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Energy Use in the Commercial/Institutional Building Sector in Canada

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> G20 Energy End Use Data and Energy Efficiency Metrics Initiative October 29, 2020







Energy consumption by sector users









* Offices includes activities related to finance and insurance: real estate and rental and leasing; professional, scientific and technical services; public administration; and others.

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Secondary energy use by sector



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Comparison of main indicators



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- ➢ 601.1 million m² of floor space
- ➤ 10,3 million employees
- GDP contribution of \$823 billion (\$2012)

- ≥ 1167.4 PL 19%
- > 756.4 million m² of floor space 1 26%
- > 13,8 million employees 1 34%
- The quick adoption of new technologies increased the use of the electronic equipment in all subsectors activities
- Offices* accounts for 35% of the sector's total energy consumption

* Offices includes activities related to finance and insurance; real estate and rental and leasing; professional, scientific and technical services; public administration; and others.





Offices represent about a third of the total energy use in 2018









The rapid expansion of new technologies increased the use of electronic equipment



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Various factors impact the change in energy

Energy efficiency was the largest factor in mitigating energy use



Energy Use, With and Without Energy Efficiency Improvements, 2000–2018





Energy intensity indicators



Between 2000 and 2017:

- Energy use per square metre decreased by 12%
- Energy use per GDP decreased by about 25%

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COVID-19 Impact on energy use in Canada

- Estimates for four recovery scenarios;
- Various assumptions;
- Simplistic model;
- Official and unofficial information, (announcements, news, etc.);
- Speculations and our best analysis and guess \bigcirc

For example for the commercial/institutional sector, first we estimated the operating rate of different sector's activity types, then estimated the impact over time using the economical recovery scenarios.

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COVID-19 Impact on economical activities in Canada

At the beguining of the pandemic, faced to unknown virus, without effective medication, nor a vaccine, we had considered several scenarios likely to happens.

V-Shape Recession: Steep Decline, Quick Recovery

- The coronavirus outbreak peaks in late April or perhaps in early May. The Canadian economy will experience a big deep contraction in the second quarter and rebound to normal by the third quarter of 2020.
 - 1. The coronavirus outbreak will get full control by the summer;
 - 2. Fiscal and monetary stimulus would aid the rebound

U-Shaped Recession: Long Period Between Decline and Recovery

- The Canadian economy will experience a big deep contraction in the second quarter and only a tiny improvement in the third quarter before showing real growth in the fourth quarter or perhaps in the first quarter of 2021.
 - 1. Many businesses end up going bankrupt or are otherwise unable to reopen;
 - 3. Consumers might not be ready to start spending even after things reopen; people no longer travel or very little.
 - 4. The recovery will take longer than two quarters

L-Shaped Recession: An Extended Downturn

- The coronavirus cases in Canada continue rising, forcing protracted lockdowns. In this scenario, the Canadian economy doesn't recover for an extended period of time.
 - 1. The lockdowns will last into July;
 - 2. Even after the lockdowns are lifted, Canadians don't change their behaviours for some time;
 - 3. The Canadian economy experiences sustained weakness, and the full recovery will take longer time.

W-Shaped Recession: Quick Recovery, Second Decl

• The coronavirus outbreak peaks in late April or perhaps in early May. The Canadian economy will experience a big deep contraction in the second quarter and rebound to normal by the third quarter of 2020. Following a few months' normal economic activities, coronavirus cases emerge again in the fall and peak in the winter.

1. The second outbreak wave would affect the Canadian economy to a much lesser degree







COVID-19 Impact on energy use in Canada

V-Shape Recession: Steep Decline, Quick Recovery

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Economy Recovery Scenarios - V-Shape

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COVID-19 Impact on energy use in Canada

L-Shaped Recession: An Extended Downturn

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Economy Recovery Scenarios - L-Shape

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COVID-19 Impact on energy use in Canada

U-Shaped Recession: Long Period Between Decline and Recovery

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Economy Recovery Scenarios - U-Shape

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COVID19 Impact on energy use in Canada

W-Shaped Recession: Quick Recovery, Second Decl

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W-Shape	Impact on Energy Use (%)	Impact on GHG emissions (%)
Total energy use	-8%	-10%
Commercial/institutiona I sector	-24%	-25%



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