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EMPOWERING COMMUNITIES
A landscape analysis of renewable electricity ownership, benefits and research gaps.

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DAVID SUZUKI FOUNDATION
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EXECUTIVE SUMMARY

This report is part of a larger body of research work by the David Suzuki Foundation that is under development to inform policy recommendations, barriers and gaps in data as they relate to empowering communities in the renewable electricity transition in Canada. This report provides important information to foreshadow these outputs by exploring the potential and current state of community-owned renewable electricity as one means of empowering communities.

This report is presented in five parts:

- **Part 1:** The opportunity of renewable electricity and empowering communities
- **Part 2:** Landscape analysis of renewable electricity and project ownership in Canada
- **Part 3:** Characteristics and considerations for models of community-led renewable electricity
- **Part 4:** Enablers and barriers to community-led renewable electricity in Canada
- **Part 5:** Gaps for further research and analysis

Community energy is an umbrella term for “various forms of locally led, collectively owned, and managed energy projects” (Creamer et al., 2018). These can entail cooperative ownership or community development trusts. Community energy could support a just distribution of impacts and benefits across society of an electricity transition, and improve the conditions for social acceptance of renewable energy projects, depending on how it is implemented. Depending on the selected model of ownership and its implementation, community energy can offer local benefits such as (although not limited to) local value creation, socio-economic regeneration, knowledge and skills development, social capital, energy literacy, environmentally benign lifestyles, access to affordable energy and empowerment (Berka and Creamer 2018; O'Neil et al. 2022).

This report focuses on community ownership of renewable electricity by cooperatives, community economic development investment funds (CEDIFS) and municipalities in Canada, and considers the other models of community ownership that may be advantageous to communities in Canada. Within the scope of the grid-connected projects and communities across the 10 provinces, this report seeks to:

- Show where Canada is at now in terms of community ownership, and community benefit flows with renewable energy projects – and identify gaps in this data.
- Identify the scale of opportunity for communities, and public ownership.

- Highlight the importance of impacts and benefits distribution of renewable electricity projects to justice and social acceptance.
- Identify known provincial regulatory and other barriers to community involvement in grid-connected renewable electricity projects.
- Identify other institutional barriers and research gaps for further study.

MAIN FINDINGS

The state of community ownership of renewable electricity in Canada is fragmented, marginal and in decline in many areas. While the Canadian electricity grid is sized at 152,000 MW (Statistics Canada 2024), only 73 MW of installed renewable electricity capacity is estimated to be owned by community cooperatives (Boucher and Pigeon 2024). Municipalities in Canada have owned their own utilities, distribution grids and power generation for over a century, although they appear to own a small proportion of renewable electricity infrastructure. These numbers are difficult to track due to significant gaps in data and inconsistencies in methodological approaches and reporting that make community-owned renewable electricity challenging to track and address directly.

KEY BARRIERS

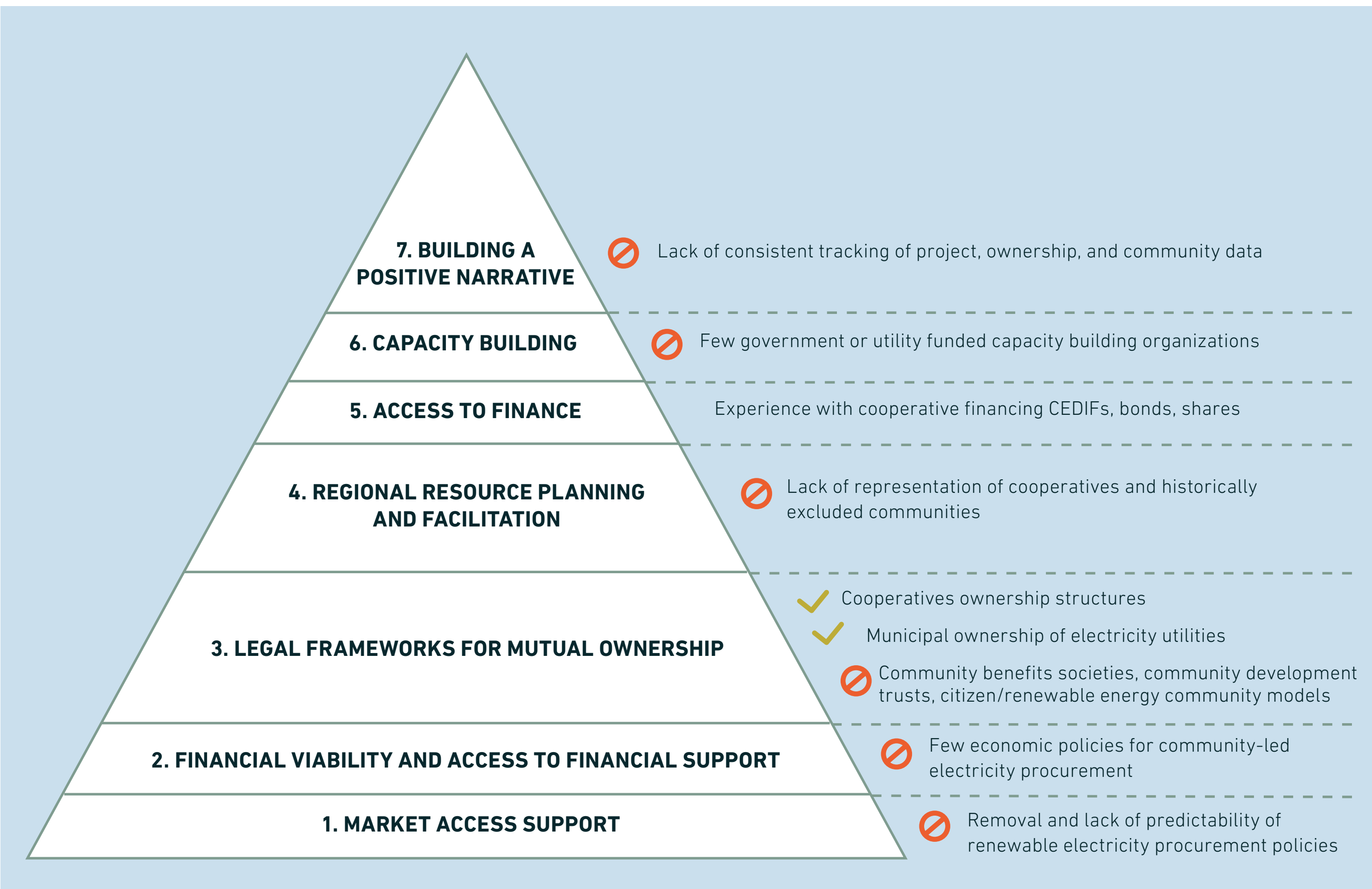
The types of policies required to support the replication and scale up of community-owned projects across markets are outlined in Figure 1. These policy categories describe the institutional conditions that support a thriving community energy sector by building on one another: market access and financial viability form the foundation and are built on by legal frameworks for mutual ownership; without these foundational criteria, projects cannot be financially viable. To scale and broadly support community-owned renewable electricity requires regional resource planning and facilitation, access to finance, capacity building and building a positive narrative. A high-level analysis of the barriers and enablers provided by policies and institutions are summarized in Figure 1.

The policies needed to support community-led renewable electricity in Canada are limited in scope and inconsistent. The key findings about barriers and lack of institutional and policy support for community-led renewable electricity projects in Canada are:

- Lack of consistent tracking of project, ownership and community data;
- Few government- or utility-funded capacity building organizations' experience with cooperative financing CEDIFs, bonds, shares;
- Lack of representation in regional resource planning of cooperatives andhistorically excluded communities;

- ✓ Cooperatives have been able to find financing through CEDIFs, bonds and shares;
- ✓ Legal frameworks for mutual ownership exist for cooperatives, municipal ownership of electricity utilities;
- ⊘ Legal frameworks for community benefits societies, community development trusts, citizen/renewable energy community models do not exist;
- ⊘ Few economic policies for community-led electricity procurement;
- ⊘ Market access is hampered by the removal, and lack of predictability of procurement policies.

Figure 1: Summary of institutional and policy support for community-owned renewable electricity projects in Canada*



*POLICY CATEGORIES SUPPORTING COMMUNITY-LED RENEWABLE ELECTRICITY BASED ON (BERKA ET AL. 2025; 2020)

RECOMMENDED RESEARCH PRIORITIES

The recommended research priorities to support the scale-up and replication of community-owned renewable electricity, and in particular to improve the impacts and benefits felt by communities, are outlined in Table 1. These recommendations are based in the policy categories that support the scale-up of the community-owned renewable electricity sector. The focus of research recommendations is to address political power and to provide assessments to start to gather knowledge that currently exists of projects, reports, visions and road maps.

Table 1: Summary of research gaps to address

POLICY CATEGORY	RESEARCH PRIORITY
Market access and policies for financial viability	Understand and address political power gaps.
Legal frameworks for mutual ownership	Assessment of mutual ownership models in other jurisdictions, not yet in Canada.
Financial viability and access to financial supports	Assess the value of social acceptance against a range of economic instruments to support community-led renewable electricity projects.
Regional resource planning and facilitation	Representation of the current cooperative sector and historically excluded communities in decision-making and planning bodies. Identify contexts to try new approaches.
Capacity-building	Work with the current cooperative sector and historically marginalized communities to develop strategic insights and networks within and outside of Canada to increase knowledge transfer around the development and deployment of innovative policies and projects that can be translated and updated into and across the Canadian context.
Building a positive narrative	Validation and synthesis with a comprehensive assessment of models, policies and supports. Develop a research initiative to track community-led renewable electricity across Canada. Develop in-depth and widespread understanding of the impacts and benefits of community-led renewable electricity projects against a range of models of ownership and control.

One important step to informing just policy design is to learn from existing community-led renewable electricity projects about how they have contributed to these positive outcomes, and how pitfalls and unintended negative consequences have been felt, by whom and why, the changing institutional context, which would provide valuable insights to policy and procurement strategies. This type of analysis and learning requires better analytical support. In light of the identified barriers and the goals of empowering communities, this report recommends capacity-building in research and public data with the development of a research centre that could be led by a combination of civil society and academia and funded by the government, to provide thorough and credible analysis of community-owned renewable electricity projects in Canada, their technology functions, legal forms and locations, benefits and impacts, and provide comprehensive assessments and syntheses of reports.

INTRODUCTION OF KEY RESEARCH QUESTIONS

Scope and context of this report/ Report boundaries

This report is part of a larger piece of research work by the David Suzuki Foundation that is under development to inform policy recommendations, barriers and gaps in data as they relate to empowering communities in a renewable electricity transition to support decarbonization in Canada. This report provides important information to foreshadow these outputs. The focus of this report is on grid-connected, community-led renewable electricity, and focuses on the 10 provinces. This report does not address remote and off-grid communities, or behind-the-meter electricity generation due to the unique and different context, barriers, impacts and challenges faced by these communities and projects.

Indigenous nation ownership and leadership in renewable electricity infrastructure is a critically important pathway to electrification in Canada. Indigenous nations have different opportunities and ownership types than municipalities, etc. that vary across provinces and territories. This report should not be used to extrapolate on ownership types and opportunities for Indigenous nations. Readers should look to organizations such as Indigenous Clean Energy, Sacred Earth Solar, First Nations Major Projects Coalition, New Relationship Trust, Northern Energy Innovation at Yukon University, First Nations Power Authority, Clean Energy Association of British Columbia, Pembina Institute's Renewables in Remote Communities and Ecotrust, which are playing important roles in providing analysis and support for Indigenous leadership in the sector. Relevant sources are provided in this report for further reading. Several road maps and visions for justice-oriented policy design have been developed, most notably from Sacred Earth Solar and Indigenous Climate Action (2023) and Doyle et al. (2022).

"Reaching Canada's climate targets requires a big switch from fossil fuel energy to clean electricity." (Dion et al. 2022). This analysis by the Canadian Climate Institute of a range of scenarios by modellers to decarbonize Canada's energy system estimates that by 2050, Canada's electricity sector could be completely decarbonized, and 2.2 to 3.4 times larger than today's electricity grid, predominantly powered by solar power, where wind could power 31 to 75 per cent of electricity generation.

A technological transition of Canada's electricity system and the scale of investment offer the opportunity for a critical societal transition. Electrification of the economy requires technically skilled labour know-how and the development of technology markets to increase wires, poles, turbines and solar panels. The potential for renewable electricity production varies across landscapes, and this has important consequences when electricity infrastructure overlaps with communities and ecosystems.

The stakes are high. Global annual investment toward electricity systems that are predominantly powered by renewables could reach US$4.5 trillion in 2030 and US$4.7 trillion in 2050 (International Energy Agency, 2023). Investment in renewable electricity in Canada could reach $560 billion by 2050 (Thomas and Green, 2022). Not acting on climate change would bring wide-reaching climate change impacts. Allowing climate action to reinforce and exacerbate existing inequalities and energy injustices could bring wide-reaching negative consequences, including lack of social acceptance.

In a warming world, could community-led renewable electricity offer a pathway of empowerment for communities for local value creation, green jobs, the ability to adapt to climate change and to address food and water security? Can renewable electricity leadership support communities to respond to the dual challenges of climate change mitigation and adaptation as they are felt locally?

INFORMING JUST TRANSITIONS POLICIES

Justice in electricity transitions requires consideration of the needs and opportunities specific to each community. It would be instructive to understand what would attract, support and empower communities to develop renewable electricity projects, and how these types of projects could lead to local value creation, revitalization and empowerment and support climate adaptation; for example, water, temperature and food security. One important step to informing just policy design is to learn from existing community-led renewable electricity projects about how they have contributed to these positive outcomes, and how pitfalls and unintended negative consequences have been felt, by whom and why, the changing institutional context, which would provide valuable insights to policy and procurement strategies.

The justice aspects of energy transitions — who is involved in decision-making over siting, the resulting distribution of impacts and benefits of renewable energy projects and removal of barriers to participation and accessing the information that is crucial to decisions — are understood as critical factors that influence the rate and scale of renewable project deployment and hence will contribute to supporting or undermining the broader renewable electricity transition (Comeau, 2022; Comeau et al., 2022).

Not viewing locally informed approaches through a lens of justice for communities in a transition toward wide-scale electrification carries important consequences. Conflicts between community members, utilities and developers, and lack of support within communities is reported as impeding renewable electricity development, even leading to localized blackouts and brownouts due to electricity demand outpacing supply, restricting the range of electricity uses and growth in some locations (Becken, 2024; Mcclearn, 2024; Nelson, 2024). The lack of supply to meet demand in certain locations has already been shown to be impeding local economic development and food security (Becken, 2024; Mcclearn, 2024; Nelson, 2024). Overriding community concerns has led to negative consequences and impacts. For example, hydroelectricity projects that have overlooked treaty rights have created irreversible damage to ecosystems, culture and livelihoods.

To inform the design and development of just transition policies, it is important to assess the distributional impacts of electricity transition policy in Canada by examining community-led and -owned renewable electricity projects so far in Canada, where and what opportunities are available and who these could support. Communities have differing traditions of renewable electricity development, and some technologies, locations and forms of ownership will include more experience and acceptance. This indicates the importance of policies that are flexible to be place-specific (Hoicka et al., 2025; Liljenfeldt et al., 2024, 2025). Historically marginalized communities are additionally found to be excluded from the supports provided by philanthropy funding for energy and climate change activities, and recommendations from these historically marginalized groups are to include them as equal partners in the co-creation of funding programs and policy (Hoicka 2024; Hoicka et al. 2023).

SCOPE OF REPORT ANALYSIS

Within the scope of the provinces' grid-connected projects and communities, this report seeks to:

- Show where Canada is at now in terms of community ownership and benefit flows with renewable energy projects — and to identify key gaps in this data.
- Identify the scale of opportunity for communities and public ownership.
- Highlight the importance of impacts and benefits distribution of renewable electricity projects to justice and social acceptance.
- Identify known provincial regulatory and other barriers to community involvement in grid-connected renewable electricity projects.
- Identify other institutional barriers and research gaps for further study.

Ultimately, this report is part of a larger piece of research work by the David Suzuki

Foundation under development to inform policy recommendations, barriers and gaps in data as they relate to empowering communities in a renewable electricity transition to support decarbonization in Canada. This report provides important information to foreshadow these outputs.

FORESHADOWING THE KEY FINDINGS

One of findings of this report with the furthest reach is the substantial lack of data that underpins the analysis that would provide a granular understanding of where community-led renewable electricity is happening, what the impacts have been so far, what the benefits are, how the impacts and benefits have been distributed, the degree of social acceptance or resistance within the community and what is possible. This is because Statistics Canada, the Canadian Centre for Energy Information (CCEI) and the Canada Energy Regulator (CER) are not known to specifically track community-led or community-owned renewable electricity and related infrastructure. This means it is unclear how much renewable electricity capacity on Canada's grids are owned by municipalities, cooperatives or communities.

In the past decade, there have been few if any procurement programs for community-scale renewable electricity. Most procurement programs of community-scale, grid-connected renewable electricity that began in the 2000s were cancelled or paused indefinitely between 2015 and 2019. Ontario has announced the intention to procure renewable electricity. British Columbia has launched several renewable-electricity procurements although concerns are arising as to whether these are supportive of communities and First Nations (Mason, 2025).

Another important finding of this report is the small size of the community-owned electricity sector. Canada's electricity grid is currently 152 gigawatts (which is equivalent to 152,000 megawatts). Only 73 MW of installed renewable electricity capacity is estimated to be owned by community cooperatives across Canada in 2021, and the renewable-electricity cooperative sector is in decline since the cancellation and pause of a range of policies that began in 2015 until 2019 (five to 10 years ago) (Boucher and Pigeon 2024).

Why has the renewable electricity cooperative sector seemingly stalled? Can community-led renewable electricity projects be scaled up to address decarbonization and to bring about local value creation and resilience to climate change impacts?

PART 1: THE OPPORTUNITY OF RENEWABLE ELECTRICITY AND EMPOWERING COMMUNITIES

Globally, energy use is responsible for two thirds of greenhouse gas emissions, while in Canada it's responsible for 81 per cent (Environment and Climate Change Canada, 2023). Many models and scenarios that address climate change mitigation of the energy sector point to the rapid and expansive electrification of energy uses. This includes the widespread electrification of heating, cooling and transportation.

Renewable electricity is now considered the cheapest source of electricity generation on the market (Lazard, 2024; Luderer et al. 2022). Globally, 3,870 GW of renewable energy is currently installed (REN21, 2024). A transition to predominantly renewable electricity could lead to a global electricity system sized between 8,700 GW and 30,000 GW by 2050 through the addition of predominantly solar and wind power, and a smaller share of geothermal and hydroelectricity power (Jacobson, 2020; International Energy Agency, 2023). The costs of wind and solar have been dropping, to the point where they are now cheaper than coal (Luderer et al., 2022). According to BloombergNEF (2024), in 2023, wind and solar accounted for 14 per cent of the world's electricity production and 91 per cent of global net power capacity additions.

Renewable electricity can come from wind, solar, biomass, marine and hydropower sources.

These trends of increasing solar- and wind-generated electricity are acknowledged in a range of energy scenarios and forecasts for Canada (Dion et al. 2022). Investments in wind, solar, storage and transmission are set to grow in Canada, although by how much varies widely depending on a wide range of factors such as economy and population growth, economic, regulatory and technology policy instruments, and end-use choices for industry, transportation, heating and cooling. Three reports outline scenarios that provide a range of perspectives, of which the details are summarized in Table 1.

"Shifting Power: Zero-Emissions Electricity Across Canada by 2035" from the David Suzuki Foundation (Thomas and Green, 2022) This report models a pathway to 100 per cent renewable energy by 2035, achieving zero-emissions electricity generation by that date and sustaining it through 2050 and beyond, as Canada's economy becomes increasingly electrified. It envisions deep electrification of buildings, transportation and industry, prioritizing energy efficiency and retrofits, supported by expanded interprovincial transmission to connect clean power across the country. This includes greater levels of electrification in buildings, transportation and industrial sectors, with priority to energy efficiency and building retrofit options and high levels of interprovincial electricity connections through new transmission lines.

"Institut de l'énergie Trottier: Canadian Energy Outlook – 3rd edition Pathways for a net-zero Canada Horizon 2060" provides a net-zero scenario that reaches a 40 per cent reduction target by 2030, and net-zero by 2050 (Langlois-Bertrand, et al., 2021, updated in 2024). By 2050, electricity makes up 52 per cent of total energy.

The "Canada Energy Regulator: Canada's Energy Future 2023" (2023) model finds that by 2050, electricity makes up 41 per cent of total end-use energy consumption in the global net-zero scenario, and 39 per cent in the Canada net-zero scenario, up from 17 per cent in 2021.

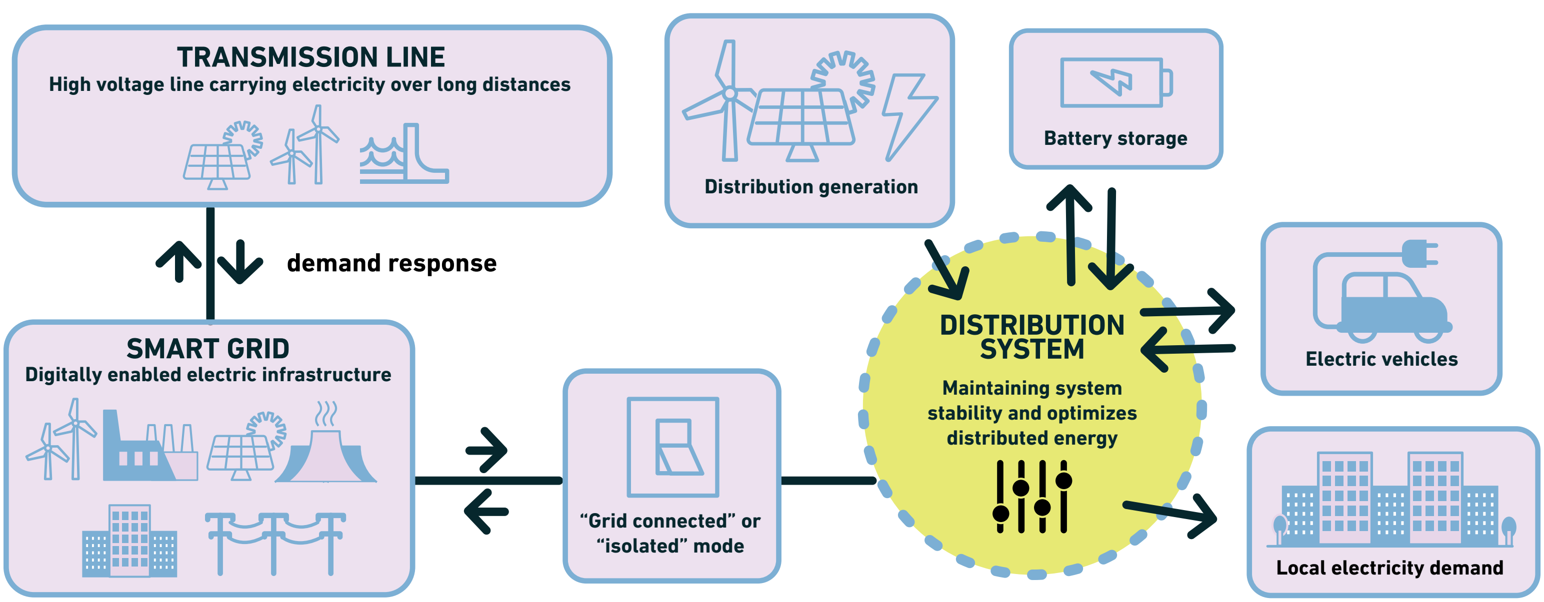
Table 1: Scale of opportunity for renewable energy investment

Target year/ Report	Shifting Power: Zero-Emissions Electricity Across Canada by 2035	Canadian Energy Outlook – 3rd edition Pathways for a net-zero Canada Horizon 2060	Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050
Initial target	2035 100% renewable electricity Electricity system: 241 GW Wind: 135 GW Storage: 8 GW Solar: 8 GW Hydroelectricity 82 GW	2030 Electricity system: 227 GW Wind: 23.5 GW Storage: 12 GW Solar: 10 GW Hydroelectricity: 76 GW	2030 Electricity system: 180 GW Wind: 41GW Storage: 11 GW Solar: 10 GW Hydroelectricity: 87 GW
2050	Electricity system: 414 GW Wind: 252 GW Storage: 35 GW Solar: 47 GW Hydroelectricity: 81 GW	Electricity system: 553GW Wind: 147 GW Storage: 67 GW Solar: 91 GW Hydroelectricity: 80 GW	Electricity system: 360 GW Wind: 88 GW Storage: 68 GW Solar: 83 GW Hydroelectricity: 90 GW

Of these reports, only Thomas and Green's (2022) provides an estimate of total investment in renewable electricity. In order to reach 200% renewable electricity by 2050, the report estimates an initial investment of C$400 billion in renewable electricity generation, storage, transmission and operation and maintenance costs would be required by 2035. This investment would grow to $560 billion by 2050 (2018 NPV) (Thomas & Green, 2022).

TECHNOLOGICAL TRANSITION FROM FOSSIL FUELS TO RENEWABLE ELECTRICITY

As fossil fuels are replaced, renewable electricity emerges differently than nuclear, large hydro electricity or fossil fuel thermal power generation across landscapes. This has important consequences for communities, Indigenous Nations and ecosystems. Wind and solar power are "variable" renewable electricity sources that generate varying amounts of electricity depending on the strength of the solar or wind resource, which varies over time. The potential for electricity generation is also affected by location. For example, over the course of a year, some regions are windier and some are sunnier. Expanding the size of the electricity grid and increasing the use of renewable electricity technologies requires "smart" and "flexible" electricity grids that incorporate multiple types of renewable electricity. For example, solar and wind power can be combined with each other and with hydroelectricity, with electricity storage, and demand-side flexibility to improve the reliability and costs of using electricity (Dion et al. 2022; Saffari and McPherson 2022). Locations that have the potential to provide more renewable electricity — for example, where it is very sunny, very windy or ideal locations for hydroelectricity — may be far from urban and industrial centres of electricity demand. In this case, electricity transmission lines that operate at high voltages and are newer and smarter will be able to transmit renewable electricity from locations of high potential over longer distances to urban and industrial centres of electricity demand. Distribution lines that operate at lower voltages and carry electricity to users will incorporate flexibility and use microgrid technology. The extent to which locational overlap between where these technologies may be implemented and communities is an important consideration that informs this report.



A NOTE ON HYDROELECTRICITY

There are 300 to 500 legacy hydroelectricity facilities that require refurbishment or rebuilding over the next 20 years, located on First Nation, Métis and Inuit territory and ancestral lands (Accelerating Transition, 2020) and 70 GW of untapped hydroelectricity that could be developed (Gall et al. 2022). There are a range of Indigenous perspectives on hydroelectricity that are important for electricity planning in Canada. Negative impacts, such as the destruction of ecosystems and disregard of treaty rights are particularly experienced by Indigenous nations (Stefanelli et al, 2019). Indigenous perspectives on hydroelectricity are a critically important perspective on future development of dams.

The "Decarbonizing Electricity and Decolonizing Power" report states, "There are numerous historic and current examples of renewable energy projects across Canada that have displaced Indigenous Peoples from their land, violated Indigenous rights, led to devastating environmental, cultural, spiritual and social damages and contributed to environmental racism and health consequences. Many of these examples are related to large scale hydroelectricity projects such as Smallwood Reservoir and Churchill Falls in Labrador, Grand Rapids dam in Manitoba, Lac Seul Conservation Dam in Ontario and Site C dam in British Columbia ... (Savic and Hoicka, 2021)" and recommends only considering hydroelectricity projects of less than 100 MW in capacity.

Indigenous Climate Action and Sacred Earth Solar focus "primarily on run-of-the-river and micro-hydro, as we do not consider megadams a sustainable use of hydropower — they have long been detrimental to Indigenous homelands." (Just Transition Guide).

"...I don't consider big dams to be clean ... I think about 1/3 of BC's power is powered by big dams, if not more. So, I always say what is the true cost of power? When you factor in these big dams in the colonial history, because there's a high cost to your cheap hydroelectricity." – Kwatuuma Cole Sayers quoted in (Doyle et al. 2022).

A coalition of over 170 First Nations argues that policies and programs should ensure that First Nations can decide what sector and projects are best for them." (First Nations Major Projects Coalition 2024).

THE OPPORTUNITY FOR A JUST TRANSITION

The distribution of where capital investment goes, who has access to capital, who bears the risk and the related impacts and benefits across society are important considerations for an electricity transition. However, most of the mentioned scenarios and forecasts have not yet outlined who could or will be involved in electrification and how the benefits stemming from electrification will be distributed from a transition toward predominantly renewable electricity.

Actors across civil society are increasingly advocating from a variety of perspectives that designing just transition policies that include, benefit and engage all communities, especially local economies and historically marginalized communities, are now required to meet the challenges of climate change mitigation and adaptation.

There are many potential social and environmental benefits of renewable electricity projects that include but are not limited to local value creation, socio-economic regeneration, knowledge and skills development, social capital, energy literacy and environmentally benign lifestyles, access to affordable energy, and empowerment (Berka and Creamer 2018; O'Neil et al. 2022). These benefits, and their recognition by communities, utilities and policy-makers alike, often depend on whom the projects are designed by and for, and the extent to which local capacities, needs and knowledges are taken into account. A growing body of analysis indicates that transparency and fairness in developing renewable electricity projects and the distribution of benefits are critical to local social acceptance of renewable electricity projects (Caggiano et al., 2024; Rand and Hoen, 2017).

LIMITATIONS AND BARRIERS TO ANALYSIS FOR JUST POLICY DEVELOPMENT

Although how "just" or acceptable an electricity transition or renewable electricity project is to a specific community is known to hinge on the removal of barriers to decision-making and the distribution of impacts, energy transitions are known to negatively affect communities and local ecosystems, culture, health and economies.

A recent global meta study of the impacts of over 200 climate policies, which included policies that support community-led renewable electricity, noted "climate and energy policies often fall short of delivering positive social outcomes" (Lamb et al. 2020). Analysis of the impacts and benefits of community-led renewable electricity projects has generally been ad hoc using methodologies that are inconsistent, rendering it difficult to compare or generalize policies (Berka and Creamer 2018; Lamb et al. 2020).

PART 2: LANDSCAPE ANALYSIS OF RENEWABLE ELECTRICITY AND PROJECT OWNERSHIP IN CANADA

WHAT IS MEANT BY “COMMUNITY” IN TERMS OF OWNERSHIP

Community energy is an umbrella term for “various forms of locally led, collectively owned, and managed energy projects” (Creamer et al., 2018). Community-led renewable electricity and infrastructure projects have emerged globally. Community-led renewable electricity challenges historically centralized and top-down planning and operation of privately and publicly owned infrastructure, distinct due to its leadership from citizens, municipalities, local and moral authorities (Šahović and Da Silva, 2016). Early on, community energy was recognized as energy projects developed by and for a local community; that is, control over the process by local communities was associated with localization of impacts and benefits (Walker and Devine-Wright, 2008). However, community energy can also represent actors who are not located close to a project, and a range of types of relationships with the location of a project. “Community” can be considered an actor, scale, place, network, process and identity (Walker, 2011). A community of place entails the “identification with a place-based community in facilitating participation: a sense of belonging to a particular place is observed to inspire voluntary efforts to develop community renewable energy to generate local benefits” (Creamer et al., 2018). A community as an actor can involve a local authority or municipality, whereas a community as a “network” can involve non-local investors in an energy project (Creamer et al., 2018; Walker, 2011). Community energy can take on a range of legal forms: cooperatives, trusts, local government–led, charities, social enterprises and local energy service companies (Hoicka and MacArthur, 2018; Walker, 2011). New legislation in the European Union has created “citizen energy communities” and “renewable energy communities” that are developing new legal forms of ownership and control (REScoop.eu, 2019).

Municipal and citizen-led renewable electricity in a community solar garden in Nelson, B.C.

“A community solar garden is a centralized solar array where members of the community have invested in solar energy production on a per-panel basis. The system is fully subscribed with investors varying from renters, homeowners, business owners, some of Nelson’s Co-ops, several churches, our local schools, and the local college. These investors receive a credit on their Nelson Hydro electric bill once per year in proportion to their original investment for the annual solar energy generated over the life of the agreement (25 years). Since commissioning in 2017, Nelson Hydro has credited $33,073.77 to subscribers’ utility accounts at the end of 2022.” (City of Nelson, n.d.)

Scope of analysis

The actors and organizations involved in community ownership that have been found in Canada include:

1. Cooperatives
2. Community economic development investment funds (CEDIFS)
3. Municipalities
4. Not-for-profits
5. Charities

This report focuses on these forms of ownership.

LANDSCAPE OF OWNERSHIP TYPES IN CANADA

The following analysis of cooperative, CEDIF, municipal ownership and public provincial ownership has been compiled from a range of publicly available sources that include reports for the Canadian Climate Institute, David Suzuki Foundation, energy and government agencies and departments, peer-reviewed and academic publications and other not-for-profit organizations.

Landscape of cooperative ownership

The evidence and methodology to measure cooperative ownership of renewable electricity infrastructure across Canada have been inconsistent. For the most part, these estimates are compiled from academic studies that use different methods of identifying where cooperatives exist and the functions they provide. It appears that there are anywhere between 97 and 115 renewable electricity cooperatives in Canada that generate approximately 73 MW. Across these analyses, cooperative ownership of electricity infrastructure exists or has existed in Ontario, Quebec, British Columbia, Alberta, New Brunswick, Nova Scotia, Manitoba and Saskatchewan, with no indication of energy cooperatives in Newfoundland and Labrador or Prince Edward Island. These conclusions are derived from the following evidence:

- In 2018, Hoicka and MacArthur organized analysis of community-owned electricity cooperatives by electricity system function. Their analysis identified 115 cooperatives, 14 electricity supply, one electricity supply, demand, distribution, 62 distribution, six demand (Hoicka and MacArthur, 2018).
- In 2021, Pineau identified 40 rural electrification associations distributors (cooperatives) in Alberta, one distribution cooperative in Quebec (Pineau, 2021).
- In 2022, Leonhardt et al. analyzed renewable energy cooperatives by the traditional cooperative classification system as consumer/retail, producer, worker/owner, multi stakeholder and investment, as well as by distribution, generation and consultancy (Leonhardt et al., 2022). Their analysis found 97 renewable energy cooperatives, of which 45 are “inactive” (Leonhardt et al., 2022), 26 solar, 10 wind/solar mix, nine biofuel, three wind and one energy efficiency audits; 70 generation, seven distribution, seven distribution and generation, seven generation and consultancy, four consultancy (Boucher and Pigeon, 2024).
- Boucher and Pigeon estimate that cooperatives in Canada are responsible for 73 MW of renewable electricity production as of 2021 (2024).

Landscape of community economic development investment fund (CEDIF)

CEDIFs are predominantly known in Nova Scotia, where they have existed since 1999 (Co-operative Enterprise Council of New Brunswick (CECNB), 2021). CEDIFs are considered innovative in local economic development as they encourage local investment of capital by keeping “100% of citizen’s investments at home, circulating in local economies and creating jobs, particularly in rural communities” (Co-operative Enterprise Council of New Brunswick (CECNB), 2021).

A CEDIF is a method to raise a pool of capital locally through selling shares that are invested into local businesses. In Nova Scotia, residents who invest in a CEDIF receive a 35 per cent provincial non-refundable income tax credit if they leave their investment in for five years. After 10 years of investment, an additional 20 per cent tax credit is applied. If the investment is kept for 15 years (the maximum), they receive a 65 per cent return on their investment. Minimum and maximum investments are $1,000 and $15,000 per year, per shareholder. RRSPs can also be directed into CEDIFs. (Co-operative Enterprise Council of New Brunswick (CECNB), 2021).

When the community renewable energy feed-in tariff policy was developed in Nova Scotia, renewable energy cooperatives were regulated according to the CEDIF framework. While CEDIFs require a for-profit entity, they can also be incorporated as a cooperative, rendering non-profits ineligible (Lipp et al., 2012).

CEDIFs raised over $35 million for renewable energy projects in Nova Scotia (Co-operative Enterprise Council of New Brunswick (CECNB), 2021):

- Solar Scotia Energy's CEDIFs raised over $3.6 million to finance solar PV installations for about 120 properties, primarily residential.
- Wind4All that has raised over $15 million and invested in seven wind farms.
- Overall, 12 renewable energy enterprises have been funded through CEDIFs.

Landscape of municipal ownership of electricity

Municipal ownership of electricity infrastructure has existed in Canada for over a century (Armstrong and Nelles, 1985). Evidence of current municipal ownership was found in all provinces except for Newfoundland and Labrador and Manitoba. In several provinces that have vertically integrated electricity monopolies, municipalities are allowed to own and operate electricity utilities, some of which generate electricity. However, municipal ownership of electricity infrastructure and as a retail service provider is not tracked separately from provincial ownership by Statistics Canada (see Table 5 of this report). The evidence of municipal ownership summarized in Table 2 was compiled from independent analyses by academics and consultants, with some cross-checks of provincial regulator information. Each source provided different information and coverage of provinces; the latest source was published in 2021.

Table 2: Municipal ownership of electricity

JURISDICTION	MUNICIPAL OWNERSHIP	SOURCE
Canada	Municipal ownership of supply (5), supply and demand (5), supply, demand, distribution (3), supply and distribution (9), distribution (71), demand (4)	(Hoicka & MacArthur, 2018)
Newfoundland and Labrador	-	-
Prince Edward Island	Summerside Electric purchases, sells, produces, transmits and distributes wind- and diesel-generated electricity	(City of Summerside, n.d.; Pineau, 2021)
Nova Scotia	7 municipally owned electricity utilities	(Marcoux, 2021)
New Brunswick	2 municipally owned electric utilities (St. John and Edmundston)	(Marcoux, 2021)
Quebec	9 municipally owned electric distributors	(Pineau, 2021)
Ontario	68 municipally owned licensed electricity distributors	(Pineau, 2021)
Manitoba	-	-
Saskatchewan	Saskatoon Light & Power Swift Current Electricity Services	(Pineau, 2021)
Alberta	6 municipally owned electricity distributors	(Pineau, 2021)
British Columbia	5 municipally owned electricity utilities in Grand Forks, Nelson, New Westminster, Penticton and the District of Summerland	(British Columbia Utilities Commission, 2020; Pineau, 2021)

Landscape of public (provincial) and private ownership of electricity in Canada

Ownership that is not considered community-owned is provincial or private without community involvement. The report "Improving integration and coordination of provincially-managed electricity systems in Canada," published by the Canadian Climate Institute in 2021 (Pineau 2021) outlines regulators and public and private ownership across provinces by generation, transmission and distribution functions. A summary of the distinct features of electricity system ownership by province is provided in Table 3.

Table 3: Public provincial and private ownership (summarized from Pineau, 2021)

JURISDICTION	PUBLIC OWNERSHIP	PRIVATE OWNERSHIP
Newfoundland and Labrador	NL Hydro (NALCOR): generation, transmission, distribution	Newfoundland Power: generation, transmission, distribution Independent power producers
Prince Edward Island	PEI Energy Corporation: generation and transmission	Engie: generation; Maritime Electric: transmission, distribution
Nova Scotia	-	NS Power: generation, transmission, distribution Independent power producers
New Brunswick	NB Power: generation, transmission, distribution	Power purchase agreements
Quebec	Hydro Québec: generation, transmission, distribution	Power purchase contracts
Ontario	Ontario Power Generation	Licensed electricity generators, transmitters and distributors and retailers
Manitoba	Manitoba Hydro: generation, transmission, distribution	Independent power producers
Saskatchewan	Saskpower: generation, transmission, distribution	Independent power producers
Alberta	Enmax: generation; Enmax power, Epcor: transmission	Transalta, Heartland Generation, Suncor, Capital Power, IPPs: generation; Altalink, ATCO Electric, TransAlta: transmission; 3 investor owned electricity utilities; retailers;
British Columbia	BC Hydro; FortisBC; generation, transmission, distribution	Independent power producers

Summary of ownership types across Canada

A summary of ownership types found in each province as a result of this analysis is provided in Table 4. The indication of as few as one project that is privately owned indicates the presence of the ownership type. All types of ownership are found in New Brunswick, Quebec, Ontario, Saskatchewan, Alberta and British Columbia. There was no indication of municipal ownership in Newfoundland and Labrador or Manitoba, of cooperative ownership in Newfoundland and Labrador and Prince Edward Island, or of provincial public ownership in Nova Scotia.

Table 4: Summary of indication of ownership types across provinces

JURISDICTION	PUBLIC A	PRIVATE B	MUNICIPAL C	CO-OPERATIVE D
Newfoundland and Labrador	✓	✓	⊘	⊘
Prince Edward Island	✓	✓	✓	⊘
Nova Scotia	⊘	✓	✓	✓
New Brunswick	✓	✓	✓	✓
Quebec	✓	✓	✓	✓
Ontario	✓	✓	✓	✓
Manitoba	✓	✓	⊘	✓
Saskatchewan	✓	✓	✓	✓
Alberta	✓	✓	✓	✓
British Columbia	✓	✓	✓	✓

a Public ownership by the province (Pineau, 2021) b (Pineau, 2021) private ownership "generates, transmits and/or distributes electric energy for sale" (NAICS 22111) c (City of Summerside, n.d.; Hoicka & MacArthur, 2018; Marcoux, 2021; Pineau, 2021) d (Boucher & Pigeon, 2024; Hoicka & MacArthur, 2018; Leonhardt et al., 2022; Pineau, 2021)

RENEWABLE ELECTRICITY CAPACITY IN CANADA BY OWNERSHIP CLASS

In 2022, renewable electricity capacity in Canada was approximately 101 GW, with 82 GW of installed hydroelectricity, 16 GW of installed wind and three GW of installed solar (Statistics Canada, 2024). Ownership as tracked by Statistics Canada falls into three classes: public ownership, which includes municipal and provincial ownership; private ownership, which includes any project under electric power generation, transmission and distribution industry (North American Industry Classification System (NAICS): 22111); and industries, which entails ownership outside of NAICS 22111. The breakdown of installed renewable electricity by province and by ownership type is provided in Table 5.

A key finding of this report is that Statistics Canada, the Canadian Centre for Energy Information and the Canada Energy Regulator don't specifically track community-led or community-owned renewable electricity and related infrastructure. This means it is unclear how much renewable electricity capacity on Canada's electricity grids is owned by municipalities, cooperatives or communities.

Within Table 5, municipal ownership is combined with provincial ownership, presented without disaggregation. Depending on how community ownership of renewable electricity is structured as a business entity and regulated (e.g., whether the operator has a specific type of licence), they could be either classified as "private ownership" or as "Industries*"; however, this is not disaggregated in the Statistics Canada reporting.

Table 5: Installed electricity and renewable electricity capacity in Canada (kW) (Statistics Canada, 2024)

JURISDICTION	CLASS OF ELECTRICITY PRODUCER	TOTAL ALL CLASSES OF ELECTRICITY PRODUCER	PUBLIC (PROVINCIAL AND MUNICIPAL) OWNERSHIP	PRIVATE OWNERSHIP	INDUSTRIES*
Canada		**Kilowatts**			
	Total installed capacity **	**152,206,558**	**95,166,384**	**49,467,747**	**7,572,427**
	Hydraulic turbine	82,206,565	72,619,983	6,116,189	**3,470,393**
	Wind power	16,169,469	872,470	15,236,558	**60,441**
	Solar power	3,103,878	187,660	2,844,399	**71,819**
Newfoundland and Labrador	Total installed capacity **	7,403,787	7,042,382	292,005	69,400
	Hydraulic turbine	6,762,300	6,524,295	238,005	-
	Wind power	54,000	–	54,000	-
	Solar power	0	–	-	-
Prince Edward Island	Total installed capacity **	294,814	95,560	198,054	-
	Hydraulic turbine	-	-	-	-
	Wind power	203,560	95,560	**108,000**	-
	Solar power	604	-	**604**	-
Nova Scotia	Total installed capacity **	2,942,950	1,500	2,890,400	51,050
	Hydraulic turbine	369,880	-	369,880	-
	Wind power	616,310	1,500	**564,960**	**49,850**
	Solar power	-	-	-	-
New Brunswick	Total installed capacity **	4,582,430	3,966,950	493,180	122,300
	Hydraulic turbine	953,000	902,950	50,050	-
	Wind power	355,400	-	**355,400**	-
	Solar power	-	-	-	-
Quebec	Total installed capacity **	46,163,540	37,637,594	4,938,283	3,587,663
	Hydraulic turbine	40,649,344	36,803,431	**518,195**	3,327,718
	Wind power	3,970,168	251,250	**3,718,918**	-
	Solar power	11,800	-	**11,800**	-
Ontario	Total installed capacity **	41,480,148	20,197,013	20,429,117	854,019
	Hydraulic turbine	8,977,401	7,783,430	1,059,296	134,675
	Wind power	5,535,122	335,300	**5,199,220**	**602**
	Solar power	1,916,873	182,953	**1,664,101**	**69,820**
Manitoba	Total installed capacity **	6,636,643	6,355,015	259,628	22,000
	Hydraulic turbine	6,063,180	6,063,180	-	-
	Wind power	258,450	-	**258,450**	-
	Solar power	1,178	-	**1,178**	-
Saskatchewan	Total installed capacity **	5,601,480	4,299,660	1,245,910	55,910
	Hydraulic turbine	862,600	862,600	-	-
	Wind power	805,630	159,960	**645,670**	**-**
	Solar power	31,440	-	**31,440**	**-**
Alberta	Total installed capacity **	18,638,816	1,637,607	14,523,306	1,880,863
	Hydraulic turbine	909,520	-	909,520	–
	Wind power	3,617,929	28,900	**3,588,240**	**789**
	Solar power	1,138,000	4,707	**1,133,126**	**167**
British Columbia	Total installed capacity **	18,638,816	13,644,566	4,171,928	822,322
	Hydraulic turbine	16,505,678	13,527,850	2,969,828	8,000
	Wind power	743,700	-	**743,700**	-
	Solar power	1,832	-	-	**1,832**

*Establishments that are not part of the electric power generation, transmission and distribution industry (North American Industry Classification System (NAICS): 22111).

**Includes all installed electricity, including nuclear and fossil fuel power

PART 3: CHARACTERISTICS AND CONSIDERATIONS FOR MODELS OF COMMUNITY-LED RENEWABLE ELECTRICITY

Community-owned and -led renewable electricity projects exist around the world, on most continents. However, it is still a relatively small sector. The European Union has demonstrated success in cooperative models, with 2,250 energy communities from across Europe owned by 1,500,000 citizens (Rescoop.eu, n.d.). The Renewable Energy Sources Act (EEG) in Germany was replicated globally to over 60 countries (Energy Watch Group, 2024). This act focused mainly on generation, found in many feed-in tariff policies that were subsequently developed.

The local benefits and impacts of renewable energy projects, their social acceptance by locally affected communities and the ability to raise and leverage capital can depend on the model of ownership and how and at what project stages communities nearby are engaged. In some cases, regardless of ownership types (whether receiving benefits with no ownership, or a share of ownership), the decisions about how revenue allocation are made affect the types of benefits to the community (or nation) (Hoicka et al., 2025). In other cases, ownership structure is found to affect the social acceptance of a project by proximate communities (Hogan, 2024; Hogan et al., 2022).

Although historically, community-led energy has focused on generation and distribution, widespread electrification based on renewable electricity requires variety in technology — combining multiple types of renewable energy with flexibility found in demand response, storage options and new grid management techniques such as prosumership (when electricity consumers generate electricity to sell to the electricity grid) and microgrid capabilities. According to many reports, a large expansion of electricity grids requires expansion of transmission lines (e.g., Thomas and Green 2022). This requires new forms of ownership that address different types of proximate communities.

COOPERATIVES

Cooperatives are typically formed to respect seven principles: voluntary and open membership; democratic member control; economic participation through direct ownership;

autonomy and independence; education, training and information; cooperation among cooperatives; and concern for community (International Cooperative Alliance, 2025). Although cooperatives are the dominant model for community energy ownership in Canada, they have been associated with drawbacks globally and in Canada. Despite the seven principles, renewable energy cooperatives have often been found to be more exclusive than inclusive. For example, the European Union has over 2,250 cooperatives and 1,500,000 members (Rescoop.eu, 2024). A 2015 analysis shows a lack of diversity and inclusion in renewable electricity cooperative members, who are mostly educated, older, white and male (Fraune 2015). Members of renewable energy cooperatives in Canada are typically urban and wealthy, even when renewable energy projects are built in rural areas, and found to sometimes be influenced by corporate interests (Foote, 2025; Tarhan, 2020). When compared to other models of community ownership, cooperatives can create “insiders” and “outsiders” in a local community between members and non-members of co-operatives (Slee, 2015).

CO-OWNERSHIP OF TRANSMISSION LINES

Although currently few, there are developments of grassroots co-ownership of transmission lines. The Wataynikaneyap Transmission Project is an 1,800-kilometre extension to transmission lines in Northern Ontario. Watay Power has a novel ownership model, where 51 per cent is owned by 24 First Nations, and 49 per cent is owned by private investors, primarily Fortis Ontario Inc. (Fortis Ontario Inc., n.d.). This model has been promoted as an important option by the First Nations Major Projects Coalition and the Clean Energy Association of British Columbia (First Nations Major Project Coalition & Mokwateh, 2024; Hoicka et al., 2025).

OTHER MODELS OF OWNERSHIP

Other models that exist outside of Indigenous nations and outside of Canada include community development trusts (Scotland) and citizen energy communities and renewable energy communities (European Union). These models can offer advantages not currently experienced in the community energy sector in Canada.

COMMUNITY BENEFITS SOCIETIES AND COMMUNITY DEVELOPMENT TRUSTS

Community benefits societies often accompany cooperative models in Scotland. These societies exist to benefit both their members and a wider pre-specified community, such as for broader community benefits, for public benefit and/or for charitable purposes (Slee, 2020).

Community development trusts are independent, not for private profit, and work in partnership with private, voluntary and public-sector organizations (Slee, 2020). They are owned and managed by the local community and designed to contribute to the sustainable regeneration of the community and aim to reduce dependency on grant support by generating income through enterprise and asset ownership (Slee, 2020). In 2020, there were over 250 community development trusts in Scotland, many having invested in renewable energy, although the specific number involved in renewable energy is unknown (Slee, 2020).When comparing cooperatives to community benefit societies to community development trusts, Slee finds "community development trust appears to offer the greatest range and scale of local beneficial outcomes for sustainable rural development, but the level of impact on emissions reduction varies and the primary motive has most often been income generation for local development." (p.159)

CITIZEN ENERGY COMMUNITIES (CEC) AND RENEWABLE ENERGY COMMUNITIES (REC)

CECs and RECs are enabled in Europe through new legislation introduced by the European Union. These communities expand both who is involved in their ownership and the technologies that are financed, such that they can focus on renewable electricity generation, as well as flexibility and system functions. As such, they can also address a wide range of technology and infrastructure needs. CECs and RECs bring together citizens, local government and enterprises, and incumbent energy companies as co-investors, where no one group has more than one third control, to develop infrastructure projects that can include prosumership, generation, flexibility and storage, where the primary purpose is to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits (REScoop.eu, 2019). RECs require that citizens are "proximate" to the project, whereas CEC's do not have a proximity requirement. An advantage of RECs and CECs is that they can leverage investment from citizens and communities, by matching community investments by co-investors. For example, the capital that a cooperative raises may be tripled through investment from local authorities and small, medium and large enterprises. The second distinct advantage is that the benefits are put toward those communities in the local areas of operation. A third advantage is that energy communities finance a range of technologies and combinations, or clusters, of technologies (Lowitzsch et al., 2020). CECs and RECs are supported in legislation by a range of planning and capacity-building supports to develop and implement projects (REScoop.eu, 2019). This policy is being implemented across all 27 European Union states, and is being studied by many research projects funded by Horizon research funding.

PART 4: ENABLERS AND BARRIERS TO COMMUNITY-LED RENEWABLE ELECTRICITY IN CANADA

POLICY MIXES TO SUPPORT AND SCALE COMMUNITY-LED AND -OWNED RENEWABLE ELECTRICITY

Despite the potential promise of benefits for rural, historically marginalized communities, how and whether community energy emerges depends on government policies and institutional support (Creamer et al., 2018). Institutional structure is characterized by the make-up of utilities, regulators, government, agencies, and policies, programs and procurement strategies, and is an important factor in the way community energy emerges and succeeds or does not succeed in a particular jurisdiction (Berka et al., 2020; Creamer et al., 2018; Hoicka and MacArthur, 2018). Institutional structure can support or inhibit community-led renewable electricity through a variety of factors such as policy mixes, information, funding and support or inhibition by a range of actors and networks (Hoicka et al. 2022). A policy mix is the range of policies and programs in place that can influence a particular sector, such as community-led energy (Berka et al., 2025), or outcome, such as climate change mitigation (Scott et al., 2025).

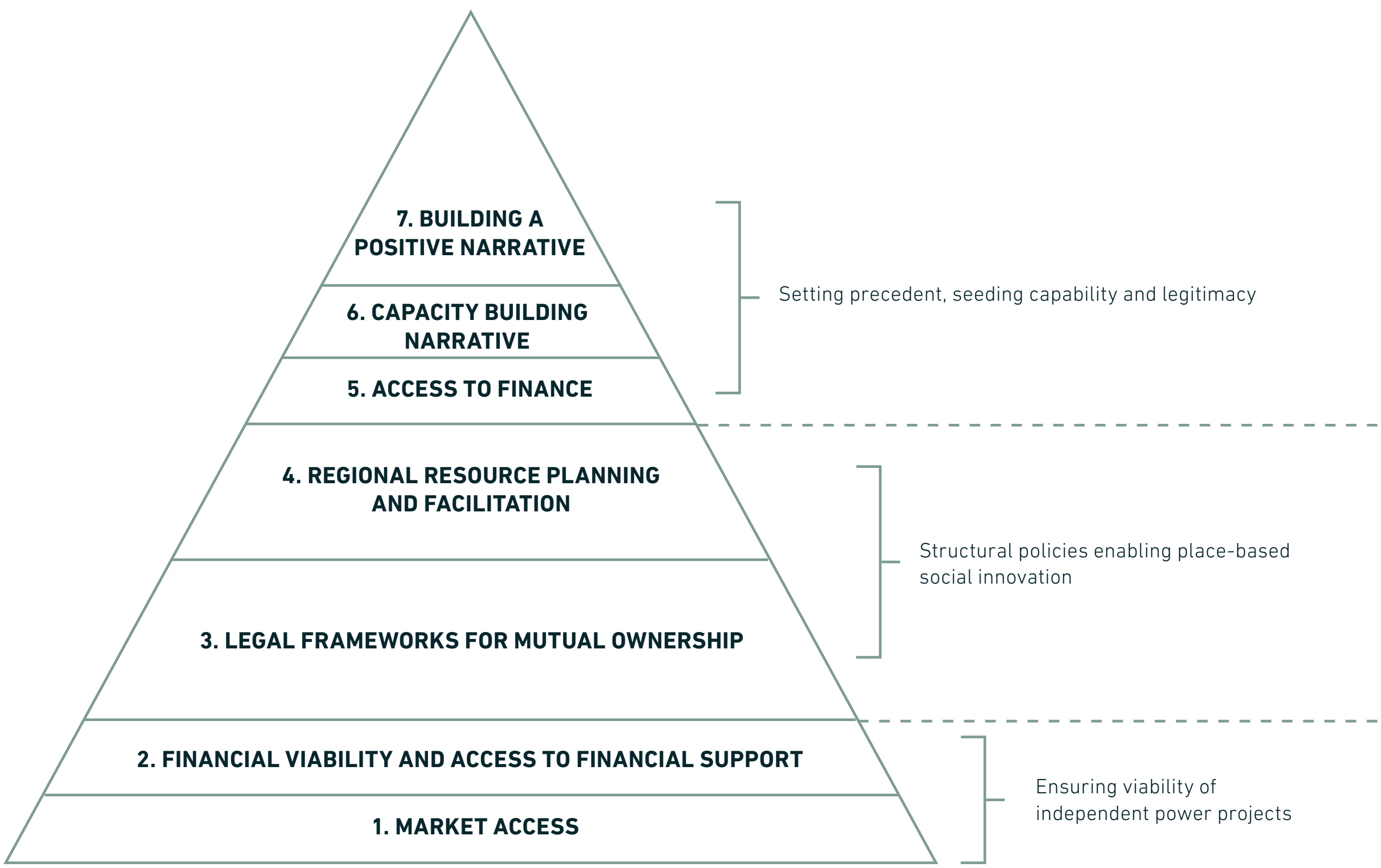


Figure 3: Policy categories to support the viability and growth of the community energy sector (based on Berka et al., 2024; Berka et al., 2020)

Although community-led energy is limited globally, it has had more market share in some jurisdictions compared to others (Berka et al., 2025; Hoicka et al., 2022). In a systematic and global overview of policy mixes that affect the emergence and uptake of community-led energy, Berka et al. (2025) identified seven policy categories that require policies to develop a policy mix that supports the uptake and widespread scale-up of community-led energy initiatives across a jurisdiction.

1. The base policy category is **market access**, the requirement for grid connection procedures, guarantees or competitive access with appropriate costs, supplier mandates or obligations and power purchase guarantees for renewable electricity (Berka et al., 2025). The lack of market access policies inhibits the viability of renewable electricity ownership in any particular jurisdiction.

2. The second policy category is **financial viability and access to financial support**. This policy category outlines the range of economic instruments that can be put in place for distributed energy. These types of policies should be available for the various stages of projects, from pre-assessment to project operation. These policies can include the following types of economic instruments: regulated prices above wholesale price, premiums, subsidies, low-risk and low-interest public loans, loan guarantees for both seed (early stages) and capital funding, grants, ensuring that existing innovation, development or decarbonization funds including carbon markets, auctions, and ensuring that procurement programs are consistent with community energy, and tax privileges for social enterprise or community energy (Berka et al., 2025). Policies that do not support early stages of project development present a barrier to project development in any particular jurisdiction.

3. The third policy category are the **legal frameworks for mutual ownership.** These are the policies that provide the legal frameworks and market legislation that allow for collective, local government and access to relevant markets, necessary licences (Berka et al., 2025). This often requires the removal of barriers, such as restrictions to these types of organizations accessing wholesale, supply, retail markets, selling electricity directly to members, obtaining supply licences or access to existing policy support (Berka et al., 2024). Without market access, financial viability or legal frameworks for mutual ownership, community-owned renewable electricity projects within a particular jurisdiction are not viable, regardless of whether other policy categories (such as capacity building) have supportive policies in place.

4. The policy category for regional resource planning and facilitation includes the policies and practices that support siting approval. This approval can require explicit criteria for local benefits, local leadership and preference for

community-led development in planning consent, training of staff, rapid and planning procedures, bylaws, regulations and guidelines (Berka et al., 2025). Streamlining siting approval can increase the speed of projects, and encourage development of more projects within a particular jurisdiction.

5. Not having the skills or know-how to bring a project from start to completion is a critical barrier to community-led renewable electricity projects. **Capacity-building** is provided by actors and networks internal and external to a community. For example, capacity-building can include removal of structural barriers to community members and citizens to participate in energy planning, and skills training. Providing hand-holding and training for project logistics and community participation, matchmaking for projects, and partnerships, often by intermediaries, are critical to help community-led renewable electricity projects to scale in a particular jurisdiction (Berka et al., 2025). For example, in Scotland, a membership organization that provides advice on trust formation, community land and community asset transfer is supported by the Scottish government (Slee, 2020).

6. Community-led renewable electricity projects require funding for feasibility studies, as well as **access to finance**. Funding and financing can be difficult to obtain due to lack of precedent in the sector, lack of assets and credit history of a community organization. Many cooperatives have remained dependent on subsidized loans or bank-financed debt, has and these have implications for risk exposure, ownership, scale and design and revenue streams There are economic instruments that can be offered by central, state and local governments, ranging from (revolving) seed capital loans or grants, fixed premiums for electricity generated from community or small to medium-scale projects, and tax-privileged investment structures for social enterprise (Berka et al. 2025)..

7. The processes, pre-conditions and benefits of developing community-led energy projects are not often widely known by government, industry and the wider public. There can also be mistrust of community energy projects, and a lack of willingness to accommodate community energy by third parties, such as utilities, health authorities and insurance companies. **Building a positive narrative** is needed to scale up and replicate community energy projects. Sharing stories through case studies about projects and the sector, gathering empirical data about pre-conditions, ownership structures and impact evaluation, developing legitimacy through transparent and measurable strategies, backing by agencies and a focus on policy learning and sharing can support the building of a positive narrative (Berka et al., 2025).

The conditions for market development and scale-up of community-owned renewable electricity **exist when there** is a diverse mix of supportive policies and **the** removal of barriers across each policy category. (Berka et al. 2025).

Structural barriers to community-led renewable electricity projects occur when there are few policies in each of the policy categories. For example, when few policies exist across each policy category, incumbent actors, such as utilities and corporations and vested interests are able to maintain market dominance, not allowing new entrants to the market, such as citizens and communities (Berka et al., 2025).

These policy categories indicate that if a community doesn't have meaningful market access through a longer-term power purchase agreement, or legal pathways to robust community ownership or partnership, but they do have strong narrative building, this can lead to the added burden of building the capacity to advocate for these essential conditions to be achieved.

BARRIERS AND SUPPORTS TO COMMUNITY-LED RENEWABLE ELECTRICITY IN CANADA

In Canada, the provinces have jurisdictional control over electricity procurement and grid operation, management and regulation. However, the federal government has control over other aspects of relevant policies, including environmental policies, innovation, advocacy funding and trade. The barriers and support for community-led renewable electricity would need to be analyzed province by province to understand policy alignment in each case. For this report, a high-level summary of the most significant barriers identified in the research to community owned renewable electricity policies are outlined in Table 6, illustrating the nature and pervasiveness of the barriers.

Table 6: An overview of critical barriers and supports to community-owned renewable electricity

POLICY CATEGORY	BARRIERS AND SUPPORTS ACROSS CANADA
Market access and financial viability and access to financial support	⊘ Lack of predictability and removal of market access policies. Procurement policies for electricity are controlled within each provincial jurisdiction. Some provinces have adopted enabling policies, but their application has been inconsistent, with notable high-profile cancellations. • ⊘ In 2015, the community feed-in tariff (COMFIT) was cancelled in Nova Scotia (Government of Nova Scotia, 2015); • ⊘ In 2018, the Government of Ontario canceled 758 contracts developed through the feed-in tariff program (FIT) and repealed the Green Energy and Green Economy Act that received royal assent in 2009 (Ministry of Energy, Northern Development and Mines, 2018). The cancelled contracts were mainly held by communities and First Nations (The Canadian Press, 2018). • ⊘ In 2019, British Columbia indefinitely suspended the standing offer program that procured electricity from independent power producers (IPPs) between 2008 and 2019 (Lovekin et al., 2021). In 2024, B.C. announced new calls for power. • Nova Scotia has started the Green Choice Program (Nova Scotia Green Choice Program, 2025) that is a procurement option for large electricity consumers to purchase renewable electricity. It works with the province, suppliers, the utility and large energy buyers, although it is unclear whether suppliers consist of communities. • A study by Leonhardt et al. (2022) interviewed renewable energy cooperative participants. The participants who said they were optimistic about the possible future believed that policy-makers could make favourable changes to legislation or introduce new government support to facilitate community generation of electricity.
Legal frameworks for mutual ownership	✓ Cooperatives ✓ Municipal ownership of electricity utilities ⊘ Community benefits societies and community development trusts, renewable energy communities, citizen energy communities
Financial viability and access to financial supports	✓ Cooperatives have been financed through CEDIFs, shares and bonds. Ontario cooperatives raised over $84 million in community capital (shares and bonds) to support the development of solar, wind and biogas projects. As of 2015, they had more than $100 million in assets under management and were paying out more than $9 million per year in returns to investors. (Lipp and Dolter, 2016). ✓ Municipalities have been supported in ownership of various electricity infrastructures through regulatory structures (e.g., Armstrong and Nelles, 1985; British Columbia Utilities Commission, 2020). For over a decade, municipalities across Canada have been increasing their interest and involvement in climate change and electricity infrastructure and electricity management decisions (MacDonald et al., 2024; QUEST Canada, n.d.).

Regional resource planning and facilitation	Currently unclear whether any jurisdictions in Canada have this support for community led renewable electricity. Lack of representation of gender, racial, historically excluded communities and other forms of diversity across regulation, planning and decision-making bodies (Electricity Human Resources Canada, 2021; First Nations Major Project Coalition & Mokwateh, 2024)
Capacity building	Community Energy Cooperatives Canada (CECC) represents the renewable energy cooperative sector working with individuals and organizations across Canada to scale up community ownership and governance of energy through cooperatives. Cooperative participants prioritize the development of networks and knowledge-sharing and develop an intermediary to advance their interests through collective organizing (Leonhardt et al. 2022). A 2022 analysis of the energy and climate sector revealed little in the way of inclusion of historically marginalized communities (Hoicka, 2024; Hoicka et al., 2022, 2023), which may extend to the community-led renewable electricity sector.
Building a positive narrative	Statistics Canada, the Canadian Centre for Energy Information and the Canada Energy Regulator don't specifically track community-owned renewable electricity and related infrastructure. There is otherwise no formal body that systematically gathers and tracks this data to provide to researchers or in aggregate for the public. This means it is unclear how much renewable electricity capacity on Canada's electricity grids is owned by municipalities, cooperatives and communities and where these are, and this creates barriers to learning from them and creating positive networks. Cooperatives: Boucher & Pigeon (2024) identified the lack of consistent reporting about renewable electricity cooperatives, and evidence of attrition of renewable energy cooperatives due to a landscape lacking policy and capacity support.

PART 5: GAPS FOR FURTHER RESEARCH AND ANALYSIS

This report identifies gaps for future work and research. This section outlines these research priorities, providing the underlying rationales.

POLITICAL POWER

The Political Power Gap

Although renewable electricity technology is now the cheapest technology on the market, a range of barriers are hampering its rapid roll-out, such as knowledge gaps and culture among regulators, utilities and governments. Vested interests are understood to actively create conditions that inhibit the emergence of community renewable electricity.

There are many ways in which political power is used to inhibit energy transitions and climate action. Conflicts between incumbent utilities and new entrants to the electricity market have played out in a range of ways across many jurisdictions, including in Canada (e.g., Brisbois 2019). There are many ways in which barriers appear. These can include:

- procurement program cancellations, additional fees for small renewable electricity connections that impede financial viability;
- technical arguments about the nature of renewable electricity and the current status of electricity grids;
- a history of an engineering and technology culture leading the electricity sector that is not used to communicating and coordinating with more actors, who are non-technical actors;
- arguments from elites who do not wish to see renewable electricity, or from corporations such as fossil fuel producers and distributors that do not wish to lose their market share to electrification;
- compounded by the lack of diverse representation in electricity planning and regulation decision-making bodies that could influence policy-making and procurement programs (First Nations Major Project Coalition & Mokwateh, 2024);
- the National Indigenous Electrification Strategy and the Just Transition Guide identify utility profit models as a key barrier impeding utilities and regulators from providing support through rate-setting for independent power producers (IPPs) and power purchase agreements (PPAs) (First Nations Major Project Coalition & Mokwateh, 2024; Sacred Earth Solar and Indigenous Climate Action, 2023).

Many argue that political power gaps run deeper. Climate obstruction is a growing topic of research that details the strategies employed by "staunch defenders and promoters of the fossil sector and economy," such as companies, think tanks and other organizations, to delay action on climate change, including transitions to renewable electricity (Graham 2024). Several studies have already analyzed some of the impacts of climate obstruction on decarbonization policy, universities and the role that think tanks have played (Graham 2024; Carroll et al. 2022; Hiltner et al. 2024; Carter and Dordi, 2021).

Identification of the methods and impacts of political power and the barriers and policies to be removed should be a priority. A starting point is a comprehensive study approach to existing research and reports on the topics of climate obstruction.

LEGAL FRAMEWORKS FOR MUTUAL OWNERSHIP LEVEL

The new wave of electrification described by the David Suzuki Foundation means that communities do and could continue to expand participation in a wide range of renewable electricity infrastructure functions and opportunities (such as transmission lines, storage and flexibility). To ensure this opportunity is available, there is a need to provide a wider range of socially innovative models to apply in Canada for citizens and communities to plan, govern and own renewable electricity infrastructure. A range of models exists globally that can be identified and assessed against the Canadian context by citizens, communities, advocacy groups, policy-makers, utilities, governments and renewable energy developers.

Analysis of impacts and benefits of community-led renewable electricity projects

The impacts and benefits of renewable electricity projects are often associated with job creation, and revenues that could stem from local land lease agreements, project development and delivery, impact and community benefit agreements, or MOUs, or even from project revenues through ownership. Nearly every source analyzed for this report views employment as a key benefit as a direct result of the development of community-led renewable electricity and associated infrastructure. Projects owned by communities can eventually become a source of revenue to that community and provide a range of social benefits, depending on how the allocation of revenues is arranged. Projects that contribute to reliable electricity, and expansion of electricity in locations where there is intended economic growth, can support local economic development. Community-led renewable electricity can therefore support communities adapting to climate change, as the need for electricity for cooling increases, as well as the need for local electricity sources that provide reliable electricity to counter environmental hazards caused by climate change that cause blackouts, brownouts and grid malfunctions.

It is widely understood that the impacts, benefits and trade-offs between these and project size are rarely explored and measured after projects are built (Berka and Creamer 2018; Lamb et al. 2020; Hoicka et al. 2025). A recent meta study of the impacts of climate policies noted "climate and energy policies often fall short of delivering positive social outcomes" (Lamb et al. 2020). There is a lack of consistency in assessing impacts, resulting in an absence of consistent policy evaluation about the social and economic impacts of community-led renewable electricity projects. The lack of consistent identification of existing community-led renewable energy infrastructure projects creates an additional structural barrier to this type of evaluation.

The pre-conditions and development of renewable electricity projects are also critically important to a project's success (Comeau et al. 2022). Analysis by the Conservation Council of New Brunswick provides details about how community engagement after a project has been decided on (called "decide-announce-defend") can undermine community renewable energy projects, causing them to be cancelled (Comeau et al., 2022). However, documentation and analysis of the preconditions, development, impacts, and benefits of community-led renewable electricity projects are lacking, and are needed to support effective program and policy evaluation.he provision of this evaluation and analysis can offer credible and important insights to just transition policy design for decarbonizing the energy sector. Robust analysis into "place-based renewable energy at scale" that describes how renewable electricity emerges and can drive local value creation can provide deep value toward replication and acceleration of justice-focused energy transformations (Hoicka et al., 2025; O'Neil et al., 2022). There is potential for a third-party organization, developed with support from government, civil society and know-how and legitimization of results from academia, to support stronger insights and tailor-made analyses into the development of justice-oriented policies for energy transitions.

REGIONAL RESOURCE PLANNING AND FACILITATION

New learning about regional resource planning and facilitation can be provided by addressing the political power gap.

Representation in decision-making and planning bodies

The lack of representation and inclusion of a range of historically excluded communities has been identified as a key barrier to policy design, development and implementation by a range of studies and organizations (First Nations Major Projects Coalition and Mokwateh, 2024; Hoicka 2024; Hoicka 2023; Hoicka et al. 2023; Electricity Human Resources Canada, 2021). Representation on decision-making and planning bodies will expand the range of knowledge, experiences and insights to inform planning and policy development. How to implement representation, and what kind and in which circumstances, should be addressed in a manner that is led by excluded communities.

Contexts for new approaches for community-led power

Sometimes there are rapid expansions of the electricity grid, or the need for a rapid increase of electricity supply, due to sudden increased demand from industrial and agricultural activities or due to the need to connect new supply to existing grids.

In Leamington, Ontario, the rapid expansion of demand for electricity is coming from greenhouse growers (Becken 2024). There has been a large expansion of greenhouses for food production, and the demand for electricity is greater than what the electricity grid can provide, which has led to experimentation with new technologies for electricity supply.

A future topic of research is how these rapid expansions of electricity demand in specific locations can be used to involve communities, and what the benefits and unintended consequences may be.

CAPACITY-BUILDING

Capacity-building for community-led renewable electricity projects

Capacity-building organizations currently exist, mainly in the Indigenous nation renewable energy sector. Indigenous Clean Energy has developed extensive networks to provide capacity-building, youth training, mentorship and transfer of knowledge for Indigenous citizens and nations and for policy-makers, developers and utilities. Indigenous Climate Action and Sacred Earth Solar have developed visions and road maps. The First Nations Major Projects Coalition has been publishing comprehensive primers for community and project leaders to gain knowledge about electricity regulation, capital asset ownership, how to access capital and how to join leadership positions in the electricity sector.

By contrast, there are few current capacity-building options for community-led renewable electricity projects. TREC provided these services historically. Further, there appears to be little in the way of capacity-building support for historically excluded communities.

Recommendations for research and analysis in the capacity-building policy category should address these concerns within the existing cooperative sector, municipalities, and historically excluded communities. Collaborative research and analysis with these actors can generate strategic insights into the approaches most effective for building capacity. There should also be a focus on the development of networks within and outside of Canada that could increase knowledge transfer to the Canadian context around the development and deployment of innovative policies and projects.

BUILDING A POSITIVE NARRATIVE

Tracking community-led renewable electricity in Canada

There is a lack of consistent data collection on community-led ownership of renewable electricity in Canada. This is an area where the federal government can step in, and provide support to a research centre or initiative that is led by a combination of civil society and academia, and supported through government funds, to provide thorough and credible analysis of community-led renewable electricity projects in Canada, and their technology functions, legal forms and locations. These types of research centres exist in health care and for industrial energy use. An extensive number of scholars in Canada is studying community-led renewable electricity and can contribute recommendations on such a centre or agency's structure, mandate and governance, and research methods.

Validation and synthesis with a comprehensive assessment and co-created policy and supports

Gathering empirical data about pre-conditions, ownership structures and impact evaluation, developing legitimacy through transparent and measurable strategies, backing by agencies and a focus on policy learning and sharing can support the building of a positive narrative, particularly for governments, utilities and agencies that lack awareness of on-the-ground experiences, barriers and supports.

Several organizations have already taken these steps by developing reports, action plans, visions and priorities that have directly engaged experienced leaders and potential leaders of cooperatives for renewable electricity ownership. There are organizations working to advance community-owned renewable electricity in Canada such as Community Energy Cooperatives Canada (CECC).

A lack of policy evaluation of the social and economic impacts affects the creation of a positive narrative for the sector and replication in policy.

As a first step, a **comprehensive assessment and synthesis report**[1] could identify consistencies in the barriers, gaps and supports in policy, which aspects of procurement and policy should be flexible enough to be place-based and adapted to local communities and which aspects of procurement and policy can be standardized and streamlined. Such a comprehensive assessment can address the policy categories provided by Berka et al.'s (2025) assessment.

SYNTHESIS: POLICY ALIGNMENT FOR RAPID UPTAKE OF RENEWABLE ELECTRICITY

Table 7: Summary of research gaps to address

Policy category	Research priority
Market access and policies for financial viability	Understand and address political power gaps.
Legal frameworks for mutual ownership	Assessment of mutual ownership models in other jurisdictions, not yet in Canada.
Financial viability and access to financial supports	Assess the value of social acceptance against a range of economic instruments to support community-led renewable electricity projects.
Regional resource planning and facilitation	Representation of the current cooperative sector and historically excluded communities in decision-making and planning bodies. Identify contexts to try new approaches.
Capacity-building	Work with the current cooperative sector and historically marginalized communities to develop strategic insights and networks within and outside of Canada to increase knowledge transfer around the development and deployment of innovative policies and projects that can be translated and updated into and across the Canadian context.
Building a positive narrative	Validation and synthesis with a comprehensive assessment of models, policies and supports. Develop a research initiative to track community-led renewable electricity across Canada. Develop in-depth and widespread understanding of the impacts and benefits of community-led renewable electricity projects against a range of models of ownership and control.

Analysis about how to best synthesize and coordinate policies is also crucially important. One of the most rapid uptakes of a feed-in tariff program anywhere occurred in Vietnam, where 18 GW of solar photovoltaics were installed in two years between 2018 and 2020. Experts reported that the government's commitment to energy availability was the most important motivation for Vietnam's solar and wind policies, and was supported by a wide range of aligning enabling policies, market and grid access, tax credits, electricity planning and targets (Do et al., 2021).

Analysis of the alignment of policies to provoke the rapid scale-up of community renewable electricity is an important area of research and analysis.

CONCLUSION

Actors across civil society are increasingly advocating from a variety of perspectives that designing just transition policies that include, benefit and engage all communities, especially local economies and historically marginalized communities, is now required to meet the challenges of climate change mitigation and adaptation.

Community-owned renewable energy could support a just transition and enhance benefits to communities that could include local value creation, revitalization and empowerment and support climate adaptation; for example, water, temperature and food security, sovereignty, independence and cultural revitalization. This report has outlined the landscape of ownership of community ownership of cooperatives, community economic development investment funds (CEDIFS) and municipalities.

However, the policies needed to support community-owned renewable electricity in Canada do not currently exist. As a result, the renewable energy cooperative sector appears to be in attrition, and there is currently little in the way of collective organizing to develop new opportunities. How procurement policies roll out in the provinces will affect both sectors.

Allowing communities greater control over where and how investment in renewable electricity transitions occur, and to be some of the primary recipients of the benefits, is critical to consideration of the development of just transition policy.

SOURCES

Armstrong, C., & Nelles, H. V. (1985). The State and the Provision of Electricity in Canada and Australia, 1880–1965. In D. C. M. Platt & G. di Tella (Eds.), Argentina, Australia and Canada: Studies in Comparative Development 1870–1965 (pp. 207–230). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-17765-3_14

Becken, B. (2024). Could hydrogen-generating windmills power greenhouses This researcher says it's likely. CBC. https://www.cbc.ca/news/canada/windsor/wind-to-hydrogen-greenhouse-essex-county-1.7155830

Berka, A. L., & Creamer, E. (2018). Taking stock of the local impacts of community owned renewable energy: A review and research agenda. Renewable and Sustainable Energy Reviews, 82, 20. https://doi.org/10.1016/j.rser.2017.10.050

Berka, A. L., MacArthur, J. L., & Gonnelli, C. (2020). Explaining inclusivity in energy transitions: Local and community energy in Aotearoa New Zealand. Environmental Innovation and Societal Transitions, 34, 165–182. https://doi.org/10.1016/j.eist.2020.01.006

Berka, A. L., Hoicka, C. E., & Sperling, K. (2025). The political economics of civic energy: A framework for comparative research. Renewable and Sustainable Energy Reviews, 211, 115307.https://doi.org/10.1016/j.rser.2024.115307

Boucher, M., & Pigeon, M.-A. (2024). Scaling renewable energy cooperatives for a net-zero Canada: Challenges and opportunities for accelerating the energy transition. Energy Research & Social Science, 115, 103618. https://doi.org/10.1016/j.erss.2024.103618

Brisbois, M. C. (2019). Powershifts: A framework for assessing the growing impact of decentralized ownership of energy transitions on political decision-making. Energy Research & Social Science, 50, 151–161. https://doi.org/10.1016/j.erss.2018.12.003

Caggiano, H., Constantino, S. M., Greig, C., & Weber, E. U. (2024). Public and local policymaker preferences for large-scale energy project characteristics. Nature Energy, 1–11. https://doi.org/10.1038/s41560-024-01603-w

Canada Energy Regulator. (2023). Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050 (p. 134). Canada Energy Regulator. https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/

Carroll, W. K., Daub, S., & Gunster, S. (2022). Regime of obstruction: Fossil capitalism and the many facets of climate denial in Canada. In D. Tindall, M. C. J. Stoddart, & R. E. Dunlap (Eds.), Handbook of Anti-Environmentalism. Edward Elgar Publishing.

https://doi.org/10.4337/9781839100222.00021

Carter, A. V., & Dordi, T. (2021). Correcting Canada's "one eye shut" climate policy [Working Paper]. The Cascade Institute. https://cascadeinstitute.org/wp-content/uploads/2021/04/Carter-Dordi-Canadas-one-eye-shut-climate-policy-1.1-April-16.pdf

City of Nelson. (n.d.). Solar Generation. https://www.nelson.ca/223/Solar-Generation)

City of Summerside. (n.d.). Electricity. Retrieved 28 July 2024, from https://summerside.hosted.civiclive.com/residents/electricity

Co-operative Enterprise Council of New Brunswick (CECNB). (2021). The Economic Impact of the Nova Scotia Community Economic Development Investment Fund (CEDIF). Co-operative Enterprise Council of New Brunswick (CECNB). https://farmworkscoop.ca/wp-content/uploads/2021/04/Report-on-CEDIF-Economic-Impact-March-2021-2.pdf

Colthorpe, A. (2024). Canada Infrastructure Bank loan enables Indigenous communities to hold stake in energy storage projects. Energy Storage News. https://www.energy-storage.news/canada-infrastructure-bank-loan-enables-indigenous-communities-to-hold-stake-in-energy-storage-projects/

Comeau, L. (2022). Factors Affecting Social acceptance of renewable energy and transmission projects (p. 62). Conservation Council of New Brunswick. https://climateaccess.org/resource/factors-affecting-social-acceptance-renewable-energy-and-transmission-projects/

Comeau, L., Gresh, E., & Vaillancourt, L.-C. (2022). Why do wind projects fail? (p. 44). Conservation Council of New Brunswick. https://www.conservationcouncil.ca/wp-content/uploads/2022/11/Report-Why-do-renewable-energy-projects-fail-3.pdf

Creamer, E., Eadson, W., van Veelen, B., Pinker, A., Tingey, M., Braunholtz-Speight, T., Markantoni, M., Foden, M., & Lacey-Barnacle, M. (2018). Community energy: Entanglements of community, state, and private sector. Geography Compass, 12(7), e12378. https://doi.org/10.1111/gec3.12378

Dion, J., Lee, C., Kanduth, A., Guertin, C., & Beugin, D. (2022). The Big Switch: Provincial and territorial visuals and data [Dataset]. https://app.powerbi.com/w?r=eyJrIjoiZGQ4NjY1ZTgtZDA3ZC00NmRmLWIyNjYtMTRhODQ2MjU1YjAwIiwidCI6IjNmZDg1ZjNkLTczZmYtNGNkNi05MjQ2LTFmNTkxM2VkNDJmOSJ9&pageName=ReportSectionde513b9fe4821202ea99

Do, T. N., Burke, P. J., Nguyen, H. N., Overland, I., Suryadi, B., Swandaru, A., & Yurnaidi, Z. (2021). Vietnam's solar and wind power success: Policy implications for the other ASEAN countries. Energy for Sustainable Development, 65, 1–11. https://doi.org/10.1016/j.esd.2021.09.002

Doyle, B., Environment and Climate Change Group Leader, Neegan Burnside Ltd., Jacobs, D., & Jones, C. (2022). Decarbonizing Electricity and Decolonizing Power: Voices, Insights and Priorities from Indigenous Clean Energy Leaders (p. 33). David Suzuki Foundation. https://davidsuzuki.org/wp-content/uploads/2022/05/DSF-CPP-Indigenous-Engagement-Report-2022.pdf

Electricity Human Resources Canada. (2021). EHRC Launches Leadership Accord on Diversity, Equity and Inclusion to Help Workplaces Better Reflect Canadian Society. Ehrc.Ca. https://ehrc.ca/ehrc-launches-leadership-accord-on-diversity-equity-and-inclusion-to-help-workplaces-better-reflect-canadian-society/

Energy Watch Group. (2024). Hans-Josef Fell receives Global Solar Leaders Award. Press Release Energy Watch Group. https://energywatchgroup.org/wp/wp-content/uploads/2024/06/Press-Release-Global-Solar-Leaders-Award.pdf

Environment and Climate Change Canada. (2023). NATIONAL INVENTORY REPORT 1990 – 2021: GREENHOUSE GAS SOURCES AND SINKS IN CANADA CANADA'S SUBMISSION TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE. https://unfccc.int/documents/627833

First Nations Major Project Coalition & Mokwateh. (2024). National Indigenous Electrification Strategy: Strategy to Accelerate Indigenous Ownership of Net Zero Infrastructure in Canada (p. 106). First Nations Major Projects Coalition, Mokwateh. https://fnmpc.ca/wp-content/uploads/FNMPC_National_Electrification_digital_final_04222024.pdf

Foote, V. (2025). What Canada can learn from co-op power in the rural United States. Corporate Knights. https://www.corporateknights.com/energy/what-canada-can-learn-from-co-op-power-in-rural-united-states/

Fortis Ontario Inc. (n.d.). The Wataynikaneyap Transmission Project. Fortis Ontario Inc. https://www.wataypower.ca/

Fraser, S. (sponsor) Declaration on the Rights of Indigenous Peoples Act, 41, 41st Legislative Assembly of British Columbia 4th, SBC 2019 15 (2019). https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19044

Fraune, C. (2015). Gender matters: Women, renewable energy, and citizen participation in Germany. Energy Research & Social Science, 7, 55–65. https://doi.org/10.1016/j.erss.2015.02.005

Gall, L., Henderson, C., & Lynn Morrison, T. (2022). Waves of Change: Indigenous clean energy leadership for Canada's clean, electric future. Canadian Climate Institute, Indigenous Clean Energy. https://indigenouscleanenergy.com/wp-content/uploads/2022/06/ICE-report-ENGLISH-FINAL.pdfGovernment of Nova Scotia. (2015, August 6). Minister Announces COMFIT Review Results, End to Program. https://news.novascotia.ca/en/2015/08/06/minister-announces-comfit-review-results-end-program

Graham, N. (2024). Think tanks and climate obstruction: Atlas affiliates in Canada. Canadian Review of Sociology/Revue Canadienne de Sociologie, 61(2), 110–130. https://doi.org/10.1111/cars.12467

Heiltsuk Nation. (2022). Haíłzaqv Community Energy Plan. https://heiltsukclimateaction.ca

Hiltner, S., Eaton, E., Healy, N., Scerri, A., Stephens, J. C., & Supran, G. (2024). Fossil fuel industry influence in higher education: A review and a research agenda. WIREs Climate Change, e904. https://doi.org/10.1002/wcc.904

Hogan, J. L. (2024). Why does community ownership foster greater acceptance of renewable projects? Investigating energy justice explanations. Local Environment, 29(9), 1221–1243. https://doi.org/10.1080/13549839.2024.2360716

Hogan, J. L., Warren, C. R., Simpson, M., & McCauley, D. (2022). What makes local energy projects acceptable? Probing the connection between ownership structures and community acceptance. Energy Policy, 171, 113257. https://doi.org/10.1016/j.enpol.2022.113257

Hoicka, C. E. (2024). Equity, diversity and inclusion in climate and energy philanthropy matters. Nature Energy, 9(2), 107–108. https://doi.org/10.1038/s41560-023-01424-3

Hoicka, C. E., Stephens, J. C., Zhao, Y., & Soriano Hernandez, P. (2023). Misalignment or exclusion? Investigating climate and energy philanthropy funding of diversity. Energy Research & Social Science, 106, 103317. https://doi.org/10.1016/j.erss.2023.103317

Hoicka, C. E. (2022). Equity, diversity and inclusion in climate action in Canada: The role of philanthropy. McConnell Foundation. https://www.mcconnellfoundation.ca/news/report-climate-edia-philanthropy/

Hoicka, C. E., & MacArthur, J. L. (2018). From tip to toes: Mapping community energy models in Canada and New Zealand. Energy Policy, 121, 162–174. https://doi.org/10.1016/j.enpol.2018.06.002

Hoicka, C. E., Conroy, J., & Berka, A. L. (2021). Reconfiguring actors and infrastructure in city renewable energy transitions: A regional perspective. Energy Policy, 158, 112544. https://doi.org/10.1016/j.enpol.2021.112544

Hoicka, C. E., Zhao, Y., McMaster, M.-L., & Das, R. R. (2022). Diffusion of demand-side low-carbon innovations and socio-technical energy system change. Renewable and Sustainable Energy Transition, 2, 100034. https://doi.org/10.1016/j.rset.2022.100034

Hoicka, C. E., Berka, A. L., Chitsaz, S., Klym, K., Regier, A. J., & Macdonald, M. (2025). Impacts and place-based approaches to transformative energy justice for First Nations. UVicspace. https://hdl.handle.net/1828/22564

Hoicka, C. E., Stephens, J. C., Zhao, Y., & Soriano Hernandez, P. (2023). Misalignment or exclusion? Investigating climate and energy philanthropy funding of diversity. Energy Research & Social Science, 106, 103317. https://doi.org/10.1016/j.erss.2023.103317

Hoicka, C. E. (2025). “Stretch and transform” for energy justice: Indigenous advocacy for institutional transformative change of electricity in British Columbia, Canada. Energy Policy, 202(July), 114615. https://doi.org/10.1016/j.enpol.2025.114615

Hoicka, C. E., Graziano, M., Willard-Stepan, M., & Zhao, Y. (2025). Insights to accelerate place-based at scale renewable energy landscapes: An analytical framework to typify the emergence of renewable energy clusters along the energy value chain. Applied Energy, 377, 124559. https://doi.org/10.1016/j.apenergy.2024.124559

International Cooperative Alliance. (2025). Cooperative identity, values & principles | ICA. https://ica.coop/en/cooperatives/cooperative-identity

Indigenous Clean Energy. (2020). Accelerating Transition: Economic Impacts of Indigenous Leadership in Catalyzing the Transition to a Clean Energy Future Across Canada. Indigenous Clean Energy. https://indigenouscleanenergy.com/wp-content/uploads/2022/06/ICE-Accelerating-Transition-Data-Report-web.pdf

International Energy Agency. (2023). Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach—2023 Update. InterNational Energy Agency. https://iea.blob.core.windows.net/assets/9a698da4-4002-4e53-8ef3-631d8971bf84/NetZeroRoadmap_AGlobalPathwaytoKeepthe1.5CGoalinReach-2023Update.pdf

Jacobson, M. Z. (2020). 100% Clean, Renewable Energy and Storage for Everything. Cambridge University Press. https://doi.org/10.1017/9781108786713

Langlois-Bertrand, S., Mousseau, N., Vaillancourt, K., & Bourque, M. (2024). Pathways for a net-zero Canada – Horizon 2060 (Canadian Energy Outlook 3rd Edition). Institut de l’énergie Trottier – Polytechnique Montréal. http://iet.polymtl.ca/energy-outlook/

Langlois-Bertrand, S., Vaillancourt, K., Beaumier, L., Pied, M., Bahn, O., & Mousseau, N. (2021). Canadian Energy Outlook 2021 – Horizon 2060. Institute de L’Énergie Trottier. https://iet.polymtl.ca/en/energy-outlook/

Leonhardt, R., Pigeon, M.-A., & Boucher, M. (2022). A Census of Renewable Energy Co-operatives in Canada. Johnson Shoyama Canadian Centre for the Study of Co-operatives.

Lipp, J., & Dolter, B. (2016). The Power of Community. How community owned renewable energy can help Ontario create a powerful economic advantage (p. 31). TREC Renewable Energy Co-op. https://www.trec.on.ca/wp-content/uploads/2016/06/TREC_Primer_Jun28_Approved_Final-LR.pdf

Lipp, J., Lapierre-Fortin, É., Co-operative, N., & McMurtry, J. J. (2012). Preliminary Research Findings, January 2012.

Liljenfeldt, J., Slätmo, E., Gamez, D. H. B., & Odai, M. (2025). When EU Goes Local: An Analysis of the Alignment between EU and National Energy Policies and the Needs of Local Energy Initiatives. SSRN. https://doi.org/10.2139/ssrn.5092422

Liljenfeldt, J., Slätmo, E., & Vestergård, L. O. (2024). Changing the narrative of local residents as barriers to green energy transitions. International Geographical Congress. https://igc2024dublin.org/programme/congress-programme/

Lovekin, D., Whitestone, M., & Kasteel, C. (2021). Finding a Path Forward First Nation leadership in BC renewable energy future (p. 17). Pembina Institute. https://www.pembina.org/pub/first-Nation-leadership-british-columbias-renewable-energy-future

Lowitzsch, J., Hoicka, C. E., & van Tulder, F. J. (2020). Renewable energy communities under the 2019 European Clean Energy Package – Governance model for the energy clusters of the future? Renewable and Sustainable Energy Reviews, 122, 109489. https://doi.org/10.1016/j.rser.2019.109489

Luderer, G., Madeddu, S., Merfort, L., Ueckerdt, F., Pehl, M., Pietzcker, R., Rottoli, M., Schreyer, F., Bauer, N., Baumstark, L., Bertram, C., Dirnaichner, A., Humpenöder, F., Levesque, A., Popp, A., Rodrigues, R., Strefler, J., & Kriegler, E. (2022). Impact of declining renewable energy costs on electrification in low-emission scenarios. Nature Energy, 7(1), 32–42. https://doi.org/10.1038/s41560-021-00937-z

Lulham, N., Warren, F. J., Walsh, K. A., & Szwarc, J. (2023). Canada in a changing climate: Synthesis report. https://doi.org/10.4095/332326

MacDonald, A., Zhou, Y., Lindsay, T., Clarke, A., Meaney, M., Giordano, A., Linton, S., Tanguay, G. A., Tozer, L., ElAlfy, A., Ordonez-Ponce, E., & Talbot, D. (2024). The State of Climate Action in Canadian Municipalities: A Report from the Municipal Net-Zero Action Research Partnership (N-ZAP) (p. 36). Federation of Canadian Municipalities, ICLEI Canada & University of Waterloo. https://cdn.prod.website-files.com/6022ab403a6b2126c03ebf95/6659e961eec58638ef3d9644_FCM_24-086_Report_E_ACC_v2.pdf

Marcoux, B. (2021). Here are the 145 Canadian Electric Utilities. https://benoit.marcoux.ca/blog/here-are-the-151-canadian-electric-utilities/

Mason, R. (2025, June 19). BC Hydro clean energy projects running into headwinds – Justandreasonable.com. Just and Reasonable. https://justandreasonable.com/bc-hydro-clean-energy-projects-running-into-headwinds/

Mcclearn, M. (2024, January 8). Ontario municipalities' veto powers granted by Ford are complicating efforts to avert electricity shortages. The Globe and Mail. https://www.theglobeandmail.com/business/article-ontario-municipalities-veto-powers-granted-by-ford-are-complicating/

MEI. (2024). Electricity: Quebec needs independent producers' help, says MEI. MEI. https://www.iedm.org/electricity-quebec-needs-independent-producers-help-says-mei/

Ministry of Energy Mines and Low Carbon Innovation. (2024, January 16). Premier announces new actions to build electricity system, create jobs. https://news.gov.bc.ca/releases/2024EMLI0002-000049

Ministry of Energy, Northern Development and Mines. (2018). News release: Ontario Scraps the Green Energy Act Will protect consumers, restore municipal authority over energy projects. Ontario Newsroom. https://news.ontario.ca/en/release/50684/ontario-scraps-the-green-energy-act

Nelson, E. (2024). Britain's Economy Is 'Not Working.' Here Are 2 Key Reasons. The New York Times. https://www.nytimes.com/2024/01/02/business/uk-economy-growth.html

Nova Scotia Green Choice Program. (2025). The Green Choice Program: A New Way to Procure Renewable Energy in Nova Scotia. https://novascotiagcp.com/home

O'Neil, R., Preziuso, D., Arkema, K., Ko, Y., Pevzner, N., Diamond, K., Gore, S., Morrice, K., Henderson, C., & Powell, D. (2022). Renewable Energy Landscapes: Designing Place-Based Infrastructure for Scale (PNNL-32680, 1961993; p. PNNL-32680, 1961993). https://doi.org/10.2172/1961993

Pineau, P.-O. (2021). Improving integration and coordiNation of provincially-managed electricity systems in Canada (p. 22). Canadian Institute For Climate Choices. https://climatechoices.ca/wp-content/uploads/2021/09/CICC-Improving-integration-and-coordiNation-of-provincially-managed-electricity-systems-in-Canada-by-Pierre-Olivier-Pineau-FINAL.pdf

QUEST Canada. (n.d.). The Municipal Role in Accelerating Implementation of Renewable Energy in Canada. QUEST Canada. https://questcanada.org/aire-protocol/municipal-support/

Rand, J., & Hoen, B. (2017). Thirty years of North American wind energy acceptance research: What have we learned? Energy Research & Social Science, 29, 135–148. https://doi.org/10.1016/j.erss.2017.05.019

REN21. (2024). Renewables 2024 Global Status Report Collection, Global Overview (p. 51). REN21 Secretariat. https://www.ren21.net/wp-content/uploads/2019/05/GSR2024_GlobalOverview_Full_Report_with_endnotes_web.pdf

REScoop.eu. (2019). Q&A: What are 'citizen' and 'renewable' energy communities? REScoop. https://www.rescoop.eu/uploads/rescoop/downloads/QA-What-are-citizens-energy-communities-renewable-energy-communities-in-the-CEP.pdf

Rescoop.eu. (n.d.). REScoop.eu. Retrieved 24 August 2024, from https://www.rescoop.eu/

Sacred Earth Solar & Indigenous Climate Action. (2023). Just Transition Guide: Indigenous-led pathways toward equitable climate solutions and resiliency in the climate crisis (p. 180). Sacred Earth Solar, Indigenous Climate Action. https://sacredearth.solar/just-transition-guide

Saffari, M., & McPherson, M. (2022). Assessment of Canada's electricity system potential for variable renewable energy integration. Energy, 250, 123757. https://doi.org/10.1016/j.energy.2022.123757

Šahović, N., & Da Silva, P. P. (2016). Community Renewable Energy—Research Perspectives -. Energy Procedia, 106, 46–58. https://doi.org/10.1016/j.egypro.2016.12.104

Scott, W., Winter, J., Munzur, A., & Koch, K. (2025). Developing a Climate Change Mitigation Policy Inventory for Canada. Canadian Public Policy, 51(2), 109–123. https://doi.org/10.3138/cpp.2024-051

Slee, B. (2015). Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs. Renewable and Sustainable Energy Reviews, 41, 540–549. https://doi.org/10.1016/j.rser.2014.08.064

Slee, B. (2020). Social innovation in community energy in Scotland: Institutional form and sustainability outcomes. Global Transitions, 2, 157–166. https://doi.org/10.1016/j.glt.2020.07.001

Statistics Canada. (2024). Installed plants, annual generating capacity by type of electricity generation [Dataset]. Government of Canada. https://doi.org/10.25318/2510002201-ENG

Stefanelli, R. D., Walker, C., Kornelsen, D., Lewis, D., Martin, D. H., Masuda, J., Richmond, C. A. M., Root, E., Tait Neufeld, H., & Castleden, H. (2019). Renewable energy and energy autonomy: How Indigenous peoples in Canada are shaping an energy future. Environmental Reviews, 27(1), 95–105. https://doi.org/10.1139/er-2018-0024

Stokes, L. C. (2013). The politics of renewable energy policies: The case of feed-in tariffs in Ontario, Canada. Energy Policy, 56, 490–500. https://doi.org/10.1016/j.enpol.2013.01.009

Tarhan, D. (2022). Community renewable energy's problematic relationship with social justice: Insights from Ontario. Local Environment, 27(6), 767–783. https://doi.org/10.1080/13549839.2022.2077713

Tarhan, M. D. (2020). Renewable Energy Co-Operatives and the Struggle for Energy Democracy: The Case of Ontario. University of Toronto.

The Canadian Press. (2018). Ontario government cancels 758 renewable energy contracts, says it will save millions Cancellations 'expose Ontario to significant financial risk,' Green MPP says. CBC News. https://www.cbc.ca/news/canada/toronto/758-renewable-energy-cancelled-1.4746293

Thomas, S., & Green, T. (2022). Shifting Power: Zero-Emissions Electricity Across Canada by 2035 (p. 78). David Suzuki Foundation. https://davidsuzuki.org/wp-content/uploads/2022/05/Shifting-Power-Zero-Emissions-Across-Canada-By-2035-Report.pdf

Walker, G. (2011). The role for 'community' in carbon governance: The role for 'community' in carbon governance. Wiley Interdisciplinary Reviews: Climate Change, 2(5), 777–782. https://doi.org/10.1002/wcc.137

Walker, G., & Devine-Wright, P. (2008). Community renewable energy: What should it mean? Energy Policy, 36(2), 497–500. https://doi.org/10.1016/j.enpol.2007.10.019

Wataynikaneyap Power. (n.d.). Home—Watay Power. Line That Brings Light. Powering Our Future. Retrieved 1 May 2024, from https://www.wataypower.ca/

WISER Network. (2022). "Women & Inclusivity in Sustainable Energy Research" – what it does, how to get involved. Environmental Politics. https://environmentalpoliticsjournal.net/interviews/women-inclusivity-in-sustainable-energy-research-what-it-does-how-to-get-involved-iwd-wiser-network/