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Data Sources and Methods for the Progress Toward Canada's Greenhouse Gas Emissions Reduction Target Indicator

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1 Introduction

The Progress Toward Canada's Greenhouse Gas Emission Reduction Target indicator is a part of the Canadian Environmental Sustainability Indicators (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues.

2 Description and rationale of the Progress Toward Canada's Greenhouse Gas Emission Reduction Target indicator

2.1 Description

The Progress Toward Canada's Greenhouse Gas Emission Reduction Target indicator provides an overview of the projected greenhouse gas emissions in Canada until the year 2020. This indicator is based on three forecast scenarios produced by the Economic Analysis Directorate of Environment Canada:

1. An initial forecast scenario, conducted in winter 2010-2011, projecting greenhouse gas emissions in the absence of federal and provincial climate change measures announced up to December 2010.
2. A second forecast scenario, also conducted in winter 2010-11, projecting greenhouse gas emissions by taking into account federal and provincial climate change measures announced up to December 2010.
3. A third forecast scenario, the most recent, conducted in spring-summer 2012, projecting greenhouse gas emissions by taking into account the federal and provincial climate change measures announced up to May 2012.

Scenarios 1 and 2 were reported in Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) and scenario 3 was reported in Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5).

2.2 Rationale

Consistent with its goal of becoming a World Class Regulator, and ensuring greater transparency, Environment Canada has committed to publish annually a report on projections of greenhouse gas emissions. This CESI indicator provides the highlights of the two reports published to date: Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) and Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5).

3 Data

3.1 Data source

The data for this indicator was obtained from Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) and Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5). The data used to project greenhouse gas emissions in those reports are derived from the following sources:

- Historical energy demand and supply data from Statistics Canada;
- Historical economic data (e.g., GDP, investment levels, capacity utilization) from Statistics Canada;
- Historical greenhouse gas emissions from Environment Canada's National Inventory Report;
- Future oil and natural gas production levels from the National Energy Board; and
- Future economic activity from Informetrica Limited.

3.2 Spatial coverage

Coverage is national.

3.3 Temporal coverage

The projections associated with Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) cover the years 2010, 2015 and 2020. Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) includes historical data up to 2008. The projections associated with Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5) cover the years 2015 and 2020. Canada's Emissions Trends 2012 includes historical data up to 2010 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5).

3.4 Data completeness

The indicator is based on analysis that incorporates the most up-to-date statistics on greenhouse gas emissions and energy available at the time the technical modeling was completed for each report: December 2010 for Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) and May 2012 for Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5). Annex 1 of each report provides more details on baseline data and assumptions underlying this indicator.

3.5 Data timeliness

The time-lag between data availability and indicator publication allows for the robust data collection and validation process.

4 Methods

The emissions projections were developed in line with generally recognized best practices. The methodology was reviewed by leading external experts on economic modelling and greenhouse gas emissions projections, and was vetted with key stakeholders.

Intergovernmental Panel on Climate Change standards for estimating greenhouse gas emissions across different fuels and processes were incorporated. Outside expert views and the most up-to-date data informed key drivers such as economic growth, energy prices, and energy demand and supply. An internationally recognized energy and macroeconomic modelling framework was used in the estimation of emissions and economic interactions.

Annex 3 of Canada's Emissions Trends 2011 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F) and Canada's Emissions Trends 2012 (http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5) provides detailed information of the methodology underlying the projections.

5 Caveats and Limitations

A series of plausible assumptions regarding, among others, the level of continuing population and economic growth, prices, demand and supply of energy, and the evolution of energy efficiency technologies were employed to make the projections. The projections assume no further government actions to address greenhouse gas emissions beyond those already in place or imminently pending as of spring 2012.

The emissions projections presented in the indicator cannot be viewed as a forecast or prediction of emissions at a future date. Rather, they represent a simple projection of the current structure and policy context into the future. They do not attempt to account for the inevitable, but as yet unknown, changes that will occur in government policy, energy supply, demand and technology, or domestic and international economic and political events.

Emissions projections are subject to uncertainty, and are most appropriately viewed as a range of plausible outcomes. Many of the events that shape emissions and energy markets cannot be anticipated. In addition, future developments in technologies, demographics and resources cannot be foreseen with certainty.

Annex 2 of both reports provides details of alternative emissions scenarios and a sensitivity analysis that focuses on two key uncertainties: the growth of the economy and the evolution of world oil prices and their impacts on macroeconomic growth and energy consumption.

6 References and further reading

Environment Canada (2011) Canada's Emissions Trends 2011. Available from: http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=E197D5E7-1AE3-4A06-B4FC-CB74EAAAA60F

Environment Canada (2012) Canada's Emissions Trends 2012. Available from: http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5

Environment Canada (2012) National Inventory Report 1990-2010: Greenhouse Gas Sources and Sinks in Canada. Available from: http://www.ec.gc.ca/publications/default.asp?lang=En&xml=A91164E0-7CEB-4D61-841C-BEA8BAA223F9

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