



## ACCELERATING RENEWABLE ENERGY CO-OPERATIVES IN CANADA

# A REVIEW OF EXPERIENCES AND LESSONS

PREPARED BY TREC RENEWABLE ENERGY CO-OPERATIVE  
FOR CO-OPERATIVES AND MUTUALS CANADA (CMC)

**MARCH 2016**





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# About TREC

[WWW.TREC.ON.CA](http://WWW.TREC.ON.CA)

TREC Renewable Energy Co-operative is a non-profit organization that advocates for and supports the transition to a 100% renewable energy within a generation. Created in 1998, TREC built the first co-operatively owned wind project and one of the largest solar co-ops in Canada. TREC believes our energy future must be owned by the people of Canada to build community resiliency, protect Mother Earth and enable sustainable economic practices. We work closely with the co-op, the environmental sectors and Aboriginal communities to support their renewable energy goals.

## Acknowledgements

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# 1. Introduction

In 2011 the Canadian Co-operative Association (now Co-ops and Mutuals Canada – CMC) prepared a scan of renewable energy co-operatives (RE co-ops) across Canada to assess the scope of the sector, the volume of activity across the country and to highlight key issues. At that time, a total of 71 co-operatives in the RE sector across Canada were identified with a small sub-set of these being fully operational. The majority of these co-ops were in the business of generating electricity or were set up with that intention. This latest scan reveals that the number of RE co-ops has increased by 24% over the last four years. Ontario, fostering 52 out of the 89 operational co-ops across the country, is home to over half (58%) of all co-operatives involved with RE in Canada.

Since the 2011 scan, activity in the rest of Canada has been slow while in Ontario the numbers, relatively speaking, have exploded. Given these changes and the significant growth in Ontario, it is timely to conduct another scan of the RE sector to assess what is working, what is not and how things can be moved forward. The timing of this report also coincides with a new federal government in Ottawa that is committed to addressing climate change. This brings with it the opportunity for the Federal government to play an active role in supporting the growth of this sector.

This report will start with a quick overview of renewable energy, community energy and RE co-ops and their potential impacts, before outlining the global trends of the sector. This is followed by a scan of Canada and then Ontario. Given the level of co-op activity and hence experience in Ontario, the report will focus more attention on this province and draw lessons for other jurisdictions. In Section 3 we will discuss effective tools for successful RE co-ops development based on on-the ground experiences from various jurisdictions. Finally, we conclude the report with specific policy recommendations for the provincial and federal level.

## 1.1 WHAT IS RENEWABLE ENERGY (RE)?

Renewable energy (RE) refers to energy obtained from “the continuous or repetitive currents of energy recurring in the natural environment.”<sup>1</sup> Put more simply, RE employs resources that are naturally replenished, such as sunlight, wind, running water (waves, tides, rivers), geothermal heat, biomass (plant matter). RE sources can be applied to all end-uses including electricity, heat and transportation fuel using various technologies. On the whole renewables have lower negative environmental impacts than finite fossil-based sources of energy.

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<sup>1</sup> Twidell, J. & Weir, A (1986). Renewable Energy Sources. London: E & F N Spon.

However, all energy sources used by humans have impacts. There has been much discussion in jurisdictions with emerging RE developments about the impacts of wind, solar, hydro, etc. Arguments have been made about the human health impacts, as well as concerns about impacts on certain species of animals. These concerns are not to be taken lightly and most jurisdictions have responded to these concerns by introducing various environmental, noise and siting standards and/or approval processes. It is worth noting however, that relative to the more conventional sources of power generation – coal, oil, natural gas and nuclear – on a life-cycle cost basis and increasingly on an economic cost basis, most renewables fare much better.<sup>2,3</sup>

This report is primarily interested in the production of electricity from RE sources. Although renewable heat and transportation fuels are of interest and importance in the context of community-based energy projects, the regulatory framework of these sectors is very different and largely separate from the electricity system. While some of the policies presented in following sections may be applicable to all sectors and should be considered in time, for ease of communication all references made to RE in this report applies to renewable electricity unless specified otherwise. Technologies mainly under consideration and under development in Canada today include:

- Solar photovoltaic (PV),
- Wind energy,
- Bio-energy (biomass and biogas),
- Run-of-river hydroelectric energy<sup>3</sup>, and
- Ocean-powered energy (tidal, wave).

## 1.2 WHAT IS COMMUNITY ENERGY?

Community Energy (CE), also often referred to as community power (CP), broadly refers to community ownership of and participation in renewable energy projects. The term does not (in this report) refer to RE projects that are majority owned by commercial developers even if those developers are residents of a local community. Local community members must have a direct financial stake in the project other than land lease payments, tax revenue or other payment in lieu of taxes.

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<sup>2</sup> International Renewable Energy Agency (2014). Renewable Power Generation Costs 2014. Accessed from [http://www.irena.org/documentdownloads/publications/irena\\_re\\_power\\_costs\\_2014\\_report.pdf](http://www.irena.org/documentdownloads/publications/irena_re_power_costs_2014_report.pdf)

<sup>3</sup> A further distinction is often made for low-impact RE since some applications like large hydro dams can have significant social and ecological impacts. For this reason large hydro is generally excluded in the low-impact RE discussions. Finally, it is worth noting that some of the natural resources mentioned above are not at risk of depletion (e.g. wind, sunshine) due to human consumption, while other resources (e.g. biomass, running water) may only be considered 'renewable' if their rate of consumption does not exceed their rate of regeneration.

The impacts of CE projects, however, are not limited to the economic well-being of a local community. The renewable energy sectors of most industrialized countries, including Canada, are currently dominated by large-scale, centralized projects that are owned by corporations. While the use of renewables instead of fossil-based sources is a step forward, a growing body of literature points out that the transition towards a sustainable energy sector cannot be achieved only in the technological and political realms; it must have a social and behavioral component as well.<sup>4</sup> The participation of citizens and communities in the energy sector is of crucial importance. In this sense, CE projects accelerate the transition towards a sustainable energy sector by giving individuals and communities a direct financial stake and decision-making power in the energy sector. In other words, CE contributes to the fight against climate change by democratizing the ownership and control of clean energy projects. Community participation has also been shown to address and alleviate the social friction that can arise around new infrastructure projects.<sup>5</sup> The Danish adage – your own pigs don't stink – sums up the phenomenon where a project is supported by surrounding residents who have a stake in the project. Given the vocal opposition to wind power, in particular, in some regions, gaining local support can be the difference between a project going ahead, or not.

Community energy (CE) projects are developed under various ownership models (or legal structures) such as:

- RE co-operatives,
- Community investment funds,
- Not-for-profit organizations,
- Charities,
- MUSH sector (Municipalities, Universities, Schools and Hospitals)<sup>6</sup>,
- Aboriginal communities (i.e. First Nations, Métis and Inuit), and
- Partnerships and Joint ventures between the above groups and/or a commercial partner.

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<sup>4</sup> For instance, see Murphy, p. (2008). *Plan C: Community Survival Strategies for Peak Oil and Climate Change*. Gabriola Island, BC: New Society Publishers; and Pahl, G. (2007). *The Citizen-powered Energy Handbook: Community Solutions to a Global Crisis*. White River Junction, VT: Chelsea Green Pub. Co.

<sup>5</sup> Musall, F. & Kuik, O. (2011). Local Acceptance of Renewable Energy – A Case Study from Southeast Germany. *Energy Policy*, 39(6): 3252-3260; and Warren, C.R. & McFadyen, M. (2010). Does Community Ownership Affect Public Attitudes to Wind Energy? A case study from south-west Scotland. *Land Use Policy*, 27(2): 204-213.

<sup>6</sup> For more information on various CE ownership models, please visit <http://peoplepowerplanet.ca/community-energy-models/>

The ownership model is usually a defining characteristic of community energy (CE) and impacts a project’s: (a) *processes*, or how and by whom the project is managed and governed; and (b) *outcomes*, or how the economic and social costs, benefits and risks of a project are distributed.<sup>7</sup> In this sense, RE co-operatives stand out among other CE ownership models with participatory decision-making *processes* and collective *outcomes* already embedded in their business model through the democratic ownership arrangement.

### 1.3 WHAT IS A RENEWABLE ENERGY (RE) CO-OP?

A co-operative is an organization that is collectively owned and democratically controlled by its members. All members, regardless of their shareholdings, have a say in decision-making processes on the basis of the one-member, one-vote principle. Co-operatives have long been involved in the renewable energy sector through various business activities (see Table 1).

**TABLE 1:** Types of Co-operatives in the RE Sector

RE Generation Co-ops:	Generating electricity, heat and/or fuels from renewable energy sources.
Renewable Fuels Co-ops:	Mobility and/or heating fuels generation and supply, usually from biofuels.
Distribution or Utility Co-ops:	Distributing electricity generated from RE and possibly other sources.
District Heating Co-ops:	Heat generation and distribution from renewable energy sources.
RE Service Co-ops:	Service provision related to RE and energy conservation.
Education Co-ops:	Providing education in regards to RE.
Financing and Investment Co-ops:	Focusing on financing RE co-op projects.
Project Development Co-ops:	Instead of owning shares, some co-ops help RE projects with development support, as well as promotion and community outreach activities.

The most prevalent form of co-operative in Canada’s energy sector is the RE generation co-op with 53% of the share. The remaining 47% is spread between the types articulated in Table 1. For the sake of simplicity, further reference to RE co-op in this report will refer to co-operatives whose main business is generating electricity from RE sources and feeding that power into provincial power grids.

<sup>7</sup> Walker, G. & Devine-Wright, p. (2008). Community Renewable Energy: What Does It Mean? *Energy Policy*, 36(2): 497-500. p. 498



## 1.4 RE CO-OPS' TRIPLE BOTTOM LINE IMPACT

A growing body of literature highlights, that in jurisdictions where they are active, RE co-ops have demonstrated positive economic, social and environmental outcomes:

### 1.4.1 Economic Outcomes

A RE co-op can maximize the local community's ability to reap economic benefits from RE projects with its shared ownership structure. Demonstrated economic contributions of RE co-ops include:

- Direct financial benefits in the form of income from the sales of generated electricity and/or utility bill savings if the generated electricity is consumed by the co-op members locally;
- Increased employment and regional development opportunities (compared to a privately owned model, where profits are more likely to flow out of the community and jobs are less likely to be created and retained locally);
- Generating additional business opportunities for members, as in the case of farmer-led RE co-operatives that purchase manure, livestock, and other biological sources for electricity generation from their members;
- Helping members acquire new skills and knowledge;
- Partnering with other local organizations and spending surplus funds on community development activities; and
- Contributing to domestic energy security and energy price stability, by reducing dependence on imported fuels and on energy sources that are subject to volatile pricing.

## 1.4.2 Social Outcomes

RE co-ops bring individuals with diverse backgrounds and skills under a democratic management structure to collectively undertake a RE project. This democratic and collective process has been identified to generate social outcomes in the form of:

- Bonding of community members into a cohesive whole (often called social cohesion);
- Building a stronger sense of belonging within the community;
- Increasing capacity within the community for the realization of future collective initiatives; and
- Alleviating or eliminating social friction that may arise from an energy project, by enabling direct and meaningful participation and benefits.

## 1.4.3 Environmental Outcomes

The active involvement of community members in the energy sector, as highlighted earlier in this report, unlocks the social and behavioural aspects of the transition towards an ecologically sustainable energy sector. RE co-ops so far have contributed to this transition in the following ways:

- Replacing greenhouse gas emitting energy sources with low or no carbon generation;
- Replacing air and water polluting energy sources with cleaner one;
- Replacing finite sources of energy with renewable sources; and
- Increasing members' awareness of their personal energy use patterns and thereby motivating reductions in energy consumption.

That said, it is important to note that the ability of RE co-ops to generate the above-listed outcomes is informed by the scale and type of project being pursued. RE co-ops efforts to meet economic, social and environmental objectives can be hindered by various financing and policy-related barriers that will be highlighted in Section 3 of this report.

## 1.5 PREVALENCE OF RE CO-OPS IN EUROPE

The prevalence of RE co-ops has been growing internationally for the past 25 years, with Germany and Denmark pioneering the way. The REScoop.eu network reports that as of early 2014, approximately 3,000 RE co-ops were estimated across Europe with almost 80 per cent of these being located in Germany and Denmark, and the rest mostly in the Netherlands, France, United Kingdom and Finland.<sup>8</sup> In Germany alone, 772 RE co-ops have been established between 2006 and 2014.<sup>9</sup> Germany's and Denmark's success in fostering RE co-ops is tied to a long history of supportive legislation and programs, principally the Feed-In Tariff that will be highlighted in Section 3.1.1.

Europe's success in breeding RE co-ops also inspired Canada's policy-makers and communities. Ontario was the first to Act through the introduction of the Green Energy and Economy Act (GEEA) in 2009, which established a Feed-In tariff as a foundational policy that supported RE co-op development, among other proponents (more on the GEEA in Section 2.3). Nova Scotia introduced a community Feed-In Tariff program in 2011 and has seen over 200 MW of RE built as a result.

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<sup>8</sup> Huybrechts, B. & Mertens, S. (2014). The Relevance of the Cooperative Model in the Field of Renewable Energy. *Annals of Public and Cooperative Economics*, 85(2): 193-212

<sup>9</sup> [http://www.dgrv.de/weben.nsf/272e312c8017e736c1256e31005cedff/e7b7b885ccf6c6e8c1257e84004f9047/\\$FILE/Survey\\_Energy\\_Cooperations\\_2014.pdf](http://www.dgrv.de/weben.nsf/272e312c8017e736c1256e31005cedff/e7b7b885ccf6c6e8c1257e84004f9047/$FILE/Survey_Energy_Cooperations_2014.pdf)

# 2. RE Co-op Activity Across Canada

## 2.1 TYPES OF CO-OPERATIVES IN THE RE SECTOR

The RE co-op (which has generation of electricity from renewable sources as its primary business) is not the only type of co-operative involved in Canada’s RE sector. Our research revealed that as of October 2015, there exists a total of 89 active co-operatives in the RE sector across Canada (See Figure 1, and for a full list Appendix A), including co-ops involved in RE generation, service provision, RE development, RE investments and utility (electricity distribution). To learn more about some of Canada’s non-generation co-operatives, please see Table 2.

**FIGURE 1:** Co-ops Involved in Canada’s RE Sector – By Type of Co-op



A report published in 2011 by Co-operatives and Mutuals Canada (then called the Canadian Co-operative Association) identified a total of 71 co-operatives in the RE sector across Canada.<sup>10</sup> This represents an increase of 24% in the span of four years. Ontario, fostering 52 out of the 89 operational co-ops across the country, is home to over half (58%) of all co-operatives involved with RE in Canada.

<sup>10</sup> Canadian Co-operative Association (2011). *Co-operatives Helping Fuel a Green Economy: A report on co-ops in Canada's green energy sector.*



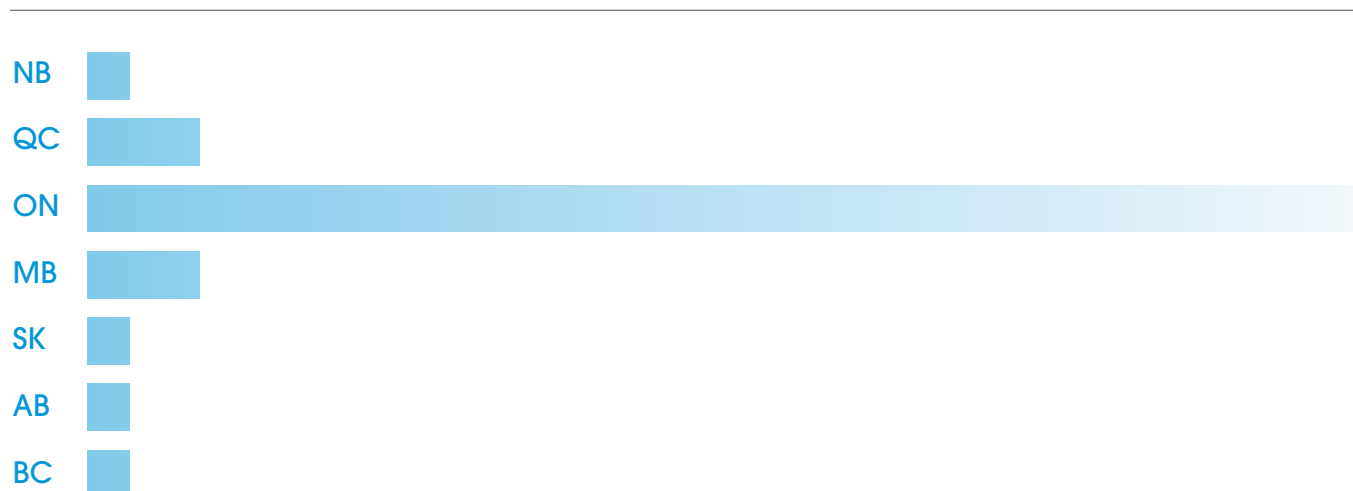
**TABLE 2:** Examples of non-RE co-ops

NAME OF CO-OP	TYPE OF CO-OP	JURISDICTION
SPARK	Utility Co-operative	Alberta
Co-op Energy	Service (RE Installation)	New Brunswick, Nova Scotia, P.E.I.
Sunderland Co-operative	Renewable Fuels (Biofuel)	Ontario
TREC Renewable Energy Co-operative	Service (RE Development Co-op)	Ontario

## 2.2 RE GENERATION CO-OPERATIVES

There are 47 active RE generation co-ops across Canada, representing 53% of all co-operatives in the energy sector (See Appendix A for a full list). About 72% of this activity is taking place in Ontario, with 34 RE co-ops estimated to be pursuing projects in the province (See Figure 2). It should also be noted that this number would rise to 74 in the province if all incorporated RE co-ops were taken to account, but it appears that there are about 40 incorporated RE co-ops in Ontario not actively pursuing projects at this time. So it seems fair to say that the current expression of RE co-ops across Canada is imbalanced. This imbalance hinges on a number of factors, with government policy currently presenting itself as the most significant one. The factors behind Ontario's success in fostering co-operatives will be analyzed further in Section 2.3.

**FIGURE 2:** Provincial Breakdown of Canada's RE co-ops



Saskatchewan and Manitoba have had their first RE co-ops incorporated in the last four years, demonstrating that RE co-ops are spreading across Canada. However, in these provinces, the absence of supportive renewable energy policy such as a FIT program or community energy set-asides make it extremely difficult to get a project underway, even with a great deal of local community support, because they are in effect competing with well capitalized private energy companies, or public utilities that own the grid.

On the other hand, Nova Scotia, despite having a supportive policy landscape for community-owned RE projects, has very limited RE co-op activity (only one biomass co-op) due to community groups preferring the Community Development Investment Fund (CEDIF) ownership model due to its preferential tax status and RRSP-eligibility (more on the CEDIF in Section 3.3.1). However, as far as broader community energy is concerned, Nova Scotia provides a model of success with 200 MW of RE built under their Community Feed-In Tariff Program (ComFIT) between 2011 and 2015 when the program ended. Given this success, jurisdictions looking to promote and enable community energy would do well to examine the Nova Scotia ComFIT and CEDIF policies.

British Columbia (BC) is home to one of the pioneering RE co-ops across the country: Peace Energy Co-operative (PEC). PEC was founded in 2002, and initiated the development of the 102 MW Bear Mountain Wind Park in Dawson Creek in partnership with Aeolis Wind Power Corp. and Altas Gas Income Trust – the province’s first commercial wind project. Since then, however, no RE co-op was incorporated in the province to build on PEC’s success. Meanwhile, Quebec is home to four RE co-ops; two engaged in wind energy and two in biomass generation. New Brunswick, similar to B.C., is home to only one RE co-op, which is engaged in energy generation from biomass. Finally, Alberta’s first and currently only RE co-op is currently seeking investments (See Appendix A for full list).

Canada’s remaining provinces (Newfoundland & Labrador, and Prince Edward Island) and territories (Northwest Territories, Nunavut and Yukon) had no recorded RE co-op activity as of January 2016.

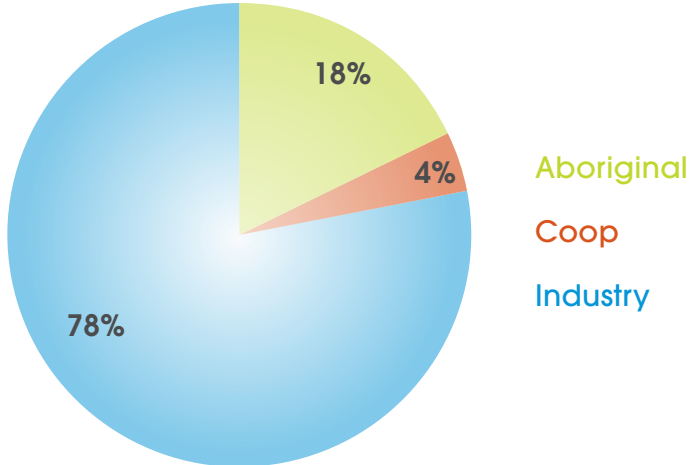
As the leading province in RE co-op activity, the rest of this Section will focus on Ontario’s experience with RE co-op policy and development.

## **2.3 ONTARIO’S EXPERIENCE WITH RE CO-OPS**

Since the enactment of the Green Energy and Economy Act (GEEA), 2009, Ontario has seen rapid growth of the renewable energy (RE) and RE co-operative sectors. Through the Feed-in-Tariff (FIT) program enacted by the GEEA, these co-ops are developing grid-tied wind, solar, and biogas projects with the support of members from around the province.

Since 2010, when the first FIT contracts were awarded, 1,75 MW have been approved for development by proponents with Community participation which in the last three FIT rounds has been co-ops exclusively. In Ontario Aboriginal power contracts fall in a separate category of allocation – since 2010 over 800 MW of contracts have been awarded to projects lead by or with participation by Aboriginal (First Nation and Métis) applicants. None of these projects have been built using the RE co-op model as far as we know. Figure 3 shows the distribution of co-op, Aboriginal and commercial MW and contracts awarded under the Ontario FIT program since its inception. In total, 4,627 MW of RE contracts have been awarded under the Ontario FIT program to date.<sup>11</sup>

**FIGURE 3:** Distribution of Ontario FIT contracts to-date<sup>12</sup>



There is no official record of active RE co-ops in the province, only a list of all incorporated energy co-ops on the Financial Services Commission of Ontario (FSCO) website. However, FSCO’s label of “energy co-ops” – a list of 84 names – includes renewable energy co-ops (i.e. co-ops pursuing renewable electricity generation projects in the province of Ontario), co-ops involved in other energy-related activities, as well as co-ops that may no longer be active. Thus, it is an ongoing challenge to determine the number of RE co-ops that are actually developing projects in the province.

Over the last three years, the Federation of Community Power Co-operatives (FCPC) with the support of TREC Renewable Energy Co-operative, have conducted a survey of the known RE co-ops in the province of Ontario. A summary of key results from the last survey (2014-2015) is presented Appendix B. The FCPC is an umbrella organization formed in 2012 to unite the voice and co-ordinate efforts of the RE co-ops in the province.

11 Progress Report on Contracted Electricity Supply: Q2-2015, IESO 2015  
 12 Progress Report on Contracted Electricity Supply: Q2-2015, IESO 2015

### 2.3.1. Ontario's RE co-op policy framework

The first RE co-op in Ontario was started in 1998 and completed in 2002, it was the TREC/WindShare turbine in downtown Toronto, a joint venture with Toronto Hydro that saw almost 450 investors raise almost \$2 million in community financing. Since that time, until the Feed-in-Tariff program was launched in 2010, very few RE co-op developments were initiated and of the few that did (namely LakeWind, Pukwis, Life, Positive Power Co-ops), their analysis showed repeatedly that a more conducive policy framework and higher rates for RE generation would be needed to enable them to proceed with their plans of building co-operatively owned wind projects. WindShare was an anomaly – with a utility partner it had a power purchaser. Such an arrangement could not be negotiated by the other co-ops that were operating outside Toronto. The power rates being offered in Ontario at the time under competitive tender and the RE standard offer program (RESOP) were insufficient to enable the sector.

In response, the organizations and individuals involved in the co-ops named above, along with others in the emerging community energy and environmental NGO (ENGO) sectors (OSEA, Community Power Fund, TREC, etc.) came together in 2008/2009 to push for a renewable energy policy framework with a Feed-in tariff (FIT) program that would enable the participation of a broad spectrum of society, not just energy companies. This represented a radical departure from how energy projects had been developed in the previous 100 years in Ontario and was modeled on experiences in Northern Europe, most notably Germany, and Denmark. These countries, fuelled by social movements asking for a cleaner and more democratic energy sector, introduced their first FIT programs in the early 1990s, coupled with policies and support mechanisms to ensure citizen participation in this energy transition.

The Ontario FIT Program was structured to encourage the development of a range of renewable energy projects, varying in size, technology type and proponent type. It was introduced legislatively through the Green Energy and Green Economy Act in 2009 and first implemented in 2010. Initially the Ontario FIT program was open to various parties including Aboriginal proponents (First Nations and Métis), community groups, individuals, co-ops, charities, educational and health institutions, as well as commercial developers. Another notable feature of the FIT is support available to community power in the form of a price-adder of 1 cent per kWh for wind, bioenergy and hydro projects (not solar). There is also a 1.5 cent/kWh adder for First Nations and Métis participation to encourage the development of a range of renewable energy projects, varying in size, technology type and proponent type. The adder is reduced for ownership participation lower than 50% to a minimum threshold of 15%. A grant-funding program was also introduced called the Community Energy Partnership Program, which allowed community proponents, including co-ops, to apply for funds to help with project and co-op development costs. A similar funding stream was also created for Aboriginal power.



Despite these support mechanisms, a small amount of community projects emerged from the first stream of the FIT program in Ontario, but not as many as had applied to the program, and only a handful of RE co-ops. Many did not receive a FIT contract, largely due to the fact that their applications were submitted more than 7 months into the program. Given the overwhelming level of applications, the Ontario Power Authority (OPA) (the body administering the FIT program) was instructed to halt application acceptance and chose a date to serve as the cut off. Rather than review all applications that had been accepted at the time of the announcement the OPA issued a retroactive date thereby cutting off many applications including a number of co-ops.

There was also a program for micro-generators of under 10 kW which were procured under the Micro-FIT program. Many farmers and business owners and homeowners applied to this program, with at least 20,000 contracts awarded in this category. Co-ops such as Agris Solar and SolarShare pursued their first projects as a result of the micro-FIT program by aggregating a number of these contracts.

To stem the flow of applications, a change was made for the second round of FIT (FIT 2.0) in 2012. A variety of changes were made including introducing a six-week application window. More significantly for community power, under FIT 2, the definition of community power was limited to co-ops and a capacity set-aside was earmarked for co-ops and Aboriginal (First Nations and Métis) proponents. This set-aside was requested by the community power sector to ensure higher levels of application success by co-ops and Aboriginal proponents. FIT 1 had shown that these groups cannot easily compete against commercial developers. The set-aside was 25 MW each for co-ops and Aboriginal project proponents. Under the commercial stream, there was also a stipulation for co-ops that articulated that proponents who had a co-op or Aboriginal partner of at least 15% stake would receive additional points on their application. The creation of this point system resulted in a flurry of new co-op incorporations leading up to the FIT 2 application deadline. Co-ops under the set-aside had to be majority owners (>50%) of the projects but those in the points stream needed only 15% co-op participation.

There were a number of other changes made to FIT 2 that mostly carried over to FIT 3 and FIT 4, introduced in 2014 and 2015 respectively, but the main impact on the RE co-op sector was the introduction of the set-aside and point system in 2012. The result was that by the end of FIT 2, almost 30 MW of FIT projects were under development by co-ops, with all but two developing solar projects. Also important in fostering co-op power in Ontario was the funding programs that supported feasibility and project costs of co-ops and Aboriginal proponents. As nascent sectors with little to no history in energy project development, it was essential that these groups could access funds to help them with early project costs, especially those costs incurred before a FIT contract was secured.

### 2.3.2 The State of Things Today

The RE target<sup>13</sup> in Ontario is 10,700 MW, as articulated in the Long Term Energy Plan of 2013. This target has been unchanged since before the GEEA was introduced and extends to 2025. The majority of that RE capacity has already been commissioned and is in the process of being built. To date, the government is still officially intending to refurbish nuclear generators to maintain a level of 50% of Ontario's power coming from nuclear. Since the province is very close to its 10,700 MW RE target, the future for RE and RE co-ops is uncertain. On-going RE targets and policy consistency are important for building on the momentum achieved in Ontario.

### 2.3.3. Challenges and Opportunities

Obtaining project financing, accessing the electricity grid and lack of available support mechanisms for project development have been identified as common factors challenging RE co-op projects. The issues discussed here were informed directly by the Ontario RE co-op experience, as collected through the annual RE co-op survey administered by TREC and the FCPC. Among these challenges, the greatest ones reported by respondent co-operatives are financial in nature, as follows:

- Access to long-term debt at competitive rates given the small scale of projects (relative to what the financial sector is interested in financing);
- Obtaining RRSP eligibility on co-op securities;
- The challenge of funding technical costs of early stage project development before sufficient funds can be raised from the community (the OPA grants did help address this for many co-ops but not all);
- Limitations for accessing debt caused by certain rules within the FIT rules (i.e. FIT 2, 3 and 4), namely clause 17.3(b).

Co-ops also experienced challenges related to the newness of the sector, and the lack of familiarity among the public and the financial sector about the RE co-op business model. Certain co-ops also faced a steep learning curve and were challenged in working through many first time issues. In particular, issues related to FIT application, sales and marketing approaches and finding and negotiating finance were new and often difficult territory to navigate. RE co-ops developing projects on their own (rather than through a developer partner) had no prior experience as a group and often rely on the voluntary expertise among the Directors and broader community.

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**13** Note that new RE targets do not include old hydro sites that have existed for decades, but only new smaller sites commissioned in the last 15 years.

Related to finance, co-operatives routinely experience challenges in raising capital especially long-term debt, securing RRSP eligibility, and raising sufficient financing from members.

On the whole, however, the Ontario model is an effective one for RE co-ops and the numbers speak to that. There have been year-over-year increases in the project volume, membership recruitment and co-op incorporations in Ontario since the inception of the FIT in 2010. Co-operatives are:

- Building and participating in a growing number of projects (a 56% increase between 2014 and 2015);
- Growing co-op membership, with over 7000 members as of 2015 and engaging directly with tens of thousands more; and
- Creating more than twice as many jobs in 2015 over 2014. As co-ops expand and grow they need more hands on deck to support their expansion.<sup>14</sup>

More detail on the results of community participation in Ontario is summarized in Table 3 which shows the results for all RE contracted with community participation in the province. Since the first round of the FIT program included non-co-ops, we cannot not say that all these contracts were awarded to the RE co-ops sector. It is also not possible to determine the percentage of community participation in these projects. The participation can range from 15% – 100%. The best data we have on co-op led projects comes from an annual survey conducted by TREC and the Federation of Community Power Co-operatives. The results of the 2015 survey are summarized in Appendix B.

**TABLE 3:** Distribution of community participation projects by contracts and MW, as of 2015<sup>15</sup>

	UNDER DEVELOPMENT		COMMERCIAL OPERATION		TOTAL	
	NUMBER OF CONTRACTS	CAPACITY (MW)	NUMBER OF CONTRACTS	CAPACITY (MW)	NUMBER OF CONTRACTS	CAPACITY (MW)
BIO-ENERGY	17	5.2	23	11	40	16.2
HYDROELECTRICITY	1	5			1	5.0
SOLAR	210	53.7	76	13.8	286	67.4
WIND	7	54.9	5	31.3	12	86.2
<b>TOTALS</b>	<b>235</b>	<b>118.7</b>	<b>104</b>	<b>56.0</b>	<b>339</b>	<b>174.8</b>

With these results, Ontario’s experiences serve as an important guide to other jurisdictions interested in enabling and growing RE co-ops and community power.

<sup>14</sup> See Appendix B for more details on these numbers collected from the FCPC Annual Survey 2015.

<sup>15</sup> Progress Report on Contracted Electricity Supply: Q2-2015, IESO 2015.

# 3. Effective Tools for Successful RE co-op Development

The experience of Ontario demonstrates that despite their emergence in numbers, by incorporation, far fewer co-ops have been successful in bringing RE projects to fruition. Given the sector is still emerging it is too early to determine the rate of success and all the factors necessary for enabling it. However, after five years of experience in Ontario combined with analysis from other jurisdictions we can point to critical enabling factors that allow a RE co-op sector to develop. In this Section we will identify some best practices and describe effective policy and financing-related tools to help proliferate successful RE co-op project development in all of Canada's jurisdictions.

## 3.1 ACCESSING THE MARKET AND ELECTRICITY GRID

Prior to realizing their triple-bottom line impact outlined in Section 1.4, RE co-ops need to overcome various barriers to market entry and grid access. RE co-ops are collectively owned and democratically governed by community members. As a result, compared to commercial RE projects, they generally require longer gestation periods to plan and finance. The outcome, in jurisdictions where co-ops are competing with the commercial sector for grid and contract access, is that the former outpace the co-ops and limit how much community power gets built.

There are several policy tools that can help RE co-ops overcome these challenges to market entry and grid access, as follows:

### 3.1.1 Feed-in Tariffs

Feed-in tariffs (FITs) are a form of power procurement used in almost 100 jurisdictions (countries, states and provinces) around the world.<sup>16</sup> **Depending on their design, FITs have been found to be among the most effective policies for supporting community power and RE co-ops.**<sup>17</sup> "A feed-in tariff" (FIT) is a calculated rate that power producers are guaranteed for a defined period of time for every *kilowatt hour* (kWh) of electricity their contracted project(s) feed(s) into the grid.

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16 Renewables Global Status Report 2014.  
[http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014\\_KeyFindings\\_low%20res.pdf](http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014_KeyFindings_low%20res.pdf)

17 For instance, see Nolden, C. (2013). Governing community energy—Feed-in tariffs and the development of community wind energy schemes in the United Kingdom and Germany. *Energy Policy*, 63, 543-552; and Bomberg, E., & McEwen, N. (2012). Mobilizing community energy. *Energy policy*, 51, 435-444.

In most FIT programs the prices paid for the power produced vary according to the renewable energy source used. In some instances, the prices per kWh also vary by the size of the project, and the legal entity that owns the project (for instance commercial projects vs. community-owned projects). This price per kWh provides the necessary economic information to determine the project's financial feasibility and the certainty over the long term to earn a reasonable rate of return on project investments.

FIT programs can be implemented by national, provincial/regional or municipal governments to proliferate electricity generation from renewable sources while encouraging economic development as well as social innovation. FITs are considered instrumental in enabling smaller players (including individuals, farmers, charities, First Nations, co-ops, etc.) to participate in electricity generation and the economic gains that can be derived from that participation. Many sources have written on this topic and should be examined for any region looking to increase the participation of actors that have traditionally been excluded from power generation.<sup>18</sup>

In some jurisdictions where FITs are in place, commercial projects have been able to access available contracts before community groups (including RE co-ops) due to their ability in organizing and accessing financing expeditiously for capital-intensive RE projects. As a result, commercial players, to the exclusion of RE co-ops and other community groups, may dominate FIT programs. To help level the playing field the following features and support mechanisms can be introduced to complement the FIT for community power.

### 3.1.2 Community Ownership Set Asides

**A set-aside, carve out or otherwise special designation for community power can be an essential feature of a FIT program.** By earmarking a certain volume of contract capacity for community power, FIT administrators can ensure some balance between a variety of RE developers be it commercial, institutional, community, First Nation, municipal, etc.

In fact, depending on priorities, FITs can be used to encourage participation of particular community groups such as RE co-ops, not-for-profit organizations, charities, social enterprises, municipalities, universities, schools, hospitals, and First Nations communities.<sup>19</sup> Allowing these groups to earn revenues from the electricity sector through the FIT program can present an important economic development opportunity while building their know-how for future energy projects. This important outcome is often overlooked when energy policy is developed, but it is not to be underestimated in a time of quickly evolving energy technologies and the need for building resilient communities.

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<sup>18</sup> Ibid.

<sup>19</sup> For more information about Community Energy (CE) ownership models visit <http://peoplepowerplanet.ca/community-energy-models/>

Ontario has direct experience of a co-op and Aboriginal power set-aside. The initial FIT round saw most of the available contracts awarded to commercial energy producers, who were quicker to organize themselves than community-based organizations. To address this in the second FIT round, the OPA revised the FIT rules and created a set-aside of 25 MW each for projects with majority participation by co-ops and Aboriginal proponents. In the case of Nova Scotia, the FIT program (called Community Feed-in-Tariff or COMFIT for short) only accepted applications from projects that were at least 51% owned by community-groups as listed above. These community-oriented features of FIT programs are put in place to ensure that RE co-ops and other community groups do not enter into competition with commercial developers for available contracts.

### 3.1.3 Community Ownership Mandates for Commercial Projects

Another effective mechanisms to promote RE co-op (and broader community) engagement in electricity generation involves **mandating commercial RE developers to offer ownership of a given portion of their projects to the local population.** For instance, with the passing of the Promotion of Renewable Energy Act in Denmark at the end of 2008, local populations were given the option to participate in RE projects that were being planned in their communities through forming RE co-ops. The law states that “any person who erects one or more wind turbine(s) of at least 25m in height onshore, or offshore wind turbines established without a tendering procedure (...), shall, prior to commencement of erection, offer for sale at least 20 per cent of the ownership shares to the persons (...).”<sup>20</sup> This way, local communities are provided a true economic stake and decision-making power in RE projects developed in their communities, which could in turn increase the public acceptance of RE developments and a community’s control over its local financial, social and environmental assets. Ontario took a different approach by awarding extra points in the FIT application process to commercial proponents that had some Aboriginal, co-op or municipal participation and/or support.

## 3.2 CAPACITY BUILDING AND START-UP SUPPORT

RE co-ops often experience difficulties and/or set-backs in the early development stages as they grapple with various layers involved in building their RE co-op. Given the lack of opportunity for participation in the energy sector to date, most co-ops emerge as a result of a FIT program or other policy opportunity. Consequently, the organizations are often nascent, and depend heavily on the skills and experiences of founding Directors. Given how involved RE project development can be, the workload for founders can be overwhelming and there is soon need to bring in technical experts and/or hired staff.

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<sup>20</sup> Bohnerth, J. C. (2015). *Energy Cooperatives in Denmark, Germany and Sweden – a Transaction Cost Approach*. Unpublished Dissertation, Uppsala Universitet, p. 18. <http://www.diva-portal.org/smash/get/diva2:820202/FULLTEXT01.pdf>



During the start-up phase, RE co-ops need access to capital to cover costs associated with regulatory approvals, feasibility studies, financial planning, and reaching out to the wider community to increase membership and raise equity.

At the same time, the early phase work does not guarantee a power purchase agreement – a critical element in co-op success. Like many other markets in which co-ops operate, the electricity sector is heavily regulated and participation is dependent on favorable policy. As such, building energy projects is relatively high risk and development costs are high. This can result in a vicious-cycle challenge where funding can't be raised until a group demonstrates more experience, but of course experience cannot be gained without undertaking a project.

A lack of financial resources in initial phases translates into limited access to paid services from staff and professional consultants and reliance on the unpaid work of a dedicated group of members with key financial, legal and technical skills.<sup>21</sup> This could lead to poor project planning and/or burn-out of the RE co-op's most involved members. A robust and growing sector should see the emergence of experienced individuals and service providers to help new groups get off the ground but until that ramp up is achieved capacity constraints will be felt. To address this challenge the following options are presented.

### 3.2.1 Project Development Grants

Difficulties faced by RE co-ops in accessing loans to finance their start-up activities can be addressed by project development grants and/or loans offered by governmental and not-for-profit agencies. For example, Ontario's Community Energy Partnerships Program (CEPP) was initiated by the OPA (today called the IESO) and the Government of Ontario to help RE co-ops and other community-owned RE projects with their start-up costs related to feasibility studies and obtaining regulatory approvals. CEPP is currently under transition, as the Independent Electricity System Operator (IESO) is developing a new funding program that is consolidating the program with the Aboriginal Renewable Energy Fund (AREF), the Municipal and Public Sector Energy Partnerships Program (MPSEPP), and Aboriginal Transmission Fund (ATF) Programs. The consolidated program will continue providing grants to help RE co-ops with their soft costs related to feasibility studies and project development.<sup>22</sup> Such start-up funding is critical for sector success and expansion.

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**21** Tarhan, M. D. (2015). Renewable Energy Cooperatives: A Review of Demonstrated Impacts and Limitations. *Journal of Entrepreneurial and Organizational Diversity*, 4(1), 104-120.

**22** <http://aboriginalenergy.ca/energy-partnerships-program>

### 3.2.2 Revolving Funds

Alternatively, jurisdictions seeking to support community power may consider a forgivable and revolving loan program rather than grants. Groups that can bring their project to fruition and earn the projected returns would be required to repay their loan overtime while those whose projects do not move forward would have their loan forgiven. As the sector grows and matures, it may also be advisable to establish a sector-funded loan program to cover the start-up costs of future projects and initiatives. In Ontario such a fund has been contemplated by a few of the co-ops but it is too early to say if and how this will unfold.<sup>23</sup>

### 3.2.3 Supportive securities legislation for co-operatives

Besides electricity legislation, supportive securities legislation is another important factor that can help RE co-ops with developing successful projects. For instance, the **easing of the offering statement requirements and the streamlining of regulatory application processes make soft costs in the start-up phase much more predicTable and manageable as well as limiting the need for technical assistance.** This could help RE co-ops save much-valuable time and resources when they need it most. In some jurisdictions the introduction of crowd-funding legislation that enables investment, is also demonstrating to be an effective mechanism for enabling community power by easing the challenges associated with raising community finance.

### 3.2.4 Reduced security payments

Most FIT programs require security deposits to be submitted at various project development milestones, to ensure that the awarded contract translates into an operational project. While commercial developers may have access to such funds even during early phases of project development, RE co-ops may have difficulties in making these payments. As a solution, the Ontario FIT Program offers the incentive of **reduced security payments for community-based (i.e. RE co-op & Aboriginal) projects.** Security payments must be made at three project development milestones: (1) the first deposit is made to secure the FIT application and returned once a contract has been signed; (2) the second security deposit is made upon contract approval and returned when the project begins commercial operation; and (3) the third and final deposit is made with the notice to proceed and returned when the project beings commercial operation. While security deposits range from \$10 to \$50 per kW for commercial projects, RE co-ops and Aboriginal communities are only required to pay \$5 per kW. Reduced

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For instance, Options for Green Energy is a RE co-op from Ontario that implemented a revolving fund to help finance its future projects: <https://www.optionsforgreenenergy.ca/>

security payment requirements acknowledge RE co-ops' difficulty in accessing start-up capital and helps them participate in the FIT program.<sup>24</sup>

### 3.3 ACCESSING PROJECT FINANCING

The financing issues faced by RE co-ops are not unique to the start-up phase. Following the completion of their feasibility studies and obtaining the necessary regulatory approvals, RE co-ops require access to capital to fund and build their projects.

Access to conventional debt markets can be a challenge for RE co-ops in some jurisdictions. Factors such as unfamiliarity with the model and the relatively small scale size of the loan needed can impede a co-op from accessing debt under competitive terms. RE co-ops may seem less attractive to financial lenders and investors who are primarily looking for profit maximization.<sup>25</sup> Consequently, RE co-ops could end up having to raise a significant portion of their project equity from their members, which could lead to under-capitalization in the capital-intensive RE sector. In other cases the terms of the financing (loans) are unattractive. The high cost of the due diligence process required by all debt-lenders requires a certain duration and/or interest rate to be attractive. Several RE co-ops from Ontario reported that interest rates on these loans were higher than their long term economic models can bear over the life of the project and that the duration of those loans (5-10 years) was not long enough to provide the stability needed to meet their forecasted bottom-line.

At the same time, raising millions of dollars from community members poses other challenges. There is of course a cost associated with selling and marketing securities and until a co-op has built a reputation, lack of recognition or trust may limit how much individuals will invest. This was the experience with co-ops in Ontario who saw the average level of investment grow as their co-op's reputation grew. Consequently the annual sales and marketing budget has to start large and can shrink over time, and this at a time when budgets are already tight. There are several mechanisms that can be introduced to address the financing challenge, as follows.

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<sup>24</sup> Farrell, John, 2011. *Maximizing Jobs from Clean Energy Ontario's "Buy Local" Energy Policy – Policy Brief from The New Rules Project*. Institute for Local Self Reliance, Washington DC. <http://ilsr.org/energy/publications/maximizing-jobs-clean-energy-ontario-s-buy-local-policy/>

<sup>25</sup> Huybrechts, & Mertens (2014), p. 200.

### 3.3.1 Community Investment Funds

RE co-op development can be fostered through an innovative capitalization mechanism known as Community Investment Funds (CIFs). CIFs are locally sourced and controlled pools of capital contributed to by individual investors within a specific geography or community.<sup>26</sup> CIFs can be incorporated as for-profit corporations or co-operatives. Although CIFs can exist with or without supporting policy, an enabling policy framework that includes investor tax credits and a simplified regulatory environment are important factors in their proliferation and success. Currently, four Canadian provinces (Nova Scotia, Prince Edward Island, New Brunswick, and Manitoba) have established Community Investment Fund programs or enabling legislation. While the specifications of CIF programs vary, income tax credits at the provincial level and RRSP-eligibility for investments are the most significant and commonly applied policy tools.

The involvement of CIFs in renewable energy investments is most prevalent in Nova Scotia. In the province, the Community Economic Development Investment Fund (CEDIF) is one of the types of entities eligible to apply to build and operate a RE project under the COMFIT program. CEDIFs incorporated as co-operatives can therefore provide members with the ability and incentives to invest larger sums in a RE project, while enjoying tax credits and RRSP-eligibility.

### 3.3.2 State-Insured Loans

While member equity remains the foundation for co-operative funding, the expense of constructing and maintaining an electricity generating facility requires debt financing. Unfortunately, co-operatives traditionally face additional hurdles when approaching financial institutions for loans, due to their unique organizational structure. Even in Ontario, where a FIT contract provides a 20-year price guarantee, RE co-ops have difficulty securing long-term debt. One option to address this problem would be for the government to *insure loans* to RE co-ops that demonstrate a solid project plan. **Along with FITs, state-insured loans were the leading drivers behind the resurgence of RE co-ops in Germany over the past 25 years.** Such loan guarantees have been established for Aboriginal projects in Ontario, although access has been costly and cumbersome.

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<sup>26</sup> Amyot, S., Albert, M., Downing, R. & Community Social Planning Council (2014). *Community Investment Funds: Leveraging Local Capital for Affordable Housing*. Accessed from: <http://www.refbc.com/sites/default/files/S13-Alternative-Sources-of-Capital-for-Social-Housing-Community-Investment.pdf>

To address the financing challenge the co-op sector in Ontario requested the infrastructure department (i.e. Infrastructure Ontario) to consider extending RE loan guarantees it made available to municipalities to the community power sector, arguing that the vetting process would be similar. Unfortunately this extension was not granted and many RE co-ops in Ontario continue to piece-meal their financing needs.

### 3.3.3 Scaling the Project Right

RE co-ops are community-based organizations that, as described above, face numerous difficulties in accessing capital during all phases of project development. This can result in a RE co-op deciding to pursue a very small project. In essence, this would appear to be a sensible approach but what is overlooked is the operating cost of the co-op regardless of project size. The reality is co-ops have fixed costs for the life of their projects that need to be covered. Very small RE generating systems simply do not yield the returns needed to cover these costs which include regular engagement with members, annual audits, management of member investments, operation and maintenance of RE system etc.

High costs of developing and administering a RE project requires the allocation of a certain proportion of annual revenues into funding these activities. For small projects, this could result in lowering member investors' return-on-investment (ROI), which can create difficulties in raising member equity. RE co-ops that can achieve greater economies of scale with their projects and processes tend to earn a higher return than others. These co-operatives, as highlighted earlier, can also allocate funds to finance future projects and thereby achieve long-term sustainability for their operations. To this end it is important that project scale is considered in FIT policy. In some jurisdictions the eligible project size and volume can undermine the economic feasibility of a co-op. Certain economies of scale have to be achieved for viability.

## 4. Conclusion and Policy Recommendations

Well designed community power (CP) projects (among them RE co-ops) optimize local benefits such as increasing investments, developing new skills and employment and diversifying the economic activity of participating groups and of course reducing our dependency on more polluting and GHG emitting sources of energy. CP supports innovation in the energy sector and can help build social license for industry-led projects. CP recognizes that local community members should have a direct financial stake in the project other than land lease payments, tax revenue or other payment in lieu of taxes. Because of their smaller size (relative to commercial projects) CP projects typically connect to the distribution system.

The discussion and analysis in this report is based on direct experience with developing RE co-ops in Ontario, through conversations with community energy practitioners across Canada and through a thorough scan of the growing body of literature about experiences with and lessons from community energy developments from various jurisdictions

Several barriers and/or challenges to CP were identified in the course of our study, principally: access to the grid and power purchase agreements at competitive rates; limited access to start up funds and technical assistance; access to project financing at competitive terms. We have made some suggestions to resolve these constraints in the previous section. To conclude we will focus on key policy recommendations that can be implemented at the provincial and national levels in Canada.

Note that given the nature of the barriers/challenges, a combination of policies will be needed to assist CP and RE co-op development across Canada. Experience in other jurisdictions confirms that a multi-stream approach is necessary; a single policy will likely be insufficient on its own. Examining the experiences from jurisdictions with longer histories of enabling CP, the following policy recommendations have been made for the Canadian context. Given the provincial jurisdictions over energy in Canada, several policy recommendations are made at that level, recognizing each province has varying circumstances.



## 4.1 RECOMMENDATIONS FOR PROVINCIAL POLICY MAKERS

The key role of provincial governments in supporting community power and RE co-ops is in designing the procurement of green electricity with community proponents in mind, reflecting the lessons articulated in this report. At the same time, streamlining the regulatory process and assisting access to the grid can go a long way to supporting the participation of diverse stakeholders. Provinces can also support project start up costs and long term financing challenges. Specific recommendations follow.

1. **The single most important thing provinces and territories can do is to introduce a FIT with community set-aside or a ComFIT, i.e. a dedicated FIT for community groups, which can include but are not limited to: co-ops, charities, First Nations, Métis communities, schools, hospitals and other municipal institutions. A FIT is the crucial first step in enabling community power. However, a poorly designed FIT is worse than no FIT at all. Design elements should consider:**
  - a. FIT rates that ensure a reasonable return on investment (ca. 8-10% should be the target) – rates must vary by technology to accommodate varying technology and operating costs. An annual rate review and adjustment can keep FIT rates in line with declining technology costs.
  - b. Set-aside a certain level of contracts for community power (CP) and define CP clearly to prevent gaming (alternately create a Community FIT which accessible only by proponents with > 50% community participation).
  - c. Allow adequate project and portfolio scale to allow for economies of scale – proponents should be able to access a minimum 2 MW in projects (in the case of solar) and 6 MW (in the case of wind).
2. Provinces should also consider **supporting the project development process through start up grants or feasibility loans** that will allow CP groups to emerge and prosper. A coordinated approach to this funding can help ensure groups are sharing lessons and tools rather than have groups reinvent the wheel.
3. **Offering a loan guarantee process for CP** is also important as it can alleviate the financing challenge many first-time community energy groups face. Integrating the start-up funding in the previous recommendation with the loan assessment process can help streamline and refine the business development and due diligence processes.

## 4.2 RECOMMENDATIONS FOR FEDERAL POLICY MAKERS

The Federal government can support the provinces efforts in transitioning to green energy through a number of complementary policies that are relatively simple and low-cost:

1. **Amend the Income Tax Acts to give Renewable Energy Co-ops full status as registered co-operatives under the terms of the act.** This would allow community co-ops to more easily make their investment opportunities RRSP eligible, putting these investments on a level playing field with other securities, including oil and gas stocks.
2. **Provide federal loan guarantees for Co-op projects.** With actual technology costs falling rapidly, one of the largest cost barriers for community-owned renewable energy projects is now the cost of financing. Federal loan guarantees could quickly reduce the cost of raising funds for co-op projects while adding little risk for the federal budget thanks to the depth of experience co-ops have developed over the last decade in project deployment and predictable returns.
3. **Support the CMC-led co-op investment fund with an infusion of \$50 million to supplement the \$25 million contribution already made by the co-op and credit union sector.** The Fund does not replace or reproduce any current sources of financing available to co-operatives and mutuals. It provides access to those traditional sources of financing by complementing co-operative members' investments with quasi-equity (subordinated debt), which will then leverage the financial services currently available at credit unions, caisses populaires and other traditional lenders. It will also become a partner of existing funds.
4. **Launch a national community power coordination effort** similar to the National Community Solar initiative being advanced by the Obama administration in the U.S. The US model encourages members to work together to leverage the interest in the public and private sector to expand access to community solar, while utilizing the technical expertise of DOE and its national laboratories. This includes working on greater utilization of existing federal and state resources, sharing of best practices at the state level, development of new financing arrangements and business models, new approaches to customer acquisition and community building. Similar CP coordination efforts have been funded in other jurisdictions to build knowledge, share experiences and distribute resources efficiently.<sup>27</sup>

27

<https://www.whitehouse.gov/the-press-office/2015/11/17/fact-sheet-administration-announces-68-cities-states-and-businesses-are>

5. Finally, the Canadian government could also create a **Community Power Production Incentive** directly targeted to projects that improve community energy self-sufficiency and climate resilience (modeled on the ecoEnergy incentive for renewable energy established in 2007). A modest adder of 2 cents per kWh could help close the gap faced by community power developers (co-ops, First Nations, schools, etc.) for higher deployment costs they incur compared to commercial developers that do not have the overhead involved in attracting and administering individual community investments. This would help ensure that more renewable energy projects get built in ways that produce significant economic, social and environmental benefits for our communities, including supporting everything from schools and hospitals to community centres and arenas.

## APPENDIX A:

# List of RE Sector Co-operatives in Canada

PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
AB	Battle River Agri-Ventures Co-op NGC Inc.	Renewable Fuels Co-op	Biofuel	brav-c.com
AB	Spark	Utility Co-op	RE	sparkyourpower.ca
AB	Alberta Solar Co-op	RE Co-op	Solar	albertasolarcoop.com
BC	Cowichan Bio-Diesel Co-op	Renewable Fuels Co-op	Biodiesel	smellbetter.org
BC	Island Biodiesel Co-operative	Renewable Fuels Co-op	Biodiesel	islandbiodieselcoop.com
BC	Peace Energy Co-operative	RE Co-op	Wind, Solar	peaceenergy.ca
BC	Vancouver Renewable Energy (VREC)	RE Service Co-op	RE	vrec.ca
BC	Viridian Energy Co-operative	RE Service Co-op	RE	viridianenergy.ca
MB	Elton Energy Co-operative	RE Co-op	Wind	eltonenergy.org
MB	Saint-Claude Wind Energy Co-op	RE Co-op	Wind	cdem.com/en/publications/ model-for-communities
MB	DeSalaberry Wind Energy Co-op	RE Co-op	Wind	204-275-7862, darcycatellier@gmail.com
NB, NS, PEI	Co-op Energy	RE Service Co-op	RE	co-openergy.ca
NB	Chaleur Green Energy Co-operative Ltd. (CGEC)	RE Co-op	Biomass	chaleurgreen.ca
NB	Co-op Energy Fredericton	RE Service Co-op	RE	1-506-472-1595, cffre@co-opsonline.com

PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
NB	Co-op Energy Moncton	RE Service Co-op	RE	1-506-869-5225, cfmon@co-opsonline.com
NB	Co-op Energy Peninsula	RE Service Co-op	RE	1-506-344-1814, cfship@co-opfuels.com
NB	Co-op de Bouctouche	RE Service Co-op	RE	1-506-743-1960, bouctou-mgr@co-opsonline.com
NB	La Co-opérative d'Énergie Renouvelable de Lamèque	Financing / Investment Co-op	Wind	
NB	The Community Energy Co-op (CEC) of New Brunswick	RE Service Co-op and Project Development Co-op	Wind	communityenergynb.ca
NB	Sussex Co-op	RE Service Co-op	RE	
NS	Atlantic Council for Bioenergy Co-operative Limited (ACBC)	Project Development Co-op	Bioenergy	atlanticbioenergy.com
NS	Co-op Energy Amherst	RE Service Co-op	RE	1-902-667-8253
NS	Co-op Energy Truro	RE Service Co-op	RE	1-902-893-9479, cftru@co-opfuels.com
NS	De La Tour Co-operative Society	RE Service Co-op	RE	1-902-762-2315, delatour-fuels@co-opsonline.com
NS	West Nova Energy Wood Co-operative Ltd.	RE Co-op	Biomass	
ON	Amber Renewable Energy Co-operative	RE Co-op	Solar, Biogas	ambercoop.ca
ON	Amherst Island Renewable Energy Co-op	Project Development Co-op	RE	airecc.weebly.com
ON	Ag Energy Co-operative	RE Service Co-op	Solar	agsolar.ca

PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
ON	AGRIS Solar	RE Co-op	Solar	agrissolar.coop
ON	The Beach Community Energy Co-operative Inc. (BCEC)	RE Co-op	Solar	beachenergy.ca
ON	Braeside Solar Energy Co-operative	RE Co-op	Solar	matthew.macadam@hotmail.com
ON	Brock Renewable Energy Co-operative Inc. (BREC)	RE Co-op	Biogas	brockrenewableenergy.ca
ON	Chatham-Kent Co-operative	RE Co-op	Wind	rcppassoc.ca
ON	Community Energy Development Co-operative	RE Co-op	Solar	cedco-op.com
ON	Community Power Northumberland	RE Service Co-op	Solar	yourcommunitypower.org
ON	The Fourth Pig	RE Service Co-op	Solar	fourthpig.org
ON	Georgina Green Energy Co-operative	RE Co-op	Solar	georginagreenenergycoop.wordpress.com
ON	Green Energy London Co-operative Inc. (GEL)	Project Development Co-op	RE	greenenergylondon.com
ON	The Green Energy Co-operative of Ontario (GECO)	Financing / Investment Co-op	RE	geco.coop
ON	Green Energy Nexus 2 Co-operative	RE Co-op	Solar	glen.schrader@brightraysolar.com
ON	GreenLife Co-operative	Project Development Co-op	Solar	greenlifecommunity.ca
ON	Green Timiskaming	RE Co-op	Solar	greentimiskaming.ca
ON	Guelph Renewable Energy Co-operative Inc.	RE Co-op	Solar	guelphsolar.ca
ON	Haldimand Co-operative	RE Co-op	Wind	rcppassoc.ca



PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
ON	Huron Co-operative	RE Co-op	Wind	rcppassoc.ca
ON	Integrated Grain Processors Co-operative Incorporated – IGPC Ethanol	Renewable Fuels Co-op	Biofuel	igpc.ca
ON	Lake of Bays Renewable Energy Co-op	RE Co-op	Solar / RE	lobrec.org
ON	Lambton-Shores Co-operative	RE Co-op	Wind	rcppassoc.ca
ON	Local Initiative for Future Energy Co-operative (LIFE)	RE Co-op	Solar	lifecoop.ca
ON	London District Renewable Energy Co-operative Inc. (LDREC)	Project Development Co-op	RE	ldrec.ca
ON	Ontario Biomass Producers Co-operative	Project Development Co-op	Biomass	ontariobiomassproducersgroup.wildapricot.org
ON	Ontario Sustainability Services	Project Development Co-op	RE	ontariosustainability.ca
ON	Options for Green Energy	Financing / Investment Co-op	RE	optionsforgreenenergy.ca
ON	Ottawa Renewable Energy Co-operative (OREC)	RE Co-op	Solar	ottawarenewableenergycoop.com
ON	Oxford Community Energy Co-operative	RE Co-op	Solar	oxfordcommunityenergycoop.wildapricot.org
ON	Polar Bear Solar Co-operative	RE Co-op	Solar	polarbearcoop.com
ON	PNUC Renewable Energy Co-operative Inc.	RE Co-op	Solar	
ON	Queen Street Solar Co-operative	RE Co-op	Solar	optionsforgreenenergy.ca

PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
ON	RECC Hamilton Co-operative	RE Co-op	Solar	qpasolar.com
ON	Simcoe County Community Energy Co-operative	RE Co-op	Solar	
ON	Solar City Co-op (SCC)	RE Co-op	Solar	solarcitycoop.com
ON	SolarShare	RE Co-op	Solar	solarbonds.ca
ON	Sudbury Unlimited eNergy Co-op (SUN Co-op)	RE Co-op	Solar	suncooperative.com
ON	Sunderland Co-operative	Renewable Fuels Co-op	Biofuel	sunderlandco-op.on.ca
ON	SUNvie Renewable Energy Co-operative Inc.	Project Development Co-op	Solar	sunvie.ca
ON	Superior Renewable Energy Co-operative	RE Co-op	Solar	srecsun.ca
ON	The Sustainability Brant Community Energy Co-operative (SBC Energy Co-op)	RE Co-op	Solar	sbcenergy.com
ON	Sustainable Energy Resource Group (SERG Co-op Inc.)	Project Development Co-op	RE	serg.ca
ON	Sustainability Ontario Community Energy Co-operative	RE Co-op	Solar	sustainabilityontario.ca
ON	TREC Education	RE Education Co-op	RE	treceducation.ca
ON	TREC Lakewind Power Co-op	RE Co-op	Wind	trec.on.ca
ON	TREC Renewable Energy Co-operative	Project Development Co-op	RE	trec.on.ca
ON	Trillium Solar Power Co-operative Ltd.	Project Development Co-op	Solar	trilliumpower.ca
ON	Whitchurch Stouffville Community Energy Co-operative (WSCEC)	RE Co-op	Solar	energycooperative.ca

PROV.	CO-OP NAME	ACTIVITY	ENERGY TYPE	WEBSITE / CONTACT
ON	WindShare Co-operative	RE Co-op	Wind	windshare.ca
ON	Wintergreen Renewable Energy Co-op	RE Co-op	Wind	wintergreencoop.com
ON	Zooshare	RE Co-op	Biomass	zooshare.ca
PEI	Co-op Energy Charlottetown	RE Service Co-op	RE	1-902-892-9144, cfcha@co-opsonline.com
PEI	Co-op Energy Summerside	RE Service Co-op	RE	1-902-432-3667, cfcha@co-opsonline.com
PEI	Tignish Co-op	RE Service Co-op	RE	1-902-882-2020, Petroleum@Tignishco-op.com
QC	Coopérative forestière de La Matapédia	RE Co-op	Biomass	fqcf.cooples-cooperatives/cooperati- ve-forestiere-de-la-matapedia
QC	Coopérative forestière Girardville	RE Co-op	Biomass	fqcf.cooples-cooperatives/ cooperative-forestiere-girardville
QC	Coopérative de solidarité D'Éo plateaux	RE Co-op	Wind	418-798-4671
QC	Coopérative de solidarité Les vents de chez nous	RE Co-op	Wind	418-776-2823, patotis26@hotmail.com
QC	Dynaco Énergie	Renewable Fuels Co-op	Biofuel	dynaco.coopfra/produits-et-services/ energie.asp
QC	Nutrinor Co-opérative	Food Production	Biodiesel	www.nutrinor.com
QC	Val-Éo Co-opérative de solidarité	RE Co-op	Wind	val-eo.com
SK	Sask Community Wind	Project Development Co-op	Wind	saskwind.ca
SK	SES Solar Co-operative Ltd.	RE Co-op	Solar	sessolarcoop.wildapricot.org

## APPENDIX B:

# Renewable Energy Co-operatives in Ontario: 2014 Survey Findings

(continued from Section 2.3)

The response rate for the survey was 74%, or 23 out of 31, of the RE co-ops that were contacted responded. A complete report of this survey can be requested from TREC ([info@trec.on.ca](mailto:info@trec.on.ca)) – ask for the *Annual RE co-op Report 2015*.

## B.1 TYPES OF RE CO-OP DEVELOPMENT AND VOLUME OF DEVELOPMENT

The responding co-operatives in Ontario (n=23) are currently developing solar, wind and bioenergy generation projects. Solar photovoltaic is the most common technology being pursued, with 20 co-operatives reporting developing this type. Meanwhile 5 co-operatives are developing bioenergy, and only 2 are developing wind energy. The 4 remaining co-ops in the survey are involved with more than one type of technology.

In total, 212 FIT contracts and 1000 microFIT contracts have been awarded to respondent co-ops. Eighteen co-operatives have been awarded at least one contract, leaving five respondent co-operatives that have not received or reported contracts. This volume of contracts represents almost 75 MW of RE generation capacity in which respondent co-ops are involved in Ontario (See Table 3 below). In total there have been 175 MW of contracts awarded to projects with some co-op or community participation and 4,627 MW of FIT contracts have been awarded to all proponents since 2009.

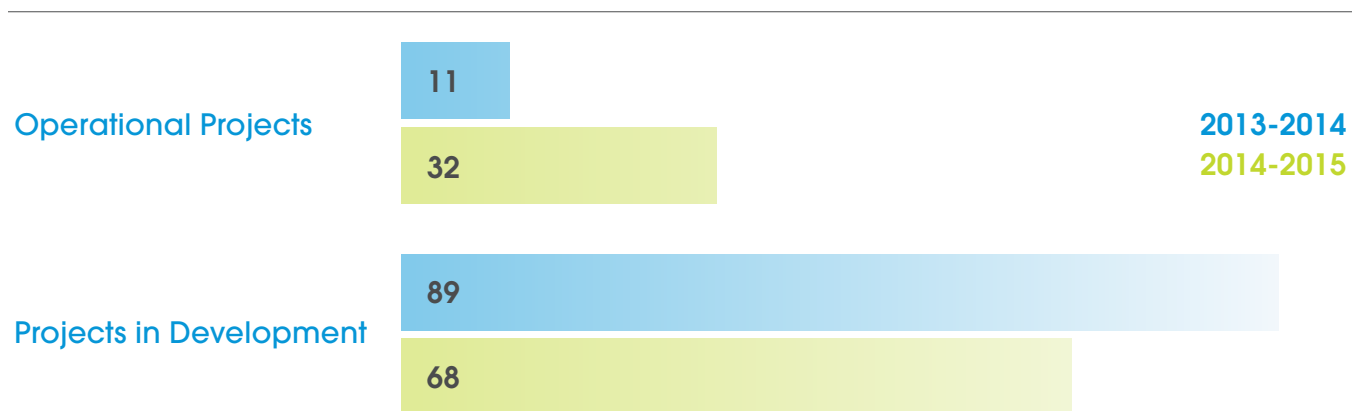
**TABLE 4:** Overview of respondent co-ops' FIT projects, compared with the 2013-2014 survey

SECTOR OVERVIEW	2013-2014 SURVEY	2014-2015 SURVEY	% INCREASE
Total # of FIT and microFIT Contracts Awarded to Co-ops	140 FIT	212 FIT 1000 microFIT	34% increase
Total Capacity (Operational & In Development)	32.9 MW	74.97 MW	56% increase
Total Capital Raised Through Shares, and Bonds	\$15.05 million	\$26.88 million (\$15.4 million in shares and \$11.4 million in bonds)	44% increase
Type of Co-ops	For Profit (56%), Not-For-Profit (44%)	For Profit (74%), Not-For-Profit (26%)	

## B.2 STATUS OF PROJECTS

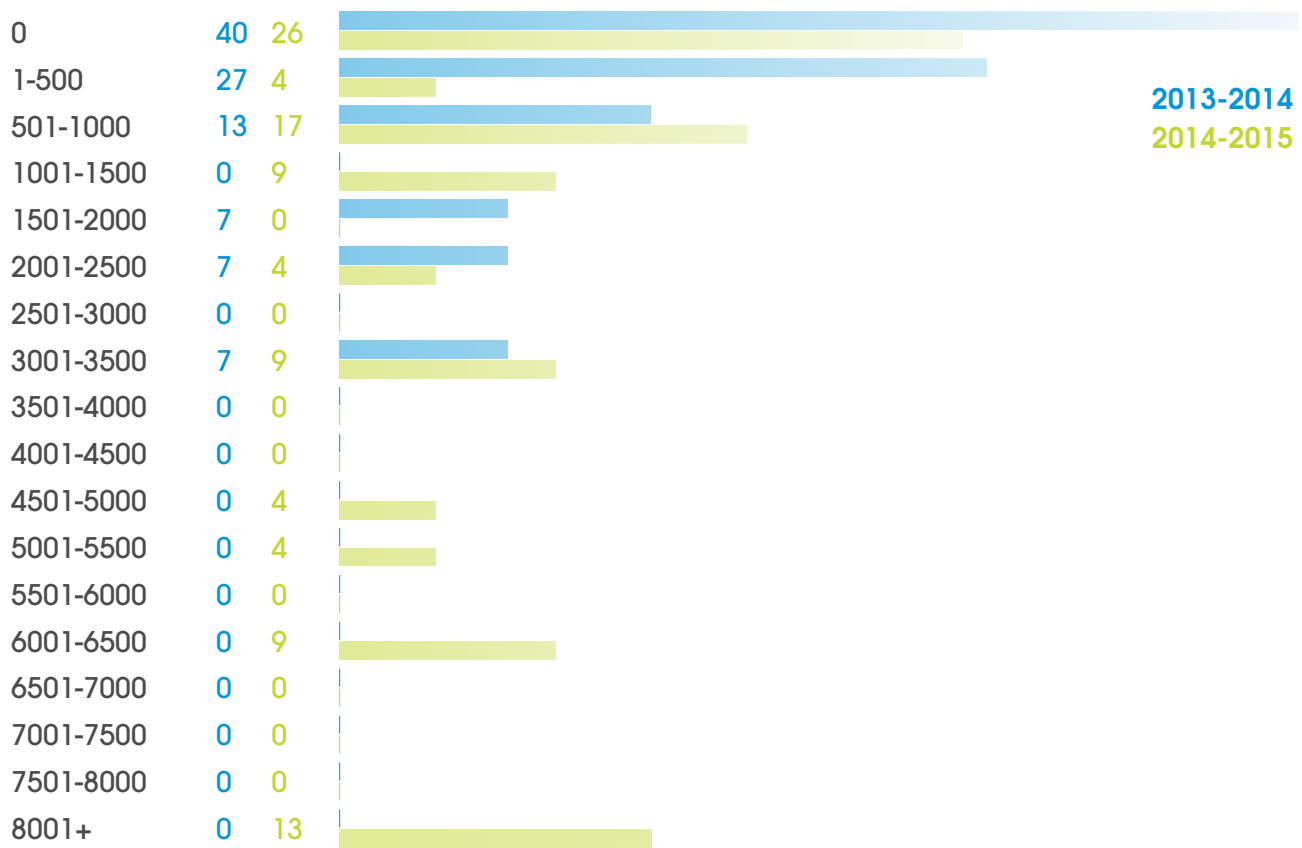
Given the recent emergence of the RE co-op sector in Ontario, many projects are still in the development phase and many co-ops still face challenges in seeing their project to completion, however, as expected, a higher percentage of projects are operational and fewer are in development, compared to the 2013-2014 Sector Survey.

**FIGURE 4:** Percentage distribution of respondent co-op projects by project status, comparison between 2013-2014 and 2014-2015 survey results.



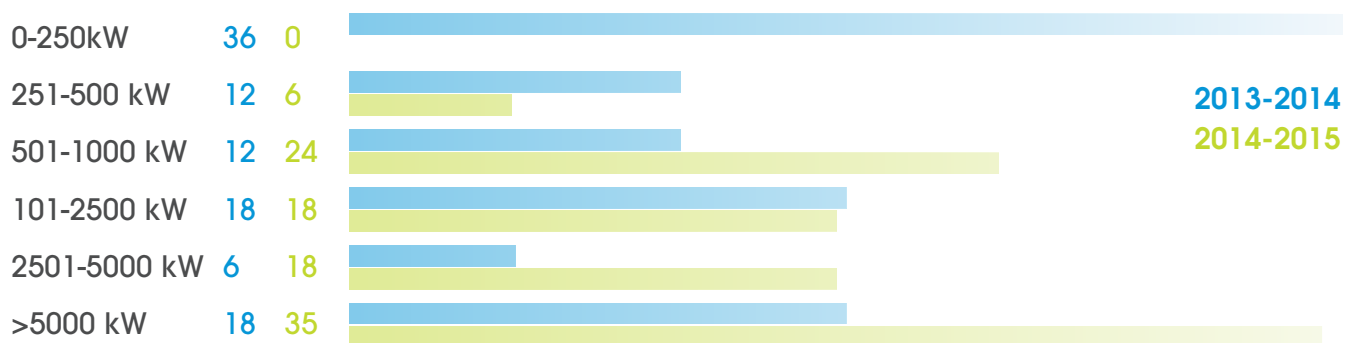
Of the 23 respondents, 17 reported on the total generating capacity of all project contracts awarded. Compared with last year's survey, co-ops are growing their generation capacity.

**FIGURE 5:** The percentage of respondent co-ops in each project portfolio size category, comparison between 2013-2014 and 2014-2015 survey results.



Of the 23 respondents, 17 reported on the total generating capacity of all project contracts awarded. Compared with last year’s survey, its clear that co-ops are growing their generation capacity by 56% (from 33 MW to 75 MW).

**FIGURE 6:** The percentage of respondent co-ops in each project portfolio size category, comparison between 2013-2014 and 2014-2015 survey results.





### B.3 SECTOR ASSETS

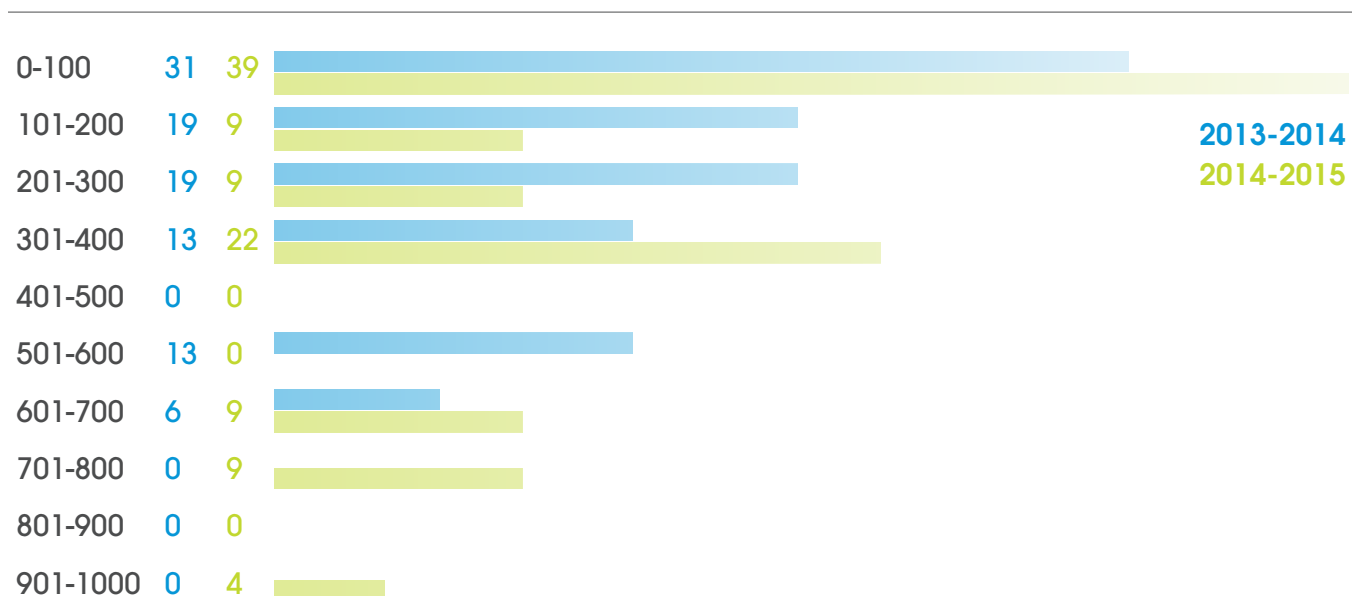
The RE co-op sector has roughly \$94 million in assets under management, with 18 of 23 co-operatives reporting at least some asset ownership. Three co-operatives, each with \$10 million or more in assets, manage about 80% of the entire sector’s assets. Six co-operatives each manage between \$1 million to \$5 million in assets, for a value of roughly \$17 million or about 18% of the sector’s assets. Nine co-operatives, each with less than \$1 million in assets, manage only about 1% of the sector’s assets. Together, the co-ops report having raised \$26.8 million in bonds and shares of which \$15.4 million has been raised in shares and \$11.4 million in bonds.

### B.4 MEMBERSHIP

Survey results reveal that there are, at a minimum, 6,899 members of renewable energy co-operatives in Ontario as of May 2015. Since many co-ops are actively recruiting members, the number is increasing weekly. At the time of the survey (May 2015) membership within co-ops varied from six individuals to 1000 individuals. The majority of co-ops have fewer than 400 members, though nearly one quarter have more than 600 members, together representing more than half the members in the sector.

Compared with the 2013-2014 survey, the trend suggests that co-operatives are growing their membership bases. For example, in 2013-2014, 32% of co-op respondents had more than 300 members. This year, that number has grown to 44% as shown in Figure 7.

**FIGURE 7:** The percentage of respondent co-ops in each membership size category, comparison between 2013-2014 and 2014-2015 survey results.

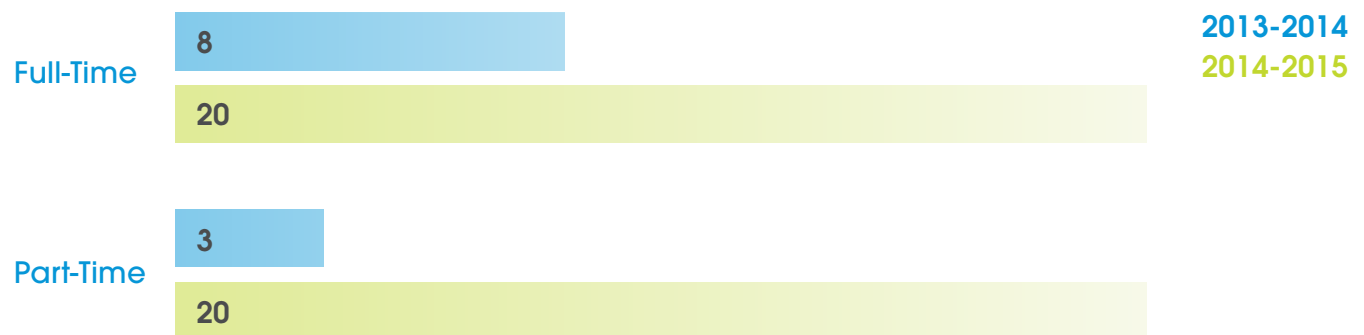


## B.5 SECTOR JOBS

According to respondents, the renewable energy co-operative sector directly employs a total of 20 full time staff and 20 part time staff. Just over half of all co-operatives have at least one full- or part time employee. Six co-ops have at least one full time employee and nine co-ops have at least one-part time employee; three co-operatives have a combination of full- and part time staff. One area in which the sector has been sharing resources and know-how to some extent has been on management of member investments. In response to an investor management need, TREC developed a customized database to track and administer and process RE co-op securities. There are currently 7 RE co-ops that use this service.

As shown in Figure 2, the number of reported individuals employed by co-ops has more than doubled since last year's survey. This can be explained by the growing level of activity of many RE co-ops as their project development progresses and more project contracts are awarded.

**FIGURE 8:** Number of individuals employed by co-ops, compared with the 2013-2014 survey.



Despite some challenges most co-operatives are still interested in pursuing more projects under FIT 4 and/or Large Renewable Procurement (65% of respondents). While the percentage of co-operatives interested in pursuing FIT 4 has decreased slightly from last year's survey (73%), it is clear that the majority of co-operatives would like to see their portfolios grow but only if the FIT price assumptions are met. Going into the FIT 4 application round (where the price of solar rates was again reduced), the FIT solar pricing was considered tight given current market trends. However, with a two-year window to build after conditional contract offers are made, and given the trend in solar technology costs, it is possible that projects will be viable.