



Small Business Energy Consumption Survey (SBECS)

User's Guide

This guide offers an introduction to, and basic instruction of the CLASP Small Business Energy Consumption Survey (SBECS) spreadsheet tool. It is an aid in proper usage of the CLASP SBECS tool meant to facilitate accurate use of the survey and result in high quality data collection and outputs.

I. Background

A survey of businesses that targets information about the ownership and use patterns of energy consuming products, is an important tool in assessing the potential impacts of any appliance energy efficiency project. Surveys of this type have been successfully used throughout the world to provide data with which technical experts can present policymakers with reliable estimates of costs and benefits of an energy efficiency program. In addition, such analysis can offer governments and utilities important insights regarding the overall energy consumption patterns of households and businesses. The survey covers a variety of products, which in most cases will account for the bulk of energy consumption in a business. The general areas of data covered are ownership data, use pattern data and market data.

It should be emphasized that this survey is intended for small businesses only, that is, businesses which primarily use energy consuming equipment of a similar type and size as are found in residences. Major equipment that is not covered by this survey include: central heating, cooling and ventilation, commercial refrigeration and cooking equipment. The survey is therefore appropriate for small markets using only small refrigerators rather than for supermarkets with large refrigerated cases, for example. Likewise, small restaurants may be surveyed, but large restaurants using commercial-sized stoves, ovens and refrigeration units are not within the scope of this survey.

A. Ownership Data

Ownership data gives the policy maker an estimate of the scope of impact of any policy affecting a particular product. This includes policies which vary by product class. For example, in a country considering implementing or ratcheting efficiency standards for split-type air conditioners, the survey will yield the ownership rate of this class of equipment, as opposed to window-mounted units. The distribution of ownership of certain product classes, in conjunction with the age of these products, may also be sufficient to give policymakers a qualitative picture of current trends in product purchases. In order to ensure that ownership

rates generated by the survey can be used to determine total energy and financial impacts of a given policy option, care must be taken to ensure that the sample of businesses is representative of the area (country or state) to be affected by the policy. The sample should therefore be designed to reflect the overall distribution of business size and type, as well as consist of a large enough sample to ensure statistical significance for each parameter studied.

B. Usage Data

The second purpose of the survey is to assess the energy consumption of a particular appliance, or for the enterprise as a whole. If all the questions asked by the survey are completed, the survey can be used to produce a fairly accurate picture of consumption. Since small business use patterns are highly variable, such a survey is generally the only way to reliably access this type of information. Obtaining product use information requires a significant amount of the business owner or employee's time during the interview, but is well worth it. In the case of lighting fixtures, for example, a reliable energy consumption measurement requires that the number of use hours per day for each fixture be obtained by the surveyors. In the case of air conditioners, variations in seasonal use is particularly important – therefore the number of months used each year is an important parameter for this product.

C. Market Data

Finally, the survey provides market information for key appliances. In particular, brand and model names are included for heating, air conditioning and refrigeration equipment, as well as storage tank water heaters. Brand and model number data provide an important indication of the efficiency of products currently used in businesses. Approximate retail prices are gathered for key products.

II. Surveyor Training

Though the survey forms may appear very straightforward, there are some key preparations that are best considered before sending the surveyors into the field.

- In order to ensure consistency of the data gathered, the surveyors should be trained together as a group. The training team should include an expert in the design and implementation of energy consumption surveys and a survey coordinator fluent in the local language.
- Typically the training period is four days.
 - The first two days are devoted to a mini course in energy efficiency and energy terminology and a detailed review of the survey questions.
 - The third day is devoted to performing practice surveys of representative businesses.

- The fourth day is devoted to reviewing the results of the practice surveys.
- A brief lesson in lighting should include samples of each of the different technologies, industry-specific terminology (e.g. lamp versus bulb), and how to read labels to determine wattage. Similar brief lessons should be given for all of the technologies (air-conditioning, heating, refrigeration, etc.)
- The interview conducted by the surveyor provides the opportunity to share information related to energy efficiency, which provides the interviewee with some benefit and further engages him or her in the process. Some energy management tips that can be passed on to the residents should be included. For example;
 - How to select a CFL.
 - How to limit the use of electric resistance heat with heat pumps.
 - Is a freezer more efficient when it is half-empty or completely full?
 - How can you tell if the gasket on a refrigerator needs to be replaced?
- Whenever possible, surveyors should be encouraged to perform their first couple of post-training surveys in pairs. This will enable them to learn from each other as they gain confidence.

III. Using the spreadsheet

The spreadsheet is designed for two related functions. First, each sheet is formatted such that a complete survey form can be obtained by printing out the entire Excel workbook. Second, once the survey form is filled out, with all response fields completed, responses can be copied directly back into the appropriate worksheet cells. The spreadsheet uses an automated process to transfer these data into a data sheet which collects data for the entire household sample.

A. Opening the spreadsheet

The spreadsheet uses macros for user customization and data entry. Therefore, upon opening the spreadsheet, the 'Enable Macros' option should be selected.

B. Application version

The spreadsheet is designed for use with Microsoft Excel 97-2002 and Excel 5.0/95 versions only. Some features may be lost with earlier versions of Excel.

C. Print Survey/Data Entry Switch

This switch controls whether the spreadsheet is to be used to print data, or to enter collected data. For each survey sheet, there is a corresponding data sheet to store collected survey results. When the 'Print Survey' option is selected, data sheets are hidden and not printed.

D. Data Entry Process

The survey form is designed so that it may be printed directly from the spreadsheet, with a copy made for each business. This allows the surveyor to enter respondents' answers directly onto the form, resulting in one completed form for each business. These responses can then be copied directly into the spreadsheet and collected with the following steps:

1. Erase previous entries

If the spreadsheet contains responses from a previous business (blue cells), the entries of these cells must be cleared. This is done by clicking the **Clear Data** button. Upon clearing data from the previous business, the business number will increment.

2. Enter new results

Copy responses from hardcopy survey form into the corresponding blue cells of each worksheet.

3. Save data

This is accomplished by clicking the 'Save Data' button on the 'Cover' worksheet. The survey record number will increment, and data from each survey worksheet will be copied into its corresponding data worksheet.

4. Check Results

Once responses are copied to data worksheets, check that datasheets contain the correct information for the current business. If a correction is necessary, changes should be made to the survey worksheet and **Save Data** should be clicked again. This will overwrite the previous entries for this business.

5. Repeat steps 1-4 for each business.

IV. Sheet Detail

A. Business

Questions pertaining to the business and person interviewed – This includes the type and size of business, operating hours and the identification of the person interviewed.

B. Lighting

Detailed information about each lighting fixture in each room, or in each exterior area, including number of lamps, bulb type, wattage and usage (hours per day). The number of lamps on each line will be multiplied by the watts per lamp, the hours per day of usage, and the days per year to yield the annual energy for each room by lamp technology.

C. Air Conditioning and Fans

Information on the type, vintage, brand, model, capacity and usage of all mechanical air conditioning units, and information on type, brand and usage of electric fans.

D. Space Heating

Information on type, brand and usage of main heating equipment.

E. Refrigeration

Information on configuration, brand, price, vintage and use of all refrigerator, refrigerator-freezer or freezer-only units in the building.

F. Water

Information on water usage and water heating and presence, type, brand and age of storage tank water heaters.

G. Energy Bills

Information on monthly total electricity and gas bills, to be provided either by the business owner/employee, or by utility via correlation with meter number.

H. Survey Information

Tracking information of the surveyor and the institution employed to complete the survey. This sheet should be completed by the surveyor and left with the business owner/employee.

You are now ready to go out and collect data!! Good Luck.