

## **Greenhouse Gas Emission Reduction Scenarios for BC Meeting the Twin Objectives of Temperature Stabilization and Global Equity**

**Colin Campbell<sup>1</sup> and Cliff Stainsby<sup>2</sup>**

Colin Campbell of the Sierra Club BC and Cliff Stainsby of the BC Government and Service Employees' Union, under the auspices of the Canadian Centre for Policy Alternatives' Climate Justice Project, have published a technical paper<sup>3</sup> examining BC's emission targets in the context of notions of global equity.

Starting from the recognition that atmospheric greenhouse gas emissions levels at 430 ppm (parts per million) CO<sub>2</sub> equivalent are already in the danger zone and imply a median probability of 25% that the world will exceed 2°C average warming, we propose (as have many others) that the appropriate and immediate goal should be 400 ppm CO<sub>2</sub> equivalent (which equals 350 ppm CO<sub>2</sub> only). This level predicts a better than 70% chance of not exceeding 2°C warming. We are well aware how dangerous this is – like flying with a 30% chance of crashing!

How to get there? Runs on the University of Victoria's *Earth System Climate Model* tell us very clearly that the world can only emit a further 223 Gigatonnes of carbon by 2100 and expect to stay under 2°C warming. After 2100 there is a need to remove CO<sub>2</sub> from the atmosphere. The UVic model accounts for terrestrial and oceanic carbon cycles, but not for positive temperature feedbacks on those cycles. The compelling results from this study must therefore be considered conservative. Assuming strict equity among all people for carbon usage, BC's allotment for 92 years would be 144 Megatonnes, equal to 7.5 years of emissions at 2008 rates.

Any approach to equity means the big GHG emitters, like BC, have to reduce their emissions proportionately more than do others; 94% by 2050 for BC compared to 83% for the world. One way to get there would be to agree that everyone on the planet has an equal right to emit GHGs, so between now and 2050, or now and 2100, our share of the total "carbon budget" should be the same as our share of the world population. But we already vastly exceed our fair share on an annual basis, and to follow this strategy would mean a rapid drop in emissions followed by an extended period where we were under the global average, all while the annual global "cap" is shrinking.

Given the extreme difficulty of 'instantaneous equity' (or carbon budget convergence) it is more realistic to converge with the world to an annual amount of emissions that is proportionate with our population share. If we choose 2050 for that goal we need to reduce our emissions by 6.6% per year, starting now. After 2050 we would have reduce emissions by 4.1% per year, in line with everyone else, to 2100. This strategy would

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<sup>1</sup> Sierra Club BC

<sup>2</sup> BC Government and Service Employees' Union

<sup>3</sup> [http://www.policyalternatives.ca/documents/BC\\_Office\\_Pubs/bc\\_2008/CCPA\\_ghg\\_emission\\_reduction.pdf](http://www.policyalternatives.ca/documents/BC_Office_Pubs/bc_2008/CCPA_ghg_emission_reduction.pdf) - substitute link to SCBC site

cause BC to require an increase of 84% (120 Mt carbon) above its strict equity share of emissions between now and 2100.

To compensate for this we would need to pay poorer nations, currently under the global sustainable rate, to not increase their emissions. At a carbon price of \$100 per tonne over the 42 years to 2050, this would cost the BC Treasury \$1.5 billion per year, about 0.5% of BC's 2008 GDP. Payment could be in the form of technology transfer or support of clean and green power, transportation or energy efficiency projects.

What does this mean for the BC government, which has a legislated target of 80% reduction in emissions by 2050? Our calculations indicate 94% is the more accurate figure, and while there is not necessarily an optimum pathway to this goal, a constant annual percentage reduction indicates BC needs to achieve 24% by 2012 (cf. 5-7% proposed by the BC Climate Action Team), 42% by 2016 (cf 15-18% ditto), and 56% by 2020 (cf. 33% legislated).

The choices are many and under active discussion. The rationing of carbon via strict caps proceeding to zero emissions may be inevitable. Radical urban re-design with strict requirements for buildings, electrically driven mass transportation, reductions in flying, maximized local food production, and large expenditures on infrastructure rebuilds will be necessary. Finally we must acknowledge and pay our international obligations and match provincial goals to all these needs.