

# The Real Story: B.C.'s Uncounted Greenhouse Gas Emissions Background

Sierra Club BC, September 30, 2011

## Overview

In previous years, the B.C. government has released relatively detailed provincial greenhouse gas emissions reports (in 2010<sup>1</sup> for 2008 emissions and in 2009 for 2007). In August 2011, however, the B.C. government quietly released only a limited set of updated data tables for provincial emissions in 2009.<sup>2</sup>

According to the new data, B.C.'s 2009 greenhouse gas emissions were 67 million tonnes of carbon dioxide<sup>3</sup>.

In fact, B.C.'s contribution to the global greenhouse gas problem is far more significant than the official inventory suggests. The release of carbon dioxide from B.C. coal and natural gas exports, as well as the uncounted emissions from our forest lands, far exceed the officially reported emissions.

Approximately 111 million tonnes of carbon dioxide is created annually from exports of B.C. coal and natural gas and 63 million tonnes of carbon dioxide originated in 2009 from B.C. forest lands. If emissions from B.C.'s forest lands and coal and gas exports are included, B.C. was responsible for approximately 241 million tonnes of carbon emissions in 2009 – more than three times higher than our official emissions.

## Official emissions

According to the information released by the BC government in August 2011, B.C. achieved a very modest three per cent reduction in greenhouse gas emissions from 2008 to 2009. This comes nowhere close to B.C.'s legislated target of reducing emissions 33 per cent by 2020 compared to 2007 emissions. Furthermore, the 67 million tonnes of 2009 emissions reported by the B.C. government are still 28 per cent above the internationally-established baseline year of 1990. The three per cent reduction (2.3 million tonnes) stems from incremental improvement across most greenhouse gas categories, with the least improvement seen in the road transportation sector.

## Emissions from exported coal and natural gas

### *Natural Gas*

In 2007, the latest figure available, the province produced 28,903 gigalitres of natural gas and 26,792 gigalitres were exported<sup>4</sup>, resulting in approximately 51.7 million tonnes of greenhouse gases emitted elsewhere (see *Appendix*).

### *Coal*

In 2008, B.C. exported 26.163 million tonnes of coal<sup>5</sup>, of which 22.3 million tonnes were high grade metallurgical coal and the remainder were lower carbon bituminous (thermal) coal. Using the appropriate coefficients, the resulting greenhouse gas emissions abroad were approximately 72.9 million tonnes (see *Appendix*).

In 2009, production declined by 19 per cent to 21.193 million tonnes. (Notably, 2010 saw a recovery).<sup>6</sup> For 2009, assuming the same proportion of metallurgical to thermal coal, out-of-province carbon dioxide emissions totaled 59.07 million tonnes.

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<sup>1</sup> [http://www.env.gov.bc.ca/cas/mitigation/ghg\\_inventory/index.html](http://www.env.gov.bc.ca/cas/mitigation/ghg_inventory/index.html)

<sup>2</sup> [http://www.env.gov.bc.ca/cas/mitigation/ghg\\_inventory/excel/2009\\_summary-GHG.xls](http://www.env.gov.bc.ca/cas/mitigation/ghg_inventory/excel/2009_summary-GHG.xls)

<sup>3</sup> In the context of emissions, reporting CO<sub>2</sub> is being understood as carbon dioxide equivalent.

“Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. For example, the global warming potential for methane over 100 years is 21. This means that emissions of one million metric tons of methane is equivalent to emissions of 21 million metric tons of carbon dioxide.”

<http://stats.oecd.org/glossary/detail.asp?ID=285>

<sup>4</sup> <http://www.statcan.gc.ca/pub/57-003-x/2008001/t026-eng.htm>

<sup>5</sup> [http://www.pwc.com/en\\_CA/ca/mining/publications/mining-bc-2009-05-en.pdf](http://www.pwc.com/en_CA/ca/mining/publications/mining-bc-2009-05-en.pdf)

<sup>6</sup> <http://www.empr.gov.bc.ca/Mining/MineralStatistics/MineralSectors/Coal/ProductionandValues/Pages/AnnualCoalProduction.aspx>

Estimated annual provincial carbon dioxide emissions from coal exports (2009 data) and natural gas (2007 data) total 110.8 (59.07 from coal; 51.71 from gas) million tonnes, almost double B.C.'s official reported 2009 greenhouse gas emissions of 67 million tonnes.

### **Emissions from forest lands**

Net carbon dioxide emissions from B.C. forest lands were 63 million tonnes in 2009<sup>7</sup>, more than double 2008 emissions (27 million tonnes), and higher than in any year with published information since 1990. Despite their significance, these emissions are only reported as 'memo items' and not included in B.C.'s 'official' emissions account. Counting these emissions alone would almost double B.C.'s reported greenhouse gas emissions for 2009.

While the 2008 data for forest lands (released in 2010) included a limited set of additional information explaining the reasons for high net emissions from B.C. forest lands, no such breakdown is included in the data released this August. According to the 2010 report, 33 million tonnes<sup>1</sup> of net emissions in 2008 were a result of 55 million tonnes released due to harvesting, seven million tonnes from wildfires and eight million tonnes from slash burning, minus 37 million tonnes of carbon dioxide newly sequestered by provincial forests.

The 2010 provincial report also distinguished between emissions from forest lands in the Pacific Maritime and other ecozones in B.C. (Montane Cordillera, Boreal Cordillera, Boreal Plains and Taiga Plains). The data showed that approximately one-half of the emissions were released in the Pacific Maritime Ecozone, where emissions are mainly caused by logging and are not significantly influenced by the aftermath of the Mountain Pine Beetle outbreak or forest fires.

Unfortunately, the most recent information does not provide any additional context that could be used to form recommendations for reducing the 63 million tonnes of carbon dioxide released from our forests in 2009, to ensure they once again become a carbon sink.

### **Conclusions**

B.C. Premier Christy Clark has promised that she will continue to develop policies to meet B.C.'s legislated emission reduction targets. Sierra Club BC maintains that a credible policy to tackle global warming would include:

- ✓ Complete annual full reporting, distinguishing between official emissions following international agreements and emissions from forest lands and exported fossil fuels.
- ✓ Adjusting provincial emission reduction targets by using the internationally agreed-to baseline year 1990 (instead of 2007).
- ✓ Developing reduction targets for emissions from forest lands and exported fossil fuels.
- ✓ Expanding the carbon tax to include all fossil fuels, including exports, in order to achieve effective and fair results and to use revenues to accelerate action to tackle global warming, and pursuing other effective and equitable regulatory pricing mechanisms.
- ✓ Support for carefully planned renewable energy projects and energy conservation programs.
- ✓ Phasing out subsidies for fossil fuel industries.
- ✓ Support for the existing moratorium on oil tanker traffic in B.C.'s inner waters and a ban on new pipelines conveying oil products to and from the B.C. coast.
- ✓ Developing new regulations and incentives for increased marine and terrestrial conservation in order to protect natural carbon sinks and allows species a better chance to adapt to a changing climate.

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<sup>7</sup> [http://www.env.gov.bc.ca/cas/mitigation/ghg\\_inventory/excel/2009\\_summary-GHG.xls](http://www.env.gov.bc.ca/cas/mitigation/ghg_inventory/excel/2009_summary-GHG.xls)

## Appendix

Conversions based on emission coefficients from U.S. Energy Information Administration<sup>ii</sup>

Conversion of gigalitres of natural gas to tonnes CO<sub>2</sub>:

- 1,000 ft<sup>3</sup> of natural gas emit 120.593 lbs CO<sub>2</sub>
- 1 ft<sup>3</sup> = 0.0283168 m<sup>3</sup>
- 1000 ft<sup>3</sup> = 28.3168 m<sup>3</sup>
- Thus 1m<sup>3</sup> produces 4.259 lbs CO<sub>2</sub> = 1.93 kg CO<sub>2</sub>
- 1m<sup>3</sup> = 1000 litres (l)
- 26,792 x 10<sup>9</sup> (giga) litres = 26,792 x 10<sup>6</sup> m<sup>3</sup>
- 26,792 x 1.93 = 51,708 x 10<sup>6</sup> kg CO<sub>2</sub>
- = 51,708 million tonnes CO<sub>2</sub>

Conversion of tonnes of coal to tonnes of CO<sub>2</sub>:

- 2008 exports
  - 22.3 Mt metallurgical coal (anthracite)
  - 3.08 Mt thermal coal (bituminous)
  - 22.3 million x 2.842 tonnes CO<sub>2</sub>/tonne coal (anthracite) = 63.38 Mt CO<sub>2</sub>
  - 3.86 million x 2.465 tonnes CO<sub>2</sub>/tonne coal (bituminous) = 9.51 Mt CO<sub>2</sub>
  - Total CO<sub>2</sub> emitted outside province from exported coal = 72.89 Mt
- 2009 exports
  - 21.193 Mt coal exported
  - Assuming same proportion of metallurgical to thermal as for 2008
  - Then 18.11 x 2.842 = tonnes CO<sub>2</sub>/tonne coal (anthracite) = 51.48 Mt CO<sub>2</sub>
  - 3.08 million x 2.465 tonnes CO<sub>2</sub>/tonne coal (bituminous) = 7.59 Mt CO<sub>2</sub>
  - Total CO<sub>2</sub> emitted outside province from exported coal = 59.07 Mt

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<sup>i</sup> B.C. data released in 2010 showed 33 million tonnes of net emissions from forest lands for 2008. However, the table released in August 2011 shows 27 million tonnes of net emissions from forest lands for 2008. This discrepancy points to the need for the B.C. government to release more information and explain its data.

<sup>ii</sup> <http://www.brandtelligence.com/Maglev/Documents/Benefits/12-Emission-Coefficients.pdf>