Small Steps to a **Union** Greener Union revised May 2017





Ontario Secondary School Teachers' Federation Fédération des enseignantes-enseignants des écoles secondaires de l'Ontario



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Small Steps to a Greener Union

As we progress through the 21st century warnings about climate change and the environmental destruction being done to our planet continue to be heard. OSSTF/FEESO members continue to enhance their awareness of environmental issues and continue to call upon the organization to do its part to protect the environment.

As a result, the Provincial Executive continued the mandate of the original Ad Hoc Environmental Work Group by forming an Environmental Advisory Work Group, which reports to the Executive on an annual basis. The Work Group is made up of one Provincial Executive member, one Provincial Office staff member, and members from the field. The Work Group has continued its initial mandate to gather information and discuss best practices to share with the Federation to help make OSSTF/FEESO a more environmentally friendly operation.

The by-product of the formation of the Work Group was the creation of the Small Steps to a Greener Union report, which was introduced at AMPA 2009. Over the past years, new ideas, initiatives and technologies have been developed in the area of environmentally friendly practices. Therefore, the Work Group is presenting a revised version of the original report that contains some new resources, new ideas and new ways for OSSTF/FEESO leaders and members to better protect the environment in how we operate every day.

The Work Group recognizes that each District and Bargaining Unit faces unique challenges and barriers when it comes to making their operations more environmentally friendly. The purpose of this report is to provide encouragement and support for future endeavours, and not to suggest that a one-size-fits-all approach would work for everyone. Districts and Bargaining Units are encouraged to select those initiatives that would best serve its individual needs.

The Work Group will continue to provide support materials, options and ideas to the Provincial Executive and to the members of OSSTF/FEESO. The EWG has joined OCEA, CAN and the Leap Manifesto to help seek and accumulate new ideas and information with the goal of confronting the environmental challenges before us, and making our world a little bit better. It only takes a few small steps to get started.

We hope that this updated report will give you some tools to do this.



Reduce: use as little as possible. If a product must be used, reuse it as many times as possible. When it can no longer serve its purpose, recycle it into something else.

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OSSTF/FEESO 2017

PAPER USE

organization the size of OSSTF/FEESO uses an incredible amount of paper every day. When you consider the significant amount of trees and water needed to produce this paper, and the cost-effective and accessible recycled options, it becomes clear that this is an area where our organization could easily make a measurable impact. In our efforts to create paperless workplaces, we can easily take advantage of the options that are available to the Provincial Office and all of our Districts and Bargaining Units.

CHECKLIST

- Recycle all of your paper waste.
- Double side all of your copies and save one sided sheets for re-use whenever possible.
- Source all your paper needs from 100% post consumer sources and from Forest Stewardship Council (FSC) approved suppliers. This would ensure that a minimum number of trees are harvested for our use. A list of products and suppliers is available at www.fsccanada.org.
- To avoid the use of paper, provide executive members with electronic documents which can be accessed on their personal devices.
- E-mail materials for meetings in advance and print off only copies when needed for discussion.
- Update websites on a regular basis and train members to use web sites and social media more appropriately and effectively.
- Provide meeting reports and other information on flash drives, and encourage the use of personal laptops. The flash drives can be returned for re-use. It may be more time-efficient to post agendas, minutes and reports on the web than to put them on a flash drive, but consider the security of the information. Use only password-protected web sites and wikis.
- Change the default settings on your word processor, spreadsheet, etc., to get the most out of your paper and ink. Narrow the margins, reduce the font size and select an eco-sensitive font.
- Switch to Spranq Eco Sans font for printed correspondence. This font will save up to 20% of your ink and will help make your cartridges last longer, with little noticeable difference in print quality. (www.ecofont.eu/)

RESOURCES

FSC products—www.ca.fsc.org Ecofont download—www.ecofont.com



DID YOU KNOW?

Recycling 54 kg of newspaper will save one tree. (Source: Government of Canada, Digital Collection)

Paper and paper products account for more than 1/3 of all Canada's waste. (Source: Environment Canada)

Canada uses six million tonnes of paper and paperboard annually. Only 1/4 of Canada's waste paper and paperboard is recycled. (Source: Environment Canada)

ENERGY USE

he idea behind an environmentally friendly energy policy is centred on using as few resources as possible. The benefit of such an approach is two-fold, with a reduction in consumption being planet-friendly as well as saving the organization money. In the end, when we have exhausted all attempts to curb our usage, we should be choosing environmentally responsible means to supply the power we need to function.

CHECKLIST

- Switch to Bullfrog Power (www.bullfrogpower.com). This change is seamless as there are no changes to lines, set up or any other infrastructure. By using Bullfrog, your District and Bargaining Unit would ensure that the power used to fuel the building is being provided by only sustainable and minimally-polluting sources such as wind, solar and hydro electric. There would be a small increase in costs (a dollar a day for houses, less for an office, probably more for a building the size of 60 Mobile) but this increase can be off-set through conservation.
- Install programmable thermostats. They can bring significant savings by altering heating and cooling temperatures by a degree or two when the building or rooms are not in use.
- Kill the Phantom. Completely power down computers and electronic equipment at night. This is easy if you plug them into power bars and turn the power bars off as you leave. Or simply unplug everything. This will eliminate the phantom load that many appliances draw even when not turned on.
- Minimize lighting. Turning off lights consider using motion sensor light switches, especially in the evening, not only saves energy but a significant number of birds that die every year from striking illuminated windows. More information can be found at www1.toronto.ca/city_of_toronto/ city_planning/zoning_environment/files/pdf/development_guidelines.pdf
- Get an energy audit. There are several organizations that provide this service, often at minimal cost, that could suggest significant changes to insulation etc.
- Consider a solar hot water system, the most cost-effective use of solar energy. Although a solar hot water heater requires a large initial investment, it can pay for itself in as little as 5 years and then the savings continue. Information, as well as the details of a sales tax rebate offered by the Ontario Government, can be found at www.energy.gov.on.ca.
- If you own a building, invest in an energy retrofit. Details and suggestions for financing can be found at www.cmhc.ca.

RESOURCES

Bullfrog Power–www.bullfrogpower.com Minimize lighting–www.flap.org Energy retrofit–www.energy.gov.on.ca Building retrofit–www.cmhc.ca



DID YOU KNOW?

If every Canadian household replaced one standard 60-watt incandescent light bulb with a 20-watt compact fluorescent light bulb, we could prevent 400,000 tonnes of greenhouse gases entering the atmosphere (equal to the removal of 66,000 cars from the road) and save \$73 million a year in energy costs. (Source: Environment Canada)

Even better, switch to LED lights which are 30% more efficient than a standard incandescent bulb and last ten times longer. Always remember to dispose of fluorescent bulbs carefully and not in the landfill as some may contain mercury.

According to a Cornell University study, we are using the equivalent of seven electrical generating plants just to supply standby energy to electronics that are turned "off." (Source: Environment Canada)

FOOD

and economic costs of producing and transporting food, and disposing of packaging and wasting food, this is an area where our organization could make a measurable impact.

CHECKLIST

- Buy locally produced foods whenever possible. If you hire a caterer or book a conference, ask whether they source their food locally.
- Buy organic products whenever possible. If you hire a caterer or book a conference, ask whether they use organic food.
- Introduce meat-free options at meetings and events to cut down on energy and water use.
- Avoid the use of disposable containers from restaurants when ordering food for union events. Ask whether restaurants carry reusable or recyclable containers and choose from restaurants that do.
- Avoid the use of disposable items such as plastic cutlery and glasses that are often not recyclable, in favour of traditional tableware that can be washed and reused.
- Avoid the use of single serve items such as individual creamers and sugars.
- Minimize food wastage by informing food preparers of the exact number of participants. If you can reevaluate the quantity needed as the event is ongoing, this may help minimize waste.
- Encourage participants to bring reusable containers to take home excess food, or donate surplus usable foods to charities where possible and permitted by local health regulations.
- Compost any excess food (see Composting section for ideas).
- Make responsible choices when ordering fish.

(www.seachoice.org/wp-content/uploads/2012/04/SC_ card_2012_5panel_web.pdf)

Cities and municipalities all over the world are accepting beekeeping as a necessary practice in their cities to increase food security and environmentally stability. The bees have shown to actually thrive in urban settings even above that of the rural bees. Consider hosting a bee hive at your site. (www.thequeensbeesproject.wordpress.com/?ref=spelling)

RESOURCES

www.lovefoodhatewaste.com www.davidsuzuki.org/what-you-can-do/food-and-our-planet www.commonthreads.ca (look for Hungry for Change)

produce 1 calorie of protein from grain for human consumption. (Source: David

Pimentel, Cornell University)
Twenty-seven percent of the food produced for human consumption in the U.S. is thrown out as waste. Food waste decays in landfills and produces methane, a greenhouse gas that is 23 times more powerful than carbon dioxide. (Source: Stanford University)

· It takes, on average 28 calories of fossil

fuel energy to produce 1 calorie of meat

protein for human consumption. It takes

only 3.3 calories of fossil fuel energy to

DID YOU KNOW?

- If we all stop wasting food that could have been eaten, the CO2 impact would be the equivalent of taking 1 in every 5 cars off the road. (Source: Love Food Hate Waste)
- Canadians eat more than twice as much meat as the global average and three times the amount recommended by the World Cancer Research Fund. (Source: David Suzuki Foundation)
- 1/3 of our world's food supply depends on the bees for pollination. (Source: Biodiversity for a world without hunger UNFAO, 2017)
- It is estimated that the livestock sector of agriculture emits 7.1 gigatonnes of CO₂ equivalent per annum, representing 14.5% of all human induced emissions. (Source: UNFAO, 2014)



OSSTF/FEESO Small Steps to a Greener Union

WATER

ater is humanity's most valuable resource and is commonly taken for granted in Canada. There is an increasing trend toward commercialization of water in Ontario with bottled-water companies mining our aquifers. When you consider the significant environmental cost, water conservation is an area where we could have a measurable impact.

CHECKLIST

- Install water saving toilets and aerators on faucets at district offices.
 Find and fix leaks, running toilets, and dripping faucets and shower heads.
 Install filters on taps rather than buying the large water-cooler sized bottles. This saves money and reduces the environmental costs associated with producing the bottles and transporting water.
 Use re-usable water bottles rather than plastic disposable bottles.
- Encourage attendees of meetings to bring their own reusable coffee mugs and containers. Consider providing these items for participants.
- Provide drinking glasses and water in jugs for meetings.
- Install rain barrels to collect rain water for watering plants and gardens.
- Install a water refill station at your workplace.

(www.elkayusa.com/cps/rde/xchg/elkay/hs.xsl/ezh2o.aspx)

RESOURCES

www.evergreen.ca/en/resources/native-plants/index.sn www.commonthreads.ca (look for Tapped Out) www.insidethebottle.org/

DID YOU KNOW?

- Water use in the 20th century increased more than six fold, and continues to increase about twice as fast as the human population is increasing. (Source: Food and Water Watch)
- A child born in the developed world consumes thirty to fifty times the water resources that a child in the developing world consumes. (Source: Sierra Club)
- By giving your bathroom a water makeover with water efficient toilets and faucets, you could save more than 45,000 liters annually. (Source: US Environmental Protection Agency)
- Toronto consumes 100 million plastic bottles a year, of which 35% are not recycled. (Source: CBC News)



MEETINGS & CONFERENCES

any of the environmental problems faced by anyone organizing an OSSTF/FEESO event, such as a meeting or a convention, are the same as those faced in the operation of District offices. Issues such as transportation, water, food and paper use are magnified by the increased number of people and the use of outside companies and agencies. However, there is an opportunity for the Federation, at Provincial and District levels, to influence suppliers to be greener.

CHECKLIST

- A quick scan of the checklists of other sections of this report will show that recommendations found throughout this report can easily relate to greening meetings and conferences.
- Plan meetings in a central location or near public transportation.
- Ensure that gifts or handouts are environmentally friendly and useful.
 Publicize the fact that your meetings are green, and be prepared to share your learning.
- Provide reports or other materials on USB flash drives and encourage the use of personal laptops. Only print what is necessary for the meeting. Selective use of an LCD projector can help, too.
- Reuse or recycle name tags, binders, pens and other materials from each meeting. Share with other groups (e.g., Labour Council).
- Consider holding meetings by tele- or video-conferencing. This would avoid travel and the associated environmental and financial costs.
- Appoint a specific executive or committee member to be responsible for greening your meetings.
- Add 'green' responsibility statements to your constitution's executive duties. e.g. It is the duty of the District and Bargaining Unit executive to ensure that when organizing meetings, every effort will be made to minimize the environmental impact.
- Prepare a set of questions to ask hotels, caterers, restaurants, etc. to determine the extent to which they are able to service your meetings in a way that meets your green objectives.

RESOURCES

Green Your Conference-www.banffcentre.ca/conferences/services/greening

DID YOU KNOW?

Organizing a green meeting is not just the right thing to do. It can also save your District or Bargaining Unit money. Something as simple as collecting and reusing name card holders for an event of 1300 attendees can save \$975 (US) per meeting. (Source: The Convention Industry Council)



TRANSPORTATION

ntario is a huge province and many of our Districts cover a significant geographic area. This makes our transportation choices one of the most important things to consider when trying to minimize our environmental impact (and reduce costs). The good news is, with an increasing number of choices in the auto industry and the increasing consumer desire to purchase hybrids and other eco-conscious vehicles, the options have never been greater.

CHECKLIST

- Longer trips should continue to be planned in conjunction with other events in order to minimize travel time and fuel consumption.
- Offer carpool rates to conferences and meetings.
- At federation-owned offices, provide special parking spots to those who carpool or drive hybrid vehicles, to provide a perk for those who have made a positive environmental choice.
- When offering events in urban areas, free transit tickets, tokens or passes could be provided upon request to all attendees. Giving week-long transit passes would also encourage travel to meals or social functions without the use of vehicles, and would provide an opportunity to explore the city.
- Provide a mass transit option (bus or vans) to take a number of participants from a central location to a meeting or a rally. The savings in mileage costs will more than offset the cost of the rental, and the environmental impact will be significantly reduced.
- When looking for an office space, consider locating near public transit. When possible, consider choosing a vehicle that is easy on gas, with low emissions. This information is readily available and constantly updated at www.oee.nrcan.gc.ca/transportation/personal/15864. This would be a painless way to begin the process of limiting our emissions and conserving gas.
- OSSTF/FEESO members should consider using rail for long trips for OSSTF/FEESO business. VIA Rail and GO Transit all offer reasonable rates and multiple trip passes that would be cost effective while eliminating cars from our highways. The train allows members to work on the way to and from meetings. More information can be found at www.viarail.ca.
- Members in large urban centers should be encouraged to use one of the many car share programs. One such organization is enterprisecarshare.ca.
- At large meetings, everyone who carpools could be entered into a draw for a green-themed prize as a means of providing an extra incentive and showcasing the priorities of the organization.
- OSSTF/FEESO buildings could have bicycle racks (and shower facilities if possible).
- Install electric vehicle charging stations wherever possible.

DID YOU KNOW?

Transportation is the fastest growing source of greenhouse gas emissions from human activity. Natural Resources Canada (NRCan) projects that greenhouse gas emissions from Canadian transportation will rise 52 % between 1991 and 2020.

Per capita emissions of greenhouse gases from transportation in Canada and the U.S. are approximately three times the average in other countries of the Organization for Economic Cooperation and Development (OECD).

Transportation has become environmentally, socially and economically unsustainable.

RESOURCES

Train schedule—www.viarail.com Auto share—www.carpool.ca Energy efficient vehicles www.greenchoices.org



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GREEN CLEANING SUPPLIES

ur offices and homes often have a collection of toxic substances that can have a detrimental effect on our health and well-being. Ironically, our quest to make our workplace clean can often pollute our environment and compromise our health. Fortunately, we can meet most of our cleaning needs with simple and natural products.

CHECKLIST

- Consider using homemade, natural cleaning products. This will save you money, while exposing you to fewer toxins and reduce the amount of harmful chemicals released into the environment.
- If you purchase cleaning products, only buy those that are certified ecologically friendly or that minimize the release of phosphate. Most stores now carry such products and a full list can be found at www.ecologo.org.
- Never underestimate the power of elbow grease. Sweat is not toxic and shedding a little, instead of choosing the easier but less environmentally friendly option, is a far better choice.
- Try to buy concentrated cleaning products that come in reusable or recyclable containers.
- If you must use a chemical product, make sure that you have proper ventilation and personal protection; dispose of effluent in a safe way and not simply down drains. Remember that waste water eventually finds a path to our lakes and rivers.
- If you use a cleaning service, ask about their environmental practices.
 If needed, encourage better practices, and be prepared to find a new service.

RESOURCES

Green cleaners—www.ecologo.org www.safegreencleaners.com

DID YOU KNOW?

- The U.S. Environmental Protection Agency (EPA) found the levels of air pollution inside the home can be two to five times higher (and sometimes even 100 times higher) than outdoor levels.
- An EPA study concluded that the toxic chemicals in household cleaners are three times more likely to cause cancer than outdoor air.
- Cleaning substances are the 3rd most common reason for exposure to poison in adults.
- 51% of the human exposures to poison in 2006 involved children under 6 years old. (Source: AAPCC, 2007)
- Chemical manufacturing accounts for 21 million tons (55%) of the hazardous waste. (Source: EPA, 2005)
- 2,165,142 human exposures to poisons were reported in 2014. (Source: AAPCC, 2014)



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ELECTRONIC DEVICES

hen chemicals from electronics and batteries are dumped into the landfills they are very easily released into the environment. To prevent this from happening, batteries and electronics (e-waste) must be properly disposed. There are many companies that recycle e-waste by refurbishing or reusing it, or by recovering materials such as steel, glass, aluminum and plastic.

CHECKLIST

The following items are a few examples of what can and should be recycled.

- IT equipment: Computer drives, keyboards, mouse, photocopiers, monitors, computers, printers, scanners, calculators, etc.
- Telecommunications equipment: Fax machines, modems, pagers, telephones, routers, etc.
- Audio visual equipment: Receivers, amplifiers, CD players, cameras, radios, VCR/DVD players, etc.
- Small household appliances (also common in small offices): Blenders, can openers, clocks, coffee grinders and makers, etc
- Batteries: UPS batteries, car batteries, laptop, cell phone batteries.
- Fluorescent lamps: 2'-8' fluorescent lamps, compact fluorescents, U-Tubes, etc.
- Cell phones

Repair when possible.

Encourage vendors to introduce a take-back or recycling program.

Donate old equipment.

Refill ink cartridges and/or use remanufactured toner cartridges.

DID YOU KNOW?

Electronics contain hazardous materials such as lead, mercury, phosphorous, cadmium and barium. (Source: ADL Process Inc.)

Alkaline batteries contain potassium hydroxide, which is corrosive and can burn if exposed to wet skin. (Source: cbc/marketplace)

Coltan used in cellphones has been directly linked to financing civil wars in Africa

80 % less energy is used to remanufacture cartridges from recycled cartridge plastic. (Source: www.earthshare.org, 2012)

It takes 450-1000 years for ink cartridges to decompose in landfills. (Source: www. earthshare.org, 2012)



RESOURCES

Please note that there may be a charge, depending on the recycling company you use.

For additional information on electronics recycling in your community, and on pick up and drop off centres closest to you, please contact your local municipality. Check local municipal websites for local suggestions: search by keywords "e-waste," "electronics recycling," "electronic waste."

Computers for Schools (Different locations in Ontario) cfs-ope.ic.gc.ca E Waste Recycling (Different locations in Ontario)—www.RCTO.ca www.recycleyourelectronics.ca Battery and cellphone recycling www.call2recycle.ca

PLANTS IN YOUR WORK ENVIRONMENT

reen, healthy environments are basic to all human life. As a large organization, OSSTF/FEESO owns and operates many buildings throughout the province. We need to improve our workplaces in ways that reduce our environmental footprint and enhance both our health and our productivity. We need to consider both indoors and outdoors. Several easy steps can be taken.

Outdoor plants: Xeriscaping gardens

- Grass provides no habitat and takes up a large amount of resources. We can change to native plants and decrease the resources required to maintain the naturalized area and improve the habitat at the same time.
- Optimally water plants between 7 a.m. and 10 a.m.
- Replant the yard to remove all the grass and replace it with native plants.

Outdoor plants: Lawns and Gardens in general

- Use water barrels to decrease water consumption especially when watering lawns and gardens.
- Plant gardens with indigenous and drought-resistant plants.
- Replace lawns with a variety of native species to provide both beauty and habitat.
- Do not use pesticides or herbicides, as the pesticides will affect the health of workers, animals and the local ecosystem, including the nearest water source.

Indoor plants

Indoor plants are responsible for cleaning the air in any space.

- Introduce a few plants at a time. One of the easiest to start is with spider plants.
- If there are no windows, choose plants that tolerate low and artificial light.
- Put in a living wall if you have dry air in your workplace. A living wall helps with carbon dioxide/oxygen change and provides a calming and peaceful environment while absorbing bacteria, viruses and fungi.

DID YOU KNOW?

Look around your home or office: a new desk, carpets and other items can help in making you "sick." Plants may prove to be one of the answers to assist you in feeling better. (Source: www.plant-care.com/sickbuilding-syndrome.html)

Two indoor plants absorb common indoor pollutants and bacteria or 100 sq. ft. Plants reduce dust by 20%, and produce oxygen. (Source: Environmental Earth Angels)

A NASA study concluded that indoor plants were more efficient at cleaning toxins up on a space station than mechanical air filters.



RESOURCES

http://nativeplants.evergreen.ca/ www.eco-lawn.com Evergreen Native Plant Database http://nativeplants.evergreen.ca/ www.easywaystogogreen.com/green-homes/environmentally-friendly-house-plants/ www.agrihortico.com www.greenroofs.com www.bioroof.com http://thelivingwall.net/

COMPOSTING

iverting kitchen and yard waste from District and Bargaining Unit functions saves landfill, reduces energy costs of transporting waste, and creates a product which will help your lawn or garden. All three methods described below will require OSSTF/FEESO members to sort their waste. Green bins would be needed for meeting rooms and/or kitchens. Pick the method which works best for you.

CHECKLIST

Determine which of the following three methods works best at your worksite (details follow). You may decide to use a combination of the three.

- Create and maintain your own compost heap
- Use indoor vermicomposting
- Use municipal composting
- Work with any property-care or food services you use to have them support your composting objectives.
- The resulting compost can simply be spread over an existing lawn or garden.
 - Create and maintain your own compost heap.



DID YOU KNOW?

Composting is nature's way to recycle!

Up to 50% of Canada's waste stream can be composted. (Source: Composting Council of Canada)

Organics do NOT decompose in regular landfills because they lack the necessary oxygen and microbes.

RESOURCES

www.cathyscomposters.com

CARBON CREDITS

To buy or not to buy, that is the question. Carbon credits, that is. Carbon credits are a way to compensate for greenhouse gases that we cannot yet eliminate. Carbon credits, often called carbon offsets, are simply a way of offsetting emissions of greenhouse gases that cannot be avoided. This is done by calculating our extra carbon output and then paying another organization to do something that will either absorb, or prevent the production of, an equivalent amount of greenhouse gases.

CHECKLIST

- Use an online calculator to estimate your District or Bargaining Unit's carbon footprint. See resources below.
- Begin to change practices, using techniques suggested in this Report and elsewhere, to reduce the overall carbon footprint.
- Establish a budget line to purchase carbon credits to offset the rest.

There is considerable discussion about carbon credits. This section will explain what they are and when they are appropriate. "Carbon" is simply short for "greenhouse gases," which are human-produced greenhouse gases contain carbon.

Different standards of carbon credits

There are several recognized standards you should look for, including VCS (Voluntary Carbon Standard), Green-e, and the Gold Standard. There are also various provincial standards. Some carbon credit retailers support projects meeting several of these standards; others adhere to only one.

RESOURCES

The David Suzuki Foundation, specifically: www.davidsuzuki.org/Climate_Change/issues/climate-change-basics/ carbonoffsets/

These pages give a great overview of the concepts, some caveats, and questions to ask a carbon credit seller.

CarbonZero —*www.carbonzero.ca* — is an Ontario-based company, with a site that has calculators based on Canadian assumptions, and a means to purchase credits online.

Carbon Footprint Offsetters — www.offsets.greeningsacredspaces.org — uses the same calculators as CarbonZero, but uses its money on different projects and has different pricing.

DID YOU KNOW?

Currently, atmospheric scientists estimate that we are within a decade of runaway climate change, if we fail to make permanent and absolute reductions in the levels of greenhouse gases going into the atmosphere.

Studies of ice cores from the Antarctic show that there is now more carbon dioxide in the atmosphere than there has been in at least 800,000 years. Human activities are responsible for the increase. The same studies, and others, show a parallel rise in global temperatures.

Money paid to purchase carbon credits can be directed to socially active projects. There are online calculators to help you calculate your carbon emissions and buy credits.

As of 2015, carbon dioxide moved permanently above 400 ppm threshold. (Source: Scripps Institute of Oceanography: Mauna Loa Observatory, 2016)

