

some of the ancillary benefits, the cost-effectiveness ratio will be overstated, and this should be acknowledged in your analysis. CEA does not yield an unambiguous choice when there are benefits that have not been incorporated in the net cost estimates.

You also may use CEA to compare regulatory alternatives in cases where the statute specifies the level of benefits to be achieved.

C. The Effectiveness Metric for Public Health and Safety Rulemakings

The validity of cost-effectiveness analysis depends on the application of appropriate "effectiveness" or performance measures that permit comparison of the regulatory options being considered. Agencies currently use a variety of methods for determining effectiveness, including number of lives saved, number of equivalent lives saved, and number of quality-adjusted life years saved. It is difficult for OMB to draw meaningful cost-effectiveness comparisons between rulemakings that employ different cost-effectiveness measurements. As a result, agencies should provide OMB with the underlying data, including mortality and morbidity data, the age distribution of the affected population, and the severity and duration of disease conditions or trauma, so that OMB can make apples-to-apples comparisons between rulemakings that employ different measures.

D. Evaluating Distributional Effects

Both benefit-cost analysis and cost-effectiveness analysis tend to focus on economic efficiency. Decision-makers may desire (or be required) to consider other values as well such as fairness. Your regulatory analysis should provide a separate description of distributional effects (*i.e.*, how both benefits and costs are distributed among sub-populations of particular concern) so that decisionmakers can properly consider them along with the effects on economic efficiency. E.O. 12866 authorizes this approach. The presentation of distributional effects is especially important when you have reason to believe that there will be significant disparities in how your regulatory actions may affect different groups of people. Effects that fall most heavily on those least able to bear the cost should be highlighted for policymakers' attention. Actions that benefit small groups at the expense of the larger public also deserve special scrutiny.

IV. Identifying and Measuring Benefits and Costs

This Section provides guidelines for your preparation of the benefit and cost estimates required by Executive Order No. 12866 and the "Regulatory Right-to-Know Act." The preliminary analysis described in Sections I, II and III will help you identify a workable number of alternatives for consideration in your analysis and an appropriate analytical approach to use.

A. How To Develop a Baseline

1. General Issues

You need to measure the benefits and costs of a rule against a baseline. This baseline should be the best assessment of the way the

world would look absent the proposed action. The choice of a proper baseline may require consideration of a wide range of potential factors, including:

- Evolution of the market,
- Changes in external factors affecting expected benefits and costs,
- Changes in regulations promulgated by the agency or other government entities, and the degree of compliance by regulated entities with other regulations.

You may often find it reasonable to forecast that the world absent the regulation will resemble the present. If this is the case, however, your baseline should reflect the future effect of current programs and policies. For review of an existing regulation, a baseline assuming "no change" in the regulatory program generally provides an appropriate basis for evaluating reasonable regulatory alternatives. When more than one baseline is reasonable and the choice of baseline will significantly affect estimated benefits and costs, you should consider measuring benefits and costs against alternative baselines. In doing so you can analyze the effects on benefits and costs of making different assumptions about other agencies' regulations, or the degree of compliance with your own existing rules. In all cases, you must evaluate benefits and costs against the same baseline. You should also discuss the reasonableness of the baselines used in these sensitivity analyses.

EPA's 1998 final PCB disposal rule provides a good example. EPA used several alternative baselines, each reflecting a different interpretation of existing regulatory requirements. In particular, one baseline reflected a literal interpretation of EPA's 1979 rule and another the actual implementation of that rule in the year immediately preceding the 1998 revision. The use of multiple baselines illustrated the substantial effect changes in EPA's implementation policy could have on the cost of a regulatory program. In the years after EPA adopted the 1979 PCB disposal rule, changes in EPA policy—especially allowing the disposal of automobile "shredder fluff" in municipal landfills—reduced the cost of the program by more than \$500 million per year.

In some cases, substantial portions of a rule may simply restate statutory requirements that would be self-implementing even in the absence of the regulatory action. In these cases, you should use a pre-statute baseline. If you are able to separate out those areas where the agency has discretion, you may also use a post-statute baseline to evaluate the discretionary elements of the action.

2. Evaluation of Alternatives

You should decide on and describe the number and choice of alternatives available to you and discuss the reasons for your choice. Alternatives that rely on incentives and offer increased flexibility are often more cost-effective than more prescriptive approaches. For example, user fees and information dissemination may be good alternatives to direct command-and-control regulation. Within a command-and-control regulatory program, performance-based standards generally offer advantages over

standards specifying design, behavior, or manner of compliance.

You should carefully consider all appropriate alternatives for the key attributes or provisions of the rule. Section II above outlines examples of appropriate alternatives.

Where there is a "continuum" of alternatives for a standard (for example, the level of stringency), you should generally analyze at least three options:

- The option serving as a focus for the Agency or program office regulatory initiative;
- A more stringent option that achieves additional benefits (and presumably costs more) beyond those realized by the preferred option; and
- A less stringent option that costs less (and presumably generates fewer benefits) than the preferred option.

You should choose options that are reasonable alternatives deserving careful consideration. In some cases, the regulatory program will focus on an option that is near or at the limit of technical feasibility or that fully achieves the objectives of the regulation. In these cases, the analysis would not need to examine a more stringent option. For each of the options analyzed, you should compare the anticipated benefits to the corresponding costs. It is not adequate to simply compare the Agency's preferred option to a "do nothing" or "status quo" option.

Whenever you can compare the benefits and costs of alternative options, you should present them in terms of both total and incremental benefits and costs. You must measure total benefits and costs against the same baseline. By contrast, you should present incremental benefits and costs as differences from the corresponding estimates associated with the next less-stringent alternative.¹⁷ It is important to emphasize incremental effects are simply differences between successively more stringent alternatives.

In some cases, you may decide to analyze a wide array of options. For example, DOE's 1998 rule setting new energy efficiency standards for refrigerators and freezers analyzed a large number of options and produced a rich amount of information on their relative effects. This analysis—examining more than 20 alternative performance standards for one class of refrigerators with top-mounted freezers—enabled DOE to select an option that produced \$200 more in net benefits per refrigerator than the least attractive option.

You should analyze the benefits and costs of different regulatory provisions separately when a rule includes a number of distinct provisions. If the existence of one provision affects the benefits or costs arising from another provision, the analysis becomes more complicated, but the need to examine provisions separately remains. In this case, you should evaluate each specific provision by determining the net benefits of the proposed regulation with and without it.

¹⁷ For the least stringent alternative, you should estimate the incremental benefits and costs relative to the baseline. Thus, for this alternative, the incremental effects would be the same as the corresponding totals.