

\$8.8 billion per year.⁸ The aggregate benefits and costs for the other 103 rules are \$38 to \$104 billion and \$30 to \$35 billion, respectively. Table 3 provides additional information on aggregate benefits and costs for select agency programs.

Based on the information released in previous reports, the total costs and

benefits of all Federal rules now in effect (major and non-major, including those adopted more than 10 years ago) could easily be a factor of ten or more larger than the sum of the costs and benefits reported in Table 2. More research is necessary to provide a stronger analytic foundation for comprehensive estimates of total costs

and benefits by agency and program. OMB's examination of the benefits and costs of Federal regulation supports the need for a common-sense approach to modernizing Federal regulation that involves the expansion, modification, and rescission of regulatory programs as appropriate.

TABLE 2.—ESTIMATES OF THE ANNUAL BENEFITS AND COSTS OF MAJOR FEDERAL RULES, OCTOBER 1, 1992 TO SEPTEMBER 30, 2002

[Millions of 2001 dollars]

Agency	Benefits	Costs
Agriculture	3,108 to 6,203	1,649 to 1,679.
Education	658 to 816	363 to 612.
Energy	4,704 to 4,722	2,473.
Health & Human Services	8,733 to 11,724	3,168 to 3,337.
Housing & Urban Development	527 to 601	796.
Labor	1,808 to 4,200	1,057.
Transportation	6,150 to 9,465	4,313 to 6,812.
Environmental Protection Agency	108,858 to 179,757	23,867 to 27,028.
Total	134,547 to 217,539	37,686 to 43,794.

TABLE 3.—ESTIMATES OF ANNUAL BENEFITS AND COSTS OF MAJOR FEDERAL RULES: SELECT PROGRAMS AND AGENCIES, OCTOBER 1, 1992–SEPTEMBER 30, 2002

[Millions of 2001 dollars]

Agency	Benefits	Costs
Energy: Energy Efficiency and Renewable Energy	4,704 to 4,772	2,473.
Health & Human Services: Food and Drug Administration	2,021 to 4,558	482 to 651.
Labor: Occupational Safety and Health Administration	1,808 to 4,200	1,057.
Transportation:		
National Highway Traffic Safety Administration	4,330 to 7,645	2,795 to 5,295.
Coast Guard	68	1,282.
Environmental Protection Agency:		
Office of Air	106,010 to 163,893	18,362 to 20,978.
Office of Water	891 to 8,103	2,424 to 2,937.

In order for comparisons or aggregation to be meaningful, benefit and cost estimates should correctly account for all substantial effects of regulatory actions, including potentially offsetting effects, which may or may not be reflected in the available data. We have not made any changes to agency monetized estimates other than

connecting them to annual equivalents. Any comparison or aggregation across rules should also consider a number of factors which our presentation does not address. To the extent that agencies have adopted different methodologies—for example, different monetized values for effects, different baselines in terms of the regulations and controls already

in place, different treatments of uncertainty—these differences remain embedded in the table 2. While we have relied in many instances on agency practices in monetizing costs and benefits, our citation of or reliance on agency data in this report should not be taken as an endorsement of all the

⁸ These four EPA rules will reduce ambient levels of fine particulate matter by reducing direct PM emissions and/or the emissions of precursor pollutants like SO₂ and NO_x that contribute to the formation of fine PM. Many studies show an association between both short- and long-term exposure to fine PM and a variety of adverse health effects ranging from increases in the frequency of hospital admissions to premature mortality. There are, however, important uncertainties associated with these benefit estimates. For example key assumptions underlying the benefit estimates associated with premature mortality include the following: (1) The benefits analysis assumes there is a causal association between inhalation of fine particles and such health effects as premature mortality at exposure levels near those experienced by most Americans on a daily basis. While the biological mechanisms for this effect have not yet

been definitively established, EPA has concluded that the weight of the available epidemiological and toxicological evidence supports an assumption of causality; (2) The benefits analysis assumes that all fine particles, regardless of their chemical composition, are equally toxic. This is an important assumption because fine particles from power plant emissions are chemically different from those emitted from both mobile sources and other industrial facilities. However, no clear scientific grounds exist for supporting differential effects estimates by particle type; (3) The benefits analysis assumes that the concentration-response function for fine particles is approximately linear within the range of ambient concentrations under consideration. Thus, the estimates include health benefits from reducing fine particles in areas that are in attainment with the fine particle standard and those that do not meet the standard; (4) The

benefits analysis assumes that the forecasts for future emissions and associated air quality modeling are valid. The EPA's analyses are based on peer-reviewed scientific literature and up-to-date assessment tools. However such models are themselves based on an evolving understanding and research continues to provide the data necessary for model evaluation; and (5) The valuation of estimated reduction in mortality risk is largely taken from studies of the tradeoff associated with the willingness to accept risk in labor markets. Alternative estimates may, however, be more relevant for rules addressing air pollution. Further information on these benefits estimates can be found at http://www.epa.gov/air/clearskies/tech_adden.pdf, <http://www.whitehouse.gov/omb/inforeg/costbenefitreport1998.pdf>, <http://www.whitehouse.gov/omb/inforeg/2000fedreg-report.pdf>.