

COMMUNITY ENERGY AUDIT



Have you ever been in an office building that is excessively cold during the summer, or warm during the winter? Do you walk by storefronts in the summer and notice that they have the air conditioning blasting with the front door wide open and wonder how much energy they are literally throwing out of the window? Then this is the action for you! Conducting a Community Energy Audit is one way for you to spread awareness about the importance of energy efficiency in commercial and public buildings while connecting with the local businesses in your area and taking concrete action towards Canada's net-zero goals.

► IMPACT

Opportunities to drastically improve energy efficiency can be hidden in plain sight. While something like an open supermarket fridge may seem like a trivial climate issue, leaks of hydrofluorocarbons (HFCs) from industrial refrigeration units and other sources are a major climate risk due to the extremely **high global warming potential of HFCs**. In 2017, Canada **ratified the Kigali Agreement** to the Montreal Protocol, which means that the federal government has pledged to reduce HFC consumption by 85% by 2036 relative to 2011 levels. In the six years that have passed since the Kigali Agreement, Canadian HFC levels have increased, with leaky refrigerants (the HFCs used in fridges, freezers, air conditioners, etc.) accounting for **70% of these emissions**. The Environmental Investigation Agency (EIA) has estimated that emissions from refrigerant leaks in the Canadian grocery store sector are equivalent to burning **27 billion pounds of coal per year!**

Additional opportunities for an energy efficiency audit in your community include **escalators that run 24/7**, retail stores that keep their **doors open with the AC turned on**, or **office buildings that are 'overcooled'** during the summer months. Building a greater awareness of the energy consumption (and sometimes waste) of the infrastructure and appliances in our neighborhoods is also an opportunity to address the low-hanging fruit on the road to net-zero while simultaneously working towards broader policy changes.

The first step in conducting an energy efficiency audit is identifying an energy conservation opportunity, such as the ones listed above, or something else that is more

relevant and pressing for your community. The next step is to estimate its energy consumption, you can use a **simple formula** ($\text{kWh per day} = \frac{\text{wattage} \times \text{Hours used per day}}{1000}$) or refer to an online **energy use calculator** for this. Once you have the estimated energy use per day, you can **convert that into greenhouse gas equivalencies** to determine its approximate environmental impact. One caveat with these tools is that they may be generalized and not specific to the energy source that your community uses, this is important to be aware of when forming conclusions and reaching out to community members to discuss energy efficiency improvements. The final step in this audit involves a bit of research to determine if the energy usage and environmental impact are significant enough to take action and notify the business, building owner, supermarket retail manager, etc. about their over consumption of energy and proposed solutions. Spotting, and estimating, energy savings in our usual surroundings is an opportunity to build our energy awareness and flex our GHG emissions-estimation muscle, which is an important skill to have when assessing the magnitude and potential of community-level energy solutions.



▶ HOW TO CONDUCT A COMMUNITY ENERGY AUDIT

▶ STEP 1: INITIAL PLANNING

- Create a list of the energy efficiency audit opportunities in your community
- Ask friends or community members if they would like to participate in the audit to learn more about energy efficiency in your neighborhood

▶ STEP 2: COLLECT YOUR DATA AND TRACK YOUR IMPACT

- Visit the place you wish to audit and begin your assessment
- Look for quantifiable metrics to measure their environmental impact, for example, you could estimate the energy use of a fridge based on its rating and how many fridges are present, how long they run for, and the estimated wattage of the refrigerator
- Convert energy savings to greenhouse gas emissions avoided by looking at the GHG emissions associated with the electricity source (you will need to know your provinces main source of energy for this)
- Research possible solutions to this energy efficiency blunder. These can include reaching out to the main point of contact for the building or service that you audited and informing them of the results of your audit. You could also look into the energy savings that could be obtained by making a retrofit, by upgrading to a climate friendly model, or by simply by conserving energy use
- Consolidate any existing research on the climate potential of scaling these solutions
- Take photos throughout and share them along with your impact results on social media and feel free to share your results and photos with us at research@studentenergy.org so we can see your awesome work!

Have fun!

▶ REFERENCES

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