

GREENER

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Challenge

To get started watch “This country isn’t just carbon neutral – it’s carbon negative” TED Talk [here](#), for some serious inspiration.

Next, imagine how amazing it would be if more countries, cities or even campuses aspired to be carbon negative. For this challenge, take some time to research campuses around the world that are making strides in sustainability.

- **Once you have done some research, pick one of the colleges and list 3 innovations they have adopted to reduce their consumption of fossil fuels.**
 - Because I am from Canada, I chose to look at some of our local universities here in order to research which university campus sustainability situations could best suit my own. Guelph University in Ontario is renowned for its forward-thinking strides in sustainability, a movement showcased in their new project called 100 Renewable Energy Guelph.
 - They have implemented (or plan to do so) the following innovations to reduce their consumption of fossil fuels:
 - **ARBORETUMS AS A CARBON SINK:** Guelph has one of Canada’s most well-known and well-admired university arboretums. Although the presence of an arboretum and trees does not necessarily contribute to a decrease in fossil fuel consumption, an arboretum acts as a carbon sink which sequesters carbon from the atmosphere and acts as a natural offset for carbon emissions.
 - **SOLAR PANELS:** One of the University of Guelph’s older buildings, Raithby House, has 30 solar panels installed on its roof. As a result, the building is completely powered by the solar project. Furthermore, because it was so economically reasonable to make the switch to solar, the university was able to implement the Green Gryphon Initiative to “make the campus more sustainable

and energy efficient through retrofits and green energy projects.” (2015 article from the Guelph Mercury Tribune online newspaper.)

- **RETROFIT PROJECT AND INCREASE ENERGY EFFICIENCY:** Guelph has implemented many projects and programmes to “upgrade and expand its heat recovery system, install real-time energy monitoring meters and a new electric boiler, and pursue other projects to reduce greenhouse gas emissions” and to “reduce their reliance on carbon-based fuel for heating.” (U of G website, 2018) and to increase the efficiency of their energy systems for heating and cooling. In fact, the University of Guelph has ‘Waterfall Building’ which cools water as it ‘falls’ down, and distributes the cool water to ventilate and air-condition the University. Ultimately, this retrofit project (called the Green Gryphon Initiative) will reduce the university’s carbon dioxide emissions by more than 3200 tonnes per year! Already, the University’s electrical consumption has gone down by 8%, and its electrical demand by 14% per year. (U of G website, 2018).
- **STUDENT-DRIVEN SUSTAINABILITY FUND:** The Green Gryphon Initiative is a student-led project to raise money to fund sustainability projects on campus. Each semester, \$11 per student is matched by the University and is added to the fund, which reaps about \$950,000 per year. This funding allows student projects to make the campus more sustainable and energy efficient through retrofits and green energy projects. (U of G website, 2016)
- **Out of these 3, are there any that could be implemented on your campus? What idea might be a plausible option for your school?**
 - In 2017, my university was actually named as Canada’s second most “green” campuses. I am fortunate in that I study in a school which is considerate of the steps to take towards sustainability. However, there are many ideas that the University of Guelph currently implements which should act as inspiration for my own school! Some of the ideas which I really like include retrofit initiatives. I have heard many discussions about building new completely-sustainable and energy-efficient buildings, but the conversation lately is centred more on energy innovation than energy repairation. McGill is a very old university with most of its buildings being between 30 and 50 years old – some buildings date back to the mid-1800s, although their electrical system was updated in the 1990s. I think that a focus on retrofitting old systems to avoid energy inefficiency is a phenomenal idea to cut down on energy waste. Because although I think it’s wonderful that my school takes sustainable energy consumption into account when building new buildings, I don’t think we should neglect the current energy wastage and expenditures happening in all our out-dated buildings. Regarding Guelph’s Green Gryphons fund, McGill has its own Sustainability Projects Fund (SPF) which currently draws in around \$900,000 - \$1,000,000 per year.

However, McGill's method of getting the money from students is a bit different. Whereas Guelph students pay \$11 per semester, and the school matches it, McGill students pay \$0.55 per credit per semester, also matched by the school. Based on the average number of credits students take (between 12 and 15 credits per semester), the McGill SPF Fund is getting around 1/3 less money from their students than they would if they mimicked the Guelph system. [In fact, since I'm an SPF Ambassador for the Fund, I will ask my supervisor if the board has every considered other options to expand the fund.]

I think that a retrofit project in some of the older buildings on our main campus would be a very useful and effective initiative, and feel also that the installation of solar panels on campus would be a sustainable way to produce some energy to offset the energy expenditures from inefficient energy use.

- **What do you think are the barriers to its implementation?**
 - Because my campus is divided in two campuses – a countryside campus for the School of Environment and of Agriculture, and a downtown campus for everything else – there are certainly two distinct landscapes which must be taken into consideration when evaluating the feasibility of implementing different sustainability projects. The countryside campus is much newer and more energy-efficient, while the downtown campus is far older and is very energy-inefficient. That is to say, if McGill were ever to want to install solar panels on the downtown campus to offset some of the unnecessary energy expenditure it has, they would neither have enough room nor well-designed roof space for the panels... Perhaps there are actually enough south-facing roofs on which to potentially place solar panels, and this project can be implemented on our downtown campus. If so, I certainly hope it can be done, and if not, I hope that the solar panels can be installed at the countryside campus, where the buildings are newer and have flat roofs, and where they have much more room for solar fields.

SUBMITTED AT: 2:40 a.m. eastern time 6 October