



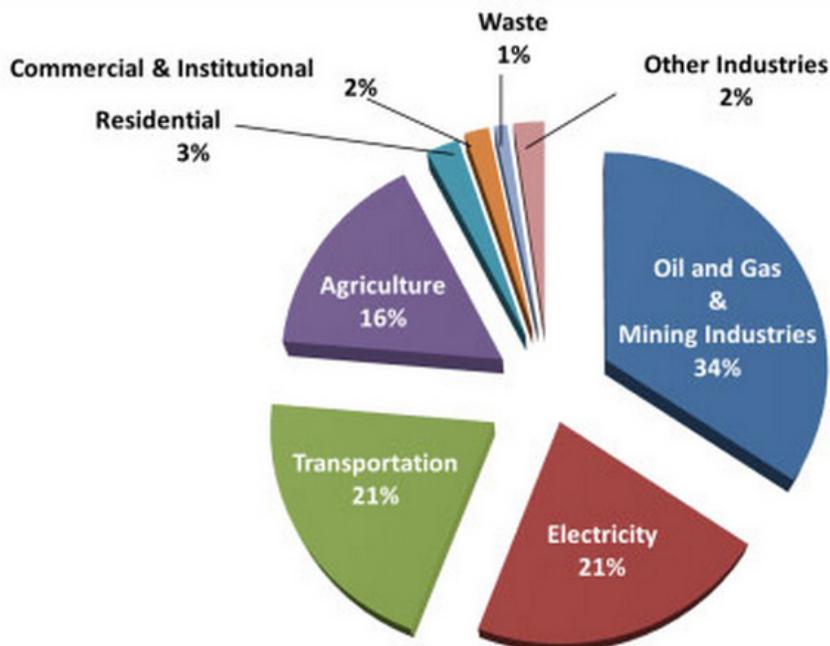
# SASKATCHEWAN'S GREENHOUSE GAS FOOTPRINT AND HOW TO REDUCE IT

1. Saskatchewan's greenhouse gas (GHG) emissions total over 74 million tonnes per year.<sup>1</sup> Although our province has only 3% of Canada's population, we account for 10% of Canada's annual GHG releases to the atmosphere.<sup>2</sup>

2. On a per capita basis, Saskatchewan GHG pollution levels are among the highest in the world. Saskatchewan's per capita emissions are 67 tonnes per year. Canada's are 20 tonnes. The global per capita average is approximately 7 tonnes per year.<sup>3</sup> Per capita figures reflect GHG emissions for an entire province or country divided by the population of that province or country.

3. Climate scientists are urging countries to reduce their GHG emissions by 70% by mid-century in order to avoid severe dangers from climate change. That means global average per capita emissions must drop below 2 tonnes per year by 2050. By 2070 global net emissions will need to be at zero.<sup>4</sup>

4. Saskatchewan's 4 big sources of GHG emissions are oil and gas extraction and refining, electricity generation, transportation and agriculture.



Sources: Environment Canada National Inventory Report, 1990-2011 and <http://www.environment.gov.sk.ca/climatechange>

# Some ways governments could help reduce GHG emissions

## Government of Canada

1. Adopt the targets that the European Union has agreed to under the Kyoto Protocol (20% reduction below 1990 levels by 2020).<sup>5</sup>
2. Adopt a national program of feed-in tariffs to encourage installation of renewable energy systems for electricity generation. This program would guarantee that local renewable electricity producers would, during an initial period, receive a price for their power that reflects actual costs.<sup>6</sup>
3. Phase out federal fossil fuel subsidies.
4. Continually upgrade national fuel efficiency standards for new cars and trucks.
5. Re-establish efficient passenger rail service between Canada's major cities.

## Government of Saskatchewan

1. Introduce feed-in-tariffs (see above) to incent renewable energy-based electricity production.
2. Phase out conventional coal-fired power plants over the next 10 years, replacing them with renewable options, plus an aggressive program of energy efficiency, hydro imports from Manitoba and co-generation.
3. Strictly regulate venting and flaring of gas during oil and gas extraction.
4. Increase industrial electricity rates to match those paid by residential customers.
5. To save gasoline, reduce highway speed limits to 90 kilometres per hour.<sup>7</sup>
6. Encourage a shift of commercial shipping from truck to rail.
7. Help city governments to improve urban transit.
8. Introduce a strong energy efficiency building code for all new construction.
9. Encourage sustainable farming practices and help farmers use energy and nitrogen fertilizer more efficiently.

## Municipal Governments

1. Encourage community-based wind farm development.
2. Encourage solar energy development in existing and new neighborhoods.
3. Adopt bylaws that require energy efficiency standards in the municipal building code, and new homes to be equipped with solar water-heating and wired to accommodate solar photovoltaic systems.
4. Make major improvements in frequency and convenience of bus service.
5. Ban vehicle idling for more than 2 minutes at temperatures above 0 degrees C.<sup>8</sup>
6. Install a proper system of bicycle paths to encourage more cycling and less driving.

## Acknowledgements:

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## References:

1. Canada's 2014 UNFCCC Submission – National Inventory Report 1990-2012, Part 3, page 29, Table A11-16 The table is entitled: "1990-2012 GHG Emission Summary for Saskatchewan" (UNFCCC stands for United Nations Framework Convention on Climate Change.)

2. Government of Saskatchewan web site: <http://www.environment.gov.sk.ca/climatechange> These percentage comparisons are based on 2011 emission figures. (A slight increase in Saskatchewan emission numbers occurred in 2012, as noted in reference 1.)

3. Global emissions are approximately 7 tonnes per capita (carbon dioxide equivalent) Global anthropogenic (human-induced) emissions in 2010 totaled 49 billion tonnes carbon dioxide equivalent. Refer to: IPCC, 2014: Summary for Policy Makers, in Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group 3 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, page 5.

World population in 2010 totaled approximately 6.9 billion. Refer to: World Population Data Sheet at: <http://www.prb.org/Publications/Datasheets/2010/2010wpds.aspx>

Canada's 2014 United Nations Framework Convention on Climate Change (UNFCCC) Submission – National Inventory Report 1990-2012. Canada's per capita greenhouse gas emissions in 2012 were 20.1 tonnes. The 67 tonne per capita figure for Saskatchewan has been calculated by dividing the latest numbers for Saskatchewan's total emissions (74,800,000 tonnes) by Saskatchewan's population as of January 1, 2014 (1,117,503).

4. Severe dangers are associated with exceeding a global average temperature increase of 2 degrees Centigrade when compared to pre-industrial (1750). For a detailed explanation of the emission reductions required to avoid this refer to: Climate Change 2013: The Physical Science Basis. Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 12, page 1114. Refer to Figure 12.46(a). Three emission pathways for achieving the goal are provided.

IPCC, 2014: Summary for Policy Makers, in Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group 3 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, page 9 and page 11. The authors of Working Group 3 note on page 11: "Mitigation scenarios in which it is likely that the temperature change caused by anthropogenic GHG emissions can be kept to less than 2 degrees C relative to pre-industrial levels are characterized by atmospheric concentrations in 2100 of 450ppm CO<sub>2</sub>eq (high confidence)". The authors note on page 9 that the CO<sub>2</sub>eq in 2011 was estimated to be 430ppm. Given that the CO<sub>2</sub>eq has been rising at approximately 2ppm per year, even the rapid pace of emission reduction suggested here may be insufficient to avoid exceeding 450ppm CO<sub>2</sub>eq. In part, this is because of the long atmospheric lifetime of greenhouse gas emissions; for example, when carbon dioxide is released into the atmosphere, its heat trapping capacity remains for an average of at least 100 years.

## References continued:

5. Web site of the European Commission. Refer to: [http://ec.europa.eu/clima/policies/brief/eu/index\\_en.htm](http://ec.europa.eu/clima/policies/brief/eu/index_en.htm) and [http://ec.europa.eu/clima/news/articles/news\\_2013100901\\_en.htm](http://ec.europa.eu/clima/news/articles/news_2013100901_en.htm) *The European Union has succeeded in reducing its greenhouse gas emissions 18% since 1990, and is on track to meet its 2020 emission reduction commitment.*
6. Renewables 2013 Global Status Report, REN21 Network. Refer to section entitled: 'Power Generation Policies' *71 countries and 28 states/provinces have adopted some form of feed-in tariff policy.*
7. For the relationship between highway speed reductions and gasoline savings refer to: U.S. Department of Energy, [www.fueleconomy.gov](http://www.fueleconomy.gov) *A reduction in speed limit from 110km/hr to 90km/hr on double lane highways would cut fuel consumption by approximately 15%.*
8. *Many Ontario municipalities have anti-idling bylaws. One of the early adopters was Kingston Ontario. Refer to: "City bylaw is no idle threat" by Rachel Kuper, Kingston Whig Standard (<http://www.thewhig.com/2010/06/03/city-bylaw-is-no-idle-threat>), and "Checking idling bylaws" by Ian MacAlpine, Kingston Whig-Standard, November 15, 2013 (<http://www.thewhig.com/2013/11/15/checking-idling-bylaws>).*