

Climate Change – The Role of Carbon Offsets in Reducing our Ecological Footprint

Climate change is a serious problem, caused primarily by the release of carbon dioxide from burning fossil fuels like oil, coal, and gas, as well as the release of other greenhouse gases (GHGs) from activities such as deforestation and intensive industrial agriculture. The best way to reduce our contribution to climate change is by directly reducing our own personal and organizational greenhouse gas emissions. To do this we must consciously alter how we live and work, including what we eat, the appliances and modes of transportation we use, and the energy efficiency of our homes, schools, offices, factories and places of worship. However, the road to true carbon neutrality can take some time.

Air travel, for example, is a significant and growing contributor to global warming. According to the David Suzuki Foundation, jet travel accounts for about 3% of global CO₂ emissions, and emissions are growing each year.¹ In addition airplanes emit other potent greenhouse gases and water vapour as they travel at high altitudes, making air travel particularly damaging. The impact of jet emissions is increased with multiple-stop flights and night flights. Per kilometer emissions are also a bigger problem when a single cross continent round trip can equal the distance that a car will travel in a year. There are currently no technological solutions that will “green” a jet flight and it is unlikely that any will be possible in the foreseeable future.

One solution is to reduce the number of flights we take each year by changing how we do business (e.g. using teleconferencing and the internet to hold meetings or taking the train), as well as changing what we do and where we go for pleasure (e.g. vacationing closer to home). But what do we do when we cannot avoid traveling for work or when we decide to visit a loved one who is an ocean away?

What are Carbon Offsets?

One way to take responsibility for the greenhouse gases we are still emitting is through carbon offsets. A carbon offset is an emission-reduction credit generated by an organization with a project that reduces the amount of carbon dioxide (or other greenhouse gases) in the atmosphere. Carbon offsets are typically measured in tonnes of carbon dioxide equivalents, and are bought and sold through a number of international brokers, retailers, trading platforms and not-for-profit organizations.

Many types of activities can generate carbon offsets. Renewable energy projects such as wind farms, or installations of solar, small hydro, geothermal, and biomass energy, can create carbon offsets by replacing the use of fossil fuels to generate power. Other types of offset projects include those focusing on energy efficiency projects (e.g. cogeneration), methane capture from landfills or livestock, destruction of potent greenhouse gases such as halocarbons, and carbon sequestration (‘sinks’), and projects such as reforestation and no-till agriculture that remove carbon dioxide from the atmosphere.

While many people use carbon offsets primarily to offset their air travel, they can be used to offset any carbon emitting activity. Most carbon offset websites have calculators that address automobile use, and the Pembina Institute has a campaign to offset energy consumption related to computer use with wind power.²

Purchasing high quality carbon offsets from projects such as wind farms also helps support the transition to a sustainable energy economy by providing an additional source of revenue to developers of renewable energy and helping them to become competitive with the well-financed and over-subsidized oil, gas and coal sectors.

While voluntary offset programs are not a substitute for comprehensive government actions to reduce greenhouse gases (e.g. setting a price on GHGs applied to carbon taxes and cap and trade systems for industrial emitters; implementation of international agreements such as the Kyoto Protocol and its successor agreement, etc.) or directly changing our own behavior, they are a step in the right direction, and an opportunity to demonstrate leadership on climate change.

¹ David Suzuki Foundation http://www.davidsuzuki.org/Climate_Change/

² Pembina Institute <http://www.pembina.org/wind>

Are Some Offsets Better than Others?

Voluntary carbon offsets are a largely unregulated market and some carbon offset projects are clearly better than others. There are five key factors in assessing the quality of a carbon offset project:

1. **Does it provide permanent or lasting environmental benefit?** For example, although a forestry carbon sink project may absorb carbon while it is alive, a forest is not permanent and may succumb to disease, fire, or logging – releasing the carbon into the atmosphere long before the forest would naturally mature. Tree planting is well funded in Canada, so it is unclear that additional funds in this area would lead to additional reductions in greenhouse gas emissions. In some countries reforestation projects have used inappropriate varieties of trees that more easily succumb to drought or disease. Thus, while planting trees and protecting forests are good things to do, planting trees to offset our carbon emissions is at best a temporary solution. Buying forestry offsets does not lessen our society's dependence of fossil fuels – something that is essential to address climate change. There are also significant technical problems associated with quantifying the carbon sequestered in trees or soils. Thus, alternative energy projects are usually seen as more reliable offset projects.
2. **Is it “additional”?** Does the purchasing of the offsets enable the development of new alternative energy or efficiency projects that would not otherwise have been developed? These are the projects that will lead to real reductions in total greenhouse gas emissions.
3. **Does it meet Canadian and international standards for carbon offsets?** An international ‘Gold Standard’ for carbon offsets was developed by the non-governmental community in consultation with governments, scientists, and offset project developers for projects in countries that are not signatories to the Kyoto protocol (mostly in the less developed world, but also in the US) where verification was considered to be the most challenging. It provides an independent “best practice” benchmark for emissions offset projects, and helps ensure environmental and social criteria are met. Only renewable energy and energy-efficiency projects currently qualify under the Gold Standard's criteria, not tree planting.
4. **Is it verified by a third party?** There are also mechanisms such as “Green-e” or “Eco-logo” certification that verify that the offsetter is actually investing in the projects advertised and that they have a measurable benefit.
5. **Is it socially beneficial?** Some projects, especially those facilitated by both ‘Gold Standard’ and non-profit societies, are planned and developed to bring social as well as environmental benefits to communities. This ensures there is a social interest in sustaining them over the long term.

Some recommended ‘Gold Standard’, near ‘Gold Standard’, and not-for-profit carbon offset options are:

<http://planetair.ca/> Montreal non-profit

<http://www.offsetters.ca/index.htm> Vancouver not-for-profit out of UBC - West Jet will pay for offsets if flight is purchased through this website

<http://www.nativeenergy.com/> US Native American – wind and biomass focus

<http://www.myclimate.org/> Swiss – Canadian currency okay

<https://climatefriendly.com/> Australian – Canadian currency okay

<http://www.my-climate.com/> Boulder, Colorado non-profit

<http://www.atmosfair.de/> German

How much do offsets cost?

Following is a sample calculation for Ottawa/Vancouver from Offsetters.ca :

Total round trip distance Vancouver to Ottawa: 7102 km/passenger.

Total trip emissions: 1.4 ton/passenger.

Total offset cost to make your flight(s) for 1 passenger(s) climate friendly is: \$28.00 (CDN).

Note: Offsets for air travel tend to be underpriced because most of the calculators only deal with carbon dioxide equivalents and may under estimate or not address the impact of nitrous oxide and water vapor on climate change. Buying double offsets is one solution.