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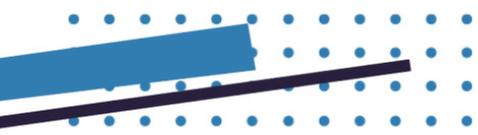
NET ZERO IN OUR NEIGHBOURHOOD TOOLKIT

SE RESEARCH AND YOUTH ENGAGEMENT





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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

1. Alnuaimi, A., Natarajan, S., & Kershaw, T. (2022). The comfort and energy impact of overcooled buildings in warm climates. *Science Direct*.
<https://doi.org/10.1016/j.enbuild.2022.111938>
2. Environmental Investigation Agency. (n.d). Canadian Supermarket Scorecard 2022. CLIMATE-FRIENDLY SUPERMARKETS.
<https://www.climatefriendlysupermarkets.org/canadian-scorecard-2022>
3. Government of Canada. (2017). Canada ratifies global agreement to reduce powerful greenhouse gases and heads to international climate change conference to urge climate action. Government of Canada.
https://www.canada.ca/en/environment-climate-change/news/2017/11/canada_ratifies_globalagreementtoreducepowerfulgreenhousegasesan.html
4. Government of Canada. (2023) The Canada Green Buildings Strategy. Government of Canada.
<https://natural-resources.canada.ca/public-consultations-and-engagements/the-canada-green-buildings-strategy/25009>
5. McCarthy, R. (2019). How much power a fridge uses - in Watts, cost & kwh. *Reduction Revolution*.
<https://reductionrevolution.com.au/blogs/how-to/fridge-power-consumption>
6. Noreus Solutions. (2021). Putting doors on supermarket fridges 'would aid climate fight'. Noreus Solutions.
<https://www.noreus.co.uk/putting-doors-on-supermarket-fridges-would-aid-climate-fight/>
7. Pigott, Paul. (2021). Climate change: Fridge doors could save 1% of UK electricity use. *BBC News*.
<https://www.bbc.com/news/uk-wales-59141894>
8. Rastogi, N. (2010). Escalators vs. Elevators: What's the greenest way to get to the second floor? *Slate*.
[https://slate.com/technology/2010/08/how-much-energy-do-escalators-use.html#:~:text=A%20continuously%20running%20escalator%20of,11%2C040%20kWh%20in%20a%20year.\)](https://slate.com/technology/2010/08/how-much-energy-do-escalators-use.html#:~:text=A%20continuously%20running%20escalator%20of,11%2C040%20kWh%20in%20a%20year.))
9. United States Environmental Protection Agency. (2023). Greenhouse Gas Equivalencies Calculator | US EPA. Greenhouse Gas Equivalencies Calculator.
<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
10. Saxifrage, B. (2023). A deep dive into HFCs, one of Canada's fastest-growing climate problems. *Canada's National Observer*.
<https://www.nationalobserver.com/2023/04/21/analysis/deep-dive-hfcs-one-canadas-fastest-growing-climate-problems>

ECO-LIVING BLOCK PARTY



The Eco-Living Block Party is an opportunity to collectively learn about environmentally friendly actions to take individually and as a community. Your party can cover topics such as sustainable living practices, circular economy in your neighborhood, energy conservation, and demand side management techniques in engaging and fun ways to better inform community members about the tangible actions they can take to support Canada's net-zero goals.

▶ IMPACT

An Eco-living Block Party can provide your community with a fun way to learn about sustainable lifestyle habits and realistic opportunities to take action on net-zero in your everyday lives. Canada's building sector (and its associated energy demands) accounts for **up to 18%** of the nation's greenhouse gas emissions. Opportunities to reduce these emissions include implementing more sustainable building or household upgrades such as installing electric heat pumps or energy-efficient appliances and ensuring proper sealing of windows and doors. The Canadian government has invested millions of dollars in **loan programs and incentives** to support communities in upgrading their homes and buildings and for providing more affordable housing across the country. Aside from the building and home sector, Canada's **Emissions Reduction Plan** also outlines pathways to reduce emissions through waste reduction, nature-based solutions, supporting the development of active and public transportation infrastructure, and many others. Your Block Party can explore practical implementations of these incentives and pathways, in addition to the environmental and cost-saving benefits of other energy efficiency or demand response strategies in an engaging way with games, music, and activities to promote healthy and sustainable lifestyle practices that also contribute to Canada's net-zero goals.

You can be creative in hosting this action, it does not need to follow the traditional **"block party"** format. For example, you could leverage an existing event in your community or on your university's campus and ask the event organizers if you can set up a table or booth there to share all the information you otherwise would have at the Block Party. You can also host an open invite party for your friends, classmates, and the wider community to attend

and learn more about sustainable living practices. One option to diversify the content of your party is to include different stations each with their own themes, education points, and activities. For example, one station can inform participants about the importance of a **circular economy** by incorporating a Repair Cafe-style segment where you bring in a few local experts to help people repair their broken household items or devices, or share tips for repairing these items at home. At another station, you can create space for a clothing swap while sharing information about the **environmental impacts of fast fashion**. A third station can address **demand-side management solutions**, such as increasing advocating for and public transportation, advocating for improved **demand response**, grid and infrastructure upgrades, and incentives for energy efficient behavioral changes that can all provide your community with tangible social and economic co-benefits. Use this as an opportunity to be responsive to the needs of your community while supporting and showcasing examples of sustainable and energy efficient lifestyle changes that can be immediately implemented after people attend your event!



▶ HOW TO HOST A SUSTAINABLE LIVING BLOCK PARTY

▶ STEP 1: PRELIMINARY EVENT PLANNING

- Reflect on your goals and intentions for your block party. What are some tangible learning outcomes you want people to take away from this event? How do you plan to display learning materials? Are there specific community members, business owners, or professionals in your area that you would like to invite? Are there any upcoming community events that you can attach your block party to?
- Select a date well in advance so that you can prepare and provide your guests and neighbors with enough notice
- Scope out open-access locations to host this block party, such as a public park, an unused parking lot, a common room or area in your building, or even a group of driveways on your street
- Research the permitting guidelines for your city or community and whether you would need a permit to host a block party

STEP 2: PREPARE FOR PARTY

- Once you have selected the location for the event, relay this information to your friends and community members who indicated interest in attending the block party, you can also create flyers and post them in public spaces, such as a local library or coffee shop bulletin board
- Prepare an itinerary of activities, games, and learning materials to encourage individual and local level participation at the party
- Reach out to local organizations or businesses who can lead specific workshops on their sustainable living niche, for example inviting a local refillery store to set up a booth on the advantages of buying in bulk.

- Do some research on accessible home retrofit rebates and incentives that the community members can take advantage of as well as any other energy efficiency actions that can be immediately implemented
- Look into local organizations or grassroots groups in your area that you can invite to the party to discuss their work

STEP 3: TRACK YOUR IMPACT

- Keep track of people as they enter and make note of how many people attend in general, these are great for measuring your impact in hosting this event
- Before wrapping up, ask people to share their feedback on the event either as a parting activity or as its own booth at the event
- For example, you could ask people to write down one thing they learned from the event or will incorporate into their daily routine and add this to a poster or in a notebook
- You can also set a reminder to check in with event attendees in the weeks following the Block Party and share a poll asking if anyone has changed their lifestyle habits to be more environmentally friendly as a result of attending
- Take photos throughout the event 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

1. Government of Canada. (2023). 2030 Emissions Reduction Plan – Sector-by-sector overview. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/sector-overview.html>
2. Natural Resources Canada (2023). Green building principles. <https://natural-resources.canada.ca/energy-efficiency/green-buildings/green-building-principles/25301>
3. Dahiru, Ahmed Tijjani, Daud, Dzurlkanian, Tan Chee Wei , Jagun, Zainab Toyin, Samsudin, Salfarina & Abdulhakeem Mohammed Dobi. (2023). A comprehensive review of demand side management in distributed grids based on real estate perspectives. Environmental Science and Pollution Research. [https://link.springer.com/article/10.1007/s11356-023-25146-x#:~:text=Demand%20side%20management%20\(DSM\)%20is,is%20strategic%20to%20system%20operations.](https://link.springer.com/article/10.1007/s11356-023-25146-x#:~:text=Demand%20side%20management%20(DSM)%20is,is%20strategic%20to%20system%20operations.)
4. IEA. (nd.) Demand Response. IEA. <https://www.iea.org/energy-system/energy-efficiency-and-demand/demand-response>
5. Mead, David, Wade, Andrew, Allard, Ryan F., Frishmann, Chad. (n.d). Net Zero Buildings. Project Drawdown. <https://drawdown.org/solutions/net-zero-buildings>
6. Moraga G, Huysveld S, Mathieux F, Blengini GA, Alaerts L, Van Acker K, de Meester S, Dewulf J. Circular economy indicators: What do they measure? Resour Conserv Recycl. 2019 Jul;146:452-461. doi: 10.1016/j.resconrec.2019.03.045
7. Mueller, L. (2021). How to Throw the Perfect Block Party. Moving.com. <https://www.moving.com/tips/how-to-throw-the-perfect-block-party/>
8. Niinimäki, K., Peters, G., Dahlbo, H. et al. The environmental price of fast fashion. Nat Rev Earth Environ 1, 189–200 (2020). <https://doi.org/10.1038/s43017-020-0039-9>



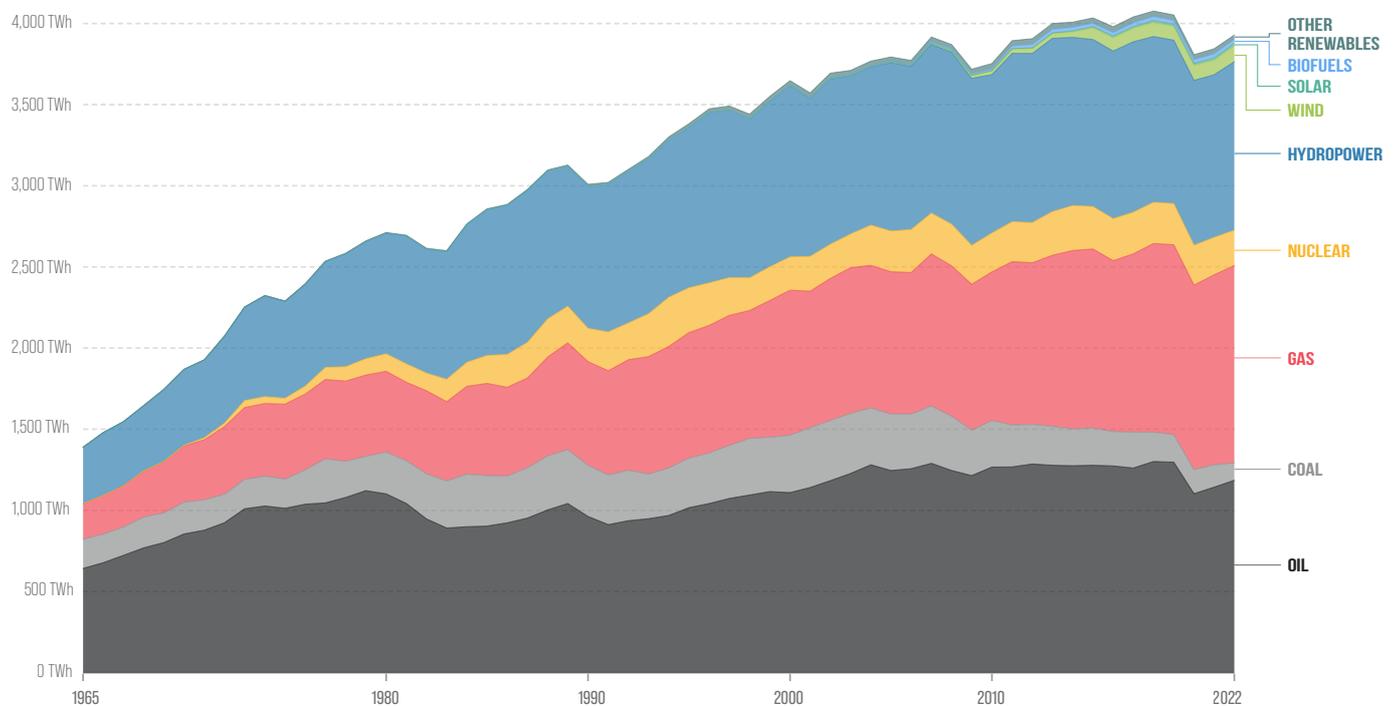
CLEAN ENERGY FACILITY TOUR

Organizing a trip to your closest clean energy facility provides you with an immersive experience to better understand the intricacies of clean energy production, as well as the individual and community-level actions required to increase the scale and impact of these centers.

▶ IMPACT

Energy consumption by source, Canada

Primary energy consumption is measured in terawatt-hours (TWh). It has been calculated using the substitution method¹, which adjusts non-fossil sources for the inefficiency of fossil fuel equivalents.



Data source: Energy Institute Statistical Review of World Energy (2023) Note: 'Other renewables' includes geothermal, biomass and waste energy.

OurWorldInData.org/energy | CC BY

According to the Government of Canada [Energy Maps \(2021\)](#), “Canada is the fifth largest energy producer in the world and the eighth largest consumer of energy.” Canada’s [energy mix](#) consists of a variety of fossil fuel sources, namely oil, natural gas, petroleum, and coal, as well as other cleaner sources such as hydroelectricity, nuclear power, wind, solar, and geothermal energy.

This action is all about focusing on the nearest clean energy source or treatment facility to your community so that you can learn more about its associated environmental and social impacts. If you are unsure what types of energy

sources you can visit, here is a list of some options that may be accessible to you:

- **District energy** systems
- **Biomass** facilities
- **Wastewater treatment** plants
- Solar or wind farms
- Renewable **energy storage** labs
- **Hydropower** dams
- **Nuclear energy** plants

The energy facilities listed above are just examples of the types of places you can visit, of course, you know your community best and can research what your city is best known for in terms of sustainable energy production or treatment. One important note to mention is that while some of these facilities are technically considered renewable, some of them may also be harmful to the surrounding neighborhoods. For example, hydropower is considered a **clean source of energy**, however, the potential for the release of emissions, **dam flooding, and overall land seized** from local communities for construction can result in devastating social and health impacts. Therefore, it is important to use this tour as an opportunity to investigate the pros and cons of some of these facilities and to determine how you can help to raise awareness and support those facilities that are aligned with your values as well as Canada's net-zero goals.

If visiting a facility is not available to you, you can reach out to the leaders of clean energy projects in and around

your community to learn more about their organizations and how their work contributes to Canada's climate goals. For inspiration on who to reach out to, you can visit the **ImaGENation website** to learn more about Indigenous youth-led clean energy projects, as well as the **Guided Projects** page on the Student Energy website as starting points.

Aside from highlighting the social and community impacts of clean energy production, visiting an energy facility near you can also improve your awareness of the wider energy system in Canada and how that specific type of energy production fits (or doesn't) into a feasible pathway to achieving net-zero emissions by 2030. Additionally, the information learned during this site tour can highlight other opportunities for you to get involved – this can include writing a letter to your city official, Member of Parliament, or even asking at the facility how you can support its production. These actions can go a long way in terms of advocating for more clean energy facilities in your area.

▶ HOW TO ORGANIZE AN ENERGY FACILITY TOUR

▶ STEP 1: PRELIMINARY PLANNING

- Research the clean energy facilities in and around your community
- Contact friends, co-workers, neighbors, or others in your community to see if they would be interested in joining your site visit
- Create a list of sites or facilities that are open to the public
- Contact them to see if you can organize a tour

▶ STEP 2: PREPARE FOR YOUR ENERGY FACILITY VISIT

- Continue your research on the energy sources in your community, try to read, watch videos, or listen to podcasts on the environmental, social, and economic impacts of this particular source of clean energy

- Come up with a list of questions and or goals for your site visit - you will want to be intentional about your time there, and planning ahead will help you get the most out of your trip

▶ STEP 3: TRACK YOUR IMPACT

- Bring a notebook with you to write down anything interesting that you see or learn during your visit
- Look into any on-going campaigns, that you can sign and share with the others. This is a great way for people to take action on issues right away!
- Write a reflection about your experience and share it on social media
- Take photos throughout the event 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

1. Government of Canada. (n.d). Energy Maps. Government of Canada.
<https://natural-resources.canada.ca/maps-tools-and-publications/maps/energy-maps/16872>
2. Canada's Oil and Natural Gas Produces. (n.d). Canada's Energy Mix. Canada's Oil and Natural Gas Produces.
<https://www.capp.ca/energy/canadas-energy-mix/>
3. Canada Energy Regulator. (n.d) Provincial and Territorial Energy Profiles – Canada. Canada Energy Regulator.
<https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-canada.html>
4. Reuters. (2023). Focus: Canada oil sands leak heightens First Nations' calls to clean up tailings. Reuters.
<https://www.reuters.com/business/energy/canada-oil-sands-leak-heightens-first-nations-calls-clean-up-tailings-2023-04-27/>
5. Williams, J.M. The hydropower myth. Environ Sci Pollut Res 27, 12882–12888 (2020).
<https://doi.org/10.1007/s11356-019-04657-6>
6. IEA. (2022). Canada 2022 Energy Policy Review. IEA.
<https://www.iea.org/reports/canada-2022/executive-summary>



KNOW YOUR REGULATOR



This Know your Regulator event is all about facilitating an open dialogue between community members to spread awareness about the roles and responsibilities of provincial energy regulators, when and why citizens reach out to their regulator, as well as sharing any opportunities to participate in the regulation process. This event will foster a greater connection between energy needs and consumption on a local level and how this relates to the wider provincial or national context.

▶ IMPACT

Energy regulators are mandated to govern certain important aspects of energy production and consumption, from regulating new energy projects and ensuring the safe operation of infrastructure, to regulating the price of energy that consumers pay. In Canada, there are provincial and federal energy regulators, each with differing realms of responsibility.

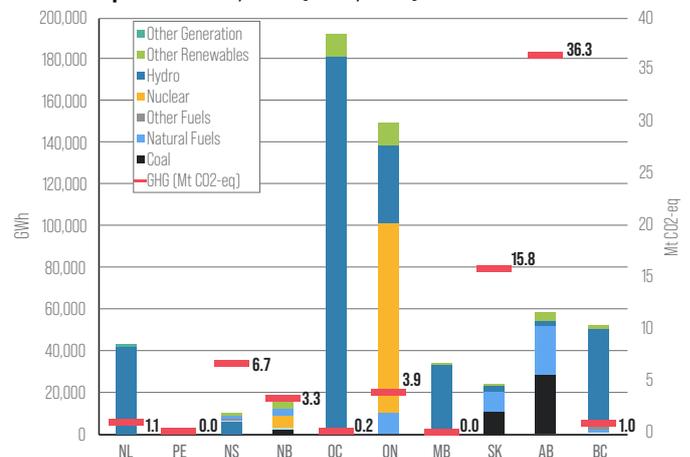
Provincial regulators have control over energy related decisions such as generation, transmission, distribution, and retail pricing within their jurisdiction; some also assess energy efficiency programs and even regulate oil and gas extraction and renewable energy projects. **Federal regulators** oversee aspects of inter-provincial and international energy projects and infrastructure. The exact duties of a provincial regulator **will differ by province**, this is because of variations in natural resources, market structures, and the source of electricity widely available in the province (see image below for the

differing sources of power generation by province). Googling your province’s energy regulator and browsing through their website will provide a good starting point to understand exactly they do. These websites often include resources to help you better understand your energy bill, the energy sources available to you in your province, and opportunities to watch or attend upcoming hearings or initiatives led by your regulator.

The path to achieving net-zero **requires individual action and community buy-in as well as government and corporate commitments**. Sharing findings about your province’s energy regulation landscape during an event like this will promote wider discussions about the energy needs of your community, how regulators can play a larger role in helping to achieve net-zero goals, and also highlight pathways for public involvement in energy regulation processes.



Provincial power generation by source and GHG emissions from the power sector, 2019 (ECCC, 2021)



Graph showing the differing sources of energy sources across Canada affecting provincial regulation processes (Pineau, 2021).

▶ HOW TO HOST KNOW YOUR REGULATOR EVENT

▶ STEP 1: PRELIMINARY RESEARCH AND EVENT PLANNING

- Start by outlining your goals for the event, what do you want people to learn about your provinces energy regulation landscape?
- Invite a group of colleagues, community members, friends, or classmates to attend your event
- Create a list of guiding questions for you and your attendees to research ahead of the event. You can be creative with these, depending on what you want to achieve from your event. Some examples include:
 - Who is your provincial energy regulator?
 - What do they regulate? What do they not regulate?
 - What is their mandate?
 - What have they regulated recently?
 - How can the public get involved? Is there an upcoming event or hearing?
- The CER (Canada's Energy Regulator) released their report on [*Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050 that modeled pathways to achieving net-zero by 2050.*](#) You can assign different sections of the report for members attending your party to each review and summarize.
 - You can then go through the report and discuss its implications for local energy actors and any relations or contradictions to your research on provincial energy regulation during your event.

▶ STEP 2: HOST THE EVENT AND TRACK YOUR IMPACT

- Go through each of the questions you asked people to research ahead of time and have everyone discuss their findings, what surprised them about the research, and how they can see themselves getting involved.
- Designate a person to take notes during the event so that the information shared after the event to reinforce the discussions and topics covered
- Create a poll using a free service such as slido or mentimeter, for people to fill out after the event so you can measure your impact. Some questions to ask in the poll include:
 - Did you learn anything new from today's Energy Forum? (yes/no)
 - What is your main takeaway from today's Forum? (short answer)
 - Do you have a better understanding of [provincial or federal] energy regulation and its relation to Canada's net zero goals? (yes/ no)
- Before wrapping up, ask people to use the last 5 minutes of the event time to answer your poll. Keep and log these results, along with the number of attendees to measure your impact
- Take photos throughout the event 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

1. Canada Energy Regulator. (2023). Canada's Energy Future 2023. Canada Energy Regulator.
<https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/canada-energy-futures-2023.pdf>
2. Christian, J., and Shipley, L. (2020) Electricity regulation in Canada: overview. Thompson Reuters Practical Law.
[https://ca.practicallaw.thomsonreuters.com/5-632-4326?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://ca.practicallaw.thomsonreuters.com/5-632-4326?transitionType=Default&contextData=(sc.Default)&firstPage=true)
3. Krishnan, M., Samandari, H., Woetzel, J., Smit, S., Pachod, D., Pinner, D., Naclér, T., Tai, H., Farr, A., Wu, W., and Imperato, D. (2022). Managing the net-zero transition: Actions for stakeholders. McKinsey Sustainability.
<https://www.mckinsey.com/capabilities/sustainability/our-insights/managing-the-net-zero-transition-actions-for-stakeholders>
4. Ontario Energy Board. (n.d) Why do we regulate?. Ontario Energy Board.
<https://www.oeb.ca/about-us/mission-and-mandate/why-do-we-regulate#:~:text=Unlike%20many%20other%20industries%20in,monopoly%20position%20of%20energy%20utilities.>
5. Pineau, P. (2021). Improving integration and coordination of provincially-managed electricity systems in Canada. Canadian Institute for Climate Choices.
<https://climateinstitute.ca/wp-content/uploads/2021/09/CICC-Improving-integration-and-coordination-of-provincially-managed-electricity-systems-in-Canada-by-Pierre-Olivier-Pineau-FINAL.pdf>



HEAT PUMP HYPE PARTY



The Heat Pump Hype Party is an opportunity for community members to gather and learn about the positive impact of energy efficiency at the household level, with a specific focus on heat pumps as an accessible retrofit that contributes to individual and community level action towards Canada's race to net-zero.

▶IMPACT

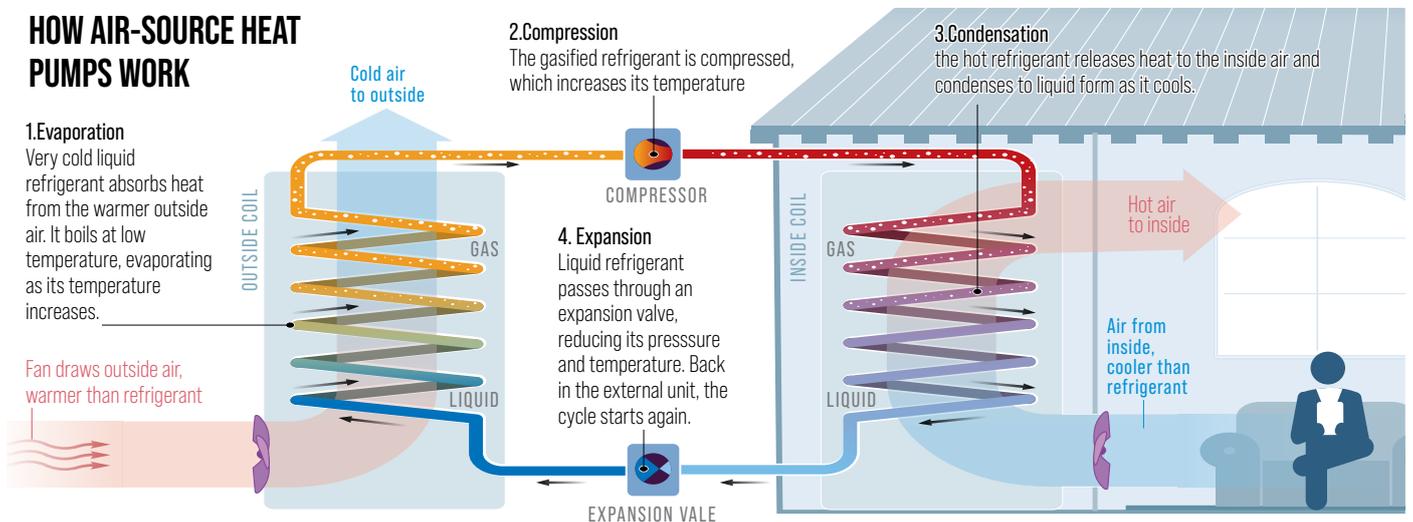
The Heat Pump Hype Party aims to create enthusiasm for heat pumps as a powerful tool for creating a sustainable and energy-efficient future. Heat Pumps run on **electricity**, rather than fossil fuels, and use up to 70% less energy than fossil fuel generated heating systems, which can significantly reduce energy costs. They are also more practical than AC units or fossil fuel-based furnaces, as they can both heat and cool houses with greater energy efficiency, which is especially beneficial for **low-to-moderate income households** that may be reliant on less efficient and more costly fossil fuel-based heating and cooling systems. Switching heating generators to heat pumps can also result in savings between 2-6% on annual energy bills and reduce global carbon emissions by up to **half a gigatonne** by 2030 if heat pump deployment were to increase to meet national standards.

Energy efficiency and accessibility are critical in achieving Canada's net-zero goals. With **78% of building emissions** resulting from heating-related activities, increasing awareness and installation of heat pumps can drastically

reduce overall emissions coming from Canada's building sector. When hosting this action, it is important to note that the Canadian government has provided up to **\$23.8 million** in funding provincial programs to allow low-income homeowners to transition from fossil fuel heating to low emitting heating technologies and has also launched a Heat Pump Affordability Program providing eligible households with up to \$10,000 to support heat pump and other home efficiency project installations.

The Canadian Climate Institute emphasizes that in order to achieve the targets included in Canada's Emissions Reduction Plan, the nation would need to **double the number of homes** relying on heat pumps as their main source of heating, as this is a prominent indicator of building decarbonization. This Hype Party can shine light on the myriad environmental, economic, and physical health benefits of replacing fossil fuel burning generators and air conditioning units with heat pumps while providing community members with information on the incentives and rebates available to help finance this switch.

HOW AIR-SOURCE HEAT PUMPS WORK



SOURCE: REPORTING BY C. BARANIUK

5W INFOGRAPHIC/KNOWABLE
(Baraniuk, 2023)

▶ HOW TO HOST A HEAT PUMP HYPE PARTY

▶ STEP 1: COMMUNITY OUTREACH AND EVENT PLANNING

- Ask your friends, neighbors, and other community members if they have any questions, issues, or concerns about heat pumps. You can also reach out to local business owners or your university admin department to try to pique their interest in the benefits of switching to heat pumps
 - Collect email addresses or create a Whatsapp group for community members interested in attending the Heat Pump Hype Party and use this information to share updates about the location of the event, and confirm the date and time
 - Look for any open-access locations to host this party, such as library meeting rooms, at your local community center, a public park, etc.
- Are there any upcoming community events or local festivals in or around your neighborhood or on campus? Ask if you and your friends can join to inform people about the benefits of heat pumps and share information about the installation process and how to take advantage of any existing rebate programs
- Once you have the location for the event, relay this information to your friends and community members who indicated interest in attending the Heat Pump Hype Party or post some flyers on local bulletin boards.

▶ STEP 2: HOST THE EVENT AND TRACK YOUR IMPACT

- Prepare a list of points to expand on during your party or at your booth (if you are hosting it at another community event)
 - Highlight the economic, environmental, and health co-benefits of switching to heat pumps
 - Research accessible opportunities and any financial incentives to install heat pumps in your area
 - Think of gamified or culturally relevant ways to present this information so this message can stick with your audience.

- Keep track of how many people attended your event or stopped by your table, make a note of how many people asked questions, and how many people expressed interest in installing a heat pump or taking more energy efficient actions
- Take photos throughout the event 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

1. Turner, Chris. (2023). Heat pumps are hot in the Maritimes. <https://climateinstitute.ca/publications/heat-pumps-are-hot-in-the-maritimes/>
2. Tan, Yu Anne & Kresowik, Mark. (2021). Investing in Healthier Low-Income Housing. <https://rmi.org/investing-in-healthier-low-income-housing/>
3. Government of Canada. (n.d). Green Buildings. Government of Canada. <https://natural-resources.canada.ca/energy-efficiency/green-buildings/24572>
4. Environment and Climate Change Canada (2023). Cutting pollution and making life more affordable: Government of Canada investing up to \$62.7 million to switch to cleaner energy in New Brunswick. Government of Canada. <https://www.canada.ca/en/environment-climate-change/news/2023/06/cutting-pollution-and-making-life-more-affordable-government-of-canada-investing-up-to-627-million-to-switch-to-cleaner-energy-in-new-brunswick.html>
5. Kanduth, Anna. (2022). Heat Pumps Can Power Major Emissions Reductions From Buildings. 440 Megatonnes: Tracking Canada's path to net-zero <https://440megatonnes.ca/insight/heat-pumps-can-power-major-emissions-reductions-from-buildings/>
6. International Energy Agency. (2022). Executive Summary: Heat pumps are a proven way to provide secure and sustainable heating. The Future of Heat Pumps. <https://www.iea.org/reports/the-future-of-heat-pumps/executive-summary>
7. Baraniuk, Chris. (2023). How heat pumps of the 1800s are becoming the technology of the future.

INTERGENERATIONAL STORYTELLING CIRCLE



Talking circles are a form of Indigenous pedagogy based on sacred traditions of **sharing circles**. They establish a safe environment in which every individual in the circle has the opportunity to speak and be heard, respected, and valued by the rest of the participants. According to **Barkaskas and Gladwin (2021)**, “Communities use talking circles as part of ceremonial, healing, educational, and legal systems, depending upon intentions and contexts, and also use them as a way of bringing people together to pass on cultural knowledges, practices, and values.”

This Intergenerational Storytelling Circle is an opportunity to connect Indigenous Elders with youth leaders, and community members to collectively discuss actionable climate solutions informed by lessons and understandings that Indigenous communities hold about the reciprocal relationship between humans and the natural world. These conversations will also highlight the necessity to form equitable partnerships with Indigenous peoples in order to meet our climate goals, keeping holistic and interconnected worldviews at the forefront of our collective race to net-zero.

▶ IMPACT

There is a lot to learn from Indigenous knowledge and land practices, especially when it comes to concepts of a regenerative and waste-free economy and the interconnection between humans and the natural environment. Indigenous knowledge systems include **climate solutions** that evolved to adapt to changes in the natural environment and have been passed down for generations on end, therefore, they must be preserved and accounted for in today’s climate actions. Despite this, there is a known **history of inadequate attempts** to incorporate Indigenous knowledge into Canada’s climate action plans and to build relationships between the government and Indigenous partners. Hosting an intergenerational storytelling circle is one way to **remember forward** and bridge this gap between government climate action recommendations and the climate knowledge and solutions that have worked for generations on end and adapting them to fit the needs of the present and future challenges. This event will

focus on sharing stories and developing connections with the land through learning from the lived experiences of Indigenous Elders, while providing young people an opportunity to express their thoughts and feelings as they relate to the discussion topics of the storytelling circle. This action is meant to facilitate a human-centered context to local climate challenges and to create meaningful and emotional connections to these issues, with the end goal of formulating a set of achievable solutions encouraging all who participated to take action on climate in their everyday lives.

The recommendations should take into account the existing assets and services available to the community where the activity is being hosted. This event is meant to encourage cross-cultural learning, community building, and intergenerational collaboration, all while raising awareness about everyday actions that can help to mitigate the impacts of climate change.

▶ HOW TO HOST AN INTERGENERATIONAL STORYTELLING CIRCLE

▶ STEP 1: PRELIMINARY EVENT PLANNING

- **Acknowledge the cultural origins** of the storytelling circle and use this awareness to guide your planning process.
- Identify your goals and objectives of hosting this event, what specific themes of climate and energy challenges do you wish to address and what questions will you ask to guide conversations, and how will you incorporate solutions-building into the discussion? These are the types of questions you will want to think about as you plan this event
- Reach out to Indigenous-led organizations in your neighbourhood to request a meeting with Elders and other leaders in the community
- Choose a safe, secure, and comfortable location, free from distractions or disruptions to host the event.



▶ STEP 2: HOST THE EVENT AND TRACK YOUR IMPACT

- On the day of the event, arrive early for set up.
- Start the event by introducing yourself, the proposed discussion points you have already prepared, and the guest speakers. As the organizer, you will want to facilitate discussions to encourage active participation from all attendees
- Take note of any key messages and lessons learned from the Storytelling Circle
- Create a list of solutions discussed throughout the event and work with the other event attendees to create an Indigenous Knowledge-informed and inclusive local climate action plan
- Follow up with event attendees to put your plans into motion
- With the consent and approval of all your attendees, take photos throughout the event 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

1. Global Learning Partners. (2022). Talking Circles: More than a Technique. Global Learning Partners. <https://www.globallearningpartners.com/blog/talking-circles-more-than-a-technique/>
2. Barkaskas, Patricia, Gladwin, Derek. (2021). Pedagogical Talking Circles: Decolonizing Education through Relational Indigenous Frameworks. Journal of Teaching and Learning. <https://eric.ed.gov/?id=EJ1303475>
3. Kennedy, Angela M & Gislason, Maya K. (2022). Intergenerational approaches to climate change mitigation for environmental and mental health co-benefits. Journal of Climate Change and Health. <https://www.sciencedirect.com/science/article/pii/S2667278222000621>
4. Alaska Just Transition. (n.d). Remembering Forward. Alaska Just Transition. <https://www.justtransitionak.org/>
5. Climate Atlas of Canada. (n.d). Indigenous Knowledge and Climate Change. Climate Atlas of Canada. <https://climateatlas.ca/indigenous-knowledges-and-climate-change>
6. Government of Canada (2022). 2030 Emissions Reduction Plan: Clean Air, Strong Economy. Government of Canada. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030/sector-overview.html#sector1>
7. Sinclair, Rebecca. (2021). Decolonizing Canada's Climate Policy. Canadian Climate Change Institute. <https://climateinstitute.ca/publications/decolonizing-canadas-climate-policy/>
8. Indigenous Climate Action. (2021). Decolonizing Climate Policy in Canada. Indigenous Climate Action. <https://www.indigenousclimateaction.com/programs/decolonizing-climate-policy>



SEASONAL ENERGY TOWN HALL



A Seasonal Energy Townhall will draw attention to the importance of community connection and building resilience to extreme weather events such as floods, wildfires, heatwaves, and cold spells. The event provides an opportunity to discuss local needs concerning these seasonal weather events and co-create solutions that mitigate their adverse effects, ultimately improving your community's resilience and adaptation efforts.

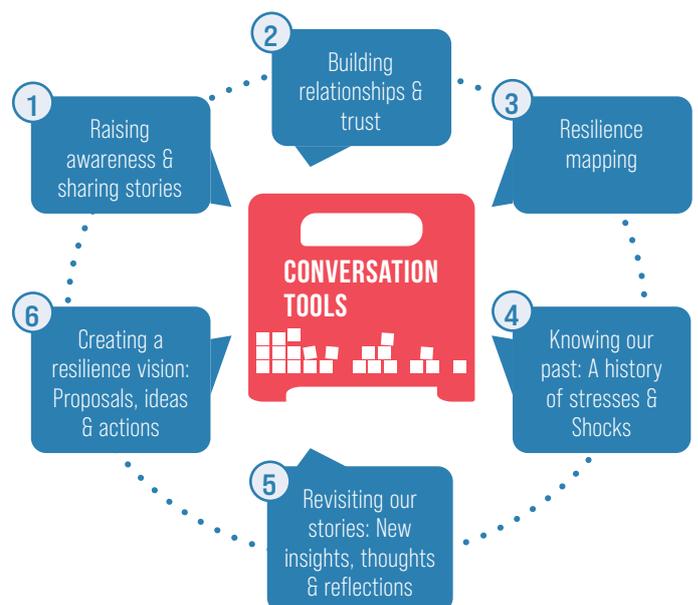
▶IMPACT

Resilience is a key component of the **Climate Action Pathways** outlined in the Marrakech Partnership tools to enhance climate action and ambition towards achieving the goals of the Paris Agreement. Warming global temperatures means that there will undoubtedly be more frequent and severe weather events around the world. With **over 5,700** wildfires burning across Canada this year alone, it is becoming widely apparent that connecting with community members to develop climate emergency action plans is essential to maintaining the health and safety of communities across the country. When severe weather events strike, local residents are often the ones who are the most adversely affected. Droughts, wildfires, floods, heatwaves, etc. can all have far reaching negative implications on communities as a whole, impacting physical, social, economic, and **overall well being**. These are important points to address throughout this Town Hall so that you can collectively brainstorm solutions, and create accessible resources specific to the needs of your neighborhood.

In hosting this event, you will be fostering a sense of connectedness between community members, joining together to identify your seasonal weather-related challenges, pooling local knowledge and resources together, and developing an actionable response plan for facing climate disasters. Researching pre-existing resilience-building organizations or support programs in your area is a great first step in planning out the objectives of your Town Hall and deciphering how you can work together to build off of what is already developed for your community. For example, the **ResilientTO** Center for Connected Communities developed a resilience toolkit to guide Toronto residents on how to host their own solutions-driven resilience convenings. Furthermore, the **PlanH Program in B.C.** provides grants

and resources to help local and Indigenous governments create their own action policies responding to social and environmental challenges. If there are no such organizations near your community, you can start your own by repurposing resources and toolkits to suit the needs of your neighborhood, similar to those that are available on the Building Resilient Neighbourhoods' **Resources** webpage. Though these are great resources to build off of, **directly consulting community members** about their needs and concerns when it comes to seasonal weather events and how they would like to be supported will be especially effective in mitigating the risks and adverse impacts of climate change on your community.

RESILIENT CONVERSATION TOOLKIT. THE 6 TOOLS OF RESILIENCE



The Resilient Conversations Tools helps move neighbourhood conversations from awareness and local analysis to vision creation. Each tool bring something different to the process and aims to promote a rich and in depth dialogue. (ResilientTO, 2019)

▶ HOW TO HOST A SEASONAL ENERGY TOWN HALL

▶ STEP 1: COMMUNITY OUTREACH AND EVENT PLANNING

- Ask your friends, neighbors, and other community members if they have any questions, issues, or concerns about the impacts of seasonal weather events in your neighborhood and start a list of key points to raise during the energy town hall.
 - Research local organizations preparing for and adapting to climate disasters and compile a list of resources and or resilience toolkits that you can build off of

▶ STEP 2: PREPARE TO HOST YOUR TOWN HALL

- Work with your neighbors and community members to schedule the Town Hall for a date and time that works best for everyone.
- Prepare an agenda or “run of show” for what you wish to accomplish at the Town Hall and how much time you wish to allocate to each agenda item
 - Start with objectives of the town hall meeting;
 - Prepare a list of questions to ask community members what kind of environmental challenges they face;
 - Prepare a map of local businesses, hubs, or centres that can provide assistance when building out your community’s specific resilience plan, and invite them to attend the Town Hall
 - Finally, plan out the format of this event. Since you will likely want a collaborative event that encourages people to discuss their challenges and needs, consider arranging chairs in a circle, and having one or a couple of hosts who can help to facilitate an open discussion.

▶ STEP 3: TRACK YOUR IMPACT

- Keep track of people as they enter and make note of how many people attend in general
- If you do end up creating a climate event response plan or toolkit, share this on social media and think of ways to distribute this to community members who could not attend the Town Hall
- Take photos throughout the event 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

1. **Canada wildfires: what are the causes and when will it end? (2023).** Reuters.
<https://www.reuters.com/world/americas/canadas-record-wildfire-season-whats-behind-it-when-will-it-end-2023-08-17/>
2. **Climate Action Pathways. (n.d).** United Nations Climate Change.
https://unfccc.int/climate-action/marrakech-partnership/reporting-and-tracking/climate_action_pathways
3. **DeVidi, M. (n.d.). Climate Change and Well-being: Building Resilience Through Social Connectedness.** PlanH.
<https://planh.ca/news/climate-change-and-well-being-building-resilience-through-social-connectedness>
4. **PennState Extension. (2022). A Community Approach to Disaster Preparedness and Response.** PennState Extension.
<https://extension.psu.edu/a-community-approach-to-disaster-preparedness-and-response>
5. **Research on Community Resilience to Climate Change. (2023).** The United States Environmental Protection Agency.
<https://www.epa.gov/climate-research/research-community-resilience-climate-change>