TABLE 2.—ENVIRONMENTAL IMPACT

Year	Annual HC reduction		Annual CO reduction		Annual NO_X increase	
	Tons	Percent	Tons	Percent	Tons	Percent
1997	102,800	13.1	244,600	2.7	11,000	67.5
2000	221,600	26.9	538,700	5.5	23,900	137.6
2003	262,700	30.5	651,400	6.3	27,800	150.7
2020	339,000	32.4	865,200	6.7	36,300	154.4

VI. Economic Effects

The total national average annual cost of this rule is estimated to be approximately $70 million. If catalysts become necessary, the average annual cost is estimated to be approximately $87 million. The net present value of pollution control capital costs is estimated by EPA to be approximately $28 million. Energy impacts are expected to be positive, freeing up approximately $8 million for other uses in the economy.

The following summary presents aggregate costs broken down by engines used in nonhandheld and those used in handheld equipment.[19] For greater detail of expected cost impacts, see the RSD.

A. Industry Cost Impacts

Industry will bear pollution control costs that are moderate: roughly 6 percent for handheld and 2 percent for nonhandheld equipment relative to current production costs. The level of pollution control costs is largely due to the high levels of pollution emitted by these engines, especially two-stroke engines, and the relatively outdated state of the technology compared to on-highway engines. However, the costs are still small in absolute terms, and it is anticipated that these costs will be passed through to consumers in higher product prices.

The Agency estimates that there will be no long run negative impacts on employment as a result of this rule, as costs can be recovered through increased prices. Any potential decreases in employment that might occur due to obsolescence of product line should be offset by increased production of engines meeting emission standards. Total demand for these products has traditionally been relatively inelastic and, thus, industry sales volume is not expected to decrease.

On average, the cost to the engine manufacturer to install the necessary emission control technology will be approximately $2 per engine used in nonhandheld equipment and $3.50 per engine used in handheld equipment. This includes variable hardware and production costs, assuming that catalytic converters will not be needed to comply with proposed standards. However, engine manufacturers may voluntarily decide to use catalysts on a percentage of engines at risk of only marginally complying. Should this occur, EPA estimates that the additional variable hardware costs will be about $4 per catalyst-equipped engine. Since catalysts are not expected to be used much, the overall sales-weighted average increase due to catalyst usage is estimated to be about $1 for engines used in nonhandheld equipment and marginal for engines used in handheld equipment. It should be noted that the costs between manufacturers will likely vary.

B. Consumer Cost Impacts

Consumers will find small increases in retail prices for most equipment powered by these engines. The initial purchase price to the consumer will, however, be partially or, in some cases, completely offset by savings in fuel and maintenance costs. Thus, over time, environmentally friendly equipment will become less costly to consumers.

The retail price of equipment that uses nonhandheld engines ranges from $90 to $9,000, and the retail price of equipment that uses handheld engines ranges from $60 to $1,000. The sales-weighted average increase in retail cost to the consumer due to the rule in 2003 is estimated to be about $5 for nonhandheld equipment and $7 for handheld equipment. If catalysts are necessary, the values in 2003 are about $7 for both nonhandheld and handheld equipment. The retail price effects for a specific engine will likely be more or less these values, depending on the technology of the engine; these are average, sales-weighted costs, not indicative of the price increase specific to any particular manufacturer's engine or equipment.

This rule is expected to decrease fuel consumption significantly. The average sales-weighted engine is expected to experience a 26 percent decrease in fuel consumption for nonhandheld equipment and a 13 percent decrease in fuel consumption for handheld equipment. These decreases are translated into small discounted lifetime sales-weighted fuel savings of approximately $3 for nonhandheld equipment and marginal for handheld equipment.

The Agency expects that the engines produced to meet the proposed emission standards will be of higher quality than current engines: the parts and raw materials will be more durable and less likely to malfunction, as discussed in the RSD. This will result in equipment that lasts longer and is operational a higher percentage of the time; however, EPA is unable to quantify the attendant decrease in consumer cost or increase in useful life at this time. The Agency requested comments on the potential decrease in maintenance costs and increase in useful life, but none were received that shed light on this topic.

Considering that the fuel savings offset the average increase in retail price per engine, the average sales-weighted lifetime increase in cost will be about $6.50 per handheld engine, while nonhandheld engines will realize a lifetime savings of about $2.50 per engine. This does not include the lifetime savings in maintenance costs, which should further benefit the consumer.

C. Cost-Effectiveness

Based upon the costs and benefits described above, EPA has prepared a cost-effectiveness analysis and has performed a Regulatory Impact Analysis (RIA) for this rule, which is contained in the RSD. Presented here is a summary of the cost-effectiveness of the small SI engine Phase 1 program, assuming catalysts are not used.

If all program costs are allocated to HC, this rule has a cost-effectiveness of $280 per ton of HC reduced.

[19] These estimate costs are based on the assumption that manufacturers of engines used in snowthrowers and ice augers will opt to certify such engines to meet the applicable HC standards. To the extent that this does not occur, estimated industry cost impacts and consumer cost impacts would be reduced, and cost-effectiveness of the program would not be significantly changed, if at all.