Submission to the Ministry of the Environment and Climate Change on Climate Change Solutions

The Ontario Secondary School Teachers' Federation (OSSTF/FEESO) represents 60,000 members across Ontario. They include public high school teachers, occasional teachers, educational assistants, continuing education teachers and instructors, early childhood educators, psychologists, secretaries, speech-language pathologists, social workers, plant support personnel, university support staff, and many others in education.

OSSTF/FEESO welcomes this opportunity to provide input to the Ministry of the Environment and Climate Change as part of the climate change discussion consultation process.

Preamble & Introduction

The purpose of this report is to outline numerous environmental stewardship opportunities within Ontario public school facilities and Ontario communities. These benefits include financial savings, economic growth, health improvements, reduced energy consumption, and a reduction in fossil fuel demands, leading to numerous environmental improvements.

The report outlines numerous strategies that should be adopted by the Government of Ontario to provide leadership and funding with the goal of achieving carbon neutrality. At the very least, the initiatives outlined in the report will allow Ontario to move closer to achieving targeted reductions of greenhouse gas emissions.

Using evidence from Ontario, Canada, and across the globe, the report outlines specific environmental issues in areas such as food production and transportation and also provides solutions to these problems.

This report is the result of a collaborative effort by Ontario Secondary School Teachers' Federation members from across Ontario.

1. Climate Change Solutions: Make all Schools Carbon Neutral

All new schools should be carbon neutral and funding should be provided to retrofit existing schools with technology that would allow them to become carbon neutral. This has already been implemented in British Columbia and across the world in countries like Australia. Because the government directly funds the operation of all publicly funded schools and because many of the educational institutions will be ready for renewal or replacement in the next decade, there is a tremendous opportunity in an area in which the government has a great deal of control and influence. Buildings can be constructed with top LEED standards and then powered with green technologies that are reliable and efficient.

The roofs of all school buildings should be covered in solar panels to feed into the school and direct excess power into the grid. The flat, exposed and restricted surfaces are obvious locations for panels and partnerships could be negotiated between providers and the government for advantageous bulk pricing. Since most schools have minimal energy needs in the summer, they would be able to add a significant amount of clean energy to the grid. The government could take it a step further and ensure that Ontario based companies are awarded the contracts to construct and maintain the panels providing jobs and stimulus to the economy.

The financial investment would be easily recouped when consideration is made for the long-term benefits of green technologies from the reduction in energy usage, which can be realized in as little as five years. Given that most schools have a lifetime of forty to fifty years at a minimum it would seem to be a wise investment for the government, even if there was no benefit to the environment.

However, there are clear environmental advantages. Consider that as of 2013-2014, there were 3,980 elementary and 917 secondary schools in Ontario and making each of these buildings carbon neutral would have a noticeable impact on greenhouse gas emissions.

The Ontario government could also provide funding for schools to remove paving from parking lots and common areas allowing water to seep into the ground, reducing their contributions to the “heat island” of cities. Urban areas with “heat islands” can be up to 11 degrees Celsius higher than surrounding rural areas.

Removing pavement and replacing it with native plants, trees, shrubs and grasses could increase the infiltration rate of water, recharging the groundwater supply, and cooling neighbourhoods. At the same time, the planting of vegetables, flowers, and native species that would act to absorb greenhouse gases and reconnect citizens to the natural environment could be implemented by the government. This kind of project creates more attractive green spaces in which people can gather and thus promotes community volunteering, and general mental health.

It would be hoped that the schools would serve as an example and a model for other public institutions such as hospitals and government buildings. There is also a logical symmetry in using educational institutions as a showcase for smart buildings that limit carbon footprints while at the same time enhancing our economy.

2. Climate change solutions: Reduce Bussing and Enhance Walking Opportunities

Schools should be linked by paths and corridors that connect the building to the core areas that provide the student population of the educational institution. Students should be able to safely walk or bike to school and communities should be encouraged to provide vigilance around these pathways in order to ensure the safety of students who wish to enjoy alternatives to car or bus travel. Education and resources could be provided to encourage walking or cycling. It is estimated that walking half a kilometre to school each day for a week can save up to 1 kg of carbon emissions. It is further estimated that a small bus can emit 270 grams of carbon dioxide per kilometre (Australian figures). This could be the equivalent of about 21 tonnes of Carbon dioxide (CO_2) a year for a bus driving 60,000 km.

Thus, a concerted effort to remove even one bus per town can easily have a big impact on reducing greenhouse gas emissions.

Numerous health and lifestyle benefits are connected to a reduction in bussing. For example, a 125 lbs person walking at a brisk pace for only 30 minutes burns 150 calories. Thirty minutes of walking per day cuts the risk of heart disease by up to half, and reduces the risk of some cancers, diabetes, obesity, and osteoporosis. Given the annual increases to Ontario's health care system costs, it would seem that this would be an initiative that should be implemented immediately.

It would also seem very obvious that transportation should be limited to the closest school and the current system of buses being employed to bypass neighbourhood schools in order to serve publicly funded separate schools (and vice versa) should be discontinued immediately. The inefficiencies that currently exist through the operation of half empty schools and the operation of half empty buses is in direct opposition to both the environmental and economic goals the government is seeking to achieve. The end of a separately funded school system is well within the governments mandate and would go a long way towards meeting greenhouse gas reduction targets.

3. Climate Change Solutions: Education

Education is an essential component of any attempt to address climate change. The United Nations (UN) has highlighted the importance of climate change internationally and has implemented Article 6 of the UN Framework Convention on Climate Change (UNFCCC), encouraging Parties to promote, develop, and implement educational, training and public awareness programs on climate change and its effects.

The Province of Ontario should ensure that students develop an understanding of the problems associated with climate change and the urgency to find solutions to the challenges that global warming presents.

Education about climate change should be mandated using a cross-curricular approach at all levels and grades of schooling. Climate change education needs to take a holistic approach. The science of climate change and ideas for mitigation has to be adapted to relate to the students of this province.

If the province does not support climate change education, it is fostering an ignorance that allows students to be immersed in a world of misinformation, social media confusion, apathy and even denial and opposition to efforts to mitigate the impacts of climate change. This means that climate change education needs to take a central role in Ontario classrooms as opposed to being an add-on buried in the curriculum of courses.

Teachers need to be provided with real knowledge and purposeful curriculum materials with which to present climate change. The province needs to give teachers the ability to provide accurate information, including local content, and promote critical thinking and action regarding climate change mitigation and adaptation. This can be supported with up to date materials and resource guides to make teachers capable of guiding and empowering students through this important topic.

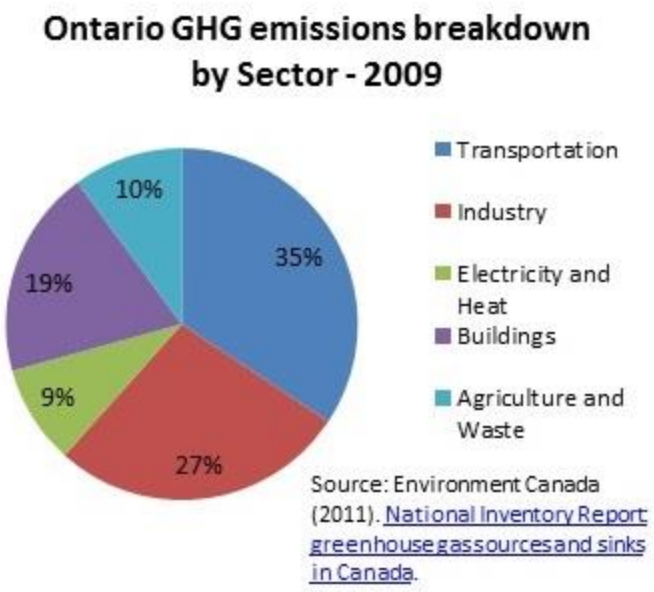
Ninety-seven percent of climate scientists agree that we are experiencing climate change due to human activity. There is no longer a debate. Irrefutable evidence from around the world all points to the fact that climate change is happening. However, there is still pushback from deniers in the community and even from other teachers. Teachers face scepticism in their schools and their communities regularly and while debate is sometimes useful when looking at problems, Ontario citizens must move on and actually address this factual issue. A clear mandate to deliver scientifically-backed information would deal directly with these skeptics and build a knowledgeable population of students and teachers.

There are many obstacles to climate change education, but it is essential if this issue is to be addressed in a timely fashion.

4. Climate Change Solutions: Encourage Less Meat Consumption

Any discussion on mitigating the effects of climate change must include an understanding of the intense impact of excessive meat consumption. It is estimated that agricultural practices (especially the raising of cattle) contribute anywhere from 10 to 50% of greenhouse gas emissions and a significant amount of methane, one of the most prevalent and persistent of the greenhouse gases. In addition to direct emissions, a massive amount of land is dedicated to raising crops that are then fed to animals, while run off from animal waste can overwhelm sewage systems and harm water supplies (as experienced in Ontario). Hundreds of gallons of water are needed to produce just one pound of certain meat products such as beef.

Figures from Ontario (2011) clearly illustrate the large impact of agriculture on greenhouse gas emissions.



It has become increasingly clear that our current consumption patterns in relation to meat are not sustainable and will lead to irreversible climate damage if not addressed.

Public education programs could be targeted at schools that encourage less meat consumption and outline both the health and environmental benefits of reducing meat consumption. Major organizations such as the David Suzuki Foundation already advocate such a strategy. These can be extended to the broader population to promote a thoughtful and gradual shift in our eating habits.

In the future it is worth considering bolder initiatives. While it is important to respect an individual's freedom of choice, society has accepted that certain activities that have a detrimental impact on health and well-being should be taxed in order to provide funds necessary to counteract the negative effects and outcomes on society. These are known as sin taxes. The government already taxes alcohol, cigarettes and gasoline for these reasons and with the irrefutable evidence of the impact of climate change, it is completely reasonable to add meat to the list.

This tax can be applied to all meat products that are produced in anything other than a free range environment or in any farm or factory that exceeds a minimal amount of product. The taxes collected would serve a double function of reducing the amount of meat consumed while funding climate change abatement projects such as green energy initiatives.

There is little doubt that climate change will leave significant challenges for future generations and activities that exacerbate this impact could certainly be considered to have a negative impact on society in general. When you accept that climate change will have a much greater impact on our most vulnerable citizens, it seems that a tax on one of the biggest contributors to climate change would be courageous and appropriate.

It is understood that there will be resistance to this kind of action from some in the agriculture industry. It is important to note that the same kind of resistance was likely felt after the first proposals to tax alcohol and cigarettes, something that is unquestioned just a generation later.

It is becoming increasingly clear that some agricultural activities at certain scales may no longer be acceptable from both a health and an environmental perspective.

5. Climate Change Solutions: Continue to invest in Alternative Energy

Investment in alternative energy makes sense from both an environmental and economic perspective. Over the past few decades advances in technology and a slowly shifting public perception of alternative energy has readied the marketplace for its widespread acceptance. First generation technologies such as hydroelectricity have played a valuable role in Canada's economic development. As the province moves forward, it should take advantage of the abundant space, natural resources and geographic features to become a world leader in alternative energy.

The government can play a lead role in the development of these technologies by eliminating barriers faced by private companies and offering subsidies to individuals or private investors who want to develop alternative energy. Often the start-up infrastructure costs are high for alternative energy projects and subsidies and partnerships would help remove some of the barriers to entry.

Government support, including regulations and policies supporting green energy, would help facilitate a transition to cleaner energy production. The government needs to tax traditional energy producers to reflect the true cost to society. This includes the increased health costs associated with breathing polluted air from the refining and burning of fossil fuels, environmental cost of site rehabilitation, and transportation and mining costs associated with extracting the raw material. Several western European countries are already shifting taxes in this way in a process known there as environmental tax reform.

More importantly, removing government subsidies on fossil fuels would level the playing field and allow for a true cost comparison between fossil fuels and alternative energy. Subsidies are not an inherently bad thing as many technologies and industries emerged through government subsidy schemes. The Stern Review explains that of 20 key innovations from the past 30 years, only one of the 14 was funded entirely by the private sector and nine were totally publicly funded.

Many argue that a world facing the prospect of economically disruptive climate change can no longer justify subsidies to expand the burning of coal and oil. Shifting these subsidies to the development of climate-benign energy sources such as wind, solar, biomass, and geothermal power is the key to stabilizing the earth's climate. The International Solar Energy Society advocates levelling the playing field by redressing the continuing inequities in public subsidies of energy technologies and R&D, in which fossil fuels and nuclear power receive the largest share of financial support.

Some countries are eliminating or reducing climate disrupting subsidies and still others such as Denmark have committed to be fossil fuel free by the year 2050. While Ontario has more than double the population of Denmark, we far exceed this small country in land mass and thus have an even greater potential and space for green energy projects that would results in a significant step forward on the path to reducing our greenhouse gas emissions.

6. Climate Change Solutions: Introduce a Carbon Fee and Dividends

A carbon fee and dividend policy is an evidence-backed solution to address the climate crisis by encouraging polluters to reduce their greenhouse gas emissions. The plan puts a price on carbon pollution by charging a fee on carbon-based fuels, imposed as it comes out of the ground or when it is imported, and distributes the revenue directly to people through a dividend cheque. The plan rewards people for reducing their carbon footprint. Most households, particularly those with modest to low incomes who generally consume less, will gain a net financial benefit from a carbon fee and dividend policy.

Ontario must be a leader in the battle to protect our environment. Current Cap-and-Trade policies are ineffective but worshipped by legislators who are afraid to confront fossil fuel interests. Ontario needs to be a leader and institute carbon fees and dividends. This would entail a gradually rising fee on the carbon content of oil, gas, and coal, with proceeds distributed fully to the public. This will spur innovation in efficiency and carbon-free energy, while providing the public the funds needed to transition toward the clean energy world of the future.

This would have the added benefit of being a progressive tax that would help the lower income households while reducing our collective carbon footprint. Because lower-income households use less energy than higher income households, lower-income households will benefit from the carbon pollution fee-and-dividend. Higher-income households will pay more for their energy than they receive in dividends, but they are the ones that can afford it the most. Everyone will have a financial incentive to reduce their carbon footprint.

Another advantage of this carbon fee-and-dividend would be increased innovation, as investors and entrepreneurs develop and offer products to the public to reduce greenhouse gas emissions. It is a market-driven approach that appeals to conservatives, while the use of the dividend appeals to people concerned about protecting lower-income households.

A carbon fee and dividend simultaneously makes it easier for the average household to afford investments in reducing fossil fuel use by providing a regular carbon cheque, and it encourages heavy polluters to reduce their emissions to avoid paying a carbon fee.

A carbon fee and dividend is a simple market-based solution that reduces carbon pollution by internalizing the costs of using carbon-based fuels, while stimulating investment in the clean economy and in low carbon job creation.

Administration of a carbon fee and dividend policy is similar to British Columbia's carbon tax. Since the implementation of a modest price on carbon pollution, BC has reduced fossil fuel consumption by 16%, while its economy has performed better than the Canadian average. This idea has already caught on in the United States with the U.S senate proposing a bill to eliminate oil and gas subsides. The U.S. aims to require coal, oil and natural gas companies to buy a permit for each ton of carbon in the fuels they sell. Permits would be auctioned, and 100 percent of the proceeds would be returned straight to the American people as equal dividends for every woman, man and child.

7. Climate Change Solutions: Reduce Waste

In 2006, Canadians produced over 35 million tonnes of waste, or 1,000 kg per person. Of this total, 22 million tonnes came from non-residential sources and 13 million tonnes came from residential sources. Twenty-seven million tonnes of waste (about 77 per cent) was sent to landfills or incinerators, while 7.7 million tonnes (about 22 per cent) was diverted from disposal. One-third of the waste disposed in landfills was from residential sources, while the rest was industrial, commercial and institutional waste. This issue could be addressed in a number of different and innovative ways.

Ontario could follow the lead of other provinces and increase our Green Bin Programs to include medium sized urban centres. Backed by provincial legislation setting diversion targets, Nova Scotia and Prince Edward Island have reached diversion rates at 41 per cent and 38 per cent respectively and Ontario could work to achieve these or higher standards.

There is a need to recognize that the quantity of raw materials wasted as a result of inefficient resource and waste management worldwide is immense. It is necessary to recognize that the increase in waste generation and waste not treated in an environmentally sound manner is contributing to worsening environmental pollution including air, soil and water pollution as well as greenhouse gas emissions.

Changes in economic incentives to capture externalized costs like pollution can develop robust local markets and support a resource recovery economy.

Governments need to shift away from encouraging the extraction of raw resources and toward supporting the use of recycled materials and fostering local manufacturing. Implementing disposal bans or increasing tipping fees for disposal in landfills or incinerators would help drive incentives for recycling. Demand for recycled materials could be ensured through public procurement policies and requirements for minimum amounts of recycled content. Well-designed policies can also support local economic development and the creation of new green jobs by increasing domestic capacity to manage and add value to the materials that are recovered.

The Ontario government could also strengthen product stewardship laws and make it mandatory for all industry to produce products that could be recycled at the end of their lifespan and to be responsible for the collection and disposals of goods that they produce. This model is being employed with tremendous success by Ontario's beer and liquor stores where minimal deposit return systems coupled with easily accessible collection depots results in over 95% recovery of ALL product that leave the Beer Store with a corresponding reduction of 175 000 tons of greenhouse gases (using Beer Store reported figures). This is the equivalent of pulling over 30 000 cars off the road. This type of model should be extended to other industries starting with beverage and food containers and extending into construction and other such activities. Economically, reducing waste through efficiency will improve the bottom line and consumers have already shown through the beer and liquor store model that they are willing to accept and respond to deposit return systems.

In BC it is estimated that by 2020, reduced generation and more aggressive recycling and composting will lead to 4.9 million tonnes CO2e savings by displacing organics from disposal and reducing the need for energy-intensive extraction and processing activities. By 2040 this rises to 6.2 million tonnes.

Recycling and composting far exceed other forms of waste disposal in terms of mitigating the environmental impacts of solid waste, with respect to climate effects, human health risks and ecosystem toxicity. According to the BC analysis, increasing the percentage of waste diverted to recycling and composting to 80% would save 4.3 million tonnes of CO2 per year. Another study on BC's EPR programs estimates that materials recycled through eight BC stewardship organizations resulted in a reduction of about 267,000 tonnes CO2e in 2007.

The link between recycling, energy efficiency and reduced GHG emissions has been established and work in this area continues. In order to make this shift, designers need to consider the system as a whole rather than focus on individual components or products. True co-creation is crucial from those involved in these lifecycles: designers and material experts, manufacturers and resource managers, brands and retailers, consumers, policy makers and government, investors and academics all working together.

A well-crafted response to climate change will spur technological advances, create new sources of employment and stimulate the economic growth needed to propel us forward into a more sustainable future. If decisive action is taken today, it is still possible to slow the process and mitigate the resulting damage.

8. Climate Change Solutions: Transportation

The transportation sector makes up 25% of Canada's emissions and in Ontario alone these have increased from 44.8Mt in 1990 to 59.5Mt in 2010. In Ontario, passenger transportation currently contributes the largest share of greenhouse gas emissions in the province. Urban sprawl, traffic congestion, long commutes and inadequate transit infrastructure are the main culprits for these emissions. If reductions are not found in transportation, emissions will continue to rise as population, car ownership and kilometres driven, continue to increase.

The largest reductions in greenhouse gases can be found in transportation through a tax increase on gasoline and diesel fuels, and these taxes could be used to support public transit, car-pooling programs as well as to improve urban infrastructure for bicycles and pedestrians. Ontario citizens should also be encouraged to use more fuel-efficient vehicles by offering substantial rebates for hybrids, electric vehicles and industry leaders in fuel efficiency. In 2014, a record 1,853,000 new cars and trucks were purchased in Canada – an increase of 6% over the previous record set in 2013. Of the top 10 vehicles sold in Canada last year, four were trucks, two were SUVs and only four were cars.

Subsidizing public transit (through the carbon or fuel tax) is essential with a growing urban population. Public transit keeps cities moving at the lowest possible cost. Without investing in public transit, more roads will have to be built… more than taxpayers and the environment can support. Strong transit is vital to "smart growth" strategies that help cities reduce urban sprawl. A study commissioned by the federal government shows it would cost Canadians 50% more to meet new travel demands by personal vehicles than it would by public transit.

Encouraging car-pooling through high occupancy vehicle (HOV) lanes helps to lower costs for passengers, makes commuting quicker, replaces up to four cars on the road, and ultimately reduces greenhouse gases. Emissions saved per average trip are 280g CO2 and implementing a carpooling program is a simple and effective way to support greenhouse gas reductions.

Improving urban infrastructure to promote walking and biking not only reduces greenhouse gases, but also helps to create healthier communities. Walking and biking is great for short trips in urban centres (sometimes in rural areas) and creates no emissions. Using cars, instead of walking or biking, causes up to 16,000 premature deaths in Canada while tens of thousands more suffer from respiratory ailments that are associated with aggravated air pollution. A healthier population would result in another long-term savings for the provincial government.

All sectors of greenhouse gas creation need to be part of the reduction solution, but the transportation sector is where the greatest reductions can be made in Ontario.

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