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Data Sources and Methods for the Global Carbon Dioxide Emissions from Fuel Combustion Indicator

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1 Introduction

The global carbon dioxide (CO₂) emissions from fuel combustion 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.

The global carbon dioxide emissions from fuel combustion indicator is used to provide a picture of Canada's carbon dioxide emissions from fuel combustion compared with the rest of the world.

2 Description and rationale of global carbon dioxide emissions from fuel combustion indicator

2.1 Description

The indicator reports Canada's share of global energy-related carbon dioxide emissions from fuel combustion in 2009 (absolute emissions) with those of other large emitting countries (Brazil, Russian Federation, India and China (BRIC), the 27 countries of the European Union (EU-27), Japan and the United States) compared to the rest of the world.

Carbon dioxide emissions from non-energy-related sources, gas flaring, and emissions of methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆) are not included in the indicator.

2.2 Rationale

The indicator provides a global perspective on Canada's share of CO₂ emissions from fuel combustion.

In December 2009, Canada signed the Copenhagen Accord (<http://www.climatechange.gc.ca/cdp15-cop15/default.asp?lang=En&n=970E8B07-1>) committing to reduce its GHG emissions to 17% below 2005 levels by 2020. The Accord includes emission reduction commitments from all major emitters including the United States, China, India and Brazil, and provides for international review of both developed and developing countries' targets and actions. This reflects Canada's long-standing position that real progress on climate change requires a global agreement that includes all major emitters.

2.3 Changes since last report

This is the first time that this indicator is being reported as part of the Canadian Environmental Sustainability Indicators (CESI).

3 Data

3.1 Data source

For each country, carbon dioxide emissions data for 2009 come from the International Energy Agency (IEA) CO₂ Emissions from Fossil Fuel Combustion - 2011 Highlights (<http://www.iea.org/co2highlights/CO2highlights.xls>). The IEA is an autonomous body within the Organisation for Economic Co-operation and Development (OECD) that has gained recognition over the years as one of the world's most authoritative sources for energy

statistics. The IEA provides carbon dioxide emissions from 1971 to 2009 for more than 140 countries and regions by sector and by fuel.

3.2 Spatial coverage

Global coverage.

3.3 Temporal coverage

The indicator uses the latest available year of global data (2009).

3.4 Data completeness

The analysis of global energy-related carbon dioxide emissions from fuel combustion includes: developed countries (Canada, United States, EU-27, Japan); developing countries (Brazil, Russian Federation, India and China (BRIC)); and as well as the rest of the world as a whole.

3.5 Data timeliness

The data is current up to 2009.

4 Methods

The global indicator was calculated by the International Energy Agency using estimates of carbon dioxide emissions based on the 1996 IPCC Guidelines for National Greenhouse Gas Inventories (<http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>) and represent total emissions from fuel combustion, expressed in megatonnes of carbon dioxide equivalent (Mt CO₂ eq.).

5 Caveats and limitations

IEA emission estimates only include energy-related carbon dioxide (CO₂) emissions from fossil fuel combustion. This represents a subset of countries' total emissions and differs from the official emissions inventory submissions to the United Nations Framework Convention on Climate Change (many countries don't submit official inventory to the UNFCCC). Emissions from fossil fuel combustion normally represent the largest proportion of countries emissions. For example, the IEA reports that Canada's carbon dioxide (CO₂) emissions from fossil fuel combustion were 521 Mt in 2009 or 76% of Canada's total emissions (690 Mt) reported to the UNFCCC in 2009.

6 References and further reading

6.1 References

International Energy Agency (2011) CO₂ Emissions from Fossil Fuel Combustion - 2011 Highlights. Retrieved on 13 January 2012. Available from: <http://www.iea.org/co2highlights/CO2highlights.xls>

Canada's Action on Climate Change (2010) Copenhagen Accord. Retrieved 13 January 2012. Available from: <http://www.climatechange.gc.ca/cdp15-cop15/default.asp?lang=En&n=970E8B07-1>

6.2 Further reading

International Energy Agency (2011) CO2 Emissions from Fossil Fuel Combustion 2011 Edition.

Retrieved on 13 January 2012. Available from:

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