAA which allows EPA to "classify the area for the purpose of applying an attainment date" and consider such factors as "the availability and feasibility of pollution control measures," may provide more flexibility. In another recent effort by the EPA, the proposed Clean Air Interstate Rule (CAIR)[46] is intended to address interstate transport of pollutants that are hindering attainment of $PM_{2.5}$ and 8-hour ozone NAAQS in downwind states.

Identifying Sources and Control Measures. Determining sources contributing to emission of fine particles in order to identify the appropriate actions for compliance with the $PM_{2.5}$ standards, as required for future designated geographic

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[42](...continued)
standard intended to protect against peak or seasonal levels. See Appendix N of 40 Code of Federal Regulations Part 50. Also, see discussion of spatial averaging in the final rule for particulate matter NAAQS 62 *Federal Register* 38671-38674.

[43]40 *Code of Federal Regulations* Part 58.

[44]See 40 *Code of Federal Regulations* Part 58.20(f) and 58.26(e) regarding public notification and public comment associated with spatial averaging.

[45]The cases involved St. Louis, Washington, D.C., and Beaumont-Port Arthur, Texas.

[46]69 *Federal Register* 4572.

nonattainment areas including surrounding areas, is expected to be complicated. EPA has been conducting several technical studies in an effort to develop extensive guidance to assist states in identifying appropriate control measures in their SIPs for specific parameters and conditions.

Economic Impacts. Another concern of areas facing nonattainment designation, particularly of local businesses and governments, is that it will have potential negative impacts on an area's economic development. Nonattainment designation does require new major sources of pollution to offset their pollution by equivalent or greater emission reductions from existing sources, and requires highway and transit planners to demonstrate that new projects "conform" to the area's SIP.[47] Although EPA has not analyzed the potential economic impact of designating areas as nonattainment for particulate matter, a recent EPA analysis[48] found that ozone nonattainment designations had no net negative impact on those areas. Specifically, 6.5 million jobs were created in ozone nonattainment areas from 1990 to 1998, and "over 55 percent of ozone nonattainment areas had average annual employment growth rates greater than that of their region of the country." Personal income growth in these nonattainment areas essentially matched the national average between 1990 and 1998, according to EPA (38.5% vs. 38.9%).

Grant Programs. Although EPA does not have a grant program designed to assist nonattainment areas, the agency does provide grants to state air pollution agencies in support of their programs. Many nonattainment areas have benefitted in the past from a program administered by the Department of Transportation: the Congestion Mitigation and Air Quality Improvement program (CMAQ).[49] Although CMAQ's purpose is to reduce emissions from highway travel as a means of assisting states in complying with the NAAQS, providing grants for $PM_{2.5}$ attainment activities would require amending the program.

CMAQ funds are distributed based on a formula that takes into account population and severity of pollution. The structure of the current formula does not include any funding factors for $PM_{2.5}$ (or $PM_{10\text{-}2.5}$). States with new nonattainment areas designated under the $PM_{2.5}$ NAAQS would not receive CMAQ funds without revisions to the statutory formula.

Reauthorization legislation was introduced in the House and Senate in the 108th Congress, but was not enacted. The Administration's proposal, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA) was introduced by request as H.R. 2088 and S. 1072, and a third bill, the Transportation Equity Act: A Legacy for Users (TEA-LU) was introduced as H.R.

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[47]For additional information on conformity, see CRS Report RL32106, *Transportation Conformity Under the Clean Air Act: In Need of Reform?*

[48] U.S. EPA, *Office of Air and Radiation, "The Historical Record: Nonattainment Status and Economic Growth*," February 26, 2002.

[49]The CMAQ program, funded by the Highway Trust Fund, was established by Congress under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA, P.L. 102-240). In enacting the Transportation Equity Act for the 21st Century (TEA-21, P.L. 105-178) Congress authorized another $8.1 billion for continuing it from FY1998 through FY2003.

3550. Section 1611 of the bill passed by the Senate, S. 1072, would have amended the statutory funding formula for determining how CMAQ funds would be distributed among the states to include factors for new nonattainment areas that did not meet the NAAQS for $PM_{2.5}$.[50] H.R. 3550, passed by the House, would not have done so. The Senate bill would have also provided a substantial increase in CMAQ funding, to $13.4 billion over the six years FY2004-FY2009, a $5.3 billion (65%) increase above the previous authorization. The House bill would have provided a smaller increase, to $9.4 billion (16%). Both bills would have expanded the types of projects eligible for assistance, although in different ways. (For a more detailed discussion of CMAQ and relevant legislation see CRS Report RL32057, *Highway and Transit Program Reauthorization: Environmental Protection Issues and Legislation*).

EPA's Review of the 1997 PM Standards. EPA's review of the 1997 PM standards, which began not long after the current standards were promulgated, is ongoing. As discussed previously in this report, the CAA requires the criteria document for each criteria pollutant to be reviewed and, if appropriate, the NAAQS revised, every five years. If EPA decides to tighten the PM standard again based on the results of its review, more areas could be classified as nonattainment and would need to implement new controls on PM. Given the simultaneity of this review and the ongoing implementation of the current standards, outcomes and challenges associated with the review could potentially affect the implementation schedule.

As the implementation of the 1997 PM standards has been delayed, so too has the review. Through a consent decree, approved by the District Court of the District of Columbia July 31, 2003,[51] EPA and the parties to a previous lawsuit reached an agreement that included the establishment of deadlines for issuance of the criteria document by July 30, 2004, a preliminary decision regarding revisions to the PM standards by March 31, 2005, and final revised standards (if deemed appropriate) by December 20, 2005. On July 12, 2004, EPA filed an opposed motion for a further extension of the PM criteria document until October 29, 2004, which was granted by the court. On August 13, 2004, EPA submitted a proposal for extending the remaining PM deadlines to the court as part of a negotiation with the parties of the consent agreement.[52]

EPA announced the availability of the updated criteria document, *Air Quality Criteria for Particulate Matter*, in the October 29, 2004, *Federal Register* (69 FR 63111). The criteria document, a critical step in the NAAQS review process, is the result of a rigorous evaluation of information relevant to PM NAAQS criteria

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[50]The structure of the current formula is based on classifications of nonattainment under the previous 1-hour ozone standard, and S. 1072 would amend the formula to include comparable classification for the designation of new 8-hour ozone nonattainment areas.

[51]Consent Agreement, July 2003, C.A. No. 03-778 (ESH). American Lung Association, et al. v. the U.S. Environmental Protection et al. (EPA), U.S. District Court for the District of Columbia.

[52]Joint Status Report, August 2004,C.A. No. 03-778 (ESH). American Lung Association, et al. v. the U.S. Environmental Protection et al. (EPA), U.S. District Court for the District of Columbia.

development from pertinent literature that has become available between 1996 and April 2002. The information in the report will serve as the scientific basis for further assessment by EPA technical staff in developing options to be considered in assessing the adequacy of the current PM NAAQS promulgated in 1997. The ultimate determination by the EPA Administrator whether changes to the existing PM NAAQS are necessary is not expected until late 2005 or early 2006.

EPA's previous review and establishment of PM standards was the subject of litigation and challenges, including a Supreme Court decision in 2001. It would not be surprising if interested parties return to the courts or initiate challenges in the months ahead, including initiating challenges under the 2000 Data Quality Act (also referred to as the Information Quality Act),[53] as the EPA continues its review of the PM NAAQS. These challenges could affect the implementation schedule as well.

Proposed Legislation and Regulations

Concerns regarding the potential impacts of the new ozone and particulate standards have led to several attempts to modify the implementation requirements.[54] Legislative attempts during the 108th Congress were generally attached to larger pieces of legislation, such as the proposed multi-pollutant (H.R. 999/S. 485, "Clear Skies") and energy (H.R. 6) bills. With the exception of amendments clarifying the schedule for implementation in the FY2004 omnibus appropriations (P.L.108-199), the proposed legislation has not been enacted.

The Administration proposed an additional modification of the requirements for areas not meeting the new ozone and fine particle standards in its Clear Skies bill (H.R. 999/S. 485) introduced during the 108th Congress. In Section 3, Clear Skies would have allowed EPA to avoid designating 8-hour ozone and $PM_{2.5}$ areas as nonattainment until 2016, provided that the area demonstrates that it will attain the standards by December 31, 2015. Areas fitting into this new "transitional" category could have avoided additional regulatory controls, including the requirement to demonstrate conformity, if they could demonstrate that attainment would be achieved through the imposition of federal controls on utilities, diesel engines, automobiles, and other sources. The Senate Environment and Public Works Committee, Subcommittee on Clean Air, Climate Change and Nuclear Safety, held a series of hearings regarding S. 485 during the first session of the 108th Congress.

EPA proposed the Clean Air Interstate Rule (CAIR) in December 2003,[55] primarily to address the interstate transport of pollutants (SO_2 and NOx) that are hindering downwind states from attaining the 8-hour ozone and $PM_{2.5}$ NAAQS. The

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[53]Enacted in December 2000 as Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (P.L. 106-554) (44 U.S.C. 3504(d)(1) and 3516). Intended to ensure quality, objectivity, utility, and integrity of information, the act provides a process for those who have submitted public comment but dissatisfied with how their correction requests were handled through the Administrative Procedures Act process, to appeal the EPA's decision.

[54]See CRS Issue Brief IB10107, *Clean Air Act Issues in the 108th Congress*.

[55]Interstate Air Quality (IAQ) Rule as proposed, 69 *Federal Register* 4572, January 30,2004.

proposed rule, covering 29 states in the eastern United States and the District of Columbia, uses a cap and trade approach to reduce the target pollutants by up to 70%. As discussed earlier, the proposal is predicted to have a greater impact on $PM_{2.5}$ attainment than on 8-hour ozone attainment.[56]

Conclusion

$PM_{2.5}$ standards are expected to affect a number of areas, including some that have not previously been designated nonattainment for a NAAQS. This has raised concerns regarding the potential impacts, and triggered numerous questions regarding the specifics of the implementation process.

EPA projects that federal measures, such as recent auto and truck emission standards and controls on power plants, will be sufficient to demonstrate attainment in a large portion of monitored nonattainment counties by 2015, prior to the development and implementation of local measures. At a March 2004 Congressional hearing,[57] EPA Administrator Leavitt stated that "EPA projects that adopted and proposed regulatory measures, combined with existing federal and state programs, will bring well over half of the areas of the country into attainment with fine particles and ozone standards between now and 2015." Some Members of Congress, and others, have questioned the EPA's predictions regarding the relative magnitude of the emission reductions associated with existing and proposed air quality controls.

The final form of $PM_{2.5}$ implementation or its effects may not be known for some time. Some states and other stakeholders are in disagreement with EPA's $PM_{2.5}$ nonattainment area designations, and suggest fewer counties should have been designated. Other stakeholder groups contend EPA should have included additional counties. The agency's $PM_{2.5}$ implementation rule, which has yet to be proposed, may be challenged (like many EPA rules) in the courts. As discussed earlier, EPA's first attempt at an implementation plan was among the issues remanded by the Supreme Court in a 2001 decision that addressed a number of issues related to the setting of the $PM_{2.5}$ and the 8-hour ozone standard. The recent challenges following the release of the 8-hour ozone designations could also affect certain decisions and the schedule regarding $PM_{2.5}$. The EPA's ongoing review of the current PM standards, and the potential changes that could result, may also face challenges that could affect implementation the $PM_{2.5}$ standards.

Many critical milestones are scheduled to be completed in the coming months, and $PM_{2.5}$ will likely remain an area of focus for many stakeholders and Congress throughout 2005.

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[56]See CRS Report RL32273 *Air Quality: EPA's Proposed Interstate Air Quality Rule*.

[57]U.S. Senate Committee on Environment and Public Works, hearing on: *The Environmental Protection Agency FY2005 Budget*, March 10, 2004, testimony. Available on the committee website at [http://epw.senate.gov/hearings.cfmo](visited December 6, 2004).