

On January 14<sup>th</sup>, the Environmental Protection Agency published a [final rule](#) in the Federal Register updating the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM). The rule reduces allowable annual concentrations of fine particles (PM<sub>2.5</sub>) by 20 percent, from 15.0 µg/m<sup>3</sup> (last set in 2006) to 12.0 µg/m<sup>3</sup>.

According to EPA, meeting the standard [“will provide health benefits worth an estimated \\$4 billion to \\$9.1 billion per year in 2020 – a return of \\$12 to \\$171 for every dollar invested in pollution reduction.”](#) This is such an impressive return on investment that it begs the question of why EPA chose a standard of 12.0 µg/m<sup>3</sup>, when a tighter standard would have yielded even greater returns.

The Clean Air Act directs the EPA Administrator to set standards [“requisite to protect the public health... allowing an adequate margin of safety.”](#) The Supreme Court has [confirmed](#) EPA’s interpretation that this statutory language precludes consideration of any impacts other than direct health effects from pollutant exposure. Thus, the EPA Administrator cannot consider the costs of meeting the standard in determining what levels are “requisite to protect public health” with an “adequate margin of safety.”

According to EPA’s final [Regulatory Impact Analysis](#), meeting the 12.0 µg/m<sup>3</sup> standard will avoid between 460 and 1,000 premature deaths per year. However, the analysis also indicates that further tightening – going from a standard of 12 µg/m<sup>3</sup> to 11 µg/m<sup>3</sup> – would yield additional life savings of 1,040 to 2,300 mortalities per year. Furthermore, the incremental life-savings EPA estimates from reducing the standard from 12 µg/m<sup>3</sup> to 11 µg/m<sup>3</sup> are significantly larger than the life-saving increment it estimates for a reduction from 13 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup>. Particularly given EPA’s statutory mandate, it is puzzling that the Administrator chose to set a standard that leaves so many lives unprotected.

Two explanations for this puzzle are possible. One is that, contrary to her statutory directive, the Administrator actually considered the costs of achieving the tighter standard (estimated at between \$320 million and \$1.7 billion per year) and decided they outweighed the incremental benefits. This seems unlikely, however, since EPA’s RIA claims that achieving the tighter 11 µg/m<sup>3</sup> standard would yield health benefits far in excess of costs, and result in net benefits of between \$10 billion and \$29 billion per year. The net benefit test required by President Obama’s E.O. 13563 would lead the Administrator to the tighter standard (and probably one even tighter).



The other possibility is that the Administrator recognizes these benefit estimates are greatly overstated. The predictions of lives saved are highly uncertain, and they hinge on unsubstantiated assumptions about the causal relationship between exposure to PM<sub>2.5</sub> and premature mortality. [Observers](#) have suggested that EPA's estimates of the mortality effects of PM exposure overstate actual effects by a factor that could well exceed 1,000.

In contrast to these implausible benefits, the costs of achieving the NAAQS are real, with the standards requiring expensive control measures and [hindering economic growth and productivity](#) in regions that are designated non-attainment. While EPA cannot consider the opportunity costs of complying with the standards, it should be more honest in its examination of the health effects the standards seek to reduce. A more realistic assessment would probably indicate that requiring states to comply with the new standard is not requisite to protect public health with an adequate margin of safety.

