POWERSHIFTS: The impact of decentralized ownership of renewable energy on political power structures

Marie Claire Brisbois
Copernicus Institute of Sustainable Development, Utrecht University, Utrecht, the Netherlands,
m.c.g.brisbois@uu.nl

Abstract:

Individual, community and co-operative renewable energy (CE) producers are capturing a growing share of energy markets. As this share increases, CE producers are becoming increasingly effective political actors. The traditional political privilege enjoyed by incumbents is challenged by CE actors as they shift control over jobs, growth and energy supplies. Political struggles between competing interests are increasing. However, the nature and extent of these power shifts (e.g. changes in access to politicians, media influence), and their consequences for political systems and their outcomes (e.g. contested carbon targets, renewable energy subsidies) are poorly understood.

This paper develops and tests an approach for understanding how power shapes the political processes that govern transitions. Using an approach grounded in theory on policy, transitions, power and institutions, the paper develops a set of power queries that help reveal how political power is changing and constraining or enabling transitions. The framework is applied to a case of political conflict over electricity in Canada. Findings reveal a stagnant system but also suggest potential transition pathways. This case is one of four examined through the POWERSHIFTS project. This project uses the approach presented to address questions about the socioeconomic and political impacts of the changing energy landscape.

Introduction:

The ongoing energy transition is upending historic social, economic and political relationships (Stirling 2014; Raven et al. 2016). Previously dominated by politically powerful centralized energy interests, western energy systems are increasingly integrating new, decentralized actors (Koirala et al. 2016; Burke and Stephens 2017). The majority of these new actors are commercial renewable energy producers who operate according to profit maximizing business models (Kelsey and Meckling 2018). However, there is a significant, and growing, market segment controlled by municipal, community and co-operative groups (REN21 2017). These community energy (CE) groups are interested in financial returns, but also pursue community development, local energy security, and democratization of energy systems (Burke and Stephens 2017; Bauwens, Gotchev, and Holstenkamp 2016; Soutar and Mitchell 2018). Significantly, they are not usually legally bound to grow or generate profits for shareholders in the same way that traditional and commercial renewable energy producers are (Becker, Kunze, and Vancea 2017). As CE actors capture a greater fraction of market share, these fundamental differences in motivation have the potential to transform socioeconomic and political structures (Raven et al. 2016; Stirling 2014; Meadowcroft 2009; Nevens et al. 2013).

This paper provides a framework, and initial empirical evidence, to examine a) if traditional political power structures are shifting to give more voice to CE interests; b) exactly what these political power shifts look like (e.g., different policy outcomes, changing political discourse); and c) what the outcomes of these shifts will be for political and energy systems (e.g., stricter carbon policies, subsidies for renewable energy). These questions have been the subject of intense academic (e.g., Geels 2014; Burke and Stephens 2017; Stirling 2014) and industry (e.g., International Energy Agency 2015) speculation. However, as yet, there has been little empirical testing (Kelsey and Meckling 2018; Raven et al. 2016). This paper provides initial evidence through an examination of political conflict over the use of the electricity grid in Ontario, Canada. The case is one conducted through the larger POWERSHIFTS project (www.power-shifts.com). POWERSHIFTS uses the framework presented in this paper to generate robust empirical evidence regarding the potential of decentralized ownership of renewable energy to shift entrenched political power structures.

Energy producers have historically exercised significant political influence (Unruh 2000; Mitchell 2011). This influence is enabled and entrenched through, for example, input into the development of regulations, and the production of the technical and economic evidence that is used to ground policy decisions (Fuchs 2007). This has resulted in what Johnstone et al. (2017) have termed "deep incumbency", where state interests become so enmeshed with those of incumbent firms that it becomes difficult to conceptualize a functional state in the absence of those companies. However, as CE captures increasing market share, these smaller energy-producing interests are increasingly developing political connections and lobbying capacity (Hess 2014; Rutherford and Coutard 2014). Many CE actors now actively attempt to influence government decisions, with varying degrees of success, on energy policy development and implementation (e.g., renewable energy subsidies, grid reforms). This takes place either individually, or through formal or informal lobby groups (Huybrechts and Haugh 2017; Stirling 2014).

Incumbent producers – those who have dominated energy production over the past centuries – increasingly recognize the threat to their interests. This has created significant political struggle (Geels et al. 2016). Conflict is playing out in, for example, courtrooms (Hess 2016), political arenas (Smink, Hekkert, and Negro 2015), and efforts to frame new energy systems as unstable (e.g., Royal Dutch Shell 2013). These struggles attest to the potential that changes in the ownership of energy systems have to transform entrenched political power relations, and consequent political outcomes (Raven et al. 2016; Stirling 2014; Meadowcroft 2009; Nevens et al. 2013).

The potential for shifts in political outcomes reflects the underlying importance of power in the study of transitions (Geels et al. 2016; Avelino and Wittmayer 2016). The POWERSHIFTS framework is grounded in theories of power and draws additional insights from policy studies, institutional theory, and transitions. Power theorists suggest that shifts in political power occur as multiple forms of power interact and shape political arenas (Lukes 2005; Clegg and Haugaard 2009; Haugaard 2012). Policy studies examine political power as a function of the ways actors organize and build coalitions in pursuit of mutual goals (Sabatier and Weible 2016; Howlett, Ramesh, and Perl 2009; Hess 2014). Institutional theory argues that political power shifts as the beliefs and practices that "regula[te] behaviour and provide opportunity for agency" transform over time (Thornton and Ocasio 2008:102; Fuenfschilling and

Truffer 2014; Lockwood et al. 2016). According to transitions scholars, political power shifts can occur as actors interact and successfully move social and technological innovations from the niche level (protected spaces for social and technological innovation) to the regime level (collections of institutions developed around particular social and technological practices) while being influenced by the landscape level (the entrenched cultural, geographic and demographic variables within which regimes operate) (Geels et al. 2016; Raven et al. 2016; Nevens et al. 2013).

The POWERSHIFTS framework, presented in the next section, is designed to test the above theoretical propositions, identify which insights are relevant from each, and assess how they can be usefully combined. In application, the framework provides novel insight into why and how power shifts occur, and into the expected consequences. Following the development of the framework, proof of concept is provided through application to a case of political conflict over electricity policy in Ontario, Canada. In this case, results revealed that political power shifts have stalled in Ontario, largely due to successful electricity system decarbonisation efforts that have re-entrenched incumbent nuclear producers as dominant system actors. However, analysis also revealed nascent transition pathways with the potential to significantly transform the electricity system in Ontario.

A framework for the study of political power in renewable energy transitions

This framework guides analysis in the pursuit of three objectives: to a) explore if traditional political power structures are shifting as CE transitions expand; b) explain the mechanisms through which this is occurring, and; c) explore the consequences of potential shifts for political systems and outcomes. Theories on power, policy process, institutions and transitions are used to describe existing patterns of political influence. This perspective is then used to develop specific, tangible queries for analyzing how power is operating within political arenas that are negotiating CE transitions. Finally, the queries are used to shape reflections on how political influence is changing and what the larger consequences of this may be for political systems and outcomes.

Transitions scholarship to date has drawn upon different perspectives to examine power. For example, scholars have developed frameworks drawing from the works of Mann (2012) (e.g., Avelino 2017), Giddens (e.g., Grin, Rotmans, and Schot 2010) and Foucault (e.g., Gailing 2016). Each of these perspectives highlights important power dynamics using different definitions and approaches. This plurality is characteristic of Clegg and Haugaard's (2009) "family resemblance" approach to power. The family resemblance perspective acknowledges that there are different interpretations of power that offer overlapping insights into its form (e.g., as structural, military, economic) and nature (e.g., as power "to", power "over", power "with"). Different conceptual approaches emphasize different aspects of power.

For this study, power is defined as the ability of one entity to make another do something they would not otherwise do (Lukes 2005). This view, frequently used in the study of political power, is a view of power as domination (i.e., power over). However, transition studies require that analysts consider the existence and reproduction of current power structures, as well as how power is changing and new actors are being empowered as transitions progress (Partzsch 2017). To capture these dynamics, I use the perspective of power as domination to also highlight spaces for empowerment and change. This is

consistent with arguments from Hayward and Lukes (2008) that this perspective on power can reveal relationships of both domination and empowerment depending upon the way in which it is operationalized.

In this paper, analysis of power, as defined above, is organized across three dimensions, based upon the work of Lukes (2005) and integrating insights from other power scholars (e.g., Akram, Emerson, and Marsh 2015; Bourdieu 1990). This approach is appropriate because it specifically targets political power, and because it is effective at describing situations where small actors threaten the interests of large, entrenched business interests (e.g., Fuchs 2007; Brisbois and de Loë 2017). The three dimensions are interdependent and overlap heavily but provide meaningful categories that allow power to be broken down for analysis (Lukes 2005).

The first dimension, often called "instrumental" power, highlights who wins in policy contests. Analysis highlights the visible, overt exercise of power. This includes instances of coercion, manipulation, and overt differences in the resources that different policy actors have available to them (e.g., financial, institutional) (Lukes 2005). Much of the visible lobbying that occurs in policy settings is captured by this dimension.

The second dimension, referred to as "structural" power, is associated with the structures and institutions that directly shape the exercise of political power (e.g., electoral systems, formal and informal rules, market structures) (Lukes 2005). These structures are reproduced, deconstructed or transformed through the action, or lack of action, of actors over time (Haugaard 2012; Fuenfschilling and Truffer 2016). To study situations such as energy transitions where sociotechnical change is intertwined with economic systems, it is critical to examine the structural roots of the established system (Johnstone, Stirling, and Sovacool 2017; Moe 2010).

Modern capitalist economies are defined by an interdependent relationship between business and governments. Firms depend upon governments to provide the social, legal and physical infrastructure in which they operate (e.g., maintenance of social order, an educated pool of future employees). In return, firms provide governments with many of the services upon which modern socioeconomic and political systems are built. For example, governments depend upon firms to provide jobs, economic growth, taxes and royalties (Lindblom 1977; Lockwood et al. 2016; Moe 2010). In liberalized economies, many firms are also involved in roles that were formerly the sole function of government. For example, many corporations are active in social services and infrastructures (e.g., schools built under public-private partnerships), knowledge and innovation (e.g., corporate funding of universities or industry-run think tanks and labs), and self-policing of their own behaviour (e.g., voluntary reporting) (Newell 2013; Clapp and Meckling 2013).

The central role of firms in modern democratic systems has significant consequences for the structures that shape policy decisions. The close regulatory relationships between incumbents and governments means that these interests have a degree of access to decision-makers that is not necessarily available to others (e.g., interpersonal relationships with senior government agency staff). There is also often movement of personnel through a "revolving door" between government and industry (Fuchs 2007). This facilitates influence and lobbying. In addition, well-resourced firms, and other actors with sufficient

resources, are able to produce knowledge and information resources that are used in policy processes (e.g., environmental contaminant statistics, policy white papers, public information documents) (Lockwood et al. 2016; Smink, Hekkert, and Negro 2015). Multi-national actors also often hold sufficient, although contested, legitimacy as policy actors to work with their industry peers to set the rules that govern their own behavior (Clapp and Meckling 2013).

Particularly for this study and its focus on power shifts, it is important to note that the power of firms is not absolute. The ability of business interests to shape policy depends upon the degree to which firms are able to speak with one voice (Fuchs 2007). The business community is not monolithic but is instead made up of many competing interests. Firms often co-operate but will also compete against each other in policy arenas if it will afford a competitive advantage (Betsill and Stevis 2016). When coalitions approach governments with coherent policy requests, they are much more likely to see policy success in comparison to situations where different interests are requesting different outcomes (Sabatier and Weible 2016). The same is true for CE actors who can consolidate their capacity to influence by cooperating with others (Hess 2016, 2014).

Analysis of "structural" power benefits from specific attention to the above listed dynamics, as well as to specific political and economic characteristics that help to describe who has power in a given economic and political context. Economically, these indicators include the proportion of jobs and market share directly controlled by an industrial sector, and the number of firms that control the majority of the sector. Those firms controlling market share, jobs and growth are usually able to realize their policy interests more easily (Fuchs 2007). Politically, decision making is shaped by the political system in question (e.g., pluralism, corporatism) (Christiansen et al. 2010); the degree of cooperation across divergent interests required by the electoral system (e.g., proportional representation vs. first-past-the-post)(Farrell 2011), and the specific "variety" of capitalism enacted in a given context (e.g., the extent to which market liberalization has been applied to the public sector) (Lockwood et al. 2016; Johnstone and Newell 2017).

In addition to institutionalized political characteristics, the formation and content of policy decisions also depend upon the broad social institutions, norms and values that define the policy landscape. These norms and values are analogous to institutional logics that "regula[te] behaviour and provide opportunity for agency" (Thornton and Ocasio 2008:102). They inform how a given regime passively and actively produces socioeconomic and political conditions. Lukes' third dimension – often called "discursive" power – is concerned with the substance of these logics – the dominant values, norms and ideals that define a given context, and the ways they are constructed, expressed, contested and manipulated.

The third dimension is notoriously difficult to empirically study because it often occurs "inside our heads". However, the underlying logic of this dimension is visible in the actions and decisions of individuals and institutions. Important information on the norms and values that dominate a given context can be gathered by examining these values. Even amongst countries with similar political and electoral systems, driving logics can take vastly different forms. It is therefore necessary to analyze dominant discourses to understand the values and ideas specific to a situation. For example, examining

the ways that politicians justify their decisions on energy policies can give a sense of the logics and themes that dominate a context (Fairclough 2013). Likewise, identifying similar discourses amongst actors can reveal opportunities for coalition development and consolidation of political power (Bosman et al. 2014; Markard, Suter, and Ingold 2016)

Table 1 uses Lukes' (2005) three dimensions (column 1) to organize the mechanisms through which power can operate in CE policy contests (column 2), the specific queries that will help to reveal how and if these mechanisms are operating (column 3), and how they are changing over time (column 4). The content of the table was populated using examples of dynamics that were identified in literature on transitions, or that can reasonably be expected to influence energy transitions because of observed dynamics in other fields (e.g., policy studies, political science). It was inductively refined throughout analysis of the Ontario case to ensure inclusion of all relevant power dynamics (Bloor and Wood 2006).

Table 1 POWERSHIFTS conceptual framework

Power dimension	Concepts of relevance for DRE-related policy contests from power, political and policy process, transitions, and institutional theory	Specific power queries	Implications
1	Influence over outcomes (Dahl 1957; Lukes 2005) Overt coercion or manipulation (Lukes 2005; Dahl 1957)(Geels et al. 2016) Overt resource imbalances (Lukes 2005; Fuchs 2007; Dahl 1957; Geels et al. 2016; Patterson et al. 2016; Smink, Hekkert, and Negro 2015)	1. Who won the policy contest? 2. How are coercion and manipulation used and resisted? 3. What differences are there in resources or capacity between actors (e.g. financial, informational, technical, social, institutional)? 4. Who lobbies, and in what ways? 5. What differences are there in lobbying capacity (either internal or external lobbying)? 6. Who controls policy implementation, and what is the outcome of this?	How have the answers to these questions changed over time?
2	Influence on agenda setting (Smink, Hekkert, and Negro 2015; Shove and Walker 2007) Inclusion or exclusion of actor groups (Avelino and Wittmayer 2016; Meadowcroft 2011) Access to relevant knowledge (Berlo, Wagner, and Heenen 2016; Geels et al. 2016; Smink, Hekkert, and Negro 2015) Influence on knowledge production (Berlo, Wagner, and Heenen 2016; Smink, Hekkert, and Negro 2015; Lockwood et al. 2016) Elite access to policy makers (Berlo, Wagner, and Heenen 2016; Geels et al. 2016; Smink, Hekkert, and Negro 2015; Falkner 2009; Hess 2016; Lockwood et al. 2016) Structural justification for political decisions (Lukes 2005; Bachrach and Baratz 1963; Clapp and Fuchs 2009) (Fuenfschilling and Truffer 2014; Geels et al. 2016; Smink, Hekkert, and Negro 2015; Johnstone and Newell 2017)(Christiansen et al. 2010; Farrell 2011)	7. Who set the agenda for the policy issue in question? 8. Are there relevant issues are excluded from the policy conversation as a result of the framing? 9. Are there voices that are not represented in the formal policy arena? 10. Which alliances or coalitions between actors build upon individual structural power and increase group capacity to pursue common policy goals ? 11. What policy-relevant knowledge is not available to all actors? 12. Which actors control or help produce knowledge that is used in the policy process? 13. Which actors have elite-level access to policy makers that can be used for lobbying or influencing (including through regulatory or social relationships, secondment, or through past employment histories)? 14. What are the primary structural justifications that decision-makers use in making relevant policy decisions? 15. How much of the market share do different actors groups capture relative to the relevant resource? 16. What proportion of jobs are directly controlled by a given industrial sector? 17. What is the nature of the political system in question	

		(e.g., pluralism, corporatism)? 18. What is the degree of cooperation across divergent interests required by the electoral system (e.g., proportional representation vs. first-past-the-post)?
3	Influence over discursive tools such as media (Berlo, Wagner, and Heenen 2016; Geels et al. 2016; Smink, Hekkert, and Negro 2015)	19. Are there efforts by some actors to influence public value, ideas and norms (e.g., through the media)? 20. What are the logics used by different actor groups in defining the policy issue, and in justifying their interests or decisions? 21. Are there discursive alignments between different actor groups? 22. Do the dominant discourses and logics employed by decision makers favour some actor groups over others?
	Nature and evolution of competing socioeconomic and political discourse (Lukes 2005; Foucault 1989; Fuchs 2007)(Geels et al. 2016; Smink, Hekkert, and Negro 2015; Raven et al. 2016; Lockwood et al. 2016; Johnstone and Newell 2017) (Lukes 2005; Gaventa 1982; Hayward and Lukes 2008; Hajer and Wagenaar 2003; Avelino 2017)(Thornton and Ocasio 2008; Fuenfschilling and Truffer 2014; Christiansen et al. 2010)	
	Discursive alignment between groups that enables the creation of interest-based coalitions (Hess 2014, 2016; Sabatier and Weible 2016; Bosman et al. 2014)	

Political Contestation Over Grid Access and Use in Ontario, Canada

The framework was tested using empirical data from a case study examining political conflict over electrical grid access and use in Ontario, Canada. This political arena was chosen because it is a key battleground where incumbents and commercial renewable energy actors often have divergent interests from CE interests (Burke and Stephens 2017). The analytical lens encompasses dynamics occurring over approximately the past 10 years. This time frame has been selected because many grid access and use policies are relatively new, and because there has been a significant increase in CE diffusion in the past 10 years (REN21 2017).

Case

Ontario is Canada's most populous province (14 million) and accounts for 39% of the nation's GDP. Manufacturing currently accounts for 12% of GDP. Service-based industries account for 78% (Ontario Ministry of Finance 2018). Energy in Canada is under provincial jurisdiction. In Ontario, this responsibility is administered by the Ministry of Energy. The electricity system was under public ownership until 1998 when the sitting government introduced privatization measures. At that time, the various tasks of the former central electricity entity, Ontario Hydro, were unbundled to create Ontario Power Generation (OPG) (responsible for provincially owned generation), the Independent Electricity System Operator (IESO) (the electricity market coordinator), the Ontario Energy Board (OEB) (the system regulator), Hydro One (a transmission and distribution utility), and other entities responsible for debt financing and safety (IESO 2018a). Many distributors, hereafter called utilities, were under municipal ownership and regulated by the former Ontario Hydro until 1998 when the province liberalized markets. There are now 70 provincial utility corporations. However, many municipalities retain either all, or majority, shares of their local utility (EDA 2018).

Ontario's electricity supply was largely decarbonized through the phase out of coal plants by 2014. Large scale nuclear and hydro provide the bulk of supply (63% and 25.8% respectively). Gas (including biogas), wind, and solar provide the balance (4.4%, 6.4%, 0.3% respectively) (IESO 2018b). Much of the electricity-associated labour force in Ontario is organized under the Power Workers' Union (PWU). This union represents over 15,000 workers, about 70% of the unionized electricity workforce, at about 50 different utility, generation, and system operation companies (PWU 2018). The Society of United Professionals represents 8,000 engineers, scientists, supervisors and lawyers. Membership is primarily composed of people working in the energy sector (Society of United Professionals 2018). Both of these unions are very active in the policy arena.

The 10 year time frame of analysis captures debate over grid access and use in the (2009) *Green Energy Act* (*GEA*), and the (2017) Long Term Energy Plan (LTEP). The *GEA* focused on feed-in tariffs (FIT) for renewable energy, energy conservation, and the creation of green manufacturing jobs. The *Act* was controversial because of its high FIT rates, public opposition to the siting of industrial wind farms enabled through the Act, and a "made in Ontario" clause that eventually ran afoul of WTO regulations. It has been intensively studied (e.g., Stokes 2013; Rosenbloom and Meadowcroft 2014). These analyses are used to supplement findings collected through this study.

The Long Term Energy Plan (LTEP) is an iterative 20 year planning and forecasting document. The first LTEP was completed in 2010 and was updated in 2013. Released in October 2017, the latest version incorporated perspectives gathered through formal submissions to the provincial Environmental Registry, an online survey, and in-person stakeholder engagement sessions. Through this process, public and CE interests expressed a desire for government to generally enable decentralized generation, including through virtual net metering (VNM) and 3rd party ownership of renewable generation assets on another property (Ministry of Energy 2018). VNM allows actors to receive credit for energy fed back into the grid from a project that is not located on-site. VNM can also include projects that have a number of investors who share the credit received for energy fed back to the grid (e.g., a community owned windmill located on land owned by someone else).

Net metering regulation has existed in Ontario since 2005. Currently, relevant regulation requires that utilities connect net metered projects that are generated from renewable sources, and where the energy generated is consumed primarily on-site (Government of Ontario 1998). Current regulation does not allow VNM or 3rd party net metering.

Data Collection and Analysis

Data was collected over a 4 month period from January to April 2018. Sources included 17 interviewees and 55 documents. Interviewees included representatives from organizations that were involved in the *GEA*, and LTEP processes from co-operative renewable organizations; utilities; renewable, CE and incumbent industry lobbies; hydro, gas, nuclear and renewable producers; and key political advisors. Document evidence included official lobbying records; invited formal submissions to policy processes; provincial laws and regulations, ministerial directives to energy agencies, commissioned reports and press releases; media articles and opinion pieces; paid advertising; reports from the Ontario Auditor General; and interest group reports or white papers on electricity policy. The provincial bureaucracy declined to participate in interviews but contributed significant document evidence. Unions also declined to participate. Data on union policy ambitions and institutional logics were gathered through their policy submissions and comments, and their media content. Data on government decision making was gathered through examination of official policy documents, press releases, and official statements.

Interviews were recorded, transcribed, and returned to the interviewee for review. Finalized transcripts were coded in NVIVO. Table 1 presents both themes predicted by theory, and those that emerged inductively through the coding process. For example, the original power framework did not specifically note Theme #6 on policy implementation. However, results revealed that power exercised throughout the implementation process had a significant impact on outcomes and the framework was modified accordingly. Results were synthesized into key findings. Case specific dynamics mean that not all categories listed in Table 1 were populated. However, the full table is included because the dynamics listed are expected to be relevant in cases beyond this proof-of-concept.

Results

<u>Policy “Winners” and “Losers”</u>

An assessment of who "won" the policy contest was determined by comparing the outcomes sought by different actors with policy decisions. For example, the Green Energy Act Alliance (GEAA) – a broad coalition of environmental, farmer, labour, Indigenous, and renewable energy groups – were successful in achieving the FIT and domestic content rules in the *GEA* (Stokes 2013). However, those "wins" have since been reversed. The domestic content rules were deemed to have violated free trade agreements and were rescinded (Government of Ontario 2009). The FIT program ended after 7 years in the face of significant opposition from the incumbent system, and public pushback against wind. As one CE actor explained, [The grid operator was] forced to buy from people they don't want to deal with, at prices that they did not want to pay. …[Now] they've gone back to the monopoly, buying from the bulk energy supply group. (ON2)

Despite its eventual demise, seven interviewees, and reports to government (i.e., Compass Renewable Energy Consulting Inc. 2017) were clear that the *GEA* allowed the development of capacity in renewable energy and CE in Ontario that would not otherwise exist. The GEAA was unsuccessful in securing resources to allow communities to take advantage of the opportunities provided by the FIT. This had significant consequences for implementation and the current capacity of CE actors – discussed below.

For the 2017 LTEP, four CE interviewees and four institutional CE LTEP submissions were consistent in requesting a long term net metering strategy that allows both virtual and third party net metering, creates rules that utilities must offer consistent net metering opportunities, and that utilities should be supported in building capacity to accommodate net metering and distributed generation. These CE interviewees stated that their mid-term goal is to have the government establish a dedicated proportion of the provincial energy supply set aside for CE to allow the industry to develop. Renewable energy lobbies also requested a robust net metering strategy. The Electricity Distributors Association – the lobby group for utilities – additionally requested a guarantee that new infrastructure costs would be accounted for.

Incumbent actors did not usually reference CE, distributed generation, or net metering in their formal submissions. They instead recommended maximizing the use of existing nuclear and hydro assets (e.g., Society of United Professionals, Canadian Nuclear Association LTEP submissions) and, in the case of PWU, omitting renewables completely from future supply options. One interviewee from the incumbent generation side asserted that net metering was likely to be "a disaster", citing concerns that net metering would exacerbate income inequality in the province – a discursive theme discussed below.

The final 2017 LTEP addressed VNM by proposing a limited number of "demonstration" projects, and by recommending further study (LTEP 2017). This outcome delays decisions on VNM until after 2020. There is no robust net metering strategy, no generation set-asides, and no provisions for utility recovery of grid costs. In the interim, the LTEP supports ongoing refurbishment of nuclear reactors, consistent with LTEP submissions and lobbying requests from incumbent producers and unions (e.g., OPG, Bruce Power, Canadian Nuclear Association, PWU, Society of United Professionals).

<u>Resources for Political Contests</u>

There are significant differences in the technical, institutional, and financial capacities between incumbent, commercial renewable, and CE interests, and the government agencies themselves. When the *GEA* was passed, there was very little technical capacity amongst commercial renewable and CE actors. This lack of capacity, especially on the part of CE actors, impacted *GEA* implementation. For example, FIT contracts were awarded on a first come – first served basis. This meant that actors with existing capacity were able to quickly submit applications and secure contracts. The lack of community set asides – these were not added until 2012 when it became apparent that CE could not compete with better resourced interests – meant that established interests were able to secure 73% of available contracts in initial FIT offerings (MacArthur 2016).

There have been significant changes in capacity in the past 10 years. The *GEA* supported the development of a successful commercial renewable sector, and a small but robust CE sector. However, financial and institutional resource imbalances remain. For example, the CE lobby, Federation of Community Power Cooperatives (FCPC) is volunteer-run. In contrast, the Canadian Nuclear Association and PWU have significant resources. The PWU, OPG and Canadian Nuclear Association all have the capacity to purchase advertising in major provincial and national newspapers to defend their interests (e.g., Pepper Media 2018). Ads in major national newspapers run between $13,000 and $1,250,000 CAD for a single page ad (Globe and Mail 2017). Renewable energy lobbies are able to employ limited staff (5-10 people) but regularly referred to resource constraints relative to incumbent actors during interviews.

Lobbying Activities and Strategies

All sectors interviewed lobby for their interests in some way, and participate through formal submissions in policy process. Incumbent lobbies such as the Canadian Nuclear Association, Association of Power Producers of Ontario (APPRO), and Electricity Distributors Association (EDA) are active in external lobbying through media campaigns or public education platforms (e.g., Electricity Distributors Association 2018a; Pepper Media 2018). Incumbents also referenced invitations to participate in high level regulatory and policy discussions, and invitations to present to the Premier, Ministers, and regulatory agency staff. Commercial renewable lobbies such as the Canadian Wind Energy Association (CanWEA) and the Canadian Solar Industry Association (CanSIA) also meet with politicians and bureaucrats, and are invited to participate in policy conversations. These actors also sometimes employ more grassroots strategies. CANSIA has, for example, organized political letter writing campaigns amongst their members to reinforce specific positions. Unions lobby extensively through formal processes and meetings with politicians. They also conduct a significant amount of external lobbying including through radio and newspaper ads, educational online content, and newspaper opinion pieces (Power Workers Union 2018).

Resource constraints are obvious in the lobbying activities of CE actors. Results from four CE interviews revealed that they request meetings with politicians and bureaucrats, instead of being invited. They also use external lobbying in the form of newspaper opinion pieces or articles on their projects to generate awareness of CE. The FCPC relies on member volunteer time to draft submissions to policy processes.

Overt Coercion or Manipulation

Examples of overt exercise of power were limited through the methods employed. Three interviewees noted problems with *GEA* implementation Hydro One simply refusing to connect projects, citing technical reasons that could not be independently verified because grid operators control the relevant information (Spears 2011; IESO 2018a). This will be discussed with reference to knowledge control below.

Institutionalized Political and Market Structures

Case specific structural characteristics such as electoral systems and market ownership are presented as results because they explain and reinforce many of the dynamics that drive power relationships. Ontario is a liberal market economy that operates under a first-past-the-post electoral model. In Canada, this has generated an adversarial form of politics (Cody 2008). Eight interviewees observed that opposition to energy policy proposals was often based upon partisan divisions rather than on the issues themselves.

Table 2 provides a percentage breakdown of ownership, resource type, and employment for generation, distribution, and transmission (as available) for the most significant entities only. Almost 50% of electricity generation is publicly owned and managed through OPG. The remainder is owned by private shareholders or entities. On the utility side, HydroOne controls 26.5% of distribution and 98% of transmission. Of the 70 utilities, most are wholly or partially owned by municipalities linked to their service areas (IESO 2018a).

Table 2 Ownership, resource type and employment numbers for electricity generation, distribution and transmission in Ontario (as available)

Total Generation– approximately 33,300 MW[1]			
Major Entities	**Ownership**	**Market Share Installed Capacity**	**Employees**
Ontario Power Generation (OPG) – nuclear, hydro, gas, biogas, wind[2]	Crown Corporation owned by Province of Ontario	16,210MW	10,000
Bruce Power – nuclear	Site and assets are owned by OPG and leased to a private company owned by TransCanada Corporation (48.5%), OMERS Infrastructure Management (48.5%), Employee Unions (e.g., PWU) (2.6%) and Employee Trusts (e.g., The Society of Energy Professionals) (0.4%) (2016 data)	6,300 MW	4,200
TransCanada[3] **– natural gas, wind**	Private	4,138 MW	-
Greenfield Energy Centre – natural gas[4]	Private	1,005 MW	-

[1] IESO. Ontario Energy Report: Q1 2017. www.ontarioenergyreport.ca/pdfs/6081_IESO_OER2017Q1_Electricity_EN.pdf.

[2] OPG. About OPG. www.opg.com/about/Pages/about.aspx. Accessed 10-5-2018.

[3] TransCanada. Ontario Power Market. http://gorewaypowerstation.com/ Accessed 10-5-2018.

Goreway Station – natural gas[5]	Private	874 MW	-
All CE – wind, solar, and biogas[6]	Co-operatives, municipalities, and First Nations)	210 MW	-
Distribution			
		Percentage of customers (of 4.9 million total customers)[7]	
Hydro One[8]	49% Public, 51% private	26.5%	5,500
Alectra[9]	Municipal	19.6%	1,600
Toronto Hydro Electric[10]	Municipal	15.5%	1,480
Transmission			
Hydro One	49% Public, 51% private	98% of provincial capacity	5,500

Agenda Setting

While detail on agenda setting related to net metering was limited, five interviewees referenced the fact that the commitment of the provincial government to refurbish nuclear reactors has defined electricity policy in such a way that it is possible to argue that there is no need for CE producer electricity. There was no relevant data on inclusion or exclusion of ideas or actors. In the absence of interviews, data on the category examining the structural characteristics that policy makers consider was gleaned from documents. In this case, the nature of this information is captured by results on decision-maker logics and will therefore be discussed below.

Coalitions

The value of broad coalitions who can pool resources and advance a common political discourse was apparent in the development of the *GEA*. The alignment of environmentalists, Indigenous groups, municipalities, farmers, and manufacturing unions – the GEAA – represented an unlikely but ultimately effective coalition. However, the GEAA broke down following the passage of the *GEA* as a result of conflict over the siting of large wind projects (Ontario Society of Professional Engineers 2016), a lack of funding and competition amongst members for FIT contracts.

In the 2017 LTEP process, there was little formal alignment between actor groups with an interest in more progressive net metering policy. In particular, the CE industry noted that their interests don't

---

[4] Calpine. Greenfield Energy Centre. http://www.calpine.com/greenfield-energy-centre. Accessed 10-5-2018.

[5] Goreway Power Station. About. http://gorewaypowerstation.com/. Accessed 10-5-2018

[6] Toronto Renewable Energy Co-op. 2015. "The Power of Community." Toronto.

[7] IESO. 2016 Annual Report: Reliability in a Changing Sector.

[8] HydroOne. Quick Facts. www.hydroone.com/about. Accessed 10-5-2018.

[9] Werner, Kevin (January 16, 2017). "Horizon Utilities becomes Alectra creating second largest municipally-owned utility in North America". Hamilton Community News. Metroland Media Group. Retrieved 10-5-2018.

[10] Toronto Hydro. 2015 Annual Report.

necessary align with commercial renewables on net metering policy: “as far as [commercial renewables] are concerned, it doesn't matter who owns it as long as they get the business to sell a solar system. They make the money out of selling the systems, not selling the power” (ON25).

The contentious but prominent role of nuclear power in the Ontario energy system (60% of generation) also affected cooperation amongst environmental groups. CE, commercial renewable, and nuclear industry interviewees all noted that Ontario’s nuclear capacity means there is little room on the grid for CE expansion. However, evidence of active opposition to nuclear was not visible in LTEP submissions. Three interviewees noted that environmental groups have been unwilling to take on nuclear because of its entrenched position, and contribution to a decarbonized electricity system.

Knowledge Control

Interviewees highlighted the role of information asymmetries related to electricity distribution. Utilities, by virtue of their operational role, hold critical technical information. According to interviewees from utilities, CE and commercial renewables, utility control of distribution and grid information provides them with the capacity to shape the information used in policy, and policy implementation. In particular, the government depends on utilities to provide information on the ability of the grid to accept new decentralized or intermittent generation. According to one commercial renewables interviewee, “utilities, essentially, have the trump card… in order to challenge utilities, you need to have the original information. Utilities do not share that information” (ON13). Moreover, the OEB, IESO, OPG and HydroOne also hold technical information that is required for policy making. By virtue of their regulatory and operational functions, and their link to the former Ontario Hydro, these agencies are all closely associated with incumbent industries and associated logics, to be discussed below. As one political insider noted, “…if information is wrong or dated or one-sided the [government] won't push back on it because if they push back on it, the agencies will just close off. Then they can't do their job.” (ON44).

Some actors also have the capacity to produce reports or policy white papers that are used to inform government policy processes. For example, the EDA was invited to prepare reports for the provincial government on integration of distributed generation into the grid (Electricity Distributors Association 2017, 2018b), the Society of United Professionals produced a detailed report arguing that intermittent renewables are only valuable in displacing GHG intensive energy (Ontario Society of Professional Engineers 2016), and the Toronto Renewable Energy Co-op produced a report outlining the benefits of community power (Toronto Renewable Energy Co-op 2015).

Personnel Sharing and “Revolving Doors”

The movement of personnel between incumbent industries (i.e. OPG, HydroOne), political or bureaucratic offices, and the energy agencies (i.e. OEB, IESO) was referenced by one interviewee from within industry, two political insiders, and two CE interviewees. Results reveal that the logics that dominate this group of actors, discussed below, favour a centralized energy system. According to one CE interviewee, “it's such a revolving door...It's an old boys' club who understand power in a certain way” (ON3).

There is also personnel overlap between incumbent energy producers, governments, and the boards of the solar and wind lobbies. According to a CE interviewee, "their boards are populated by some of the legacy energy players in Canada… so their ability to actually do any hard-edged advocacy or to defend the sector has basically not been there" (ON27). The boards of both CanSIA and CanWEA contain personnel who have either current or past positions with incumbent energy companies.

Elite Access

Three incumbent, two political insider, and two CE interviewees acknowledged the close relationships between incumbent actors and provincial government that are a legacy of the former public monopoly control of the electricity supply and distribution system. These relationships are layered on top of the access inherent in the structural positions of incumbent generators and distributors. According to one incumbent industry interviewee, "we're obviously plugged into the Ministry of Energy" (ON47).

CE actor access to policy makers was quite high leading up to the passage of the *GEA*. At this time, politicians themselves were advocating for CE interests (e.g., Legislative Assembly of Ontario 2009). This influence has since decreased. However, four CE interviewees noted that the participatory, grassroots nature of CE does afford them some political traction. As one explained, "because we're doing business in a way that is more grassroots, that's more community involvement, [and] around issues that have political ramifications, I think we get heard a lot more than we would have otherwise" (ON3). However, the much smaller market share of CE limits the degree to which they are consistently consulted on electricity policy. While CE interviewees highlighted the political influence they do have, two interviewees discussed having to go to public community events held by politicians in order to discuss CE concerns (ON25, ON4). This was not something discussed as necessary by incumbent actors.

Media Influence Efforts

All actors engage in public influence strategies of some type, as dictated by their goals and the resources available to them. For CE actors, this includes websites with information, a report on Community Power that is cited in the FCPC and TREC 2017 LTEP submissions, outreach through interviews or opinion pieces with local media, and hosting of invited speakers series.

These efforts contrast with those of comparatively better resourced incumbent industry actors and lobbies. The PWU in particular devotes significant resources toward advertising to create and reinforce the position of nuclear and hydro resources in provincial electricity and employment schemes through radio, online video and newspaper advertisements, as well as opinion pieces published in major media outlets (see www.pwu.ca/pwu-connects/). For example, an editorial published on the PWU website argues that, "The costs of nuclear are well known but the same cannot be said for solar, wind and DER" (Hyatt 2018).

Actor Group Logics and Discursive Alignment

In the absence of government interview data, decision-maker logics relevant to grid access and use were determined by examining themes in official government documents, press releases, and communications. These main themes are summarized as "clean, reliable, affordable" (Ministry of Energy

2017). These logics were dominant across all interviewee perspectives. Discursive themes of justice and equity, and the inevitability of decentralization, also emerged.

Energy prices were the most prominent theme across all LTEP submissions. This reflects a 2017 poll revealing that electricity prices were the single most important issue to Ontario voters (Nanos 2017). Ten interviewees from across sectors highlighted that increasing electricity prices, and the politicized nature thereof, were a major determinant of political decisions related to net metering. However, arguments about the cost of electricity are strongly contested. Depending on the perspective, rising electricity prices are due to a) fixed generation contracts with nuclear and gas producers, or b) fixed FIT contracts for renewables.

Clean, GHG-free energy was used as a policy frame by 11 interviewees from across perspectives, and also in all LTEP submissions. However, as interviewees from both incumbent industry and CE noted, the Ontario system has been largely decarbonized and arguing for lower emissions no longer has the same political weight on its own as it did prior to the 2014 closure of the coal plants.

Issues of "reliability" represented a much more dynamic discourse relative to grid use. Perspectives on reliability fell into two groups. The first group of incumbent interests, utilities, and some political insiders (six interviewees), argued that the current system is stable and that distributed generation will be undesirably disruptive. The PWU extend this to explicitly argue against all renewables in their 2017 LTEP recommendations: "Cease planning for more wind and solar resources. These resources are unreliable…" (PWU LTEP 2017:vii). The second group of eight CE and political insider interviewees argued that, while distributed renewables introduce challenges, the incumbent system exploits the concepts of stability and reliability as a tool to prevent expansion of CE.

Conceptualizations of justice were used by both incumbents and CE interests to argue for their position. Four CE interviewees emphasized that CE more equitably distributes the benefits of energy production. In contrast, incumbent producers, and some political insiders and utility interviewees, argued that distributed generation will privilege the wealthy while concentrating the costs of grid operation on those who are unable to invest in generation infrastructure. The nuclear industry and PWU also use their platforms (e.g., LTEP submissions, media) to argue that nuclear power provides more equitable access to energy, and to services provided by cheap energy (e.g., health care, clean water).

Finally, a theme of the inevitability of increased decentralized generation was apparent. This theme is notable because it was expressed not only by CE interviewees, but also in interviews and documents representing utility perspectives (e.g., The Power to Connect), from municipalities (e.g., Association of Municipalities of Ontario LTEP submission), and in a market assessment commissioned by the provincial government (2017). According to a utility interviewee "we're going to have customer-owned decentralized generation everywhere and I fully acknowledge that." (ON36)

Political Power Shifts in Ontario

The POWERSHIFTs framework seeks to a) reveal if traditional political power structures are shifting as CE transitions expand; b) explain the mechanisms through which this is occurring, and; c) explore the

consequences of potential shifts for political systems and outcomes. In the case of grid access and use policies in Ontario, Canada, findings reveal that the political influence of CE actors remains constrained by a stable incumbent electricity production system that aligns well with dominant decision maker logics of affordability, reliability and clean energy. In general, incumbent interests are well resourced and politically connected (Rosenbloom and Meadowcroft 2014). Consistent with Johnstone et al.'s (2017) discussion of deep incumbency, their historical structural role in system operations means that they control much of the knowledge, expertise, and infrastructure needed to make and implement decisions. They are therefore able to perpetuate their own central role in the system. While the CE sector has matured and developed capacity, it appears to exercise less influence over political decision making than it did 10 years ago when the Minister of Energy was actively advocating for community energy through the *GEA*. Comparing CE lobbying goals with the outcomes of the 2017 LTEP suggests that CE interests do not strongly impact political decision making.

To the extent that CE interests have increased their political power, this is largely through mechanisms such as increased lobbying and institutional capacity, rather than through increased control of markets. Decarbonisation of the Ontario electricity system has limited opportunities for the expansion of CE relative to other jurisdictions (e.g., Morris and Jungjohann 2016; Späth and Rohracher 2010). This is because the decarbonisation pathway taken has increased reliance on incumbents, rather than destabilizing the incumbent regime. Increasing the market share of CE under these conditions would require that government either pay to break existing contracts, or pay for supply from CE that is not currently needed – both economically unpopular choices. Given this dynamic, community energy will require substantial political support in order to expand (Mignon and Rüdinger 2016; Hess 2016). Governments in jurisdictions with high CE penetration have exhibited strong discursive support of decentralization and community development (Morris and Jungjohann 2016; Späth and Rohracher 2010). This logic, while weakly present in Ontario, has not appeared to impact decision making beyond the initial passage of the *GEA*.

The increased local economic development, distribution of profits, and strengthening of democracy anticipated by energy democracy scholars remain limited in Ontario. However, the framework revealed three interconnected dynamics that reflect both domination and empowerment perspectives, and that could together shift political power moving forward. First, incumbents in Ontario are grounding their opposition to distributed renewables in issues of reliability. This reveals a potential opportunity. CE and aligned interests could build a case for increased expansion by proactively addressing issues of reliability using evidence from other jurisdictions that successfully incorporate a much larger fraction of distributed generation on the grid (e.g., Koirala et al. 2016).

Second, nuclear power dominates the Ontario energy supply, and is noted as a significant barrier to CE diffusion around the world (Geels 2014; Kuzemko et al. 2016). In Ontario, the jobs, market share, and entrenched political power associated with nuclear make it unlikely that direct challenges will succeed. However, there is flexibility in the 2017 LTEP to cancel nuclear refurbishment plans if the government so desires. If CE interests are able to capitalize on global discursive trends focused on localized and community empowerment, they may be able to position themselves as a viable alternative in the future.

Finally, examining the capacities and discourses of different actors through the framework revealed the potential to build a working alternative model within the current locked-in system. Interest alignments between CE, utilities and municipalities have been extensively explored elsewhere (e.g., Becker and Kunze 2014; Hess 2014) but remain largely unexploited in Ontario. The framework therefore supports building on interest in increased collaboration between CE, utilities and municipalities. Even in the absence of enabling provincial legislation, utilities and municipalities have sufficient political and institutional capacity to effectively demonstrate the feasibility of an alternative energy system. By taking action within the current system, this would subvert many of the arguments currently being used to justify maintenance of the current system and transform the broader public debate.

Reflections on the Analytic Approach

The framework presented is useful for examining whether political power is shifting, the mechanisms through which this is occurring, and what the consequences of this might be. These questions address urgent and high-consequence theoretical gaps that have emerged as energy transitions occur. Power and politics are often cited as critical in analyses of energy transitions (e.g., Avelino and Wittmayer 2016; Geels 2014; Meadowcroft 2011). However, scholars and practitioners continue to struggle to adequately account for the many ways that power can manifest, and with assessing who "wins" and who "loses" in ongoing transitions processes (Kelsey and Meckling 2018). In the case examined, the framework revealed that political power remains in a fairly stable configuration, but that the building blocks are in place for a potentially significant system transformation. However, this transformation is far from inevitable and will depend upon technological advancement, political support, social mobilization, and, potentially, a rescaling of control over electricity systems from provinces to local and regional centres. In addition to theoretical advancement, this portrait of the Ontario electricity landscape provides all actors in the policy arena with a clear picture of opportunities and barriers for navigating the energy transition.

A power-based analysis is particularly useful for examining dynamics with the potential to fundamentally shift existing patterns of political domination. This is because incumbency tends to be "deep" and shapes both structures and agency (Johnstone, Stirling, and Sovacool 2017) . The power lens used here reveals the many ways that such deep power is expressed, constructed and reinforced – and highlights ways these power configurations can change. In doing so, it incorporates useful insights on power, political coalitions, historical institutionalism, institutional logics, and niches, regimes, and landscapes, sourced from different fields. Further investigation using this framework is currently underway through the POWERSHIFTS project (www.power-shifts.com). Eventual results from 3 additional case studies, and a survey of policy makers in 35 countries, will produce findings that present a broader picture of the extent to which CE is shifting political power structures with consequences for broad social, political and economic systems.

Works Cited

Akram, Sadiya, Guy Emerson, and David Marsh. 2015. "(Re) Conceptualising the Third Face of Power: Insights from Bourdieu and Foucault." *Journal of Political Power* 8 (3). Taylor & Francis:345–62.

Avelino, Flor. 2017. "Power in Sustainability Transitions: Analysing Power and (Dis) Empowerment in

Transformative Change towards Sustainability." *Environmental Policy and Governance*. Wiley Online Library.

Avelino, Flor, and Julia M Wittmayer. 2016. "Shifting Power Relations in Sustainability Transitions: A Multi-Actor Perspective." *Journal of Environmental Policy & Planning* 18 (5). Taylor & Francis:628–49.

Bachrach, Peter, and Morton S Baratz. 1963. "Decisions and Nondecisions: An Analytical Framework." *American Political Science Review* 57 (3). Cambridge Univ Press:632–42.

Bauwens, Thomas, Boris Gotchev, and Lars Holstenkamp. 2016. "What Drives the Development of Community Energy in Europe? The Case of Wind Power Cooperatives." *Energy Research & Social Science* 13. Elsevier:136–47.

Becker, Sören, and Conrad Kunze. 2014. "Transcending Community Energy: Collective and Politically Motivated Projects in Renewable Energy (CPE) across Europe." *People, Place & Policy Online* 8 (3).

Becker, Sören, Conrad Kunze, and Mihaela Vancea. 2017. "Community Energy and Social Entrepreneurship: Addressing Purpose, Organisation and Embeddedness of Renewable Energy Projects." *Journal of Cleaner Production* 147:25–36. https://doi.org/https://doi.org/10.1016/j.jclepro.2017.01.048.

Berlo, Kurt, Oliver Wagner, and Marisa Heenen. 2016. "The Incumbents' Conservation Strategies in the German Energy Regime as an Impediment to Re-Municipalization—An Analysis Guided by the Multi-Level Perspective." *Sustainability* 9 (1). Multidisciplinary Digital Publishing Institute:53.

Betsill, Michele, and Dimitris Stevis. 2016. "The Politics and Dynamics of Energy Transitions: Lessons from Colorado's (USA)'New Energy Economy.'" *Environment and Planning C: Government and Policy* 34 (2). SAGE Publications:381–96.

Bloor, Michael, and Fiona Wood. 2006. *Keywords in Qualitative Methods: A Vocabulary of Research Concepts*. Sage.

Bosman, Rick, Derk Loorbach, Niki Frantzeskaki, and Till Pistorius. 2014. "Discursive Regime Dynamics in the Dutch Energy Transition." *Environmental Innovation and Societal Transitions* 13. Elsevier:45–59.

Bourdieu, Pierre. 1990. "The Logic of Practice, Trans." *R. Nice. Cambridge: Polity*.

Brisbois, M.C., and R.C. de Loë. 2017. "Natural Resource Industry Involvement in Collaboration for Water Governance: Influence on Processes and Outcomes in Canada." *Journal of Environmental Planning and Management* 60 (5). https://doi.org/10.1080/09640568.2016.1182899.

Burke, Matthew J, and Jennie C Stephens. 2017. "Political Power and Renewable Energy Futures: A Critical Review." *Energy Research & Social Science*. https://doi.org/https://doi.org/10.1016/j.erss.2017.10.018.

Christiansen, Peter Munk, Asbjørn Sonne Nørgaard, Hilmar Rommetvedt, Torsten Svensson, Gunnar Thesen, and PerOla Öberg. 2010. "Varieties of Democracy: Interest Groups and Corporatist Committees in Scandinavian Policy Making." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 21 (1). Springer:22–40.

Clapp, Jennifer, and Doris A Fuchs. 2009. *Corporate Power in Global Agrifood Governance*. MIT Press.

Clapp, Jennifer, and Jonas Meckling. 2013. “Business as a Global Actor.” *Handbook of Global Climate and Environment Policy*, 286–303.

Clegg, Stewart R, and Mark Haugaard. 2009. *The Sage Handbook of Power*. Sage.

Cody, Howard. 2008. “Minority Government in Canada: The Stephen Harper Experience.” *American Review of Canadian Studies* 38 (1). Taylor & Francis:27–42.

Compass Renewable Energy Consulting Inc. 2017. “Market Analysis of Ontario’s Renewable Energy Sector.” Toronto.

Dahl, Robert. 1957. “The Concept of Power.” *Behavioral Science* 2 (3):201–15.

EDA. 2018. “LDC Map of Ontario.” 2018. https://secure2.eda-on.ca/imis15/EDA/Info_Centre/LDC_Map_of_Ontario/EDA/Info_Centre/LDC_Map_of_Ontario.aspx?hkey=28dd97a1-a2f0-4958-869f-c7101710282c.

Electricity Distributors Association. 2017. “The Power to Connect.” https://secure2.eda-on.ca/iMIS15/EDA/EDA_Priorities/EDA_Policy_Papers/PowerToConnect_Feb2017.aspx.

———. 2018a. “Power of Local Hydro.” 2018. https://poweroflocalhydro.ca/.

———. 2018b. “The Power to Connect: A Roadmap to a Brighter Ontario.” https://secure2.eda-on.ca/iMIS15/EDA/EDA_Priorities/EDA_Policy_Papers/The_Power_To_Connect_A_Roadmap_to_a_Brighter_Ontario.aspx.

Fairclough, Norman. 2013. *Critical Discourse Analysis: The Critical Study of Language*. Routledge.

Falkner, Robert. 2009. “The Troubled Birth of The‘ biotech Century’: Global Corporate Power and Its Limits.” In *Corporate Power in Global Agrifood Governance*, edited by Jennifer Clapp and Doris A Fuchs, 225–52. Cambridge: MIT Press.

Farrell, David M. 2011. *Electoral Systems: A Comparative Introduction*. Palgrave macmillan.

Foucault, Michel. 1989. *The Archaeology of Knowledge*. New York: Routledge.

Fuchs, Doris A. 2007. *Business Power in Global Governance*. Lynne Rienner Boulder, CO.

Fuenfschilling, Lea, and Bernhard Truffer. 2014. “The Structuration of Socio-Technical regimes—Conceptual Foundations from Institutional Theory.” *Research Policy* 43 (4). Elsevier:772–91.

———. 2016. “The Interplay of Institutions, Actors and Technologies in Socio-Technical Systems — An Analysis of Transformations in the Australian Urban Water Sector.” *Technological Forecasting and Social Change* 103 (Supplement C):298–312. https://doi.org/https://doi.org/10.1016/j.techfore.2015.11.023.

Gailing, Ludger. 2016. “Transforming Energy Systems by Transforming Power Relations. Insights from Dispositive Thinking and Governmentality Studies.” *Innovation: The European Journal of Social Science Research* 29 (3). Routledge:243–61. https://doi.org/10.1080/13511610.2016.1201650.

Gaventa, John. 1982. *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*. University of Illinois Press.

Geels, Frank W. 2014. “Regime Resistance against Low-Carbon Transitions: Introducing Politics and Power into the Multi-Level Perspective.” *Theory, Culture & Society*. SAGE Publications, 263276414531627.

Geels, Frank W, Florian Kern, Gerhard Fuchs, Nele Hinderer, Gregor Kungl, Josephine Mylan, Mario Neukirch, and Sandra Wassermann. 2016. “The Enactment of Socio-Technical Transition Pathways: A Reformulated Typology and a Comparative Multi-Level Analysis of the German and UK Low-Carbon Electricity Transitions (1990–2014).” *Research Policy* 45 (4):896–913. https://doi.org/http://dx.doi.org/10.1016/j.respol.2016.01.015.

Globe and Mail. 2017. “Newspaper Media Kit.” Toronto. http://globelink.ca/wp-content/uploads/2017/11/Newspaper_MediaKit_2017_Ntl-11_7_2017.pdf.

Government of Ontario. 1998. *Net Metering*. Canada.

———. 2009. *Green Energy Act*. Canada. https://www.ontario.ca/laws/statute/09g12.

Grin, John, Jan Rotmans, and Johan Schot. 2010. *Transitions to Sustainable Development: New Directions in the Study of Long Term Transformative Change*. Routledge.

Hajer, Maarten A, and Hendrik Wagenaar. 2003. *Deliberative Policy Analysis: Understanding Governance in the Network Society*. Cambridge University Press.

Haugaard, Mark. 2012. “Rethinking the Four Dimensions of Power: Domination and Empowerment.” *Journal of Political Power* 5 (1). Taylor & Francis:33–54.

Hayward, Clarissa, and Steven Lukes. 2008. “Nobody to Shoot? Power, Structure, and Agency: A Dialogue.” *Journal of Power* 1 (1). Taylor & Francis:5–20.

Hess, David J. 2014. “Sustainability Transitions: A Political Coalition Perspective.” *Research Policy* 43 (2):278–83. https://doi.org/https://doi.org/10.1016/j.respol.2013.10.008.

———. 2016. “The Politics of Niche-Regime Conflicts: Distributed Solar Energy in the United States.” *Environmental Innovation and Societal Transitions* 19 (Supplement C):42–50. https://doi.org/https://doi.org/10.1016/j.eist.2015.09.002.

Howlett, Michael, M. Ramesh, and Anthony Perl. 2009. *Studying Public Policy: Policy Cycles and Policy Subsystems*. 3rd ed. Toronto: Oxford University Press.

Huybrechts, Benjamin, and Helen Haugh. 2017. “The Roles of Networks in Institutionalizing New Hybrid Organizational Forms: Insights from the European Renewable Energy Cooperative Network.” *Organization Studies*. SAGE Publications Sage UK: London, England, 170840617717097.

Hyatt, Mel. 2018. “Canada’s Nuclear Technology Delivers Clean Energy and More.” Toronto.

IESO. 2018a. “Ontario’s Power System.” 2018. http://www.ieso.ca/en/learn/ontario-power-system/overview-of-sector-roles.

———. 2018b. “Ontario’s Supply Mix.” 2018. http://www.ieso.ca/en/learn/ontario-supply-mix/ontario-energy-capacity.

International Energy Agency. 2015. “World Energy Outlook.” 2015.

http://www.worldenergyoutlook.org/weo2015/.

Johnstone, Phil, and Peter Newell. 2017. “Sustainability Transitions and the State.” *Environmental Innovation and Societal Transitions* online. https://doi.org/https://doi.org/10.1016/j.eist.2017.10.006.

Johnstone, Phil, Andy Stirling, and Benjamin Sovacool. 2017. “Policy Mixes for Incumbency: Exploring the Destructive Recreation of Renewable Energy, Shale Gas ‘fracking,’and Nuclear Power in the United Kingdom.” *Energy Research & Social Science* 33. Elsevier:147–62.

Kelsey, Nina, and Jonas Meckling. 2018. “Who Wins in Renewable Energy? Evidence from Europe and the United States.” *Energy Research & Social Science* 37. Elsevier:65–73.

Koirala, Binod Prasad, Elta Koliou, Jonas Friege, Rudi A Hakvoort, and Paulien M Herder. 2016. “Energetic Communities for Community Energy: A Review of Key Issues and Trends Shaping Integrated Community Energy Systems.” *Renewable and Sustainable Energy Reviews* 56. Elsevier:722–44.

Kuzemko, Caroline, Matthew Lockwood, Catherine Mitchell, and Richard Hoggett. 2016. “Governing for Sustainable Energy System Change: Politics, Contexts and Contingency.” *Energy Research & Social Science* 12. Elsevier:96–105.

Legislative Assembly of Ontario. 2009. “Official Report of Debates - April 8th.” Toronto.

Lindblom, Charles. 1977. *Politics and Markets*. New York: Basic Books.

Lockwood, Matthew, Caroline Kuzemko, Catherine Mitchell, and Richard Hoggett. 2016. “Historical Institutionalism and the Politics of Sustainable Energy Transitions: A Research Agenda.” *Environment and Planning C: Politics and Space* 35 (2). SAGE Publications Ltd STM:312–33. https://doi.org/10.1177/0263774X16660561.

Lukes, Steven. 2005. “Power: A Radical View.” *Hampshire and New York, Palgrave Macmillan*.

MacArthur, Julie L. 2016. *Empowering Electricity: Co-Operatives, Sustainability, and Power Sector Reform in Canada*. UBC Press.

Mann, Michael. 2012. *The Sources of Social Power: Volume 3, Global Empires and Revolution, 1890-1945*. Vol. 3. Cambridge University Press.

Markard, Jochen, Marco Suter, and Karin Ingold. 2016. “Socio-Technical Transitions and Policy Change – Advocacy Coalitions in Swiss Energy Policy.” *Environmental Innovation and Societal Transitions* 18 (Supplement C):215–37. https://doi.org/https://doi.org/10.1016/j.eist.2015.05.003.

Meadowcroft, James. 2009. “What about the Politics? Sustainable Development, Transition Management, and Long Term Energy Transitions.” *Policy Sciences* 42 (4). Springer:323–40.

———. 2011. “Engaging with the Politics of Sustainability Transitions.” *Environmental Innovation and Societal Transitions* 1 (1):70–75. https://doi.org/https://doi.org/10.1016/j.eist.2011.02.003.

Mignon, Ingrid, and Andreas Rüdinger. 2016. “The Impact of Systemic Factors on the Deployment of Cooperative Projects within Renewable Electricity Production – An International Comparison.” *Renewable and Sustainable Energy Reviews* 65:478–88. https://doi.org/https://doi.org/10.1016/j.rser.2016.07.026.

Ministry of Energy. 2017. *Ontario's Long Term Energy Plan*. Canada. https://files.ontario.ca/books/ltep2017_0.pdf.

———. 2018. "2017 Long-Term Energy Plan Public Engagement Sessions." 2018. https://www.ontario.ca/page/2017-long-term-energy-plan-public-engagement-sessions.

Mitchell, Timothy. 2011. *Carbon Democracy: Political Power in the Age of Oil*. Verso Books.

Moe, Espen. 2010. "Energy, Industry and Politics: Energy, Vested Interests, and Long-Term Economic Growth and Development." *Energy* 35 (4). Elsevier:1730–40.

Morris, Craig, and Arne Jungjohann. 2016. *Energy Democracy*. Springer.

Nevens, Frank, Niki Frantzeskaki, Leen Gorissen, and Derk Loorbach. 2013. "Urban Transition Labs: Co-Creating Transformative Action for Sustainable Cities." *Journal of Cleaner Production* 50. Elsevier:111–22.

Newell, Peter. 2013. *Globalization and the Environment: Capitalism, Ecology and Power*. John Wiley & Sons.

Ontario Ministry of Finance. 2018. "Ontario Fact Sheet April 2018." 2018. https://www.fin.gov.on.ca/en/economy/ecupdates/factsheet.html.

Ontario Society of Professional Engineers. 2016. "Ontario's Energy Dilemma: Reducing Emissions at an Affordable Cost."

Partzsch, Lena. 2017. "'Power With'and 'power To'in Environmental Politics and the Transition to Sustainability." *Environmental Politics* 26 (2). Routledge:193–211.

Patterson, James, Karsten Schulz, Joost Vervoort, Sandra van der Hel, Oscar Widerberg, Carolina Adler, Margot Hurlbert, Karen Anderton, Mahendra Sethi, and Aliyu Barau. 2016. "Exploring the Governance and Politics of Transformations towards Sustainability." *Environmental Innovation and Societal Transitions*. Elsevier, in press.

Pepper Media. 2018. "Electric Mobility." *The Toronto Star*, April 21, 2018.

Power Workers Union. 2018. "PWU Connects." 2018. https://www.pwu.ca/pwu-connects/.

PWU. 2018. "About PWU." 2018. https://www.pwu.ca/about-pwu/.

Raven, Rob, Florian Kern, Adrian Smith, Staffan Jacobsson, and Bram Verhees. 2016. "The Politics of Innovation Spaces for Low-Carbon Energy: Introduction to the Special Issue." *Environmental Innovation and Societal Transitions* 18. Elsevier:101–10.

REN21. 2017. "Renewables 2016: Global Status Report."

Rosenbloom, Daniel, and James Meadowcroft. 2014. "The Journey towards Decarbonization: Exploring Socio-Technical Transitions in the Electricity Sector in the Province of Ontario (1885–2013) and Potential Low-Carbon Pathways." *Energy Policy* 65. Elsevier:670–79.

Royal Dutch Shell. 2013. "New Lens Scenarios." The Hague. https://www.shell.com/energy-and-innovation/the-energy-future/scenarios/new-lenses-on-the-future.html.

Rutherford, Jonathan, and Olivier Coutard. 2014. “Urban Energy Transitions: Places, Processes and Politics of Socio-Technical Change.” *Urban Studies* 51 (7). Sage Publications:1353–77.

Sabatier, Paul A, and Christopher M Weible. 2016. “The Advocacy Coalition Framework: Innovations and Clarifications.” *In: Sabatier, PA (Ed.). Theories of the Policy Process, Second Edition, 189-217*. Boulder, CO: Westview Press.

Shove, Elizabeth, and Gordon Walker. 2007. “CAUTION! Transitions Ahead: Politics, Practice, and Sustainable Transition Management.” *Environment and Planning A* 39 (4). SAGE Publications Sage UK: London, England:763–70.

Smink, Magda, Marko Hekkert, and Simona Negro. 2015. “Keeping Sustainable Innovation on a Leash? Exploring Incumbents’ Institutional Strategies.” *Business Strategy and the Environment* 24 (2). Wiley Online Library:86–101.

Society of United Professionals. 2018. “About.” 2018. https://www.thesociety.ca/get-informed/about/.

Soutar, Iain, and Catherine Mitchell. 2018. “Towards Pragmatic Narratives of Societal Engagement in the UK Energy System.” *Energy Research & Social Science* 35:132–39. https://doi.org/https://doi.org/10.1016/j.erss.2017.10.041.

Späth, Philipp, and Harald Rohracher. 2010. “‘Energy Regions’: The Transformative Power of Regional Discourses on Socio-Technical Futures.” *Research Policy* 39 (4). Elsevier:449–58.

Spears, John. 2011. “Ontario Solar Projects Put on Hold.” *The Toronto Star*, 2011. https://www.thestar.com/business/2011/02/11/ontario_solar_projects_put_on_hold.html.

Stirling, Andy. 2014. “Transforming Power: Social Science and the Politics of Energy Choices.” *Energy Research & Social Science* 1. Elsevier:83–95.

Stokes, Leah C. 2013. “The Politics of Renewable Energy Policies: The Case of Feed-in Tariffs in Ontario, Canada.” *Energy Policy* 56. Elsevier:490–500.

Thornton, Patricia H, and William Ocasio. 2008. “Institutional Logics.” *The Sage Handbook of Organizational Institutionalism* 840:99–128.

Toronto Renewable Energy Co-op. 2015. “The Power of Community.” Toronto.

Unruh, Gregory C. 2000. “Understanding Carbon Lock-In.” *Energy Policy* 28 (12):817–30. https://doi.org/https://doi.org/10.1016/S0301-4215(00)00070-7.