2025 Annual Industrial Consumption of Energy Survey

This information is collected under the authority of the *Statistics Act*, Revised Statutes of Canada, 1985, Chapter S-19. COMPLETION OF THIS QUESTIONNAIRE IS A LEGAL REQUIREMENT UNDER THIS ACT.

Introduction

Survey purpose

This survey is conducted by Statistics Canada in order to collect the necessary information to support the Integrated Business Statistics Program (IBSP). This program combines various survey and administrative data to develop comprehensive measures of the Canadian economy.

The statistical information from the IBSP serves many purposes, including:

- obtaining information on the supply of and/or demand for energy in Canada
- enabling governmental agencies to fulfill their regulatory responsibilities in regards to public utilities
- enabling all levels of government to establish informed policies in the energy area
- assisting the business community in the corporate decision-making process.

Your information may also be used by Statistics Canada for other statistical and research purposes.

Security of emails and faxes

Statistics Canada advises you that there could be a risk of disclosure during facsimile or email. However, upon receipt,

Statistics Canada will provide the guaranteed level of protection afforded all information collected under the authority of the *Statistics Act*.

Note: Our online questionnaires are secure, there is no risk of data interception when responding to Statistics Canada online surveys.

Confidentiality

The *Statistics Act* protects the confidentiality of information collected by Statistics Canada.

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 have agreed to keep the data confidential and use them only for statistical purposes.

Information on confidentiality, data-sharing agreements and record linkages can be found on the last page of this questionnaire.

Please return the questionnaire within 21 days.

Please mail the completed questionnaire in the enclosed envelope or fax it to Statistics Canada at 1-888-883-7999.

If you are unable to complete within 21 days **OR** if you need help, call us at **1-833-977-8287** or **TTY 1-866-753-7083**.

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Operations and Integration Division
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Ottawa, Ontario K1A 0T6

Visit our website, www.statcan.gc.ca

Statistics Canada Statistique Canada

Canadä

Reporting instructions

- Please print in ink.
- Please report for calendar year.
- Do not report in decimals. Round all values to the nearest whole number.
- When precise figures are not available, provide your best estimates.
- Consult the reporting guide at **www.statcan.gc.ca/guides-e** for further information.

Business or organization and contact information

1. **Verify or provide** the business or organization's **legal and operating name** and correct where needed.

   Note: Legal name modifications should only be done to correct a spelling error or typo.

   Legal name

   Operating name (if applicable)

2. **Verify or provide the contact information** of the designated business or organization **contact person** for this questionnaire and correct where needed.

   Note: The designated contact person is the person who should receive this questionnaire. The designated contact person may not always be the one who actually completes the questionnaire.

   First name

   Last name

   Title

   Preferred language of communication

   ○ English   ○ French

   Mailing address (number and street)

   City

   Province, territory or state

   Postal code or ZIP code
   Example: A9A 9A9 or 12345-1234

   Country

   Email address
   Example: user@example.gov.ca

   Telephone number (including area code)
   Example: 123-123-1234

   Extension number
   (if applicable)

   Fax number (including area code)
   Example: 123-123-1234

3. **Verify or provide the current operational status** of the business or organization identified by the legal and operating name above.

B00323

1 ◯ Operational ➔ **Go to question 4**

2 ◯ Not currently operational

e.g., temporarily or permanently closed, change of ownership

Why is this business or organization not currently operational?

B00309

2 ◯ Seasonal operations ➔ **Go to question 3a**

3 ◯ Ceased operations ➔ **Go to question 3b**

4 ◯ Sold operations ➔ **Go to question 3c**

5 ◯ Amalgamated with other businesses or organizations ➔ **Go to question 3d**

6 ◯ Temporarily inactive but will re-open ➔ **Go to question 3e**

7 ◯ No longer operating due to other reasons ➔ **Go to question 3f**

3a. Seasonal operations

When did this business or organization close for the season?

	YYYY	MM	DD
Date B00217			

When does this business or organization expect to resume operations?

	YYYY	MM	DD
Date B00218				➔ **Go to question 4**

3b. Ceased operations

When did this business or organization cease operations?

	YYYY	MM	DD
Date B00211			

Why did this business or organization cease operations?

B00311

1 ◯ Bankruptcy

2 ◯ Liquidation

3 ◯ Dissolution

4 ◯ Other

➔ **Go to question 4**

Specify the other reasons why the operations ceased

B00312

3c. Sold operations

When was this business or organization sold?

	YYYY	MM	DD
B00212 Date			

What is the legal name of the buyer?

B00406

➔ **Go to question 4**

3d. Amalgamated with other businesses or organizations

When did this business or organization amalgamate?

	YYYY	MM	DD
B00213 Date			

What is the legal name of the resulting or continuing business organization?

B00407

What are the legal names of the other amalgamated businesses or organizations?

B00408

➔ **Go to question 4**

3e. Temporarily inactive but will re-open

When did this business or organization become temporarily inactive?

	YYYY	MM	DD
B00214 Date			

When does this business or organization expect to resume operations?

	YYYY	MM	DD
B00215 Date			

Why is this business or organization temporarily inactive?

B00313

➔ **Go to question 4**

3f. No longer operating due to other reasons

When did this business or organization cease operations?

	YYYY	MM	DD
B00216 Date			

Why did this business or organization cease operations?

B00314

4. **Verify or provide the current main activity** of the business or organization identified by the legal and operating name.

Note: The described activity was assigned using the North American Industry Classification System (NAICS).

B05002

1 ○ This is the current main activity ➔ **Go to next section**

2 ○ This **is not** the current main activity
Provide a **brief but precise description** of this business or organization's **main activity**
e.g., breakfast cereal manufacturing, shoe store, software development

B05003

5. Was this business or organization's main activity ever classified as:

B05111

1 ○ Yes

2 ○ No ➔ **Go to next section**

6. When did the main activity change?

	YYYY	MM	DD
Date B00219			

Unit of measure

Instructions: 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.

100 cubic feet. . . . . (Ccf)

33-pound cylinder

Barrel . . . . (Bbl)

Cubic foot. . . . . (ft^3)

Cubic metre . . . . (m^3)

Imperial gallon . . . . (imp. gal.)

U.S. gallon . . . . (U.S. gal)

Gigajoule . . . . (GJ)

Kilogram . . . . (kg)

Kilowatt-hour . . . .(kWh)

Litre . . . . (L)

Long ton . . . . (LT)

Megawatt-hour. . . . . (MWh)

Metric tonne . . . .(MT)

Million Btu. . . . . (MMBtu)

Pound. . . . . (lb)

Short ton. . . . . (ST)

Thousands of cubic meters . . . . (000 m^3)

Electricity generation

1. Did this business **generate** electricity?   B05044

   ○ **Yes**

   ○ **No** ➜ Go to question 3

2. How much **electricity** did this business **generate**?

   Note: Report the total quantity of electricity generated; regardless of whether it was consumed by this business or sold to others.

   Quantity   E42006 [ ]

   Unit of measure   B40085

   1 ○ MWh   2 ○ kWh   3 ○ GJ   4 ○ MMBtu

Type of energy consumed

3. Which type of energy was consumed by this business?

Type of energy commodity Please report only the consumed portion	Unit of measure	Amount consumed			
		*as fuel for the production process	to produce steam for sale or transfer	to produce electricity	** for non-energy use
Electricity	B40039	E61322			
self-generated	B40041	E61323	✗	✗	✗
purchased	B40043	E61002	E61003	E61004	E61005
Natural gas	B40043	E61007	E61008	E61009	E61011
Propane	B40044	E61013	E61014	E61015	E61016
Middle distillates					
diesel (on-site only)	B40044	E61018	E61019	E61021	✗
light fuel oil		E61023	E61024	E61025	✗
kerosene and other middle distillates . .	B40047	E61027	E61028	E61029	E61031
Heavy fuel oil					
imported	B40048	E61033	E61034	E61035	E61036
canadian (domestic)	B40049	E61038	E61039	E61041	✗
Wood and wood waste	B40051	E61043	E61044	E61045	✗
Spent pulping liquor					
Refuse — please specify: B40034_p9 [ ]	B40052	E61047	E61048	E61049	E61051
Steam	B40053	E61053	✗	E61054	E61055
self generated	B40054	E61057	✗	E61058	E61059
purchased					

Amount consumed e.g.,:

* as fuel for the production process — heating, on-site transportation, to produce steam for own use, etc.

** for non-energy use — natural gas consumed as feed to produce direct reduced iron (DRI)

— propane consumed as feed to produce other products

— diesel consumed as feed to produce other products

— heavy fuel oil used as feed to produce other products

— refuse used as feed to produce other products

— steam used as feed to produce other products.
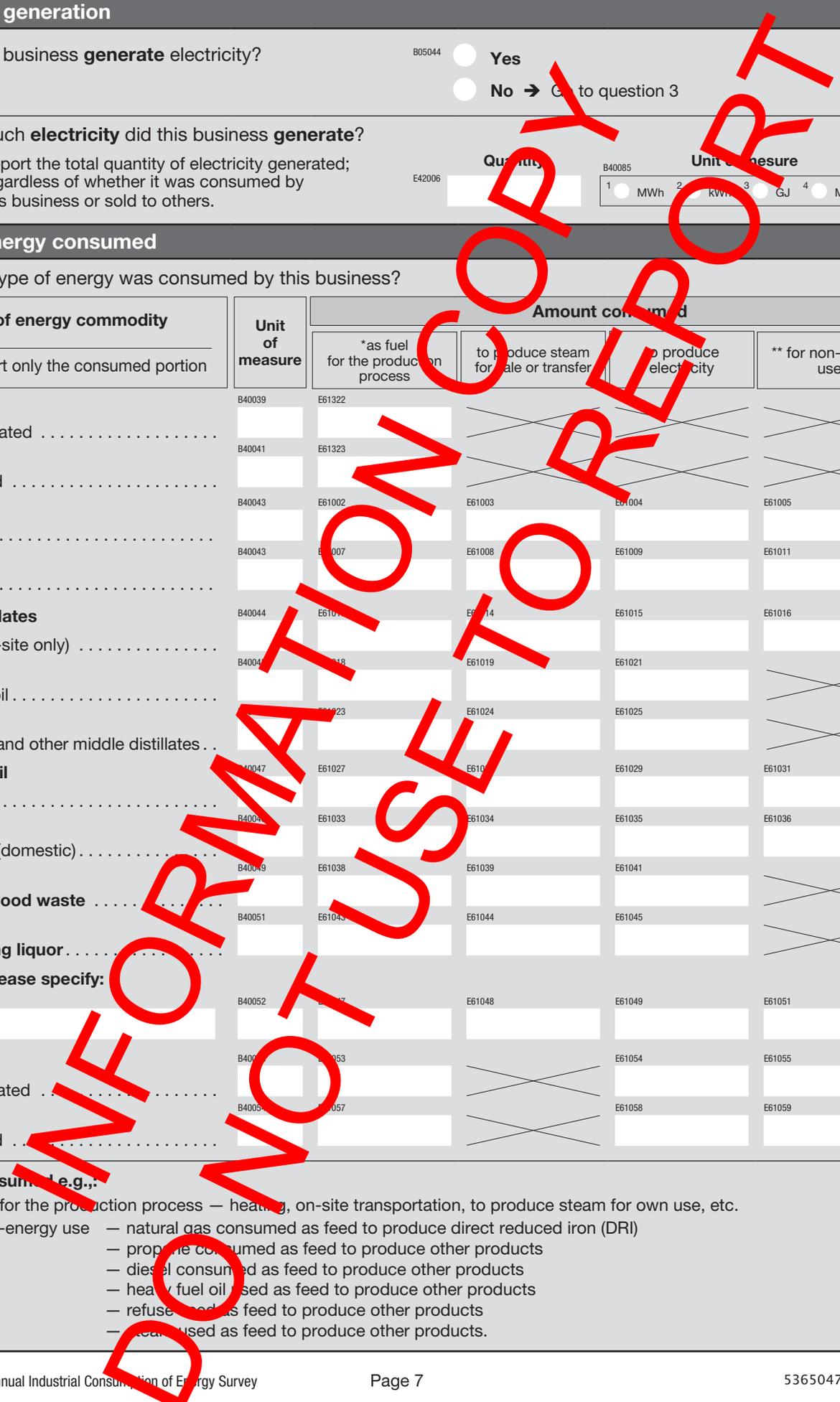
Coal and coal by-products consumed

Did this business consume any **coal**, **coal coke**, and **coal by-products** in this production process?

◯ **No** ➔ Go to next page   ◯ **Yes** ➔ Please report all that apply in the table below.

4.   Which type of **energy** was consumed by this business?

Type of energy commodity ⎯ Please report only the consumed portion	Unit of measure	Amount consumed			
		* as fuel for the production process	to produce steam for sale or transfer	to produce electricity	** for non-energy use
Imported coal	B40055	E61063	E61064	E61065	E61066
bituminous					
	B40056	E61068	E61069	E61071	E61072
sub-bituminous					
	B40057	E61074	E61075	E61076	E61077
anthracite					
Canadian coal	B40059	E61085	E61086	E61087	E61088
bituminous					
	B40061	E61091	E61092	E61093	E61094
sub-bituminous					
	B40062	E61096	E61097	E61098	E61099
lignite					
Coal coke	B40063	E61102	E61103	E61104	E61105
imported					
	B40064	E61107	E61108	E61109	E61111
canadian (domestic)					
Coal by-products	B40065	E61113	E61114	E61115	E61116
coal tar					
	B40066	E61118	E61119	E61121	E61122
light coal oil					
	B40067	E61124	E61125	E61126	E61127
coke oven gas					

Amount consumed e.g.:

   *   as fuel for the production process – heating, on-site transportation, etc.

   **   for non-energy use ⎯ bituminous coal consumed as feed to produce other products
                              ⎯ sub-bituminous coal consumed as feed to produce other products
                              ⎯ anthracite consumed as feed to produce other products
                              ⎯ lignite consumed as feed to produce other products
                              ⎯ coal coke consumed as feed to produce other products
                              ⎯ coal tar consumed as feed to produce other products
                              ⎯ light coal oil consumed as feed to produce other products
                              ⎯ coke oven gas consumed as feed to produce other products.

Other energy commodities

Did this business consume any petroleum coke, refinery fuel gas, coke on catalyst, bitumen emulsion (orimulsion) and Bitumen AC, ethane, butane, naphtha, by-product gas, flared gas or any other type of energy commodity?

◯ **No** ➔ Go to next page   ◯ **Yes**

5.   Which type of other **energy commodity** was consumed by this business?

Type of energy commodity — Please report only the consumed portion	Unit of measure	Amount consumed			
		* as fuel for the production process	to produce steam for sale or transfer	to produce electricity	** for non-energy use
Petroleum coke	B40068	E61129	E61131	E611__	E61133
imported	B40069	E61135	E6113_	E611__	E61138
canadian (domestic)	B40071	E61141	E61142	E61143	╳
Refinery fuel gas	B40072	E61145	E61146	_147	E61148
Coke on catalyst	B40073	E_151	E61152	E61153	E61154
Bitumen emulsion (orimulsion) and Bitumen AC	B40074	E61156	╳	╳	E61157
Ethane	B40075	E61159	╳	╳	E61161
Butane	B400__	╳	╳	╳	E61162
Naphtha	B_077	E61163	╳	╳	╳
By-product gas	B4__8	╳	╳	╳	E61164
Flared gas		╳	╳	╳	
Other type of energy commodity — please specify: B40038_p11	B40079	E61166	E61167	E61168	E61169

Amount consumed e.g.:

   * as fuel for the production process – heating, on-site transportation, etc.

   ** for non-energy use — petroleum coke consumed as feed to produce other products
      — coke on catalyst consumed as feed to produce other products
      — bitumen emulsion (orimulsion) and Bitumen AC consumed as feed to produce other products
      — ethane consumed as feed to produce other products
      — butane consumed as feed to produce other products.

Steam Sales

Did this business produce steam to sell or transfer to others?

B05036_m3

⚪ **No** ➔ Thank you for your cooperation ⚪ **Yes** ➔ Please report, in gigajoules, the amount sold to external clients at question 6. ↓

6. Which type of clients did this business sell **steam** to?
   (Mark all that apply)

Gigajoules

B71001_y1
☐ residential (including apartment buildings) . . . . E65001 [____]

B71001_y2
☐ agriculture . . . . E65002 [____]

B71001_y3
☐ paper manufacturing . . . . E65003 [____]

B71001_y4
☐ chemical manufacturing . . . . E65004 [____]

B71001_y5
☐ all other manufacturing . . . . E65005 [____]

B71001_y6
☐ public administration . . . . E65006 [____]

B71001_y7
☐ commercial and other institutions . . . . E65007 [____]

Total . . . . [____]

Use of artificial intelligence (AI) to optimize energy savings

7. Has your facility adopted any artificial intelligence (AI) technologies to **optimize energy savings**?

   AI technologies refer to systems or tools that use advanced algorithms, machine learning, or data analysis to simulate human intelligence. These technologies can analyze large datasets, make predictions, automate processes, and optimize operations. In context of energy consumption, AI technologies include uses for demand forecasting, energy efficiency monitoring, smart grid optimization, and predictive maintenance of energy systems.

   B05442_ac5

   1 ⚪ Yes ➔ Respond to AI Questions 8 to 15 then from Question 27 onwards

   ↳ Approximately how many months ago was AI for energy savings first implemented at this facility
      B05443_ac5
      [____]

   2 ⚪ No, but planning to in the next 12 months ➔ Respond to AI Questions 16 to 19 then from Question 27 onwards

   3 ⚪ No, but considering it in 1 to 3 years ➔ Respond to AI Questions 16 to 19 then from Question 27 onwards

   4 ⚪ No, and no plans in the foreseeable future ➔ Respond to AI Questions 20 to 22 then from Question 27 onwards

   5 ⚪ Unsure ➔ Respond to AI Question 23 onwards

Artificial intelligence (AI) technologies used to optimize energy savings

8. What types of AI technologies or approaches has your facility implemented for **energy savings**?

The distinction between AI driven and non AI driven energy saving activities depends on the level of automation, data processing, and sophistication of decision making involved. AI driven activities typically involve adaptive decision making such as analyzing large sets of real-time or historical data to make dynamic, autonomous adjustments without human intervention. These systems can also improve over time through machine learning, using feedback and user behavior to enhance performance and optimize energy use.

Mark all that apply.

B15031_ac5_ad41_s16

☐ Equipment or machine optimization
e.g., AI-driven variable speed drives, real-time monitoring, diagnostics, automated scheduling, process improvements etc. for energy savings

B15031_ac5_ad42_s16

☐ Predictive maintenance
e.g., AI-driven data analysis, technologies like sensors, real-time monitoring to predict equipment failures for energy savings

B15031_ac5_ad43_s16

☐ Building energy management
e.g., HVAC (heating, ventilation, air conditioning) and lighting, often incorporating smart thermostats, lighting controls, energy dashboards etc.

B15031_ac5_ad44_s16

☐ Production scheduling or optimization
e.g., streamline production timelines and resource allocation, ensuring energy use aligns with operational needs while reducing waste and inefficiencies

B15031_ac5_ad45_s16

☐ Renewable energy integration
e.g., AI tools that balance generation, storage, and consumption to optimize and manage renewable energy sources such as solar and wind etc.

B15031_ac5_ad46_s16

☐ Energy use monitoring and reporting
e.g., systematic tracking and analysis of energy consumption using AI tools like smart energy meters, dashboards, compliance reporting systems, benchmarking, and anomaly detection to identify areas for energy savings

B15031_ac5_ad47_s16

☐ Machine learning algorithms for process optimization
e.g., advanced AI models to analyze data and optimize specific processes such as energy load balancing, smart grid operations, HVAC performance, and industrial machinery efficiency

B15031_ac5_ad48_s16

☐ IoT-based monitoring and control systems
e.g., interconnected AI devices, AI sensors, and AI smart tools that collect and transmit real-time data, enabling remote monitoring and automated control of systems like appliances, building automation, and grid management for energy savings

B15031_ac5_ad49_s16

☐ AI-powered predictive analytics for energy use and maintenance
e.g., predictive AI models to forecast energy demand, detect consumption anomalies, and predict maintenance needs to ensure efficient system performance

B15031_ac5_ad51_s16

☐ AI-integrated energy management platforms or software
e.g., software solutions that integrate AI-driven tools for centralized management, analysis, and optimization of energy systems and usage patterns

B15031_ac5_ad52_s16

☐ Digital twins or virtual simulations for system modeling and optimization
e.g., Virtual representations of physical systems that allow simulation, testing, and optimization of performance in a risk-free digital environment, enabling improved decision-making for energy management

B15031_ac5_ad53_s16

☐ Robotics or AI-driven automation systems for energy savings
e.g., robotic inspection systems for detecting energy leaks, robotic process automation in manufacturing, autonomous robots optimizing equipment operations

B15031_ac5_ad55_s16

☐ Other

↳ Specify other AI for energy savings:
B15031_ac5_ad56_s16

[   ]

9. Compared to before AI was implemented, what has been the approximate impact of AI implementation on the facility's annual energy consumption?

Best estimates are acceptable.

B10062_ac5_s16

1 ◯ Significant reduction in energy consumption
e.g., more than 20% reduction

→ Which types of energy were most impacted?
B10063_ac5_h6_s16

2 ◯ Moderate reduction in energy consumption
e.g., 5% to 20% reduction

→ Which types of energy were most impacted?
B10063_ac5_h7_s16

3 ◯ Minimal reduction in energy consumption
e.g., less than 5% reduction

→ Which types of energy were most impacted?
B10063_ac5_h8_s16

4 ◯ Increase in energy consumption due to AI data processing

→ Which types of energy were most impacted?
B10063_ac5_h9_s16

5 ◯ Not measured or don't know

6 ◯ No change

10. Has AI adoption contributed to measurable reductions in the facility's total **green house gas (GHG) emissions**?

B10064_ac5_s16

1 ◯ Yes, significant reductions in total GHG emissions
e.g., more than 20% reduction

2 ◯ Yes, moderate reductions in total GHG emissions
e.g., 5% to 20% reduction

3 ◯ Yes, minor reductions in total GHG emissions
e.g., less than 5% reduction

4 ◯ No measurable impact yet

5 ◯ Unsure

11. Which of the following challenges, if any, has your facility faced in adopting **AI for energy savings**?

Mark all that apply.

B05444_ac5_r31_s16

☐ High initial investment cost
Includes the significant upfront expenses required for AI software, hardware, and infrastructure, as well as ongoing maintenance and upgrades.

B05444_ac5_r32_s16

☐ Lack of technical expertise or supporting staff
Refers to insufficient knowledge, skills, or training within the organization to effectively implement, manage, or operate AI technologies.

B05444_ac5_r33_s16

☐ Insufficient support from management or broader organization
Facility management or other decision-makers may be hesitant or resistant to prioritize, approve, or provide resources for adopting AI technologies aimed at achieving energy savings.

B05444_ac5_r34_s16

☐ Integration issues with existing systems
Challenges in incorporating AI technologies with legacy systems, incompatible hardware, or pre-existing software solutions.

B05444_ac5_r35_s16

☐ Lack of awareness about AI solutions
Difficulty in identifying or understanding the potential AI tools and technologies available for energy management.

B05444_ac5_r36_s16

☐ Concerns over data privacy or security
Fear of exposing sensitive organizational or consumer data, or vulnerabilities arising from the use of AI technologies.

B05444_ac5_r37_s16

☐ Uncertain return on investment
Difficulty in quantifying the financial benefits or energy savings associated with AI adoption, making it harder to justify the expenditure.

B05444_ac5_r38_s16

☐ Regulatory or policy barriers
Restrictions or unclear guidelines on the use of AI for energy management due to local, national, or industry-specific regulations.

B05444_ac5_r39_s16

☐ Difficulty in measuring energy savings
Challenges in accurately tracking and validating the energy savings or efficiency gains achieved through AI implementation.

B05444_ac5_r19_s16

☐ Other

↳ Specify other challenges to adopting AI for energy savings:

B05444_ac5_r20_s16

OR

B05444_ac5_r29_s16

☐ This facility has not faced any challenges

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12. Does the adopted AI technology require a **connection to a data center** for operation?

B15031_ac5_dt6_s16

1 ○ Yes, it requires an internal data center (on-premises)

2 ○ Yes, it requires an external data center (cloud-based)

3 ○ Yes, it uses a hybrid approach (both internal and external)

4 ○ No, it operates independently without a data center connection.

5 ○ Unsure

13. How likely is your facility to increase investment in **AI for energy savings** in the next 5 years?

Investment includes spending on equipment, software, technology implementation, training, consulting and other resources dedicated specifically to adopting or expanding artificial intelligence capabilities aimed at improving energy efficiencies or achieving energy savings at your facility.

B05445_ac5_s16

1 ◯ Very likely

2 ◯ Somewhat likely

3 ◯ Neutral

4 ◯ Somewhat unlikely

5 ◯ Very unlikely

14. What types of government support would help your facility adopt or expand **AI for energy savings**?

Mark all that apply.

B05446_ac5_y33_s16
☐ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

B05446_ac5_y34_s16
☐ Training programs for technical expertise

B05446_ac5_y35_s16
☐ Access to AI tools and technology demonstrations

B05446_ac5_y36_s16
☐ Development of regulatory frameworks for AI use in energy efficiency

B05446_ac5_y95_s16
☐ Other

↳ Specify other type of government support:
B05446_ac5_y995_s16

15. Which type of government support would **most** help your facility adopt or expand **AI for energy savings**?

B05447_ac5_s16

1 ◯ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

2 ◯ Training programs for technical expertise

3 ◯ Access to AI tools and technology demonstrations

4 ◯ Development of regulatory frameworks for AI use in energy efficiency

5 ◯ Other

↳ Specify other type of government support:
B05447_ac5_y995_s16

Potential artificial intelligence (AI) technology use for energy savings

16. What types of AI technologies or approaches, if any, is your facility considering to **improve energy savings**?

The distinction between AI driven and non AI driven energy saving activities depends on the level of automation, data processing, and sophistication of decision making involved. AI driven activities typically involve adaptive decision making such as analyzing large sets of real-time or historical data to make dynamic, autonomous adjustments without human intervention. These systems can also improve over time through machine learning, using feedback and user behavior to enhance performance and optimize energy use.

Mark all that apply.

B05448_ac5_ad41_s17

☐ Equipment or machine optimization
e.g., AI-driven variable speed drives, real-time monitoring, diagnostics, automated scheduling, process improvements etc. for energy savings

B05448_ac5_ad42_s17

☐ Predictive maintenance
e.g., AI-driven data analysis, technologies like sensors, real-time monitoring to predict equipment failures for energy savings

B05448_ac5_ad43_s17

☐ Building energy management
e.g., HVAC (heating, ventilation, air conditioning) and lighting, often incorporating smart thermostats, lighting controls, energy dashboards etc.

B05448_ac5_ad44_s17

☐ Production scheduling or optimization
e.g., streamline production timelines and resource allocation, ensuring energy use aligns with operational needs while reducing waste and inefficiencies

B05448_ac5_ad45_s17

☐ Renewable energy integration
e.g., AI tools that balance generation, storage, and consumption to optimize and manage renewable energy sources such as solar and wind etc.

B05448_ac5_ad46_s17

☐ Energy use monitoring and reporting
e.g., systematic tracking and analysis of energy consumption using AI tools like smart energy meters, dashboards, compliance reporting systems, benchmarking, and anomaly detection to identify areas for energy savings

B05448_ac5_ad47_s17

☐ Machine learning algorithms for process optimization
e.g., advanced AI models to analyze data and optimize specific processes such as energy load balancing, smart grid operations, HVAC performance, and industrial machinery efficiency

B05448_ac5_ad48_s17

☐ IoT-based monitoring and control systems
e.g., interconnected AI devices, AI sensors, and smart tools that collect and transmit real-time data, enabling remote monitoring and automated control of systems like appliances, building automation, and grid management for energy savings

B05448_ac5_ad49_s17

☐ AI-powered predictive analytics for energy use and maintenance
e.g., predictive AI models to forecast energy demand, detect consumption anomalies, and predict maintenance needs to ensure efficient system performance

B05448_ac5_ad51_s17

☐ AI-integrated energy management platforms or software
e.g., software solutions that integrate various tools for centralized management, analysis, and optimization of energy systems and usage patterns

B05448_ac5_ad52_s17

☐ Digital twins or virtual simulations for system modeling and optimization
e.g., Virtual representations of physical systems that allow simulation, testing, and optimization of performance in a risk-free digital environment, enabling improved decision making for energy management

B05448_ac5_ad53_s17

☐ Robotics or AI-driven automation systems for energy savings
e.g., robotic inspection systems for detecting energy leaks, robotic process automation in manufacturing, autonomous robots optimizing equipment operations

B05448_ac5_ad55_s17

☐ Other

↳ Specify other AI for energy savings:

B05448_ac5_ad56_s17

[   ]

OR

B05448_ac5_ad54_s17

☐ My facility is not considering any AI technologies or approaches to improve energy efficiency at this time

B05448_ac5_ad57_s17

☐ Don't know

17. What potential challenges might your facility encounter when adopting **AI for energy savings**?

Mark all that apply.

B05444_ac5_r31_s17

☐ High initial investment cost
Includes the significant upfront expenses required for AI software, hardware, and infrastructure, as well as ongoing maintenance and and upgrades.

B05444_ac5_r32_s17

☐ Lack of technical expertise or supporting staff
Refers to insufficient knowledge, skills, or training within the organization to effectively implement, manage, or operate AI technologies.

B05444_ac5_r33_s17

☐ Insufficient support from management or broader organization
Facility management or other decision-makers may be hesitant or resistant to prioritize, approve, or provide resources for adopting AI technologies aimed at achieving energy savings.

B05444_ac5_r34_s17

☐ Integration issues with existing systems
Challenges in incorporating AI technologies with legacy systems, incompatible hardware, or pre-existing software solutions.

B05444_ac5_r35_s17

☐ Lack of awareness about AI solutions
Difficulty in identifying or understanding the potential AI tools and technologies available for energy management.

B05444_ac5_r36_s17

☐ Concerns over data privacy or security
Fear of exposing sensitive organizational or consumer data, or vulnerabilities arising from the use of AI technologies.

B05444_ac5_r37_s17

☐ Uncertain return on investment
Difficulty in quantifying the financial benefits or energy savings associated with AI adoption, making it harder to justify the expenditure.

B05444_ac5_r38_s17

☐ Regulatory or policy barriers
Restrictions or unclear guidelines on the use of AI for energy management due to local, national, or industry-specific regulations.

B05444_ac5_r39_s17

☐ Difficulty in measuring energy savings
Challenges in accurately tracking and validating the energy savings or efficiency gains achieved through AI implementation.

B05444_ac5_r19_s17

☐ Other

↳ Specify other challenges in adopting AI for energy savings.

B05444_ac5_r20_s17

[   ]

OR

B05444_ac5_r28_s17

☐ Don't know

18. What types of government support would help your facility adopt or expand **AI for energy savings**?

Mark all that apply.

B05446_ac5_y33_s17

☐ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

B05446_ac5_y34_s17

☐ Training programs for technical expertise

B05446_ac5_y35_s17

☐ Access to AI tools and technology demonstrations

B05446_ac5_y36_s17

☐ Development of regulatory frameworks for AI use in energy efficiency

B05446_ac5_y95_s17

☐ Other

↳ Specify other challenges to adopting AI for energy savings:

B05446_ac5_y995_s17

_____

19. Which type of government support would **most** help your facility adopt or expand **AI for energy savings**?

B05447_ac5_s17

1 ○ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

2 ○ Training programs for technical expertise

3 ○ Access to AI tools and technology demonstrations

4 ○ Development of regulatory frameworks for AI use in energy efficiency

5 ○ Other

↳ Specify other type of government support:

B05447_ac5_y995_s17

_____

No current or foreseeable plans to use Artificial intelligence (AI) technologies

20. What are the main reasons your facility has not adopted **AI for energy savings**?

    Mark all that apply.

    B05448_ac5_r27_s18

    ☐ Lack of budget or financial resources

    B05448_ac5_r26_s18

    ☐ Lack of understanding of AI's potential benefits for energy efficiency

    B05448_ac5_r32_s18

    ☐ Lack of technical expertise or supporting staff to implement AI

    B05448_ac5_r33_s18

    ☐ Lack of management support or organization buy-in

    B05448_ac5_r25_s18

    ☐ Existing energy management strategies meet current needs

    B05448_ac5_r36_s18

    ☐ Concerns over data privacy or security risks

    B05448_ac5_r38_s18

    ☐ Regulatory or compliance challenges

    B05448_ac5_r19_s18

    ☐ Other

    ↳ Specify reason AI not adopted:

    B05448_ac5_r20_s18

21. What types of government support would help your facility to consider adopting **AI for energy savings**?

    Mark all that apply.

    B05446_ac5_y33_s18

    ☐ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

    B05446_ac5_y34_s18

    ☐ Training programs for technical expertise

    B05446_ac5_y35_s18

    ☐ Access to AI tools and technology demonstrations

    B05446_ac5_y36_s18

    ☐ Development of regulatory frameworks for AI use in energy efficiency

    B05446_ac5_y95_s18

    ☐ Other

    ↳ Specify other type of government support:

    B05446_ac5_y995_s18

22. Which type of government support would **most** help your facility to consider adopting **AI for energy savings**?

B05447_ac5_s18

1 ◯ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

2 ◯ Training programs for technical expertise

3 ◯ Access to AI tools and technology demonstrations

4 ◯ Development of regulatory frameworks for AI use in energy efficiency

5 ◯ Other

⮑ Specify other type of government support:

B05447_ac5_y995_s18

Unsure about use of Artificial intelligence (AI) technologies

23. What types of government support would help your facility to consider adopting **AI for energy savings**?

Mark all that apply.

B05446_ac5_y33_s19

☐ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

B05446_ac5_y34_s19

☐ Training programs for technical expertise

B05446_ac5_y35_s19

☐ Access to AI tools and technology demonstrations

B05446_ac5_y36_s19

☐ Development of regulatory frameworks for AI use in energy efficiency

B05446_ac5_y95_s19

☐ Other

⮑ Specify other type of government support:

B05446_ac5_y995_s19

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24. Which type of government support would **most** help your facility to consider adopting **AI for energy savings**?

B05447_ac5_s19

1 ◯ Financial incentives (rebates, tax credits, guaranteed loans with low or no interest etc.)

2 ◯ Training programs for technical expertise

3 ◯ Access to AI tools and technology demonstrations

4 ◯ Development of regulatory frameworks for AI use in energy efficiency

5 ◯ Other

⮑ Specify other type of government support:

B05446_ac5_y995_s19

25. What types of AI technologies or approaches, if any, is your facility considering to **improve energy savings**?

The distinction between AI driven and non AI driven energy saving activities depends on the level of automation, data processing, and sophistication of decision making involved. AI driven activities typically involve adaptive decision making such as analyzing large sets of real-time or historical data to make dynamic, autonomous adjustments without human intervention. These systems can also improve over time through machine learning, using feedback and user behavior to enhance performance and optimize energy.

Mark all that apply.

B05448_ac5_ad41_s19

☐ Equipment or machine optimization
e.g., AI-driven variable speed drives, real-time monitoring, diagnostics, automated scheduling, process improvements etc. for energy savings

B05448_ac5_ad42_s19

☐ Predictive maintenance
e.g., AI-driven data analysis, technologies like sensors, real-time monitoring to predict equipment failures for energy savings

B05448_ac5_ad43_s19

☐ Building energy management
e.g., HVAC (heating, ventilation, air conditioning) and lighting, often incorporating smart thermostats, lighting controls, energy dashboards etc.

B05448_ac5_ad44_s19

☐ Production scheduling or optimization
e.g., streamline production timelines and resource allocation, ensuring energy use aligns with operational needs while reducing waste and inefficiencies

B05448_ac5_ad45_s19

☐ Renewable energy integration
e.g., AI tools that balance generation, storage, and consumption to optimize and manage renewable energy sources such as solar and wind etc.

B05448_ac5_ad46_s19

☐ Energy use monitoring and reporting
e.g., systematic tracking and analysis of energy consumption using AI tools like smart energy meters, dashboards, compliance reporting systems, benchmarking, and anomaly detection to identify areas for energy savings

B05448_ac5_ad47_s19

☐ Machine learning algorithms for process optimization
e.g., advanced AI models to analyze data and optimize specific processes such as energy load balancing, smart grid operations, HVAC performance, and industrial machinery efficiency

B05448_ac5_ad48_s19

☐ IoT-based monitoring and control systems
e.g., interconnected AI devices, AI sensors, and AI smart tools that collect and transmit real-time data, enabling remote monitoring and automated control of systems like appliances, building automation, and grid management for energy savings

B05448_ac5_ad49_s19

☐ AI-powered predictive analytics for energy use and maintenance
e.g., predictive AI models to forecast energy demand, detect consumption anomalies, and predict maintenance needs to ensure efficient system performance

B05448_ac5_ad51_s19

☐ AI-integrated energy management platforms or software
e.g., software solutions that integrate AI-driven tools for centralized management, analysis, and optimization of energy systems and usage patterns

B05448_ac5_ad52_s19

☐ Digital twins or virtual simulations for system modeling and optimization
e.g., Virtual representations of physical systems that allow simulation, testing, and optimization of performance in a risk-free digital environment, enabling improved decision making for energy management

B05448_ac5_ad53_s19

☐ Robotics or AI-driven automation systems for energy savings
e.g., robotic inspection systems for detecting energy leaks, robotic process automation in manufacturing, autonomous robots optimizing equipment operations

B05448_ac5_ad55_s19

☐ Other

↳ Specify other AI for energy savings:
B05448_ac5_ad56_s19

[   ]

OR

B05448_ac5_ad54_s19

☐ My facility is not considering any AI technologies or approaches to improve energy efficiency at this time

B05448_ac5_ad57_s19

☐ Don't know

26. What potential challenges might your facility encounter when adopting **AI for energy savings**?

Mark all that apply.

B05444_ac5_r31_s19

☐ High initial investment cost
Includes the significant upfront expenses required for AI software, hardware, and infrastructure, as well as ongoing maintenance and and upgrades.

B05444_ac5_r32_s19

☐ Lack of technical expertise or supporting staff
Refers to insufficient knowledge, skills, or training within the organization to effectively implement, manage, or operate AI technologies.

B05444_ac5_r33_s19

☐ Insufficient support from management or broader organization
Facility management or other decision-makers may be hesitant or resistant to prioritize, approve, or provide resources for adopting AI technologies aimed at achieving energy savings.

B05444_ac5_r34_s19

☐ Integration issues with existing systems
Challenges in incorporating AI technologies with legacy systems, incompatible hardware, or pre-existing software solutions.

B05444_ac5_r35_s19

☐ Lack of awareness about AI solutions
Difficulty in identifying or understanding the potential AI tools and technologies available for energy management.

B05444_ac5_r36_s19

☐ Concerns over data privacy or security
Fear of exposing sensitive organizational or consumer data or vulnerabilities arising from the use of AI technologies.

B05444_ac5_r37_s19

☐ Uncertain return on investment
Difficulty in quantifying the financial benefits or energy savings associated with AI adoption, making it harder to justify the expenditure.

B05444_ac5_r38_s17

☐ Regulatory or policy barriers
Restrictions or unclear guidelines on the use of AI for energy management due to local, national, or industry-specific regulations.

B05444_ac5_r39_s17

☐ Difficulty in measuring energy savings
Challenges in accurately tracking and validating the energy savings or efficiency gains achieved through AI implementation.

B05444_ac5_r19_s19

☐ Other

↳ Specify other challenges in adopting AI for energy savings.

B05444_ac5_r20_s19

[   ]

OR

B05444_ac5_r28_s19

☐ Don't know

Changes or events

27. Indicate any changes or events that affected the reported changes in your energy consumption for this business or organization compared with the last reporting period.

    Mark all that apply.

    B00315_r1
    ☐ Fuel switch
    ⮕ Specify the fuel switch
    B00315_r2

    B00315_r3
    ☐ Fuel price changes
    ⮕ Specify the fuel price changes
    B00315_r4

    B00315_r5
    ☐ Technology changes
    ⮕ Specify the technology changes
    B00315_r6

    B00315_r7
    ☐ Process changes
    ⮕ Specify the process changes
    B00315_r8

    B00315_r9
    ☐ Awareness of energy efficiency
    ⮕ Specify the awareness of energy efficiency
    B00315_r10

    B00315_r11
    ☐ New contract or loss of contract
    ⮕ Specify the new contract or loss of contract
    B00315_r12

    B00315_r15
    ☐ Plant expansion or contraction
    ⮕ Specify the plant expansion or contraction
    B00315_r6

    B00315_r17
    ☐ Change in product line
    ⮕ Specify the change in product line
    B00315_r18

    B00315_r19
    ☐ Other – specify the other changes or events:
    B00315_r20

OR

    B00315_r21
    ☐ No changes or events

Contact person

28. Statistics Canada may need to contact the person who completed this questionnaire for further information.

   If the contact person is the same as on cover page, please check ○ ➔ **Go to "Feedback"**

   Otherwise, who is the **best person to contact** about this questionnaire?

   First name

   [   ]

   Last name

   [   ]

   Title

   [   ]

   Email address (Example: user@example.gov.ca)

   [   ]

   Telephone number (including area code)   Extension number   Fax number (including area code)
   Example: 123-123-1234   (if applicable)   Example: 123-123-1234

   [   ] [   ] [   ]   [   ]   [   ] [   ] [   ]

Feedback

		Hours	Minutes

29. How long did it take to complete this questionnaire?
    Include the time spent gathering the necessary information. . . . .   [   ]   [   ]

30. We invite your comments about this questionnaire.

   B00002

   [   ]
   [   ]
   [   ]
   [   ]
   [   ]
   [   ]
   [   ]
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   [   ]
   [   ]
   [   ]

General information

Confidentiality

Your answers are confidential.

By law, Statistics Canada is prohibited from releasing any information it collects that could identify any person, business, or organization, unless consent has been given by the respondent, or as permitted by the *Statistics Act*. Statistics Canada will use the information from this survey for statistical purposes only.

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 have agreed to 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, Québec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and the Yukon. The shared data will be limited to information pertaining 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 with the Canada Energy Regulator, Natural Resources Canada and Environment and Climate Change Canada and the provincial and territorial departments responsible for the energy sector. For a detailed list of departments please see the Data Sharing section of the Information for Survey Participants page on the StatCan website: https://www.statcan.gc.ca/eng/survey/business/5047.

For agreements with provincial and territorial government organizations, the shared data will be limited to information pertaining to business establishments located within the jurisdiction of the respective province or territory.

Record linkages

To enhance the data from this survey and to reduce the reporting burden, Statistics Canada may combine the acquired data with information from other surveys or from administrative sources.

Thank you for completing this questionnaire.

Please retain a copy for your records.

Visit our website, www.statcan.gc.ca