Responses of the American Forest & Paper Association and American Wood Counsel to Post-Hearing Questions for the Record from the House Committee on Energy and Commerce's Subcommittee on Environment Regarding the Hearing Entitled: "Short-Circuiting Progress: How the Clean Air Act Impacts Building Necessary Infrastructure and Onshoring American Innovation"

The Honorable Morgan Griffith (R-VA)

1. To what extent did the Canadian Wildfires from 2023-2024 impact national PM2.5 levels? The chart used by the minority does not include data from those years. To what extent where the wildfires a determinative event and why is it important to use current data when modeling the effect of the Biden-Harris PM2.5 rule?

The issue of wildfires impacting background levels of air quality is a very important issue for both designations and the permitting program. While we have not conducted any analysis of the 2023-24 Canadian Wildfires for PM ourselves, we are aware of other studies showing significant impacts for ozone.

Figure 3 from the paper shows the calculated enhancement in concentration (ozone on top, PM second from top) across the U.S. regions. In 2023, second from top, it indicates that wildfire smoke enhanced (increased) PM2.5 concentrations on average by 13.8 ug/m3 in the east, 11.7 ug/m3 in the central US, and 9.6 ug/m3 in the west on days when smoke was present.

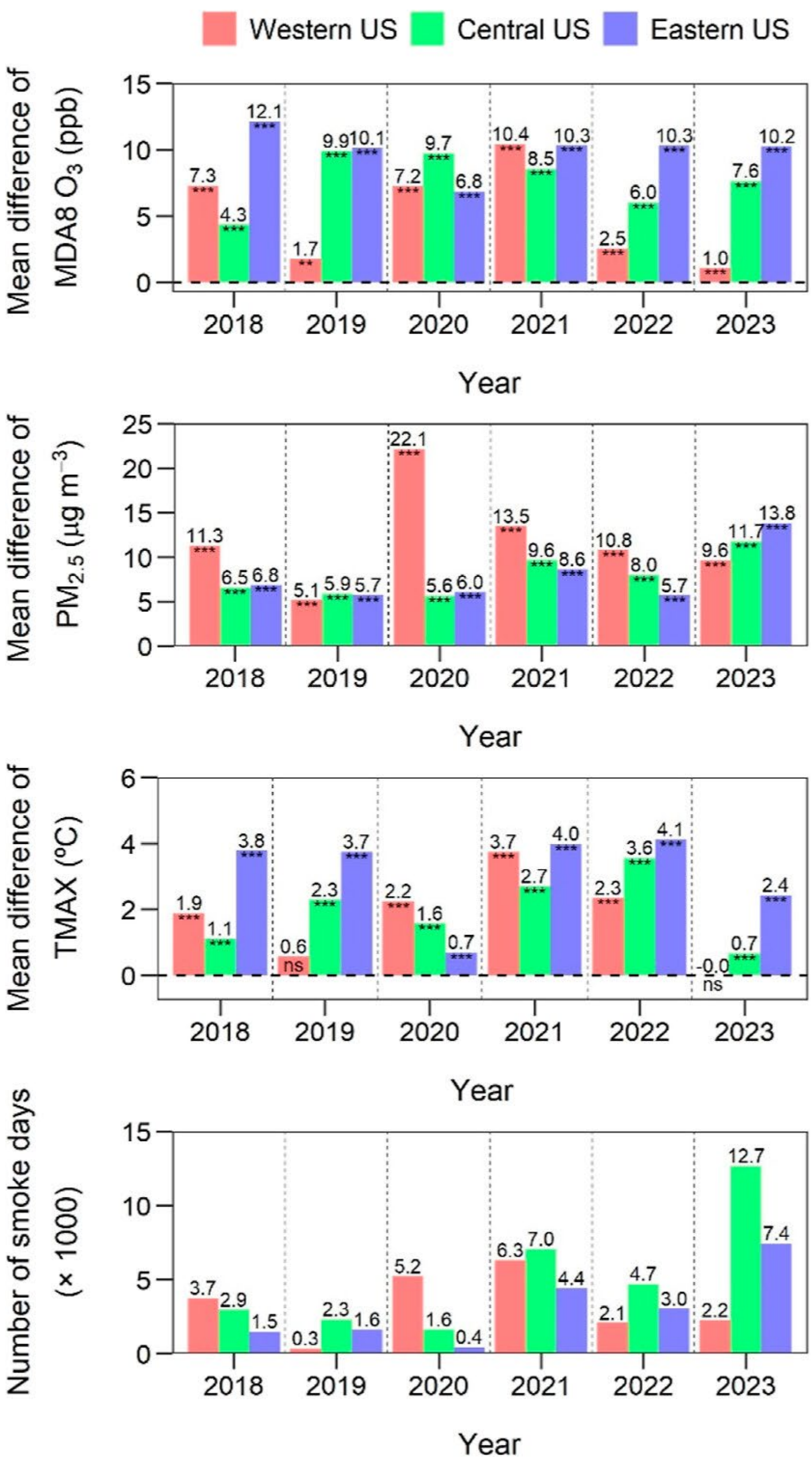
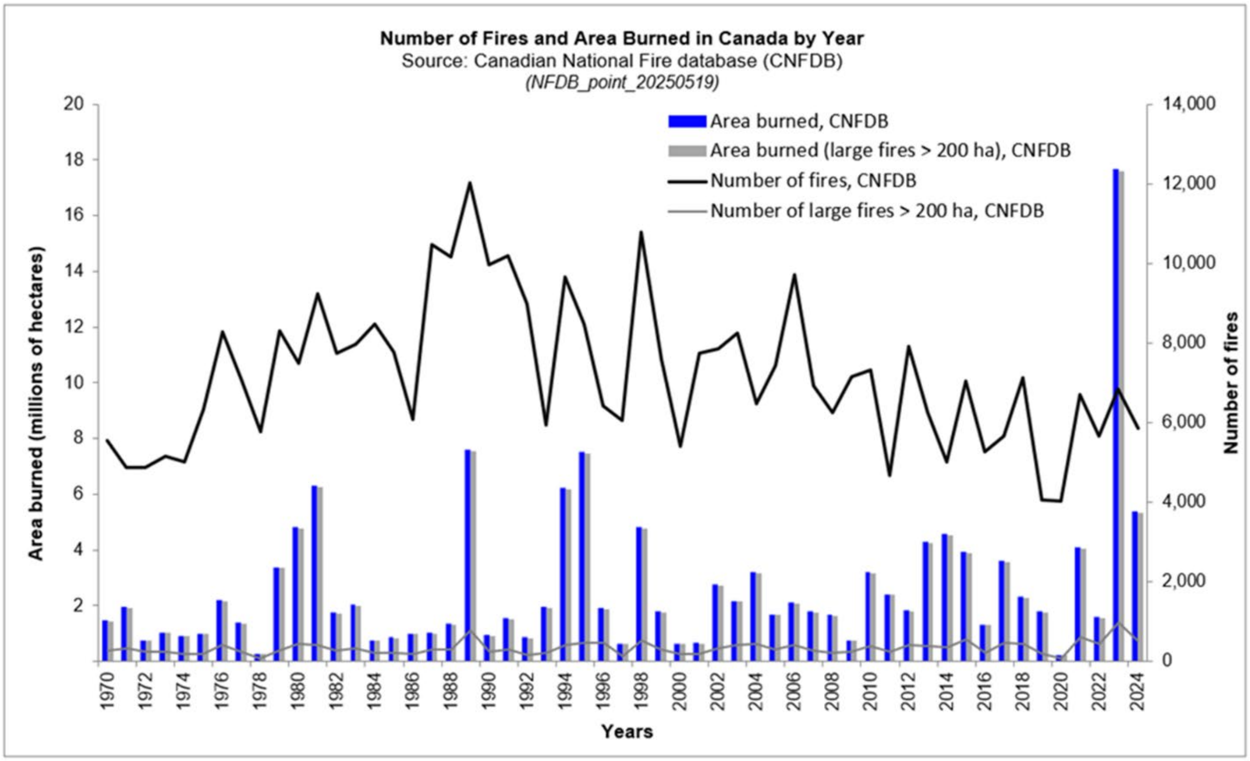


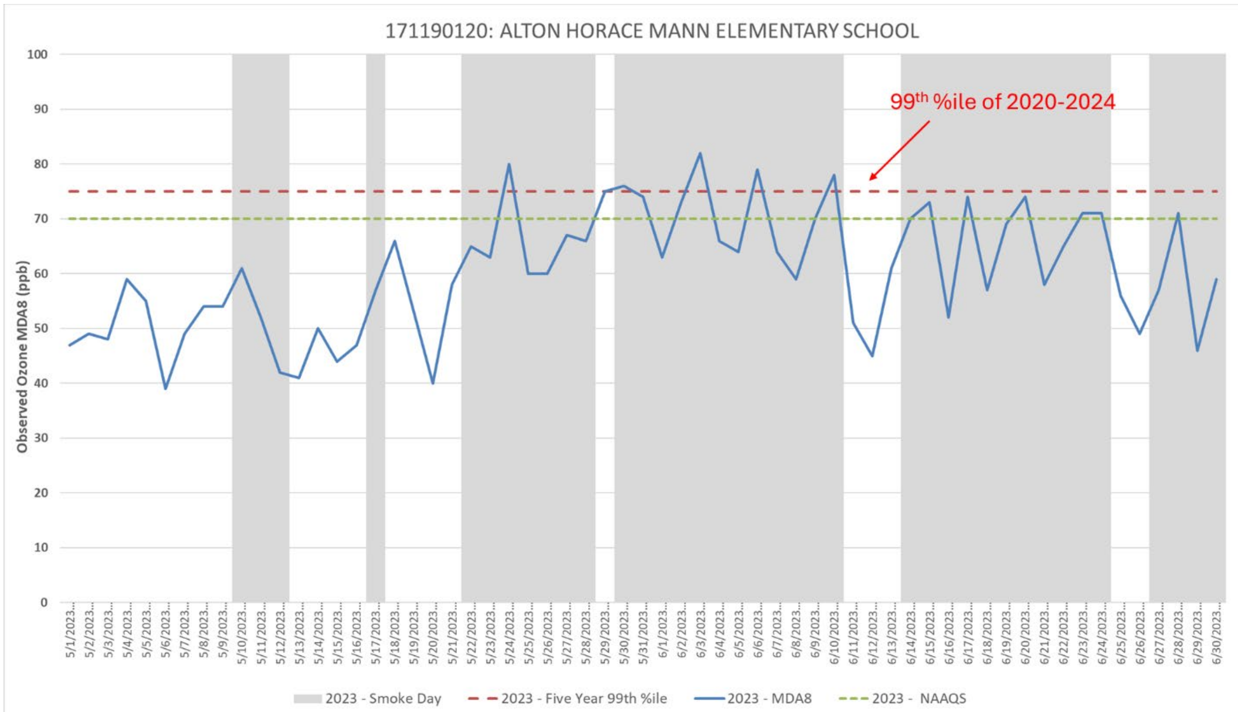
Figure 3. Mean difference between smoke and nonsmoke days (i.e., mean of smoke days − mean of nonsmoke days) for MDA8 O3 (ppb), PM2.5 (µgm−3), and TMAX (°C), as well as the number of smoke days across the Central, Eastern, and Western US over the years 2018 to 2023.

From work done by the Midwest Ozone Group, 2023 was an historic year for acres burned by wildfires in Canada; in fact, more than twice the number of annual acres burned in 2023 than in any year within the past 50 years.

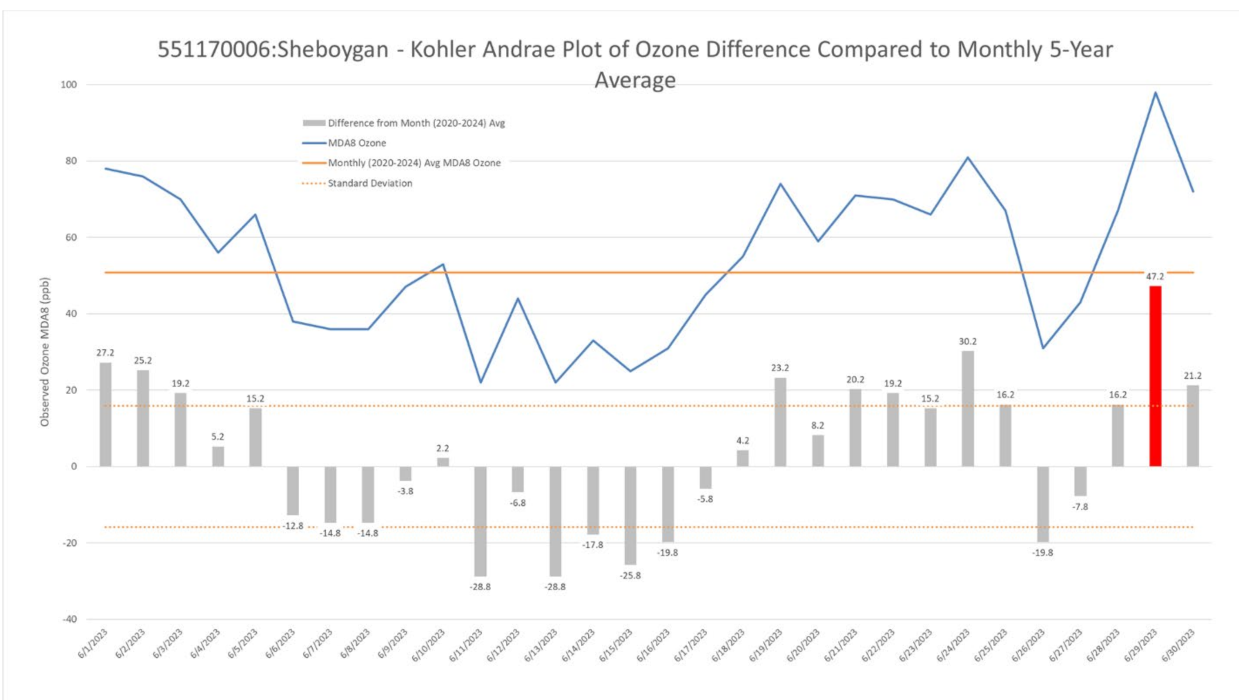


The impact of those fires on air quality in the United States, especially in the Midwest, was unprecedented during the episode. During the months of May and June, these events resulted in the highest regional scale surface level ozone levels ever recorded across the Northern U.S.

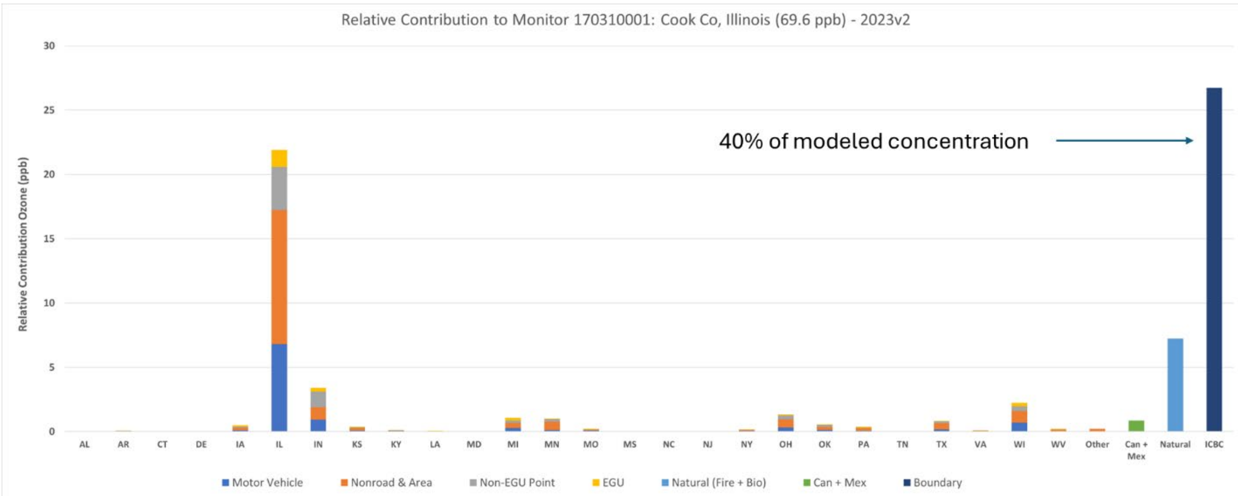
Investigation of monitor level MDA8 concentrations indicates that at many Region 5 monitors, as far north as Sheboygan and as far south as St. Louis, 40-50% or more of the 99th percentile dates of the past five years were observed.



Monitors have ozone observations in late May or June with values 35-50 ppb higher than monthly five-year averages at those locations.



When these dates are considered, and their ozone and PM2.5 wildfire smoke enhanced concentrations relevant to design values, nonattainment designations, background levels for PSD permitting, Good Neighbor SIP planning, and bump up considerations, it is hard to ignore their influence on regulatory actions in the region, regardless of state decisions to submit exceptional event demonstrations.



In sum, each year the role of wildfires varies and impacts different parts of the country depending on whether the fires in the West, Canada, eastern Canada as we say with the Quebec fires a few years ago, or even within eastern forested areas. Given how close the current PM NAAQS is to background, failing to exclude wildfire or even prescribed burn emissions elevates the background levels and restricts headroom. However, as discussed below, several other factors could be determinant in preventing a project from modeling below the NAAQS and getting the green light.

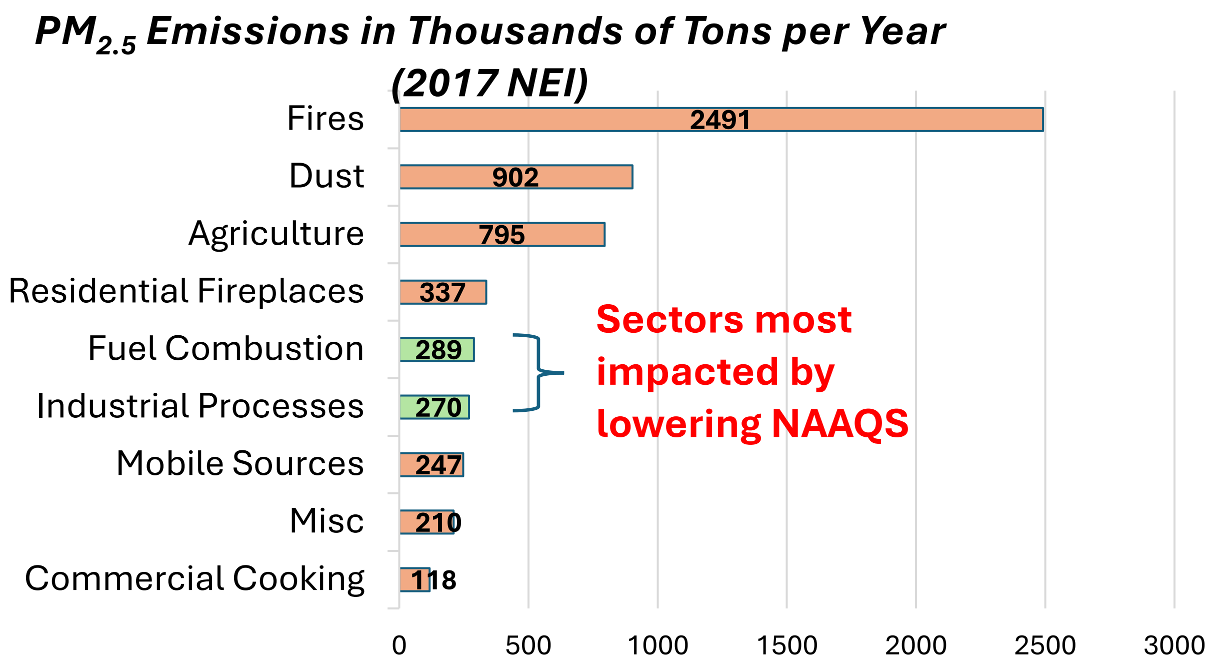
2. Some have criticized the headroom models as over predictive, do you agree with that assessment? Explain why or why not.

Yes, the modeling and assumptions that go into air permitting as part of the Prevention of Serious Deterioration (PSD) program are unnecessarily conservative and overstate the impacts of a new project or significant modification to an existing piece of equipment and do not provide any public health benefits.

It is important to note that there are two inextricably linked programs that are particularly relevant when a NAAQS is changed, and that both impact permitting but in different ways. The first is setting the standard "requisite to protect the public health" with an adequate margin of safety considering the quality of the studies and scientific uncertainties. The second program implicated when a NAAQS is lowered is permitting of new projects under EPA's air permit program, both for new "green field" facilities and for modifications to existing facilities. The PSD program is extraordinarily complex, requires installation of best available control technology, and especially relevant here, requires sources to conduct extensive assessments according to EPA policies and guidelines to determine if the project itself and the site's emissions combined with background concentrations exceed the NAAQS.

Without the type of improvements in the Committee' draft bill (such as matching the release of implementation guidance concurrently with any NAAQS change, and clearly excluding prescribed burns from designations and background calculations for permitting)-- some of which we believe EPA can currently do under their existing Clean Air Act authority -- overly conservative modeling analysis can lead to unverifiable and nonexistent concentration estimates that cause costly changes or cancellations of beneficial projects, even though real-world exposure of the general public at these locations is minimal, improbable, or practically impossible. Public health is still protected with these reforms and improvements while allowing beneficial projects and economic growth to continue.

In addition, the new PM2.5 NAAQS continues to place the preponderance of the burden on a small portion (see chart below, 16%) of overall emissions by focusing on traditional stationary sources, which have been regulated by the NAAQS program for decades (see chart below). The program will not achieve its goals to protect public health unless efforts are made to look at all sources and come up with innovative and cost-effective ways to achieve the standards. For example, wildfires are more than 40% of the total PM emissions nationwide. The forest products industry already manages its private forestlands in a way that mitigates wildfire risks and avoids emissions of PM2.5 that might otherwise occur, but Federal land management could do better at mitigating wildfires. Thus, simply issuing any new NAAQS without a workable, comprehensive implementation plan/strategy creates a false sense of progress when far larger sources remain unaddressed.



Furthermore, the potential economic impacts of an inefficient permitting program are very real and potentially staggering. The lost opportunity costs from cancelled projects are hard to measure because those projects do not see the light of day and end up on the cutting room floor when a company tries to model compliance with the new standard and fails. The ultimate reality is that energy efficiency and modernization projects that could reduce actual emissions, including greenhouse gases, are thwarted by how PSD is implemented.

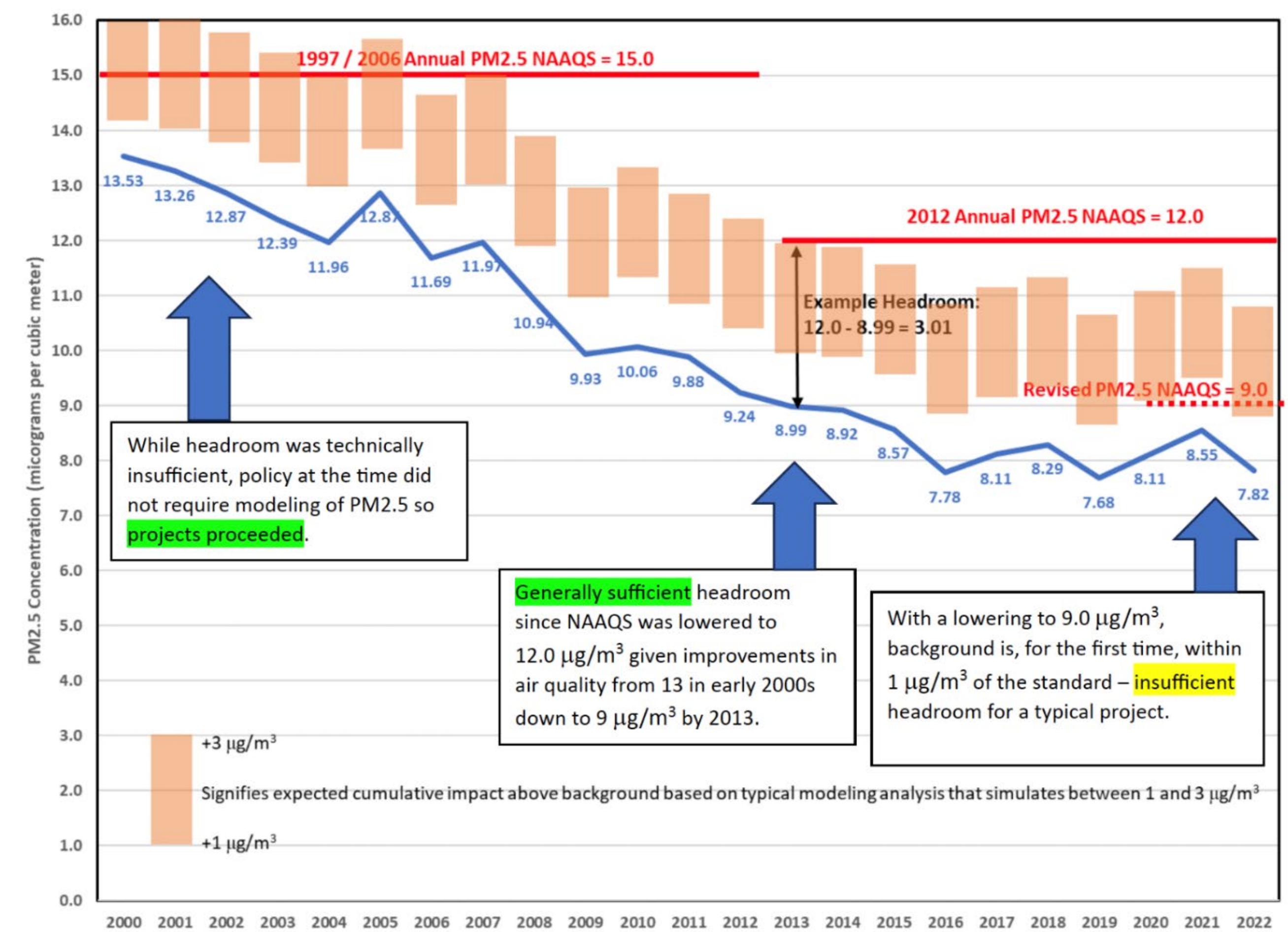
Another important factor in lack of permitting headroom is how background levels are overestimated, stealing valuable headroom that might otherwise allow a project to get approved.

Let's look at how the PM NAAQS evolved over time. First, looking back to when the original 15.0 mg/m^3 PM2.5 NAAQS was established in 1997, headroom constraints were not an issue because EPA implemented the PM10 Surrogacy Policy in recognition of insufficient techniques for source testing and permit modeling, so applicants were not required to model relative to the PM2.5 NAAQS to get permits. And back then, and most of the time since then until recently, no one had to add secondary PM2.5 from precursor NOx and SO_2 emissions (which adds to a project's total) or model minor sources or modifications of direct PM2.5 emissions when NOx and/or SO2 emissions were major or increased significantly. Finally, at the urging of stakeholders, EPA improved the scientific basis of certain elements of the regulatory air dispersion model to be more realistic (e.g., the LOWWIND/ADJ_U* changes and the horizontal/obstructed point source plume rise algorithms). In a sense, that expanded the headroom since projects modeled with lower impacts.

Second, in 2012-2013, when the PM standard was last lowered from 15.0 mg/m^3 to 12.0 ug/m^3, the mean U.S. background concentrations (based on EPA trends data) was above 9 ug/m^3, so the headroom shrank from greater than 5 mg/m^3 to about 3 mg/m^3. The lowering presented permitting challenges depending on location and size and type of project. The typical modeled impact of a facility with a well-controlled project that triggers PSD review and a NAAQS analysis comes out between 1 and 3 mg/m^3, which is verified by a review of three dozen recent PSD projects that needed an average of 2.6 ug/m^3 of headroom (See circle chart below). Since the PM2.5 NAAQS was last lowered, the headroom has improved only slightly (roughly 1 mg/m^3) as air quality improvements have leveled off (see figure 1 below); or even risen slightly, which coincides with the time more biased FEMs were deployed. While the 12.0 $\mu g/m^3$ standard posed challenges for permitting projects, it pales in comparison to what U.S. manufacturers face now.

When EPA lowered the PM NAAQS from 12.0 mg/m^3 to 9.0 mg/m^3 average U.S. ambient background remains close to 8 mg/m^3. Thus, the average headroom is just 1 mg/m^3, which is far less than the 3 mg/m^3 needed for a typical facility with a PSD project. ***Headroom of 1 $\mu g/m^3$ is far less than ever before, and threatens many beneficial modernization projects of U.S. manufacturers***.

Figure 1. Depiction of U.S. nationwide annual average mean PM2.5 concentration as measured at 361 trends sites relative to effective annual NAAQS. EPA, Particulate Matter (PM2.5) Trends (https://www.epa.gov/air-trends/particulate-matter-pm25-trends).



Since there is a general tendency to focus on non-attainment areas when a new NAAQS is set, it is important to focus instead on the cleaner areas that meet the NAAQS but still face significant permitting challenges. To understand the potential impacts of a tighter PM NAAQS, in 2023 we hired Alpine Geophysics, experts in air quality modeling and very familiar with EPA's emissions databases, to analyze data from EPA's and state regulatory agencies' ambient monitoring networks to develop the maps on behalf of AF&PA, AWC and others (the maps shown in the hearing room. Alpine calculated background PM2.5 concentrations in non-monitored counties using geospatial statistical interpolation ("geospatial statistical interpolation ("kriging") that "fills-in" PM2.5 estimates for locations between monitors.[1] Kriging is a spatial interpolation

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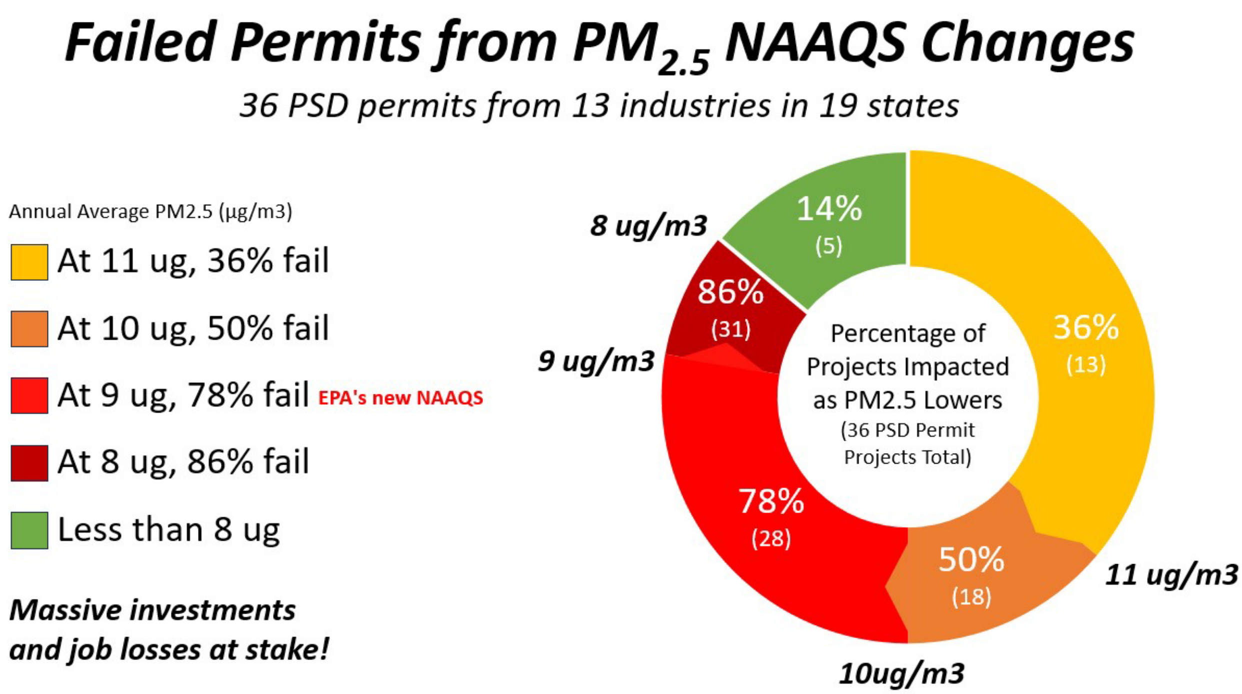
[1] Kriging is a method of statistical analysis that uses a limited set of sampled data points to estimate the value of a variable over a continuous spatial field.

method that is intended to take a series of points and create a continuous surface (i.e., interpolate the space between the points so that the user can obtain a value at any location).

More importantly, we analyzed three dozen recent PSD projects across a dozen manufacturing industries in nineteen states that were approved under the past standard of 12.0 ug/m3. ***Shockingly, we found that 78% of those manufacturing modernization projects would have failed at the new PM NAAQS standard of 9.0 µg/m^3*** (see circle chart below). In addition, we found that the average annual modeled design concentration (MDC) to be 2.6 mg/m^3. Half of the projects' MDCs reviewed fell between 1.5 and 3.6 ug/m^3. MDC is computed by AERMOD (i.e., the average 5-year annual mean concentration) to simulate cumulative impacts from the applicant facility and nearby sources. It includes secondary PM2.5 screening concentrations from PM precursor emissions of NOx and SO_2 estimated using EPA's Modelled Emission Rates for Precursors (MERPs) and related guidance. This supports the premise that an average PSD project would need about 3 mg/m^3 of headroom to get permitted using existing permitting techniques.



Given the consistent results of modeling analyses used for permitting new projects, it is evident that the lower PM2.5 NAAQS would stifle growth because well-controlled projects would not be able to demonstrate cumulative PM2.5 impacts using current permitting policies and modeling techniques. Despite EPA's claims that it was able to "ensure a smooth transition to the new permitting requirements and to enable NSR permitting to continue without significant disruption"[2] when the PM2.5 NAAQS was last lowered to 12.0 μg/m[3] in 2012, there remain deficiencies with key analytical tools (i.e., source testing methods) and opportunities to improve prescriptions for regulatory modeling that are amplified by the recent NAAQS revision.

3. To what extent is reformation needed in the NAAQS modeling process? Are current models overconservative?

As described above, there are many modeling challenges, but fortunately, there are also readily available solutions that could modernize the approaches to be more realistic and still be protective of public health.

AF&PA, AWC and other industries have been presenting our ideas for modernizing EPA's permitting program for over a decade to EPA. The approaches recommended highlight where the permitting program has diverged from reflecting real world conditions by ignoring true air quality impacts. We recommend that the bill language be amended to direct EPA to solve these key problems and ensure these solutions become part of any future NAAQS implementation plan.

A. Using Modern, Statistical Tools

First, for almost a decade, EPA has recognized that modern, statistical tools known as probabilistic risk assessment (or PRA)[3] are widely available to robustly account for variability and uncertainty in modeling and decision-making. This paradigm is used for other EPA programs, but not PSD permitting. Currently, projects must assume multiple worst-case scenarios that unrealistically estimate impacts beyond what would happen in the environment. For example, maximum emissions rates from multiple emission units operating simultaneously are assumed to occur continuously and added together. Our colleagues at the National Council for Air and Stream Improvement (Zach Emerson and Tanvir Khan) have been exploring how emissions variability can be used as part of the air modeling process and offer a framework for improvements (see article in Air and Waste Management Associations' July 2025 issue).

In addition, the public's likelihood and duration of exposure is not assessed, but rather, points near facility fence lines, where people do not reside or spend significant time, are simulated as

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[2] EPA Fact Sheet: "Implementing the Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter – Clean Air Act Permitting, Air Quality Designations, and State Planning Requirements," February 7, 2024. (https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-implementation-fact-sheet.pdf)

[3] Risk Assessment Forum White Paper: Probabilistic Risk Assessment Methods and Case Studies, EPA/100/R-14/004 July 2014; https://www.epa.gov/osa/risk-assessment-forum-white-paper-probabilistic-risk-assessment-methods-and-case-studies

[6] https://www.regulations.gov/document/OMB-2025-0003-0001

receptors. These "receptors" for PSD modeling may be in a swamp or river, or on railroads or highways where exposures are very short, if they ever occur at all, and in the absence of other substantial risks to human health and welfare. We suggest this impact demonstration point not be tied to the current interpretation of "ambient air" near facility fence lines but consider where people live and work rather than arbitrary points on a map focused on hypothetical individual exposures that are not relevant to the purpose of the Clean Air Act's mandate to protect public health to the general population and subpopulations.

These two changes alone would allow more projects to get PSD permits, create manufacturing jobs in the U.S. while still protecting public health.

B. Improving Background Estimation and Monitors

Second, certain prevalent ambient air monitors using Federal Equivalent Methods (FEMs) measuring background concentrations, the starting point for assessing available "headroom," are known to over-estimate levels by as much as 3 mg/m^3 (Timothy Hunt's September 19, 2023 written testimony before this Committee has a sample bar chart with emissions relative to design value, see page 27)). EPA has acknowledged this FEM bias, and last year made some corrections by updating monitoring data[4] which helps states to make adjustments prior to non-attainment designations. However, there remains biases in this data due to the influence of temperature and humidity that should be accounted for. Until this correction is implemented, facilities need to determine background when doing PSD modeling for the new NAAQS using a case-by-case analysis subject to additional, longer review. In addition, more monitors could be deployed in more areas to better measure background levels, especially in the rural areas where forest product mills are located.

C. Adjustments to Background Due to High Concentration Events

Third, separate from the need to expeditiously exclude wildfires and prescribed burns as exceptional events during nonattainment designations, states and permit applicants also should be able to exclude the added emissions from these events from background monitors used in PSD assessments. Some states are already doing this on a case-by-case basis, such as Georgia, and EPA certainly could promote it more, particularly with state permitting authorities. An explicit recognition in the bill would leave no doubt for states and permittees that this is a technically sound and encouraged practice.

In section 3(C) ("Regional Analysis"), the bill also gives more responsibility to EPA to conduct modeling and analysis to support the case for identifying exceptional events that should be excluded. We support this language too, but the bill should make clear that these "exceptional

[4] https://www.epa.gov/aqs/aqs-memos-monitoring-and-policy

events" or high concentration situations should also be excluded from background levels for PSD purposes. Allowing the use of better monitoring data that determines the all-important background starting point for PSD permitting could help reduce permitting gridlock.

D. More Realistic Emissions Estimates

Finally, there is strong evidence that current methods are over-predicting PM emissions from wet stacks and condensables from sources with sulfur dioxide and ammonia. Last year, EPA published new guidance making a partial correction to the method but it was insufficient and failed to account for new scientific information. When small amounts of modeled PM can determine if a project will "pass" or "fail," EPA needs to move forward with an additional correction.

Much of the PM2.5 emissions data for fugitive sources is suspect, either because there is little data, the test methods are challenging to implement, or available estimation techniques and/or emission factors are of limited applicability as they were developed for aggregate piles and are not directly applicable to many types of forest products industry sources. Until such time that EPA can complete AERMOD validation studies and emissions data are improved, EPA should issue guidance that indicates modeling analyses may exclude fugitive emission sources where PM2.5 emissions can reasonably be expected to be small based on available emission estimates and facilities have implemented best practices around road traffic and material handling and storage. Some states have this type of guidance already.

Turning back to the House bill which will facilitate the use of prescribed burns and help mitigate catastrophic wildfires that emit far more PM. Section 3 of the bill on "Exceptional Events" makes clear that emissions from prescribed burns to mitigate wildfire risks can be excluded from non-attainment designations like wildfires. The contribution from prescribed burns to background concentrations could be an impediment to permitting, including in attainment areas, so allowing their exclusion from background helps projects proceed while allowing and perhaps encouraging an important forest management tool. In addition, the bill streamlines the process for EPA to grant exceptional events which should help the permitting process by reducing the number of non-attainment areas.