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Committee on Science, Space, and Technology
Subcommittee on Energy and the Environment

Fostering Quality Science at EPA:

Perspectives on Common Sense Reform

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The views expressed in this testimony are those of the author alone and do not necessarily represent those of the American Enterprise Institute.

Chairman Harris, Ranking Member Miller, Members of the Subcommittee:

Thank you for inviting me to testify today. I am Kenneth P. Green, a Resident Scholar at the American Enterprise Institute.

I am a biologist and environmental policy analyst by training, and I have studied public policies with a science component for nearly 20 years now, mostly at non-profit, non-partisan public policy research institutions across North America. I began career studying air quality regulations in California, and later expanded that focus to national air quality policy, climate policy, and energy policy, which are inextricably related.

My testimony represents my personal views only, and should not be construed as the official position any other persons or organizations with which I may be affiliated.

For the sake of complete disclosure, I want to mention verbally what I submitted in my "Truth in Testimony" form: I have served as a grant reviewer for the United States Environmental Protection Agency on 3 or 4 occasions, and was paid their customary per-diem for participating in such reviews in 2008 and 2009. Other than offering my judgment on the quality, soundness, relevance, and potential of grant proposals, I had no other involvement with the award process, nor, to my knowledge, have I had any involvement with any grant recipient or applicant in any way.

In fact, I would like to take this opportunity to compliment EPA on the rigor of the process employed for the reviews in which I participated, which involved assessing relatively low-cost research proposals by university researchers and small businesses in the area of environmental technology, energy technology, and related research. The level of professionalism I encountered in my review sessions was refreshing. The reviewers selected were clearly knowledgeable, diverse, and applied serious effort to the analysis of research proposals that sought taxpayer funding. These were satisfying exercises after which I felt confident that, if the EPA followed the conclusions of the reviewers, taxpayer money might provide some net social benefit.

I wish I could say that all of EPA's science-related exercises are equally satisfying to think about, but unfortunately, I cannot. Both my own research and reading in the literature suggests that EPA has serious problems in the way it employs scientific information when it assesses both the potential benefits, and potential costs of existing and proposed public policies.

As is common in the Public Health community, EPA's science-culture seems highly risk-averse, so much so that when confronted with a range of possible risks, they tend to accept assumptions and design analytical protocols and frameworks in ways that lead to ever-greater estimations of health risk from ever-lower levels of pollution exposure. This is sometimes referred to as being "conservative," or "precautionary." In a medical context, this can be beneficial, and indeed, nobody wants an agency to blithely dismiss proclaimed risks to the public health.

However, when such artificially elevated risk estimates are translated into economic estimates of regulatory benefit and cost, the product is increasingly costly regulations that do increasingly little good, or worse, actually imposes costs greater than the benefits it produces.

This is where things diverge from harmless (if excessive) "risk-aversion" into poor public policy, and it is, I think, a serious problem: having a sound understanding of the proposed benefits and costs of regulation is a pre-requisite for rational public policy development.

Without rigorous benefit-cost estimates, it is impossible for an agency to determine regulatory priorities. Thus, even where an agency's proposals might do more harm than good, they cannot optimally bring resources to bear to secure the biggest safety return-on-investment for regulatory investments potentially wasting scarce public tax resources. This applies between agencies as well. If agency A uses methodologies that inflate the risk posed by the things they regulate, they may well draw public resources away from agency B, which uses more scientifically accurate risk-assessment methods.

As researchers such as Anne E. Smith, Garrett A. Vaughn and others have observed, the tendency to overstate risk, leading to over-estimates of regulatory benefits have afflicted what many would consider EPA's most important mission: ensuring that air quality is kept at a level that protects the public health with an adequate margin of safety.

In my own research looking at the proposed 1997 revisions to the National Ambient Air Quality Standards, I noted similar problems. For example, while EPA was arguing that preserving ozone levels in the upper atmosphere offered protection against cataracts and skin cancer caused by UV exposure, they did not account for the fact that ozone anywhere in the atmosphere offers similar protections. Thus, they did not consider that lowering ozone levels would increase some risks while decreasing others.

Others have documented even larger absurdities, and things have not improved over time.

In 2006, Garrett A. Vaughn examined EPA's claims about the benefits and costs of their air quality regulations.

[1] Vaughn points out that the EPA's estimate of having saved the country some $22 trillion dollars through public health protection from 1970 to1990, "If accurate, that sum would

equal "roughly the aggregate net worth of all U.S. households in 1990." Vaughn points out that by EPA's self-promoting calculations, "In 1990, for instance, the EPA claims net benefits equal to nearly three times the profits of all U.S. corporations." Given how little EPA claimed its regulations cost, the implication was that "EPA's rate of return on capital exceeded 500%, compared to the private sector's 7 percent." That is an absurd thought which should have triggered an agency "reality check," but clearly did not.

As economist Anne E. Smith recently testified to this Subcommittee[2]:

- EPA is relying to an extreme degree on coincidental "co-benefits" from PM2.5 reductions to create the impression of benefit-cost justification for many air regulations that are not intended to address PM2.5.

- In 2009, EPA vastly increased the levels of mortality risks that it attributes to PM2.5 simply by starting to assign risks to levels of PM2.5 down to zero exposure, thus "creating" risks from ambient exposures that are well within the safe range established by the PM2.5 NAAQS.

- This single change nearly quadrupled the pool of purported US deaths due to PM2.5 that RIAs can now count as "saved" by minor incremental reductions in already-low ambient PM2.5 levels projected under new rules.

- This additional pool of PM2.5-related mortality consists of the most noncredible sort of risk estimate, as it is derived from an assumption that a unit of exposure at PM2.5 levels well below any observed in the epidemiological studies poses just as much risk as a unit of exposure at the higher PM2.5 levels where associations have been detected.

- With this change, EPA is now assuming that 13% to 22% of all deaths in the Eastern U.S. were due to PM2.5 in 2005, and that 25% of all deaths nationwide were due to PM2.5 as recently as 1980.

- The decision to inflate the PM2.5 risk estimates by presuming risks continue down to zero has its greatest impact on co-benefits estimates because – for rules that do not address PM2.5 directly – a much greater share of their incremental reduction of PM2.5 will occur in areas that are already in attainment with the PM2.5 NAAQS (and thus that have PM2.5 levels that EPA has deemed safe). Yet, EPA now attributes about 200,000 more PM2.5-related deaths per year to exposures in those areas.

- If it were viewed as credible that such large effects exist below the level of the PM2.5 NAAQS, the appropriate policy remedy would be to tighten the PM2.5 standard, and

not to regulate something else altogether in order to obtain those benefits through "coincidence."

Smith further observed that:

> "One associated and interesting effect of this benefits inflation, however, is the degree to which it makes the total number of deaths attributed to PM2.5 implausible. EPA's presumption that fully 320,000 deaths in the U.S. were "due to PM2.5" in 2005 represents over 13% of all deaths in the U.S. on average. And behind that average is the presumption that in large expanses of the Eastern US, between 16% and 22% of all deaths in 2005 were "due to PM2.5". By extension (although EPA has not reported this calculation), EPA's estimates imply that about 25% of all deaths nationwide were due to PM2.5 as recently as 1980."

I am sure that we all agree that protecting the environment and the health of all Americans is an important pursuit. Having grown up with asthma myself, I'm keenly aware of the role that poor air quality can play in determining one's quality of life.

But I hope we also agree that there is no benefit in over-protection, especially when such over-protection costs society a great deal of money that could be put to better uses elsewhere, such as, in the general economy where it might create jobs, which are also important determinants in people's quality of life.

EPA's use of science tends to systematically over-estimate the risks humans face from environmental exposures to pollutants such as particulate matter. Combined this with under-estimated compliance and regulatory costs, EPA's use of science leads to inefficient use of scarce public resources, and imposes regulatory burdens that may well do more harm than good. To me, this is the core of EPA's science-policy problem, and is probably where any reform efforts should begin.

I thank you again for this opportunity to testify, and look forward to your questions.

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[1] Garrett A. Vaughn (2006). "Regulatory Sleight of Hand: How the EPA's Benefit-Cost Analyses Promote More Regulation and Burden Manufacturers. (VA: Manufacturers Alliance)

[2] Anne E. Smith (2011). "Prepared Statement of Anne E. Smith, Ph.D. at a Hearing on "Quality Science for Quality Air" by the Subcommittee on Energy and the Environment , Committee on Science, Space, and Technology, United States House of Representatives, Washington, DC, October 4, 2011.