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Data Sources and Methods for the Large Facility Greenhouse Gas Emissions Indicator

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1 Introduction

The large facility greenhouse gas (GHG) emissions indicator is part of the Canadian Environmental Sustainability Indicators (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues available from <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En>

GHG emissions indicators are used to track the progress of Canada's efforts to lower emissions and reach environmental performance objectives. Use of the GHG indicators in conjunction with economic performance indicators such as the gross domestic product (GDP) will help to support national-level decision making on sustainable development. Sector and geographic breakdowns have been used to inform policy development and emissions reduction plans.

2 Description and rationale of the national greenhouse gas emissions indicator

2.1 Description

In March 2004, the Government of Canada announced the introduction of the Greenhouse Gas Emissions Reporting Program (GHGRP) available from: <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=040E378D-1>. Unlike Canada's National Inventory Report (NIR) available from: <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=83A34A7A-1>, which compiles GHG data at a national level and is developed from national and provincial statistics, the GHGRP applies only to the largest GHG emitters in Canada (industrial and other types of facilities). Through the GHGRP, all facilities that emit the equivalent of 50 000 tonnes (50 kt) or more of GHGs (in carbon dioxide equivalent [CO₂ eq] units) per year are required to submit a report to Environment Canada.

GHG emissions data reported through the GHGRP are used, where appropriate, to confirm estimates in the NIR. The extent to which the emissions data are used in the NIR is dependent upon the level of detail and type of data available.

Mandatory reporting of GHG emissions by facilities was established by the Minister of the Environment under the authority of sections 46 to 53 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999).

2.2 Rationale

The GHGRP ensures the mandatory reporting of GHG emissions by some of Canada's largest industrial emitters. Mandatory reporting of facility emissions will provide a more precise picture of the sources and amounts of Canada's GHG emissions, thus contributing to the development, implementation and evaluation of climate change and energy policies and strategies in Canada.

2.3 Changes since last report

Beginning in 2010, the GHGRP introduced a new mandatory reporting threshold of 50 kt of CO₂ eq for 2009 facility GHG emissions, down from the previous 100 kt CO₂ eq for reported 2008 emissions. The new threshold change resulted in a 49% increase in the number of facilities reporting to the program between 2008 and 2009 (522 for 2009, up from 350 for 2008). Refer to Chapter 3 of the GHGRP's [Overview of the Reported 2009 Greenhouse Gas Emissions](#) for a detailed discussion of the threshold change and associated data changes, available from:

<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=84468072-E951-45AD-A63E-EA8BEB26F1BC>.

3 Data

3.1 Data source

The facility GHG emissions indicator is based on GHG emissions data taken from Environment Canada's Overview of the Reported 2009 Greenhouse Gas Emissions, available from: <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=84468072-E951-45AD-A63E-EA8BEB26F1BC>.

3.2 Spatial coverage

The GHGRP provides local GHG emissions data from the largest industrial and other emitters in Canada (those emitting 50 kt CO₂ eq or more per year).

3.3 Temporal coverage

The data for 2009 were used for this indicator. GHGRP reported data for 2009 are current as of September 23, 2010.

3.4 Data completeness

The total facility-reported GHG emissions for 2009 represent just over one third (36%) of Canada's total GHG emissions and just over half (57%) of Canada's industrial GHG emissions¹ compared to the 2009 NIR.

3.5 Data timeliness

The GHGRP data are collected on an annual basis. Facilities are required to report their GHG emissions to Environment Canada by June 1, and these data are released before the end of the year.

4 Methods

GHG emissions data are calculated by each reporting facility using methods and data sources such as monitoring or direct measurement, mass balance, emission factors, engineering estimates, fuel and production data, etc. Although estimation methods are not prescribed by Environment Canada, reporting facilities are advised to choose the quantification methodologies most appropriate for their particular industry or application. Facilities must use methods for estimating emissions that are consistent with the guidelines adopted by the United Nations Framework Convention on Climate Change (UNFCCC) and developed by the Intergovernmental Panel on Climate Change (IPCC) and used in the preparation of the NIR.

5 Caveats and limitations

The number of facilities that are required to report to the GHGRP can change from year to year as facilities surpass or fall under the reporting threshold. Comparing different years of data can

¹ Canada's industrial GHG emissions include the following GHG categories from the *National Inventory Report 1990–2009: Greenhouse Gas Sources and Sinks in Canada: Stationary Combustion Sources* (except Residential), Other Transportation, Fugitive Sources, Industrial Processes and Waste.

be carried out, but this requires comparing facilities that have consistently reported emissions in each year. Different facilities in a given type of industry may also use different methods for estimating emissions.

For a complete discussion on the caveats and limitations of the large-facility GHG emissions data, refer to the *Overview of the Reported 2009 Greenhouse Gas Emissions*, available from: <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=84468072-E951-45AD-A63E-EA8BEB26F1BC>.

6 References and further reading

6.1 References

Environment Canada (2010) Overview of the Reported 2009 Greenhouse Gas Emissions. Available from: <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=84468072-E951-45AD-A63E-EA8BEB26F1BC>

6.2 Further reading

Environment Canada (2010) Technical Guidance on Reporting Greenhouse Gas Emissions. Available <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=0BB4FABF-829B-41D8-B9F0-BC689637D068>

Environment Canada (2010) Greenhouse Gas Emissions Quantification Guidance. Available from: <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=DDE56C0F-1>