

TABLE 7.—ESTIMATE OF BENEFITS AND COSTS OF 47 MAJOR RULES OCTOBER 1, 1992 TO MARCH 31, 1995—
Continued
[Millions of 2001 dollars]

Regulation	Agency	Benefits	Costs	Explanation
Non-Road Compression Ignition Engines	EPA	412–2,881	29–70	We annualized the NO _x emissions which yielded an average annual emission reduction of 588,000 tons beginning in 2000. We valued NO _x emissions at \$700–\$4900 per ton.
Bay/Delta Water Quality Standards	EPA	2–26	37–248	We valued estimates of combined emission reductions at \$520–\$2360 per ton. Present value cost estimates amortized over 5 years.
Deposit Control Gasoline	EPA	374–1,480	197	
Total		86,290–106,708	9,506–11,087	

TABLE 8.—ESTIMATE OF BENEFITS AND COSTS OF 3 MAJOR RULES, OCTOBER 1, 2001 TO SEPTEMBER 30, 2002
[Millions of 2001 dollars]

Regulation	Agency	Benefits	Costs	Explanation
Energy Conservation Standards for Central Air Conditioners and Heat Pumps.	DOE	710	636	Present value estimates amortized over 24 years. We valued NO _x emission reductions at \$350–\$2500 per ton.
Tire Pressure Monitoring Systems (TPMS)	DOT	409–944	749–1,206	We valued each equivalent fatality (see p. iv of the Executive Summary of the Final Economic Assessment) at \$3 million.
Control of Emissions From Nonroad Large Spark-Ignition Engines, and Recreational Engines.	EPA	913–4,818	192	We amortized the benefit estimates in proportion to the estimated NO _x emission reductions. The lower end of the range reflects the alternative approach to valuing benefits of EPA rules discussed elsewhere.
Total	2,032–6,472	1,577–2,034	

Assumptions: 7 percent discount rate unless another rate explicitly identified by the agency. For DOL: \$5 million VSL assumed for deaths averted when not already quantified. Injuries averted valued at \$50,000 from Viscusi.⁹ All values converted to 2001 dollars. All costs and benefits stated on a yearly basis.

⁹ W. Kip Viscusi, *Fatal Tradeoffs: Public & Private Responsibilities for Risk*. New York, NY, Oxford University Press, 1992, p. 65.

Valuation Estimates for Regulatory Consequences¹⁰

Agencies continue to take different approaches to monetizing benefits for rules that affect small risks of premature death. As a general matter, we continue to defer to the individual agencies' judgment in this area. In cases where the agency both quantified and monetized fatality risks, we have made no adjustments to the agency's estimate. In cases where the agency provided a quantified estimate of fatality risk, but did not monetize it, we have monetized these estimates in order to convert these effects into a common unit.

The following is a brief discussion of OIRA's valuation estimates for other types of effects that agencies identified and quantified, but did not monetize. As a practical matter, the aggregate benefit and cost estimates are relatively insensitive to the values we have assigned for these rules because the aggregate benefit estimates are dominated by those rules where EPA

provided quantified and monetized benefit and cost estimates.

Injury. For NHTSA's rules, we adopted NHTSA's approach of converting nonfatal injuries to "equivalent fatalities." These ratios are based on NHTSA's estimates of the value individuals place on reducing the risk of injury of varying severity relative to that of reducing risk of death.¹¹ For the OSHA rules, we monetized only lost workday injuries using a value of \$50,000 per injury averted.

I. Change in Gasoline Fuel Consumption. We valued reduced gasoline consumption at \$.80 per gallon pre-tax. This equates to retail (at-the-pump) prices in the \$1.10–\$1.30 per gallon range.

II. Reduction in Barrels of Crude Oil Spilled. OIRA valued each barrel prevented from being spilled at \$2,000. This is double the sum of the most likely estimates of environmental damages plus cleanup costs contained in a published journal article [Brown and Savage, "The Economics of

Double-Hulled Tankers," *Maritime Policy and Management*, Volume 23(2), 1996, pages 167–175].

III. Change in Emissions of Air Pollutants. We used estimates of the benefits per ton for reductions in hydrocarbon and nitrogen oxide emissions derived from recent EPA regulatory analyses, as follows (1996\$):

Hydrocarbon: \$520 and \$2360 per ton
Nitrogen Oxide (stationary): \$350 and \$2500 per ton
Nitrogen Oxide (mobile): \$700 and \$4900 per ton
Sulfur Dioxide: \$7300 per ton

The estimates for reductions in hydrocarbon emissions were obtained from EPA's RIA for the 1997 rule revising the primary NAAQS for ozone and fine PM. OIRA has revised the estimates for reductions in NO_x emissions to reflect a range of estimates from recent EPA analyses for several rules and for proposed legislation. In particular, OIRA has adopted different benefit transfer estimates for NO_x reductions from stationary sources (e.g., electric utilities) and from mobile sources. EPA believes that there are a number of reasons to expect that reductions in NO_x emissions from utility sources achieve different air quality

¹⁰ The following discussion updates the monetization approach used in previous reports and draws on examples from this and previous years.

¹¹ National Highway Traffic Safety Administration, *The Economic Cost of Motor Vehicle Crashes*, 1994, Table A–1. <http://www.nhtsa.dot.gov/people/economic/ecomvc1994.html>.