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Clean Air Issues in the 114th Congress

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Summary

Oversight of Environmental Protection Agency (EPA) regulatory actions received significant attention in the 114th Congress. Of particular interest were two air quality issues: EPA's Clean Power Plan (CPP) and related rules to regulate greenhouse gas (GHG) emissions from new and existing power plants, promulgated on August 3, 2015; and a revision of the ambient air quality standard for ozone, promulgated on October 1, 2015.

Reducing GHG emissions to address climate change was a major goal of President Obama, but many in Congress have been less enthusiastic about it. In the absence of congressional action to reduce emissions, the President directed EPA to promulgate GHG standards using existing authority under the Clean Air Act. This authority has been upheld on three occasions by the Supreme Court, but it remains controversial in Congress.

In 2014, EPA proposed regulations to reduce GHG emissions from fossil-fueled (coal, oil, and natural gas) power plants, which EPA refers to as electric generating units (EGUs). The agency proposed standards for new EGUs in January 2014 and for existing and modified units five months later. It finalized these rules August 3, 2015. EGUs are the source of 30% of the nation's GHG emissions, so it is difficult to envision a regulatory scheme that reduces the nation's GHG emissions without addressing their contribution. At the same time, affordable and reliable electric power is central to the nation's economy and to the health and well-being of the population. Thus, the potential effects of the rules on the electric power system have been of considerable interest.

Even before proposal of the Clean Power Plan, the House had passed legislation (H.R. 3826 in the 113th Congress) that would effectively have prohibited EPA from promulgating or implementing power plant GHG emission standards. In September 2014, the House passed the same language a second time, in H.R. 2. The Senate did not consider either bill.

Following promulgation of the CPP, however, in December 2015 Congress passed and sent to the President S.J.Res. 24, a joint resolution disapproving the CPP under the Congressional Review Act. The President vetoed the resolution on December 18, 2015. Earlier, the House passed H.R. 2042, which would have delayed the compliance date of GHG emission standards for EGUs and would have allowed a state to opt out of compliance if the governor determined that the rule would have significant adverse effects on rate-payers or on the reliability of the state's electricity system. The Senate did not act on the bill.

Besides addressing climate change, EPA took action on a number of other air pollution regulations affecting power plants and other sources, often in response to court actions remanding previous rules or setting deadlines for actions that are non-discretionary under the Clean Air Act. Remanded rules included the Clean Air Interstate Rule (CAIR) and Clean Air Mercury Rule—rules designed to control the long-range transport of sulfur dioxide, nitrogen oxides, and mercury from power plants through cap-and-trade programs. New rules—the Cross-State Air Pollution Rule (CSAPR) and the Mercury and Air Toxics Standards (MATS)—have replaced those the court remanded. Both CSAPR and MATS went into effect in 2015.

EPA also completed a review of the national ambient air quality standards (NAAQS) for ozone in 2015. NAAQS serve as EPA's definition of clean air for six widespread pollutants, and drive a range of regulatory controls. The ozone NAAQS review, completed October 1, 2015, resulted in tightening the ozone NAAQS from 75 ppb to 70 ppb. At least 13 bills were introduced to modify EPA's authority or prohibit or delay the agency's proposed strengthening of the ozone NAAQS: H.R. 1044, H.R. 1327/S. 640, H.R. 1388/S. 751, H.R. 2111, H.R. 2822 (Section 438), H.R. 4000, H.R. 4265, H.R. 4775/S. 2882, H.R. 5538 (Section 438), and S. 2072. In addition, joint

resolutions of disapproval of the ozone NAAQS revision were introduced in both the House and Senate, under the Congressional Review Act, but not acted on.

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Introduction

Congressional interest in air quality issues has been dominated for the past six years by efforts to prevent the Environmental Protection Agency (EPA) from promulgating and implementing new emission control requirements.

Often under court order, EPA has used authorities Congress gave it in the Clean Air Act amendments of 1970, 1977, and 1990 to address long-standing issues posed by emissions from various sources. EPA's regulations on greenhouse gas emissions from both mobile and stationary sources and on emissions of all kinds from electric power plants have been of particular interest, as have the agency's efforts to revise ambient air quality standards for ozone and particulate matter.

Especially in the House, efforts to restrain agency regulatory actions have occupied a prominent place since the 112th Congress. Until the 114th Congress, however, bills to restrain EPA faced a roadblock in the Senate, where Democratic control largely prevented their consideration. With Republicans in charge in the 114th Congress, the Senate posed less of a roadblock. Still, environmental regulations have been a key element of President Obama's legacy, so legislation restraining EPA—if passed by the House and Senate—would generally have faced a presidential veto. The net result—few environmental bills enacted—thus remained as it had the last six years.

In addition to bills targeting specific Clean Air Act rules, in recent years the House has also considered broader legislation designed to address regulation in general—bills such as the REINS Act (H.R. 427/S. 226 in the 114th Congress), which would require congressional approval before regulations classified as major rules could take effect, or the Energy Consumers Relief Act (S. 156 in the 114th Congress), which would prohibit EPA from promulgating energy-related regulations estimated to cost more than $1 billion if the Secretary of Energy determines that the regulations would cause significant adverse effects to the economy. If enacted, such legislation would affect new rules under the Clean Air Act as well as other statutes. Given the broad nature of the bills' purpose, they are not discussed here.[1]

EPA's Greenhouse Gas Regulations

A continuing focus of congressional interest under the Clean Air Act (CAA) has been EPA regulatory actions to limit greenhouse gas (GHG) emissions using existing CAA authority. EPA actions have focused on six gases or groups of gases that multiple scientific studies have linked to climate change.[2] Of the six gases, carbon dioxide (CO_2), produced by combustion of fossil fuels, is by far the most prevalent, accounting for more than 80% of annual anthropogenic emissions of the combined group when measured as CO_2 equivalents.

Members from both sides of the aisle, including a majority of the House in the 112th–114th Congresses, have expressed concerns about EPA proceeding with GHG regulations that could have major economic impacts. Some argue that the case for GHG controls has not been proven. Others maintain that EPA should delay taking such action until Congress more explicitly authorizes it. EPA finalized GHG standards for power plants on August 3, 2015, finalized a second round of GHG standards for trucks in August 2016, and conducted a mid-term evaluation

[1] For information on the REINS Act, see CRS Legal Sidebar WSLG443, *REINS Act and the Legislative Veto*, by Daniel T. Shedd.

[2] The six are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

of the GHG standards for light-duty vehicles in 2016, providing Congress important opportunities to review the agency's actions.

GHG Emission Standards for Motor Vehicles

Unlike its critics, EPA has concluded that the Clean Air Act requires action to control GHG emissions, without the need for additional congressional authorization: a 2007 Supreme Court decision interpreting EPA's existing CAA authority, *Massachusetts v. EPA*,[3] found that the agency must weigh whether GHG emissions from new motor vehicles endanger public health and welfare (or present valid reasons why it is unable to make that determination) and, if it concludes that there is endangerment, proceed with regulation of such vehicles. The agency made this endangerment finding in December 2009,[4] and proceeded to promulgate GHG emission standards for new 2012-2016 cars and light trucks, May 7, 2010.[5]

Until recently, the prospect of GHG standards for new motor vehicles has not been particularly controversial. In May 2009, President Obama reached agreement with major U.S. and foreign auto manufacturers, the state of California (which has separate authority to set motor vehicle emission standards, if EPA grants a waiver), and other stakeholders regarding the substance of GHG emission and related fuel economy standards.[6] Under the agreement, EPA, the U.S. Department of Transportation (which has authority to set fuel economy standards), and California would establish "One National Program" for GHG emissions and fuel economy. The auto industry supported a national agreement, in part, to avoid having to meet standards on a state-by-state basis; thus, it has not generally supported efforts to block EPA's motor vehicle GHG standards. A second round of standards for cars and light trucks, promulgated in October 2012,[7] was also preceded by an agreement with the auto industry and key stakeholders. CRS has two reports that provide additional details.[8]

The second round of GHG standards for cars and light trucks covers model years (MY) 2017-2025. As part of the rulemaking, EPA made a commitment to conduct a Mid-term Evaluation (MTE) for the MY2022-2025 standards by April 2018. The agency deemed an MTE appropriate given the long time frame at issue, with the final standards taking effect as long as 12 years after promulgation. Through the MTE, EPA was to determine whether the standards for MY2022-2025 were still appropriate given the latest available data and information. A final determination could result in strengthening, weakening, or retaining the standards as promulgated. Critics of EPA's

[3] 549 U.S. 497 (2007).

[4] 74 *Federal Register* 66496. While generally referred to as the "endangerment finding" (singular), the *Federal Register* notice consists of two separate findings: a Finding That Greenhouse Gases Endanger Public Health and Welfare, and a Finding That Emissions of Greenhouse Gases from CAA Section 202(a) Sources Cause or Contribute to the Endangerment of Public Health and Welfare. (CAA Section 202[a] sources are new motor vehicles or new motor vehicle engines.)

[5] 75 *Federal Register* 25324. For additional information, including a link to the standards, see https://www3.epa.gov/otaq/climate/regs-light-duty.htm. The agency subsequently (on October 15, 2012) promulgated GHG standards for model years 2017-2025. Information on and a link to the second round of light duty standards can be found on the same EPA website.

[6] GHG emissions and fuel economy are directly related, because 94% of GHG emissions from light duty vehicles are the result of fuel combustion. The less fuel a vehicle uses, the lower will be its GHG emissions.

The President's announcement and related documents, including a Notice of Upcoming Joint Rulemaking to Establish Vehicle GHG Emissions and CAFE Standards, which appeared in the May 22, 2009, *Federal Register*, and both the draft and final emission standards can be found at https://www3.epa.gov/otaq/climate/regs-light-duty.htm.

[7] http://www.epa.gov/otaq/climate/regs-light-duty.htm#new1.

[8] See CRS Report R40506, *Cars, Trucks, and Climate: EPA Regulation of Greenhouse Gases from Mobile Sources*, and CRS Report R42721, *Automobile and Truck Fuel Economy (CAFE) and Greenhouse Gas Standards*.

light-duty GHG standards have taken the MTE as an opportunity to revisit the rulemaking. Among the potential revisions suggested have been efforts to better harmonize the existing EPA/DOT/CARB standards, ease the MY2022-2025 standards, or eliminate them entirely.

On November 30, 2016, EPA released a proposed determination under the MTE stating that the MY2022-2025 standards remained appropriate and that a rulemaking to change them was not warranted. EPA based its findings on a Technical Support Document, a previously released Draft Technical Assessment Report (which was issued jointly by EPA, DOT, and the California Air Resources Board (CARB)), and input from the auto industry and other stakeholders. The proposed determination has opened a public comment period through December 30, 2016, after which the EPA Administrator will review the comments and decide whether she has enough information to make a final determination on the MY2022-2025 standards.

The proposed action has significantly accelerated the original timeline for the MTE (which called for a final determination by April 2018), and EPA announced it separately from any DOT (fuel economy) or California (GHG standard) process. Critics reacted swiftly, vowing to work with the new Administration to revisit EPA's determination—citing a "rush to judgment" that they argued contradicted the objectives of the One National Program. For additional information on the MTE, see CRS Insight IN10619, *EPA's Mid-Term Evaluation of Vehicle Greenhouse Gas Emissions Standards*, by Richard K. Lattanzio.

EPA and the Department of Transportation have also promulgated joint GHG emission and fuel economy standards for medium- and heavy-duty trucks,[9] which have been supported by the affected industries. In his 2014 State of the Union message and a subsequent directive to EPA and DOT, the President directed the agencies to develop a second round of these standards, to be proposed in 2015 and finalized a year later.[10] The rule was finalized on August 16, 2016.[11] The new standards cover model years 2018-2027 for certain trailers and model years 2021-2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. According to EPA,

> The Phase 2 standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons, save vehicle owners fuel costs of about $170 billion, and reduce oil

[9] U.S. Environmental Protection Agency, U.S. Department of Transportation, "Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles; Final Rules," 76 *Federal Register* 57106, September 15, 2011.

[10] The adoption of motor vehicle GHG standards also triggered GHG permit requirements for new stationary sources of all types. Section 165 of the Clean Air Act requires preconstruction permits and the imposition of best available control technology for new major sources of all pollutants "subject to regulation" under the act. When the GHG standards for motor vehicles took effect in January 2011, GHGs became subject to regulation, according to the agency, triggering Section 165. Thus, GHG permit requirements took effect January 2, 2011.

EPA focused its initial permitting efforts on the largest emitters, granting smaller sources at least a six-year reprieve. As of January 2014, only 143 GHG permits had been issued by EPA and state permitting authorities. There are as many as 6 million stationary sources of GHGs, according to EPA, so the permit requirement has affected a very small number of sources. Nevertheless, this triggering of standards for the largest new stationary sources (power plants, manufacturing facilities, and others) raised substantial concern in Congress and among potentially affected industries. The Supreme Court rejected EPA's argument that the motor vehicle regulations triggered GHG permitting authority in Utility Air Regulatory Group v. Environmental Protection Agency, 134 S. Ct. 2427 (2014), but the Court allowed EPA to set GHG emission limits for sources that need to obtain permits for other air pollutants.

[11] The rule appeared in the *Federal Register* on October 25: U.S. Environmental Protection Agency, U.S. Department of Transportation, "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2; Final Rule," 81 *Federal Register* 73478, 73482, October 25, 2016. Fact sheets and links to the final rule and the Regulatory Impact Analysis are at https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency.

consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.[12]

EPA projects the total cost of the rule at $29-$31 billion over the lifetime of model year 2018-2029 trucks. The standards will increase the cost of a long haul tractor-trailer by as much as $13,500 in model year 2027, according to the agency, but the buyer would recoup the investment in fuel-efficient technology in less than two years through fuel savings. In EPA's analysis, fuel consumption of 2027 model tractor-trailers will decline by 34% as a result of the rule.[13]

In general, these standards have been well-received. The American Trucking Associations described themselves as "cautiously optimistic" that the rule would achieve its targets: "We are pleased that our concerns such as adequate lead-time for technology development, national harmonization of standards, and flexibility for manufacturers have been heard and included in the final rule."[14] For additional information on the motor vehicle standards, see CRS Report R40506, *Cars, Trucks, and Climate: EPA Regulation of Greenhouse Gases from Mobile Sources*.

GHG Emission Standards for Power Plants

The decisions to move forward on GHG standards for new motor vehicles were seen by many, including EPA, as precedents for other potential standards. In December 2010, the agency announced that it had reached a settlement agreement with 11 states, the City of New York, the District of Columbia, and three environmental groups under which it would propose GHG emission standards for power plants by July 2011, and for refineries by December 2011, with promulgation by May 2012 and November 2012, respectively. Power plants are the largest anthropogenic source of U.S. GHG emissions, accounting for 30% of the U.S. total. Petroleum refineries are the second-largest industrial source of GHG emissions.

EPA did not meet the deadlines of the two consent agreements, but it did finalize emission standards for new, existing, and modified power plants in August 2015.[15] It has not yet taken action with regard to refineries.

The agency first proposed the power plant New Source Performance Standards (NSPS) on April 12, 2012. The Clean Air Act requires that NSPS be finalized within a year of proposal, but the agency received more than 2.6 million public comments—the most ever for a proposed EPA rule up to that time—and it delayed promulgation beyond the statutory deadline. Of particular concern was the proposed setting of a single standard applicable to both coal-fired and natural gas-fired sources; the reliance on carbon capture and sequestration (CCS) technology as the means by which coal-fired plants would comply with the standard; and the cost and technical feasibility of CCS technology. In general, critics complained that given the cost and unproven nature of CCS, the NSPS would effectively prohibit the construction of new coal-fired power plants.

[12] U.S. EPA, Office of Transportation and Air Quality, "EPA and NHTSA Adopt Standards to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond," Regulatory Announcement, August 2016, at https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P7NL.PDF?Dockey=P100P7NL.PDF.

[13] Ibid.

[14] American Trucking Associations, "ATA Hopes Final Truck Efficiency Rule Will Achieve Emissions Goals," Press Release, August 16, 2016, at http://www.trucking.org/article/ATA-Hopes-Final-Truck-Efficiency-Rule-Will-Achieve-Emissions-Goals.

[15] Links to these rules, as well as extensive background materials, can be found on EPA's website at http://www2.epa.gov/cleanpowerplan.

On June 25, 2013, the President gave new impetus to EPA's GHG regulatory efforts. In a major speech and in a more detailed Climate Action Plan released the same day, the President directed EPA to re-propose GHG standards for new power plants by September 20, 2013, and finalize them "in a timely fashion after considering all public comments, as appropriate."[16] The agency re-proposed the standards, January 8, 2014, still relying heavily on CCS technology to achieve the standards for coal-fired plants. More importantly, the President directed the agency to propose GHG emission standards for existing power plants by June 2014, with promulgation a year later.

The emission standards for new, existing, and modified power plants were finalized August 3, 2015:[17]

- The NSPS, in its final form, is less stringent than the proposed versions, and relies less heavily on the use of CCS technology. EPA estimates that a new coal-fired plant could meet the emission standard by capturing and storing 20% of its carbon emissions, as opposed to an estimated 40% requirement in the proposed rule. This change did not eliminate opposition to the rule; but it did lower the rule's potential cost. In any event, EPA maintains that new fossil-fueled capacity will rely on natural gas combined cycle (NGCC) technology for the immediate future. NGCC units, which emit only half the CO_2 of uncontrolled coal-fired plants, can attain the NSPS without needing to capture any of their carbon emissions.
- Modified and reconstructed units would have to meet emission standards equal to their best yearly performance from 2002 to the year of modification, or, if reconstructed, the emissions of the best demonstrated generating technology for the type of unit. Neither would be subject to CCS requirements.
- The rule for existing units, the Clean Power Plan (CPP), has received the most attention. (As discussed below, implementation of the rule was stayed by the Supreme Court in February 2016, pending the completion of judicial review.) Because it applies to all existing fossil-fueled units, it would have the greatest impact. The CPP would set state-specific goals for CO_2 emissions from existing fossil-fueled power plants. EPA established different goals for each state based on three "building blocks": improved efficiency at coal-fired power plants; substitution of NGCC generation for coal-fired power; and zero-emission power generation (from increased renewable or nuclear power). Two sets of goals were established by the rule: an interim set, which would apply to the average emissions rate in a state in the 2022-2029 time period; and a final state-specific average emission rate for the years 2030 and beyond. States can reach these goals through a wide array of options, including heavier reliance on renewable or nuclear power; reductions in power demand through efficiency programs; the use of tradeable allowances; and combining their efforts with other states. In general, states that currently rely on coal-fired power to a great extent would be allowed higher emission rates, but will have to reduce average emissions by a greater percentage than other states. For a more detailed description of the CPP requirements, see CRS Report R44145, *EPA's Clean Power Plan: Highlights of*

[16] Office of the Press Secretary, the White House, "Power Sector Carbon Pollution Standards," Memorandum for the Administrator of the Environmental Protection Agency, June 25, 2013, at http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards. See also 78 *Federal Register* 39535, July 1, 2013.

[17] As noted earlier, links to these rules, as well as extensive background materials, can be found on EPA's website at http://www2.epa.gov/cleanpowerplan.

the Final Rule and CRS Report R44341, *EPA's Clean Power Plan for Existing Power Plants: Frequently Asked Questions*.

Legislative and Judicial Actions

Following publication of the NSPS and the Clean Power Plan in the *Federal Register*,[18] Congress considered and passed joint resolutions of disapproval of both rules (S.J.Res. 23 and S.J.Res. 24) under the Congressional Review Act (CRA). Under the CRA, if Congress passes a joint resolution disapproving a rule and the resolution becomes law,[19] the rule cannot take effect or continue in effect. Also, the agency may not reissue either that rule or any substantially similar one, except under authority of a subsequently enacted law. For a CRA resolution to become law, however, the President must sign it or allow it to become law without his signature. The President vetoed both of the joint resolutions that Congress passed on December 18, 2015. Both the House and Senate would have to have voted to override the President's vetoes for the resolutions to become law. (For additional information on the CRA, see CRS In Focus IF10023, *The Congressional Review Act (CRA)*.)

The CRA resolutions were the latest in a long line of attempts by Congress to prevent EPA from implementing GHG emission requirements. On June 24, 2015, the House passed H.R. 2042, which would have delayed the compliance date of GHG emission standards for existing EGUs (including the date by which states must submit implementation plans) until after the completion of judicial review of any aspect of the rule, and would have allowed a state to opt out of compliance if the governor determines that the rule would have significant adverse effects on rate-payers or on the reliability of the state's electricity system. The Senate did not consider the bill.

Legislation was also considered in the 113th and 112th Congresses. In the 113th, the House passed H.R. 3826, which would have prohibited EPA from promulgating or implementing GHG emission standards for fossil-fueled power plants until at least six power plants representative of the operating characteristics of electric generation units at different locations across the United States had demonstrated compliance with proposed emission limits for a continuous period of 12 months on a commercial basis. Projects demonstrating the feasibility of carbon capture and storage that received government financial assistance could not have been used in setting such standards, and the standards would not have taken effect unless Congress enacted new legislation setting an effective date. The House incorporated the language of H.R. 3826 in H.R. 2, which also passed the House. The House also passed three bills in the 112th Congress. The Senate did not take up any of the House bills, however.

Another frequently discussed option to prevent EPA action on GHG emissions would be an appropriations rider prohibiting EPA from finalizing or implementing the EGU standards. As reported, Section 417 of S. 1645 would have prohibited the use of appropriated funds to impose a Federal Implementation Plan on states that fail to submit a satisfactory plan to implement the Clean Power Plan. The Consolidated Appropriations Act, 2016 (H.R. 2029), the omnibus appropriation that was enacted to fund EPA and other agencies for FY2016, did not include this rider.

[18] The rules appeared in the *Federal Register* on October 23, 2015. See http://www.epa.gov/cleanpowerplan/carbon-pollution-standards-new-modified-and-reconstructed-power-plants for the NSPS and http://www.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants for the CPP.

[19] For the resolution to become law, the President must sign it or allow it to become law without his signature, or Congress must override a presidential veto.

On July 14, 2016, the House passed H.R. 5538, the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2017. Section 431 of the bill would have prevented the use of funds appropriated under the bill to implement or enforce both the NSPS and the Clean Power Plan. The House rider was not included in the continuing resolutions (P.L. 114-223 and P.L. 114-254) that have funded EPA through April 2017.

All of the options for overturning EPA's regulatory actions on GHGs faced the same potential obstacle: President Obama made the reduction of GHG emissions one of his major goals; as a result, legislation restricting EPA's authority to act on GHG emissions, if passed by Congress, was likely to encounter a presidential veto. Overriding a veto requires a two-thirds majority in both the House and the Senate. (For additional discussion of legislative options, see CRS Report R41212, *EPA Regulation of Greenhouse Gases: Congressional Responses and Options*.)

EPA's GHG regulations have also been challenged in court. On June 26, 2012, the D.C. Circuit Court of Appeals dismissed challenges to four agency regulations: the GHG endangerment finding, emission standards for light-duty vehicles, and two rules related to the permitting of GHG emissions from large stationary sources.[20] Subsequently, the Supreme Court agreed to review one aspect of the D.C. Circuit ruling: "[w]hether EPA permissibly determined that its regulation of greenhouse gas emissions from new motor vehicles triggered permitting requirements under the Clean Air Act for stationary sources that emit greenhouse gases." In a decision handed down June 23, 2014, the Court answered this question in the negative. The Clean Air Act does not, the Court held, allow stationary sources to be subject to permitting requirements solely on the basis of a source's potential to emit GHGs. EPA could, however, subject sources that require permits due to other emissions (which the agency refers to as "anyway" sources) to such permitting for CO_2 (*Utility Air Regulatory Group v. EPA*).[21] The ruling had little net effect: according to EPA, the vast majority of sources it has subjected to CO_2 permit requirements are "anyway" sources and, thus, can be required to obtain permits for their CO_2 emissions.

Following promulgation of the NSPS and the CPP, about 150 stakeholders petitioned for judicial review of the rules.[22] Petitioners also sought a stay of the CPP until the challenges are resolved. Such a stay was denied by the D.C. Circuit on January 21, 2016, but, in an unprecedented move, was granted by the Supreme Court on February 9, 2016. Thus, the rule is not currently being implemented. The D.C. Circuit heard oral argument in the CPP case (*West Virginia v. EPA*) on September 27, 2016. For a discussion of the legal issues, see CRS Report R44480, *Clean Power Plan: Legal Background and Pending Litigation in West Virginia v. EPA*, by Linda Tsang and Alexandra M. Wyatt. The D.C. Circuit has scheduled oral argument in the NSPS case for April 17, 2017.

Emissions of Other Pollutants from Power Plants

Issues related to emissions other than GHGs from electric power plants—principally sulfur dioxide (SO_2), nitrogen oxides (NOx), and mercury—have been another focus of interest in recent years. Two rules affecting these emissions—the Cross-State Air Pollution Rule (CSAPR,

[20] Coalition for Responsible Regulation, Inc. v. EPA, 684 F.3d 102 (D.C. Cir. 2012).

[21] 134 S. Ct. 2427 (2014).

[22] The CPP cases have been consolidated as West Virginia v. EPA, No. 15-1363 (D.C. Cir. filed October 23, 2015). The NSPS cases have been consolidated as North Dakota v. EPA, No. 15-1381 (D.C. Cir., filed October 23, 2015).

pronounced "Casper")[23] and the Mercury and Air Toxics Standards (MATS)[24]—have taken effect, in January and April 2015 respectively. Critics of the rules predicted a "train wreck"[25] for the electric utility industry if these and other rules were implemented. The rules—along with low natural gas prices—have contributed to the retirement of many older coal-fired power plants, but, thus far, appear to have had little effect on the price of electricity[26] or the reliability of the electric grid.[27] For additional information, see CRS Insight IN10578, *Coal Use Already Near EPA's 2030 Projection*.

Bush Administration regulations addressing these emissions were first promulgated in March 2005, but were remanded to EPA by the D.C. Circuit Court of Appeals in two 2008 decisions (*North Carolina v. EPA*[28] and *New Jersey v. EPA*).[29] As a result, under the Obama Administration, EPA developed new regulations to address the court's concerns:

- CSAPR, promulgated on August 8, 2011, established a cap-and-trade system for SO_2 and NOx emissions;
- MATS, promulgated on February 16, 2012, set Maximum Achievable Control Technology standards for power plant emissions of mercury and other hazardous air pollutants.

Power plants were major sources of these pollutants before the development of the regulations: in 2005, they accounted for 70% of the U.S. total of SO_2 emissions, about half of U.S. mercury emissions, and roughly 20% of U.S. NOx emissions. Power plants are also considered major sources of fine particles ($PM_{2.5}$), many of which form in the atmosphere from emissions from a wide range of stationary and mobile sources.

CSAPR: Controlling SO_2 and NOx

The CSAPR rule, which is designed to control emissions of air pollution that causes air quality problems in downwind states, requires power plants to reduce SO_2 emissions 73%, compared to 2005 levels, and NOx emissions 54%. The rule was controversial when promulgated in 2011, but the issues now appear largely resolved in EPA's favor. In the 112th Congress, both the House and

[23] U.S. Environmental Protection Agency, "Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals," 76 *Federal Register* 48208, August 8, 2011. Explanatory material can be found at http://www.epa.gov/crossstaterule/actions.html. The rule was generally referred to as the Clean Air Transport Rule prior to being finalized.

[24] U.S. Environmental Protection Agency, "National Emission Standards for Hazardous Air Pollutants from Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units," 77 *Federal Register* 9304, February 16, 2012.

[25] See CRS Report R41914, *EPA's Regulation of Coal-Fired Power: Is a "Train Wreck" Coming?*

[26] According to the U.S. Energy Information Administration (EIA), the nationwide average price of electricity in June 2016 was 2.1% lower than in June 2014, before CSAPR and MATS took effect. See *Electric Power Monthly*, August 2016 and August 2014, Table 5.6.A.

[27] See, for example, North American Electric Reliability Corporation, "Sufficient Resources in Place to Meet Winter Demand, Winter Assessment Finds," December 10, 2015, at http://www.nerc.com/news/Pages/Sufficient-Resources-in-Place-to-Meet-Winter-Demand,-Winter-Assessment-Finds.aspx; NERC's earlier assessment for summer 2015 was "Resources Adequate to Meet Summer Electricity Demand in North America, Assessment Shows," May 15, 2015, at http://www.nerc.com/news/Pages/Resources-Adequate-to-Meet-Summer-Electricity-Demand-in-North-America,-Assessment-Shows-.aspx.

[28] 531 F.3d 896 (D.C. Cir. 2008).

[29] 517 F.3d 574 (D.C. Cir. 2008).

the Senate considered legislation that would have revoked CSAPR. The House passed its version of the legislation twice, in September 2011 and again in September 2012. The Senate did not take up either House bill, however. It did consider a resolution of disapproval of CSAPR under the Congressional Review Act, but the resolution was rejected by the Senate, 41-56, on November 10, 2011.

Opponents of CSAPR also challenged the rule in court, where they initially prevailed: the D.C. Circuit Court of Appeals stayed the rule's implementation and vacated the rule in August 2012.[30] The Supreme Court overturned the D.C Circuit in April 2014, holding, in a 6-2 decision, that the plain text of the CAA supported EPA's decision to impose federal implementation plans for SO_2 and NOx on the states, and that the agency's use of cost-effectiveness to allocate emission reduction requirements was a reasonable interpretation of its authority under ambiguous statutory language.[31] The Court remanded some issues to the D.C. Circuit for further consideration; but, at this point, the stay has been lifted and EPA is proceeding to implement the rule. CSAPR's caps on SO_2 and NOx emissions took effect in January 2015, with a second phase of caps due to be implemented in 2017.

EPA's Regulatory Impact Analysis found that CSAPR's benefits exceed its costs by more than 50-1. The most important benefit would be 13,000 to 34,000 fewer premature deaths annually, according to the agency. Avoided deaths and other benefits would occur throughout the East, Midwest, and South, according to EPA, with Ohio and Pennsylvania benefitting the most.[32]

CSAPR's 2016 Update

The CSAPR rule addresses emissions in upwind states that affect the ability of downwind states to attain EPA's 1997 National Ambient Air Quality Standards (NAAQS) for ozone and its 2006 NAAQS for particulate matter. These were the latest NAAQS for which EPA had identified nonattainment areas at the time that CSAPR was promulgated. EPA has subsequently (i.e., after the date of CSAPR's promulgation) identified nonattainment areas for a 2008 update of the ozone NAAQS. Thus, on September 7, 2016, EPA promulgated an update to the CSAPR rule that will address emissions that contribute to nonattainment of the 2008 NAAQS. The update sets new requirements for 22 states to limit NOx pollution that is contributing to nonattainment of the 2008 ambient ozone standard.

The CSAPR update rule takes effect in May 2017. The agency estimates the annual cost of the rule at $68 million, with benefits of up to $880 million annually, including the prevention of up to 60 premature deaths each year. The agency expects that the updated rule's requirements can be met quickly and at low cost by optimizing operation of existing pollution control technology, turning on existing pollution controls that are currently idled, upgrading to state-of-the-art low-NOx combustion controls, and shifting generation to lower-emitting power plants. As the agency notes:

> The rule does not require that any particular facility make specific reductions or use certain pollution controls. Under a trading program, sources have significant flexibility in deciding

[30] EME Homer City Generation, L.P. v. EPA, 696 F.3d 7 (D.C. Cir. 2012).

[31] EPA v. EME Homer City Generation L.P., 134 S. Ct. 1584 (2014).

[32] U.S. EPA, Office of Air and Radiation, "Cross-State Air Pollution Rule," Overview Presentation, undated, p. 6, at http://www.epa.gov/crossstaterule/pdfs/CSAPRPresentation.pdf.

> how to meet emission reduction requirements. At the end of the ozone season, compliance is measured by whether they hold enough allowances to cover their emissions.[33]

NOx emissions from power plants in the eastern United States will be lowered by 20% in 2017, under the update and "other changes already underway in the power sector," with three-fourths of the reductions occurring in Pennsylvania, Indiana, West Virginia, Ohio, Alabama, and Kentucky.[34]

The CSAPR update also addresses a remand of CSAPR by the D.C. Circuit Court of Appeals. On July 28, 2015, the D.C. Circuit remanded the original CSAPR rule's ozone-season NOx emission budgets for 11 states and the annual SO_2 budgets of four states to EPA for modification. The update rule addresses the court's remand of the ozone-season NOx emission budgets, by withdrawing the remanded budgets for all 11 states, setting new budgets for 8, and removing 3 of the 11 (North Carolina, South Carolina, and Florida) from the ozone-season NOx program because new modeling showed that the three do not contribute significantly to ozone air quality problems in downwind states. (A separate EPA memorandum sets forth a procedure under which EPA will address the remand of the SO_2 budgets.[35])

Mercury and Air Toxics Standards (MATS)

In 2005, EPA promulgated regulations establishing a cap-and-trade system to limit emissions of mercury from coal-fired power plants. The rules were challenged, and the D.C. Circuit Court of Appeals vacated them in 2008 in *New Jersey v. EPA*.[36] Rather than appeal the ruling to the Supreme Court, EPA agreed to propose and promulgate Maximum Achievable Control Technology (MACT) standards under Section 112 of the Clean Air Act by the end of 2011. EPA has stated that the standards for existing units, promulgated February 16, 2012, could be met by 56% of coal- and oil-fired electric generating units using pollution control equipment already installed. The other 44% would be required to install technology to reduce uncontrolled mercury and acid gas emissions by about 90%, at an annual cost of $9.6 billion. EPA estimated that the annual benefits of the MATS rule, including the avoidance of up to 11,000 premature deaths annually, would be between $37 billion and $90 billion. Existing power plants had until April 2015, with a possible one-year extension, to meet the standards. About 41% of the plants indicated that they needed the additional time to comply and, of those, 98% were granted an extension.[37]

MATS requires coal-fired power plants to reduce emissions of mercury, nine other toxic metals, and three acid gases, all of which were listed by Congress as hazardous air pollutants in the 1990 Clean Air Act Amendments. According to EPA, power plants are the largest emitters of many of these pollutants, accounting for about 50% of the nation's mercury emissions, 62% of its arsenic emissions, and 82% of its hydrochloric acid emissions, for example.[38] The MATS rule is also

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[33] U.S. EPA, "Final Cross-State Air Pollution Rule Update for the 2008 NAAQS," Fact Sheet, p. 4, at https://www3.epa.gov/airmarkets/CSAPRU/FINAL_FinalCSAPRUR_Factsheet.pdf.

[34] U.S. EPA, "Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS," Preamble, Table VI.E-2. Pre-publication version, September 7, 2016, at https://www3.epa.gov/airmarkets/CSAPRU/Cross-State%20Air%20Pollution%20Rule%20Update%20for%20the%202008%20Ozone%20NAAQS%202060%20AS05%20FRM.pdf.

[35] See U.S. EPA, Memorandum of Acting Assistant Administrator for Air and Radiation Janet G. McCabe, June 27, 2016, at https://www3.epa.gov/airtransport/CSAPR/pdfs/CSAPR_SO2_Remand_Memo.pdf.

[36] 517 F.3d 574 (D.C. Cir. 2008).

[37] National Association of Clean Air Agencies, "Survey on MATS Compliance Extension Requests," August 11, 2015, http://www.4cleanair.org/sites/default/files/Documents/MATSextensionrequests-table-August-2015.pdf.

[38] U.S. EPA, "Memorandum: Emissions Overview: Hazardous Air Pollutants in Support of the Final Mercury and Air

projected to reduce emissions of fine particulates ($PM_{2.5}$). Although $PM_{2.5}$ is not listed as a hazardous air pollutant, EPA believes that the MATS rule's effect on $PM_{2.5}$ will lead to the avoidance of up to 11,000 premature deaths each year.

In its analysis of the MATS rule, the agency concluded that some EGUs would be retired by 2015, rather than invest in control technologies. In all, it said, coal-fired generation capacity would decline less than 2% as a result of the MATS rule.[39] Coal-fired capacity is, of course, simultaneously being buffeted by market forces, principally the low cost of natural gas, and there are other promulgated rules (under the Clean Air Act, Clean Water Act, and Solid Waste Disposal Act) that might increase future costs of operation; these could also affect plant retirement decisions. As a result, more than 2% of coal-fired generation is being retired.

Like the CSAPR rule, the MATS rule has been challenged both in Congress and in the courts. In the 112th Congress, H.R. 2401 and H.R. 3409 would have declared the MATS rule "of no force and effect," would have required that any replacement rule impose the least burdensome regulatory alternative among those authorized under the Clean Air Act, and would have delayed compliance with any replacement rule until six years after an interagency panel completed a study of the cumulative impact of numerous listed EPA rules. Both bills passed the House, but the Senate did not consider either. It did consider S.J.Res. 37, a resolution to disapprove the MATS rule under the Congressional Review Act. The resolution was rejected by the Senate, 46-53, on June 20, 2012.

The regulations were also challenged in the D.C. Circuit Court of Appeals (*White Stallion Energy Center v. EPA*),[40] and on appeal, in the Supreme Court (*Michigan v. EPA*).[41] Petitioners focused on EPA's finding that mercury controls for electric power plants were "appropriate and necessary," a prerequisite to regulation under Section 112(n) of the Clean Air Act. Petitioners argued that the agency found few direct benefits from controlling mercury or other air toxics. EPA did identify dozens of categories of benefits that would result from the controls on emissions of mercury and other hazardous air pollutants, but it lacks methods to quantify or monetize most of these benefits. The vast majority of the monetized benefits in EPA's analysis would come from reduced emissions of $PM_{2.5}$, which the pollution control equipment would achieve as a co-benefit. Petitioners also argued that EPA had a duty to consider cost in determining whether the standards were appropriate and necessary, and did not do so.

The Supreme Court agreed. The Court held, 5-4, that EPA interpreted the statute's "appropriate and necessary" language unreasonably when it deemed cost irrelevant to the decision to regulate power plants. The Court found the ratio of the quantified direct benefits from the rule to its expected cost particularly troubling: "One would not say that it is even rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits."[42]

The case was remanded to the D.C. Circuit for further proceedings, and EPA prepared a supplemental "appropriate and necessary" finding that, after taking public comment, it finalized

Toxics Standard," November 2011, Tables 4, 5, and 6, at https://www.epa.gov/sites/production/files/2015-11/documents/20111216emissionsoverviewmemo.pdf.

[39] U.S. EPA, *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards*, pp. 3-14 to 3-20, at http://www.epa.gov/ttn/ecas/regdata/RIAs/matsriafinal.pdf.

[40] White Stallion Energy Center v. EPA, 748 F.3d 1222 (D.C. Cir. 2014).

[41] 135 S. Ct. 2699 (2015).

[42] Ibid. at 2707.

in the April 25, 2016, *Federal Register*.[43] In the supplemental finding, EPA "considered four metrics to evaluate whether compliance with MATS is reasonable for the power sector: revenues, capital expenditures, retail electricity rates, and potential impact on reliability," concluding in each case that it was.[44] As of December 2016, the rule remains in effect while the circuit court considers whether EPA's action in response to the Supreme Court decision has properly addressed the Court's concerns.

For additional information on the CSAPR and MATS rules, see CRS Report R42895, *Clean Air Issues in the 113th Congress: An Overview*, and CRS Legal Sidebar WSLG1318, *EPA Must "Consider" Costs Before Regulating Hazardous Emissions from Power Plants, But How Much?*

Air Quality Standards

The Obama Administration's EPA has reviewed several national ambient air quality standards (NAAQS), as it is required to do at five-year intervals by Section 109 of the Clean Air Act. NAAQS do not directly regulate emissions from sources of pollution; rather, they represent EPA's formal judgment regarding how clean the air must be to protect public health and welfare from the specific pollutants. The standards set in motion monitoring and planning requirements, which in turn can lead to designation of "nonattainment areas" and the imposition of emission controls.

Background

Air quality has improved substantially since the passage of the Clean Air Act in 1970. Annual emissions of the six air pollutants for which EPA has set ambient air quality standards (ozone, particulate matter, sulfur dioxide, carbon monoxide, nitrogen dioxide, and lead) have declined by 70%, despite major increases in population, motor vehicle miles traveled, and economic activity.[45] Nevertheless, the goal of clean air continues to elude many areas, in part because scientific understanding of the health effects of air pollution has caused EPA to tighten standards for most of these pollutants. Congress anticipated that the understanding of air pollution's effects on public health and welfare could change with time, and it required, in Section 109(d) of the act, that EPA review the standards at five-year intervals and revise them, as appropriate.

The most widespread air quality problems involve ozone and fine particles. A 2013 study by researchers at the Massachusetts Institute of Technology concluded that emissions of particulate matter and ozone caused 210,000 premature deaths in the United States in 2005.[46] Many other studies have found links between air pollution, illness, and premature mortality, as well. EPA summarizes these studies in what are called Integrated Science Assessments and Risk Analyses when it reviews a NAAQS, and, with input from the states, it identifies areas where concentrations of pollution exceed the NAAQS following its promulgation. As of September

[43] U.S. EPA, "Supplemental Finding That It Is Appropriate and Necessary to Regulate Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units," Final Rule, 81 *Federal Register* 24220, April 25, 2016.

[44] U.S. EPA, "Final Consideration of Cost in the Appropriate and Necessary Finding for the Mercury and Air Toxics Standards for Power Plants," Fact Sheet, at https://www.epa.gov/sites/production/files/2016-05/documents/20160414_mats_ff_fr_fs.pdf.

[45] For additional data on air pollution trends, see EPA's air trends website, at https://gispub.epa.gov/air/trendsreport/2016/.

[46] Fabio Caiazzo et al., "Air Pollution and Early Deaths in the United States. Part I: Quantifying the Impact of Major Sectors in 2005," *Atmospheric Environment*, November 2013, pp. 198-208.

2016, 119 million people lived in areas classified as "nonattainment" for the ozone NAAQS (**Figure 1**); 32 million lived in areas that were nonattainment for the fine particle ($PM_{2.5}$) NAAQS.[47]

Violations of the ambient air quality standards for the other four criteria pollutants are not as widespread, but EPA has recently completed reviews indicating that health effects of most of these pollutants are more serious and more prevalent than previously thought. As recently as 2010, for example, no areas exceeded the NAAQS for sulfur dioxide (SO_2), but in a review concluded that year, EPA determined that between 2,300 and 5,900 premature deaths could be avoided annually by strengthening that standard.[48] The agency now concludes that 1.9 million people live in areas that are nonattainment for a revised SO_2 NAAQS.[49] A review of the lead standard completed in 2008 concluded that it should be lowered by 90%,[50] as a result of which nearly 10 million people are considered to live in areas with unhealthy levels of atmospheric lead.[51]

CRS Report R41563, *Clean Air Issues in the 112th Congress*, summarized EPA's recent efforts to review the NAAQS and implement revisions, including the next steps for each of the six criteria pollutants. Reviews of all six pollutants (ozone, PM, lead, NO_2, carbon monoxide, and SO_2) have been completed since 2006, in some cases more than once, with the standards being made more stringent for five of the six.

Reviews do not always lead to revision of the standards. In August 2011, the EPA Administrator completed a review of the carbon monoxide (CO) NAAQS without changing the standard. The CO standard was promulgated in its present form in 1971. A 2016 review of the lead NAAQS, similarly, has resulted in a decision to retain the standard, which was set in 2008.[52]

[47] Data are from the U.S. EPA "Green Book," at https://www3.epa.gov/airquality/greenbook/popexp.html.

[48] U.S. EPA, *Final Regulatory Impact Analysis (RIA) for the SO_2 National Ambient Air Quality Standards (NAAQS)*, June 2010, p. 5-30, at https://www3.epa.gov/ttn/ecas/docs/ria/naaqs-so2_ria_final_2010-06.pdf. The standard chosen by EPA was 75 parts per billion.

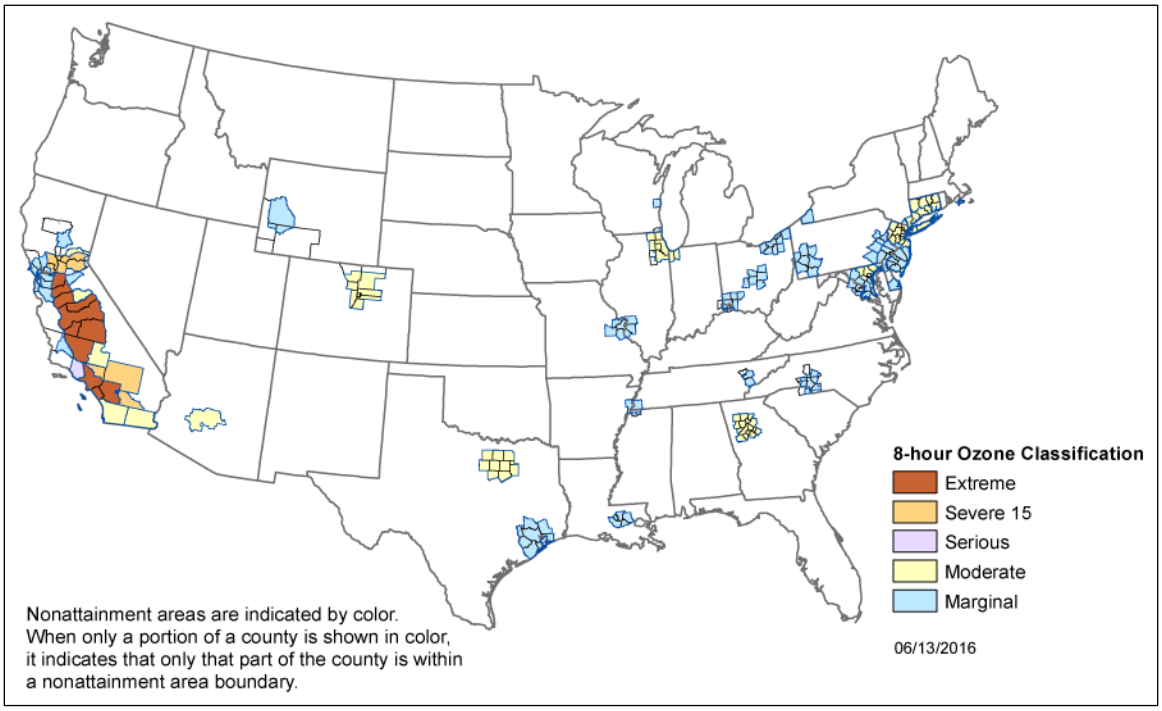
[49] http://www.epa.gov/airquality/greenbook/tntc.html.

[50] U.S. EPA, "Fact Sheet, Final Revisions to the National Ambient Air Quality Standards for Lead," 2008, at https://www.epa.gov/sites/production/files/2016-03/documents/final_rule_20081015_pb_factsheet.pdf. A more recent review, finalized September 16, 2016, retained the 2008 NAAQS without changes. See https://www.epa.gov/lead-air-pollution/national-ambient-air-quality-standards-naaqs-lead-pb.

[51] U.S. EPA, Green Book, at https://www3.epa.gov/airquality/greenbook/.

[52] https://www.epa.gov/lead-air-pollution/national-ambient-air-quality-standards-naaqs-lead-pb.

Figure 1. Ozone Nonattainment Areas (2008 Standard, 0.075 ppm)



Source: U.S. EPA Green Book, http://www.epa.gov/airquality/greenbk/map8hr_2008.html. Map shows areas designated nonattainment by EPA as of June 13, 2016.

The Ozone NAAQS

Since 2010, review of the NAAQS for ozone has sparked recurrent controversy. In January 2010, EPA proposed a revision to the ozone NAAQS.[53] The proposal did not follow the usual five-year (or longer) review process, but resulted from the EPA Administrator's decision to reconsider standards promulgated in March 2008 by the previous Administration. The 2008 review had made the standards more stringent; but EPA suspended implementation of the new standard in September 2009 in order to consider further strengthening it, and proposed a more stringent standard in January 2010.

On September 2, 2011, however, with a final rule in the last steps of interagency review at the Office of Management and Budget (OMB), the White House announced that the President had requested that EPA Administrator Jackson withdraw the all-but-final (more stringent) ozone standards from further consideration at that time. The President's statement noted that "work is already underway to update a 2006 review of the science that will result in the reconsideration of the ozone standard in 2013," and stated that he did not "support asking state and local governments to begin implementing a new standard that will soon be reconsidered."[54] (For discussion of the 2010-2011 reconsideration, see CRS Report R42895, *Clean Air Issues in the 113th Congress: An Overview.*)

[53] U.S. Environmental Protection Agency, "National Ambient Air Quality Standards for Ozone; Proposed Rule," 75 *Federal Register* 2938, January 19, 2010.

[54] The White House, Office of the Press Secretary, "Statement by the President on the Ozone National Ambient Air Quality Standards," September 2, 2011. The states were, however, required to begin implementing the 2008 ozone NAAQS, despite the fact that it would soon be reconsidered.

EPA's October 2015 Revision

EPA then proceeded with the required five-year review of the 2008 standard, as the President indicated it would. The agency missed the statutory deadline for completion of the review in March 2013, and a federal district court subsequently ordered the agency to propose any revisions resulting from this review by December 1, 2014, and to release a final decision by October 1, 2015. The final standards were released on October 1, 2015, and appeared in the *Federal Register*, October 26, 2015.[55]

The 2015 revision sets more stringent standards, lowering both the primary (health-based) and secondary (welfare-based) standards from 75 parts per billion (ppb) to 70 ppb. EPA maintains that most areas will be able to reach attainment of the new standards as a result of already promulgated regulations for gasoline, autos, power plants, and other sources of emissions. Using the latest available data, EPA identified 213 counties in 32 states outside California that had monitors showing nonattainment with the new standard in 2012-2014.[56] These are not the data EPA will use to designate nonattainment areas under the standard,[57] but they served as the basis of EPA's analysis of the rule's potential effects. The agency's modeling shows all but 14 of these counties reaching attainment with a 70 ppb standard by 2025 as a result of the already promulgated standards (for power plants, motor vehicles, gasoline, and other sources).

Thus, the agency's estimates of the cost of attaining a revised ozone NAAQS are substantially lower than many earlier estimates. EPA estimates the cost of meeting a 70 ppb standard in all states except California at $1.4 billion annually in 2025. Because most areas in California would have until the 2030s to reach attainment,[58] EPA provided separate cost estimates for California ($0.8 billion in 2038). These cost estimates are substantially less than one from the National Association of Manufacturers (NAM) that was widely circulated before the release of the final standard.[59] The NAM-sponsored analysis made a number of assumptions different from those used by EPA, including the assumption of a more stringent standard than the one finally promulgated by the agency. For a further discussion of the 2015 standard and the EPA and NAM analyses, see CRS Report R43092, *Ozone Air Quality Standards: EPA's 2015 Revision*.

Members of Congress have shown particular interest in whether the expected benefits of the new standards will justify their costs. Both nationwide and in California, the agency expects the benefits of attainment to exceed the costs, but there is controversy over the methods used to estimate both. The agency prepares cost and benefit estimates at the time it proposes or

[55] 80 *Federal Register* 65292. For links to the rule, as well as EPA's fact sheets and technical documents, see https://www.epa.gov/ozone-pollution/2015-national-ambient-air-quality-standards-naaqs-ozone.

[56] See U.S. EPA, "County-Level Design Values for the 2015 Ozone Standards Based on Monitored Air Quality Data from 2012-2014," at https://www.epa.gov/sites/production/files/2016-03/documents/20151001datatable20122014.pdf.

An additional 28 counties in California also have monitors showing nonattainment. EPA's analysis considered California separately, since most of the state's nonattainment areas will have until the late 2030s to reach attainment of the revised standard.

[57] In a footnote to the data table cited in footnote 55, the agency stressed that "EPA *will not* designate areas as nonattainment based on these data, but likely based on 2014-2016 data which are expected to show improved air quality."

[58] Under the statute, areas with more severe ozone pollution are given additional time to reach attainment of the standard, and must impose additional emission controls.

[59] NERA Economic Consulting for the National Association of Manufacturers, *Economic Impacts of a 65 ppb National Ambient Air Quality Standard for Ozone*, February 2015.

promulgates a NAAQS—for information purposes and to comply with Executive Order 12866, under which the OMB requires cost-benefit analysis of economically significant rules.

As the Clean Air Act is currently written, however, the agency is prohibited from weighing costs against benefits in setting the standards. The Clean Air Act's Section 109 has been interpreted to prohibit consideration of costs in the setting of NAAQS since the provision was added to the act in 1970. In 2001, this interpretation was affirmed in a unanimous Supreme Court decision, *Whitman v. American Trucking Associations*.[60] Section 109 simply states that the EPA Administrator is to set the primary standard at a level requisite to protect public health, allowing an adequate margin of safety. The Court pointed to numerous other CAA sections where Congress had explicitly allowed consideration of economic factors, concluding that if Congress had intended to allow such factors in the setting of a primary NAAQS, it would have been more forthright—particularly given the centrality of the NAAQS concept to the CAA's regulatory scheme. The court concluded that Section109(b)(1) "unambiguously bars cost considerations from the NAAQS-setting process."[61]

This is not to say that cost considerations play no role in Clean Air Act decisions, including in *implementation* of a NAAQS. Cost-effectiveness is considered extensively by EPA and the states in selecting emission control options to meet the standards. But in deciding what level of ambient pollution poses a health threat, the statute bars consideration of costs.

Congress has taken a keen interest in the results of the recent ozone review. At least 13 bills were introduced in the 114th Congress to modify EPA's authority or prohibit or delay the agency's proposed strengthening of the ozone NAAQS: H.R. 1044; H.R. 1327/S. 640; H.R. 1388/S. 751; H.R. 2111; H.R. 2822 (Section 438); H.R. 4000; H.R. 4265; H.R. 4775/S. 2882; H.R. 5538 (Section 438); and S. 2072. Two bills, H.R. 4775 and H.R. 5538, passed the House. In addition, joint resolutions of disapproval of the ozone NAAQS revision were introduced in both the House and Senate, under the Congressional Review Act. None of the bills or resolutions were enacted. For additional information on revision of the ozone NAAQS, see CRS Report R43092, *Ozone Air Quality Standards: EPA's 2015 Revision*.

Other Issues

Since 2009, EPA has proposed and promulgated numerous regulations implementing the Clean Air Act (and other pollution control statutes that it administers). Critics of the Administration, both within Congress and outside of it, have accused the agency of reaching beyond the authority given it by Congress and ignoring or underestimating the costs and economic impacts of these rules. Numerous bills that would have overturned specific regulations, delayed their implementation, or limited the agency's authority were introduced, and some passed the House in the last three Congresses.

In the 114th Congress, in addition to bills targeting GHG emissions discussed elsewhere in this report, the House passed two bills that would overturn or delay specific EPA air regulations: H.R. 4557, the BRICK Act, which would have delayed implementation of hazardous air pollutant emission standards affecting brick and ceramic manufacturers until all legal challenges to the

[60] 531 U.S. 457 (2001).

[61] For further discussion of the American Trucking case, see CRS Report RS20860, *The Supreme Court Upholds EPA Standard- Setting Under the Clean Air Act: Whitman v. American Trucking Ass'ns*, by Robert Meltz and James E. McCarthy.

rules are settled; and H.R. 3797, the SENSE Act, which would have eased emission limits under the Cross-State Air Pollution Rule and the Mercury and Air Toxics Standards for electric

generating units powered by coal refuse. In addition, H.R. 5538, the Interior, Environment and Related Agencies appropriation bill for FY2017, as passed by the House, contained numerous riders prohibiting EPA from using FY2017 funds to implement various authorities under the Clean Air Act.

While EPA has been widely criticized by industry groups and many in Congress for overreaching, the agency maintains that in promulgating the rules it has promulgated, it has complied with statutory mandates placed on the agency by Congress. The agency has stated that its critics' focus on the cost of controls obscures the benefits of new regulations, which, it estimates, far exceed the costs; and it maintains that pollution control is an important source of economic activity, exports, and American jobs.[62]

Environmental and public health groups generally agree that the agency has not overreached in setting Clean Air Act standards. These groups often maintain that the agency's standards are not stringent enough, do not meet statutory requirements, or disregard the findings of the agency's science advisors. The result is that EPA Clean Air Act standards generally are challenged in court both by industry and by environmental groups, with various states supporting each side. The resulting court decisions often set EPA's agenda as much as Congress or the Administration.

The courts will continue to play an important role, and Congress may react to court decisions regarding Clean Air Act regulation through legislation.[63]

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[62] See, for example, U.S. EPA, Office of Air and Radiation, "The Clean Air Act and the Economy," at https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy.

[63] For additional discussion of EPA's regulatory actions under all the environmental statutes, see CRS Report R41561, *EPA Regulations: Too Much, Too Little, or On Track?*