

# Environmental Law Institute: *Analyzing EPA's New Soot Exposure Standard*

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March 15, 2024

## OVERVIEW -

# Final Rule to Strengthen the National Ambient Air Quality Standards for Particulate Matter (Feb. 7, 2024)

- ▶ Particle or soot pollution is one of the most dangerous forms of air pollution.
- ▶ Extensive science links soot exposure to harmful cardiovascular effects, including heart attacks and strokes, as well as harmful respiratory effects, including asthma attacks.
- ▶ In Executive Order 13990, President Biden directed EPA to review the previous administration's decision to retain the 2012 standards.
- ▶ After considering the scientific evidence, advice from the Clean Air Scientific Advisory Committee (CASAC), and nearly 700,000 public comments, EPA decided to strengthen the annual health-based standard for fine particles (PM<sub>2.5</sub>) to 9.0 µg/m<sup>3</sup>.

## Main Elements of the PM NAAQS Final Rule

- ▶ Strengthens the **level** of the primary (health-based) annual standard for PM<sub>2.5</sub> to 9.0 µg/m<sup>3</sup>.
  - ▶ The CASAC reached consensus that the primary annual PM<sub>2.5</sub> standard should be revised, with the majority recommending revision to a level between 8-10 µg/m<sup>3</sup>.
- ▶ Retains **all other PM standards**:
  - ▶ Primary and secondary 24-hour PM<sub>2.5</sub> standards
  - ▶ Primary and secondary 24-hour PM<sub>10</sub> standards
  - ▶ Secondary annual PM<sub>2.5</sub> standard
- ▶ Changes the monitoring network to enhance protection of air quality in communities overburdened by air pollution.
- ▶ Revises the Air Quality Index (AQI) to improve public communications about the risks from PM<sub>2.5</sub> exposures.

# Summary of 2020 and 2024 Actions

Standards – Last Revised in the 2012 Review*					Decisions in 2020 Review	2024 Final Decision
Indicator	Averaging Time	Primary/ Secondary	Level	Form		
PM <sub>2.5</sub>	Annual	Primary	12.0 µg/m <sup>3</sup>	Annual arithmetic mean, averaged over 3 years	Retained	Revise level to 9.0 µg/m <sup>3</sup>
		Secondary	15.0 µg/m <sup>3</sup>		Retained	Retain
	24-hour	Primary and Secondary	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years	Retained	Retain
PM <sub>10</sub>	24-hour	Primary and Secondary	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over a 3-year period	Retained	Retain

\* PM NAAQS were first established in 1971 (total suspended particulate - TSP) and then reviewed and revised in 1987 (set PM<sub>10</sub>), 1997 (set PM<sub>2.5</sub>), and 2006 (revised PM<sub>2.5</sub>, PM<sub>10</sub>), as well as 2012.

# Factors Environmental Justice into the Siting of PM<sub>2.5</sub> Monitors

- ▶ To enhance protections for overburdened communities, the final rule modifies the PM<sub>2.5</sub> monitoring network design criteria to include an EJ factor.
- ▶ This factor will account for the proximity of at-risk populations to air pollution sources of concern (e.g., major ports, rail yards, airports, or industrial areas).
- ▶ In recognition of resource constraints, this network design change does not require addition of new monitors, it just ensures at-risk communities are considered when new sites are added, or when existing sites are moved.

# Existing PM<sub>2.5</sub> Monitoring Network



## Updates to the Air Quality Index (AQI)

- EPA's AQI is the tool States and local governments use to inform the public about air quality and recommend steps individuals can take to reduce exposure.
- The AQI converts  $PM_{2.5}$  concentrations to a number from 0 to 500

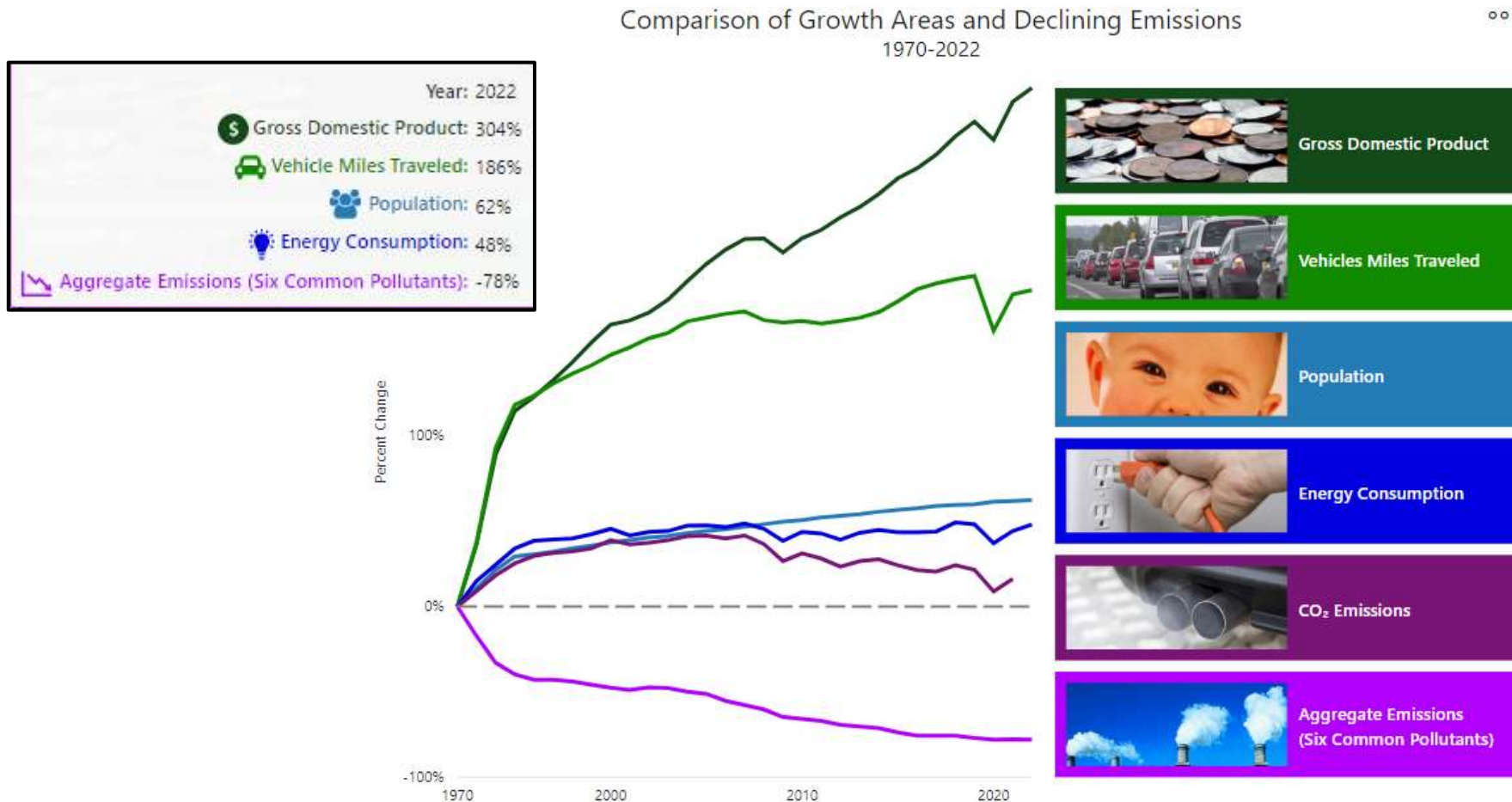
AQI Value	Current [ $\mu\text{g}/\text{m}^3$ ]	Revisions [ $\mu\text{g}/\text{m}^3$ ]
0, Good	0	0
50, Moderate	12	9
100, USG	35	35
150, Unhealthy	55	55
200, Very Unhealthy	150	125
300, Hazardous	250	225
500, Hazardous*	500	325

## Strengthening the PM 2.5 NAAQS will advance...

- ▶ **Public health** - In a single year (2032), the net benefits could be as high as \$46 billion:
  - ▶ Up to 4,500 avoided premature deaths,
  - ▶ Up to 800,000 avoided asthma cases,
  - ▶ Up to 290,000 avoided lost workdays.
- ▶ **Environmental justice** - The stronger PM<sub>2.5</sub> NAAQS will advance environmental justice by reducing particle pollution, which disproportionately burdens at-risk communities; the change to the siting factors for PM<sub>2.5</sub> monitors will ensure that at-risk communities are considered in siting decisions.
- ▶ **Public-health awareness** - The rule updates the Air Quality Index for PM<sub>2.5</sub>.
- ▶ **Clean technology adoption** - The rule complements continued deployment of funding from the Bipartisan Infrastructure Law and Inflation Reduction Act.



Since 1970, GDP has increased >300%.  
Emissions of PM and 5 other pollutants\* have  
dropped more than 75%.

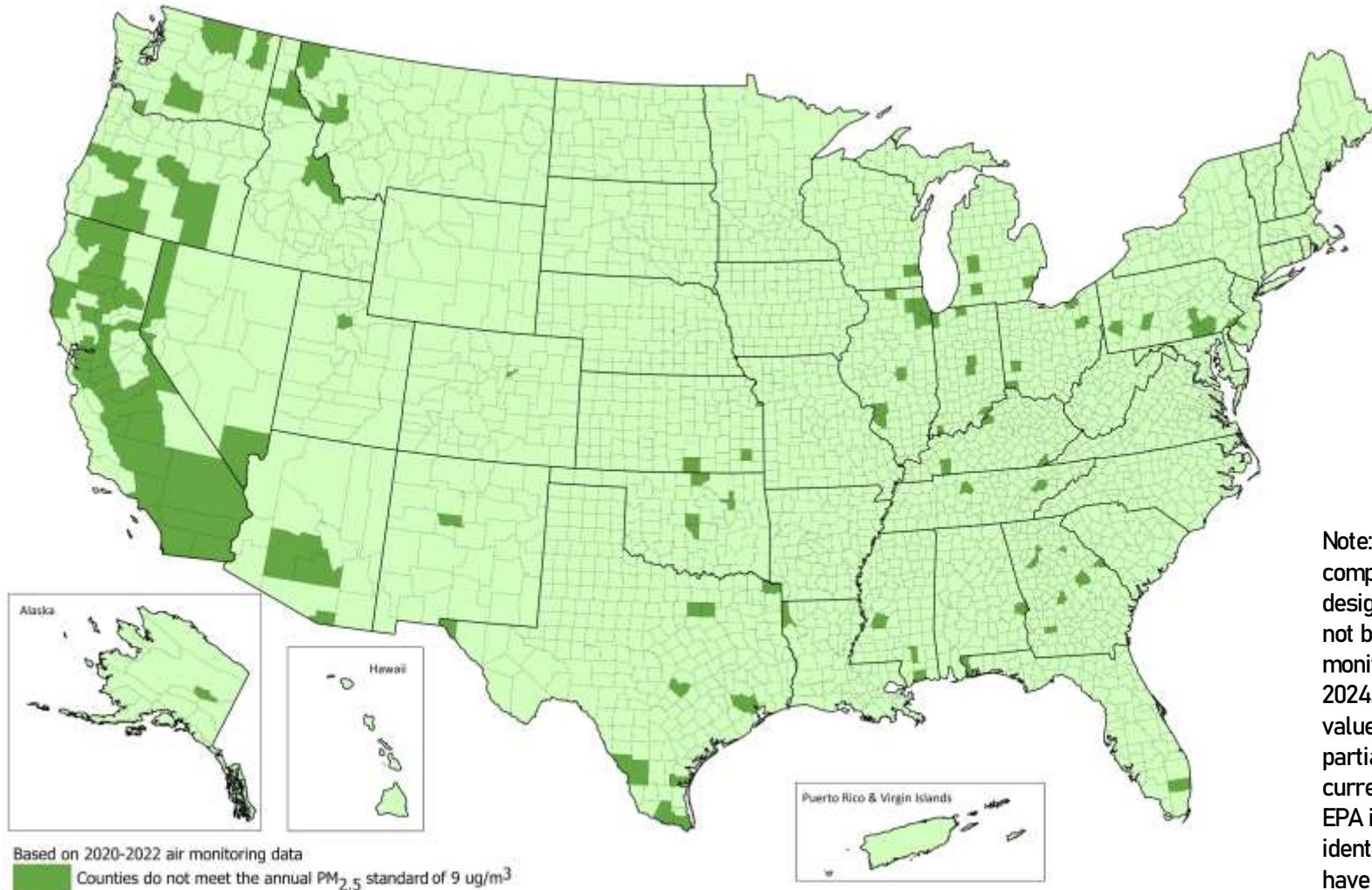


\* PM2.5 and PM10, CO, NOx, Pb, SO2, and VOCs

## Establishing and Meeting a NAAQS Is a Two-Step Process

- ▶ **Step 1: *Setting the standards*** - EPA conducts an extensive scientific review to determine if new standards are necessary to protect public health and welfare.
  - ▶ The Clean Air Act (CAA) bars EPA from considering cost or attainability in setting the NAAQS.
- ▶ **Step 2: *Implementing the standards*** - States, and Tribes where appropriate, must reduce harmful pollution to meet the standards.
  - ▶ The CAA specifies that cost, technical feasibility, and the time needed to meet the standards are taken into account at this stage.
- ▶ The final rule does not make attainment or nonattainment designations. Consistent with CAA timelines, EPA is required to designate areas as attainment or nonattainment within 2 years of the rule.

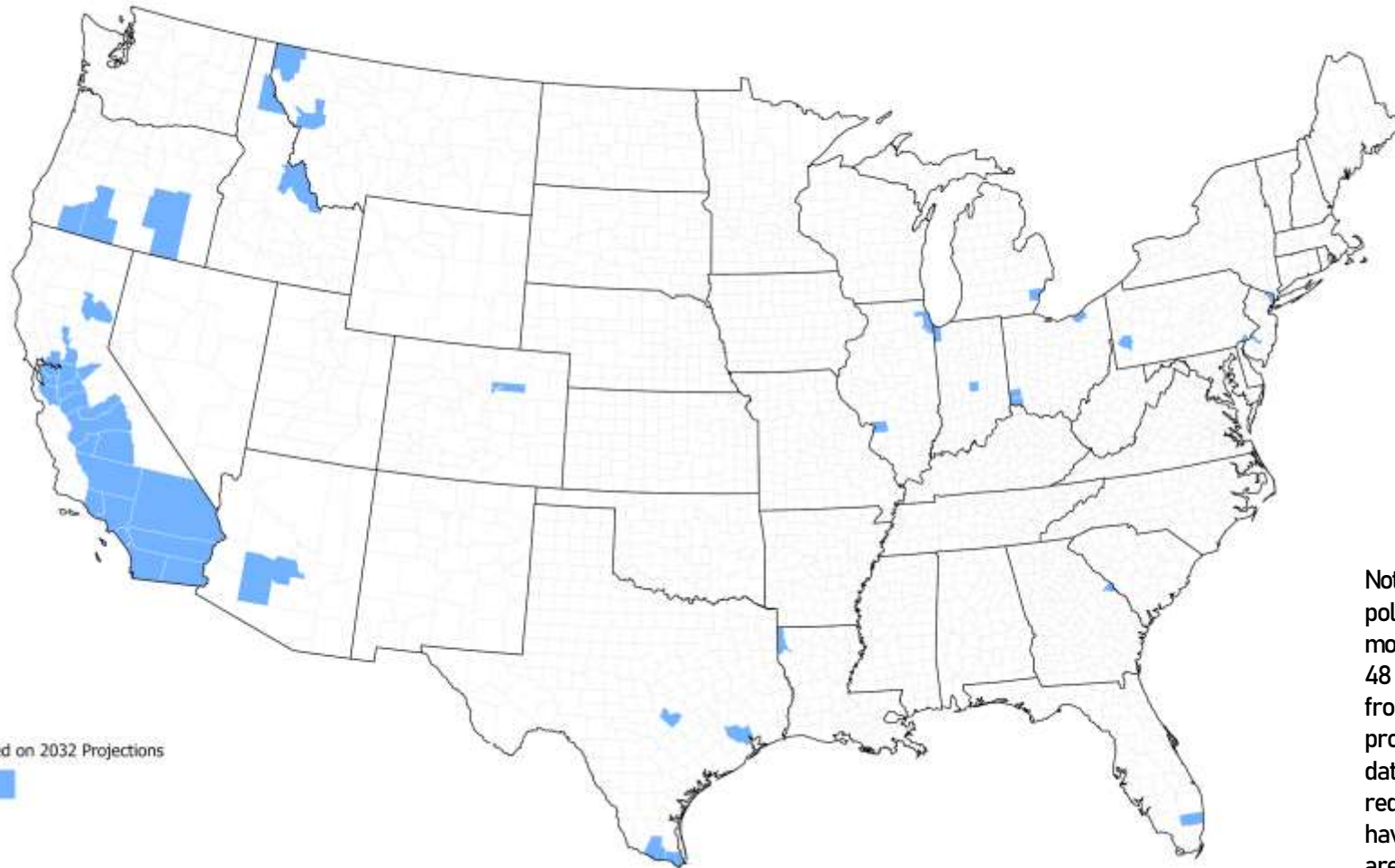
# Most Counties with Monitors Already Meet the Strengthened PM<sub>2.5</sub> Standard



Note: Map reflects monitored counties with complete monitoring data. Future final designations of attainment/nonattainment will not be based on these data, but likely on monitoring data collected between 2022 and 2024. Of the 119 counties with 2020-2022 design values above 9  $\mu\text{g}/\text{m}^3$ , 59 counties are totally or partially contained in nonattainment areas for current PM<sub>2.5</sub> standards. In years 2021 and 2022, EPA is aware that some states have already identified possible exceptional events that may have impacted air quality in the US and may be relevant to designations decisions.

This information is provided for illustrative purposes only and is not intended to predict the outcome of any forthcoming designations process.

# EPA Projects More than 99% of Counties Would Meet the Revised Standard as of 2032



Note: EPA projected future fine particle pollution levels only for counties with monitoring data and within the contiguous 48 states. Modeled emissions are developed from a 2018 base year and used in projecting 2016–2020 monitoring data. Projected emissions reflect expected reductions from federal regulations that have been finalized as of March 2023. Some areas would have longer than 2032 to attain the revised PM<sub>2.5</sub> standard.

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# Designation and Implementation Timeline

- ▶ **Stationary source permitting:**
  - ▶ Prevention of Significant Deterioration permitting applies with respect to a new standard in all areas designated **attainment** for the pollutant upon the effective date of the new standard.
  - ▶ Nonattainment New Source Review permitting applies in areas designated **nonattainment** for the pollutant, which includes any areas newly designated nonattainment at/after the effective date of nonattainment designations.
- ▶ **Within 2 years of NAAQS finalization:** For areas with available information, EPA must "designate" areas as meeting (attainment areas) or not meeting (nonattainment areas) the final NAAQS considering the most recent air quality monitoring data and input from States and Tribes. All PM<sub>2.5</sub> nonattainment areas are initially designated as "Moderate."

# Continued ... Designation and Implementation Timeline

- ▶ **Within 3 years of NAAQS finalization:** CAA section 110 requires all States to submit state implementation plan revisions to show they have the basic air quality management program components in place to implement the final NAAQS.
- ▶ **Within 18 months after the effective date of designations:** Nonattainment area  $PM_{2.5}$  state implementation plans are due.
- ▶ **End of 6<sup>th</sup> calendar year after the effective date of designations:** “Moderate” area attainment date.