

Clean Air Scientific Advisory Committee Advice on the Ozone Standards



The Clean Air Scientific Advisory Committee (CASAC) provides independent advice to the EPA Administrator on the technical basis of the National Ambient Air Quality Standards (NAAQS). Section 109(d) (2) of the U.S. Clean Air Act (CAA) requires that an independent scientific review committee periodically review both the scientific criteria and the NAAQS and “recommend to the Administrator any new... standards and revisions of existing criteria and standards as may be appropriate.” Under CAA Section 108, these standards must “accurately reflect the latest scientific knowledge.” The CASAC is composed of seven members appointed by the EPA Administrator, but each NAAQS review is augmented with additional experts. The CASAC and panel include experts in health effects, ecological effects, air quality and risk assessment methods. The current Ozone Review Panel is composed of the seven CASAC members and 13 additional experts.

The NAAQS ozone review process was lengthy and multifaceted (see EPA Figure 1 on page 8) with significant CASAC involvement. CASAC’s review of the ozone criteria and standards spanned nearly five years, from 2009 to 2014, including numerous public meetings and delivery of 10 reports to the EPA Administrator. CASAC provided consultation on EPA’s Integrated Review Plan for how it would develop the Integrated Science Assessment (ISA) (Samet, 2009; EPA, 2011a) and on EPA’s Scope and Methods

Plan for the Risk and Exposure Assessments (REAs) for human health and public welfare (Samet, 2011; EPA, 2011b&c). CASAC conducted extensive reviews of the ISA, health and public welfare REAs, and Policy Assessment (PA) (EPA, 2013, 2014a,b&c).

In reviewing each assessment, CASAC held a public meeting announced in the *Federal Register*, during which there was opportunity for public comment. CASAC provided detailed review and advice to the Administrator regarding the first draft of the ISA (Samet, 2011b) and requested substantial revisions. Upon reviewing the second draft of the ISA in March 2012, CASAC requested a third draft (Samet, 2012). In November 2012, CASAC advised the Administrator that, with some revision, the third draft of the ISA “will serve as a scientifically sound foundation” for the remaining steps of the ozone NAAQS review process (Frey and Samet, 2012a). At that time, CASAC advised the Administrator that the first drafts of the REAs for human health and public welfare were “works in progress” in need of significant revision (Frey and Samet, 2012b), and that the first draft PA “needs substantial improvement” (Frey and Samet, 2012c).

In a series of letters to the Administrator in 2014, CASAC provided detailed review of the second drafts of the REAs for health and public

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welfare and of the PA (Frey, 2014a,b,c). Specifically, CASAC found that the health REA is “based on comprehensive analyses,” the welfare REA is “scientifically sound and appropriate for informing the analysis of important adverse impacts on public welfare,” and that the PA “is an excellent summary of information needed to judge the adequacy” of the current NAAQS for ozone, although CASAC advice differed from that of EPA staff regarding recommendations for public welfare and in some other specifics.

As required under the CAA, CASAC provided advice to the Administrator on the ozone NAAQS (Frey 2014c). With regard to the standard to protect human health, CASAC concluded that there is “adequate scientific evidence to recommend a range of levels for a revised primary ozone standard from 70 [parts per billion] ppb to 60 ppb.” CASAC advised that “based on the scientific evidence, a level of 70 ppb provides little margin of safety for the protection of public health, particularly for sensitive subpopulations” and further stated that “Although a level of 70 ppb is more protective of public health than the current standard, it may not meet the statutory requirement to protect public health with an adequate margin of safety.” Thus, CASAC advised the Administrator

“to set the level of the standard lower than 70 ppb within a range down to 60 ppb.”

CASAC also provided advice on revising the ozone NAAQS for public welfare effects. CASAC identified key types of damage to ecosystems from exposure to ozone, including “adverse welfare effects related to ecosystem services, food and fiber products from crops, and damage to resource use from foliar injury.” CASAC recommended that EPA adopt a new “biologically-relevant” form (known as “W126”) for estimating ecosystem exposure to ozone based on a typical plant growing season. The W126 form has units of parts per million (ppm) multiplied by time. CASAC recommended “that the level associated with this form be within the range of 7 ppm-hrs to 15 ppm-hrs.” CASAC favored a single-year period, based on the highest 3-month W126 value during the year, for determining the W126 value “to provide more protection for annual crops” and to protect against “cumulative effects on perennial species.” CASAC also communicated recommendations to the Administrator regarding research needs, international transport of ozone, a process for assessing adverse and beneficial impacts of standard implementation, and multipollutant approaches to air quality management. **em**

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and secondary ozone standards. For reference, the current (2008) primary and secondary ozone standards are set at a level of 0.075 parts per million (ppm; or 75 parts per billion [ppb]), measured as the annual fourth-highest daily maximum 8-hr concentration, averaged over three years.

Current Standard Not Requisite to Protect Health

For the primary health-based standard, the Administrator proposed that the current primary

ozone standard is not requisite to protect public health, including at-risk groups, with an adequate margin of safety. The Administrator proposed to retain the current averaging time and form of the standard (annual fourth-highest daily maximum 8-hr concentration, averaged over three years), but to revise the level within the range of 65 to 70 ppb. Recognizing that the CASAC recommended a range of levels from 60 to 70 ppb, the Administrator solicited comment on alternative standard levels below 65 ppb and as low as

