

**Testimony of Jeffrey R. Holmstead  
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**Background Check: Achievability of New Ozone Standards**

**U.S. House Committee on Science, Space, and Technology  
Subcommittee on Environment  
U.S. House of Representatives  
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My name is Jeff Holmstead. I am a partner in the law firm of Bracewell & Giuliani and the head of the firm's Environmental Strategies Group. However, I am not submitting this testimony on behalf of my law firm or any of my clients or the firm's clients. Rather, I am sharing my views as a former government official and an attorney in private practice who has spent almost 25 years working on issues arising under the Clean Air Act.

I have worked on Clean Air Act issues since 1989, when I joined the White House Staff of President George H.W. Bush. In that capacity, I worked closely with the Environmental Protection Agency (EPA) and a number of other stakeholders on the implementation of the 1990 Amendments to the Clean Air Act. I served at the White House until 1993 and then, from 1993 until 2001, I worked as attorney in private practice, where I represented companies and trade associations in a number of different industries on Clean Air Act issues. Beginning in 2001, I had the opportunity to serve for more than four years as the head of the EPA Air Office – the office in charge of implementing the Clean Air Act. My official title was Assistant Administrator of EPA for Air and Radiation. Since 2006, I have been a partner at the law firm of Bracewell & Giuliani, where I work with many different industry groups and companies on a variety of issues related to the Clean Air Act.

From these various vantage points in both the government and the private sector, I have closely followed EPA's efforts to set national ambient air quality standards (NAAQS) for ozone and then to develop and implement a variety of regulatory and permitting programs designed to reduce ozone concentrations throughout the country. I have also been involved with a number of state and local governments, industry groups, and private

companies as they have tried to deal with the challenges created by the ozone standards and the various rules and regulations related to those standards.

I am especially interested in the ozone standards because of the long history of EPA and state efforts to deal with ozone under the Clean Air Act. Ozone is not a new challenge. EPA and state environmental agencies have been focused on reducing concentrations of ozone for more than 40 years (although the term ozone was not used in the early years).

In light of this 40-year history, I would like to highlight two key facts related to ozone:

- Ozone levels have been reduced substantially since the 1970s in most parts of the U.S. and especially in urban areas that had previously suffered from the highest levels of ozone.
- Notwithstanding the considerable progress that has been made in reducing ozone concentrations, there are many areas of the country that have not attained the current ozone NAAQS of 75 parts per billion (ppb). In fact, there are a number of major urban areas that, although they have made substantial improvements in air quality, are still a long way from meeting this standard. Based on the most recent EPA data, there are 9 areas with “design values” of 90 ppb or above – meaning that they are still 20 percent or more above the current standard and well above the 84 ppb standard that was established back in 1997.

These areas have not been negligent in their efforts to regulate sources of air pollution. In fact, many of them – in California, Texas, and the mid-Atlantic region in particular – have been extremely aggressive (and creative) in regulating virtually every imaginable source of ozone precursors. In fact, as a country, we have spent more money to address ozone than to address any other air pollutant (even though EPA and most air quality researchers believe that other pollutants pose a much greater health risk). In my discussions with regulatory officials in these areas, they say that there is little more that they can do to achieve further reductions.

To be sure, ozone concentrations in these areas will continue to decrease gradually as new, lower-emitting cars, trucks, and non-road engines replace older vehicles and engines. But these decreases will fall far short of what is needed to attain the ozone standard in many areas of the country.

Under the Clean Air Act, states have a legal obligation to meet the ozone standard, but the standard itself is not fixed in law. Rather, EPA is supposed to review the standard every five years based on the most current research about the health effects of ozone. If EPA believes, based on the current scientific evidence, that the standard should be adjusted, then EPA is required to set the standard at a level that is “requisite to protect the public health” with an “adequate margin of safety.” Based on a decision by the Supreme Court, EPA believes that it must set the standard based purely on the health effects of ozone and without considering the cost of meeting the standard or even whether the standard can be met.

EPA is now reviewing the ozone standard and has suggested that it should be lowered from 75 ppb (its current level) to somewhere in the range of 60 to 70 ppb. Thus, many parts of the country that have not been able to meet the 1997 standard of 84 ppb or the 2008 standard of 75 ppb may soon have a new legal obligation to meet an even lower standard.

### **Why “Background” Ozone Matters**

The basic structure of the Clean Air Act program for dealing with ozone was established back in the 1970s and has remained relatively unchanged since that time. Ozone (then in the form of “total photochemical oxidants”) was thought to be primarily a local issue. If a city had high ozone levels, policymakers believed that it was caused by local sources of emissions. It was understood, of course, that vehicle emissions were the single largest part of the problem in many areas, and EPA was given primary responsibility for regulating those emissions. Otherwise, it was thought that states could meet the ozone standard (which was 120 ppb from 1979 - 1997) simply by adopting more stringent regulations to reduce emissions from industries within their borders.

By the mid-1990s, EPA came to understand that ozone was also a regional issue – not just a local one – and began to develop programs to control emissions from power plants in the eastern U.S. as a way to reduce ozone levels throughout the region.

More recently, government and academic researchers have noted that ozone is truly a global issue. Even without any human activity, there would be natural levels of ozone (not necessarily a constant background level but a level that

would vary from time to time and place to place over the year). In addition, it is now clear that a range of industrial and other human activities (like biomass burning) throughout the world contribute to ozone concentrations in the U.S. In a 2011 report, EPA scientists noted that:

A growing body of observational and modeling studies suggests that the international anthropogenic [man-made] contribution to U.S. background ozone levels is substantial and is expected to rise in the future as rapid economic development continues around the world. Of particular concern is rising Asian emissions of nitrogen oxides (NO<sub>x</sub>), which can influence U.S. ozone concentrations in the near-term, and methane, which affects background ozone concentrations globally over decadal time scales.

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In particular, [a 2010 Report by the Task Force on Hemispheric Transport of Air Pollution] estimated that the contribution of NO<sub>x</sub>, non- methane VOC, and CO emissions in Europe, South Asia, and East Asia to North American ozone concentrations at relatively unpolluted sites is 32% of the contribution of emissions from all four regions (including North America) combined. That contribution is projected to rise to 49% in a conservative emissions growth scenario and to 52% in a scenario of aggressive global economic development.<sup>1</sup>

The U.S. can certainly work with other countries to encourage them to reduce emissions that contribute to air quality problems in the U.S. However, for U.S. policymakers, it is important to understand how much we can actually do, within our own borders, to reduce ozone concentrations in the U.S. This would require an understanding of the ozone levels that would exist in the U.S. even if all man-made emissions from sources within the U.S. were to be eliminated entirely.

Since “true” background ozone levels are unknown, EPA and others have developed models to estimate what EPA has called “Policy-Relevant Background” (PRB) ozone. Unfortunately, the concept of “Policy-Relevant

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<sup>1</sup> EPA, Ozone National Ambient Air Quality Standards; Scope and Methods Plan for Health Risk and Exposure Assessment (2011).

Background” is not entirely helpful because it assumes that emissions in Canada and Mexico can somehow be regulated by the U.S. and should not be viewed as background ozone. Thus, EPA has defined PRB ozone as the surface ozone concentration that would be present over the U.S. in the absence of *North American* (and not just U.S.) emissions from human activities. Mexican and Canadian emissions already have a large and growing impact on bordering states’ ozone levels. The authors of a recent report found that, by 2020, “Canadian pollution influence in the Northeast will become comparable in magnitude to that from domestic power plants.”<sup>2</sup>

Even though the concept of PRB ozone is flawed, it is still useful in providing a sense about how much we can actually accomplish by further regulating U.S. sources of emissions. A 2011 Harvard study was designed to improve current modeling of PRB to assist EPA in its current revision of the ozone NAAQS. While “previous studies found no occurrences of PRB exceeding 60 ppbv,” the authors found PRB exceeds that amount in the intermountain West (extending between the Sierra Nevada/Cascades Mountains to the west and the Rocky Mountains to the east) on a regular basis. “The annual 4th-highest PRB value in the model (representing the minimum standard achievable through suppression of North American anthropogenic emissions) is... 50-60 ppbv” in the region. As EPA has considered decreasing the current NAAQS from 75 ppbv to 60-70, “such high PRB values in the intermountain West suggest that special consideration of this region may be needed if the ozone NAAQS is decreased to a value in the 60-70 ppbv range.” The report also noted that as the standard becomes more stringent and approaches the PRB, accurate specification of the PRB becomes increasingly important.<sup>3</sup>

The recent Chair of EPA’s Clean Air Science Advisory Committee, Dr. Jonathan Samet, has also noted the significance of EPA standards converging with background radiation:

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<sup>2</sup> Wang, Huiqun, et al., “Surface Ozone Background in the United States: Canadian and Mexican Pollution Influences,” *Atmospheric Environment*, Vol. 43, February 2009, p. 1310.

<sup>3</sup> Zhanga, Lin, et al., “Improved estimate of the policy-relevant background ozone in the United States using the GEOS-Chem global model with ½ x 2/3 horizontal resolution over North America,” *Atmospheric Environment*, Vol. 45, June 14, 2011. <http://acmg.seas.harvard.edu/publications/zhang2011.pdf>

Although health and welfare effects of ozone will occur regardless of the origin of the ozone (i.e., natural, U.S. anthropogenic emissions or internationally transported emissions), we note that as levels for ozone standards move closer to “background” levels, new issues may arise with implementation. As the Agency moves forward with the next ozone review cycle, it would be well advised to carefully consider any new monitoring and implementation issues that may arise, particularly as background levels vary throughout the country.<sup>4</sup>

### **The Role of CASAC**

As part of the Clean Air Act, Congress created an outside group of science advisors known as the Clean Air Science Advisory Committee (CASAC). Congress created CASAC back in 1977, when it enacted what has now been codified as section 109 of the Clean Air Act.

For many years, CASAC has largely just responded to questions posed by EPA staff. Congress, however, envisioned a broader role for CASAC and also gave CASAC a specific list of responsibilities. Unfortunately, CASAC has largely overlooked two things on this list.

Section 109(d)(2)(C) specifically states that CASAC “*shall*” (1) “advise the Administrator on the relative contribution to air pollution concentrations of natural as well as anthropogenic activity” and (2) “advise the Administrator of any adverse public health, welfare, social, economic, or energy effects which may result from various strategies for attainment and maintenance of such national ambient air quality standards.”

Some CASAC observers have downplayed the importance of these responsibilities, arguing that they are not relevant to the question of where the NAAQS should be set. But Congress clearly wanted CASAC to play a broader role than simply advising EPA on the level of the NAAQS.

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<sup>4</sup> Dr. Jonathan M. Samet, Chair, Clean Air Scientific Advisory Committee. Letter to Lisa Jackson. February 19, 2010.  
[http://yosemite.epa.gov/sab/sabproduct.nsf/610BB57CFAC8A41C852576CF007076BD/\\$File/EPA-CASAC-10-007-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/610BB57CFAC8A41C852576CF007076BD/$File/EPA-CASAC-10-007-unsigned.pdf)

Virtually everyone agrees that, in the effort to regulate ozone precursors, regulators have already picked most of the low-hanging fruit. And in many areas, regulators believe that they have picked essentially all the fruit that can be reached. Under these circumstances, it is important for CASAC to advise the Administrator – and through her, other policymakers – about “the relative contribution to [ozone] concentrations of natural as well as anthropogenic activity.” In considering the contribution from anthropogenic sources, CASAC should distinguish between (i) anthropogenic sources that are within the U.S. and therefore subject to control under the Clean Air Act and (ii) anthropogenic sources from outside the U.S., which are not. As a practical matter, the contribution from non-U.S. anthropogenic sources is essentially part of the uncontrollable background. Policymakers and regulators around the country need a valid source of information about background concentrations (attributable to both natural and non-U.S. anthropogenic sources) and the degree to which they effect the ability of certain areas to achieve the ozone NAAQS.

It is perhaps even more important for CASAC to advise the Administrator and other policymakers about the “adverse public health, welfare, social, economic, or energy effects which may result from” further efforts to reduce ozone formation. If, as most experts believe, the low hanging fruit has been picked, additional actions will be ever more costly in terms of the cost-per-unit of ozone reduced. CASAC clearly has a role in advising policymakers about the tradeoffs that we all face as our society spends more resources to achieve a goal that may not even be achievable in certain parts of the country.

### **Need for an Honest Evaluation of PM2.5 and Ozone**

Although EPA does not consider costs and benefits when setting the NAAQS (for ozone or any other pollutant), it does perform cost-benefit analyses of the NAAQS in order to provide such information to policymakers and the public. In recent years, however, these efforts have done little to provide meaningful information about the true costs and benefits of efforts to reduce public exposure to ozone. At the very least, it is puzzling to see that the benefits of lowering the ozone standard, according to EPA, come almost entirely from reducing concentrations of another pollutant known as PM2.5 (which stands for particulate matter less than 2.5 microns in diameter).

As others have noted, EPA’s statements on the health benefits of lowering the ozone NAAQS are misleading. The claimed health benefits have very little to

do with benefits of reducing exposure to ozone. In fact, all the analysis done by EPA and others shows that the cost to society of lowering the ozone standard will be higher than the health benefits of reducing public exposure to ozone. But EPA asserts that a lower ozone standard is justified on cost-benefit grounds because actions taken to meet a lower ozone standard will also have a side-benefit of reducing concentrations of PM2.5. And this side-benefit, according to EPA, is substantially greater than the benefit of reducing public exposure to ozone.

Perhaps even more troubling, EPA claims, in the context of ozone, that there are tremendous health benefits in reducing concentrations of PM2.5 below the level of the NAAQS for PM2.5. Thus, EPA goes through a public and scientific review process to set a PM2.5 standard at a level that is requisite to protect public health (including sensitive subpopulations) with an adequate margin of safety. Then, in the context of reviewing the ozone standard, EPA asserts that lowering the ozone standard will save thousands of lives by reducing PM2.5 concentrations in areas that are already below the PM2.5 NAAQS.

As others have pointed out, EPA has used the purported benefits of reducing PM2.5 to justify virtually all its regulatory actions over the last few years.<sup>5</sup> This approach makes a mockery of the standard-setting process and misleads the public and policymakers about the true costs and benefits of various Clean Air Act programs. Congress and CASAC should encourage EPA to conduct a more transparent and honest evaluation of the costs and benefits of reducing public exposure to ozone.

### **Background Ozone and the Rule of Law**

As noted above, EPA believes that the issue of background ozone is not relevant to the question of where the NAAQS should be set. This position is based on the Supreme Court's decision in *Whitman v. American Trucking*, 531 U.S. 457 (2001), which said (among other things) that EPA must set the NAAQS based purely on an assessment of health effects and without considering the cost of meeting any particular standard. Most surprising, the Court also suggested that EPA must set air quality standards without even

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<sup>5</sup> See Anne E. Smith, NERA Economic Consulting, Summary and Critique of the Benefits Estimates in the RIA for the Ozone NAAQS Reconsideration. July 22, 2011.

considering whether they are achievable. As a result, the Clean Air Act appears to give rather remarkable authority to EPA – the authority to impose legal obligations that are impossible to meet. To me, at least, this seems contrary to our long-standing notions about the rule of law.

To be fair, this issue has only arisen as background levels of ozone have continued to increase while EPA has simultaneously regulated ozone to lower and lower levels. Certainly, when the Clean Air Act was enacted back in 1970, and even when it was last amended in 1990, Congress did not appear to contemplate this issue – that background emissions would make it impossible for states to meet national ambient air quality standards. Perhaps it is time for Congress to consider this problem, but I recognize that it is perhaps beyond the purview of this Subcommittee.

I do believe, however, that this Subcommittee – and EPA’s Clean Air Science Advisory Committee – should take steps to ensure that this issue is fairly presented to policymakers and the public.