Proposed EPA Science Advisory Board Project
Scientific Issues in Identifying, Estimating, and Validating the Co-Benefits of Clean-Air Regulations

Project Title: Scientific Issues in Identifying, Estimating, and Validating the Co-Benefits of Clean-Air Regulations

Background

Over the last twenty years, staff in EPA's Office of Air Quality Planning and Standards have become more diligent about presenting, in regulatory impact analyses and other official agency documents, the "co-benefits" of regulations authorized by the Clean Air Act. The term "co-benefit" is somewhat ill defined, but the intuition is that the same regulation that generates benefits by achieving its statutory purpose may also generate side benefits or ancillary benefits that were not necessarily intended by the statutory scheme.

A regulation aimed at reducing hazardous air emissions from stationary or mobile sources may also reduce emissions of fine particles and precursors to smog. The side benefit may occur because the pollution-control technology employed to reduce the target pollutant may also reduce other pollutants, but the co-benefits can also occur through more complex causal mechanisms. For example, if technology-based regulation of energy source A makes energy-source A more expensive than energy source B, then the market may respond by producing more of energy source B and less of energy source A. This kind of market shift may produce a variety of co-benefits, if energy source B has other beneficial characteristics compared to energy source A. All of this can occur even when the intent of the regulation is simply to accelerate the use of a new technology in the production of energy source A.

Another common source of co-benefit found in EPA regulatory analyses is private financial benefits to businesses or consumers from adoption of energy-saving technologies. While the statutory purpose of a regulation may be to reduce local air pollution or greenhouse gas emissions, the technologies employed by industry to comply with the regulation may result in financial savings to regulated firms and/or consumers in the form of reduced expenditures on energy. It is common practice for EPA analysts to compute the private benefits from energy savings and present those co-benefits in addition to the pollution-control benefits that are the primary purpose of the regulation.

From a decision-science perspective, the concept of co-benefits is non-controversial. In medical decision making, for example, the same drug that is prescribed to address one clinical diagnosis may have collateral benefits in addressing other conditions or symptoms that a patient is experiencing. When a physician prescribes the medication, he/she may discuss with the patient the potential for side benefits from the medication. Indeed, the concept of co-benefits (also called "ancillary" benefits) is explicitly recognized in OMB Circular A-4 (2003), the technical guidance document governing the conduct of regulatory impact analysis in the federal government.

Why the SAB should undertake this activity

We propose that the SAB should consider the scientific issues regarding co-benefits. We anticipate that these issues will be important in items the SAB will be reviewing as part of the regulatory agenda, and it would be helpful to have already pulled together the relevant scientific information prior to addressing these questions regarding regulation. This exercise will not be trivial because the practice of counting "co-benefits" of federal clean-air regulations has not been without controversy. Questions have been raised as to whether EPA is overestimating or underestimating co-benefits in various rulemakings. The issue is important because, in some rulemakings, the vast majority of the quantified benefits of clean-air regulations are co-benefits. In recent deregulatory rulemakings, foregone co-benefits have also emerged as a salient concern. Insofar as benefit-cost calculations influence EPA decision making, co-benefits are an influential source of technical information in regulatory decision making. The SAB proposal to review the scientific and technical basis underlying the approach to incorporating co-benefits into regulatory analyses should be of strong interest to analysts and decision makers within EPA and other agencies that work with EPA on clean-air rulemakings (e.g., OMB, DOE and the states). Stakeholders and scholars with interests in clean air regulation are also aware of the growing importance of co-benefit claims and would likely be willing to offer suggestions to SAB on how the Agency should address co-benefits in the future.

Despite the apparent importance of co-benefits in clean-air regulation, the Science Advisory Board is not aware of any careful scientific guidance on how co-benefits should be identified, estimated, and validated in regulatory analyses. The terms identification and estimation refer to the assessment of co-benefits prior to the enactment of a regulation. The term validation is used here to refer to the retrospective assessment of co-benefits after a regulation has been implemented. Validation is of interest because it relates to the Agency's accountability for benefit claims, to the process of learning about how to more accurately forecast co-benefits in future rulemakings, and it is crucial in the retrospective evaluation of enacted regulations that have been nominated for review or reform. The current membership of the SAB has substantial expertise on the key issues that have repeatedly arisen about co-benefits, and the SAB staff have experience directly and indirectly with issues related to co-benefits. This topic could probably be addressed by a subgroup of current SAB members. Additional consultants could be added to provide expertise on specialized aspects. The proposed project is not intended to inform any particular ongoing or future rulemaking, and thus SAB can prepare a report without the hard deadline associated with a specific public comment period or internal agency deadline.

Tentative Charge and expected outputs:

The purpose of the proposed SAB inquiry is to offer insight on scientific issues related to co-benefits that the Agency may wish to address in future technical guidance and/or in future regulatory impact analyses. SAB is aware that unintended harms or costs of rulemaking may also occur, but they are not the focus of this project. SAB is also aware that there may also be legal and policy issues associated with the use of co-benefits in regulatory decision making but the legal and policy issues are outside the scope of this project.

Specific questions in the charge of the proposed project are as follows:

--How should the Agency go about identifying potential co-benefits of a rulemaking?
--Are there are any notable shortcomings and exemplary practices in previous Agency treatments of co-benefits?
--What steps should be taken to ensure that co-benefits are not underestimated?
--What steps should be taken to ensure that co-benefits are not overestimated?
--What gaps in scientific knowledge, if filled, would significantly improve the scientific foundation of co-benefit claims?

Tentative Schedule

The proposed project would start September 1, 2019; a public meeting of interested scholars and stakeholder representatives would occur in the winter of 2020; the subgroup would prepare a draft of the report – expected to be 20-30 pages in length – in the fall of 2020. The full SAB would review the draft report in early 2021, and the final report would be submitted to the Agency by March 1, 2021.