Written Testimony of Paul Noe for American Forest & Paper Association and American Wood Council before the House Committee on Energy and Commerce, Subcommittee on Environment, Hearing on "Short-Circuiting Progress: How the Clean Air Act Impacts Building Necessary Infrastructure and Onshoring American Innovation" (June 11, 2025)

Chairs Griffith and Guthrie, Ranking Members Tonko and Pallone, and distinguished members of the Committee, my name is Paul Noe, and I am representing the American Forest & Paper Association and the American Wood Council. Thank you for the opportunity to be heard on our concerns about EPA's National Ambient Air Quality Standards (NAAQS) program. We appreciate the Committee's draft bills to modernize and improve the NAAQS permit program, which is urgently needed.

I. Background

The American Forest & Paper Association (AF&PA) represents manufacturers of paper products made in the USA. Paper products support sustainable living. Paper mills support the American workforce, produce carbon-neutral bioenergy, and support recycling.

The American Wood Council (AWC) represents 86 percent of the structural wood products industry. From dimension lumber to engineered wood products, we champion the development of data, technology, and standards to ensure the best use of wood products and recognition of their unique sustainability and carbon-reduction benefits.

Together, our forest products industry directly employs more than 925,000 people and is among the top 10 manufacturing sector employers in 44 states, accounting for 4.7% of total U.S. manufacturing GDP. The industry supports 1.63 million additional jobs across its suppliers and in local communities, many of which are in rural America.

AF&PA's sustainability initiative — *Better Practices, Better Planet 2030* — comprises one of the most extensive quantifiable sets of sustainability goals for a U.S. manufacturing industry and is the latest example of our members' proactive commitment to the long-term success of our industry, our communities and our environment. We have long been responsible stewards of our planet's resources. AF&PA is pleased to report that our members have made substantial progress reducing their emissions. This includes cutting their emissions of sulfur dioxide by 85% and nitrogen oxide by about 45% since 2000.[1] Both are precursors to criteria pollutants (PM and ozone) regulated under the NAAQS program.

Forest products support sustainable living. Paper and wood products mills support the American workforce. When industry workers spend their earnings on goods and services in their local communities, it stimulates additional economic activity and employment. And the paper and wood products industry works every day to be a good neighbor in communities large and small.

Additionally, the U.S. wood products industry is uniquely situated to help meet the needs of our nation's housing. Most single-family homes are built with wood, and a growing number of developers are turning to innovative wood products like mass timber for workforce and affordable housing projects. The products made by U.S. wood manufacturing facilities support the significant need for housing in our country. When houses are not being built, rural communities suffer, manufacturing slows and local economies waver.

Our goal is sustainable regulation which stands the test of time. Sustainable regulations must satisfy legal requirements and support environmental and economic needs as well as social expectations. This is consistent with the dual purposes of the Clean Air Act to protect and enhance air quality so as to promote public health and welfare, as well as the productive capacity of our nation.[2]

[1] https://www.afandpa.org/priorities/energy-environment

[2] *See* Clean Air Act, Section 101(b)(1).

II. The Compelling Need to Reform the NAAQS Rulemaking Process

Unfortunately, the NAAQS program is not working – starting with its failure to align workable implementation plans with any lowering of a NAAQS. As discussed in Section IV, there are two parts to the clean air programs that focus on criteria air pollutants subject to NAAQS. The process of setting the standard, and the permitting program, which we have identified for decades as a barrier to innovation and accomplishing relatively little in the way of public health benefits. There are many other components of the Clean Air Act that set requirements to directly reduce emissions without throwing up complex procedural provisions like the Prevention of Significant Deterioration (PSD) and New Source Review (NSR) permit programs.

A Snapshot on Permit Gridlock from the 2024 PM NAAQS

It was generally understood that the 2024 PM NAAQS rule would result in many more ***non-attainment*** areas in the U.S., where economic development would be impeded. But the permit gridlock problem did not end there. There is an additional permit gridlock problem that was largely unrecognized and is even more concerning for the pulp, paper and wood products industries. Specifically, setting the standard so close to background levels means that – ***even in cleaner attainment areas*** where our mills typically are located – there would not be sufficient "permit headroom" (the difference between the standard and the background PM level) to obtain a permit. This **widespread *permit gridlock*** not only threatens many modernization projects in the forest products industry and many other industries; it ultimately threatens U.S. competitiveness and high-paying jobs, largely in rural communities across the country that especially need those jobs. And the rule does not address the far larger sources of particulate matter.

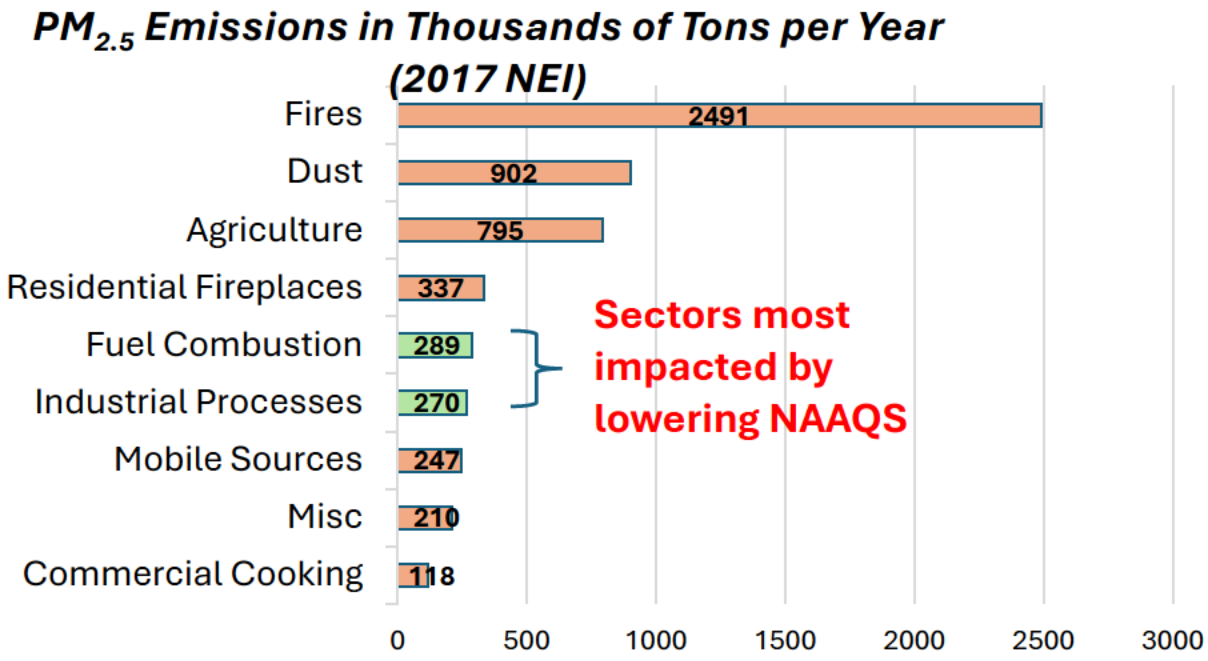
To visualize this permit gridlock problem, see our colored map on p. 18, where the red areas are the non-attainment areas that cannot meet the standard of 9 ug/m3, but the much larger pink areas are those that are in attainment but which practically now lack sufficient "permit headroom" to get an air permit for modernization projects. To validate this permit gridlock concern, an audit was conducted for 36 actual projects in various industries, including our own, that had been approved at the former 12 ug/m3 standard. ***Stunningly, 78% of those projects would have flunked at the current standard of 9 ug/m3*** (see circle chart on p. 19, and the dots on the colored map at p. 18).

We must modernize the statute to continue the essential effort to protect public health while recognizing the huge progress the country has made in improving air quality over the decades. This can be accomplished through common-sense adjustments to the law – and the discussion draft bills being considered by this Committee include many improvements to the NAAQS program.

Provide a Workable Implementation Plan When Lowering the NAAQS Standard

Section 2(e) of the Clean Air and Building Infrastructure Improvement Act bill ("Timely Issuance of Implementing Regulation and Guidance") appropriately links any change in the NAAQS with issuance of a workable plan for how it will be implemented by states, and as importantly, for obligations of regulated sources. As the standards have been lowered, and emission reductions have occurred, the "low hanging fruit" of easily controlled stationary sources are largely gone because most new and existing sources are already well-controlled. Non-traditional sources of pollution such as wildfires (the largest source of PM), dust, and even international transport have become larger percentages of the remaining emissions profile– and are harder to address and develop appropriate policy responses. PM2.5 emissions from industrial sources account for just 16% of the total inventory given reductions that have occurred over the last several decades. Wildfires, road dust and even residential fireplaces are each larger contributors than either industrial sources or energy combustion (see table below).

As a result, EPA needs to develop not just a traditional implementation plan to guide the designation process for states, but also a plan that includes updated tools and policies for the broader permitting program to ensure that both public health is protected and economic viability is sustained to support U.S. manufacturing and the innovation and high-paying jobs it provides.



Consider Attainability When Reviewing the NAAQS

Section 2(b) of the CLEAR Act bill states "The Administrator may, as a secondary consideration in establishing and revising the national ambient air quality standard for such air pollutant, consider likely attainability of the standard", which recognizes the importance of attainability when setting a NAAQS, especially in how it is implemented. For example, if modernization projects that would reduce emissions per ton of production are thwarted, and the public health objectives of the law are harmed, and carbon reduction targets set elsewhere compromised, then EPA should be able to adjust its policies and permitting tools to allow these types of win-win projects to proceed. These projects could be replacing older pulp mill process equipment nearing the end of their life, such as lime kilns or power boilers, with new modern equipment that is much more efficient. A project may be a new lumber mill expanding the production of carbon-storing , wood construction materials that helps support affordable housing. And as markets change, converting a newsprint mill to make tissue paper or containerboard. Again, using more realistic assumptions as discussed below maintains health protection while embracing economic opportunities, innovation, and job growth.

Longer Timeframe for Reviewing the NAAQS

Section 2 of the CLEAR Act bill ("Facilitating State Implementation of National Ambient Air Quality Standards) includes a provision in Section 2(a) that adjusts the frequency of

mandated NAAQS reviews from five to ten years. This would provide important regulatory certainty throughout the permitting process that helps with business planning and investment essential for both the competitiveness and environmental progress of U.S. manufacturing.

It is important to bear in mind that the NAAQS program is extremely complex and extensive -- there are six NAAQS standards that cover particulate matter, ozone, nitrogen oxides, sulfur dioxide, carbon monoxide and lead. And several standards have multiple forms to protect both short- and long-term exposures, as well as consideration of public welfare and environmental impacts. Under the current five-year cycle, at least one NAAQS is up for review each year on average. This makes it very hard for manufacturers, who must plan to be in compliance, to anticipate the regulatory landscape for operating our facilities across the country.

In addition, this not only makes EPA's job very hard; it makes it very challenging for States who must implement the program. It is not typical that major changes in the underlying science occur rapidly, and EPA commonly is very challenged to meet the current five-year review cycle. All of that means a lot of effort and resources wasted -- on process, litigation, and regulatory uncertainty -- rather than making progress on air quality.

Timeframes give states and sources, including non-traditional sources, the time it will take to achieve further air quality improvements given the increasing costs and difficulty in finding the necessary reductions to get areas into attainment and further reduce background concentrations of the critical air pollutants. Some states have supported the ten-year timeframe in the past. (*See, e.g.*, testimony of Sean Alteri, Director of the Kentucky Division of Air Quality, before this Committee on March 22, 2016). EPA and interest groups agreed to a ten-year schedule for making sulfur dioxide designations when EPA reviewed that NAAQS in 2010.

And, of course, if significant new health evidence were to emerge before the 10-year review deadline, ***EPA could always start its review cycle sooner. The way the draft legislation appears in our reading indicates that nothing in the proposed legislation would prevent any earlier reviews deemed necessary***. Again, if you look at the history of the PM NAAQS, EPA regulations have struggled to keep pace with the 5-year cycle and

can extend closer to 10 years. Finally, this provision may mitigate the filing of lawsuits against EPA when it fails to meet a deadline for the review of a NAAQS and allow the Agency to control its regulatory workload in a more coherent manner. The end result would still be improving air quality while growing our economy and enhancing our quality of life.

Treating Fires as Exceptional Events

Section 3 of the CLEAR Act Discussion Draft would provide clarity and legal certainty to EPA's Exceptional Events program. This would help prevent and reduce the growing risks of wildfires, which are by far the largest source of PM – roughly 450% larger than the PM most impacted by the NAAQS. EPA has acknowledged the trend in PM emissions from wildfires and the need for prescribed burns, an important part of healthy forest management. When it released its PM NAAQS rule on February 7, 2024, EPA stated in an accompanying Fact Sheet on "Wildland Fire, Air Quality, and Public Health Consideration":

> "Wildfires have been growing in size and severity, with millions of people at risk from wildfire and wildfire smoke. The wildfire crisis is a public health crisis, including significant impacts on air quality. As wildfires increase in size and severity, the related public health impacts, including from smoke exposure, will continue to grow. At the same time, increasing the application of prescribed fire in a strategic and coordinated manner is needed to mitigate the risk and adverse effects of high severity wildfire and future smoke exposure."

While Clean Air Act Section 319 addresses exceptional events, there have been concerns about whether the statute clearly protects actions to mitigate wildfire risk, i.e., prescribed burns (*See* letter to EPA from Standford Researchers commenting on the proposed PM NAAQS (March 28, 2023), and letter from the California Congressional Delegation to EPA Administrator Regan (June 13, 2023)). For example, Section 319 defines exceptional events as "not reasonably controllable or preventable." Section 2(i)(2)(E) of the Committee's draft bill would make clear that exceptional events include prescribed burns by adding a separate category of coverage ("Actions to Mitigate Wildfires"), undertaken in accordance with State approved practices.

III. Suggestions for Additional NAAQS Reforms

AF&PA, AWC and other industries have been working hard and presenting our ideas for modernizing EPA's permitting program for over a decade. For example, about a decade ago, in 2014, we assembled an extensive analysis highlighting problems with the PSD and NSR programs and, more importantly, outlined specific actions EPA could take to address the problems. Let us summarize just a few examples for permitting improvements that we have presented to the Agency then, again on December 21, 2023 in the comments of the NAAQS Regulatory Review and Rulemaking (NR3) Coalition[3] on EPA's proposed rule on "Guideline on Air Quality Models; Enhancements to the AERMOD Dispersion Modeling System"[4] and as recently as our December 5, 2024 letter to incoming President Trump and comments submitted to the OMB Request For Information[6] on May 12, 2025. These documents highlight some of the key areas 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 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)[5] 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. 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

[3] https://www.regulations.gov/comment/EPA-HQ-OAR-2022-0872-0034

[4] See 88 Fed. Reg. 72,826 (Oct. 23, 2023)

[5] 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

simulated as 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 to 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 that are not relevant to the purpose of 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 2 $\mu g/m^3$ (Timothy Hunt's September 19, 2023 written testimony has a sample bar chart with emissions relative to design value)). EPA has acknowledged this FEM bias, and last year made some corrections by updating monitoring data[6] 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, and EPA certainly could promote it much more, particularly with state permitting authorities. An explicit recognition in the bill would leave no doubt for states and permittees that this is an allowed and encouraged practice.

In section 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 events" or high concentration situations should also be excluded from background levels for PSD purposes. Even a few days (5 to 10) of high PM levels

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

(>100 μg/m^3) as we saw last year along the East Coast and in the Midwest or West and again this year, can raise the annual average for a monitor by 1 or 3 μg/m^3 and inappropriately shrink permit headroom. Allowing the use of better monitoring data that determine 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. For example, the National Council for Air and Stream Improvement (NCASI) has a Cooperative Research And Development Agreement (CRADA) with EPA to explore measurement bias in EPA's Test Method 202. The research, which has been presented to EPA and subsequently independently confirmed by their own studies, has found that up to 80% of measured condensable PM can be attributed to measurement bias due to the formation of ammonium sulfate when running Method 202 on sources with sulfur dioxide and ammonia, common in combustion sources.[7] Last year, EPA published new guidance making a partial correction to the method but it was insufficient and failed to account for this 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. Similarly, available technical information can be leveraged to estimate fine PM from wet stacks, rather than assuming all PM is fine PM, which can lead to gross overestimations of emissions and impacts.

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. Air permits do not require testing of most area and fugitive sources (roads, woodyard operations, material handling, paper machines, or plywood presses for example). In addition, we are not aware of any work that has been done to validate the EPA dispersion model's performance modeling of fugitive emissions sources, especially in the near field. Where emissions are not released through a stack, they are not easily quantifiable. and assumptions must be made with respect to emission rates and release characteristics. Our experience indicates that often the modeled impact for fugitive

[7] See NCASI Tech Bulletin 1079.

sources is disproportionate to the expected emissions (their emissions are small but their impact on model results can be large, especially where PM2.5 emissions are assumed equal to PM10 emissions). Modeling PM2.5 emissions from offsite fugitive sources is often challenging because these sources are often grouped or otherwise not well described in the permit.

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.

These and other improvements and implementation fixes should already have been in place before the recent NAAQS revision, and need to happen quickly now regardless of whether the 2024 NAAQS is maintained or adjusted. .

IV. The Impending Permit Gridlock Crisis

A. Background

It is important to note that there are two inextricably linked programs that are particularly relevant when a NAAQS is changed. 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. In a reconsideration of a standard (which includes the new PM NAAQS), as distinct from a normal statutorily-mandated five-year review, EPA can weigh implementation challenges and costs on whether it conducts such a review ahead of schedule. 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 (separate from the process of states and EPA designating areas for attainment or non-attainment). 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.

B. The Need for Reform

Without the type of improvements in the Committee' draft bill -- 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.

The new PM2.5 NAAQS continues to place the preponderance of the burden on a small portion (16%) of overall emissions by focusing on traditional stationary sources, which have been regulated by the NAAQS program for decades. 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, and we all have experienced their impact on air quality in the West, and last year especially, in the East. The California Air Resource Board has quantified the amount of PM coming from wildfires, and the amounts are staggering – in California alone, CARB estimated 380,000 short tons of PM2.5 on average (1,181 thousand short tons of PM2.5 from the 2020 fires alone)[8][1]. To put that into context, these California wildfires are equivalent to 10 times (or 1000% of) the forest product industry's total 2020 PM2.5 emissions[9]. ***And looking nationwide, wildfires resulted in 1,700,000 tons of PM2.5 in 2020, and compared to total forest product industry's emissions (40,672 tons), that is a ratio of 42 to 1 (or 4,200%) higher***. If emission reduction strategies can reduce just a few wildfires or reduce the number of acres burned on Federal lands, it would result in greater air quality improvements than focusing on sources that have already reduced emissions. 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. 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 are very real and potentially staggering. The lost opportunity costs from cancelled projects are hard to measure because those

[8]

[9] https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data

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 hard truth is that the full impact is unknowable: We never see the jobs never created, the manufacturing facilities never built, the American products never made, or the innovative ideas drowned in a sea of red tape. In addition, for those projects that might theoretically proceed, we estimate that the capital costs of the 2024 PM NAAQS would be on the order of $3 billion to $4 billion to the industry for installing measures to help lower modeling estimates that may in fact have small public health benefits[10]. With a standard at 9.0 ug/m^3, the permit challenges are widespread, as we estimated in 2023 that 88% of pulp and paper mills will be in areas with less than 3 ug/m^3 of headroom; in other words, in areas with background concentration of 6 ug/m3 or more. For the wood products industry, 97% of wood products mills fall in areas with less than 3 μg/m^3 of headroom. 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, and this will be amplified given the much lower standard.

C. Headroom is More Limited Today Than in the Past

Since the PM2.5 NAAQS was signed, many observers, including EPA, have countered industry's claim that the lower standard will have severe impacts are exaggerated. They note that industry has made claims of economic hardship in the past, yet the economy continues to grow. These comments miss a critical point of why the PM2.5 NAAQS rule, coupled with a permit program that is not working, will cause permit gridlock. Let's look at how the PM NAAQS evolved over time.

First, looking back to when the original 15.0 μg/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

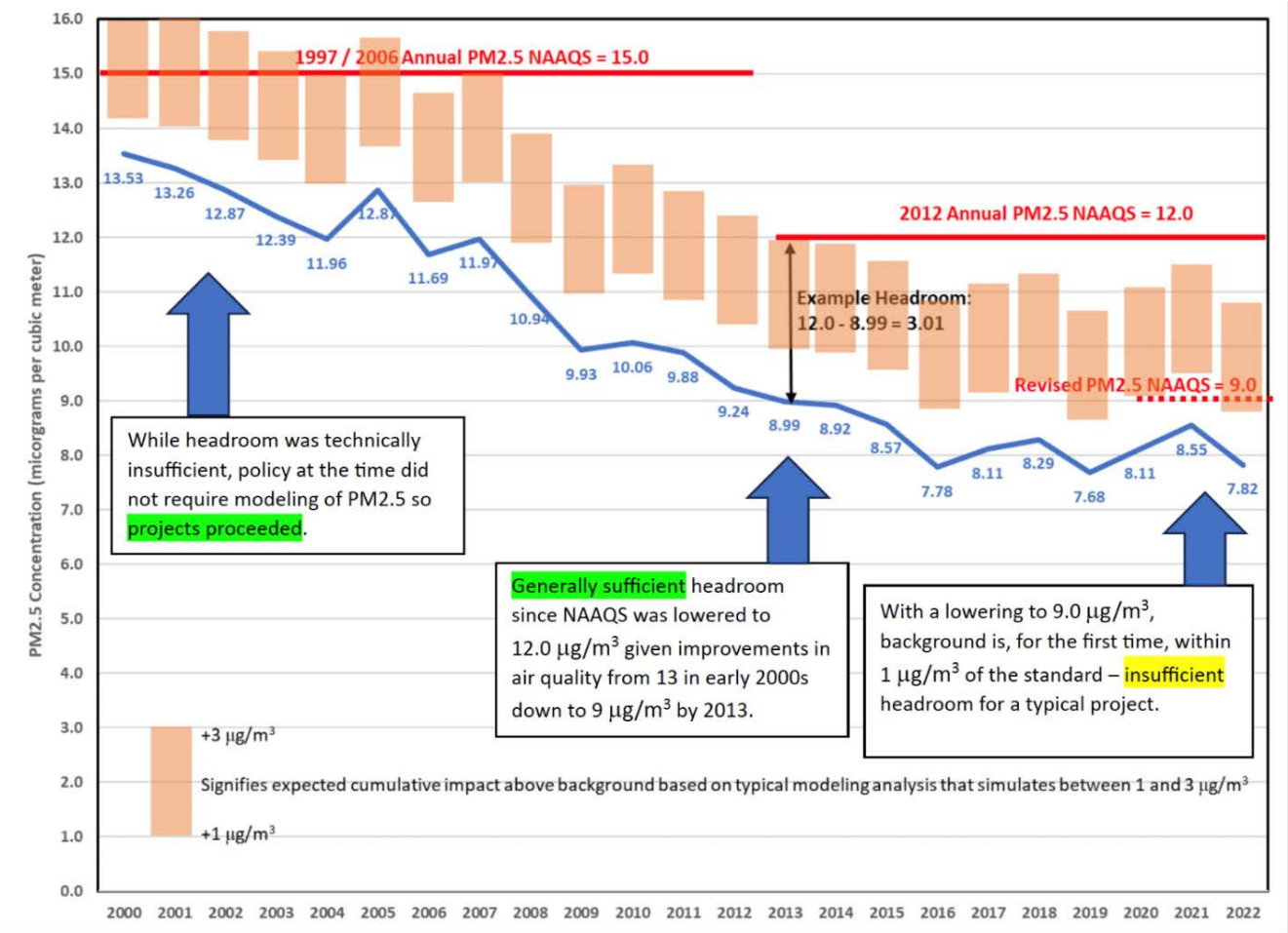
[10] See Attachment 2 to comments of the NAAQS regulatory Review & Rulemaking Coalition on EPA's Reconsideration of the National Ambient Air Quality Standard for Particulate Matter

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 $\mu g/m^3$ 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 $\mu g/m^3$ to about 3 $\mu g/m^3$. The lowering presented permitting challenges depending on location and size and type of project. Although the representative background concentration for any particular project is estimated based on local conditions, the average background concentration helps track air quality trends and whether typical projects will have enough headroom (i.e., difference between NAAQS and background) to get permitted. 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 $\mu g/m^3$, which is verified by a review of three dozen recent PSD projects that needed an average of 2.6 ug/m^3 of headroom. Since the PM2.5 NAAQS was last lowered, the headroom has improved only slightly (roughly 1 $\mu g/m^3$) as air quality improvements have leveled off (see figure 1 below on page 15); 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.

On February 7, 2024, EPA lowered the PM NAAQS from 12.0 $\mu g/m^3$ to 9.0 $\mu g/m^3$, when average U.S. ambient background remains close to 8 $\mu g/m^3$. Thus, the average headroom is just 1 $\mu g/m^3$, which is far less than the 3 $\mu g/m^3$ 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).



D. Permit Gridlock From the New PM2.5 NAAQS Even in Attainment Areas

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 used maximum $PM_{2.5}$ Design Values (DVs) from 2020-2022[11] (the most recent data at the time) for each monitored county in the United States. Alpine calculated background PM2.5 concentrations in non-monitored counties using

[11] https://www.afandpa.org/news/2023/why-epa-should-not-finalize-particulate-matter-naaqs-standard

geospatial statistical interpolation ("kriging") that "fills-in" PM2.5 estimates for locations between monitors.[12] Kriging is a spatial interpolation 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). The method originated in the geological sciences as a way to interpolate soil/mining samples for mineral exploration. It is now broadly used in the spatial sciences across disciplines, such as interpolating groundwater contamination based on sample wells. EPA has acknowledged the value of kriging to reliably estimate air pollution concentrations in unmonitored locations for use in modeling PM2.5 attainment demonstrations.[13] Some states also allow kriging to estimate background design values for projects when monitors are not nearby.[14] [15]

In our maps, the five closest monitored values are used to estimate non-monitored county values using the inverse-distance weighted averaging method. Five monitors were used as a reasonable proxy for surrounding air quality. To validate these assumptions, we found 28 recent PSD projects that were permitted in 18 states across a dozen sectors where the facility's' modeled concentrations exceeded 9 ug/m^3 and found that the actual background levels used for those detailed modeling analyses generally align with the values projected by Alpine. Two thirds of the projects were within 1 μg/m^3 of the mapped background concentration, with 17 mapped values higher than the background used for the project, 10 lower than the background used for the project and one the same. For the purposes of this general analysis, counties were used as the relevant geographical parameter since finer scales were not needed.

Let's focus first on the pink areas on the map, which are the areas that will be in attainment but still have very limited headroom to allow new or expansion projects to proceed. Due to EPA's discretionary practice), sources in attainment areas are immediately subject to use of the lower NAAQS in PSD permitting which occurred in May 2024. While EPA has the legal authority to align the effective date for use of the lower NAAQS in permitting with the much longer timeframes for designating non-attainment areas and for states to submit infrastructure SIPs, EPA chose not to set a more

[12] 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.
[13] https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB2005103146.xhtml)
[14] https://www.oregon.gov/deq/aq/cao/Documents/CAORP-AirQualityModeling.pdf
[15] https://idahodeq.maps.arcgis.com/apps/MapSeries/index.html?appid=0c8a006e11fe4ec5939804b873098dfe

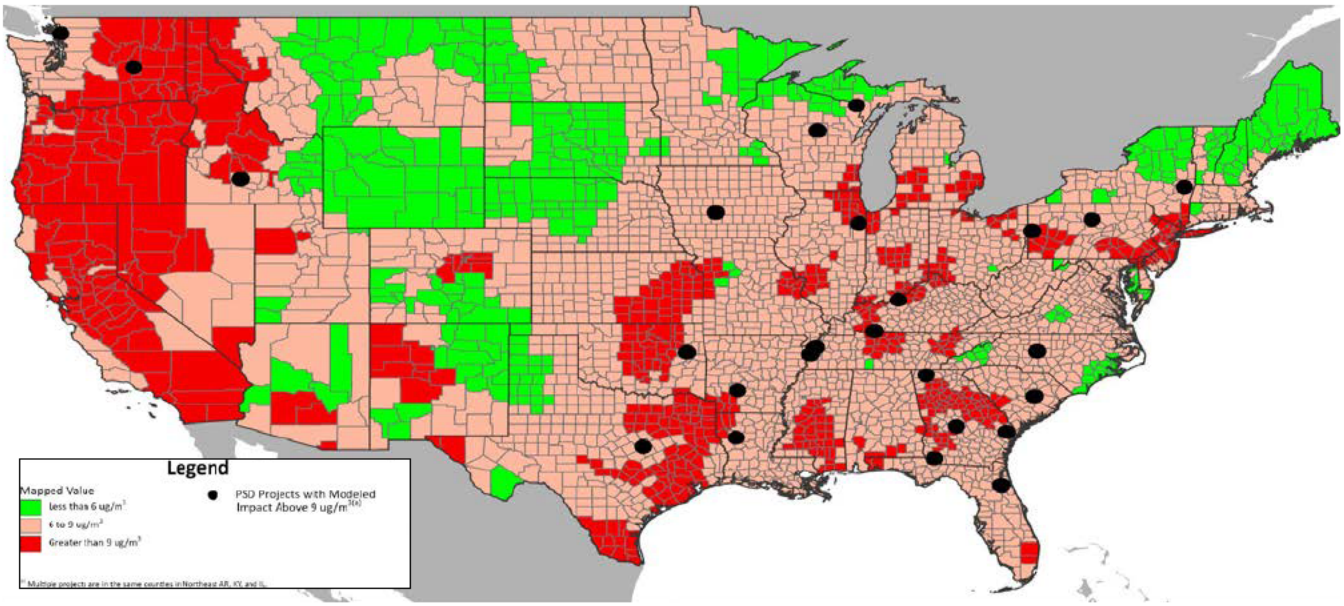
reasonable schedule of 3 years hence. And adjusting the effective date is not "grandfathering" so is consistent with current case law. A 3-year effective date would have provided time for EPA to reform its outdated and unrealistic permit program to avoid permit gridlock under the stringent new PM2.5 standard .

All too many new or expanded manufacturing projects that trigger PSD will be blocked as it becomes economically infeasible or technically unachievable to build in the pink areas of the map using 2020-22 design values (more recent map provided by the U.S. Chamber for this hearing use the same method as described above and show very similar results from the analysis done two years ago). The average national background level for PM2.5 is around 8 $\mu g/m^3$. Accordingly, with the standard at 9.0 $\mu g/m^3$, even areas with background as low as 6 $\mu g/m^3$ will <u>not</u> have enough "headroom" to accommodate the ambient concentration conservatively simulated for the project and facility (typically, up to 3 $\mu g/m^3$). The number of projected non-attainment counties and those with insufficient headroom (less than 3 ug/m^3) using the 2020 to 2022 data are shown in the following table.

NAAQS Level	**Nonattainment Counties (Red)**	**Counties with < 3 $\mu g/m^3$ (Pink)**	**Counties with >= 3 $\mu g/m^3$ (Green)**
12	31 (1%)	553 (18%)	2,559 (81%)
11	82 (3%)	1,238 (39%)	1,823 (58%)
10	218 (7%)	2,001 (64%)	924 (29%)
9	584 (19%)	**2,204 (70%)**	355 (11%)
All	3,143	3,143	3,143

Many Future New or Expanded Manufacturing Projects Unachievable in Red and Pink Areas Immediately

Includes Location of 28 Recent PSD Projects That Would Now Fail Under the 9.0 µg/m³ $PM_{2.5}$ NAAQS



Map shows the interpolated $PM_{2.5}$ annual design values for 2020-2022 by county Each county with a monitor was included and the counties were designated as above or below the $PM_{2.5}$ NAAQS of 9 ug/m³ If a design value was not available for a specific county, Alpine Geophysics used a kriging interpolation method to estimat e the $PM_{2.5}$ concentration in a county Counties with values less than 6 ug/m³ are highlighted in green because a typical project needs 3 ug/m ³ of headroom between the background and the NAAQS to allow for a successful modeling demonstration

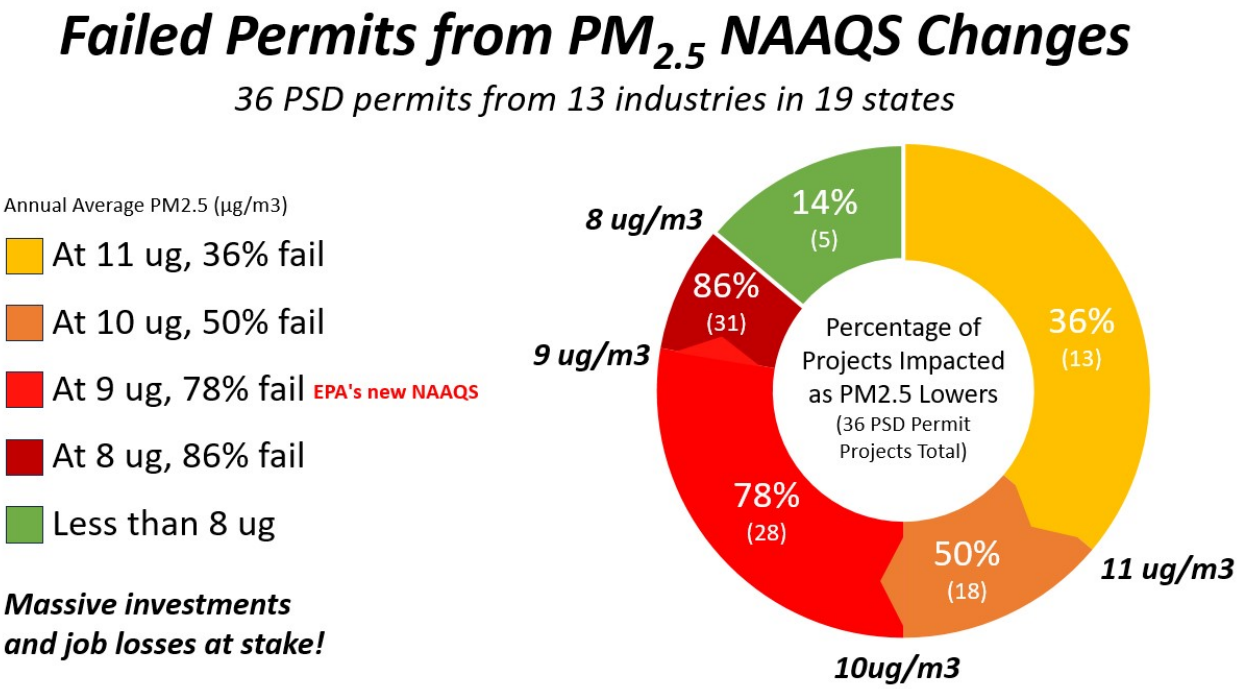
Lowering the NAAQS could stifle mill modernization projects -- projects that would otherwise reduce emissions while keeping the U.S. forest products industry globally competitive and supporting high-paying jobs, often in small, rural communities that particularly need economic opportunity.

E. Why Does a Typical PSD Project Need 3 µg/m³ of Headroom?

To determine the headroom typically required by forest products facilities, AF&PA/AWC reviewed several recent permit applications for both greenfield facilities and modifications to existing facilities. For example, a permit application for a state of the art, greenfield pulp and paper mill was submitted in the southern U.S in 2018. The modeling submitted with the air permit application indicates that the facility's PM2.5 emissions consumed approximately 3 µg/m^3 of headroom. This mill ultimately was not constructed, but it was to be located on a large property in flat terrain, equipped with state-of-the-art PM emissions controls, and have exhaust stacks sized to optimize dispersion. Other recent air permit applications for eight pulp and paper mills that triggered PSD review required between 0.9 to 5.7 µg/m^3 of headroom, with an average of 3.5 µg/m^3 (six of the eight paper mill projects recently permitted are above 3.0 µg/m^3).

Recent air permit applications for wood products mills that triggered PSD review and modeling for PM2.5 required up to 3 μg/m^3 of headroom to accommodate the mill's PM2.5 emissions.

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 μg/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 μg/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"[16] 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. Because there are no changes to these permitting policies concurrent with the effective date just 60 days from the imminent final rule publication, there is every expectation that similar projects cannot be permitted.

V. How the PM NAAQS Experience Demonstrates the Need for Reform

A. The Urgent Need for Sustainable Regulation

Our goal is sustainable regulation that will stand the test of time. Sustainable regulation must satisfy legal requirements and meet environmental and economic needs as well as social expectations. This is consistent with the dual purposes of the Clean Air Act to protect and enhance air quality so as to promote public health and welfare and the productive capacity of our nation.[17] The paper industry has invested in important improvements to air quality and has reduced its SO_2 emissions by more than 80% and nitrogen oxides (NOx) emissions by about 50% since 2000[18]; both are precursors to fine particulate matter. Unfortunately, we do not think that the PM2.5 NAAQS meets the goal for sustainable regulation since EPA failed to include a workable permitting path to achieve better air quality and job creation.

Historically, AF&PA and AWC have had a very good working relationship with EPA. We appreciate when the Agency recognizes that, to achieve emissions reductions, EPA does the very important work to write the rules, but the regulated community does the important work to invest and achieve reduced the emissions. Sometimes, however, rules do not meet the legal or scientific standards necessary for a sustainable rule. Thus, in

[16] 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)

[17] *See* Clean Air Act, Section 101(b)(1).

[18] https://www.afandpa.org/priorities/energy-environment

the case of the 2024 PM NAAQS tightening, we are pleased that EPA Administrator Zeldin has made it a priority to revisit that hasty rulemaking to ensure it comports with the Clean Air Act and the best science. He has also noted the importance of a functioning permitting program and making improvements which we wholeheartedly support.

> *"The EPA's commitment to permit reform cannot be overstated. By cutting through redtape and resolving the backlog of state and tribal implementation plans, we are creating an environment where businesses can thrive and infrastructure can be built."* [19]

We all benefit when EPA crafts achievable rules that are based on the best available evidence and can be successfully implemented. For example, during the Obama Administration, EPA proposed an unachievable Boiler MACT rule, but EPA engaged stakeholders and carefully considered the data we developed and shared. The final rule was stringent and cost our industry alone over a billion dollars, but we defended EPA's rule in court. Ultimately, our industry could comply and go on to compete in our highly competitive global marketplace. And among other things, the Boiler MACT rule led to major reductions in PM, NOx and SO_2 emissions, as well as hazardous air pollutants.

B. **EPA's Air Permit Program is Not Working**

Unfortunately, EPA's PSD program is an outdated and inefficient regulatory approach that currently just doesn't work very well. For existing sources in areas meeting air quality standards, so-called attainment areas, EPA's policy[20] -- reflected yet again in the March 2024 final PM2.5 NAAQS rule -- is that the NAAQS was effective for PSD permitting last May. EPA was quite clear on this point, stating in the PM2.5 NAAQS preamble: "At the effective date, all applicants for permits to construct a new major source or major modification of an existing stationary source will need to conduct an air quality analysis that considers the revised PM2.5 NAAQS." This means the new lower standard must be considered immediately when undertaking a major facility modification -- even before EPA has formally designated which areas are above or below the new or revised standard.

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[19] Wall Street Journal, Opinion, March 12, 2025 by Lee Zeldin:" EPA Ends the Green New Deal"

[20] Page, Stephen (EPA OAQPS): "Applicability of the Federal Prevention of Significant Deterioration Permit Requirements to New and Revised National Ambient Air Quality Standards," April 1, 2010. https://www.epa.gov/sites/default/files/2015-07/documents/psdnaaqs.pdf.

It wasn't enough that EPA lowered the standard close to average ambient background levels; the Agency without any notice also lowered the Significant Impact Level (SIL).[21] The SIL trigger for cumulative modeling was 0.3 $\mu g/m^3$, (or 0.2 $\mu g/m^3$ depending on the state), and EPA has lowered the SIL to 0.15 $\mu g/m^3$, so modeling for new projects would be more or less automatic given the very small value. The PM2.5 SILs are very specifically NOT associated with the value of the NAAQS, unlike the other SILs. They were calculated by analyzing all of the monitor data in the U.S. to determine what change in ambient concentrations would be greater than the noise, or variability of measuring or monitoring natural background. Since changing the NAAQS doesn't change that evaluation, there are no statistical grounds for EPA's change to the SIL.

One perverse outcome of the SIL change is that a major source will not be able to do even a small PSD project (or perhaps the project would be significantly delayed) that only has a 0.15 $\mu g/m^3$ impact if it is in a county that will become non-attainment under the new standard. They are subject to PSD because the attainment designations have not been made yet, so they are in a county designated attainment. However, since background is already greater than the revised standard, there is no headroom for the smallest of projects. Once the county is designated non-attainment, the project would be subject to the Non-attainment New Source Review program (NNSR), and only then might a permit be obtained so the project could proceed.

Further reducing the SIL makes permitting any project of any size that much more difficult. And to make matters worse, projects that trigger PSD review for SO_2 or NO_X are also required to model PM2.5 even if the project does not have a significant net emissions increase of PM2.5. With a further reduced SIL, the odds increase of even a small amount of fugitive PM2.5 near the fence line triggering cumulative PM2.5 modeling for sources, even when emission inventories are lacking or permits only include PM10 limits for such small sources of PM2.5 emissions. Finally, legal challenges often arise when the amount of headroom between the ambient background and the NAAQS is less than the SIL, leading to delays and unnecessary court costs.

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[21] "*Additionally, in light of this NAAQS revision, the EPA is updating its guidance that provides recommended significant impact levels (SILs) for PM2.5 and expects that an updated SIL for the revised primary annual PM2.5 NAAQS will be available on or before the effective date of the final NAAQS.*" *See p*age 598 of 715 of the signed rule at https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-final-frn-pre-publication.pdf

Some states also require NAAQS modeling for minor NSR projects that increase emissions or for permit renewals. If a facility wants to permit a minor project with a PM2.5 emissions increase that is above modeling exemption levels but below the PSD significant emissions rate, it will be challenged to do so if the background value is greater than 9 μg/m3 but the area is designated as attainment. The only way the project will proceed is if the project emissions increases can model below the SIL, which will be even more difficult if EPA lowers the SIL.

VI. Conclusion

American forest products companies are trying to modernize, grow, and produce products from renewable and recyclable products that our customers demand, but are impeded even in attainment areas with cleaner air. Meanwhile, non-attainment areas with dirtier air will not see significant restrictions for several more years -- and as much as a decade later. It doesn't make sense to discourage upgrading plants already subject to a myriad of other regulatory requirements, or to block beneficial projects already using best controls, simply due to unrealistic air quality modeling and assumptions. Our country has made great strides in improving air quality, largely under other programs, and not PSD.

Our shared goal should be sustainable regulation – regulation that addresses environmental, health and economic needs. This requires bipartisan work. We must keep and create sustainable manufacturing jobs in America – they are critical now and for our country's future success. There is no better place for a robust manufacturing sector than the United States, which has highly productive workers, creative entrepreneurs and innovators, abundant resources, a strong free-market democracy, and regulatory agencies capable of leading the world on sustainable regulation.

Thank you for the opportunity to share our views.