yr) (3,490 million cubic feet per year (10<sup>6</sup> ft<sup>3</sup>/yr)) compared to fuel consumption determined from the regulatory baseline. Total national usage of electrical energy for the operation of add-on control devices would increase by about 175,000 megawatt hours per year (MW-hr/yr) (599 billion British thermal units per year (10<sup>9</sup> Btu/yr)) of electricity compared to energy consumption determined from the regulatory baseline.

## D. Control Cost Impacts

The control cost impacts on individual facilities will vary depending on the cost of compliance with the guidelines; the cost of alternative treatment and disposal methods; and other factors such as proximity to an offsite contract disposal facility, liability issues related to the transportation and final disposal of the waste, and State and local medical waste treatment and disposal requirements. In general, facilities requiring a smaller waste treatment capacity will have a greater incentive to use a less expensive treatment and disposal option because their onsite incineration cost (per ton of waste burned) will be higher. Facilities with larger amounts of waste to be treated may have some cost advantages if they use a lower cost alternative, but these advantages are not as significant due to economies of scale.

Under the switching scenario, the nationwide annual costs associated with the proposed emission guidelines will increase by about \$351 million/yr. The nationwide annual cost of waste disposal per unit of medical waste treated would increase by \$245/Mg (\$222/ton) to a total cost of \$430/Mg (\$390/ton) from the estimated nationwide annualized cost of \$185/Mg (\$168/ton) under the regulatory baseline.

## E. Economic Impacts

The goal of the economic impact analysis was to estimate the market response to the emission guidelines and determine whether there would be adverse impacts associated with the proposed guidelines. The proposed guidelines would affect five major industry sectors (hospitals, nursing homes, veterinary facilities, commercial research laboratories, and commercial medical waste incineration facilities) within which some facilities operate an onsite MWI. In addition, the proposed guidelines would affect a number of other industry sectors in which facilities do not typically operate an onsite MWI (e.g., bloodbanks). The economic impact analysis for existing MWI's examined

each of these sectors as a whole to determine industry wide impacts.

To assess the industrywide impacts of control costs, the market price increase resulting from the proposed guidelines was estimated for each regulated industry. The market price increases, presented in Table 10, may be thought of as an average price increase across each industry required to recover control costs within each industry. Table 10 reflects the more likely switching scenario. For example, under the switching scenario, the hospital industry would have to raise prices by an average of about 0.1 percent (over current revenues of about \$224 billion/ year) to cover the increased cost of waste disposal. This table shows that the price increase is relatively small for each industry. This result is mainly due to the fact that the majority of the facilities in each industry sector do not operate an onsite incinerator.

TABLE 10.—MARKET PRICE IN-CREASED IN THE MAJOR INDUSTRY SECTORS UNDER THE EMISSION GUIDELINES—SWITCHING SCENARIO

Industry	Price in- crease, percent
Hospitals	0.1
Nursing Homes	0.1
Veterinary Facilities	0.6
Commercial Research Labora-	
tories	0.4
Physicians' Offices	0
Dentists' Offices	0
Freestanding Bloodbanks	0.1
Commercial Medical Waste In-	
cineration Facilities	⁰N/A

<sup>9</sup> Industrywide impacts were not calculated for commercial medical waste incineration facilities because estimates of the change in demand for commercial medical waste incineration were not available. However, this industry is expected to be able to recoup all control cost increases through price increases.

Output, employment, and revenue impacts were also estimated. As a result of the low market price increases and/ or relatively inelastic demand, the corresponding decreases in output, employment, and revenue were also low, never exceeding 1 percent under the more likely switching scenario. This result implies that no medical wastegenerating industry would need to be significantly restructured (e.g., through closures or consolidations) as a result of the proposed emission guidelines.

V. Rationale for the Proposed Standards and Guidelines

## A. Background

An estimated 3.4 million tons of waste are produced annually by medical

waste generators in the United States. Hospitals are the single largest generator of medical waste, producing over 70 percent of the annual total. Approximately 5,000 MWI's are believed to exist nationwide (3,700 burning general medical waste and 1,300 burning pathological waste). Over 60 percent of these MWI's are found at hospitals. Medical waste incinerators are also found at commercial medical waste disposal facilities, research laboratories, nursing homes, and veterinary facilities. Based on historic sales data, an estimated 700 new MWI's will be installed over the next 5 years.

Medical waste incinerators are subject to State and local regulations that vary widely both in format and scope. A survey in April 1990 showed that in 38 States, regulations or permit guidelines specific to MWI's were either in place or were in the planning stages. The remainder of the States regulate MWI's under general incinerator requirements, which typically are less stringent that those specific to MWI's. The most common State requirements for MWI's are limits for PM, HCl, and secondary chamber temperature and residence time. Some States also regulate metals, CDD/CDF, and CO. About one third of the States require operator training.

On November 1, 1988, the Medical Waste Tracking Act (MWTA) was signed by Congress. The MWTA required EPA to establish a 2-year demonstration program to track medical waste from its origin to its disposal. In early 1989, EPA established this program in 40 CFR 259. The program was in effect from June 22, 1989, to June 22, 1991, and applied to the States of New York, New Jersey, Connecticut, and Rhode Island, and to Puerto Rico. The MWTA required EPA to prepare a series of Reports to Congress on medical waste and the demonstration program. Now that the demonstration program has concluded, Congress will decide if a medical waste tracking program should be implemented nationwide.

The current air emissions standards development effort for MWI's was initiated in 1989. The data-gathering effort was designed to take advantage of information gathered under the auspices of the MWTA. Also, in 1989, an MWI operator training course and manual were developed with recommendations on the proper operation and maintenance of MWI's.

The Amendments of 1990 added section 129 to the Act. Section 129 specifically addresses development of standards for MWI's. Section 129 requires EPA to establish an NSPS for new MWI's and emission guidelines for existing MWI's that combust hospital