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Article

# Trade, Tarsands and Treaties: The Political Economy Context of Community Energy in Canada

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**Abstract:** Governments today are increasingly looking to non-state and bottom up community actors to help achieve climate change mitigation targets. Canada is a resource rich state with one of the highest per capita greenhouse gas footprints in the world. It is also a state where issues of political will, geographic scale and incumbent industries contribute to a challenging context for broad community participation. Despite this, a long history of co-operative and municipal activity exists in the energy sector, exhibited in diverse ways across its provinces and territories. Provincial variation in energy sources and actors illustrates a far more nuanced picture than exists at the national level, providing a case rich with both promising and cautionary tales for the community energy sector. This article examines the emergence of community energy in the context of broader energy sector moves towards increasingly powerful trade agreements, privatization, and conflicts over Indigenous rights in Canada. It argues that significant potential exists to strengthen the role of local actors in Canadian energy governance, but that macro-level political and economic developments have also created significant challenges for widespread community energy transitions.

**Keywords:** community energy; energy policy; Canada; political economy; renewable electricity; public participation

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## 1. Introduction

The year 2016 was a significant year for the planet. It was another “hottest year on record”, more than 1.3 °C warmer than the 18th century when modern temperature records began. Scientific evidence for anthropogenic climate change continues to mount, predicting increased intensity and frequency of storms, droughts, species extinctions, sea rises and heat waves. Indeed, much of the warming in recent years has been stored in oceans, which has led to record lows in the Arctic sea ice this November. This past year also heralded significant political shifts, in the form of a rise in anti-establishment and populist political movements, particularly in established Western democracies with the heaviest climate debts. The first of these was the Brexit referendum in the United Kingdom in July 2016, where the population voted narrowly to leave the European Union. The second was the shock victory of billionaire Donald J. Trump in the U.S. Presidential election in November, ushering in a new era of environmental policy dismantling there. Just as we require more radical leadership on climate transitions at domestic and global levels, particularly in the energy sector, we are faced with either inward looking or outwardly hostile leadership in two powerful states. It is in this gap that local, bottom up energy initiatives in the “community energy” sector are taking place.

Community energy (CE) initiatives have emerged in many countries in the past three decades, including the United Kingdom, the United States, Australia, Denmark and Germany. They are a response to both the awareness of the climate crises and recognition of the need for institutional

change and innovation [1]. On the one hand, we require cleaner and more efficient energy practices in wealthy and poor countries alike. This is not just for climate change mitigation, but also for human health. On the other hand, skepticism about the capacity and motives of governing actors illustrated in the Brexit and Trump elections, together with the longstanding obfuscation of incumbent fossil-fuel and power industries, suggests that centrally led transformations will be challenging to both initiate and sustain. Even in countries without actively hostile governments, policy delays and reversals are commonplace.

It has never been more important to examine the potential of non-state institutional alternatives in the energy sector. This is because once institutionally established, community energy actors are not only passive recipients of electricity policies but, importantly, can also be involved in co-constructing public policy alongside more traditional private sector actors [2]. They have emerged in diverse contexts, in terms of energy sector structures, geographies and broader political culture. Recognizing the importance of CE initiatives, recent global renewable energy reports by the Renewable Energy Policy Network for the 21st Century (REN21), the British Academy (UK) and OECD are now explicitly including community-scale projects in their recommendations and transitions analyses [1,3,4].

This article examines the emergence and development of community energy in Canada. It focuses attention on the institutional setting within which CE projects have developed, asking: (1) What is that status of community energy in Canada? (2) What policies exist to support their development? (3) What is the importance of political economy context to their development? The interdisciplinarity of community energy scholarship makes for a stimulating, empirically grounded and practically relevant field of research. While a vibrant discussion of the politics of community energy exists in the United Kingdom, there is much less in this space outside the European context. Furthermore, political scientists have much to say about the concept of community and on the topic of energy policy, but research into the intersection between the two is as overdue as it is important.

Canada sits in a unique position to understand the varied development of community energy initiatives around the globe. It is a wealthy, arctic nation with significant fossil fuel extraction, processing and consumption activities and greenhouse gas emissions significantly higher (20%) than 1990. Canadians also have some of the highest GHG emissions per capita as a result of the dominance of the country's extractive industries, cold climate and the sheer distances covered for transport. While remaining high by international standards, Canada's share of installed renewable (hydro, wind, biomass, solar) electricity capacity was higher in 1960 at 92 percent than 2014 with 62 percent [5]. Its people, particularly Indigenous communities in the north, have been feeling the effects of climate change for more than a decade now. In recent years Indigenous peoples have been at the forefront of environmental activism in Canada, in particular leading the opposition against the development of numerous pipeline projects from the oilsands in Alberta to the British Columbia coast (Northern Gateway and Kinder-Morgan), to Eastern Canada (Energy East) and United States (Keystone XL) for export. The community energy sector also has surprisingly deep regional roots and exhibits wide regional variation from province to province. Canada is a case rich with both promising and cautionary tales for the community energy sector.

## 2. Methods

In order to answer the questions posed in the previous section, qualitative and quantitative data were gathered as to the number and nature of community energy policies in Canada's ten provinces and three territories in 2015. A national map of community energy projects in Canada is currently lacking given the institutional variety that exists in the sector and the range of regulatory bodies. As a result, the data presented on specific projects builds from a literature review of Canadian community energy projects from sources at national and provincial levels together with keyword searches in each jurisdiction.

In order to understand the actors and challenges shaping energy systems across the provinces, data on greenhouse gas emissions trends as well as provincial and national electricity sector trends by source and ownership between 1990 and 2014 were obtained from Statistics Canada, the

International Energy Agency, and the OECD. This timescale provides a sufficiently long period to identify shifts since electricity sector restructuring took place. The baseline date for Kyoto protocol commitments is also 1990, so it provides a useful measuring stick as to climate change mitigation progress in the sector. Data on ownership changes in the electricity sector demonstrate a broad shift towards private ownership, but to significantly differing degrees across each province or territory, illustrating the diverse composition of energy policy networks. Similarly, the data on generation source and GHG emissions by jurisdiction paint an uneven picture of the need for significant reform of generation sources.

The overarching focus of the research is on the contextual and policy settings at work across the country shaping the playing field for the community energy sector. National and provincial policy documents (energy strategies, new acts and significant regulatory changes) were examined for explicit references or supports to “community energy” or “community renewable energy” developments and “first nations” or “Indigenous” energy. This information was drawn from energy policy websites in each jurisdiction in conjunction with publications from community energy associations in Canada. We analyzed the presence, duration and nature of the policy support in terms of the level of targeting and the degree of financial commitment (where one existed), paying particular attention to subsequent changes or removals of CE policy. Results of this search are presented in Section 5.1. A further step in the research involved identifying recent challenges to renewable energy policies in Canada in order to determine the implications they have (if any) for community renewables in particular. This included a scan of academic and grey literature on international trade and renewable energy policy as well as keyword searches for Canada or Canadian jurisdictions in trade challenges within North American Free Trade Agreement (NAFTA) and WTO contexts.

### 3. Understanding Community Energy: Politics and Political Economy

“Community energy” encompasses a wide range of organizations and activities, centered on the idea of local resource management of production, distribution and consumption of energy products and services. This contrasts with centralized public sector governance models, commonly found pre-liberalization in many states, and with private large-scale market-based models. Walker and Devine-Wright define a community energy project as a place-based social enterprise with local participation and collective benefits [6]. These can be based on community leadership in the planning, running and benefit allocation, or a community investment project or partnership with private and commercial developers [7]. The actors in the community energy sector may take the form of co-operatives, local trusts, non-profit associations, Indigenous benefit companies and municipal or city level agencies.

CE activities are similarly broad in scope. Projects have formed to generate renewable electricity from wind, solar, hydro and biomass sources. Others have focused on developing distribution networks or on retail of energy products and services. These projects often overlap with other groups seeking to provide energy education and efficiency services, such as home or business audits [8]. The potential benefits of community energy are widely established in the literature. They range from local economic development, increased empowerment and community cohesion, and reduction in greenhouse gas emissions to instrumental benefits for policymakers and companies interested in reducing local project opposition [7,9,10]. At a time when many citizens are losing faith in democratic politics and the state more broadly, local engagement may provide a workaround mechanism to build support for new climate initiatives.

In the long historical view, community energy systems are nothing new. Electricity networks first developed in the early 20th century as local projects [8]. The first windmills, for example, provided power to grind flour and distribute it through the nearby countryside. Over time, the scaled benefits of large and centralized plants began to win out as increasing energy demands from modern industrial systems were accompanied by technological innovation. The state stepped in to support new industrial development by facilitating access to resources, planning consents for infrastructure, and extending energy services to wider swaths of the population. The benefits of

these changes were unevenly distributed. Then, as now, citizens living near power plants and oil and gas fields confront environmental hazards that citizens in less proximate locations do not. Benefits accrued from the productive activities in the energy sector were socialized to the population more broadly in the case of publically owned power assets, but accrued to largely non-local and often international shareholders in the case of private assets [11].

Community energy projects (CEPs) emerging today are facing a range of challenges. Seyfang and Smith identify intrinsic challenges for CEPs and diffusion related ones [12]. The intrinsic challenges relate to the skills and resources of the community actors themselves. There are disadvantages, for example, to being volunteer based, inexperienced in the sector and/or disconnected from policy networks [13]. According to one group in the UK:

“All the co-operatives relied heavily on local volunteer time in order to develop and run the enterprise, often drawing on what would otherwise have been high cost professional skills. This was complemented by a broader base of mostly local community volunteer support to spread the word and get local people on board with the idea. Given the complexity of projects and the length of time from conception to launch, maintaining momentum and motivation was a challenge for many of the groups” [14].

Diffusion challenges, on the other hand, affect their ability to “scale up” to the broader systemic changes from incumbent industries or closed policy networks. These latter challenges also include “context-specificity and ‘geographical rootedness’, ideological commitments to being ‘other’ and outside the mainstream, competition from more powerful mainstream groups who may develop watered-down alternatives, and the general risk aversion of policy makers when dealing with small-scale, often radical, and relatively informal innovating organisations” [15]. At this critical juncture for climate change mitigation activities, these challenges to the transformative and radical potential of CE are significant.

### *3.1. State Power: Looking up and out*

At a basic level, the study of politics is concerned with the expression of institutionalized power in society. Traditionally this has focused our analysis on the state as an organizing force in human history: its aims, structures, participants and evolution through time. The related fields of international relations and political economy similarly focus on the institutionalization of power in society, the former at the supra-state level and the latter on the power relations imbued in activities of production, reproduction and consumption. When applied to a study of emergent community energy systems, political scholars focus their attention on questions of who benefits and controls the projects? How distributive or redistributive are they? Where are the interest conflicts and how are they mediated? What is the role of the state and political ideology in them? Scholars from environmental studies, geography and sociology are certainly interested in these questions, but have largely focused on the micro project level or meso-level of sub-national networks. This is understandable given the need to build our understanding of the empirical profile of CE activities and analyse their practices. However, the task of understanding their emergence and potential also rests significantly on what happens beyond the local level, by actors in positions of power both “up” at national and international levels and “out” in terms of sectoral competitors or those in related industries.

Power does not reside solely with the nation-state, but its dominance in exerting economic, social and regulatory power means that our interest in community energy systems needs to locate these organizations within the broader complex of relationships outside the niche. This perspective needs to be supplemented, of course with an understanding that in our relatively globalized world states are similarly situated within their own relationships of intra-state and transnational power. One particular manifestation of this is the proliferation of bilateral and multilateral international trade agreements. The latter act as a new “conditioning framework”, circumscribing the policy options of the state to direct domestic change [16].

### 3.2. Public Policy

Public policy dynamics are one method of tracing the contours of power in a given society. Through policy choices (including dismantling and non-action) we see the values expressed by authoritative actors. Of course, policy outputs do not lead automatically to implementation or to desired social, economic or biophysical effects, but they do signal shifts in priorities and interests. We can track the degree of commitment to particular initiatives by tracing their longevity and backlash to them at various stages of the policy cycle from agenda-setting to implementation. Studying public policy provides a sobering window into the complexities of interest group accommodation and the structures of power in a given society. These changes can lead to the creation of new constituencies, rebalancing the playing field between incumbent and non-traditional actors.

Inequalities in financial and political resources affect policy outputs from agenda setting through to implementation and evaluation. In order to tackle the climate challenge, energy researchers have urged governments to take action by phasing out support for fossil fuels, thinking beyond the power sector to renewable transport and heating, and planning for complex, decentralized energy futures [4,17]. These changes are significant, necessary, but also contested by actors who benefit from business-as-usual arrangements [18,19]. Opposition to policy supports can result in very weak designs with thin financial commitments and narrow timeframes, or reversals. As a result of these challenges a new “social architecture” is required for creating resilient, sustainable and low-carbon societies in the face of uncertain national policy supports [20–23].

Community energy policies and projects have grown rapidly in the past three decades in particular jurisdictions, most notably Germany and Denmark. The relative success of CE in these countries has driven academic scholarship on how transferrable these models of community renewable energy (CRE) development are in non-European nations, how portable the policy frameworks that spurred them are to other nations in 2016. This comparative work is both fruitful and fascinating for its empirical richness. It is raising important questions about the nature of communities in CE as well as the distribution of benefits. Most CE policy documents share a focus in leveraging and integrating the interests of local actors into an emergent green energy economy. Depending on the level of “scale up” this can reshape the network of actors involved in policy agenda-setting, decision-making and implementation [24]. Modifying institutional arrangements in this way in the energy sector can influence the effectiveness, efficiency and legitimacy of future renewable power initiatives. Of course, these impacts emerge in complex interaction with established political cultures and available resources [21,25].

Put simply, policy choices matter. Policy choices reflect the range of ideas and norms that delimit the scope and scale for action at a particular time in history, as part of what Howlett, Ramesh and Perl refer to as a “policy regime” [26]. They reflect the dominant ideas and interests of a given society and set the foundation for future institutional change. A change in instrument choice—whether voluntary arrangements, market mechanisms or command and control regulations—is far from a simply technical matter. These tools in the community energy sector include: grid set-asides (a portion of new electricity generation capacity is allocated specifically for community actors); community feed-in tariffs (statutory arrangements guaranteeing a premium price for locally owned power); siting privilege (first right of refusal on project development for local developers); as well as a range of other financial support through grants and project development assistance. Broadening the actors involved in service delivery and policy planning also creates new constituencies, interests and capacities, thus reshaping the playing field for future iterations of the policy cycle.

### 3.3. Controversy and Co-Optation

Scholars studying sustainable transitions have also recently identified how community energy policies designed primarily to build social support for state goals may reinforce elite interests and dominant actors rather than challenge them as hoped [6,27]. Put another way, community energy can entail a very weak form of share ownership of a project or public consultation, rather than deep and transformative engagement. This can happen when local financial or logistical support is lacking, but it can also arise from a neglect of pre-existing social and political cleavages in society around issues of race, class and gender.

Supportive and targeted policy frameworks can certainly help to balance the playing field for actors in the sector, but they are by no means politically uncontroversial or a panacea for systemic transformation [28,29]. Opposition to these, for example, emerges from the argument that the state is informationally ill-equipped to set appropriate prices for new technologies (such as with a feed-in-tariff or carbon tax), and should not “meddle” in markets. The criticisms of new green energy policies also come from the other side of the political spectrum, where the creation of renewables markets and carbon taxes are seen as generous subsidies to corporate actors at a time when most citizens are facing cuts to health, education, welfare coupled with skyrocketing housing costs.

Concerns about co-optation of community projects have also emerged, in part, out of challenges projects face competing with conventional energy companies and in the increasing emphasis on private partnerships as a development model. Hargreaves et al also illustrate the tensions felt by UK community actors concerned about facilitating tighter government control versus exerting more independence from the state [27]. The question remains as to the degree to which the community projects are supporting or transforming the energy systems given the fact that radical values don't easily fit within mainstream policy regimes [28,30]. Walker, Devine-Wright, Hunter, High and Evans highlight the issue as follows:

“For some government actors running capital funding programmes, motives were fairly narrow and instrumental, concerned, for example, with using government money to stimulate the market for renewables. Their definition of what constituted a community project was legalistic and related solely to the ‘not-for-profit’ status of community groups that enabled public funding to be used without contravening EU rules on state-aid to the private-sector” [31].

These concerns echo longstanding political economy debates over the merits of radical versus reformist elements of the social economy [32,33]. For the former, community associations working within a broader liberal-capitalist framework are likely to remain marginal and to be co-opted to serve the accumulation interests of the state and the private sector. The strength of these pressures is not going to be consistent across all jurisdictions. It will depend on the ideological orientation of a particular government as well as the material pressures arising from organized industrial interests at domestic and international levels.

## 4. Canadian Energy in Context: Emissions, Ownership and Trade

Understanding the development of community energy in Canada requires an awareness of the sub- and supra-national institutions at play as these structures shape the interests and power of dominant actors in a policy regime. Canada's 36 million people are divided into a diverse range of political communities. It is multicultural, multilingual and a settler-colonial state characterized by fraught and longstanding political cleavages between the Anglophone, Francophone and Indigenous (First Nations, Inuit and Métis) cultures. In response to the vast territory covered and diverse communities represented, federal political institutions separate powers between the provinces and the national government located in Ottawa. Provinces have constitutional jurisdiction over their respective electricity sectors, resulting in a mix of sources, ownership structures and governing bodies. This means that, as with the U.S.A. to the south, sub-state policies at the provincial and territorial levels are crucially important to analyzing the emergence and development

of the community energy sector in the country. Constitutional power for resources, along with health, education and municipalities, lies with the provinces and territories.

First Nations and Aboriginal communities are increasingly active in the energy space. Indigenous Canadians make up more than 4% of the population, and are the fastest growing demographic in the country. The majority of Canadians in Nunavut (86%) and the Northwest Territories (52%) are Indigenous. Supreme Court rulings starting with the Calder case (1973) up to the 2014 *Tsilhqot'in v. British Columbia* case have continually strengthened the legal power of these groups [34]. These rulings established that title existed pre-colonization and extended it to the entire traditional territory of a community. In the province of British Columbia, where land was not ceded to colonial powers by First Nations through treaties these rulings are challenging the legitimacy of resource decisions across much of the province.

Canada and the United States are also deeply interconnected economies, sharing one of the largest trading relationships in the world, worth \$690 billion in traded goods and services in 2015. Private companies have dominated oil and gas sectors in Canada, particularly since the privatization of crown-owned Petro-Canada in 1990, and have significantly increased their share of electricity generation activities in recent years. These developments are notable because the purpose of goods and services and ownership of organizations (public or private) informs the application of trade rules (see Section 4.3) regarding subsidies, local content requirements, and government procurement exemptions.

#### *4.1. Emissions*

Canada is also a large, diverse, and resource rich country. Fossil fuel deposits and vast water resources have historically shaped regional differences in industrial development and emissions profiles. Greenhouse gas emissions have increased 20% since 1990, driven in large part by the combustion of fuels and fugitive emissions and the heavy emphasis on mining and oil and gas production in Alberta and Saskatchewan in particular from 1990–2014 [35]. In the province of Alberta, the oil and gas industry has tripled in size since 2003 and it holds the third largest crude resource in the world [36]. Table 1 illustrates the provincial variation in GHG emissions as well as the change over time. While many regions have managed to decrease emissions from 1990, notably in Quebec and Ontario with 60% of the nation's population, these were overshadowed by large emissions increases in the western provinces of Alberta (56%), Saskatchewan (67%) and British Columbia (19%). Table 2 illustrates the percentage changes in GHG emissions by industrial sector, demonstrating the significant increases in post-1990 emissions in fossil fuel and transport sectors.



**Table 1.** Greenhouse Gas Emissions by Province and Territory 1990–2014 [36].

Province or Territory	1990 Greenhouse Gas Emissions (MtCO <sub>2</sub> eq)	2014 Greenhouse Gas Emissions (MtCO <sub>2</sub> eq)	Share of Canadian GHG (MtCO <sub>2</sub> eq) Total 2014 (%)	Change in Emissions 1990–2014 (%)
Nunavut (NU) *	n/a	0.3	0	n/a
Saskatchewan (SK)	45.1	75.5	10.3	67%
Alberta (AB)	175.2	273.8	37.4	56%
British Columbia (BC)	52.9	62.9	8.6	19%
Manitoba (MB)	18.7	21.5	2.9	15%
Newfoundland and Labrador (NL)	9.6	10.6	1.4	10%
Northwest Territories (NT)	1.6	1.5	0.2	−6%
Ontario (ON)	181.8	170.2	23.3	−6%
Quebec (QC)	89.1	82.7	11.3	−7%
New Brunswick (NB)	16.4	14.9	2	−9%
Prince Edward Island (PE)	2	1.8	0.2	−10%
Nova Scotia (NS)	20	16.6	2.3	−17%
Yukon (YT)	0.5	0.3	0	−40%
CANADA TOTAL	613	732	100	20%

\* Note: There is no figure for Nunavut in 1990 because the Territory was part of the Northwest Territories until 1999.

**Table 2.** GHGs in Canada by Industry and % change 1990–2014 [35].

	Oil and Gas (MtCO <sub>2</sub> eq)	Transportation (MtCO <sub>2</sub> eq)	Electricity (MtCO <sub>2</sub> eq)	Buildings (MtCO <sub>2</sub> eq)	Emissions-Intensive and Trade-Exposed Industries (MtCO <sub>2</sub> eq)	Agriculture (MtCO <sub>2</sub> eq)	Waste and Others (MtCO <sub>2</sub> eq)
2014 share of GHGs (MtCO <sub>2</sub> e)	26	23	11	12	10	10	7
1990–2014 percent change	79	32	−17	19	−20	29	−4

#### 4.2. Ownership

The ownership of electricity generation has also changed significantly in the past two decades. In 1999, 82 percent of installed generation capacity in the country was from publicly owned provincial utilities such as Hydro Quebec, BC Hydro and Ontario Hydro. As table 3 illustrates, by 2014, this share shrank to 69 percent, while privately owned utilities grew from 11.4 to nearly 24 percent. Industry generation over the period has increased slightly, from 6.5 to 7.1 percent of the overall total [8,37]. These national trends were driven by power sector restructuring taking place at the provincial level, particularly in the province of Ontario, where public ownership dropped from 90% of capacity in 1999 to 57% in 2014. In all provinces and territories except Prince Edward Island (PEI) since 1999 ownership has shifted on balance from public to private hands. This varies from a small shift in Newfoundland and Labrador of 1% to a 17% change in New Brunswick and a 32% change in Ontario.

In 2014, ownership of Canadian electricity generation is mixed across the provinces and territories. In six jurisdictions more than three quarters of the assets remain in public hands, while in the provinces of Alberta, PEI (which has only recently started developing public generation capacity) and Nova Scotia the private sector utilities dominate. Indeed, Nova Scotia is distinct insofar as bundled utility Nova Scotia Power was privatized in 1998 to Emera, Inc., leaving a fully private monopoly for power the province.

**Table 3.** Installed Generation Capacity by Ownership Type 2014 [37].

	Public (%)	Private (%)	Industry (%)	Total (GWh)
Nova Scotia	0	98	2	2563
Prince Edward Island	20.7	79.3	0	413
Alberta	14.5	70.3	15.2	13,364
Ontario	57.2	40.1	2.7	34,721
Canada	69	23.9	7.1	132,698
New Brunswick	78	19.6	2.4	4716
Saskatchewan	86.7	12	1.4	4126
Yukon	92.8	7.2	0	129
Québec	85.8	6.1	8.1	43,453
British Columbia	78.6	5.9	15.5	15,757
Manitoba	95	4.1	1	5815
Newfoundland and Labrador	94	4	2	7384
Northwest Territories	48	0.8	51	201
Nunavut	100	0	0	54

Just as ownership differs between jurisdictions, so does the source of power feeding the grid. This is a result of both natural resource endowments and the policy choices of successive governments about resource development. Thermal sources dominate the generation capacity mix in half of all provinces and territories, with Nunavut, Alberta and Nova Scotia with the highest shares (Table 4). On the other end of the spectrum, Manitoba, Newfoundland and British Columbia lead in the installed hydropower capacity.

**Table 4.** Electricity Generation by Installed Capacity by Source and Province 2014 [37].

Province	Total MW	Thermal * (%)	Hydro (%)	Wind (%)	Tidal (%)	Solar (%)
Nunavut	54	100	-	-	-	-
Alberta	13,363	86	7	7	-	-
Nova Scotia	2562	78	15	7	1	-
New Brunswick	4716	75	20	5	-	-
Saskatchewan	4126	75	21	4	-	-
Ontario	34,721	68	26	5	-	1

Northwest Territories	200	68	28	5	-	-
Prince Edward Island	412	28	-	72	-	-
Yukon	129	26	73	1	-	-
British Columbia	15,756	9	90	1	-	-
Manitoba	5815	9	87	4	-	-
Newfoundland and Labrador	7384	8	92	-	-	-
Québec	43,453	3	92	5	-	-
Canada	132,698	36	59	5	-	-

\* Thermal includes coal, natural gas and nuclear sources.

#### 4.3. Free Trade in Energy

Canada's energy policy context is also notable insofar as its strongest policy support for community energy, Ontario's Green Energy and Economy Act 2009 (now Green Energy Act), was subject to two trade challenges that were decided in 2016. International jurisprudence on energy law is sparse, with few concrete cases to establish the basis for legitimate protection of preferential treatment on environmental or local economic development grounds. Comprehensive agreements for services (including electricity) are developing at the same time as calls for more robust climate policy action, creating potential conflicts for the community energy sector. As such, we sit at an important historical juncture for understanding the effect of free trade agreements (FTAs) on climate policy action and, by extension, the emergent community energy sectors [38]. The relative merits of free trade agreements (FTAs) have long been a subject of heated debate in political economy, with some contending they form an antidemocratic limit on state policy through a new constitutionalism, and others more enthusiastic about the mutual benefits that can trickle down from clear investment rules and increased business activity [39–41].

The first dispute took place at the WTO in a challenge by Japan and the European Union against Canada (Ontario); the second challenge against Ontario was launched by Windstream Energy LLC (New York, NY, USA) under the NAFTA Chapter 11 (investment). *Canada-Renewable Energy* is significant as it marked the first Appellate Body decision at the World Trade Organization under the TRIMS agreement [42,43]. At issue for the development of community energy are the impacts of the treatment of electricity as a tradeable good, and the ability of governments to preferentially treat local energy suppliers and local manufacturers of energy products. Within an international regime providing non-discriminatory equal access to international companies, local prioritization is likely to come under increasing scrutiny. The Investor-State Dispute Settlements (ISDS) provisions as exist currently within the North American Free Trade Agreement and complexities surrounding the limits of public procurement exemptions provide a challenging policy setting for future CE support. The implication is that with the increasing shift towards creating private markets for renewables across Canadian provinces, policymakers are committing to providing equal access to investors and large energy companies from international trade partners.

The EU and Japan argued in *Canada-Renewable Energy* that Ontario's local content requirements (LCRs) in the FIT program presented an unfair barrier to trade and violated both GATT and TRIMS (trade related investment measures) agreements. The Ontario LCR defined "content" in terms of the total project costs, and designated activities ranged from manufacturing certain components in Ontario to retaining local (defined as Ontario resident) labor and consulting services. The applicable regulations specified that by 2012, the minimum required domestic content be 50% for large wind installations and 60% for solar photovoltaic (PV). Canada's defense of the program was that the market was created by and for the government and its entities (Hydro One, Independent Electricity System Operator, Ontario Power Generation).

The WTO ruled against Canada (Ontario) in this case, stating that the national treatment clause did not apply because the electricity was not procured for governmental use, but for commercial resale. As a result, the province ended the FIT program in 2014 for projects larger than 500 kW, which is smaller than the size of a typical turbine, thus relegating FIT projects to a "small project ghetto" (in the words of one CE advocate) [44,45]. Despite these changes, Ontario's early moves to support CE (discussed in Section 5) have resulted in a strong advocacy coalition of community

energy actors in Canada, including a Federation of Community Power Co-operatives and a large network of small projects, researchers and experts with policy experience [8,29,46]. However, the pushback against prioritization of local services and products may signify further challenges to come.

Indeed, in *Windstream LLC v. Canada* (New York, NY, USA) (2016) the American company also challenged Ontario's renewable energy policy choices. Specifically, the company claimed US\$475 million in damages as a result of a moratorium Ontario placed on offshore wind projects due to public opposition to large windfarms and an upcoming election in 2011 (which the incumbent Liberal party subsequently won). The moratorium came after a contract was agreed for a 300 MW, 130 turbine offshore project in Lake Ontario. In 2016 the panel ruled against Canada, awarding damages of \$28 million to *Windstream*. Canada argued that the actions of the Ontario Power Authority (OPA) were outside NAFTA jurisdiction because it was a state-owned enterprise and not a government, an argument the arbitration panel did not accept [47,48].

Taken together, these rulings suggest chilling effects on future policies and a subsequent narrowing of policy tools, particularly those that are aimed at localizing the economic benefits of renewable energy transitions in North America. It also suggests that the shift from public to private power has created new challenges for policymakers attempting to satisfy both environmental and developmental policy goals.

## 5. Community Energy in Canada: Policies and Politics

Canada has strong and understudied history of community energy, stretching back to the postwar era and long before policy interest in new renewables. A complete profile of community energy projects nationally is lacking due to the sparse data collection in this space as well as the diversity of organizations and activities in the sector (non-profits, co-operatives, councils, Indigenous governments). However a sense of their activities can be gained by focusing on one subset with deep roots in the country: renewable electricity co-operatives. Since 1940, more than 715 co-operatives incorporated to provide power services. The vast majority of these (561) were electricity distribution co-ops formed mainly in the provinces of Alberta and Québec in the 1940s and 1950s. These provided powerlines for rural areas in the provinces at a time when electrification rates were low and provincial governments were ideologically opposed to developing large-scale public power grids. Most of these have now sold, or, in the case of Québec, been incorporated into the public power system. Sixty-one co-operative rural electric associations (REAs) continue to operate in the province of Alberta [8,49].

More than 200 co-operative electricity generation projects have emerged across Canada since 1990, following the restructuring of power systems in many provinces and new renewable energy policy supports. Most of these projects are concentrated in the province of Ontario due to its 2009 Green Energy and Economy Act support for the community power sector more broadly (including First Nations, municipalities and non-profits). Of these, 20 co-operatives are generating wind, solar and hydropower on more than 100 projects. One such project is SolarShare, an Ontario Co-operative with more than 33 projects contracted and built around the province, with more than 5.5 MW in total installed capacity. Another Ontario-based project is the Windshare turbine owned by the Toronto Renewable Energy Co-operative (TREC) near the center of Canada's largest city. A partnership between the municipal utility, Toronto Hydro, and TREC, the 0.6 MW capacity turbine started operating in 2003. Co-operatives are also active as electricity retailers, such as Spark Energy Co-operative in Alberta, and as suppliers of energy audits and efficiency services [8,50].

Partnerships between community actors and private sector developers are also emerging across a wide range of energy activities. In many cases they are spurred by provincial policies keen to reduce local backlash (NIMBYism) and generate increased local economic development opportunities for new energy investments. If we broaden the lens of "community energy" to include municipal and town energy planning, as some certainly do, more than 200 communities across Canada have initiated community energy and climate plans. These require them to collect data on efficiency and emissions and make plans to increase the former and reduce the latter [51].

Challenges have accompanied the implementation of these plans just as they have with non-state community power generation projects. These include issues of capacity, funding and in Canada some municipalities (Halifax, for example) are prevented from developing renewables as part of provincial legislation [30]. A key tension is the fact that many, though not all CEP actors, were motivated to start projects by a desire to shape and reshape the energy sector along more sustainable lines. However, they need to operate within that same system in order to access funding, lobby for regulatory changes and establish grid connections. One answer to this challenge from the transitions literature is for the community sector to develop strong intermediary organizations in order to push policy and behavioural change. Even with the development of intermediary networks, however, significant transformations can remain elusive when confronted with policy reversals and political opposition [15].

### 5.1. Community Energy Policies

Supportive policies are key to the scale up potential of community energy systems. At the national level there is no community energy policy specifically targeted to the broad range of community actors, from co-operatives to non-profits, associations and municipalities, usually associated with the term “community energy”. However, there are funding opportunities for local energy project development. One of these, the ecoENERGY for Aboriginal and Northern Communities is aimed at First Nations communities and provides for project costs of up to \$250,000. It ran from 2011 to 2016, and was not renewed, but an additional \$10.7 million was allocated in 2016 for off grid and diesel reliant northern communities [52]. These policies are important, as diesel generation is the primary source of power for many remote and rural areas of Canada’s North. In Nunavut, for example, there is no provincial power grid and the population is 100% dependent on imported diesel. Some communities are accessible only by seasonal (ice) roads or by airplane, and can be hundreds of kilometres from the closest major settlement. It is in these areas that community energy systems in Canada may provide the most obvious benefits in terms of improving local facilities, reducing exposure to fuel costs, and lower emissions energy sources.

A federally administered Gas Tax Fund supports local infrastructure developments for provinces and includes “community energy systems” in the list of eligible items. A \$550 million Green Municipal Fund run by the Federation of Canadian Municipalities (FCM) also provides grant funding to develop plans, feasibility studies and low interest loans for local pilot projects. The related FCM “Partners for Climate Protection Program” has run since 1994 as part of and ICLEI initiative. Funding supports demonstration projects, feasibility studies and the development of innovative local environmental initiatives. Table 5 provides an overview of current CE related policies at the federal and provincial levels in Canada.

**Table 5.** Community Energy Policies in Canada 2015.

	CE Policy	Detail
Canada (national)	ecoENERGY for Aboriginal and Northern Communities Program (EANCP) (2011–2016)	Project costs for renewable energy projects in Aboriginal and Northern Communities (up to \$250,000)
	Gas tax fund	\$2 billion fund provided annually for local infrastructure development (including “community energy systems”)
British Columbia	Clean Energy Act 2010	First Nation’s Clean Energy Business Fund Community Energy and Emissions Plans
	Community Energy Leadership Program (CELP)—2015	\$500 k per year for local government and First Nations renewable energy projects.
Manitoba	Manitoba Geothermal Energy Incentive Program—2012 Energy Savings Act	Provincial grant of up to \$150 k and tax credits of up to 15% for district/community geothermal systems
New Brunswick	LORESS Program 2016	1st call for First Nations power projects of up to 40 MW in 2016. Co-operatives and non-profits call scheduled for

2017.		
Northwest Territories	NT Energy Action Plan 2013	Net Metering for micro-generation
Nova Scotia	2011–2015 Community Feed-in Tariff (COMFIT)	Guaranteed rates for power from municipalities, First Nations, co-operatives, not-for-profits, and Community Economic Development Investment Funds (CEDIFS)
Ontario	Green Energy and Economy Act (2009)	Community adders on Feed-in Tarriffs Energy Partnership Programme (EPP)
Québec	2016–2030 Energy Plan	New microhydro community partnerships encouraged (p. 57)
Yukon	Independent Power Producer (IPP) (2015)	50% of IPP projects to have a Yukon First Nation ownership component

Targeted policy initiatives have taken place in select provinces over the past decade, largely with limited scope and short duration. Canadian CE policies have a long (albeit understudied) history, stretching back to the 1930s when Alberta and Quebec provided funding to co-operatives to electrify rural areas, but have re-emerged as provinces seek to transition to new fuel sources [8]. They are strongest in Ontario, with its mix of public and private ownership and range of generation sources, and, until 2015, Nova Scotia with a private power utility and coal-fired generation. Targeted CE policy supports are less common in the provinces with large hydropower capacities and public ownership like British Columbia, Manitoba, and Québec. With that said, section 20 of the BC Clean Energy Act 2010 establishes a \$5 million “First Nations Clean Energy Business Fund” and many municipalities have developed their own community energy and emissions plans.

Ontario is a clear leader in terms of a specific set of policy supports for CE over the long-term [46]. The province of Ontario is Canada’s largest by population and liberalised its electricity sector in the 1990s. A number of challenges ensued post-liberalization as prices fluctuated significantly and the government struggled to meet its targets to procure new renewable electricity generation. While renewables policies have long played a role in the province, a turning point occurred in 2009. After significant consultation and lobbying by environmental, renewables and community actors the province brought in the Green Energy Act (GEA, formerly Green Energy and Economy Act). The policy goals from the preamble were as follows:

“The Government of Ontario is committed to fostering the growth of renewable energy projects, which use cleaner sources of energy, and to removing barriers to and promoting opportunities for renewable energy projects and to promoting a green economy. The Government of Ontario is committed to ensuring that the Government of Ontario and the broader public sector, including government-funded institutions, conserve energy and use energy efficiently in conducting their affairs. The Government of Ontario is committed to promoting and expanding energy conservation by all Ontarians and to encouraging all Ontarians to use energy efficiently” [53].

Through these efforts the province phased out its coal-fired generation capacity in 2014 (a year ahead of schedule) and has the highest investment in new renewables generation in Canada. These goals of renewable energy growth and conservation were to be met, in part, by the implementation of a feed-in tariff system. According to the former Minister of Energy and Infrastructure at the time “Ontario is committed to a Green energy future, one in which all of us can take part. Green energy can create long-term revenues and employment opportunities for First Nation and Métis communities. Working together, Aboriginal communities, with other investors and the government can unleash valuable renewable energy resources” [54]. The GEA initially included local content requirements for solar and wind projects on the basis that these would help to stimulate a green energy economy in the province [55]. What was particularly notable about this FIT in the North American context was that it also included a one cent per kilowatt hour adder (extra payment) for community-owned projects, and 1.5 cents for Aboriginal and First Nations power. Updates in 2014 brought in Community Capacity grid Set-asides (CCSAs). These set-asides arose out of a challenging context for community actors in the province, with significant parts of the grid reserved for

generation nuclear generation. This resulted in delays and cancellations of some community projects after long-waiting periods, including the 20 MW Lakewind project in Ontario. This partnership between LakeWind Power Co-op and Countryside Energy Co-op stalled after completing feasibility studies, collecting wind data and securing land for the project due to reserved grid capacity constraints.

While there have been many updates of the Ontario program, including a new Energy Partnerships Program in 2015 (consolidating the Community Energy Partnerships Program, Municipal and Public Sector Energy Partnerships Program, Aboriginal Renewable Energy Fund, and Aboriginal Transmission Fund), the policy commitment to financially supporting these projects remains. In the case of renewable energy projects with 15% community participation the Independent Electric System Operator in the province outlines the rationale for targeted financial support:

“Participation Projects receive incentives to participate because these Projects have additional barriers and higher project costs than other projects driven by commercial developers. An additional price incentive is available to these Projects to help ensure they are financially viable. Additional incentives and support mechanisms are intended to help level the playing field for groups that would otherwise be excluded from developing renewable energy Projects” [56].

As Table 5 illustrates, other provinces have also been active in the development of CE supports, but none with the financial commitment or longevity of Ontario. Some of this can be attributed to the electoral success of the governing Liberal party since 2003 (Section 5.2), as they have avoided the ideological swings experienced in New Brunswick and Nova Scotia over the past decade.

Community energy policies have also increasingly target their support specifically at First Nations actors, as in the case of British Columbia, Yukon and New Brunswick policies [57]. These communities are more likely to be rural, diesel powered and isolated, increasing the benefits of developing new local renewables capacity. In Manitoba, the community geothermal credits were used to develop district geothermal heating in Fisher River Cree Nation and Peguis First Nation in 2013 and 2014. This project prioritized the training of local people do do the installation and maintenance work, saving residents an average of \$1000 per year on heating costs. It is financed with a Pay as You Save (PAYS) initiative by the public utility, Manitoba Hydro, which deducts retrofit costs from power bills over a 20–25 years period, rather than requiring payment in advance. According to the Peguis nation Chef, this “... financing program allowed us to install the geothermal without having to divert dollars from other important areas like housing” [58,59]. These retrofit initiatives were developed by Aki Energy, a social enterprise, working together with the Assembly of Manitoba Chiefs, Green Communities Canada and the Manitoba Geothermal Alliance [60].

## 5.2. Politics: Electoral Tides

Despite a number of successful initiatives, policy reversals and amendments have also scaled back the scope, payments and support for CE in response to changes in governing parties and challenges over program costs. For example, following the United Kingdom election in 2015, which resulted in a Conservative majority government community energy policies were scaled back, including the payment rates for local projects [61]. In the case of Ontario (Canada), program changes emerged in response to the WTO challenge over domestic subsidies and the NAFTA challenge [62,63]. Elections bring with them new opportunities to draw public and media attention to an issue, put new items on a policy agenda and advocate for removal or adoption of policies. Policy uncertainty in the energy sector is particularly problematic given the long time frames needed for significant transformation of generation sources and infrastructural investments. For community actors without deep pockets trying to develop new models of organizing and demonstration projects for energy democracy, setbacks are especially frustrating. These can come in the form of cancelled contracts or programs, grid constraints, small project size caps, or reduced feed in tariff rates.

Table 6 demonstrates the stability (British Columbia and Ontario) and instability (Nova Scotia and New Brunswick) in Canadian provincial politics where significant energy policy decisions are made. In two provinces, major changes took place in recent years, with the left-leaning NDP ending more than 60 years of conservative rule of the province of Alberta in 2015 and the Conservatives doing the reverse in Manitoba in 2016, ending 17 years of NDP rule. Broadly speaking, the New Democratic Party (NDP) and Bloc Québécois sit on the center-left of the political spectrum, with the Liberal party on the center right, followed by Progressive Conservatives (PC), Yukon Party and Saskatchewan Party on the right of the spectrum. Nunavut and the Northwest Territories are not included in the table as they govern on the basis of consensus democracy and do not have political parties.

**Table 6.** Governing Party and Elections by Province and Territory.

Jursidiction	Governing Party	Date Elected (Incumbent)
British Columbia	Liberal Party	2001 (NDP)
Ontario	Liberal Party	2003 (PC)
Saskatchewan	Saskatchewan Party	2007 (NDP)
Prince Edward Island	Liberal Party	2009 (PC)
Nova Scotia	Liberal Party	2013 (NDP); 2009 (PC)
New Brunswick	Liberal Party	2014 (PC); 2006 (Lib)
Québec	Liberal Party	2014 (PQ)
Alberta	New Democratic Party	2015 (PC since 1971)
Canada	Liberal Party	2015 (PC)
Newfoundland and Labrador	Liberal Party	2015 (PC)
Manitoba	PC Party	2016 (NDP since 1995)
Yukon	Liberal Party	2016 (Yukon Party)

Electoral changes in Canada have had a significant effect on community energy initiatives. For example, the (then) newly elected 2009 NDP government in coal-reliant Nova Scotia brought in a Community Feed-In Tariff (COMFIT) program, which operated from 2011 to 2015. It included preferential purchase rates and connection rules for municipalities, First Nations, co-operatives, not-for-profits, and Community Economic Development Investment Funds (CEDIFs) [64]. Originally set up to procure 100 MW of community power from wind, tidal, microhydro and biomass sources, 125 MW were installed as of 2015 with a further 100 MW expected to come online in future. The vast majority of approved projects (98 of 121) were for wind turbines [65]. The COMFIT covered a range of sources and provided certainty over connection access and financing for community actors. According to one analyst, “COMFIT projects in the end did not produce a lot of energy, but it did help in winning over the public” [66]. The COMFIT program was cancelled following the 2013 election of a Liberal government with a mandate for fiscal responsibility and a government initiated program review stating that the program was “creating upward pressure on power rates”. It also argued that while Nova Scotians supported a transition to renewables from coal this was not “at any cost” [63,67]. Power rates are an important electoral issue in the province, as they are some of the highest in Canada.

The province of New Brunswick also announced CE policy supports in 2010 following Ontario’s GEA, but with a community adder for CRE was generally acknowledged as far too low at 10 cents a kilowatt hour with no price differentiation based on source of generation [8,68,69]. There was no significant uptake as local communities were unable to secure project financing on those terms. As with Nova Scotia, cost considerations were cited as the reason for cancellation of the province’s CE program. A re-elected Liberal government in 2014, however, announced the first call for a new local renewables procurement program (LORESS) based on power purchase agreements with communities and First Nations groups. It received 23 submissions to its 2016 call for projects from aboriginal businesses, with a broader community call for a further 40 MW expected in 2017. New Brunswick does not have a strong CE sector at present. The most notable project is the



Lamèque 45 MW windfarm, developed by Spanish subsidiary Acciona Infrastructure Canada. It was initiated by La Coopérative d'Énergie 4 Renouvelable de Lamèque following 11 years of local consultations with landowners.

Electoral changes from New Democratic Party (NDP) or Liberal governments to Conservative ones, and vice versa, have had a significant effect on community energy policies and may lead to future developments in other provinces including Saskatchewan, Manitoba and Alberta. In the Province of Alberta, the 2015 election unseated more than 40 years of governance by the Progressive Conservatives (PC) and brought in a center-left New Democratic Party. Shortly after, the province announced a carbon price of \$20 per tonne (2017) and phase out of two thirds of coal power generation. Community energy actors in the province are optimistic about the potential for the CE sector with this focus on climate policy and new renewables development (personal communication April 2016). With Alberta's long history of co-operative development in rural electric co-operatives and natural gas co-operatives a strong community utilities sector could support future CE developments in that province.

## 6. Concluding Discussion

In wealthy, developed nations where the climate debt is strongest, political will to make radical energy sector shifts is inconsistent. Decades of international climate agreements continue to produce promises that fall short of the large scale infrastructural shifts that we need to make to keep temperature increases to 2 °C. It is in this space that community energy initiatives have drawn enthusiastic support from policymakers, climate activists and community economic development advocates alike. Local engagement in energy projects is theorized by environmental scholars to strengthen the quality and effectiveness of energy transitions. This optimism is prompted by social research on environmental preference formation and also from the economic potential of new "green" industrial opportunities for community-level actors. Community energy—co-operative, non-profit, municipal and Indigenous—projects have recently emerged out of this context. This article has illustrated a history of community energy policies and projects in Canada. Enthusiasm for the development of a form of energy democracy certainly exists, where control over siting, sources and profits shifts from centralized and large-scale entities to smaller and local ones [1]. In particular locales in the country, such as isolated rural and Indigenous communities, there are emergent funding channels and the case for localized infrastructure is obvious. In other parts of Canada, the picture is more complex, as these transitions are taking place as part of a larger privatizing move toward independent power producers.

In theory, community energy policies and projects have much to recommend them. They engage new actors in the planning, developing and provision of power services. In practice, they can rest uneasily within the conflicting interests (national and international, public and private) represented in contemporary energy systems. Community initiatives are also accompanied by significant challenges of political will, policy design and implementation. Local actors do not operate on a level playing field with large private energy companies or with centralized state-owned ones, so the uptake of community renewables differs greatly among jurisdictions and is dependent on targeted policy interventions, human and financial resources, and political culture. Political instability and policy reversals can adversely affect the development of these nascent sectors. The 2016 EU referendum vote in the UK illustrated spectacularly how volatile policy systems can be.

Local empowerment, environmental justice and liberalized markets are not easy bedfellows; the tensions that are emerging in the practice of CEP development and CE policy implementation raise important questions for theorists and practitioners alike. A political economy perspective on this sector challenges use to think beyond the sector to how CE policies and projects fit within broader systems of power and accumulation. Community energy systems may bridge some traditional political fissures through mixed governance modes—use of both public and private funds and distribution of benefits to wider group of society—but they do not escape them. They represent a particular normative vision of good governance, one that conflicts with key tenets of the

international trade regime. If scaled up, community energy undermines the profitability of the renewables sector for incumbent energy actors and requires the political commitment of the state to local needs and development over ostensibly “free” markets for capital, goods and services. Ultimately, macro-level political analysis of the community sector is vital for future research, as a strong vision of community energy represents a significant political project, not just a local technological one.

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