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OF THE
UNITED STATES OF AMERICA

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VIA ELECTRONIC FILING

Office of Information and Regulatory Affairs
Office of Management and Budget
NEOB Room 10202
725 17th Street, NW
Washington, DC 20503
Attention: Mabel Echols

Re: Comments on Draft 2013 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities, 78 Fed. Reg. 29,780 (May 21, 2013); Docket ID OMB-2010-0008

To Whom It Concerns:

The U.S. Chamber of Commerce (“Chamber”) offers these comments on the Office of Management and Budget (OMB) *Draft 2013 Report to Congress on the Benefits and Costs of Federal Regulations and Agency Compliance With the Unfunded Mandates Reform Act* (“Draft Report”). The Chamber is the world’s largest business federation, representing the interests of more than three million businesses of all sizes, sectors, and regions of the United States, as well as state and local chambers and industry associations, and dedicated to promoting, protecting, and defending America’s free enterprise system. The Chamber’s members have a strong interest in assuring that OMB accurately and transparently assesses both the benefits and costs of the federal regulations they are required to comply with.

The Chamber is concerned that the Draft Report demonstrates that federal agencies are non-transparent in communicating how they calculate the purported benefits of their regulations to the public. This fact is especially evident in the case of fine particulate matter (PM_{2.5}). The Draft Report indicates that regulations issued by the U.S. Environmental Protection Agency (“EPA”) account for as much as **86%** of the monetized annual benefits of the specific major rules listed in the report.¹ The report further shows that **98%** of benefits from EPA rules come from air regulations and the benefits from air rules are “mostly attributable to the reduction in public exposure to a single air pollutant, fine particulate matter.”² In other words, EPA (and OMB) believes that reductions in public exposure to one air pollutant – PM_{2.5} – have such vast benefits that they justify virtually any corresponding compliance burden on businesses, communities, and the economy from all the major rules evaluated in the report. A more careful look at the Draft Report, however, reveals that the claimed PM_{2.5} benefits fail to reflect significant underlying uncertainties and unproven assumptions in the way these benefits were calculated. This is particularly troubling because EPA itself has repeatedly expressed a commitment to transparency in its regulatory activities.³

OMB must ensure that agencies are being transparent and honest about the way they calculate the monetized benefits of their regulations. Specifically, the Chamber recommends that OMB:

- Clearly identify the key assumptions and uncertainties about benefit estimates;
- Add a section to its report that clearly explains what its benefits estimates represent;
- Work with EPA to conduct an integrated quantitative uncertainty analysis of the PM_{2.5} benefit estimates to develop a range of benefit that encompasses all of the

¹OMB, *2013 Draft Report to Congress on the Benefits and Costs of Federal Regulations And Agency Compliance With the Unfunded Mandates Reform Act* (“Draft Report”) at 11 (Table 1-1). This does **not** mean that EPA rules are responsible for 86 percent of all federal regulatory benefits. It simply means that of the major rules (e.g., rules expected to cost \$100 million or more per year) that are listed in the 2013 Draft Report and with have monetized benefits calculated by an agency, the vast majority of those monetized benefits came from EPA rules and joint EPA and DOT regulations.

² *Id.* at 14.

³ Most recently, the agency publicly committed to take specific steps to “fulfill the EPA’s continued commitment to transparency.” Letter from EPA Acting Administrator Robert Perciasepe to Senator David Vitter (July 9, 2013).

major uncertainties and report the resulting benefit range in the Executive Summary;

- Work with EPA to apply more objective tests of causality to assess the validity of the report's core assumption that exposure to PM_{2.5} at current levels causes premature mortality;
- Quantitatively evaluate the impact of the uncertainties in EPA's use of labor market-based Willingness to Pay measures of the value of mortality risk reduction;
- Ensure that EPA complies with OMB Circular A-4 and key Executive Orders on regulatory review and international competitiveness; and
- Work with EPA and other agencies to conduct attribution studies to validate previous benefit estimates.

BACKGROUND

The Draft 2013 Report gives the following overview of the benefits and costs of federal regulations between 2002 and 2012:

The estimated annual benefits of major Federal regulations reviewed by OMB from October 1, 2002, to September 30, 2012, for which agencies estimated and monetized both benefits and costs, are in the aggregate between \$193 billion and \$800 billion, while the estimated annual costs are in the aggregate between \$57 billion and \$84 billion. These ranges are reported in 2001 dollars and reflect uncertainty in the benefits and costs of each rule at the time that it was evaluated.⁴

As noted above, the lion's share of the monetized benefits detailed in the Draft Report comes from EPA air quality rules finalized between 2002 and 2012, and virtually all of the benefits of the air quality rules' claimed benefits stem from reductions in PM_{2.5} attributed to these rules. This continues a trend over recent years where EPA has relied on reductions of ambient PM_{2.5} as the primary driver of benefits in its Clean Air Act regulations – even for regulations not specifically designed or intended to protect the public from exposures to fine particulate matter.

⁴ Draft Report at 3.

EPA first relied on PM related mortality benefits in 1997 to justify two of the most costly rules issued by any agency up to that point – the 1997 ozone and PM_{2.5} National Ambient Air Quality Standards (NAAQS). While all of the monetized benefits for the 1997 PM_{2.5} NAAQS were based on PM reductions, PM related benefits also accounted for more than 50 percent of the claimed benefits from the 1997 ozone NAAQS.⁵

The 1997 PM and ozone NAAQS ushered in a new era of EPA's reliance on PM benefits to justify the costs of most, if not all, major air regulations. An evaluation of 51 major air regulations issued between 1997 and 2011 found that the majority of the claimed benefits for each of the rules assessed were from reductions in PM_{2.5}.⁶ This includes over 20 major air regulations that were not targeting PM_{2.5} related health risks.⁷

National PM_{2.5} concentrations have fallen substantially since 2000,⁸ and are now well below the NAAQS annual standard of 15 µg/m³. In order to continue claiming increasing PM-related benefits even as air pollution levels have fallen, EPA has found it necessary to lower the ambient PM_{2.5} levels at which the Agency assigns benefits. This stands in contrast to the agency's thinking in 1997, when EPA clearly expressed qualms about counting benefits from reductions in PM_{2.5} levels at low ambient concentration levels:

As noted in the preamble, although the possibility of effects at lower annual concentrations cannot be excluded, the evidence for that possibility is highly uncertain and the likelihood of significant health risk, if any, becomes smaller as concentrations approach background.⁹

Accordingly, EPA's low-end benefit estimate in 1997 rightly assumed that health benefits occur from PM_{2.5} reductions only down to the level of the standard (15

⁵ EPA, Regulatory Impact Analysis for 1997 Ozone and PM NAAQS, see Table 12.9 on pp. 12-46.

⁶ NERA, "An Evaluation of the PM_{2.5} Health Benefits Estimates in Regulatory Impact Analyses for Recent Air Regulations" (December 2011) at 7 *see* Figure 1 on page 8.

⁷ *Id.*

⁸ Monitored annual PM_{2.5} levels have declined nationally by 27% between 2000 and 2010. *See* <http://www.epa.gov/airtrends/pm.html>.

⁹ EPA, Regulatory Impact Analyses for the 1997 Ozone and PM NAAQS and Proposed Regional Haze Rule, Chapter 12 at 12-14. *See* <http://www.epa.gov/ttn/oarpg/naaqsfin/ria/riach-12.pdf>.

$\mu\text{g}/\text{m}^3$) for all endpoints.¹⁰ However, EPA's quite reasonable 1997 qualms about assigning large mortality benefits at lower levels have subsequently disappeared. In the final 2012 NAAQS for $\text{PM}_{2.5}$, EPA relied on air quality benchmarks that included the lowest measured levels found in the epidemiology studies used by the Agency (5 to 8 $\mu\text{g}/\text{m}^3$). Despite the fact that these concentration levels are far below even the revised $\text{PM}_{2.5}$ annual standard of 12 $\mu\text{g}/\text{m}^3$ – a level deemed by the agency to be safe for the public with *an ample margin of safety* – EPA now believes that it is appropriate to count benefits well below these levels, down to the lowest modeled levels (2 to 3 $\mu\text{g}/\text{m}^3$)¹¹:

There are uncertainties inherent in identifying any particular point at which our confidence in reported associations becomes appreciably less, and the scientific evidence provides no clear dividing line. However, the EPA does not view these concentration benchmarks as a concentration threshold below which we would not quantify health benefits of air quality improvements.¹²

This policy assures that EPA will be in the business of counting $\text{PM}_{2.5}$ benefits regardless of how low the standard is set in the future.

THE CHAMBER'S PRIMARY CONCERNS WITH EPA'S $\text{PM}_{2.5}$ BENEFITS APPROACH

Each of the EPA $\text{PM}_{2.5}$ benefit estimates included in the Draft Report—forming the basis of up to 85% of the total claimed benefits of *all* monetized regulations in the report – is based on several major *unproven* assumptions. If **any** of these assumptions are wrong, the resulting benefit estimate would be significantly lowered. This implication is far from obvious or transparent. In fact, the opposite is true. The casual reader is likely to believe with some certainty that the claimed benefits actually fall within the reported ranges. This is because the reported benefit estimates (repeated by EPA in press releases and testimony) do not reflect the full range of uncertainties.

¹⁰ *Id.*

¹¹ EPA, *Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter* (2012) at 5-84.

¹² *Id.* at 1-13.

In estimating benefits, such as the benefits of reductions in PM_{2.5}, several critical assumptions must be made, including the potential and degree of public exposure and whether exposure to the specific pollutant actually **causes** the harm suspected at current concentration levels. Significantly, the Draft Report acknowledges that the range of benefit estimates for PM_{2.5} control that are included in the summary tables “does not capture the full extent of the scientific uncertainty in measuring the health effects associated with exposure to fine particulate matter and its constituent elements.”¹³ The report lists six major assumptions and uncertainties that critically affect the PM_{2.5} benefit estimates:

1. Inhalation of fine particles is causally associated with premature death at concentrations near those experienced by most Americans on a daily basis.
2. All fine particles, regardless of their chemical composition, are equally potent in causing premature mortality.
3. The impact function for fine particles is approximately linear within the range of ambient concentrations under consideration, which includes concentrations below the PM_{2.5} National Ambient Air Quality Standard.
4. The forecasts for future emissions and associated air quality modeling are valid.
5. Some rules apply a national dollar benefit-per-ton estimate of the benefits of reducing PM_{2.5} that may over or under-estimate the actual benefits of controlling directly emitted fine particulates.
6. The monetized value of reductions in health risk is taken largely from studies of the willingness to accept risk in the labor market and may not apply equally to people in different stages of life or health status.

While all of these uncertainties are important in affecting the accuracy of EPA’s monetized benefits, several specific assumptions are especially poorly supported and are likely to be incorrect.

A. EPA assumes a causal relationship between exposure to PM_{2.5} and premature mortality, even though such a relationship is unproven.

¹³ Draft Report at 17.

OMB is correct to place EPA's assumption that exposure to particulate matter at current levels causes premature death at the top of its list of key assumptions affecting the PM_{2.5} benefit estimate. Regulations designed to reduce PM_{2.5} will only succeed in protecting public health as estimated by EPA if exposures to PM_{2.5} actually causes harm in the ways the agency assumes.

The premature mortality benefit estimates from reduced exposure to PM_{2.5} are based on epidemiology studies that report a small but statistically significant reduction in mortality at the same time particulate matter concentrations have also declined. The measured reduction in mortality risk, however, could be explained by a number of factors that also changed over the study periods. The Draft Report correctly references several reports by the National Academy of Sciences, including a 2004 report by the National Research Council (NRC) on particulate matter. In this report, the NRC specifically cautioned against using studies that rely on data that is now 30 years old (the American Cancer Society (ACS) and the Harvard Six City studies), stating that they should have little use for decision making.¹⁴ Today, the average age of the populations studied in those reports is 87 years. While updates of these studies have incorporated more recent air quality data, the key covariates and confounding factors used to adjust the PM mortality estimates, including smoking rates, dietary indicators, and socioeconomic data, have not been updated and are now over 30 years out of date. Thus, as Congress itself has noted, it is very possible that much of the risk EPA is attributing to reductions in ambient PM are actually due to the changing pattern of these key cardiovascular risk factors, the same factors that account for the steady decline in cardiovascular mortality in the United States.¹⁵ The Chamber supports the NRC's recommendation that EPA no longer rely so heavily on studies that are based on these outdated data sets.

In relying exclusively on these problematic epidemiology studies to estimate benefits, EPA also effectively ignores the results of other studies using more modern population data that present a different spectrum of results – including no mortality

¹⁴ National Research Council, *Research Priorities for Airborne Particulate Matter: IV. Continuing Research Progress* (2004), Board on Environmental Studies and Toxicology (BEST) at 135.

¹⁵ Letter from Senator Vitter and Rep. Lamar Smith to Regina McCarthy, Assistant Administrator for Office of Air and Radiation, U.S. EPA (March 4, 2013).

association at current PM levels. In response to EPA's most recent PM_{2.5} NAAQS proposal, researchers submitted an extensive list of studies that report no association between PM_{2.5} and premature mortality.¹⁶ Neither EPA nor OMB in this draft report provide an adequate explanation for selectively relying on specific epidemiology studies that the NRC has cautioned EPA against using.

Even if these studies did not suffer from significant weaknesses, finding a statistical association between exposure and response is not the same as proving causality. Dr. Anthony Cox, Jr. in *Improving Causal Inferences in Risk Analysis*, explains this important distinction:

A common approach in epidemiology is to use statistical tests to determine whether there is strong evidence for a nonrandom positive association between exposure and response, and then to check whether, in the judgment of knowledgeable experts, the association can correctly be described by adjectives such as "strong," "consistent," "specific," "temporal," and "biologically plausible." The problem with this very popular approach is that all of these (and other) laudatory adjectives can apply perfectly well to associations even when there is no causation. Such associations can be created by strong confounders with time delays; or by data- and model-selection biases; or by unmodeled errors in exposure estimates; or by regression to the mean; or contemporaneous historical trends; or a host of other well-known threats to valid causal inference.¹⁷

If there is only a statistically significant association or link in epidemiological studies between exposure and adverse health effects, but no causal relation, then reducing exposures results in little or no health benefits.

While EPA has acknowledged the existence of this uncertainty, this uncertainty is not actually reflected in its benefit estimates. In its April 2011 *Report on the Benefits and Costs of the Clean Air Act, 1990 to 2020*, EPA acknowledges this uncertainty when it includes the "inability to conclusively state that PM mortality

¹⁶ See comments submitted by Dr. Will M. Ollisen, Senior Scientist at the American Petroleum Institute, "Science Issues and Concerns," which can be found at: <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2012-0632-1072>.

¹⁷ Cox, Tony, "Improving Causal Inferences in Risk Analysis" *Risk Analysis* (2013).

outcome is causal based on epidemiology” as a major source of uncertainty and potential error in its benefit analysis.¹⁸ EPA also correctly states in this same report that “epidemiological evidence alone cannot establish this causal link.”¹⁹ The United Kingdom’s National Health Service confirmed this point in 2012: “[A]lthough particulate matter has been associated with premature mortality in other studies, a definitive cause-and-effect link has not yet been demonstrated.”²⁰

Unfortunately, most of EPA’s benefit estimates for air pollution regulations included in this report have simply assumed that selected reported statistical associations between PM_{2.5} and ozone concentrations and public health effects are in fact causal, rather than coincidental, despite the fact that more objective tests for causality exist. As Dr. Anthony Cox states in his analysis of the PM_{2.5} air pollution relationship, statistical methods for assessing causality have long been applied in other research areas, but have been largely absent in the assessment of risks from exposure to air pollution:

Statistical methods for analyzing and modeling causation—meaning predicting how changing some variables would change others—have been extensively developed in econometrics, neuroscience, artificial intelligence, and predictive analytics, although they have seldom been applied to air pollution health effects data ... Applying them makes the distinction between association and causation very clear.²¹

When Dr. Cox applies more rigorous causal tests using data from National Mortality and Morbidity Air Pollution Study (NMAPS), he finds no evidence that exposure to PM causes mortality. For example, in 2012, using panel data analysis, Dr. Cox shows a statistically significant *negative* association between changes in PM_{2.5} levels and changes in both cardiovascular disease and all non-accident mortality rates, on a time scale of a year.²² In a follow-on study conducted in 2013, Dr. Cox applied additional

¹⁸ EPA, *Report on the Benefits and Costs of the Clean Air Act, 1990 to 2020* (April 2011) at 5-40 (Table 7-6).

¹⁹ *Id.* at 7-11

²⁰ Yim, SHL and Barrett, SRH. “Public Health Impacts of Combustion Emissions in the United Kingdom,” *Environmental Science and Technology* (2012), Vol. 46 (8) at 4291–4296.

²¹ Cox, Tony, “Caveats for Causal Interpretations of Linear Regression Coefficients for Fine Particulate (PM_{2.5}) Air Pollution Health Effects” *Risk Analysis* (2013) at 12.

²² Cox, Tony, et al, “Temperature, Not Fine Particulate Matter (PM_{2.5}), is Casually Associated with Short-Term Acute Daily Mortality Rates: Results from One Hundred United States Cities.” *International Dose-Response*

causality tests (including Bayesian Model Averaging, conditional Independence Tests for Potential Causation, non parametric classification tree analysis, and the Granger test for causality). No association between PM and mortality was reported.²³ Based on these assessments, Dr. Cox concludes that no evidence of a genuine causal relation between PM_{2.5} mortality rates has been found using rigorous, objective methods of causal analysis.

At a minimum, EPA (and OMB) need to be more transparent and disclose the extent to which the agency's assumption of a causal relationship between PM exposure and health effects dictates the magnitude of regulatory benefits.

B. EPA makes the unfounded assumption that the mortality impact function is linear with no threshold.

In its list of key scientific uncertainties associated with the particulate matter benefit estimates, the Draft Report lists the assumption that the impact function for fine particles is linear within the range of ambient concentrations, including particulate matter concentrations that are well below the current standard. Similar to EPA's assumption that exposure to particulate matter causes premature mortality, this single assumption also has a profound impact on the PM_{2.5} benefit estimates. EPA assumes with 100 percent certainty that concentrations above, near, and far lower than the PM_{2.5} NAAQS, a level that by definition is intended to be health protective with an adequate margin of safety, cause mortality with equal confidence.

In discussing this uncertainty, OMB should note that many of the studies EPA relies upon to assess risk include higher PM concentrations compared to today's levels and that in estimating benefits, EPA's mortality extrapolation even extends far beyond the range evaluated in the underlying epidemiology studies. EPA's assumption of no-threshold for effects ignores a number of epidemiology studies that report mortality thresholds or no effects at current levels that were submitted to EPA as part of the

public comment process on the EPA PM_{2.5} proposed NAAQS.²⁴ The Chamber recommends that OMB require EPA to quantitatively assess this uncertainty by applying different valuations to benefits that result from reductions above the current PM_{2.5} NAAQS level from reductions that occur below. Other empirically supported PM_{2.5} thresholds should be evaluated in a similar fashion. Ignoring the possible existence of threshold, contrary to the scientific literature, is not supportable.

C. EPA's use of labor market Willingness To Pay studies to assess the monetary value of reducing risk from PM_{2.5} exposure likely overstates actual benefits.

Another major uncertainty listed in the Draft Report affecting the PM_{2.5} benefits estimates is the assigned value of mortality risk reduction. The Draft Report briefly notes that this value “is taken largely from studies of the willingness to accept risk in the labor market and might not necessarily apply to people in different stages of life or health status.” In 2011, this key concern was also noted by a Scientific Advisory Board panel of economists who advised EPA on the question of what values EPA should employ for mortality risk reduction. The EPA Science Advisory Board (SAB) panel recommended that EPA develop Willingness To Pay (“WTP”) estimates that reflect both the nature of the risk and the characteristics of the affected population:

“[T]he SAB recommends that EPA work toward developing a set of estimates of [value of risk reduction] corresponding to policy-relevant contexts defined by the type or characteristics of risk (e.g., associated morbidity, latency) and of the affected population (e.g., age, health, income). Economic theory and empirical evidence suggest that WTP can vary with these characteristics and that a single value of mortality risk reduction is not appropriate for all contexts.”²⁵

There are at least three ways that the characteristics of on-the-job risks differ markedly from the type being associated with ambient PM_{2.5} exposures. Each of

²⁴ Comments submitted by Dr. Will Ollison, Senior Scientist, API “Science Issues and Concerns Not Addressed in the PM NAAQS Review” on EPA’s proposed PM_{2.5} NAAQS can be found at: <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2012-0632-1072>.

²⁵ EPA Science Advisory Board, letter to EPA, Review of *Valuing Mortality Risk Reductions for Environmental Policy: A White Paper* (December 10, 2010), EPA-SAB-11-011, (July 29, 2011) at 2.

these differences could lead to unwarranted overestimates of the PM_{2.5} benefit estimates:

1. Potential differences in characteristics of the risk and affected populations:
The median age of workers in U.S. industries is 42 years and most if not all workers are in good enough health to maintain a job.²⁶ The causes of death reported to be statistically associated with PM_{2.5}, however, are due to diseases that emerge with age, such as cardiovascular disease and chronic obstructive lung disease. This suggests that the populations most vulnerable to PM_{2.5} exposure are generally elderly and in compromised health.
2. Potential differences in lost life years: As the SAB panel also stated: “Willingness to pay for a risk reduction...may vary systematically with risk attributes such as the type of illness or injury, the latency of the illness, and the duration of morbidity, *as well as the number of lost life-years that can be anticipated.*”²⁷. A single WTP value based on work-accident risks yields for a much greater number of life-years lost per death than would likely be the case for the elderly and infirm.
3. Differences in certainty about the existence of the hazard: On-the-job hazards are known to exist and are actuarially quantifiable. When a job fatality happens, it is directly observed. In the case of US ambient air pollution hazards, there is significant uncertainty (given the many assumptions and uncertainties noted in the OMB report), whether and how any individuals are adversely affected. EPA calculates the benefits, however, as if the risk is a certainty.

RECOMMENDATIONS

- ***OMB should clearly identify the key assumptions and uncertainties about benefit estimates.***

²⁶ Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, “Employed persons by detailed industry and age, 2012 annual averages.” See http://www.bls.gov/cps/industry_age.html.

²⁷ EPA Science Advisory Board, letter to EPA, Review of *Valuing Mortality Risk Reductions for Environmental Policy: A White Paper* (December 10, 2010), EPA-SAB-11-011, (July 29, 2011) at 22 (emphasis added).

OMB's final report needs to clearly identify the key assumptions and uncertainties discussed in the body of the Draft Report by putting them in the Executive Summary. That way, even a casual reader of the Report can understand the core uncertainties behind the benefit estimates. The report should include a more thorough discussion of each of the assumptions and their potential impact on the overall benefit estimates for EPA's regulations. This is especially necessary given the disproportionate role $PM_{2.5}$ benefit estimates play in OMB's overall estimate of the benefits from Federal regulation

- ***OMB should ask EPA to conduct an integrated quantitative uncertainty analysis of the $PM_{2.5}$ benefit estimates to develop a range of benefits that encompasses all of the major uncertainties identified.***

In 2004, the National Research Council recommended that EPA conduct an integrated uncertainty analysis of $PM_{2.5}$ benefits in order to more accurately and transparently communicate uncertainties.²⁸ In order to meet the Administration's own standard of transparency, the Agency must include a *quantitative* assessment of the impact of these key assumptions on the range of potential benefits from Federal regulations. An integrated quantitative assessment of all the major uncertainties cited on page 17 of the Draft 2013 Report would recognize that if several of the key assumptions are incorrect, the true value of the Federal regulations would drop considerably and for many rules, approach zero. The public has a right to understand this simple fact and not be misled by repeated references to summary statistics that ignore these fundamental uncertainties.

- ***OMB should work with EPA to apply more objective tests of causality to assess the validity of the report's core assumption that exposure to $PM_{2.5}$ at current levels causes premature mortality.***

The estimated human health benefits from EPA air regulations included in this draft report are predicated on an assumption of a causal relation that lacks empirical support, outside the subjective opinions of selected experts. Responsible assessment of the true benefits from EPA regulations, as well as sound future regulation, requires

²⁸ National Research Council, *Research Priorities for Airborne Particulate Matter: IV. Continuing Research Progress* (2004), Board on Environmental Studies and Toxicology (BEST).

using more objective, data-driven, methods of causal analysis. Until this is done, current benefits estimates depend on, and are tantamount to, untested assumptions and wishful thinking. It is possible and practicable to do better now by applying rigorous methods of causal analysis and modeling to existing data. The Chamber strongly recommends that OMB work with EPA to assure that these tests are undertaken to improve the credibility and accuracy of the air pollution benefit estimates cited in this report.

- ***OMB should quantitatively evaluate the impact of the uncertainties in EPA's use of labor market-based Willingness to Pay measures of the value of mortality risk reduction.***

The concerns with EPA's use of labor market-based WTP measures described above suggest that the use of these estimates may overstate the value of purported PM_{2.5}-associated deaths. No alternative WTP has been suggested in the literature. However, the appropriate response to such lack of knowledge is not to use a WTP estimate for a totally inconsistent type of risk (merely because that type of risk has been more thoroughly studied). Rather, thoughtful sensitivity analyses that quantify this uncertainty should be incorporated into the range provided for each rule's benefits estimates. As the OMB's own RIA guidance says:

Since the literature-based [value of mortality risk reduction] estimates may not be entirely appropriate for the risk being evaluated...you should explain your selection of estimates and any adjustments of the estimate to reflect the nature of the risk being evaluated. You should present estimates based on alternative approaches.²⁹

EPA's guidance for benefits analysis also calls for sensitivity analysis in this situation:

While a qualitative discussion of these issues [of limitations in mortality risk WTP estimates] is generally warranted ...analysts should also consider a variety of quantitative sensitivity analyses ...³⁰

²⁹ OMB Circular A-4, (2003) at 30-31(emphasis added). Among alternative approaches, Circular A-4 explicitly mentions value per statistical life-year (at p. 30).

³⁰ EPA, *Guidelines for Preparing Economic Analyses* (December 2010) at B-6.

Such sensitivity analyses are routinely performed, so there is no excuse for them to be omitted in EPA's RIAs. The Chamber recommends at a minimum that the OMB press EPA to adhere to both the OMB and EPA's own guidance and provide explicit sensitivity analyses on this value in all of its PM_{2.5} benefits estimates. The Chamber also recommends that OMB become more directly engaged in the identification of appropriate adjustments and new research on this matter.

- ***OMB should add a section to its report that clearly explains what its benefits estimates represent.***

OMB should add a section to its report that clearly explains what the reported benefits estimates (of several hundreds of billions of dollars per year) represent. Such an explicit explanation is needed in the report because the concept of benefits is poorly understood beyond the cadre of analysts who work in the field of benefit-cost analysis. As discussed in detail in a 2011 report by NERA Consulting Firm assessing the EPA's report on the *Benefits and Costs of the Clean Air Act 1990 to 2020*, readers need to understand that the billions of dollars of claimed benefits will never emerge as concrete/tangible financial impacts on output, Gross Domestic Product (GDP), or personal income.³¹ In fact, as the NERA analysis emphasizes, EPA's own GDP estimate of the impact of the Clean Air Act from 1990 to 2020, summarized in Table 8-7 of the EPA report, shows a loss of GDP from \$79 billion in 2010 that increases to \$110 billion in 2020³² despite claimed benefits of approximately \$2 trillion.

The role of the Willingness To Pay (WTP) assumption is to convert estimates of physical changes expected from a regulation into a monetized form. This is done to help assess whether the costs of a regulation (which do appear as concrete financial impacts) will be offset by a sufficient increase in the welfare or sense of wellbeing of the population that will have to bear those costs. However, as the NERA analysis explains, that benefit value – even if reliably estimated – will only be experienced psychologically, and not in the form of added income that individuals can then spend on additional goods and services.

³¹ NERA Economic Consulting, *Assessment of the Obama Administration's Cost-Benefit Analysis of Clean Air Act Regulations*, June 15, 2011, beginning on page 2.

³² EPA, *Guidelines for Preparing Economic Analyses* (December 2010) at 8-18.

While WTP-based estimates of regulatory benefits will always be uncertain, the OMB report should clearly emphasize that these monetized values are not projections of increases in income or GDP that may offset the financial impacts the regulations' costs. The OMB should explain this fact in its report.

- ***OMB should ensure that EPA complies with OMB Circular A-4 and key Executive Orders.***

The Chamber recommends that OMB note in the report that the RIA's for EPA air regulations do not comply with OMB Guidelines for regulatory analysis or the goals of key Executive Orders in a number of key areas. The Chamber further recommends that OMB indicate that efforts will be undertaken to ensure that future RIAs for EPA rules and benefit reports that rely on these RIAs will comply with OMB Circular A-4 and key Executive Orders in order to:

- Provide an quantitative uncertainty analysis for economically significant rules as per OMB Circular A-4 (pages 40-41);
- Perform mortality valuations using both value of a statistical life (VSL) and value of a statistical life year lost (VSLY) as per OMB Circular A-4 (page 30);
- Include cost effectiveness analysis for economically significant rules as per OMB Circular A-4 (pages 12-13);
- Provide regional differences in risks, benefits, and costs as per OMB Circular A-4 (page 8);
- Identify and quantify expected undesirable side effects of the rule, including decreased productivity and increased unemployment and associated negative health impacts, as per OMB Circular A-4 (page 3);
- Provide a retrospective accountability check for air rules with very high costs and benefits as per Executive Orders 13,563; and
- Provide an evaluation of whether or not NAAQSs and air quality rules issued by EPA are consistent with air quality standards and requirements for key U.S. trading partners per Executive Order 13,609.

- ***OMB should work with EPA to assure release of all underlying data from federally funded studies used to estimate benefits of federal rules.***

The Chamber believes that scientific integrity of federal regulations can only be assured if there is full and open access to the underlying research data. Only then, can scientists take the necessary steps to replicate and validate key results and conduct additional analyses to further understand the robustness of the results. OMB should work with EPA to assure that OMB Circular A-110 is implemented in a manner that facilitates public access to underlying research data.

- ***OMB should work with EPA and other agencies to conduct attribution studies to validate previous benefit estimates.***

Given the sizable estimates of claimed mortality benefits for reductions in exposure to PM_{2.5}, OMB should work with EPA to undertake studies to assess whether these reductions in premature mortality have occurred as would be predicted in the assessment of benefits. This necessary step will help hold all analysts and decision makers accountable to claims of benefits that do or do not materialize in the real world.

Thank you for the opportunity to share our perspectives on this important settlement. Please do not hesitate to contact me to address any questions you may have regarding the Chamber's views on this matter. I may be reached at (202) 463-3144 or by e-mail: kholman@uschamber.com.

Sincerely,



Keith W. Holman