

# Climate Change Action Guide

*For Manitoba Citizens'*

## 21 Questions to ask your Premier or MLA to do about climate change and *why*

### Set targets for successful climate stabilization

- 1 Admit we need to act decisively now!
- 2 Set clear provincial targets to reduce greenhouse gas emissions
- 3 Measure and limit airline greenhouse gas (GHG) emissions

### Create positive cash flow for positive change

- 4 Tax greenhouse gas emissions and establish higher Manitoba Hydro rates
- 5 Dedicate tax revenue to developing clean accessible energy and more efficient energy use
- 6 Protect low income families
- 7 Create Livable Wage Jobs for unemployed Manitobans
- 8 Encourage Emerging Zero Emission Industries and Research

### Establish programs for GHG emission reduction

- 9 Invest in cleaner transportation
- 10 Apply energy efficiency standards for new buildings and homes and upgrade energy efficiency in old buildings and homes
- 11 Establish standards for energy efficient cars
- 12 Ban the general use of incandescent light bulbs; replace with energy efficient lighting
- 13 Increase options for local diets and reduce GHG transport emissions
- 14 Replace Portland cement with low emission materials
- 15 Capture & reduce agricultural GHG emissions & other agricultural pollutants
- 16 Protect and restore critical carbon sinks such as the boreal forest

### Elected Officials Lead by Example

- 17 Reduce GHG emissions of government operations
- 18 Establish greenhouse gas emission reduction targets for MLA activities
- 19 Call for semi-annual Premiers' meetings to review and report on progress

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# Background Information

*The targets recommended in this Sierra Club document are generally agreed upon as necessary given our current understanding of climate change (see the third IPCC report). They are achievable given our current economic and technological capabilities, although they will require enormous and immediate attention from our governments and the private sector, and they will require sustained, persistent and informed citizen participation.*

## Why do we need immediate government action?\*

There are three things on which almost all climate scientists are now agreed:

1. Climate change is real;
2. It is due to human activity;
3. To avert catastrophic effects on both humans and ecosystems, we must prevent global temperatures from rising by more than 2° Celsius above pre-industrial levels;<sup>1</sup>

## Why must we prevent a 2° C rise?\*

A 2° C rise is the point at which some of the most dangerous processes catalyzed by climate change could become irreversible. These include:

1. The melting of the West Antarctic and Greenland ice sheets, which could collectively raise the global sea levels by seven meters.<sup>2</sup>
2. The drying out of many parts of Africa, and the inundation by salt water of the aquifers used by cities such as Shanghai, Manila, Jakarta, Bangkok, Kolkata, Mumbai, Karachi, Lagos, Buenos Aires and Lima.<sup>3</sup>
3. Runaway positive feedback, as the Arctic tundra begins to release the methane they contain,<sup>4</sup> and the Amazon rainforest dies off, turning trees back into carbon dioxide,<sup>5,6</sup> and possible release of massive volumes of methane beneath the ocean bottom known as clathrates.<sup>7</sup> In other words, if the planet warms by 2° C, 3° C or 4° C becomes almost inevitable.

## What is needed to stabilize the climate and prevent a 2° C rise?\*

1. Researchers at the Potsdam Institute for Climate Impact in Germany have estimated that holding global temperatures to below 2° C means stabilizing concentrations of greenhouse gases in the atmosphere at or below the equivalent of 440 parts of carbon dioxide per million.<sup>8</sup>
2. Current carbon dioxide concentration stand at 380 parts per million, but the other greenhouse gases raise this to an equivalent of 440 or 450. If everything else were equal, greenhouse gas concentrations in 2030 would need to be roughly the same as they are today.
3. *Unfortunately, everything else is not equal.* By 2030, according to a paper published by scientists at the Met Office, the total capacity of the biosphere to absorb carbon will be reduced from the current 4 billion tonnes a year to 2.7 billion.<sup>9</sup>

4. So to maintain an equilibrium and prevent an increase above the 2 degree danger point of 440 parts per million the world's population can emit no more than 2.7 billion tonnes of carbon (or 9.9 billion tonnes of CO<sub>2</sub>) a year in 2030.
5. We currently produce around **7 billion tonnes of carbon a year globally**, which means we need a global emission reduction of about 60% by 2030.
6. In 2030, the world's population is projected to be about 8.2 billion people. By dividing the total carbon sink (2.7 billion tonnes) by the number of people, the weight of carbon emissions per person should be no greater than 0.33 tonnes (or 1.2 tonnes CO<sub>2</sub> equivalent).
7. If this problem is to be handled fairly, everyone should have the same entitlement to release GHG, at a rate no greater than 1.2 tonnes per year.
8. In the rich countries, this means an average cut by 2030 of around 90% of 2004 emissions. By contrast, the Kyoto Protocol – the only international agreement that has been struck so far – commits its signatories to cut their carbon emissions by a total of 35% of 2004 emissions (5.2 % of 1990 emissions) by 2012.
9. Manitobans currently emit more than 17.2 tons GHG per capita per year if airline travel is factored in (GHG statistics on airline travel are not available by province). Given the global per capita share of 1.2 tones of GHG, a 90% emission reduction would be required to meet our pollution prevention requirement. In order to meet our goal of preventing a 2 degree C rise in global temperatures a 50% emission decrease by 2012 should also be a target.

“We need a global emission reduction of about 60% by 2030”

## What about Kyoto?

The Kyoto Protocol does not address the severity of the current green house gas pollution problem. Kyoto was signed in 1998, at a time when public opinion had not yet come to terms with the potential dangers of climate change. Since 1998 scientists have verified that the predicted droughts, floods, hurricanes, ocean acidification, melting of glaciers, melting of the polar icecaps, species extinctions, crop failures and ecosystem disruptions are all a dangerous consequence of human caused increases in green house gas emissions.

The Kyoto Protocol is the only global treaty to address climate change, and it is still important for all countries to meet its requirements. Those requirements commit the 160 countries who are signatories to a 5.2% decrease in their 1990 emissions by 2012 (or 35% below 2004 emissions).

But Kyoto is a product of the thinking of a decade ago when the public mood and awareness did not support decisive actions. It was a vehicle to establish the basis for international action, but its targets reflect political hesitation and will not achieve climate stabilization. Now, an informed and concerned public is in a position to demand that their governments take the necessary steps to protect them and their environment.

\*as cited by George Monbiot, author of *Heat*



# Examination of Points

## 1. Admit we need to act decisively now!

### Set targets for successful climate stabilization

## 2. Set clear provincial targets

In order to stabilize the climate (see explanations page 2) the province needs to set staged targets for reductions of greenhouse gas (GHG) emissions to levels that will fall to the global per capita allowance of 1.2 tonnes (1200 kilograms) of GHG emissions (in CO<sub>2</sub> equivalent) per person by 2030. These targets should include short term cuts that approach 50% of 2004 emissions by 2012.<sup>10</sup>

## 3. Measure and limit airline GHG emissions<sup>11</sup>

Manitoba should propose a mechanism for accurately measuring GHG emissions (in CO<sub>2</sub> equivalents) from air travel (which will be included in the province's target projections for limiting GHG emissions) and propose that the mechanism be adopted Canada wide.<sup>12</sup>

*This first 3 points sets targets. The following 18 are recommendations to achieve those targets.*

### Create positive cash flow for positive change

## 4. Tax greenhouse gas emissions and establish new Manitoba Hydro rates<sup>13</sup>

Establish a graduated pollution tax on GHG emissions that will provide incentives for the private sector to invest in conversion to clean energy. Tax revenues should be dedicated to funding needed to carry out this 21 point program. Additionally the province should set Manitoba Hydro rates at North American market rate, and then use excess Hydro revenue to fund energy conservation (demand-side management) and renewable energy and zero emission development, and energy poverty prevention programs.

## 5. Dedicate tax money to developing clean accessible energy and more efficient energy use

Income from the GHG tax should be put into a fund to achieve conversion to cleaner technologies and to ensure that low income citizens have access to clean energy.

## 6. Protect low income families

Ensure that all lower income families have adequate housing, heating, cooling, and transportation options through special programs that provide resources for energy efficiency, home retrofits, access to affordable transportation, energy rebates local food production, community economic development and materials recycling initiatives.<sup>15</sup>

## 7. Create Livable Wage Jobs for Unemployed

Establish training programs and ensure access to jobs in the new energy, transportation, building and sustainability sectors.<sup>16</sup>

## 8. Assist and Encourage Zero Emission Industries and Research

### Establish programs for GHG emission Reduction

## 9. Invest in cleaner transportation

Immediately invest at least \$4 billion in affordable, public urban transportation systems, efficient freight management mechanisms, high speed inter-city buses and other clean transportation options such as bicycling that will increase transportation choices and provide Manitoba with a sustainably secure and safe transportation future.<sup>14</sup>

## 10. Apply energy efficiency standards for new buildings and homes and upgrade energy efficiency in old buildings and homes

All new homes should be built to the R-2000 standards of Natural Resources Canada or better as new technologies

emerge.<sup>17,18</sup> Set targets to convert existing homes to cleaner heating sources by 2030 while upgrading poorly insulated homes. Establish loan programs that will make province-wide conversion manageable for all.<sup>19</sup>

## 11. Establish standards for energy efficient cars

Establish high Corporate Average Fuel Efficiency standards (CAFE) for the province at least as efficient as California CAFE performance standards and establish zero emission standards for cars as soon as possible.

## 12. Ban incandescent light bulbs and replace with energy efficient lighting

Set a date for the ban of incandescent light bulbs (except in specialized uses such as medical and photographic).

## 13. Increase options for local diets and reduce GHG transport emissions

Invest in a province-wide infrastructure that supports local diets and local sustainable agriculture. Develop canning kitchens, community gardens, garden tool sharing libraries and other facilities that give Manitobans access to technologies that enable year round local diets.

## 14. Replace Portland cement with low emission materials

Develop plans to phase out the use of Portland cement, replacing it with geopolymers or other alternative building materials.<sup>20</sup>

## 15. Capture & reduce agricultural GHG emissions & other agricultural pollutants

Manitoba's agricultural emissions have risen dramatically in the last decade. The province should develop and fund programs to reduce and capture agricultural GHG emissions and programs to reduce other farm pollutants.<sup>21</sup>

## 16. Protect and restore critical carbon sinks such as the boreal forest.

### Elected Officials Lead by Example

## 17. Reduce government operations' GHG emissions

Establish greenhouse gas emissions targets for Manitoba Government Operations and for institutions funded by the province and crown corporations, that exceed the targets recommended in item #1.

## 18. Establish greenhouse gas emission reduction targets for MLA activities

Immediately purchase bicycles, electric runabout carts, electric cars, or electric hybrids for MLA transportation needs. Establish car-pooling / ride sharing programs, get all civil servants to join the commuter challenge, and assure that all major government buildings are fitted with bike stations.

## 19. Call for semi-annual Premiers' meetings to review and report on progress

Call for semi-annual Premiers' meetings to review and report on progress being made to convert to a sustainable and equitable energy society, to monitor and assist the federal government to meet Canada's pollution reduction responsibilities, and to move Canada to become a responsible participant in the international arena.

### Support Citizen Environmental Stewardship

## 20. Support sustainable neighborhoods

Expand the development of neighborhood initiatives such as sustainable neighborhood associations through financing and skills bank assistance programs.

## 21. Educate public and private sectors on benefits of sustainability

Increase environmental literacy through seminars and other programs to enhance the shared responsibilities and rewards of caring for the environment.



## What each of us can do for Climate Stabilization



1. If you agree with this plan, write your MLA and the Premier. Tell them of your concerns and the need for them to implement a plan such as that recommended by the Sierra Club, Winnipeg. Their addresses are in the phone book or on the internet.
2. Distribute copies of this plan to your friends, colleagues, or neighbours.
3. For the personal changes you can make visit:  
[www.stopglobalwarming.org/sgw\\_actionitems.asp](http://www.stopglobalwarming.org/sgw_actionitems.asp);  
or [www.climatechangeconnection.org/pages/tips\\_cfl.html](http://www.climatechangeconnection.org/pages/tips_cfl.html)
4. Join the Sierra Club.

To Join the Sierra Club of Canada visit the Sierra Club Website at:  
[www.sierraclub.ca](http://www.sierraclub.ca)  
Or write or call at:  
Sierra Club of Canada  
412-1 Nicholas Street  
Ottawa, Ontario K1N 7B7

If you would like to help the Sierra Club  
Winnipeg group in its work contact us at:  
Phone #??

### Footnotes:

1. See, for instance, the third IPCC report published in 2007 and the Potsdam Institute for Climate Research.:  
<http://www.pik-potsdam.de/research>.
2. Eg Intergovernmental Panel on Climate Change (IPCC), 2001, Climate Change 2001: Working Group II: Impacts, Adaptation and Vulnerability. [http://www.grida.no/climate/ipcc\\_tar/wg2/005.htm](http://www.grida.no/climate/ipcc_tar/wg2/005.htm)
3. Conference of the International Association of Hydrogeologists, reported by Fred Pearce, 16<sup>th</sup> April 2005. *Cities may be abandoned as salt water invades*. *New Scientist*
4. Fred Pearce, 11<sup>th</sup> August 2005. Climate warning as Siberia melts. *New Scientist*
5. Sharon A. Cowling et al, 29<sup>th</sup> March 2004. Contrasting simulated past and future responses of the Amazonian forest to atmospheric change. *Philosophical Transactions of the Royal Society*. Vol 359, pp539-47
6. Meteorological Office, April 2005. International Symposium on the Stabilisation of Greenhouse Gases: tables of impacts. Table 3 Major Impacts of Climate Change on the Earth System. Hadley Centre, Met Office, Exeter, UK [http://www.stabilisation2005.com/impacts/impacts\\_earth\\_system.pdf](http://www.stabilisation2005.com/impacts/impacts_earth_system.pdf)
7. See Flannery, T. *The Weather Makers*, 2005, HarperCollins, Toronto, Ontario, pp. 199 –202.
8. Bill Hare and Malte Meinshausen, 2004. How Much Warming Are We Committed To And How Much Can Be Avoided? PIK report 93, Figure 7, page 24. Potsdam Institute for Climate Impact Research. [http://www.pik-potsdam.de/publications/pik\\_reports/reports/pr\\_93/pr93.pdf](http://www.pik-potsdam.de/publications/pik_reports/reports/pr_93/pr93.pdf)
9. Extracted by Colin Forrest from Chris D. Jones et al, 9<sup>th</sup> May 2003. Strong carbon cycle feedbacks in a climate model with interactive CO<sub>2</sub> and sulphate aerosols. *Geophysical Research Letters*. Vol 30, p1479
10. As per the third IPCC report. See also Monbiot, G., *Heat: How to Stop the Planet from Burning*, Doubleday Canada, 2006.
11. Maintaining current air travel pollution emissions, much less the projected increases in global emissions, will make achieving the 90% reduction impossible. For an excellent discussion of airline travel see Monbiot, G., 2006, *Heat: How to Stop the Planet from Burning*, Doubleday Canada; pp 170 - 188.
12. For example, one approach might be to calculate the total emissions from all air travel occurring over Canadian airspace and then apportioning the total emissions per passenger kilometer to the provinces on a per capita basis by population or by us per capita use of the provinces airports and airfields. That way, Manitobans would know more or less how much they contribute to the national emission totals—assuming that we travel no more nor less than other Canadians.
13. Such a tax will provide the incentive to a broad range of activities. Buildings will become more energy efficient, transportation will convert to alternative energy sources, retailers will seek energy efficiencies (for instance open refrigerators in supermarkets produce large amounts of GHG, large box retailer store lighting uses excessive amounts of energy, incandescent light bulbs are energy inefficient, CAFE standards could be greatly increased, and zero emission cars are being marketed again.) For an energy program to protect low income families see: [http://www.torontoenvironment.org/files/Low\\_income\\_energy\\_conservation\\_assistance\\_0.pdf](http://www.torontoenvironment.org/files/Low_income_energy_conservation_assistance_0.pdf)
14. The current budget announced a centerpiece \$4 billion transportation budget for roads. This should be immediately equaled with a 4 billion dollar GHG emission reduction program.
15. E.g. configure carbon trading markets so that individuals could sell their carbon emission credits if they have some. Low income families are often also low-consumption families, which might mean they are in a carbon credit position (not owning cars, detached houses, taking expensive holidays, heating swimming pools etc.) If we could accurately assess this and fairly tax consumption, especially luxury consumption, then this cash might be re-routed to low income families as carbon credits.
16. The government should develop programs similar to those used in the US during the Great Depression where unemployed workers were hired by the government to work on public works projects. Today, we should be building a rapid transit infrastructure, doing reforestation, more extensive materials capture and recycling, etc.
17. The Canadian Green Building Council is developing a LEED standard for residential construction that is more efficient than the R2000 standard.
18. Investigate the use of hydrogen as a stationary heat source. Hydrogen can be generated from green sources where there is low demand.
19. Geothermal is expensive to retrofit into existing homes and ought to be combined with passive solar design features. It might be more efficient and sustainable to develop geothermal district heating systems instead of individual household units
20. The manufacture of each tonne of Portland Cement emits 814 kilograms of CO<sub>2</sub> according to the Annual Review of Energy and Environment as cited by George Monbiot in *Heat: How to Stop the Planet from Burning*. Monbiot's research indicates that geopolymers reduce the CO<sub>2</sub> emissions by 80 to 90%.
21. GHG emissions result from a range of fuels, fertilizers, grain dryer facilities, on-farm processing activities and transportation of product to market. Other "emissions" such as pesticide and herbicide run-off, manure run-off, contamination of aquifers, dust, smoke, erode the natural systems that are under stress from climate change.