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National Ambient Air Quality Standards: Ozone

Environmental Services Fact Sheet

*In 2015, the U.S. Environmental Protection Agency (EPA) released its **final rule** tightening the ozone National Ambient Air Quality Standards (NAAQS) to 70 parts per billion (ppb). This is at the top end of the range that EPA had proposed (the agency solicited comment on a level as low as 60 ppb). However, with the annual cost of compliance still reaching $1.4 billion each year (not even including California), according to agency estimates, the final rule remains one of the most expensive in history. Areas where the air quality is in "nonattainment" with the new level will face significant consequences that range from regulatory constraints on siting and development of new industry, to the threat of losing highway and transit funding; not to mention potential restrictions on the use and operation of construction equipment. An industry coalition, several environmental groups, and nine states have filed suits to challenge the revisions.*

Background

The Clean Air Act (CAA) requires EPA to review the NAAQS for ozone (and five other pollutants) every five years to determine whether changes are needed to keep the standards at a level "requisite to protect the public health… [with] an adequate margin of safety." Ozone occurs both naturally and forms due to chemical reactions between nitrogen oxides (NOx) and volatile organic compounds (VOC), which are emitted from industrial facilities, power plants, equipment/vehicle exhaust, and chemical solvents. EPA's final rule reduces the primary (health-based) ozone NAAQS from its current level of 75 ppb, as an eight-hour average, to a level of 70 ppb. The rule also reduces the secondary ozone standard, which is aimed at protecting vegetation and ecosystems, to 70 ppb (also as an eight-hour average). Both industry groups and environmentalists are expected to sue EPA over the new legal limit. Courts will defer to EPA's scientific conclusions, setting a very high hurdle for challengers to any NAAQS.

While AGC was not able to stop EPA from issuing the new standard, we were able to spare industry from a worst case-scenario and succeed in persuading the agency to be more moderate in its approach. EPA heeded AGC's recommendations to grandfather certain construction permit applications, thereby allowing those applications to be reviewed under the current 75 ppb standard, and to better account for the impact of "background" ozone that either occurs naturally or is transported from other countries, as further explained below.

Immediate Effects on Business Planning

States have just one year (by late 2016) to recommend to EPA those counties, or partial counties, that should be designated as not attaining the new standard. Actions taken in the coming months that improve air quality will help reduce ozone in 2016 – one of the three years that EPA will consider in determining nonattainment areas. (Note that sources do not emit ozone; it is formed in the air by complex chemical reactions involving VOCs and NOx.) States looking to create a better cushion against future nonattainment may turn to early-action programs such as the **Advance Program** and **ENERGY STAR**, which proactively take steps to reduce air pollution – such as minimizing congestion, improving public transit, reducing equipment emissions and idling, increasing energy efficiency in buildings – before making the reduction becomes a federal requirement.

In the near term, the construction industry may also face a constricted market whereby businesses are discouraged from expanding or building new facilities in potential nonattainment areas.

More States Face Ozone Nonattainment

By October 2017, EPA plans to "officially" designate areas as meeting the new 70 ppb standard (attainment areas) or exceeding it (nonattainment areas). EPA is currently projecting that 241 counties will be designated as nonattainment (based on 2012-2014 air quality data). Significantly, 10 states that currently have no 8-hour ozone nonattainment areas will have counties in violation of the 70 ppb limit. These states include Alabama, Kansas, Maine, Michigan, Nevada, New Mexico, North Carolina, Oklahoma, Rhode Island and Utah. Furthermore, the new 70 ppb standard will increase the number of nonattainment counties in current nonattainment states such as Ohio, Arizona, Colorado, Indiana, Wisconsin, and Missouri. (Because EPA expects to use 2014-2016 data when it makes its final designations, these estimates may change – see **EPA's air quality maps**.)

By way of comparison, 224 counties are currently in (whole or partial) nonattainment under the current 75 ppb ozone standard, set back in 2008. However, on Aug. 27, 2015, EPA published a **proposed rule** in the *Federal Register* finding that many of the counties have come into attainment with the standard. (Even with these pending re-designations, these counties face the real likelihood of once again being designated nonattainment under EPA's new 70 ppb limit.) **Click here** for an up-to-date breakdown of states/counties/areas currently in nonattainment for ozone.

Construction Impacts

The ozone NAAQS revisions trigger federal **Transportation Conformity** and **General Conformity** determinations (to begin one year after the effective date of a nonattainment designation), and affect which **New Source Review** (NSR) preconstruction permitting program applies to sources of ozone precursor emissions, and the nature of those requirements. The discussion below explains how these programs may impact future construction.

In nonattainment areas, a company cannot build or significantly modify most power plants, factories and other NOx and VOC pollution sources unless the company obtains a Nonattainment New Source Review (NNSR) permit by demonstrating that the proposed source will use modern pollution controls to meet the "Lowest Achievable Emission Rate" for that type of source, regardless of cost. The prospective builder must also obtain emissions reductions from other sources to offset their own emissions within the same nonattainment area. (Offsets are required on a sliding scale from 1.1 to 1 in cleaner nonattainment areas to 1.5 to 1 in the dirtier nonattainment areas.) In contrast, the preconstruction permits for such "major sources" in attainment areas are based on a much less stringent Best Available Control Technology standard and are appropriately termed Prevention of Significant Deterioration (PSD) permits. Companies interested in building a major manufacturing plant, for example, may choose not to build in a nonattainment area due to the increased costs, delays, and uncertainties associated with the more restrictive permit requirements.

In the near term, the construction industry may also face a constricted market whereby businesses are discouraged from expanding or building new facilities in potential nonattainment areas.

Though states generally must consider the NAAQS in effect when issuing preconstruction permits to new or modified major emissions sources, the rule includes a "grandfathering provision" that allows permitting authorities to use the less stringent 75 ppb ozone standard for some sources with PSD permits currently pending, under prescribed circumstances. In its comments on the proposal, AGC strongly supported PSD permit grandfathering, in an effort to ease the transition to the new standard and prevent delays in the processing of pending preconstruction permit applications.

The construction industry should also be aware of the CAA "transportation conformity" provisions. States with counties that are out of compliance

with the new ozone standard could have federal highway funds withheld. Federal departments and agencies may not approve, permit, or provide financial support to most highway and transit projects in nonattainment areas, unless those projects conform with the SIP for achieving air quality (i.e., stay within the motor vehicle emissions budget in the SIP). Conformity to the SIP means that a proposed project "will not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS." Failure to demonstrate conformity within the required timeframes results in a "conformity lapse," which renders the area's transportation program and plans invalid. Only certain types of projects can advance during a conformity lapse (e.g., safety projects and transportation control measures in an approved SIP). Unlike highway sanctions (see below), conformity lapses affect transit capacity projects as well. **Click here** for AGC's Fact Sheet on transportation conformity.

EPA has several sticks (and few carrots) available to induce states to develop strategies to attain the air quality standards.

Additionally, the general conformity requirements apply to those federal actions that are located in a nonattainment area or maintenance area, and that are not subject to transportation conformity requirements. Emissions associated with construction that are not addressed via the transportation conformity process must be analyzed via the general conformity process. If emissions from the project are above a certain level, a conformity finding must be made or the emissions must essentially be fully offset.

Beyond the federally-mandated programs outlined above, states may attempt to directly impose requirements through their SIPs on the users of diesel engines to reduce emissions from the existing fleet of construction equipment. Although the CAA generally gives the federal government the authority to set emissions standards for either new or old engines in off-road construction equipment (a concept called federal preemption), some states have (or will) attempt to include provisions in their SIPs that appear to violate this statutory prohibition—such as operating restrictions on the use of construction equipment; requirements to retire or replace older diesel equipment; or mandates (via contract specifications or bid preferences) to retrofit older off-road engines.

EPA continues to stress that its current federal emissions regulations for cars, trucks, fuels, offroad vehicles and engines, power plants, and other stationary pollution sources are reducing ozone levels. However, these programs alone are not enough to bring many areas into attainment, thus requiring state and local pollution control measures in addition. In the final rule, EPA committed to issuing additional rules and guidance that will aid states in the implementation process.

Proposed SIP control measures must be vetted through public comment. In light of the potential implications for businesses located in an ozone nonattainment area (particularly those areas with few opportunities for emission controls), industry stakeholders should plan to participate in the SIP development processes.

Highway Sanctions and Offsets

EPA has several sticks (and few carrots) available to induce states to develop strategies to attain the air quality standards. There are two sanctions required by CAA **Section 179** (42 USC 7509) that apply only in nonattainment areas. If a state fails to develop, submit or implement a SIP adequate to attain or maintain compliance with a NAAQS, and if the deficiency is not corrected within 18 months, EPA will automatically impose offset sanctions that require new or expanded stationary sources to reduce emissions by 2 tons for every 1 ton of emission growth. Because offsets are expensive and difficult to obtain, this is a very serious penalty.

If the deficiency is not corrected within 6 months of the imposition of the offset sanction, highway sanctions are imposed. The highway sanction is a prohibition on Federal funds for transportation projects within an area, except for certain safety, transit, and air quality beneficial projects.

EPA does have the option, under CAA **Section 110(m) (42 USC 7410(m))**, to apply discretionary sanctions more widely. Ultimately, EPA can impose a federal implementation or

maintenance plan (a FIP) in an area that does not have an approved SIP where EPA directly writes ozone pollution controls for the state.

Background Ozone Levels: Concern to Western States

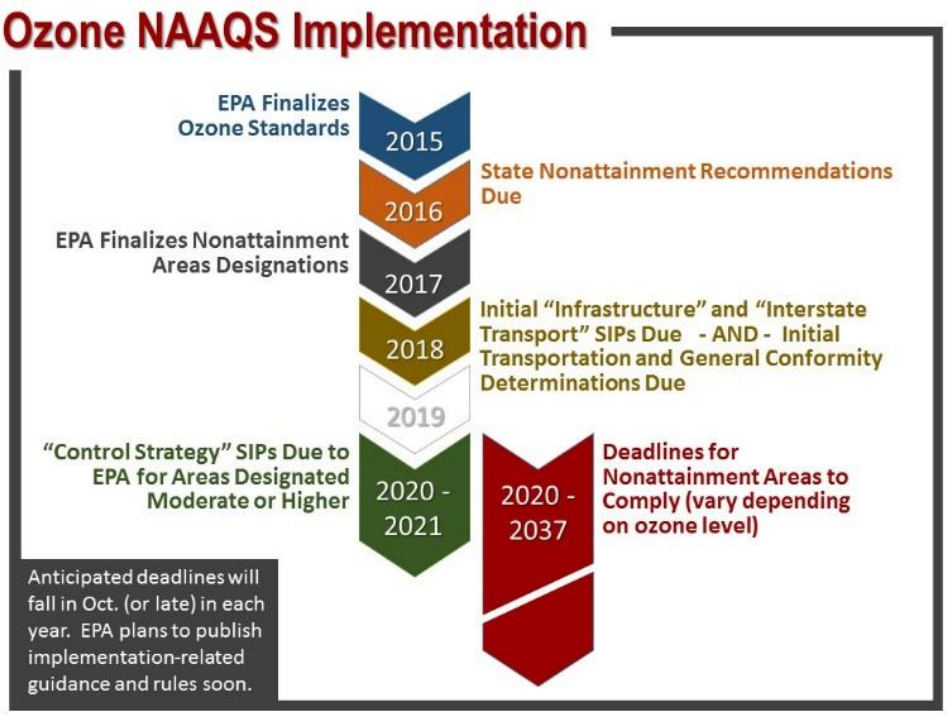
AGC's comments on the ozone proposal point out that a tighter ozone NAAQS is of particular concern to western states, communities, and businesses because of the difficulty in attaining the standard due to high levels of "background ozone," which in some places has been monitored at, or near, the 70 ppb standard. Many areas of the rural Intermountain West have few emission sources that can be controlled and regulated through permits or rules, making it difficult to develop a nonattainment SIP. (EPA originally wanted to set the standard at 65 ppb, but under the 70 ppb rule, Rocky Mountain National Park at 66 ppb will remain compliant with the new regulation.)

The preamble to the final rule EPA recognizes that "there can be events where [ozone levels approach or exceed … the revised [ozone] standards in large part due to background sources." As indicated in an **Oct. 1 policy memo**, issued alongside the final revised ozone standard, EPA plans to propose rules and guidance to help states with nonattainment areas implement the 70 ppb standard, including updates to policies on addressing natural "background" ozone and interstate transport of ozone-forming emissions. In late 2015, EPA proposed changes to its **2007 "Exceptional Events" rule** (EER) that allows the agency to exclude certain air-quality monitoring data – associated with uncontrollable or unpreventable emissions – when determining whether or not an area violates a national air standard. At the same time, EPA released a draft version of guidance for states seeking to demonstrate that a wildfire event affected monitored ozone concentrations. This package of documents could be critical for states looking for all possible options to help them attain EPA's recently tightened ozone NAAQS. (The final EER is anticipated in Aug. 2016.)

The agency also plans to issue a new rule guiding states on how they will meet their obligation to mitigate their pollution that causes NAAQS attainment problems in downwind states. Also, EPA issued a **white paper** and will hold workshops to evaluate the need for further guidance or regulatory tools to address background ozone.

State Air Planning Requirements

Now that EPA has lowered the ozone NAAQS, states must begin the implementation planning process immediately. As mentioned above, states typically rely on federal emission-limiting regulations and permit systems for stationary source emissions reductions, along with a program of state- and locally-selected supplemental measures to reduce emissions from all sectors (e.g. stationary, area and mobile.). Based on the timeframes provided in the Clean Air Act (and assuming EPA's final nonattainment designations take effect in October 2017), below are the deadlines for states to submit various **State Implementation Plan** (SIP) components to EPA for approval.



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- By October 2018, every state (including those without any nonattainment areas) must submit to EPA plans to show they have the basic air quality management program components in place to implement, maintain and enforce the new ozone NAAQS across their entire state. These *general* plans, designed to prevent air quality deterioration for areas that are in attainment with the NAAQS, are called "**infrastructure SIPs**." In addition, the federal Transportation Conformity and General Conformity determinations for the 70 ppb standard will apply in nonattainment and maintenance areas, also beginning in October 2018 (see above for more details).
- By October 2019, nonattainment states must develop emission inventories, emissions statement SIPs, and additional mandatory control measures requiring certain existing sources in areas classified as "moderate" or higher to retrofit their facilities with pollution abatement devices (i.e., reasonably available control technology (RACT) SIPs).
- By October 2020, all nonattainment states must implement tailored Nonattainment New Source Review (NSR) preconstruction permitting programs (going beyond the basic federal regulations) designed to provide additional air quality safeguards for those areas (see above for more details). By October 2020 or October 2021, depending on their classification, states with nonattainment areas classified as "moderate" or higher must develop detailed "control strategy SIPs" showing the emission reductions (NOx and VOCs) they will require to meet the ozone NAAQS.

Following the same timeline above, a group of northeast states that make up the Ozone Transport Region (OTR) – essentially upwind states that contribute significantly to downwind nonattainment areas – must submit "transport SIPs" and install a certain level of controls (RACT) for the pollutants that form ozone, even if they meet the ozone standards.

In addition, there are other nonattainment area planning and control requirements, beyond those discussed above, that apply in nonattainment areas, including reasonable further progress (RFP) demonstrations, a basic vehicle inspection and maintenance (I-M) program, contingency measures for failure to attain, etc., based on the area's classification level.

Deadlines for nonattainment areas to meet the new 70 ppb limit (primary standard) will range from 2020 to 2037, based on the ozone level in the area. (The CAA does not specify a deadline for states to meet secondary standards.)

Cost Considerations

EPA is prohibited by statute from taking cost into account in setting NAAQS; despite that prohibition, in order to comply with an executive order (E.O. 12866) and guidance from the Office of Management and Budget, the agency generally produces a **Regulatory Impact Analysis** analyzing in detail the costs and benefits of new or revised NAAQS standards. On the other hand, cost-effectiveness is considered extensively by EPA and the states in selecting emission control options to meet the standards.

EPA estimates the new ozone standard will result in annual implementation costs of $1.4 billion by 2025 (not including California), with annual public-health benefits estimated at $2.9 to $5.9 billion by 2025 (not including California). EPA conducted a separate analysis for California, as that state has a number of areas with particularly poor air quality.

Research examining previous federal estimates of the costs of regulations shows that EPA consistently miscalculate the costs of the regulations they impose on the economy. Government cost estimates are routinely far lower than actual costs, so the cost of the new ozone rule could be much higher. Interestingly, when EPA published its proposed version of the ozone rule last November, it estimated that a 70 ppb standard would create $6.4 billion to $13 billion in annual health benefits compared to costs of $3.9 billion.

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All photographs are courtesy of the U.S. Environmental Protection Agency unless otherwise indicated.

Contacts

Leah Pilconis | Senior Environmental Advisor to AGC of America
pilconisl@agc.org | (703) 837-5332
Melinda Tomaino | Director, Environmental Services
tomainom@agc.org | (703) 837-5415
www.agc.org/environment
Twitter: @AGCEnvironment
AGC-supported environmental compliance & green resources:
www.cicacenter.org