Appendix C

CBECS Coverage Related to EIA Supply Surveys

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The primary purpose of the CBECS is to collect accurate statistics of energy consumption by individual buildings. The statistics are totalled and presented by building characteristic. The EIA also collects data on total energy supply (sales). For the information on sales totals, a different reporting system is used for each fuel and the boundaries between the different sectors (e.g., residential, commercial, industrial) are drawn differently for each fuel.[28] This appendix provides: (1) background on the issue of consumption versus supply coverage; and (2) an analysis of the account classification as reported in the 1992 CBECS Energy Suppliers Survey.

Background

EIA sales data on the different fuels are collected using individual fuel forms. Annual electricity sales data are currently collected on Form EIA-861, "Annual Electric Utility Report," which is sent to all electric utilities in the United States. Supply data for natural gas are collected on Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." This form must be submitted by all gas pipeline companies and other plant operators that deliver gas directly to consumers. Fuel oil and kerosene sales are collected on Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report." The supply data are summarized at the national level as well as State level in several EIA reports, including *State Energy Data Report* (SEDR) and the *Monthly Energy Review* (MER). When comparing the CBECS totals with the national commercial sales totals from the SEDR or MER only electricity, natural gas, and fuel oil, can be compared directly. CBECS does not collect data on coal consumption, and SEDR or MER does not collect district heating information.

Differences between CBECS totals and sales totals can result from either (a) consumption that is included in the CBECS but not in the sales totals; and, conversely, (b) consumption that is included in commercial sales totals but is not considered commercial in CBECS and, therefore, excluded from CBECS totals. A principal reason that a component of consumption may be in the CBECS totals but not in the sales totals, or vice versa, is differences in how **buildings** are classified for CBECS and how customer **accounts** are classified in the sales reporting system. Each energy supplier has its own system of classifying accounts. When reporting sales totals to EIA by end-use sector, the supplier uses EIA guidelines, as well as the supplier's own account classification, to determine whether a particular account belongs in the residential, commercial, industrial, or transportation sector.

There are several general differences between the CBECS and the energy suppliers as to how each defines which buildings or accounts are commercial.

- CBECS covers only consumption in buildings. Energy suppliers' commercial accounts are not necessarily associated only with buildings, but may also be associated with unenclosed equipment or outdoor lighting. This outdoor lighting is included in commercial sales data reported in the SEDR but not included in the commercial sales data reported in the MER.

[28]For detailed examination of these differences and the differences between the supply and consumption surveys, see *Energy Consumption by End Use Sector: A Comparison of Measures by Consumption and Supply Surveys*, Energy Information Administration, DOE/EIA-0533 (Washington DC. 1990).

- CBECS covers consumption for the entire building whose principal activity is commercial, i.e., nonindustrial or nonresidential; CBECS covers no consumption in other buildings. As a result, consumption for commercial activity in noncommercial buildings is not included in CBECS, whereas consumption for noncommercial activity in a commercial building is included. For example, in the first case if the building's principal activity is manufacturing, but there is a small office in the building, the energy associated with the office space would not be included in the CBECS. In the second case, if the building's principal activity is retail but there is a small portion of the building devoted to manufacturing, in CBECS, the energy associated with the manufacturing would be included and reported as commercial. While energy suppliers may have several accounts within a building and those accounts could be classified as commercial or noncommercial sales, energy consumed in the CBECS buildings is classified as commercial.

- The activities included as commercial differ between the CBECS and the supply-side reporting systems. On the supply side, as noted, the definitions also differ among fuels.

CBECS Account Classification Analysis

To help understand the relationship between CBECS consumption totals and EIA's commercial sales totals, the CBECS Energy Suppliers Survey collected information, from the suppliers, on how they classified each of the accounts for the CBECS sample.

The 1992 CBECS energy suppliers' account classification information showed the amount of consumption in commercial buildings that is likely to be excluded from commercial sales totals. Accounts classified by the energy supplier as residential or industrial are ordinarily included in EIA's sales totals for those sectors, not in commercial sales, as reported in the CBECS. Accounts classified by the supplier as commercial, school, government or institutional are ordinarily included in EIA's commercial sales total, while accounts with hybrid or combination classifications are probably included partly in commercial and partly in noncommercial totals.

Electricity: In 1992, about 78 percent of the 2.6 quadrillion Btu of electricity consumed in commercial buildings was classified by both CBECS and the electricity suppliers as commercial. This represented about 82 percent of total floorspace in buildings supplied with electricity. About 10 percent of the 1992 CBECS electricity consumption estimate and 7 percent of the floorspace was classified by the suppliers as either residential or industrial accounts. The remaining 12 percent of electricity consumption and 10 percent of floorspace was classified as mixed noncommercial/commercial by the supplier.

Natural gas: For buildings supplied with natural gas, about 75 percent of the 2.5 quadrillion Btu of natural gas consumed and about 84 percent of the floorspace were classified by both CBECS and the natural gas suppliers as commercial. About 11 percent of the natural gas consumption was consumed in buildings classified as industrial by the supplier. However, this represented only about 3 percent of the floorspace in buildings that use natural gas. Only 1 percent of the natural gas consumption and 1 percent of the floorspace were classified as residential accounts. The remaining 16 percent of consumption and 12 percent of floorspace were classified by the supplier as mixed noncommercial/commercial accounts.

Fuel oil: About 83 percent of the 0.3 quadrillion Btu of fuel oil consumption and 82 percent of the floorspace in buildings supplied with fuel oil in 1992 were classified by both the CBECS and the suppliers as commercial accounts. Energy suppliers classified about 7 percent of the consumption and 6 percent of the floorspace as either industrial or residential accounts. The remaining 10 percent of fuel oil consumption and 12 percent of floorspace were in buildings with mixed account classifications.

Therefore, about 22 percent of the CBECS electricity consumption, 25 percent of the CBECS natural gas consumption and 17 percent of the CBECS fuel oil consumption are potentially excluded from the 1992 commercial sales because of differences in account classification between the energy suppliers and the CBECS.

Table C1 shows the number of buildings, total floorspace and energy consumption by the CBECS suppliers' account classification for 1992 CBECS buildings. Every building represented in this table is considered commercial by CBECS definition of a building; the lines where the supplier classification is commercial indicate agreement between the CBECS and the energy suppliers' classification of their accounts for the CBECS buildings, as reported in the Energy Suppliers Survey portion of the CBECS. Since the SEDR and MER collect data from the energy suppliers, the unshaded areas could potentially be classified by SEDR or MER as either residential, industrial, or other, which includes sales to public authorities. However, they are included in the CBECS totals for commercial buildings.

Table C1. Energy Suppliers' Account Classification of Commercial Buildings, 1992

Energy Suppliers Account Classification	Number of Buildings	Percent	Square Feet (million)	Percent	Consumption (trillion Btu)	Percent
Electricity Suppliers						
All Commercial Buildings Using Electricity	4,611	100	66,525	100	2,609	100
Residential	126	3	830	1	15	1
Commercial	**3,990**	**87**	**54,713**	**82**	**2,040**	**78**
Industrial	135	3	4,016	6	231	9
Mixed	360	8	6,965	10	322	12
Natural Gas Suppliers						
All Commercial Buildings Using Natural Gas	2,657	100	44,994	100	2,487	100
Residential	70	3	478	1	19	1
Commercial	**2,295**	**86**	**37,621**	**84**	**1,857**	**75**
Industrial	40	2	1,377	3	271	11
Mixed	253	10	5,518	12	338	14
Fuel Oil Suppliers						
All Commercial Buildings Using Fuel Oil	560	100	13,215	100	272	100
Residential	38	7	239	2	10	4
Commercial	**456**	**81**	**10,833**	**82**	**227**	**83**
Industrial	15	3	503	4	9	3
Mixed	51	9	1,639	12	27	10

Note: Due to rounding, data may not sum to totals.

Source: Energy Information Administration, Office of Energy Markets and End Use, Form EIA-871A-F, 1992 Commercial Buildings Energy Consumption Survey.