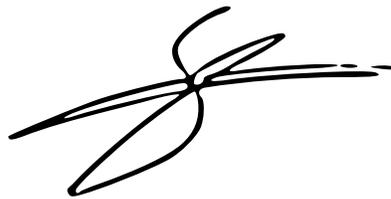


'By and For Local People': Assessing How Canadian Local Energy Plans Contribute to the Ideals of Community Energy



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Foreword

While living in my home province of Newfoundland and Labrador nearly a decade ago, we were told about an exciting new project to be taken on by the provincial government: Muskrat Falls, an 824MW hydroelectric dam in Labrador that would allow us to shut down the aging oil-powered thermal generating station that currently powers the province's most populated region in Newfoundland (Newfoundland and Labrador, 2012). The dam was to bring energy independence to the province (for a once-sovereign country, the appeal of this cannot be overstated), while also allowing us to do our part in the fight against climate change. By and large, we—myself included—accepted these arguments on face value and were thrilled about the prospect of living in a province with an energy system powered entirely by cheap, locally-produced renewable energy.

Looking back, had we at all listened to the concerns raised during the environmental assessment “consultations”, our enthusiasm for the project may have been more guarded. During the joint federal-provincial assessment in 2010 there was a clear sense of hopelessness from Inuit community members in Nunatsiavut, who were concerned about methylmercury contamination and a loss of the traditional food sources that their community relied on. James Learning, an Inuit Elder and representative of *Friends of Grand River*, argued that the review process was “a sham.” Learning said that the project was slated to proceed no matter what was said during the discussions; he also expressed the sentiments of many Labradorians who felt that their resources were being used by the provincial government in Newfoundland, without consideration of Labrador or its people (Learning, 2013). Additionally, participants also came forward with warnings that the project may not be the lowest cost option, as alternatives like demand-side management and small-scale wind development were not given any real consideration (Joint Panel Review, 2011). Tragically—both for Nunatsiavut as well as Newfoundland and Labrador as a whole—it was only after the province had invested billions of public funds that most of these viewpoints gained mainstream attention.

If our only concern is reducing greenhouse gas emissions and contributing to the fight against climate change, one may still stand by the merits of Muskrat Falls. By any other metric, however, it has become increasingly difficult to argue that the project is anything less than a disaster. Local environmental concerns raised by Inuit community members in

Nunatsiavut proved to be well-founded, and the cost of the project is now double the original estimate and currently standing at \$12.7 billion, with nearly 25% of the project's development still remaining. With a mere 500,000 people to bear the burden of the debt, the impact on our already-struggling economy may very well be crippling—the project is even expected to create a doubling of consumers' power bills by 2022 (Boone, 2017). The project has seen significant protests from local land protectors in Labrador (Fitzpatrick, 2018); a number of high profile arrests for peaceful protests, including the arrest of local journalists covering the story (The Canadian Press, 2017a); and an admission from the CEO of the provincial utility overseeing the project that Muskrat Falls is now officially a “boondoggle” (Boone, 2017).

This story, however extreme, is not unique to Newfoundland and Labrador. Large, centralized low-carbon energy projects around the world have seen enormous cost overruns, environmental degradation, loss of local food sources, and significant opposition from people in the communities where these projects exist. With this knowledge, I began to wonder: we will need to transition from fossil fuel dependence to low-carbon energy systems if we wish to fight climate change, but is it justifiable to sacrifice local communities for these larger climate change goals?

When I arrived at York University to begin the Masters of Environmental Studies program and began planning my major research topic, I had my sights on a more thorough investigation into the problems associated with Muskrat Falls. Through the community at York, however, I came to recognize that if we fail to find meaningful alternatives to traditional energy systems, we are guaranteed to repeat the same mistakes. Through this recognition I instead became interested in alternatives to these sorts of traditional energy projects. I began to learn about one promising strategy: community energy (also known as community power), where instead of energy projects being done *to* local people, energy projects are developed *by* and *for* local people. I learned that by empowering communities to be active participants in their own energy systems, communities were not only more likely to support energy projects, they may also gain numerous benefits, such as socio-economic regeneration, access to affordable energy, knowledge and skill development, improved social capital, increased local support for renewable energy, energy literacy and

environmentally benign lifestyles, and community empowerment (Berka and Creamer, 2018). Far from sacrificing local communities, community energy offers an opportunity to meaningfully improve the lives of local people.

When I began discussing my research interests with Dr. Christina Hoicka, who would soon become my supervisor, Professor Hoicka suggested that I may wish to consider investigating how community energy differs *in practice* from large, centralized energy projects: What specifically differentiates community energy from traditional energy systems? Are Community Energy projects truly 'by and for' local people, as advocates so frequently claim? How do communities participate in these new energy systems? Do they really have greater influence or control? These were questions I considered as I worked my way through my plan of study at York, where the core components of my area of study included community energy as well as energy and climate change policy. Through course work, internships and independent study, I approached these topics through both theoretical and practical explorations. This prepared me to have a more grounded and broad understanding when it came time to write my major research paper, where my research questions would become more narrow and focused.

The fight against climate change is, of course, one of the most important issues facing our generation, but I have come to believe that not only is it not justifiable to sacrifice local communities in this fight, it is simply not necessary. Community energy presents a meaningful alternative to traditional energy projects like Muskrat Falls. However, it is vital that we do not take this opportunity for granted; instead of assuming that the ideals of community energy are reflected in practice, it is important that these new opportunities are investigated, gaps are identified and, where necessary, strategies are developed to improve these new approaches.

Finally, it seems important to note that investigating how communities participate in emerging energy systems is not just a normative research goal. There exists considerable research demonstrating that when communities feel empowered to shape their own energy systems, they are more likely to accept locally-sited alternatives and low-carbon energy developments (Haley, 2009). Thus, aiding the empowerment of communities is as much pragmatic as it is a good unto itself. In our current political reality, where populist

appeals have found resonance with those skeptical of arguments related to climate change, it has become even more vital to ensure local support and enthusiasm for low carbon energy developments.

Abstract

In contrast with large, centralized low-carbon energy projects—which are often associated with challenges such as the destruction of local environments, substantial cost overruns and negative social impacts on local people—community energy (CE) is argued to be an opportunity for communities to transition to low-carbon energy systems while benefiting the communities in which CE projects operate, rather than harming them. CE, however, is noted to be a somewhat ambiguous concept; the term is notoriously difficult to define and may be perceived differently by the various actors involved. Based on a review of international CE literature, CE is herein defined as energy initiatives—including initiatives with a variety of functions such as generation, retail, distribution and demand (Hoicka and MacArthur, 2018)—that place a high degree of emphasis on community participation, ownership and control, and through doing so, create benefits for the community.

This paper considers Canadian CE and a trend for individual communities to create their own Local Energy Plans (LEPs), as these plans are frequently placed within the umbrella of CE initiatives—both in practice and in academic literature. Through doing so, the research contributes to a gap in international literature related to assessing CE in practice, as well as Canadian literature due to Canada being an understudied country with a unique context for research in this area. This research draws its findings from a unique dataset that maps local energy plans across Canadian provinces and territories. 244 plans have been identified and 77 of those obtained in order to assess how the plans enable/contribute to the conditions for CE, as CE is herein defined. The research finds that while Canadian LEPs are locally-centred and likely entail energy-savings and environmental benefits, social benefits are not guaranteed and many plans fail to meaningfully contribute to “community energy” as it is portrayed in literature.

Keywords:

Local Energy Plans, Community Energy, Environmental Equity, Participation, Community Capacity

Introduction

Community energy (CE) initiatives have been developing in many countries over the past three decades, including the United Kingdom, the United States, Australia, Denmark and Germany (MacArthur, 2017). CE is argued to offer a serious alternative to traditional energy systems (Hoffman and High-Pippert, 2005), where the ideal of community energy initiatives is both *by* and *for* local people (Walker and Devine-Wright, 2008). Following a review of international CE literature, which will be outlined in section two of this paper, community energy is herein defined as energy initiatives that place a high degree of emphasis on community participation through ownership and control, and through doing so, create benefits for the community.

In the Canadian context, there has been significant growth in CE over the last decade (Hoicka and MacArthur, 2018), but CE has been understudied and is lacking a complete national profile of community energy projects (MacArthur, 2017). Another emerging trend in Canada is the development of Local Energy Plans (LEPs), where it has been claimed that 384 of these plans are currently complete or underway across Canada (QUEST, 2016). Canadian LEPs frequently employ the language of “community energy” through plan titles, within the plan documents, and through the agencies/programs that fund them. Additionally, although the practice is understudied within Canadian academic literature, it has been framed as falling within the umbrella of community energy (St. Denis and Parker, 2009). It is unclear, however, whether such plans reflect the values so frequently promoted by community energy advocates or if are they merely locally-centric energy plans. **The goal of this research paper is therefore to assess to what extent Canadian LEPs enable/contribute to CE; are these LEPs contributing to the growth of CE in Canada?**

This is an important research question because, as Walker and Devine-Wright (2008) warn us, there is a danger if energy initiatives are labelled “community” while local people feel they are not benefiting from them, as such a situation can increase the scope of resentment and objection. The authors stress that, for this reason, the distribution of benefits to communities is particularly important for developments described as community-based. Similarly, when citizens feel co-opted through poor participatory

practices, this can lead to feelings of manipulation and perceptions of wasted time which can, counterproductively, lead to deepened cynicism (MacArthur, 2016). These are important considerations related to both the processes and outcomes associated with community energy and LEPs in Canada: if plans do not contribute to conditions where local citizens participate in and benefit from CE, there may be a risk of deepening resentment and cynicism of CE developments as well as low carbon initiatives more broadly.

This MRP will proceed as follows: section one begins by exploring why this issue is so important from a climate change perspective, how crucial the low-carbon energy transition is for climate change mitigation, as well as some of the most significant challenges that Canada faces to make this transition possible. Section two introduces community energy as a strategy to overcome the challenges in this low-carbon energy transition, investigates international literature related to CE, and considers the growth of CE in Canada. Section three considers the practice of local energy planning, first through consideration of international literature, and then Canadian investigations of local energy plans. Finally, section four outlines the assessment of Canadian LEPs, including the methodological approach of the research, the assessment's results and discussion, recommendations for how LEPs could better contribute to CE, and two examples of Canadian LEPs that are more meaningfully contributing to CE.

Section One: Low-Carbon Energy Transition

1.1 Climate Change & The Role of Energy

In light of increased international recognition that atmospheric concentrations of greenhouse gases (GHG) have increased due to human activity (IPCC, 2013), the majority of countries around the world have committed to assist mitigation efforts and reduce their GHG emissions. The impacts of climate change are well documented and are likely to have profound effects on the world we live in: rising ocean levels, reduced crop yields, potential increases in large-scale violent conflicts, and climate-related extremes such as heat waves, droughts, wildfires and floods. (IPCC, 2014).

In Canada, some of these impacts are already being experienced. The average Canadian annual temperature has already warmed by 1.6 °C over the period of 1948 to 2013—a rate higher than most other regions of the world (Government of Canada, 2015). As a maritime country with 8 of its 10 provinces and all three territories bordering ocean waters, many Canadian regions will be impacted significantly by changing ocean conditions (Government of Canada, 2015); and in more in-land regions, fire-prone conditions are also predicted to increase (Natural Resources Canada, 2017). Additionally, Canada has a relatively high Indigenous population and Canadian Indigenous and northern communities are particularly vulnerable to the impacts of climate change due to factors such as remoteness, cold climate, aging infrastructure, and reliance on diesel for electricity generation and space heating (Government of Canada, 2017). Dramatic reductions in Arctic sea ice cover, particularly in summer months, is already a reality in Canada's north (Government of Canada, 2015a).

On December 12, 2015, Canada was among 194 countries to sign onto the Paris Agreement, thereby agreeing to limit the global temperature rise to 2°C, foster climate resilience, lower GHG emissions, and make climate flows consistent with a pathway toward a lower carbon future (Government of Canada, 2015b). Current Canadian targets for GHG emission reductions are 30% below 2005 levels by 2030, and individual provinces and territories have also been establishing their own reduction targets. However, since 1990, Canadian GHG emissions have increased by nearly 20% (Environment Canada, 2017). In order for Canada to achieve significant reductions and live up to its international obligations, Canada will need to transition from dependencies on fossil fuels to low carbon and renewable energy systems. This is due to the fact that almost 80% of Canadian greenhouse gas emissions come from energy consuming activities (e.g. transportation, energy and electricity production, heating and cooling of buildings) (Natural Resources Canada, 2018).

1.2 Challenges for Low-Carbon Energy Systems

A major challenge in the transition to low-carbon energy systems is developing sufficient new energy sources without the destruction of local environments, large cost overruns,

negative social impacts and significant public opposition—all of which have been seen with large, centralized low-carbon energy projects in Canada. As was outlined in the Preface of this MRP, the Muskrat Falls hydroelectric project has seen considerable public opposition due to huge cost overruns and potential harm to local communities through methylmercury contamination and loss of access to traditional food sources. These issues, however, are not unique to Muskrat Falls, and there are numerous other Canadian examples of public opposition to low-carbon energy projects. Another large provincially-owned hydroelectric project, the Site C dam in British Columbia, has seen substantial backlash from local communities. A UN panel report from the *Committee on the Elimination of Racial Discrimination* has called for the project to be halted until there is a full review of how it would impact Indigenous land (The Canadian Press, 2017); and like Muskrat Falls before it, the British Columbian government has now stated that it is locked into the project despite environmental concerns and mounting cost overruns (Meissner, 2017). Such opposition is not exclusive to hydroelectric dams, and a variety of low carbon energy projects have also faced notable opposition in certain regions in Canada. For instance, in Ontario, which has the greatest number of wind turbines of any province, conflict between developers and local residents is not uncommon (Fast et al., 2016). Additionally, off the coast of Nova Scotia, a tidal project with two large turbines in the Bay of Fundy faced protests and a court challenge by local fishermen. They argued that while they were not opposed to the generation of RE from tidal projects, they were concerned about the project's environmental impacts on the marine ecosystem, which they argued had been understudied (MacDonald, 2016).

According to Haley (2009), opponents of low-carbon energy projects are often derogatorily referred to as supporting a Not-In-My-Back-Yard (NIMBY) position, which is associated with selfishness and an unwillingness to cooperate on environmental issues. Framing opposition in this way not only does a disservice to residents, it also ultimately leaves little room for solutions other than authoritarian imposition of unwanted projects (Haley, 2009: 5). Social science research has found that opposition to projects is often increased when residents feel that they have been left out of the decision-making process—certainly, this indicates NIMBY positions may be more complicated than are often assumed. In the case of Ontario's conflicts with wind energy development, for

instance, Fast et al. (2016) has argued that Ontario has failed to adequately address the concerns of local residents related to these developments—such as health and landscape concerns. Their research recommends that projects prioritize early and meaningful engagement practices as well as a greater focus on equitable distribution of benefits through local ownership models. Likewise, Haley points to two approaches to increase public support: early engagement in fair decision-making processes and increased local ownership (Haley, 2009: 6). It seems that when residents feel empowered to shape their own energy systems through participation and ownership/control, they are more likely to accept renewable or low-carbon energy developments.

Section Two: Community Energy

2.1 Defining Community Energy

Considering (1) how vital it is to address the climate crisis through mitigation efforts, (2) the considerable role that the low-carbon energy transition plays in such efforts, and (3) the aforementioned challenges associated with traditional energy models, finding new and effective strategies for low-carbon energy is crucial. One possible strategy, which is gaining traction in many countries, is a more decentralized approach to energy projects—community energy (CE) (also known as community power). Precisely defining community energy is challenging; there is no consensus over the term and different actors may infer varying degrees of community involvement (Seyfang et al., 2013). Within literature, however, this decentralized approach is associated with a wide range of benefits, particularly for local communities, and CE researchers have begun to identify specific characteristics that distinguish CE from more traditional energy models. Various definitions of CE reveal similar characteristics, and these characteristics involve both the planning processes *for* and outcomes *of* energy projects. Walker and Devine-Wright (2008) argue that the “ideal” CE project incorporates both “process” (i.e. who a project is developed and run *by*) and “outcome” (i.e. who a project is *for*). They argue that an “ideal” community energy project is one that is “driven and carried through by a group of local people and which brings collective benefits to the local community (however that might be defined)—a project that is both by and for local people.”

How communities participate in energy developments frequently arises as a defining feature of CE. The CE term is argued to describe a system that seeks to both “incorporate citizens’ ideas and opinions” as well as “engage them as active stakeholders in the multiple areas of energy production, delivery and consumption” (St. Denis and Parker, 2009), where production decisions are made “as close as possible to the point of consumption” (Hoffman et al., 2013). CE is associated with open participatory practices built on values that emphasize “dialogue and the conditions of responsiveness, user democracy, and citizen involvement,” as opposed to traditional systems which involve closed practices that are more institutionally-driven (Hoffman et al., 2013). McMurtry (2018) defines community energy as “community ownership of, and participation in, energy utilizing renewable energy technology.” Of particular importance here is the inclusion of ownership, as ownership has been noted to be “intrinsically empowering” for communities (Berka and Creamer, 2018). Seyfang et al. (2013) also defines CE as those projects where communities “exhibit a high degree of ownership and control, as well as benefiting collectively from the outcomes.”

Given these definitions of CE, this paper follows the lead of other researchers who emphasize community participation, ownership and control as defining characteristics of CE. For the purposes of this paper, community energy is defined as energy initiatives—including initiatives with a variety of functions such as generation, retail, distribution and demand (Hoicka and MacArthur, 2018)—that place a high degree of emphasis on community participation through ownership and control, and through doing so, create benefits for the community. Defining CE in this way allows us to distinguish CE initiatives from traditional energy projects, where distinguishing such projects may not always be self-evident. For example, the Muskrat Falls hydroelectric project in Labrador is a locally-sited renewable energy project, which consulted a wide variety of actors during consultations sessions and has since employed a significant amount of local community members. It seems difficult, however, to argue that Muskrat Falls reflects the values associated with CE when the local community has conflicted to such a major degree with project development; the project failed to involve communities in meaningful participation practices, local people had little control over key decisions, and the project involved no opportunities for community ownership. This example highlights why it is so important to

investigate CE initiatives in practice; when different actors infer different meanings, CE rhetoric can be appropriated to represent energy projects that are more closely aligned with traditional energy development models.

2.2 Community Energy: Benefits and Challenges

Benefits commonly associated with CE include socio-economic regeneration, access to affordable energy, knowledge and skill development, improved social capital, increased local support for renewable energy, energy literacy and environmentally benign lifestyles, and community empowerment (Berka and Creamer, 2018). However, there is a lack of empirical research investigating how such benefits play out in practice, and as such, researchers have begun to call for a more systematic and comparative empirical approach to research related to CE (Berka and Creamer, 2018; Seyfang et al., 2013). Berka and Creamer (2018) argue that CE research has tended to focus on factors influencing uptake and successful implementation, rather than actually measuring impacts. As such, existing evidence supporting benefit-claims has been largely anecdotal and they call for a more systematic and comparative empirical approach to research. Additionally, the wide ranges of benefits noted in literature are often based on assumptions about ownership, participation, decision-making and distribution of benefits—such factors are why CE is noted to be a fairly ambiguous concept (Devine-Wright and Wiersma, 2013).

Hoffman and High-Pippert (2005) argue that while traditional electrical systems in the industrial world have demanded autonomous decision-making processes made by “technical elites,” CE offers a serious alternative to traditional energy systems, where there tends to be a greater emphasis on “process” and community participation. CE practices are associated with “bottom-up” rather than “top-down” processes, with meaningful participation of a wide range of local actors (Devine-Wright and Wiersma, 2013). Meaningful participation means that “people feel they have a voice that is listened to, are involved in processes that affect them, and can themselves initiate action to make desired changes” (Berka and Creamer, 2018). Meaningful participatory practices may be pursued for a variety of goals: from a social justice standpoint, participation may enable a greater recognition of historical injustices, enhance justice through allowing more perspectives of

proposal; or, alternatively, participatory practices may be instrumentally useful due to the inclusion of a more comprehensive evidence base drawing on diverse, local perspectives (Groves, Munday and Yakovleva, 2013). Seen in this way, meaningful participation is a particularly useful tool for state actors to reach their goals, due the opportunity to overcome distrust of government, “elites”, or the basic nature of problems being addressed (MacArthur, 2016).

Hoffman and High-Pippert’s (2005) research raises important questions regarding *how* communities participate—they note the challenges of civic culture and society’s capacity to support community-based decision making, and they investigate how to motivate citizen participation in community energy projects. They warn that some jurisdictions have experienced challenges when CE project goals may go beyond a community’s capacity due to socio-economic problems and a lack of access to community support. Catney et al. (2014) warn us that there is potential to fall into the “local trap” where initiatives are considered to be socially beneficial merely because they are local. In reality, they argue, there are two visions of localism: “positive localism,” in which the state plays a key role in developing a vibrant society through recognizing that the capabilities of different groups in society remain uneven across class, race and other factors; and “negative localism,” which is a component within neoliberalism where community groups are only selectively empowered as a low-cost alternative to state action. In this context, local initiatives employ the language of “empowerment” while neglecting social justice concerns and failing to recognize groups and communities that are poorly positioned to take advantage of localist approaches (Catney et al., 2014).

Berka and Creamer (2018) argue that inclusive processes are a defining feature of what distinguishes community energy projects from more traditional, commercial models. Encouraging inclusive practices is significant for enabling meaningful participation in community energy projects; without such practices, the “the usual suspects” within communities may feel empowered while the wider community may not share the same level of capacity to participate in projects. MacArthur (2016) also raises concerns related to the capacity of community members to participate in participatory mechanisms—such as deliberative polling, citizen’s assemblies, online referenda—where constraints on

marginalized and non-traditional actors must be taken seriously through discursive and participatory spaces backed up by funds. Such mechanisms may “construct more robust systems where participation is tied to clear policy power,” or may merely be employed as symbolic acts. Broader citizen participation literature also points out the connection between power and meaningful participation. In Arnstein’s (1969) seminal article, *A Ladder of Citizen Participation*, it is argued that participation is “an empty and frustrating process for the powerless” if redistribution of power is absent from participation processes. In this context, participation can be a technique that allows powerholders to claim that all sides were considered, while only allowing some of those sides to benefit. Arnstein develops a typology of eight levels of participation: two types of nonparticipation (manipulation and therapy); three types of tokenism (informing, consultation and placation); and three types of citizen power (partnership, delegated power and citizen control). Arnstein notes that in the real world, there are less sharp distinctions between these eight types, but the framework nonetheless provides a useful way to consider *how* communities participate.

Of all participatory mechanisms, the creation of community-based ownership is a particularly promising participatory design form, (MacArthur, 2016; McMurtry, 2018) where ownership is accompanied by powerful educative ties and supporting incentives (MacArthur, 2016). Weak ownership opportunities and poor participation practices have been associated with a co-optation of CE, where CE policies may be designed merely to reinforce dominant interests, rather than representing a challenge to traditional systems (MacArthur, 2017). Decentralized ownership models have also been subdivided into more specific units: “pico” (single devices), “micro” (building-level), and “meso” (area level); as well as “macro” level, which is synonymous with centralized energy systems (Devine-Wright and Wiersma, 2013). McMurtry (2018) points out that not all alternative energy involves community-owned energy and outlines five community ownership models: (1) co-operatives, (2) aboriginal ownership, which is noted to be relatively unique to Canada¹, (3) community investment funds, (4) non-profit organizations, and (5) the MUSH sector

¹ Though relatively unique, this trend also exists in other countries such as New Zealand (Hoicka and MacArthur, 2018).

(municipalities, universities, schools, hospitals). Hoicka and MacArthur's (2018) investigation of Canadian CE revealed that CE projects were led by municipalities (35%), co-operatives (33%), community associations (11%), charities (10%), partnerships/joint-ventures (6%), and indigenous communities (5%). Of note here is the exclusion of initiatives owned by individuals and homeowners. While opportunities for homeowners contribute to the decentralization of energy projects and are not without benefits, they are distinguishable from community-based ownership. Additionally, research suggests that initiatives targeted to homeowners—such as rebates for energy efficiency projects—may have a regressive impact of the distribution of income, where rebates and incentives are primarily received by considerably wealthier households (Rivers and Shiell, 2014; Jacobsen, 2018).

Considering the opportunities for community energy to challenge closed and institutional energy models that have been the standard in most industrialized societies, it is important that CE research addresses the calls for evidence that CE is achieving in practice what it claims to achieve in theory. This review of CE literature reveals that in addition to CE's defining features of community participation, ownership and control, assessments of CE ought to consider community capacity. Building community capacity involves two components: (1) without enhancing inclusivity and building internal community capacity, many citizens may not be able to meaningfully participate in energy-related decisions, thereby limiting the effectiveness of community engagement efforts; additionally, (2) community capacity considerations include the unevenness across society more broadly, where not all communities share the same capabilities to develop and implement CE initiatives. Without consideration of both facets, there is a risk that decentralized energy systems will continue or even exasperate tendencies for individuals and communities to fall through the cracks.

2.3 Community Energy: Unique Canadian Context

The call for empirical evidence related to CE may be more pronounced for Canada, as Canada represents a somewhat unique case for research in this area. Canada has, per capita, one of the largest GHG profiles in the world (Conference Board of Canada, 2017).

80% of Canadian GHG emissions come from energy consuming activities (Natural Resources Canada, 2018)—of this energy use, 41% comes from refined petroleum products, 31% from natural gas and 24% from electricity (Statscan, 2016). Canadian electricity consumption per capita is estimated at 14,245.30kWh—a large contrast from Europe’s per capita usage at 5,412.25kWh (World Data, 2015). Another factor contributing to Canada’s uniqueness is its sparse population over a vast land mass—despite being the second largest country in the world, Canada is only the 39th most populated country (Geopolitical Futures, 2018) and has a population density of 3.9 people per square kilometer (Statscan, 2018) compared to the international average of 58 (World Bank, 2017).

The energy sector in Canada is largely decentralized to the provinces and territories, where it is these subnational governments who are constitutionally responsible for the generation, transmission and distribution of energy within their jurisdictional boundaries (McMurtry, 2018). This decentralization of energy has meant that Canada lacks a coherent national energy strategy. Combined with uneven development of energy capacity across the country, this has led to overproduction of energy in some regions and underproduction in others—as such, energy prices vary significantly across Canada and inequitable relationships exist between provinces (McMurtry, 2018). In recent years, emerging distributed technologies such as wind and solar have created opportunities for more decentralized energy systems and community energy (Hoffman and High-Pippert, 2013). However, due to the aforementioned provincially-controlled electricity systems in Canada, CE has been implemented as a patchwork of policies and practices (McMurtry, 2018). In part because of this patchwork of policies, there is a lack of Canadian research investigating the development of community energy. MacArthur (2017) notes that a complete profile of community energy projects nationally is absent in Canada due to sparse data collection in this research area as well as the diversity of organizations and activities in the sector.

Canada also has a relatively high Indigenous population of 1,673,785 people, accounting for 4.9% of the Canadian population—this includes First Nations people, Métis and Inuit (Statistics Canada, 2017). This population has grown by 42.5% since 2006, which is more than four times the growth rate of non-Indigenous populations (Ibid.).

Increasingly, Indigenous communities in Canada are gaining involvement in renewable energy, in part due to the increased land-area required for renewable projects (Hoicka and MacArthur, 2018). Indigenous communities are also disproportionately “off-grid” or “remote” communities which generally use diesel generation for electricity, thereby having higher energy costs, greater dependence on imported fuel, and a higher GHG emissions profile; there are 292 of these sites in Canada (Government of Canada, 2011). Energy poverty is especially common in indigenous and extremely rural communities (McMurtry, 2018).

Section Three: Local Energy Planning

3.1 Local Energy Planning: International and Canadian Context

A review of international literature related to local energy planning suggests that the practice is understudied within literature. Much like community energy, there exists varying conceptions and practices of local energy planning. Additionally, while local energy planning is commonly referred to alongside the term “community energy” by policymakers, the relationship between local energy planning and community energy remains unclear.

Sweden appears to have had the greatest length of experience with local energy planning, as a legal requirement has existed since 1977 that all municipalities must adopt a local energy plan, and research from Sweden reveals trends to consider when investigating Canadian LEPs. Ivner et al. (2010) notes, however, that even in this context there is “little knowledge and practice of stakeholder participation” in energy planning, as more attention is paid to stakeholder involvement at the project level. Their research of 10 Swedish LEPs found that municipalities held varied conceptions of the concept of “stakeholder”; this could refer to the general public but was more likely to refer to specific groups within the local community. It was noted that by involving specifically-targeted stakeholders, it is possible that unorganized local actors may be excluded from participating. Additionally, the involvement of a wide variety of actors is argued to contribute to legitimacy of the energy plan and contribute to the collection of local knowledge (Ivner, 2009). Ivner (2009) also considered the use of consultants in local energy planning, and notes that through doing so, there is a risk that local authorities will

lose these learning opportunities and shared visions. Instead, it is possible that a knowledge gap is created and that the energy plan will lose legitimacy. While this research recognizes the value in municipalities using consultants when they lack internal capacity, it is suggested that the practice should be “handled with care.”

In Canada, the creation of local energy plans has been an emerging trend in recent years, where such plans are extolled as precursors to a transition from large, centralized energy systems to a more distributed network of energy generation (St. Denis and Parker, 2009). According to QUEST (2015)—a Canadian non-profit organization in the field of community energy planning—LEPs are tools that help to “define community priorities around energy with a view to improving efficiency, cutting emissions, and driving economic development.” They state that developing such a plan allows communities to document local priorities for how energy should be generated, delivered and used (QUEST, 2015). QUEST’s research claims that there are now 384 plans underway or complete across Canada—an 85% increase in the number of LEPs and a 12% increase in the Canadian population represented by a LEP since 2014 (QUEST, 2016).

LEPs are known by different of names and vary through different funding sources and jurisdictions: They include examples such as Ontario’s Indigenous Community Energy Plan (ICEP)² and Municipal Energy Plans (MEP) programs, British Columbia’s Community Energy and Emissions Plans (CEEP) program, the Northwest Territories’ Community Energy Plans, and Canada-wide Local Action Plans funded by the Federation of Canadian Municipalities and the Local Governments for Sustainability Network of Partners for Climate Protection (PCP) program. This research refers to all such initiatives as local energy plans (LEPs). These programs provide funding for the creation of a new plan and/or continued work on an existing plan as well as varying levels of capacity-building support. In order to receive funding, funding organizations specify general criteria for what needs to be included in the plan, such as a community baseline study, plans for implementation, and an overview of community engagement efforts.

Canadian researchers within academic literature have begun to investigate the trend of developing such local energy plans. St. Denis and Parker’s (2009) assessed 10

² The ICEP replaced the Aboriginal Community Energy Plan (ACEP) Program as of May 1, 2018.

early adopters of LEPs in Canada. In terms of processes, their research found that the extent to which community members were engaged in the planning process varied considerably from community to community, noting that one LEP did not even state whether any public participation was invited at all. They found that most LEPs included local participation in the form of either focus groups, consultation sessions, open houses, surveys, or workshops. Beyond the municipal government involvement, the primary actors involved were local businesses and residents—the engagement efforts considered their energy needs and preferences. In terms of outcomes, the primary focus of almost all of the plans was reduced GHG emissions. “While the benefits for the environment and society were stressed in all LEPs in terms of the benefits that would be achieved from the GHG emission reductions, the only economic benefits stressed by more than one community were the benefits of job creation and energy cost savings” (St. Denis and Parker, 2009).

Tozer (2013) assessed the implementation of LEPs in five Canadian cities, investigating whether plans are being successfully implemented or if they simply remain plans on paper. Through document analysis of plans and semi-structured interviews, Tozer identified a number of common barriers to the implementation of LEPs: (1) jurisdictional constraints, where the amount of control that municipalities may have over the energy options for citizens can be inadequate; (2) costs, where cost limitations could limit the financing payback periods or project scales; (3) capacity and experience, where both internal staff and regional capacity may be limited so much so that projects cannot be executed; and (4) behaviour change, where there exist perceptions that changes they were seeking through CEPs may be inconvenient and unworthy of action.

This paper builds on the research completed by these Canadian scholars. While St. Denis and Parker (2009) investigated of the content of LEPs, this research was completed nearly 10 years ago, when community energy planning was still in its early stages in Canada and used a small-sample size of early adopters. Reviewing Canadian literature has revealed no larger sample size investigation of plans for the purposes of assessing plan content, and it remains unclear whether Canadian LEPs enable or contribute to community energy. Additionally, this research contributes to international

literature related to local energy planning—specifically, literature related to participation and “processes” for local energy planning—where the focus of participation research is more at the project level and less at the planning level (Ivner, 2009)

Section Four: Assessment of Local Energy Plans

4.1 Data and Methods

Through the above review of CE literature, community energy has been defined as energy initiatives that place a high degree of emphasis on community participation through ownership and control, and through doing so, create benefits for the community. The primary research question asks to what extent Canadian local energy plans enable/contribute to the conditions for CE. In order to identify and obtain plans, a variety of publicly available sources were used:

1. Government agencies and/or programs
2. Secondary lists
3. Keyword searches

In cases where identified plans were unable to be located, government agencies and/or programs as well as sources of secondary list sources were contacted to request LEP documents. However, in several cases, responses indicated that LEPs were confidential or not available to the public. Key word searches were completed in order to locate identified plans, where sources were unable/unwilling to provide the plan documents themselves. Once the plans were obtained, a framework was developed for assessing the plan’s contribution to community energy. This framework was based on a review of CE literature (see Section 2), where three categories for assessing individual plan’s contribution to the conditions for CE: (1) Community Participation (2) Community Ownership/Control; (3) and Community Capacity.

Community Participation: the assessment considered community participation and engagement practices involved in the development of plans themselves, as well as how the plans contribute to conditions for open participatory practices. CE literature shows that a high level of community participation is often considered to be a defining feature of CE (Walker and Devine-Wright, 2007; Berka and Creamer, 2018; St. Denis and Parker, 2009),

where the ideal is “open and participatory” practices (Walker and Devine-Wright, 2007). Literature warns that when practices do not live up to expectations (i.e. claims of openness that are not reflected in practice), society’s cynicism of projects and low carbon initiatives more broadly can be deepened (MacArthur, 2016).

➤ Indicators of Community Participation:

- Q1.1: Who contributed as an author for the plan?
- Q1.2: Who was involved during development of the plan?
- Q1.3: How were they involved?

Community Ownership/Control: the assessment considered how plans discuss and contribute to community-based ownership and control, including how such ownership is financially supported. Opportunities for community ownership and control are frequently cited as defining characteristics of community energy (McMurtry, 2018; Seyfang et al., 2013), where ownership is seen as a promising form of participation in CE projects (MacArthur, 2016). The assessment considered ownership opportunities for both micro (building-scale) and meso (area level) projects. Additionally, a lack of financing and incentives to overcome the high upfront costs associated with community-based projects is cited as a barrier to community-based ownership (McMurtry, 2018; MacArthur, 2016), so the assessment considered financial assistance for community-based ownership.

➤ Indicators of Community Ownership/Control:

- Q2.1: How does the plan discuss projects with community ownership/control?
- Q2.2: How does the plan discuss new opportunities or enhancement of existing opportunities for financial support of local ownership/control?
- Q2.3: How does the plan discuss new opportunities or enhancement of existing opportunities for financial support of local ownership/control?

Community Capacity: the assessment considered how plans contribute to building community capacity through the recognition of barriers, steps to encourage a wide range of participants, knowledge and skills development, and building organizational capacity. CE literature frequently emphasizes the importance of society’s capacity for citizens to participate in CE (Hoffman and High-Pippert, 2005; Berka and Creamer, 2016). There is concern that constraints on nontraditional and marginalized actors may not be taken seriously (MacArthur, 2016), and that only the “usual suspects”

within a community may feel empowered to participate (Berka and Creamer, 2016). Additionally, Tozer (2013) and McMurtry (2018) note that a lack of organizational capacity is a significant barrier for community energy implementation. The assessment therefore considered how plans discussed building organizational capacity and funding opportunities for implementation.

➤ Indicators of Community Capacity:

- Q3.1: How does the plan discuss inclusivity and potential barriers to citizen participation in the creation of the plan?
- Q3.2: How does the plan discuss local skills development, knowledge-building and education related to energy systems, perceptions of new systems and/or behavioural change?
- Q3.3: How does the plan discuss building organizational capacity within the community for implementation of the plan?
- Q3.4: How does the plan discuss funding opportunities for implementation of the plan?

In order to conduct this research, an investigation of qualitative research methods informed how best to approach the assessment of documents, and it was decided that content analysis would be employed in order to assess LEP documents. Content analysis involves the systematic evaluation of documents in order for qualitative data to be converted into quantitative data, and it is a prevalent research method among social science researchers (University of Georgia, 2012). In order to assess individual plans, several questions, which were derived from literature, were developed for each of the three categories (community participation, community ownership and community capacity). A document scan of all obtained plans was then completed through NVIVO, a computer-assisted qualitative data software program. Through use of NVIVO, content analysis was employed for the assessment plans. For each question, raw data was coded from each individual plan. This raw data was then summarized, and from the summaries, simple typologies were developed. The typologies were informed by academic literature, where CE research guided what key features and strategies to look for when reviewing individual plan documents. The frequency of each typology was then documented, revealing patterns across local energy plans in relation to the three categories (see Tables

6-8).

Walker and Devine-Wright (2008) argue that the “ideal” CE project incorporates both “process” (i.e. who a project is developed and run *by*) and “outcome” (i.e. who a project is *for*). As can be seen in Table 1, this assessment of LEPs directly assesses “process” elements, and focuses less on “outcome;” however, it is through these processes that CE research suggests community benefits or “outcomes” are inherent. The assessment therefore presents indirect implications for how communities plan to benefit the communities they represent.

<i>Table 1: Inherent Benefits/Outcomes</i>			
Condition for CE	Community Participation	Community Ownership	Community Capacity
Benefits/ Outcomes	1. Empowerment 2. Enhanced democracy 3. Increased social capital	1. Socio-economic regeneration 2. Empowerment 3. Access to affordable energy 4. Increased support for RE	1. Knowledge and skill development 2. Empowerment 3. Energy literacy and environmentally benign lifestyles

Benefits adapted from Berka and Creamer’s (2018) extensive literature review of local impacts associated with community energy.

4.2 Results

The investigation was informed by QUEST’s³ (2016) claim that 384 plans are currently complete or underway across Canada. Through this investigation, a dataset of identified and obtained LEPs was developed. 244 plans were identified and 77 were able to be obtained through the above sources (see Table 2).

³ QUEST (Quality Urban Energy Systems of Tomorrow) is a Canadian non-profit organization that conducts research, engagement and advocacy to advance what they classify to be “Smart Energy Communities”.

Table 2: Local Energy Plans

	QUEST's data	All Identified Plans	Obtained Plans
Under development		94	0
Complete		96	77
Unknown status		53	0
Total	384	244	77

The investigation revealed extremely high involvement of Indigenous communities within this space (see Table 3). Of the 244 LEPs identified and/or obtained for this research, almost 70% were plans from indigenous communities. Despite the large number of indigenous LEPs identified, only 10 of these plans were able to be obtained for the assessment. The implication of this is unclear. While plans not being publicly available may suggest a lack of transparency, it may simply reflect a different relationship with internet-use in these communities—where a digital divide exists between indigenous and non-indigenous Canadians, particularly in remote communities in Canada’s far North and East (Howard and Sheets, 2010).

Table 3: Types of communities

	Identified Plans	Obtained Plans	Total
Municipal	8	56	64
District/Region/Regional Municipality	1	11	12
Indigenous	158	10	168
Total	167	77	244

The findings revealed considerable variation across provinces and territories (see Table 4), with Ontario (ON), British Columbia (BC), and the Northwest Territories (NT) representing almost all identified plans (99%) and 81% of obtained plans. This variation reflects the patchwork of policies and practices in which energy planning and policies

has been implemented throughout Canada (McMurtry, 2018), where these three jurisdictions have seen greater policy focus in this area.⁴ Table 5 reveals the types of communities developing LEPs in individual provinces and territories. Figure 1 also identifies the timeline of LEPs across Canadian provinces and Territories.

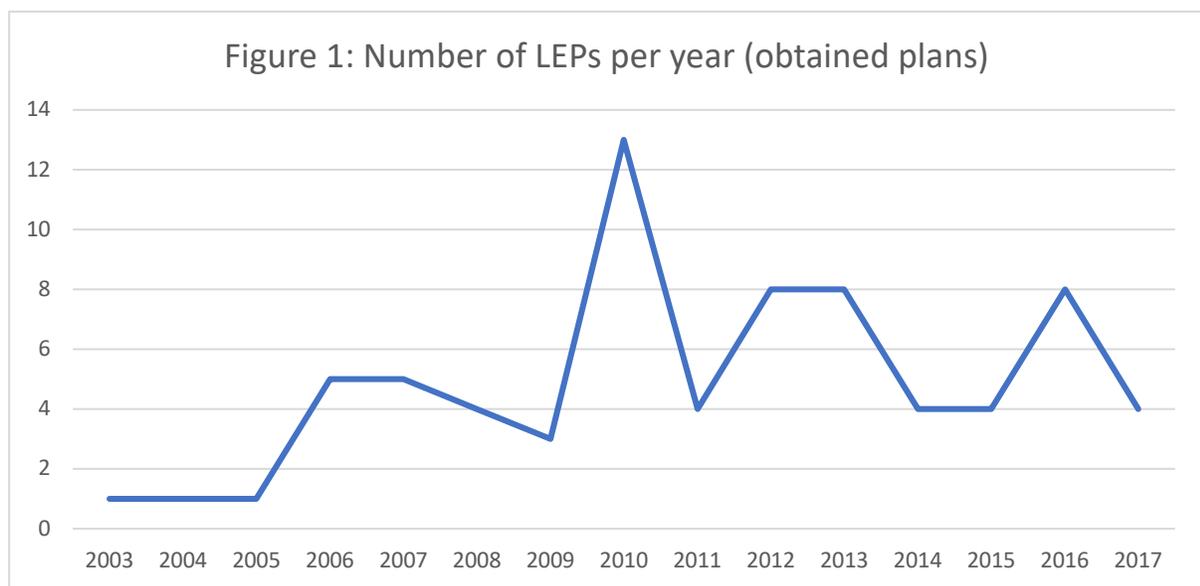
Table 4: Spread of LEPs across Canada (provinces and Territories)

Province/Territory	Provincial/Territorial Population	Identified Plans (n) (not obtained)	Obtained Plans (n)
Alberta	4,146,000	0	5
British Columbia	4,631,000	39	31
Manitoba	1,282,000	1	2
New Brunswick	753,914	0	1
Newfoundland and Labrador	528,448	0	0
Nova Scotia	942,926	1	3
Northwest Territories	44,291	21	12
Nunavut	35,944	0	0
Ontario	13,600,000	105	19
Prince Edward Island	146,283	0	1
Quebec	8,215,000	0	1
Saskatchewan	1,130,000	0	1
Yukon	35,874	0	1

⁴ Notable policies programs include: the Indigenous Community Energy Plan (ICEP) program and Municipal Energy Plan program in Ontario; The Community Energy and Emissions Plan program in British Columbia; and Community Energy Plans mandated for all municipalities in the Northwest Territories.

Table 5: Types of communities (provinces and Territories)

Province/Territory	Municipal	District/Region/ Regional Municipality	Indigenous	Total
Alberta	5	0	0	5
British Columbia	26	7	37	70
Manitoba	2	1	0	3
New Brunswick	1	0	0	1
Newfoundland and Labrador	0	0	0	0
Nova Scotia	2	2	0	4
Northwest Territories	7	0	26	33
Nunavut	0	0	0	0
Ontario	21	3	100	124
Prince Edward Island	1	0	0	1
Quebec	1	0	0	1
Saskatchewan	1	0	0	1
Yukon	1	0	0	1



4.2.1 Community Participation

High levels of community participation are noted to be a defining feature of CE within CE literature. In consideration of this, the research considered *who* participated in plan development and *how* they participated. The results for how plans contribute to the conditions for CE through community participation can be seen below in Table 6.

The first observation revealed from this assessment is that many plans did not state who participated in the development process: 70% of plans stated one or more contributing author and 67% of plans stated who else was involved during the planning process. This trend reveals a transparency concern with many of the LEPs, as community authorship of LEPs cannot be assumed and it is unknown if anyone else was involved in plan development unless specifically stated. The most common type of contributing author was a consultant or a consulting firm (44%), and community staff/elected officials were the second most common author identified (40%). As was explored within the literature review, use of consultants is not necessarily problematic in local energy planning, but there does exist the concern that the use of consultants will prevent community learning opportunities, shared visions and limit the legitimacy of the plan (Ivner, 2009).

In terms of what other actors were involved in plan development, the data shows between one and 8 types of actors participated, with 39% of plans stating the participation of 4 or more types of actors. Community staff/elected officials were the most common actor involved, and a wide variety of other actors participated—most commonly the general public/residents, local community associations, private businesses, utilities and public sector representatives, respectively. Significantly, less than half of the assessed plans specifically stated that local residents were involved in the development of plans. The most common methods for involvement with these actors were consultation sessions, which included workshops, presentations and meetings, where it was more common for these sessions to be closed with a particular group of actors than open to the public. It also was often not clear from the description within plans whether the primary aim of such methods was to inform participants of decisions that had already been made, involve them as active participants or if the aim fell somewhere in between these two ends of a spectrum.

These findings reveal that the level of community participation may fall short of the ideal cited in CE literature. Certainly, traditional energy initiatives also involve a variety of actors during consultation periods, but CE literature tells us that as an alternative to these initiatives, the ideal CE initiatives place a far greater emphasis on “process” and community participation (Hoffman and High-Pippert, 2005; Hoffman et al., 2013), where citizens are engaged as active stakeholders (St. Denis and Parker, 2009). Walker and Devine-Wright put forward two conceptions of “process” in relation to energy initiatives, where process refers to who an initiative is run by, who is involved and who has influence: “open and participatory,” which is the ideal for CE; or “closed and institutional,” which is associated with traditional energy developments. As was previously stated, it was not always clear from brief descriptions within plans what the primary aim was of participation (i.e. what level of feedback plan developers were seeking during engagement methods). While a more thorough investigation of plan development may be required in order to assess processes for individual plans (e.g. through interviews with participants), the findings from LEPs overall do not appear to reveal a radically different approach to traditional involvement.

It should also be noted that while this research considered community participation in the development of plans, community participation in projects stemming from LEPs was not considered. Very few plans stated such specifics about community participation in individual projects, and it was often unclear whether plans were discussing community participation in plan development or planning associated with a particular project—again, a more thorough investigation involving interviews would be beneficial here.

Table 6: Community Participation Results

Questions	Range*	Type	n
Q1.1: Who contributed as an author for the plan? (This information was available in 70% of plans)	1-4 types of authors per plan	Community Members/General Public/Residents	1
		Community Staff/Elected Officials	31
		Consultant/Consulting Firm	34
		Nonprofit Organization	2
		Public Sector (Education, Health, Police)	2
		Private Business	1
		Provincial/Territorial Department	7
		Utilities	7
Q1.2: Who was involved to write the plan? (This information was available in 67% of plans)	1-8 types of actors involved per plan	Community Members/General Public/Residents	31
		Community Staff/Elected Officials	45
		Elders**	2
		Consultant/Consulting Firm	12
		Local Community Organizations	25
		National Organizations (capacity-building organizations)	14
		Private Business	23
		Provincial/Territorial Department	7
		Public Sector (Education, Health, Police)	18
Utilities	25		
Q1.3: How were they involved? (This information was available in 80% of plans)	1-6 types of involvement per plan	Booths at public events	9
		Consultation sessions, open to the public (workshop/presentation)	28
		Consultation sessions, not open to the public (workshop/presentation)	43
		Newsletters/emails/letters	9
		Surveys	15
		One-on-one interviews (in person or telephone)	7
		Open houses	12
		Website/social media	12

* The types are not mutually exclusive. "Range" refers to the range of how many types were revealed within each plan.

** The term "Elders" came exclusively from Indigenous LEPs. In Indigenous cultures, an Elder is someone who is seen as having gained recognition as a custodian of knowledge and lore.

4.2.2 Community Ownership/Control

Opportunities for community ownership and control are frequently cited as defining characteristics of community energy. This research therefore investigated how local ownership was discussed in LEPs (see Table 7 for results) and found that while many plans discussed locally-sited projects, fewer plans specifically discussed community-based ownership of projects. In particular, while 36% of plans discussed meso (area level) renewable energy projects, very few of these plans outlined steps for encouraging community-based ownership. 8% discussed local ownership through the establishment of a local energy co-operative with mention of community members ability to own shares; otherwise, local ownership of these projects was generally not specifically discussed. The most common projects were locally-sited meso-level renewable energy projects, district energy/cogeneration, energy efficiency/renewable energy for community buildings, and micro-level energy efficiency/renewable energy projects. Cooperatives have been noted in literature to stand out as a model for ownership due to their legislated participatory decision-making processes and collective sharing of economic outcomes (McMurtry, 2018). However, only 8% of LEPs discussed the creation of local energy cooperatives, and the majority of those plans were tentative in nature—most did not discuss any details of how this would be achieved.

Another measure of local ownership opportunities are financial supports for encouraging local ownership of energy initiatives, and it was found that 48% of plans discussed new or enhancement of existing financial supports of local ownership/control. The most common type was financial incentives/rebates for household/building-scale renewable energy or energy efficiency projects (22%); and local improvement charges or revitalization tax exemption bylaws⁵ were discussed in 26% of plans. Although such financing mechanisms can be employed to encourage both micro and meso-level energy initiatives, a large majority of these mechanisms were targeted to micro projects for homeowners and were not targeted to broader community ownership. As was explored in the literature review, opportunities for homeowners are distinguishable from community-based ownership and have been argued by some to be regressive in nature (Rivers and

⁵ Local improvement charges and Revitalization tax exemption bylaws are financing mechanisms where property owners can finance energy improvements.

Shiell, 2014; Jacobsen, 2018). Other innovative financing mechanisms, such as internal funding mechanism, environmental revolving funds, green leases or on-bill utility financing, were discussed in 10% of LEPs. Such mechanisms encouraged varied ownership models, including micro projects for homeowners and opportunities for public/community buildings.

While 23% of LEPs discussed growth of local employment, most of these plans assumed that employment gains would be local, made no specific plans for ensuring local employment and very few plans quantified what local employment gains would be. Also, very few plans discussed the maximized use of local assets, be it local goods or local human resources (e.g, suppliers or manufacturers). The socio-economic benefits for local communities that are associated with increased use of local assets is one of the most commonly-cited benefits of CE (Berka and Creamer, 2018); and the distribution of these benefits is commonly cited as a key element of government support for this sector (Seyfang et al, 2013). The results of this assessment may reflect a concern noted in literature that CE initiatives face challenges sourcing labour locally when there is a lack of both local supply and sustained demand for the necessary skills in many communities (Berka and Creamer, 2018). It should be noted, however, that significantly more plans did consider efforts to improve professional capacity (see section 4.2.3 for results).

CE literature stresses that ownership is a defining characteristic of CE (Walker and Devine-Wright, 2008), where ownership is characterized as a promising form of community participation (MacArthur, 2016). Community-owned energy has also emerged as an alternative to corporate or state control of energy, and if this is seen to be a desirable goal, ownership of energy must be meaningfully placed in the hands of communities who produce it (McMurtry, 2018). The findings here suggest that the LEPs contribute to local, decentralized energy in multiple ways, but that community-based ownership was less of a priority within most LEPs. In particular, locally-sited projects were rarely specified to be locally or community-owned and financial incentives were far more likely to target households for ownership, rather than community-based ownership.

Table 7: Community Ownership/Control Results

Questions	Range	Type of Strategy	n
Q2.1: How does the plan discuss projects with local ownership/control? (This information was available in 73% of plans)	1 to 4 types of strategies per plan	District Energy/Cogeneration	36
		Micro level (building-scale) RE	12
		Meso level (area scale) RE	28
		Establish a local energy cooperative	6
		EE/RE for community building/facilities	14
		Other community-run initiatives	3
Q2.2: How does the plan discuss new opportunities for financial support of local ownership/control or enhancement of existing CE structures (e.g. local improvement charges)? (This information was available in 48% of plans)	1 to 3 types of financial support per plan	Local Improvement Charges	14
		New financial incentives/rebates for Micro level (building-scale) RE/EE project	17
		New financial incentives/rebates for building EE standards	5
		Revitalization Tax Exemption bylaw	6
		Net metering/feed-in tariff opportunities	2
		Other innovative finance mechanisms	8
Q2.3: How does the plan discuss use of local assets and local ownership of assets (local goods and labour)? (This information was available in 9% of plans)	1 to 3 types of strategies per plan	Maximize use of local human resources	7
		Maximize use of local goods/materials	5
		Plan to boost local employment	18

4.2.3 Community Capacity

CE literature frequently emphasizes the importance of society's capacity for citizens to participate in CE, where it is argued that without inclusive processes, marginalized citizens within a community may not feel empowered to participate. Additionally, CE research recognizes the inequality of communities overall capacity across society, and emphasizes the need to build organizational capacity in order to develop and implement CE projects—a barrier that has been noted in the Canadian context (McMurtry, 2018). This research therefore considered how plans discussed overcoming capacity-related barriers to citizen participation and the building of organizational capacity and funding opportunities.

The results for how plans contribute to CE through community capacity can be seen in Table 8. The findings show that very few plans specifically discussed inclusivity and potential barriers to citizen participation (10%), and of those plans, the most common approach was a stated intent to improve inclusivity in the future, rather than a discussion of how efforts were made during development of the plan. This is one area where the plans unquestionably fell short. The potential for engagement that incorporates marginalized and non-traditional actors requires that constraints on these populations is taken seriously, but it may be unlikely that traditional actors share these constraints (MacArthur, 2016). Without recognizing barriers to participation and developing strategies to overcome them, it seems likely that only the community members with the capacity to participate will be involved, leaving only the “usual suspects” within a community feeling empowered to participate (Berka and Creamer, 2018). The results for encouraging inclusivity are therefore a point of concern; not only did very few plans discussed inclusivity or potential barriers to citizen participation, several of the cases that did so merely expressed an acknowledgment that the plan had fell short in this regard and suggested that steps would be taken to make improvements in the future. A challenge seen with CE initiatives is that emerging forms of engagement still run in tandem beneath powerful actors and interests—particularly in a historically closed policy space such as energy (MacArthur, 2016) so the exclusion of this consideration is significant.

A high percentage of plans (76%) discussed local skills development, knowledge-building and education related to energy systems, perception of new systems and/or

behavioural change. 66% of plans discussed education the general public/residents, and this education was generally related to behavioural change and strategies for reducing individual energy user's energy use. 36% of plans discussed enhancement of professional skills/knowledge—generally these were related to build/maintenance capacity for contractors, developers or other professionals.

In terms of building organizational capacity within the community, 34% of plans discussed some form of strategy. The most common strategy was the hiring of new staff in order to support implementation of the plan, while other plans prioritized existing resources through updated duties for community staff or enhanced coordination between departments and organizations. In order to fund implementation of the plan, most communities (65%) stated that they had or were in the process of seeking out external funding—these funding sources included provincial, federal and municipal governments, utilities, non-profits, businesses and national capacity-building organizations. Far fewer communities (8%) stated that existing internal revenue could be leveraged to support implementation; however, 13% of communities planned to develop some form of local green fund to support projects. Additionally, 17% of communities sought out external funding opportunities in order to support organizational capacity (e.g. funding for new staff members).

Table 8: Community Capacity Results

Questions	Range	Type of strategy	n
Q3.1: How does the plan discuss inclusivity and potential barriers to citizen participation in the creation of the plan? (This information was available in 10% of plans)	1 to 2 types of strategies per plan	Outlined specific limitations of engagement/barriers to participation	3
		Discussed incorporating diverse voices/views	2
		Stated intent to improve inclusivity in the future	6
Q3.2: How does the plan discuss local skills development, knowledge-building and education related to energy systems, perception of new systems and/or behavioural change? (This information was available in 76% of plans)	1 to 4 types of strategies per plan	Demonstration project	6
		Youth education	11
		Increase professional skills/knowledge	28
		New/enhanced post-secondary opportunities	5
		Education for general public/residents	51
		Education for local leadership	10
Q3.3: How does the plan discuss building organizational capacity within the community for implementation of the plan? (This information was available in 34% of plans)	1 to 3 types of strategies per plan	Hire new municipal/district staff to support implementation	14
		Update duties of existing municipal/district staff members	7
		Improve coordination between departments and community organizations	4
		Establish a new local energy utility	2
Q3.4 How does the plan discuss funding opportunities		Establish local green fund for implementation	10

for implementation of the plan? (This information was available for 75% of the plans)	1 to 4 Types of strategies per plan	Leverage internal revenue sources for implementation	6
		Seek out external funding opportunities for implementation	50
		Seek out external funding sources for building organizational capacity	13

4.3 Discussion

Through the assessment of Canadian LEPs, a number of common practices and trends were revealed in relation to how plans do or do not contribute to community energy. Table 9 provides a summary of how plans can more meaningfully contribute to the ideals commonly associated with community energy through community participation, ownership and capacity. The table highlights areas of strength and areas of weakness that were revealed in the obtained LEPs. Recommendations are rooted in CE literature, where CE researchers emphasize “process” and open and participatory engagement practices with a wide variety of community actors (Walker and Devine-Wright, 2008; Hoffman and High-Pippert, 2005; Hoffman et al., 2013); an emphasis on community ownership and supports for achieving ownership goals (Seyfang et al., 2013; McMurtry, 2018; MacArthur, 2016); and inclusive practices that recognize barriers to participation experienced by more marginalized members of society (Berka and Creamer, 2018; Catney et al., 2014; MacArthur, 2016). Additionally, Table 10 provides an overview of two featured LEPs that contributed to community energy through each of the identified categories of community participation, ownership and capacity. Although each of these plans still features areas where they too could improve, the plans illustrate how local energy plans can more meaningfully contribute to CE.

Because this research was based entirely on a document analysis of LEPs, the findings are limited to what was explicitly stated within plans. A more in-depth investigation may provide greater insight into areas such as whether community participation methods

represented “meaningful participation,” or if such efforts merely involved plan developers informing participations of decisions that had already been made—for example, interviews with participants may better inform where participation activities fit in on Arnstein’s (1969) ladder of participation scale, as was explored in the literature review. To return once again to the example cited in the preface of this MRP: the consultation sessions leading up to the development of Muskrat Falls involved consultation with a wide variety of community actors. Such consultation may look meaningful on paper, but the viewpoints of participants would likely offer a different perspective.

The research nonetheless provides an important picture of an understudied area in Canada, where local energy planning is frequently placed under the umbrella of CE by policymakers and in academic literature. Additionally, as the LEPs investigated were all publicly available documents, the framing of how plans contribute to the conditions for CE is significant. These documents are available to the communities they represent, and when citizens feel co-opted through poor participatory practices or when energy initiatives are labelled “community” and local people are not benefitting from them, CE literature warns us that there are risks of resentment, objection and deepened cynicism (MacArthur, 2016; Walker and Devine-Wright, 2008).

Table 9: Summary

Conditions for CE	Areas of Strength	Areas to Improve
Community Participation	Many plans involved a wide variety of actor types in the development of LEPs.	A concern noted in the assessment of LEPs was the high percentage of plans that failed to indicate authors or what other actors were involved. LEPs should be sure to prominently indicate the author of plans and who else was involved through engagement efforts in order to ensure transparency for the local community.
	Many plans involved a variety	LEPs would be strengthened by involving a wider variety of non-consultant or institutional actors for the writing of plans and/or through engagement

	of engagement methods.	efforts—specifically, more plans should involve community members and residents. Although a wide variety of engagement methods were employed, the most common strategy for engagement efforts was closed consultation sessions. LEPs should include engagement methods that are open to the general public.
Community Ownership	Many plans discussed financial supports for local ownership of micro level (building-scale) projects.	LEPs should specify the intention to employ local assets within projects stemming from the plan and outline strategies to achieve this goal. LEPs should emphasize the importance of local ownership of locally-sited energy projects stemming from the plan, outline preferred ownership models, and discuss methods for achieving community ownership goals. LEPs should expand efforts (such as local improvement charges) to community-based ownership of projects, rather than solely relying on initiatives targeted to homeowners.
Community Capacity	Many plans discussed knowledge-building opportunities for professionals as well as general community members.	Very few plans specifically discussed inclusivity and potential barriers to citizen involvement in plan development. LEPs should raise the voices of non-traditional and marginalized community members by recognizing barriers to participation and taking steps to overcome these barriers.

Table 10: Two examples of LEPs contributing to CE

LEP	Conditions for CE	Strategies
“Energize Bridgewater,” a municipal LEP for the Town of Bridgewater, Nova Scotia.	Community Participation	<p>The plan was authored by a consulting firm but also involved a wide variety of community actors—including residents, multiple community organizations, municipal staff, local businesses, public institutions and energy utilities. These actors were involved in “extensive engagement” over a year and a half period, though the plan is vague on specifically how such actors were engaged. The plan also emphasizes the involvement the local Mi’Kmaq community, where the Town reached out to local indigenous groups in order to incorporate indigenous teachings.</p>
	Community Ownership	<p>The plan states the community’s intention to increase local energy generation and local ownership, and specifically proposes community ownership of locally-cited projects and a locally owned and managed energy utility. In terms of financial support for local ownership, the plan discusses financing for energy efficiency projects at the household level as well as local improvement charges for multi-unit residential, commercial and institutional buildings—these strategies are emphasized as opportunities for assisting renters and addressing energy poverty in the community. Additionally, the plan emphasizes how projects will inject money into the local economy, the use of locally-sourced assets, and specifically outlines the average number of person-years of employment that the proposed “energy shift” will add to the local economy per year.</p>

Community Capacity	<p>The plan proposes a “living energy laboratory,” which builds community capacity by stimulating energy innovation and community interest in leading energy efforts. The plan also recognizes a need in the community for a public forum for the community to “share stewardship of the implementation and monitoring” of the plan, although this had not been created prior to or during plan development. The plan also describes support for skills and capacity for local tradespeople—the descriptions here are fairly vague when compared to other sections of the plan.</p>
<p>“Community Energy Plan,” an Indigenous LEP for the Hupacasath First Nation in British Columbia.</p>	<p>Community Participation</p> <p>The plan was co-authored by a national non-profit organization and a consulting firm, and also involved band council and community members through one-on-one interviews, newsletters and informal meetings. As a small community, nearly all community members were able to be involved in plan development to some extent.</p>
Community Ownership	<p>While the plan falls short on specific strategies for achieving local ownership, it discusses local ownership for both micro projects for households and meso level hydroelectric projects. For households, the plan states that it is seeking funding for initiatives such as a plan to purchase retrofit supplies in bulk in order to provide retrofits for all homes in the community free of charge. The plan also discusses the maximization of local assets, including materials, equipment and infrastructure, as well as local human resources.</p>
Community Capacity	<p>The plan promotes capacity-building opportunities through education, where knowledge of energy technology and energy issues will increase the community’s capacity to make informed decisions</p>

related to the plan and its outcomes. This education includes workshops on climate change impacts and hands-on learning related to on energy efficiency and renewable energy.

Conclusion

With nearly 80% of Canadian greenhouse gas emissions coming from energy consuming activities (Natural Resources Canada, 2018) and a legal and ethical responsibility to contribute to international climate change mitigation efforts, the challenge that Canada faces as it transitions from fossil fuel dependency to low carbon energy systems is substantial. However, our responsibility lies not just with international mitigation efforts, but also with the people living in communities across Canada. Where traditional energy systems have a history of sacrificing local communities for larger energy ambitions, community energy represents a meaningful alternative to such a sacrifice. CE is argued to achieve this by challenging closed, institutional models of decision-making and emphasizing community participation through community-based ownership and control. Through such processes, CE can—in theory—accomplish energy transition objectives while simultaneously empowering the communities where energy initiatives take place, rather than harming them.

International research warns us, however, that there is potential to fall into a “local trap,” where initiatives are considered to be socially beneficial merely because they are local (Catney et al., 2014). Discourses of local self-reliance, decentralization and energy security are employed to advocate the development of “localized” energy systems under a belief that they will yield social, political and economic benefits (Morris, 2013). Without assessing such initiatives, one can see how falling into this trap is tempting. When initiatives are environmentally beneficial, those of us concerned with matters of social justice may be eager to support them with a less-than critical eye and assume that social benefits will follow. This tendency to assume benefits without empirical evidence supporting claims has been observed by international researchers (Berka and Creamer, 2018). As these findings show, while Canadian LEPs are locally-centred and likely entail

energy-savings and environmental benefits, social benefits are not guaranteed. Many plans fail to meaningfully contribute to “community energy” as it is portrayed in literature and therefore ignore a critical opportunity to bring more meaningful change to the communities they represent.

The risk emphasized in literature is that if plans do not contribute to conditions where local citizens participate in and benefit from CE, there may be a risk of deepening resentment and cynicism within local communities (Walker and Devine Wright, 2008; MacArthur, 2016). This assessment revealed several areas where such risks are apparent. (1) Community participation is associated with such outcomes as enhanced democracy and improved social capital, where poor participatory practices could be counterproductive. The findings revealed a transparency concern with many plans that failed to list an author, as well as a lack of plans involving community members and residents in plan development and a greater focus on closed consultation sessions with specific actors rather than broader, open engagement methods. (2) Community ownership is associated with socio-economic regeneration, access to affordable energy and increased support for RE. While the plans frequently discussed locally-sited projects, community-based ownership of such projects was much less common. Many communities discussed financial supports for homeowners to pursue energy efficiency and renewable energy projects; communities would see broader community benefits (specifically for marginalized community members who are far less likely to be homeowners) if efforts are expanded to community-based ownership of projects.

Finally, (3) community capacity is associated with knowledge and skill development, empowerment, energy literacy and environmentally benign lifestyles. The assessment considered the capacity of individual citizens to participate as well as broader community capacity. For citizens, very few of the assessed plans specifically discussed inclusivity and potential barriers to citizen involvement in plan development, though the plans largely emphasized the building of knowledge and skills for local professionals and general community members. For broader community-capacity building, many plans discussed strategies to move forward to implementation with resources available to them—financial support was largely sought out from external funding opportunities rather

than existing internal revenue capacity. While implementation concerns were largely outside of the scope of this research, it should be noted that without implementation of plans, communities may feel further frustration if there is a sense that the time and energy invested in plan development is wasted, particularly for more marginalized communities who likely have limited resources for such initiatives.

Despite the limitations revealed through this assessment, a number of positive signs also emerged. As was illustrated in Table 10, some plans did make meaningful efforts in all three of the identified categories. In addition to these two examples, many other plans excelled in one or two of these categories. This demonstrates that Canadian LEPs do present an opportunity for communities to participate in CE as it is portrayed in literature, if social impacts and the ideals commonly associated with community energy are prioritized in plan development.

CE offers an alternative to large-scale, centralized low carbon initiatives, where broader energy goals have traditionally been prioritized over the lives of local community members. However, if Canadian Local Energy Plans remain merely “local energy plans,” rather than “community energy plans,” the tendency for energy initiatives to continue down this path of seeing communities sidelined in energy transitions seems like a likely outcome. In a historically closed policy space such as energy, the challenge of achieving transformative change is significant, as engagement practices run in tandem beneath powerful actors and interests (MacArthur, 2016). Considering the rapid growth of Canadian LEPs, the opportunity for plans to contribute to empowered local communities should not, as it has in the past, be underprioritized in favour of broader energy ambitions. As advocates of decentralized and local energy transitions push forward with such initiatives, social benefits and the conditions for CE should be prioritized alongside broader energy ambitions. Without this combined focus, we risk expending significant effort and resources to reach a place that is not all that unlike where we started in the first place.

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