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cc: See the distribution list at the bottom of this message  
Subject: Comments on Draft Guidelines

On behalf of the Utility Water Act Group, the Utility Air Regulatory Group, and the Edison Electric Group, we are pleased to submit the attached comments (in the form of two .pdf files, the first of which is a transmittal letter and the second of which is a set of technical comments from Dr. Robert Stavins) on the "OMB Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements" (68 Fed. Reg. 5492, February 3, 2003). We also have faxed these comments to you. Please feel free to contact me if you have any difficulty accessing the comments or if you have any questions about them.

Thank you.

-Brooks

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May 5, 2003

**Submitted Electronically**

Ms. Lorraine Hunt  
Office of Information and Regulatory Affairs  
Office of Management and Budget  
NEOB, Room 10202  
725 17<sup>th</sup> Street, NW  
Washington, DC 20503

Re: Draft Guidelines for Regulatory Analysis

Dear Ms. Hunt:

On behalf of the Utility Water Act Group (“UWAG”), the Utility Air Regulatory Group (“UARG”), and the Edison Electric Group (“EEI”), we are pleased to submit comments on the “OMB Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements” (68 Fed. Reg. 5492, February 3, 2003) (“Draft Guidelines”).<sup>1</sup> We believe that the Draft Guidelines offer an important first step towards comprehensive, final instructions that will significantly increase the

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<sup>1</sup> UARG is an association of electric utilities, other electric generators, and trade associations that participates on behalf of its members collectively in rulemakings and other proceedings under the Clean Air Act that affect the electric generating industry and in litigation arising from those proceedings. A list of UARG members joining in these comments is included as Attachment A to this letter. UWAG is a voluntary, ad hoc, non-profit, unincorporated group of 158 electric utility systems, which own and operate over fifty percent of the nation’s total generating capacity. The Edison Electric Institute, the American Public Power Association, and the National Rural Electric Cooperative Association also are UWAG members. EEI is the association of U.S. shareholder-owned electric companies, international affiliates and industry associates worldwide. The Institute’s U.S. members generate about three-quarters of all the electricity in the United States and service roughly 70 percent of all ultimate customers in the nation.

Ms. Lorraine Hunt

May 5, 2003

Page 2

quality of information presented in regulatory analysis. Our suggestions for the next step are presented below.

Expert comments on the Draft Guidelines are included as Attachment B. Those comments were prepared by Dr. Robert N. Stavins, our advisor on environmental economics, with technical support from Analysis Group. In addition to and separate from Dr. Stavins' expert comments, we offer the following recommendations for changes to the Draft Guidelines:

1. Reinforce the need for adequate data and transparent analysis.

We generally support OMB's proposed methodologies for conducting regulatory analysis. We also commend OMB for acknowledging that sound regulatory analysis is dependent on the adequacy of available data and the transparency of analysis.

However, we believe that OMB should reinforce those acknowledgments with explicit instructions to agencies on how they should evaluate the adequacy of available data, both in terms of quality and quantity. Without such instructions, OMB's methodologies are at risk of being undermined by the "garbage in / garbage out" syndrome.

In addition, where adequate data are unavailable and deferring a decision on regulation is a legal option, OMB should require agencies to consider deferring the decision as a regulatory alternative, pending further data collection. Although delay and additional data collection may add to the costs of the ultimate decision, those costs must be counterbalanced against the costs of a "bad" decision based on inadequate data.

Lastly, OMB should ensure that agencies make their data and analysis available in useable format to interested stakeholders. Without access to that information, stakeholders will be deprived of a meaningful opportunity to participate in the rulemaking process.

2. Clarify that agencies must consider actual versus theoretical implementation of existing rules in developing their baselines.

Before proceeding with regulatory action, agencies must demonstrate that such action is necessary (see Executive Order 12866) and develop a baseline for measuring costs and benefits. In the case of proposed changes to existing rules, the "need" for any change must be reflected in the baseline as actual, instead of theoretical, implementation of those rules. If it is not, then agencies are at risk of significantly undervaluing the costs and overvaluing the benefits of compliance with any revised rules.



Ms. Lorraine Hunt  
May 5, 2003  
Page 3

Taking a holistic, as opposed to incremental, approach to costs is especially important in the context of older regulations, like those codified at 40 CFR Part 130 (EPA's TMDL program rules), which have not been fully implemented or subjected to any comprehensive benefit / cost analysis. Likewise, acknowledging the benefits of such existing regulations if fully implemented is essential to avoid miscalculating the incremental net benefit of any proposed changes to those regulations.

3. Include additional safeguards against the double-counting of benefits.

We applaud OMB for recognizing the risks of double-counting in the context of embedded attributes (see, e.g., 68 Fed. Reg. 5492, 5518 col. 3). However, we urge OMB to include other examples of double-counting to better define the limits of acceptable regulatory analysis. For example, separate environmental regulations involving distinct controls may yield common environmental benefits. Unless the impacts of one are considered in the evaluation of the other, then the agency may inadvertently over-count the benefit and under-count the cost in connection with its analysis of each regulation.

OMB's instructions to agencies will have a significant impact on the quality of information presented in regulatory analysis. To improve and maintain the quality of that information, we encourage OMB to revise its Draft Guidelines in a manner that is consistent with our comments and those of our expert, Dr. Stavins. Please feel free to contact us if you have any questions about any of those comments.

Very truly yours,

**Kristy A.N. Bulleit**

Kristy A. N. Bulleit,  
on behalf of the Utility Water Act Group

**Lucinda M. Langworthy**

Lucinda Minton Langworthy  
on behalf of the Utility Air Regulatory Group

**Michael T. Rossler**

Michael T. Rossler  
on behalf of the Edison Electric Institute



Ms. Lorraine Hunt  
May 5, 2003  
Page 4

Attachment A

Members of the Utility Air Regulatory Group  
that Join in these Comments

Appalachian Power Company  
Carolina Power & Light Company  
Central Illinois Public Service Company  
Central Power and Light Company  
CINergy Corp.  
    The Cincinnati Gas & Electric Company  
    PSI Energy  
Columbus Southern Power Company  
Constellation Power Source Generation, Inc.  
Consumers Energy Company  
Dayton Power and Light Company, The  
DTE Energy  
Dominion Energy  
    Dominion Generation  
    Dominion Virginia Power  
    Dominion North Carolina Power  
Duke Energy Corporation  
Dynegy Marketing and Trade  
FirstEnergy Corp.  
Florida Power Corporation  
Indiana Michigan Power Company  
JEA  
Kansas City Power & Light Company  
Kentucky Power Company  
LG&E Energy Corp.  
    Kentucky Utilities Company  
    Louisville Gas & Electric Company  
    Western Kentucky Energy  
Los Angeles Department of Water & Power  
Madison Gas and Electric Company  
Minnesota Power Company  
Mirant Corporation  
Monongahela Power Company,  
    dba Allegheny Power



Ms. Lorraine Hunt  
May 5, 2003  
Page 5

Oglethorpe Power Corporation  
Ohio Power Company  
Ohio Valley Electric Corporation  
Otter Tail Power Company  
PacifiCorp Electric Operations  
Potomac Edison Company, The  
    dba Allegheny Power  
Public Service Company of New Mexico  
Public Service Company of Oklahoma  
Salt River Project  
South Carolina Electric & Gas Company  
Southern Company  
    Alabama Power Company  
    Georgia Power Company  
    Gulf Power Company  
    Mississippi Power Company  
    Savannah Electric and Power Company  
Southwestern Electric Power Company  
Texas Utilities  
Tucson Electric Power Company  
Union Electric Company  
West Penn Power Company,  
    dba Allegheny Power  
West Texas Utilities Company  
Wisconsin Electric Power Company

and

National Rural Electric Cooperative Association  
American Public Power Association  
National Mining Association



Ms. Lorraine Hunt  
May 5, 2003  
Page 6

Attachment B

[A pdf file of Dr. Stavins' comments is attached separately]

Robert N. Stavins, Ph.D.<sup>1</sup>  
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May 5, 2003

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*Comments on the U.S. Office of Management and Budget's (OMB) Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements*

Ladies and Gentleman:

You asked, on behalf of the Utility Water Act Group, the Utility Air Regulatory Group, and the Edison Electric Institute, that I review and prepare comments on the U.S. Office of Management and Budget's (OMB) "Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements" (hereafter, "the Guidelines") that are intended to replace both the 1996 "best practices" document and the 2000 guidelines issued by OMB.<sup>2</sup> This letter responds to that request.

Economic analysis can be exceptionally helpful to policymakers in two respects. First, it provides a useful framework within which policymakers can assemble disparate information about the impacts of a proposed regulation, information that would otherwise be confusing and

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<sup>1</sup>Albert Pratt Professor of Business and Government and Faculty Chair, Environment and Natural Resources Faculty Group, John F. Kennedy School of Government, and Director, Environmental Economics Program at Harvard University; University Fellow, Resources for the Future; and former Chairman, Environmental Economics Advisory Committee, U.S. Environmental Protection Agency (EPA) Science Advisory Board. This information and the return address above are provided only for purposes of identification. These comments reflect my judgment and are not being prepared in my official capacities at Harvard University, Resources for the Future, or the EPA Science Advisory Board.

<sup>2</sup>Appendix C of Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations, 68 Fed. Reg. 5,492-5,527 (notice and request for comments, February 3, 2003).



disorganized.<sup>3</sup> Second, the outcomes of economic analyses provide information about the economic efficiency or cost-effectiveness of proposed regulations, thereby helping to address the fundamental question of whether specific policies will make society better off. For this information to be reliable and useful, the regulatory analyses that produce it must employ methods that are consistent with economic theory, reflect best-practice empirical methods, and reveal the sensitivities of findings to underlying assumptions. In light of this, OMB should be commended for the proposed Guidelines, which, on the whole, mark a substantial improvement relative to the guidelines they would replace.

Through a diverse set of changes and additions, the revised Guidelines will increase significantly the quality of the information presented in regulatory analyses, making them more consistent with existing economic theory and empirical research, and facilitating the correct interpretation of such analyses. For example, the Guidelines provide a more thorough discussion of the two primary types of economic analysis used in evaluating regulation — cost-effectiveness and benefit-cost analysis — their differences and how their results should be interpreted. The Guidelines also introduce specific guidance on the implementation of benefit transfer and contingent valuation, two methods that are frequently employed in developing benefit estimates of regulation, but that produce results whose reliability can be substantially compromised if specific issues and problems are not carefully considered and addressed. Finally, the new requirements regarding the formal treatment of uncertainty will greatly enhance policymakers' awareness of the sensitivity of a regulatory analysis' results to particular assumptions and forecasts that may be subject to considerable uncertainty.

The following sections of these comments draw attention to particular aspects of the Guidelines that will have a positive impact on future regulatory analyses, suggest particular points that are important to add to the Guidelines to ensure the quality of future analyses, and suggest changes to the text that will ensure consistency with existing economic knowledge and will reduce the potential for misinterpretation of the Guidelines.<sup>4</sup> Section I addresses the value of considering regulatory options that place different requirements on different geographic regions. Due to the heterogeneity in the costs and benefits of many regulations across the country, serious consideration of such options can lead to more efficient regulation. Section II addresses the Guidelines' discussion of cost-effectiveness analysis. While the Guidelines provide a careful description of both benefit-cost and cost-effectiveness analysis, more could be done, including some specific changes to language that would make clear the limitations associated with cost-effectiveness analysis. Using the Administration's 2002 ruling on energy conservation standards for air conditioners as an example, Section III highlights the importance of evaluating multiple regulatory alternatives and the incremental net benefits or cost-effectiveness associated with each.

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<sup>3</sup>See: Arrow, Kenneth J., Maureen L. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G. Noll, Paul R. Portney, Milton Russell, Richard Schmalensee, V. Kerry Smith, and Robert N. Stavins. "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?" *Science*, volume 272, April 12, 1996, pp. 221-222.

<sup>4</sup>My failure to comment on any specific aspect of the Guidelines should not be taken as an indication that I agree with that aspect of the Guidelines.

While the Guidelines focus on describing appropriate methods of estimating the benefits and costs of regulations, OMB should also provide unambiguous guidance regarding methods that are sometimes found in government analyses but are inconsistent with economic theory and empirical evidence, such as “avoided cost” measures of benefits. Section IV discusses the need for such guidance. To underscore the importance of this, these comments describe the use of “avoided cost” measures in a recently proposed regulation affecting cooling water intake structures at power plants. The Guidelines have also introduced important new guidance for employing benefit transfer methods and incorporating benefits that cannot be easily monetized in a benefit-cost analysis, which are addressed in Section V. As discussed in Section VI, the Guidelines’ new requirements for treatment of uncertainty in regulatory analyses should substantially improve the quality of information made available to policymakers. On the whole, these Guidelines should enhance the capacity of the Federal government to develop efficient regulation. Section VII concludes.

### ***I. Consideration of Different Regulatory Requirements for Different Geographic Regions***

In its discussion of alternative regulatory approaches, OMB highlights a number of manners in which a proposed regulation can be altered that may make it more efficient. OMB’s recommendation to consider setting different requirements for different geographic regions is a valuable addition to the Guidelines. This type of flexibility in regulation recognizes the potential for significant heterogeneity across the country in both the costs of complying with particular regulations, and the benefits derived from such regulations. For example, in the case of environmental policies, regulation often targets emissions of a particular pollutant, yet the ultimate benefits are linked with reduced exposure to and damages from the pollutant on the part of affected populations and ecosystems. Because population density and many other factors affecting exposure and damages vary dramatically across regions, it is frequently the case that the benefits of reduced emissions differ significantly across the country. By emphasizing the need to consider requirements that differ across geographic regions, the Guidelines increase the probability that regulatory analyses will lead to more efficient regulations.

### ***II. Identifying the Limitations of Cost-Effectiveness Analysis***

In a departure from its previous guidelines, OMB has usefully distinguished two distinct tools of economic analysis, benefit-cost analysis (BCA) and cost-effectiveness analysis (CEA). While OMB provides important guidance on how these different analyses can be used to evaluate regulatory alternatives, it should more explicitly address the limitations of CEA. OMB correctly points out the value of BCA: “by measuring incremental benefits and costs of successively more stringent regulatory alternatives, you can identify the alternative that maximizes societal net benefits.”<sup>5</sup> In contrast, CEA only reveals which alternative can achieve a given objective at the lowest cost, when all alternatives are thought to achieve the same regulatory objective. Or, if alternatives involve objectives with varying stringency, CEA can identify the incremental cost of achieving increasingly stringent levels. Therefore, as OMB points out, CEA can be used to identify

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<sup>5</sup>Appendix C, Section III.A. of Draft 2003 Report to Congress, 68 Fed. Reg. 5,516.

the best alternative when the authorizing “statute specifies the level of benefits to be achieved.”<sup>6</sup> Moreover, it can inform policymakers as to the incremental cost of achieving increasingly stringent objectives. This can be particularly valuable when the benefits of those objectives cannot be monetized, and hence a benefit-cost analysis cannot be performed.

In contrast, CEA cannot “identify options that achieve the most effective use of the resources available,”<sup>7</sup> as the Guidelines suggest it can. If the value, or opportunity cost, of particular resources exceed the benefits of using them to achieve a regulatory objective, one cannot consider the application of those resources to that regulatory objective to be an effective use. Yet, because it does not measure benefits, CEA cannot reveal whether this is the case.

Because it does not address the benefits of each alternative, CEA cannot reveal which of a number of alternatives maximizes net social benefits, or if any of the alternatives considered make society better off. Therefore, one can *never* assume that the alternative with the most favorable results in a CEA, either on the basis of average cost-effectiveness ratios or incremental cost-effectiveness analysis, is the best alternative from the standpoint of maximizing social welfare. In examining two regulatory alternatives involving differing stringency, it may be the case that the more stringent alternative has the lower average cost-effectiveness ratio, but if the incremental benefits of each alternative are sufficiently low, the less stringent option would still yield greater net social benefits. Likewise, even if it has significantly higher average and incremental cost-effectiveness ratios, a more stringent option may still yield the greatest net social benefits. In summary, while CEA can be a useful analytical tool for evaluating regulations, it does not use information on the benefits of alternatives, and hence can lead to the identification of “fast trains to the wrong station.” OMB’s introduction to CEA in Section III.B of the Guidelines should be modified to avoid any potential misinterpretation of the insights that CEA can offer. At a minimum, the language cited above should be clarified and the limitations of CEA, relative to BCA, should be more explicitly stated.

### ***III. Evaluating Numerous Alternatives and Incremental Cost-Effectiveness and Net Benefits***

OMB’s recommendation that, whenever there is a continuum of alternatives for a standard, agencies should analyze at least three options — the alternative that is the focus of the initiative, a more stringent option, and a less stringent option — is commendable. In fact, this will have such a beneficial impact on the quality of information provided by a benefit-cost or cost-effectiveness analysis that it should be *required* rather than recommended (where allowed by the proposed regulation’s authorizing statute). The inclusion of at least three such options will allow for a more informed determination as to whether the regulation should be more, less, or as stringent as originally thought. Moreover, assessing three alternatives provides valuable information not only about how net benefits or cost-effectiveness changes in moving from one alternative to another, but

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<sup>6</sup>Appendix C, Section III.B. of Draft 2003 Report to Congress, 68 Fed. Reg. 5,517.

<sup>7</sup>Appendix C, Section III.B. of Draft 2003 Report to Congress, 68 Fed. Reg. 5,516.

also provides information as to whether one can expect that rate of change in net benefits to remain the same, increase, or decrease with increasingly stringent options that have not been thoroughly analyzed.

Related to OMB's recommendation to consider options with varying levels of stringency is its important emphasis on the need to evaluate alternatives by examining their incremental net benefits or cost-effectiveness, relative to the next-most stringent alternative. In the case of BCA, only by examining the incremental net benefits in going from one alternative to another can one identify the alternative that maximizes net benefits. The Bush Administration's May 2002 rulemaking regarding energy conservation standards for central air conditioners and heat pumps highlights the importance of evaluating a set of alternatives. It also demonstrates the importance of focusing on each alternative's marginal net benefits. In that rulemaking, the Administration chose a standard that set a minimum Seasonal Energy Efficiency Ratio (SEER) of 12.0 for central air conditioners, deciding against the more stringent 13.0 SEER rating favored by the Clinton Administration.<sup>8</sup> Relative to the status quo, the range of net social benefits for the 13.0 SEER suggested that such a standard could result in positive net benefits. But the range of net benefits for the 12.0 SEER were consistently higher, suggesting that the *incremental* net benefits of the 13.0 SEER were negative. Thus, the economic analysis revealed that — of those two options — the 12.0 SEER was the alternative that would maximize net benefits.

#### ***IV. Providing Guidance on Inappropriate Methods: "Avoided Cost" Measures of Benefits***

Compared to its 2000 guidelines, OMB has substantially augmented its discussion of methods for estimating benefits and costs in regulatory analyses. While OMB correctly states that good regulatory analysis cannot be conducted according to a formula and "requires competent professional judgment,"<sup>9</sup> OMB's more detailed discussion of methods for estimating costs and benefits is nonetheless important because it will increase the likelihood that methods employed in regulatory analyses will remain consistent with economic theory. The Guidelines can largely be characterized as describing how to estimate *correctly* costs and benefits. It is also essential for OMB to give agencies unambiguous guidance as to particular methods that are *not* appropriate for estimating costs and benefits. In fact, the distinction that the Guidelines draw between cost-effectiveness and benefit-cost analysis highlights one particular method of "benefit estimation" that, while fundamentally invalid, has nonetheless been employed in past economic analyses. This method is sometimes referred to as an "avoided cost" method. In at least one recent case, variations of this method were used in a regulatory analysis that was required under Executive Order 12866 and other related authorities — the very type of analysis that the Guidelines are specifically meant to improve.

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<sup>8</sup>Energy Conservation Program for Consumer Products; Central Air Conditioners and Heat Pumps Energy Conservation Standards, 67 Fed. Reg. 36,368 - 36,408 (May 23, 2002) (to be codified at 10 C.F.R. pt. 430).

<sup>9</sup>68 Fed. Reg. 5,514.

In the case of regulatory analyses that are used to evaluate different alternatives to achieve the same regulatory objective (for example, a particular level of pollution reduction), recall that benefit-cost analysis can not only inform policymakers of which alternative yields the greatest net benefits, but can also inform policymakers whether the benefits of any of the alternatives exceed their respective costs. In other words, it can reveal whether, given the cost of alternatives considered, society would be made better or worse off by achievement of the regulatory objective under consideration. In stark contrast, cost-effectiveness analysis can only reveal which alternative can achieve the regulatory objective at the lowest cost. The fact that cost-effectiveness finds that one alternative allows society to achieve an objective at a lower cost than another provides no information about whether the benefits of achieving that objective exceed even the lowest cost associated with doing so.

Despite this clear distinction, it is not uncommon for analyses to use *inappropriately* the cost of other means of achieving a regulatory objective as a measure of the “benefits” of the particular alternative under consideration. At least two variations of this inappropriate “avoided cost” method have been used to estimate benefits: (1) labeling as a “benefit” the cost of a hypothetical alternative that would achieve the same regulatory objective (at greater cost); and (2) labeling as a “benefit” the historical cost to comply with previous regulations or other government initiatives that achieve similar objectives. Whenever such methods are used, if one finds that the so-called “benefits” exceed costs, one has only conducted a cost-effectiveness comparison. Such a comparison says nothing about whether the alternative under consideration would yield positive net benefits and thereby make society better off!

The recent proposed regulation addressing cooling water intake structures at certain existing power plant facilities provides examples of both variations of this flawed methodology, and of the significant impact they can have on regulatory analyses.<sup>10</sup> In its regulatory impact analysis, the U.S. Environmental Protection Agency finds that “the majority of environmental impacts associated with intake structures are caused by water withdrawals that ultimately result in aquatic organism losses [as a result of impingement and entrainment (I&E) of those organisms].”<sup>11</sup> Asserting that “conventional techniques to value the benefits of technologies that reduce I&E losses at section 316(b) facilities can omit important ecological and public services,” EPA decided instead to employ two thoroughly flawed and completely invalid methods for benefit estimation that are examples of the two “avoided cost” approaches described above.

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<sup>10</sup>National Pollutant Discharge Elimination System - Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities, 67 Fed. Reg. 17,122 - 17,225 (proposed April 9, 2002). See: Stavins, Robert N. Letter to Proposed Rule Comment Clerk — W-00-32, Re: Comments on Proposed Rule, RIN 2040-AD62 Clean Water Act Section 316(b) — National Pollutant Discharge Elimination System — Proposed Regulations for Cooling Water Intake Structures at Phase II Existing Facilities, EPA ICR no. 2060.01. July 19, 2002.

<sup>11</sup>67 Fed. Reg. 17,136. Impingement occurs when fish and other aquatic life are trapped against cooling water intake screens. Entrainment occurs when aquatic organisms, eggs and larvae are drawn into a cooling system, through the heat exchanger, and then pumped back out.

EPA characterizes its application of the first type of avoided-cost measure as the Habitat-Based Replacement Cost (HRC) method. The habitat replacement costs estimated by EPA are the design, implementation, administration, maintenance, and monitoring costs of various identified means of restoring under-water habitats in the hopes of producing the same increase in ecological services and service flows that would be expected from the various technological alternatives that EPA was evaluating for reducing the impacts of cooling water intake structures.<sup>12</sup> In other words, these are the costs of another alternative — and a very costly alternative — for achieving the same regulatory objective as that sought by the proposed regulation. Consequently, these estimates might conceivably be useful for a cost-effectiveness analysis that evaluates the cost of the proposed regulation relative to other alternatives that would achieve the same objective, but EPA uses these *costs* as a substitute for the *benefits* of the proposed regulation. While mitigation, restocking, and/or habitat restoration may be acceptable approaches as alternatives to the installation of specific technologies in order to offset I&E losses, the cost of such alternatives is in no sense whatsoever a reasonable proxy for the value (that is, the benefit) of reducing I&E. A more costly alternative to achieving a particular objective can always be identified to make a proposed regulation appear cost-effective by comparison. Worse yet, by calling the cost of the alternative a benefit, as the HRC method does, this approach can be used to make virtually any proposed regulation appear socially desirable.

It is very important that the approach taken by EPA with its completely invalid HRC method not be confused with legitimate applications of “defensive expenditure” or “averting behavior” methods of estimating benefits.<sup>13</sup> Those methods are based upon observed actions, that is, individual (and/or group) behavior. In particular, a necessary condition for using defensive expenditures or averting behavior for purposes of benefit estimation is that the researcher *observes* people revealing their preferences by *actually (and voluntarily) incurring costs* to avert (or tolerate) the environmental disruption in question.<sup>14</sup> By observing individuals take actions that involve incurring particular costs, one can infer that the individual is taking that action because its benefits to that individual outweigh its costs. This is obviously not the case with the hypothetical habitat replacement activities that EPA uses to develop its estimates. Indeed, EPA makes no claims that such activities have actually and voluntarily been carried out by individuals.

The second invalid avoided-cost methodology employed by EPA in the same regulatory analysis is characterized by EPA as “societal revealed preference” (SRP). Here, rather than using the cost of a hypothetical alternative to achieve a particular objective as an estimate of the benefits of achieving that objective, EPA uses the historical cost to restore particular species under previous

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<sup>12</sup>67 Fed. Reg. 17,191.

<sup>13</sup>Such methods are noted in Section IV.B.4.b of the Guidelines. 68 Fed. Reg. 5,519.

<sup>14</sup>See: Freeman, A. Myrick. *The Measurement of Environmental and Resource Values: Theory and Methods*. Second Edition. Washington, D.C.: Resources for the Future, 2003; and Abdalla, C., B. Roacham, and D. Epp. “Valuing Environmental Quality Changes Using Averting Expenditures: An Application to Groundwater Contamination.” *Land Economics* 68(1992): 163-169.

government mandates (which were themselves adopted without any systematic benefit-cost analysis) as an indication of the benefit of protecting these species through the regulation being considered by EPA.<sup>15</sup> As with the HRC method, because there is no basis whatsoever for assuming that the benefit of meeting these various government mandates exceeded their costs, the only thing the historic costs can indicate is whether the proposed regulation achieves protection of particular species at a higher or lower cost. The historic costs certainly cannot be used as legitimate substitutes for real measures of benefits.

So, like the HRC method, this avoided-cost approach has no foundation in economic theory, is not accepted by economists as a legitimate empirical method of valuation, and is no more than a method of cost analysis mistakenly applied to the benefit-side of the ledger. The SRP method is a complete corruption of the notion of a *revealed-preference* method, an essential characteristic of which is that the benefits — the willingness to pay — is revealed by those individuals (or groups) who are doing the paying, *not* by the judgement of others (in this case, legislatures, executive departments and agencies, and/or courts). There is no sound logic behind taking the costs that are incurred in achieving various government programs and policies as being indicative of the true benefits of those programs and policies.

Note that the very purpose of a benefit-cost analysis is to assess projects, programs, and policies by comparing their benefits and their costs. The SRP methodology completely reverses this, and takes the fact that a project, program, or policy exists as evidence that its benefits exceed its costs (and therefore that its benefits can be proxied by its costs, at a minimum). Use of this approach would imply that any project, program, or policy that is approved by a legislature, executive agency, or court has true benefits at least equal to its costs, and — presumably — that failure of the government to carry out any project, program, or policy indicates that its social benefits are less than its costs. This makes a complete sham of the very process of regulatory analysis in which the Guidelines are used. It also renders meaningless requirements for benefit-cost analysis, such as those imposed under Executive Order 12866.

The impact of these invalid analytical methods on the quality of regulatory analyses and the efficiency of regulations that are informed by them should not be underestimated. By EPA's own estimates, the proposed rule it evaluated using these methods would impose social costs on the order of \$300 million annually. The two "avoided cost" methods substantially compromised the validity of EPA's benefit estimates, as is evident by examining the impact of the HRC method alone. EPA estimated national benefits by using and extrapolating results found in eight case studies of particular power plants, four of which employed the HRC method. For these four power plants, the benefit estimates derived from the HRC method exceeded estimates derived from approaches more

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<sup>15</sup>U.S. Environmental Protection Agency, *Case Study Analysis for the Proposed 316(b) Phase II Existing Facilities Rule*, A12 - 18, February 2002, available at <http://www.epa.gov/waterscience/316b/casestudy/>.

consistent with economic theory by between a factor of six and more than 100!<sup>16</sup> Consequently, the HRC method clearly had a substantial impact on EPA's "high" estimate of national benefits. Moreover, because the "best estimate" that EPA presents is simply the average of its low and high estimate, the use of these flawed methods dramatically affects the validity of EPA's benefit estimates for that proposed regulation.

This example underscores the importance of OMB providing guidance regarding those approaches that agencies may employ that are not presently addressed in the Guidelines. First, it is essential that the Guidelines directly address these invalid "avoided cost" methods. As indicated above, the distinction between benefit-cost analysis and cost-effectiveness analysis provides the basis for explaining the fundamental lack of validity of such methods of "benefit estimation." Second, OMB should revise its introduction to methods for estimating the benefits of goods that are not directly or indirectly traded in markets. Section IV.B.2 states, "while innovative estimation methods are sometimes necessary [for valuing particular benefits], they increase the need for quality control to ensure that estimates conform closely to what would be observed if markets did exist."<sup>17</sup> This statement is an open invitation to the use of self-proclaimed, but invalid, "innovative methods." An agency would simply need to assert that the benefits the method purportedly estimates cannot be easily estimated through other means. The merits of innovative estimation methods, and the decision as to whether to include them in an economic analysis, should always be based on whether those methods are supported by sound economic theory and best empirical practice, not on the difficulty of measuring the benefits of a regulation through other methods. So called "innovative methods" should clearly not be introduced into an analysis if they are conceptually invalid and empirically biased.

#### ***V. Benefit Transfer, Contingent Valuation, and Addressing Non-Monetized Benefits***

Because of the time and expense involved in carrying out benefit estimates for regulatory analyses, agencies frequently rely upon extrapolation of values from previous studies. Such "benefit transfer" has become a common feature of regulatory analyses. Therefore, it is extremely important for OMB to establish guidance regarding the use of this "method." As the Guidelines correctly point out, because of the difficulty of identifying appropriate existing studies for benefit transfer and the error that can be introduced in performing such transfer, the method should be used only as a last resort. This is particularly the case if the results of a benefit transfer are likely to be a dominant component of the overall benefit estimate.

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<sup>16</sup>EPA uses the HRC method to estimate benefits in case studies of the impacts of I&E at the Brayton Point Station, Pilgrim Nuclear Power Plant, J.R. Whiting Power Plant, and the Monroe Power Plant. U.S. EPA (2002) at F6-1, G6-9, H6 - 5, I6 - 5.

<sup>17</sup>68 Fed. Reg. 5,518.



The Guidelines usefully describe a number of factors, identified by past economic research, that must be considered to improve the reliability of estimates derived from benefit transfer.<sup>18</sup> As Brookshire and Neill (1992) point out, “benefit transfers are valid under well-defined conditions.” Hence, analysts must be careful to meet those conditions, which fall under two general categories: *soundness* (of the analytical methodology employed in the “study case” from which information on benefits are transferred) and *similarity* (of the study case and the “policy case” to which information on benefits are transferred). Soundness of the original study case analysis is crucial. Along with transferring benefit estimates from a previous study, benefit transfer also transfers any flaws and uncertainties embedded in the previous study. As advances in economic research continue to identify factors that affect the soundness of primary estimation methods, assessing the quality of the underlying analysis in benefit transfers is essential.

The second general factor, similarity, entails not only the similarity of the good or service being valued in the previous study to that being examined in the regulatory analysis, but also the similarity of the population valuing the good or service in both cases, and of external factors that may affect the valuations, such as the availability of substitutes. Furthermore, the baseline and degree of change (induced by the policy) should be similar. All of this is particularly challenging in the natural resource context, because values are typically highly dependent upon location. Previous studies have frequently examined the value of unique resources, such as air quality in the Grand Canyon or particular high-profile endangered species. The uniqueness of those resources greatly affects their respective values. The Guidelines properly single out such studies as highly suspect bases for benefit transfer purposes.

Three benefit-transfer methods have been utilized in the past. With the simplest — point estimates — the numerical value from the study case is adopted for the regulatory analysis of the policy case. Because of lack of similarity, this is *virtually never appropriate*. A preferred approach adopts a benefit function (equation) from the study case, and employs values of exogenous variables from the policy case in order to adjust for some of the factors that differentiate the policy and study cases, thereby allowing a more accurate benefit estimate for the regulation under investigation. Similarly, meta-analysis can be used to combine values from a set of previous studies, estimate statistically the dependence of those values on various explanatory variables, and then employ values of these variables from the policy case to estimate benefits.<sup>19</sup>

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<sup>18</sup>For a more detailed discussion of appropriate implementation of the benefit transfer method, and the factors that can affect its reliability, see: Desvousges, William H., F. Reed Johnson, and H. Spencer Banzhaf, *Environmental Policy Analysis with Limited Information: Principles and Applications of the Transfer Method*. Northampton, MA: Edward Elgar Publishing, Inc. 1998; and the special section of *Water Resources Research* (Vol. 28, No. 3, March 1992) introduced by David Brookshire and Helen Neill, “Benefit Transfers: Conceptual and Empirical Issues,” *Water Resources Research*. 28(3), March 1992: 651-655.

<sup>19</sup>See: U.S. Environmental Protection Agency. *Guidelines for Preparing Economic Analyses*. Office of the Administrator, EPA 240-R-00-003. Washington, D.C., September 2000.

The good news regarding benefit transfer approaches is that they are relatively quick and relatively cheap, compared with direct analysis of environmental benefits. The bad news, however, is that they are both less accurate and less reliable than carrying out an appropriate analysis of the case in question.<sup>20</sup> And, worse yet, the arbitrary judgements that benefit transfer can require opens up the possibility of unintentional bias or even intentional manipulation. The bottom line on benefit-transfer methods may be that “the devil is in the details.” Whenever possible, a legitimate revealed-preference method of benefit estimation should be employed. When this is not feasible, as in the case of “non-use value,” then analysts may choose to employ stated-preference methods, such as contingent valuation. And when that is not possible, then analysts may be forced to rely upon benefit transfer, but this should be done carefully and honestly, or not at all.

The potential use of benefit transfer methods can be viewed in the context of the Guidelines’ discussion of methods to address benefits that are particularly difficult to quantify. As indicated above, another category of methods often used to address such benefits is known generally as *stated preference methods*, in which people are asked through surveys to state their willingness to pay for particular amenities. The first thing to be said about stated preference or survey methods — which often go under the label of “contingent valuation” — is that they are *not* universally accepted by economists. Indeed, it is fair to say that these methods are controversial within the economics community.<sup>21</sup> Nonetheless, the fact remains that they offer the only feasible means to attempt to estimate certain benefits, such as non-use values. Consequently, it is important that OMB address these methods in the Guidelines.<sup>22</sup> Many of the “best practices” for contingent valuation described in the Guidelines are consistent with those set out in the 1993 *Report of the NOAA Panel on*

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<sup>20</sup>The need to account for and assess the implications of uncertainty (see Section VI of these comments) is especially important when benefit transfer methods are used. In particular, analyses should identify the impacts on resulting estimates of the numerous judgments that are made in the course of benefit transfer. This issue merits discussion in the Guidelines.

<sup>21</sup>See, for example: Hausman, Jerry A., ed. *Contingent Valuation: A Critical Assessment*. Amsterdam: North-Holland, 1993. The authors of critiques in this volume include a remarkable set of leading economists, two of whom are Nobel laureates. For a more recent (and more balanced) view of the debates still raging among economists, see the following three articles: Portney, Paul R. “The Contingent Valuation Debate: Why Economists Should Care.” *Journal of Economic Perspectives* 8(1994): 3-17; Hanemann, W. Michael. “Valuing the Environment through Contingent Valuation.” *Journal of Economic Perspectives* 8(1994): 19-43; and Diamond, Peter A. and Jerry A. Hausman. “Contingent Valuation: Is Some Number Better than No Number?” *Journal of Economic Perspectives* 8(1994): 45-64. All three articles are reproduced in: Stavins, Robert N. *Economics of the Environment*. Fourth Edition. New York: W. W. Norton & Company, 2000.

<sup>22</sup>In fact, because of the difficulty associated with conducting a valid study that employs stated preference methods, benefit transfer is often used to transfer results from existing studies that use these methods to the policy case of concern in a regulatory analysis. Consequently, as stated preference methods are often employed in the study case of a benefit transfer method, OMB’s discussion of factors affecting the validity of estimates that result from these methods is important to consider not only when conducting original studies using stated preference methods, but also when evaluating the soundness of a study case that employs these methods in the context of benefit transfer.

*Contingent Valuation.*<sup>23</sup> Indeed, the design and implementation of contingent valuation studies incorporated in regulatory analyses, and the reliability of the resulting estimates, should be evaluated by the studies' adherence to the guidelines established in that *Report* and the findings of more recent research on factors affecting reliability. The fact that a decade of research has occurred since that *Report* was issued suggests that it may be worthwhile to convene a panel once again that would produce an updated set of "best practice" recommendations, an idea that has been suggested by my colleague, Dr. James Hammitt.

Finally, on the issue of benefits deemed too difficult to monetize, OMB makes two valuable points. First, even if such impacts are not monetized, other means of quantifying those benefits (for example, in biophysical terms) can provide valuable information to policymakers regarding the weight to be given to those benefits relative to other, monetized benefits. Second, non-quantifiable benefits should not be used as "trump-cards" in an analysis. The more that analysts believe that specific non-quantifiable benefits may substantially affect the ultimate findings of a benefit-cost analysis, the more compelled should those analysts be to seek to monetize those benefits, even when this requires implementing more costly and time-consuming valuation procedures.

## ***VI. Evaluating and Presenting Information on Uncertainty in Regulatory Analyses***

Uncertainty is a prominent feature of many regulatory analyses, and the apparent merits of regulatory alternatives can often depend on the assessment of such uncertainty. OMB should be commended for the new requirements in its Guidelines for formal treatment of relevant uncertainties in analyses of regulations with annual costs above \$1 billion. This can bring much needed attention to the impact of various assumptions and parameters, such as discount rates, on the estimates produced by an economic analysis. Indeed, given the importance of this aspect of regulatory analyses, OMB should consider a lower or less definitive cost threshold for triggering this requirement. Moreover, not only is it "usually helpful to provide a sensitivity analysis to reveal whether, and to what extent, the results of the analysis are influenced by plausible changes in the main assumptions," as is stated in the section titled, "What Should Go Into a Regulatory Analysis?," it is absolutely essential.<sup>24</sup>

Even if uncertainty analysis is not of the formal nature to be required for regulations above the cost threshold, sensitivity analysis should be required for key assumptions in *all* regulatory analyses. While presenting upper and lower bound estimates is a common means of representing the effects of uncertainty, this can be highly misleading, since it implies to most decision makers a uniform distribution of uncertainty between the bounds, which is rarely the case. Identical confidence intervals (upper and lower bounds) can emerge from very different probability

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<sup>23</sup>This report was the product of the deliberations of a panel of economists and other social scientists appointed by the National Oceanic and Atmospheric Administration. The panel included Nobel Laureates Kenneth Arrow and Robert Solow. See: Arrow, Kenneth, Robert Solow, Paul Portney, Edward Leamer, Roy Radner, and Howard Schuman. "Report of the NOAA Panel on Contingent Valuation." In 58 Fed. Reg. 10 (January 15, 1993).

<sup>24</sup>68 Fed. Reg. 5,514.

distributions. Figure 1 depicts the results in terms of anticipated net benefits of two very different studies. One study has a much greater expected value (mean) of net benefits, but the upper and lower bounds (conventionally set so that 95% of the mass of the probability distribution lies between the bounds) are identical.<sup>25</sup> Therefore, it should be required that some description of the distribution of possible outcomes within confidence bounds accompany all presentations of those bounds (for example, in the proposed accounting statement). In the event of a highly skewed distribution of possible outcomes, such additional information could simply entail pointing out that while a particular range of outcomes is possible, the best estimate (expected value) is quite near one of the bounds.

## ***VII. Conclusions***

OMB's "Draft Guidelines for the Conduct of Regulatory Analysis and the Format of Accounting Statements" provides a thorough discussion of the two primary types of economic analysis used in evaluating regulation, cost-effectiveness and benefit-cost analysis, their differences, and how their results should be interpreted. The Guidelines also introduce specific guidance on the implementation of benefit transfer and contingent valuation, two methods that are frequently employed in developing benefit estimates of regulation, but that produce results whose reliability can be compromised if specific issues and problems are not carefully considered and addressed. Finally, the new requirements regarding the formal treatment of uncertainty will enhance policymakers' awareness of the sensitivity of the regulatory analysis' results to particular assumptions and factors that may be subject to considerable uncertainty.

There are many areas where the Guidelines can be strengthened further. I have emphasized one area where important changes need to be made. While the Guidelines focus on describing *appropriate* methods of estimating the benefits and costs of regulations, OMB should *also* provide unambiguous guidance regarding *fundamentally invalid* methods that should not be used by agencies, but are sometimes found in government studies, despite their inconsistency with economic theory and empirical evidence, in particular, so-called "avoided cost measures of benefits."

Two variations of this inappropriate "avoided cost" method that have previously been used by agencies to estimate benefits are: (1) labeling as a "benefit" the cost of a hypothetical alternative that would achieve the same regulatory objective (at greater cost); and (2) labeling as a "benefit" the historical cost to comply with previous regulations or other government initiatives that have achieved similar objectives. Whenever such methods are used, if one finds that the so-called "benefits" exceed the costs of the regulatory alternative under consideration, one has only found that the regulatory alternative under consideration provides a lower cost means of achieving a particular objective than the hypothetical alternative whose cost underlies the "avoided cost measure of benefits." Such a comparison says nothing about whether the alternative under consideration would yield positive net benefits and thereby make society better off!

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<sup>25</sup>In both cases in Figure 1, net benefits would not be judged to be significantly greater than zero if the upper and lower bounds indicated the 95% confidence interval.

With some additional work, as I have outlined in these comments, the Guidelines will significantly increase the quality of the information presented in regulatory analyses, making them more consistent with existing economic theory and empirical research, and facilitating the correct interpretation of such analyses.

Sincerely,

*Robert N. Stavins*

Robert N. Stavins

Figure 1: Probability Distribution of a Hypothetical Regulation's Net Benefits

