

Factsheet 4: The Impact of Pollution Taxes on Industry

One of the questions raised about pollution taxes, especially about pollution taxes unilaterally imposed by a single state, concerns their impact on the competitiveness of in-state businesses.

To determine the impact of pollution taxes on businesses we have used as a proxy for all pollution taxes a single \$50 per ton tax on carbon emissions. In Minnesota such a tax would generate about \$1.2 billion. For the vast majority of businesses, such a tax would have a very small impact. The Center for Global Change at the University of Maryland examined the impact of the tax on energy intensive industries.

The Impact of a \$15/Ton & \$50/Ton Carbon Tax on Selected Energy Intensive Industries

Industry by SIC Code	Tax as % of Sales	
	\$15/T	\$50/T
SIC 33 Primary Metal	0.81%	2.69%
SIC 3334 Primary Aluminum	3.46	11.53
SIC 32 Stone, Clay, and Glass Production	0.62	2.05
SIC 3241 Cement Hydraulic	19.67	65.49
SIC 26 Paper and Allied Products	0.41	1.38
SIC 2631 Paperboard Mills	0.84	2.81
SIC 28 Chemical and Allied Products	0.37	1.25
SIC 2873 Nitrogenous Fertilizers	1.79	5.97
SIC 2819 Industrial Inorganic Chemicals	0.89	2.97
SIC 2869 Industrial Organic Chemicals	0.59	1.96
SIC 29 Petroleum and Coal Products	0.27	0.98
SIC 2911 Petroleum Refining	0.29	0.80
SIC 22 Textile Mill Products	0.24	0.79
SIC 30 Rubber and Misc. Plastics Products	0.15	0.51
SIC 24 Lumber and Wood Products	0.11	0.35
SIC 34 Fabricated Metal	0.11	0.35
SIC 20 Food and Kindred Products	0.08	0.28
SIC 31 Leather and Leather Products	0.08	0.28
SIC 36 Electronic and Electric Equipment	0.08	0.25
SIC 25 Furniture and Fixtures	0.07	0.22
SIC 35 Industrial Machinery and Equipment	0.07	0.21
SIC 38 Instruments and Related Products	0.06	0.21
SIC 39 Misc. Manufacturing Industries	0.06	0.21
SIC 37 Transportation Equipment	0.05	0.18
SIC 21 Tobacco Products	0.05	0.17
SIC 27 Printing and Publishing	0.05	0.17
SIC 23 Apparel and Other Textile Products	0.05	0.16

Source: Frank Muller and Andrew Hoerner, "The Promise of State Carbon Taxes: Opportunities and Policy Issues", *State Tax Notes*, March 8, 1993. Energy use by industry from *Manufacturing Energy Consumption Survey: Consumption of Energy*, 1988 DOE/EIA-0512(88). Muller and Hoerner used a \$7.50 per ton tax on carbon for their table.

The table shows that even for the most energy intensive industries a carbon tax of \$15 per ton would rarely exceed 1 percent of sales and in many cases would be closer to .5 percent. A \$50 per ton tax on carbon emissions, for most of the manufacturing sector, would also impose a modest increase in costs. However, for some industries there would be a significant burden. The heaviest impact by far falls on the cement industry. That industry is not internationally competitive and is only slightly competitive at the state level because cement is so expensive to transport relative to its value. Nevertheless an increase in costs of such an extent might encourage a shift to other kinds of building materials.

The table overstates the impact on industry, for three reasons. First, the calculations do not take into account the reduction in operating costs of these industries from lower taxes in other areas. If the carbon taxes are part of an overall revenue neutral tax restructuring effort, industry will benefit from lower property taxes or lower income taxes or lower taxes on labor. Second, the calculations are based on energy consumption in the mid 1980s. Energy intensive industries, on average, have significantly reduced their energy consumption per unit of output since that time. Third, the table reflects the impact on the average manufacturing facility. High efficiency plants would have a competitive advantage over their low efficiency counterparts.

As Frank Muller and J. Andrew Hoerner of the Center for Global Change note, there are ways to design pollution taxes to mitigate the impacts on the competitiveness of individual companies or industries. One could, for example, set a cap on taxes. A bill heard by the Maryland legislature capped at \$250,000 the tax any single enterprise would have to pay. Such a cap is easy to administer but may be poorly focused. For example, a company would be exempted if it were simply very large even though the tax were a tiny fraction of its overall costs. On the other hand, a small but very energy intensive enterprise might gain little benefit from such a cap.

A preferable strategy might be to have a cap as a percentage of sales for businesses involved in interstate or international commerce. Such a cap is in place in Finland and Denmark, two countries with populations and economies not much larger than Minnesota's. Denmark offers refunds to energy intensive businesses under certain conditions. For firms engaged in export, refunds of the tax are possible depending on the ratio of the tax relative to the value added in production. For industries where the tax amounts to more than 3 percent of the value added, a total tax refund is possible. However, Denmark permits such refunds only if "reasonable" energy efficiency investments are undertaken. These investments must be specified in energy audits conducted by consultants certified by the Danish Energy Agency.

Minnesota has a similar type of arrangement to Denmark's operating in the northern part of the state. Minnesota law requires that at least 1.5 percent of electric utility gross revenues be invested in energy efficiency. Because only a handful of industrial customers account for over half of Minnesota Power's sales, MP has developed the Industrial Conservation Project(ICP). MP deposits 1.5 percent of its sales to these customers in a special account. Large customers can use this account to finance energy efficiency programs. The energy efficiency plan must be approved by MP and the Department of Public Service. MP allows the funds to be used to make industrial process changes that can save thermal as well as electrical energy. If large industrial customers do not use the funds in their account the money revert to MP's general Conservation Improvement Program.