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Comments on
"Increasing Consistency and Transparency in Considering Costs and Benefits
in the Rulemaking Process"

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President

I. PROBLEM DESCRIPTION

EPA recognizes that the Agency's conduct and use of benefit-cost analysis has often lacked transparency and suffered from inconsistency.[1] These acknowledgements are to be applauded without reservation. Publicly stating what is widely known helps begin the process of developing and implementing remedies.

These problems relate to, among other things, economic terminology and analytic scope,[2] a lack of consistent compliance with applicable guidance,[3] and the

[1] U.S. Environmental Protection Agency (2018a), p.27527: "EPA is requesting comments regarding perceived inconsistency and lack of transparency in how the Agency considers costs and benefits in rulemaking, potential approaches for addressing these concerns, and the scope for issuing regulations to govern EPA's approach in future rulemakings."

[2] Ibid., p. 27524: "Most statutory provisions require or allow some consideration of cost and benefits when setting pollution standards, but there is variation in terminology and specificity provided in each law regarding the nature and scope of the cost and benefit considerations."

[3] Ibid., p. 27524: "EPA is also soliciting comment on whether and how these regulations, if promulgated, could also prescribe specific analytic approaches to quantifying the costs and benefits of EPA regulations."

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interpretation of relevant statutory requirements when they have economic implications.[4] In the ANPRM EPA announces that it is considering regulatory solutions.[5]

Section II responds broadly to the issues by identifying seven plausible causes. Section III identifies five plausible remedies that are widely discussed within the analytic community. Section IV responds to the specific requests for comment in the ANPRM.

These comments reflect the views of the author and have not been prepared at the request or suggestion of any interested party. They are intended to assist EPA in improving the transparency and consistency of its benefit-cost analyses and regulatory decision-making.

II. PLAUSIBLE CAUSES OF NONTRANSPARENCY AND INCONSISTENCY

There are at least eight reasons why EPA benefit-cost analyses and regulatory decisions so often lack transparency and consistency. The Agency must grapple with causal factors before proposing remedies.

A. Statutory variability

In the ANPRM, the Agency primarily attributes problems with nontransparency and inconsistency to differences in its statutory directives and only hints at other possible causes.[6] To the extent that statutory differences matter, however, they do not concern the conduct of benefit-cost analysis. Rather, they are criteria for weighting benefits and costs in decision-making that Congress left undefined. Some of these terms (e.g.,

[4] Ibid., p. 27524: "In this advance notice of proposed rulemaking (ANPRM), EPA is soliciting comment on whether and how EPA should promulgate regulations that provide a consistent and transparent interpretation relating to the consideration of weighing costs and benefits in making regulatory decisions in a manner consistent with applicable authorizing statutes."

[5] Ibid., p.27526-27527: "EPA specifically seeks comment on whether, and if so, how EPA should promulgate regulations that specify how the Agency will approach its consideration of costs and benefits in setting pollution standards, consistent with statutory direction."

[6] Ibid., p. 27525-27526, comparing provisions of the Clean Air Act; the Clean Water Act; and the Federal Insecticide, Fungicide, and Rodenticide Act. Problems with transparency and consistency also affect other statutes EPA implements, including the Resource Conservation and Recovery Act; the Safe Drinking Water Act; the Comprehensive Environmental Response, Conservation, and Liability Act; the Emergency Planning and Community Right-to-Know Act; the Oil Pollution Act; and the Pollution Prevention Act, among others.

"achievable" and "feasible") can be defined economically. Others (e.g., "appropriate," "reasonable," and "practicable") are impossible to define objectively.

B. Agency policy preferences

Congress has delegated enormous legislative authority to EPA, it is unsurprising that EPA has exercised this discretion. But it equally unsurprising that EPA has chosen not to be transparent about it; transparency would reduce the degree of discretion available for future decision-making and potentially make EPA accountable for its choices.

None of the statutes EPA administers directs the Agency to embed policy judgments into its analytic methods, but this is a key way the Agency accomplishes nontransparency. Ironically, it also has the plausibly unintended consequence of reducing future discretion, or more precisely, ensuring that Agency discretion can only be exercised in particular ways. This can be found in Agency risk assessment policies and practices, and also in how it implements its own benefit-cost analysis guidance.

1. Risk assessment

In the 1983 *Red Book*, a committee of the National Research Council recommended that EPA

> take steps to establish and maintain a clear conceptual distinction between assessment of risks and the consideration of risk management alternatives; that is, the scientific findings and policy judgments embodied in risk assessments should be explicitly distinguished from the political, economic, and technical considerations that influence the design and choice of regulatory strategies.[7]

The Committee made clear why clear distinctions between science and policy were essential:

> Although the Committee concludes that risk assessment cannot be made completely free of policy considerations, it also believes that

[7] National Research Council (1983), p. 151.

> policy associated with specific risk management decisions should not influence risk assessment unduly. Risk assessment and risk management involve different goals, kinds of expertness, and operating principles. The goal of risk assessment is to describe, as accurately as possible, the possible health consequences of changes in human exposure to a hazardous substance; the need for accuracy implies that the best available scientific knowledge, supplemented as necessary by assumptions that are consistent with science, will be applied. The ultimate aim of risk management is to evaluate tradeoffs between health consequences and other effects of specific regulatory actions; this evaluation includes the application of value judgments to reach a policy decision.[8]

This advice, had EPA followed it, would have kept the policy-neutral work of scientists distinct from the policy-laden work of agency decision-makers.[9] Instead, EPA willfully avoided creating and maintaining the "clear conceptual distinction" the Committee recommended. A key area of nontransparency and inconsistency is EPA's longstanding practice of embedding within nominally positive risk assessments certain risk management preferences that the public does not know about. In order to evade public accountability, EPA made the boundaries between risk assessment and risk management hopelessly blurry.

Proof that this occurred can be found in a remarkably candid internal review of Agency risk management procedures:

> [S]ince EPA is a health and environmental protective agency, EPA's policy is that risk assessments should not knowingly underestimate or grossly overestimate risks. This policy position prompts risk assessments to take a more 'protective' stance given the underlying uncertainty with the risk estimates generated. Another framing policy position is that EPA will examine and report on the upper end of a range of risks or exposures when we are not very certain about where the particular risk lies…

[8] Ibid., p. 151.

[9] That EPA did not follow this advice is clear from North (2003).

> …[W]hen several parameters are assessed, upper-end values and/or central tendency values are generally combined to generate a risk estimate that falls within the higher end of the population risk range.[10]

These "framing policies" ensure that EPA risk assessments are upwardly biased and incompatible with benefit-cost analysis because biases are unknown but vary in magnitude if not direction.

2. Benefit-cost analysis

In almost every instance where nontransparency and inconsistency occur in EPA benefit-cost analyses, it is because the Agency has allowed its policy preferences to override science, economics, or both. Inconsistency is a predictable consequence (and nontransparency arises because) of political, institutional, or legal desires not to "maintain a clear conceptual distinction" between policy-neutral science and economics and normative decision-making.

A recent strawman regulatory impact analysis for a proposed EPA deregulatory action is instructive because it shows how Agency policy preferences continue to infect Agency benefit-cost analysis.[11] A review was conducted of EPA's 2016 benefit-cost analysis for a rule setting greenhouse gas emission standards for heavy-duty trucks.[12] Present value benefits were overstate by at least $249 billion because transfers to foreign consumers were counted as benefits (an $80 billion error) and firms that purchase heavy-duty trucks were assumed to make irrational choices (a $169 billion error. When these errors alone are corrected, the present value net benefits of the rule became negative, suggesting that the entire rule would not have survived an objective economic analysis.

In addition, despite the heft of this regulatory impact analysis – it clocked in at 1,116 pages – EPA revealed no estimate of the incremental benefits and costs of banning

[10] U.S. EPA Office of the Science Advisor (2004), p. 13.

[11] Belzer (2018a). This work was performed on behalf of Fitzgerald Glider Kits, LLC, and completed in approximately two weeks.

[12] U.S. Environmental Protection Agency and National Highway Traffic Safety Administration (2016).

gliders from the heavy-duty truck market. This direct contravened Agency guidelines, which require incremental analysis of key, separable provisions.[13]

The gross overestimation of benefits and the absence of incremental analysis of the glider ban are errors so obvious that they cannot be attributed to technical incompetence. Rather, they reflect the politicization of benefit-cost analysis by senior Agency officials. Whether it is possible to prevent such mischief in the future is beside the point. That it still happens, 35 years after benefit-cost analysis was first instituted as a requirement for major rulemakings, strongly suggests that treating the infection of policy preferences within Agency benefit-cost analysis requires more aggressive forms of intervention.

C. Interoffice variability

EPA program offices vary on many margins, including technical competence in risk assessment, benefit-cost analysis, and their propensity to embed hidden policy biases within them. EPA program offices that implement statutes which require benefit-cost balancing will tend to employ better-trained risk assessors and economists, and permit them to perform high-quality work. Program offices that implement risk-based statutes may direct their risk assessors to exaggerate risk and ignore costs. Program offices that implement technology-based statutes have little use for either risk assessment or economics.

To the extent that nontransparency and inconsistency are the result of program office culture, no improvement is possible without cultural change. Internal management controls will be necessary, such as for establishing standards for personnel performance reviews, but they won't be sufficient. Internal incentives must change, and these all involve imposing costs on personal and institutional conduct which leads to nontransparency and inconsistency.

[13] U.S. Environmental Protection Agency (2014), p. 11-2: "An economic analysis of regulatory or policy options should present *all* identifiable costs and benefits that are *incremental to the regulation* or policy under consideration" (emphasis added). This is a well-understood expectation. See also Dudley, Belzer, Blomquist, Brennan, Carrigan, Cordes, Cox, Fraas, Graham, Gray, Hammitt, Krutilla, Linquiti, Lutter, Mannix, Shapiro, Smith, Viscusi and Zerbe (2017), p. 8: "For a rule with multiple components…, an RIA that estimates the benefits and costs of the rule as a whole, without presenting the marginal impacts of the key elements, will not reveal the merits of individual requirements."

D. Judicial Review

Unless Congress clearly states what is wants, EPA is permitted to interpret ambiguous statutory language however it sees fit. Because environmental statutes are replete with regulatory ambiguity, oftentimes because Congress does not want to admit to and take responsibility for tradeoffs, nontransparency and inconsistency are to a considerable extent the predictable result of congressional abdication of its constitutional responsibilities to the administrative state.

Other branches of the government may push back, but these efforts generally are ineffective. The courts hardly push back at all because of the decades-long delegation of judicial authority to agencies, culminating in *Chevron*.[14] Rarely do the courts consider nontransparency and inconsistently as procedural defects. And by deferring to agency expertise, the courts license agencies to be nontransparent and inconsistent.

E. Centralized review

That leaves the Executive Office of the President, typically acting through the Office of Information and Regulatory Affairs (OIRA), to bear the full burden of improving transparency and consistency. Nearly four decades later, OIRA's record is mixed. In theory, consistency is enhanced by multiple presidents' commitment to a common preference for how administrative discretion is to be exercised, enforced by professional staff that oversee regulatory across multiple agencies. But whatever consistency might be found there – and there are ample grounds for concluding that it is largely imaginary[15] – it is not consistently applied in centralized review.

OIRA took a significant step forward in 2002 with the issuance of government-wide information quality guidelines (IQGs) that all agencies were required to mimic.[16] These guidelines set a high minimum standard of transparency with respect to information contained in regulations, supporting documents, risk- and economic analyses, and other

[14] Chevron U.S.A., Inc. v. Natural Resources Defense Council (1984).

[15] The policy preferences in Executive Order 12291 that might foster consistency Reagan (1981), § 2 are ambiguous, with key caveats strewn throughout, and transparency is not mentioned. The regulatory philosophy in § 1 of Executive Order 12866 Clinton (1993) is an exemplary model of obfuscation that is further contradicted by several of the 12 principles in § 2. None of these 12 principles calls for transparency.

[16] Office of Management and Budget (2002) and U.S. Environmental Protection Agency (2002a).

materials. However, Agency compliance has been sporadic at best and OIRA enforcement virtually nonexistent.

While the IQG definition of *information* is exceedingly broad because of its relationship to the Paperwork Reduction Act,[17] it does not cover policy matters such as the interpretation of key, judgment-based statutory terms (e.g., "appropriate," "reasonable," "practicable," "achievable," "feasible," etc.). That is, the IQGs were not intended to improve transparency in policy judgment, which appear to be the primary concern of the ANPRM. Thus, even if EPA had faithfully implemented the IQG, nontransparency across subjective statutory terms would remain.[18]

F. Politicization

Politicization is the (usually *sub rosa*) insertion of policy judgments into the domains of science, engineering, and economics. These latter domains have strong traditions favoring refutable theories, testable hypotheses, data rather than assumptions, and consistent analytic rigor. Though policy preferences may be informed by science, they cannot be supplanted by science because they are not refutable, offer no testable hypotheses, and do not require data or analysis for justification.

Politicization would occur if environmental statutes willfully distorted the neutral pursuit of facts or knowledge. Fortunately, examples are hard to find. The forms of inconsistency cited in the ANPRM are not examples of statutory politicization, for none forces the Agency to seek out a distorted picture of reality. Nor do any of these statutes direct EPA to estimate risks or conduct benefit-cost analysis incorrectly. EPA has ample discretion to interpret vague and perplexing text in transparent and consistent ways.[19]

Agency leadership politicizes science when it encourages or requires policy conformity in data collection, hypothesis testing, or the dissemination of research results. But Agency staff do this, too. Indeed, EPA staff have a formal policy *favoring* the

[17] Office of Management and Budget (2002), p. 8460 [Sec. V.6].

[18] Or be worse. As EPA made science, economics, and other information transparent, it would have faced unrelenting pressure to make its exercises of policy discretion even more obfuscatory.

[19] This is not to say that individual Senators and Members of Congress do not attempt to politicize science. Rather, it is to say that environmental statutes as enacted do not politicize EPA risk assessment or benefit-cost analysis.

politicization of science. In a 2004 review, they acknowledged that their risk assessment practices are politicized:

> [S]ince EPA is a health and environmental protective agency, EPA's policy is that risk assessments should not knowingly underestimate or grossly overestimate risks. This policy position prompts risk assessments to take a more "protective" stance given the underlying uncertainty with the risk estimates generated. Another framing policy position is that EPA will examine and report on the upper end of a range of risks or exposures when we are not very certain about where the particular risk lies.[20]

Thus, EPA risk assessments are not intended to objectively assess risk; rather, their purpose is to limit the decision-making discretion of Agency leadership embedding in risk assessment policy judgments that are highly resistant, if not impervious, to contrary science and alternative policy views.

This may be most obvious in Reference Doses (RfDs) for chemicals that are not believed to cause cancer. Though RfDs are presented to Agency leadership as scientific work products complete with extensive reference lists, models, and equations (!),[21] RfDs are EPA staff risk management decisions masquerading as science. Table 1 shows EPA's definition of the RfD with key policy judgments illuminated in the right column. None of the highlighted terms has a scientific meaning, and how they are defined can result in RfD values several orders of magnitude apart.

[20] U.S. EPA Office of the Science Advisor (2004), p. 13.

[21] Barnes and Dourson (1988), U.S. Environmental Protection Agency (1993), U.S. Environmental Protection Agency (2002b).

Table 1: Reference Dose[22]

Text	Policy Judgments in Red
An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime.	An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime.

One of the consequences of the EPA staff politicization of risk science is that the Agency's risk assessments are consistently incompatible with benefit-cost analysis. This makes virtually all Agency estimates of benefits, costs, and net benefits invalid and unreliable. And because the amount of upward bias varies across risk assessments, they cannot even be used to objectively rank the risks EPA is supposed to manage.

Benefit-cost analysts (and agency heads) are similarly susceptive to the temptation to politicize benefit-cost analysis. For example, EO 12291 included both a technical requirement to conduct positive benefit-cost analysis in § 3(a) and a normative direction to maximize net social benefits in § 2(c)-(e). Among agency heads and analysts who preferred normative benefit-cost analysis, this posed no conflict. There was no reason to manipulate a positive benefit-cost analysis for normative purposes. But to the extent that agency heads or analysts wanted to promulgate a certain regulation for noneconomic reasons, they were incentivized to manipulate the positive economic analysis so that its results were consistent with the EO's normative ideal.

EO 12866 reduced this incentive to politicize benefit-cost analysis but replaced it with another. An agency head or analyst could justify a regulation that objectively had

[22] U.S. Environmental Protection Agency (2018b).

negative net social benefits by invoking any one of several decision-making criteria that were different from, and in many cases inconsistent with, net benefit maximization. But for agency heads and analysts committed to net benefit maximization, a new incentive was created to inflate net benefits if they were objectively positive in order to counter myriad noneconomic arguments.

G. Scientization

Much of what is cavalierly termed politicization is actually something very different: attempts by scientists to make policy decisions under the cover of science. The Bipartisan Policy Center was the first to clearly articulate this phenomenon:

> Political decision-makers should never dictate what scientific studies should conclude, and they should base policy on a thorough review of all relevant research and the provisions of the relevant statutes. But some disputes over the "politicization" of science actually arise over differences about policy choices that science can inform, but not determine.[23]

The attempt by scientists to claim the authority to make policy has been termed *scientization*. When scientists embed their preferred policy judgments in risk and safety assessments, they usurp the authority of Agency leadership to make the legislative decisions Congress delegated.[24] The EPA staff view of risk assessment, described above as an example of *politicization*, also is an example of *scientization* because a key purpose of the policy is to subvert the Administrator's ability to exercise delegated legislative authority in any manner the staff dislikes.

Benefit-cost analysts also are susceptible to scientization, and it occurs whenever they assert that positive economic analysis is sufficient for decision-making. Other

[23] Bipartisan Policy Center (2009), p. 15.

[24] See, e.g., Bowman (2010) [commending scientization as necessary to achieve climate change goals], Douglas (2009) [opposing scientization generally but concluding it is inevitable], and Dudley (2015) [opposing scientization especially when scientific findings are distorted or presented selectively to justify favored policies].

values besides net benefit maximization matter, and in some cases these values may be critical to elected leaders and agency heads.

H. Red Queenism

Another plausible explanation for non-transparency and inconsistency can be illustrated by reference to a famous 19th Century work of surreal fiction allegedly intended for children. In *Alice’s Adventures in Wonderland,* the Knave of Hearts is on trial for stealing tarts baked by the Queen of Hearts. A trial is underway, but the judges of the court are prepared to convict him as soon as the accusation has been read:

> "… Let the jury consider their verdict," the King said, for about the twentieth time that day.
>
> "No, no!" said the Queen. "Sentence first–verdict afterward."
>
> "Stuff and nonsense!" said Alice loudly. "The idea of having the sentence first!"
>
> "Hold your tongue!" said the Queen, turning purple.
>
> "I won't!" said Alice.
>
> "Off with her head!" the Queen shouted at the top of her voice. Nobody moved.
>
> "Who cares for you?" said Alice. (She had grown to her full size by this time.) "You're nothing but a pack of cards!"[25]

Red Queenism differs from politicization and scientization because neither policy views nor science matter. Trying to use them to manipulate outcomes is pointless.

Far too often, EPA appears to have made a regulatory decision (the “sentence”) before an informed judgment could be rendered (the “verdict”) based on evidence (the “testimony”). A lack of transparency is essential for Red Queenism, and such decisions are inevitably inconsistent because only the whim of the decision-maker is relevant.

[25] Carroll (1960), pp. 160-161.

Red Queenism seems evident when one considers the ways evidence and verdict appear to be manipulated to conveniently justify predetermined decisions in favor of regulation. Some examples:

- Research is cited and preferred because it supports predetermined regulatory outcomes, not because it is correct or has the highest quality.
- Hazard assessments assume a default mode of action without evidence that it is true, and reject alternative modes of action unless the default is scientifically infeasible (and sometimes even if it is).
- Weight-of-evidence analyses are used to support the same predetermined outcomes as less “scientific” methods.
- Exposure assessments rely on extraordinarily unlikely scenarios because realistic scenarios cannot yield risk estimates that are high enough.
- Safety assessments rely on whatever back-calculated “uncertainty” factors are necessary to obtain a predetermined RfD.
- Baselines are selected that make costs but not benefits appear to vanish.
- Opportunity costs are understated by counting only out-of-pocket expenditures.
- Assumptions and data are used that inflate benefits, deflate costs, or both.
- Benefits are double-counted; significant costs are omitted.
- Life-saving is monetized without regard for the number of life-years (or life-days or even life-hours) saved.
- Discount rates are chosen that are much lower than the rates of time preference of regulated entities or those expected to benefit.
- Causality for risk and benefit is assumed based on weak associations; causality for cost requires evidence beyond a reasonable doubt.
- Transfers are counted as benefits.
- Market actors are assumed to behave irrationally but Agency staff are paragons of methodical omniscience.

What links all these practices is the apparent fear that if the public were provided objective risk- and benefit-cost analysis, the sentence might have to be commuted.

Ironically, there is nothing new about this. Many of these practices were documented decades ago in the context of federal water projects. They were committed by agencies similarly determined to justify through benefit-cost analysis

government actions that appear to have been made on noneconomic grounds (e.g., legislative politics).[26] Though the technology by which Red Queenism is committed has become much more sophisticated, its nature is unchanged.

III. PLAUSIBLE REMEDIES

A. Improved EPA guidance and internal oversight

EPA began preparing and publishing guidance to agency offices on the preparation of benefit-cost analyses in 1983[27] and has revised it several times.[28] A systematic review of the extent to which EPA offices have substantially complied with these guidelines is not publicly available. Evidence from decades spent reviewing specific analyses suggests that compliance is spotty at best.

Also, EPA guidance does not inform EPA offices concerning the proper interpretation of terms such as "appropriate consideration," reasonableness," "practicable," "achievable," "feasible," and similar descriptors enacted by Congress to describe (or perhaps *avoid* describing) how EPA is supposed to weigh benefits and costs.[29] EPA could revise its economic analysis guidelines to add clarity, but such an effort would be highly controversial.

B. Improved compliance with information quality principles, standards, and practices

In 2002, in compliance with a statutory directive, OMB and Executive branch agencies generally (including EPA) published information quality guidelines that would have substantially reduced the transparency problem that the ANPRM seeks to remedy.[30] After all, the key procedural principle in the IQG is transparency, which the guidelines intended to achieve by requiring that disseminated information be "capable of being substantially reproduced, subject to an acceptable degree of imprecision."[31]

[26] Berkman and Viscusi (1973).

[27] U.S. Environmental Protection Agency (1983).

[28] See, e.g., U.S. Environmental Protection Agency (2010), U.S. Environmental Protection Agency (2014), U.S. Environmental Protection Agency (2016).

[29] U.S. Environmental Protection Agency (2018a), pp. 27525-27526.

[30] Office of Management and Budget (2002), U.S. Environmental Protection Agency (2002a).

[31] Office of Management and Budget (2002), p. 8460 [Sec. V.10].

The guidelines define *information* broadly, thus covering virtually every statement, assertion, or inference of fact. It does not policy judgments, however, so key terms such as "reasonable," "practicable," "achievable," or "feasible" are only covered when a reasonable person would understand the Agency's use of it to mean a "communication or representation of knowledge such as facts or data."[32] But this linkage exists in almost every case; a reasoned determination that a regulation is "reasonable," "practicable," "achievable," or "feasible" depends on an informational predicate. Subject to presidential oversight and direction, agency heads can reach their own decisions concerning what's "reasonable," "practicable," "achievable," or "feasible," but they cannot invent supporting facts and inferences.

OMB's guidelines require agencies to take affirmative steps to ensure that information quality standards are met prior to dissemination. In particular, agencies "*shall* develop a process for reviewing the quality (including the objectivity, utility, and integrity) of information before it is disseminated, and "*shall* treat information quality as integral to *every* step of an agency's development of information, including creation, collection, maintenance, and dissemination" (emphasis added).[33] A pre-dissemination review process that cannot distinguish compliant from noncompliant information does not satisfy the IQG, and neither do internal procedures that, though "integral to every step," nonetheless fail to achieve information quality objectives.

OMB's guidelines also require agencies to establish "administrative mechanisms allowing affected persons to seek and obtain, where appropriate, timely correction of information maintained and disseminated by the agency that does not comply with OMB or agency guidelines."[34] EPA's administrative mechanisms are plagued by delay and systematic unresponsiveness because compliance is not an Agency priority.

As required by statute, EPA's guidelines commit the agency to comply with OMB's guidelines. Indeed, EPA's guidelines state that the Agency was substantially in compliance *before* OMB published its government-wide guidance:

> EPA works every day to ensure information quality, but we do not wait until the point of dissemination to consider important quality

[32] Ibid., p. 8460 [Sec. V.5].
[33] Ibid., p. 8459 [Sec. III.2].
[34] Ibid., p. 8459 [Sec. III.3].

> principles. While the final review of a document before it is published is very important to ensuring a product of high quality, we know that in order to maximize quality, we must start much earlier. When you read an EPA report at your local library or view EPA information on our web site, that information is the result of processes undertaken by EPA and our partners that assured quality along each step of the way.[35]

This claim was not well documented at the time, however, and the intervening 16 years have not improved public confidence that it was ever true. Therefore, EPA should sponsor a rigorous, independent evaluation of the extent to which the transparency problem it observes today is the result of noncompliance with its own policy commitments, including effective pre-dissemination review and post-dissemination error correction. The Agency's descriptions of the problem in the ANPRM suggest that noncompliance remains as significant an issue as it was in 2002.[36]

After this evaluation is made public, EPA may want to propose revisions to its guidelines and practices, including new procedures that would make noncompliance more institutionally expensive. In addition, in any regulation that EPA proposes, the Agency should make information quality compliance a key element of how it implements the Administrative Procedure Act. As subsection III.E below notes, agreeing to be held accountable in federal court is probably the most effective strategy for remedying nontransparency.

C. Peer review

Peer review is a key part of EPA's plan for ensuring scientific quality, but there are systematic problems that must be addressed. The extent to which program offices actually comply with the Peer Review Handbook is not clear. Where the Handbook

[35] U.S. Environmental Protection Agency (2002a), pp. 5-6. See also pp. 10-14: "EPA intends to implement these Guidelines in a way that will achieve all these objectives in a harmonious way in conjunction with our existing guidelines and policies…"

[36] This review should be subjected to notice and comment, and it must comply with applicable information quality standards.

provides interpretive flexibility, the public needs to know the extent to which flexibility has been exercised in ways that reduce transparency, consistency, or both.

A key deficiency in EPA's peer review program is the Agency's failure to incorporate information quality even though OMB made peer review its preferred method for conducting pre-dissemination review. Indeed, EPA has never incorporated information quality principles into its peer review practices and procedures, which clearly conveys the Agency's institutional resistance. The third and fourth editions of the handbook, published four and 13 years after the information quality guidelines, respectively, include no practical information on the subject.[37]

EPA should sponsor a rigorous, independent review of program office compliance with the Peer Review Handbooks. Specific attention should be directed to instances in information products such as risk assessments and benefit-cost analyses were exempted from the Handbook, and peer reviews in which the Handbook permitted discretion that was exercised in ways that reduced transparency or consistency. EPA also should revise the Peer Review Handbook to properly account for information quality, among other things making verification of full compliance a mandatory element of peer review procedures.

These efforts would be aided if OMB removed provisions in its government-wide peer review guidelines that undermine the transparency and consistency (and quality more generally) of regulatory impact analyses, which are explicitly exempt from OMB's guidelines for comically unpersuasive reasons.[38] Whatever the shortcomings may be of government peer review – and they are Legion[39] – regulatory impact analyses should not be exempt.

[37] U.S. Environmental Protection Agency (2006), pp. 16-19, U.S. Environmental Protection Agency (2015), p. 27.

[38] Office of Management and Budget (2005), p. 2764: "RIA documents themselves are already reviewed through an interagency review process under E.O. 12866 that involves application of the principles and methods defined in OMB Circular A–4. In that respect, RIAs are excluded from coverage by this Bulletin…"

[39] Belzer (2002).

D. Improved Office of Management and Budget review

Centralized regulatory review began in 1981.[40] For the first time, all Executive branch agencies were required to conduct benefit-cost analyses of their major rules. But this analytic requirement was not self-enforcing, and enforcement was ineffective for three key reasons. First, OMB lacked sufficient staff to thoroughly review all draft regulatory impact analyses, especially when agencies such as EPA submitted multiple analyses at the same time under tight review deadlines. Second, OMB review was ineffective whenever it was reviewing a draft regulation subject to a judicial deadline. EPA has not been shy about exploiting this constraint, first by agreeing to deadlines it knew would be inconvenient, and second by delaying submission until the eleventh hour. Third, only the Administrator of the Office of Information and Regulatory Affairs was authorized to return regulations, which unnecessarily converted matters of technical noncompliance into high-stakes political battles. Even in the absence of complicating factors such as judicial deadlines, OIRA Administrators were loath to exercise their authority to return regulations because of "mere" analytical deficiencies.[41]

An additional regulatory planning process subsequently was established in part to overcome the staff constraint;[42] its effectiveness was never rigorously evaluated, and the process was abandoned in 1993. A revised Executive Order[43] did not affect the scope of draft rules subject to analytic requirements or the intensity of analysis required. It also had no meaningful effect on OMB guidance to agencies concerning the conduct of benefit-cost analysis.[44]

Critics of centralized review have long overstated its effect and supporters overstate its effectiveness. The task is overwhelming in scope and improperly structured at the end of the regulatory development process, when opportunities for correction are most limited. Going forward, centralized review cannot succeed without substantial and

[40] Reagan (1981).

[41] This latter problem was significantly reduced when Administrator Jay Plager authorized OIRA staff to suspend review for publicly disclosed, written technical reasons. The problem returned, however, when EO 12291 was revoked and the suspension practice Plager established was abandoned.

[42] Reagan (1985).

[43] Clinton (1993).

[44] Office of Management and Budget (1990), Office of Management and Budget (1996), and Office of Management and Budget (2003).

permanent increases in professional staff and delegated authority to objectively enforce high quality standards. Both of these reforms are virtually certain not to occur. The effectiveness of centralized review of regulatory analysis would improve if OMB encouraged nongovernmental actors to compete with agencies in the production of regulatory benefit-cost analyses. Agencies currently act as monopolists (when they prepare benefit-cost analyses in house) or monopsonists (when they hire contractors).

The pathologies that economic theory predicts from monopoly and monopsony are self-evident in the market for regulatory benefit-cost analyses. This includes agency control over quantity and quality. Adherence with applicable quality standards depends on whether compliance is in the agency’s interests, not whether it is in the public interest. Thus, at virtually no cost to itself, OMB could substantially improve both quantity and quality by encouraging competition in the production of benefit-cost analysis.

E. Judicial Review

Judicial review is the most important external factor potentially influencing EPA transparency and consistency. Except in rare cases, however, neither Agency benefit-cost analyses nor its interpretations of key statutory terms are subject to meaningful review. EPA might be more transparent and consistent if the courts demanded it, but there is no assurance that the courts’ involvement would be constructive. Few judges have sufficient expertise to review benefit-cost analysis on any relevant margin, and many have strong but uninformed opinions about it. It is probable, if not likely, that many judges would accept, endorse, or even require agencies to adopt inferior practices or commit errors. For example, if a court ordered EPA to count transfers as benefits, how would EPA respond?

Courts inclined to examine the substance of agency benefit-cost analyses should limit themselves to simple criteria, such as the checklist advocated by Dudley et al. (2017). Much better would be a focus on process, such as ensuring agency adherence to information quality standards. Judges are experts in process, and can insist that agencies adhere to procedures that are mandatory for federal agencies and which they have agreed to implement. A first-order heuristic judges can use is to consider whether a contested Agency regulation relies on information that was subject to an error correction request, and waive information quality process review if it was not. Where

information was contested, the courts can evaluate process attributes of the Agency’s response. Did the agency timely respond to a request for correction, or to an appeal to a denial of such a request? If not, courts should infer noncompliance. Did the agency explicitly or implicitly admit error but fail to make the necessary correction? If so, the courts should infer noncompliance. Did the agency provide a timely reply to an error correction request and appeal, but respond in a manner that was unresponsive? If so, the courts should infer noncompliance. And when noncompliance is inferred, the appropriate judicial action is remand and vacatur.

This scheme has desirable incentives for all parties. It places the burden of proof on complainants and only shifts it to the agency after a prima facie claim of information quality violation has been made. Those who fault EPA for nontransparency would be encouraged to file error correction requests, and EPA would be motivated to take such requests seriously.

IV. SPECIFIC RESPONSES TO REQUESTS FOR COMMENT

This section offers short responses to specific questions raised in the ANPRM.

A. “The Nature of Potential Concerns Regarding Perceived Inconsistency and Lack of Transparency”

Contrary to the Agency’s formulation, concerns about nontransparency and inconsistency are not “potential” or “perceived.” These concerns are real, not “potential” or “perceived.” Were that not so, EPA would not have published this ANPRM. Falling back on temporizing language undermines public confidence that EPA is serious.

B. “Potential Approaches for Increasing Consistency and Transparency in Considering Costs and Benefits in the Rulemaking Process”

Section II has discussed eight plausible (but not mutually exclusive) causes of nontransparency and inconsistency; other commenters likely have identified others. Section III has discussed five plausible (but not mutually exclusive) remedies. Based on more than 30 years of experience with EPA benefit-cost analyses, my professional opinion is that internal incentives must change for these problems to be remedied. Changes in Agency culture and management are necessary and helpful, but prior

attempts at top-down cultural change and management reform have had limited success. The path to effective cultural change is through incentives.

1. Internal incentives

EPA leadership can change internal incentives by, for example, rewiring Agency risk assessment policies and practices. EPA should start by explicitly and aggressively disavowing U.S. EPA Office of the Science Advisor (2004) and replacing it with an internally binding directive that requires Agency risk assessments to be policy neutral. To implement this directive, the Administrator must require the Office of Research and Development to ensure that all hazard-, exposure-, and risk assessments. Further, the Administrator must empower the Office of Policy to reject benefit-cost analyses that rely on noncompliant hazard-, exposure-, and risk assessments used as inputs. To ensure that these actions stick, rejections must be transparent and publicly disclosed.

With respect to consistency in the interpretation of ambiguous statutory terms (e.g., “reasonable,” “practicable,” “achievable,” and “feasible”), EPA should announce that they generally will be interpreted consistent with benefit-cost principles unless Congress has established a different meaning. Regulations that are expected to yield negative net benefits would be deemed unreasonable, impracticable, unachievable, and infeasible, unless certain conditions specified in advance are shown (not hypothesized) to exist. Such conditions might include substantial uncertainty (e.g., there is a high probability that net benefits will be positive even though the expected value is not), substantial variability (e.g., there are significant geographic differences in expected net benefits that can be balanced by other actions), or significant distributional effects (e.g., costs are mostly borne by low-income households and benefits are mostly captured by high-income households). To ensure consistency, the conditions under which benefit-cost principles would not apply must be clearly articulated in advance, not in an ad hoc, case-specific manner.

2. OMB incentives

Changes in internal incentives can be assisted with incentive-compatible actions by outside parties. OMB could improve incentives by requiring that benefit-cost analyses adhere to Circular A-4, EPA’s own economic analysis guidance where it is not inconsistent, and more importantly, requiring adherence to generally accepted

principles of benefit-cost analysis. For OMB, "requiring" adherence means returning for reconsideration pursuant to EO 12866 § 6(b)(3) all draft regulations accompanied by a benefit-cost analysis that includes willful noncompliance.

OMB also could reinforce EPA's new commitment to information quality compliance by making this an integral part of its EO 12866 and PRA reviews. With respect to EO 12866, Circular A-4 has hortatory language on information quality that must be strengthened, then enforced.[45] With respect to the PRA, OMB requires agency certification that collections of information comply with information quality guidelines. But agencies are not required to include any evidence of actual compliance in their supporting statements, a pathetically weak incentive.

Finally, OMB could dramatically incentivize improved quality by providing an avenue for nongovernmental analyses to be considered during regulatory review. EPA, like all its sister agencies, enjoys monopoly and monopsony power allowing it to produce and contract for substandard work products. Nothing would motivate quality improvements faster than competition.

3. Judicial incentives

Courts could substantially improve transparency and consistency by enforcing information quality standards, most importantly the procedural standard for reproducibility and the substantive standards for objectivity. The best way for the courts to accomplish this probably is to make effective compliance a key element of their reviews under the Administrative Procedure Act (5 U.S.C. § 706).

4. "What would increased consistency look like?"

Increased consistency would have at least the following four characteristics. First, the public no longer would be baffled by obscure distinctions among statutory terms such as "reasonable," "practicable," "achievable," or "feasible." Wherever Congress did not explicitly define such a term, normative benefit-cost principles should be relied upon unless one of the specific conditions, described above, applied. Further, the public

[45] See Office of Management and Budget (2003), p. 17: "Finally, you should assure compliance with the Information Quality Guidelines for your agency and OMB's Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies."

reasonably could expect each distinct element of an Agency rule to yield net present value social benefits. Both transparency and consistency would be significantly improved.

Second, the present value net social benefits of separable provisions *within* a regulation could be informatively ranked. Variability and uncertainty would not be vanquished, of course, so rankings likely would overlap. But *all* rankings would not overlap, and the public would be able, for the first time, to consider the relative merits of key regulatory provisions.

Third, the present value net social benefits of separable provisions *across* EPA regulations could be informatively ranked. This could lead to socially beneficial reallocations of Agency resources toward higher-valued uses. In an era of increasing budget scarcity, EPA could use its limited resources more cost-effectively.

Fourth, the quality of scientific, technical, and economic information on which EPA relies for decision-making would significantly improve. Government and nongovernment researchers alike would face appropriate incentives for full disclosure of data, models, computer code, and the like, if they want their work to be considered in regulatory policy.

> a. "Given statutory constraints, how could EPA more consistently adhere to existing guidance on benefit-cost analysis principles, definitions and analytical techniques whether across the entire agency or specific programs? For example, to what extent, if any, should EPA develop a regulatory action that commits the Agency to following its existing peer-reviewed guidance documents on risk assessment and *Guidelines for Preparing Economic Analysis* when developing future rulemakings."

The merits of Agency commitments to comply with internal guidance depends on the guidance and the nature of that commitment. To be sure, complying with some Agency guidance (e.g., EPA economic analysis guidance) would improve transparency and consistency. However, complying with other Agency guidance (e.g., EPA risk assessment guidance) could seriously harm both transparency and consistency, and undermine the objective of valid and reliable economic analysis. Each significant Agency

guidance should be first reviewed to determine whether it is consistent with transparency and consistency. Compliance with guidance that is nontransparent and inconsistent – such as EPA's risk assessment guidance – should be avoided.

As noted earlier, effective reform requires changes in incentives. The Administrator could achieve considerable improvement by empowering the Office of Policy to reject benefit-cost analyses that do not adhere to high standards for transparency, consistency, and objectivity. Management controls alone may not be sufficient, however, so the Administrator should consider promulgating regulations that commit the Agency to comply, and establish a right of action to challenge noncompliance in federal court.

> b. "Should EPA consider adopting uniform definitions of specific terms used in statutes—e.g., ''cost,'' ''benefit,'' ''economic factors,'' ''reasonable,'' ''appropriate,'' and ''weight of scientific evidence''—and specifying ex ante how they will be factored into subsequent regulatory decisions?'' How should EPA approach the scope of the uniformity of these definitions (e.g., within a particular regulatory program; within statute; across statutes)?

As noted earlier, in any case where Congress has not given explicit instructions, EPA should adopt generally accepted definitions for technical terms and the preferences of the president, to whom the Agency is constitutionally subordinate, for the interpretation of policy-laden terms. Those preferences were first set forth in 1981 and have stood the test of time. If Congress believes that other interpretations are more appropriate, it can amend the relevant statutes accordingly.

> c. "To what extent should standard benefit-cost analysis principles (e.g., setting a standard to maximize net benefits) guide the selection of specific statutorily required metrics and thresholds (e.g., ''reasonableness'') against which to measure the effects of a proposed regulation?"

Where Congress has not given explicit instructions – a condition that appears to be true in all cases relevant to this question – the only relevant issue is whether net social benefits should be positive or maximized. The former standard should be a minimum

requirement, with the latter standard a desired goal. To be clear, this is a normative decision-making criterion, and transparency and consistency require clarity concern when other decision-making criteria might apply instead. But Irrespective of decision-making criteria, benefit-cost analysis must be objective and free of willful bias resulting from embedded policy judgments.

> d. “What improvements would result from a general rule that specifies how the Agency will factor the outcomes or key elements of the benefit-cost analysis into future decision making? For example, to what extent should EPA develop a general rule on how the Agency will weigh the benefits from reductions in pollutants that were not directly regulated (often called “co-benefits’’ or ”ancillary benefits’’) or how it will weigh key analytical issues (e.g., uncertainty, baseline assumptions, limited environmental modeling, treatment of regulating multiple pollutants within one regulatory action) when deciding the stringency of future regulations? In addition, frequently scientific understanding is not adequate either to quantify or to monetize the effects of some pollutants or other impacts. How should these potentially important but non-quantified and/or non-monetized effects be included in decision making?”

The problem of “co-benefits” has become muddled. All regulatory benefits should be counted regardless of whether they are primary or secondary (or “ancillary”). However, they must only be counted once. Much of the debate about co-benefits actually concerns whether double-counting is going on, or whether they even exist. Co-benefit claims should be subject to high standards of proof to ensure that they are real and not double-counted.

The Agency’s first task is to is persuasively show that purported co-benefits exist. This case is not met when co-benefits depend on assuming that weak epidemiological associations or that extrapolated hazard relationships are causal. EPA’s second task is to ensure that bona fide ancillary benefits have not been previously counted. When co-benefits dominate primary benefits, double-counting becomes likely. Where co-benefits provide the margin on which net present value benefits exceed costs, the supporting evidence must be extraordinarily robust.

EPA's fascination with co-benefits would gain more traction if the Agency displayed showed similar concern for "co-costs." EPA cites language from OMB Circular A-4 defining an ancillary benefit as "a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking…"[46] Circular A-4 mentions ancillary benefits along with countervailing risks because both are unintended consequences. In the ANPRM, however, EPA displays no concern about ensuring that countervailing risks are estimated. This asymmetry means Agency's interest in co-benefits is easily dismissed as disingenuous.

e. "To what extent would it be helpful for EPA to require consideration of cumulative regulatory costs and benefits of multiple regulations during the rulemaking process, including how such consideration may affect the design or implementation of a regulation (i.e., longer or different compliance timeframes)?"

Accounting for cumulative regulatory costs and benefits is a superficially appealing practice. However, until EPA has succeeded in producing transparent, consistent, and objective benefit-cost analyses of individual regulations and their separable components, there is no reason to believe that cumulative accounting would provide meaningful insights. Also, it would divert attention from understanding effects at the margin, which are the only effects EPA can influence. If EPA is serious about considering cumulative regulatory costs and benefits, it will have to sponsor rigorous, independent retrospective reviews of each regulation whose costs and benefits are represented in the cumulative baseline.

5. What would improved transparency look like?

Transparency would eliminate a large measure of controversy that has accompanied EPA benefit-cost analyses for decades. Full disclosure would allow all parties to focus on the consequences of regulatory policy choices, not fighting yet again about why EPA's estimates of those consequences lack credibility.

[46] U.S. Environmental Protection Agency (2018a), p. 27526 [fn. 10], citing Office of Management and Budget (2003), p. 26.

a. "How might the documentation of how EPA considered costs and benefits in a regulatory decision be improved from current practices?"

As noted above, adherence to applicable information quality standards – standards that EPA committed to comply with in 2002 – is the best approach to improving transparency. EPA should explicitly invite independent third parties to reproduce its work based solely on the information it discloses, and encourage them to publish their results. If they succeed, then EPA has reliable external evidence of transparency. But if it cannot be done, or if reproducing EPA's results can be done only by third parties who possess extraordinary skill or cleverness, the Agency should infer that transparency has not been achieved. Finally, if the Agency's results can be reproduced only with the assistance of EPA staff, insufficient transparency is an irrebuttable conclusion.

b. "In what ways can EPA increase transparency about the decision-making process in cases where the decision was based on information that is barred from release by law?"

EPA can increase the transparency of its decisions by anonymizing data. Other agencies collect much more individually identifiable information than EPA, and they seem not to have serious problems. EPA has provided no evidence or reasoning to suggest why it is impossible for EPA to do what other agencies routinely do.

EPA's real problem is it often relies on third-party studies in which either a funding source prohibits full disclosure or the researchers themselves refuse to do so. There is a simple solution for this problem: stop relying on these studies. If EPA required all studies on which it relied to fully disclose data, methods, and models, the alleged problem would go away. Where data needed to be anonymized, researchers would quickly learn how to do so.

6. "To what extent would requiring a systematic retrospective review element in new regulations help to provide ongoing consistency and transparency in how regulatory decision making will adapt over time to new information? Such a requirement might provide a more regular and systematic approach to ex-post (i.e. after regulations have been promulgated and become effective) evaluation of the costs

and benefits of EPA regulations, as compared with the periodic regulatory reviews the EPA has historically conducted. This might help identify needed revisions, inform future regulatory approaches, and improve methods of ex ante analysis."

EPA benefit-cost analyses would benefit greatly from retrospective review. These reviews could help identify systematic errors and foster the development of solutions. However, retrospective reviews that are not performed independently (and in compliance with information quality standards) would not have sufficient credibility. EPA should not conduct, sponsor, or otherwise encourage non-independent retrospective reviews, nor should it tolerate backdoor attempts by staff to collect data after the fact to justify past regulatory decisions.[47]

a. "What are the opportunities and challenges associated with issuing regulations to require retrospective analysis and the concomitant need to collect data in order to conduct a meaningful retrospective analysis? Would it be more challenging under some provisions of key environmental statutes? If so, which ones?"

Every new major regulation should include a data collection and analysis plan that makes retrospective review practicable for Agency and nonagency analysts alike. These plans should be incorporated into Information Collection Requests (ICRs), and subjected to notice and comment and rigorous review under Paperwork Reduction Act regulations in 5 C.F.R. Part 1320. ICRs for notices of proposed rulemaking should include complete disclosure of what data would be collected, what analyses would be conducted using these data, and how the Agency would interpret results. Further, EPA should establish procedures for mandatory mid-course review of particularly expensive or controversial rulemakings rather than wait until it is too late for retrospective review.

[47] EPA staff did precisely this in the glider case, cited in footnote 11. A year after the Agency's decision to ban gliders from the heavy-duty truck market, based apparently on no analysis whatsoever, EPA staff obtained limited test data purporting to show that gliders emit extremely high levels of conventionally regulated pollutants and inserted these data into the administrative record.

b. "What criteria should EPA use to determine when retrospective review is needed? For example, should selection criteria be tied to the estimated impacts of the regulation, the degree of uncertainty at the time of ex ante analysis, the extent to which retrospective analysis will be feasible/successful?"

Retrospective review should be mandatory for all economically significant regulations. In addition, mid-course review should be mandatory for all economically significant regulations with effects exceeding $1 billion.

EPA also should conduct retrospective reviews for a stratified random sample of significant and nonsignificant regulations to determine whether statistically significant misclassification is going on. This would help overcome the bias favoring ignorance that is embedded in EO 12866, through which agencies can through willful ignorance evade the designation of a regulation as economically significant.[48]

c. "How specific should prospective plans for such a review be? For example, should plans specify the methodology that will be used, the coverage or scope of the analysis, the data that will be used and data collection plans?"

Maximum prior disclosure necessary to empower nongovernmental analysts is essential. Otherwise, EPA will find itself tempted to conduct biased retrospective reviews intended and designed to ratify its previous work. This is especially so if retrospective reviews are conducted by the program offices that promulgated the original rules.[49] If EPA cannot in advance identify the data and methods to be used to conduct a retrospective review capable of resolving uncertainties that affected the ex ante analysis, it is a strong signal that the proposed rule is misguided, and the initial benefit-cost analysis is unreliable. The same goes if commenters on the retrospective review plan identify critical weaknesses that EPA decides not to correct.

[48] The incentive for willful ignorance has been present since 1981. A superior default would be to assume that all rules are economically significant unless shown by an agency to *not* qualify for that designation. EPA could unilaterally adopt this policy and practice, and thereby set a standard of excellence for other agencies to follow.

[49] EPA's experience implementing Clean Air Act § 812 is exactly relevant and highly instructive.

As noted above, a retrospective review plan that cannot be implemented by independent analysts is inherently unreliable. EPA must encourage independent analysts to conduct these reviews, not inhibit them by withholding information.

C. *"Potential for Issuing Regulations to Govern EPA's Approach in Future Rulemakings"*

A key legal issues EPA must grapple with is whether it is willing (and has the authority) to allow the public to hold it accountable for noncompliance. If the Agency is unwilling to do so, no regulations however thoughtfully crafted will have any practical effect. But if the Agency agrees that public accountability is desirable, then it needs to include within these regulations effective means of ensuring public accountability.

1. "What are the most pressing economic or legal considerations that should be taken into account when deciding the appropriate level of specificity (all activities, by statute, by specific statutory provision) at which to formulate regulations?"

Any regulatory reforms EPA makes as a result of this ANPRM must provide a right of action in federal court to challenge Agency nontransparency and inconsistency. EPA should review each statute that it implements to identify text that reasonably could be inferred to support such rights, and amend its regulations accordingly.

Also, EPA can by regulation constrain its attorneys to support, rather than oppose, plaintiffs who seek judicial review on transparency, consistency, and similar matters. Because the Department of Justice is responsible for defending EPA, this regulation should be co-promulgated with DOJ. An Agency commitment act in a way that does not bind DOJ is an empty gesture.

2. "What are the opportunities and challenges with issuing regulations to govern EPA's practice when statutory provisions do not mention

costs or imply these are factors to be considered alongside benefits and other factors when setting pollution standards?"

The consideration of cost appears to be prohibited only with respect to a portion of the Clean Air Act,[50] and no statute forbids the Agency from objectively estimating benefits and costs.[51] Nontransparency and Inconsistency in benefit-cost analysis do not have statutory origins.

Further, judicial attitudes about benefit-cost analysis appear to have reversed in recent years.[52] Going forward, EPA should expect the courts to welcome (and possibly demand) stronger analytic support for rulemaking, and thus more rather than less benefit-cost analysis.[53]

3. "How can EPA best promote more consistency and predictability while still leaving room for consideration of regulatory context and for flexibility to adapt to new information and methodological advances?"

The most important change EPA can make is to enable the public to enforce its 2002 commitment to transparency and other information quality principles. This would not impede the Administrator from considering "regulatory context," nor would it adversely affect EPA's ability to "adapt to new information and methodological advances." Indeed, rigorous compliance with information quality principle and generally accepted methods in benefit-cost analysis would enhance, not detract from, the Agency's ability to adapt.

Making its rules more adaptive requires changes in regulatory practice that reduce the extent to which the Agency forecloses regulatory adaptation. As noted above, a key

[50] Whitman v. American Trucking Assns., Inc. (2001).

[51] The Safe Drinking Water Act arguably has required it since 1996. See Belzer (2018b).

[52] Compare Whitman v. American Trucking Assns., Inc. (2001). [Clean Air Act Section 109(b) does not permit the Administrator to consider implementation costs in setting NAAQS] with Entergy Corp. v. Riverkeper, Inc., et al. (2009). [benefit-cost principles are "eminently reasonable" factors for decision-making] and Michigan et al. v. Environmental Protection Agency et al. (2015). [federal administrative agencies must engage in "reasoned decision-making," which requires the consideration of all relevant factors including cost]. If *American Trucking* were heard today, the court's decision could be very different.

[53] Graham and Noe (2016).

remedy would be to conduct or sponsor mid-course reviews rather than delaying retrospective reviews until all costs are sunk. Where statutes forbid adaptation (e.g., Safe Drinking Water Act, 42 U.S.C. 300g-1(b)(9)), more creative strategies are needed to reduce the extent to which initial regulatory decisions become irreversible even if subsequently shown to have been based on erroneous risk- or benefit-cost analysis.[54]

4. "In cases where current EPA practice reflects prior judicial decisions, a change in course may come with significant burden to the Agency. Is there a way to address this concern in regulations governing the consideration of costs and benefits?"

As indicated above, judicial attitudes about benefit-cost analysis have significantly changed over the past two decades. It is therefore likely to be less burdensome for EPA if it anticipates a friendlier future legal environment. Further, where EPA has not previously interpreted a key statutory provision (e.g., the term "economic feasibility" in the Safe Drinking Water Act, 42 U.S.C. § 300f(1)(C)(i)), the Agency should not face a significant legal burden because there are no existing regulations requiring reconsideration and potential reversal.

5. "Are there ways to improve consistency and transparency using methods other than a regulatory approach (e.g., additional guidance)? What are the opportunities and challenges associated with these approaches?"

The general problem with trying to use guidance to fix EPA's nontransparency and inconsistency problems is that guidance is nonbinding on the Agency. EPA's information quality guidelines provide an excellent example. The Agency made a clear commitment to comply in 2002, but this commitment is relegated to guidance and is therefore unenforceable. EPA has not met its commitments because it doesn't have to.

[54] 42 U.S.C. 300g-1(b)(9) forbids EPA from revising a primary drinking water standard upward even if it was promulgated based on false or erroneous scientific, technical, or economic information. EPA should adopt sunset provisions for new SDWA drinking water standards until Congress rescinds this provision.

6. “Are any of the opportunities and challenges identified above specific to a particular statute or statutes? If so, please provide examples.”

As suggested several places above, the Safe Drinking Water Act provides a rich opportunity for more effective incorporation of economics in decision-making. Since 1974, the statute has required national primary drinking water standards to be “economically feasible,” but EPA has never complied. An economically literate interpretation of “feasibility” in this context is that net present value benefits must be positive for the highest-cost public water system subject to regulation. Amendments to the statute in 1996 argue for an even more aggressive use of economics. However, in the 22 years since, EPA has not faithfully implemented these new provisions in standard-setting, either.

V. CONCLUDING COMMENTS

EPA’s interest in improving transparency and consistency, especially in the conduct and use of benefit-cost analysis, is a welcome development. A number of ideas are proposed here. The key criterion for effectiveness for any reform proposal is whether it improves internal Agency incentives. Previous reform attempts have tended to fall short precisely because they did not have the necessary incentive effects.

The Office of Policy has sufficient experience to develop regulatory options for a notice of proposed rulemaking that incorporates incentives to support transparency and consistency. For an incentive to be effective, the public needs to be able to hold EPA accountable. For transparency, compliance with information quality guidelines also offers a useful pathway. But EPA would have to decide to make information quality a key internal compliance measure, and it must encourage rather than frustrate the public’s efforts to identify and correct error.

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