

CANADIAN CENTRE FOR THE STUDY OF CO-OPERATIVES (CCSC)

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# A Census of Renewable Energy Co-operatives in Canada

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#### **Corrections to Leonhardt, Pigeon, and Boucher (2022)**

In preparation of a paper for academic consideration drawing on the findings of this report, a careful review of the data coding was undertaken. While the coding process involves a substantial degree of subjective assessment, the review identified instances where it was clear that there were errors in the earlier coding work, particularly around the distinction between active versus inactive RECs. This necessitated corrections to Tables 3 and 4, Figures 6 through 9, and to corresponding text as discussed next.

Table 3 now indicates there were 49 active RECs in 2021 (52 previously reported) versus 89 in 2015 (47 previously). The fifth row of Table 3 indicates there were a total of 129 RECs in 2015 (87 previously).

Table 4 now indicates that Alberta had 6 active RECs (5 previously) and 1 inactive REC (2 previously) and that Ontario had 26 active (27 previously) and 36 inactive (35 previously) RECs.

Figure 6 has been changed to focus narrowly on active RECs as the more relevant data set rather than active and inactive data as previously reported. This resulted in a finding that there were 39 RECs involved with only one type of renewable energy technology, while 10 RECs were involved with multiple types of renewable energy technology.

Figure 7 has been corrected to read that the energy mix of RECs in Canada consisted of 68% solar (58% previously), 24% biofuels (17% previously), and 8% wind (25% previously) for single renewable energy technology. The multiple renewable energy technologies figure has been omitted.

Figure 8 has been corrected to read that the types of RECs according to the "traditional" co-operative classification (CC1) consisted of 60% investment (23% previously), 20% consumer/retail (41% previously), 16% worker (14% previously), and 4% multistakeholder (8% previously).

Figure 9 has been altered to focus narrowly on the main area of REC activity, resulting in different estimated weights for the CC2 classification scheme of 86% in generation (72% previously), 10% in distribution (8% previously), and 4% in consultancy activities (unchanged). Two previously-reported categories of activity -- generation and consultancy (8% previously) and generation and distribution (8% previously) -- were eliminated given the changed focus.

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## ACKNOWLEDGEMENTS

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*"To align with our country's commitment with the Paris Agreement, the Government of Canada has set an ambitious target of net-zero carbon emissions by 2050. Achieving this goal will require the involvement and collaboration of government, business, and local communities. As a co-operative financial services provider with a strong focus on community resilience, Co-operators has also set its own ambitious targets of net-zero emissions in our operations by 2040, and in our investments by 2050. With a vision to be a catalyst for a sustainable society, Co-operators strives to rally and connect leaders and change-makers around topics of importance to our collective future. As we consider what a just transition to a low-carbon emissions future could look like, we are proud to support the Canadian Centre for the Study of Co-operatives in their assessment and recommendations, charting a path forward for the renewable energy co-operative (REC) sector in Canada. RECs reduce emissions while making the connection between community empowerment, self-reliance, and local economic development, thereby enhancing community resilience through local action. It is essential that we recognize and seize the many benefits that flow from democratically-controlled, community-produced energy. Connecting and empowering those individuals dedicated to championing the REC sector will only strengthen their resolve, foster innovation and collective learning, and drive change to reduce barriers to co-operative wind, solar and biofuel projects in Canada. We applaud this effort, and look forward to working together toward a low-carbon emissions future."*

**Chad Park**, Vice-President, Sustainability and Citizenship,  
The Co-operators Group Limited



## EXECUTIVE SUMMARY

“Canada has a small but growing, in terms of clean energy output, renewable energy co-operatives (RECs) sector. By our count, there were fifty-two operating in 2021. Most generate solar energy, but an important share of them focus on wind generation. There is also a small but growing and innovative biofuels sector concentrated in British Columbia and Quebec, two provinces with large forestry sectors and abundant forestry residue that can feed energy-generating boilers. Regardless of their type, these co-operatives have created opportunities to reduce carbon emissions while enhancing community connectedness and local economic development. Indeed, most of the people who have created RECs say they care about doing their part to address climate change in a way that allows for local, democratic control of energy production. In many cases, founders have also been drawn to the co-operative model by the potential to create investment opportunities that recycle local money into local projects that generate local economic opportunities.

To better understand the role RECs could potentially play in Canada’s energy transition and how they might get about it, this study builds on a webinar hosted by the Canadian Centre for the Study of Co-operatives in 2021 that brought together REC volunteers from across Canada to share ideas on how to make the policy environment more friendly to the model. That webinar showed there is a real appetite for RECs to share ideas, learn from each other, and collaborate. There are to be sure existing collaborative networks — we drew on them to organize our 2021 event — but they are *ad hoc* and incomplete, a consequence of the disjointed nature of Canada’s energy grid and also the co-operative structure, which demands a lot from its volunteers and tends to compel organizations to think locally rather than at some larger scale.

From that webinar, we realized that the first step to helping the sector formalize these collaborative networks and facilitate more of these kinds of events is to know who is out there. With financial support from The Co-operator’s, we set out to do just that by conducting a census of Canada’s REC sector. The census collected what might be described as “demographic” data from REC websites. We tabulated everything from installed energy capacity and the type of energy produced to the size and composition of the board of directors and the number of staff employed. We also held semi-structured interviews with twenty-four REC leaders to build on the webinar and better understand REC barriers but also what could make their lives easier, what we call enablers.

Our findings confirmed a lot of our expectations but also

produced a few surprises. Building on the work of an earlier 2015 census and our own involvement in the sector — two of us have served on REC boards — we expected that some RECs had fallen on hard times, especially after Ontario cancelled its feed-in-tariff policy in 2018. This policy had provided long-term, stable contracts to incentivize communities and co-operatives to help in the transition away from fossil fuels. Sure enough, we found that twenty-nine Ontario RECs reduced operations or closed after 2015. In other provinces, a surprising number of RECs simply gave up in the face of seemingly insurmountable barriers put in place by monopoly utilities and the disinterest of regulators and policymakers.

On the other hand, we were surprised to find that some RECs had persisted against the odds. Val-Éo, in Quebec, for example, is now on the cusp of producing 24 megawatts of wind energy after almost twenty years of persistence and patience. In Ontario, a handful of RECs have managed the transition from the province’s feed-in-tariff policy (FIT) and are prospering. In Alberta, that province’s open access grid plus a generally supportive policy environment seems to have contributed to a sense of optimism about the future of RECs that we did not find quite so prevalent anywhere else.

These surprises, and the more downbeat expectations, all point to the same underlying issue: For Canada’s REC sector to prosper, it needs the support of policymakers. It also could use a good dose of more formal co-operation. So what next? To address these twin challenges, we conclude our study by recommending that the REC sector do what co-operatives have often done in the past to address similar problems — they co-operate. In this case, co-operation means working together to build a new organization, owned by RECs from across the country, which we call a “league.” Once formed, the league could address several problems revealed by our census and interviewees:

- **Lower Costs** — Interviewees told us that while they had some success in raising money to fund projects, they faced steep and ongoing operating costs, especially in the area of securities law and accounting services. A league could help members lower costs by pooling the buying power of member co-operatives, creating shared document templates (e.g., prospectus or contractual), offering expertise (technical, legal, financial, or otherwise) at cost, making auditing services available, sharing the latest research about the sector, and much more.
- **Share Knowledge, Build Networks, and Foster Innovation** — Our 2021 webinar and our interviews made it clear to us that RECs value the opportunity to

learn from each other. By providing conferences and educational offerings, a league could help members formalize what are now ad-hoc gatherings, foster cultures of innovation and education, but also help stitch together networks of people who care about, and work towards, the same climate-change objective. The journey becomes less one of individual struggle and more one of collective pursuit.

- **Advance and Spread Knowledge about RECs** — We learned from our interviewees that starting an REC is not for the faint of heart. It can take a lot of learning and years of persistent effort, almost all of it unpaid, to make it come into being. A league could help by providing information, advice, guidance, and ready-made networks of experts to people interested in starting a new REC.
- **Advocacy** — The number-one barrier to expanding the influence of RECs is the policy environment. By pooling their capacity and speaking as one, a league would be able to exert more influence over the policy process. Again, some of this is happening now but in an *ad hoc* way. A league would formalize this process.

Canada's REC sector is still young, but it is also at a crossroads. Many of our interviewees said they fear that if the policy environment does not improve, the sector will stagnate and never assume a large place in Canada's energy mix. We think a league could help them avoid that outcome and fulfill their promise. But for a league to come into being, it will need three things: good information, some means of funding itself, and relatedly, some seed money to get off the ground.

Our census findings can help with the first need, but our data have shortcomings because of the limited amount of information that RECs make available on their websites. The REC sector can help by filling in the gaps on our interactive map, another output of this research. Based on this information, the league could address the second need by setting its fees based on each REC's asset and membership numbers, two metrics often used to fund these kinds of organizations. For the seed money, we recommend that other parts of the co-operative sector, university partners and government look at how they could help support some of the work involved in creating a league.

None of this will be easy.

Our interviews and census showed that the REC sector has had its share of struggles. An early effort to create a league-type structure focused narrowly on Ontario RECs did not survive the demise of the FIT, a point that underlines the importance of

a pan-Canadian entity that is resilient to the kind of localized abrupt policy changes that are endemic to the siloed nature of the country's grid. We also found, however, that the RECs that managed to survive these and other challenges are run by people who have demonstrated the kind of persistence, resourcefulness, resilience, and focus that we will all need to address climate change. With a bit more collective action in the form of a league run by these kinds of actors, we think there is grounds for optimism that RECs can live up to their potential to make a meaningful contribution to the energy transition while helping generate local economic opportunities that bring communities along with them.

## 1.0 INTRODUCTION

Canada has a small but growing renewable energy co-operatives (RECs) sector. In the last ten years, RECs have emerged by leveraging mature technologies like solar, wind, biofuels and changes in public policy. These co-operatives have created opportunities to reduce carbon emissions while enhancing community connectedness and local economic development. The people who created these entities have been largely motivated by the prospect of doing their part to address climate change in a way that allows for local, democratic control of energy production. In many cases, founders have also been drawn to the co-operative model by the potential to create investment opportunities that recycle local money into local projects that generate local economic opportunities.

For the most part, Canada's RECs have emerged independently of one another and within provincial silos. This is a by-product, in part, of the disjointed nature of Canada's energy grid and regulatory system, with responsibility resting with individual provinces. Each provincial grid has its own unique energy mix, regulatory norms, and market structures. While a few players in the renewable energy co-operative space are known to one another, there is no formalized structure binding them together or allowing for easy analysis of the sector. The lack of formal relationships among RECs is not only the result of the siloed nature of the provincial grid, it is also a by-product of their co-operative structure, which can compel organizations to tend to think locally rather than at some larger scale.

These constraints need not be as limiting as they might seem. For decades, credit unions, for example, have managed to co-operate across their provincial silos despite vast differences in regulatory norms, culture, and economies. Like credit unions, RECs are the embodiment of a desire by citizens and communities to exert more local control over their own futures. Those organizing RECs want control over their own energy transitions — a message that emerged forcefully from the protests at the United Nation's COP 26 climate change conference in late 2021. In some jurisdictions, the aspiration for meaningful local control has become reality, with RECs collaborating with one another on a large scale through jointly owned second-tier organizations (referred to as "leagues" later in this report). These play a role in the transition away from fossil fuels in some areas: Germany, for example, has more than eight hundred locally owned and controlled RECs working together to share costs through a national league-type entity, collectively generating almost 4 percent of the country's renewable energy [1,2].

Could something like this happen with Canada's RECs? There is some reason to believe it could. While Canada is well known as a major producer of fossil fuels, it also has a large co-operative sector that employs 104,969 people [3] and accounts for 3.4 percent [4] of gross domestic product (GDP). At the federal level and in many provinces, there are signs of some political will to decrease the use of fossil fuels. Last year, the Canadian Centre for the Study of Co-operatives hosted a webinar where REC leaders from across Canada discussed what they might be able to do collectively to increase the weight of the sector in Canada. The webinar showed there is a real appetite for RECs to share ideas, learn from each other, and collaborate. There are to be sure existing networks — we drew on them to organize our event last year — but they are *ad hoc* and incomplete, a consequence of the disjointed nature of Canada's energy grid and also the co-operative structure, which demands a lot from its volunteers and tends to compel organizations to think locally rather than at some larger scale. Meanwhile, the rest of Canada's co-operatives have a long history of pooling their resources to build structures — the kind of second tier or leagues mentioned earlier — that lower costs for basic services while providing the sector with the scale and capacity to compete effectively and increase its influence with policymakers. This is true not only with credit unions but also with retailers like the Co-operative Retailing System (CRS), Canada's health-care co-operative sector, and farm organizations [5].

From our 2021 webinar, we realized that the first step to helping the sector formalize these kinds of more formal networks and facilitate more of these kinds of events is to know who is out there. With financial support from The Co-operators, we set out to paint a picture of the sector and its potential role in Canada's transition to a low-emissions economy. We conducted a census of Canada's REC sector that consisted of collecting what can be described as "demographic" data from REC websites, including, for example, installed energy capacity, the type of energy produced, the size and composition of the board of directors, the number of staff employed, and more. The methodology underpinning this census work is discussed in more detail below. The study also draws on twenty-four semi-structured interviews with leaders in Canada's REC sector focused around understanding REC barriers and enablers. We begin with some context, describing in more detail what we mean by renewable energy co-operatives and how we can think of classifying them.

### 1.1 Why Have Renewable Energy Co-operatives Emerged?

Renewable Energy Co-operatives are community-focused, democratic, and collectively owned organizations involved in some fashion with the renewable energy sector. They

began emerging in the early part of the 2000s, although some of their progenitors came onto the scene earlier still (see Figure 4 below). While RECs can provide economic benefits in the form of cost savings and returns on investment (see below), their members also see them as a way to help address climate change by moving away from fossil fuels. The impact of climate change is already evident, with rising global temperatures, decreasing Arctic Sea ice, the growing threat of forest fires in Alberta and Saskatchewan, floods in BC, the rise of ocean levels, and a general increase in the frequency and severity of extreme weather events [6]. The consensus amongst climate scholars is that greenhouse gas emissions are the leading cause of this change. According to the Intergovernmental Panel on Climate Change (IPCC) [6], the current atmospheric CO<sub>2</sub> concentrations caused by human activities are higher than at any time in the last 2 million years. Electricity, heating, and transportation are some of the most polluting — and essential — sectors of the economy. The International Energy Agency reports that these three sectors represented more than 70 percent of the total CO<sub>2</sub> emissions in 2019 [7]. The ability of increasingly affordable and effective renewable technologies to produce energy with minimal CO<sub>2</sub> emissions is widely seen as part of the solution to climate change [8].

Several enablers have emerged to facilitate this transition. Governments from all over the world have set targets to reduce emissions and increase the share of renewables in their energy mix. In Canada, the federal government introduced legislation to achieve net-zero emissions by 2050 [9]. The costs of renewable energy technologies are also falling. Since 2010, the cost of utility-scale solar panels has fallen 82 percent in the United States [10]. Another enabler for renewable energy adoption is the engagement of citizens [11]. Countries that represent successful models of energy transition, such as Germany and the United Kingdom, have made community-owned renewable energy projects part of their energy transition [1,12].

**1.2 Classification of Renewable Energy Co-operatives**

There are different ways of classifying RECs. One approach is to use a traditional co-operative classification system, which focuses on what members do in relation to the co-operative. It asks where the member sits in the value-production chain — are they consumers, producers, funders, or something else? This approach is associated with five distinct co-operative models: consumer (retail), producer, worker-owner, multistakeholder, and investment co-operatives. Table 1 (CC1) summarizes this classification system. The second method looks at what RECs do in terms of production, distribution, or related services. Table 2 summarizes this

alternative classification system. The census analysis uses both classification systems to organize the data.

**Table 1: Traditional co-operative classification system (CC1): What members do**

TYPOLOGY	DESCRIPTION
<b>Consumer/Retail</b>	Members engage with the co-operatives as consumers, purchasing goods and/or services from the co-operative (e.g., renewable energy) to obtain a better price than they might otherwise.
<b>Producer</b>	Members engage with the co-operative as producers, using the co-operative to sell their output (e.g., solar energy) to obtain a better price than they would otherwise.
<b>Worker/Owner</b>	Members engage with the co-operatives as workers, pooling their skills/capacity to win contracts they might otherwise not obtain.
<b>Multistakeholder</b>	Members engage with their co-operative as producers, workers, suppliers and other stakeholders to internalize and minimize coordination, contractual, and administration costs that would otherwise flow from their relationships.
<b>Investment</b>	Members engage with their co-operative primarily from the vantage point of investors. They pool their funds to invest in solar, wind, biomass, or other types of renewable energy that generate a return which is flowed back to the investor/member based on the size of their investment.

**Table 2: Renewable-energy-focused classification system (CC2): What co-operatives do**

TYPOLOGY	DESCRIPTION
<b>Distribution</b>	The main activity is the distribution of energy purchased from the grid. Energy purchased from the grid does not necessarily come from renewable sources. A portion of the profits from distribution is used to support renewable energy.
<b>Generation</b>	The main activity is the generation of renewable energy or investment in renewable-energy-generation projects.
<b>Consultancy</b>	The main activity is the sale of consultancy services related to renewable energy, including retrofits.



## 2.0 DATA COLLECTION

### 2.1 Desk Research

The major activity of this research was to conduct a census of the sector by referring to websites, annual reports, policy documents, and related material. Where possible, the census documented the following demographic variables: the number of renewable energy co-operatives by province, members and employees; board composition (size, gender-mix, term structure, skill set, etc.); physical capital and financial capital; energy generation; geographic reach (postal code analysis / GIS mapping); and other metrics as available. We created an interactive map to facilitate visualization of the data. Figure 2 provides a static snapshot of the interactive map.

Figure 2: Renewable Energy Co-operatives map and census database.

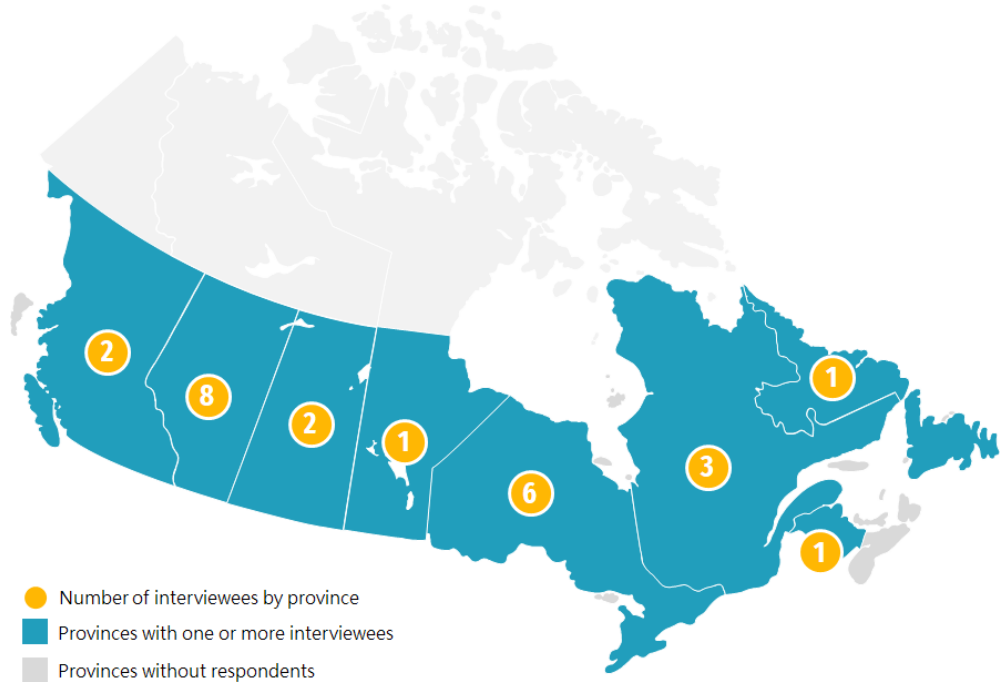


Available at: <https://www.google.com/maps/d/edit?mid=14FhWpX5IHgKdgsysSsnUV4McejyaKowf&usp=sharing>

### 2.2 Interviews

We contacted more than eighty RECs and co-operative associations from every Canadian province, ultimately securing interviews with twenty-four REC leaders (Figure 3). The twenty-four interviewees have diverse backgrounds and positions within the co-operatives. Most of the interviewees are currently members of an RECs board of directors (eight) and staff (eight); however, we also spoke to former and founding REC members (four) and co-operative association members (four). At least fifteen of the interviewees were volunteers holding professional positions in energy and the environment as well as education and other non-energy-related sectors. We did collect background on the educational attainment of all our interviewees; twenty of them told us they had a post-secondary degree of some kind.

Figure 3: Geographic location of the interviewees



### 3.0 RENEWABLE ENERGY CO-OPERATIVES IN CANADA

We reviewed the academic and grey literature on the REC sector to inform the desk research and interviews. This literature, while limited in scope, also served as a reference point for the co-operative typologies, data gathering strategy, and interpretation of results. In particular, the analysis drew on work by Lipp et al. (2016) [13], who in 2014–15 conducted a first-ever census of Canada’s then-burgeoning REC sector. It is important to note that results from this earlier census cannot be directly compared to the 2021 census because we were unable to identify a clear replicable method from that earlier census. Four steps governed our census data collection. The first step consisted of attempting to locate the RECs identified in the earlier census report by Lipp et al. (2016) [13]. These were then classified as active or inactive:

**Active RECs** are those with some kind of Internet presence, whether through a website, social media page (e.g., Facebook) or some other tangible evidence that they continue to operate.

**Inactive RECs** are those listed on provincial incorporation registries but for which we could not locate any tangible Internet or other presence. It includes “closed” RECs, which are those that we could not locate on a registry list or find an online presence for.

The second step consisted of locating and documenting other RECs through general Internet searches on a province-by-province basis, using search terms structured around core terms such as “co-operative,” “renewable energy,” “solar,” “wind,” and “biomass.” Third, we asked interviewees for the names and contact information of other renewable energy co-operatives operating in their province and beyond. Finally, we consulted publicly available listings of co-operative provincial registries, associations like Co-operatives and Mutuals Canada (CMS) and the Fédération québécoise des coopératives forestières (FQCF).

#### 3.1 Current Status of RECs in Canada: Census

The 2021 census identified forty-nine active and forty-eight inactive RECs in Canada (Table 3) for a total of 97 RECs, considerably fewer than the 129 identified in the 2015 census (Lipp et al. 2016). Consistent with the results from Lipp et al., Ontario continues to be the major hub of RECs. Currently, 47 percent of the active and 81 percent of the inactive RECs in Canada are found in that province. However, the number of

active RECs in Ontario dropped from 2016 to 2021. As Table 4 shows, the 2021 census found twenty-six active organizations in the province; Lipp et al. (2016) identified thirty-four operating RECs in Ontario.

**Table 3: Comparison between the 2021 Census and the 2015 Census conducted by Lipp et al. (2016)**

STATUS OF RECS IN CANADA	NUMBER (#) OF RECS IN CANADA	
	2021 Census	2015 Census <sup>1</sup>
Active <sup>2</sup>	49	89
Inactive <sup>3</sup>	48	40
Total	97	129

In three provinces — Manitoba, Nova Scotia, and Ontario — there were more inactive than active RECs. For example, the 2021 census was unable to identify any presence online (including social media) for three Manitoban RECs founded between 2006 and 2008. As a result, the 2021 census classified these as inactive. On the other hand, the RECs in British Columbia, Quebec, and New Brunswick are all active. Of note, there are organizations with more than eighteen years of operation in the province of British Columbia.

**Table 4: Number of active and inactive RECs by province**

PROVINCE	ACTIVE	INACTIVE
British Columbia	8	0
Alberta	6	1
Saskatchewan	2	1
Manitoba	0	3
Quebec	6	0
Nova Scotia	1	4
New Brunswick	3	0
Ontario	26	36
Prince Edward Island	0	0
Newfoundland and Labrador	0	0
TOTAL	52	45

<sup>1</sup> The Census of 2015 was conducted by Lipp et al. (2016) considering information gathered in 2015.

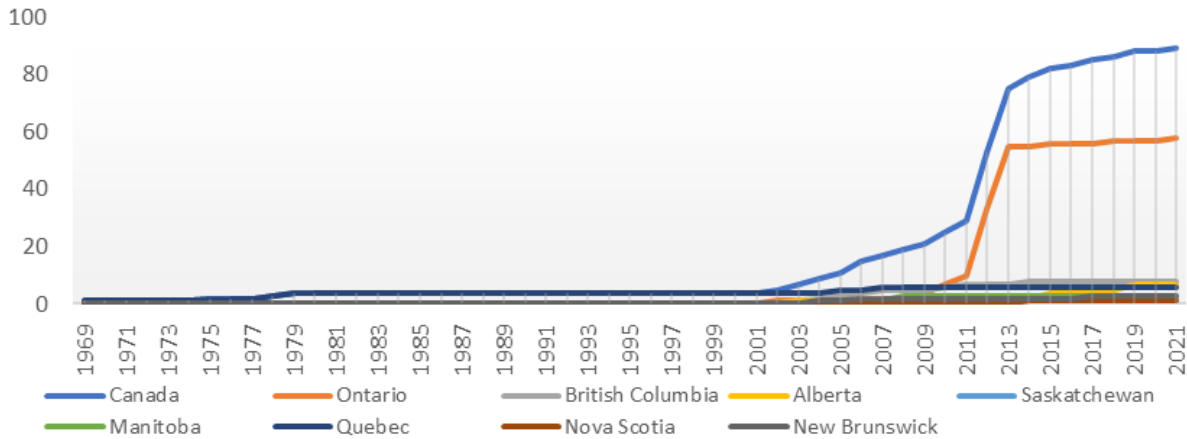
<sup>2</sup> Active RECs are registered and operating RECs with on-going renewable energy projects and/or active websites and social media accounts.

<sup>3</sup> Inactive RECs represent registered RECs with suspended activities and no longer operating and/or with no active website and social media accounts. Ontario, specifically, has a database with all active and registered RECs: <https://www.ontario.ca/page/all-active-co-ops-ontario>.

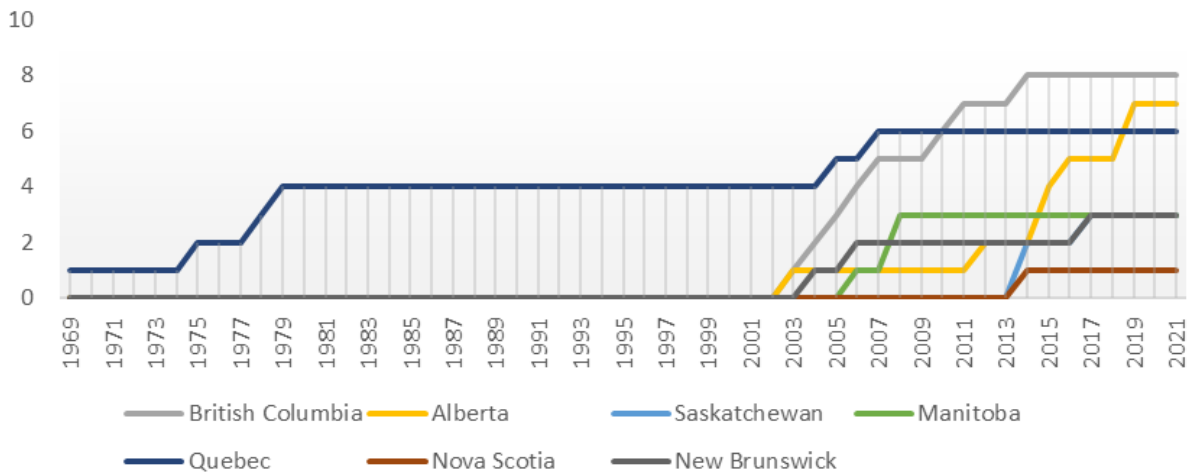
Figure 4 below depicts the cumulative number of new RECs formed by year. It does not account for (subtract) inactive or closed RECs. Of note, it suggests that RECs have been active in Canada since the late 1960s in the form of Québec-based forestry co-operatives. While it is true these worker-owned co-operatives have been around since that time, their early focus was strictly on harvesting forest products; they only became involved in exploiting the potential of biomass energy when the prices of competing conventional energy (e.g., oil and gas) rose sharply in the early 2010s and when governments introduced subsidies for the production and sale of boilers capable of making full use of forestry biomass. Their entry into renewable energy production coincided roughly with the major growth of RECs elsewhere in Canada between 2011 and 2013. As Figure 4 suggests, the bulk of this explosion in growth can be attributed to Ontario and the adoption of its feed-in-tariff (FIT) policy, a program that provided renewable energy producers (including co-operatives) with guaranteed prices for their energy production in the form of long-term (twenty-year) power purchasing agreements. Figure 5 reproduces Figure 4 but excludes Ontario to better illustrate what took place in provinces outside Ontario.

Outside Ontario, the creation of new RECs has been modest (Figure 5). Setting aside the unusual case of Quebec and its forestry co-operatives, the balance of Canada’s REC in all other provinces were only started during the 2000s with the increase in

**Figure 4: Growth of RECs across Canada and in the provinces considering the foundation date<sup>4</sup>**



**Figure 5: RECs across provinces considering the foundation date, excluding Ontario**



<sup>4</sup>This cumulative graph used the foundation year data of active and inactive RECs in Canada. Since closing years were not available, the graph may consider RECs that are not in operation. The foundation dates relative to four RECs in Ontario and four in Nova Scotia were not available online.

popularity of renewable energies and the reduction in the cost of associated technologies.

### 3.2 Energy Mix

RECs can be involved with one or multiple energy sources. According to the 2021 Census, there are currently thirty-nine RECs developing only one type of renewable energy technology (solar) and ten RECs working with more than one technology (Figure 6).

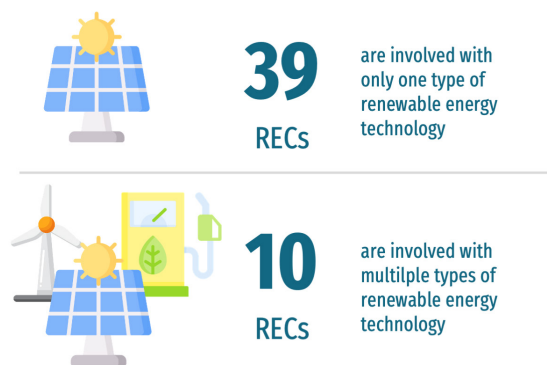


Figure 6: Number of Active RECs with Single or Multi-Energy Sources

The 2021 Census found that RECs generate or invest in three types of renewable energy technologies: solar, wind, and biofuels (i.e., biogas and biodiesel). Solar is the predominant technology for both single and multiple-source RECs (Figure 7): 53 percent of the active single-source RECs and 100 percent of the multiple-source RECs generate or invest in solar energy. For example, all active and inactive RECs from Saskatchewan are or have been involved with solar technologies. Wind and biofuel are also part of the energy mix of Canadian RECs. Biofuel is the main activity in Quebec and is also popular in British Columbia. Wind technologies are sparsely distributed in the country. RECs developing or investing in wind projects can be found in British Columbia and Ontario, with a smattering in Quebec, Alberta, and New Brunswick. Our census found that multiple-energy RECs blended solar and wind generation. None of the solar, wind or solar/wind RECs engage in biofuel production.

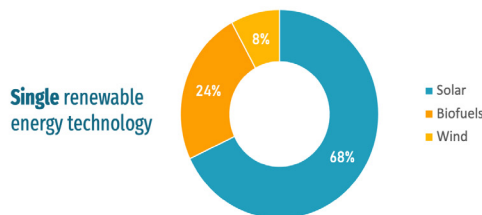


Figure 7: Energy mix of RECs in Canada<sup>5</sup>

### 3.3 Types of RECs in Canada

Drawing on the “what members do” CC1 typology in Table 1, the Census data indicate that members are predominantly investors (Figure 8). Almost 60 percent of all RECs have an investment relationship with their members, while 20 percent have a retail or consumer relationship. We classified sixteen percent of RECs (8 co-ops) as worker co-operatives, and another 4% as multistakeholder.

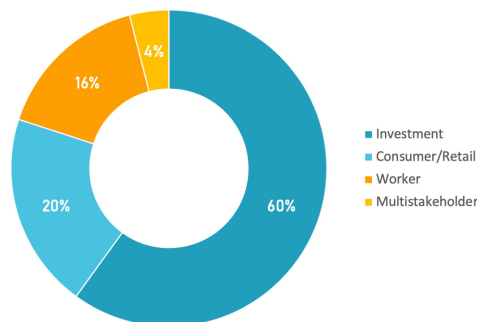
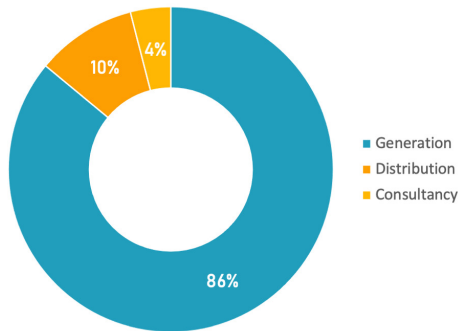


Figure 8: Types of RECs according to the “Traditional co-operative classification system (CC1)”

As noted earlier, the second classification system (CC2) focuses on the REC’s primary area of activity, namely generation, consultancy, and distribution. The 2021 census data show that 86 percent of RECs are focused on the generation of renewable energy (Figure 9). Some 10 percent of the RECs in our census are focused on distribution services. Only 4 percent of RECs have consultancy services as their major service. These consultancy services focus on education and energy efficiency assessments.

Figure 9: Types of RECs according to the “Renewable-energy-focused classification system (CC2)”<sup>6</sup>



### 3.4 Vision Statement

The census also collected data on vision statements. Not all RECs have vision statements (n=44 or 85 percent). After the words “renewable” and “energy,” the most frequent word in REC vision statements is “community” (Figure 10). This word appears in all forty-four available vision statements, which reinforces the importance of local practices to the success of RECs. In second place is the word “sustainable,” which shows to the orientation these organizations typically demonstrate.

Figure 10: Word cloud created using the data from the vision statement of forty-four RECs<sup>7</sup>



<sup>6</sup>We focused on the main functions that an REC can perform. Cases where the REC performs two major functions are shown in the graph. Some RECs might perform additional minor functions, which were not considered in this graph.

<sup>7</sup>The words “renewable” and “energy” were removed from the word cloud.

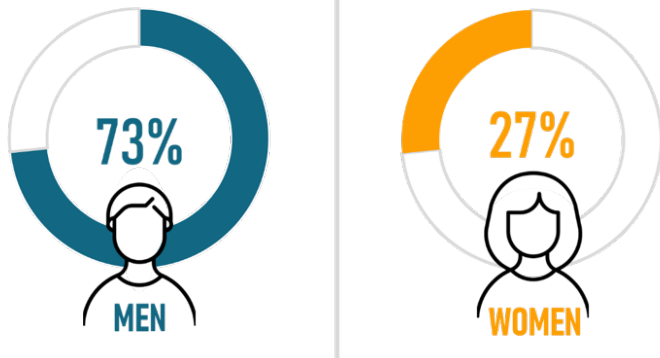
### 3.5 Renewable Energy Projects

The 2021 Census also collected data on the number and size of projects for “generation” co-operatives. The number of projects developed by each REC varies from one to fifty-one and includes everything from rooftop solar panels, biofuel pumps, to wind turbines. There are nine RECs involved with ten projects or more. These RECs are in British Columbia (three) and Ontario (six). The bulk of their projects are focused on solar energy generation. For example, the REC involved with the highest number of projects is SolarShare Co-op in Ontario. It invests in several solar projects, including solar rooftops, sun fields, and ground mounts. It has combined an installed capacity of 14MW. SolareShare generates \$7,349,884 per year in revenue from these projects. Given the higher costs and development challenges that rise from wind and biofuel generation, RECs developing exclusively wind and biofuel tend to have a smaller number of projects (five on average, according to our estimate). However, the installed capacity per project is generally high. For example, the Huron Community Power Co-operative has plans for five wind turbines with a total installed capacity of approximately 50 MW.

### 3.6 Board Statistics

The success and sustainability of RECs is often dependent on strong board composition. To better understand board makeup, we collected data related to board members. Board sizes range from three to eleven members, with an average of six. REC board members have diverse educational and professional backgrounds. For example, the Solar Power Investment Cooperative of Edmonton (SPICE) counts on the experience of engineers, a physician, a project manager, an electrician, and a political scientist. This kind of professional diversity, however, is not mirrored in the gender composition of REC boards. Overall, 73 percent of the board members at Canadian RECs are men and only 27 percent are women (Figure 11). The only REC board with an equal number of men and women is the Toronto Renewable Energy Co-operative (TREC) in Ontario.

Figure 11: Gender distribution across board members



### 3.7 Current Status of RECs in Canada: Interviews

To get a sense of the future prospects of the REC sector, participants were asked whether they think RECs are growing, stagnant, or shrinking in Canada and in their respective provinces. Seven of the ten respondents who addressed this topic described the sector as “growing” at the national level. The other three participants see the sector as “stagnant,” and no participants believe the sector is shrinking in Canada.

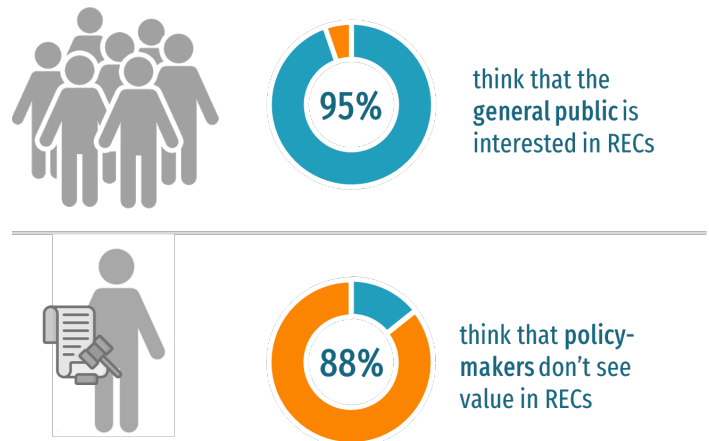
When discussing the provinces in which they operate, all six respondents from Alberta said they believed that Alberta’s renewable energy co-operative sector is growing. They attributed this growth to a combination of the previous NDP government’s efforts to provide funding, plus a welcoming regulatory environment and support from the local provincial co-operative association. Two of the six respondents said that while they think the sector is growing, its performance has been anemic or “slow”; two others said that the industry is somewhere between growth and stagnation.

In other provinces, nine out of fourteen participants believe that the sector is stagnant. This is particularly the case in Quebec, where all participants believe that the sector is stagnant (to our knowledge, there have been no new RECs for several years). In all provinces where respondents believe the sector is stagnant, respondents pointed to a general lack of interest and support from their provincial governments as well as constraints from legislation governing power generation. For example, the interviewees from Ontario who classified the situation in their province as stagnant cited the end of the feed-in-tariff (FIT) program in 2018 and the absence of new policy-induced opportunities, a major theme in our conversations.

## 4.0 PUBLIC AND POLICYMAKER INTEREST

As part of the semi-structured interviews, we asked participants to gauge the amount of interest in RECs amongst the general public and policymakers. Most participants believe there is more interest amongst the public in RECs today than there was in the past. Two respondents, however, said there appears to be less interest today than there was a few years ago, possibly due to the COVID-19 pandemic. One interviewee explained that, prior to the pandemic, their co-operative received expressions of interest from more than three hundred people in their last membership drive; during a recent membership drive, only fifty people expressed interest.

Figure 12: Interviewees’ opinions concerning the interest of the general public and policymakers in RECs



There was a broad consensus among twenty out of the twenty-one interviewees that the public is interested in developing RECs (Figure 12). Even though it is an initiative promoted by a small segment of the population and there is relatively little knowledge of co-operatives in general, people have compelling reasons to engage. One interviewee said, “I think there’s a lot of community appetite. The community really sees renewable energy co-operatives as the way to do the energy transition that we all want.”

On the other hand, fifteen of the seventeen who addressed the question of policymaker interest believe that policymakers are not interested in supporting RECs. One participant said, “They’re not listening. They don’t really seem to care.” The other interviewees believe that policymaker interest hinges on who is in power provincially. This theme — which party has power — was frequently mentioned as both a barrier but also a possible facilitator for the advancement of RECs in Canada.

## 5.0 BENEFITS

The literature identifies several benefits that community-owned renewable energy projects can provide to local communities, the environment, and governments [14]. These benefits include generation of local income [14,16], education and greater acceptance of renewable energy projects [15,17,18], environmental protection, and fulfillment of renewable-energy-generation goals [14,18]. Participants in our study identified a similar range of benefits. RECs offer benefits to local communities, the environment, and government authorities. Communities benefit from financial returns on investments made through RECs, opportunities to participate in the energy transition, and a chance to contribute to local economic development. As co-operatives focused on the development of clean energy, RECs also benefit the environment by generating non-polluting energy and implementing projects that promote a reduction in energy consumption. Government authorities and the public benefit because RECs not only help generate renewable energy projects and reduce GHG emissions, they also help provide a place where people who are engaged and knowledgeable about climate change can share ideas, build networks, and share their knowledge with new members.

Based on the literature and our interviews, we group the benefits of RECs into four main categories that shape the remainder of this discussion: environmental, economic, technological, and social benefits.

### 5.1 Environmental Benefits

Interviewees said that the biggest benefit of RECs was their role in fighting climate change. The interviewees believe there is broad-based public concern about climate change and that this concern translates into support of RECs. One participant stated: "I think people just want to feel like they're . . . doing something about the climate crisis." Another participant noted the potential for renewable energy co-operatives to make use of products that would otherwise end up in landfill. For example, the Island Biodiesel Co-operative works with biodiesel made from waste vegetable oil from restaurants in British Columbia. This vegetable oil would otherwise be disposed of in landfill. Another participant felt that RECs could help overcome opposition based on Not-In-My-Back-Yard attitudes (NIMBYism) that have caused setbacks in the roll out of renewable energy projects owned by major corporations or utilities:

The biggest, hardest opposition to renewable energy industrial assets are attitudes of NIMBY — not in my

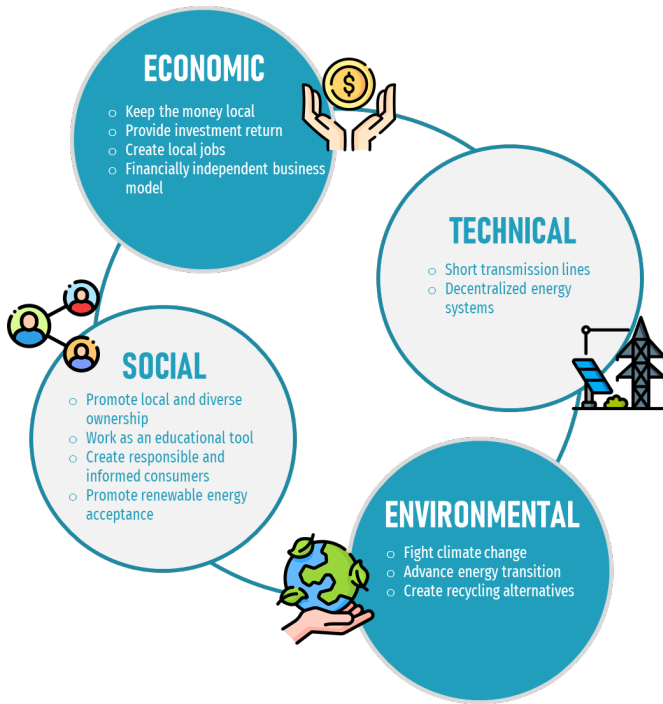
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RECs offer a range of benefits to local communities, the environment, and government authorities. Communities benefit from financial returns on investments made through RECs, opportunities to participate in the energy transition, and a chance to contribute to local economic development.

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backyard. How are you going to get communities to say "Yes, please. I want it in my backyard, whatever it is"? A big or a medium-sized solar or medium-size wind, if it's 250 wind turbines owned by a Florida pension fund, a lot of people will say "no." But if it's two or three wind turbines owned by the farmers surrounding that, a lot of people will say "yes." It's either my turbine which is paying my mortgage or it's paying my neighbour's mortgage.

Figure 13: Benefits provided by RECs to communities, the environment, and government



### 5.2 Economic Benefits

Several interviewees noted that RECs are vehicles that allow money spent on electricity to stay in the local community, creating opportunities to hire local workers and support local businesses. “When you have a Renewable Energy Co-operative, any income or profit goes back to the local community,” one participant explained. “That is not true for crown utilities or private-owned companies or any other group that owns the things. The power goes back to the shareholders, and those shareholders could be anywhere, but they’re probably not here.” Some REC models are even able to provide economic benefits directly to their members. For example, investment RECs allow members to invest in the co-operative through TFSA and RRSP accounts. This way, members can receive tax-free returns from their investment in the REC, save for the future, contribute to their local economy, and support the energy transition. RECs can also be a powerful tool for farmers and other landowners to reap the benefits of renewable energy through collective action. By banding together, they can obtain a better price for, and more control over, the energy generated from their land than if they each worked on their own (see the case study in Box 1 for an example from Québec).

While funding is a critical barrier for other community energy models [15,19], several interviewees said that raising money

from members to develop new renewable energy projects is not a barrier for RECs. If they have a project that looks like it will generate a reasonable and predictable rate of return, the funding follows. Their bigger challenge, and ongoing barrier, is generating enough revenue to pay for staff who can take some of the load off volunteer board members.

### 5.3 Social Benefits

Local ownership is one of the main benefits of RECs. Co-operatives enable democratic control of the energy sector, which is different from the regular corporate model. It allows for broad-based involvement. One participant said, “It’s accessible to people. I can pay a \$100 membership fee — and it’s a lifetime membership fee — and I’ve made a difference, because I’ve contributed something.” RECs are also tools for promoting education about climate change, environmental protection, collective action, and energy transition. For example, one interviewee said that when the members drive by a solar array they helped fund, it creates a sense of ownership and awareness that makes people feel like they are interacting directly with the energy transition. As a result, it also creates more responsible and informed consumers (and citizens) who can understand where their energy comes from, identify multiple generation sources, and feel a sense of agency on an issue that otherwise often leads people to feel despair [20].

### 5.4 Infrastructure Benefits

RECs also offer technological and infrastructural benefits. They offer a way to develop decentralized energy systems, improve energy infrastructure, and promote energy security. One participant noted, “He (a farmer) said, every time the wind blew twelve, fourteen years ago, towers would go down and they would have regular outages. Now, ten years after the wind and solar was put on the distribution side, the grid is much cleaner because the linesmen have to do proactive maintenance.” Furthermore, RECs rely on shorter transmission lines, which reduces energy losses. This eliminates the costs required to have a secure infrastructure to transmit energy over long distances and saves on the energy fees involved with transmission.



### The SES Solar Co-op: Creating Innovation through Partnerships

In 2014, it would have been difficult to imagine that Saskatoon would soon be positioned to host a series of ambitious and nation-leading renewable energy projects, with a local co-op offering everything from virtual net metering, to research pilot projects, to EV car sharing. At the time, Saskatchewan had one of the highest GHG emissions in the country and was a laggard in developing renewable energy projects. Saskatoon was poised to follow suit. Yet within five years, SES Solar Co-op had emerged as a catalyst for innovation in the city.

**Figure 14: SES Solar Co-op Pilot Research Project with SaskPolytechnic, (photo by author M. Boucher)**



### Setting the Stage for Local Partnerships: Saskatoon and Electricity Generation

The City of Saskatoon is served by two publicly owned electric utilities at the municipal and provincial levels: Saskatoon Light and Power (SL&P) and Saskatchewan Power Corporation (SaskPower). SL&P services the inner portion of the city, while SaskPower services predominantly the suburban periphery. SL&P is owned and operated by Saskatoon and operates the transmission and distribution within its district. It purchases the majority of its electricity from SaskPower. In recent years, it has begun operating its own generation facilities, although these represent a minor contribution to the

general supply. SaskPower is owned by the Province of Saskatchewan and is a vertically integrated corporation operating most of the generation, transmission, and distribution in the province.

The City of Saskatoon is one of only two cities in the province that runs its own electrical distribution network. Although Saskatoon has, in the past, considered selling its electric utility, it remains publicly owned. This trajectory can be traced to 1928, when the city was confronted with a challenge many other towns and cities in the province were facing — a power supply gap. This gap meant that the city council needed to consider its options: take out loans to invest in new generating facilities, enter into a purchase agreement with a private enterprise, or reach an agreement with the province. At the time, the province was implementing its plan for a provincially owned central utility, based on the recommendations for the Power Resources Commission of the Province of Saskatchewan. Saskatoon was central to their plan because it was one of the tri-cities, along with Moose Jaw and Regina, that would form the foundation of the transmission infrastructure and power pool. Therefore, the province wanted to ensure that Saskatoon's electric utility ownership would not move to private hands. In the end, Saskatoon and the province reached what would end up being a unique and beneficial deal for Saskatoon. The province was to purchase the city's generating facilities, but the city would be permitted to run the distribution.

**Figure 15: SES Solar Co-op Solar array in partnership with SL&P, (photo by author M. Boucher)**



This compromise allowed Saskatoon to reduce its debt load while still benefiting from the local distribution revenues, which at the time had generous profit margins. In other words, the province assumed most of the risks of this agreement, while the rewards made their way to the public coffers in Saskatoon. This agreement paved the way for the ownership structure that exists to this day and opportunities for city-level electricity generation projects.

### **The Formation of the SES Solar Co-operative**

The Saskatchewan Environmental Society (SES), a provincial environmental organization based in Saskatoon, took steps to create the SES Solar Co-operative in December 2014 by selling non-tradable shares to prospective members for \$950.00/share. The plan was for SES Solar Co-operative to pay dividends to its shareholders through revenue from solar electricity generation sold to the two provincial utilities (SL&P and SaskPower). Most of the co-operative's revenue is derived from lease agreements with building owners, who, in turn, have net metering agreements with the utility. The board of directors of the solar co-operative determines shareholder dividend payments and capital reinvestment based on the financial sustainability of the co-operative. In late 2021, it announced its first-ever dividend payment.

### **Vanguard of Innovation: The Emergence of a Virtual Net Metered EV Carshare**

SES Solar Co-operative is the first renewable energy co-operative in the Province of Saskatchewan and one of the more innovative solar co-operatives in the country. In a few years, this solar co-operative has been able to develop projects and innovative partnerships across the city with businesses, community organizations, a credit union, the City of Saskatoon, research institutes, and the local electric utility. Contract agreements within each partnership vary significantly. Among SES Solar Co-operative's list of pathbreaking projects is the renewable rides and virtual net metering partnership. Initiated by the Saskatchewan Environmental Society, the solar co-operative partnered with Renewable Rides to offer solar energy generation to charge their electric vehicles (EVs). The Saskatoon CarShare Co-op is the first carshare in Canada with electric vehicles powered by solar energy. The EVs are powered through a virtual-net-metering-agreement with SL&P, with the 37.8kW of panels placed on a local cohousing development called Radiance Cohousing. To

our knowledge, this is the only example in Canada of a renewable-energy-powered, electric vehicle car share combined with virtual net metering.

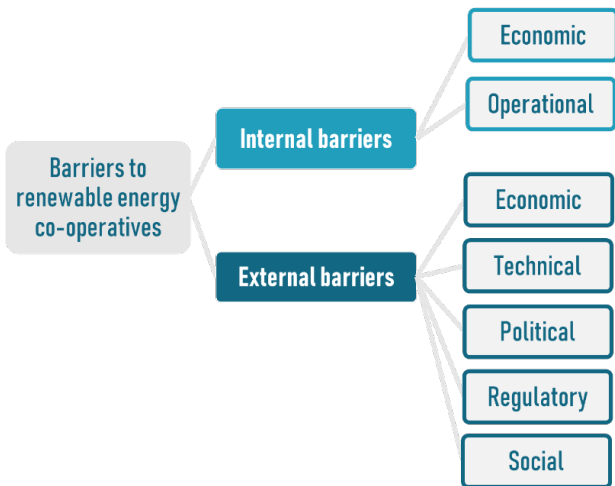
### **Lesson: Local Partnerships as a Strategy for Success**

The SES Solar Co-operative has emerged as a leader and innovator by leveraging a series of partnerships with the local utility, credit unions, local businesses, the University of Saskatchewan, Saskatchewan Polytechnic, environmental organizations, and home builders. The co-operative brought together a broad array of stakeholders under a shared vision. Its success demonstrates the power of partnerships and the determined leadership from its board members.

## 6.0 BARRIERS

The academic literature identifies several barriers to the development of community-owned renewable energy projects. Scholars mention the lack and instability of government funding programs [15,21], the lack of appropriate political support [18,21], and organizational challenges (e.g., dependence on voluntary work, lack of experience) [18,21]. The interviews for this research again identified considerable overlap between what the literature says and what we were told. In total, interviewees identified forty-nine distinct barriers to developing RECs, including fifteen internal barriers and thirty-four external barriers. These barriers were sorted into six groups according to their characteristics and function: economic, operational, infrastructure, political, regulatory, and social (Figure 16). (Note that the “economic” group appears as both an internal and external barrier).

Figure 16: Types of barriers faced by RECs

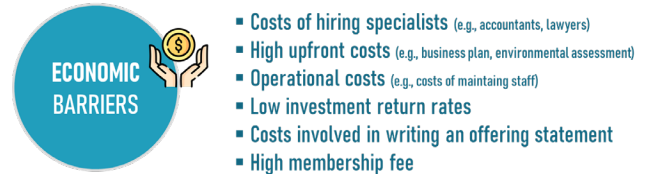


### 6.1 Internal Barriers

We grouped the internal barriers into two main categories: economic and operational. Economic barriers involve the expenses required to operate the co-operative and develop new projects (Figure 17). The cost of hiring experts, especially accountants and lawyers, is the internal economic barrier most mentioned by participants. RECs also struggle to generate the funds needed to maintain staff, leading to concerns about volunteer burnout. REC interviewees also said that, especially in the formative period of the co-operative, they struggle to find the money to pay for the business plans and environmental assessments associated with new projects. Moreover, although the financial return offered to members is

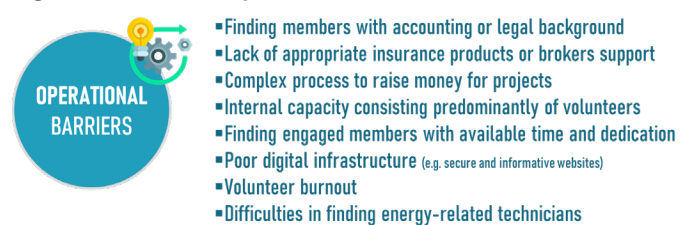
one of the benefits of RECs, at least three participants said that the return on investments could be low — in some cases lower than inflation. The Val-Éo example also suggests that it can take a long time for a project to generate a return.

Figure 17: Internal economic barriers



These co-operatives also face internal operational barriers (Figure 18), which are barriers that hinder the internal functioning of the RECs. These include difficulties in building a dedicated team with the necessary expertise. Most interviewees indicated that they had no problems finding members with experience or interest in renewable energy. However, several mentioned their desire to have accountants and lawyers as part of their board or broader team of volunteers. Because most co-operatives do not have such expertise internally, they often struggle with the process of writing offering statements to raise the money they need to build the REC in the first place.

Figure 18: Internal operational barriers



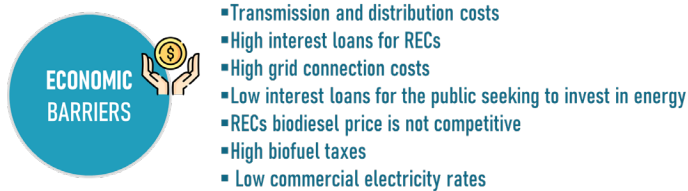
### 6.2 External Barriers

We organized external barriers into five groups: economic, technical, political, regulatory, and social barriers (Figure 16). The main external economic barriers were the costs related to grid access and use (Figure 19). Participants mentioned that high transmission and distribution costs, and high grid connection costs, are significant barriers to REC development. In Alberta, for example, one participant said that the bulk of the cost paid by the consumer is the distribution and transmission fees and not the cost of generation itself. Interviewees also suggested that they face an external economic barrier in their inability to secure loans for new projects (i.e., they could not find a bank or credit union willing to provide a loan). Where they did find a willing lender, the interest rate tended to be too high given the

expected returns from the investment.

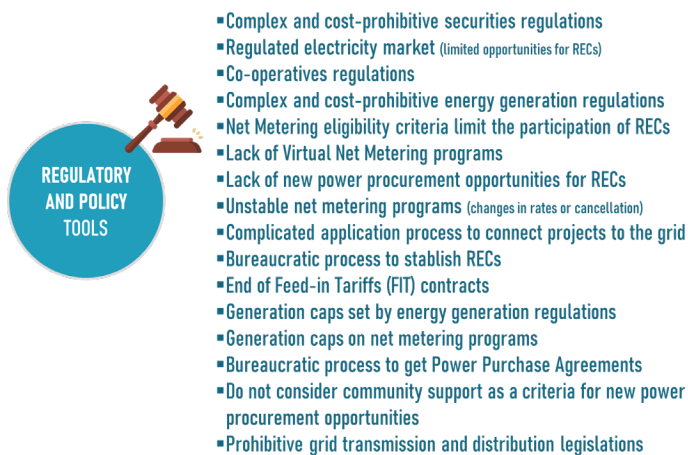
On the other hand, some interviewees from investment RECs argued that if the government or banks were to provide cheap loans for energy-related projects, it might perversely make life more difficult for their type of co-operative and renewable energy co-operatives: "I think in the end, ironically, if it (*low-interest loans*) was very widely accepted, it would actually contribute to the weakening of our renewable energy co-operative" because it would lessen the need to secure member investments and in so doing, erode the connection between the member and the co-operative.

Figure 19: External economic barriers



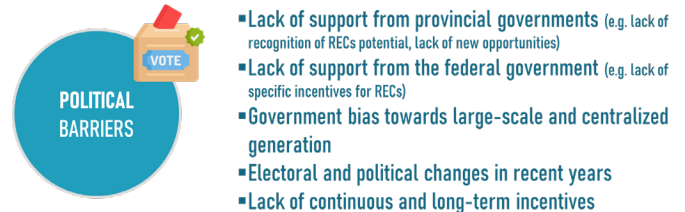
Interviewees cited regulatory and policy obstacles as the most significant barriers to RECs (Figure 20). They pointed to barriers associated with energy generation, securities legislation, and co-operative regulations. They also criticized the frequent changes in rules and grid access programs and lack of long-term planning by policymakers and regulated utilities. Even favourable policies such as net metering, power purchase agreements, and feed-in-tariffs had ever-changing rules and regulations that were costly for RECs to adapt to. Interviewees generally had a negative view of policymakers, saying they were inflexible and not sufficiently knowledgeable or open towards RECs.

Figure 20: External regulatory and policy barriers



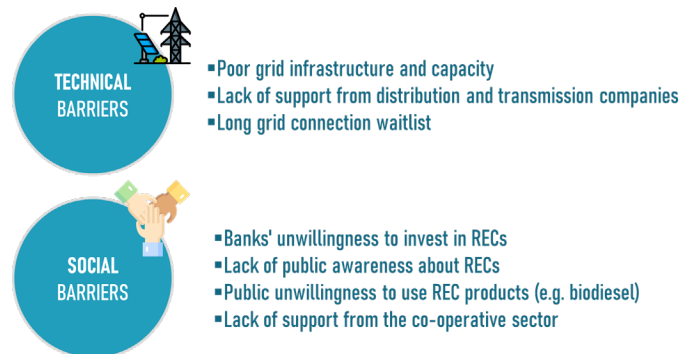
Interviewees also identified politics as a barrier to the development of RECs (Figure 21), with most saying the sector was held back by a felt lack of support from federal and provincial governments. In particular, interviewees felt that political leaders failed to recognize the REC sector's potential to support the energy transition. As a result, political leaders did not put policies in place that could make it easier for RECs to get started. Participants also noted the political bias towards large-scale and centralized generation and the impact of political changes on REC development, with some governments adopting a largely supportive disposition and others reversing course as soon as they got to power.

Figure 21: External political barriers



Participants also mentioned technical and social barriers (Figure 22). On the technical side, participants noted issues with grid infrastructure and capacity, as well as the complex process involved with grid connection. On the social side, participants addressed themes already discussed, including the fact that the public is generally unaware of the REC model, which ultimately acts as a barrier.

Figure 22: External technical and social barriers



### Against the Odds: The Val-Éo Story

In the early 2000s, farmers in the fertile Lac St. Jean area of Quebec started getting some unusual phone calls, mail, and even in-person visits. Representatives from a company that specializes in buying and then selling land rights for wind power was calling. It wanted local farmers to sign long-term contracts for the wind rights to their land. It would then turn around and auction these rights to power-generation companies, which would install wind turbines.

On the surface, it was an attractive proposition. Farmers could make some extra money by making a portion of their land available for wind turbines that someone else would build. All they would need to do is sign a contract and collect the money, some municipalities in the province were already doing.

But as word spread, some farmers reached out to a local branch of a farm organization called the *Union des producteurs agricoles* (UPA), a farmers' union. Its representatives suggested that the farmers consider a collective response by organizing meetings around a simple but familiar idea in this part of Quebec: If the farmers banded together, maybe they could negotiate better rates of return and get more control over wind-energy generation on their land.

While the UPA played an important role in getting the conversation going, the power of collective action also came naturally to the local farm community. The farmers in Lac St. Jean have long worked collectively through co-operatives, whether farm organizations like the UPA or their local *Desjardins caisses populaires* (credit unions).

By late 2005, a group of farmers had set up Val-Éo as a multistakeholder or solidarity co-operative. Within a year, they had fifty farmer-members and, before long, had acquired another fifty or so members consisting of employees and investors. In 2007, supported by the local *caisse populaire*, farm co-operatives, regional and provincial co-operative development organizations, and knowledgeable lawyers, Val-Éo created a wholly owned subsidiary (for tax reasons) to pool \$400,000 of start-up funds from its members. This money was used to fund feasibility studies and hire staff to begin the process of applying to new community-energy tenders by the provincial power authority, Hydro-Québec.

### A Difficult Road

While the Lac St. Jean farmers made quick early progress in creating their co-operative and amassing a sizeable amount of start-up capital, the next steps were difficult. The reasons for this point to some of the institutional and organizational barriers faced by renewable energy co-operatives, particularly in provinces such as Quebec, where the local energy producer is government owned, has a monopoly on production and the grid, and/or the majority of its energy generation — in the form of hydro electricity — already qualifies as “renewable.”

Shortly after forming the partnership, Val-Éo set out to make a submission to Hydro-Québec's call for proposals for community-based renewable energy production. Very quickly, it realized that it had to find a partner. Hydro-Québec would only accept bids from entities that had a corporate bond rating, something well out of reach for a small, newly formed, multistakeholder co-operative. The conversations with partners were not easy. Val-Éo wanted an equal fifty-fifty partnership and effective day-to-day control, but most potential partners were willing to offer only a passive minority ownership stake, such as the kind agreed to by many municipalities. The local farmers also realized that they would need to stick closely together to have any hope of negotiating a reasonable agreement. They were up against companies with deep pockets that could afford expensive legal services and had the money to be patient. To illustrate the disparity in capacity, Val-Éo members could not help but notice that some of the companies they were talking to flew into the region on private jets.

After much searching, Val-Éo formed a partnership with Algonquin Power, a midsized Ontario power generation company that had made a strategic decision to focus its efforts on renewable energy generation. Algonquin would look after building the windmills and technical matters. Val-Éo would get its fifty-fifty ownership structure, but have a 75 percent controlling vote and run the day-to-day business of the partnership.

There were still more problems. In the spring of 2008, Hydro-Québec turned down a proposal from the Val-Éo / Algonquin Power partnership to build a fifty megawatt project (as part of a Hydro-Québec two thousand megawatt tender). Disappointed but not deterred, the partnership's next effort was a success. In late 2010,

they won a contract to provide twenty-four megawatts of power to Hydro-Québec as part of a tender for community-based projects.

### ***The Slow Build and Co-operative Genius***

While Val-Éo / Algonquin Power's success was promising, the partnership faced many more obstacles on the way to building its wind farm. These problems were less about the institutional environment and more about the capacity of a small farm co-operative to bring in additional capital, address staff and volunteer fatigue, and manage the tensions that arose when the interests of members collided.

- After the initial capital raise, Val-Éo had to raise millions more — an estimated \$2 to \$3 million — to help share (on an equal fifty-fifty basis) the costs of feasibility studies, lawyers, and more. A million dollars may not be much for a company like Algonquin but is a difficult amount to raise for a co-operative of one hundred members, with a core of twenty or thirty farmers as the major funders. Val-Éo did have one advantage. The contract with Hydro-Québec required a community partner, in this case Val-Éo, and so Algonquin had to show some patience with the amount of time it took the farmers to pull together their share of the funding.
- Closely related to fundraising challenges, Val-Éo had to defer salary payment for some of its staff, leading eventually to burnout.
- In response to tensions among members whose properties neighbored one another, Val-Éo negotiated an agreement among the membership to share revenue generated within a five-hundred-meter radius of the windmills. If a significant portion of that space landed on the property of a member with no windmills, they would still obtain a pro-rated share of the revenue.
- In response to tensions between some members and their nonmember neighbours over the placement of the windmills, Val-Éo had to devise innovative solutions to offer potential royalties to these landowners, also within the same five hundred meters.

- To include the municipalities in the process, Val-Éo signed an agreement to pay royalties in lieu of income taxes to local communities, provided the funds were used to support community development.

### ***Where Things Stand***

As of late 2021, Val-Éo's windmill operations were under construction but not yet operational. Nevertheless, Val-Éo was optimistic about the future of his co-operative now that work was under way, with the co-operative standing to generate millions of dollars in revenue for its members over the twenty-year lifespan of the contract. Val-Éo is also hopeful it could expand if Hydro-Québec went ahead with a proposed new tender for several hundred megawatts of community-generated energy.

### **Figure 23: Val-Éo wind project**

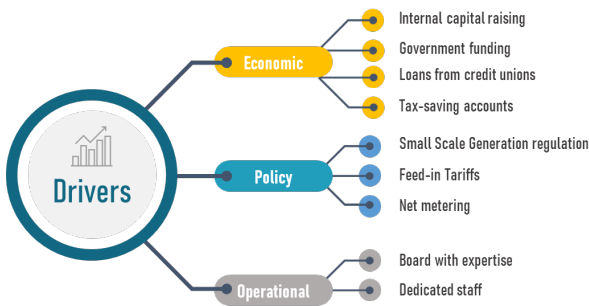
(retrieved from <http://www.val-eo.com/projet-ebr/>)



## 7.0 DRIVERS AND ENABLERS

Despite the barriers identified, several RECs have succeeded in developing projects, engaging the public, and building up internal capacity in the form of staff, earnings, and organizational ability. In this section, we present a list of the main drivers and enablers behind the successful RECs (Figure 24):

**Figure 24: Drivers and enablers supporting the development of RECs**



### 7.1 Raising Internal Capital

One of the biggest barriers to community energy development is the cost involved in building a project. As noted earlier, interviewees generally felt that RECs were successful in raising money locally. “We’ve raised, gosh, close to \$70 million, I think, over time,” said one interviewee. “And you know, we’re shutting down our bond sales now because we reached our capital requirements, like, now-ish. We’ve raised close to \$10 million this year.” Participants explained that it makes them less dependent on government funding and on loans to develop renewable energy projects. Said one: “We’ve been very fortunate, obviously, in that regard, to have been basically self-sufficient from our membership. We haven’t needed to access loans from banks to finance projects.”

### 7.2 Government Funding

While many RECs have been able to raise capital for new projects, almost all RECs said they struggled to generate the funds needed in the early phases of an REC or its projects, before the offering statements. “We did get some start-up funding from the Ontario government for putting together an offering statement,” said one participant, who continued, “It wasn’t trivial. It was nearly \$40,000. It covered our costs for the offering statement.” Some interviewees also mentioned the importance of retrofit funding to create new business opportunities (Figure 25): “Now we have the federal

government coming up with these greener homes grants, I’ve already gotten a few calls from people interested.”

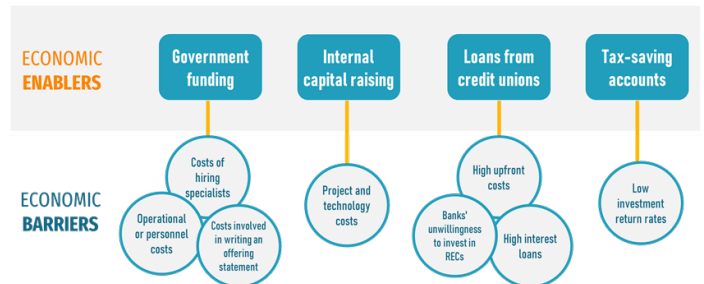
### 7.3 Loans from Credit Unions

Participants mentioned that banks usually provide high-interest loans, making it an unviable option for RECs. However, two participants mentioned the possibility of getting low-interest loans with credit unions. One participant from Saskatchewan said that “we wouldn’t have survived” without the support from a local credit union. Loans from credit unions might be an option to cover upfront costs.

### 7.4 Tax-Saving Accounts

As noted earlier, interviewees from investment RECs stressed the importance — for fundraising — of members being able to shelter their investments in tax-free saving accounts (TFSA) and registered retirement savings plans (RRSPs).

**Figure 25: The four major economic enablers**



### 7.5 Small-Scale Generation Regulation

In Alberta, interviewees said the province’s small-scale generation program was a particularly important enabler of community energy: “They basically set us up for success in Alberta.”

### 7.6 Feed-In Tariffs

Interviewees explained that Ontario’s feed-in tariffs (FITs) gave a major boost to that province’s REC sector. Launched in 2009, the program was built around prioritizing projects with the participation of municipalities, Indigenous communities, and other community-led projects, including co-operatives. The program was discontinued in 2018. Interviewees from Ontario attributed the current stagnation in the provincial sector to the end of the FIT, a view born out in the census data. As one participant from Ontario noted, the FIT program “really led to the initiation of a lot of renewable energy co-ops.”

### 7.7 Net Metering

In Saskatchewan, one of the major drivers of REC development was net metering. In 2008, SaskPower launched a Net Metering Program to support the development of solar generation [22]. According to participants, this program has generated a wave of new solar energy developments in the province, including the creation of two solar co-operatives. However, in the fall of 2019, SaskPower changed some of the program requirements (i.e., price per kWh), which impacted the growth of RECs in the province.

Figure 26: The three major policy enablers

	SMALL-SCALE GENERATION REGULATIONS	FEED-IN TARIFFS	NET METERING
PROVINCE	Alberta	Ontario	Saskatchewan
DESCRIPTION	Facilitates the generation and distribution of small-scale renewable energy	Contracts that allow participants who generate renewable energy to sell it to the province at a guaranteed price	Allows customers to generate their own electricity and receive credit for any excess they generated
OPERATION (YEAR)	2019 - (present)	2009 - 2018	2008 - (present)* *redesigned in 2019

### 7.8 Board Expertise

Eight participants said that one of the biggest drivers for developing their own REC was being able to tap into a pool of volunteers, especially those who could serve on the board, and who had strong professional or educational backgrounds. As one participant said, “We benefit immensely from super skilled, super committed, and passionate volunteer board members.” Participants stressed the importance of finding people with accounting and legal experience. As one interviewee noted, the ability to recruit these individuals helped keep costs down: “If we didn’t have volunteers capable of doing that type of work, we’d have to get accounting and legal firms to do it.”

### 7.9 Dedicated Staff

Successful RECs also benefit from having dedicated employees. In Alberta, for example, one REC member stated that having staff in the early stages of the co-op helped reduce the volunteer workload of the board members. The

participant added: “We have a technical board, they’re very knowledgeable in their own respective areas. But I will say that a lot of that had to do with the confidence that we were able to provide the potential board members, in that initially there was a full-time position dedicated to a lot of the administrative stuff. So, a lot of the heavy lifting was already done.”

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Eight participants said that one of the biggest drivers for developing their own REC was being able to tap into a pool of volunteers, especially those who could serve on the board, and who had strong professional or educational backgrounds.

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### What Are the Alternatives?

#### Agreements with Site Owners

A common practice among RECs in several provinces is to establish agreements, such as power purchase agreements, with the site owner, and solar panel leases with building owners. In Ontario, for example, RECs are currently not allowed to sell electricity either into the grid (which had been possible under the defunct feed-in tariff program) or to individuals. To get around these constraints, some RECs in Ontario have set up agreements with the building owners. One participant described the strategy as follows: “We actually lease the asset [solar panels] to the building at a rate that matches the cost of the electricity.”

In New Brunswick, RECs are not allowed to lease solar panels, but nevertheless have found a way to get the same financial outcome: “What we did is we changed our business model so that the [renewable energy co-operative] doesn’t own the equipment, but the homeowner does. And that all we are is we finance the purchase of it, rather than own it.”


Another alternative is to create power purchase agreements (PPA) with site owners. A participant from an REC in Alberta described how they used this approach: “We broke the mold. So what we’re doing is we’re installing micro-generation systems on host properties under a power purchase agreement specifically with the host site. I’ll use a local church as an example. We’re going to install ten kilowatts on the church. The church buys 100 percent of electricity produced by the panels

of [Renewable Energy Co-operative]. And then they can do whatever they want with that power. They can send it to the grid. They could pull energy from the grid. That’s totally separate.”

Here are further details of how this particular power purchase agreement worked:

I’m going to use an example of our first PPA. It’s a church here in [municipality]. Their utility bill was about twenty-nine cents a kilowatt hour. We are able to deliver electricity to them at a cost of nineteen cents a kilowatt hour. So, they’re going to save ten cents a kilowatt hour on every kilowatt that we produce for them. We can also increase that because during the summer months, where they produce excess electricity, and put it back into the grid, if we participate in the UtilityNet program, we’d receive twenty-five cents a kilowatt hour for the energy versus the seven cents that would be contracted under normal periods of time. So we can actually up that by eighteen cents a kilowatt hour on top of the ten cents that they’re saving by working through us.

**Figure 27: Outcomes of a power purchase agreement between an REC and a church in Alberta**

Electricity bill Church in Alberta	Supplier	Electricity cost	Church savings
	General utility	\$ 0.29/kWh	-
	Renewable Energy Co-operative	\$ 0.19/kWh	<b>+\$ 0.10/kWh</b>

## 8.0 FUTURE PERSPECTIVES

### 8.1 Future Scenarios

We asked participants about the future of RECs over the next five years. Specifically, we asked about what they thought the possible future, probable future, and preferred future for RECs in the next five years might look like (Figure 28). The possible future represents a scenario that can be done or achieved; the probable future describes what is most likely to happen; and the preferred future represents their desired scenario.

**Figure 28: Predominant views on preferred, possible, and probable futures**

	PREFERRED	POSSIBLE	PROBABLE
CHANGES IN POLICIES AND LEGISLATION	✓	?	⊘
GOVERNMENT SUPPORT AND ENGAGEMENT	✓	✓	⊘
PUBLIC ENGAGEMENT AND PARTICIPATION	✓	✓	✓

### 8.1.1 Possible Future

Only two respondents did not have an optimistic view about the possible future of RECs. One interviewee said that, given their home province's recently developed large-scale generation projects, they believed there is no possibility of developing RECs. The other interviewee felt that corporations will likely dominate the market and RECs will be limited to retailing. On the other hand, fourteen participants expressed optimistic views about the possible future of RECs. Most of them stated that they believe the sector will possibly grow and that there may be policy or structural changes to the marketplace that would facilitate this growth.

The participants who said they were optimistic about the possible future believed that policymakers could make favourable changes to legislation or introduce new government support to facilitate community generation of electricity. One person noted: "I do know that there are several organizations working on talking to the governments about making these regulatory changes that we've suggested and believe that would ease community generation. So, it's possible that they might take that on board and build it into the regulations." Participants cited two possible policy changes, namely, Virtual Net Metering and new regulations that would give more flexibility to local distribution utilities to facilitate the work with RECs.

Some participants pointed out, however, that these changes depend on who is in power. As one respondent noted, "It depends on who's elected. It depends on how interested they are in addressing the climate crisis along with social justice." Another interviewee said that if the Liberal government came back into power in Ontario, it would create opportunities for RECs:

I think that if we're lucky, we're going to end up with a Liberal government in Ontario that is going to go back to some of the things that they were trying to encourage when they were in charge of the province. And I think that it would increase our opportunities. I'm sure every government is going to be a little hesitant to spend money, trying to get over the pandemic, but I think they would be encouraging things that don't cost them a lot.

Although provincial governments are crucial players in advancing RECs, participants also highlighted the role of federal and municipal governments. They explained that the federal government could play an important role by encouraging or incentivizing provincial governments to support RECs. The federal government also has a major responsibility in recognizing the role of RECs in the energy

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The participants who said they were optimistic about the possible future believed that policymakers could make favourable changes to legislation or introduce new government support to facilitate community generation of electricity.

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transition. Municipal leaderships, on the other hand, have a more localized role. One participant mentioned that municipal governments could become potential buyers of the energy generated by RECs.

Another possible scenario is that the existing co-operatives will get together, support each other, and share resources. One interviewee argued that an increase in the number of memberships and an amalgamation of co-operatives might be possible: "You could minimize your energy by doing one organization ... where you're focusing your growth opportunities. We have had conversations within the province, amongst our folks, of how amalgamation might be the way."

### 8.1.2 Probable Future

The probable scenario is not as optimistic as the possible scenario. Eleven of sixteen participants who addressed this question said they believe that RECs will stagnate or have inadequate or too-slow growth. Two participants said that they did not think co-operatives would grow to the point of being able to compete with large corporations. Said one:

I likely see them playing a niche role in the energy space. The current capacity, the co-operatives that I'm aware of, I don't see them taking on much more of the energy industry than they currently occupy. The big players have it all locked down, and there's no co-operative that I think is going to grow in any significant scale, unfortunately.

Multiple participants felt the major reasons for this probable stagnant scenario were related to external challenges such as the low probability of governments making favourable changes to legislation/regulations or introducing other kinds of supportive measures. As one of these interviewees said: “My probable [future] is that there’s just going to be a whole bunch of uncoordinated policy starts-and-stops that are going to make it expensive, exhausting, and sort of limp along.” Two participants said they believe that the limited potential growth could be tied back to internal REC barriers, with one noting that:

I think there are very few new players coming into the marketplace simply because of the burden, the difficulty, to actually get going. Putting structure in place — organizational structure in place, organizational capacity and capability, raising capital, finding hosts, explaining what we’re all doing — I think that’s a tough slog. This has been a whole lot. The last two years have been a whole lot harder for me. I thought, “Okay, this is something I can do part time,” and there’s been periods of time where it’s been a full-time job. So, I think the probable future is limited growth.

Five of the sixteen participants were optimistic about the probable future for RECs over the next five years. These people trust that we will see a continued growth of RECs in the probable future, with new members and new renewable energy projects. As one participant noted: “I think the probable future is that there will be a renewed recognition of the importance of renewable energy co-ops and that newer RECs will be developed over the next five years.” Two participants also stated that they believe there will likely be more collaboration and lobbying among RECs. As one of them said, “I would say that there will be a bit more collaboration amongst energy co-operatives (there’s two or three of us in New Brunswick) and also some renewable energy installers, to put pressure on the government.” Another of the more positive participants said enthusiasm for the REC will drive future growth, noting, “I think it will definitely grow. Just by people’s enthusiasm and vision, it’ll grow. And it’ll become easier because once you get that capacity built in these renewable energy co-operatives, the next ones will be easier.”

### 8.1.3 Preferred Future

Not surprisingly, all interview participants said their preferred future is one where RECs grow and take up more space in Canada’s energy mix. A participant from Ontario said they would like to see RECs working as utilities and members choosing RECs to be their electricity providers. Two interviewees said they would like to see RECs helping in the energy futures and economic development of rural areas in

particular. Another participant would like to see RECs being considered as the primary means for implementing a fair energy transition: “My preferred future is to see renewable energy co-operatives as the way for doing a just and equitable transition. I would like them [RECs] to lead the way in terms of our energy transition aspirations, to be seen as the number one preferred tool for energy transition.” Participants noted that more favourable legislation, greater government support at all levels, collaboration among co-operatives, partnerships with governments, and greater public interest in RECs were all necessary to achieve this desired scenario.

Eleven participants mentioned that they would like to see legislation and policies supporting RECs, community ownership, and decentralization. One of these participants noted, “I’d like to see regulatory change. I don’t think it’s that difficult, and I think it would open a lot of doors for developing additional renewable energy infrastructure into the future. People have to recognize the benefit of this model and work in every way possible to facilitate it.” Participants identified a number of examples of supportive policy and legislation:

- allowing virtual net metering
- providing greater flexibility in the regulations that control access to the grid
- facilitating partnerships between RECs and local distribution utilities
- creating power purchase agreements that require part of the energy to be generated by RECs

In Manitoba and Newfoundland and Labrador, two participants would like to see changes to legislation that modify the provincial crown corporations’ monopoly over power generation. The interviewee from Newfoundland and Labrador said: “I’d love to see Bill 61 rescinded so at least there is the possibility of more modern, green, and technological ways of creating electricity, and to see other kinds of enterprises besides government projects and crown corporations run our electricity grid.”

The preferred future also includes the desire for more significant support and participation from federal and municipal governments. Participants mentioned that they would like to see the federal government recognize the role of RECs in the energy transition. One suggestion was for provincial governments to each create their own ministry of co-operatives. This individual noted that “the (Saskatchewan) NDP used to have a Ministry of Co-operatives. This was, of course, years ago. But both provincially and federally, there could be a lot more focus on supporting co-ops that are starting.”

Participants also felt that municipal governments could play a supportive role. As mentioned earlier, interviewees stated they would like to see municipalities buy the energy generated by RECs and make buildings available for the placement of solar panels. In addition to collaboration with governments, participants also saw collaboration among co-operatives as necessary in an ideal future. Said one: “The government, the businesses, including co-operatives — all working together without any questioning at all about the importance of renewable energy. And saying: ‘Okay, how can we really improve this work?’ There’s no collaboration now amongst those at this point.” This collaboration also includes (and depends on) public interest and participation.

### 9.0 PROGNOSIS AND RECOMMENDATIONS

What does the future hold for Canada’s renewable energy co-operatives? The answer is “It depends.” On the one hand, the broad societal push towards transitioning away from fossil fuels is unambiguously positive. There is now a broad-based understanding across the political spectrum that things need to change. This and the sometimes favourable policy context motivated a sense of optimism amongst many of our interviewees. On the other hand, we heard from some RECs that they see a strong bias in government towards meeting the increasing demand for renewable energy through large private and/or government-owned entities and, in some cases, lingering subsidies to more traditional energy sources such as natural gas, which make it difficult for RECs to compete. As these larger entities move to seize the increasingly obvious opportunity to profit from the transition, they threaten to squeeze out smaller players such as RECs.

Does it have to be that way? Not necessarily. Our census and interview data suggest that the future for RECs hinges largely on the policy context. We observed an association between the emergence of RECs and favourable public policy. Where policymakers establish the rules of the game that give RECs a chance, they can prosper, and when they do not, they struggle. This is most evident in Ontario, where our census data suggest that a feed-in-tariff policy coupled with the possibility of start-up funding helped motivate people to start RECs in the 2009–2015 period, and the demise of these programs led many, but not all, RECs to disappear. This same lesson is also apparent in Alberta — albeit to a lesser degree — where the ability to access the grid, paired with some indications about support from the previous NDP government, helped generate a sense of optimism amongst RECs and community-energy producers more generally. Conversely, we see how an unfavourable policy environment with a market dominated by one state-owned utility, as is the case in Quebec, can make

it very challenging for RECs to get off the ground (see Val-Éc above).

To say that a flourishing REC sector needs a supportive policy environment is not the same thing as saying RECs are unviable without some form of government support. Several of the RECs appear to be financially sustainable and growing. The historical record also offers some grounds for optimism. In the first half of the twentieth century, policymakers in the United States and Alberta supported the development of electrical utility co-operatives to bring power to rural and remote areas. Those co-operatives continue to operate today, albeit not without some challenges and governance problems [23]. Crucially, the decision to support the development of these utility co-operatives was at once ideological and pragmatic. It was ideological because policymakers valued the idea of extending the reach of democratic decision making beyond formal political mechanisms and into the process of production and distribution of goods and services, in this case electricity. It was also pragmatic, recognizing that privately owned energy companies had no interest in serving these high-cost, low profit corners of the world and that there was no appetite, at least in some jurisdictions, for highly centralized state-owned energy production.

What might a supportive policy context for the REC sector look like today? Our interviewees were uniformly supportive of the kind of feed-in-tariff (FIT) policies that spurred growth in Ontario’s REC sector. But it is important to bear in mind that the long-term contracts tendered under that policy were often set at above-market prices and shaped by a context where renewable energy costs were still comparatively high and there was no broad-based appetite amongst investors and large energy companies to invest in renewables. Until relatively recently, solar and wind were not competitive with conventional fossil fuels in Canada. Ontario’s FIT program helped tilt the playing field in favour of renewables and is strongly associated with a surge in new REC formation. When the program ended, as noted above, many of these RECs became inactive or closed down, although some (like the Ottawa Renewable Energy Co-operative) were able to survive the transition and even grow.

From this, we draw the tentative conclusion that while a policy like FIT could incent the formation of new RECs, its ultimate impact is likely to be highly uneven. In other words, it may not be the best policy approach to ensure a long-term viable REC sector in today’s environment. Something else, or maybe more, such as favourable net metering or virtual net metering policies (see below) may be necessary. In any case, we observe that the cost of renewables is sharply lower today. Given the growing role of private companies in the renewable energy

space, it seems unlikely that policymakers will undertake a similarly dramatic policy intervention any time soon.

Our interviewees told us that they needed a combination of supply-and-demand-side changes. On the supply side, there was near unanimous support for ideas such as net metering and virtual net metering, policies that would make it easier for RECs to feed their energy into the grid and/or effectively sell their energy directly to members, which is impossible today. For that to happen, policymakers need to recognize the benefits that flow from decentralized and community-owned energy production. They need to see, in other words, value in a distributed democratic system of energy production for its own sake, as policymakers did when they supported the development of electrical co-operatives in the United States and Alberta. Unlike that earlier period, today's RECs need not be, and are unlikely to be, solely rural entities [23,24]. Some of the healthiest RECs in Canada, in fact, are found in urban settings.

On the demand side, we heard that there needs to be a continuation and increased attention to policies that stimulate the demand for renewable energy, whether in the form of electrical vehicles, storage, microgrids, or renewable energy for the home. While these policies are also more universal in nature and not directly aimed at RECs, they create an environment in which people are more likely to see the value of an REC — perhaps through bulk purchasing — or understand its business model more clearly by deepening the understanding of renewable energy generally. Interviewees also stressed the importance of government procurement, pointing to commitments by the federal government to retrofit its buildings with renewable energy, and in some cases, to partner with RECs to do it. Again, this effort requires some commitment, ideological and/or pragmatic, to the idea that there is value in community-driven, democratically controlled and owned energy production. While these strike us as reasonable ideas to help spur an expansion of the REC sector both in number and in size, advancing these ideas as recommendations falls outside the scope of our research mandate and targeted audience.

Fortunately, the policy context is not the only thing shaping or likely to shape the potential success of the REC sector. The sector itself has agency. It *can* shape its own destiny, but it faces some formidable barriers before it can grow into a major supplier of Canada's energy needs. As we heard repeatedly, the sector's biggest obstacles to growth and expansion, after public policy barriers, are internal. Many of the RECs said they were inadequately staffed (most had no employees), at risk of volunteer burnout, and confronted with high costs (and legal risks) associated with securities offerings. In addition, they

were often forced to expend considerable energies developing contractual workarounds to external obstacles, notably those from government-owned energy utilities.

Once again, however, the historical record points the way forward and provides some grounds for optimism. Co-operatives in other sectors have overcome similar barriers by banding together and creating entities that go by a variety of names such as "second tier," "shared service," "league," "apex," or "federation" organizations. These entities, which we refer to here as "leagues," are generally owned and governed by their member co-operatives, often in the same democratic one-member, one-vote way as any other co-operative. In sectors as varied as banking, daycare, funerals, forestry, insurance, health care, agriculture, retailing, fisheries, and many more, co-operatives have used leagues to:

- **Lower Costs** — Leagues help members to lower costs in several ways, including through pooling the buying power of member co-operatives, creating shared document templates (e.g., prospectus or contractual), offering expertise (technical, legal, financial, or otherwise) at cost, making auditing services available, sharing the latest research about the sector, and much more.
- **Share Knowledge, Build Networks, and Foster Innovation** — By providing conferences and educational offerings, leagues help members share their learnings and best practices, fostering cultures of innovation and education but also helping to stitch together networks of people who care about, and work towards, the same objectives. The journey becomes less one of individual struggle and more one of collective pursuit.
- **Advance and Spread Knowledge about RECs** — An REC league would be well positioned to provide information, advice, guidance, and ready-made networks of experts to people interested in starting a new REC.
- **Advocacy** — By pooling their capacity and speaking as one, leagues are able to exert more influence over the policy process which, as we noted above, is key to ensuring that the REC sector takes up more space in the energy transition.

Throughout our research process, we saw signs that there is considerable appetite among REC volunteers to forge links with their peers in their home province and beyond. For example:

- In February 2021, the Canadian Centre for the Study of Co-operatives (CCSC) hosted a panel conversation about what a supportive policy environment might look for Canada's RECs. The event generated a great deal of interest, with many participants remarking on how much they enjoyed sharing ideas, establishing connections, and learning about the challenges faced by their peers.
- Later that year, leaders from the Ottawa Renewable Energy Co-operative (OREC) spearheaded an effort to generate a collective submission to the new federal Minister of the Environment and Climate Change, Steven Guilbeault, and the Minister of Natural Resources, Jonathan Wilkinson, making the case for RECs and policy changes that would stimulate demand for their services. While impressive, this effort was *ad hoc* and its reach hinged on networks within networks — the OREC representatives did not, and could not easily, have access to the full breath of REC volunteers across Canada.
- In our interviews, we heard about the benefits of sharing templates, whether for securities offerings or contractual processes.

In a league, these kinds of activities would be formalized, structured, and made more transparent and replicable. In short, a league would enable its member co-operatives to be more effective and help the sector grow its ambitions. With that in mind, we offer three recommendations aimed at RECs and the broader co-operative community, which has long played a role in helping nurture and expand the co-operative model. These recommendations are that RECs:

1. **Create a League** — Canada's RECs should hold an event to discuss the possibility of organizing a democratically structured league of renewable energy co-operatives. The league's members would be made up of a broad range of RECs, including solar, wind, geothermal, biomass, or other, to generate a strong and well-funded organization that can put forward a consistent position with policymakers and maximize benefits for the members.
2. **Seek Outside Funding to Support the League Organizing Event** — RECs should partner with an educational institution, and possibly the broader co-operative sector, to explore ways of covering the costs of organizing and planning this kind of event. Most of Canada's RECs do not have easy access to the funds that would allow taking part in a two- or three-day event of the kind we are recommending.

3. **Provide Consistent Information on Membership, Revenue, and Energy Generation** — RECs need to immediately begin a process of making available some basic financial information about their membership size, revenue, and energy generation to establish a formula that could support ongoing funding for a league. Our census data gathering revealed inconsistencies in the availability of this information. No league can prosper and fulfill its mission without funding, and funding, to be equitable, needs to be based on objective measures of capacity such as membership, revenues, and energy generation. This information could be imputed into the CCSC database, and associated map, to facilitate conversations around the formation of a league.

Of course, forming a league and keeping it operating costs money. As our census and interviews revealed, RECs often struggle to keep on top of their own day-to-day costs. They have little or no free cash flow to support a new organization, as is clear from the demise of a league-like organization called the Federation of Community Power Co-operatives (FCPC). Ontario's RECs created the FCPC to share best practices, develop common standards, help people form new REC, connect with RECs outside of Ontario and advocate on the sector's behalf with the provincial (but also federal) government. It was run by volunteers who pulled together funding from a variety of mostly *ad hoc* sources, including academic grants and one-time support from government and other grants. While focused on Ontario, the FCPC volunteers did briefly contemplate a more nation-wide presence but abandoned the idea due to volunteer constraints and the reality of Canada's provincially-siloed grid systems. Without stable funding and at least one full-time staff person, the task would have been too great. Like so many RECs in Ontario, the FCPC did not survive the demise of the province's FIT program. While a website for the organization can still be found, the most recent items in the "news and events" section are from late 2016. Conversations with people who were involved with the organization confirm that the FCPC is no longer functional.

The FCPC's demise calls attention to the challenge ahead. Stable funding will not be easy to secure. Yet, this funding is essential if a league is to succeed, especially on a national scale with all of its inherent complexities. It also however points to the potential resilience of a *national* organization less dependent on membership from any one province and the whims of local political (and policy) cycle. As we imagine it, the most resilient RECs – those with some spare capacity and time – would be the first to come together to create the league. They would draw on some longer-term seed funding and in-kind support from outside partners like the broader

co-operative sector, universities and government to hire a couple of positions, staffed by individuals who are intrinsically motivated by the task before them. These RECs would set the league's fees on the basis of the kind of good comparative data we have started to collect here. And finally, they would use the proposed kick-off event (see above) to identify a small number – three at most – of achievable short-term goals that can help legitimize the organization and make it sustainable.

## **10.0 CONCLUSION**

Canada's REC sector is still young, but it is also at a crossroads. Many of the interviewees said they fear that if the policy environment does not change, the sector will stagnate and never assume a large place in Canada's energy mix.

Our interviewees also told us that while they think the public is receptive to the REC model and that RECs embody the notion of social license, there is a general lack of awareness about the model. This is also true of policymakers, who generally look elsewhere when thinking about the transition away from fossil fuels. This point underlines the importance of creating a league-type entity that can focus and enhance advocacy but also survive the whims of provincial political and policy cycles.

The sector strength — locally controlled and locally responsive — is also its weakness. In its current state, it struggles to exert its collective voice in a concentrated and sustained way with policymakers outside of the local context, with federal and provincial policymakers. We also found, however, that the RECs that have managed to survive these and other challenges are run by people who have demonstrated the kind of persistence, resourcefulness, resilience, and focus that we will all need to address climate change. With a bit more collective action in the form of a league run by these kinds of actors, we think there is grounds for optimism that RECs can live up to their potential to make a meaningful contribution to the energy transition.

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## APPENDIX A: PERSPECTIVES ON INSURANCE

Participants were also asked about their perspectives on the availability of insurance for RECs. They talked about the types of insurance that they are currently purchasing and the main challenges in finding appropriate insurance. Not all participants were aware of, or willing to talk about, the available insurance options for RECs. Only fourteen (out of twenty-four) participants answered questions related to insurance. Out of these fourteen participants, two represent a co-operative association and twelve are directly involved in a co-operative. Considering only the participants who are directly involved with RECs, eleven said that their REC has some type of insurance and only one said that their co-operative was not insured: “We do not have any insurance, because we don’t need it.” (Figure 29).

**Figure 29: Eleven participants reported that their REC has insurance and only one said that theirs is not insured**



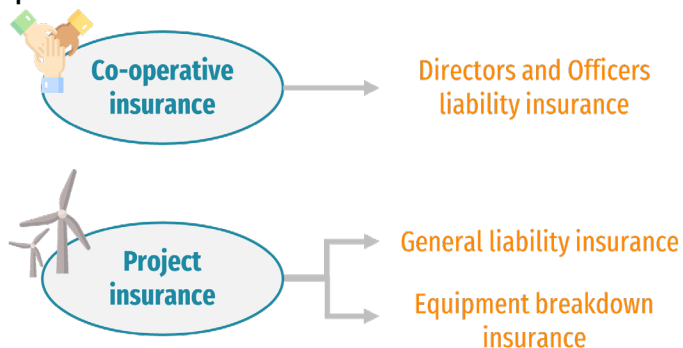
The participant who said they had no insurance pointed out, however, that The Co-operators could perhaps provide some assistance with any future insurance needs. Another six participants also mentioned The Co-operators when asked about insurance. Four participants said that they currently have, or previously had, insurance with The Co-operators. One mentioned that The Co-operators were the easiest to deal with, although another two people noted that The Co-operators staff they dealt with were not familiar with renewable energy, which made insurance negotiations more difficult. Among the participants who do not have insurance with The Co-operators, two said that they believe The Co-operators would be open to helping RECs.

Three types of insurance were cited by the participants as being relevant to their operations: directors and officers (D&O) liability insurance, general liability insurance, and equipment breakdown insurance (Figure 30). The directors and officers insurance was most frequently noted, and was considered

one of the most important for the functioning of the RECs: “We definitely need D&O insurance for the directors to make sure that those are protected. Otherwise, it’s extremely hard to recruit new directors on your board.” Participants, however, reported difficulties in finding appropriate D&O insurance. General liability insurance was mentioned as important to secure the project sites. This type of insurance provides bodily injury and property damage coverage on the sites where solar panels, wind turbines, and biofuel docks are located.

To cover the damages in wind turbines, solar panels, and other technologies, some RECs have equipment breakdown insurance. According to a participant from Ontario, equipment breakdown insurance is important to protect the co-operative investments: “We do have insurance that covers the technology, like a repair, and it’s covering the loss of income. And I think that’s pretty important. As a matter of fact, in the offering statement, you need to state that you have that kind of insurance in order to protect the investment for the investors.” One REC from British Columbia told us they do not have equipment breakdown insurance because they have a long-term warranty with the manufacturer. However, the Ontario participant (with breakdown insurance) said that they took into account the manufacturer’s warranty when purchasing their breakdown insurance package.

**Figure 30: Types of insurance used by renewable energy co-operatives**

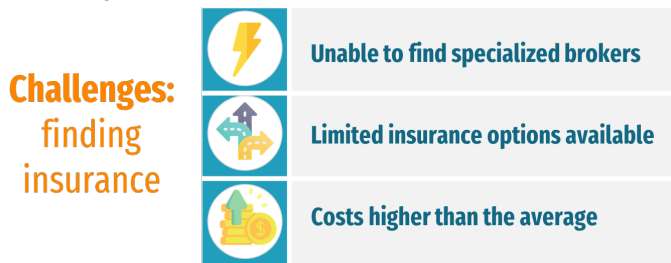


Participants also talked about whether or not they had problems finding alternatives or signing insurance contracts. Nine mentioned that they had challenges (Figure 31) and three said that they had no major problems: “I think that it’s getting to be a more mature market and those things aren’t as difficult as they were, you know, ten years ago. So, I think it’s less of a concern than it used to be.”

Among the participants who faced challenges, two stated that brokers do not understand the nature of renewable energy generation, let alone renewable energy co-operatives, and

as result, it takes a lot of work to explain all the details of how the co-operatives work. For this reason, some co-operatives decided to go with brokers that specialize in renewable energy: “We didn’t know what questions to ask. And that’s important, that you have a broker who understands the sector and can guide you through those challenges.” Participants also reported that there are not many options available for insuring RECs, which makes the conditions for obtaining insurance more difficult to meet and raises insurance prices: “The number of companies that are interested in providing insurance for renewable energy organizations and co-operatives is limited. And often the group that the renewable energy co-operative would be included in in the end would be the same as utilities. So we’d have to meet the same kind of conditions for insurance as some companies, let’s say SaskPower.”

**Figure 31: Main challenges faced by RECs when looking for insurance products**



Six participants identified cost as a consideration. Most see insurance prices as too high, which represents a barrier for RECs. A participant from British Columbia, for example, said that his REC does not have directors and officers liability insurance because of the high prices. A participant from Alberta reiterated that prices for this particular type of insurance are high, and further explained that it is even more expensive for investment RECs: “A lot of these co-ops are investment co-ops. They’re just raising the capital to own the asset. And typically, the directors insurance for any co-op will be like \$1,300 a year or \$2,000 a year. But because you’re investing other people’s money, it jumps to a much higher rate. And I think that on the directors and officers insurance, there isn’t a specific product that would help.” To address this challenge, participants said that they either negotiated with brokers or chose to change insurance companies.



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