

# **COUNTRY PRACTICE IN ENERGY STATISTICS**

**Topic/Statistics:**

**Industrial Consumption of Energy Survey**

Institution/Organization: **Statistics Canada**

Country: **Canada**

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## Abstract

Write a short abstract of the statistics, and try to limit it to one page. The purpose of the abstract is to give the reader a general overview of the statistics/topic. It should therefore include a brief overview of the background and the purpose of the statistics, the population, the sample (if relevant), the main data sources, and the main users of the statistics. The abstract should also mention what is the most important contribution or issue addressed in the country practice (e.g. the practice deals with challenges of using administrative data, using of estimation, quality control, etc.). If there are other elements that are considered important, please feel free to include them in the abstract.

Keep in mind that all relevant aspects of the statistical production will be covered in more detail under the different chapters in the template. Therefore, the abstract should be short and focused on the key elements. What the most important elements are can vary from statistics to statistics, but as a help to write an abstract you can use the table below. The table can either replace a text or can be filled out in addition to writing a short text.

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Key elements	
<b>Name of the statistics</b>	Industrial Consumption of Energy (ICE) Survey
<b>Background and purpose of the statistics</b>	The Industrial Consumption of Energy (ICE) survey began in 1995. It is a sample survey conducted by the energy statistics program of the Manufacturing and Energy Division at Statistics Canada. The purpose of this survey is to obtain information on the demand for energy for the industrial sector in Canada.
<b>Population, sample and data sources</b>	The target population comprises manufacturing establishments in Canada and units outside manufacturing specific sectors such as mining, oil and gas extraction, and utilities. Statistics Canada's Business Register is the frame used to select a representative sample of manufacturing establishments. Data are collected directly from survey respondents.
<b>Main users</b>	The main users include all levels of government, industries, trade associations, university and research centres, and energy analysts. Federal, provincial and territorial governments and agencies use these data to help address questions of energy efficiency and as the basis for calculating greenhouse gas emissions. Within Statistics Canada, the data are used as input into a variety of other statistical programs and products, including: the environmental accounts and statistics program, the annual Report on Energy Supply and Demand in Canada (Canada's energy balances) and for economic indicators in the system of national accounts.
<b>Important contribution or issue addressed</b>	This information serves as an important indicator of Canadian economic performance and in establishing informed policies in the energy area. The survey results are used to track energy efficiency improvements and to calculate carbon dioxide emissions. It also contributes to corporate decision-making process and to monitor the results of industries' energy reduction efforts and to measure their contributions to Canada's climate change goals.

<b>Other remarks</b>	Since the mid 1990's, the ICE survey has undergone periodic methodological upgrades due to an increase in sample size from 850 to over 4500 units. This has enabled more detailed analysis both with respect to industry, geography and fuels.

## 1. General information

### 1.1. Name of the statistics/topic

The statistics/topic could either be a specific energy statistics (e.g. electricity production) or a topic within energy statistics (e.g. energy balances). For more information, please see Section III of the Instructions.

Industrial Consumption of Energy (ICE) Survey

### 1.2. History and purpose

State when the statistics were first published.

The ICE statistics have been published since 1995.

Describe briefly the main purpose of producing the statistics and why it is relevant.

The main purpose of producing the ICE statistics is to provide estimates of energy consumption by fuel and by manufacturing establishments in Canada.

This information contributes to important indicators of Canadian economic performance and supports the development of informed policies in the energy area. The survey results are used to track energy efficiency improvements and to calculate carbon dioxide emissions. It also contributes to corporate decision-making process and to monitor the results of industries' energy reduction efforts and to measure their contributions to Canada's climate change goals.

### 1.3. Reference period

State the time period the data are collected for.

The reference period is the January 1 to December 31 calendar year. The collection takes place in January of each year for the previous reference period. For example, the next collection in January 2013 will be for reference period 2012.

#### 1.4. Frequency

Specify how often the statistics are disseminated (e.g. annually, monthly, quarterly, etc.). If the statistics are not produced at regular intervals, state at what times they have been produced in the past and the main reasons behind the irregularities.

The ICE statistics are disseminated annually each fall.

#### 1.5. Dissemination

Describe how the statistics are published (e.g. printed publications, online publications, online databases, etc.). If applicable, include the web address to the main website of the statistics.

The ICE data are published in Statistics Canada's online socioeconomic database CANSIM, tables 128-0005 and 128-0006. They are also the key input statistics to the Report on Energy Supply and Demand in Canada (RESO), which represent Canada's energy balances. The RESO is produced and released in the fall of the year immediately following the reference period.

<http://www5.statcan.gc.ca/cansim/a33?RT=TABLE&sortBy=id&themeID=1741&spMode=tables&lang=eng>

#### 1.6. Regional level

State the lowest geographical level (e.g. administrative regions, municipalities, etc.) for which the statistics are made available to the public.

ICE data are produced and published at the national level. ICE data are also included as the principle input to the demand component of the RESO within which data are published at the national, provincial and territorial level.

#### 1.7. Main users

Identify the key users of the data and the main applications. Include both internal and external users, and if possible try to distinguish between end users and others.

The main users of the data are industries, energy analysts, trade associations, and all levels of government. More specifically, the survey results are used by Natural Resources Canada to track energy efficiency improvements and by Environment Canada to calculate carbon dioxide emissions. Industries also use the information to monitor the results of their energy reduction efforts and to measure their contributions to Canada's climate change goals. These data are also used by provincial and territorial governments for essentially the same reasons.

Within Statistics Canada, the main users are the Environment Accounts and Statistics Division and MED's Report on Energy Supply and Demand in Canada. The ICE data, through the RESO, are also inputs into economic indicators produced by the System of National Accounts.

#### 1.8. Responsible authority

Write the name of the institution and department/office with the main responsibility for disseminating the statistics (e.g.: Statistics Norway, Department of Economics, Energy and the Environment).

Statistics Canada, Manufacturing and Energy Division (MED), Energy Statistics Program (ESP).

## 1.9. Legal basis and legally binding commitments

State the national legal basis for the data collection. Include a complete reference to the constitutional basis, and web address to an electronic version (e.g.: The Statistics Act of 16 June 1989 No. 54, §§2-2 and 2-3, [http://www.ssb.no/english/about\\_ssb/statlaw/forskrift\\_en.html](http://www.ssb.no/english/about_ssb/statlaw/forskrift_en.html)).

*Statistics Act* Revised Statutes of Canada, 1985, Chapter S-19. Completion of this survey is a legal requirement under this Act.

<http://laws-lois.justice.gc.ca/eng/acts/S-19/FullText.html>

If the data collection is not based on a legal basis, give a short description of other agreements or volunteer arrangements.

Not applicable.

If applicable, give reference to national and international commitments that are legally binding (e.g. EU statistical legal acts).

Canada has a legal obligation to report on concepts derived from the ICE survey, including those related to greenhouse gas emissions and treaty obligations to the International Energy Agency (see below 1.11).

## 1.10. Resource requirements

Specify how the production of the statistics is financed (e.g. over the ordinary budget, project based support, financial support from other institutions or organization). If applicable, state the contracting entity (e.g.: Ministry, EU Commission, OECD). A contracting entity is any entity which is ordering a survey or the compilation of a statistics, and paying for it

The Industrial Consumption of Energy survey is a cost-recovery project funded by Natural Resources Canada and Environment Canada.

Specify the resource requirements for producing the statistics (e.g. man-labour days, number of workers involved in the statistical production process of the statistics/topic in question).

Over a period of 12 months, a team of three people work on the survey operations (sampling, updates to questionnaire and guide, system specifications and testing, training and collection procedures, and mail-out) in collaboration with multi-disciplinary teams including methodology support. There are also costs associated with data collection from Statistics Canada regional offices. Afterwards, two additional full-time employees work on data processing, edit and imputation, validation, production and analysis of estimates, confidentiality, and dissemination.

## 1.11. International reporting

List any international organizations and names of reporting schemes that the statistics are reported to. If available, also include the website where the reported data are published (e.g. International Energy Agency, Monthly Oil Statistics, UNSD, etc.).

The ICE statistics are included in the Report on Energy Supply and Demand in Canada which is used by Natural Resources Canada for reporting to the International Energy Agency and Environment Canada for reporting to the United Nations Framework Convention on Climate Change.

## 2. Statistical concepts, methodology, variables and classifications

### 2.1. Scope

Describe the scope of the statistics (e.g. the statistics cover supply and use of all energy products in the country, classified according to International Standard Industrial Classification of All Economic Activities – ISIC).

The statistics cover the consumption of energy by manufacturing companies classified under the North American Industry Classification System (NAICS):

Manufacturing (31 – 33):  
Food manufacturing (311)  
Beverage and tobacco product manufacturing (312)  
Textile mills (313)  
Textile product mills (314)  
Clothing manufacturing (315)  
Leather and allied product manufacturing (316)  
Wood product manufacturing (321)  
Paper manufacturing (322)  
Printing and related support activities (323)  
Petroleum and coal product manufacturing (324)  
Chemical manufacturing (325)  
Plastics and rubber products manufacturing (326)  
Non-metallic mineral product manufacturing (327)  
Primary metal manufacturing (331)  
Fabricated metal product manufacturing (332)  
Machinery manufacturing (333)  
Computer and electronic product manufacturing (334)  
Electrical equipment, appliance and component manufacturing (335)  
Transportation equipment manufacturing (336)  
Furniture and related product manufacturing (337)  
Miscellaneous manufacturing (339)

The ICE survey covers the following fuels: electricity, natural gas, propane, diesel, light fuel oil, kerosene and other middle distillates, heavy fuel oil, wood and wood waste, spent pulping liquor, refuse, steam, coal (bituminous, sub-bituminous, lignite, and anthracite), coal coke, coal tar, light coal oil, coke oven gas, petroleum coke, refinery fuel gas, coke on catalyst, bitumen emulsion, ethane, butane, naphtha, by-product gas, flared gas, steam sales, and other.

Information is also collected on the different usages of energy commodities: as fuel, to produce steam for sale, to produce electricity and for non-energy use, as well as reasons for changes in energy consumption.

## 2.2. Definitions of main concepts and variables

Describe the main concepts (e.g.: territory principle, resident principle, net calorific value, gross calorific value).

The main concept is territory, as the ICE survey covers manufacturing establishments located in Canada. For several key industries, the ICE survey can provide estimates at the provincial and territorial level.

Describe the main variables (e.g. how are the different energy products defined in the statistics? How are production, intermediate consumption, final consumption, transformation, feed stock, the energy sector, etc. defined?).

The ICE questionnaire obtains information on the consumption of the following energy commodities:

Electricity, natural gas, propane, diesel, light fuel oil, kerosene and other middle distillates, heavy fuel oil, wood and wood waste, spent pulping liquor, refuse, steam, coal (bituminous, sub-bituminous, lignite, and anthracite), coal coke, coal tar, light coal oil, coke oven gas, petroleum coke, refinery fuel gas, coke on catalyst, bitumen emulsion, ethane, butane, naphtha, by-product gas, flared gas, steam sales, and other.

Information is also collected on the different usages of energy commodities: as fuel, to produce steam for sale, to produce electricity and for non-energy use, as well as reasons for changes in energy consumption.

## 2.3. Measurement units

Describe in what unit the data is collected (e.g. physical unit (m<sup>3</sup>, metric tons), monetary unit (basic prices, market prices)). Describe in what unit the data is presented. Describe if the calorific values are collected (e.g. on a net vs. gross basis) and how they are used.

If applicable, describe the density of the energy product(s) and the estimated *thermal efficiency coefficients* of different energy products and consumer groups or by appliance. Thermal efficiency coefficient indicates the share of the energy products which is actually usable for end consumption. Descriptions of density and thermal efficiency coefficient could alternatively be put in an annex.

The respondent can choose from the following list of possible units of measure when completing the ICE questionnaire:

Canadian dollars (\$ Cdn)  
100 cubic feet (CCF)  
33-pound cylinder (33lb cyl)  
Barrel (Bbl)  
Cubic foot (cf)  
Cubic metre (m<sup>3</sup>)  
Gallon: Imperial gallon (gal Imp)



Gallon: U.S. gallon (gal US)  
Gigajoule (GJ)  
Kilogram (kg)  
Kilowatt-hour (kWh)  
Litre (L)  
Long ton (lt)  
Megawatt-hour (MWh)  
Metric tonne (MT)  
Million British thermal units (MMBtu)  
Pound (lb)  
Short ton (st)  
Thousands of cubic metres ( $10^3\text{M}^3$ )  
Other (specify) (OTH)

The data are then converted to the following:

Megawatt-hour (MWh) – Electricity  
Thousands of cubic metres ( $10^3\text{m}^3$ ) – Natural gas and refinery fuel gas  
Cubic metres ( $\text{m}^3$ ) – Propane, diesel, light fuel oil, kerosene and other middle distillates, heavy fuel oil, coal by-products (coal tar and light coal oil), bitumen emulsion, ethane, butane, naphtha, by-product gas, and flared gas  
Metric tonnes (MT) – Wood and wood waste, spent pulping liquor, coal (bituminous, sub-bituminous, lignite, and anthracite), coal coke, petroleum coke, and coke on catalyst  
Gigajoules (GJ) – Steam production and steam sales  
Megalitres (ML) – Coal by-products (coke oven gas)  
Various – Refuse and other types of energy commodity

## 2.4. Classification scheme

Include references to relevant international and national standard classifications. If national, give a brief description of the standards. If available, include web addresses to the electronic version of the standards).

North American Industry Classification System (NAICS) Canada 2012:

NAICS divides the economy into twenty sectors. Industries within these sectors are grouped according to the production criterion. Economic units that have similar production processes are classified in the same industry.

<http://www23.statcan.gc.ca:81/imdb/p3VD.pl?Function=getVDDetail&db=imdb&dis=2&adm=8&TV D=118464&CVD=118465&CPV=31-33&CST=01012012&MLV=5&CLV=1&CHVD=118466>

## 2.5. Data sources

Give an overview of the different data sources used in the collection and compilation of the statistics/topic (e.g. household survey, enterprise/establishment survey, administrative data/registers, foreign trade statistics, production statistics and other primary/secondary data sources).

Examples of administrative sources/registers are: business register for enterprises and establishments, population register, land register, housing and building registers, tax registers, international trade registers, etc.

The Statistics Canada Business Register is used for the sampling of establishments and survey data are collected directly from respondents.

## 2.6. Population

Describe the entire group of units which is the focus of the statistics (the population).

The target population comprises manufacturing establishments in Canada. Under the North American Industry Classification System (NAICS), manufacturing establishments are classified to NAICS sectors 31, 32, and 33. ICE also includes units outside of the manufacturing sector, such as mining, oil and gas extraction and utilities.

Specify the following statistical units:

- Reporting unit
- Observational unit
- Analytical unit

Examples of different kind of statistical units include: enterprise, enterprise group, kind-of-activity unit (KAU), local unit, establishment, homogeneous unit of production.

In most cases the reporting unit, observational unit and analytical unit are identical, but there are examples where this is not the case. In electricity statistics, you may find that energy companies (the reporting unit) provide data about different consumers like the individual household or manufacturing company (the observational unit). The analytical unit may be a group of energy consumers, defined by the ISIC.

The statistical unit is establishment, the level at which the accounting data required to measure production is available (principal inputs, revenues, salaries and wages). The establishment, as a statistical unit, is defined as the most homogeneous unit of production for which the business maintains accounting records and from which it is possible to assemble all the data elements required to compile the full structure of the gross value of production (total sales or shipments, and inventories), the cost of materials and services, and labour and capital used in production.

For entities not able to separate the information at the establishment level, the data are split afterwards between establishment and sub-establishment levels. Therefore, in some cases, the reporting units can be different than the analytical units.

## 2.7. Sampling frame and sample characteristics

Describe the type of *sampling frame* used in the collection and compilation of the statistics (e.g. list, area or multiple frames). A sampling frame is the source material or device from which a sample is drawn. Note that the sampling frame might differ from the population.

The frame used for ICE sampling is Statistics Canada's Business Register and it is also based on the frame being used for the Annual Survey of Manufactures (ASM). The ASM pre-identifies establishments out of scope, therefore only the units that are in-scope for the ASM are included in ICE. Information required for ICE is added to the frame including industry and size definition. The sampling frame includes all manufacturing establishments above certain thresholds that vary by industry. To minimize the collection of data from smaller establishments, the smallest establishments

in each of the industries of interest in terms of their value of shipments or gross business income are excluded from the sample. However, these are taken into account in the weighted estimates. Otherwise, the sampling and in-scope requirements for ICE are generally consistent with those required for ASM.

For each survey(s) used for the compilation of the statistics, specify the *sampling design* (e.g. random, stratified, etc.). Describe the routines employed for updating the sample. Include information about the sample size, and discuss to what extent the sample covers the population (e.g. energy consumption in the sample compared to total energy use by the population).

Note that chapter 2.7: *Sample frame and sample characteristics* may overlap with chapter 3.4: *Grossing up procedures*.

Establishments are stratified by industry and by size based on their shipment value to enable the production of both national and provincial estimates. Four strata are defined by size: one take-all, two take-some and a take-none. “Take-all” are selected based on their uniqueness, their size and their importance in their industry and are always included in successive processing years. The ICE sample size is approximately 4600 units plus about 200 non-manufacturing units covering mining, oil and gas extraction and utilities.

The sampling for the take-some strata is done using Statistics Canada’s Generalized Sampling System (GSAM). All sampled units are assigned a sampling weight. The sampling weight is a factor that indicates how many similar units the sampled unit represents in the population. This weight allows estimates for the population to be produced.

The sample for one year is highly dependent on the sample from the previous year. When a sampling unit is included in the current sample year, it is extremely likely that it will also be included the following year; only new “births” in the stratum, businesses that move in or out of the stratum or a change in the survey sample size might prevent a unit from returning to the sample. There is a need for overlap between samples across reference years primarily to ensure, as much as possible, a stable series of estimates over time.

## 2.8. Collection method

For each survey used for the compilation of the statistics/topic, describe how the data are collected (e.g. face-to-face, telephone, self-administered, paper and internet-based questionnaires, or administrative data and registers).

Data are collected through Statistics Canada regional offices directly from survey respondents using Computer Assisted Telephone Interviews. The collection period begins in January with the mailing of the questionnaires to the selected establishments. Phone and fax follow-ups begin in February for establishments that have not yet responded. The regional office collects data from late responders using Computer Assisted Telephone Interviews. The collection period ends in March.

## 2.9. Survey participation/response rate

For each survey used for the compilation of the statistics/topic, specify the average response rate, or refer to response rates for specific surveys conducted.

The average response rate is 85% for the annual ICE survey.

### 3. The statistical production process

#### 3.1. Data capture and storage

Describe how the data is captured and stored (e.g. if the respondent replies using Internet-based questionnaire, the received data are electronically transferred to the production database. Paper questionnaire responses are keyed manually to the production database).

Data from paper questionnaires are scanned and stored electronically. Data received through Computer Assisted Telephone Interviews are entered using a data capture application and stored electronically.

#### 3.2. Data editing

Describe the regular routines employed for detecting and correcting errors. This may include:

- Manual routines for detecting and correcting errors
- Automatic error-detection (and correction)
- Micro- and macro editing procedures
- Data validation procedures
- Outlier identification
- Processes and sources used for quality controls

Data editing is done on a daily basis during collection period in order to identify inconsistencies with micro data that may have a significant impact at the industry level. A number of tools have been developed to prioritize the efforts on data cleaning and validation as follows:

Unit of measure – Other: A program to display and convert all establishments reporting value(s) in a unit of measure not listed on the questionnaire.

Large contributors based on total consumption by fuel codes and NAICS: A program to display all establishments that have total energy consumption in gigajoules over pre-determined thresholds for data editing if necessary.

Fuel code 89 – Other type of fuel: A program to display all establishments that have reported a consumption of another fuel not listed in the questionnaire to be investigated and reclassified to other fuels if necessary.

Establishments reporting coal: All establishments reporting coal are listed for verification of variations in quantity used, switch in types of coal, starting/ceasing usage of coal, etc.

Total fuel not equal to sum of component: A program to display all establishments by fuel code, where the value in the TF (total fuel) is not equal to the sum of the value in AF (as fuel), PS (to produce steam), PE (to produce electricity) and NF (for non-energy use), for verification and data edit if necessary.

Preliminary results of the imputation program: These are used to identify outliers that were not otherwise identified.

Notes: A program to display all notes by establishment including comments from the respondent, interviewers, and analysts. Notes such as strike, closure, new manufacturing processes and equipment, mergers, etc, are useful to make sense of the data.

Additionally, analysis of specific industries and establishments is done with respect to trends, major variations, fuels, etc.

### 3.3. Imputation

Describe the principles for imputation and the assumptions that these principles are based on. Note that this chapter may overlap with chapter 3.2: *Data editing* and chapter 5.2: *Accuracy*

There are two types of imputation: one for outlier and one for non-response (also called massive imputation). Each type of imputation uses two methods, by historical and by donor:

- Imputation by historical trend for an outlier
- Imputation by donor for an outlier
- Imputation by historical trend for a non-response
- Imputation by donor for a non-response

The automated donor imputation program uses Statistics Canada's generalized system BANFF. Donor imputation involves identifying a respondent record that is similar to a non-respondent based on information that is available for both establishments (such as industry, value of shipments, and types of fuel consumed). The data available for the donor establishment are then used for the non-respondent.

### 3.4. Grossing up procedures

Describe how the population is divided into strata and what statistical models the estimations in the strata are based on. Describe how sub-indices are combined into aggregate indices and how uncertainty is estimated.

Establishments are stratified by industry and by size based on their shipment value. Four strata are defined by size: one take-all, two take-some and a take-none. "Take-alls" are selected based on their uniqueness, their size and their importance in their industry. They are always in scope for successive survey years.

The sampling for the take-some strata is done using Statistics Canada's Generalized Sampling System (GSAM). All sampled units are assigned a sampling weight. The sampling weight is a factor that indicates how many similar units the sampled unit represents in the population. This weight allows estimates for the population to be produced.

The Generalized Estimation System is applied to calculate energy consumption estimates for each of the 88 manufacturing NAICS of interest. The estimates are calibrated to the most recent shipment values for these industries available from the Annual Survey of Manufactures. This corrects for sampling errors and includes an adjustment for the uncovered portion of each industry that was excluded from the sample, that is, the take none stratum.

### 3.5. Analytical methods

Give a description of any analytical methods used to adjust the data (e.g.: seasonal adjustment and temperature adjustment). A more detailed description of the analytical method can also be included as an annex.

Two sets of estimates are analyzed simultaneously, the two previous years of final data and the current preliminary data.

Although analytical methods such as seasonal and temperature adjustments are not used by ICE, the notes from respondents and interviewers are reviewed during analysis to contextualize the data. In addition, an analytical tool creates comparison tables of year over year data and time series back to 1995 for analytical purposes. As well, the data are linked and compared to production data (gross output – GO) both in table format and charts. If the energy consumption is inconsistent with the GO or if the variation is unrealistic at the industry level, it is then investigated at the micro data level.

## 4. Dissemination

### 4.1. Publications and additional documentation

Describe the form of dissemination of the statistics/topics in question (e.g. printed publications, website, etc.). Please provide relevant website link(s) if available.

There are no printed publications of the ICE statistics. These are only available in Statistics Canada CANSIM databases online and through the release of the RESD.

Give a complete reference to publicly available statistics databases where data from the statistics can be extracted. Include web addresses if available online.

The ICE data can be extracted from Statistics Canada CANSIM database, Tables 128-0005 and 128-0006 and RESD Tables 128-0016 and 128-0017.

The web link to the CANSIM database for ICE and RESD is:

<http://www5.statcan.gc.ca/cansim/a33?RT=TABLE&sortBy=id&themeID=1741&spMode=tables&lang=eng>

Indicate whether you charge users for access to the statistics at any level of aggregation.

There is no charge for the data.

### 4.2. Revisions

Describe the current revision policies. E.g.: Is historical data revised when new methodology, new definitions, new classifications etc. are taken into use? Is the data continuously revised, or is the data revised at certain points in times (e.g. every third year, annually, etc.)?

Historical data are revised when new methodology is introduced such as in the case of the conversion from the Standard Industrial Classification (SIC) to the North American Industrial Classification (NAICS) as described below.

Normally the data are revised annually. The current reference period is released as preliminary and updated the next year as final. For example, in October 2012, ICE will release 2011 preliminary data and 2010 final data. In October 2013, the 2011 data will be released as final along with the 2012 preliminary data.

If applicable, describe any major conceptual or methodological revisions that have been carried out for this statistic/topic in the past.

In 1995, the quarterly sample (approximately 850 larger establishments) was expanded and an annual component (2,400 other establishments) was added to be able to produce energy consumption estimates for the manufacturing sector at a national level.

For the 1999 and 2000 reference years, the sampling procedure for the ICE survey was modified to create reliable estimates on both the Standard Industrial Classification (SIC) and the North American Classification System (NAICS) basis.

In 2001, the estimated data from ICE survey was converted from the Standard Industrial Classification (SIC) to the North American Industrial Classification (NAICS) for the years 1995 to 2000 inclusively.

Beginning with the 2001 reference year, the annual ICE estimates were produced on a NAICS basis only. The conversion to NAICS required a further expansion of the sample in order to reliably estimate consumption by the 88 industries covered.

Beginning with the 2003 reference year, the ICE sample was conducted on an annual basis only and the sample was increased by an additional 1,000 records to more than 4,000 establishments.

For the 2006 reference year, the sampling strategy for the ICE survey was updated to enable the production of provincial estimates for certain industries. Of these, provincial estimates are produced for 33 of them for use as input to the annual Report on Energy Supply and Demand in Canada.

The full sample of 4600 establishments has been in production since 2006.

In 2007 the collection instrument was modified to combine the long and short questionnaire into one generic questionnaire. This simplified the data collection processing system and time, as well as, helped reduce response burden for the respondents.

### **4.3. Microdata**

Describe how microdata are stored.

The microdata are stored in the Standard Economic Processing System (StEPS) database on a secure and protected network which is physically separated from the internet-accessible network.

Specify if microdata are available for scientific and/or public use. If so, describe under what conditions these are made available.

Microdata are not available to the public. Microdata are only available through data sharing agreements. Section 11 of the *Statistics Act* provides for the sharing of information with provincial and territorial statistical agencies that have the legislative authority to collect the same information, on a mandatory basis, and the legislation must provide substantially the same provisions for confidentiality and penalties for disclosure of confidential information as the *Statistics Act*. Because these agencies have the legal authority to compel businesses to provide the same information, consent

is not requested and businesses may not object to the sharing of the data. Section 12 of the *Statistics Act* provides for the sharing of information with federal, provincial or territorial government organizations. Under Section 12, the respondent may refuse to share his/her information with any of these organizations by writing a letter of objection to the Chief Statistician.

#### **4.4. Confidentiality**

Describe the legal authority that regulates confidentiality, and what restrictions are applied to the publication of the statistics.

Statistics Canada is prohibited from releasing any data which would divulge information obtained under the *Statistics Act* that relates to any identifiable person, business or organization without the prior knowledge or the consent in writing of that person, business or organization.

Describe the criteria used to suppress sensitive data in statistical tables (cell suppression).

Various confidentiality rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential which occurs when the value in a tabulation cell is composed of a few respondents or when the cell is dominated by a few companies. Further, data may be suppressed in a secondary manner if their knowledge would inadvertently render a confidential value elsewhere to be identifiable.

Describe how confidential data are handled.

Confidential data are suppressed and users are advised of suppressions on the grounds of ensuring respondent confidentiality. The ICE questionnaire indicates to respondents that information from the ICE survey is used for statistical purposes only and will be published in aggregate form only.

Describe any confidentiality standards that go beyond what is legally required.

Not applicable.

## **5. Quality**

### **5.1. Relevance**

State to which degree the statistical information meet the real needs of clients/users.

The ICE statistics on energy consumption are highly relevant to its key clients and users. For example, Natural Resources Canada uses the data to track energy efficiency improvements, and Environment Canada to calculate carbon dioxide emissions. In addition, the ICE data meet the needs of users such as industries and energy analysts to monitor energy reduction efforts, as well as all levels of government in establishing policies and programs in the energy area. In fact, industry representatives meet annually to participate in verifying the accuracy of the ICE survey data.



## 5.2. Accuracy

State the closeness of computations or estimates to the exact or true values that the statistics were intended to measure.

Over time, the ICE sample was expanded hence improving data quality in order to provide reliable estimates for the industries both at the national and provincial level. As well, the ICE data have been collected as far back as 1995 therefore providing a historical trend for energy analysts to measure consumption over more than 15 years. As indicated, representatives of the key in-scope industries participate annually in a formal conference/meeting intended to review the ICE survey data and to help assess their accuracy.

### Measurement and processing errors

Discuss the measurement and processing errors that are relevant for the statistics. Try as far as possible to give an estimation of the size and scope of the errors.

Estimates contain both sampling and non-sampling errors.

### Non-response errors

State the size of the unit non-response and the item non-response, distributed by important variables in the population (e.g. region, industry). Consider if the non-response errors are systematic, and if so, describe the methods used to correct it. Indicate whether the effects of correcting non-response errors on the results have been analysed, and, if so, describe them.

The ICE survey has had an average response rate of 85% over the years. Data are imputed systematically or manually for the remaining non-responses.

### Sampling errors

Discuss the size of the sampling errors. Compare the population and sample with regards to important properties (e.g. coefficient of variance).

Sampling error occurs because population estimates are derived from a sample of the population rather than the entire population. Sampling error depends on factors such as sample size, sampling design, and the method of estimation. An important property of probability sampling is that sampling error can be computed from the sample itself by using a statistical measure called the coefficient of variation (CV). The assumption is that over repeated surveys, the relative difference between a sample estimate and the true value that would have been obtained from an enumeration of all units in the universe would be less than twice the CV, 95 times out of 100. The range of acceptable data values yielded by a sample is called a confidence interval. Confidence intervals can be constructed around the estimate using the CV. The standard error is calculated by multiplying the sample estimate by the CV. The sample estimate plus or minus twice the standard error is then referred to as a 95% confidence interval.

For the 2010 Annual Industrial Consumption of Energy survey, CVs were calculated for each estimate. Generally, the more commonly reported variables obtained very good CVs (of less than 10%), while the less commonly reported variables were associated with higher but still acceptable CVs (under 25%). Some data might not be released because of poor data quality.

### Other sources of error

Discuss other sources of errors that might be relevant for the statistics. E.g.: Model assumption errors, coverage errors

Need to ensure sampling list for non-manufacturing including mining, oil and gas extraction and utilities is always up-to-date to ensure full coverage. In addition, liaison with respondents is at times required to ensure that ICE concepts, questions and requirements are being properly interpreted.

### 5.3. Timeliness and punctuality

Specify the time between the end of the reference period and publication. If the statistics are published both as preliminary and final figures, specify the time between publication of preliminary and final figures. You should also point out whether the publication date is set according to certain rules (e.g. advance release calendar, a specific day or prior to other publications).

The elapsed time between the end of the reference period and publication is 10 months. ICE data are collected annually from January to end of March for the previous reference year and are published in the fall of the same year that collection takes place. In the fall, two sets of data are published, the new reference period as preliminary and the previous year as final.

Point out if there have been any major discrepancies between the planned publication date and the actual publication date in recent years. If so, state the length of this discrepancy and its cause.

There have been no major discrepancies between the planned publication date and the actual publication date in recent years.

### 5.4. Accessibility

Describe how easily accessible the statistics are. In particular, is there an advance release calendar to inform the users about when and where the data will be available and how to access them?

Are metadata and other user support services easily available? Are there particular groups that don't have access to the published statistics (e.g.: visually disadvantaged)?

The ICE data are easily accessible at no cost through Statistics Canada's CANSIM database. Information about the ICE survey's methodology is available on Statistics Canada's web site in the section on definitions, data sources and methods in both PDF format and HTML which is accessible to particular groups such as visually impaired. Currently, information is available for the 2010 ICE survey:

<http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5047&lang=en&db=imdb&adm=8&dis=2#b1>

Also, MED Dissemination Section may be contacted directly (toll-free 1-866-873-8789; 613-951-9497; [energ@statcan.gc.ca](mailto:energ@statcan.gc.ca)) to request additional information about the ICE survey.

### 5.5. Comparability

Discuss the comparability of the statistics over time, geographical areas and other domains.

#### Comparability over time

Discuss comparability over time and include information about whether there have been any breaks in the time series of the statistics and why. Also describe any major changes in the statistical methodology that may have had an impact on comparability over time.

Comparability of the ICE statistics is possible over time with data collected since 1995. There have been significant breaks in the time series due to periodic changes in coverage which affected levels of detail at the national, provincial and territorial levels. The increases in sample size created more detail also on fuels used in manufacturing. Although ICE's industry classification was converted from SIC to NAICS, concordances are available between SIC and NAICS as well as NAICS revisions over time therefore breaks in this area are minimal.

<http://www.statcan.gc.ca/concepts/concordances-classifications-eng.htm>

Furthermore, the ICE sample was expanded when converted from SIC to NAICS to ensure comparability of estimates.

### **Comparability over region**

Discuss comparability over geographical areas, and include information about whether the statistics are comparable to relevant statistics published by other countries and/or international organisations.

Comparability at the establishment level over nearby geographical areas is possible if facilities use same types of fuels and manufacture similar products. As well, the North American Industry Classification System (NAICS) used by Canada, Mexico, and the United States makes the classification of economic activities and production of industrial statistics comparable in the three countries. Though NAICS differs from other international industry classification systems, the three countries continue to create industries that do not cross two-digit boundaries of the United Nations' International Standard Industrial Classification of All Economic Activities (ISIC).

### **Comparability over other domains**

Discuss comparability over domains, and include information about whether the statistics are comparable between different industries, different types of households etc.

The ICE data are generally comparable within an industry. While there are always differences due to purpose, usage, and different manufacturing processes, ICE data can be contextualized using gross output indicators to ensure the usage of specific fuels are compared in as standardized a manner as possible, certainly within each industry type.

## **5.6. Coherence and consistency**

Discuss the coherence/consistency between preliminary and final figures.

A relatively stable sampling strategy since 2001 helps facilitate consistent representation of the industries. In addition, industries with a high response rate show consistency between preliminary and final figures as they require minimal intervention between both releases. In other cases, values that were initially imputed can be adjusted based on the following reported reference year to ensure consistency and to confirm major fluctuations or modify them as appropriate.

Discuss the coherence/consistency between monthly, quarterly or yearly statistics within the same subject area. Can the results of different frequencies for the same reference period be combined in a reliable manner?

The ICE survey has been an annual survey since 2003. Although the ICE data were collected on a quarterly basis back in the 1990s, these data were annualized to be consistent with 2003 forward reference period and trend.

Discuss the coherence/consistency with other related statistics (also those produced by other institutions/organisations on the same subject).

The ICE data can be brought together with other statistical information such as the Annual Survey of Manufactures and Logging and the Monthly Survey of Manufacturing to validate, for example, cost of energy versus ICE energy consumption and to study the economic conditions of the industries by analyzing other variables like revenues, employment, salaries and wages, sales of goods manufactured, production, etc.

Further, ICE data correlation can be analyzed along side with statistics from the International Energy Agency, U.S. Statistics, and other indicators such as gross output, increases/decreases in imports and exports, and prices of fuels such as oil and gas.

## 6. Future plans

Are there any current or emerging issues that will need to be addressed in the future? These could include gaps in collection, timeliness issues, data quality concerns, funding risks, confidentiality concerns, simplifications to reduce respondents' burden etc.?

The use of renewable sources of energy is becoming more prominent in manufacturing processes. Also, the co-generation of electricity and heat is increasing. An accurate count of these will have to be included into the ICE in order to ensure full coverage of industries' fuel usage. In addition, there needs to be a better understanding of fuels used for non-energy purposes versus as fuel, and in the context of producer consumption.

The long-term stability of funding for the ICE survey is an ongoing concern and risk, given that it is conducted on a cost-recovery basis with external clients.

System enhancement and replacement will be required in the near future to address technical risks.

## Annexes

### Illustrations and flowcharts

Illustrations and flowcharts are useful to summarize information and to get a better overview of the statistical production process. Illustrations and flowcharts can either be placed in annexes or be included under relevant paragraphs in the template.

E.g.:

- A conceptual flowchart which illustrates the flow of data in the production of the statistics.
- A flowchart which illustrates the main tasks in the production process and the dependency between them.

### Time schedule

Include a time schedule for the different phases of the statistical production process. The statistical production process *may* be divided into the following phases. Phase 1-3 may only be relevant for when a new statistics/survey is set up.

1. **Clarify needs** (e.g. map users needs, identify data sources)
2. **Plan and design** (e.g. plan and design population, sample size, how to analyze and edit data)
3. **Build** (e.g. build and maintain production system, test production system)
4. **Collect** (e.g. Establish a frame, draw the sample, collect data)
5. **Edit** (e.g. identify and code micro data, edit data, imputation)
6. **Analyse** (e.g. quality evaluation, interpret, analyse)
7. **Disseminate** (e.g. publish data, user contact)

### Questionnaires

Include the complete questionnaire(s)/survey form(s) used

### Example of publication tables

Include an example of a typical table published for the statistics. Include web addresses if available online.

### Detailed description on analytical methods

If relevant, a detailed description of analytical methods used in the statistical production (like seasonal adjustment, temperature adjustment etc.) may be described in an annex. A short description can also be included in chapter 3.5: Analytical methods or under other suitable chapters.

## Industrial Consumption of Energy Survey Guide

## Guide de l'enquête sur la consommation industrielle d'énergie

### I. Who should complete this questionnaire?

An engineer, a production manager, an operation manager or someone knowledgeable about the energy consumption and production process of this enterprise should complete this questionnaire.

### I. Qui devrait compléter le présent questionnaire?

Ce questionnaire devrait être rempli par un ingénieur, un gestionnaire de la production, un gestionnaire des opérations ou quelqu'un qui connaît bien la consommation d'énergie et le processus de production de cette entreprise.

### II. Reporting instructions

Please report all quantities of energy commodities consumed from the 1st of January to the 31st of December, be they purchased or self-generated by the industrial establishment. Exclude energy used by contractors, common carriers and suppliers. Round all data to the nearest whole number. If you need assistance, **please contact Statistics Canada at the telephone number indicated on your questionnaire.**

### II. Instructions concernant la déclaration

Veillez déclarer toutes les quantités de produits énergétiques consommées du 1er janvier au 31 décembre, qu'elles aient été achetées ou produites par l'établissement-même. Ne pas inclure l'énergie utilisée par les sous-contractants, les transporteurs publics et les fournisseurs. Veuillez arrondir toutes les données au nombre entier le plus près. Si vous avez besoin d'aide, **veuillez communiquer avec Statistique Canada au numéro de téléphone indiqué sur votre questionnaire.**

### III. Retention

Please keep a copy of the completed questionnaire with your secure records until March 31, 2014.

### III. Conservation

Veillez s'il vous plaît conserver une copie du questionnaire rempli avec vos dossiers protégés jusqu'au 31 mars 2014.

### IV. Definitions

#### Type of energy use

**Amount consumed as fuel:** The quantity of the energy commodity used to power the production process of the plant, which includes heating and transportation at the establishment.

**Amount consumed to produce steam for sale:** The quantity of the energy commodity used in the production of steam that is delivered to another establishment, as per a sales contract or other understanding. Energy used in the production of steam that is then used internally in the production process is reported in the "amount consumed as fuel" column.

**Amount consumed to produce electricity:** The quantity of the energy commodity used to generate electricity either for the plant's own use or for delivery to another establishment, as per a sales contract or other understanding.

**Amount consumed for non-energy use:** The quantity of the energy commodity used for other purposes than As Fuel in the plant production process or to Produce Electricity or Steam. Some examples of energy commodities used for non-energy use are:

- Natural gas used as a reducing agent to produce direct reduced iron (DRI)

### IV. Définitions

#### Types d'utilisation d'énergie

**Quantité consommée comme combustible :** La quantité de produit énergétique utilisée dans le processus de production de l'usine, ce qui comprend le chauffage et le transport effectué sur le site.

**Quantité consommée pour produire de la vapeur pour la vente :** La quantité de produit énergétique utilisée pour la production de vapeur, qui est ensuite livrée à un utilisateur à l'extérieur de l'emplacement de l'usine selon un contrat de vente ou selon toute autre entente. L'énergie utilisée pour produire de la vapeur qui est ensuite utilisée dans le processus de production de l'usine doit être déclarée dans la colonne intitulée « quantité consommée comme combustible ».

**Quantité consommée pour produire de l'électricité :** La quantité d'énergie utilisée pour la production d'électricité utilisée sur place ou livrée à un utilisateur à l'extérieur de l'emplacement de l'usine selon un contrat de vente ou selon toute autre entente.

**Quantité consommée à des fins non énergétiques :** La quantité d'énergie utilisée à d'autres fins que l'alimentation en combustible dans le processus de production de l'usine, la production de vapeur ou d'électricité. Voici quelques exemples de produits énergétiques utilisés à des fins non énergétiques :

- Gaz naturel utilisé comme agent réducteur pour produire du fer de réduction directe (FRD)

- Petroleum coke used as feed to reduce lead oxide in lead production
- Natural gas used as feed to produce hydrogen and ammonia
- Anthracite used as feed (as a reducing agent) to produce ferrosilicon and silicon metal

### Type of energy commodity

Please report your energy use according to the following commodity definitions.

#### Section 1

**Electricity:** A form of energy generated by friction, induction or chemical change that is caused by the presence and motion of elementary-charged particles. The electricity that is consumed can either be received by the establishment (**purchased**) or produced by the establishment (**self-generated**).

**Natural gas:** A mixture of hydrocarbons, comprised principally of methane (CH<sub>4</sub>), originating in the gaseous phase or in solution with crude oil in porous geologic formations beneath the earth's surface.

**Propane:** A gaseous, straight-chained hydrocarbon. A colourless, paraffinic gas extracted from natural gas or refinery gas streams, consisting of molecules composed of three atoms of carbon and eight atoms of hydrogen (C<sub>3</sub>H<sub>8</sub>). Used primarily in residential and commercial heating and cooling, as transportation fuel and petrochemical feedstock.

#### Middle distillates

**Diesel:** All grades of distillate fuel used for diesel engines, including those with low sulphur content (lower than 0.05%). **Does not include diesel used for transportation off the plant site.**

**Light fuel oil:** A light petroleum distillate used for power burners. Includes fuel oil no. 2, fuel oil no. 3, furnace fuel oil, gas oils, and light industrial fuel.

**Kerosene and other middle distillates:** Includes kerosene (a light petroleum distillate that is used in space heaters, cook stoves and water heaters and is suitable for use as a light source when burned in wick-fed lamps; also known as stove oil), fuel oil no. 1, and mineral lamp oil. **Does not include gasoline used for transportation off the plant site.**

**Heavy fuel oil (Canadian/Foreign):** All grades of residual type fuels including those with low sulphur content. Usually used for steam and electric power generation and diesel motors. Includes heavy fuel oil nos. 4, 5, 6 and bunker C.

**Wood and wood waste:** Wood and wood energy used as fuel, including round wood (cord wood), lignin, wood scraps from furniture and window frame manufacturing, wood chips, bark, sawdust, shavings, lumber rejects, forest residues, charcoal

- Coke de pétrole utilisé comme matière de base pour réduire l'oxyde de plomb pendant la production du plomb
- Gaz naturel utilisé comme matière de base pour produire de l'hydrogène et de l'ammoniac
- Anthracite utilisé comme matière de base (comme agent réducteur) pour produire du ferrosilicium et du silicium métal

### Types de produits énergétiques

Veuillez déclarer votre utilisation d'énergie selon les définitions de produits énergétiques suivantes.

#### Section 1

**Électricité :** Forme d'énergie produite par friction, induction ou transformation chimique, causée par la présence et le mouvement de particules élémentaires chargées. L'électricité qui est consommée peut être reçue par l'établissement (**achetée**) ou autoproduite (**produite par l'établissement**).

**Gaz naturel :** Mélange d'hydrocarbures, contenant principalement du méthane (CH<sub>4</sub>), en phase gazeuse ou en solution dans du pétrole brut provenant de gisements souterrains.

**Propane :** Hydrocarbure à chaîne droite, normalement sous forme gazeuse. Gaz paraffinique incolore extrait du gaz naturel ou des jets de gaz de raffinerie formé de molécules composées de trois atomes de carbone et de huit atomes d'hydrogène (C<sub>3</sub>H<sub>8</sub>). Principalement utilisé pour le chauffage/refroidissement résidentiel et commercial, comme carburant dans les transports et comme matière de base en pétrochimie.

#### Distillats moyens

**Diesel :** Toute catégorie de distillats utilisés dans les moteurs diesel, y compris ceux qui contiennent une faible quantité de soufre (inférieure à 0,05 %). **Ne comprend pas le diesel utilisé pour le transport à l'extérieur du site de l'usine.**

**Mazout léger :** Un distillat de pétrole léger utilisé dans les brûleurs à air soufflé. Comprend le mazout no.2, le mazout no.3, l'huile de chauffage, le gasoil et les carburants industriels légers.

**Kérosène et autres distillats moyens :** Comprend le kérosène (un distillat de pétrole léger utilisé dans les radiateurs d'appoint, les cuisinières et les chauffe-eau et qui convient comme source d'éclairage lorsque brûlé dans des lampes à mèche ; aussi appelé pétrole de chauffage), le mazout no.1 et l'huile à lampe. **Ne comprend pas l'essence utilisée pour le transport à l'extérieur du site de l'usine.**

**Mazout lourd (canadien/étranger) :** Toute catégorie de combustibles résiduels, y compris les combustibles à faible teneur en soufre. Principalement utilisés pour la génération de vapeur, la production d'énergie électrique ainsi que l'alimentation des moteurs diesel. Comprend les mazouts no 4, 5 et 6 et le bunker C.

**Bois et déchets du bois :** Bois et énergie tirée du bois utilisés comme combustibles, incluant le bois rond (bois vendu à la corde), la lignine, les résidus de la fabrication de meubles et de cadres de fenêtres, les copeaux de bois, l'écorce, la sciure,

and pulp waste from the operation of pulp mills, sawmills and plywood mills.

**Spent pulping liquor (Black liquor):** A recycled by-product formed during the pulping of wood in the paper-making process. It is primarily made up of lignin and other wood constituents and chemicals that are by-products of the manufacture of chemical pulp. It is burned As Fuel or in a recovery boiler which produces steam which can be used to produce electricity.

**Refuse:** Solid or liquid waste materials used as a combustible energy source. This would include the burning of wastepaper, packing materials, garbage and other industrial, agricultural and urban refuse and is often used to generate electricity.

**Please specify type.**

**Steam:** A gas resulting from the vaporization of a liquid or the sublimation of a solid, generated by condensing or non-condensing turbines. The steam that is consumed can either be produced by the establishment (self-generated) or received by the establishment (**purchased**).

**Special note:** the fuels used to generate steam within the establishment (self-generated) should be reported under “as fuel” for those fuels. For example, if 100 cubic metres of heavy fuel oil was used to produce steam, it should be included under “as fuel” for heavy fuel oil.

Statistics Canada is currently reviewing the ICE questionnaire and changes may be made in the future that will allow respondents to report for fuels used “to produce steam” separately from the “as fuel” component. To date, the self-generated steam values have not been made publicly available, they are used for internal analysis only.

## Section 2

**Coal:** A readily combustible, black or brownish-black rock-like substance, whose composition, including inherent moisture, consists of more than 50% by weight and 70% by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered and metamorphosed by heat and pressure over geologic time without access to air.

**Bituminous coal (Canadian / Foreign):** A dense, black coal, often with well-defined bands of bright and dull material with a moisture content usually less than 20 per cent. It has a higher heating value and higher volatile matter and ash content than sub-bituminous coal; the heating value of bituminous coal typically ranges from 23.3 to 30.2 terajoules per kilotonne. Used in making coke, in steam and electricity production, as well as in the production of steel. Metallurgical coal is typically bituminous coal.

**Sub-bituminous coal (Canadian / Foreign):** A black coal used primarily for thermal generation. It has a high moisture content, between 15 and 40 percent by weight. Its sulphur content is

les retailles de bois d'œuvre, les résidus forestiers, le charbon de bois et les détritux de pâte provenant de l'exploitation d'usines de pâte, de scieries et d'usines de contreplaqué.

**Lessive de pâte épuisée (liqueur noire):** Un sous-produit recyclé produit lors de la transformation du bois en pâte dans le processus de fabrication du papier. Il est principalement composé de lignine, d'autres composantes du bois et de produits chimiques qui sont des sous-produits de la fabrication de pâte chimique. Il est brûlé en tant que combustible ou dans une chaudière de récupération qui produit de la vapeur pouvant être utilisée pour générer de l'électricité.

**Détritux:** Matériaux de rebut solides ou liquides utilisés comme source d'énergie combustible. Comprend la combustion des rebuts de papier, des matériaux d'emballage, des ordures, et d'autres déchets industriels, agricoles et urbains. Souvent utilisés pour produire de l'électricité. **Veillez préciser le type de détritux.**

**Vapeur :** Gaz résultant de la vaporisation d'un liquide ou de la sublimation d'un solide. Produit à l'aide de turbines de condensation ou de non condensation. La vapeur qui est consommée peut être autoproduite (produite par l'établissement) ou reçue par l'établissement (**achetée**).

**Note spéciale :** Les combustibles utilisés pour produire de la vapeur au sein de l'établissement (autoproduction) devraient être déclarés dans la catégorie « comme combustible ». Par exemple, si 100 mètres cubes de mazout lourd ont été utilisés pour produire de la vapeur, il faut inclure le mazout lourd dans la catégorie « comme combustible ».

Statistique Canada est en train de passer en revue le questionnaire sur la CIE, et des modifications pourraient être apportées ultérieurement pour permettre aux répondants de déclarer des données sur les combustibles utilisés « pour produire de la vapeur » séparément de la composante « comme combustible ». Jusqu'ici, les valeurs relatives à la vapeur produite par l'établissement n'ont pas été publiées; elles sont réservées à des fins d'analyse interne seulement.

## Section 2

**Charbon :** Une substance rocheuse noire ou brun-noir facilement combustible dont la composition, y compris l'humidité inhérente, consiste à plus de 50 % de la masse et à plus de 70 % du volume de matière carbonée. Elle est formée par les résidus de plantes qui ont été comprimés, durcis, modifiés chimiquement et métamorphosés par la chaleur et la pression pendant une période géologique sans être exposés à l'air.

**Charbon bitumineux (canadien/étranger) :** Charbon dense, noir, souvent formé de couches claires et sombres bien définies et ne contenant habituellement pas plus de 20 % d'humidité. Il présente un plus grand pouvoir calorifique et une plus grande quantité de matières volatiles et de cendre que le charbon sous-bitumineux ; le pouvoir calorifique du charbon bitumineux se situe habituellement entre 23,3 et 30,2 térajoules par kilotonne. Utilisé pour la production de coke, de vapeur et d'électricité, ainsi que pour la production d'acier. Le charbon métallurgique est habituellement du charbon bitumineux.

**Charbon sous-bitumineux (canadien/étranger) :** Charbon noir utilisé principalement pour la génération thermique. Présente une forte teneur en humidité, se situant entre 15 et



typically quite low; its ash content is also usually low but volatile matter is usually high and can exceed 40% of the weight. Heating value varies from 16.3 terajoules per kilotonne to slightly over 20.9 terajoules per kilotonne.

**Lignite:** Low-rank, brown coals which are distinctly brown and woody or claylike in appearance, and which contain relatively high moisture contents (between 30 and 70 percent of the fuel by weight). Used almost exclusively for electric power generation.

**Anthracite:** A hard, black, lustrous coal containing a high percentage of fixed carbon, a low percentage of volatile matter, little moisture content, low sulfur, low ash and a high heating value at or above 27.7 terajoules per kilotonne that burns with a nearly smokeless flame. Generally used in the production of steel.

**Coal coke (Canadian/Foreign):** A hard, porous product made from the carbonization (baking) of bituminous coal in ovens in substoichiometric atmosphere at high temperatures to the extent that the volatile matter of the coal is released and the coal passes through a "plastic stage" to become metallurgical coke. Often used as a fuel and a carbon input (reducing agent) in smelting iron ore in an integrated steel mill (blast furnace). Coke breeze and foundry coke are included in this category.

#### Coal by-products

**Coal tar:** Organic material separated from coke oven gas evolved during coking operations (a black and viscous liquid). This category includes pyridine, tar acids, naphthalene, creosote oil, and coal pitch.

**Light coal oil:** Condensable products (primarily benzene, toluene, xylene and solvent naphtha) obtained during distillation of the coke oven gas, following removal of the coal tar.

**Coke oven gas:** Obtained as a by-product of solid fuel carbonization and gasification operations carried out by coke producers and iron and steel plants.

### **Section 3**

**Petroleum coke (Canadian/Foreign):** A final product, often called a "waste product", of the petroleum refining process, which is the output of the refinery after all of the distillates and oils have been distilled from crude oil, leaving a product that has the appearance of coal. There are various types, e.g. "sponge", "shot", and "fluid" coke, which are differentiated according to size. Petroleum coke is a residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. It is typically high in sulfur, low in volatile matter, low in ash and low in moisture. It may be sold as is or further purified by calcining for specialty uses, including anode production. It may also be burned as fuel in various processes, ranging from power plants to cement kilns. Heating value is typically around 40 terajoules per kilotonne.

40 % de la masse. La teneur en soufre est habituellement très faible, de même que celle en cendre. Au contraire, la teneur en matière volatile est habituellement élevée et peut dépasser 40 % de la masse. Le pouvoir calorifique varie de 16,3 térajoules par kilotonne à un peu plus de 20,9 térajoules par kilotonne.

**Lignite :** Charbon brun de qualité inférieure présentant une apparence nettement brune et ligneuse ou argileuse et qui a une teneur en humidité relativement élevée (entre 30 et 70 % de la masse du combustible). Utilisé presque exclusivement pour la production d'électricité.

**Anthracite :** Charbon dur, noir et brillant contenant un pourcentage élevé de carbone fixé, un faible pourcentage de matière volatile et une faible teneur en eau, en soufre et en cendre. A un pouvoir calorifique élevé qui se situe à plus de 27,7 térajoules par kilotonne et qui brûle presque sans fumée. Est utilisé généralement pour la production d'acier.

**Coke de charbon (canadien/étranger) :** Produit poreux et dur provenant de la carbonisation (cuisson) de charbon bitumineux à température élevée dans des fours à atmosphère sous-stoechiométrique, jusqu'à ce que la matière volatile du charbon soit libérée et que le charbon passe par une « phase plastique » pour devenir du coke métallurgique. Utilisé souvent comme combustible et apport de carbone (agent réducteur) pour la fonte de minerai de fer dans une usine sidérurgique (haut fourneau). La poussière de coke et le coke de fonderie sont inclus dans cette catégorie.

#### Sous-produits du charbon

**Goudron de houille :** Substance organique séparée du gaz de four à coke résultant du cokage (un liquide noir et visqueux). Cette catégorie inclut la pyridine, les acides de goudron, le naphthalène, l'huile de créosote et le brai.

**Huile légère de charbon :** Produits condensables (principalement le benzène, le toluène, le xylène et les solvants à base de naphte) obtenus lors de la distillation du gaz de four à coke, après l'extraction du goudron de houille.

**Gaz de four à coke :** Obtenu comme sous-produit des opérations de carbonisation et de gasification de combustible solide effectuées par les producteurs de coke et les usines sidérurgiques.

### **Section 3**

**Coke de pétrole (canadien/étranger) :** Un produit final, souvent appelé « déchet », du processus de raffinage du pétrole. Produit de la raffinerie après que tous les distillats et les huiles aient été distillés à partir du pétrole brut, ce qui laisse un produit qui a l'apparence du charbon. On le trouve sous divers types, notamment le coke « d'éponge », « d'injection » et « fluide », distingués selon la taille du produit. Le coke de pétrole est un résidu à forte teneur en carbone et à faible teneur en hydrogène qui est le produit final de la décomposition thermique lors du processus de condensation du craquage. Il présente habituellement une forte teneur en soufre, une faible teneur en matières volatiles, en cendre et en humidité. Il peut être vendu tel quel ou être purifié davantage par calcination pour des utilisations spécialisées, notamment la production d'anodes. Il peut également être brûlé comme combustible dans divers processus, allant des centrales électriques aux fours à ciment. Son pouvoir calorifique se situe habituellement autour de 40 térajoules par kilotonne.

**Refinery fuel gas:** Any un-separated mixture of gases produced in refineries by distillation, cracking, reforming and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylenes, propane, propylene, etc. Also known as still gas. Still gas is used as a refinery fuel and a petrochemical feedstock.

**Coke on catalyst (Catalyst coke):** In many catalytic operations (e.g. catalytic cracking), carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. This carbon or coke is not recoverable in a concentrated form.

**Bitumen emulsion (Orimulsion):** A thick oil and water emulsion. It is made by mixing bitumen with about 30% water and a small amount of surfactant. Behaves similarly to fuel oil and was developed for industrial use.

**Ethane:** A normally gaseous, straight-chain hydrocarbon. A colourless, paraffinic gas extracted from natural gas or refinery gas streams, consisting of molecules composed of two atoms of carbon and six atoms of hydrogen (C<sub>2</sub>H<sub>6</sub>), used as petrochemical feedstock in production of chemicals and plastics and as a solvent in enhanced oil recovery process.

**Butane:** A normally gaseous hydrocarbon. A colourless, paraffinic gas extracted from natural gas or refinery gas streams, consisting of molecules composed of four atoms of carbon and ten atoms of hydrogen (C<sub>4</sub>H<sub>10</sub>), used primarily for blending in high-octane gasoline, for residential and commercial heating, and in the manufacture of chemicals and synthetic rubber.

**Naphtha:** A feedstock destined primarily for the petrochemical industry (e.g. ethylene manufacture or aromatics production). Naphtha specialties comprise all finished products within the naphtha boiling range of 70-200°C that are used as paint thinners, cleaners or solvents.

**By-product gas:** A mixture of hydrocarbons and hydrogen produced from chemical processes such as ethane cracking.

**Flared gas:** Gas that is being burned as a means of disposal to the environment usually when it contains odorous or toxic components. Flared gas should be reported as non-energy use.

#### Section 4

**Other:** Any energy commodity consumed not otherwise identified on the questionnaire. Specify in the space provided along with the unit of measure.

**Gaz de distillation :** Tout mélange non décomposé de gaz produits dans des raffineries par distillation, craquage, reformage et autres processus. Les constituants principaux sont le méthane, l'éthane, l'éthylène, le butane normal, les butylènes, le propane, le propylène, etc. Le gaz de distillation est utilisé comme combustible de raffinerie et comme matière de base en pétrochimie.

**Coke sur catalyseur (coke catalytique) :** Dans de nombreuses opérations catalytiques (par exemple le craquage catalytique), du carbone se dépose sur le catalyseur, ce qui le désactive. On réactive le catalyseur en faisant brûler le carbone, qui est utilisé comme combustible dans le processus de raffinage. Ce carbone ou coke n'est pas récupérable sous une forme concentrée.

**Bitume en émulsion (orimulsion) :** Une émulsion épaisse de pétrole et d'eau. L'orimulsion est produite en mélangeant le bitume avec environ 30 % d'eau douce et une petite quantité d'un agent de surface (surfactant). Le bitume en émulsion réagit de façon similaire au mazout; il a été développé pour le secteur industriel.

**Éthane :** Hydrocarbure normalement gazeux à chaîne droite. Gaz paraffinique incolore extrait du gaz naturel ou des jets de gaz de raffinerie, consistant en molécules composées de deux atomes de carbone et de six atomes d'hydrogène (C<sub>2</sub>H<sub>6</sub>), utilisé comme matière de base dans la production de produits chimiques et de plastiques ainsi que comme solvant dans le processus amélioré de récupération du pétrole.

**Butane :** Un hydrocarbure normalement gazeux. Gaz paraffinique incolore extrait du gaz naturel ou des jets de gaz de raffinerie, consistant en molécules composées de quatre atomes de carbone et de dix atomes d'hydrogène (C<sub>4</sub>H<sub>10</sub>), utilisé principalement pour être mélangé à de l'essence à haut indice d'octane, pour le chauffage résidentiel et commercial et dans la fabrication de produits chimiques et de caoutchouc synthétique.

**Naphte :** Une matière de base destinée principalement à l'industrie pétrochimique (p. ex., fabrication d'éthylène ou production d'hydrocarbures aromatiques). Les spécialités de la naphte comprennent tous les produits finis se situant dans les limites d'ébullition de la naphte de 70 à 200 °C, qui sont utilisés comme diluants pour peinture, détergents ou solvants.

**Gaz de sous-produits :** Un mélange d'hydrocarbures et d'hydrogène produit à partir de procédés chimiques tels que le craquage d'éthane.

**Gaz flambé :** Gaz qui est brûlé afin de l'éliminer, généralement lorsqu'il contient des composantes toxiques ou odorantes. Le gaz flambé doit être déclaré dans la colonne intitulée « à des fins non énergétiques ».

#### Section 4

**Autre :** Tout autre type de produit énergétique consommé qui n'est pas mentionné ailleurs dans le questionnaire. Veuillez spécifier le type de produit énergétique dans l'espace fourni à cet effet, de même que l'unité de mesure utilisée.

## Section 5

### Reasons for changes in energy consumption

This section aims to reduce the necessity for further inquiries. Statistics Canada compares responses to this questionnaire with those from previous years. Please indicate the reason(s) that best describe significant changes in your energy consumption from the previous year along with an explanation.

## Section 6

### Steam sales

If an energy commodity is used to generate steam for sale, please report, in gigajoules, the amount sold to external clients.

## Section 5

### Raisons des changements dans la consommation d'énergie

L'objet de cette section est de réduire le besoin de demandes de renseignements supplémentaires. Statistique Canada compare les réponses fournies dans le questionnaire avec celles des années précédentes. Veuillez indiquer la ou les raisons qui décrivent le mieux les changements importants de votre consommation d'énergie par rapport à l'année précédente, et fournir une explication.

## Section 6

### Ventes de vapeur

Si un produit énergétique est utilisé pour produire de la vapeur pour la vente, veuillez déclarer, en gigajoules, la quantité vendue à des clients externes.

## V. Data-sharing Agreements

To reduce respondent burden, Statistics Canada has entered into data sharing agreements with provincial and territorial statistical agencies and other government organizations, which must keep the data confidential and use them only for statistical purposes. Statistics Canada will only share data from this survey with those organizations that have demonstrated a requirement to use the data.

**Section 11** of the *Statistics Act* provides for the sharing of information with provincial and territorial statistical agencies that meet certain conditions. These agencies must have the legislative authority to collect the same information, on a mandatory basis, and the legislation must provide substantially the same provisions for confidentiality and penalties for disclosure of confidential information as the *Statistics Act*. Because these agencies have the legal authority to compel businesses to provide the same information, consent is not requested and businesses may not object to the sharing of the data.

For this survey, there are **Section 11** agreements with the provincial and territorial statistical agencies of Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and the Yukon. The shared data will be limited to business establishments located within the jurisdiction of the respective province or territory.

**Section 12** of the *Statistics Act* provides for the sharing of information with federal, provincial or territorial government organizations. Under **Section 12**, you may refuse to share your information with any of these organizations by writing a letter of objection to the Chief Statistician and returning it with the completed questionnaire. Please specify the organizations with which you do not want to share your data.

For this survey, there are **Section 12** agreements with the statistical agencies of Prince Edward Island, the Northwest Territories and Nunavut, as well as Natural Resources Canada, Environment Canada, National Energy Board, and the Alberta Department of Energy. For agreements with provincial and territorial government organizations, the shared data will be limited to business establishments located within the jurisdiction of the respective province or territory.

## V. Ententes de partage de données

Afin de réduire le fardeau des répondants, Statistique Canada a conclu des ententes de partage de données avec des organismes statistiques provinciaux et territoriaux et d'autres organisations gouvernementales, qui doivent garder les données confidentielles et les utiliser uniquement à des fins statistiques. Statistique Canada communiquera les données de la présente enquête seulement aux organisations ayant démontré qu'elles avaient besoin de les utiliser.

L'**article 11** de la *Loi sur la statistique* prévoit le partage de données avec des organismes statistiques provinciaux et territoriaux répondant à certaines conditions. Ces organismes doivent posséder l'autorisation légale de recueillir les mêmes données, sur une base obligatoire, et les lois en vigueur doivent contenir essentiellement les mêmes dispositions que la *Loi sur la statistique* en ce qui concerne la confidentialité et les sanctions imposées en cas de divulgation de renseignements confidentiels. Comme ces organismes possèdent l'autorisation légale d'obliger les entreprises à fournir les mêmes données, on ne demande pas le consentement des entreprises et celles-ci ne peuvent s'opposer au partage des données.

Pour la présente enquête, des ententes en vertu de l'**article 11** ont été conclues avec les organismes statistiques provinciaux et territoriaux de Terre-Neuve-et-Labrador, de la Nouvelle-Écosse, du Nouveau-Brunswick, du Québec, de l'Ontario, du Manitoba, de la Saskatchewan, de l'Alberta, de la Colombie-Britannique et du Yukon. Les données partagées seront limitées aux établissements commerciaux situés dans la province ou le territoire en question.

L'**article 12** de la *Loi sur la statistique* prévoit le partage de données avec des organisations gouvernementales fédérales, provinciales ou territoriales. En vertu de cet article, vous pouvez refuser de partager vos données avec l'une ou l'autre de ces organisations en écrivant une lettre d'objection au statisticien en chef et en la retournant avec le questionnaire rempli. Veuillez préciser les organisations avec lesquelles vous ne voulez pas partager vos données.

Pour la présente enquête, des ententes en vertu de l'**article 12** ont été conclues avec les organismes statistiques de l'Île-du-Prince-Édouard, des Territoires du Nord-Ouest et du Nunavut, ainsi que Ressources naturelles Canada, Environnement Canada, l'Office national de l'énergie, et le ministère de l'énergie de l'Alberta. Dans le cas des ententes conclues avec des organisations gouvernementales provinciales et territoriales, les données partagées seront limitées aux établissements commerciaux situés dans la province ou le territoire en question.

# Annual Industrial Consumption of Energy Survey 2011


# Enquête annuelle sur la consommation industrielle d'énergie 2011

Confidential when completed	Confidenciel une fois rempli
<b>Reporting period</b>	<b>Période de déclaration</b>
January – December 2011	Janvier – Décembre 2011

Correct pre-printed information if necessary / Corrigez l'information pré-imprimée si nécessaire

<p><b>Purpose of the survey</b></p> <p>The purpose of this survey is to obtain information on the demand for energy in Canada. This information serves as an important indicator of Canadian economic performance and is used by all levels of government in establishing informed policies in the energy area. The private sector also uses this information in the corporate decision-making process.</p> <p><b>Authority</b></p> <p>This survey is conducted under the authority of the <i>Statistics Act</i>, Revised Statutes of Canada, 1985, Chapter S19. Completion of this questionnaire is a legal requirement under this Act.</p> <p><b>Confidentiality</b></p> <p>Statistics Canada is prohibited by law from releasing any information from this survey which would identify any person, business, or organization, or any information related to them, unless consent has been given by the respondent or as permitted by the <i>Statistics Act</i>. The confidentiality provisions of the <i>Statistics Act</i> are not affected by either the <i>Access to Information Act</i> or any other legislation. Information from this survey will be used for statistical purposes only and will be published in aggregate form only.</p> <p><b>Data sharing agreements</b></p> <p>To reduce respondent burden, Statistics Canada has entered into data sharing agreements with provincial and territorial statistical agencies and other government organizations, which must keep the data confidential and use them only for statistical purposes. For further information on data sharing, please see the enclosed reporting guide.</p> <p><b>Data Linkage</b></p> <p>To enhance the data from this survey and for the purpose of statistical studies, Statistics Canada may combine it with information from other surveys or from administrative sources.</p> <p><b>Retention</b></p> <p>Please keep a copy of the completed questionnaire with your secure records until March 31, 2014.</p> <p><b>Completion and return</b></p> <p><b>Complete and return within 20 days after receipt of this questionnaire.</b> Please complete and return to Statistics Canada, 150 Tunney's Pasture Driveway, Ottawa, ON K1A 0T6. If you require assistance in the completion of the questionnaire, contact toll free 1-800-461-1662 or by fax 1-888-883-7999.</p> <p>Statistics Canada advises you that there could be a risk of disclosure during the facsimile or other electronic transmission. However, upon receipt of your information, Statistics Canada will provide the guaranteed level of protection afforded to all information collected under the authority of the <i>Statistics Act</i>.</p> <p><b>Who should complete this questionnaire?</b></p> <p>An engineer, a production manager, an operation manager or someone knowledgeable about the energy consumption and production process of this enterprise should complete this questionnaire.</p> <p><b>Certification</b></p> <p>I certify that the information contained herein is complete and correct to the best of my knowledge.</p>	<p><b>But de l'enquête</b></p> <p>Cette enquête a pour but de recueillir de l'information sur la demande d'énergie au Canada. Cette information est un indicateur important de la performance économique canadienne et tous les niveaux de gouvernement s'en servent pour établir des politiques énergétiques éclairées. Le secteur privé utilise aussi cette information dans le cadre de son processus décisionnel.</p> <p><b>Autorité</b></p> <p>Cette enquête est menée en vertu de la <i>Loi sur la statistique</i>, Lois révisées du Canada, 1985, chapitre S19. En vertu de la <i>Loi sur la statistique</i>, il est obligatoire de remplir le présent questionnaire.</p> <p><b>Confidentialité</b></p> <p>La loi interdit à Statistique Canada de divulguer toute information de cette enquête susceptible de dévoiler l'identité d'une personne, d'une entreprise ou d'un organisme, sans leur permission ou sans en être autorisé par la loi. Les dispositions de confidentialité de la <i>Loi sur la statistique</i> ne sont pas touchées par la <i>Loi sur l'accès à l'information</i> ou toute autre loi. Les données de cette enquête serviront uniquement à des fins statistiques et seront publiées sous forme agrégée seulement.</p> <p><b>Ententes de partage de données</b></p> <p>Afin de réduire le fardeau du répondant, Statistique Canada a conclu des ententes de partage de données avec les organismes statistiques provinciaux et territoriaux et d'autres organisations gouvernementales, qui doivent garder les données confidentielles et les utiliser uniquement à des fins statistiques. Pour obtenir plus de renseignements sur les ententes de partage de données, veuillez consulter le guide de déclaration ci-joint.</p> <p><b>Couplage de données</b></p> <p>Dans le but d'améliorer les données de la présente enquête et à des fins d'études statistiques, Statistique Canada pourrait combiner les renseignements de cette enquête avec ceux provenant d'autres enquêtes ou de données administratives.</p> <p><b>Conservation</b></p> <p>Veuillez s'il vous plaît conserver une copie du questionnaire rempli avec vos dossiers protégés jusqu'au 31 mars 2014.</p> <p><b>Réponse et retour</b></p> <p><b>Veillez compléter et retourner cette copie dans les 20 jours suivant la réception du questionnaire.</b> Prière de compléter et retourner une copie à Statistique Canada, 150 Promenade du pré Tunney, Ottawa, ON K1A 0T6. Si vous avez besoin d'aide pour remplir le questionnaire, contactez sans frais le 1-800-461-1662 ou par télécopieur 1-888-883-7999.</p> <p>Statistique Canada tient à vous avertir que la transmission des renseignements par télécopieur ou autres modes électroniques peut poser un risque de divulgation. Toutefois, dès la réception de votre document, Statistique Canada offrira le niveau de protection garanti pour tous les renseignements recueillis aux termes de la <i>Loi sur la statistique</i>.</p> <p><b>Qui devrait compléter ce questionnaire?</b></p> <p>Ce questionnaire devrait être rempli par un ingénieur, un gestionnaire de la production, un gestionnaire des opérations ou quelqu'un qui connaît bien la consommation d'énergie et le processus de production de cette entreprise.</p> <p><b>Attestation</b></p> <p>J'atteste que les renseignements fournis ici sont, autant que je le sache, complets et exacts.</p>
Signature	Date D / J M Y / A <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Name of signer ( <i>please print</i> ) / Nom du signataire ( <i>en lettres moulées s.v.p.</i> )	Official position of signer / Fonction officielle du signataire
Name of contact for further information / Pour plus de renseignements, contactez	E-mail address / Adresse de courrier électronique
FAX / Télécopieur ( <input type="text"/> <input type="text"/> <input type="text"/> ) <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Telephone / Téléphone ( <input type="text"/> <input type="text"/> <input type="text"/> ) <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
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Units of measure	Unités de mesure
<b>Instructions:</b> The following is a list of possible units of measure. For each energy form, select the unit of measure which you are reporting in and enter the corresponding abbreviation provided (see below in brackets), in the column titled Unit of Measure.	<b>Instructions :</b> Ce qui suit est une liste de toutes les unités de mesures possibles. Pour chaque forme d'énergie, indiquez l'unité de mesure dans laquelle vous déclarez et inscrivez l'abréviation correspondante fournie (voir plus bas entre parenthèses), dans la colonne intitulée Unité de mesure.
• 100 Cubic feet / 100 pieds cubes (CCF)	• Litre / Litre (L)
• 33-pound Cylinder / Cylindre de 33 livres (33lb cyl)	• Long Ton / Tonne britannique (lt)
• Barrel / Baril (Bbl)	• Megawatt-hour / Megawatt-heure (MWh)
• Cubic Foot / Pied cube (cf)	• Metric Tonne / Tonne métrique (MT)
• Cubic Meter / Mètre cube (m³)	• Million British thermal units / Millions d'unités thermiques britanniques (MMBtu)
• Gallon: Imperial Gallon / Gallon impérial (gal Imp)	• Pound / Livre (lb)
• Gallon: U.S. Gallon / Gallon É.-U. (gal US)	• Short Ton / Tonne américaine (st)
• Gigajoule / Gigajoule (GJ)	• Thousands of cubic meters / Milliers de mètres cubes (10³M³)
• Kilogram / Kilogramme (kg)	• Other (specify) / Autre (précisez) (OTH)
• Kilowatt-hour / Kilowatt-heure (kWh)	

Section 1					
Type of energy commodity Type de produit énergétique	Unit of measure Unité de mesure	Amount consumed / Quantité consommée			
		As fuel Comme combustible	To produce steam for sale Pour produire de la vapeur pour vendre	To produce electricity Pour produire de l'électricité	For non-energy use À des fins non énergétiques
<i>Please report only the consumed portion Veuillez déclarer seulement la partie consommée</i>					
<b>Electricity</b> Électricité	052UM	052AF			
Purchased Achetée					
Self-generated Produite par l'établissement	051UM	051AF			
<b>Natural gas</b> Gaz naturel	013UM	013AF	013PS	013PE	013NF
<b>Propane</b>	019UM	019AF	019PS	019PE	019NF
<b>Middle distillates</b> Distillats moyens	023UM	023AF	023PS	023PE	023NF
Diesel (on-site only/sur place seulement)					
Light fuel oil Mazout léger	071UM	071AF	071PS	071PE	
Kerosene and other middle distillates Kérosène et autres distillats moyens	055UM	055AF	055PS	055PE	
<b>Heavy fuel oil</b> Mazout lourd	011UM	011AF	011PS	011PE	011NF
Canadian Canadien					
Foreign Étranger	012UM	012AF	012PS	012PE	012NF
<b>Wood and wood waste</b> Bois et déchets du bois	014UM	014AF	014PS	014PE	
<b>Spent pulping liquor</b> Lessive de pâte épuisée	015UM	015AF	015PS	015PE	
<b>Refuse (specify type)</b> Détritus (précisez le type) 	018UM	018AF	018PS	018PE	018NF
018RT <input type="text"/>					
<b>Steam</b> Vapeur	053UM	053AF		053PE	053NF
Self-generated Produite par l'établissement					
Purchased Achetée	016UM	016AF		016PE	016NF

## Section 2

Did you consume any coal or coal by-products (such as bituminous coal, lignite, anthracite, coal coke and coal by-products)?

01001

3

No

Non

➔ Go to Section 3

➔ Allez à la Section 3

Est-ce que vous avez consommé du charbon ou des sous-produits du charbon (tels que du charbon bitumineux, de la lignite, de l'anthracite, du coke de charbon et des sous-produits du charbon)?

1

Yes

Oui

Type of energy commodity Type de produit énergétique	Unit of measure Unité de mesure	Amount consumed / Quantité consommée			
		As fuel Comme combustible	To produce steam for sale Pour produire de la vapeur pour vendre	To produce electricity Pour produire de l'électricité	For non-energy use À des fins non énergétiques
<i>Please report only the consumed portion Veuillez déclarer seulement la partie consommée</i>					
<b>Canadian coal</b> <b>Charbon canadien</b>	001UM	001AF	001PS	001PE	001NF
Bituminous Bitumineux					
Sub-bituminous Sous-bitumineux	002UM	002AF	002PS	002PE	002NF
Lignite	003UM	003AF	003PS	003PE	003NF
<b>Foreign coal</b> <b>Charbon étranger</b>	005UM	005AF	005PS	005PE	005NF
Bituminous Bitumineux					
Sub-bituminous Sous-bitumineux	039UM	039AF	039PS	039PE	039NF
Anthracite	004UM	004AF	004PS	004PE	004NF
<b>Coal coke</b> <b>Coke de charbon</b>	006UM	006AF	006PS	006PE	006NF
Canadian Canadien					
Foreign Étranger	007UM	007AF	007PS	007PE	007NF
<b>Coal by-products</b> <b>Sous-produits du charbon</b>	021UM	021AF	021PS	021PE	021NF
Coal tar Goudron de houille					
Light coal oil Huile légère de charbon	022UM	022AF	022PS	022PE	022NF
Coke oven gas Gaz de four à coke	020UM	020AF	020PS	020PE	020NF

## Section 3

Did you consume any petroleum coke, refinery fuel gas, coke on catalyst, bitumen emulsion, ethane, butane, naphtha, by-product gas or flared gas?

01001

3

No

Non

➔ Go to Section 4

➔ Allez à la Section 4

Est-ce que vous avez consommé du coke de pétrole, du gaz de distillation, du coke sur catalyseur, de l'émulsion, de l'éthane, du butane, du naphtha, du gaz de sous-produits ou du gaz flambé?

1

Yes

Oui

Type of energy commodity Type de produit énergétique	Unit of measure Unité de mesure	Amount consumed / Quantité consommée			
		As fuel Comme combustible	To produce steam for sale Pour produire de la vapeur pour vendre	To produce electricity Pour produire de l'électricité	For non-energy use À des fins non énergétiques
<i>Please report only the consumed portion Veuillez déclarer seulement la partie consommée</i>					
<b>Petroleum coke</b> <b>Coke de pétrole</b>	008UM	008AF	008PS	008PE	008NF
Canadian Canadien					
Foreign Étranger	009UM	009AF	009PS	009PE	009NF
<b>Refinery fuel gas</b> <b>Gaz de distillation</b>	026UM	026AF	026PS	026PE	
<b>Coke on catalyst</b> <b>Coke sur catalyseur</b>	025UM	025AF	025PS	025PE	025NF
<b>Bitumen emulsion (orimulsion)</b> <b>Bitume en émulsion (orimulsion)</b>	031UM	031AF	031PS	031PE	031NF
<b>Ethane</b> <b>Éthane</b>	037UM	037AF			037NF
<b>Butane</b>	027UM	027AF			027NF
<b>Naphtha</b> <b>Naphtha</b>	048UM				048NF
<b>By-product gas</b> <b>Gaz de sous-produits</b>	049UM	049AF			
<b>Flared gas</b> <b>Gaz flambé</b>	047UM				047NF

**Section 4 — Other type of energy commodity - Autre type de produit énergétique**

Did you consume any other type of fuel or energy not listed above? 01001 3  No → Go to Section 5  
 Non → Allez à la Section 5  
 Est-ce que vous avez consommé un autre type de combustible ou d'énergie qui n'est pas mentionné ci-haut? 1  Yes  
 Oui

Type of energy commodity Type de produit énergétique	Unit of measure Unité de mesure	Amount consumed / Quantité consommée			
		As fuel Comme combustible	To produce steam for sale Pour produire de la vapeur pour vendre	To produce electricity Pour produire de l'électricité	For non-energy use À des fins non énergétiques
<i>Please report only the consumed portion Veuillez déclarer seulement la partie consommée</i>					
<b>Specify type, quantity consumed and unit of measure Précisez le type, la quantité consommée et l'unité de mesure</b>	089UM	089AF	089PS	089PE	089NF
089RT					

**Section 5 — Reasons for changes in energy consumption - Raisons des changements dans la consommation d'énergie**

Statistics Canada compares responses to this questionnaire with those from previous years. In order to reduce the necessity for further inquiries, please check the boxes that best describe the reasons for significant changes in your energy consumption from the previous year, and provide an explanation.

Statistique Canada compare vos données à celles des années précédentes. Afin de réduire la nécessité d'un suivi, veuillez cocher les cases qui décrivent le mieux les raisons des changements importants dans votre consommation d'énergie par rapport à l'année précédente, et fournir des explications.

- New contract or loss of contract RE A1  
Nouveau contrat ou perte de contrat \_\_\_\_\_
- Organizational change RE A2  
Changement organisationnel \_\_\_\_\_
- Plant expansion or contraction RE A3  
Expansion ou réduction des installations \_\_\_\_\_
- Change in product line RE A4  
Changement dans les gammes de produits \_\_\_\_\_
- Fuel switch RE A5  
Changement de combustible \_\_\_\_\_
- Fuel price changes RE A6  
Changement dans les prix des carburants \_\_\_\_\_
- Technology changes RE A8  
Changement de technologie \_\_\_\_\_
- Process changes RE A9  
Changement de procédés \_\_\_\_\_
- Awareness of energy efficiency RE A10  
Sensibilisation à l'efficacité énergétique \_\_\_\_\_
- Other (specify) RE A7  
Autre (précisez) \_\_\_\_\_

**Section 6 — Steam sales - Ventes de vapeur**

Did you sell steam to external clients? 01001 3  No → Thank you for your cooperation  
 Non → Merci de votre collaboration  
 Est-ce que vous avez vendu de la vapeur à des clients extérieurs? 1  Yes → Please report, in gigajoules, the amount sold to external clients.  
 Oui → Veuillez déclarer, en gigajoules, la quantité vendue à des clients extérieurs.

Residential (include apartment buildings) Résidentiel (incluant les immeubles à appartements) . . .	SSRES	<input type="text"/>	Gigajoules
Agriculture . . . . .	SSAGR	<input type="text"/>	Gigajoules
Paper manufacturing Fabrication du papier . . . . .	SSPPA	<input type="text"/>	Gigajoules
Chemical manufacturing Fabrication de produits chimiques . . . . .	SSCHM	<input type="text"/>	Gigajoules
All other manufacturing Toutes les autres industries manufacturières . . . . .	SSOMF	<input type="text"/>	Gigajoules
Public administration Administration publique . . . . .	SSPAD	<input type="text"/>	Gigajoules
Commercial and other institutional Commerces et autres institutions . . . . .	SSCOM	<input type="text"/>	Gigajoules
<b>TOTAL</b> . . . . .	SSQTT	<input type="text"/>	Gigajoules

**Thank you for your cooperation - Merci de votre collaboration**