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Ozone and Particulate Air Quality: Should Deadlines for Attainment Be Extended?

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Summary

Over the next year, Congress and the Environmental Protection Agency (EPA) will consider whether to maintain the Clean Air Act's strict requirements for areas that have not attained air quality standards. These "nonattainment" areas, many of which will be so designated for the first time as EPA implements more stringent standards for ozone and fine particles in 2004, must implement controls on pollution sources or face sanctions, including a cutoff of federal highway funds and requirements that new sources offset their emissions by reducing emissions at existing facilities. In its Clear Skies bill (H.R. 999 / S. 485) and in regulatory guidance, the Administration has proposed additional flexibility for nonattainment areas, beyond that provided in the existing Clean Air Act. Whether the Agency has exceeded its authority by extending deadlines for existing nonattainment areas, and whether the statutory requirements should be made more flexible are questions Congress may consider. This report will be updated as events warrant.

Despite steady improvements in air quality in many of the United States' most polluted cities, the goal of clean air continues to elude the nation. Of particular concern are the two most widespread criteria pollutants: ozone and particulate matter. On hot summer days, high levels of ozone (also referred to as "smog") can blanket much of California and the eastern half of the country, causing acute respiratory problems for some people, worsening asthma, and increasing susceptibility to respiratory illnesses, including bronchitis and pneumonia. Particulate matter, found in many of the same areas, causes respiratory and cardiovascular problems, and thousands of premature deaths annually.[1]

[1] There is a vast and growing literature on the health effects of particulates. For a brief summary indicating some dimensions of the 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. Professor Levy concluded that particulate emissions from power plants alone cause 30,000 premature deaths per year in the United States. More recent research indicates a correlation between particulate concentrations and infant mortality. See "Study Finds Drop in Infant Mortality Corresponds with Decrease in (continued...)

Both pollutants affect urban, suburban, and rural areas. As of June 2003, 53 areas with 114 million people were classified as nonattainment for the ozone air quality standard, and 62 areas with 29 million people had not attained the standard for particulate matter (PM).[2]

The number of areas in nonattainment and the population affected are both expected to increase in 2004, as EPA implements more stringent standards for the two pollutants. The Clean Air Act requires that the Agency review its air quality standards every five years, and either reaffirm or modify them, based on the latest science. In 1997, EPA completed its most recent review and promulgated a strengthening of both the ozone and PM standards. Due to legal challenges and other delays, the new standards have not yet been implemented, but when they are implemented (now expected in 2004), they are likely to double the number of areas in nonattainment.

Nonattainment of National Ambient Air Quality Standards drives many of the Clean Air Act's programs. Failure to attain the standards sets in motion State Implementation Plans that establish detailed requirements for sources of air pollution, including the imposition of Reasonably Available Control Technologies on stationary sources of pollution; a requirement that new sources of pollution in nonattainment areas "offset" their emissions by reductions in pollution from other sources; the operation of inspection and maintenance programs for auto emission controls; requirements to use cleaner burning reformulated gasoline as a means of reducing emissions; and the necessity of demonstrating that new highway and transit projects "conform" to the State Implementation Plan for the area in which they will be constructed. Any modification in the implementation schedule for NAAQS, thus, would affect not only air quality, but also many of the requirements imposed by the Clean Air Act on industry and other stationary sources of air pollution, car and truck owners, and transportation construction projects.

This report explains the implementation schedules required by the Clean Air Act, describes recent steps taken by EPA to modify the statutory requirements, and discusses legislation that might alter the current implementation structure. We begin by discussing the current standards.

Implementation of the Current NAAQS

Under the 1990 Clean Air Act Amendments (P.L. 101-549), ozone nonattainment areas were classified in one of five categories: Marginal, Moderate, Serious, Severe, or Extreme. The initial classification was determined by the fourth highest ozone concen-

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[1] (...continued)
Particulates," *Daily Environment Report,* August 7, 2003, p. A-3.

[2] The standards for these pollutants, known as National Ambient Air Quality Standards (NAAQS) are set by EPA. The Clean Air Act requires that the Agency set NAAQS at levels necessary to protect the public health with an adequate margin of safety, based on a review of the scientific literature. In addition to the standards for ozone and PM, EPA has set NAAQS for sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. Fewer areas are in nonattainment of these other standards. For current information on the location of nonattainment areas, visit EPA's website at [http://www.epa.gov/oar/oaqps/greenbk/index.html].

Table 1. Ozone Nonattainment Classifications

Class	Marginal	Moderate	Serious	Severe	Extreme
Deadline	3 years	6 years	9 years	15-17 yrs.*	20 years
1990 Areas**	42 areas	32 areas	14 areas	9 areas	1 area
2003 Areas	20 areas	7 areas	12 areas	12 areas	1 area
Design Value	0.121 ppm-0.138 ppm	0.138 ppm-0.160 ppm	0.160 ppm-0.180 ppm	0.180 ppm-0.280 ppm	>0.280 ppm

*Areas with a 1988 design value between 0.190 and 0.280 ppm have 17 years to attain; others have 15 years.

** Number of areas in each category as of the date of enactment.

tration recorded by air quality monitoring equipment in the 3 years preceding passage of the amendments (a reading referred to as the area's "design value"). As shown in Table 1, areas with higher concentrations of the pollutant (higher design values) were given more time to reach attainment; in return for the additional time, they were required to implement more stringent controls on emissions. Failure to reach attainment by the specified deadline was to result in reclassification of an area to the next highest category and the imposition of more stringent controls. Areas classified as Serious, for example, were required to reach attainment by 1999. If they did not do so, the law required that they be reclassified (or "bumped up") to Severe, with a new deadline of 2005. Besides additional time, the effect of bumping up the areas would be more stringent emission controls, including the imposition of controls on smaller sources of air pollution, higher offset requirements for new sources of pollution, and mandatory use of cleaner burning (but more expensive) reformulated gasoline. (A more detailed explanation of the categories, deadlines, and requirements is contained in CRS Report RL30853, *Clean Air Act: A Summary of the Act and Its Major Requirements*.)

For a variety of reasons, EPA has generally not reclassified areas when they failed to reach attainment by the statutory deadlines. As of June 23, 2003 (the latest available data as this report was written), the Agency's website listed 20 Marginal areas, 7 Moderate areas, and 12 Serious areas,[3] many of which would be categorized as Severe if the Agency had adhered to the statutory requirements.

In seven cases,[4] the Agency granted additional time to reach attainment on the grounds that a major cause of the area's continued nonattainment was pollution generated outside the area and transported into it by prevailing winds. EPA was sued over its failure to bump up five of these seven areas; of the first three cases decided (Washington, D.C.,

[3] For the list, see [http://www.epa.gov/oar/oaqps/greenbk/onc.html].

[4] Metropolitan Washington, DC, St. Louis, Atlanta, Beaumont-Port Arthur (Texas), Baton Rouge, Greater Connecticut, and Western Massachusetts.

St. Louis, and Beaumont-Port Arthur, Texas), the Agency lost all three.[5] As a result, EPA has taken steps to reclassify the three areas. It has also moved to reclassify the other two areas for which it was sued (Atlanta and Baton Rouge).

While it might seem reasonable to give areas extra time to attain the standards if their air quality is substantially affected by upwind sources, the Clean Air Act makes no provision for such extensions. Lacking such authority, EPA will be under increased pressure in the future to bump up additional areas. In response to such pressure, at a July 22, 2003 hearing, EPA Assistant Administrator for Air and Radiation, Jeffrey Holmstead, said the Agency would support legislation to extend the attainment deadlines for areas not meeting NAAQS because of emissions transported from upwind areas.[6] As of August 2003, no such legislation had been introduced, but several members, including the Chair of the House subcommittee of jurisdiction have expressed support for the concept.[7]

In the meantime, the Agency is not without power to deal with transported air pollution. In Section 126, the Clean Air Act provides that areas or states affected by upwind sources can petition the Agency to impose emission limits and compliance schedules on such sources. If the Administrator determines that upwind facilities significantly contribute to levels of air pollution in excess of the NAAQS in an area outside the state in which they are located, he or she may impose emission limits. Until recently, this section had been little used; in 2004, however, sources in 19 states and the District of Columbia (mostly electric powerplants) will become subject to controls on nitrogen oxides, in part because of petitions filed under Section 126.[8]

Implementation of the New NAAQS

A second set of deadline issues concerns implementation of the new standards for ozone and fine particles that EPA promulgated in 1997. Due to legal challenges and other delays, the new standards have not yet been implemented, but (as noted earlier) when they are implemented (now expected in 2004), they are likely to double the number of areas in nonattainment.

Early Action Compacts. In response to an initiative from the State of Texas, in June 2002, EPA approved a protocol under which new areas can avoid designation as nonattainment for ozone until December 31, 2007, if they voluntarily commit to

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[5] The three cases were Sierra Club v. EPA, 311 F.3d 853, 55 ERC 1385 (7th Cir. 2002); Sierra Club v. EPA, 314 F.3d 735, 55 ERC 1577 (5th Cir. 2002);and Sierra Club v. EPA, 294 F.3d 155, 54 ERC 1641 (D.C. Cir. 2002).

[6] "EPA Would Support Overturning Courts on Policy Extending Attainment Deadlines," *Daily Environment Report*, July 23, 2003, p. A-1. Holmstead spoke at a hearing of the Energy and Air Quality Subcommittee of the House Energy and Commerce Committee.

[7] Ibid.

[8] For information, see "Regional Transport of Smog (Ozone) Section 126 Petitions," at [http://www.epa.gov/airlinks/airlinks2.html]. EPA later delayed implementation of the Section 126 actions to coincide with its NOx SIP Call. See "EPA Will Delay Compliance Deadline for Ozone-Transport Rule, Whitman Says," *Daily Environment Report*, January 18, 2002, p. A-1.

enforceable early action compacts with their state and EPA. The Early Action protocol sets out a number of milestones that areas must meet in order to qualify.[9] Thirty-five areas met the first of these requirements by submitting signed compacts to EPA by December 31, 2002.[10]

As with the earlier "bump-up" policy, the early action compacts do not appear to be authorized by the existing statute. In explaining its rationale, the Agency states that the compacts "will offer a more expeditious timeline for achieving emission reductions than the EPA's expected 8-hour implementation rulemaking, while providing 'fail-safe' provisions for the area to revert to the traditional State Implementation Plan process if specific milestones are not met."[11]

Whatever their legal authority, the compacts provide an interesting mix of voluntary and mandatory elements, as well as a mix of expedited and deferred actions. The decision to enter into a compact is voluntary, but once established, the elements of the plan must be incorporated in the area's State Implementation Plan, making them legally enforceable. The plan requires earlier planning, implementation, and emission reductions than might be achieved under the formal State Implementation Planning process, but in return defers the Act's formal requirements and potential sanctions for almost 4 years.

Clear Skies Proposal

Transitional Areas. The Administration has also proposed modifications of the implementation schedule for nonattainment areas in its Clear Skies bill (H.R. 999 / S. 485). In Section 3, Clear Skies would allow EPA to avoid designating 8-hour ozone and $PM_{2.5}$ (fine particle)[12] areas as nonattainment until 2016, provided that the area demonstrates that it will attain the standards by December 31, 2015. (EPA is currently required to issue final designations of 8-hour ozone nonattainment areas by April 15, 2004. $PM_{2.5}$ areas are expected to be designated later in the same year.) The Agency proposes to create a new category for such areas, labeling them "transitional."

Areas fitting into the new transitional category could avoid additional regulatory controls, if they could demonstrate that attainment will be achieved through the imposition of federal controls on utilities, diesel engines, automobiles, and other sources. The logic here is that most such areas will not need to undertake area-specific controls, but will achieve attainment as the result of federal controls that have already been proposed or promulgated, but not yet implemented. These federal controls include the "NOx SIP call," which will reduce emissions of nitrogen oxides from powerplants

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[9] The protocol is available on EPA's website at [http://www.epa.gov/ttn/naaqs/ozone/ozonetech/8hro3protocol_061902.pdf]. Additional information on the implementation schedule for compact areas can be found at [http://www.epa.gov/ttn/naaqs/ozone/ozonetech/des8h_eac_111402.pdf].

[10] A list of the areas is available on EPA's website at [http://www.epa.gov/ttn/naaqs/ozone/ozonetech/compact_areas_010903.pdf].

[11] U.S. EPA, "Protocol for Early Action Compacts," previously cited, p. 1.

[12] Fine particles are those with a diameter less than 2.5 micrometers in size, generally designated as $PM_{2.5}$.

beginning in May 2004; the "Tier 2" auto emissions standards, that will reduce emissions from new cars and light trucks more than 90% beginning in 2004, with full phase-in by 2009; a 97% reduction of sulfur in diesel fuel, which takes effect in 2006; a greater than 90% reduction in emissions from new on-road diesel engines, that will be phased in between 2007 and 2010; and other measures, some of which are not yet final.

Under current law, there is no authority for such a transitional category. Rather, EPA is required to designate nonattainment areas within 2 years of promulgating a NAAQS, and upon designation set a date by which each area will achieve attainment. The date may be 5 years or 10 years following designation. The 10-year date may also be extended for two one-year periods. Within 3 years of their designation, nonattainment areas must identify in a State Implementation Plan the measures that will achieve attainment. Failure to identify and implement such measures can result in sanctions, including a cutoff of federal transportation funding and a required 2 to 1 emissions offset for new sources of pollution. Nonattainment areas must also demonstrate that any federally funded transportation projects will "conform" to the area's plan for attaining the NAAQS. Nonconforming projects are not allowed to be funded. Under the Clear Skies approach, these requirements would all be delayed for at least 12 years.

Section 126. Clear Skies would also limit the use of Section 126 petitions for control of interstate sources of air pollution. Under Section 3 of the bill, there would be an 8-year prohibition on the use of Section 126: no Section 126 requirements could be imposed prior to January 1, 2012. When the moratorium is lifted, the Administrator's power to impose such requirements would be limited to those cases in which it is determined that Section 126 controls would be at least as cost-effective as any other emission reduction from a principal category of emission sources.

Outlook. In the debate over Clear Skies, the provisions dealing with nonattainment areas have been little noticed. The debate's focus has been on the impacts of the Clear Skies cap and trade program for powerplant emissions, including whether those provisions strengthen or weaken existing law, and whether the bill should include controls on carbon dioxide emissions. These questions have been sufficiently controversial that few observers expect to see the bill enacted in the short term. (For a discussion of Clear Skies, see CRS Issue Brief IB10107, *Clean Air Act Issues in the 108th Congress.*)

Still, enactment of Clear Skies is considered a high priority by the Administration. And providing additional flexibility in implementation of the Clean Air Act has been a consistent theme under this and the previous Administration. Thus, some modification of the statutory provisions for implementation of the new ozone and particulate standards, through regulation or legislation, is likely to remain under consideration.