

Manitoba's Report on Climate Change for 2016

PROGRESS UPDATE ON
MANITOBA'S EMISSIONS REDUCTIONS

As required under Section 5 of The Climate Change
and Emissions Reductions Act (CCERA)

Message from the Minister of Sustainable Development

On behalf of the Manitoba government, I present the 2016 Manitoba Report on Climate Change as required under The Climate Change and Emissions Reductions Act (CCERA). This report highlights climate change policies and initiatives undertaken in Manitoba in the four-year period since the last report: 2013 to 2016.

We recognize that climate change is happening and that it will affect all sectors and communities here in Manitoba and around the world. Though important steps have already been taken, including Manitoba's early investments in clean energy, we know that we need to do more.

In October 2017, the Office of the Auditor General released its report on Managing Climate Change (a follow-up to our December 2010 audit). The report identified that Manitoba did not meet its 2012 emissions reduction target, as set out in the CCERA. The report also noted that there were gaps in the planning, monitoring and reporting processes for projects and programs related to reducing greenhouse gas emissions and adapting to climate change.

With the release of A Made-in-Manitoba Climate and Green Plan: Hearing from Manitobans, in October 2017, Manitoba is addressing concerns raised by the Manitoba Auditor General by laying out a realistic approach that fits Manitoba's unique provincial circumstances. The Made-in-Manitoba Climate and Green Plan will incorporate feedback from extensive consultations, as well as the recommendations from the Auditor General, for a strengthened approach that will ensure real and measurable results into the future.

Our goal is to make Manitoba the cleanest, greenest and most climate resilient province in Canada. We know that there is a lot of work ahead of us, but we also know that we can achieve our goal by working together with all Manitobans. I look forward to the challenges and opportunities that will arise as Manitoba transitions to a low-carbon, sustainable future.

Sincerely,

original signed by

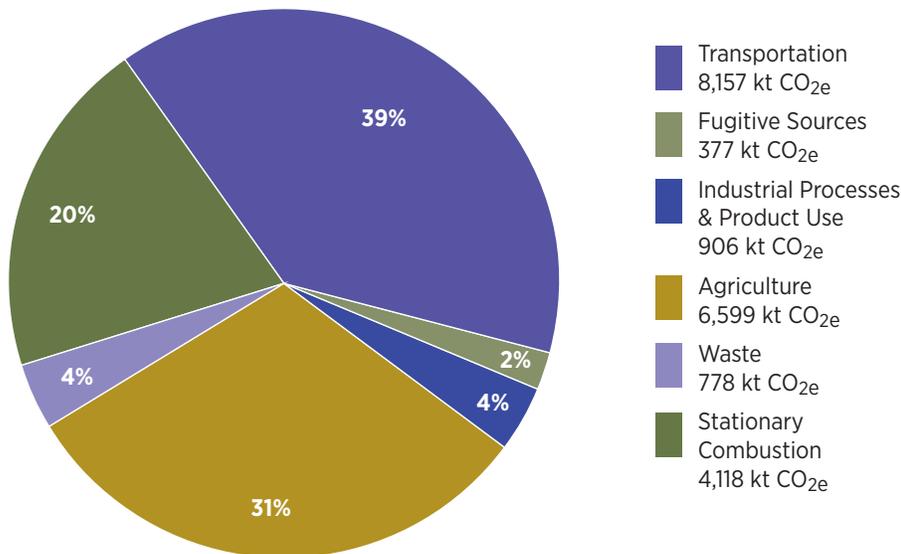
Rochelle Squires
Minister of Sustainable Development

1 Introduction

In April 2008, Manitoba released the *Beyond Kyoto* document, which was followed by the enactment of The Climate Change and Emissions Reductions Act (CCERA). The CCERA directs Manitoba's Minister of Sustainable Development to report on climate change for the year 2016, by December 31, 2017. This report meets the CCERA's requirements.

Manitoba has a unique greenhouse gas (GHG) emissions profile within Canada. It is the only province to have both abundant renewable electricity capacity along with a relatively significant agriculture sector. As a result, electrical generation accounts for near zero emissions, while the agriculture sector accounts for a significant percentage (31 per cent).

Manitoba's emissions profile for 2016



Manitoba has recently released A Made-in-Manitoba Climate and Green Plan: Hearing from Manitobans document, which aims to solicit feedback from Manitobans on the upcoming new Made-in-Manitoba Climate and Green Plan. The Plan includes a bold new vision: **Manitoba will be Canada's cleanest, greenest and most climate resilient province.**

2 Current and Predicted Impacts for Manitoba

Climate change is real and it is a serious threat to the well-being of Manitoba's economy, communities and natural ecosystems.

Climate change is not a problem of the future. It is here now. According to the Prairie Climate Centre, Manitoba has seen an increase in temperature of more than 1°C over the last 100 years, which is higher than the global average. Manitobans are already feeling the impacts through changing weather patterns, more severe storms, and changes in the incidence and severity of flooding. Insurance impacts and costs are rising due to increased flooding and fires. Communities, businesses and governments face higher disaster management costs as a result. Changes in weather, water and heat are affecting what farmers choose to plant and how they harvest. Habitats and local wildlife populations are also impacted.

Climate change, while affecting Manitobans now, will affect future generations even more. The Prairie Climate Centre's scientific models suggest that Manitoba may experience increasingly warmer overall conditions, hotter summers, changes in precipitation, unpredictability of weather, and increased frequency of extreme events such as storms, floods and forest fires. Additional information is available at www.prairieclimatecentre.ca.

Climate change will affect Manitobans in different ways and to a varying extent. Some people may find it easier to adapt and prosper, while for others, it may be more challenging. Manitoba's Indigenous peoples, for example, may be disproportionately impacted by climate change, particularly in northern regions, where rapid warming has already begun to impact lake ice and permafrost, winter roads and infrastructure, and changes to ecosystems and wildlife habitat. Natural disasters, including flooding and wildfires are also a major concern and can lead to the displacement of communities for a period of months or even years.

3 Selected Mitigation and Adaptation Initiatives

The following is a list of some of the initiatives that Manitoba undertook or supported from 2013 to 2016. This list highlights attempts to reduce greenhouse gas emissions, reduce current and future impacts of climate change, and educate people on climate change.

ENERGY

- **Biomass Energy Support Program** – Announced in January 2012, this program provides grants to encourage coal users to switch to biomass energy products. It also supports the expansion and growth of the biomass energy production industry. The program had limited uptake. For more information: www.manitoba.ca/agriculture/innovation-and-research/biomass-energy-support-program.html
- **Manitoba Geothermal Energy Incentive Program** – This program encourages switching to low carbon geothermal heating and cooling for homes and buildings throughout Manitoba, while attracting millions of dollars of private sector investment into the local economy. It also supports the development of a green heat industry. For more information: www.manitoba.ca/mr/energy/geothermal/incentives.html

- **Aki Energy: Renewable Energy in First Nations Communities Project** - Supported by the Sustainable Development Innovations Fund, Climate Change Initiatives, this two-year project focused on developing renewable energy in First Nations communities, including expanding ongoing geothermal work, and installing biomass and solar thermal hot water systems. For more information on the work of Aki Energy: www.akienergy.com
- **Manitoba Hydro Power Smart** – This program offers many programs to help home and business owners make changes to improve their energy efficiency. For more information: www.hydro.mb.ca

Manitoba Hydro Power Smart – Emissions Reductions Achieved in Manitoba

| Manitoba Hydro's Power Smart Programs (Incremental Savings) | 2013/14 | 2014/15 | 2015/16 |
|---|-----------|------------|-----------|
| Natural gas savings (cu.m) ¹ | 9,405,028 | 10,194,621 | 8,945,918 |
| GHG emissions reduction (tonnes of CO _{2e}) | 17,845 | 19,343 | 16,974 |

¹Savings include interactive effects.

- The emissions reductions attributed to Manitoba Hydro's Power Smart Programs (Incremental Natural Gas Savings) for the fiscal years of 2013/2014, 2014/2015 and 2015/2016 totalled 54,161 tonnes CO_{2e}.
Note: 2016/2017 natural gas savings and GHG emissions reduction data is unavailable at this time.
- The Manitoba government and Manitoba Hydro work together to support energy-efficient codes and standards. Through applying these codes and standards, Manitoba Hydro's 15-year 2016/17 Demand Side Management Plan forecast energy savings of 979 gigawatt-hours (GWh) and natural gas savings of 72.9 million cubic meters by 2030/31.
- The Demand Side Management Plan forecast capacity savings of 1,232 MW, energy savings of 4,506 GWh and natural gas savings of 130 million cubic meters (before interactive effects) and combined global greenhouse emission reductions of 3.3 million tonnes by 2030/31.
- Manitoba is establishing a new stand-alone Crown Corporation, Efficiency Manitoba, to deliver energy efficiency programs and services in Manitoba. Legislated in the new Efficiency Manitoba Act, the corporation's energy savings targets are set at an average of 1.5 per cent annually of domestic electricity consumption and an average of 0.75 per cent annually of natural gas consumption.

TRANSPORTATION

- **Biofuels Mandates – Ethanol and Biodiesel** – These mandates require fuel suppliers in Manitoba to replace at least 8.5 per cent of their gasoline with ethanol and to blend two per cent renewable content in both on and off-road diesel fuel. These provincial mandates are legal requirements. For more information: www.manitoba.ca/jec/energy/biofuels

Biofuels Mandates – Emissions Reductions Achieved

Reported GHG Reductions from Biofuels Mandates 2013

| | Total Fuel Sales (litres) | Reported Renewable Content (litres) | GHG reductions (tonnes CO _{2e}) |
|-----------------------------|---------------------------|-------------------------------------|---|
| Ethanol | 1,609,059,453 | 147,596,602 | 339,472 |
| Biodiesel/ Renewable Diesel | 1,126,208,495 | 28,197,886 | 72,328 |
| Total | 2,735,267,948 | 175,794,488 | 411,800 |

Reported GHG Reductions from Biofuels Mandates 2014

| | Total Fuel Sales (litres) | Reported Renewable Content (litres) | GHG reductions (tonnes CO _{2e}) |
|-----------------------------|---------------------------|-------------------------------------|---|
| Ethanol | 1,638,953,233 | 151,107,765 | 347,548 |
| Biodiesel/ Renewable Diesel | 1,160,444,439 | 26,873,774 | 68,931 |
| Total | 2,799,397,672 | 177,981,539 | 416,479 |

Reported GHG Reductions from Biofuels Mandates 2015

| | Total Fuel Sales (litres) | Reported Renewable Content (litres) | GHG reductions (tonnes CO _{2e}) |
|-----------------------------|---------------------------|-------------------------------------|---|
| Ethanol | 1,667,625,473 | 147,010,088 | 338,123 |
| Biodiesel/ Renewable Diesel | 1,168,843,306 | 27,960,823 | 71,720 |
| Total | 2,836,468,779 | 174,970,911 | 409,843 |

Reported GHG Reductions from Biofuels Mandates 2016

| | Total Fuel Sales (litres) | Reported Renewable Content (litres) | GHG reductions (tonnes CO _{2e}) |
|-----------------------------|---------------------------|-------------------------------------|---|
| Ethanol | 1,700,814,425 | 144,399,238 | 332,118 |
| Biodiesel/ Renewable Diesel | 1,151,254,285 | 27,855,224 | 71,449 |
| Total | 2,852,068,710 | 172,254,462 | 403,567 |

- **Green Action Centre: Sustainable Transportation** – This project is supported by the Sustainable Development Innovations Fund, Climate Change Initiatives, to make active and sustainable modes of transportation more accessible for Manitobans. For more information on the work of Green Action Centre: www.greenactioncentre.ca

AGRICULTURE, LAND AND WATER

- **Agriculture Risk Management Review Task Force** – Established in January 2015, this group was tasked with evaluating existing programs and policies used to help farmers recover from climate-related challenges such as flooding, with the goal of identifying more comprehensive and sustainable programs. The Task Force released a final report in January 2016, including 25 recommendations to improve climate-related risk management. For more information: www.manitoba.ca/agriculture/business-and-economics/agri-risk-task-force.html
- **Growing Assurance** – Running since 2013, this program builds strong foundations by advancing assessment, adoption and implementation of environmental, food safety, animal welfare, plant and animal health, biosecurity and traceability systems and activities that support national initiatives, as well as conserving and enhancing ecological goods and services on the agricultural landscape. For more information: www.manitoba.ca/agriculture/growing-forward-2/strategic-initiatives/growing-assurance.html

Manitoba Agriculture – Growing Assurance Program – Estimated Emission Reductions Achieved

Upwards of 100 projects funded under the Growing Assurance Ecological Goods and Services Program have resulted in GHG emissions reductions equaling an approximate total of 2,500 tonnes per year or about 10,000 tonnes over the four-year period of 2013-2016.

In addition to the Growing Assurance Program, GHG mitigation is a focus of the department's annual crop production extension messaging.

As well, Manitoba Agriculture has a strong climate change focus at its beef and forage research and demonstration site, Manitoba Beef and Forage Initiatives. For more information: www.mbf.ca

While the impact of these additional measures is difficult to quantify, it has the potential to be substantial, depending on adoption rates of demonstrated and promoted practices and technologies.

- **Ducks Unlimited Canada: Reporting Carbon Estimates for the Boreal Forest of Manitoba** – Supported by the Sustainable Development Innovations Fund, this initiative involved a literature review and analysis of carbon storage estimates for Manitoba's boreal forest and wetlands. For more information on the work of Ducks Unlimited Canada: www.ducks.ca
- **Manitoba Drought Management Strategy** – This strategy provides a framework and actions for an integrated approach to minimize the impacts of drought on Manitoba's people, economy and environmental resources. The strategy improves Manitoba's understanding of drought occurring in the past, present and future and will guide Manitoba in becoming a more drought-resilient province. For more information: www.manitoba.ca/sd/waterstewardship/water_info/drought/
- **Investments in Flood Prevention Infrastructure** – Manitoba adopted the 1:200 year standard, which is greater than the previous 1:100 year standard, and has developed new priorities for flood prevention infrastructure. For more information: www.manitoba.ca/mit/wms/index.html

WASTE

- **Manitoba Composts Program** – Launched in 2014, this program gives municipal and private sector composting facilities support for the diversion of organic waste in Manitoba. For more information: www.manitoba.ca/sd/wastewise/compost/program.html

GREENING GOVERNMENT

- **New Regulations under The Climate Change and Emissions Reduction Act**
 - **Greening of Government Vehicles Regulation, M.R. 37/2013** – This regulation establishes a fuel efficiency standard for the government fleet and directs government to implement actions and measures for reducing the total amount of fuel consumed by the government fleet. For more information: https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=37/2013
 - **Green Building Regulation, M.R. 38/2013** – This regulation establishes design energy and reporting requirements for new construction, renovation and build to suit leases where the building area is 600 square meters or greater and the project is funded by a government department, Crown corporation or agency. For more information: https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=38/2013
- **Updates to Manitoba's Green Building Program** – This includes publication of new technical updates on construction, renovation and demolition waste management, and air tightness and water penetration testing. For more information: www.manitoba.ca/finance/greenbuilding

RESEARCH, EDUCATION AND KNOWLEDGE BUILDING

- **Local Climate Change Action Plans** – Eco-West led a two-year joint project for the Association of Manitoba Municipalities (AMM) and the Economic Development Council for Manitoba Bilingual Communities (CDEM), with support from the Sustainable Development Innovations Fund, Climate Change Initiative. Greenhouse gas inventories and local climate action plans were developed in 15 Manitoba municipalities. This initiative also supported the Southwest Regional Development Corporation Gasification Project. For more information on the work of Eco-West: www.eco-ouest.com/en
- **Prairie Climate Centre** – This is a joint initiative of the International Institute for Sustainable Development (IISD) and the University of Winnipeg, with support from Sustainable Development Innovations Fund, Climate Change Initiative. The centre provides governments, businesses, and non-governmental organizations and sectors with reliable climate data and information, enabling them to make informed decisions on addressing climate change. For more information: www.prairieclimatecentre.ca and www.climateatlas.ca

4 Reducing Emissions in Other Jurisdictions

Manitoba Hydro produces virtually all its electricity from the natural power of water. The abundance of Manitoba's waters, combined with our hydropower generating stations, allows Manitoba Hydro to emit practically no greenhouse gas emissions. Hydropower, wind energy production and the electricity savings of its Power Smart programming, all contribute to the export of clean electricity to help displace non-renewable sources of electricity in other jurisdictions, such as coal and natural gas.

GHG Reductions in other jurisdictions as a result of Manitoba's Clean Energy Exports

From 2013 to 2016, Manitoba Hydro's net exports are estimated to have displaced GHG emissions by 30 Mt of CO_{2e}. This is equal to approximately 36 per cent of Manitoba's total provincial emissions over the same time period.

Manitoba Hydro's average annual emission reductions from exports is approximately 8 Mt of CO_{2e}. As such, under average flow conditions, and with increased generation capacity from Keeyask, Manitoba Hydro's clean electricity exports will reduce GHG emissions in other jurisdictions by approximately 84 Mt of CO_{2e} from 2017 through 2025.

5 Co-operative Efforts with Other Jurisdictions

The following is a list of some of the co-operative efforts that Manitoba undertook leading up to and during the 2016 calendar year. This list is not exhaustive but serves to highlight some of Manitoba's many co-operative efforts.

- signed MOUs with Ontario and Quebec, and Alberta
- signed on to the Declaration of Premiers of Canada at the Quebec Summit on Climate Change
- signed on to the Climate Action Statement at the Climate Summit of the Americas
- joined with other governments through the International Carbon Action Partnership
- participated as a member of the Prairies Region Adaptation Collaborative and the Natural Resources Canada Adaptation Platform and Plenary
- participated as a member of the Climate Group Alliance of States and Regions
- participated as a member of the Climate Registry (TCR)
- participated in the Pan-Canadian Framework Working Groups
- participated as a member of the Canada Parks Council Climate Change Working Group
- participated in the Canadian Council of Ministers of the Environment Climate Change related committees
- contributor to the Canadian Energy Strategy of the Council of the Federation

6 GHG Emissions Reporting

All provinces, including Manitoba, rely on Environment Canada's National Inventory Report (NIR) to track and report GHG emissions.

The Climate Change and Emissions Reduction Act included an initial emissions reduction target for Manitoba: *to reduce Manitoba's emissions by December 31, 2012, to an amount that is at least 6 per cent less than Manitoba's total 1990 emissions.* At the end of 2012, Manitoba was 3,017 kt CO_{2e} shy of that target.

From 2012 to 2016, Manitoba experienced a slight increase in total GHG emissions from 20,236 kilotonnes (kt) of carbon dioxide equivalent (CO_{2e}) to 20,935 kt of CO_{2e}.

As a share of population and gross domestic product (GDP), Manitoba accounts for 3.6 per cent of the Canadian population and 3.3 per cent of Canadian GDP. In 2016, Manitoba contributed 3 per cent to Canada's total 704,646 kt of CO_{2e}. This is consistent with Manitoba's historical contribution to Canada's total GHG emissions from 1990 to 2016.

In addition to total GHG emissions, two metrics for measuring GHG emissions are GHG emissions per capita and GHG emissions per real GDP;

- GHG emissions per capita indicates the carbon footprint per person. In 2016, Manitoba's GHG emissions per capita was 16.4 tonnes of CO_{2e} per person. The Canadian average was 20 tonnes of CO_{2e} per person. Overall, Manitoba ranks in the middle (fifth lowest) of the ten provinces in terms of CO_{2e} per capita. This is consistent with previous years.
- GHG emissions per real GDP indicates the carbon-intensity of economic activity. In 2016, Manitoba's GHG emissions per real GDP were 346 tonnes of CO_{2e} per million dollars of economic activity (2007 dollars). The Canadian average was 391 tonnes of CO_{2e} per million dollars of economic activity (2007 dollars). Overall, Manitoba ranks (fifth lowest) of the 10 provinces in terms of economy-based carbon-intensity. This is consistent with previous years.

7 **Moving Forward**

With the release of the discussion document, A Made-in-Manitoba Climate and Green Plan: Hearing from Manitobans, in October 2017, Manitoba is addressing concerns raised by the Manitoba Auditor General in its report Managing Climate Change (a follow-up to our December 2010 audit) that climate efforts prior to 2017 had been insufficient and inadequate. With a goal of making Manitoba Canada's cleanest, greenest and most climate resilient province, the upcoming Made-in-Manitoba Climate and Green Plan will ensure that climate change is addressed in a manner that considers Manitoba's unique provincial circumstances and that will deliver real and meaningful results into the future.



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