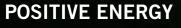# COMMUNITIES IN PERSPECTIVE

Literature Review of the

DIMENSIONS OF SOCIAL ACCEPTANCE FOR ENERGY DEVELOPMENT AND THE ROLE OF TRUST

POSITIVE ENERGY

LAURA NOURALLAH | APRIL 2016

uOttawa

uOttawa   POSITIVE **ENERGY**

INTRODUCTION

Social acceptance and support of energy projects at the community level is an important factor in determining energy development. Extensive literature has been written on the levels of public opposition to energy projects across different sectors, however none that covers a complete comparison between diverse sectors of energy production. Thus, the following section reviews the literature on factors relevant to social acceptance and support while looking at various sectors: renewable energy, hazardous facilities, and fossil fuels. The specific focus is accorded to the role of public confidence and trust in public institutions and authorities. Social acceptance involves ensuring energy policy and projects are developed with due regard for citizen views and interests, including environmental NGOs, regional interests, and aboriginal interests and rights. The concept has been termed, used and interpreted in different ways across sectors. Whilst an assessment of the variations of the term is not the focus of this review, it is nevertheless important to note how social acceptance is a key concern across the literature. The literature on energy development across different sectors explores the issue of public opposition from a variety of dimensions. There are five major dimensions presented that emphasize the complexity involved in the issue of social acceptance and support for energy projects in Canada. The dimensions include contextual factors, values and interests, trust and confidence, information, and finally engagement and participation.

Therefore, what arises from the literature is the recognition that communities can be assessed in a plurality of perspectives to delineate some of the most important factors surrounding the issue of public opposition to energy development. There is emphasis on the social dimensions of energy development that ought to be considered, and the different sectors reviewed highlight a variety of factors that shape social acceptance and support. The literature on renewable energy has

contributed significantly to the analysis of public opposition according to personal, social-psychological and contextual factors. Trust-based explanations are a key component of the relationship between citizens, public agencies and developers. Furthermore, the existing work around fossil fuels has contributed to the development of collaborative approaches to energy development that signify the importance of public participation and engagement. The literature focuses on the role of environmental assessments as an integral part of project development. It emphasizes interactive planning theories and integrated environmental management theory, with an apparent gap in the literature on the role that trust plays. Finally, the literature regarding hazardous facility siting provides empirical grounding for the assessment of risk perception as a key factor in public opposition, and the role that trust plays in the absence of knowledge. While the evolution of the examination and understanding of the problem of public opposition and possible solutions have taken different trajectories across sectors – they still have one main thing in common. The community perspective has turned attention to the potential role of public participation in the decision-making processes, and the importance of trust accorded to governmental agencies involved in this relationship.

CONTEXTUAL DIMENSIONS

The study of contextual dimensions in the assessment of public opposition to energy developments tends to focus on point projects. Primarily, most of the research is found in the renewables sector that concentrates mainly on wind projects but also extends to derivative assessments based on biomass and tidal energy projects. Secondly, although a large portion of the work is concentrated on wind projects, fossil fuels have drawn some attention based on project placement and transection. Finally, the literature also assesses the contextual dimensions of communities along the routes of linear projects (although not as extensively) for high voltage transmission lines and pipeline projects. There is some evidence to suggest that the familiarity for certain jurisdictions with project types may mean more acceptance; however the relationship is contingent on trust as a key component.

The attention to wind energy has produced the most in-depth assessments of factors related to public opposition to energy development projects in the literature. It is a particularly intriguing case since numerous opinion polls from the UK and European states have shown a high degree of public support for renewable energy, whereas local projects are faced with opposition. This phenomenon has led to what authors term the 'social gap' (Wolsink, 2007). In response, a variety of approaches have proliferated to explain the variables behind what the literature refers to as 'public acceptance' of renewable energy across the production types. Many studies undertaken have produced empirical findings through case studies across Europe and Canada mainly. Initially, the focus of many studies in the field was based on the Not In My Backyard (NIMBY) concept (Siegrist et al., 2005). NIMBY is defined as "the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighbourhood" (Dear, 1992, p288). However,

the studies have evolved, with key authors acting as major proponents of the shift towards more nuanced understandings of public opposition (Devine-Wright, 2005; Wolsink, 2006). According to him, there has been little empirical support for it as an explanatory concept and it portrays residents as merely selfish that effectively discrediting their legitimate concerns. Devine-Wright (2011) and Wolsink (2006) have argued for the desertion of the concept of NIMBY for the sake of more varied and complex understandings of local opposition.

In an overall review of the literature of renewable energy development, Fast and Mabee (2015) have identified two classifications of research: place-based and trust-based explanations of public opposition. This section will assess the primary classification, and will return to trust based explanations in the dimension of participation and engagement. Placed-based literature examines the influence of emotional ties that people experience with certain locations, and how proposals for development projects can be seen to threaten what they term 'place related identity processes'. Numerous studies have shown the relevance of place-based meanings and attachments in explaining acceptance for different energy development projects (Devine-Wright, 2009; Brown, Perkins, & Brown, 2003; Vorkinn and Riese, 2001; Devine-Wright and Lyons, 1997). Furthermore, the approach has confirmed the link for various forms of renewable energy projects such as tidal and biomass projects (Upreti and van den Horst, 2004; Devine-Wright, 2011b; Hubner and Meijnders, 2004). Furthermore, concern with the landscape arises with consideration of energy projects in the community. Visual assessment of the effect of energy projects on landscape values is a principal factor in explanations for public opposition or support. Thus, the representation of local traits and place identity are dominant factors in communities (Wolsink, 2007).

In a more extensive review of the literature on wind energy development, Devine-Wright (2007) has developed a more general model for assessment. The author posits that the literature can be grouped into studies based on three levels of analysis. This is a very useful assessment on the state of the literature, and consideration of its application to other energy sectors may provide fruitful avenues for further research. Primarily, at the personal level, Devine-Wright (2007) is referring to demographic information such as age, gender, class, and income. The research in this area is not extensive but there is validity to certain claims such as a positive association between income and class relative to the level of support for renewable energy. Secondly, the social-psychological level of analysis involves knowledge levels and direct experience, environmental and political beliefs, place attachment and levels of trust. This is where the majority of research is concentrated and arguably, this is the level of analysis where most of the work on public acceptance for hazardous facilities lies. Lastly, the contextual level involves technology type and scale, institutional structure and spatial context. The work around ownership and the participation of the public in inducing social acceptance and support is addressed at this final level.

The contextual level involves assessments of the local political landscape, and the institutional capacity involved. Political context is raised in the literature in an effort to understand situational context that may have a large impact on opposition (Cain and Nelson, 2013; Hoberg, 2013; Hoberg, Rivers and Salomons, 2012). Walsh, Bird and Heintzelman (2014) demonstrate the effect of different factors that increase likelihood of restrictions or allowances for fracking. Accordingly, the authors employ a spatial econometric approach to assess determinants of regulations in local communities surrounding fracking activities. Some determinants include community presence in producing shale regions, relative partisan leaning, whether the community is an 'incorporated village', and incidence in priority watersheds (Walsh, Bird and Heintzelman, 2014). Different regions operate differently, such that different levels of government may be responsible for the siting process and thus, any environmental assessments and collaborative planning processes that take place in different regions may also vary. They allude to the effects that this may have on outcomes based on political opportunity, availability of resources and trust levels in a community. Should proponents try to site the project without the involvement of the local community, mistrust is likely to arise and create opposition (Upreti and van den Horst, 2004; Rabe, 1992; Kasperson, Golding and Tuler, 1992). This work contributes to the research on energy development by advocating for an examination of the political context, thus studies demonstrate that different regions may react differently to development.

To further support the importance of context, Hoberg's (2013) work provides a risk analysis for major pipeline proposals in Canada. The work emphasizes the institutional context and key actors involved across different regions that influence the likelihood of development. Although Hoberg's (2013) analysis analyses the issue from a broader perspective with focus on the federal and provincial dimension, his work contributes to the understanding of institutional veto points that may lead to certain outcomes in different contexts depending on how the actors converge. Furthermore, work produced by the Canadian Natural Gas Initiative (CNGI) on natural gas infrastructure developments in Canada provides some confirmation to support the notion of context more broadly. As a part of the CNGI's initiative to foster dialogue across communities in Canada, the

organization notes that there appears to be regional differences for areas that are more accustomed to oil and gas projects in their vicinities and have a longer history of interaction with industry. Accordingly, "for communities like Red Deer and Fort St. John in particular, natural gas development was characterized as part of the culture." (CNGI, 2013, p16) The communities therefore exhibited a lot of applied understanding of the opportunity for employment. Their concerns were more focused on the requisite for both industry and government to take initiative and ensure the provision of reliable information, engaging local communities and ensuring that they earn the communities' trust. According to this viewpoint, the assertion is that trust earning ultimately leads to acceptance.

The history and compositions of localities where energy projects exist or may take place have an effect on development. These areas have experienced different events, comprise unique demographics and a sense of community. Additionally, as Simard (2008) demonstrates, they may have a particular network of actors that participate in varying levels and at different junctions in the course of various projects. The actors' perceptions are shaped by past experiences and their established relations and interaction patterns within the context accords them different degrees of influence (Simard, 2008; Sabatier and Jenkins-Smith, 1994). The interaction of these dynamics can create certain positions on public opposition, as shown in the case of the Traversée-Urbaine transmission line in Quebec: "the presence of influential actors, the size and number of the municipalities involved, and the ability of opponents to organize create the framework within which events will unfold." (Simard, 2008, p584) From a policymaking perspective, an important consideration therefore is the way in which prominent policy actors interact with the institutional setting.

Incentives are a motivating factor for acceptance, and concerns with the fair distribution of costs and benefits play a major role (Wolsink, 2007; Aitken, 2010). Pertinently, the community may be divided based on an unfair distribution of costs and benefits within the immediate context. Consequently, whether a certain segment of the population stands to earn more economic benefits, or carry more of the burden of risks can be problematic to residents. Moreover, the division may occur in terms of the broader scope of development, such that certain communities may feel unjustly subject to carry the burdens of production or transportation without direct benefits to them (Szarka, 2006; Baxter, Eyles and Elliot, 1999). Whereas residents may understand the policy direction for national purposes, municipality and county perspectives are important in relation. The fairness of spatial and social distribution of the costs and benefits arises as a concern, one focused on environmental equity. The question of 'who gets what' is at the very heart of this discussion, and is therefore very important from a policy perspective. According to the literature, policy makers are not only required to ensure that fair distribution takes place, but that the process of decision-making leading up to a decision is also perceived as fair (procedural justice). The context within which this occurs ranges from community to community as the shape of issues and projects vary.

Context is an important dimension, especially in the consideration of communities that can be quite diverse and therefore produce various bases of oppositions to acceptance. Prominently, the institutional setting appears to be a significant factor in the consideration of the contextual dimension. For public agencies then, the history of interactions with the population and the interactions preceding may shape their role. From this perspective, the lack of research surrounding the role of regulatory agencies and public authorities is noticeable. In

the face of mounting evidence for a decline in confidence in public institutions and increasingly fragmented societies, where does the role of public agencies stand in response to public opposition? Considerations for the type of project, and the different perceptions involved between the public authorities and the public may create different dynamics for the role of social acceptance and support. While degree of familiarity appears to influence the acceptance of energy development positively, the additional requirement for trusting and open relationships can be very important to the community.

The next four dimensions demonstrate the role of individual values and interests, the role of information and the requirement for trust and confidence that is largely inspired through demands in the literature for more participatory and engaging processes to build the path towards social acceptance and support. Arguably, the research could benefit from more extensive assessments to compare between context in terms of the macro-level federal perspective and the micro-level community context. There is an apparent gap in the literature focused on integrating the local level, where the planning takes place with broader policy schemes.

VALUES *and* INTERESTS

The work on values and interests has largely focused on explicating how individual's views with respect to energy are determined. Studies attempt to tie the perceptions of risks and benefits more explicitly to the values that people hold; where perceptions are treated as mediating factors between values and acceptability of energy projects. Values are understood to shape actions and preferences in relation to oneself, and moreover in relation to others. Whether the extent of one's own values is reflected in another person can serve as the basis for social cohesion. This provides commonality between individuals in the community and can serve to unify purpose and bind them together in action (Cain and Nelson, 2013; McPherson et al., 2001). The studies attribute different value types according to different scales, but whether these values are subject to mitigation or alteration is not entirely clear. New information and the possibility for broader discourse appear poised to influence value formation and action; which is something that is increasingly apparent in the dimension regarding information.

The employment of risk perception in the literature is increasingly evident, especially in the fossil fuels sector. According to value theory, the literature argues that values are a key 'determinant of beliefs about risks, benefits, and acceptability' (De Groot, Steg and Poortinga, 2013, p308). As such, three types of values are particularly relevant: egoistic, altruistic and biospheric values. People that hold strong egoistic values are particularly concerned with the risks and benefits of energy projects to themselves, those with strong altruistic values are more concerned with the risks and benefits to the community overall or even humanity in general. Moreover, people that endorse strong biospheric values are seen as most likely to accept energy projects based on perceived risks and benefits to the ecosystem and biosphere (De Groot and Steg, 2007; De Groot, Steg and Poortinga, 2013; Axsen, 2014). Importantly, De Groot, Steg and Poortinga (2013) argue that there is an important link to behaviour – and that while an individual may well endorse all three values – they are most likely to act based on the ones deemed most important to them. Therefore, in relation to fossil fuel infrastructure, specifically the Northern Gateway pipeline, Axsen (2014) demonstrates that those with strong egoistic values have the highest level of acceptance.

Public perception is at the core of understanding the motivation for opposition or support, and has an influence in terms of different types of development. Infrastructure development in many cases may cut across several communities and public opposition along the route of construction may have very different concerns and interests that influence individual stances on development. In many cases, the new infrastructure is necessary to connect increasing populations (in the case of electricity particularly), to update or extend previously existing infrastructure, gain access to new markets and provide much needed energy production for key regions. Society's growing need for certain forms of resource production, in combination with the approach industries have selected to public discussion, have resulted in what Cowx (2013) terms as "social friction". The argument they advance is particularly linked to the electricity sector, in reference to the development of high voltage transmission lines that appear to be garnering a lot of opposition. Thus, social friction in the planning process stems from discrepancies in perception, unequal distribution of resources, and absence of a common understanding of values between the participating stakeholders. The literature posits that the way to mitigate these factors is through the facilitation of trust between developers, public authorities and the public.

The importance of openness and transparency, as well as early engagement with communities is postulated to alter perceptions through meaningful participation (Keir, Watts and Inwood, 2014; Cotton and Devine-Wright, 2013).

The issue of public opposition is examined from a more general perspective on public perceptions of hydraulic fracturing in the US as well (Boudet et al., 2014). As such, key factors that shape perceptions are selected. These include socio-demographics; perceptions of risks and benefits; affective imagery; geographic proximity; and worldviews. Findings according to an examination of these factors indicate that most Americans remain unaware of hydraulic fracturing, and many are undecided about their position towards it (Boudet et al., 2014; Wolske and Hoffman, 2013). More importantly, among the people that have reached a decision, there is an even division between those opposing and supporting the practice. Some of the major indicators of support are media use, education, and primary associations that come to mind. Since many people have not heard about hydraulic fracturing and it is rising in prominence nationally, arguments are made for the opportunity of broader discourse to shape perceptions and attitudes towards the resource (Boudet et al, 2014; Mazur, 2014). Perceptions are a key factor in the development of energy projects, and thus their concluding analysis emphasizes the importance of participation in decision-making and the requirement to build trust among stakeholders.

INFORMATION

The concept of mobilization is one that is central to the understanding of the role of information in public opposition. Laird (1989) posits that individuals already have low levels of trust and confidence in elites and government. Individuals are involved not necessarily by political means, but through voluntary organizations that exist on the basis of shared interests. Thus, people are increasingly mobilizable through internal cohesion as they stand in opposition to projects that they perceive as harmful to the environment. Furthermore, the controversies of risk management have garnered the public's attention and the media increasingly shapes perceptions. The public's concerns regarding the environment in particular seem to take the bulk of attention when it comes to energy development. Although the fairness and equity concerns loom large, environmental protection appears to be a major priority. Interestingly, this priority appears to be the one most subject to influence through new information about environmental conditions, particularly information that aligns with broadly assumed values (Stern at al., 1995; Dake, 1991). This section of the literature provides more clarity on the relationship between information and attitudes. Accordingly, information is seen as a resource meant to illicit certain attitude matters that are linked to values. Here, organized interests are seen as major proponents of information to shape general public opinion (Stern et al., 1995).

Studies regarding the rise of public opposition to shale projects in the United States provide informative examples. In an attempt to trace the factors behind increased opposition, the public discourse surrounding the practice takes prominence. "Discursive opportunities were critically influential in setting the stage for influencing social movement outcomes" (Vasi et al., 2015, p20). In this respect, many opponent groups (in the case of Pennsylvania already existing voluntary interest groups) were quick to mobilize and produce reports and information

regarding the negative effects of hydraulic fracturing (Vasi et al., 2015). Organized interest's credibility can vary dependent on values and beliefs however, such that in California environmental groups for example are generally accepted. These groups therefore may have a large role in influencing the form of public policy. In addition, the documentary *'Gasland'* by Josh Fox is recognized to have ignited debate mainly as a result of the strong imagery that the film provides. Not only did health and safety concerns rise to prominence in this example, due to uncertainty around the risks posed by the new technological practice, but it also created a lot of talk on social media (Mazur, 2014). However, Vasi et al. (2015) caution against using social media as the only indicator, and have emphasized the role of the documentary *Gasland* itself that fostered mobilization and action by policymakers in the communities that campaigned. Overall, the heightened coverage on social media had a hand in shaping public discourse and activism.

Increased levels of mistrust are frequently associated with an increase in negative information and the role of the media in amplifying this distrust (Greenberg, 2014; Slovic, 1993). Laird (1989) demonstrates that the feeling of alienation from decision-makers due to the perception that they do not necessarily have the public interest in mind is detrimental to trust. "Trust is a bond of society. If there is trust, one party relies on another, based on the belief that the other is competent, open, fair, concerned and reliable" (Upreti and van den Horst, 2004, p67). Hazardous facility siting for energy development was met with public opposition and has garnered a lot of attention in the literature. Risk perceptions were seen as exacerbating the situation and the scientific knowledge of expertise was doing little to allay these fears (Siegrist, Gutscher, and Earle, 2005). Considerable research has developed ways of looking at the link between

risk perception and trust. Trust being viewed as the key component in any relationship amongst the community and with the key governmental agencies responsible for the siting and management of hazardous facilities (Cvetkovich and Nakayachi, 2007; Bronfmann et al. 2012). Furthermore, Cowx (2013) discredits the notion that increased awareness and education are simple fixes to generate social acceptance. He highlights these factors in an effort to call on the social sciences to develop appropriate processes and tools to address social friction – pointing towards the importance of understanding values and the ways that perceptions are shaped. Thus, the role of engagement and participation is raised to facilitate trust and provide meaningful opportunities for the public to discuss their concerns and the issues at hand.

The emphasis on values has led to a preliminary examination of the nature of public trust in scientific claims, and the importance of the degree to which certain claims match their existing beliefs and opinions in influencing that confidence (Carlisle et al., 2010). In an examination of public trust in reports about offshore oil drilling in California, Carlisle et al. demonstrate that citizens are more inclined to accept reports of scientific studies that bolster their beliefs, and they are more likely to reject the ones that contradict their beliefs. The acceptance of certain scientific information therefore, can be subject to preexisting values and opinions regarding certain issues. Moreover, they can have independent effects (Carlisle et al., 2010). As a result they question whether scientific studies are truly apt to influence the public's perceptions of the safety of energy sources. However, the literature on policy-oriented learning in public policy presents a contending point of view. Accordingly, although core values may be the most important determinant and any contradictory information may be rejected, there is a strong affinity to learn. Learning can cause a shift in values and ultimately lead to a change in

positions affecting policy outcomes (Sabatier, 1987; Sabatier and Jenkins-Smith, 1994; Weible, 2008). The process of learning is conceivably different according to various theorists, but the key implications involve settings whereby information and knowledge exchange occurs through communicative practices between participants. There are important implications for the methods through which interests are directly tied to policy outcomes, and the relationship between participation and engagement practices that lead to learning.

ENGAGEMENT *and* PARTICIPATION

Generally, studies tend to emphasize the requirement for public participation in decision-making to ensure more meaningful participation and to facilitate trust building between stakeholders, political authorities and institutions involved. Public opposition to energy projects has increased significantly in recent years for fossil fuel projects and has a major impact on energy development. The literature on this sector focuses on the process of Environmental Assessments (EA), Strategic Environmental Assessments (SEA,) and the role that meaningful public participation can play to achieve social acceptance and support. In an effort to demonstrate the inadequacy of EAs and the necessity to adopt a more integrative approach (one that involves the public) scholars have proposed SEAs instead. As discussed below, various authors envision planning as a communicative process. They emphasize integrated environmental management theory that aims to combine the EA processes with continuous improvement management and social learning theories that emphasize learning as a product of the context. The authors point to the importance of deliberative processes to include all the relevant stakeholders to facilitate trust and foster acceptance.

Mining was the initial resource sector in fossil fuels to face the issue of public opposition to projects across communities. Along this line of inquiry, the primary focus in the literature appears to be on the role of industry proponents to go beyond the regulatory requirements for project development. As such, engagement with local communities and key stakeholders to obtain a Social License to Operate (SLO) is the chief approach to public acceptance and support. This concept originated in the mining industry and has been implemented most comprehensively there. A major study of the concept by Gunningham et al. (2004) describes the advancement of SLO from the notion of corporate social responsibility (CSR) from mining as the industry was turning attention to its social accountabilities and stakeholder perceptions.

The understanding of SLO implicates that there is an object to achieve that is measurable. Thereby, Thomson and Boutilier (2011) ascertain three normative factors of the SLO – legitimacy, credibility, and trust. They argue that the process to achieve trust is a linear one, whereby the move from legitimacy to credibility and finally trust is premised on building social capital in relations between stakeholders and the company. Trust arises again as a key component of the relationship between the community and in this case the developers (Thomson and Boutilier, 2011; Boutilier, 2007). Owen and Kemp (2013) argue that the concept of SLO has successfully elevated the status of social issues within a largely 'industrial discourse'. However, the authors advocate its failure to 'articulate a collaborative developmental agenda for the sector or a pathway forward in restoring the lost confidence of impacted communities, stakeholders, and pressure groups' (Owen and Kemp, 2013, p29). The concept is however part of the larger discourse on sustainable development of which the notions of public participation in decision-making is a key principle of the approach (Hilson and Basu, 2003; Veiga et al. 2001).

While initially the literature does not necessarily extend to the consideration of public authorities, there has been a transition to the consideration of the process of EAs that surround energy development projects for oil and gas. EA is a "systematic process designed to identify, predict, and propose management measures concerning the possible implications that a proposed project's actions may have for the environment, and includes various provisions for community participation and consultation in its use" (Prno and Slocombe, 2012, p351). It is a widely accepted environmental management tool that is used across provinces in Canada (Noble, 2010). The EA process is meant to 'strengthen the legitimacy and acceptance of the ultimate decisions' (Mulvihill et al., 2013, p.2). More recently, there has been a call to move from these specific project assessments to a broader consideration of the cumulative

effect of policy and programs on the environment in Canada. Strategic Environmental Assessments (SEAs) have been proposed to do so; they focus on 'the earliest stages of regional policy, plan, and program (PPP) development and decision-making' (Wood and Dejeddour, 1992, p.2).

A SEA is defined as a "systematic, on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision-making, the environmental quality, and consequences, of alternative visions and development intentions incorporated in policy, planning, or program initiatives, ensuring full integration or relevant biophysical, economic, social and political considerations" (Partidario, 1999, p4). It is argued that SEAs create more consistency on a national level by emphasizing the cumulative impact of various policies and programs on the Canadian environment. This appears to be the approach that Québec has taken with its moratorium on shale development where a SEA has been instituted to assess the impacts of the resource production (Rivard et al., 2013). Arguably, SEAs would allow for more meaningful participation for involved citizens. Since EAs only focus on the last stages of project development (i.e. when the project has been designed and formally proposed), they do not provide the chance to truly involve various perspectives in earlier stages of the policy process that influence policy beyond the immediate project under review. At the EA level, scholars highlight that the use of public participation has served as a hollow validating exercise, to try and stimulate social acceptance and support for the project (Sinclair and Fitzpatrick, 2002). The literature on EAs and SEAs is particularly pertinent since it emphasizes the role of public participation and is continuously advocating for its improvement – particularly in terms of more integrated assessments.

The key idea is that public participation improves the content of decision-making, but moreover that the process of decision-making itself is enhanced as a result of it. There is an inherently normative argument present in this approach; one the advocates for more meaningful engagement of citizens in decisions that affect them and thereby the contention is that this will result in better solutions. Furthermore, the process of participation facilitates a process of learning for the participants as they engage in understanding the impacts and benefits of a project to their community (Diduck, 2010). The public's interests are protected this way, and citizens' direct involvement in decisions affecting them and their communities, makes them more responsible citizens. Furthermore, public participation is a fundamental concern underpinning democratic practices and environmental governance (Sinclair and Diduck, 2001; Renn and Webler, 1995; Ali-Khan and Mulvihill 2008).

Additionally, trust-based examinations of public opposition provide insights into the role of trust and confidence. In the case of wind farms, trust-based examinations emphasize the "degree to which host community members trust the siting process and the wider policy decision to advance wind energy development as a public interest" (Fast and Mabee, 2015, p28). Prominently, individuals may judge how acceptable a wind project is based on their level of trust in the siting process. Moreover, this assessment may be autonomous of their trust in broader government policy. Trust can thus serve as the basis for significant involvement in the process of decision making, the exclusion from which is posted by Fast and Mabee (2015) as a shared factor between studies of wind farm conflicts. Thus the significance of public participation, involvement and partnerships is posited through the analysis of trust-based explanations. Moreover, the trust in authorities' ability to assess and mitigate the risks of wind energy projects on the community and in their interest is another major

factor discussed. Here, the empirical studies demonstrate the necessity of high levels of trust for public acceptance (Lofstedt, 1999; Upreti and van der Horst, 2004).

The recognition within the literature of such issues is more prevalent in the work on public opposition to linear infrastructure. They emphasize the requisite to assess the local context in order to foster trust based on a more intimate understanding of communities. The examination of the case for transmission lines in Peel Ontario by Baxter, Eyles and Elliott (1999) shows how the interaction between certain principles in their translation to practices actually lead to adverse outcomes for the community. The effort to undertake legislation for equity can actually undermine the trust of residents in siting agents and the leading proponents' attempts at participation in the community. By not meeting certain siting principles, the fulfilment of other ones was sacrificed, which led to an overall frustration of the process. How they can all be achieved is a challenge, while the theoretical work covered here alludes to this, in many cases it does not provide sufficient answers.

Another strand of research has examined the issue of public opposition to energy infrastructure from a social movement perspective. Hoberg (2015) highlights role of environmental activists in opposing fossil fuel infrastructure by actively aiming to block approvals for construction. The author attributes this to a fundamental frustration in the absence of substantive government action on climate change issues. The opposition is part of a larger environmental movement transnationally, and the implications for local resistance are yet to be explored (Hoberg, 2015). In the same vein, Boudet and Ortolano (2010) focus on key characteristics of mobilization based on four factors that they have selected from the study of social movements; namely threat, political opportunity, resources and appropriation, and loss of trust. Accordingly,

they assert that broken trust between the public and key decision-makers influences outcomes through the generation of political opportunities for those opposed. Thus, the literature that assesses public opposition from the perspective of social movements provides clarity on the way in which actions on the basis of environmental concern stimulate public action. Nevertheless, the environmental concerns are only one of the main reasons for opposition, with equity as an additional consideration to contemplate.

Equity is a major concern for communities involved in siting processes (Rabe, 1992; Bowen et al., 1995; Lawrence, 1996). Aside for the specific procedural equity, there is a broader concern for environmental equity and environmental justice, which are quite similar. On the one hand, environmental equity is focused on the 'fairness in the distribution of new environmental risks based on certain criteria' (Baxter, Eyles and Elliot, 1999). Environmental justice on the other hand, 'involves remedial action to affect the distribution of existing risks in addition to equitable distributions of new risks' (Baxter, Eyles and Elliot, 2009). Environment justice and equity serve as guiding principles that emphasize social, spatial and procedural equity. The literature tends to move in the direction of such work. In this line of work, Keir, Watts and Inwood (2014) demonstrate that much research on citizen perceptions of proposed transmission lines was under the influence of an environmental justice framework. This framework is used to assess the type and quality of participation processes that citizens partake in. However, numerous studies highlight a transition from a research focus on distributive justice (equitable outcomes of decision-making) to one of procedural justice (a fair process in reaching outcomes). Originating in the 1970s, such research "hypothesized that the procedures used in decision-making significantly affect participant satisfaction separate from the impact of outcomes". (Keir, Watts and

Inwood, 2014, p111) The authors confirm this association, which is evident in the literature, and thus they emphasize the necessity to focus on the process itself. If participants perceive of the process as just, public trust in the institutions of decision-making is increased since participants believe that they can anticipate a fair process in the future. Baxter, Eyles and Elliot (1999) point to a movement in research that centres on the technical problems of siting to more prominent focus on the procedural principles involved in the process. Accordingly, they question whether such principles underpinning the idea of effective public participation are properly translated into practice. According to them, "while principles like equity, trust and community participation may have been implicitly assumed to be mutually reinforcing, we must pay attention to the possibility that they also have the potential to frustrate each other" (Baxter, Eyles and Elliot, 1999, p522). Thus, numerous considerations are involved in public participation processes, and substantial resources are necessary to ensure their fairness in practice.

The analysis of the notion of public participation gives rise to different perspectives based on how it is applied in practice. In this sense, Salomons and Hoberg (2014) are interested in the impact of recent changes to the Canadian Environmental Assessment process whereby the determining criteria of who can participate has been narrowed to those 'most directly affected'. They posit that the main implication of such a change is a compromised impartiality of the process, and that further exclusion for citizens from decision-making processes may effectually alienate the public and reduce the processes' legitimacy. On a more different note, Cook (2015) argues that there should be more care afforded to the dynamics of power in the practice of collaborative governance. Based on the case of public participation practices around hydraulic fracturing in Colorado, he argues that the determination of

available solutions to the problem was largely influenced by industry. Therefore, more attention in the literature ought to be paid to collaborative processes. Largely, the work focuses on how to generate better public participation for more acceptable decision-making processes. In response to such positions, authors such as Rabe (1992) have advocated for the achievement of collective decision-making through citizen participation in the community that may enhance the public confidence. Very important for trust, is the perception of key authoritative decision-makers as acting in the public interest. Thereby, Rabe (1992) argues for collaboration between different levels of government and with the public to act in the interest of the public and ensure cooperation and coordination for energy development.

IMPORTANCE FROM
A REGULATORY PERSPECTIVE

Risk Perception and Trust

The primary perspective evident for public opposition to different types of energy projects is arguably health and safety concerns. The personal concern for the health and safety of oneself and one's family rises to the forefront – whether on the basis of new technologies that pose unknown risks, or existing technologies with known risks that are to be mitigated. What arises from this assessment is the observation that the health and safety concerns can often be tied with environmental concerns simply due to the nature of the risks imposed. Hazardous facilities and the concurrent siting controversies that emerged in the 1980s, were largely based on the unknown about risks associated with the waste that may contaminate sites with toxic materials (Siegrist, Gutscher, and Earle, 2005; Cvetkovich and Nakayachi, 2007; Bronfmann et al. 2012). In the context of not knowing, the public concerns escalate and health and safety emerges as a primary concern. This is similar in the case of hydraulic fracturing whereby the newer twin technologies applied in the process of shale oil and gas extraction pose less known risks (Wood, 2012). Concerns about the contamination of groundwater and apprehension about adverse effects on human health have escalated opposition to the practice in a variety of producing jurisdictions (Heikkila et al., 2014; Fisk, 2013). Furthermore, pipelines have garnered lots of attention in this respect in association with the risks posed with leaks and what are perceived as the dangers posed by transporting fossil fuels through the environmental terrain (Salomons and Hoberg, 2014). With regards to High Voltage Transmission Lines (HVTOL), the risks of Electro-Magnetic Field (EMF) through mechanisms of noising radiation have caused strong concerns in communities along the route of HVTOLs (Cain and Nelson, 2013; Furby and Slovic, 1988). The role of risk perception is therefore tantamount in any assessment of public opposition to energy.

In a differentiated society where roles are increasingly specialized, people have grown to depend more on one another. This has given trust a more important role since individual well-being is dependent on the role of others to accomplish their functions. According to this perspective, regulatory authorities are very important to society because people rely on them to manage and mitigate the risks emerging from different developments. Mostly, risk is described as 'danger from future damage' (Joffe, 2003). Accordingly, the social psychological perspective indicates that lay individuals do not necessarily differentiate strongly between hazards and risks. Thus, individuals see misfortunes in terms of human choices, regardless of their material basis (Joffe, 2003). Through this line of inquiry, the research facilitates an examination of the number of factors aside from objective risks that the public may be concerned with. Accordingly, the level of trust in governmental agencies responsible for the management and regulation of the technology rose to prominence on the research agenda. Therefore, "social trust is invoked when regulatory agencies make decisions under conditions of uncertainty" (Bronfman et al., 2012, p247).

Paradoxically however, trust in the institutions of government has been on the decline for years. The paradox creates a unique point of contention between the realm of acceptance and the role of public agencies, particularly regulatory agencies in the present context. It has facilitated the extension of studies into the behavioural sciences to assess how risk perception relates to trust. The focus on risk communication is arguably a reaction to one indication of the 'decline of deference' (Nevitte, 1996). This decline is conveyed by the notion that due to widespread political and social trends, the public is increasingly alienated from authoritative institutions and has high levels of distrust

towards them (Laird, 1989). Laird (1989) demonstrates that citizens are progressively less inclined to defer certain decisions to the authoritative institutions and what is perceived as institutionalized elites. Hence, the focus on achieving better risk communication strategies to deal with the mistrust in public authorities is a key strategy in bridging the relationship. The recognition of the decline in trust is an important one in the siting of hazardous facilities and waste management literature that addresses the heart of the discussion on public opposition at the community level.

The literature dealing with the issue of trust in public institutions has developed in different dimensions; one major strand emphasizes the role of risk perception and acceptance of risk. Regulatory institutions appear to be central influences on social acceptability through a transitive relationship. With new technologies in particular, the perception of risk is subject to the level of trust accorded to institutions that regulate the deployment of said technologies (Frewer et al., 2003; Siegrist, 1999). As such, acceptance is arguably influenced by the perception of associated risks. Bronfman et al. (2012) specify the need on behalf of regulators to assess acceptance or opposition to technologies, particularly since they may have a large impact on social acceptance. The main determinant in accounting for social behavior in relation to hazardous technology is risk perception. This is defined as "the perception of the probability of an adverse event and the consequence/magnitude of the event"(Pijawka and Mushkatel, 1991, p184). In this vein there are two converging paths of behavioral research: one path examines cognitive explanatory models and the other deals with how risks of technology and hazardous facility siting are perceived by people (Pijawka and Mushkatel, 1991; Kasperson et al., 2003).

Interestingly, the research approaches developed in the analysis of wind energy developments have been applied to other segments of production such as biomass, tidal and hydro energy. The importance of trust as a central process in acceptance for biomass projects arises in many analyses. In an examination of the development of a biomass plant in the UK, Upham and Shackley (2006) posit that the low levels of trust in key actors shaped the public methods of response to information provided from the planning process. Distinctively, Sinclair and Lofstedt (2001) examine specific factors that underlie risk in institutions in the biomass development in the UK. They were able to assess the levels of trust in five key institutions involved in the planning process where risk communication, perceived fairness, and public participation were central factors in the determination of trust (Sinclair and Lofestedt, 2001). While this study looks at the exact institutions involved, attempting to measure trust in direct relation to them, most of the other studies implicate the importance in key decision-makers from key institutions.

It is important to note that the indicators of trust vary across the different fields of assessment, however the main ones that crop up consistently are competence, openness and transparency. To be clear, there is a large portion of work that is aimed at elucidating the factors surrounding public opposition to energy projects. Thus, the focus is on the role of trust and its link to acceptance where numerous studies directly associate trust with acceptance. Therefore, the more trust fostered, the more acceptance is expected to emerge within a community. Due to this association, there are many links made to the engagement and involvement of citizens in the processes surrounding development in their communities. Public participation is continuously emphasized as a key tenet

of social acceptance, and a core aspect in the development of trust between the key actors in a community. What emerges from the academic work is the notion of trust as something of a practice that can be employed to garner acceptance.

Thus, as a 'practice' it involves a communicative dimension. This is important because the communication of risks and benefits surrounding energy projects and development more broadly is seen to have a major impact on the acceptance and support. Discrediting terms such as NIMBY and BANANA (Build Absolutely Nothing Anywhere Near Anything) that are overly simplistic, numerous authors have shown readiness on behalf of different communities to be engaged and participate in the issues surrounding development in their jurisdictions. Much hinges on the relationship of trust not only between the key individuals involved in the actual decision-making processes but the broader institutions and institutional setting within which they operate. The idea of communicative practice therefore finds relevance in the interactions between key agencies and people. Interactions however, draw attention to the participants and the contextual factors within which they operate. Thus, their values and interests require further assessment in relation to the information they are provided with, how this information is communicated, and the circumstances of engagement and participation that may lead to situations of trust and confidence in a particular setting. Furthermore, historical factors take precedence and the role of culture and experience cannot be discredited. As such, institutional dynamics are expected to be central and they are demonstrated to have a strong impact on the formation of perspectives.

CONCLUSION

Public authorities in the context of declining trust in government, increasing social fragmentation and the increased perception of risk have many challenges facing them in the path to social acceptance and support. The ones most explored by the literature are assessed in this paper to demonstrate some of the key areas for deliberation in relation to public confidence and trust. The review of the literature on energy development across different sectors in light of public opposition yields five important dimensions for consideration. From the perspective of communities, it is increasingly evident that contextual factors ought to be given further consideration. Interactions between various stakeholders at the community level are shaped by the political context, and the history of relations in context exerts influence on current developments based on type and scale of different projects. In this vein, the institutional context and the level of trust with local public agencies can have a major influence on social acceptance and support. This is an area of the literature that is not as thoroughly assessed, although research does focus on some of the characteristics of the policy landscape, more research can illuminate the role of policymakers and regulators at the community level.

Moreover, institutional structure appears to be pivotal in terms of the issue of public confidence. Whether the regulator is perceived as independent and therefore the link to legitimacy is an area that can further be explored in this dimension; one that is intimately linked with the issue of trust. Furthermore, values and interests clearly play a large role by exerting influence on the people's positions towards energy development. The literature has assessed values from a cognitive perspective to demonstrate the relationship to behaviour. What emerges is an understanding that values are subject to information that may be used to either bolster or alter them. Information is a key resource in this equation, and the effect of numerous sources of information in the 21st century is beginning to be understood. Social media now has a role in the widespread diffusion of information, and the way this interacts to shape public opinion is highlighted in terms of shaping public discourse. The effects of this, especially in the energy sector are still not entirely conclusive and further research can benefit the understanding of how the policy-makers can respond to such challenges.

Arguments for increased levels of energy literacy are not necessarily well founded in all cases as demonstrated by some authors. Since risk perception is fundamentally at the center of the debates on energy development, there is a large role for effective risk communication and engagement practices to shape the discourse and lead to acceptance. According to a large segment of the literature as demonstrated here – risk communication, perceived fairness, and public participation are central factors in the determination of trust. Furthermore, equity considerations take on prominence at the community level whereby they appear to be consistent demands across the literature for more public participation and engagement. There is a large role for public authorities to play since trust building can lead to outcomes that are acceptable to citizens if they perceive the decision-making processes to be fair. Trust is particularly important in the context of risk perception whereby the role of regulatory bodies is increasingly prominent to mitigate risk. Overall, the literature contributes many insights along different dimensions of the issue of public opposition. Nonetheless, there remains ample room to assess the role of confidence in public authorities.

BIBLIOGRAPHY

Aitken, M. (2010). Wind power and community benefits: Challenges and opportunities. *Energy policy*, *38*(10), 6066-6075.

Ali-Khan, F., & Mulvihill, P. R. (2008). Exploring collaborative environmental governance: perspectives on bridging and actor agency. *Geography Compass*,*2*(6), 1974-1994.

Axsen, J. (2014). Citizen acceptance of new fossil fuel infrastructure: Value theory and Canada's Northern Gateway Pipeline. *Energy Policy*, *75*, 255-265.

Baxter, J. W., Eyles, J. D., & Elliott, S. J. (1999). From siting principles to siting practices: a case study of discord among trust, equity and community participation. *Journal of Environmental Planning and Management*, *42*(4), 501-525.

Boudet, H. S., & Ortolano, L. (2010). A tale of two sitings: contentious politics in liquefied natural gas facility siting in California. *Journal of Planning Education and Research*.

Boudet, H., Clarke, C., Bugden, D., Maibach, E., Roser-Renouf, C., & Leiserowitz, A. (2014). "Fracking" controversy and communication: Using national survey data to understand public perceptions of hydraulic fracturing.*Energy Policy*, *65*, 57-67.

Boutilier, R. G. (2007). Social Capital in FirmStakeholder Networks. *Journal of Corporate Citizenship*, *2007*(26), 121-134.

Boutilier, R., & Thomson, I. (2011). Modelling and measuring the social license to operate: Fruits of a dialogue between theory and practice. *Social Licence*.

Bowen, W., Salling, M., Haynes, K. & Cyran, E. (1995). Toward environmental justice: spatial equity in Ohio and Cleveland, Annals of the Association of American Geographers, 85(4), pp. 641-63.

Bronfman, N. C., Jiménez, R. B., Arévalo, P. C., & Cifuentes, L. A. (2012). Understanding social acceptance of electricity generation sources. *Energy policy*, *46*, 246-252.

Brown, B., Perkins, D. D., & Brown, G. (2003). Place attachment in a revitalizing neighbourhood: Individual and block levels of analysis. *Journal of Environmental Psychology, 23*, 259–271.

Cain, N. L., & Nelson, H. T. (2013). What drives opposition to high-voltage transmission lines?. *Land Use Policy*, *33*, 204-213.

Carlisle, J. E., Feezell, J. T., Michaud, K. E., Smith, E. R., & Smith, L. (2010). The public's trust in scientific claims regarding offshore oil drilling. *Public Understanding of Science*, *19*(5), 514-527.

CNGI (2013). *Engaging Canadians: Report of the Dialogues on Canada's Natural Gas Industry.* The Canadian Natural Gas Initiative.

Retrieved from: http://www.cepa.com/wp-content/uploads/2014/01/Natural-Gas.pdf

Cook, J. J. (2015). Who's Pulling the Fracking Strings? Power, collaboration and Colorado fracking policy. *Environmental Policy and Governance*, 1-19. DOI:10.1080/19390459.2015.1080899

Cotton, M., & Devine-Wright, P. (2013). Putting pylons into place: a UK case study of public perspectives on the impacts of high voltage overhead transmission lines. *Journal of Environmental Planning and Management*, *56*(8), 1225-1245.

Cowx, E. (2013). *CCRE Commentary: Overcoming Public Opposition to New Electricity Infrastructure Projects*. Council for Clean and Reliable Electricity.

Retrieved from: http://www.thinkingpower.ca/PDFs/Commentary/CCRE%20Commentary%20-%20Overcoming%20Public%20Opposition%20to%20New%20Electricity%20Infrastructure%20-%20April%202013.pdf

Cvetkovich, G., & Nakayachi, K. (2007). Trust in a high-concern risk controversy: A comparison of three concepts. *Journal of Risk Research*, *10*(2), 223-237.

Dake, K. (1991). Orienting dispositions in the perception of risk: An analysis of contemporary worldviews and cultural biases. *Journal of Cross Cultural Psychology, 22*, 61-82.

Dear, M. (1992). Understanding and overcoming the NIMBY syndrome. *Journal of the American Planning Association*, *58*(3), 288-300.

De Groot, J. I. M., & Steg, L. (2007). Values, beliefs and environmental behavior: validation of an instrument to measure egoistic, altruistic and biospheric value orientations in five countries. *Journal of Cross Cultural Psychology*, *38*, 318-332.

De Groot, J. I., Steg, L., & Poortinga, W. (2013). Values, perceived risks and benefits, and acceptability of nuclear energy. *Risk Analysis*, *33*(2), 307-317.

Devine-Wright, P., & Lyons, E. (1997). Remembering pasts and representing places: The construction of national identities in Ireland. *Journal of Environmental Psychology*, *17*(1), 33-45.

Devine-Wright, P. (2005). Beyond NIMBYism: towards an integrated framework for understanding public perceptions of wind energy. *Wind energy*, *8*(2), 125-139.

Devine-Wright, P. (2007). Reconsidering public attitudes and public acceptance of renewable energy technologies: a critical review. *Manchester: School of Environment and Development, University of Manchester. Available at: http://www. sed. manchester. ac. uk/research/ beyond_nimbyism*.

Devine-Wright, P. (2011). Public engagement with large-scale renewable energy technologies: breaking the cycle of NIMBYism. *Wiley Interdisciplinary Reviews: Climate Change*, *2*(1), 19-26.

Devine-Wright, P. (2009). Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action. *Journal of Community & Applied Social Psychology*, *19*(6), 426-441.

Devine-Wright, P. (2011b). Place attachment and public acceptance of renewable energy: A tidal energy case study. *Journal of Environmental Psychology*, *31*(4), 336-343.

Diduck, A. (2010). The learning dimension of adaptive capacity: Untangling the multi-level connections. In *Adaptive capacity and environmental governance*(pp. 199-221). Springer Berlin Heidelberg.

Fast, S., & Mabee, W. (2015). Place-making and trust-building: The influence of policy on host community responses to wind farms. *Energy Policy*, *81*, 27-37.

Fisk, J. M. (2013). The right to know? State politics of fracking disclosure. *Review of Policy Research*, *30*(4), 345-365.

Frewer, L. J., Scholderer, J., & Bredahl, L. (2003). Communicating about the risks and benefits of genetically modified foods: The mediating role of trust. *Risk analysis*, *23*(6), 1117-1133.

Furby, L., Slovic, P., Fischhoff, B., & Gregory, R. (1988). Public perceptions of electric power transmission lines. *Journal of Environmental Psychology*, *8*(1), 19-43.

Greenberg, M. R. (2014). Energy policy and research: the underappreciation of trust. *Energy Research & Social Science*, *1*, 152-160.

Gunningham, N., Kagan, R. A., & Thornton, D. (2004). Social license and environmental protection: why businesses go beyond compliance. *Law & Social Inquiry*, *29*(2), 307-341.

Heikkila, T., Pierce, J. J., Gallaher, S., Kagan, J., Crow, D. A., & Weible, C. M. (2014). Understanding a Period of Policy Change: The Case of Hydraulic Fracturing Disclosure Policy in Colorado. *Review of Policy Research*, *31*(2), 65-87.

Hilson, G., & Basu, A. J. (2003). Devising indicators of sustainable development for the mining and minerals industry: an analysis of critical background issues.*The International Journal of Sustainable Development & World Ecology*, *10*(4), 319-331.

Hoberg, G., Rivers, A., & Salomons, G. (2012). Comparative pipeline politics: oil sands pipeline controversies in Canada and the United States. In *APSA 2012 Annual Meeting Paper*.

Hoberg, G. (2013). The Battle Over Oil Sands Access to Tidewater: A Political Risk Analysis of Pipeline Alternatives. *Canadian Public Policy*, *39*(3), 371-392.

Hoberg, G. (2015). *Pipeline Resistance as Political Strategy: "Blockadia" and the Future of Climate Politics.* A paper presented at the Annual CPSA Conference.

Hubner, G., & Meijnders, A. (2004). Public acceptance of electricity from biomass: impact of direct experience on attitudes. In *International Association for People-Environment Studies Bi-annual Conference, Vienna, July.*

Jenkins-Smith, H. C., & Sabatier, P. A. (1994). Evaluating the advocacy coalition framework. *Journal of public policy*, *14*, 175-175.

Joffe, H. (2003). Risk: From perception to social representation. *British journal of social psychology*, *42*(1), 55-74.

Kasperson, R. E., Golding, D., & Tuler, S. (1992). Social distrust as a factor in siting hazardous facilities and communicating risks. *Journal of social issues*, *48*(4), 161-187.

Kasperson, R. E., Pidgeon, N., & Slovic, P. (2003). *The social amplification of risk*. Cambridge University Press.

Keir, L., Watts, R., & Inwood, S. (2014). Environmental justice and citizen perceptions of a proposed electric transmission line. *Community Development*, *45*(2), 107-120.

Laird, F. N. (1989). The decline of deference: The political context of risk communication. *Risk Analysis*, *9*(4), 543-550.

Lawrence, D. (1996) Approaches and methods of siting locally unwanted waste facilities, Journal of Environmental Planning & Management, 39(2), pp. 165±187.

Lofstedt, R. E. (1999). Role of Trust in the North Blackforest: An Evaluation of a Citizen Panel Project, The. *Risk*, *10*, 7.1

Mazur, A. (2014). How did the fracking controversy emerge in the period 2010-2012?. *Public Understanding of Science*, 1-16. DOI: 10.1177/0963662514545311

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual review of sociology*, 415-444.

Mulvihill, P., Winfield, M., & Etcheverry, J. (2013). Strategic Environmental Assessment And Advanced Renewable Energy In Ontario: Moving Forward Or Blowing In The Wind?. *Journal of Environmental Assessment Policy and Management*, *15*(02).

Nevitte, N. (1996). *The decline of deference: Canadian value change in cross-national perspective* (Vol. 295). Peterborough: Broadview Press.

Noble, B.F. (2010). *Introduction to Environmental Impact Assessment: A Guide to Principles and Practice*, 2nd edn. Oxford University Press, Toronto, Ontario.

Owen, J. R., & Kemp, D. (2013). Social licence and mining: a critical perspective. *Resources Policy*, *38*(1), 29-35.

Partidário, M. R. (Ed.). (1999). *Perspectives on strategic environmental assessment*. CRC Press.

Pijawka, K. D., & Mushkatel, A. H. (1991). Public opposition to the siting of the high-level nuclear waste repository: The importance of trust. *Review of Policy Research*, *10*(4), 180-194.

Prno, J., & Slocombe, D. S. (2012). Exploring the origins of 'social license to operate'in the mining sector: Perspectives from governance and sustainability theories. *Resources Policy*, *37*(3), 346-357.

Rabe, B. G. (1992). When siting works, Canada-style. *Journal of health politics, policy and law*, *17*(1), 119-142.

Renn, O., & Webler, T. (1995). *Fairness and competence in citizen participation: Evaluating models for environmental discourse* (Vol. 10). Springer Science & Business Media.

Rivard, C., Lavoie, D., Lefebvre, R., Séjourné, S., Lamontagne, C., & Duchesne, M. (2013). An overview of Canadian shale gas production and environmental concerns. *International Journal of Coal Geology*.

Sabatier, P. A. (1987). Knowledge, policy-oriented learning, and policy change an advocacy coalition framework. *Science Communication*, *8*(4), 649-692.

Salomons, G. H., & Hoberg, G. (2014). Setting boundaries of participation in environmental impact assessment. *Environmental Impact Assessment Review*, *45*, 69-75.

Siegrist, M. (1999). A causal model explaining the perception and acceptance of gene technology1. *Journal of Applied Social Psychology*, *29*(10), 2093-2106.

Siegrist, M., Gutscher, H., & Earle, T. C. (2005). Perception of risk: the influence of general trust, and general confidence. *Journal of Risk Research*, *8*(2), 145-156.

Simard, L. (2008). Conducting Projects in Uncertain Times The Case of Electric Power Lines. *Public Works Management & Policy*, *12*(4), 578-589.

Sinclair A. J., & Diduck A.P. (2001). Public involvement in EA in Canada: a transformative learning perspective. *Environ Impact Assess Rev*, 21, 113–36.

Sinclair, P., & Löfstedt, R. (2001). The influence of trust in a biomass plant application: the case study of Sutton, UK. *Biomass and Bioenergy*, *21*(3), 177-184.

Sinclair, A. J., & Fitzpatrick, P. (2002). Provisions for more meaningful public participation still elusive in proposed Canadian EA Bill. *Impact assessment and project appraisal*, *20*(3), 161-176.

Slovic, P. (1993). Perceived risk, trust, and democracy. *Risk analysis*, *13*(6), 675-682.

Stern, P. C., Kalof, L., Dietz, T., & Guagnano, G. A. (1995). Values, beliefs, and proenvironmental action: attitude formation toward emergent attitude objects1.*Journal of applied social psychology*, *25*(18), 1611-1636.

Szarka, J. (2006). Wind power, policy learning and paradigm change. *Energy Policy*, *34*(17), 3041-3048.

Upham P. and Shackley, S. (2006) Stakeholder opinion of a proposed 21.5MWe biomass gasifier in Winkleigh, Devon: implications for bioenergy planning and policy. *Journal of Environmental Policy and Planning*, 8(1), 45-66.

Upreti, B. R., & van der Horst, D. (2004). National renewable energy policy and local opposition in the UK: the failed development of a biomass electricity plant. *Biomass and bioenergy*, *26*(1), 61-69.

Vasi, I. B., Walker, E. T., Johnson, J. S., & Tan, H. F. (2015). "No Fracking Way!" Documentary Film, Discursive Opportunity, and Local Opposition against Hydraulic Fracturing in the United States, 2010 to 2013. *American Sociological Review*, 1-26. DOI:10.1177/0003122415598534.

Veiga, M.M., Scoble, M., & McAllister, M.L. (2001). Mining with communities. *Natural Resources Forum, 25*, 191–202.

Vorkinn, M., & Riese, H. (2001). Environmental concern in a local context the significance of place attachment. *Environment and Behavior*, *33*(2), 249-263.

Walsh, P. J., Bird, S., & Heintzelman, M. D. (2015). Understanding Local Regulation of Fracking: A Spatial Econometric Approach. *Agricultural and Resource Economics Review*, *44*(2), 138-163.

Weible, C. M. (2008). Expert-based information and policy subsystems: a review and synthesis. *Policy Studies Journal*, *36*(4), 615-635.

Wolsink, M. (2006). Invalid theory impedes our understanding:
a critique on the persistence of the language of NIMBY.
Transactions of the Institute of British Geographers, *31*(1), 85-91.

Wolsink, M. (2007). Wind power implementation: the nature
of public attitudes: equity and fairness instead of 'backyard motives'.
Renewable and sustainable energy reviews, *11*(6), 1188-1207.

Wolske, K., & Hoffman, A. (2013). Hydraulic Fracturing in the
State of Michigan-Public Perceptions Technical Report.

Wood, C., & Dejeddour, M. (1992). Strategic environmental
assessment: EA of policies, plans and programmes.
Impact Assessment, *10*(1), 3-22.

Wood, J. (2012). The Global anti-fracking movement: What it wants,
how it operates and what next. *Control Risks Group, London*.

THE UNIVERSITY OF OTTAWA'S POSITIVE ENERGY PROJECT
USES THE CONVENING POWER OF THE UNIVERSITY
TO BRING TOGETHER ACADEMIC RESEARCHERS AND
DECISION-MAKERS TO DETERMINE HOW ENERGY RESOURCES
CAN BE DEVELOPED IN WAYS
THAT GARNER SOCIAL ACCEPTANCE.

uOttawa   POSITIVE ENERGY