

Appendix E

MECS Estimates by International Standard Industrial Codes

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The consumer demand for MECS estimates published on an alternate classification system resulted in a study on the capability of the 1991 MECS sample to produce reliable energy estimates based on the International Standard Industrial Coding system (ISIC).⁷²

In some respects, the ISIC and SIC systems classifications are similar. Each divides the manufacturing sector by economic activities. The ISIC system has 9 major groups (two-digit) that are composed from 70 industries (four-digit), while the SIC system that has been traditionally used by EIA has 20 major groups (two-digit) and over 400 industries (four-digit). The matching, at the four-digit level, of these ISIC and SIC activities enables the MECS to produce ISIC based estimates of energy consumption.

The ability to publish ISIC tables is defined by two factors: the industries publishable under the sample design of the MECS and the disclosure patterns of the current MECS tables. ISIC based energy estimates are primarily restricted for publication to those SIC estimates that are explicitly planned for under the MECS sampling plan. The ISIC system, for example, excludes SIC 2411 (Logging) from the manufacturing sector. As a result of that exclusion, the 1991 MECS estimate of consumption in the manufacturing sector must exclude SIC 2411. However, the MECS was not designed to reliably produce an independent estimate for SIC 2411, rather SIC 2411 was grouped within the major group SIC 24 (Lumber and Wood Products). Specifically, the 1991 MECS was designed to provide precise energy related estimates for 62 categories of Standard Industrial Codes (SIC):

- forty selected industries (4-digit);
- two industry groups (3-digit); and,
- twenty major industry groups (2-digit) of the manufacturing division.⁷³

To the extent that these SIC groupings match the ISIC system at the two-digit level, the MECS estimates have been tabulated on the ISIC system (See Table E1). In order for a ISIC estimate to be presented, each ISIC estimate must be comprised of a minimum proportion of the SIC estimates that were explicitly designed for the MECS, as measured by energy consumed for purposes of Heat, Power, and Electricity Generation (Table A4). That minimum proportion was 90 percent for the 1991 MECS; however, most ISIC estimates exceeded that proportion. For example, ISIC major group 31 (Food Processing, Beverages, and Tobacco) is 100 percent comprised by combining SIC 20 (Food and Kindred Products) and SIC 21 (Tobacco Products).

Disclosure analysis represents a secondary problem in developing ISIC based energy estimates. That analysis is based on a disclosure study and is mandatory under the confidentiality legislation of Title 13. Withheld estimates are a major concern when ISIC estimates are produced for public review.⁷⁴ Due to the ISIC exclusion of SIC 2411, for example, the ISIC manufacturing total has been withheld for confidentiality purposes.

⁷²Since Version 3 of the International Standard Industrial Classification system was incomplete at the time of this study, Version 2 was provided by the U.S. Bureau of the Census. Taylor Murphy, industry analyst at the Bureau of the Census, acted as the liaison for EIA.

⁷³For additional information on the sample design for the 1991 MECS, see the *Energy Information Administration* report "Development of the 1991 Manufacturing Energy Consumption Survey", DOE/EIA - 0555(92)/2.

⁷⁴"Withheld estimates" pertain to disclosures and to estimates that do not meet EIA publication standards. Disclosure will be conducted at the primary and secondary levels of the MECS.

Table E1. Manufacturing Consumption of Energy for Purposes of Heat, Power, and Electricity Generation by International Standard Industrial Codes, 1991

ISIC Code	International Industry Groups	Total (trillion Btu)
31	Food Processing, Beverages, and Tobacco	978
32	Textile and Leather	335
33	Wood and Wood Products, other than Pulp and Paper	465
34	Pulp, Paper, and Printing	2,573
35	Chemical, including Petrochemical	6,276
36	Non-Metallic Mineral Products	899
37	Iron, Steel, and Non-Ferrous Metal	2,282
38	Machinery	W
39	Miscellaneous Manufacturing Industries	W
	Total	W

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use and Integrated Statistics Division, 1991 Manufacturing Energy Consumption Survey.

W=Withheld to avoid disclosing data for individual establishments or due to lack of industry-level representation in sample design.