

Future and Related Analyses

This report is intended as a building block for the development of a more comprehensive understanding of commercial lighting and the potential for lighting energy savings. Steps to build on this analysis can be taken in many directions. One possibility already noted is to obtain revised estimates under alternate assumptions with the framework presented here.

The same methods could also be applied to CBECS data from other years. Because of the reduced detail on lighting equipment in 1989, and the lack of any lighting equipment data from the earlier surveys, characteristics from 1986 would have to be extrapolated to other years. However, collection of more detailed lighting data is again planned for the 1992 CBECS, which will be a longitudinal follow-up of the 1986 sample. Thus, a more up-to-date and longitudinal analysis will be possible when the 1992 data become available.

Other dimensions of commercial lighting can be explored through the combination of the CBECS data with engineering estimates. For example, this analysis considers total energy requirement, or average power requirement, but not peak power requirements. Commercial lighting load curves could be developed for the CBECS data, using the weekly operating schedules from CBECS together with the in-use power density assigned for the present analysis. Another interesting extension would involve comparison between lighting energy estimates developed for each building via this methodology and the building's total annual electricity use.

An important issue not addressed by this analysis is the cost of the various conservation strategies considered. The economics of implementing some of the conservation features considered here are being examined as part of the lighting initiative being conducted by Lawrence Berkeley Laboratory for the Office of Conservation and Renewable Energy. It is hoped that the results of the present analysis will be useful in connection with that effort.

The potential for lighting energy conservation in other sectors can also be addressed using EIA data. The 1990 Residential Energy Consumption Survey (RECS) collected household lighting equipment data similar to that collected by CBECS, providing the basis for a similar analysis. The 1991 Manufacturing Energy Consumption Survey (MECS) is attempting to collect data on the amount of electricity consumption devoted to lighting, as well as on participation in energy efficiency programs.

EIA's energy consumption surveys continue to evolve in response to users' growing and changing data needs. Appropriate analysis of these surveys can mine a wealth of information about the complex patterns of energy use in the United States, and the Nation's progress toward greater energy efficiency.

