

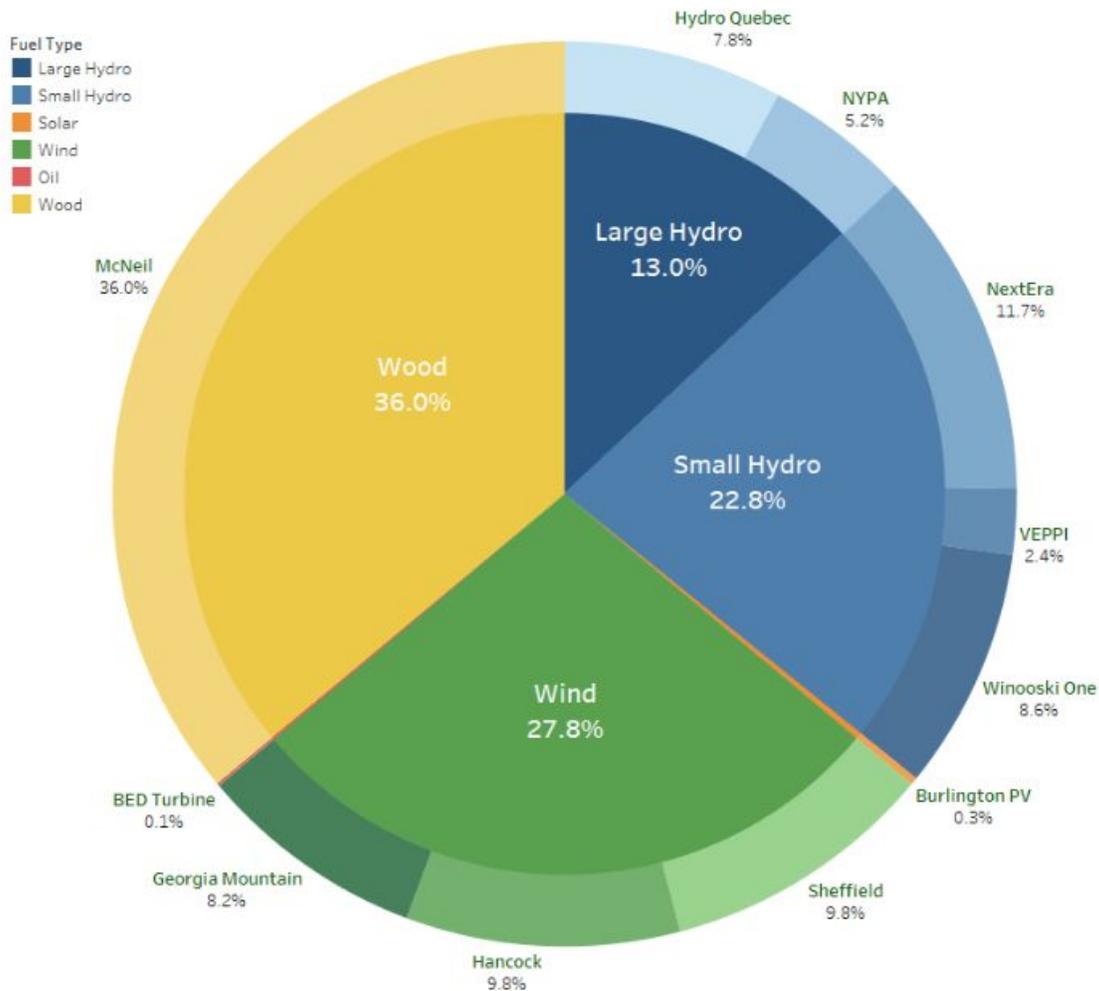
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100% Renewable isn't Necessarily Clean What does this mean for Champlain College?

About Burlington's energy

Burlington, Vermont is run on 100% renewable energy, but is it really that simple? Burlington was proud to claim the title of the first US city to be run off of 100% renewable electricity, and this aids in Champlain College's reputation as well, but it is much more complex than its face value. When someone is investing in renewable energy, solar, wind, or hydropower usually come to mind, not burning trees. This is where the problem lies.

BED ENERGY SUPPLY BY SOURCE



NOTE: BED has no contracts for resources fueled by Natural Gas, Nuclear or Coal. 0.11% of generated energy comes from Oil used at the BED turbine. The energy supply profile exceeded sales by 12.4%. The above represents energy supplied and purchased by BED prior to REC sales.

The above [image](#) shows what fuel sources the Burlington Electric Department (BED) gets its energy from. Of the renewables section, 36% is from wood, which has the biggest percentage chunk of the sources. Next is hydropower at 35.8%, wind at 27.8%, and solar at a meager 0.3%. What is most concerning is the amount of biomass that is being used to fuel the city. Wood is used to make energy by burning it. This seems efficient when it comes to ridding of waste wood and scraps, also referred to as 'slash.' However, this doesn't seem sustainable on a large scale. According to an article by Politico Magazine, 1,800 tons of pine and tinder are ground into wood chips and thrown into a furnace each day ([source](#)). This is done primarily at the McNeil plant. The article also states that this wood is sustainably sourced from a 60-mile radius area of land.

There are many issues that stem from this method of renewable energy. Firstly, when a tree is cut down and burned, all of its stored carbon is released as carbon dioxide which makes our climate crisis worse. Wood and trees that have died will release carbon dioxide into the air when they decompose so we might as well burn this to get energy from it in the process, but not all slash should be taken and burned because the break down of the materials adds nutrients back into the soil and helps prevent erosion. Additionally, Burlington needs 1,800 tons per day; this equates to roughly 657,000 tons per year ([source](#)). According to an article by Al Jazeera America, an international news site, "Roughly 70 percent of the wood used at the McNeil plant comes from non-merchantable trees and harvest residues, with the balance coming from purchases of sawmill residues and urban wood waste" ([source](#)). These trees and residues are often from logging industry waste and tree parts that cannot be sold as timber from things like yard waste. However, this 70% statistic means trees have to inevitably be cut down to account for the rest. Moreover, there cannot sustainably be a consistent source of slash that can add up to that many tons of wood each day. And even if reforestation efforts were taken, the article says, "In such cases, even if new trees are replanted, it can take many decades — and even a century or more in some cases — for the new growth to cancel out the emissions from what was harvested and burned" ([source](#)).

Secondly, burning trees is vastly inefficient. Only 25% of the energy potential is actually converted to electricity through the burning process because so much is lost as heat waste which is less efficient than the typical coal-fired plant. Dr. Sidney Bosworth, a Plant and Soil Science professor from the University of Vermont, said, "From a sustainable perspective, one issue is that with this plant, a lot of heat is lost in the conversion to electricity. When built, I think Burlington looked into setting up a heat capture system but I was told it wasn't economically feasible at the time. But I don't really know." Al Jazeera also stated that "a study produced in 2014 by the American Lung Association and the Massachusetts-based Partnership for Policy Integrity concluded that the plants often emitted more local air pollution than comparable coal-fired plants, but that they also release as much as 50 percent more carbon dioxide" ([source](#)). McNeil does have air quality control systems, and, according to BED's web page about McNeil, has emissions that are 1/100th of the allowable federal level ([source](#)). The plant is making great advancements towards reducing their emissions, but is our reliance on this type of energy too much?

States such as Massachusetts have set strict regulations with biomass to limit its use due to the unclean and generally inefficient nature of it. Biomass definitely has its role in

renewable energy, but there should be stricter regulations on it as well as a lower reliability on it. Furthermore, we can say we are run off of 100% renewable energy, but this does not mean that energy is clean or carbon neutral, and this has to become something people question. The biomass industry has a rightful place in the arena of renewable energy, but being a city that others may look towards for guidance may spark the others to turn towards biomass themselves. Whether or not this can be sustained relies heavily on the sourcing and having biomass fuel a third of our electricity produced seems rash.

What does Champlain College get its energy from?

Having the city where our college resides be based on 100% renewable energy seems to bode us well in our environmental impact already, but we have our own initiatives.

First, we have a program called the Green Revolving Fund that finances energy efficiency, renewable energy, and other sustainability projects on campus. Additionally, Perry, Juniper, Valcour, Butler, Bader, CCM, and Whiting are all heated and cooled by geothermal energy which is a closed loop system that utilizes the earth's natural heat ([source](#)). We are also working on making our transportation sector more eco-friendly. Students already get free city bus transportation and discounted rates for the BikeShare and CarShare programs. Champlain College also has a position of the Sustainable Transportation Coordinator who is continuously working on new initiatives within the transportation sector. However, study abroad traveling and commuting is difficult to track and offset, so work is being done to counter this.

Furthermore, we are actively working towards reducing our overall energy use like with our annual Kill-A-Watt Challenge while improving our renewable infrastructure. We have taken initiatives like this challenge to improve our environmental standings. Champlain College still has lots to change, and we are currently working on changes in both reducing our energy usage as well as making our sources more efficient, but hopefully we can start making even more eco-friendly changes since the municipal electricity source isn't as clean as it may come off to be.

In order for Champlain College to truly make a difference, we need to lead by example and not rely on Burlington's initiatives, and we have been doing a decent job at that. As long as we keep our momentum going, we can create a great campus for our students and be a good role model for the community. Moreover, we need to focus on reducing our energy use as well so that the amount of biomass doesn't need to be used in the first place.

Regardless, fossil fuels do not have an endless supply. Whether or not we want to keep using them, we will not be able to sustain our lifestyles much longer. All of this points to finding a renewable and clean source of energy. Renewables will ensure our energy supply can be sustained and clean will prevent more greenhouse gas emissions. Turning towards clean, renewable energy would help the earth, but it would also give us a better chance at sustaining our own existence. Burlington's energy, though renewable, is not clean, and this is something that needs to be addressed at the local government level and at Champlain College.