

# The Consumption of Energy Survey 2003

## Methodology Report

### Survey purpose

In order to fill a pressing data gap, the objective of this survey is to collect energy consumption data for universities, colleges and hospitals across Canada. This population is not regularly surveyed for energy consumption; however this sector is a key component within Natural Resources Canada's programming and analysis of energy efficiency. These data will provide much needed insight into the patterns of energy consumption across this sector and will give Natural Resources Canada the ability to develop or refine its programs to promote energy efficiency in Canada.

### Target population

The 2003 survey capitalized upon the experience of the pilot survey in terms of refining the survey frame. Essentially, the 2003 frame was updated based upon the contact information provided from the pilot.

For the 2002 pilot survey, hospitals were extracted from the Business Register using North American Industrial Classification System (NAICS) codes *622111 General (except paediatric) Hospitals; 622210 Psychiatric and Substance Abuse Hospitals; and, 622112 Paediatric Hospitals*. A threshold of 50 or more employees (employment class = 05 and greater) was applied. This threshold was applied in order to exclude bodies such as Health Boards, associations and any other "non-hospital" entities that may have this NAICS code.

The university population was initially drawn from Statistics Canada's Public Institutions Division. Here, NAICS code *611310 Universities* was used. The reason for using this file is due to the fact that it is campus-based, whereas the BR file is not. The natural unit for a university is a campus, however some universities have one campus, while others have more than one separate and distinct campus. All identified campuses were considered in-scope.

The colleges (and C.E.G.E.P.) population was initially drawn from the Business Register using NAICS code *611210 Community Colleges and C.E.G.E.P.* Colleges are treated on a campus basis, similar to universities. Here, we use the condition that a college must have 20 or more employees (employment class = 04 and greater) – for similar reasons as hospitals.

For 2003, there were 1,098 units on the survey frame.

### Sample design

A census of all 1,098 units was undertaken.

## Response distribution

Status	Count
Completed Cases	688
Duplicates	9
Multi unit respondents using one questionnaire	14
Not available until end of survey (unresolved)	146
Out of business	4
Out of scope	62
Partially completed cases	12
Refusal	82
Contacted, but unresolved	76
Unable to locate	5
Total	1,098

Despite a 3.5% reduction in the frame size from 1,139 to 1,098 statistical locations, the 2003 survey managed to increase the number of completed cases by over 5%. On a real basis, this represents a reporting improvement over the 2002 pilot. As respondents become more familiar with the questionnaire, the reporting rate should continue to improve.

For the 2003 survey, all of the collection and data capture was performed in-house by SBSSD. As a result of this increased flexibility and control, we were able to better identify and follow-up with respondents that had not provided variables such as square metres. This follow-up process also identified 62 cases that were deemed out of scope for this survey. These cases were mainly old-age homes and long-term care facilities that weren't identified in the pilot.

The response rate for this survey was 70%.

All of the raw data has been manually reviewed and validated. As with the pilot survey, a limited number of edits have been undertaken to improve the internal consistency of each record, but none of the resulting data has been imputed. The final file has been adjusted for non-response and appropriate weights have been calculated for each record.

The addition of the variable - number of students or beds, was somewhat successful. Here, approximately 68% of responding questionnaires included data for this variable. This data has not be compared to any external sources and is presented as reported by each respondent. Given that the survey's main objective was energy data, many respondents did not know this variable.

## Weighting

Before estimation and weighting, sample counts were adjusted for non-response. The adjustment of counts is based on the assumptions that the non-response is random and

that a non-respondent is not characteristically different from a respondent. This survey is a census therefore each unit has an initial weight of one. In this year's survey, there was no adjustment applied to account for the non-respondents that are considered complete or partial with null square meters – simply because the square metre variable was attained for every complete record. An adjustment was applied to account for the non-respondents that are refusals or unable to contact.

The weights were calculated for each stratum, where the stratum is a combination of geographical region and NAICS (with some collapsing when required – i.e. hospitals were collapsed into 622000). Please note that the territories are now included within the BC strata in order to maximize the output and confidentiality.

The following strata were used for this survey;

strata
ATL611210
ATL611310
ATL622000
BCT611210
BCT611310
BCT622000
ON 611210
ON 611310
ON 622000
PRA611210
PRA611310
PRA622000
QC 611210
QC 611310
QC 622000

### Estimates

A table of national estimates has been produced using GES (Generalised Estimation System) a SAS-based application developed at Statistics Canada. All provinces and territories are included within this national estimate table. Included with the weighted estimates are the calculated coefficients of variation.