

RECOMMENDED KEY REPORTING AREAS FOR A POST-SECONDARY GREENHOUSE GAS INVENTORY

Introduction

Completing a greenhouse gas inventory at regularly scheduled intervals is fundamental to establishing a baseline, assessing reductions, and gauging progress toward identified targets. Ideally, inventories are completed every one to two years.

The standard for greenhouse gas reporting is the “Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard” (i.e. the Protocol). Launched in 2001, the Protocol’s goal was to develop an internationally accepted accounting and reporting standard for businesses to measure their greenhouse gas emissions to¹:

1. Help organizations develop a greenhouse gas inventory that represents a true account of emissions.
2. Simplify and reduce the costs of completing a greenhouse gas inventory.
3. Provide stakeholders with relevant information that can be used to strategize and manage emission reductions.
4. Provide information that facilitates participation.
5. Increase transparency among reporting organizations.

Emissions Scopes

As mentioned, the Protocol is the worlds most widely used greenhouse gas reporting standard. One of the key concepts introduced in the Protocol is the concept of emissions Scopes. When completing a greenhouse gas inventory there are three main Scopes or areas that emissions are divided into. Scopes help define boundaries on what an organization should be reporting on and help to understand and categorize different emission sources.

The three Scopes are described below:

Scope 1: Direct Greenhouse Gas Emissions

Direct emissions created at the institution (owned or controlled by the institution). For a post-secondary institution, these include²:

- Emissions generated from institution-owned vehicles.
- Emissions generated from the combustion of owned or controlled furnaces, boilers etc.

Scope 2: Indirect Greenhouse Gas Emissions

Emissions that result from purchased electricity. Scope 2 emissions are indirect because the emissions are not emitted at the institution, but are produced offsite where the electricity is generated³. Though these emissions are classified as indirect, they are one of the areas of emissions where institutions have direct control over consumption.

Scope 3: Other Indirect Greenhouse Gas Emissions

Scope 3 emissions allow for the measuring and reporting of all other relevant indirect emissions⁴. These emissions are a consequence of the reporter's activities, but occur at sources not owned or controlled by the institution. For instance, student commuting is a Scope 3 activity, as the institution does not own the vehicles it can only influence emissions. Scope 3 areas also include: water and wastewater, waste, air travel, paper etc.

Recommended Post-Secondary Greenhouse Gas Reporting Activities

Currently, there is no standardization outlining activities to be included or excluded from a greenhouse gas inventory within Ontario's post-secondary sector. The table below provides recommendations for reporting activities, with rationale, in anticipation of working towards providing comparable, accurate emission tracking.

Activity	Scope	Should this be included in an inventory?	Rationale	Potential Challenges
Natural Gas Consumption	1	Yes	<ul style="list-style-type: none"> Contributes significantly to institution's emissions. Emissions are controllable. Increases transparency and accountability. 	<ul style="list-style-type: none"> Gathering data that is granular enough for decision making, if necessary.
Fleet Use	1	Yes	<ul style="list-style-type: none"> Contributes to institution's emissions. Emissions are controllable. Increases transparency and accountability. 	<ul style="list-style-type: none"> If information on fuel purchasing is only available data will need to work backward using average price of fuel to determine litres first.
Generator Use	1	Yes	<ul style="list-style-type: none"> Contributes to institution's emissions. Emissions are controllable. Increases transparency and accountability. 	<ul style="list-style-type: none"> Identifying individuals at each campus with generator fuel information.
Electricity Consumption	2	Yes	<ul style="list-style-type: none"> Though Ontario has a very clean electricity grid, significant consumption may result in substantial emissions output. Helps identify cost saving opportunities. Emissions are controllable. Increases transparency and accountability. 	<ul style="list-style-type: none"> Gathering data that is granular enough for decision-making, if necessary. If data is not properly organized this can be time consuming due to multiple accounts.

Student Commuting	3	Yes	<ul style="list-style-type: none"> • Contributes significantly to institution's emissions. • Can help support and influence alternative transportation strategies and decision-making. • Increases transparency and accountability. 	<ul style="list-style-type: none"> • Potential for many assumptions to be made. • Parking permits providing enough detail to create a comprehensive inventory. • Aggregating parking permit information. • Ensuring permit information is accurate (address on permit is not family home address). • Multiple cars on one permit.
Faculty/Staff Commuting	3	Yes	<ul style="list-style-type: none"> • Contributes significantly to institution's emissions. • Can help support and influence alternative transportation strategies. • Increases transparency and accountability. 	<ul style="list-style-type: none"> • Potential for many assumptions to be made. • Parking permits providing enough detail to create a comprehensive inventory. • Aggregating parking permit information. • Multiple cars on one permit.
Business Travel	3	Yes	<ul style="list-style-type: none"> • Contributes to institution's emissions. • Emissions are somewhat controllable. • Increases transparency and accountability. • Can help identify cost saving opportunities and efficiencies. 	<ul style="list-style-type: none"> • Generally not well tracked. • May need to work with finance to establish system for tracking for future inventories. • Information available may be amount of money paid out, with no details on trip method or distance.
Landfill Waste	3	Yes	<ul style="list-style-type: none"> • Contributes to institution's emissions. • Emissions are somewhat controllable. • Increases transparency and accountability. • Can help identify cost saving opportunities and efficiencies. 	<ul style="list-style-type: none"> • Issue if hauler reports do not separate landfill, recycling, and organics. • If granular (monthly) information is necessary, challenges can arise surrounding hauler providing annual average pickup over 12 months, which does not accurately reflect monthly hauling.
Recycling	3	No	<ul style="list-style-type: none"> • Recycling results in negative emissions, as the process is less emission intensive versus virgin materials, but this is extremely difficult to measure accurately and can give a false sense of emissions reductions. 	<ul style="list-style-type: none"> • Senior management/leadership interest in including recycling. It is possible, but needs to be prefaced with the inaccuracies and assumptions made.

Organics	3	No	<ul style="list-style-type: none"> Organics processing results in negative emissions due to greenhouse gas emissions mitigation from landfill decomposition and the potential for the final product to sequester atmospheric emissions, but both are extremely difficult to measure accurately and can give a false sense of emissions reductions. Organics should be included in an inventory only when processed on site. 	<ul style="list-style-type: none"> Senior management/leadership interest in including organics. It is possible, but needs to be prefaced with the inaccuracies.
Water and Waste Water	3	No	<ul style="list-style-type: none"> Direct emissions from water are minimal and will be reflected in other utilities from water heating and cooling. Wastewater emissions are minimal as treatment in Ontario is not emissions intensive. Additionally, emissions from wastewater are primarily biogenic⁵ (produced from organisms) and do not need to be counted. 	<ul style="list-style-type: none"> Senior management/leadership interest in including water. It is possible, but needs to be prefaced with the inaccuracies and known minimal overall impact (need to weigh workload versus usefulness of results).
Paper	3	Yes	<ul style="list-style-type: none"> Contributes to institution's emissions. Emissions are somewhat controllable. Increases transparency and accountability. Can help identify cost saving opportunities and efficiencies. 	<ul style="list-style-type: none"> Identifying what types of paper to report on (only 8.5 x 11) etc. Different emissions are associated with different types of paper, including recycled content. Identifying individual(s) responsible for paper ordering. Lack of organization and aggregation of paper consumption.
Transmission and Distribution (T&D) Losses	3	No	<ul style="list-style-type: none"> T&D infrastructure emissions are already accounted for in the National Inventory Report (NIR). Typically excluded because of a lack of control and influence. 	<ul style="list-style-type: none"> If necessary, may need to extrapolate from cost to identify losses.

Other academic programming (where equipment/materials are not owned by the institution)	1 or 3	Institution discretion	<ul style="list-style-type: none"> • More granular measurements may want to be generated for suspected high emitting programs/courses, such as culinary education. • If the institution owns the equipment being used reporting is mandatory as it falls under Scope 1. 	<ul style="list-style-type: none"> • Difficulty in reaching out to many individuals if seeking information for numerous programs/courses. • Difficulty gathering granular, accurate information for each program/course.
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Notes:

1. The activities to include/exclude relate only to a greenhouse gas inventory. An activity recommended to be excluded is only in the context of an emission inventory, there may be other reasons beyond emissions to report on other areas.
2. The difference between control and influence in this context is important. Control means the institution has the ability to alter the consumption of the activity being measured. Influence refers to the ability of the institution to sway the consumption of an emitting activity, for instance by providing bikes, carpooling programs and other options/programming to reduce vehicle use.

Conclusion

Working towards creating an accurate and comprehensive greenhouse gas inventory will set institutions up for future success to accurately evaluate greenhouse gas target progression and help direct future areas of focus. Although certain reporting areas may present challenges, ensuring proper process and documentation will help to create efficient, accurate future inventories.

¹ Greenhouse Gas Protocol. (2004). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. Accessed from <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

² Greenhouse Gas Protocol. (2004). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. Accessed from <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

³ Greenhouse Gas Protocol. (2004). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. Accessed from <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

⁴ Greenhouse Gas Protocol. (2004). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition. Accessed from <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

⁵ Doorn, M. and Towprayoon, S. (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 6: Wastewater Treatment and Discharge. Accessed from https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_6_Ch6_Wastewater.pdf