

A Voice for the Community: Public Participation in Wind Energy Development

Abstract: Wind energy is expanding globally and locally in Atlantic Canada. It is a promising emission-free energy alternative in a context of increasing climate change concerns. Surveys have reported high levels of acceptance for wind energy in general; however, this acceptance has not always been reflected in community responses to local wind energy projects. Public participation has been proposed as an approach for addressing the gap between support in the general population and local opposition. However, participation should not be viewed solely as a means of removing opposition but rather as the democratic right of local communities to influence decision-making. This paper suggests that the participatory mechanisms currently available to host communities are limited in form and substance. Increasing the quality and quantity of participation would provide a range of benefits, including a movement towards the larger societal goal of meaningful public governance of natural resources and the environment.

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Introduction

The growing scientific consensus on the anthropogenic causes of climate change is fueling the search for renewable alternatives to fossil fuel-based energy (Intergovernmental Panel on Climate Change, 2007). International negotiations, in conjunction with multi-national agreements such as the now defunct Kyoto Accord, have included strong emphasis on the need for reducing greenhouse-gas emissions (United Nations Framework Convention on Climate Change, 2011). In Canada, energy production and use contributes the most to greenhouse gas emissions (Environment Canada, 2011), and so the imperative to develop emission-free alternatives to emission-intensive sources such as coal, oil, and natural gas is clear.

One of the available low-emission energy alternatives is wind energy. Wind energy is an attractive option because it is considered a mature, cost-effective, and deployable technology, unlike certain other renewable energies that have undergone less extensive testing to date (Rod, 2011; Morthorst & Chandler, 2004; McLaren Loring, 2007). Furthermore, surveys have consistently found that public acceptance for wind energy development is generally high in many countries including Canada (Bell, Gray, & Haggett, 2005). Provincial surveys in Ontario and Nova Scotia, for example, have found similar results (Adams & Wheeler, 2010; Ipsos Reid, 2010). Given public acceptance of these results, it would seem reasonable to expect a high degree of wind energy uptake, however in reality this has not been borne out by the facts (Bell, Gray & Haggett, 2005). This begs the following question: what are the factors impeding the implementation of wind energy technology in Canada?

A fundamental place to begin this investigation is in the communities in which wind farms are located. Upon close examination, it is apparent that community support does not always echo the broad support found for wind energy in the general population (Barry et al., 2008; Toke, 2002; Wolsink, 2007). Local community opposition to wind developments has been vociferous, and in some cases has caused projects to be delayed, modified, or abandoned altogether (Bell et al., 2005; Pasqualetti, 2011). Wind energy could conceivably play an important role in meeting federal and provincial renewable energy targets, but only if the issue of local community acceptance and support for wind energy projects is addressed.

This paper hypothesizes that a key aspect of community endorsement of wind development projects is the level of participation that they are granted in planning and management processes (Coleby, Miller & Aspinall, 2009). In the context of public participation processes, a key characteristic is the degree of control in the hands of the local public, specifically affected local communities. A problem arises when proponents and government regulators differ with communities when it comes to what constitutes adequate public participation. This paper will situate this problem in the context of the literature on public participation in natural resource

management. Based on relevant literature sources, the current venues for participation for Nova Scotia communities facing wind development will be explored and critically evaluated. This discussion will take into account the Canadian Environmental Assessment process, as this is the only legislated mechanism for public participation on development projects in Canada (Canadian Environmental Assessment Act, 2010).

This paper will first set the context of wind energy in terms of the scale of current operations and projected developments. It will then link the concept of public perception towards wind energy to the related concept of public participation in wind energy management practices. Public acceptance of wind energy is frequently cited to be high, although the methods by which these findings have been determined have been seriously critiqued. Negative perceptions of local wind developments have frequently been cited as an example of the NIMBY (Not In My Backyard) phenomenon, but there are significant flaws and limitations inherent to the NIMBY theory. A more useful framework to understand local attitudes towards wind farms is public participation analysis. This paper postulates that in order to support the development of wind energy, public participation must become a central aspect of wind energy development and management practices. The discussion will close with an overview of recommendations for implementing participatory mechanisms.

Background and Context of Wind Energy in Atlantic Canada

Globally, wind energy is the fastest growing renewable technology, with 39 GW of capacity added in 2010, or three times the increase of 2005 (Rod, 2011). In Canada, installed wind capacity currently totals approximately 4600 MW (CanWEA, 2011). This total has increased steadily since the early 2000s, (see Figure 1) and the Canadian Wind Energy Association (CanWEA) expects this number to increase by 1000 MW by the end of 2011 (CanWEA, 2011). A number of federal and provincial targets, incentives, and funding programs in support of renewable energy in general and wind energy in particular further suggest that the patterns of expansion evidenced in the Canadian wind energy industry can be expected to continue in the future (Ferguson-Martin & Hill, 2011). Despite these promising figures, in 2010 wind energy made up only 1.3% of Canada's total energy generation (Ferguson-Martin & Hill, 2011).

Canada's Installed Wind Energy Capacity (MW)

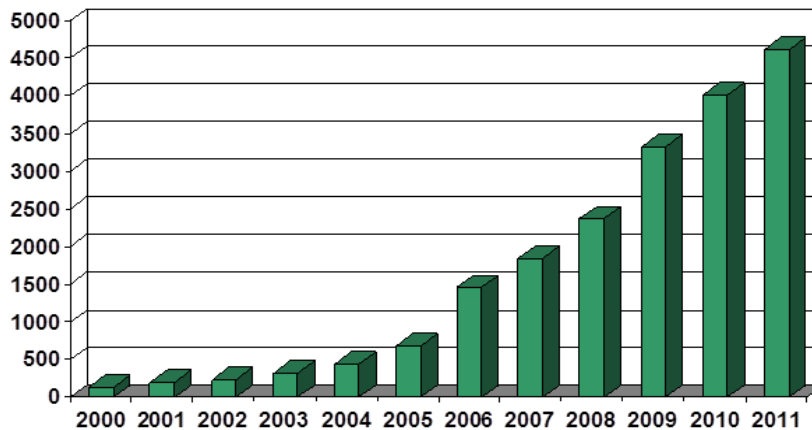


Figure 1: Canada's Installed Wind Energy Capacity (MW)
(adapted from CanWEA, 2010)

The Atlantic region of Canada has a particularly strong involvement in wind energy development, as evidenced by the fact that the Atlantic region accounts for less than 7% of total Canadian population and 5.5% of its landmass, but produces 16% of Canada's wind energy (Statistics Canada, 2005). Among Atlantic provinces, Nova Scotia has demonstrated significant interest in growing its wind energy capacity, which may be explained by current high rates of dependencies on fossil fuels and the high availability of wind energy resources. For example, Nova Scotia's energy matrix is composed of 53% coal, 17% gas, and 9% petroleum, for a total of 89% of electricity generated by non-renewable, greenhouse gas producing fossil-fuel sources (Centre for Energy, 2009). In contrast, the Nova Scotia Department of Energy has made ambitious commitments to attaining 40 % renewable energy sources by 2020 (Nova Scotia Department of Energy, 2010). In terms of wind energy, the province would like to see the share of wind increase from 6% to 20% by 2013 (Ferguson-Martin & Hill, 2011). One factor that has been hypothesized to influence the implementation success of wind development projects is public acceptance.

Public Acceptance of Wind Energy Development

The literature on public attitudes and acceptance of wind energy is considerably more extensive than the literature that explicitly and primarily deals with public participation and wind energy. However, it is important to understand the former as the two are closely entwined. Furthermore, the literature dealing with public acceptance has often concluded that increased public participation will yield increased public acceptance (Coleby, Miller & Aspinall, 2009; Krohn & Damborg, 1999).

Determining Levels of Public Acceptance

Public perception of wind energy, including levels of acceptance and/ or opposition, has been the primary focus of a great deal of academic literature (Barry, Ellis, & Robinson, 2008). Over the past decades, a number of public opinion polls and surveys have been conducted by private and government parties, and the resulting data has been referenced extensively in the relevant wind energy literature. These reported results have found overwhelmingly high levels of public support and acceptance for wind energy in the general public (McLaren Loring, 2007). These findings have been the foundation of a number of published research projects that have sought to establish the causes behind local opposition to particular wind energy development projects, despite the apparently high levels of general social acceptability (for example see Department of Business, Enterprise and Regulatory Reform, 2008). In particular, these results have given rise to the development of “social gap” analysis, whereby authors attempt to understand and explain the discrepancy between high public acceptance numbers in polls and relatively lower local support of specific wind energy projects (Bell, Gray, & Haggett, 2005). For example, in the United Kingdom a mere quarter of contracted wind power is actually commissioned, despite a popular approval rating of 80% for wind energy (Bell, Gray, & Haggett, 2005).

However, the previous approach has come under fire for uncritically accepting public survey results without examining the specific methodologies of the polling techniques used (Aitken, 2010). In fact, depending on the manner in which survey questions are designed, respondents are selected, and data is interpreted, surveys and polls may yield misleading results. For instance, Barry, Ellis, & Robinson (2008) have proposed rhetorical analysis as an alternative or at least complementary means of evaluating the level of support for wind energy. These authors point out that the examination of discourses and narratives within “pro” and “anti” wind energy positions can capture subtleties that a course-grained survey simply cannot. Indeed, Barry, Ellis, & Robinson (2008) conclude that in reality, there are no two homogenous and monolithic positions when it comes to wind energy, and there may in fact be more common ground between supporters and opponents of wind energy than previously revealed through standard surveying methods. The main lesson one can take from this literature is that it is wrong to assume that attitudes towards wind *energy* accurately represent attitudes towards specific wind *turbines*. The former is an abstract and general concept while the latter is a tangible one, tied to a specific geographical and social context.

Determinants of Public Acceptance: Moving Beyond NIMBY

In earlier published works on public acceptance of wind energy development, the NIMBY phenomenon (or “Not In My Backyard”) was suggested as a causal factor of local opposition; implying that such objections would not be extended to the same development located elsewhere (Wolsink, 2007). Recent studies also continue to ground their understanding of wind energy opposition in NIMBY terms; for example Jones & Eiser (2010) suggest mechanisms for “reducing the size of people’s backyards to allow for the levels of wind development required to meet the UK’s ambitious but necessary renewable energy targets” (p. 3166). This study demonstrates that an uncritical acceptance of NIMBY persists despite the fact that the concept has undergone extensive criticism and by many accounts has been more or less discredited (Wolsink, 2007). According to Aitken (2010): “Within the wind power literature a broad consensus has emerged that NIMBY explanations are insufficient to understand public attitudes and/ or responses to wind power projects” (p. 1836). The NIMBY argument can be unhelpful and unproductive which promotes antagonism amongst stakeholders. Invoking the NIMBY label can be derogatory, as it dismisses community concerns as being hypocritical and thus irrational and selfish. This accusation can provoke a defensive and hostile reaction from opponents trying to gain legitimacy for what they perceive to be genuine concerns (Evans, Parks, & Theobald, 2011). NIMBY is now widely regarded as an insufficient and invalid theory to explain local opposition movements (Wolsink, 2007; Aitken, 2010). Primary research has even found that “inverse NIMBY-ism” can exist in some cases when it comes to wind turbine development; Warren, Lumsden, O’Dowd, & Birnie (2005) demonstrated that those with windfarms in their “backyard” were actually more supportive of the technology. Proposed alternatives to NIMBY theory include consideration of fairness and equity (Wolsink, 2007). Furthermore, Devine-Wright, and Howes (2010) have proposed an alternate framework that is based on disruptions to place identity. Specifically in the case of wind turbines, residents often have a symbolic attachment with the project site based on the scenic beauty of the landscape, which is in conflict with the industrial nature of large, highly visible turbines.

Public Participation in Resource Management

One proposed mechanism for increasing public acceptance of wind energy is public participation. Public participation is a non-specific term that is open to interpretation. In the context of wind energy, there is precedent to accept the following definition: “Direct involvement by residents in plan making beyond that of formal consultation, i.e., facilitating citizens with an opportunity to influence the planning process” (Breukers & Wolsink, 2007 in Rod, 2011). This characterization of public participation is somewhat idealized, as in reality the extent of public participation actions are often limited to formal consultation methods, which may indeed be inadequate. For the purposes of this paper, public participation will generally be understood as any mechanism by which “independent” groups or individuals (i.e. neither industry proponents nor government regulators) can contribute to a planning or management

process. As will be explored in further depth, public input can be varied in both form and substance.

There is nothing novel about the idea of utilizing public participation in resource and environmental management, and the importance of a participatory management approach has been recognized across a broad range of resource-based sectors (Vander Zwaag, Chao, & Covan, 2003; Hutchinson & Nichols, 2006; Kearney, Berkes, Charles, Pinkerton, & Wiber, 2007). For many resource-based industries in Canada, historically the public has been afforded limited levels of participation in management processes, even though local communities are often the stakeholders that stand to absorb the greatest brunt of the potential adverse impacts of management decisions; wind energy development is no exception in this regard (McLaren Loring, 2007; Devine-Wright, & Howes, 2010).

Justifying Public Participation

Many arguments have been made to justify the use of public participation in resource and environmental management contexts. For wind energy development, a common rationale for public participation is to increase the afore-mentioned public acceptance of the technology. McLaren Loring (2007) provides one example of primary research that finds an association between high levels of participatory planning processes and increased levels of public acceptance and wind energy project success. In addition, Rod (2011) has posited that transparent stakeholder engagement can provide social consent required for the development of wind energy projects. Public acceptance can create a “social license” for the wind industry, which is a valued commodity for wind proponents and developers due to its ability to foster implementation capacity (i.e. the capacity to successfully implement projects) (Agterbosch, Meertens, & Vermulen, 2009). Likewise, public opposition to wind energy is often quoted in the literature as having negative effects on the success rate of projects. For example, certain authors have gone so far as to claim that it constitutes the most influential factor on the decisions of local authorities (Evans, Parks, & Theobald, 2011; Bell et al., 2005; Toke, 2005). However, Aitken (2010) has countered that local opposition groups have relatively little power on influencing planning outcomes of wind energy projects, and that opposition most often results in delay of a project, with no necessary substantive change in project outcome. In fact, Ferguson-Martin and Hill (2011) demonstrated recently that in a selection of four Canadian provinces, financial viability was found to affect project deployment success rates more than social acceptability (see Figure 2, wherein the most important institutional factors in wind deployment are highlighted). If public participation is not associated with higher deployment success, it is unlikely to motivate a company to spend money on costly public participation activities, given that profit is their bottom line. We must therefore turn to alternative rationales for justifying public participation in wind energy development.

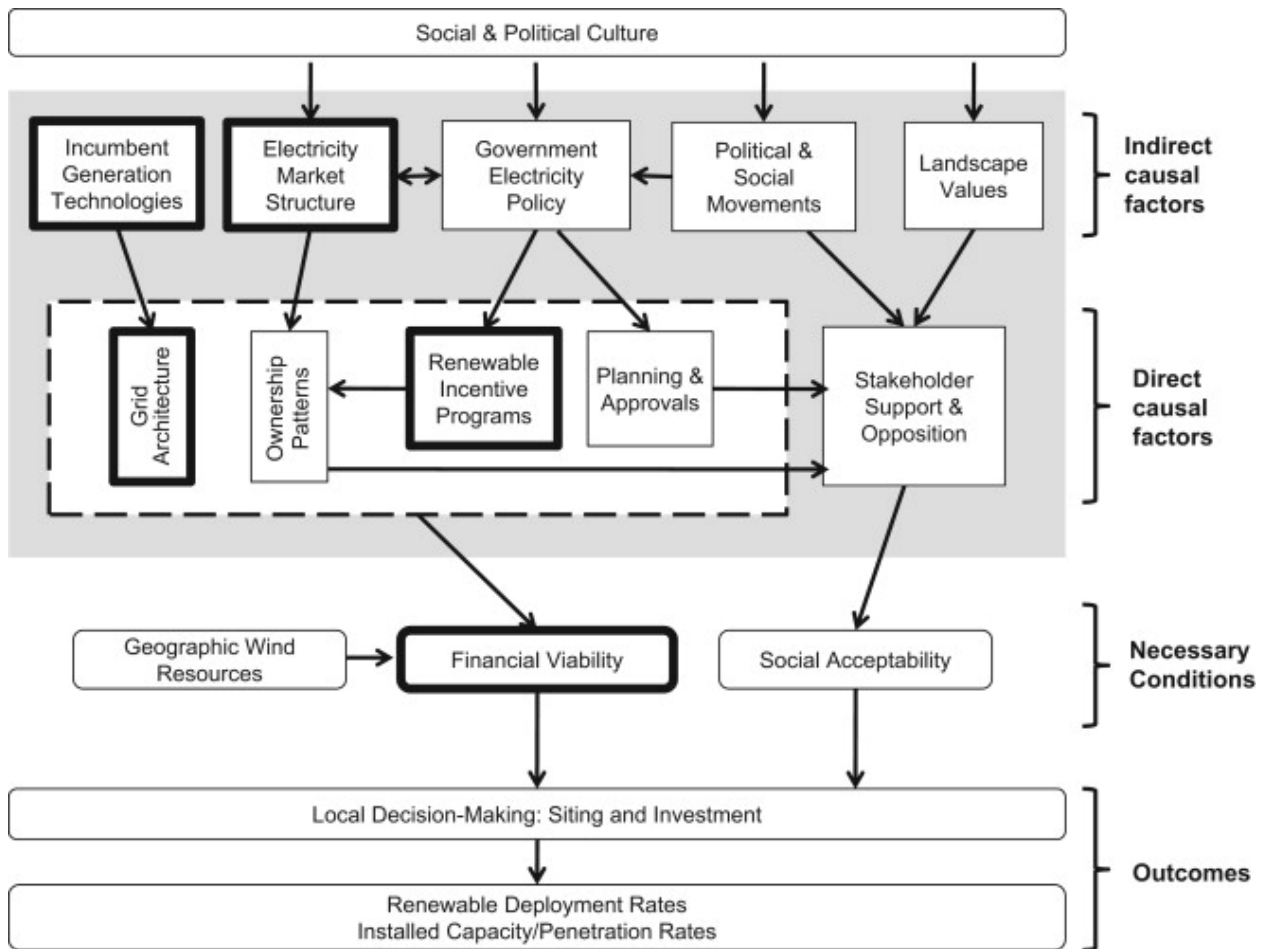


Figure 2: Most important factors of success for wind energy deployment (Ferguson-Martin & Hill, 2011)

Public participation can be seen through a different lens, one where the focus rests on the rights of the communities that host wind energy projects. A rights-based approach emphasizes issues such as the inherent rights of communities and individual citizens to democracy, fairness, and equity. McLaren Loring (2007), for example, outlined three arguments that support the use of public participation in decision-making; it “(1) is desirable and necessary in its own right as an essential attribute of democracy; (2) reduces conflict, fosters trust and facilitates justification in decision making; and (3) results in more robust, higher-quality decisions” (Fiorino, 1990, p. 2650).

While the rights-based justification for public participation as discussed above is strong evidence for the need to incorporate participatory mechanisms into wind energy management practices, these mechanisms can provide additional “co-benefits.” Participatory processes often facilitate discourse amongst a range of stakeholders, thus eliciting a wider range of opinions and values that can assist in defying problems and identifying solutions (Coleby, Miller, & Aspinall, 2009). Especially in the wind energy context, public participation can also be

an opportunity to unearth the root causes of public opposition to development projects. For example, while projects are frequently contested on the grounds of tangible objections such as noise, shadow flicker, and bird kills, more subjective concerns such as visual impact may truly be at the heart of community concerns. Until the true issues are identified they will not be addressed (Coleby, Miller & Aspinall, 2009).

Lastly, public participation has the potential to weigh the difficult trade-offs between local costs of wind energy on the one hand and large scale benefits on the other (Coleby, Miller, & Aspinall, 2009; McLaren Loring, 2007). Authors such as Evans, Parks, & Theobald (2011) have provided examples where participation has revealed the perceived lack of community benefits stemming from wind developments and allowed actors to explore the range and extent of benefits, monetary or otherwise, that the community would accept in return for the risks and/or perceived costs associated with a wind turbine in the proximity of their residences. A case study from Japan (Maruyama, Nishikido, & Iida, 2007) demonstrated how “social innovation” in the form of community financing, a developed sense of commitment, and greater participation can change the balance of the risk-benefit distribution.

Community as Key Participants

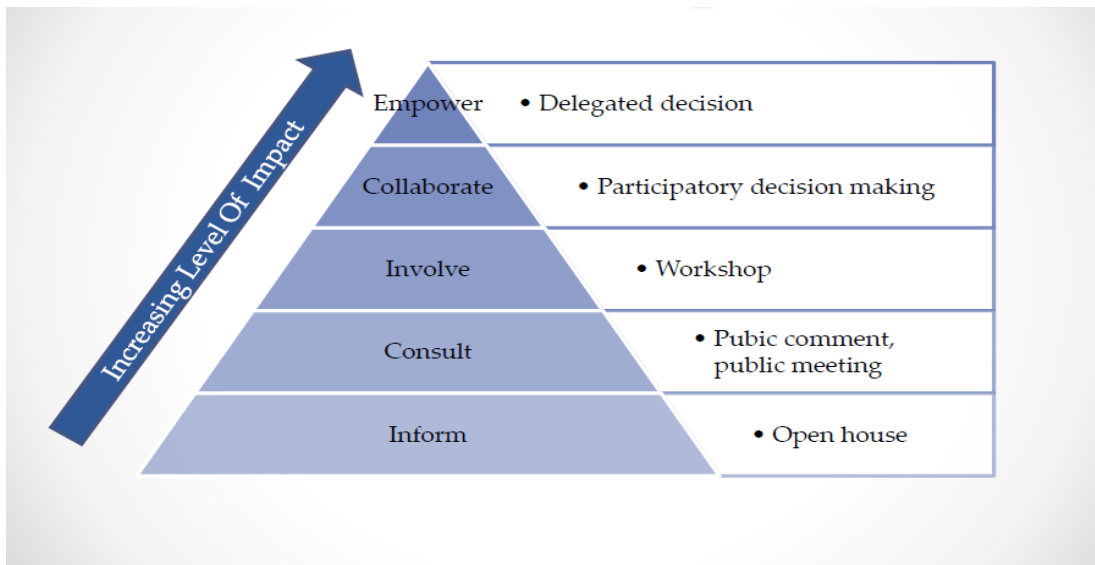
Having justified the need for public participation in wind energy management, the following step is to elaborate on who should engage in these participatory processes. By its nature, public participation should be accessible to any and all members of the public. However, there are strong philosophical and practical reasons that in reality, public participation is most frequently of relevance to local communities. In comparison with the public at large, local communities have shown more interest in participating in wind energy-related decisions, for example by agreeing that wind turbine designers should seek community input concerning turbine siting (Coleby, Miller, & Aspinall, 2009). Preferentially targeting host communities can also be a powerful way of fostering community empowerment and capacity building.

Recommendations for Operationalizing Public Participation

Increasingly, the Canadian government publicly acknowledges the importance of public input in resource and environmental management in its guidance documents and strategic policy directives. Nonetheless, in practice the federal government often provides a substantively limited role for public stakeholders. The sole legally regulated mechanism for public participation is the Environmental Assessment (EA) process (CEAA, 2010). The Canadian EA process requires public participation in rare circumstances and allows it at the discretion of the Federal Authority responsible to the EA (CEAA, 2010). However, not all public participation is created equal and the variety seen in the vast majority of Canadian wind EA processes leaves

much to be desired (Rod, 2011). In the relevant academic literature, public participation has been characterized as a continuum, or illustrated as a ladder, with each rung representing a more active role for the public in governance decisions (See Figure 3) (Arnstein, 1969; Beckley, Parkins, & Sheppard, 2005; Hutchison & Nichols, 2006). According to this model, all wind energy development stakeholders may agree that public participation is desirable; however which “rung” of the participation ladder they envision can differ drastically. There is generally a gulf between the level of public participatory processes provided through the EA process, and what would be deemed meaningful and satisfactory by local communities. For example, the participatory activities most commonly implemented in conjunction with EA are public comment periods and public meetings, which figure at the lower end of the participation impact spectrum (see Figure 3) (Rod, 2011).

Participatory strategies embedded within EA in general, as well as wind energy development projects specifically, have been accused of tokenism as they tend to occur late in a planning process and do not require a sharing of decision-making power (Rod, 2011). Aitken et al. (2010) have contended that the lack of distribution of power in a participatory process diminishes the meaningfulness of participation, while Coleby, Miller, and Aspinall (2009) have stated that genuine participation must allow for public input to substantively affect project outcomes. As it stands, public participation for wind energy may go through the motions, but may only serve to ease populist concerns and give local people the feeling of involvement and empowerment while little has actually changed (Aitken, 2010). In these cases, Aitken states that “participation serves a cosmetic purpose of legitimizing projects and decisions which have already been decided, participants then ‘become a ghostly presence within the planning process—visible, heard even, but ultimately only there because their involvement lends credibility and legitimacy to decisions that have already been made’ (Hildyard et al., 2001, p.59).” (p.1839).



Spectrum of Public Participation with Example Techniques (*Adapted from Rod, 2011*)

Figure 3: Impact Spectrum of Public Participation with Example Techniques (adapted from Rod, 2011)

3.1 Attributes of Meaningful Public Participation

If we are to avoid the dismal situation of “ghostly” participants, adequate participatory mechanisms must be institutionalized in wind energy development planning processes (Breukers & Wolsink, 2007; Coleby, Miller, & Aspinall, 2009). When the public has been asked what kind of participation would be acceptable to them, they have responded with the desire for more opportunities to express their opinions on all the possible local wind energy scenarios (Coleby, Miller, & Aspinall, 2009). Furthermore, they expressed the desire to exert influence on whether or not wind energy should be developed in their locality at all (Coleby, Miller, & Aspinall, 2009). This recalls the power to say “no” to projects, or veto them, which is currently not an available option for host communities. Within the current EA system, the dominant approach is based on mitigation of negative project effects, as opposed to determining best scenarios among competing alternatives.

Moreover, public participation should be both fair and competent (Webler, Kastenholz, & Renn, 1995). That is to say, the public must have equal access to the discourse, the ability to shape the agenda, rules, and moderation of said discourse, and the participatory process must be able to provide and explain authentic information (Wolsink, 2007). A number of indicators have been developed to evaluate public participation. For example, McLaren Loring (2007) produced an evaluation matrix specific to the wind energy context. According to this work, levels of participation can be considered high when:

1. The participants (the members of the local public who were involved in the project planning process) are representative of the views of the full range of potentially affected people;
 2. Barriers to involvement of local communities in the planning process have been minimized;
 3. Community members impact decisions about the project;
 4. Community members have financial ownership in the project;
 5. The project was initiated by a local individual or group;
 6. The community will have continued involvement in the project after construction.
- (McLaren Loring, 2007, p. 2651).

Without much doubt, it can be surmised that the standard consultative approach legislated in the CEAA does not fulfill the above criteria. Currently, the form and substance of participatory processes available throughout wind energy planning and management is limited in a large part to what is provided throughout the EA legislation. It is proponent-led and tends to occur late in the planning process, when wind turbine decisions have usually already been made (Rod, 2011). EA-based consultative participation is limited and is deemed insufficient by many, especially with regards to the distribution of local risks and large-scale benefits, as well as with decision-making power sharing. For example, Aitken (2010) stated that:

Where a developer facilitates a participatory process within a local community the outcome can only truly be said to represent the interests of the community if they were allowed to lead and control the process, otherwise the developer, being in a position of power, is able to shape the process and interpret the results as they see fit- or as fits their own interests (whether consciously or unconsciously). (p.1839) This scenario can lead to “ghost” participants, who may be able to voice their concerns but who are not guaranteed a response from the authorities, not to mention any degree of certainty that their concerns will be addressed. The participation afforded to communities that host wind development projects does not, for example, include the right to veto.

Specific alternative examples of participatory techniques that could successfully achieve these indicators include public hearings, focus groups, and consensus conferences; or any activities that are “designed to consult, involve and inform the public to allow those affected by a decision to have an input into that decision” (McLaren Loring, 2007 in Rowe & Frewer, 2000, p.2650). Alberts (2007) has pointed out that as a pre-requisite to effective public engagement with regards to a technical issue such as wind energy, considerable time and dedication of subject matter experts may be necessary to familiarize laypersons with certain information. It is equally true, however, that the public participants must be able to trust the information that is presented by developers and planners (Aitken, 2010).

Despite the current pessimistic state of public participation in wind energy management there are some promising signs for the future. In terms of specific participatory techniques, new tools are being developed and tested that involve the use of geographic and spatial technologies (GIS, for example), which may offer further opportunities for novel approaches to public participation (Simão et al., 2009; Higgs et al., 2008). With regards to greater institutionalization of public participation, the European Union has recently adopted best practices for wind EA that include earlier participation of the public in the site design and scoping phases of wind planning (Coleby, Miller, & Aspinall, 2009). Moreover, the 2005 ratification of the 1998 Aarhus UNECE Convention confirmed the EU's commitment to building collaborative processes that involve all interested and affected parties (Coleby, Miller, & Aspinall, 2009). Here in Canada, the industry is recognizing that public participation can lead to favourable outcomes for all stakeholders, and has recently released guidelines for what it considers best practices for community engagement and public consultation (CanWEA, 2011).

Conclusion

Meaningful public participation is needed as the wind energy industry continues to expand on a global scale as well as in Atlantic Canada. Participatory mechanisms can increase acceptance for local wind projects, but the primary motivation for increasing participation must not be the *removal* of opposition. Instead, in a democratic society participation of local host communities in environmental decision making is morally justified in its own right. In the Atlantic region of Canada, the form and substance of participatory processes currently available in wind energy planning and management is limited. The participation afforded to communities that host wind development tends to be at the lower levels of the participatory mechanism pyramid. Options to increase the participatory nature of wind energy development and management include a revision of EA legislation regarding participation, more diligent enforcement of current EA participation requirements, or development of participatory mechanisms independent of government regulatory processes. These goals can be accomplished by either placing participation in the realm of industry, or in communities themselves. While the barriers associated with these methods may be considerable, they need to be overcome as public participation is a critical first step of a much larger societal goal, public governance of natural resources and the environment.

References

- Adams, M. A., Wheeler, D., Nova Scotia, & Dalhousie University. (2009). *Stakeholder consultation process for a new renewable energy strategy for Nova Scotia: Final report to the Government of Nova Scotia*. Halifax, N.S: Dalhousie University.
- Agterbosch, S., Meertens, R. M., & Vermeulen, W. J. V. (2009). The relative importance of social and institutional conditions in the planning of wind power projects. *Renewable and Sustainable Energy Reviews*, 13(2), 393-405. <http://dx.doi.org/10.1016/j.rser.2007.10.010>
- Aitken, M. (2010). Why we still don't understand the social aspects of wind power: A critique of key assumptions within the literature. *Energy Policy*, 38 (4), 1834-1841. <http://dx.doi.org/10.1016/j.enpol.2009.11.060>
- Alberts, D. J. (2007). Stakeholders or subject matter experts, who should be consulted? *Energy Policy*, 35(4), 2336. <http://dx.doi.org/10.1016/j.enpol.2006.08.006>
- Arnstein, S. R. (1969). A ladder of citizen participation, *Journal of the American Planning Association*, 35(4), 216-224. <http://dx.doi.org/10.1080/01944366908977225>
- Barry, J., Ellis, G., & Robinson, C. (2008). Cool rationalities and hot air: A rhetorical approach to understanding debates on renewable energy. *Global Environmental Politics*, 8(2), 67-98. <http://dx.doi.org/10.1162/glep.2008.8.2.67>
- Beckley, T., Parkins, J., and Sheppard, S. (2005). *Public participation in sustainable forest management: A reference guide*. Sustainable Forest Management Network, Edmonton, Alberta. 55 pp.
- Bell, D., Gray, T., & Haggett, C. (2005). The 'Social gap' in wind farm siting decisions: Explanations and policy responses. *Environmental Politics*, 14(4), 460-477. <http://dx.doi.org/10.1080/09644010500175833>
- Breukers, S. & Wolsink, M. (2007). Wind power implementation in changing institutional landscapes: An international comparison. *Energy Policy*, 35(5), 2737. <http://dx.doi.org/10.1016/j.enpol.2006.12.004>
- Canadian Environmental Assessment Act. (2010). SC 1992, c 37.
- Canadian Wind Energy Association. (2010). *Wind farms in Canada*. Retrieved from http://www.canwea.ca/farms/wind-farms_e.phpS
- Canadian Wind Energy Association. (2011). Wind energy development best practices for community engagement and public consultation. Retrieved from http://www.canwea.ca/about/communityengagement_e.php

- Centre for Energy. (2009). *Electricity in Canada*. Retrieved from <http://www.centreforenergy.com/FactsStats/S>.
- Coleby, A. M., Miller, D. R., & Aspinall, P. A. (2009). Public attitudes and participation in wind turbine development. *Journal of Environmental Assessment Policy & Management*, 11(1), 69-95. <http://dx.doi.org/10.1142/S1464333209003221>
- Department of Business, Enterprise and Regulatory Reform. (2008). Renewable energy awareness and attitudes research. Management summary: June 2008. Department of Business, Enterprise and Regulatory Reform, London. Retrieved from <http://www.berr.gov.uk/files/file46271.pdf>
- Devine-Wright, P., & Howes, Y. (2010). Disruption to place attachment and the protection of restorative environments: A wind energy case study. *Journal of Environmental Psychology*, 30(3), 271-280. <http://dx.doi.org/10.1016/j.jenvp.2010.01.008>
- Environment Canada. (2011). National Inventory Report 1990-2009: The Canadian Government's Submission to the UN Framework Convention on Climate Change. Greenhouse Gas Sources and Sinks in Canada. Retrieved from http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/5888.php
- Evans, B., Parks, J., & Theobald, K. (2011). Urban wind power and the private sector: Community benefits and public engagement. *Journal of Environmental Planning and Management*, 54 (2). 227-244. <http://dx.doi.org/10.1080/09640568.2010.505829>
- Ferguson-Martin, C. J., & Hill, S. D. (2011). Accounting for variation in wind deployment between Canadian provinces. *Energy Policy*, 39(3), 1647-1658. <http://dx.doi.org/10.1016/j.enpol.2010.12.040>
- Higgs, G., Berry, R., Kidner, D., & Langford, M. (2008). Using IT approaches to promote public participation in renewable energy planning: Prospects and challenges. *Land use Policy*, 25(4), 596-607. <http://dx.doi.org/10.1016/j.landusepol.2007.12.001>
- Hildyard, N., Hegde, P., Wolvekamp, P., & Reddy, S. (2001). Pluralism, participation and power: joint forest management in India. In: Cooke, B, Kothari, U.(Eds.), *Participation: The New Tyranny?* ZedBooks, London, NewYork, pp.56-71.
- Hutchinson, M., & Nichols, S. (2006). The potential for public participation GIS as a "push" technology for disseminating aquaculture information to stakeholders. *Proceedings of the Contributed Papers of the 22nd Annual Meeting of the Aquaculture Association of Canada*, St. John's, NL, July 3-6, 2005.

- Intergovernmental Panel on Climate Change (IPCC). (2007). *Fourth Assessment Report: Climate Change*. Retrieved from http://www.wmo.int/pages/partners/ipcc/index_en.html
- Ipsos Reid. (July 2010). Wind Energy in Ontario.
http://www.canwea.ca/pdf/ipsosreid_ontariosurvey.pdf
- Jones, C. R., & Richard Eiser, J. (2010). Understanding 'local' opposition to wind development in the UK: How big is a backyard? *Energy Policy*, 38(6), 3106-3117.
<http://dx.doi.org/10.1016/j.enpol.2010.01.051>
- Kearney, J., Berkes, F., Charles, A., Pinkerton, E., & Wiber, M. (2007). The role of participatory governance and community-based management in integrated coastal and ocean management in Canada. *Coastal Management Journal* 35(1):79-104.
<http://dx.doi.org/10.1080/10.1080/08920750600970511>
- Krohn, S., & Damborg, S. (1999). On public attitudes towards wind power. *Renewable Energy*, 16(1-4), 954-960. [http://dx.doi.org/10.1016/S0960-1481\(98\)00339-5](http://dx.doi.org/10.1016/S0960-1481(98)00339-5)
- Maruyama, Y., Nishikido, M., & Iida, T. (2007). The rise of community wind power in Japan: Enhanced acceptance through social innovation. *Energy Policy*, 35(5), 2761-2769.
<http://dx.doi.org/10.1016/j.enpol.2006.12.010>
- McLaren Loring, J. (2007). Wind energy planning in England, Wales and Denmark: Factors influencing project success. *Energy Policy*, 35(4), 2648.
<http://dx.doi.org/10.1016/j.enpol.2006.10.008>
- Morthorst, P.E., & Chandler, H. (2004). The cost of wind power. *Renewable Energy World*, 126-137.
- Nova Scotia Department of Energy, 2010. Renewable Electricity Plan. Government of Nova Scotia, Halifax, NS.
- Pasqualetti, M. J. (2011). Opposing wind energy landscapes: A search for common cause. *Annals of the Association of American Geographers*, 101 (4), 907-917.
<http://dx.doi.org/10.1080/00045608.2011.568879>
- Rod, J. (2011). *Social Consent for Large Onshore Wind Energy Projects*. A Thesis in the Field of Sustainability and Environmental Management for the Degree of Master of Liberal Arts, Harvard University.
- Rowe, G. & Frewer, L. J. (2000). Public participation methods: a framework for evaluation. *Science, Technology, and Human Values* 2(1), 3-29.
<http://dx.doi.org/10.1177/016224390002500101>

- Simão, A., Densham, P. J., & (Muki) Haklay, M. (2009). Web-based GIS for collaborative planning and public participation: An application to the strategic planning of wind farm sites. *Journal of Environmental Management*, 90(6), 2027-2040. <http://dx.doi.org/10.1016/j.jenvman.2007.08.032>
- Statistics Canada, 2009. Electric power generation, by class of electricity producer, monthly (megawatt hour), Table 127-0002, CANSIM database, http://estat.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=E&ESTFi=EStat/English/CII_1-eng.htmS
- Statistics Canada. (2005). Land and freshwater area, by province and territory. Retrieved from <http://www40.statcan.gc.ca/l01/cst01/phys01-eng.htm>
- Toke, D. (2002). Wind power in UK and Denmark: Can rational choice help explain different outcomes? *Environmental Politics*, 11.(4), 83-100. <http://dx.doi.org/10.1080/714000647>
- United Nations Framework Convention on Climate Change Kyoto Protocol http://unfccc.int/kyoto_protocol/items/2830.php
- Vander Zwaag, D., Chao, G., & Covan, M. (2003). Canadian aquaculture and the principles of sustainable development: gauging the law and policy tides and charting a course-part II. *Queen's Law Journal*, 28: 529-580.
- Warren, C. R., Lumsden, C., O'Dowd, S. & Birnie, R. (2005). 'Green On Green': Public perceptions of wind power in Scotland and Ireland. *Journal of Environmental Planning and Management*, 48 (6), 853-875. <http://dx.doi.org/10.1080/09640560500294376>
- Webler, T., Kastenholz, H., & Renn, O. (1995). Public participation in impact assessment: A social learning perspective. *Environmental Impact Assessment Review*, 15(5), 443-463. [http://dx.doi.org/10.1016/0195-9255\(95\)00043-E](http://dx.doi.org/10.1016/0195-9255(95)00043-E)
- 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. <http://dx.doi.org/10.1016/j.rser.2005.10.005>