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Community Attitudes and Wind Energy Development Types: A Comparative Study in Ontario and Nova Scotia

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Abstract

Wind turbines will continue to be an important part of the green energy transition in Canada. However, opposition to onshore wind projects from potential host communities has increased over time, and install rates are flattening. Dimensions such as NIMBYism, place, distance from turbines and connections to landscapes have proved relatively inadequate for explaining community attitudes. The value of community-based development models over developer-led models has had recent traction, however limited empirical investigation has been done. I used a mail-out mail-back survey in Ontario (n=192) and Nova Scotia (n=170), to communities with (n=172) and without (n=190) a community-based development model. Using mainly bivariate correlations and binomial logistic regression, I investigate two classes of predictors of preference for community-based models: those relating to one's local project, and those relating to hypothetical wind development scenarios. Participatory decision-making and fair benefits distribution significantly predict positivity toward one's local wind project, while a locals-focused investment scale is highly preferred (95%) but not significantly associated (low response heterogeneity). Unexpectedly, community-based development is not more associated with positivity than developer-led, while living in Nova Scotia instead of Ontario is. Residents near community-based wind projects are not significantly more likely to prefer a community-based hypothetical scenario, while positivity toward one's local wind project (regardless of development model) is correlated with higher support for all hypothetical wind projects. Finally, residents prefer community-level benefits to individual-level benefits. These findings suggest a substantial renegotiation of how future community-based wind developments are implemented – historical context and community involvement being at the forefront.

Key Words: wind energy, attitudes, community-based, positivity, Ontario, Nova Scotia

Summary for Lay Audience

The energy sector, especially in countries with disproportionate energy usage per capita, is a large contributor to the climate crisis via carbon emissions. As a result, Canada has integrated renewable energy into its power grid, most notably wind energy, which is suitable for its many regions with relatively flat and windy topography. However, communities around wind projects are not satisfied, and growing opposition has resulted in instal rates flattening. Social science researchers have studied community attitudes through frameworks such as not-in-my-backyard (NIMBY), connections to landscapes, and physical proximity to wind turbines. More recently, development model has become a popular framework, specifically comparing community-based development to developer-led alternatives. However, defining these development types is difficult, and few studies have empirically investigated why community-based projects cultivate more positive community attitudes. My study defines community-based development using the framework by Baxter et al. (2020): a wind project with more participatory decision-making, providing fair local distribution of benefits, and having opportunities for local investment. I used a mail-out mail-back survey in Ontario (n=192) and Nova Scotia (n=170), to communities with (n=172) and without (n=190) a community-based development model. Residents were asked about their attitudes and experiences with their local wind projects, and to compare elements of two hypothetical wind projects which represent the two development types. Positivity toward one's local wind project was predicted by two of the three dimensions identified by Baxter et al. (2020): participatory decision-making, and fair benefits distribution. A locals-focused investment scale (the third dimension) was highly preferred (95%), but not statistically associated with positivity. Unexpectedly, community-based development is not

more associated with positivity toward the local wind project than developer-led. However, living in Nova Scotia instead of Ontario is. Living near community-based projects does not correlate with reporting higher positivity toward community-based hypothetical projects, though positivity toward either type of local project is correlated with higher positivity toward both hypothetical scenarios. Finally, residents prefer community-level benefits to individual-level benefits. This study suggests that there is a gap between theory and practice in community-based wind, and that historical context and community involvement should be integral to future wind development proposals.

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1 Introduction

1.1 Research Context

Despite growing global interest in the transition towards renewable energy sources, wind energy has often faced conflict at the local level. Those who oppose wind development voice a range of concerns including a lack of consultation, lack of personal influence on project outcomes, negative impacts to property values, lack of acceptable compensation or benefits, impacts to landscape, and impacts to personal wellbeing (Fast et al., 2016; Firestone et al., 2015, 2018; Hyland & Bertsch, 2018; C. Walker & Baxter, 2017b, 2017a). The attitudes of individuals within communities around energy projects are an important consideration when studying how we impact local communities with resource development, and so a large body of research has been established around what attitudes residents hold and why.

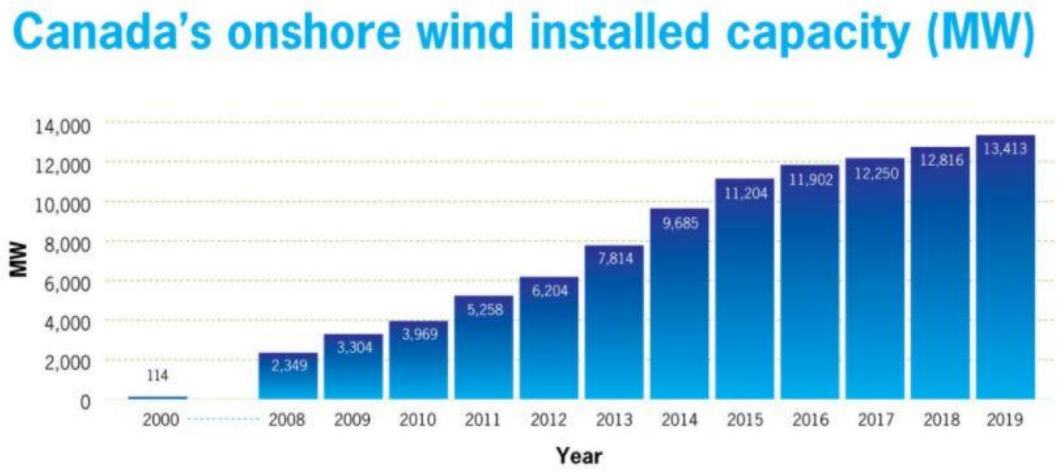
Globally there is some concern that the pace of wind energy development is slowing too much to properly address climate change (Lee & Zhao, 2021). Canada is currently ranked ninth in the world for total installed wind energy capacity (CANWEA, 2019b), and new energy infrastructure will continue to be needed as Canada moves away from fossil fuels as part of our dedication to decrease carbon emissions and mitigate our contribution to the climate crisis (CANWEA, 2019b). To ensure that this 'green energy transition' distributes renewable energy sources in an equitable way, policy experts recognize that community concerns need to be heeded and their perspectives applied to future policy (Lee & Zhao, 2021). Establishing which aspects of wind projects are most important to communities is therefore the primary goal of this research. As energy sources such as wind, solar, geothermal and biomass become increasingly accessible for Canadians, studies of public perception will be paramount in

ensuring that these new technologies are not simply exacerbating the existing justice issues pervasive in the energy sector.

1.2 Rationale for Study

Wind energy is a renewable with great potential in the Canadian context, so the present study will build off the work of other scholars to establish how the selected communities in Ontario and Nova Scotia feel about their local wind development, with the goal of improving future wind projects to better suit the communities they are built in. Wind energy is being favoured in many jurisdictions as a low-carbon electricity generation source because it has a relatively low upfront environmental impact, and the physical space that must be dedicated to the wind turbine once it is completed is the lowest among common renewable energy sources such as solar or biomass (CREA, 2020; IRENA, 2016). The infrastructure required for a wind farm includes the connection to the energy grid and the physical turbine structure, which is often located in productive agricultural landscapes as the two land uses have limited impact on each other (Firestone et al., 2015). They are also becoming progressively more affordable; the cost of wind energy has decreased by 69% in the decade since 2009 (CANWEA, 2019b) and is projected to continue decreasing (CREA, 2020; IRENA, 2016). Simultaneously, energy capacity has increased by an average of 16% per year and is projected to continue; Figure 1.1 shows Canada's wind energy capacity increases by year since 2000 (CANWEA, 2019a). Presently, wind energy accommodates approximately 6% of Canada's annual energy demand, though this is expected to continue increasing as well (CREA, 2020).

Figure 1.1: Installed wind energy capacity in Canada from 2000-2019; wind energy capacity has increased by an average of 16% per year (CANWEA, 2019a).



Wind turbines are most efficient in regions that are predominantly flat, low-density agricultural land, and regions near bodies of water which produce high winds (Firestone et al., 2015). The regions of Ontario and Nova Scotia that will be included in this research all fit these criteria, so many proposals for wind development projects are submitted in these areas (TREC, 2019). Although offshore wind development is becoming popular in other countries, Canada does not currently have any completed offshore projects. Additionally, there are difficulties in defining what constitutes the 'community around' these projects. Therefore, they will be excluded from this literature review and analysis.

The present study will survey communities around five wind projects in Canada to gauge their opinions of and experiences with their local wind project, the degree of positivity they report feeling toward it, and whether particular dimensions of the wind project development process are predictors of positivity – particularly community-based development. The overarching research questions are as follows:

1. What attitudes do people hold toward nearby local wind projects?
2. How do attitudes differ by province?
3. How do attitudes differ between those who live near community-based wind projects and those who live near developer-led projects?
4. How do attitudes to a local project predict preference for hypothetical wind energy development scenarios (community-based, developer-led)?
5. How do residents feel about the dimension(s) of community-based wind projects (decision-making, benefits distribution, investment scale)?

1.3 Chapter Summaries

This thesis is comprised of five more chapters: 2) Literature Review, 3) Methods, 4) Results, 5) Discussion, and 6) Conclusion. Chapter two will provide an overview of the literature on community-based wind energy, community attitudes and environmental justice. Chapter three describes survey design, implementation, and analysis. Chapter four describes research findings as they relate to the five hypotheses; this includes univariate, bivariate and binomial logistic regression results as well as group comparisons across province, local site type, positivity toward the local wind project, and comparing attitudes toward existing and hypothetical wind projects. Chapter five reviews and explains how the findings of the present study compare to the literature, connecting chapter two to chapter four, alongside suggestions for future research. Finally, chapter six describes the major contributions of this study and their implications, as well as limitations and next steps.

2 Literature Review

2.1 Introduction

The following literature review will describe the use of different dependent variables to measure attitudes. The dependent variable of the present paper, "positivity", is framed in comparison to the more common attitude measurements, acceptance and support. This section will articulate the value and use of community-based wind development models compared to other more developer-led models. I will then describe how environmental justice literature and the Process-Outcome Model can be applied to establish the relative importance of different aspects of wind energy developments to community attitude formation. Examples of both procedural and distributive justice are provided. Finally, I will introduce a recent amendment to the Process-Outcome Model with an additional dimension added (the three dimensions of community wind energy model), which will be used to analyse the results of the present study. During the description of these dimensions, alongside the additional elements of negative impacts and historical context, commonly used predictors of community attitudes will be identified and described in detail.

2.2 The Dependent Variable: Social Acceptance, Support and Positivity

The dependent variable in most quantitative studies in the field of community attitudes toward wind energy is 'social acceptance'. The term 'social acceptance' is often defined as one's (or, much less frequently, a community's) degree of willingness to live near the particular project being studied, and not one's perspective of wind energy in general (Wüstenhagen et al., 2007). This is the term that has been used by many other scholars in this field (Cowell et al., 2011; Firestone et al., 2012; Gross, 2007; Musall & Kuik, 2011; Wolsink, 2000; Wüstenhagen et

al., 2007). The primary benefit of measuring social acceptance is that it is the lowest bar of the three; it is devoid of any enthusiasm toward the wind project. It is also focused on the conditions that result in a reported degree of resistance to a project instead of relying on residents having positive conceptions and experiences (Wüstenhagen et al., 2007). Some papers will ask acceptance questions such as "[i]n principle I am in favour of the construction of wind turbines in my municipality" (Walter, 2014). Others have respondents rate their level of support or opposition to various energy developments on a Likert scale (Bidwell, 2013; Firestone et al., 2018; Hoen et al., 2019) or have respondents indicate the "degree to which they encourage or discourage construction of a communal wind farm in or near their community" (Bidwell, 2013). Interviewers may ask people to describe their position on wind energy broadly, and in their community specifically (Christidis et al., 2017), or ask directly for their level of acceptance of wind energy (Brennan et al., 2017). On average across studies that ask for social acceptance in the Ontario and, more broadly, Canadian context, an average level of social acceptance is approximately 50-60% depending on the project and the question being asked.

The term 'support' is also used to measure a higher level of willingness to host wind turbines than can be captured with 'acceptance'. When measuring support, some papers use indexes – "[o]verall, I approve of the way the wind energy development was planned and built in my community" and "I support the existing wind power project in my community" (C. Walker & Baxter, 2017b, 2017a). Others ask directly whether respondents are "supportive of wind farms in their community" (Mulvaney et al., 2013b). Support is often measured when seeking conservative estimates of community willingness to host turbines, since it is a higher threshold

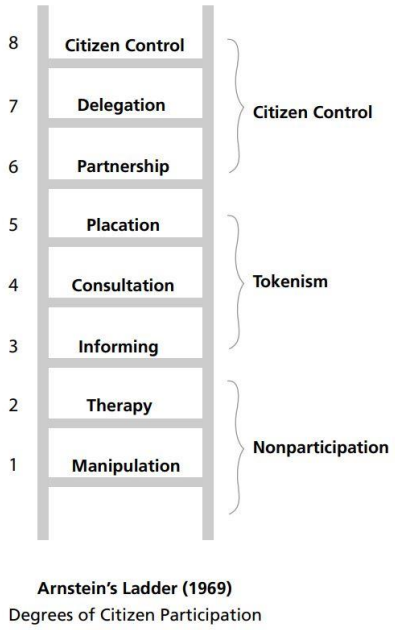
– hence, levels of support can be below 50% in some sites. Both acceptance and support measure respondents' willingness to have wind projects placed near their household; measured in the present study with a dependent variable that is situated between support and acceptance – positivity. The survey respondents are reporting the degree to which they feel positively toward the local wind project, with the alternative being that they feel negatively towards it. This choice was made to most accurately reflect the survey question used as the dependent variable, "how do you feel about your local wind project *now*?" for which the likert-scale responses ranged from "very negative" to "very positive". While an argument could be made that the term social acceptance could still be used, and indeed this has been done in the papers written based on data using nearly the same question (the Wind Neighbours Survey on which the present survey was based), this was not done here to represent the perspectives of respondents most accurately.

2.3 Defining and Explaining 'Community-Based' Wind Projects

Within wind development literature, there are two broad categories within which a wind project is generally placed – developer-led, or community-based. Here, they will be described in relation to Arnstein's Ladder of Citizen Participation (Arnstein, 1969) featured below as Figure 2.1. The ladder begins at the bottom with the lowest levels of (non)participation, in which the power is in the hands of wind developers and residents are approached as an uninformed population that needs to simply be educated about the benefits of the wind project; there is no knowledge exchange here, no feedback accepted from residents. The middle three rungs – the tokenism rungs – include some level of resident inclusion, perhaps some opportunity to provide one's opinion or sit on a small committee, but often merely to placate residents while the

majority of influence still belongs to developers. Finally, the top of the ladder features decision-making power for many citizens, including the ability to veto elements of the development plan or perhaps even cancel a project altogether through whatever decision-making means the group decides.

Figure 2.1: Arnstein's Ladder of Citizen Participation (Arnstein, 1969).



The two general types of wind development model can be described in relation to this framework. A developer-led project can choose to provide limited opportunities for local residents to be consulted or even informed of decisions being made about their proposed local wind project. They are sometimes not able to influence project outcomes whatsoever and are not necessarily made aware of or given access to the investment and benefits opportunities associated with the wind project. This development model is common in regions where there is limited or no requirement for consultation, and aligns with the low or lower-middle rungs of the Ladder of Citizen Participation (Arnstein, 1969). A project being called community-based, by contrast, is more likely to incorporate some degree of meaningful consultation with community

members as well as some form of financial investment (profit sharing) opportunity for community members. The community-based model in theory aims to provide clear evidence of community opinions having implications for future decision-making through providing a channel for feedback. Depending on the development, a community-based project does not necessarily include all these features in practice, hence why a widely applicable definition of community-based development is so evasive. However, the theoretical elements of this development model would place community-based wind development in the middle rungs of Arnstein's Ladder (Arnstein, 1969). In practice, it is hard to determine whether wind projects are adhering to their theoretical descriptions, partially because most of the financial details are kept confidential for wind projects that are developed in Canada. It is therefore difficult to discern to what degree money is exchanging hands between the wind developers and local residents for most wind projects, or to what degree community opinions are being represented in decision-making. It is also possible that certain developer-led projects could be higher on Arnstein's ladder than certain community-based projects depending on developers' choices.

Finally, as a potential insight into the future of community-based wind energy, a relatively uncommon type of wind development is community-led or cooperative wind developments, which can be interpreted as a more participatory version of community-based development or as a separate type of development altogether. In these projects, residents are often the ones who propose the wind project and are majority owners. Residents, therefore, are in control of the planning, decision-making process, and distribution of investment opportunities and financial benefits. This type of development, while very rare in the Canadian context, would align with the top rungs of the Ladder, where residents hold the majority of power instead of

external stakeholders (Arnstein, 1969). Similar to community-based development, however, there could be co-ops which make it difficult for the local community to participate and perhaps even provide less opportunity for citizen participation than community-based projects (thus residing on a lower rung of the ladder); each wind project will be unique in this sense.

Overall, the best community attitudes outcomes seem to be found in contexts that emphasize active, early, consistent community engagement at all stages of development and a working relationship with local media outlets, as well as availability of investment opportunities for locals and some form of benefits for community members external to those investment profits (Baxter et al., 2020; Creamer et al., 2019; Rand & Hoen, 2017; TREC, 2019). Community-based approaches as they are defined above are a widely recognized method of improving the speed of project completion, as well as the degree to which the community approves of the development (whichever measure of attitudes is being used) (Hyland & Bertsch, 2018; Rogers et al., 2008; TREC, 2019; C. Walker & Baxter, 2017a). Yet, there is not much empirical evidence to explain exactly why that is the case (Baxter et al., 2020; Creamer et al., 2019), or whether community members recognize the "community-based" elements in particular as having had a positive influence on their attitudes. These are questions that the present study will contribute to answering.

2.3.1 Communities of Place and Communities of Interest

There are two key types of communities which have emerged as significant in the community attitudes toward wind energy literature; communities of place (situated nearby each other geographically) and communities of interest (people who share a common goal) (Bauwens, 2016; Bauwens & Devine-Wright, 2018; Baxter et al., 2020; Firestone et al., 2009,

2015). In general, when speaking of community-based wind energy, it is a community of place that is being described; in the present research it is the five communities of place living within five kilometers of the turbine sites being surveyed. In cases where one has identified who constitutes the 'community of place', the people within it will not be homogenous and their perspectives will never be uniform or a simple 'for' or 'against' (Bauwens, 2016; Bauwens & Devine-Wright, 2018). When stakeholders expect entire communities to reduce into superficial categorizations based on place-based contextual information or demographics information, it can often lead to community division and animosity, and worsen community attitudes (Gross, 2007).

Communities of interest, by contrast, do not specifically include people nearby the wind project, or even people affiliated with it, although they can. Two common kinds of communities of interest are financial investors, who may be a global and diverse group of people with a variety of goals and expectations, and anti-wind internet groups, who may be provincially situated or may be a global group of people with a variety of motivations as well. It is more difficult to accommodate communities of interest into a wind development in ways that are acceptable to all, especially when these people have different reasons for participating in the community of interest (for example, different reasons for investing, or different reasons for disapproving of a particular wind development) (Bauwens, 2016; Bauwens & Devine-Wright, 2018). However, since these groups are not spatially situated, members may leave or arrive more fluidly than a community of place could, based on the ways in which the opportunity aligns with their goals.

2.4 Defining 'Environmental Justice'

The remainder of this chapter will use the concept of environmental justice to build up to the theoretical model used in this study. The Environmental Protection Agency (EPA) defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA, 2020, p.1). This is by no means the only definition used in the literature, but for my purposes it is sufficient as a starting point. Often, this concept translates into the consideration of whether particular communities and regions are being exposed to unnecessary or disproportionate risks for the sake of corporate or government gain. Studies within this field often consider how communities and environments are disproportionately impacted by pollution from waste sites such as landfills and energy projects such as oil refineries and coal plants (Johnston et al., 2020; Kroepsch et al., 2019). Many studies have used GIS mapping tools to consider the distribution of Superfund sites in the United States, for example, and identify that sites closest to wealthier areas were more likely to secure Superfund coverage than sites nearby poorer neighbourhoods (Maranville et al., 2009; Noonan et al., 2009; Stretesky & Hogan, 1998).

Within the literature of environmental justice and energy development projects, those related to the fossil fuel industry are overrepresented due to their more acute health and environmental impacts to the communities and landscapes surrounding them (Johnston et al., 2020; Kroepsch et al., 2019; McKenzie et al., 2016; Sovacool, B., Sidortsov, R., Jones, 2014; Willow, 2014). However, recently all types of energy development are being included in the conversation as part of the 'energy justice' movement. According to the Initiative for Energy

Justice (Initiative for Energy Justice, 2020), energy justice refers to "the goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those historically harmed by the energy system" (p.1). Contentions regarding the disproportionate impacts of climate change on poor communities and communities of colour, issues of energy security during the green energy transition, and other forms of energy-related community impacts and their implications, are included in this work (Bailey & Darkal, 2018; Kluskens et al., 2019).

2.4.1 Procedural and Distributive Justice

Scholars within the energy justice movement consider three main dimensions of justice: procedural justice, distributive justice and justice of recognition. Justice of recognition is not spoken about explicitly within the wind energy literature to the same degree as the other two, but it generally consists of emphasizing public discussion of justice issues relating to whatever is being built or implemented, and establishing to what degree members of the affected group are having their needs recognized and met (Bailey & Darkal, 2018; Borch et al., 2020). Procedural justice includes the study of fair, inclusive processes and decision-making, and distributive justice includes the study of equitable benefits amounts, distribution, and access (Initiative for Energy Justice, 2020). Within the literature on communities around wind energy projects before the creation of some of the major theoretical frameworks to be discussed next, procedural justice was the focus of many of the studies published. Specifically, studies measured fairness as a function of social acceptance or compared attitudes toward local wind projects and wind projects in general to establish predictors of attitudes (Gross, 2007; Wolsink, 2000, 2007). Research that considers procedural justice sometimes describes wind projects in

relation to Arnstein's Ladder of Citizen Participation as well (Arnstein, 1969). These studies often also touched on distributive justice issues in passing, for example through determining whether those who benefit financially from a project have higher acceptance (Gross, 2007), or whether poorly distributed benefits would result in community protest (Wolsink, 2000).

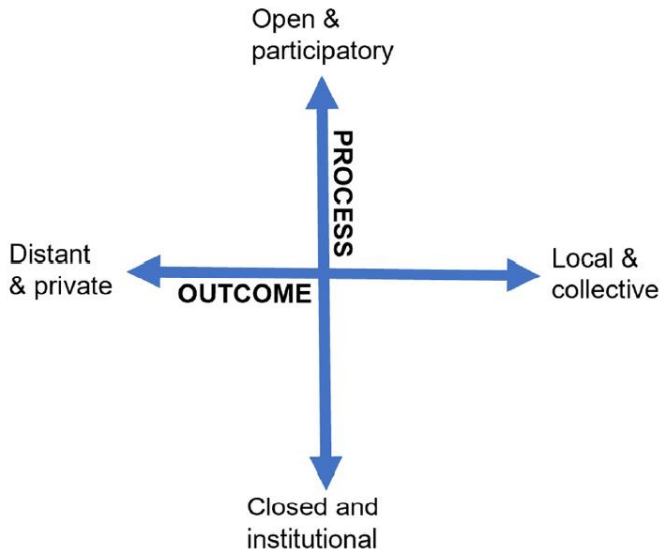
From here, two main theoretical models entered the wind energy attitudes literature to predict social acceptance. The first includes three dimensions of social acceptance: socio-political acceptance, community acceptance, and market acceptance (Wüstenhagen et al., 2007). This model is valuable for establishing why different groups of people develop different opinions about wind energy developments and provides the opportunity to compare the relative importance of certain elements of development on the attitudes of said groups. This was not the theoretical framework selected for use in the present study, however it is very influential in the field and is important to recognize in discussions about social acceptance and attitudes toward wind energy. The second theoretical framework operates at the intersection of distributive justice and procedural justice and is called the Process-Outcome Model (G. Walker & Devine-Wright, 2008). This second theoretical framework is the one which set the groundwork for the present study, which focuses in on the 'community acceptance' dimension of Wüstenhagen's model. The following section will describe this model in detail and provide examples of its use in the literature.

2.5 Theoretical Framework: Process-Outcome Model

The intersection of distributive justice and procedural justice is effectively represented through Walker & Devine-Wright's (2008) Process-Outcome Model (Figure 1), an energy justice framework that is used in many wind energy studies to establish potential predictors of

community attitudes (Ruggiero et al., 2014; Wood et al., 2016). This model is applied to community-based development and social acceptance measures by Walker & Devine-Wright in their seminal paper, *Community renewable energy: What should it mean?* (2008). This paper considers how community-based renewable energy development is predicated on not only how the project is implemented (process), but the impacts it has afterward (outcome) (G. Walker & Devine-Wright, 2008). The perspectives presented in that paper have resulted in the emergence of a sub-field of wind energy literature, addressing the intersection of wind development model and community attitudes through application of the Process-Outcome Model. The following literature includes examples of papers building off Walker & Devine-Wright's work.

Figure 2.2: Conceptual dimensions of community renewable energy development (G. Walker & Devine-Wright, 2008).



Procedural fairness is measured by Firestone et al. (2011) in a study of public acceptance of offshore wind energy in the United States, a study in which they concluded that satisfaction with the process and outcome "may be mutually reinforcing or jointly determined" (p. 1387).

That is, high levels of procedural justice and distributive justice are often both present in projects that are highly supported by their local communities. Firestone et al. (2017) uses the Process-Outcome Model to measure procedural fairness in relation to attitudes in a recent nationally representative wind energy survey. They conclude that perceived procedural fairness is highly correlated with social acceptance, and that significant predictors of fairness include an open and transparent developer; community influence over project outcomes; and community influence over the planning process.

Walker & Baxter (2016) consider how the distribution of financial benefits amongst community members at the most local level impacts the degree of fairness community members report in community-based and technocratic development models. They determine that it is useful to parse out this concept further, such that both the fair distribution and the amount of local benefits predict community support for the project; in both development models, community members emphasize equal benefits. The following year, Walker & Baxter (2017a, 2017b) compare community-based and technocratic siting processes to establish which is perceived to be more just using both distributive and procedural justice in separate papers. They identify that many residents highly value involvement in turbine siting as well as other predicters related to "the ability to affect the outcome" (C. Walker & Baxter, 2017b, p.161) as indicators of just development, and highlight the value of 'fair distribution' of benefits as more predictive than the 'amount' of benefits (C. Walker & Baxter, 2017a). Both of these concepts shaped the approach of the present study.

Songsore and Buzzelli seek to understand the relationship between social acceptance, fairness, and perceived health impacts of wind turbines in Ontario through implementing the

Process-Outcome Model in two papers (2013, 2016). Their first media discourse analysis suggests community tensions may relate more to unfairness of the process (the developer's policies and their implementation during planning and construction) than the outcome (the physical wind turbines themselves after completion) (2013). They elaborate on these findings by conducting an eight-year longitudinal media content analysis, in which they establish that the media may play an amplifying role in perpetuating public awareness of potential health impacts of wind turbines (2016). They recommend developers use public engagement strategies to improve community attitudes.

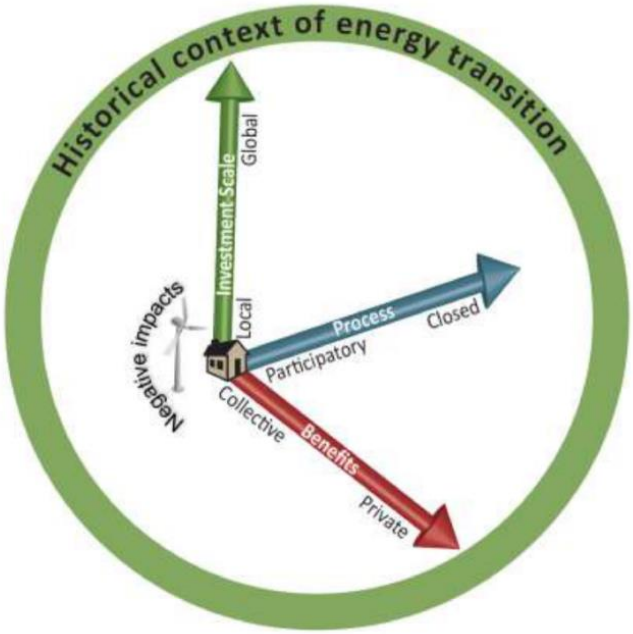
2.6 Theoretical Framework: Key Dimensions of Community Wind Energy Acceptance, an Amended Process-Outcome Model

Creamer et al. (2019) review the use and value of the Process-Outcome model after ten years of implementation throughout wind energy literature. They determine that the Process-Outcome model has mostly concentrated on how community-based wind energy projects develop (the process), not the implications of the completed turbines and the responses of communities after the fact (the outcome) (Creamer et al., 2019). An empirical literature review extends Creamer et al. (2019) through investigating different scholars' definitions of what community-based wind energy "does" and what it "is" (Baxter et al., 2020).

In this review, Baxter et al. set out to "more thoroughly match the theoretical with the empirical for [community wind energy]" (Baxter et al., 2020, p.3), through reviewing 15 empirical papers from August 2008 to August 2018, also spanning from Walker & Devine-Wright's Process-Outcome paper until ten years later. They first consider how a lack of consistent definition of 'community wind energy' negatively impacts communities' and

researchers' ability to distinguish between different degrees to which a wind project counts as "community-based" and seek to produce a more applicable framework. They review the empirical application of Walker & Devine-Wright's original Process-Outcome Model (2008, see Figure 2.2), and emphasize the importance of splitting out the dimension of "outcome" to account for benefits and investment scale separately. Their revision to the model is featured here as Figure 2.3, and the justification behind the amendment is explained in more detail below.

Figure 2.3: Baxter et al. (2020) addition to the Process-Outcome Model: three dimensions of community wind energy acceptance includes benefits, process and investment scale, accounting also for the underlying historical context and the turbine's perceived negative impacts on households.



The most notable distinction between the original Process-Outcome Model and the new three dimensions of community-based wind energy model is that instead of a four-quadrant system, this model features an origin point (the household, or local context) and three axes upon which a project can progress away from optimally local conditions, which are recognized

as most likely to result in a high reported degree of social acceptance (Baxter et al., 2020; Creamer et al., 2019; Firestone et al., 2018; Rand & Hoen, 2017). Orienting the axes toward 'local' is done because this is where both the impacts and the opposition are most critical. As described by Baxter et al., "any project that moves outward from the origin is expected to be at greater risk of lower local social acceptance" (Baxter et al., 2020, p.9). The original axis of "process" is still included, ranging from participatory to closed, as in the original Process-Outcome Model. The other axis, "outcome", has been divided into two related but distinct axes – benefits (collective to private) and investment scale (local to global). The value of this amendment is to recognize that the distribution of benefits occurs on multiple distinct scales, which each may impact community attitudes differently (Baxter et al., 2020).

This new model makes clear the distinction between what constitutes community wind energy and what exists someplace outward along the axes, further from a fully local, community-based development. However, in the same paper Baxter et al. (2020) urge against the "tacit, or even explicit, assumption that higher levels of local acceptance are driven by fairer processes and outcomes" (Baxter et al., 2020, p.7). Drawing on the literature on place, they argue that the regional context is similarly vital to any discussion of how or why attitudes were formed. This is distinct from other elements of the context, such as what the place means to residents, what industries came before, and the community's history of trust in new developments (this factor in particular is critical in the study of Indigenous communities; although none have been included in this survey, a separate survey is being disseminated to a First Nations community by a member of the same parent project as this study).

In the following dissertation, the "process" dimension will be specifically referred to as "decision-making". This is done to emphasize that the degree to which residents can influence decisions during the planning process is the primary focus of the survey questions and this thesis' coverage of the 'process' dimension. Similarly, within "benefits", the survey focuses primarily on benefits *distribution,* although some questions about amounts are also included. For the purposes of this study, then, a community-based development must engage in three strategies: 1) a high level of participation in decision-making, 2) fair, local benefits distribution, and added most recently, and 3) majority-local investment scale (Baxter et al., 2020). However, it is also important to note that, aside from at least mentioning consideration of these three qualifiers, projects which are very different in practice may all choose to use this designation for different reasons, or to mean different things. The following sections will cover the three dimensions in turn, as well as impacts of the wind project that influence attitudes, and finally some brief historical context. Within each section, I will review how the dimension has been approached in the literature.

2.6.1 Participatory Decision-Making

Participatory decision-making is often called procedural justice in the literature and is represented by the blue arrow above. The purpose of involving residents in decision-making is to cultivate a sense of ownership over the project and recognize local people as the experts on their community. Investing time into meeting with residents and involving them in siting, financial decision-making and policy development aids in reaching decisions that are acceptable for the majority of residents. Having the opportunity to contribute may also ease the sense of frustration one will feel if aspects of the project are displeasing (Firestone et al., 2012). People

are often able to engage with the project more comprehensively and are more involved in the planning process for community-based projects, which is recognized as leading to a higher sense of procedural fairness (Hyland & Bertsch, 2018; Songsore & Buzzelli, 2016; C. Walker & Baxter, 2017b). Higher acceptance by the communities often results in faster project completion (C. Walker & Baxter, 2017a, 2017b), and thereby a higher likelihood of future wind projects being proposed in the region. The literature surrounding process, decision-making and participation/consultation as predictors of community attitudes is robust, and hence is included in this model as one of the three dimensions.

2.6.2 Fair Benefits Distribution

Fair benefits distribution is often called distributive justice in the literature and is represented by the red arrow above. The purpose of distributing benefits to the community is to compensate residents for their involvement and, more broadly, for the fact that a new development will be constructed near them that they will see and interact with. This mirrors the way other consultants and/or impacted parties would be compensated for other kinds of contributions to a development project but is specifically not meant to be compensation for the purported harms of the wind turbines – only for their physical presence. Equitable benefits distribution is one of the things that helps define "community-based" development in practice (Baxter et al., 2020; Fast et al., 2016). To do this properly, benefits cannot only go to landowners and spatially distant investors as is currently common practice but should share a larger proportion with local residents or the community. Often, financial benefits are provided to community municipal governments to either keep as revenue or invest into infrastructure and community developments such as schools or parks (Bates & Firestone, 2015; Baxter et al.,

2013; Cowell et al., 2011; Fast et al., 2016). Structural benefits of wind development may include energy independence for rural and remote areas, and economic opportunities for community members (Firestone et al., 2015, 2018; Wolsink, 2007). However, providing benefits to communities like this can be interpreted as a bribe or admittance of the "need for compensation" if not navigated carefully (Fast et al., 2016; B. J. A. Walker et al., 2017). According to Baxter et al. (2020), "the greater the local, transparent, sharing of benefits, the greater the perception of justice by locals" (Baxter et al., 2020, p.9). It is suggested that, since benefits are an important element of community-based wind projects in practice, conversations about benefits amounts and distribution be undertaken as early as possible with consultation with community members to avoid it being interpreted as a bribe or as paying off landowners (Baxter et al., 2020; Fast et al., 2016).

2.6.3 Local Investment Scale

Local investment scale is represented by the green arrow above. In community-based development, people may have an opportunity to invest in the project and receive an annual return on investment and/or a lump sum payment (Firestone et al., 2018; Hoen et al., 2019; C. Walker & Baxter, 2017a, 2017b). More specifically, though, this dimension relates to the proportion of local residents and local companies that have the opportunity to invest in the wind project compared to global or 'non-local' (however a particular project chooses to define 'local') stakeholders. This dimension is unique to Baxter et al. (2020)'s review paper, and hence other studies have not explicitly tested the relative impact of investment scale on community attitudes. However, other scholars have long identified the importance of scale and context to more accurately identify wind projects as "community-based" instead of simply any somewhat

participatory project with benefits options (Hicks & Ison, 2018). That is, the inclusion of the investment scale dimension may permit a more consistent implementation of community-based development and allow residents to compare their local 'community-based' developments to others that need to include the same general components and occur at a similar scale.

There is evidence to suggest that projects in which a large proportion of investment is local residents or companies, such as community-led or cooperative projects, have generally high acceptance compared to other development models (Warren & McFadyen, 2010). However, creating a majority-owned local cooperative may not be practical in many contexts, as there may not be enough people with enough money to invest at the local level. That said, this depends on how you define the 'local community'; does it include only households within a small radius around the wind project, or does it include the nearest large city? Is it only households, or locally based companies too? There is a lot of future potential in measuring this dimension.

2.6.4 Impacts

There have been many subfields within the communities around wind energy literature, which provide many different explanations for community attitudes, some which are not described above as part of the three dimensions in this theoretical framework. Those explanations will be described here as "impacts" of wind turbine attitudes more broadly, represented in the area around the wind turbine next to the house at the middle of the theoretical framework's figure above (figure 2.3). The literature includes many impacts that are predictive of community attitudes, which have been categorized into three sections here: 1)

NIMBYism (Not-in-my-backyard), 2) space and place (aesthetics), and 3) health impacts and noise annoyance. These elements are included only in passing in the present research (with few questions pertaining to them in the survey) but are valuable to mention here due to predicting community attitudes in other studies and their status as "impacts" in the model being used in this study.

2.6.4.1 NIMBYism

Much of the literature about renewable energy projects and other development projects rely on the commonly used Not-In-My-Backyard (NIMBY) framework, which posits that individuals are prone to approving of developments in concept but not in practice. This is credited as being evidence that people are tacitly selfish and form their opinion based on discomfort with change, or unwillingness to experience potential impacts, among other reasons (Devine-Wright, 2005, 2009; Guo et al., 2015; Wolsink, 2000). This is an insufficient explanation of community attitudes and behaviours and does not account for the impact of external (interpersonal, economic, structural) factors (Wolsink, 2000). Survey results often show that there are many individuals who support wind energy in general but oppose their local wind project for reasons relating to procedural fairness and developer relationships (Devine-Wright, 2009; Guo et al., 2015; Krohn & Damborg, 1999; C. Walker & Baxter, 2017b). These more complex explanations are critical considerations for funding bodies, local governments and developers when implementing new wind development projects. That is, most social researchers assert that concern and opposition are not simply to be ignored as illogical or self-serving, rather they are phenomena to be systematically understood.

2.6.4.2 Space and Place

Many scholars ask questions about the motivation of residents who dislike their local wind turbine, those who dislike wind energy in general, and those who dislike renewable energy projects in general (Firestone et al., 2018; Jami & Walsh, 2017; Rand & Hoen, 2017). There is a large body of literature which posits that space and place relations are of critical importance to the formation of residents' opinions about their local wind project (Firestone et al., 2015, 2018; Lewicka, 2011; Lothian, 2008; van Veelen & Haggett, 2017). This is especially important in communities that are considered idyllic and scenic with recognized aesthetic appeal, such as tourism-focused areas or regions which provide a particularly beautiful view for residents and visitors. These areas may cost more money to live in specifically because of the appealing aesthetics and interrupting the view with a wind project could therefore be seen as reducing the property values in the whole region (Baxter et al., 2020; Firestone et al., 2009; Groth & Vogt, 2014). A similar element that impacts community attitudes in relation to place is the number of turbines being built; larger projects that include taller turbines may be perceived as less attractive because they are a more jarring addition to the landscape, while fewer or smaller turbines may be interpreted as less obtrusive (Bates & Firestone, 2015; Firestone et al., 2015; Hui et al., 2018). In some studies, this is not found to be the case (Walker & Baxter, 2017b), however it is an important element in many contexts and often considered in studies of community attitudes around wind projects.

2.6.4.3 Health Effects and Noise Annoyance

There have been many studies in the Canadian context that measure community perceptions of health effects from wind turbines, including headaches, irritability,

concentration troubles and sleep disturbances which residents associate with shadow flicker and noise annoyance (Baxter et al., 2013; Christidis et al., 2014; Fast et al., 2016; Jami & Walsh, 2017; Songsore & Buzzelli, 2016). There are similar comprehensive survey results from the United States and Europe that describe such effects in detail as well (Haac et al., 2019; Hübner et al., 2019; Rand & Hoen, 2017), alongside studies in Scandinavia (Blanes-Vidal & Schwartz, 2016; Pedersen & Waye, 2007). There seems to be a strong link between personal negative experiences with or opinions of a local wind farm and the experience of stress from health impacts (Haac et al., 2019; Hübner et al., 2019). There is still heated debate around whether wind turbines cause health effects directly, whether the reported symptoms have other sources (environmental or otherwise), or whether the stress of presumed health effects and other concerns about the wind project are involved in causing residents to report experiencing negative health effects. Regardless of how or why these negative impacts are experienced, they are of great importance to wind project developers when promoting a proposed wind project.

2.6.5 Historical Context: Policy Landscape of Ontario and Nova Scotia Wind Energy

The following is a brief explanation of the historical context of the provinces included in the present study. This element is represented as the green circle surrounding the figure above (figure 2.3). While the three dimensions of wind development are often implicated in the formation of opinions toward local wind projects, there are other more context-specific elements that may play an important role, which I will seek to consider in the present study. This historical context is purported by Baxter et al. (2020) as a critical element of community attitudes research, as context can be as influential – if not more influential – than the details of the local wind project itself.

2.6.5.1 Ontario Policy Landscape

The GEA is credited by many scholars as being one of the primary contributors to the dissolution of acceptance for Ontario wind energy. The implementation of the Green Energy Act (GEA) and Feed-In-Tariff (FIT) programs in 2009 dramatically decreased the degree of meaningful community consultation required for new wind projects in the name of making new renewable energy developments easier to approve and construct (Baxter et al., 2013; Fast et al., 2016; Songsore & Buzzelli, 2015; C. Walker et al., 2018). This led to a resurgence of developer-led projects that likely contributed to the erosion of social acceptance over time, although at the time of writing, acceptance is still generally reported by the majority (50-60%) of residents in the communities around wind projects in Ontario (C. Walker et al., 2018; C. Walker & Baxter, 2017a, 2017b). This policy was formative in the frustration and lack of power allowed to local residents during the environmental assessment process.

At the time of writing, the current Ontario Premier is Conservative leader Doug Ford, who is vocally opposed to adding more wind developments to the Ontario landscape and energy mix. Importantly, the GEA was a liberal initiative implemented by a previous government. There are many motivations for this, including projected financial savings for the government (and by extension, taxpayers), a projected decrease in electricity cost for residents, and a reported lack of need for more local energy developments. The result is that Premier Ford cancelled 751 wind projects in 2018, after which many news outlets described at length the positive and negative implications of the decision (Crawley, 2019; Howorun, 2019; Jeffords, 2019). Many Ontario residents were likely made aware of the status of Ontario wind energy through media coverage

and may have adopted the attitude of whichever political party they align more closely with, a tendency described in detail by other scholars in the Canadian context (Jost et al., 2009; C. Walker et al., 2018). That is, Conservatives may more often oppose wind energy and support the cancellation of wind projects, while Liberals may more often support the GEA and its resulting increase in wind developments in the province.

Related to and resulting from Ontario's policy landscape, most of the popular Canadian anti-wind websites are Ontario-based – these include ontario-wind-resistence.org; windconcernsontario.ca; and windontario.ca. There are also countless Facebook pages and smaller private Facebook groups for particular communities to organize protests and share information about local developments. These resources are updated regularly and primarily feature blog-style opinion pieces about the wind projects being constructed in Ontario, or existing projects that residents are unhappy with.

2.6.5.2 Nova Scotia Policy Landscape

In Nova Scotia, the Community Feed-In-Tariff (COMFIT) program was similar to but more well-received than Ontario's FIT programs (Nova Scotia, 2016). The very important difference is that only community groups, including those created as part of the Community Economic Development Investment Fund (CEDIF) program, could hold majority ownership over the wind projects, whereas in Ontario corporations were permitted to as well (Gross, 2007; C. Walker & Baxter, 2017b, 2017a; Wolsink, 2000, 2007; Wüstenhagen et al., 2007). As a result, the negative attitudes that developed in Ontario were not as pronounced in Nova Scotia. Similarly, there is less of a cited influence of political discourse on community attitudes in the Nova Scotia context (C. Walker et al., 2018). Nova Scotia also has a lower population density than Ontario does, and

as a result the wind projects being built in this context are often situated further from urban centers or near fewer individual households. These factors have resulted in Nova Scotians having generally more positive attitudes toward wind projects build in their communities (and by extension, few publicly accessible anti-wind websites or groups).

2.7 Literature Review Summary

This chapter identifies key terms used in the literature for measuring community attitudes, and specifically positions "positivity" as a middle-ground dependent variable to be used in the present study. The concept of community-based development is compared to its broad counterpart, developer-led development, and a brief overview of the theoretical merits of community-based wind projects are provided. The field of environmental justice is introduced in relation to energy projects, and specifically wind projects, with a brief description of both procedural and distributive justice. The Process-Outcome Model (G. Walker & Devine-Wright, 2008) is described and some studies using it are described as a means of introducing the theoretical model used in the present study, the three dimensions of community-based wind energy model (Baxter et al., 2020) which uses the dimensions of decision-making, benefits and investment scale. Each of these dimensions alongside impacts and context are described in turn, alongside a description of the relevant literature for each. The following chapter, Methods, will describe in detail the process of creating the survey instrument, disseminating it, and entering and analysing the data.

3 Methods

3.1 Introduction

This study is a comparative survey based on 362 responses to a questionnaire on resident's positivity toward local wind turbines. This chapter identifies and justifies the methodological choices made during survey construction, dissemination, and analysis. This work is relatively exploratory in nature and aims to combine the methodologies of previous works to add to the body of literature around community attitudes toward wind projects.

3.2 Research Design

The purpose of this project is to answer the following research questions:

1. What attitudes do people hold toward nearby local wind projects?
2. How do attitudes differ by province?
3. How do attitudes differ between those who live near community-based wind projects and those who live near developer-led projects?
4. How do attitudes to a local project predict preference for hypothetical wind energy development scenarios (community-based, developer-led)?
5. How do residents feel about the dimension(s) of community-based wind projects (decision-making, benefits distribution, investment?

These questions will be answered through the testing of the following hypotheses, which each relate to the corresponding research question above:

1. Positivity toward local wind turbines will be predicted by variables aligning with the three dimensions of community-based wind development: decision-making, benefits distribution, and investment scale (Baxter et al., 2020).

2. Nova Scotia residents will be more positive toward their existing local wind project than Ontario residents.
3. Respondents living near a community-based wind project will be more positive toward their local wind project than respondents living near a developer-led wind project.
4. Respondents living near existing community-based wind projects will be more likely than residents near developer-led wind projects to show positivity toward a hypothetical community-based wind project.
5. Respondents will prefer community-level benefits to individual benefits when given a hypothetical choice between them.

This study is part of a larger project, Meaning of Community Wind Energy (MOCWE) which includes collaborators in Ontario, Nova Scotia, Northern Ireland and the Republic of Ireland. I developed a survey instrument to eventually be used in all four contexts, which I disseminated in November 2020 in communities in Ontario and Nova Scotia, both with and without a community-based development framework. A key goal was to test ideas developed in interviews using a survey with a larger sample. In Ontario, this survey was used to revisit Ernestown, Port Ryerse, and Gunn's Hill; in Nova Scotia, the survey was used to revisit Terence Bay and Ellershouse. Within each province, the sample is split between residents living near developer-led wind projects (two in Ontario, one in Nova Scotia) and residents living near community-based wind projects (one in each province). The intention of this wide breadth is to establish trends between the two provinces and between community-based and developer-led projects, to ultimately establish predictors of community attitudes for wind projects in Canada.

This study was approved by the Non-Medical Research Ethics Board of Western University (Review Reference 2020-109374-44053). Its approval certificate is available as Appendix 1.

3.3 The Survey

There were three main reasons for site selection. First, many studies concerning attitudes toward community-based wind development focus on case studies of two or more specific sites that are compared in the resulting papers (Firestone et al., 2015; Mulvaney et al., 2013a, 2013b; Songsore & Buzzelli, 2015; C. Walker & Baxter, 2017b, 2017a). Often, the sites are within the same general context, for example the same country, province or state, so that cultural and political factors remain relatively consistent across sites (Firestone et al., 2018; Walker & Baxter, 2017a, 2017b) . Thus, this comparative method is considered a rigorous means of identifying knowledge gaps or establishing trends in community attitudes (Firestone et al., 2018).

Second, some studies compare similar projects located in different contexts, for example different countries, provinces or states (Hübner et al., 2019; Liebe et al., 2017; Ruggiero et al., 2014; C. Walker et al., 2018; C. Walker & Baxter, 2017a, 2017b). This method allows for the consideration of how local media and policy landscapes impact local attitudes and knowledge around projects that have procedural similarities. It is important to distinguish between attitudes reported in different places to establish a more comprehensive understanding of how communities are coexisting with wind energy in each context, and for the opportunity to consider how much of a trend in perspectives can be attributed to their cultural, media and policy context (Baxter et al., 2020; Borch et al., 2020; Firestone et al., 2018; Schmidt, 2017).

Finally, some studies include sites both with and without wind turbines (Baxter et al., 2013; Eiser et al., 2010; Mulvaney et al., 2013a, 2013b). However, few have used hypothetical questions related to wind project scenarios (Walter, 2014). Hence, scenarios were chosen for this survey, to draw comparisons between attitudes toward existing local wind projects and hypothetical wind projects within the same sample. This is valuable to test whether communities nearby existing wind projects react to new proposed projects differently based on their local development models or provincial context and compare how people perceive developments differently in theory and in practice.

All these approaches will be incorporated in the present survey. The study will include communities around community-based and developer-led wind projects to establish whether residents perceive the two development models, or particular aspects of them, significantly differently. Additionally, two different provinces are included in the study, Ontario and Nova Scotia, satisfying the literature's reported need for more context comparisons. By asking questions both about the respondent's local wind project and hypothetical scenarios, inferences can be made about which aspects of a wind project have the biggest effect on project acceptance. Each site received identical surveys to ensure comparability between datasets, and the minimum age to participate at all sites was eighteen.

3.4 Disseminating the Survey

I used a mail-out mail-back dissemination design using a third-party contractor, Key Contact. Key Contact is a trusted partner for survey research conducted through Western University and handled the printing, packing and dissemination of surveys. Survey packages were disseminated to all households on randomly selected postal routes, within the 5km radius of each turbine

site. Table 3.1 includes details about how many households were given a survey along the selected postal routes for each wind project. Each wind project includes one postal route for 'what's left'; any remaining surveys were to be disseminated along that route, likely to the homes earliest in the route though there is no definitive way of knowing how the postal worker approached disseminating those surveys. Respondents provided their postal code, but no addresses were collected, so more detailed data about respondent stratification around the wind projects is not possible. The survey package that was mailed to the households included a one-page letter of information, a paper copy of the seven-page survey, and a separate page on which respondents could put their email to be entered for a chance to win one of four $100 CAD gift cards of their choice. While prepaid token financial incentives are shown to be significantly more effective, a post-incentive method was used due to financial constraints (Dillman et al., 2014). See Appendix 2 for the full survey document that was printed and mailed. It also included a pre-paid mail-back envelope.

Table 3.1: Distribution of surveys disseminated to five-kilometer radius around five wind project sites.

	Disseminated	**Postal Codes**	**Postal Routes**	**Households on Route**	**Surveys for Route**	**Sample**
Gunn's Hill	2,000	N4S	RR004	384	384	94
			RR008	176	176	
			RR001	486	486	
			SS002	331	331	
			LC003	**754**	**643**	
Ernestown	1,000	K0H1G0	RR003	491	491	52
		K7N	LC0140	**721**	**509**	
Port Ryerse	1,000	N3Y	RR003	491	491	45
			RR002	431	431	
			SS002	**293**	**78**	
Ellershouse	2,000	B0N1L0	RR001	526	526	78
		B0N1Z0	RR002	903	903	
		B0N2A0	RR104	250	250	

		B0N2E0	RR001	91	91	
		B0N2T0	RR104	**358**	**230**	
Terence Bay	2,000	B3T	RR002	905	905	93
			RR007	907	907	
			RR004	**800**	**188**	

Footnote: For most postal routes listed, all households received a survey. For bolded routes, surveys were given to as many households as needed to reach the number of surveys allocated for that wind project site ('what's left').

The Letter of Information featured contact information for Dr. Jamie Baxter and an explanation of the project, as well as a shortened URL – bit.ly/MOCWESurvey – to allow respondents to complete the survey online if preferred. The link was the same for all survey respondents and there was no form of identification or account required to fill out the survey. For this reason, there is certainly a possibility that some survey responses were from individuals who did not live near the turbines and simply got the shortened link from someone else. For the sake of ease for survey respondents, the research team determined this was an acceptable risk, and in the months following dissemination, concerned citizen websites were checked periodically to identify any sign of residents sharing the link publicly online – no such event was uncovered on a public forum, but there is no way to know for sure whether link-sharing occurred in other spaces. Further, the proportion of people who filled out the questionnaire online is very small (33 surveys; 9%).

Dillman et al. (2014) suggest that three mailings be sent, however due to budgetary constraints and the time limitations of a Master's degree, only one was sent. Surely a higher response rate would have been achieved with a second or third mailing, however that was not possible at this time.

3.5 Survey Sample Overview

A sample size of 800 completed surveys was sought to achieve a representative sample of the communities being included in this study. Mail-back surveys in this field of study have an expected response rate of 15-20% (Firestone et al., 2018; Hoen et al., 2019; C. Walker & Baxter, 2017a, 2017b), however to account for potential low engagement due to COVID-19, a conservative response rate of 10% was expected; therefore, 8000 surveys were disseminated in total (distributions in Table 3.1 above). Two developer-led sites were selected because they were found to have distinct community characteristics in prior interview analysis, and only 1,000 surveys were sent to each for the sake of budgetary constraints. It also allowed the maintenance of roughly equal samples from each province, and each development type. The anticipated response rate of a survey decreases the longer the survey takes to complete with an optimal length around 12 minutes (Brace, 2013; Fink, 2003); this survey took approximately fifteen minutes to complete.

The final sample had 362 respondents. Response rates per site ranged from 3.9% in Ellershouse, to 5.2% in Ernestown and an overall response rate of 4.5%. There are many potential reasons for this relatively low response rate, including the fact that the survey was disseminated in November 2020, approximately a year into the pandemic. Many elements of life that may have otherwise been in-person have been held online or done through mail, which may have resulted in higher levels of respondent fatigue than would have otherwise been present (Field, 2020; Lavrakas, 2008; O'Reilly-Shah, 2017). The communities being surveyed had all already participated in interviews within the last few years, and the wind projects are all at least 4 years old, which may have increased respondent fatigue further. Sample sizes for

interviews were small so perhaps this effect is negligible, but it is valuable to mention, nonetheless. Some people also live within the 5km radius, but on the outskirts of the nearby urban centers where they likely work and spend most of their time; such people may not even be aware that there is a wind project near them and would have elected not to complete the survey as a result.

3.5.1 Description of Sites

Many published works do not provide in-depth sociodemographic information, or the historical context of the sites being used. However, this information is incredibly valuable in establishing the degree to which communities will want to participate in planning decisions and the amount of investment or benefits that they would prefer to have access to (Bauwens, 2016; Baxter et al., 2020). While this information is provided in more depth in dissertations being completed by other researchers within the same parent project as the present study (MOCWE), a brief review of each site's context will be provided here for each survey site, as per the suggestions of Baxter et al. (2020).

The Ontario sites are provided as Figure 3.1, below. They were all installed under the FIT (Feed-in Tarriff) program. The Gunn's Hill wind project has ten wind turbines, spread across the landscape between residences, and was finished in 2017. Respondents are from anywhere within 5km of any one turbine, including near the closest urban center, Woodstock. Residents from the area Northwest of the turbines, therefore, may be more likely to not know about them if they primarily travel to and from this urban center. Ernestown's wind project consists of five turbines placed on either side of a set of train tracks, two of which are next to a large solar

farm. This wind project was completed in 2014. Port Ryerse's wind project has four turbines, situated relatively close together on agricultural land between two more densely populated but small communities, both which are partially represented by the 5km radial sampling. This project was completed in 2016.

Figure 3.1: Maps showing the three wind project sites in close-up maps as well as together on a map showing Ontario as a whole.

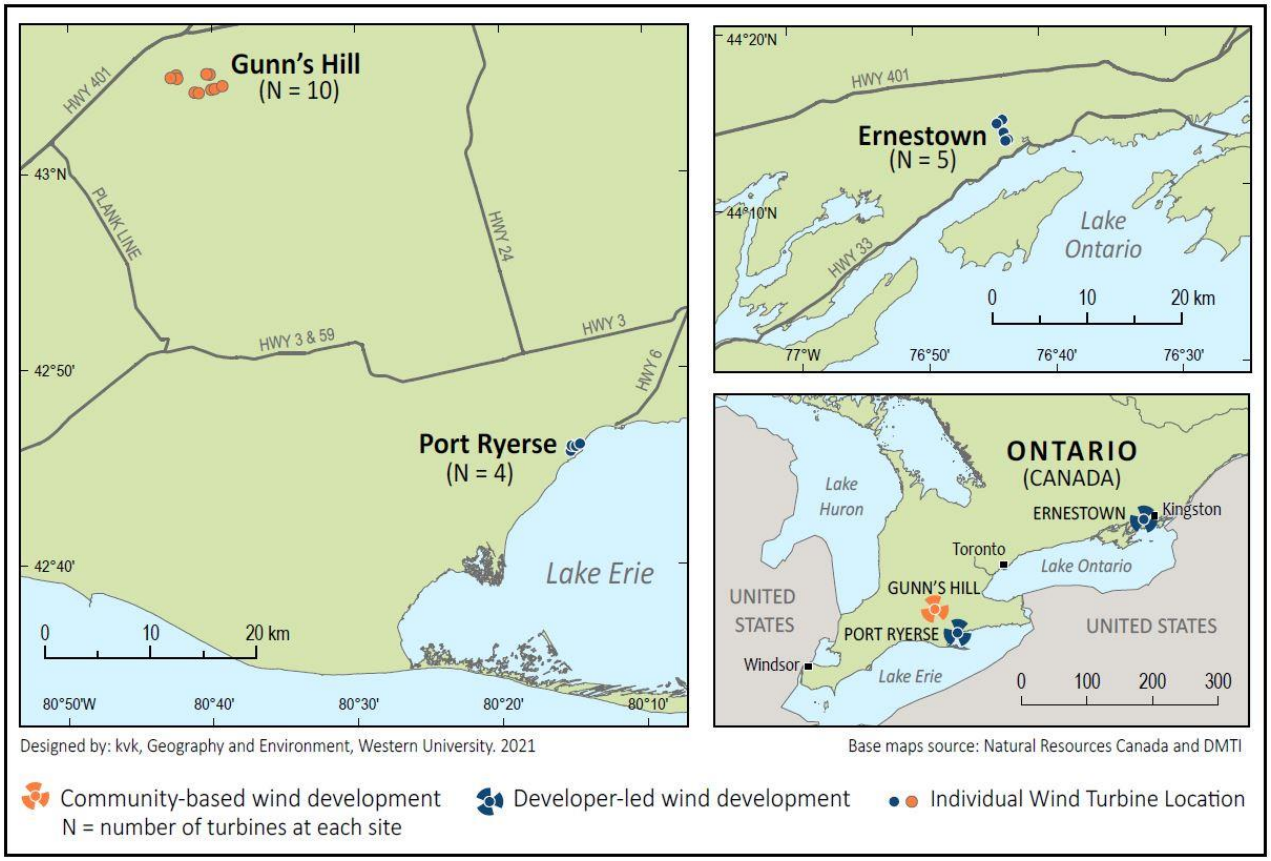
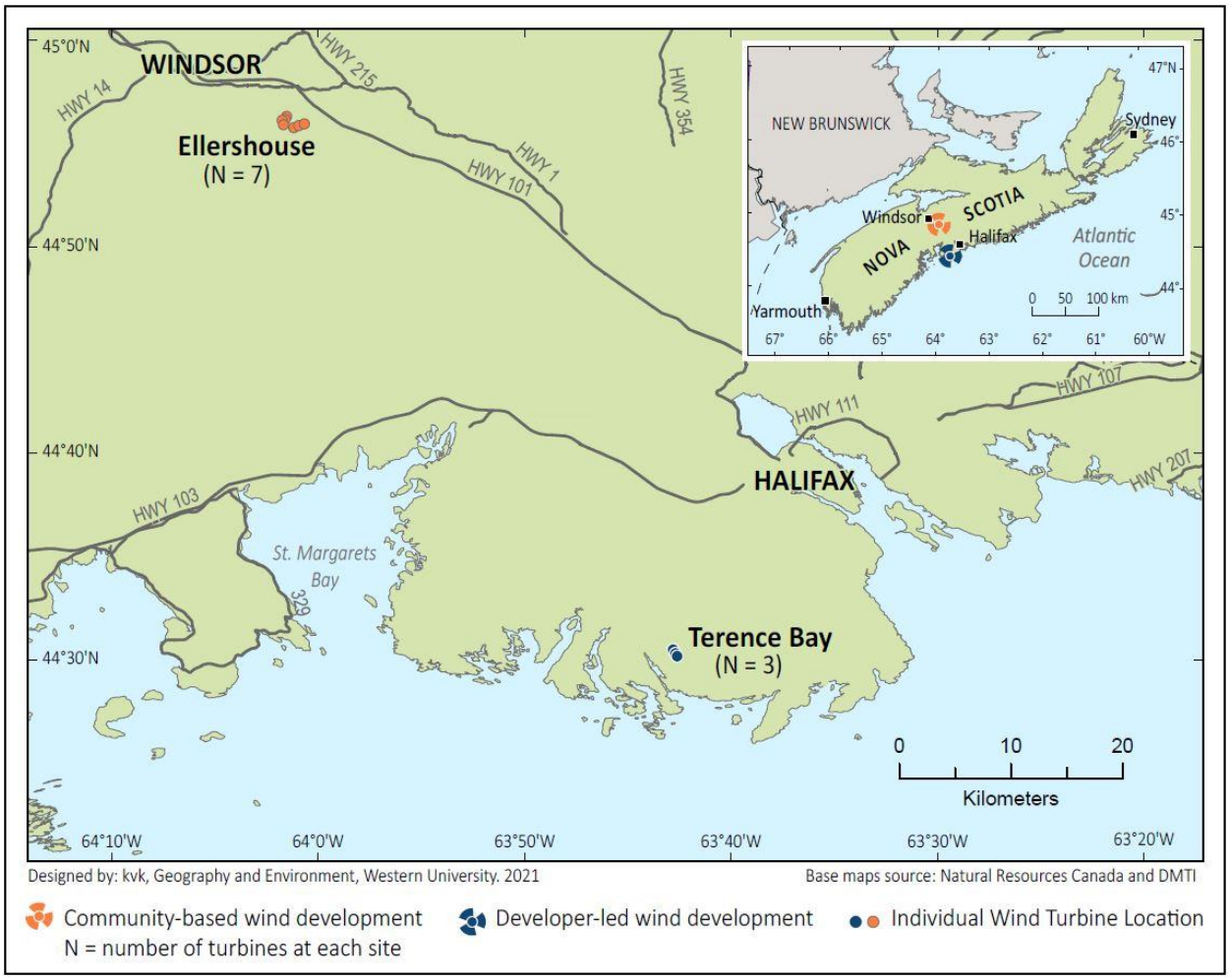


Figure 3.2 includes the two Nova Scotia maps. Both were installed under the COMFIT (Community Feed-In-Tariff) program. The Ellershouse wind project consists of seven turbines built along a dedicated road in one extended site southwest of the nearest households, which are in and around Windsor. These turbines were built over the course of a few construction periods, but the most recent was completed in 2016. Terence Bay has only three turbines which are situated along a dedicated road in a relatively remote area, further inland than most survey

respondents, who mostly live in small coastal communities south of the development. This project was completed in 2015.

Figure 3.2: Maps showing the two wind project sites in a close-up map as well as together on a smaller map showing Nova Scotia as a whole.



3.6 Survey Questions & Content

The survey content is based on three sources of information: 1) a previous survey conducted in the United States in 2016 (Lawrence Berkeley National Laboratory, 2018); 2) interviews conducted by other researchers within the MOCWE project which utilize the same sites as the present survey; and 3) knowledge gaps identified within the broader literature, primarily through use of recently published literature reviews.

Through incorporating survey questions from this previous international survey, comparisons may be drawn between the sites included in this project and those included in previous works, which is a main goal of this research (Firestone et al., 2018; Hoen et al., 2019; Rand & Hoen, 2017). The Wind Neighbours Survey was conducted in the United States in 2016 with a representative sample from eight kilometers around over 600 wind energy projects (Lawrence Berkley National Laboratory, 2018). This survey instrument is comprehensive and inquires about social acceptance (Hoen et al., 2019; Rand & Hoen, 2017), procedural fairness (Firestone et al., 2018), and noise annoyance (Haac et al., 2019; Hübner et al., 2019). The questions related to the former two themes have been replicated in my survey after editing for clarity and relevance to the Canadian context. These studies also resulted in Rand and Hoen (2017) emphasizing the need for future studies to compare two communities with identical provincial policies, but different development models (community-based and developer-led). If there are particularly strong opinions for or against wind energy in a given context, these trends can be compared to regionally specific features such as media coverage, local opposition groups or nearby wind projects with poor reputations to better understand the attitudes of residents and the reported reasons behind them. This information can be contrasted with the details of the particular wind energy projects residents live near to establish whether project-specific or context-specific factors more accurately predict their attitudes toward their local wind energy development. This has been done in the present study, in two provinces, to compare across development types and provinces simultaneously.

All the communities that received this survey included residents who had already been interviewed in-person by a member of the MOCWE team. This will allow survey findings from

each site to be compared to interview findings from the same community – in aggregate, not individually. Many questions included in the survey are therefore informed by interview findings from all sites: the researchers responsible for conducting those interviews have been integral to the creation of this survey instrument. This ensured that the survey asked context-relevant questions that accurately target topics that residents are interested in speaking to, which improves the surveys' context-relevancy (Hoinville & Jowell, 1978). Since all the interviews and this survey are anonymous and neither included a full census of the communities, it will be impossible to know whether the same people were included in both. This will increase the rigor of the analysis further, by producing complementary datasets that together measure general community attitudes, not specific individuals' attitudes.

The final source of survey content is a series of literature reviews conducted prior to beginning survey writing, which identified knowledge gaps and helped to incorporate unique questions into the survey instrument. Each were explained in detail in the previous chapter, literature review (Baxter et al., 2020; Creamer et al., 2019). Creamer et al.'s review (2019) reaffirmed the importance of using the same sites as previously interviewed, and Baxter et al.'s review (2020) added the dimension of investment scale to the previous two, benefits distribution and decision-making.

3.7 Final Survey Content Overview

The survey is divided into two main sections – the first half concerns the respondents' local wind turbine development within 5km of their home, and the second half concerns two hypothetical local turbine developments which each represent a type of development model found in Canada (developer-led and community-based) which respondents are asked to express

opinions about. Within the first type of question, regarding the respondent's local project, there are three Sections: Wind Energy in Your Community; Attitudes Toward the Wind Project; Wind Project Benefits. Within the second type of question, regarding the scenarios, there were two Sections: Wind Energy Development Preferences (which included a sub-section for the developer-led scenario and a sub-section for the community-based scenario); and Preferred Scenario and Benefits Distribution. Finally, there was an additional Section which included demographics questions at the end of the survey. The full survey is available for review as Appendix 2.

3.7.1 Survey Questions (Independent Variables)

The first section, "Wind Energy in Your Community", consists of a few general context questions – the province the respondent lives in, the name of the closest nearby wind project if they know it, whether they lived in the area when the project was constructed, and if they have any turbines on their property. I also included a question about whether respondents had a strong affinity or connection to the area in which they lived, to incorporate the concept of space versus place (Hoen et al., 2019; Lewicka, 2011; van Veelen & Haggett, 2017) and get a sense for whether people were more likely to feel strongly for or against a project depending on their feeling toward the region in which it's situated. The survey didn't ask any specific questions about emotional connection to landscape outside of this.

The second section, "Attitudes Toward the Wind Project", includes questions about the respondent's knowledge of and involvement with the project they live closest to. The questions used here are borrowed primarily from Wind Survey 2016 (Lawrence Berkley National Laboratory, 2018) and edited based on results from interviews conducted at all sites. These

included questions about whether residents feel they personally had a meaningful influence on project outcomes (or could have if they wanted to), and whether their community did/could influence the project outcomes. They were asked whether they consider the project process to have been 'fair', whether the turbine construction was annoying, as well as whether the developer and the planning authority were perceived as trustworthy and transparent. All of these were provided as five-point Likert questions (negative response=1 and positive response=5) with a "don't know" or "unaware of the project" option. To elaborate on research previously done in Nova Scotia which identified 'trust' as a major theme, further trust questions were asked in which respondents selected (not ranked) their 3 most and 3 least trustworthy sources of information from a provided list: leaseholders, developers, local government, provincial government, federal government, news and media, concerned citizen websites, friends and family, plus an 'other' option to write in any information source that was not listed. Following, the survey asked about their current attitude toward the wind project, their original attitude when they heard about it, and how they feel their attitude has changed (all 5-point Likert scale questions, negative response=1 and positive response=5). I also included a list of reactions (adapted from the Wind Neighbours Survey) for when they first heard about the turbines, when they saw them constructed, and their reactions today – the options were proud, fearful, hopeful, helpless, angry, content, none of the above, don't know. The goal was to provide a wide range of possible reactions to gage whether certain sites, or one province, or one kind of development, experienced distinct reactions from the other(s). Finally, the survey asked about their relationship with leaseholders, whether they consider the project to be attractive, and whether they'd support extending the lifetime of the turbine once it reaches

end-of-life (Likert scale). In summation, this section identified themes in attitudes respondents have about their local wind project and categorized them as having an either negative or positive opinion of their local project.

The third section of the survey was about "Wind Project Benefits". This included questions about whether the respondent was aware of the benefits available, whether they had the opportunity to invest and, if so, whether they chose to or not (and why, from a provided list of options). It also inquired about non-investment benefits in the form of regular yearly payments, a lump sum payment or both (and how much it was, if applicable). Finally, I asked about whether the respondent considers the community-level benefits available to be fair, whether benefits were distributed fairly between residents, and whether they feel their property value was impacted by the turbines (for better or worse; these were all Likert scale questions with negative response=1 and positive response=5). This last question provided insights into how many respondents rented instead of owned their property, as well. The goal in this section was to establish whether respondents were provided benefits more often, or found available benefits more appealing, in community-based projects, and if one province reported different amounts of, or acceptance of, available benefits than the other.

The fourth section, "Wind Energy Development Preferences", includes the two scenarios (developer-led, then community-based) with an identical set of seven questions under each. Table 3.2 shows the main components of the hypothetical development models, though the full explanations are available in Appendix 2, the full survey instrument. For each scenario, respondents were asked whether they support the development model, whether the community engagement process is fair, whether they would personally take advantage of the

opportunities to be involved, whether they consider the project to take an acceptable amount of their time to participate in, whether the turbine siting process is fair, whether the benefits distribution is fair, and finally their reaction to this development if they lived nearby. The reaction question uses the same list as the previous reaction questions: proud, fearful, hopeful, helpless, angry, content, none of the above, don't know. These questions provide an opportunity to compare respondent's levels of positivity toward the two overarching wind development models, as well as introduce the dimensions of wind developments, which are considered in the following section of the survey.

Table 3.2: Components of developer-led and community-based hypothetical development scenarios used in the survey instrument.

Feature	Developer-Led (DL) Scenario	Community-Based (CB) Scenario
Developer	**Overseas** wind development company	**Community co-op** w/ experienced developer as a paid consultant
Investment Scheme	**51% developer's shareholders**, 49% anyone else: $1,000/share for anyone, $800/share for locals	**Locals-only investment**, profits split between investors & the broader community. 100% community-owned, voting power @ $200/share
Siting Process	10 turbines sited **by developers** w/ leaseholders before 1st public meeting	10 turbines sited **by the co-op** & any locals who are interested in early public planning meetings
Community Engagement Process	two local **open houses pre-construction**; developer & their shareholders are primary decision-maker	**As many community meetings as needed**, non-shareholder locals invited to most of them. **Shareholders vote** on all decisions
Community Benefits	$200,000/year for **community development projects**	$100,000/year for **community development projects**; $1,000/year to **all locals within 2km** of a turbine

Section 5 is "Preferred Scenario and Benefits Distribution" – this section is meant to compare and contrast the two provided scenarios and establish the relative importance of the three dimensions of community-based wind development (decision-making, benefits distribution, and investment scale), as described by Baxter et al. (2020) in their recent paper. This section starts with a simple comparison question, "which of the two development

scenarios described above do you prefer?", which has only the two options and does not provide a 'don't know' or a 'neutral' option. Fundamentally, I wanted respondents to choose between the two so I could make claims about their Section 4 answers in relation to the proportion that preferred each scenario overall. Respondents ranked the three dimensions of community-based wind energy – majority investment source (global vs local), primary decision maker (developer vs residents), and benefits distribution (private- vs community-focused) – based on which they personally feel is most important to them. Following, they answered preference questions for each of those dimensions, i.e. the two options in brackets above. They were asked more specifically about which individual benefits model (lump sums, regular payments, decreased electricity cost, 'such benefits are not appropriate", don't know) and collective benefits decision-maker (municipal government; established organization, elected committee) they prefer. Respondents were asked to rank a series of energy projects (ranging from solar, wind, and nuclear to natural gas and coal). Finally, they were asked whether wind energy in their region should be prohibited, allowed in appropriate circumstances, or encouraged, as well as whether they believe that climate change warrants green energy investment, and whether they believe that wind energy in particular will help combat climate change. These last few questions were meant to establish a baseline of whether the respondent's attitudes toward wind energy throughout the rest of the survey were related to problems with their local project, a disapproval of wind energy in general, or a fundamental misunderstanding of the role renewable energies will need to play in combatting the climate crisis.

Finally, Section 6 is “Demographic Information”. This data was collected primarily to establish whether a representative sample was achieved, and to weight my data accordingly for the resulting regressions if needed. Respondents were asked to provide their gender (man, woman, other, prefer not to say), age (15-year brackets), education (some high school, high school diploma or equivalent, college or university degree, graduate or professional degree), employment status (employed full-time, part-time, or various versions of unemployed including retired), whether the respondent worked from home within the two years BEFORE the pandemic (brackets up to 40 hours or full-time), and household income before taxes (income brackets). I then collected postal codes as a failsafe for respondents that did not know the name of their local project in Section 1, followed by a few lines for comments at the bottom of the survey.

3.7.2 Dependent Variable

The primary dependent variable used in this project is positivity toward the local wind project the respondent lives near, survey question 18: “what is your current attitude toward your local wind project?”. This question was originally a likert-scale question ranging from strongly negative to strongly positive but was re-coded as other=0 (very negative, negative, and neutral categories), positive=1 (both positive and very positive) to make it binary for analysis. This question is a re-worded version of the five-point Likert scale dependent variable, “what is your attitude toward your local project *now*?”, from Hoen et al.’s 2019 paper, *“Attitudes of U.S. Wind Turbine Neighbours: Analysis of a Nationwide Survey”,* which used the 2016 Wind Neighbours Survey dataset (Lawrence Berkeley National Laboratory, 2018). Using the same

research question in a different context and with a different analysis allows a degree of comparability between the findings.

3.8 Sample Representativeness

Demographically speaking, the sample achieved in each community is similar to census data from Statistics Canada, though some clear distinctions are present which will be highlighted below (Statistics Canada, 2017). For each community surveyed, its affiliated Census Subdivision was used as a direct demographic comparison. None of the site samples were spread across multiple Census Subdivisions, so the information provided is the single Census Subdivision that included the entire sample as well as nearby communities and households. Census data of the entire provinces of Ontario and Nova Scotia were compared to the Ontario and Nova Scotia sites totals, respectively, to provide insight into province-wide demographic trends that may inform the analysis.

Canada Census data – collected from the whole population every five years – is the most valuable population-level data available for comparison. However, the Census Subdivisions as well as the province-wide datasets include both rural and urban residents within the regions. By contrast, my sample was exclusively rural residents who live within 5km of a selected wind project. This likely explains some differences between my sample and the Census data. This is a common problem in rural Ontario wind studies: other scholars have argued that the nature of Census data makes it difficult to generalize findings to the "community around" a given wind project because the Census Subdivision is far larger than that, and attitudes from the communities 5km from a wind turbine are not generalizable to the broader population in the region, province or country (Christidis et al., 2014; C. Walker & Baxter, 2017b). However,

internal consistency of the sample is high, with most sites reporting very similar proportions to each other in each of the demographic questions asked (see below). For this reason, the sites will be compared to each other throughout this dissertation. While they may not be representative of the regions from which they were sampled, the responses collected are a subset of the community and are valuable in determining how some individuals in these areas perceive wind energy.

The sample is generally skewed toward men, people over 60 years old, with higher educational attainment and incomes than their respective Census Subdivisions. The skew toward men (all sites except Port Ryerse) may be due to the nature of the topic of energy and finances being things that men in these households felt more comfortable speaking to, or simply because they were the ones who manage incoming mail. Over half of the respondents were over 60 years old and nearly half were also retired, which is to be expected in rural communities further from potential employers, especially with a survey instrument that takes 15-20 minutes to complete and for which the default method of completing the survey requires mailing it back. The Census Subdivisions, by comparison, were younger on average and a larger proportion were presently employed. The sample reported a higher level of education and a higher income before taxes than the Census Subdivision average for each region, which may indicate that something about this survey topic or framing made it appear overly technical or like it involved insights some people didn't feel competent to answer questions about. A similar trend is visible in other wind surveys (Guo et al., 2015). It could also simply be because the Census Subdivisions include parts of nearby townships that have apartment-style housing and rental properties, where people may be younger and still working their way up in their careers,

while my samples are exclusively rural households who almost all own their property and are late into their careers (or already retired). See Table 3.3 and 3.4 below for a full breakdown of demographics in Ontario and Nova Scotia, respectively.

Table 3.3: Comparison between Ontario sample data (s) and population data (p). StatsCan (2020).

		Gunn's Hill		Ernestown		Port Ryerse		Ontario	
		S	P	S	P	S	P	S	P
Gender	Man	56%	51%	58%	51%	36%	50%	52%	49%
	Other	44%	49%	42%	49%	64%	50%	48%	51%
Age	18-60	52%	48%	34%	52%	44%	48%	46%	55%
	60+	48%	20%	66%	28%	56%	31%	54%	25%
Education	High school or below	20%	56%	12%	45%	19%	54%	18%	45%
	College or university	80%	43%	88%	55%	82%	46%	82%	55%
Employed	Employed	64%	75%	48%	67%	63%	63%	60%	67%
	Not employed	36%	25%	52%	33%	37%	37%	40%	33%
Income	<$70,000 /year	31%	85%	32%	71%	36%	85%	41%	80%
	$70,000-200,000 /year	26%	10%	21%	13%	21%	10%	24%	11%
	>$200,000 /year	36%	5%	46%	15%	43%	5%	44%	14%
N (response rate)		94 (4.7%)		52 (5.2%)		45 (4.5%)		192 (4.75%)	

*Percentages may not add up to 100% due to omitted categories or rounding.

Table 3.4: Comparison between Nova Scotia sample data (s) and population data (p). StatsCan (2020).

		Ellershouse		Terence Bay		Nova Scotia	
		S	P	S	P	S	P
Gender	Man	53%	49%	56%	48%	54%	48%
	Other	47%	51%	44%	52%	46%	52%
Age	18-60	46%	51%	46%	57%	46%	53%
	60+	54%	28%	53%	22%	54%	30%
Education	High school or below	35%	48%	18%	40%	26%	45%
	College or university	65%	53%	82%	60%	74%	55%
Employed	Employed	45%	63%	50%	70%	48%	65%
	Not employed	55%	37%	51%	30%	53%	35%
Income	<$70,000 /year	52%	87%	33%	80%	41%	85%

	$70,000-200,000 /year	25%	9%	27%	12%	26%	10%
	>$200,000 /year	19%	4%	30%	7%	24%	5%
N (response rate)		78 (3.9%)		93 (4.65%)		170 (4.25%)	

*Percentages may not add up to 100% due to omitted categories or rounding.

3.8.1 Weighting

Originally, weighting was applied to 'gender' to combat potential generalizability issues resulting from the overrepresentation of men and to ensure the sample was more representative of the regions from which they are derived. The weighting method used was 'iterative raking' or 'sample balancing' (Battaglia et al., 2009; Mercer et al., 2018), following the example of other wind acceptance survey research (Firestone et al., 2018; Hoen et al., 2019; C. Walker & Baxter, 2017a, 2017b). Gender was selected for weighting because it is difficult to establish how the sample compares to their community for age, education, employment or income when the Census Subdivisions include far larger regions than just the 5km radius that was sampled (Christidis et al., 2014; C. Walker & Baxter, 2017b). Gender is the only variable for which regional proportions are almost sure to be applicable within the 5km sampling radius – approximately 50% men and 50% women.

However, following the example of Hoen et al. (2019) and Firestone et al. (2018b), the regression analyses were not going to be weighted. Gender is significantly correlated with the dependent variable in bivariate analysis, however in regression analysis, the difference between the original unweighted regression results and the regression weighted by gender is negligible. In Hoen and Firestone's papers, they did choose to weight their univariate and bivariate results, however this was done in those papers partially because they use their bivariate analysis as the primary selection criteria for inclusion in their regressions, which is not

being done in present study (see Section 3.6.3 for more information about the regression analysis). More importantly, the bivariate results of this study are less robust than the regression, so applying weighting to one but not the other could negatively influence the results. In the end, then, neither the bivariate analyses nor the regression analysis is weighted for gender or anything else in this study.

3.9 Analysis

There are three main forms of statistical analysis in this research: univariate, bivariate and binomial logistic regression. Survey response data was entered into SPSS 26 quantitative software from November 2020 to February 2021. Every ten surveys, a quick review of the entered data was done to ensure accuracy and transcribe all the comments from the end of the survey into a 'notes' column at the end of the respondent's row in the dataset. If a respondent wrote notes throughout their survey, these were transcribed here as well, with reference to which question the comment was written next to/in relation to. These notes were not analysed specifically but were used to unsystematically verify interpretation and provide additional context. Each mail-back survey was labelled with a Code – S# – both in the dataset and on the front page of the paper copy. Online survey responses were entered into the dataset in order of completion and labelled in the dataset as well – O# – to differentiate the paper surveys from the Qualtrics surveys in the case that a particular survey needs to be accessed later. Only 33 (9%) of surveys were filled out online; the rest are paper mail-back surveys.

Data was cleaned in a few ways to ensure that it could be used in all intended forms of analyses, all by me and all by hand (see Osborne, 2013). The original dataset was maintained, and these amended variables were entered separately into the dataset. Many respondents

didn't know the name of the wind project closest to them, so answers were cross-referenced with their Postal code to ensure accurate site coding. For the sake of more straightforward analysis and larger proportions per category, 5-point Likert scale questions were collapsed into "agree, neutral, disagree" with a "don't know/unaware" option where applicable. Emotional reactions questions that use a scale from 'angry' to 'proud' were collapsed into "negative, positive, none of the above, don't know". The original data was maintained, and all univariate and bivariate analyses were run for both original and collapsed versions of the variables. The univariate, bivariate and regression analyses described in the following chapter, however, include collapsed categories where they are more informative or easier to interpret. This made it easier to interpret the results, as binomial regression provides odds ratios, and would also improve the clarity and size of effects between variables by decreasing the number of steps in the regression's odds ratio output.

3.9.1 Univariate Analyses

Due to the exploratory nature of the research, analysis began with descriptive statistics for all variables in the dataset, including frequencies and crosstabs, to establish surface-level trends in the data and better understand how each question's responses are skewed and distributed (see Appendix 3 for descriptive statistics of all categories of all variables, and Appendix 4 for means, standard deviations and t-tests for all variables). Through this process, it became clear which lines of inquiry should have been elaborated on further in the survey, and which were either presented poorly or were uninteresting or irrelevant to the sample. Most importantly, it became clear which comparative questions would yield compelling bivariate analysis results.

3.9.2 Bivariate Analysis

Three sets of bivariate analyses were conducted using the full dataset (so, three separate 'dependent variables'), as a means of comparing groups within the survey sample. The first analysis compares residents of Ontario to residents of Nova Scotia; the second compares residents living near a developer-led local site versus a community-based local site; and the third compares respondents who reported current positive opinions of their local wind project versus those who did not. These bivariate analyses align with the kinds of comparisons run by other scholars in previous studies (Firestone et al., 2015; Mulvaney et al., 2013; Songsore et al., 2018; C. Walker & Baxter, 2017a, 2017b), as well as the gaps those authors highlighted for future research (Baxter et al., 2020; Creamer et al., 2019; Firestone et al., 2018).

Originally, both Pearson and Spearman coefficients were calculated, but there were essentially no differences between the two; the same variables were significant (p-value<.005) in each case. Ultimately, Spearman coefficients and associated significance values have been included in the analysis, since the dataset is almost entirely categorical, collected primarily through use of a Likert scale with "don't know" or "unaware" categories. A strong negative or positive association between variables would be informative in establishing whether a given variable performed as expected.

Chi square tests were run as well to establish the goodness of fit for each variable, split by each of the four chosen comparison variables. If the observed distributions are similar to the predicted or expected distribution, and the chi square results are significant, then it is likely that the relationship between the two variables is not due to random chance. These two analyses allowed for familiarization with the dataset, after which decisions about the regression could be

made. In-text, chi square values will be the ones that are reported, as they nearly always align with the Spearman results, though both are available for each comparison set as Appendix 5.

3.9.3 Binomial Logistic Regression

Since the dependent variable has only two categories, binomial logistic regression was selected, instead of the ordinary least squares regression used by Hoen et al. (2019) or the linear regression used by Firestone et al. (2018). Following the bivariate significance tests & associated comparison analysis, a forward conditional binomial logistic regression was done to identify which combination of variables best predicted the variability in the dependent variable, positivity toward the local wind projects. A stepwise regression was chosen because it would systematically remove insignificant variables from the model from blocks which were manually entered. The model with the best fit had three blocks: the first included questions about the experience of living near the local wind project and trust of various information sources; the second included opinions of the wind project; the third was demographic information.

Collinear variables were removed from the dataset in a series of tests using SPSS, namely variance inflation factors (VIF) and general regression output interpretations to isolate and remove problematic variables (Gaskin, 2011). When two variables proved too collinear the most significant of them was chosen for inclusion (the one with the least negative impact on the model's fit or collinearity diagnostics), or the most informative based on the literature (namely the 2016 Wind Neighbours Survey) and the contribution each would make to the model if included. There were multiple survey questions for which the results were so homogenous (over 90%) that the variable could not perform effectively in a regression (any categories with less than 10 respondents in univariate results), which have therefore been

removed. Finally, there were a few questions that did not have a clear, explicit conflict in the dataset, but the combination of them resulted in uninterpretable model output with excessively large odds ratios. In such cases, the two or more variables that could have been causing the effect were each systematically removed from an otherwise identical model to establish which variable contributed most to the negative impact the group was having on model output, and the worst-performing variables were removed. A full list of variables that have been removed from the regression with their corresponding justification is available as Appendix 6.

The remaining variables were included sequentially as three blocks, listed out in Table 3.5. The variables in each block are in roughly the same order as they were presented on the survey, with some reorganization for the sake of keeping like questions together. The original order of the survey sections and the questions within them was not chosen for a theoretical purpose, but prioritized logic, flow, and maximizing completed returns (maintaining interest, minimizing frustration) for the survey respondents. For that reason, each possible block order was run with identical variables, and the most high-performing order was chosen. That just happened to be the order which most closely aligned with the original order of the questions in the survey instrument. The full SPSS output from the forward conditional regression is available as Appendix 7.

Table 3.5: Variables included in regression.

Block	Variable Names
1	Province; development type of local site the respondent lives near; moved in before construction; found out too late to have a meaningful say; personally had a meaningful say; community had a meaningful say; planning process was fair; construction process was annoying; trust local government as information source; trust news and media as an information source; trust concerned citizen websites as an information source; distrust leaseholders as an information source; distrust developers as an information source; distrust provincial

	government as an information source; had adequate access to information about the wind project
2	Leaseholders unfairly blamed for the decisions of the developer; turbines are attractive in the landscape; would support extending wind project's lifetime; had adequate access to information about benefits; benefits were distributed fairly; scenario preference (developer-led or community-based); renewable energy is effective for combatting climate crisis
3	Gender; age; education; employment status

3.10 Summary

This chapter introduced the exploratory research questions this project was developed to answer. It provided a detailed rationale of the survey dissemination strategy, survey content and survey analysis methodologies. The following chapter will describe key research findings in relation to the research questions.

4 Results Chapter

4.1 Introduction

In this chapter, results from the wind survey are organized by hypothesis and include univariate, bivariate and regression analyses. Each hypothesis will be explored in its own section, with hypotheses two and three addressed together. There are several "usual suspect" variables included in the analysis and these should be considered control variables. That is, there is already relatively well-established literature on the importance of such variables (e.g., trust, visual aesthetics, sociodemographic variables) including those described as 'impacts' within the theoretical model in the literature review. While those are included in the analysis to detect consistency within the literature, they are not the focus and will be considered only briefly. The hypotheses are as follows:

Predictors of attitudes towards LOCAL wind energy developments:

1. Positivity toward local wind turbines will be predicted by variables aligning with the three dimensions of community-based wind development: decision-making, benefits distribution, and investment scale (Baxter et al., 2020).
2. Nova Scotia residents will be more positive toward their existing local wind project than Ontario residents.
3. Respondents living near a community-based wind project will be more positive toward their local wind project than respondents living near a developer-led wind project.

Predictors of attitudes towards HYPOTHETICAL wind energy developments:

4. Respondents living near existing community-based wind projects will be more likely than residents near developer-led wind projects to show positivity toward a hypothetical community-based wind project.

5. Respondents will prefer community-level benefits to individual benefits when given a hypothetical choice between them.

4.2 Hypothesis 1: Predicting positivity toward local wind projects: Three dimensions of community-based wind development model

This section first identifies general attitudes of the sample using univariate analysis, followed by bivariate correlation analysis of the three predictors with the dependent variable, positivity toward the respondents' local wind project. Chi Square significance values (p-values) will be provided throughout the bivariate section. More rigorous binomial logistic regression is then used to predict positivity toward one's local wind project.

Both bivariate and regression results will contribute to the testing of hypothesis one, to accommodate the variables that were not able to be used in the regression but are still critical in testing the relative impact of the three dimensions. A result that supports hypothesis one is an outcome in which one or more dimension is represented in the regression, and all dimensions are represented in significance testing for bivariate analyses. A result that does not support hypothesis one is an outcome in which none of the dimensions is represented in the regression, regardless of bivariate analysis outcomes. A mixed result is one in which one or more dimensions are represented in the regression, but not all the dimensions are significant in bivariate analyses.

4.2.1 Univariate analysis of positivity toward local wind projects

The univariate analysis, or frequencies, provide a first impression of how the variables are skewed. Taking the full sample from all sites together, residents have majority-positive attitudes toward their local wind project; 23% reported their current attitude as negative, 19%

as neutral and the remaining 56% as positive. Of those who reported a particular emotional reaction toward their project 26% selected a negative reaction (helpless, fearful, angry) and the remaining 65% selected a positive reaction (hopeful, content, proud) with the remainder selecting 'don't know'.

Positivity toward the local wind projects seems to be increasing from the time of first announcement to present-day. Respondents were asked to recall and report their attitudes prior to construction of their local wind project, and while a quarter of respondents reported negative attitudes, there were more people neutral prior to construction (29% compared to 19% current neutral attitudes) and fewer people with positive attitudes (43% compared to 56% current positive attitudes).

4.2.2 Bivariate analysis, correlations with local wind project attitudes

Bivariate crosstabulations between all variables in the dataset and the dependent variable (positivity toward the local wind project) were run and are available in their entirety as Appendix 3. Here, bivariate relationships between key variables (listed in Table 4.1) and the dependent variable will be described. These include variables related to the three dimensions of community-based wind energy, and the second and third hypotheses. Not all are statistically significant, and not all are in the regression, but they nonetheless contribute to testing hypothesis one via bivariate analysis. The end of this section will briefly mention the control variables which were significant in bivariate analysis, as well as some unexpected variables that are significant, but which are not commonly tested of described in the literature.

Table 4.1: Chi Square significance values for the bivariate relationship between the dependent variable (positivity toward the local wind project) and all variables that represent the three local wind project hypotheses, including the three dimensions of community-based wind energy – decision-making (DM), benefits distribution (BD), and investment scale (IS).

Survey Section	Relevancy	Survey Question (with question number)	Chi Square (Significance)
Section 1	**H2**	1. Province	Chi Square 40.128 (.001)
	H3	1a. Project Site Type	Chi Square .046 (**.831**)
Section 2	**H1 DM**	5. Found out too late to influence decision-making	Chi Square 12.329 (.006)
	H1 DM	6. Personally had a meaningful influence	Chi Square 19.055 (.001)
	H1 DM	10. Community had a meaningful say in project	Chi Square 97.229 (.001)
	H1 DM	11. Planning process was fair	Chi Square 115.850 (.001)
	H1 DM	12. Construction process was annoying	Chi Square 81.644 (.001)
	H1 DM	16. Adequate access to project information	Chi Square 22.337 (.001)
Section 3	**H1 BD**	27. Adequate access to financial information	Chi Square 24.804 (.001)
	H1 BD	28. Given the opportunity to invest in turbines	Chi Square .100 (**.951**)
	H1 BD	30. Provided direct benefits	Chi Square 9.338 (.025)
	H1 BD	32. Community benefits are fair	Chi Square 90.358 (.001)
	H1 BD	33. Community benefits were distributed fairly	Chi Square 45.026 (.001)
Section 5	**H1 IS**	51. Preferred investment source	Chi Square 3.551 (**.060**)
	H1 DM	52. Preferred decision making	Chi Square 7.639 (.006)
	H1 BD	53. Preferred benefits distribution	Chi Square .181 (.670)
	H1 BD	54. Preferred benefits decision-maker	Chi Square 20.718 (.001)

[1]*The significance values of insignificant variables are shown in bold to differentiate them.*

Positivity is statistically different by province rather than development type. That is, most of the respondents who were positive toward their local project are from Nova Scotia compared to Ontario (75% positive compared to 42% positive, $p \leq .001$). For development type, positivity towards the local development is split more or less evenly – 57% positive near developer-led, 58% positive near community-based, $p = .117$). However, both were included in the regression because each is associated with separate hypotheses.

The local project attitude questions (section 2) are all significantly correlated with the dependent variable and are all related to the decision-making dimension of community-based wind energy. In general, residents who were positive about their local wind project more often reported having an influence on their local project and had positive perceptions of various aspects of the development process.

Four benefits-related questions (section 3) were significantly correlated with the dependent variable in the bivariate analysis: having adequate access to information about benefits

(p≤.001), being provided direct benefits by developers (p=.025), believing that community benefits were fair (p≤.001), believing the distribution of benefits were fair (p≤.001)). All of these are used in the regression except direct benefits since the dataset was very skewed toward not being offered benefits.

Finally, in the set of hypothetical questions directly related to dimensions, the questions pertaining to decision-making dimension (p=.006) and benefits distribution dimension (p≤.001) are significantly correlated to the dependent variable. The question related to the investment scale dimension is not significant (p=.060). However, due to the responses being collinear with each other, none were included in the regression. As is explained above, this is the only survey question that related to the dimension of investment scale; as a result, there are no variables associated with investment scale included in the regression. This is accounted for in the criteria for an outcome which supports hypothesis one; all three dimensions significant in bivariate analysis, and one or more in the regression.

To elaborate on these important dimensions, respondents more often reported preferring that decision-making be done by local investors (instead of global investors and developers) when they did not report positivity toward their local wind project (95% for those who were not positive, and 86% for those who were, p=.006). Those who were positive toward their local wind project selected all kinds of benefits (lump sum, regular payment, decreased electricity cost) as acceptable more often, while those who were not positive toward the local wind project more often selected ‘such benefits are not appropriate’ or ‘don’t know’ (p≤.001). Finally, respondents slightly more often reported preferring that investment was majority local (include of majority global investors or the developers) when they did not report positivity

toward their local wind project (98% for those who were not positive, 93% for those who were). This relationship is not statistically significant (p=.060). This skew toward one answer is another reason why the investment scale variable was not included in the regression analysis.

Of the three dimensions for predicting positivity toward the local wind project, fair local decision making is ranked the most important by respondents. While not statistically significant, it is valuable to note that respondents who reported positivity toward their local wind project and those who did not ranked the three dimensions of community-based wind energy differently. This set of variables was not included in the regression due to collinearity, but Table 4.2 shows how respondents ranked the three dimensions. The table shows that the decision-making dimension is more important to those who reported positivity when compared to having local investors, with fair local benefits distribution falling somewhere between these extremes.

Table 4.2: Proportion of the sample who rank each dimension of community-based wind energy most, medium and least important, split between respondents who report positivity toward their local wind project, and those that do not.

Dimension	Most Important		Medium Importance		Least Important	
	Not positive	Positive	Not positive	Positive	Not positive	Positive
Local Decision-Making	66%	57%	20%	25%	13%	18%
Fair Local Benefits Distribution	26%	36%	45%	40%	29%	23%
Local Investment Source	10%	15%	25%	23%	65%	62%

[1]The first row (decision-making) includes two groups: the proportion of respondents who were not positive toward their local project that responded to the decision-making dimension with each ranking (adding to 100%, i.e. 66%, 20% and 13%), and the proportions of respondents who were positive toward their local project that responded to the decision-making dimension with each ranking (adding to 100%, i.e. 57%, 25% and 8%).
[2]Numbers may not add up to 100% due to rounding.

In bivariate analyses, many of the control variables were statistically significant in correlation with the dependent variable, positivity toward the respondents' local wind project. These include belief that the wind project is attractive in the landscape, transparency and trustworthiness of the developer and planning authority, and the trust and distrust of all information sources provided (listed in previous chapter). Insignificant control variables include having moved into the community prior to construction, having a turbine on their property, and reporting connectedness to the local community. Of the sociodemographic questions, gender was significant, but not age, educational attainment, or employment status.

Significant variables which are not control variables – but are not directly related to the three dimensions – include questions about respondents' relationship with leaseholders, whether they believe leaseholders are unfairly blamed for the decisions of the developer, support for extending the lifetime of the local turbines, belief that future wind projects should be encouraged, belief that renewable energy is important for combatting climate change, and belief that wind energy in particular is important for combatting climate change. A selection of these were included in the regression analysis. See Appendix 6 for a full list of variables with explanations of inclusion in or exclusion from the regression analysis.

4.2.3 Regression Results Predicting Positivity Toward Local Wind Project

This section describes the binomial logistic regression. Four variables are significant in the final model: believing the planning process was fair, trusting local government representatives, believing local wind turbines are attractive, and willingness to extend the lifetimes of the local turbines. Only one of these, fair planning process, relates to a dimension of community-based wind energy – local decision-making. Variables related to the decision-making, benefits

distribution and investment scale dimensions have been identified in the first column of the regression table, Table 4.3 (labelled as DM, BD, and IS, respectively). Hypotheses one, two and three are also identified in this column.

A forward conditional binomial logistic regression was run in SPSS to establish predictors of positivity toward respondents' existing local wind project. This model includes 267 of the 362 responses: 73.8% of the sample. The remaining surveys were omitted because of missing data. This model has a Hosmer & Lemeshow test value of 0.890 and the model predicts 86.9% of the variation in the dependent variable. Table 4.3 shows all variables that were entered into the model, with variables which were kept in any step of the forward conditional process in a light grey. Statistically significant predictors of positivity toward the local wind project are bolded.

Table 4.3: Binomial logistic regression on positivity towards the local project: variables remaining in the final model from a forward conditional variable entry procedure.

	Variable		B	Sig	Exp(B)
H2	Province		.482	.253	1.6
H3	Local site type			NS	
	Moved in before construction (did or did not)			NS	
H1 DM	Found out too late for influence	(base category, disagree)		NS	
		(neutral)			
		(agree)			
		(unaware)			
H1 DM	Personal meaningful influence	(base category, disagree)		NS	
		(neutral)			
		(agree)			
		(unaware)			
H1 DM	Community meaningful influence	(base category, disagree)		NS	
		(neutral)			
		(agree)			
		(unaware)			
H1 DM	**Fair planning process**	(base category, disagree)		.059	
		(neutral)	**1.938**	**.011**	**6.9**
		(agree)	**2.124**	**.020**	**8.4**
		(unaware)	1.390	.107	4.0
	Construction was annoying	(base category, disagree)		.254	
		(neutral)	-.693	.237	0.5
		(agree)	-2.257	.061	0.1
		(unaware)	-.488	.454	0.6
	Trust in local government representatives		**.952**	**.018**	**2.6**
	Trust in local news or media			NS	

	Trust in concerned citizen websites			NS	
	Distrust in leaseholders			NS	
	Distrust in developers			NS	
	Distrust in provincial government representatives			NS	
H1 DM	Adequate access to information	(base category, disagree)		NS	
		(neutral)			
		(agree)			
	Leaseholders were unfairly blamed for decisions of the developer	(base category, disagree)		NS	
		(neutral)			
		(agree)			
	Turbines are attractive in the landscape	**(base category, disagree)**		**.001**	
		(neutral)	.523	.289	1.7
		(agree)	**2.642**	**.001**	**14.0**
	Extend lifetime of existing local wind turbines	**(base category, disagree)**		**.002**	
		(neutral)	.347	.634	1.4
		(agree)	**1.781**	**.007**	**5.9**
H1 BD	Adequate access to financial benefits information	(base category, disagree)		NS	
		(neutral)			
		(agree)			
H1 BD	Fair distribution of benefits in my community	(base category, disagree)		NS	
		(neutral)			
		(agree)			
		(don't know)			
	Scenario preference (developer-led or community-based)			NS	
	Renewable energy is crucial for combatting climate change	(base category, disagree)		NS	
		(neutral)			
		(agree)			
	Gender	(man or not)		NS	
	Age	(base category, 18-30)		NS	
		(30-45)			
		(45-60)			
		(60-75)			
		(75+)			
	Education	(base category)		NS	
		(high school diploma)			
		(college or university)			
		(graduate/professional degree)			
	Employment status (employed or not)			NS	

[1]Hosmer-Lemeshow value 0.890. The model predicts 86.9% of the variability in the dependent variable. Since regression was forward conditional, variables that were not included in the model at any step have been included without any significance values simply to showcase the full set of variables used in the regression.

[2] Variables in white were not selected for inclusion by the forward conditional algorithm, those in grey were, and those bolded were significant in the final regression model.

Categories from four variables are significant predictors of positivity toward a local wind project: believing that the planning process was fair; trusting local government representatives;

believing that the respondent's local wind turbines are attractive in the landscape; and approving of the concept of extending the lifetime of the respondents' local wind turbines.

For the variable of believing the planning process of the local wind project was fair, a move from the reference category (disagree) to the neutral category reveals a 6.9 times increased likelihood of positivity toward the respondent's local wind project. A move from the reference category (disagree) to the agree category is a slightly higher 8.4 times increased likelihood of positivity toward the local wind project. Expectedly, there is no significant relationship between answering 'don't know' to this question and being more or less likely to report positivity. This variable is the only one which is significant in this regression and also aligns with one of the three dimensions of community-based wind energy: decision-making, benefits distribution and investment scale.

Respondents who selected the local government as a trustworthy information source in their region were 5.6 times more likely to report positivity toward their local wind project. In terms of belief that the respondents' existing local wind project is attractive in the landscape, a move from the reference category (disagree) to the agree category increased the likelihood of reporting positivity toward the local wind project by 14 times. For approval of hypothetically extending the lifetime of the existing local wind turbines, a move from the reference category (disagree) to the agree category resulted in a 5.6 times higher likelihood of reporting positivity toward the respondents' local wind project.

4.2.4 Summary of Hypothesis 1

The results for hypothesis one are mixed. Hypothesis one states that variables related to the three dimensions of community-based wind development (decision-making, benefits,

investment scale) are significantly correlated with positivity toward a respondent's local wind project. This hypothesis was tested with both the regression and the bivariate correlation results.

Only one of the four significant variables from this regression related to a dimension of community-based wind energy, decision-making – belief that the local project's planning process was fair. The other two dimensions are not represented by variables included in the regression model. However, there are multiple variables related to both decision-making and benefits distribution which were significantly correlated with the dependent variable in bivariate analysis. Investment scale, alternatively, was not significantly correlated with positivity toward the respondents' local wind project in bivariate analysis and was also ranked the least important dimension by a majority of the sample.

With both the regression results and bivariate results in mind, alongside the qualifications described in 4.2.1 to establish whether the results support the hypothesis, the results of this hypothesis are mixed. Only decision-making is significant in regression, and only decision-making and benefits distribution are significant in bivariate analysis.

4.3 Hypotheses 2 and 3: Comparing Provinces (H2) and Local Site Types (H3)

This section identifies how two groups within the sample feel about their local project: the two provinces and the two local wind project site types. Hypothesis two posits that Nova Scotia will be more positive toward their local wind projects than Ontario, and hypothesis three posits that residents near community-based sites will be more positive toward their local wind projects than residents near developer-led sites.

The following are bivariate analysis results for statistically significant variables and those which are featured heavily in the literature, correlated with province and with local site type. Variables which were consistently insignificant and were not critical in the literature have been omitted for the sake of space and a more fluid narrative. Omitted variables are available, however, in Appendix 5, which are the chi square and spearman significance values for all bivariate analyses.

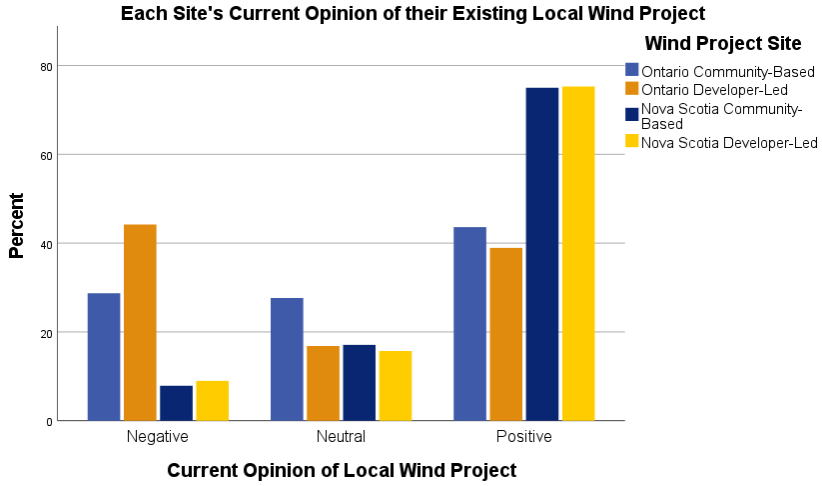
Throughout this section, both H2 and H3 comparisons are described within the same paragraphs, with statistical significance (p-values from chi square tests) indicated throughout. Percentages provided in this Chapter will be taken from the collapsed set of categories within a variable where applicable, which include neutral and unaware categories (but do not include missing data points), instead of just from those who expressed an opinion in opposition or support. For the full dataset's descriptive statistics (including proportions both with and without 'missing' data points), see Appendix 3.

4.3.1 Attitudes toward local projects

Overall, there is a more pronounced effect on attitudes from province than development type. The difference in overall attitudes between those living near a developer-led project and those near a community-based project is small and not statistically significant; 64% and 67% report positive opinions of their local wind project, for developer-led and community-based respectively. The provincial split is larger and statistically significant ($p \leq .001$), with 39% of Ontario residents reporting positive opinions of their local project compared to 61% of Nova Scotia residents. Figure 4.1 shows positivity toward local wind projects for both types of wind developments in each province; it is clear visually that while there is a slight distinction

between the positivity of developer-led (orange) versus community-based (blue) sites, the more notable difference is between Ontario (left) and Nova Scotia (right) samples. While the dependent variable includes only two categories ("positive" and "other"), Figure 4.1 expands "other" into "negative" and "neutral" attitudes to display the original categories.

Figure 4.1: Proportion of each local wind project site that report feeling positive, neutral or negative toward their local wind project (p≤.001).



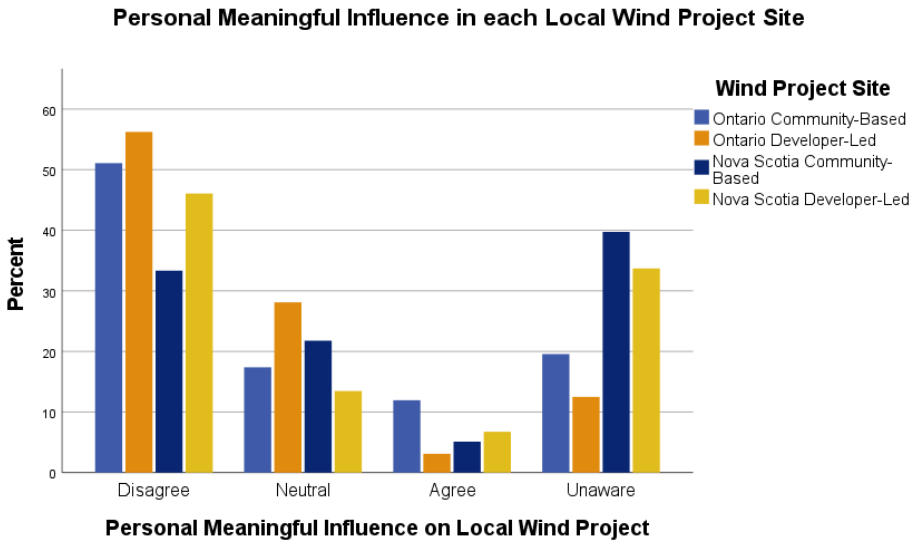
The findings regarding positivity are mirrored in findings about emotional reactions to local wind energy developments. A significantly higher proportion of Nova Scotia residents had positive emotional reactions (hopeful, content, proud) to the initial announcement about their local wind project being built (81% compared to 47% in Ontario, p≤.001), though there is no significant difference between initial emotional reactions between the two types of local site (62% in developer-led sites compared to 63% in community-based sites had positive attitudes, p=.844). During construction, positive attitudes dropped slightly in both provinces (47% to 44% in Ontario, 81% to 73% in Nova Scotia) though the majority of change in Ontario was to negative attitudes (from 25% at initial announcement, to 44%) and for Nova Scotia was to 'don't know' or neutral attitudes (from 8% at initial announcement, to 16%). Current emotional

reactions toward the turbines were more positive (hopeful, content, proud) in Nova Scotia (82% positive, 9% negative) and more negative (helpless, fearful, angry) in Ontario (51% positive, 40% negative, p≤.001). The difference between local site types was small and insignificant (p=.774); 3% higher positivity was reported in community-based sites (67% compared to 64% in developer-led sites).

4.3.2 Respondents' Perceived Influence on and Involvement with Wind Project Outcomes

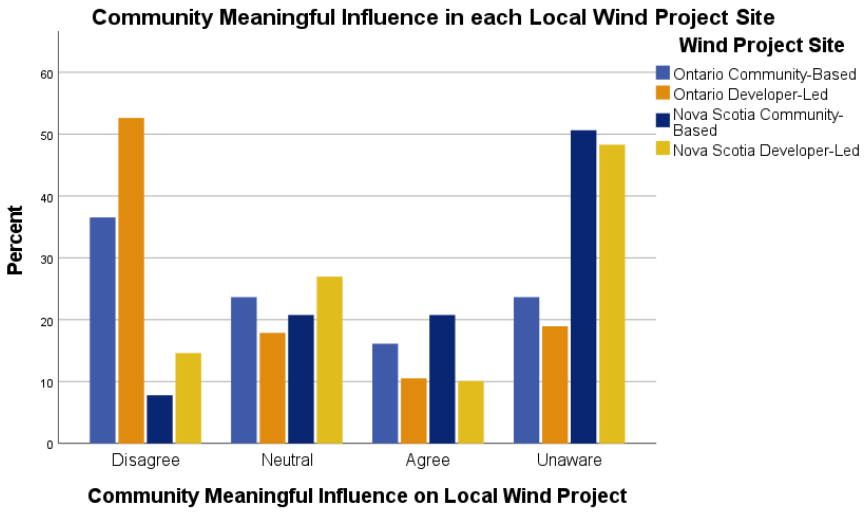
Those living near developer-led projects and those in the Ontario sample were both significantly more likely to believe they did not have a meaningful say in project outcomes (51% in developer-led compared to 43% in community-based (p=.006) across both provinces, and 53% in Ontario compared to 40% in Nova Scotia (p≤.001) across both development types, see Figure 4.2). A compelling finding here is how few respondents agreed that they had a meaningful influence on their local project. Relatedly, those living near developer-led projects more often wanted a meaningful say but not to a significant degree (42% compared to 32% in community-based projects, p=.153), while those in Ontario are nearly twice as likely to have wanted a personal meaningful say (48% compared to 27% in Nova Scotia, p≤.001).

Figure 4.2: Proportion of respondents from each local wind project site which felt they did or did not have a meaningful influence on their local wind project (p≤.001).



Perceived meaningful community influence was higher in community-based projects but not significant (10% compared to 18%, p=.055). Ontario sites were four times more likely to have indicated that their community did not have a say in project outcomes (44% compared to 11% in Nova Scotia, p≤.001). Again, similar proportions from both provinces were neutral or agreed, and the majority of that difference is because Nova Scotians were more likely to select "unaware" (49% compared to 22% in Ontario). See Figure 4.3 for the division of perceived community influence across the four local wind project sites. Note that this is the full sample, not exclusively respondents who wanted to have an influence.

Figure 4.3: Proportion of respondents from each local wind project site which felt their community did or did not have a meaningful influence on their local wind project (p≤.001).



Procedural fairness is one of the four significant predictors of positivity toward respondents' local wind projects. Ontario residents were, again, significantly more likely to report that the planning process of their local project was unfair (35% compared to 8% in Nova Scotia, $p \leq .001$) while more Nova Scotians were unaware of the project (25% of Ontario residents compared to 51% of Nova Scotia residents). However, the difference between local wind project type was insignificant ($p = .145$) with developer-led respondents slightly less likely to consider their local project to have been fair.

4.3.3 Respondents' Perspectives on Stakeholders and Trust

Overall, stakeholder trust differs by province but not very much by local site type. This section includes mostly univariate data, with mention of how the provinces and local site types compare included to establish substantial differences between groups. Respondents more often reported that the developer and planning authority were trustworthy (14% for developer, 18% for planning authority) and transparent (22% for developer, 23% for planning authority) than reported that they were not. However, nearly half did not know of these stakeholders at all and/or chose to select 'unaware' for these questions. Local project type didn't significantly

influence these values, though Ontario residents were significantly ($p \leq .050$) more likely to disagree on all counts, about 10-18% more of the time.

Relationships with leaseholders were mostly neutral (67%) with twice as many people reporting a positive relationship (20%) than a negative one (9%). An equal amount of people felt that leaseholders are unfairly blamed for the decisions made by developers (18%) or planning authorities (17%), while the rest were mostly neutral. More Ontario residents reported negative relationships with leaseholders than Nova Scotians (14% compared to 4%, $p=.003$), with slightly more positive responses coming from community-based sites ($p=.379$).

The survey asked respondents to select (not rank) three trustworthy and three untrustworthy information sources. The three most popular trustworthy sources were the local government, local news or media, and wind-related community-run websites or blogs. The three most popular untrustworthy sources were project developers, leaseholders, and the provincial government.

The three most trustworthy information sources differ by province (see Table 4.4): while local government and local news or media are ranked first and second respectively in each province, the third most common in Ontario is concerned citizen websites, while in Nova Scotia this spot is held by the provincial government. Untrustworthy information sources differ by province too: while developers are most untrustworthy for both, Ontario's runners up are the provincial government and leaseholders, while Nova Scotia's are leaseholders and concerned citizen websites. In the regression analysis above (Table 4.3), trusting information from local government representatives is significantly correlated with positivity toward the local wind

project, and here, there is an insignificant difference between provinces for trusting the local government (51.6% in Ontario compared to 59.6% in Nova Scotia, p=.140).

Table 4.4: Proportion of respondents that selected each information source as trustworthy or untrustworthy, split between Ontario (ON) and Nova Scotia (NS).

Information Source	Respondents that Trust Info Source		Respondents that Distrust Info Source	
	Ontario	Nova Scotia	Ontario	Nova Scotia
Leaseholders	35 (19.0%)	24 (15.4%)	62 (34.6%)*	70 (46.1%)*
Developers	28 (15.2%%)	38 (24.4%)	122 (68.2%)*	83 (54.6%)*
Local Government	95 (51.6%)	93 (59.6%)	36 (20.1%)	23 (15.1%)
Provincial Government	42 (22.8%)*	60 (38.5%)*	81 (45.3%)*	40 (26.3%)*
Federal Government	29 (15.8%)	26 (16.7%)	55 (30.7%)	39 (25.7%)
Local News/Media	87 (47.3%)	63 (40.4%)	30 (16.8%)	33 (21.7%)
Concerned Citizen Websites	76 (41.3%)	49 (31.4%)	53 (29.6%)	42 (27.6%)
Family & Friends	51 (27.7%)	40 (25.6%)	29 (16.2%)*	38 (25.0%)*
Other	11 (6.0%)	11 (7.1%)	3 (1.7%)	12 (7.9%)

[1]Each data box includes the number of and proportion of respondents from that local site type that selected the information source. No combination of these percentages equal 100% because of the open-ended nature of the question.
[2]Significant variables (p≤.050) are shown in grey with asterisks.

The same three information sources are most trustworthy and least trustworthy for both local wind development types, below (Table 4.5). Most trustworthy are local government, local news or media, and concerned citizen websites. Most untrustworthy are developers, leaseholders and the provincial government. Significant relationships in both tables are marked in grey with asterisks, though the overarching themes described above are the important takeaways relevant to this dissertation. Here, respondents from developer-led local sites trust local government representatives (featured significantly in the regression model, Table 4.3) slightly more than those from community-based local sites (p=.675).

Table 4.5: Proportion of respondents that selected each information source as trustworthy or untrustworthy, split between the developer-led and community-based existing local wind projects.

Information Source	Respondents that Trust the Source		Respondents that Distrust the Source	
	Dev-led local site	Com-based local site	Dev-led local site	Com-based local site
Leaseholders	31 (17.1%)	28 (17.6%)	68 (38.9%)	64 (41.0%)
Developers	28 (15.5%)*	38 (23.9%)*	120 (68.6%)*	85 (54.5%)*

Local Government	102 (56.4%)	86 (54.1%)	35 (20.0%)	24 (15.4%)
Provincial Government	52 (28.7%)	50 (31.4%)	66 (37.7%)	55 (35.3%)
Federal Government	26 (14.4%)	29 (18.2%)	51 (29.1%)	43 (27.6%)
Local News/Media	86 (47.5%)	64 (40.3%)	25 (14.3%)*	38 (24.4%)*
Concerned Citizen Websites	69 (38.1%)	56 (35.2%)	42 (24.0%)*	53 (34.0%)*
Family & Friends	46 (25.4%)	45 (28.3%)	36 (20.6%)	31 (19.9%)
Other	11 (6.1%)	11 (6.9%)	8 (4.6%)	7 (4.5%)

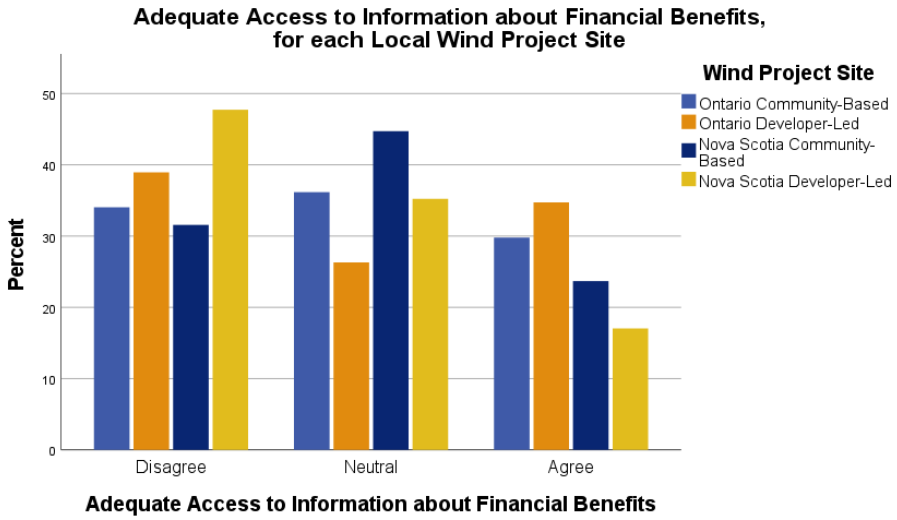
[1]Each data box includes the number of and proportion of respondents from that local site type that selected the information source. No combination of these percentages equal 100% because of the open-ended nature of the question.
[2]Significant variables (p≤.050) are shown in grey with asterisks.

4.3.4 Financial benefits

Overall financial benefits were rare in this sample, though a provincial distinction emerges; benefits were only made available in the community-based project in Ontario compared to both sites in Nova Scotia (with one Ontario exception). The following information is nearly exclusively univariate analysis, due to the low proportion of respondents who invested or received benefits. However, individual respondents have been identified as coming from particular wind project sites where relevant to provide some indication of where community investment and benefits were available. Due to low sample size and homogenous results, the only significance testing provided in the following paragraph is about general beliefs about access to information, though those data are available for all variables in Appendix 5.

Over half (52%) of the sample reported that they do not think they had adequate access to information about financial benefits of their local project. Provincially, proportions did not vary significantly (p=.727), though those living near a community-based project expressed a lack of information about benefits 12% less often (33% compared to 21%, p=.002). The difference across wind project sites is shown below as Figure 4.4.

Figure 4.4: Proportion of each local wind project site that believe they had adequate or inadequate access to information about financial benefits from the wind project (p=.036).



Twenty-seven people (8% of the full sample) said they were given the opportunity to invest in their local wind project; two thirds of those were in Ontario (18 people compared to 9) and most were in community-based projects compared to developer-led projects (21 people compared to 6). More specifically, all eighteen from Ontario were in the community-based community, while in Nova Scotia three were in the community-based community and the remaining six were in the developer-led community. Of these, only three people (~1% of the full sample) reported that they chose to invest: all in Ontario's community-based project. Those people's reasons were to invest in the community; belief that it was a wise financial investment; and a desire to support renewable energy. More interesting, those who chose not to invest said their reasons were too high a minimum investment (9), found the project unacceptable (9), financial return too small (4), and 'didn't make the effort' (1) – the remaining four did not provide a reason.

Five people were provided with direct benefits; one got a lump sum under $7,000 CAD in Nova Scotia's community-based site, and four got regular payments of differing amounts (three in Ontario's community-based development and one from one of Ontario's developer-led

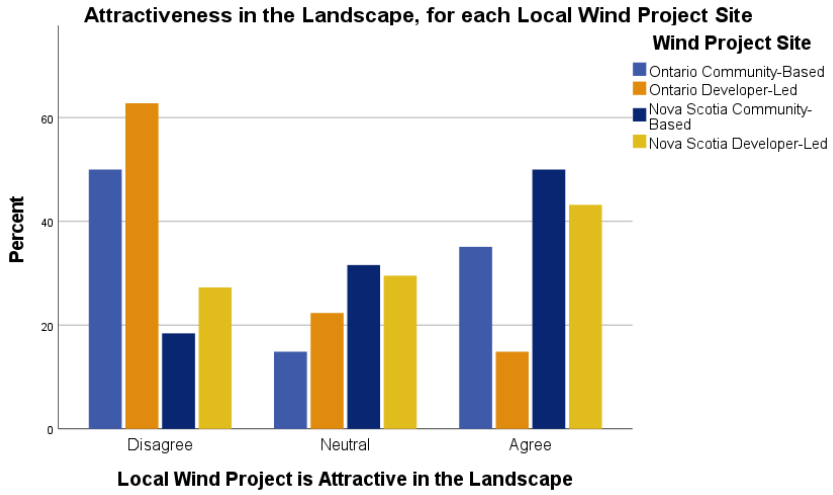
developments). One person's contract does not permit them to say what type of benefits they received, if any. There were five people who reported having wind turbines on their properties (all in Ontario's community-based site), but only two of them reported receiving benefits. All three of those who invested, all five of those who were given non-investment benefits, and the respondent whose contract did not permit them to disclose any benefits, reported support for their local wind project (though, again, with such low sample sizes in each grouping, significance testing was not particularly informative for these data).

4.3.5 Future of Wind Energy

This section will provide an overview of respondent attitudes toward the future of wind energy, which may not be directly related to their local wind project in particular but to wind energy in their region more broadly. The following paragraphs begin with providing univariate information, then compare responses by province and local site type, to provide a more holistic understanding of the results.

More people found the turbines unattractive (40%) than thought they were attractive (34%), though when the sample is split by province, more than twice as many Ontario residents think the turbines are unattractive (56% compared to 23% Nova Scotia, $p=.033$) while almost half of Nova Scotians think they are attractive (46% compared to 25% in Ontario, $p \leq .001$). Only 29% of respondents from developer-led sites find the wind project attractive compared to 42% from community-based projects ($p=.033$). This is another of the variables which are significant predictors of reporting positive attitudes towards one's local wind project in the regression (Table 4.3). The Ontario developer-led sites are by far the sample who thinks the local projects are most unattractive (see Figure 4.5).

Figure 4.5: Proportion of each local wind project site that believe their project's wind turbines are attractive or unattractive in the landscape (p≤.001).

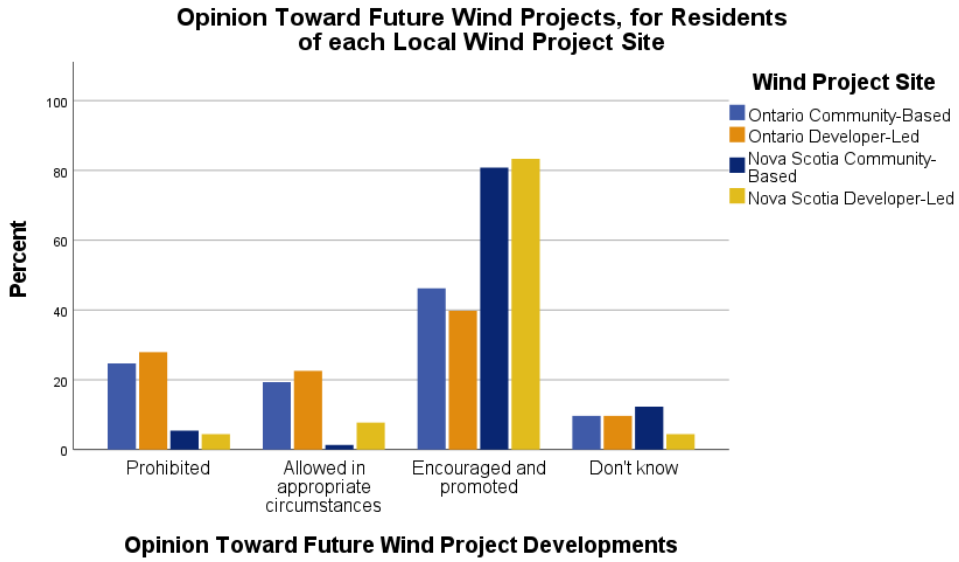


Conversely, when asked whether they would like to (or would approve of the decision to) extend the lifetime of their community's existing nearby turbines past their original projected lifetime, 59% of the full sample said yes and only 22% said no. Three times as many Ontario residents disagreed with extending turbine lifetime (33% compared to 10% in Nova Scotia) while a majority of Nova Scotians would like to extend it (77% compared to 47% in Ontario), a significant difference (p≤.001). There is no significant difference between project types, though developer-led sites were slightly more likely to want to extend turbine lifetimes (52% compared to 48%, p=.143). This is the final variable which significantly predicts positive opinions of one's local wind project in the regression (Table 4.3).

There is a striking significant provincial difference in attitudes toward future wind projects in a respondent's 'region' (p≤.001), though a definition of 'region' was not provided in the survey and may therefore differ from person to person. While in univariate analyses it appears a clear majority believe wind energy should be encouraged in their region (61%), bivariate analysis reveals that only 43% of Ontario residents felt that future projects should be

encouraged, compared to 82% of Nova Scotia residents (p≤.001). Similarly, 26% of Ontario residents think future wind projects should be prohibited in their area (compared to 5% of Nova Scotians). The type of wind project the respondents live near has no effect; the proportions are nearly identical for the two development types (p=.506). Figure 4.6 shows these comparisons.

Figure 4.6: Proportion of each local wind project site that believes future wind projects should be prohibited, allowed, or encouraged in their region (p≤.001).



4.3.6 Summary of Hypotheses 2 & 3

Hypothesis two is successfully represented in the results, however hypothesis three is not supported. I fail to reject the second hypothesis, which states that Nova Scotia residents will be more positive toward their local wind project than Ontario residents. A total of 51 variables out of 65 had statistically significant relationships across the two provinces in bivariate analysis; that is, overall, the respondents from Ontario were significantly more likely to respond in ways which are more negative than the responses provided by Nova Scotians.

The results do not support hypothesis three, which states that residents near developer-led wind projects will have lower positivity and more negative opinions of their local project than

residents near community-based wind projects. Only 19 variables out of 65 had statistically significant relationships with local site type; that is, for the majority of variables in the dataset, there is no statistically significant difference between respondents from developer-led and community-based local wind project sites. Despite failing to reject the null hypothesis for hypothesis three, it is valuable to clarify that where there was a significant relationship, it is in the expected direction; community-based respondents were more positive toward their local wind project in the case of some variables. A full record of which variables were significantly correlated with the respondents' province and local site type is available as Appendix 5.

4.4 Hypothesis 4: Opinions of Existing Versus Hypothetical Wind Projects

This section compares respondents' attitudes toward both their existing local wind project, and their local project type, to the two hypothetical wind project scenarios. The purpose of this analysis is to establish whether respondents who live near an existing community-based wind project are more likely to prefer the community-based scenario to the developer-led scenario, compared to respondents who live near an existing developer-led wind project. The following will consist of bivariate results, comparing scenario-specific questions across province, local site type and local project opinion variables. While a binary logistic regression was attempted for this analysis, the present study achieved too small a sample size for the homogeneity and low response rate of the variable "scenario preference" to still provide interpretable regression output. Therefore, only bivariate results are included here.

4.4.1 Positivity Begets Positivity

While positivity toward respondents' local projects was reported by 57% of residents near developer-led sites and 58% of residents near community-based sites, positivity towards the

developer-led scenario was 40% and for the community-based it was 65%. Overall, 89% of the respondents selected that they preferred the community-based scenario to the developer-led, when asked to choose between the two with no neutral or other category – though many (40 respondents, 11% of the full sample) chose not to answer this question.

An identical set of questions were posed pertaining to each scenario, the answers to which will be compared here. Table 4.6 shows the proportion of respondents that agreed with each aspect of the two scenarios, based on whether they reported feeling positively toward their local wind project or not. For every scenario question, there is a significant relationship with the dependent variable, positivity toward the local wind project ($p \leq .001$ for all). Respondents who reported positivity toward their local wind project more often agreed that the scenarios and their various components were acceptable.

Table 4.6: Answers to scenario questions proportionally, based on response to the dependent variable, positivity toward the respondents' local wind project.

Survey Questions: Scenario 1	**Disagree**		**Neutral**		**Agree**	
	Not Positive	**Positive**	**Not Positive**	**Positive**	**Not Positive**	**Positive**
Support for scenario 1*	58%	22%	24%	23%	18%	**55%**
Fair engagement*	53%	27%	27%	27%	19%	**46%**
Would be involved*	43%	6%	28%	25%	30%	**69%**
Acceptable time*	41%	16%	44%	41%	15%	43%
Fair siting*	59%	34%	27%	28%	14%	39%
Fair benefits distribution*	47%	22%	30%	34%	22%	44%

Survey Questions: Scenario 2	**Disagree**		**Neutral**		**Agree**	
	Not Positive	**Positive**	**Not Positive**	**Positive**	**Not Positive**	**Positive**
Support for scenario 2*	31%	**4%**	29%	12%	40%	**84%**
Fair engagement*	30%	**3%**	25%	16%	45%	**81%**
Would be involved*	30%	**3%**	25%	14%	45%	**83%**
Acceptable time*	25%	**4%**	39%	28%	36%	**69%**
Fair siting*	35%	**4%**	28%	25%	38%	**71%**
Fair benefits distribution*	29%	**3%**	33%	24%	39%	**73%**

[1]*Each row includes the proportion of respondents who answered each scenario question with each level of the likert scale, split between those who are positive and not positive toward their*

local wind project. Within each row, the columns labelled "not positive" equal 100%, and the columns labelled "positive" equal 100%.
[2]Numbers may not add up to 100% due to rounding
[3]Significant variables are shown in grey with asterisks; in this case, that is all of them. Bolded numbers show dramatic differences in response.

Scenario two and its components were supported more often that scenario one's overall, and the difference between those who are positive and not positive toward their local wind project is substantial for all these variables. This, however, does not directly speak to hypothesis four; it establishes only that those who feel positively toward their local wind project, which they therefore likely had a positive experience with, are more supportive of the prospect of hypothetical wind projects than respondents who may have had negative experiences with their local wind project.

4.4.2 Difference between Attitudes in Theory and in Practice

Conversely, there are an overwhelming lack of significant relationships between the scenario questions and the kind of wind project a respondent lives near. That is, there is no evidence that respondents living near an existing community-based wind project are more likely to support the scenarios, and surely not specifically more likely to support the community-based scenario (p=.910). In fact, in Table 4.7 below, support for the community-based scenario is at 66% for the developer-led sites and only 64% for the community-based sites, the opposite of the expected trend! The only scenario-specific variable which is significantly correlated with the respondents' local site type is that community-based respondents more often believe that the siting process in the developer-led scenario was fair (p=.030).

Table 4.7: Answers to each scenario question proportionally, based on type of wind project the respondent lives near.

Survey Questions: Scenario 1	Disagree		Neutral		Agree	
	Dev-led local site	Com-based local site	Dev-led local site	Com-based local site	Dev-led local site	Com-based local site
Support for scenario 1	39%	35%	24%	22%	37%	43%
Fair engagement	41%	35%	27%	27%	32%	38%
Would be involved	21%	21%	**23%**	**31%**	**56%**	**48%**
Acceptable time	27%	26%	42%	42%	31%	33%
Fair siting*	**51%**	**38%**	26%	28%	23%	34%
Fair benefits distribution	34%	31%	34%	31%	32%	38%

Survey Questions: Scenario 2	Disagree		Neutral		Agree	
	Dev-led local site	Com-based local site	Dev-led local site	Com-based local site	Dev-led local site	Com-based local site
Support for scenario 2	15%	16%	19%	19%	**66%**	**64%**
Fair engagement	15%	14%	20%	19%	65%	67%
Would be involved	13%	16%	18%	19%	69%	65%
Acceptable time	12%	14%	35%	30%	54%	56%
Fair siting	16%	18%	27%	25%	58%	57%
Fair benefits distribution	15%	13%	29%	26%	56%	61%

[1]Each row includes the proportion of respondents who answered each scenario question with each level of the likert scale, split between those who live near a developer-led project and those who live near a community-based project. Within each row, the columns labelled "dev-led" equal 100%, and the columns labelled "com-based" equal 100%.
[2]Numbers may not add up to 100% due to rounding.
[3]Significant variables are shown in grey with asterisks; in this case only fair siting in the developer-led scenario. Bolded numbers show dramatic differences in response in the first, and the unexpected hypothesis outcome in the second.

Similar to variables throughout the rest of the survey, there is a significant relationship between the province a respondent lives in and their answers to these scenario questions; however, that is outside the scope of this dissertation. For a full account of bivariate significance testing for all variables with province, local site type and local project opinion, including scenario-related questions, see Appendix 5.

4.4.3 Summary of Hypothesis 4

The data provided above does not support hypothesis four, which states that respondents who live near existing community-based wind projects will be more likely to support the hypothetical community-based wind project scenario than respondents who live near existing

developer-led wind projects. Indeed, respondents living near community-based wind projects were not significantly more likely to support either scenario, or express positive reactions to any dimensions except the fairness of siting for the developer-led scenario. Interestingly and relatedly, respondents who reported positive opinions of their local wind project were significantly more likely to report support for the two hypothetical wind project scenarios, with overall preference toward the community-based scenario as expected. This will be discussed further in Chapter 5, Discussion.

4.5 Hypothesis 5: Wind Project Benefits

This section will describe respondents' preference between types of benefits, the types of benefits they'd most like to receive if given the opportunity, and which stakeholders they would most trust to make decisions about benefits distribution for a hypothetical wind project. This information will be used to test hypothesis five, that respondents will prefer community-level benefits to individual-level benefits. First, however, a brief explanation of how respondents ranked their preference between the three dimensions of community-based wind energy, as this laid the foundation for the interest in the dimension of benefits distribution.

4.5.1 The Dimensions of Community-Based Wind Energy

After the scenarios themselves, respondents were asked comparison questions about particular aspects of the two scenarios, and to identify which parts of the wind project descriptions are most important to them. The three dimensions of community-based wind energy – which make up the primary conceptual framework in this thesis – are decision-making, benefits distribution and investment source. Table 4.8 shows the proportion of respondents from the full sample that ranked each dimension as the most, medium and least important.

Decision-making was most important, investment source least important and benefits distribution was ranked in the middle by the majority of the full sample.

Table 4.8: Dimensions of community-based wind energy, ranked by importance, from the full survey sample.

Dimensions	Most Important	Medium Important	Least Important
Investment Source	13%	24%	**63%**
Decision-Making	**60%**	24%	16%
Benefits Distribution	33%	42%	25%

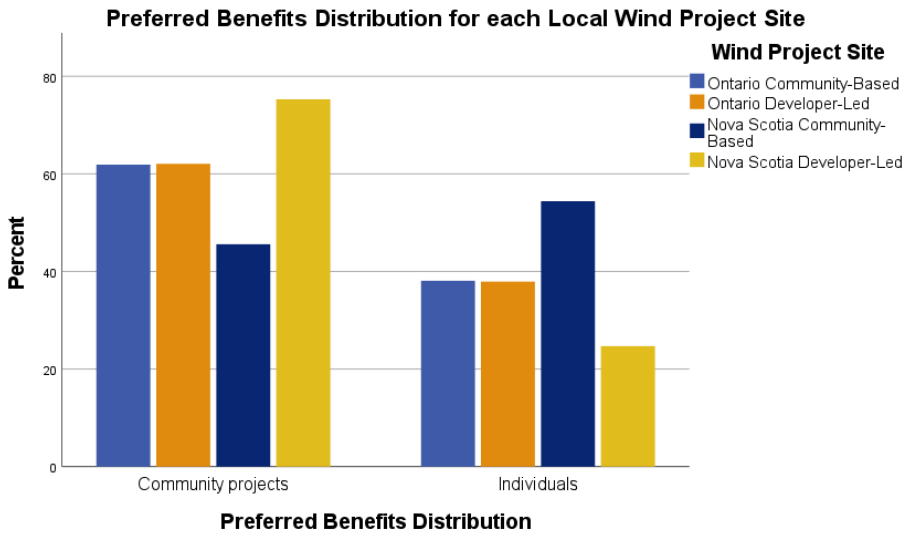
[1]Each row includes the proportion of the full sample that ranked that particular dimension at each level of importance; each row adds to 100%.
[2]Numbers may not add up to 100% due to rounding.

From testing hypothesis one it was already clear that decision-making would likely be the most important, due to it being the only dimension which significantly predicted positivity toward a local wind project. However, the inconsistency inherent to the benefits distribution dimension prompted this hypothesis to further analyse opinions toward benefits.

4.5.2 Benefits Preferences

Provincially, benefits distribution is identical to the univariate analysis (p=.996); both prefer that benefits are distributed mostly to community projects (62%) instead of individuals (38%). However, when the sample is split by local site type, the community-based projects are nearly evenly split between giving the majority of benefits to community projects (55%) or individuals (45%), while the developer-led sites are far more inclined toward community projects (69% compared to 31% for individuals). This is a statistically significant difference between local site types (p=.008). Figure 4.7 shows the comparison.

Figure 4.7: Proportion of residents from each local wind project site that prefer that the majority of benefits from the wind project go to community projects versus individual residents living near the project (p=.002).



Following, respondents were asked which kinds of individual benefits they preferred. Since this related to the hypothesis for the sake of discussion, and because answers were different across provinces and local site types in the full bivariate table (Appendix 5), that information has been provided here for more detailed consideration. Table 4.9 shows how respondents from each province answered this question (p=.032) as well as how respondents from each local site type answered (p=.307). Provincially, Nova Scotia is slightly more interested in decreasing electricity cost for households near the wind project while Ontarians are less sure about accepting individual benefits at all. Residents near developer-led projects are slightly more likely to support decreasing electricity cost but are slightly less likely to readily accept benefits of other types than those near community-based sites. Neither relationship is statistically significant.

Table 4.9: Preference between individual benefits options in a hypothetical wind project, split by province and split by local site type.

Type of Individual Benefits	Province		Local Site Type	
	Ontario	Nova Scotia	Developer-Led	Community-Based
Lump Sum Payment	5%	3%	2%	6%
Regular Payments	35%	35%	32%	38%
Decreased Electricity Cost	40%	53%	50%	42%

Such Benefits are Inappropriate	6%	3%	6%	4%
Don't know	14%	6%	10%	10%

[1]Each column includes the proportion of that particular sample subset that selected each type of individual benefits as their preference; each row adds to 100%.
[2]Numbers may not add up to 100% due to rounding.

Finally, respondents were asked to rank potential decision-makers who would determine how collective benefits (community benefits) are distributed in a hypothetical community: the municipal government, an existing and established local organization, or an elected committee formed specifically for this purpose. They were also provided an "other" option to articulate ideas not adequately represented in the original three options. Table 4.10 below shows how respondents ranked the possible collective benefits decision-makers.

Table 4.10: Preference between potential decision-makers who would establish where collective benefits (community benefits) go in a hypothetical wind project.

Decision-Maker	Most Preferred	Somewhat Preferred	Not Preferred	Least Preferred
Municipal Government	20%	20%	52%	8%
Existing, Established Local Organization	25%	44%	30%	1%
Elected Committee for this Purpose	55%	26%	18%	1%
Other	5%	2%	3%	90%

[1]Each row includes the proportion of the full sample that ranked that particular decision-maker at each level of importance; each row adds to 100% of the answers about that decision-maker.
[2]Numbers may not add up to 100% due to rounding.

Respondents who had selected "other" as anything except "least preferred" were given space to explain what kind of decision-maker they would prefer. Some key "other" responses included a community majority vote (8), community investors-only vote (2), and "a decision not to build wind turbines" (1). Eight residents (within the 8% who ranked municipal government 'least preferred') used "other" only as a means of showing that they would least prefer that their municipal government be the decision-maker (ranked municipal government as least

preferred and 'other' as not preferred), and hence did not provide an explanation for what 'other' entailed.

4.5.3 Summary of Hypothesis 5

Based on the results above, the null hypothesis for hypothesis five can be rejected. It is indeed the case that respondents prefer community benefits to individual benefits when given a choice between them. However, additional interesting insights from this analysis include the preference toward elected committees for benefits decision-making, disapproval of municipal actors as decision-makers, and the degree of interest reported for receiving benefits in the form of decreased electricity cost, which is a relatively uncommon form of benefits distribution in Canada. This will be discussed further in Chapter 5, Discussion.

4.6 Results Summary

In this chapter, results from three facets of survey analysis were described in relation to the five hypotheses. Univariate values were provided where valuable to indicate how many respondents from the full sample answered the survey questions in each way. Bivariate comparisons are included for many key survey questions using the respondents' opinion of local wind projects, their province and their local site type, to identify trends and uncover potential relationships. Finally, binomial logistic regression results are presented which predict positivity toward a respondent's existing local wind project. This information was organized by hypothesis, with each tested and resolved within separate sections within this chapter (with the exception of hypothesis two and three, which shared a section and were tested simultaneously). Below in Table 4.11, each hypothesis is stated alongside whether the results supported them or not. The following chapter will include discussion of the main findings for

each hypothesis, and a summary of potential applications of these findings in policy, practice and future research.

Table 4.11: Summary of whether each of the five hypotheses is supported by the data presented in the results chapter, or not.

Hypothesis	Test
1. Positivity toward local wind turbines will be predicted by variables aligning with the three dimensions of community-based wind development: decision-making, benefits distribution, and investment scale (Baxter et al., 2020).	MIXED
2. Nova Scotia residents will be more positive toward their existing local wind project than Ontario residents.	YES
3. Respondents living near a community-based wind project will be more positive toward their local wind project than respondents living near a developer-led wind project.	NO
4. Respondents living near existing community-based wind projects will be more likely than residents near developer-led wind projects to show positivity toward a hypothetical community-based wind project.	NO
5. Respondents will prefer community-level benefits to individual benefits when given a hypothetical choice between them.	YES

5 Discussion Chapter

This chapter will be organized by hypothesis, highlighting the important elements from the results for each hypothesis and connecting them to the literature. Many elements of the present research align closely with the empirical literature, specifically with the papers that draw from the *Wind Neighbours Survey* on which the present survey is based (Lawrence Berkeley National Laboratory, 2018) and research conducted by the same research team as the present study (C. Walker et al., 2018; C. Walker & Baxter, 2017b, 2017a). However, there are many other elements that do not align with the prevailing understanding articulated by other scholars or have not been discussed in-depth in the empirical literature. This chapter will explore those similarities and differences and make suggestions about how they can be reconciled in future research and in practice.

5.1 Hypothesis 1: Mixed results for predicting positivity toward local wind projects with three dimensions of community-based wind development

The first hypothesis, for which the result was mixed, stated that the three dimensions of community-based wind development would be significant predictors of positivity toward the respondents' local wind projects (Baxter et al., 2020). Indeed, local decision-making was significant in bivariate and regression analysis, while fair benefits distribution was significant only in bivariate analysis, and local investment scale in neither. This hypothesis was testing the relative importance of the three dimensions of community-based wind energy provided in the recent review paper by Baxter et al. (2020). It appears from the present study that local decision-making, and specifically a development process deemed fair by residents, is most

important to fostering positivity toward the wind project. It also appears that investment scale is not significantly associated with positive attitudes toward one's local wind project.

The dimension of decision-making is a primary focus in the literature concerning community-based wind energy development, often through use of the process-outcome model (Creamer et al., 2019; Hyland & Bertsch, 2018; Rogers et al., 2008; C. Walker & Baxter, 2017a; G. Walker & Devine-Wright, 2008) including the concepts of fairness, trust and procedural justice more broadly (Firestone et al., 2012; Hall et al., 2013; Rand & Hoen, 2017). It was also a focus of the *Wind Neighbours Survey* (Lawrence Berkeley National Laboratory, 2018) on which my survey instrument was based, hence the large number of questions in the present survey that relate to it (Firestone et al., 2018; Hoen et al., 2019; Rand & Hoen, 2017). Firestone et al. (2018) specifically identified the transparency of the project developers, ability to influence project outcomes and fair planning process as significant indicators of positive attitudes, which are all significant in my bivariate analysis; Hoen et al. (2019) also reported a significant relationship between fair planning process and positive attitudes to wind developments from local residents. Within the decision-making dimension, the element that significantly predicted positivity toward a local wind project in the present research is the concept of a 'fair process' as well; this often arises in other literature as an important element for improving community attitudes toward wind projects (Firestone et al., 2012; Songsore & Buzzelli, 2015; C. Walker & Baxter, 2017b). Future research should consider the use of fairness as a dependent variable for wind developments in progress, to establish what developers and communities should prioritize to facilitate a "fair" development process. Relatedly, developers should prioritize the improvement of decision-making opportunities for residents. While this can mean different

things in different communities, a move toward meeting this need would be improving opportunities for meaningful engagement and increasing community influence on decision-making around siting, turbine size and number of turbines, available benefits and investment model, and other project-specific details.

While the dimension of benefits distribution will be discussed further in hypothesis five, multiple related variables were significantly correlated with the dependent variable in bivariate analysis. The value of fair benefits distribution is present in the literature, specifically through the "outcome" limb of the Process-Outcome model (G. Walker & Devine-Wright, 2008) and literature that uses it (Firestone et al., 2012, 2018; Ruggiero et al., 2014; Songsore & Buzzelli, 2015, 2016; Wood et al., 2016). In general, providing benefits to residents has a positive impact on their attitudes toward the local wind project in other continents (Eiser et al., 2010; Guo et al., 2015; Walter, 2014), in the United States (Bidwell, 2013; Mulvaney et al., 2013a) as well as in the Canadian context (Baxter et al., 2013; C. Walker et al., 2018; C. Walker & Baxter, 2017a). This is contrary to the idea that such benefits will be perceived exclusively as "bribery", as found by other scholars, described in more detail in hypothesis five (Walker et al., 2017). How exactly benefits should be approached is more nuanced and will also be described in section 5.5, hypothesis five.

Finally, the dimension of investment scale was far less represented in the survey instrument than the other dimensions, and indeed the one question that asked about investment scale was not usable in the regression analysis: "which investment source do you prefer?" with options "majority local" or "majority global". This question was not significantly correlated with positivity toward one's local wind project in bivariate analysis, either. However, this may be

because it was very skewed toward a preference for majority-local investment. Despite a lack of statistical significance in the present study, residents want the profits from local wind projects to stay local; that is, this dimension is still important despite the lack of statistical significance in the present study. Future research should be done to test these three dimensions and compare their relative importance to communities using a survey instrument that more adequately represents this dimension. Survey questions that may achieve this goal with a Likert scale could be, “As far as I am aware, local residents were reasonably able to invest in the project”, “As far as I am aware, the cost to invest in the wind project was accessible to some or most local residents” or “I am satisfied with the proportion of investors that were local”. More specific questions about accessibility of investment opportunity could include, “Which of the following possible minimum investment amounts would you consider feasible for you and your household?” or “I believe that members of my community could afford a $1000 CAD investment share in a local wind project”. Finally, questions about non-locals investing could include, “I feel that only Canadian companies should be allowed to develop wind projects in Canada” or “I feel that offshore investment is not a problem if they have the expertise”.

5.2 Hypothesis 2: Nova Scotia is more positive than Ontario

Hypothesis two stated that Nova Scotia residents would be significantly more positive toward their local wind project than Ontario residents, because past research has suggested that Ontario residents are particularly averse to new wind developments (Christidis et al., 2017; Jami & Walsh, 2017; C. Walker et al., 2018). This is exactly what was found in my study; in fact, attitudes differed far more between provinces than between development types (community-based, developer-led), which is a major finding of this research. The overwhelming direction of

effect indicates that Ontario residents are far less satisfied with their local wind projects than Nova Scotia residents are. This is likely due to the lasting impacts of the Green Energy Act, the abundance of blog-style internet resources in Ontario which many Ontario residents reported as a trustworthy information source, and the current provincial government discourse around wind development in Ontario, each described further below.

Songsore & Buzzelli (2015) describe in detail the implications that the Green Energy Act (GEA) had for wind energy attitudes in the Canadian context, and specifically how the Feed-in Tariff (FIT) policy in Ontario and Community Feed-in Tariff (COMFIT) policy in Nova Scotia resulted in such a difference in attitudes. It is further established by Walker et al. (2018) that this influence of politics on wind energy attitudes is present in Ontario, but not Nova Scotia (C. Walker et al., 2018). It is clear from the present study that the way Ontario residents and Nova Scotia residents engage with the concept of wind energy continue to differ greatly. This is made especially clear through their selections of trustworthy and untrustworthy information sources. Ontario residents trust news or media and concerned citizen websites far more than Nova Scotia residents do. Nova Scotians instead report trusting the information provided to them by the provincial government.

As described in the literature review, most of the popular Canadian anti-wind sites are Ontario-based, as are many of the publicly-visible community groups on Facebook. This abundance of Ontario-based websites is surely due in part to the sheer number of wind projects in the province, but has also been linked to Ontario's Conservative provincial government's recent discourse around wind energy and the divisive policies embedded in the liberal-supported GEA (Jost et al., 2009; Songsore & Buzzelli, 2015, 2016; C. Walker et al., 2018).

In 2018, when Ontario Premier Doug Ford cancelled 751 renewable energy projects at great cost, it is likely that Ontario residents who may not have otherwise had reason to form an opinion about wind energy were now being exposed to media coverage about Ontario wind energy from their Premier, improving the odds of respondents developing strong opinions for or against this decision, possibly depending on their political affiliation and approval of Premier Ford more broadly (Jost et al., 2009; C. Walker et al., 2018). This also makes it more likely that Ontario residents are accessing information about Ontario wind developments – their own or just wind development more generally – through news or media resources, potentially resulting in the formation of strong opinions which align with their political affiliation. Future studies should include questions about political affiliation to test the relevancy of this element to decision-making and attitude formation.

Ontario residents were more likely to report knowing about their local project, which may indicate that the developers of Ontario projects made a more concerted effort to inform the communities. However, it is unclear which would have come first: Ontarians requesting more detailed information about proposed local wind projects, or Ontarians being exposed to negative discourse about wind energy from both the provincial government and online blog-style platforms. Regardless of direction of effect, this increased desire for and exposure to information could explain why so many Ontario residents have strong opinions toward stakeholders from their local project such as the developer, planning authority, leaseholders and investors despite reporting that they were inadequately informed about their local wind project and may not have even known about it during development. Considering the local wind project's stakeholders (developer, planning authority) to be trustworthy and transparent was

significantly correlated to positivity toward the wind project in bivariate analysis, a trend present in other studies as well (Firestone et al., 2018). Relatedly, a far higher proportion of Nova Scotia residents reported being unaware of their local wind project, its stakeholders, and the benefits and investment opportunities associated with it. If not due to the lack of political influence in Nova Scotia relative to Ontario (Jost et al., 2009; C. Walker et al., 2018), this could be because all wind projects included in this study are at least four years old, and over one quarter of respondents did not live in the area at the time of construction. For those who were present, in some cases, this may have been because the developer was not offering residents benefits, but in others, this indicates a lack of effective attempts by the developers to involve community members.

5.3 Hypothesis 3: Community-based sites are more positive than developer-led sites

There was not sufficient evidence to support hypothesis three, which stated that residents near community-based wind projects would be more positive toward their local wind projects than residents near developer-led wind projects. This is the assumption made in much of the community-based wind literature (Creamer et al., 2019; Rand & Hoen, 2017; Rogers et al., 2008; C. Walker & Baxter, 2017b), though few sources have compared different development types to test whether it is accurate in practice (Mulvaney et al., 2013a, 2013b; C. Walker & Baxter, 2017b, 2017a). This hypothesis investigates evidence that community-based development models are working in practice, as suggested by recent review papers (Baxter et al., 2020; Creamer et al., 2019; Hoen et al., 2019). The present results indicate very little difference in positivity toward the local wind projects based on what kind of wind development the respondent lives nearby, which is a very unexpected finding that calls to question the

relative value of development model in the literature around community attitudes. That said, in Ontario's community-based site, many residents reported in prior interview research that they don't feel this wind project lacks the key dimensions of a truly community-based project in practice, despite many being unhappy with how those things were implemented (C. Walker et al., 2018). That is, residents around this wind project report feeling disappointed about the implementation of the wind project, but they agree that members of their community were given opportunities to participate in decision-making, invest and receive benefits. There is evidence that the concept of community-based development as been co-opted and that some projects being described as "community-based" do not meet the theoretical or community expectations for this development type, which could decrease the overall acceptance of "community-based" development in name. For this reason, future research is needed to establish a relationship between development type and community positivity. Future studies should survey additional sites to establish whether the trends identified in the present research are due to nuances of the sites used, or symptomatic of a divorce of theory and practice in community-based wind energy more broadly.

Where significant differences in attitudes or experiences were identified, a higher proportion of residents near the community-based sites were generally more likely to report experiencing positive elements. For instance, residents near community-based sites reported more personal and community meaningful influence on their local project's outcomes. They also heard about the project earlier and felt more satisfied with the amount of information they got in general. These details contribute markedly to an overall subjectively positive experience of living near a turbine, however it appears that this hasn't significantly impacted residents'

likelihood of reporting positivity toward their local wind project. It seems that there is a gap between theory and practice in the field of community-based wind energy, in that what the literature describes as “community-based” may not be interpreted significantly differently from what the literature would deem “developer-led” when put into practice and interpreted by actual community members.

It is expected in the literature that respondents from community-based projects would have experienced a development process that more heavily emphasizes the three dimensions of community-based wind energy (decision-making, benefits distribution, investment scale) (Christidis et al., 2014; Jami & Walsh, 2017; Songsore & Buzzelli, 2015; C. Walker & Baxter, 2017a). However, the present study’s findings indicate that is not necessarily the case, or at least that respondents do not report significantly different experiences with different development types. I find instead that opinions are very similar between sites in the same province, regardless of development type. It is possible that some of this lack of effect is due to the age of the turbine sites used; all the wind projects have been there at least four years, so recall bias may be impeding respondents’ ability to report whether members of their community were integrated into the process, received benefits or were given the opportunity to invest (Battaglia et al., 2009). Finally, the literature purports that a larger wind project consisting of more turbines often has more opposition than a smaller project (Bates & Firestone, 2015; Firestone et al., 2015; Hui et al., 2018), and the community-based projects in this study were larger: ten turbines in Ontario and seven in Nova Scotia, compared to three and four turbines in Ontario’s developer-led sites and three turbines in Nova Scotia’s developer-led site. This could have had a balancing-out effect with the actual details of the wind projects,

resulting in such a small difference in positivity toward the wind projects based on local site type. Future research should interview and survey residents near wind projects during their construction to establish their degree of awareness of elements related to these three dimensions, to determine if perhaps recall bias is resulting in an underrepresentation of the impact of wind development type in the present study and if respondents report the size of a wind project as important in deciding whether they are satisfied with it.

Overall, the importance of development type is dwarfed by the impact of provincial difference in the present study. A resident's personal interest in seeking out information about wind projects seems to have had a more substantial impact on whether a resident considers themselves to have been "adequately informed" than the type of development model being implemented. That is, implementing a participatory development process may not substantially impact awareness if many residents are getting their information online or basing perspectives primarily off provincial government discourse instead of details of their local wind development itself. This could be resulting in the gap between theory and practice that is clear in community-based development in this study.

5.4 Hypothesis 4: Local wind project site type does not predict positivity toward hypothetical scenarios

Hypothesis four states that if a respondent lives near a community-based wind project, they are more likely to support the community-based scenario; the results of the present study did not support this, however. This hypothesis was based on the overarching theme in the literature which argues that communities around community-based wind projects are more satisfied (see reviews such as Baxter et al., 2020; Creamer et al., 2019; Hoen et al., 2019), but

this is not supported by the results. There is no evidence that residents living near existing community-based wind projects have a higher likelihood of supporting the community-based scenario, or any scenario for that matter, compared to residents living near existing developer-led wind projects. The dependent variable, however – positivity toward the local wind project – is significantly correlated with support for both scenarios in bivariate analysis. It seems that if one had a positive experience with their local wind project, it primes them to be less critical and more accepting of both developer-led and community-based hypothetical scenarios, and the opposite is true if they had a negative experience with their local wind project.

There was a large disparity between the degree of support for the hypothetical scenarios and positivity toward the respondents' existing local wind projects, though community-based development is preferred in both cases. The developer-led scenario had 40% support and the community-based scenario had 65% support, while positivity toward the existing local wind projects was 57% for the developer-led projects and 58% for the community-based projects. Measurement, however, is critical in the interpretation of this difference. Since "support" – used in the hypothetical questions – is a higher threshold than "positivity" – used for the respondent's local wind project – the hypothetical scenarios may have had even higher proportions report positivity toward the scenario than would agree that they "support" it. Interpreted the opposite way, if the local wind project question had asked for "support" instead of "positivity", it is likely that the proportion of residents who support their local project would be lower than the 57% and 58% who reported "positivity". That said, it is compelling that the existing wind projects fared so similarly while the scenarios resulted in such different degrees of support.

Both scenarios were created as optimistic representations of their respective development models. The average Canadian wind project being labelled “community-based” will not have all, or indeed any in some cases, of the components listed in the community-based scenario and will not be offering as much money or influence on outcomes as the scenario either. The developer-led scenario could also be described as somewhat generous in that the community is still getting a big stake in the investment and is receiving substantial benefits from the developer for community projects. That said, much of the data related to the three dimensions of community-based wind projects described in this paper (decision-making, benefits distribution, investment scale) is kept confidential, so it is hard to say with certainty how these dimensions were incorporated into the wind projects surveyed in this study. Unpublished interview data by members of the same parent project may have more data from community members on how exactly the wind projects represented these dimensions, but this is outside the scope of the present study.

It is unsurprising that the generous community-based scenario had higher support than existing “community-based” wind projects; this scenario sounds incredibly attractive in theory, while residents have more nuanced relationships with their local wind project in practice. However, the generous developer-led scenario performed markedly worse than the existing developer-led wind projects. Perhaps this indicates that, at some point during development, communities become less likely to interrogate the details of a project, and more likely to settle into a mid-level of positivity which aligns with the reported average level of acceptance (which is, again, the measurement more often used in the literature, and a slightly lower threshold than ‘positivity’) of wind projects in other studies in Canada which settles around 50-60%

(Baxter et al., 2013; Jost et al., 2009; C. Walker et al., 2018; C. Walker & Baxter, 2017b, 2017a). Further research is needed to establish how, when and why this divorce of theory and practice may be happening, likely through studying communities from the time of announcement and continuing until multiple years after the wind project's completion. Key research questions include, "at what point in the development process do attitudes become similar across development models?"; "Do residents habituate to developer-led projects just as readily as community-based ones once they're built?"; "How much of a lasting influence does development model have on community attitudes?"; "Is any of this dependent on context, such as the country or province/state/region in which the wind project is constructed?"

5.5 Hypothesis 5: Respondents prefer community-level to individual-level benefits

Hypothesis five tests whether respondents would prefer community-level benefits to individual benefits when given the hypothetical choice between them, and this is indeed the case. The literature indicates that many communities' attitudes are tied to the type of benefits being offered, with some evidence to support a preference for community-level benefits over direct individual benefits (Baxter et al., 2013, 2020; Bidwell, 2013; Fast et al., 2016; Songsore & Buzzelli, 2015). Specifically, a decrease in electricity cost or tax rebates for local residents is proposed and supported by some scholars (C. Walker & Baxter, 2017a, 2017b), and indeed decreased electricity cost is the most highly preferred individual benefit in the present survey, compared to lump sum payments or regular payments to households. Future studies should consider elaborating further on how such a benefit would be made available, and to whom, to ensure that this preference between community and individual benefits is clear.

A preference for community-level benefits could be related to the concept of place attachment, and a desire to promote infrastructural growth and new developments in their community, such as funding for elementary schools or improvements to publicly accessible green space and parks (Firestone et al., 2015, 2018; Lewicka, 2011; Lothian, 2008). It could also be due in part to social desirability bias, which posits that respondents may feel inclined to answer in the way they deem more favourable, by reporting that they would prefer their community all get benefits instead of admitting they'd prefer direct lump sum or regular payments and potentially being perceived as selfish (Krumpal, 2013).

While most respondents preferred that the majority of benefits go the community instead of individuals, it is compelling that those who live near existing developer-led sites are significantly more likely to prefer community benefits. Again, the provincial differences are striking – both development types in Ontario prefer community benefits to roughly the same degree, while in Nova Scotia those living near the community-based project preferred individual benefits twice as often as those living near the developer-led project (see Figure 4.7). What we see in reality is a bit unexpected by comparison; in Ontario, no one from the developer-led sites reported receiving any individual benefits but many from the community-based site did, while in Nova Scotia twice as many people (6 compared to 3) from the developer-led site reported receiving individual benefits compared to the community-based site.

It is possible that elements of the development process for the respondents' existing local wind projects have influenced their response to the benefits questions. This affinity of Ontarians for community benefits may be motivated by contextual factors such as politics and

media, while in Nova Scotia the difference in responses may reflect that the specific community-based project selected for this study had less equitable benefits distribution than expected for a community-based project, and the community was dissatisfied. Relatedly, most respondents preferred that decisions about community-level benefits be made by an elected committee, made specifically for this purpose, instead of an existing organization or the municipal government (with some residents specifically indicating they do not want the municipal government involved). This aligns with Cowell et al. (2011)'s warning that benefits cannot be used as a replacement for a participatory process, only as a complement to it (Cowell et al., 2011; C. Walker & Baxter, 2017a). If community-level benefits are to be done in a way that is satisfactory for community members, then, it would be important for developers or involved community members to consider ways of electing representatives from the community, early in the planning process, who will represent their needs in conversations about the benefits being made available (Arnstein, 1969; B. J. A. Walker et al., 2017). Simply providing the benefits is not sufficient for improving community positivity toward the wind project.

5.6 Summary of Discussion

In this chapter, each hypothesis is described in relation to the literature to establish how the present study compares to those previously conducted. Opportunities for future research are identified throughout, and potential questions which could frame next steps in elaborating on the present research findings are presented. The next chapter extends these findings by focusing on the theoretical and methodological contributions of the present study, and implications for future wind development.

6 Conclusion

6.1 Summary of Findings

The following chapter will provide an overview of the practical, theoretical, and methodological contributions made by this study. It will also explain the limitations and provide brief summaries of how each could be overcome in future research. Finally, the outcomes of this study will be positioned within the broader context of the wind energy literature through establishing future uses for the present survey and next steps being taken within the parent project of the present study.

6.2 Practical Contributions

The following are the key practical contributions of the present study. To start, governments should be aware that community-based development appears to be coopted, in that some developments being labelled community-based do not align with the key elements that researchers and communities think of when they hear the term “community-based”. This is resulting in a gap between what is required for a development to be called “community-based” in theory, and what is being proposed and constructed in practice. When local wind project proposals do not align with community expectations, it could result in some community members to feel disappointed and harboring worse attitudes toward it than they may have otherwise had. Developers should be aware of this and design future wind projects with the three dimensions of community-based wind projects in mind – participatory decision-making, fair benefits distribution and majority-local investment scale.

That said, a second key practical contribution of the present study is that residents seem to be somewhat agnostic to developer-led versus community-based wind development, as long as

residents have some degree of decision-making power. Specifically, residents want a fair planning process in which they have an impact on project outcomes and can achieve some degree of veto power. This involvement of community members should start during the proposal process and continue through to the end of construction (Arnstein, 1969; Baxter et al., 2020; Creamer et al., 2019; B. J. A. Walker et al., 2017). Since residents rank it as the most important of the three dimensions in the present study, implementing participatory decision-making should be a primary concern for developers.

Residents want benefits that are shared equitably between community members, i.e. community-level benefits that positively impact a larger proportion of the community than an individual benefit model would. Notably, residents prefer an elected committee of local community members as decision-makers for benefits distribution, with some residents reporting that they particularly reject the possibility of municipal government actors as decision-makers. This committee should be established early in the planning process of the wind project to ensure that residents have the chance to influence decisions adequately.

Finally, majority-local investment is highly preferred to majority-global investment, despite this dimension not being a high priority for most residents compared to the prior two dimensions. Investment scale should not be overlooked, despite a lack of statistically significant results in the present study, since resident responses are highly skewed toward preferring that most investment be made by locals. As long as these three dimensions are each represented to some degree in a wind project, the official development type does not seem to have a large impact on community attitudes in and of itself; residents do not correlate community-based development models with being more acceptable in this study.

This study supports claims made in previous studies in Ontario and Nova Scotia, which indicate that there are marked differences in how policy, media and politics in different historical contexts influence community attitudes (Baxter et al., 2020; C. Walker et al., 2018). As a result, it appears that residents in each province require slightly different things from their wind project developers. While Nova Scotian wind projects appear to be more well-received in general than Ontario wind projects, those in Nova Scotia would benefit from earlier notice about the proposed projects, since many surveyed residents indicated they did not know there was a wind project within five kilometers from their home. This improved awareness campaign would allow residents to engage more readily with their wind project and those who wish to participate may have the opportunity to. Overall, developers should emphasize early communication with communities to understand the nuanced, culturally determined perspectives and resulting needs that each community will have.

Alternatively, in Ontario, many residents have preconceived opinions on wind energy (from politics and media coverage) before a wind project is proposed in their community. Ontario residents report wanting more information earlier in the process, perhaps including a community meeting prior to acceptance of the development proposal, so they can influence everything from siting decisions to the cost of investment to benefits distribution (Arnstein, 1969; Baxter et al., 2020). Residents want more easily accessible forums through which to contribute their opinions when new developments are proposed in their area and want more capacity to impact project outcomes. Developers in each context should aim to cater to the historical experiences of the communities in which they are proposing wind projects to improve the likelihood of the community feeling positively toward the development.

6.3 Theoretical Contribution

While one of the unique contributions of the present research was the inclusion of investment scale as a dimension of community-based wind projects, this dimension did not prove to be significantly correlated to the degree of positivity residents report having toward their local wind project. However, this question was highly skewed toward respondents preferring majority-local investment, which indicates that residents do have strong preferences between possible investment scales. Prior to the inclusion of this dimension, all aspects of the project related to investment and benefits were categorized under the "outcome" side of the Process-Outcome model (G. Walker & Devine-Wright, 2008), so adequately testing the importance of this third dimension to community attitudes is a critical next step for the community-based wind literature. Further research should be done to establish whether this dimension would prove to be a significant predictor of community attitudes around a wind project that is still being planned at the time of interviewing or surveying the community, compared to after the wind project has been constructed.

6.4 Methodological Contribution

The primary methodological contribution made by this study was the combination of the actual and the hypothetical. That is, there are questions about both the existing wind project a respondent lives near, and hypothetical projects that align with two key theoretically driven development models – developer-led and community-based. This is the basis for the conclusions and implications here about theory versus practice – and I show the gap is substantial. Through collecting attitudes and opinions on both existing and hypothetical wind projects, it was possible to establish that there is a gap between what the literature indicates

will result in more positive opinions, and the opinions actually reported, when it comes to community-based wind energy. This is a major finding and indicates that there is further work to be done in establishing how, when and why residents form the opinions they do about wind projects. Again, future research should aim to replicate this use of scenarios to determine whether other contexts also display this divorce of theory and practice. More specifically, future studies should re-work the use of scenarios to include them in regression analyses, a feat impossible with the present data as all of the scenario questions were colinear with each other (though each scenario question was correlated with positivity toward one's local wind project, in bivariate analyses).

This research project merged the methodologies of many other researchers in the field of community-based wind energy to include multiple kinds of wind project development (developer-led and community-based), and multiple contexts (two Canadian provinces, Ontario and Nova Scotia). This combination of development type and context comparison aims to fill gaps in the literature through providing more groups for comparison, and to establish the relative impact of these two comparison factors. The present study established that the influence of province is far larger than expected, and the influence of development type is far smaller than expected. Future research should seek to corroborate this finding in other contexts to establish whether the findings are perhaps specific to this context, this survey, or this sample, or whether they are replicable in other samples and contexts as well.

6.5 Limitations

The following section will identify the limitations of the present study. Where applicable, an outline is provided of potential methods of overcoming those limitations if the project were to

be replicated. These limitations are exacerbated by the time constraints inherent to a Masters Thesis as well as implications of the present COVID-19 pandemic.

6.5.1 Item categories for international comparison

The demographics information collected by this survey instrument was originally curated to be comparable to survey sites in Northern Ireland and the Republic of Ireland as part of the same project. The intention was for both myself and an Ireland-based team member to enter and clean our own sites' data, then analyse and write about all four regions. As a result, demographics and benefits currency amounts have been manipulated to accommodate comparable values in all contexts, and as such the brackets are not exactly equal to one another or aligned with Statistics Canada. When the Ireland sites are surveyed, that project will use the same survey instrument with predetermined context-relevant dollar amounts plugged in; that is, internal consistency was prioritized over consistency with Statistics Canada.

6.5.2 Representativeness of the Sample

The sample in the present project was lower than expected; the intention was to achieve a 10% response rate for a sample of 800 surveys out of 8000 disseminated, but only 362 survey were returned (a response rate of about 4.5%). I did not deliver this survey to all Canadians – or all Ontarians and Nova Scotians – as I wanted to focus on those living near turbines. Thus, an online panel through companies like Qualtrics was not possible. This influenced which variables were able to be included in the regression analysis in some cases, mostly for benefits-related questions. A solution to the methodological limitations of a low sample could have been to send more surveys to different communities or send a second copy of the survey to the same communities. Dillman suggests sending three mailings for an optimal response rate (Dillman et

al., 2014), however for budgetary reasons and time constraints inherent to a Masters Thesis, this was not pursued at this time. Despite the potential limitations of this sample size, the models produced from the dataset are consistent with the literature. The sample is small and is not representative of the communities that were sampled, but much can be gained through analyzing the perspectives shared by the portion of the population that did answer the survey, and through comparing those groups to each other.

6.5.3 Types of Bias

Since participation in the survey was voluntary, some degree of self-selection was present. Self-selection bias is common in this area of research (Hudson et al., 2004; Whitehead, 1991) and may result in effects such as only households who have strong opinions about the survey topic – or those who feel empowered to speak to the topics represented in the survey – mailing back their surveys or choosing to respond online. In the community attitudes of wind energy literature, there is evidence to suggest that those who oppose their local wind development are more likely to respond (Blanes-Vidal & Schwartz, 2016; Wolsink, 2000), resulting in a higher proportion of opposition in the sample than in the community. The present sample doesn't seem to be highly skewed toward disliking their local project; the difference in attitudes between provinces is notable (with lower acceptance in Ontario), but this is also found in other studies and is not presumed to be due to response bias.

Conflicting evidence supports the notion that anti-wind concerned citizen groups may use online forums to tell residents not to reply to surveys being conducted in their area (C. Walker & Baxter, 2017a, 2017b), which would result in the opposite effect – those who oppose the project would choose not to fill it out, and the majority of responses would be positive. This

kind of public forum utilization has not been identified by the research team during periodic checks, or brought to our attention by community members, so I can't say definitively whether either or both effect(s) may have had an influence on the final survey sample. However, others have suggested that non-response bias is probably limited, and that the different directions it could bias the sample likely balance each other out (Blanes-Vidal & Schwartz, 2016; Larson & Krannich, 2016; C. Walker & Baxter, 2017b).

As mentioned in the discussion chapter, social desirability bias may have caused some respondents to answer survey questions in ways which they perceived as the "correct" or less selfish response (Koivula et al., 2019; Krumpal, 2013; Yatchew & Baziliauskas, 2011). This is less common in surveys than in interviews or focus groups (Krumpal, 2013); however, for certain questions it is important to ensure that the options are framed in a way that does not insinuate a "correct" answer. This is particularly important for questions such as comparing preference for community-level benefits versus individual-level benefits or comparing a community-wide engagement model versus investors only. The fear of being perceived as selfish could influence respondents to answer in ways that do not represent their actual perspectives.

Finally, a form of self-selection bias known as "Tiebout sorting" may be present in my data. This theory posits that people who choose to move into communities with wind turbines likely have more positive attitudes toward them than the average person who has lived there since before construction – otherwise, they would not have chosen to move there (Tiebout, 1956). Since each survey site has hosted wind turbines for at least four years, this is entirely possible; in fact, 27% of the full sample shared that they had moved in after construction of the local turbines. However, the relationship between this variable and the dependent variable is

insignificant in bivariate correlation (see Appendix 8 for key survey questions split by whether the respondent moved in before or after wind turbine construction). Future research should account for this phenomenon through surveying more than once – perhaps during the planning and development process, directly after construction is completed, and again a few years later – to establish if this form of self-selection appears to influence the results from survey data within samples from the same community.

6.6 Next Steps

Community-based development is not implemented in practice the way it is conceived by academics in the literature. Wind cooperatives have not taken off in Canada the way they have in Europe – there is simply less history of cooperative developments of this type in rural farm communities. Thus, policy makers will need to think about ways to further implement core principles of sound and preferred development outside of a cooperative – profits shared mainly with local investors – model. Developer-led models need not be unpopular, but policy needs to support the importance of engagement with communities and level playing field for developers who wish to develop using different kinds of models. According to the present study, transparency in the process of any proposed wind turbine can result in a relatively positive response from communities.

The next steps of this study are as follows. Currently, progress is being made on implementing the same survey in the Republic of Ireland and Northern Ireland. As detailed above, those data will be comparable to the present study and will hopefully mirror the results to some degree. Aside from those sites, future research could involve sending a slightly amended version of this same survey instrument to communities who do not have a local wind

project. These data could be compared to the present study to establish whether those who do not live near a project have different lived experience, prior knowledge and predispositions than those who have personal experience with wind energy.

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Appendix 1: Ethics Approval

Western Research

Date: 6 October 2020

To: Dr. Jamie Baxter

Project ID: 109374

Study Title: MOCWE - Meaning of community wind energy

Application Type: NMREB Amendment Form

Review Type: Delegated

Full Board Reporting Date: November 6 2020

Date Approval Issued: 06/Oct/2020

REB Approval Expiry Date: 13/Jun/2021

Dear Dr. Jamie Baxter,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
MOCWEsurvey2020_Electronic	Online Survey	28/Sep/2020	2
NMREB_MOCWE_application_AmendmentMOCWEsurvey2020	Protocol	28/Sep/2020	
LetterOfInformation_MOCWEsurvey2020	Implied Consent/Assent	28/Sep/2020	2
MOCWEsurvey2020	Paper Survey	28/Sep/2020	2

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Kelly Patterson, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix 2: Full Survey Instrument

Letter of information and Consent – MOCWE Wind Survey 2020

Dear Resident,
Dr. Jamie Baxter and his research team from Western University's Department of Geography and the Environment invite you to participate in a survey about your experience with a nearby wind development project and your opinions of it.

Title of the project: Community-based wind energy development: International survey of procedural fairness and social acceptance.

What is being studied and why?
The study will explore ways of improving the relationship between wind energy projects and local communities and to understand what makes a wind project successful. The research is examining case studies in Canada and the Republic of Ireland and will compare the experience of communities in each context to better understand the factors that can influence how people perceive wind projects.
As Canada continues to transition away from fossil fuels and toward renewable energy sources, it is imperative that we keep track of how communities are affected. The goal of studies such as this is to give residents an additional avenue through which to voice their opinions about wind energy, and more specifically, about their local wind project and its developer(s).

The purpose of this study is to develop a better understanding of how people feel about wind projects of different types, including:

- Community-based projects, where nearby residents have an opportunity to invest and receive a return on investment;
- Developer-led projects, where the primary stakeholders such as investors and developers may be based outside Canada.

Study procedures and length of study?
Complete survey: you are invited to complete a Wind Energy 2020 survey. If you received a paper-mail invitation, and agree to participate, please follow the instructions to complete the survey and send it back to the researchers in the attached addressed and stamped envelope. If you prefer to complete it online, please type the survey link below into your browser to access the survey. This survey will take approximately 20 minutes to complete.
Survey link: http://bit.ly/MOCWEsurvey

Do I have to participate in this study?
Your choice to participate and complete the survey is **completely voluntary**. You do not have to participate. You can refuse to answer any questions and can choose to leave the survey at any time. However, as the survey gives us critical information about community perspectives on wind energy, we would really appreciate your participation, as the results will ultimately help with the development of future renewable energy developments.

What are the possible benefits of participating?
Our research is helping us to develop a better understanding of how people feel about wind energy in their communities. It is anticipated that the discussion and findings resulting from this research may contribute to a better understanding of how wind farms should be developed, whether the local community should be given opportunities to own or manage wind projects, and to advise on where best to locate them.

What are the possible disadvantages of participating?

There is little risk to you if you choose to participate in this study, but there is a slight chance that you may be uncomfortable sharing details of your household's economic status and whether you are benefiting financially from the local wind project. The risk for discomfort is being minimized as follows: Participants will not be personally identified or identifiable in any documents or presentations related to the study. All the information collected in this study is kept strictly confidential and your name will not appear on any materials or data files.

How will your information be kept confidential?
In addition to confidentiality procedures discussed in the previous section, survey data will ONLY be viewed by members of the research team and will be maintained on a password-protected computer in a secure facility at Western University. Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research. You do not waive any legal rights by consenting to this study.

How will my data be stored?
Information will be stored in two ways. The paper surveys will be accumulated by a mailing and courier service called Key Contact who will send them to the Social Science Center at Western University, where parcels of completed surveys will be collected by the investigators. The anonymous data will be entered into SPSS, a secure data analysis software used by Western University, to be analysed by investigators. The paper version of the surveys will then be destroyed. If you choose to complete the survey online, your survey responses will be collected anonymously through a secure online platform called Qualtrics. Qualtrics uses encryption technology and restricted access authorizations to protect all data collected. In addition, Western's Qualtrics server is in Ireland, where privacy standards are maintained under the European Union safe harbour framework. The data will then be exported on Western University's server to be analysed by the investigators, and subsequently deleted. Anonymized digital data from both paper and online surveys will be stored within SPSS for 10 years, for potential future analysis.

What will happen to the results of the study?
The research outputs are expected to be included in a wider study of community attitudes to wind energy projects and we will compare what we discover about the wind farm in your area with that in another part of Canada and in Ireland. The results will form the basis of a report to the research funders and will appear in Master's theses and in academic papers. You may withdraw from this study at any point prior to mailing your completed survey or beginning the online survey. Due to the anonymous nature of the data, it is impossible for the investigators to remove your responses from our dataset once your completed survey has been received. For the online version, your anonymized data will be saved as soon as it is entered. You can ask further questions about this by emailing the Principal Investigator, Dr. Jamie Baxter, at [email address redacted].

Will I be compensated for participating in this study?
Participants from each of the 7 surveyed regions will have the option to be entered into a draw, and one winner from each region will be sent one $100 gift card of their choice: local grocery store chain, Amazon, Starbucks, Tim Hortons, Canadian Tire. The contact information you provide on the separate sheet will be stored separately from your questionnaire. The two will not be linked in any way after they are received. After winners for the draw have been determined, the paper version of those entries will be destroyed and the Qualtrics entries deleted.
Survey's Draw Entry Link: bit.ly/MOCWEsurveyDRAW

Who do I contact if I have any other questions?
Should you have any questions or concerns about participating in this project, you can contact Dr. Jamie Baxter by email at [email address redacted], or by phone at [phone number redacted].
If you have any further questions regarding your rights as a study participant, please contact the Office of Human Research Ethics at [phone number and email redacted].

By participating in this survey, you are providing your consent.

Meaning of Community Wind Energy Survey 2020
Ontario & Nova Scotia, Canada

Please review the Letter of Information included in this package before completing the survey. Your responses are **voluntary** and **confidential - your answers will never be linked to your name or address.** If you need more space for your answers, please use the comment section at the end of the survey. Thank you for your time.

If you have any questions, please email Jamie Baxter at [email address redacted] or call him at [phone number redacted].
Return the completed survey in the enclosed postage-paid envelope, or submit your answers via the online survey.

This survey should take about 20 minutes to complete. Some of the questions are about your local wind project, while others are more generic - about wind energy development. We are asking your opinion, there are no right and wrong answers.

Section 1: Wind Energy Planning in your Community

These questions are meant to establish your relationship to your local wind energy development.

1. Please select the region you are from.
   a. Ontario, Canada
   b. Nova Scotia, Canada
   c. Republic of Ireland

   1.*A*. What is the name of the closest wind project to your home? If you are not sure, state the name of your township or city.

   _____

2. Did you move into your home before construction started on the wind project closest to your home?
   No Yes Don't Know

3. Do you have any wind turbines from the project in Question 1 on your property?
   No Yes Don't know

4. I feel a strong affinity (or connection) with the local area and community in which I live.
   Strongly disagree Disagree Neutral Agree Strongly Agree

Section 2: Attitudes Toward the Wind Project

The next few questions concern the wind project planning and development process.
Definitions:
*"**Planning and consent process**" - the period from before the initial announcement in the community to the beginning of construction.*
*"**Developer**" - the company or group who leads the planning and development process and*

generally profits most from the wind turbines. This may be a local company, a cooperative or a much larger, multinational company'.
*"**Planning Authority**" - the planning authority in Canada is typically the province.*
***"Leaseholders"** – the households or landowners who are paid to host one or more turbines on their property.*

5. I found out about this project too late in the process to have any meaningful influence.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

6. I personally had a meaningful say in the planning decisions of the local wind project.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

7. I had no real desire to have a meaningful influence on the local wind project.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

8. The wind project developer acted openly and transparently throughout the process.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know

9. The planning authority acted openly and transparently throughout the process.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know

10. The community was able to meaningfully influence the outcome of the wind project. For example, the location or number of turbines, or the size of and distribution of financial benefits.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

11. The planning process was fair.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

12. The construction process was annoying.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Unaware of the project

13. The developer responsible for the wind project was trustworthy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know

14. The planning authority responsible for the wind project was trustworthy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know

15. A. Please circle up to three (3) sources of information that you consider to be the **most trustworthy** in relation to the wind project.
    a. Leaseholders

b. Developers
c. Local government representatives
d. Provincial government representatives
e. Federal government representatives
f. Local news or media
g. Wind turbine concerned citizen group websites
h. Family and friends
i. Other (please specify) _____

15.B. Please circle up to three (3) sources of information that you consider to be the **least trustworthy** in relation to the wind project.

a. Leaseholders
b. Developers
c. Local government representatives
d. Provincial government representatives
e. Federal government representatives
f. Local news or media
g. Wind turbine concerned citizen group websites
h. Family and friends
i. Other (please specify) _____

16. I had access to an adequate amount of information about the wind project.
Strongly Disagree Disagree Neutral Agree Strongly Agree

17. How much did the planning process change your opinion about the wind project? The planning process made your opinion...
    a. Much more negative
    b. More negative
    c. The same
    d. More positive
    e. Much more positive

18. What is your current attitude toward the local wind project?
Very Negative Negative Neutral Positive Very Positive

19. Regardless of your attitude now, what was your attitude toward the local wind project before it was constructed?
Very Negative Negative Neutral Positive Very Positive

20. What is your relationship with those who lease turbines on their land (leaseholders)?
Very Negative Negative Neutral Positive Very Positive

21. Leaseholders are unfairly blamed for the actions of the developer in my community.
Strongly Disagree Disagree Neutral Agree Strongly Agree

22. Which of the following best describes your initial reaction when you **first heard about** your local wind project? (Select only one)
    a. Proud
    b. Fearful
    c. Hopeful
    d. Helpless

e. Angry
f. Content
g. None of the Above
h. Don't Know

23. Which of the following best describes your reaction when you first saw the turbines **constructed**? (Select only one)
    a. Proud
    b. Fearful
    c. Hopeful
    d. Helpless
    e. Angry
    f. Content
    g. None of the Above
    h. Don't Know

24. Which of the following best describes how you feel about the wind project **today**? (Select only one)
    a. Proud
    b. Fearful
    c. Hopeful
    d. Helpless
    e. Angry
    f. Content
    g. None of the Above
    h. Don't Know

25. The wind project looks attractive in the landscape.
    Strongly disagree Disagree Neutral Agree Strongly Agree

26. Turbines typically have a lifetime of 20-25 years. I would be happy to see this lifetime safely extended for several years thereafter.
    Strongly disagree Disagree Neutral Agree Strongly Agree

Section 3: Wind Project Benefits
The next few questions ask about the economic impacts of the local wind project

27. I had adequate information about the financial benefits of the project.
    Strongly disagree Disagree Neutral Agree Strongly Agree

28. Did you or your household have the opportunity to invest in the nearby wind project?
    No Yes Don't Know

29. Did you or your family choose to invest in the wind project?
    Not Applicable No Yes Don't Know

    29.A. What was your primary reason for **choosing to invest?** (Select only one)
    a. Not applicable – I did not have the opportunity to invest
    b. Not applicable – I did not invest
    c. I wanted to support renewable energy
    d. I wanted to invest in my local community

e. It is a wise financial investment
f. I wanted to expand my socially conscious investments
g. Don't know
h. Other (please specify) _____

29.B. What was your primary reason for **choosing NOT to invest**? (Select only one)
a. Not applicable – I did not have the opportunity to invest
b. Not applicable – I did invest
c. Minimum investment amount was too costly
d. Not provided adequate information about the investment opportunity
e. I did not want to invest in renewable energy
f. I did not feel the local wind energy project was acceptable
g. The financial return was not going to be significant enough
h. Other (please specify) _____

30. Have you or your household received any direct financial benefits from the wind project that did not result from you directly investing?
No Yes Contract does not permit me to say Don't Know

31. Was it a lump sum payment, regular payments, or both?
a. Not applicable – I did not receive direct financial benefits of this type
b. Lump Sum Payment
b. Regular Payments
c. Both
d. Don't Know

31.*A*. Was the **lump sum payment** …
a. Not applicable – I did not receive a lump sum payment
b. Less than $7,000
c. $7,000 to $13,499
d. $13,500 to $49,999
e. $50,000 to $69,999
f. Greater than $70,000
g. My contract does not permit me to say
h. Don't Know

31.*B.* Is the annual total of **regular payments**…
a. Not applicable – I do not receive regular payments
b. Less than $1,300
c. $1,300 to $6,999
d. $7,000 to $13,499
e. $13,500 to $34,000
f. Greater than $34,000
g. My contract does not permit me to say
h. Don't Know

32. The amount of community-level benefits received from the wind project is fair.
Strongly Disagree Disagree Neutral Agree Strongly Agree Don't know

33. The benefits from the local wind energy project are fairly distributed between members of the community.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't know

34. How do you feel the wind project has affected the value of your property?
    a. Not applicable – I do not own property
    b. Increased
    c. Stayed the same
    d. Decreased
    e. Don't know

Section 4: Wind Energy Development Preferences

*Imagine you do not have a local wind energy development near you currently. The following are two scenarios for a 10-turbine (30 Megawatt) project with associated questions. That is, these are **hypothetical examples to elicit your preferences**. You can provide written thoughts on the scenarios in a box at the end of this questionnaire.*

Wind Energy Development Scenario 1, Developer-Led Project

1. **Global developer/investor**:
   The developer AcmeWind is an overseas company with a long history in the wind energy industry.
2. **Turbine location decisions before public announcement**:
   Decisions about where the 10 turbines will be located will be made between individual landowners and Acmewind ahead of the first major public meeting. Landowners who provide space for turbines on their land will receive monthly lease payments.
3. **Open houses as community engagement pre-construction**:
   After the deals about turbine locations are made with leaseholder-landowners, there will be two local public open houses to inform you about the project and receive feedback. Decisions are made by AcmeWind with the approval of the relevant authorities.
4. **Global investment – discount for locals**:
   While 51% of the profits will go to AcmeWind shareholders, the remaining 49% will be for any other investor interested in buying shares ($1,000 per share), with locals within 10 km receiving a discount ($800 per share). AcmeWind will have the controlling stake in the project.
5. **Community-level benefits package**:
   The municipality will receive $200,000 per year for community development projects. No money will be paid directly to households.

35. I **support** this kind of development model.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

36. The **community engagement** process is fair.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

37. If I lived in this community, I would take advantage of the available **opportunities to be involved** in the development.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

38. The amount of **time required** for me to engage with this project is acceptable.
    Strongly disagree Disagree Neutral Agree Strongly Agree

39. The process for deciding **where the turbines go** is fair
    Strongly disagree Disagree Neutral Agree Strongly Agree

40. The way the **benefits** are distributed is fair.
    Strongly disagree Disagree Neutral Agree Strongly Agree

41. If you lived in this community, within 5km of these turbines, what would best represent how this development process **makes you feel**?
    a. Proud
    b. Fearful
    c. Hopeful
    d. Helpless
    e. Angry
    f. Content
    g. None of the Above
    h. Don't Know

Wind Energy Development Scenario 2, Community-Based Project

1. **Local Developer/Investors**:
   A group of community members is co-creating LocalWind, a project facilitated by hiring Co-opWind, an experienced wind developer who is paid only a consulting fee.
2. **Turbine location decisions after public announcement**:
   Decisions about where the 10 turbines will be located will be make through LocalWind and involve all interested nearby residents. Landowners will receive annual lease payments as in Scenario 1.
3. **Collaborative community decision-making pre-construction**:
   Several (as many as necessary) LocalWind meetings will be held to shape the project with the non-shareholder locals invited to most of them. Decisions will be made by shareholder votes with the approval of the relevant authorities.
4. **Community co-op investment only**:
   Only local people may invest in the project and all profits are split between investors and the broader community members. As the project is 100% community owned, you can join the co-operative and qualify to receive a return on investment and vote in decision-making at $200 per share.
5. **Community-level and household-level benefits package**:
   The municipality will receive $100,000 per year for community development projects. Those who do not invest and live within 2km of the turbines, will receive no less than $1,000 per year directly, but possibly more depending on how much electricity the development generates.

42. I **support** this kind of development model.
    Strongly disagree Disagree Neutral Agree Strongly Agree

43. The **community engagement** process is fair.
    Strongly disagree Disagree Neutral Agree Strongly Agree

44. If I lived in this community, I would take advantage of the available **opportunities to be involved** in the development.
    Strongly disagree Disagree Neutral Agree Strongly Agree

45. The amount of **time required** for me to engage with this project is acceptable.
    Strongly disagree Disagree Neutral Agree Strongly Agree

46. The process for deciding **where the turbines go** is fair
    Strongly disagree Disagree Neutral Agree Strongly Agree

47. The way the **benefits** are distributed is fair.
    Strongly disagree Disagree Neutral Agree Strongly Agree

48. If you were in this community, what would best represent how this development process **makes you feel**?
    a. Proud
    b. Fearful
    c. Hopeful
    d. Helpless
    e. Angry
    f. Content
    g. None of the Above
    h. Don't Know

Section 5: Preferred Scenario and Benefits Distribution
The following questions more generally seek to understand the aspects of an energy project that are most important to you.

49. Which of the two development scenarios described above do you **prefer**?
    a) Development Scenario 1 (Developer-led project)
    b) Development Scenario 2 (Community-based project)

50. We would like to know which of the following core aspects of wind energy development are **most important** to you. Please rank the following. (1 is most important, 3 is least important. Use each number only once)
    a. Investment source (global, local) ____
    b. Decision making (developer, residents ____
    c. Benefits distribution (private, community) ____

51. Which **investment source** do you prefer?
    a. Majority global
    b. Majority local

52. Which form of **decision-making** do you prefer?
    a. Developer investors as the primary decision-maker
    b. Local investors as the primary decision-maker

53. Where would you prefer to see the majority of non-shareholder/non-investor **benefits** go?
    a. Community projects (e.g., open space, schools, buildings, wildlife enhancement)
    b. Individuals (e.g., lump sum, annual, or monthly payments; reductions in electricity bills)

54. Which of the following **individualized benefit models** do you prefer?
    a. Lump sum payment
    b. Regular payments
    c. Decreased electricity cost
    d. Such benefits are not appropriate
    e. Don't know

55. How would you prefer that decisions are made about how **collective benefits** are distributed? Rank the following options. (1 is most preferred, 4 is least preferred. Leave 'other' as 4 if not being used. Use each number only once)
    a. Municipal government ___
    b. Existing, established local organization ___
    c. Elected committee formed specifically for this purpose ___
    d. Other_____ ___

56. If you had to live near an energy project (within 5km), which would you prefer? Please rank the following options. (1 is most preferred, 5 is least preferred. Leave 'other' as 5 if not being used. Use each number only once)
    a. 10+ turbine wind energy project ___
    b. Nuclear power plant ___
    c. Coal plant ___
    d. Natural gas plant ___
    e. 1+ acre solar project ___

57. In general, the development of wind projects in my region should be... (Select only one)
    a. Encouraged and promoted
    b. Allowed in the rarest of circumstances
    c. Prohibited
    d. Don't know

58. I think that the negative impacts of climate change warrant the creation of renewable energy projects.
    Strongly disagree Disagree Neutral Agree Strongly Agree

59. I consider wind energy to be an effective means to help reduce the negative impacts of climate change.
    Strongly disagree Disagree Neutral Agree Strongly Agree

Section 6: Demographic Information

This section of the survey is for demographic purposes only, so we can describe the group of people who responded to the survey. As a reminder, ***all of your answers are kept completely confidential and no identifying information is being collected.***

60. What is your gender?
    Man Woman Other (please specify): _____ Prefer not to say

61. What is your age?
    a. 18-29
    b. 30-44
    c. 45-59

d. 60-74
e. 75+

62. What is the highest level of education you have completed? (Select only one)
    a. Some high school but no diploma
    b. High school diploma or equivalent
    c. College or University degree
    d. Graduate or Professional degree

63. Which of the following best describes your current employment status? If your employment was terminated recently as a direct result of the COVID-19 pandemic, please indicate the employment status you occupied for the majority of the last 2 years prior to the pandemic.
    a. Employed full-time
    b. Employed part-time
    c. Unemployed and looking for work
    d. Unemployed and not looking for work
    e. Retired
    f. Homemaker/manage your home
    g. Student
    h. Something else (please specify) _____

64. In the last two years, on average, did you work any part of your week at home?
1-10 hours 11-20 hours 21-35 hours Full-time from home I do not work at home

65. Which of the following categories best describes your total annual household income before taxes for 2019?
    a. Less than $25,000
    b. $25,000 to $33,999
    a. $34,000 to $67,999
    b. $68,000 to $99,999
    c. $100,000 to $134,999
    d. $135,000 to $199,999
    e. $200,000 to $259,999
    f. $260,000 to $339,999
    g. Greater than $340,000
    h. Don't Know

66. What is your postcode? __ __ __ __ __ __

Please let us know anything else regarding the issues covered in the questionnaire:

_____
_____
_____
_____
_____
_____

THANK YOU VERY MUCH FOR PROVIDING VALUABLE INFORMATION ABOUT LIVING NEAR A WIND ENERGY PROJECT!

Entry to the Draw

Please put your email below if you would like to be entered into a draw to win one of four $100 gift cards of your choice (Local grocery store chain, Amazon, Starbucks, Tim Hortons, Canadian Tire).

As a reminder, the contact information you provide here will be stored separately from your questionnaire. The two will not be linked in any way after they are received. After winners for the draw have been determined, the paper version of these entries will be destroyed and the Qualtrics entries deleted.

Email: _____

Appendix 3: Descriptive Statistics (Dependent Variable)

Variable	Descriptive Statistics			Crosstabs	
	Count	Mean		Chi Square (significance)	
		Percent With Missing	Percent Without Missing	Not Positive Toward Local Project: Count (expected count) – percent	Positive Toward Local Project: Count (expected count) – percent
Section 1					
1.Province	**n=362**	**1.47**	**1.47**	**Chi Square 40.128 (.001)**	
Ontario (0)	192	53%	53%	111 (82) – 73%	79 (108) – 39%
Nova Scotia (1)	170	47%	47%	41 (70) – 27%	123 (94) – 61%
1a.Project Site Type	**N=362**	**0.48**	**0.48**	**Chi Square .046 (.831)**	
Developer-Led (0)	190	52%	52%	80 (79) – 53%	104 (105) – 51%
Community-Based (1)	172	48%	48%	72 (73) – 47%	98 (97) – 49%
1a.Project Site Type	**N=362**	**0.48**	**0.48**	**Chi Square 41.697 (.001)**	
Ontario Community-Based	94	27%	27%	53 (40) – 35%	41 (54) – 20%
Ontario Developer-Led	95	27%	27%	58 (41) – 38%	37 (54) – 18%
Nova Scotia Community-Based	76	22%	22%	19 (33) – 12%	57 (43) – 28%
Nova Scotia Developer-Led	89	25%	25%	22 (38) – 15%	67 (51) – 33%
1a.Project Site	**n=362**	**3.07**	**3.07**	**Chi Square 50.497 (.001)**	
Gunn's Hill (1)	94	26%	26%	53 (40) – 35%	41 (54) – 20%
Ernestown (2)	52	14%	14%	24 (22) – 16%	27 (29) – 13%
Port Ryerse (3)	45	12%	12%	34 (19) – 22%	10 (25) – 5%
Ellershouse (4)	78	22%	22%	19 (33) – 13%	57 (43) – 28%
Terence Bay (5)	93	26%	26%	22 (38) – 14%	67 (51) – 33%
2.Moved in before turbine construction	**n=362**	**1.81**	**1.81**	**Chi Square .821 (.663)**	
No (1)	99	27%	27%	38 (41) – 25%	57 (54) – 28%
Yes (2)	234	65%	65%	104 (100) – 68%	129 (133) – 64%
Don't know (3)	29	8%	8%	10 (11) – 7%	16 (15) – 8%
2.Moved in before turbine construction (collapsed)	**n=362**	**0.65**	**0.65**	**Chi Square .802 (.371)**	
Other (0)	128	35%	35%	48 (52) – 32%	73 (69) – 36%
Yes (1)	234	65%	65%	104 (100) – 68%	129 (133) – 64%
3.Turbine on personal property	**n=361**	**1.03**	**1.03**	**Chi Square 2.312 (.315)**	
No (1)	353	98%	98%	150 (149) – 99%	195 (196) – 97%
Yes (2)	5	1%	1%	2 (2) – 1%	3 (3) – 2%
Don't know (3)	3	1%	1%	0 (1) – 0%	3 (2) – 2%
Missing	1	0%			
3.Turbine on personal property (collapsed)	**N=361**	**0.01**	**0.01**	**Chi Square .019 (.889)**	
Other (0)	356	99%	99%	150 (150) – 99%	198 (198) – 99%
Yes (1)	5	1%	1%	2 (2) – 1%	3 (3) – 1%

Missing	1	0%			
4.Feel connectedness to community	**n=360**	**4.09**	**4.09**	**Chi Square 3.225 (.521)**	
Strongly disagree (1)	7	2%	2%	2 (3) – 1%	5 (4) – 3%
Disagree (2)	5	1%	1%	2 (2) – 1%	3 (3) – 1%
Neutral (3)	59	16%	16%	28 (25) - 19%	29 (32) – 14%
Agree (4)	165	46%	46%	62 (69) – 41%	98 (91) – 49%
Strongly agree (5)	124	34%	34%	57 (53) – 38%	66 (70) – 33%
Missing	2	1%			
4.Feel connectedness to community (collapsed)	**n=360**	**2.77**	**2.77**	**Chi Square 1.433 (.488)**	
Disagree (1)	12	3%	3%	4 (5) – 3%	8 (7) – 4%
Neutral (2)	59	16%	16%	28 (25) – 18%	29 (32) – 14%
Agree (3)	289	80%	80%	119 (121) – 79%	164 (162) – 82%
Missing	2	1%			
Section 2					
5.Found out too late to influence decision-making	**n=355**	**3.86**	**3.86**	**Chi Square 21.617 (.001)**	
Strongly disagree (1)	35	10%	10%	8 (15) – 5%	27 (20) – 13%
Disagree (2)	49	14%	14%	20 (21) – 13%	29 (28) – 14%
Neutral (3)	61	17%	17%	28 (26) – 19%	33 (35) – 16%
Agree (4)	78	21%	22%	34 (33) – 23%	43 (44) – 21%
Strongly agree (5)	50	14%	14%	33 (21) – 22%	16 (28) – 8%
Unaware (6)	82	23%	23%	26 (34) – 17%	54 (46) – 27%
Missing	7	2%			
5.Found out too late to influence decision-making (collapsed)	**n=355**	**2.59**	**2.59**	**Chi Square 12.329 (.006)**	
Disagree (1)	84	23%	24%	28 (36) – 19%	56 (48) – 28%
Neutral (2)	61	17%	17%	28 (26) – 19%	33 (35) – 16%
Agree (3)	128	35%	36%	67 (54) – 45%	59 (73) – 29%
Unaware (4)	82	23%	23%	26 (34) – 17%	54 (46) – 27%
Missing	7	2%			
6.Personally had a meaningful influence	**n=355**	**3.15**	**3.15**	**Chi Square 28.392 (.001)**	
Strongly disagree (1)	85	24%	24%	55 (36) – 37%	29 (48) – 14%
Disagree (2)	83	23%	23%	35 (35) – 24%	48 (48) – 24%
Neutral (3)	72	20%	20%	27 (31) – 18%	45 (41) – 22%
Agree (4)	15	4%	4%	3 (6) – 2%	12 (9) – 6%
Strongly agree (5)	9	2%	3%	2 (3) – 1%	6 (5) – 3%
Unaware (6)	91	25%	26%	27 (38) – 18%	62 (51) – 31%
Missing	7	2%			
6. Personally had a meaningful influence (collapsed)	**n=355**	**2.11**	**2.11**	**Chi Square 19.055 (.001)**	
Disagree (1)	168	46%	47%	90 (71) – 60%	77 (96) – 38%
Neutral (2)	72	20%	20%	27 (31) – 18%	45 (41) – 22%
Agree (3)	24	7%	7%	5 (10) – 3%	18 (13) – 9%
Unaware (4)	91	25%	26%	27 (38) – 18%	62 (51) – 31%
Missing	7	2%			
7.No desire to influence decision-making	**n=352**	**3.29**	**3.29**	**Chi Square 30.237 (.001)**	
Strongly disagree (1)	46	13%	13%	34 (19) – 23%	11 (26) – 6%
Disagree (2)	84	23%	24%	38 (36) – 26%	46 (48) – 23%
Neutral (3)	81	22%	23%	35 (34) – 24%	46 (47) – 23%

Agree (4)	63	17%	18%	16 (26) – 11%	45 (35) – 22%
Strongly agree (5)	20	6%	6%	6 (8) – 4%	14 (12) – 7%
Unaware (6)	58	16%	17%	19 (24) – 13%	38 (33) – 19%
Missing	10	3%			
7. No desire to influence decision-making (collapsed)	**n=352**	**2.20**	**2.20**	**Chi Square 19.130 (.001)**	
Disagree (1)	130	36%	37%	72 (55) – 49%	57 (74) – 28%
Neutral (2)	81	22%	23%	35 (34) – 24%	46 (47) – 23%
Agree (3)	83	23%	24%	22 (34) – 15%	59 (47) – 30%
Unaware (4)	58	16%	17%	19 (24) – 13%	38 (33) – 19%
Missing	10	3%			
8.Developer was transparent with community	**n=336**	**4.54**	**4.54**	**Chi Square 69.383 (.001)**	
Strongly disagree (1)	22	6%	7%	22 (10) – 15%	0 (12) – 0%
Disagree (2)	32	9%	10%	25 (14) – 17%	6 (17) – 3%
Neutral (3)	39	11%	12%	18 (17) – 12%	21 (22) – 11%
Agree (4)	61	17%	18%	13 (27) – 9%	48 (34) – 26%
Strongly agree (5)	14	4%	4%	0 (6) – 0%	14 (8) – 8%
Unaware (6)	168	46%	50%	68 (73) – 47%	98 (93) – 52%
Missing	26	7%			
8. Developer was transparent with community (collapsed)	**n=336**	**3.06**	**3.06**	**Chi Square 65.325 (.001)**	
Disagree (1)	54	15%	16%	47 (23) – 32%	6 (30) – 3%
Neutral (2)	39	11%	12%	18 (17) – 12%	21 (22) – 11%
Agree (3)	75	21%	22%	13 (33) – 9%	62 (42) – 33%
Unaware (4)	168	46%	50%	68 (73) – 47%	98 (93) – 52%
Missing	26	7%			
9. Planning authority was transparent with community	**n=338**	**4.49**	**4.49**	**Chi Square 84.012 (.001)**	
Strongly disagree (1)	28	8%	8%	28 (12) – 19%	0 (16) – 0%
Disagree (2)	31	9%	9%	25 (13) – 17%	5 (17) – 3%
Neutral (3)	35	10%	10%	17 (15) – 12%	18 (20) – 10%
Agree (4)	65	18%	19%	11 (28) – 7%	54 (37) – 29%
Strongly agree (5)	11	3%	3%	0 (5) – 0%	11 (6) – 6%
Don't know (6)	168	46%	50%	66 (73) – 45%	100 (93) – 53%
Missing	24	7%			
9. Planning authority was transparent with community (collapsed)	**n=338**	**3.06**	**3.06**	**Chi Square 81.285 (.001)**	
Disagree (1)	59	16%	18%	53 (26) – 36%	5 (32) – 3%
Neutral (2)	35	10%	10%	17 (15) – 12%	18 (20) – 10%
Agree (3)	76	21%	22%	11 (33) – 7%	65 (43) – 35%
Unaware (4)	168	46%	50%	66 (73) – 45%	100 (93) – 53%
Missing	24	7%			
10.Community had a meaningful say in project	**n=354**	**3.78**	**3.78**	**Chi Square 106.932 (.001)**	
Strongly disagree (1)	48	13%	14%	47 (21) – 31%	1 (27) – 0%
Disagree (2)	55	15%	16%	37 (23) – 25%	17 (31) – 9%
Neutral (3)	79	22%	22%	23 (34) – 15%	56 (45) – 28%
Agree (4)	40	11%	11%	6 (17) – 4%	34 (2) – 17%

Strongly agree (5)	10	3%	3%	0 (4) – 0%	10 (6) – 5%
Unaware (6)	122	34%	34%	37 (51) – 25%	82 (68) – 41%
Missing	8	2%			
10.Community had a meaningful say in project (collapsed)	**n=354**	**2.54**	**2.54**	**Chi Square 97.229 (.001)**	
Disagree (1)	103	28%	29%	84 (44) – 56%	18 (58) – 9%
Neutral (2)	79	22%	22%	23 (34) – 15%	56 (45) – 28%
Agree (3)	50	14%	14%	6 (21) – 4%	44 (29) – 22%
Unaware (4)	122	34%	35%	37 (51) – 25%	82 (68) – 41%
Missing	8	2%			
11.Planning process was fair	**n=353**	**3.99**	**3.99**	**Chi Square 117.993 (.001)**	
Strongly disagree (1)	40	11%	11%	40 (17) – 27%	0 (23) – 0%
Disagree (2)	40	11%	11%	34 (17) – 23%	5 (22) – 3%
Neutral (3)	77	21%	22%	26 (33) – 17%	51 (44) – 26%
Agree (4)	54	15%	15%	8 (23) – 5%	46 (31) – 23%
Strongly agree (5)	11	3%	3%	0 (5) – 0%	11 (6) – 5%
Unaware (6)	131	36%	37%	42 (55) – 28%	86 (73) – 43%
Missing	9	3%			
11.Planning process was fair (collapsed)	**n=353**	**2.70**	**2.70**	**Chi Square 115.850 (.001)**	
Disagree (1)	80	22%	23%	74 (34) – 49%	5 (45) – 2%
Neutral (2)	77	21%	22%	26 (33) – 17%	51 (44) – 26%
Agree (3)	65	18%	18%	8 (28) – 5%	57 (37) – 29%
Unaware (4)	131	36%	37%	42 (55) – 28%	86 (73) – 43%
Missing	9	3%			
12.Construction process was annoying	**n=354**	**3.64**	**3.64**	**Chi Square 82.739 (.001)**	
Strongly disagree (1)	30	8%	9%	5 (13) – 3%	25 (17) – 12%
Disagree (2)	95	26%	27%	24 (41) – 16%	71 (54) – 35%
Neutral (3)	79	22%	22%	46 (34) – 31%	33 (45) – 17%
Agree (4)	22	6%	6%	19 (9) – 13%	2 (12) – 1%
Strongly agree (5)	23	6%	6%	23 (10) – 15%	0 (13) – 0%
Unaware (6)	105	29%	30%	33 (44) – 22%	69 (58) – 34%
Missing	8	2%			
12. Construction process was annoying (collapsed)	**n=354**	**2.37**	**2.37**	**Chi Square 81.644 (.001)**	
Disagree (1)	125	35%	35%	29 (54) – 19%	96 (71) – 48%
Neutral (2)	79	22%	22%	46 (34) – 31%	33 (45) – 17%
Agree (3)	45	12%	13%	42 (19) – 28%	2 (25) – 1%
Unaware (4)	105	29%	30%	33 (44) – 22%	69 (58) – 34%
Missing	8	2%			
13.Developer is trustworthy	**n=334**	**4.70**	**4.70**	**Chi Square 64.457 (.001)**	
Strongly disagree (1)	17	5%	5%	17 (7) – 12%	0 (10) – 0%
Disagree (2)	15	4%	5%	13 (6) – 9%	1 (8) – 0%
Neutral (3)	68	19%	20%	34 (30) – 23%	34 (38) – 18%
Agree (4)	36	10%	11%	3 (16) – 2%	33 (20) – 18%
Strongly agree (5)	12	3%	4%	0 (5) – 0%	12 (7) – 7%
Don’t know (6)	186	51%	56%	78 (81) – 54%	106 (103) – 57%
Missing	28	8%			
13.Developer is trustworthy (collapsed)	**n=334**	**3.16**	**3.16**	**Chi Square 64.044 (.001)**	
Disagree (1)	32	9%	10%	30 (14) – 21%	1 (17) – 0%
Neutral (2)	68	19%	20%	34 (30) – 23%	34 (38) – 18%

Agree (3)	48	13%	14%	3 (21) – 2%	45 (27) – 24%
Don't know (4)	186	51%	56%	78 (81) – 54%	106 (103) – 57%
Missing	28	8%			
14.Planning authority was trustworthy	**n=335**	**4.55**	**4.55**	**Chi Square 82.114 (.001)**	
Strongly disagree (1)	21	6%	6%	21 (9) – 14%	0 (12) – 0%
Disagree (2)	19	5%	6%	18 (8) – 12%	0 (10) – 0%
Neutral (3)	64	18%	19%	31 (28) – 21%	33 (36) – 18%
Agree (4)	51	14%	15%	4 (22) – 3%	47 (29) – 25%
Strongly agree (5)	10	3%	3%	1 (4) – 1%	9 (6) – 5%
Don't know (6)	170	47%	51%	71 (74) – 49%	97 (94) – 52%
Missing	27	7%			
14.Planning authority was trustworthy (collapsed)	**n=335**	**3.08**	**3.08**	**Chi Square 82.098 (.001)**	
Disagree (1)	40	11%	12%	39 (17) – 27%	0 (22) – 0%
Neutral (2)	64	18%	19%	31 (28) – 21%	33 (36) – 18%
Agree (3)	61	17%	18%	5 (27) – 3%	56 (34) – 30%
Don't know (4)	170	47%	51%	71 (74) – 49%	97 (94) – 52%
Missing	27	7%			
15a.Trustworthy information sources (top 1, 2, or 3)	**n= variable**	**N/A**		Chi Square significance cited below, *p=.050, **p=.005	
Leaseholders	59	16%	17%	24 (25) – 17%	35 (34) – 18%
Developers	66	18%	19%	14 (28) – 10%**	52 (38) – 27%**
Local government	188	52%	55%	56 (80) – 39%**	130 (106) – 68%**
Provincial government	102	28%	30%	22 (44) – 15%**	80 (58) – 42%**
Federal government	55	15%	16%	13 (23) – 9%**	41 (31) – 21%**
Local news or media	150	41%	44%	61 (63) – 42%	86 (84) – 45%
Concerned citizen websites	125	35%	37%	71 (54) – 49%**	54 (71) – 28%**
Family & friends	91	25%	27%	55 (39) – 38%**	35 (51) – 18%**
Other	22	6%	7%	14 (9) – 10%*	8 (13) – 4%*
Missing	22	6%			
15b.Untrustworthy information sources (top 1, 2, or 3)	**n= variable**	**N/A**		Chi Square significance cited below, *p=.050, **p=.005	
Leaseholders	132	37%	40%	59 (56) – 42%	71 (74) – 38%
Developers	205	57%	62%	105 (88) – 74%**	98 (115) – 53%**
Local government	59	16%	18%	36 (26) – 25%**	23 (34) – 12%**
Provincial government	121	33%	37%	75 (52) – 53%**	45 (68) – 24%**
Federal government	94	26%	28%	51 (41) – 36%*	43 (53) – 23%*

Local news or media	64	18%	19%	14 (27) – 10%**	49 (36) – 26%**
Concerned citizen websites	95	26%	29%	18 (41) – 13%**	77 (54) – 41%**
Family & friends	67	19%	20%	20 (29) – 14%*	46 (37) – 25%*
Other	18	5%	5%	6 (6) – 4%	8 (8) – 4%
Missing	31	9%			
16.Adequate access to project information	**n=353**	**2.76**	**2.76**	**Chi Square 23.403 (.001)**	
Strongly disagree (1)	58	16%	16%	36 (25) – 24%	22 (33) – 11%
Disagree (2)	77	21%	22%	42 (33) – 28%	35 (44) – 18%
Neutral (3)	124	34%	35%	49 (53) – 32%	74 (70) – 37%
Agree (4)	79	22%	22%	20 (34) – 13%	58 (44) – 29%
Strongly agree (5)	15	4%	4%	5 (6) – 3%	10 (9) – 5%
Missing	9	3%			
16.Adequate access to project information (collapsed)	**n=353**	**1.88**	**1.88**	**Chi Square 22.337 (.001)**	
Disagree (1)	135	37%	38%	78 (59) – 51%	57 (76) – 29%
Neutral (2)	124	34%	35%	49 (53) – 32%	74 (70) – 37%
Agree (3)	94	26%	27%	25 (40) – 16%	68 (53) – 34%
Missing	9	3%			
17.Change in attitude from planning process	**n=320**	**2.76**	**2.76**	**Chi Square 117.300 (.001)**	
Much more negative (1)	44	12%	14%	42 (20) – 29%	2 (24) – 1%
More negative (2)	36	10%	11%	33 (16) – 23%	3 (20) – 2%
The same (3)	205	57%	64%	68 (92) – 48%	137 (113) – 77%
More positive (4)	23	6%	7%	0 (10) – 0%	23 (13) – 13%
Much more positive (5)	12	3%	4%	0 (5) – 0%	12 (7) – 7%
Missing	42	12%			
17. Change in attitude from planning process (collapsed)	**n=320**	**1.86**	**1.86**	**Chi Square 117.185 (.001)**	
Negative (1)	80	22%	25%	75 (36) – 52%	5 (44) – 3%
Neutral (2)	205	57%	64%	68 (92) – 48%	137 (113) – 77%
Positive (3)	35	10%	11%	0 (16) – 0%	35 (19) – 20%
Missing	42	12%			
18.Current attitude about turbines	**n=354**	**3.44**	**3.44**	**Chi Square 354.000 (.001)**	
Very negative (1)	44	12%	13%	44 (19) – 29%	0 (25) – 0%
Negative (2)	39	11%	11%	39 (17) – 26%	0 (22) – 0%
Neutral (3)	69	19%	20%	69 (30% - 45%	0 (39) – 0%
Positive (4)	121	33%	34%	0 (52) – 0%	121 (69) – 60%
Very positive (5)	81	22%	23%	0 (35) – 0%	81 (46) – 40%
Missing	8	2%			
18.Current attitude about turbines (collapsed)	**n=354**	**2.34**	**2.34**	**Chi Square 354.000 (.001)**	
Negative (1)	83	23%	23%	8 3(36) – 55%	0 (47) – 0%
Neutral (2)	69	19%	20%	69 (30% - 45%	0 (39) – 0%
Positive (3)	202	56%	57%	0 (87) – 0%	202 (115) – 100%

Missing	8	2%			
19.Attitude about turbines pre-construction	**n=348**	**3.26**	**3.26**	**Chi Square 161.833 (.001)**	
Very negative (1)	35	10%	10%	35 (15) – 23%	0 (20) – 0%
Negative (2)	53	15%	15%	45 (23) – 30%	7 (29) – 4%
Neutral (3)	103	28%	30%	56 (45) – 37%	47 (58) – 24%
Positive (4)	100	28%	29%	14 (44) – 9%	86 (56) – 44%
Very positive (5)	57	16%	16%	2 (25) – 1%	55 (32) – 28%
Missing	14	4%			
19.Attitude about turbines pre-construction (collapsed)	**n=348**	**3.20**	**3.20**	**Chi Square 158.670 (.001)**	
Negative (1)	88	24%	25%	80 (38) – 53%	7 (49) – 4%
Neutral (2)	103	29%	30%	56 (45) – 37%	47 (58) – 24%
Positive (3)	157	43%	45%	16 (69) – 10%	141 (88) – 72%
Missing	14	4%			
20.Relationship with leaseholders	**n=348**	**3.16**	**3.16**	**Chi Square 57.823 (.001)**	
Very negative (1)	9	3%	3%	9 (4) – 6%	0 (5) – 0%
Negative (2)	23	6%	7%	23 (10) – 15%	0 (13) – 0%
Neutral (3)	242	67%	70%	104 (105) – 69%	136 (135) – 70%
Positive (4)	52	14%	15%	11 (23) – 7%	41 (29) – 21%
Very positive (5)	22	6%	6%	4 (10) – 3%	18 (12) – 9%
Missing	14	4%			
20.Relationship with leaseholders (collapsed)	**n=348**	**2.12**	**2.12**	**Chi Square 57.768 (.001)**	
Negative (1)	32	9%	9%	32 (14) – 21%	0 (18) – 0%
Neutral (2)	242	67%	70%	104 (105) – 69%	136 (135) – 70%
Positive (3)	74	20%	21%	15 (32) – 10%	59 (42) – 30%
Missing	14	4%			
21.Leaseholders were unfairly blamed	**n=346**	**2.95**	**2.95**	**Chi Square 15.760 (.001)**	
Strongly disagree (1)	17	5%	5%	14 (7) – 9%	3 (10) – 1%
Disagree (2)	47	13%	14%	23 (20) – 15%	24 (27) – 12%
Neutral (3)	222	61%	64%	89 (95) – 60%	131 (125) – 67%
Agree (4)	55	15%	16%	23 (24) – 15%	32 (31) – 16%
Strongly agree (5)	5	1%	1%	0 (2) – 0%	5 (3) – 3%
Missing	16	4%			
21.Leaseholders were unfairly blamed (collapsed)	**n=346**	**1.99**	**1.99**	**Chi Square 6.818 (.001)**	
Disagree (1)	64	18%	19%	37 (28) – 25%	27 (36) – 14%
Neutral (2)	222	61%	64%	89 (95) – 60%	131 (125) – 67%
Agree (3)	60	17%	17%	23 (26) – 15%	37 (34) – 19%
Missing	16	4%			
22.Initial reaction to turbines	**n=338**	**4.38**	**4.38**	**Chi Square 167.582 (.001)**	
Angry (1)	37	10%	11%	37 (16) – 25%	0 (21) – 0%
Fearful (2)	20	6%	6%	16 (9) – 11%	4 (11) – 2%
Helpless (3)	42	12%	12%	38 (18) – 26%	3 (23) – 2%
Content (4)	33	9%	10%	8 (14) – 5%	25 (19) – 13%

Hopeful (5)	130	35%	38%	28 (57) – 19%	102 (73) – 54%
Proud (6)	49	14%	15%	2 (21) – 1%	47 (28) – 25%
None of the above (7)	13	4%	4%	10 (6) – 7%	3 (7) – 2%
Don't know (8)	14	4%	4%	8 (6) – 5%	6 (8) – 3%
Missing	24	7%			
22.Initial reaction to turbines (collapsed)	**n=339**	**1.77**	**1.77**	**Chi Square 161.616 (.001)**	
Negative (1)	102	28%	30%	93 (44) – 63%	8 (57) – 4%
Positive (2)	212	59%	63%	37 (92) – 25%	175 (120) – 92%
Don't know (3)	25	7%	7%	17 (11) – 12%	8 (14) – 4%
Missing	23	6%			
23.Reaction during construction	**n=346**	**4.46**	**4.46**	**Chi Square 174.621 (.001)**	
Angry (1)	51	14%	15%	51 (22) – 34%	0 (29) – 0%
Fearful (2)	13	4%	4%	11 (6) – 7%	2 (7) – 1%
Helpless (3)	36	10%	10%	31 (15) – 21%	4 (20) – 2%
Content (4)	52	14%	15%	13 (23) – 9%	39 (29) – 20%
Hopeful (5)	79	22%	23%	17 (34) – 11%	62 (45) – 32%
Proud (6)	68	19%	20%	2 (30) – 1%	66 (38) – 34%
None of the above (7)	30	8%	9%	17 (13) – 11%	13 (17) – 7%
Don't know (8)	17	5%	5%	8 (7) – 5%	9 (10) – 5%
Missing	16	4%			
23.Reaction during construction (collapsed)	**n=347**	**1.84**	**1.84**	**Chi Square 165.353 (.001)**	
Negative (1)	102	28%	29%	94 (44) – 63%	7 (57) – 4%
Positive (2)	198	55%	57%	31 (86) – 21%	167 (112) – 85%
Don't know (3)	47	13%	14%	25 (20) – 17%	22 (27) – 11%
Missing	15	4%			
24.Reaction to turbines now	**n=348**	**4.43**	**4.43**	**Chi Square 191.417 (.001)**	
Angry (1)	44	12%	13%	44 (19) – 30%	0 (25) – 0%
Fearful (2)	5	1%	1%	5 (2) – 3%	0 (3) – 0%
Helpless (3)	38	11%	11%	35 (16) – 24%	2 (21) – 1%
Content (4)	84	23%	24%	20 (36) – 14%	64 (48) – 32%
Hopeful (5)	72	20%	21%	18 (30) – 12%	54 (42) – 27%
Proud (6)	72	20%	21%	1 (30) - 1%	71 (42) – 36%
None of the above (7)	19	5%	5%	15 (8) – 10%	4 (11) – 2%
Don't know (8)	14	4%	4%	9 (6) – 6%	5 (8) – 2%
Missing	14	4%			
24.Reaction to turbines now (collapsed)	**n=348**	**1.84**	**1.84**	**Chi Square 176.355 (.001)**	
Negative (1)	89	25%	26%	85 (37) – 58%	3 (51) – 1%
Positive (2)	227	63%	65%	39 (96) – 26%	188 (131) – 94%
Don't know (3)	32	9%	9%	23 (14) – 16%	9 (18) – 5%
Missing	14	4%			
25.Turbines are attractive in the landscape	**n=352**	**2.79**	**2.79**	**Chi Square 167.293 (.001)**	
Strongly disagree (1)	78	22%	22%	74 (33) – 49%	3 (44) – 1%
Disagree (2)	66	18%	19%	39 (28) – 26%	27 (38) – 14%
Neutral (3)	85	24%	24%	31 (37) – 20%	54 (48) – 27%
Agree (4)	98	27%	28%	7 (42) – 5%	91 (56) – 46%
Strongly agree (5)	25	7%	7%	0 (10) – 0%	25 (14) – 12%

Missing	10	3%			
25.Turbines are attractive in the landscape (collapsed)	**n=352**	**1.94**	**1.94**	**Chi Square 147.017 (.001)**	
Disagree (1)	144	40%	41%	113 (62) – 75%	30 (81) – 15%
Neutral (2)	85	23%	24%	31 (37) – 20%	54 (48) – 27%
Agree (3)	123	34%	35%	7 (53) – 5%	116 (70) – 58%
Missing	10	3%			
26.Support extending turbine lifetime	**n=353**	**3.39**	**3.39**	**Chi Square 169.193 (.001)**	
Strongly disagree (1)	57	16%	16%	57 (24) – 38%	0 (33) – 0%
Disagree (2)	22	6%	6%	16 (9) – 11%	6 (13) – 3%
Neutral (3)	59	16%	17%	42 (25) – 28%	17 (34) – 8%
Agree (4)	157	43%	45%	30 (66) – 20%	126 (90) – 62%
Strongly agree (5)	58	16%	16%	4 (24) – 3%	53 (33) – 26%
Missing	9	3%			
26.Support extending turbine lifetime (collapsed)	**n=353**	**2.39**	**2.39**	**Chi Square 161.811 (.001)**	
Disagree (1)	79	22%	22%	73 (34) – 49%	6 (45) – 3%
Neutral (2)	59	16%	17%	42 (25) – 28%	17 (34) – 8%
Agree (3)	215	59%	61%	34 (90) – 23%	179 (123) – 89%
Missing	9	3%			
Section 3					
27.Adequate access to financial information	**n=350**	**2.47**	**2.47**	**Chi Square 41.680 (.001)**	
Strongly disagree (1)	63	17%	18%	47 (26) – 32%	15 (36) – 8%
Disagree (2)	124	34%	35%	54 (52) – 36%	68 (70) – 34%
Neutral (3)	105	29%	30%	33 (45) – 22%	72 (60) – 36%
Agree (4)	52	14%	15%	13 (22) – 9%	39 (30) – 20%
Strongly agree (5)	6	2%	2%	1 (3) – 1%	5 (3) – 2%
Missing	12	3%			
27.Adequate access to financial information (collapsed)	**n=350**	**1.63**	**1.63**	**Chi Square 24.804 (.001)**	
Disagree (1)	187	52%	53%	101 (78) – 68%	83 (106) – 42%
Neutral (2)	105	29%	30%	33 (45) – 22%	72 (60) – 36%
Agree (3)	58	16%	17%	14 (25) – 10%	44 (33) – 22%
Missing	12	3%			
28.Given the opportunity to invest in turbines	**n=350**	**1.48**	**1.48**	**Chi Square .100 (.951)**	
No (1)	253	70%	72%	109 (109) – 72%	142 (142) – 72%
Yes (2)	27	8%	8%	11 (12) – 7%	16 (15) – 8%
Don't know (3)	70	19%	20%	31 (30) – 21%	39 (40) – 20%
Missing	12	3%			
29.Chose to invest in turbines	**n=333**	**0.66**	**0.66**	**Chi Square 4.215 (.239)**	
Not applicable (0)	151	42%	45%	64 (66) – 44%	86 (84) – 47%
No (1)	160	44%	48%	76 (70) – 52%	83 (89) – 45%
Yes (2)	4	1%	1%	0 (1) – 0%	3 (2) – 2%

Don’t know (3)	18	5%	5%	6 (8) – 4%	12 (10) – 6%
Missing	29	8%			
29a.Primary reason invest in turbines	**n=351**	**0.08**	**0.08**	**Chi Square 4.708 (.453)**	
Not applicable (0)	342	95%	98%	150 (148) – 99%	190 (192) – 96%
Support renewable energy (1)	2	1%	1%	0 (1) – 0%	2 (1) – 1%
Invest in community (2)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
Wise financial investment (3)	3	1%	1%	0 (1) – 0%	2 (1) – 0%
Expand socially conscious investments (4)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
Don't know (5)	0	0%	0%	0 (0) – 0%	1 (1) – 0%
Other (6)	3	1%	1%	1 (1) – 1%	1 91) – 0%
Missing	11	3%			
29b.Primary reason not to invest in turbines	**n=352**	**0.65**	**0.65**	**Chi Square 45.539 (.001)**	
Not applicable (0)	281	78%	80%	108 (120) – 72%	170 (158) – 86%
Minimum investment too costly (1)	14	4%	4%	1 (6) – 1%	13 (8) – 7%
Inadequate information (2)	17	5%	5%	10 (7) – 7%	7 (10) – 4%
Against renewable energy (3)	2	1%	1%	2 (1) – 1%	0 (1) – 0%
Unacceptable project (4)	24	7%	7%	24 (10) – 16%	0 (14) – 0%
Small financial return (5)	4	1%	1%	2 (2) – 1%	2 (2) – 1%
Other (6)	10	3%	3%	4 (4) – 3%	6 (6) – 3%
Missing	10	3%			
29b.Primary reason not to invest in turbines (edited)	**0.20**	**0.20**	**0.20**	**Chi Square 19.515 (.001)**	
Not applicable (0)	329	91%	94%	140 (141) – 93%	186 (185) – 94%
Minimum investment too costly (1)	9	3%	3%	0 (4) – 0%	9 (5) – 5%
Inadequate information (2)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
Against renewable energy (3)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
Unacceptable project (4)	9	3%	3%	9 (4) – 6%	0 (5) – 0%
Small financial return (5)	4	1%	1%	2 (2) – 1%	2 (2) – 1%
Other (6)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
Missing	10	3%			
30.Provided direct benefits	**n=354**	**1.19**	**1.19**	**Chi Square 9.338 (.025)**	
No (1)	328	91%	93%	146 (139) – 97%	179 (186) – 89%
Yes (2)	5	1%	1%	0 (2) – 0%	5 (3) – 2%
Contract doesn’t permit me to say (3)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
Don’t know (4)	20	6%	6%	4 (8) – 3%	16 (12) – 8%
Missing	8	2%			
30.Provided direct benefits (collapsed)	**N=354**	**0.01**	**0.01**	**Chi Square 3.785 (.052)**	
Other (0)	349	96%	99%	150 (148) – 100%	196 (198) – 97%
Yes (1)	5	1%	1%	0 (2) – 0%	5 (3) – 3%
Missing	8	2%			
31.Payment type	**n=353**	**0.15**	**0.15**	**Chi Square 3.245 (.355)**	
Not applicable (0)	336	93%	95%	144 (142) – 97%	189 (191) – 94%
Lump sum (1)	2	1%	1%	1 (1) – 1%	1 (1) – 1%
Regular (2)	4	1%	1%	0 (2) – 0%	4 (2) – 2%

Don't know (3)	11	3%	3%	4 (5) – 3%	7 (6) – 3%
Missing	9	3%			
31a.Lump sum payment	**n=354**	**0.18**	**0.18**	**Chi Square 1.338 (.512)**	
Not applicable (0)	344	95%	97%	146 (147) – 97%	195 (194) – 98%
Under $7,000 (1)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
$7,000 to $13,499 (2)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
$13,500 to $49,999 (3)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
$50,000 to $69,999 (4)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
$50,000 to $69,999 (5)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
My contract does not permit me to say (6)	0	0%	0%	0 (0) – 0%	0 (0) – 0%
Don't know (7)	9	3%	3%	5 (4) – 3%	4 (5) – 2%
Missing	8	2%			
31b.Regular payment	**n=352**	**0.22**	**0.22**	**Chi Square 3.609 (.607)**	
Not applicable (0)	338	93%	96%	146 (145) – 97%	190 (191) – 96%
Less than $1300 (1)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
$1300-$6999 (2)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
$7000-$13499 (3)	1	0%	0%	0 (0) – 0%	0 (0) – 0%
$13500-$34000 (4)		0%	0%	0 (0) – 0%	0 (0) – 0%
Greater than $34000 (5)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
Contract doesn't permit me to say (6)	1	0%	0%	0 (0) – 0%	(1) – 0%
Don't know (7)	9	3%	3%	5 (4) – 3%	4 (5) – 2%
Missing	10	3%			
32.Community benefits are fair	**n=353**	**4.58**	**4.58**	**Chi Square 93.216 (.001)**	
Strongly disagree (1)	42	12%	12%	40 (18) – 27%	1 (23) – 0%
Disagree (2)	26	7%	7%	20 (11) – 13%	6 (15) – 3%
Neutral (3)	35	10%	10%	12 (15) – 8%	24 (21) – 12%
Agree (4)	36	10%	10%	2 (15) – 1%	34 (21) – 17%
Strongly agree (5)	9	2%	3%	0 (4) – 0%	9 (5) – 5%
Don't know (6)	204	56%	58%	76 (87) – 51%	126 (115) – 63%
Missing	10	3%			
32.Community benefits are fair (collapsed)	**n=353**	**3.09**	**3.09**	**Chi Square 90.358 (.001)**	
Disagree (1)	68	19%	19%	60 (29) – 40%	7 (38) – 4%
Neutral (2)	35	10%	10%	12 (15) – 8%	24 (21) – 12%
Agree (3)	45	12%	13%	2 (19) – 1%	43 (26) – 21%
Don't know (4)	204	56%	58%	76 (87) – 51%	126 (115) – 63%
Missing	10	3%			
33.Community benefits were distributed fairly	**n=345**	**4.60**	**4.60**	**Chi Square 54.925 (.001)**	
Strongly disagree (1)	45	12%	13%	40 (19) – 27%	4 (25) – 2%
Disagree (2)	28	8%	8%	15 (12) – 10%	13 (16) – 7%
Neutral (3)	38	11%	11%	14 (16) – 9%	24 (22) – 12%
Agree (4)	15	4%	4%	2 (7) – 1%	13 (8) – 7%
Strongly agree (5)	3	1%	1%	0 (1) – 0%	3 (2) – 1%
Don't know (6)	216	60%	63%	77 (93) – 52%	137 (121) – 71%
Missing	17	5%			

33.Community benefits were distributed fairly (collapsed)	**n=345**	**3.09**	**3.09**	**Chi Square 45.026 (.001)**	
Disagree (1)	73	20%	21%	55 (31) – 37%	17 (41) – 9%
Neutral (2)	38	11%	11%	14 (16) – 10%	24 (22) – 12%
Agree (3)	18	5%	5%	2 (8) – 1%	16 (10) – 8%
Don't know (4)	216	60%	63%	77 (93) – 52%	137 (121) – 71%
Missing	17	5%			
34.Impact of turbines on property values	**n=342**	**2.66**	**2.66**	**Chi Square 76.640 (.001)**	
Not applicable (0)	26	7%	8%	10 (12) – 7%	16 (14) – 9%
Increased (1)	4	1%	1%	0 (2) – 0%	4 (2) – 2%
Stayed the same (2)	147	41%	43%	34 (64) – 23%	110 (80) – 58%
Decreased (3)	49	14%	14%	45 (22) – 30%	4 (27) – 2%
Don't know (4)	116	32%	34%	61 (51) – 41%	55 (65) – 29%
Missing	20	6%			
Section 4					
35.S1 I support the developer-led development scenario	**n=347**	**3.01**	**3.01**	**Chi Square 68.292 (.001)**	
Strongly disagree (1)	61	17%	18%	49 (26) – 33%	12 (35) – 6%
Disagree (2)	68	19%	20%	36 (29) – 25%	32 (39) – 16%
Neutral (3)	79	22%	23%	35 (34) – 24%	45 (46) – 23%
Agree (4)	114	32%	33%	25 (47) – 17%	86 (64) – 44%
Strongly agree (5)	24	7%	7%	2 (10) – 1%	22 (14) – 11%
Missing	16	4%			
35.S1 I support the developer-led development scenario (collapsed)	**n=347**	**2.12**	**2.12**	**Chi Square 56.814 (.001)**	
Disagree (1)	129	36%	37%	85 (55) – 58%	44 (74) – 22%
Neutral (2)	79	22%	23%	35 (34) – 24%	45 (46) – 23%
Agree (3)	138	38%	40%	27 (58) – 18%	108 (77) – 55%
Missing	16	4%			
36.S1 Engagement process is fair	**n=344**	**2.86**	**2.86**	**Chi Square 54.757 (.001)**	
Strongly disagree (1)	52	14%	15%	44 (22) – 30%	8 (30) – 4%
Disagree (2)	79	22%	23%	34 (34) – 23%	45 (45) – 23%
Neutral (3)	93	26%	27%	40 (40) – 27%	53 (53) – 27%
Agree (4)	106	29%	31%	26 (44) – 18%	77 (59) – 40%
Strongly agree (5)	14	4%	4%	2 (6) – 1%	12 (8) – 6%
Missing	18	5%			
36.S1 Engagement process is fair (collapsed)	**n=344**	**1.97**	**1.97**	**Chi Square 32.012 (.001)**	
Disagree (1)	131	36%	38%	78 (56) – 53%	53 (75) – 27%
Neutral (2)	93	26%	27%	40 (40) – 27%	53 (53) – 27%
Agree (3)	120	33%	35%	28 (50) – 19%	89 (67) – 46%
Missing	18	5%			
37.S1 Would be involved in planning	**n=344**	**3.30**	**3.30**	**Chi Square 81.677 (.001)**	
Strongly disagree (1)	36	10%	11%	34 (15) – 23%	2 (21) – 1%
Disagree (2)	37	10%	11%	28 (16) – 19%	9 (21) – 5%
Neutral (3)	91	25%	26%	40 (38) – 28%	49 (51) – 25%
Agree (4)	149	41%	43%	35 (63) – 24%	113 (85) – 58%

Strongly agree (5)	31	9%	9%	8 (13) – 6%	23 (18) – 12%
Missing	18	5%			
37.S1 Would be involved in planning (collapsed)	**n=344**	**2.31**	**2.31**	**Chi Square 78.998 (.001)**	
Disagree (1)	73	20%	21%	62 (31) – 43%	11 (42) – 6%
Neutral (2)	91	25%	27%	40 (38) – 28%	49 (51) – 25%
Agree (3)	180	50%	52%	43 (76) – 30%	136 (103) – 69%
Missing	18	5%			
38.S1 Time required is acceptable	**n=344**	**2.99**	**2.99**	**Chi Square 47.062 (.001)**	
Strongly disagree (1)	33	9%	10%	27 (14) – 18%	6 (19) – 3%
Disagree (2)	58	16%	17%	33 (25) – 23%	25 (33) – 13%
Neutral (3)	144	40%	42%	64 (62) – 44%	80 (82) – 41%
Agree (4)	98	27%	28%	20 (41) – 14%	76 (55) – 39%
Strongly agree (5)	11	3%	3%	2 (5) – 1%	9 (6) – 5%
Missing	18	5%			
38.S1 Time required is acceptable (collapsed)	**n=344**	**2.05**	**2.05**	**Chi Square 41.694 (.001)**	
Disagree (1)	91	25%	26%	60 (39) – 41%	31 (52) – 16%
Neutral (2)	144	40%	42%	64 (62) – 44%	80 (82) – 41%
Agree (3)	109	30%	32%	22 (46) – 15%	85 (61) – 43%
Missing	18	5%			
39.S1 Siting process is fair	**n=347**	**2.67**	**2.67**	**Chi Square 56.671 (.001)**	
Strongly disagree (1)	66	18%	19%	53 (28) – 36%	13 (38) – 7%
Disagree (2)	88	24%	25%	34 (37) – 23%	53 (50) – 27%
Neutral (3)	95	26%	27%	39 (40) – 26%	55 (54) – 27%
Agree (4)	89	25%	26%	20 (38) – 14%	68 (50) – 34%
Strongly agree (5)	9	3%	3%	1 (4) – 1%	8 (5) – 4%
Missing	15	4%			
39.S1 Siting process is fair (collapsed)	**n=347**	**1.84**	**1.84**	**Chi Square 30.161 (.001)**	
Disagree (1)	154	43%	44%	87 (65) – 59%	66 (88) – 34%
Neutral (2)	95	26%	27%	39 (40) – 26%	55 (54) – 28%
Agree (3)	98	27%	28%	21 (42) – 14%	76 (55) – 39%
Missing	15	4%			
40.S1 Benefits distribution is fair	**n=347**	**2.91**	**2.91**	**Chi Square 37.465 (.001)**	
Strongly disagree (1)	46	13%	13%	36 (20) – 24%	10 (26) – 5%
Disagree (2)	67	19%	19%	34 (29) – 23%	33 (38) – 17%
Neutral (3)	113	31%	33%	45 (48) – 30%	67 (64) – 34%
Agree (4)	113	31%	33%	32 (48) – 22%	79 (63) – 40%
Strongly agree (5)	8	2%	2%	1 (3) – 1%	7 (5) – 4%
Missing	15	4%			
40.S1 Benefits distribution is fair (collapsed)	**n=347**	**2.02**	**2.02**	**Chi Square 28.230 (.001)**	
Disagree (1)	113	31%	33%	70 (49) – 47%	43 (64) – 22%
Neutral (2)	113	31%	33%	45 (48) – 30%	67 (64) – 34%
Agree (3)	121	33%	35%	33 (51) – 22%	86 (68) – 44%
Missing	15	4%			
41.S1 Reaction to the developer-led scenario	**n=338**	**4.18**	**4.18**	**Chi Square 102.376 (.001)**	
Angry (1)	60	17%	18%	54 (26) – 37%	6 (34) – 3%
Fearful (2)	16	4%	5%	9 (7) – 6%	7 (9) – 4%

Helpless (3)	57	16%	17%	33 (25) – 23%	24 (32) – 13%
Content (4)	43	12%	13%	9 (18) – 6%	33 (24) – 17%
Hopeful (5)	77	21%	23%	17 (33) – 12%	59 (43) – 31%
Proud (6)	32	9%	9%	1 (14) – 1%	31 (18) – 16%
None of the above (7)	24	7%	7%	11 (10) – 8%	13 (14) – 7%
Don't know (8)	29	8%	9%	11 (12) – 8%	17 (16) – 9%
Missing	24	7%			
41.S1 Reaction to the developer-led scenario (collapsed)	**n=342**	**1.73**	**1.73**	**Chi Square 88.405 (.001)**	
Negative (1)	142	39%	42%	102 (62) – 69%	40 (80) – 21%
Positive (2)	152	42%	44%	26 (65) – 18%	124 (85) – 65%
Don't know (3)	48	13%	14%	19 (20) – 13%	28 (27) – 15%
Missing	20	6%			
42.S2 I support the community-based scenario development	**n=346**	**3.66**	**3.66**	**Chi Square 83.883 (.001)**	
Strongly disagree (1)	25	7%	7%	24 (11) – 16%	1 (14) – 1%
Disagree (2)	29	8%	8%	22 (12) – 15%	7 (17) – 4%
Neutral (3)	66	18%	19%	43 (28) – 29%	23 (38) – 12%
Agree (4)	145	40%	42%	43 (62) – 29%	102 (83) – 52%
Strongly agree (5)	81	22%	23%	15 (34) – 10%	64 (45) – 33%
Missing	16	4%			
42.S2 I support the community-based scenario development (collapsed)	**n=346**	**2.50**	**2.50**	**Chi Square 79.280 (.001)**	
Disagree (1)	54	15%	16%	46 (23) – 31%	8 (31) – 4%
Neutral (2)	66	18%	19%	43 (28) – 29%	23 (38) – 12%
Agree (3)	226	62%	65%	58 (96) – 40%	166 (128) – 84%
Missing	16	4%			
43.S2 Engagement process is fair	**n=346**	**3.65**	**3.65**	**Chi Square 66.811 (.001)**	
Strongly disagree (1)	19	5%	5%	18 (8) – 12%	1 (11) – 1%
Disagree (2)	31	9%	9%	26 (13) – 18%	5 (18) – 2%
Neutral (3)	68	19%	20%	37 (29) – 25%	31 (39) – 16%
Agree (4)	163	45%	47%	54 (70) – 37%	109 (93) – 55%
Strongly agree (5)	65	18%	19%	12 (27) – 8%	51 (36) – 26%
Missing	16	4%			
43.S2 Engagement process is fair (collapsed)	**n=346**	**2.51**	**2.51**	**Chi Square 62.561 (.001)**	
Disagree (1)	50	14%	14%	44 (21) – 30%	6 (29) – 3%
Neutral (2)	68	19%	20%	37 (29) – 25%	31 (39) – 16%
Agree (3)	228	63%	66%	66 (97) – 45%	160 (129) – 81%
Missing	16	4%			
44.S2 Would be involved in planning	**n=345**	**3.66**	**3.66**	**Chi Square 69.884 (.001)**	
Strongly disagree (1)	24	7%	7%	23 (10) – 16%	1 (14) – 1%
Disagree (2)	26	7%	7%	21 (11) – 14%	5 (15) – 2%
Neutral (3)	64	18%	19%	37 (27) – 25%	27 (37) – 14%

Agree (4)	162	45%	47%	50 (68) – 34%	111 (93) – 56%
Strongly agree (5)	69	19%	20%	15 (29) – 10%	53 (39) – 27%
Missing	17	5%			
44.S2 Would be involved in planning (collapsed)	**n=345**	**2.52**	**2.52**	**Chi Square 67.143 (.001)**	
Disagree (1)	50	14%	14%	44 (21) – 30%	6 (29) – 3%
Neutral (2)	64	18%	19%	37 (27) – 25%	27 (37) – 14%
Agree (3)	231	64%	67%	65 (97) – 45%	164 (132) – 83%
Missing	17	5%			
45.S2 Time required is acceptable	**n=344**	**3.48**	**3.48**	**Chi Square 55.036 (.001)**	
Strongly disagree (1)	14	4%	4%	14 (6) – 10%	0 (8) – 0%
Disagree (2)	30	8%	9%	23 (13) – 16%	7 (17) – 4%
Neutral (3)	111	31%	32%	57 (47) – 39%	54 (64) – 28%
Agree (4)	154	43%	45%	46 (65) – 32%	107 (88) – 55%
Strongly agree (5)	35	10%	10%	6 (14) – 4%	28 (20) – 14%
Missing	18	5%			
45.S2 Time required is acceptable (collapsed)	**n=344**	**2.42**	**2.42**	**Chi Square 51.159 (.001)**	
Disagree (1)	44	12%	13%	37 (19) – 25%	7 (25) – 4%
Neutral (2)	111	31%	32%	57 (47) – 39%	54 (64) – 28%
Agree (3)	189	52%	55%	52 (80) – 36%	135 (107) – 69%
Missing	18	5%			
46.S2 Siting process is fair	**n=343**	**3.44**	**3.44**	**Chi Square 65.308 (.001)**	
Strongly disagree (1)	24	7%	7%	24 (10) – 17%	0 (14) – 0%
Disagree (2)	34	9%	10%	26 (14) – 18%	8 (20) – 4%
Neutral (3)	89	25%	26%	40 (38) – 28%	49 (51) – 25%
Agree (4)	159	44%	46%	47 (67) – 32%	111 (91) – 57%
Strongly agree (5)	37	10%	11%	8 (15) – 5%	28 (21) – 14%
Missing	19	5%			
46.S2 Siting process is fair (collapsed)	**n=343**	**2.40**	**2.40**	**Chi Square 61.442 (.001)**	
Disagree (1)	58	16%	17%	50 (25) – 24%	8 (33) – 4%
Neutral (2)	89	25%	26%	40 (38) – 28%	49 (51) – 25%
Agree (3)	196	54%	57%	55 (83) – 38%	139 (111) – 71%
Missing	19	5%			
47.S2 Benefits distribution is fair	**n=340**	**3.52**	**3.52**	**Chi Square 60.820 (.001)**	
Strongly disagree (1)	20	6%	6%	20 (9) – 14%	0 (11) – 0%
Disagree (2)	27	7%	8%	21 (12) – 15%	6 (16) – 3%
Neutral (3)	93	26%	27%	47 (40) – 33%	4 6(53) – 24%
Agree (4)	156	43%	46%	47 (66) – 33%	108 (89) – 56%
Strongly agree (5)	44	12%	13%	9 (18) – 6%	34 (25) – 17%
Missing	22	6%			
47.S2 Benefits distribution is fair (collapsed)	**n=340**	**2.45**	**2.45**	**Chi Square 57.285 (.001)**	
Disagree (1)	47	13%	14%	41 (20) – 28%	6 (27) – 3%

Neutral (2)	93	26%	27%	47 (40) – 33%	46 (53) – 24%
Agree (3)	200	55%	59%	56 (84) – 39%	142 (114) – 73%
Missing	22	6%			
48.S2 Reaction to the community-based scenario	**n=345**	**4.62**	**4.62**	**Chi Square 108.936 (.001)**	
Angry (1)	37	10%	11%	35 (16) – 24%	2 (21) – 1%
Fearful (2)	15	4%	4%	10 (7) – 7%	5 (8) – 3%
Helpless (3)	24	7%	7%	21 (10) – 14%	3 (14) – 1%
Content (4)	57	16%	16%	14 (24) – 9%	42 (32) – 22%
Hopeful (5)	107	30%	31%	38 (46) – 25%	68 (60) – 35%
Proud (6)	65	18%	19%	6 (28) – 4%	59 (37) – 4%
None of the above (7)	17	5%	5%	10 (7) – 7%	7 (10) – 4%
Don't know (8)	23	6%	7%	15 (10) – 10%	8 (13) – 4%
Missing	17	5%			
48.S2 Reaction to the community-based scenario (collapsed)	**n=346**	**1.88**	**1.88**	**Chi Square 94.461 (.001)**	
Negative (1)	77	21%	22%	67 (33) – 45%	10 (44) – 5%
Positive (2)	232	64%	67%	59 (100) – 40%	171 (130) – 88%
Don't know (3)	37	10%	11%	23 (16) – 15%	14 (21) – 7%
Missing	16	4%			
Section 5					
49.Scenario preference	**n=316**	**0.89**	**0.89**	**Chi Square 1.877 (.171)**	
Scenario 1 (0)	36	10%	11%	10 (14) – 8%	26 (22) – 13%
Scenario 2 (1)	280	77%	89%	110 (106) – 92%	168 (172) – 87%
Missing	46	12.7%			
50.Dimension importance – missing count	**n=362**	**N/A**	**N/A**		
Answered	326	90%			
Missing	36	10%			
50.Dimension importance - investment source	**n=318**	**1.50**	**1.50**	**Chi Square 1.888 (.389)**	
Least important (1)	201	56%	63%	80 (78) – 65%	120 (122) – 62%
Somewhat important (2)	76	21%	24%	31 (29) – 25%	44 (46) – 23%
Most important (3)	41	11%	13%	12 (16) – 10%	29 (25) – 15%
Missing	44	12%			
50.Dimension importance - decision making	**n=323**	**2.44**	**2.44**	**Chi Square 3.223 (.200)**	
Least important (1)	52	14%	16%	17 (21) – 13%	35 (31) – 18%
Somewhat important (2)	76	21%	24%	26 (30) – 20%	49 (45) – 25%
Most important (3)	195	54%	60%	85 (77) – 66%	109 (117) – 57%
Missing	39	11%			
50.Dimension importance - benefits distribution	**n=321**	**2.07**	**2.07**	**Chi Square 3.523 (.172)**	
Least important (1)	82	23%	25%	36 (32) – 29%	45 (49) – 23%
Somewhat important (2)	134	37%	42%	56 (53) – 45%	78 (81) – 40%
Most important (3)	105	29%	33%	33 (41) – 26%	70 (62) – 36%
Missing	41	11%			

51.Preferred investment source	**n=323**	**1.95**	**1.95**	**Chi Square 3.551 (.060)**	
Majority global (1)	17	5%	5%	3 (7) – 2%	14 (10) – 7%
Majority local (2)	306	85%	95%	123 (119) – 98%	180 (184) – 93%
Missing	39	11%			
52.Preferred decision making	**n=324**	**1.90**	**1.90**	**Chi Square 7.639 (.006)**	
Developer investors (1)	34	9%	10%	6 (14) – 5%	28 (20) – 14%
Local investors (2)	290	80%	90%	121 (114) – 95%	166 (174) – 86%
Missing	38	11%			
53.Preferred benefits distribution	**n=328**	**1.38**	**1.38**	**Chi Square .181 (.670)**	
Community projects (1)	204	56%	62%	82 (80) – 64%	120 (122) – 61%
Individuals (2)	124	34%	38%	47 (49) – 36%	76 (74) – 39%
Missing	34	9%			
54.Preferred individual benefits	**n=324**	**2.82**	**2.82**	**Chi Square 20.718 (.001)**	
Lump sum (1)	13	4%	4%	4 (5) – 3%	9 (8) – 5%
Regular (2)	113	31%	35%	43 (47) – 32%	70 (66) – 37%
Decreased electricity cost (3)	150	41%	46%	52 (61) – 39%	96 (87) – 51%
Such benefits aren't appropriate (4)	16	4%	5%	11 (7) – 8%	5 (9) – 3%
Don't know (5)	32	9%	10%	23 (13) – 17%	9 (19) – 5%
Missing	38	11%			
55.Collective benefits – missing count	**n=362**	**N/A**	**N/A**		
Answered	319	88%			
Missing	43	12%			
55.Collective benefits - municipal	**n=311**	**2.53**	**2.53**	**Chi Square 7.503 (.057)**	
Least preferred (1)	25	7%	8%	14 (9) – 12%	10 (15) – 5%
Not preferred (2)	160	44%	51%	62 (62) – 52%	98 (98) – 52%
Preferred (3)	63	17%	20%	17 (24) – 14%	45 (38) – 24%
Most preferred (4)	63	17%	20%	26 (24) – 22%	36 (38) – 19%
Missing	51	14%			
55.Collective benefits - established org	**n=312**	**2.93**	**2.93**	**Chi Square 1.039 (.792)**	
Least preferred (1)	4	1%	1%	2 (2) – 2%	2 (2) – 1%
Not preferred (2)	93	26%	30%	35 (35) – 29%	56 (56) – 29%
Preferred (3)	137	38%	44%	56 (53) – 47%	81 (84) – 43%
Most preferred (4)	78	22%	25%	27 (30) – 22%	51 (48) – 27%
Missing	50	14%			
55.Collective benefits - elected committee	**n=311**	**3.34**	**3.34**	**Chi Square .868 (.833)**	
Least preferred (1)	4	1%	1%	2 (2) – 2%	2 (2) – 1%
Not preferred (2)	55	15%	18%	23 (21) – 19%	32 (34) – 17%
Preferred (3)	82	23%	26%	33 (31) – 27%	48 (50) – 25%
Most preferred (4)	170	47%	55%	62 (66) – 52%	107 (103) – 57%
Missing	51	14%			
55.Collective benefits - other	**n=317**	**1.22**	**1.22**	**Chi Square 7.467 (.058)**	
Least preferred (1)	286	79%	90%	105 (111) – 85%	179 (173) – 94%
Not preferred (2)	9	3%	3%	5 (4) – 4%	4 (5) – 2%
Preferred (3)	5	1%	2%	2 (2) – 2%	3 (3) – 2%
Most preferred (4)	17	5%	5%	11 (6) – 9%	5 (10) – 3%
Missing	45	12%			

56.Energy project preference – missing count	**n=362**	**N/A**	**N/A**		
Answered	341	94%			
Missing	21	6%			
56.Energy project preference - wind	**n=321**	**3.92**	**3.92**	**Chi Square 84.695 (.001)**	
Least preferred (1)	23	6%	7%	21 (9) – 17%	2 (14) – 1%
Not preferred (2)	16	4%	5%	15 (6) – 12%	0 (9) – 0%
Somewhat preferred (3)	28	8%	9%	22 (11) – 17%	6 (17) – 3%
Preferred (4)	151	42%	47%	45 (59) – 36%	104 (90) – 54%
Most preferred (5)	103	29%	32%	23 (41) – 18%	80 (62) – 42%
Missing	41	11%			
56.Energy project preference - nuclear	**n=318**	**1.97**	**1.97**	**Chi Square 13.017 (.011)**	
Least preferred (1)	136	38%	43%	55 (55) – 43%	81 (81) – 43%
Not preferred (2)	85	24%	27%	27 (34) – 21%	57 (50) – 30%
Somewhat preferred (3)	75	21%	24%	30 (29) – 24%	43 (44) – 23%
Preferred (4)	13	4%	4%	11 (5) – 9%	2 (8) – 1%
Most preferred (5)	9	3%	3%	4 (4) – 3%	5 (5) – 3%
Missing	44	12%			
56.Energy project preference - coal	**n=318**	**1.56**	**1.56**	**Chi Square 10.086 (.039)**	
Least preferred (1)	178	49%	56%	61 (70) – 48%	114 (105) – 60%
Not preferred (2)	113	31%	36%	48 (45) – 38%	65 (68) – 34%
Somewhat preferred (3)	19	5%	6%	11 (8) – 9%	8 (11) – 4%
Preferred (4)	5	1%	2%	3 (2) – 2%	2 (3) – 1%
Most preferred (5)	3	1%	1%	3 (1) – 2%	0 (2) – 0%
Missing	44	12%			
56.Energy project preference - natural gas	**n=320**	**2.90**	**2.90**	**Chi Square 59.022 (.001)**	
Least preferred (1)	23	6%	7%	9 (9) – 7%	14 (14) – 7%
Not preferred (2)	69	19%	22%	19 (27) – 15%	49 (41) – 26%
Somewhat preferred (3)	164	45%	51%	48 (66) – 37%	115 (97) – 61%
Preferred (4)	45	12%	14%	36 (18) – 28%	8 (26) – 4%
Most preferred (5)	19	5%	6%	16 (8) – 13%	3 (11) – 2%
Missing	42	12%			
56.Energy project preference - solar	**n=336**	**4.48**	**4.48**	**Chi Square 14.217 (.007)**	
Least preferred (1)	7	2%	2%	4 (3) – 3%	3 (4) – 2%
Not preferred (2)	11	3%	3%	8 (5) – 6%	3 (6) – 2%
Somewhat preferred (3)	11	3%	3%	6 (5) – 4%	5 (6) – 3%
Preferred (4)	93	26%	28%	26 (39) – 19%	67 (54) – 35%
Most preferred (5)	214	59%	64%	96 (89) – 69%	115 (122) – 60%
Missing	26	7%			
57.Future projects should be…	**n=349**	**1.73**	**1.73**	**Chi Square 197.948 (.001)**	
Prohibited (1)	57	16%	16%	57 (25) – 38%	0 (32) – 0%
Allowed (2)	47	13%	14%	40 (20) – 27%	6 (26) – 3%
Encouraged and promoted (3)	214	59%	61%	30 (92) – 20%	183 (121) – 93%
Don't know (4)	31	9%	9%	23 (13) – 15%	7 (17) – 4%
Missing	13	4%			
58.Climate change opinion	**n=349**	**4.19**	**4.19**	**Chi Square 62.498 (.001)**	

Strongly disagree (1)	23	6%	7%	17 (10) – 11%	6 (13) – 3%
Disagree (2)	12	3%	3%	11 (5) – 7%	1 (7) – 0%
Neutral (3)	30	8%	9%	21 (13) – 14%	8 (16) – 4%
Agree (4)	96	27%	27%	53 (41) – 36%	41 (53) – 21%
Strongly agree (5)	188	52%	54%	47 (81) – 32%	141 (107) – 72%
Missing	13	4%			
58.Climate change opinion (collapsed)	**n=349**	**2.71**	**2.71**	**Chi Square 36.311 (.001)**	
Disagree (1)	35	10%	10%	28 (15) – 19%	7 (20) – 4%
Neutral (2)	30	8%	9%	21 (13) – 14%	8 (16) – 4%
Agree (3)	284	79%	81%	100 (121) – 67%	182 (161) – 92%
Missing	13	4%			
59.Wind energy opinion	**n=350**	**3.73**	**3.73**	**Chi Square 140.383 (.001)**	
Strongly disagree (1)	37	10%	11%	33 (16) – 22%	4 (21) – 2%
Disagree (2)	34	9%	10%	33 (15) – 22%	1 (19) – 0%
Neutral (3)	35	10%	10%	24 (15) – 16%	10 (19) – 5%
Agree (4)	123	34%	35%	49 (53) – 33%	73 (69) – 37%
Strongly agree (5)	121	33%	35%	11 (52) – 7%	110 (69) – 56%
Missing	12	3%			
59.Wind energy opinion (collapsed)	**n=350**	**2.49**	**2.49**	**Chi Square 116.019 (.001)**	
Disagree (1)	71	20%	20%	66 (31) – 44%	5 (40) – 3%
Neutral (2)	35	10%	10%	24 (15) – 16%	10 (19) – 5%
Agree (3)	244	67%	70%	60 (105) – 40%	183 (138) – 92%
Missing	12	3%			
Section 6					
60.Gender	**n=349**	**1.52**	**1.52**	**Chi Square 17.818 (.001)**	
Man (1)	192	53%	55%	69 (82) – 46%	122 (109) – 62%
Woman (2)	143	40%	41%	69 (61) – 46%	74 (82) – 37%
Prefer not to say (3)	8	2%	2%	7 (3) – 5%	1 (5) – 0%
Both (4)	5	1%	1%	4 (2) – 3%	0 (2) – 0%
Missing	13	4%			
60.Gender	**n=349**	**0.53**	**0.53**	**Chi Square 7.857 (.005)**	
Other (0)	170	47%	47%	83 (70) – 55%	80 (93) – 40%
Men (1)	192	53%	53%	69 (82) – 45%	122 (109) – 60%
61.Age	**n=347**	**3.41**	**3.41**	**Chi Square 2.168 (.705)**	
18-29 (1)	16	4%	5%	5 (6) – 3%	10 (9) – 5%
30-44 (2)	53	15%	15%	19 (22) – 13%	34 (31) – 17%
45-59 (3)	90	25%	26%	37 (38) – 26%	53 (52) – 27%
60-75 (4)	149	41%	43%	66 (62) – 45%	82 (86) – 41%
75+ (5)	39	11%	11%	18 (16) – 12%	20 (22) – 10%
Missing	15	4%			
61.Age brackets	**n=347**	**2.50**	**2.50**	**Chi Square 1.694 (.429)**	
18-30 (1)	16	4%	5%	5 (6) – 3%	10 (9) – 5%
30-60 (2)	143	40%	41%	56 (60) – 39%	87 (83) – 44%

60+ (3)	188	52%	54%	84 (78) – 58%	102 (108) – 51%
Missing	15	4%			
62.Education	**n=350**	**2.99**	**2.99**	**Chi Square 2.774 (.428)**	
Some high school, no diploma (1)	11	3%	3%	5 (5) – 3%	6 (6) – 3%
High school diploma (2)	64	18%	18%	31 (27) – 21%	32 (36) – 16%
College or university degree (3)	191	53%	55%	80 (79) – 55%	108 (109) – 54%
Graduate or professional degree (4)	84	23%	24%	30 (35) – 21%	54 (49) – 27%
Missing	12	3%			
63.Employment	**n=346**	**2.92**	**2.92**	**Chi Square 4.118 (.661)**	
Full-time (1)	158	44%	46%	58 (65) – 41%	98 (91) – 49%
Part-time (2)	28	8%	8%	11 (12) – 8%	17 (16) – 9%
Unemployed, looking (3)	3	1%	1%	2 (1) – 1%	1 (2) – 0%
Unemployed, not looking (4)	2	1%	1%	1 (1) – 0%	1 (1) – 0%
Retired (5)	152	42%	44%	669 (62) – 49%	81 (88) – 41%
Homemaker (6)	2	1%	1%	1 (1) – 1%	1 (1) – 0%
Student (7)	1	0%	0%	0 (0) – 0%	1 (1) – 0%
Missing	16	4%			
63.Employment brackets	**n=346**	**2.02**	**2.02**	**Chi Square 1.478 (.478)**	
Full-time (1)	154	43%	45%	58 (63) – 41%	94 (89) – 47%
Part-time (2)	32	9%	9%	13 (13) – 9%	19 (19) – 10%
Unemployed (3)	160	44%	46%	71 (66) – 50%	87 (92) – 43%
Missing	16	4%			
63.Employment Brackets (collapsed)	**N=346**	**.54**	**.54**	**Chi Square 1.412 (.235)**	
Unemployed (0)	160	44%	46%	71 (66) – 50%	87 (92) – 44%
Employed (1)	186	51%	54%	71 (76) – 50%	113 (108) – 56%
Missing	16	4%			
64.Work from home	**n=345**	**2.28**	**2.28**	**Chi Square 2.240 (.692)**	
Do not work from home (0)	110	30%	32%	45 (45) – 32%	63 (63) – 32%
1-10 hours (1)	25	7%	7%	7 (10) – 5%	18 (15) – 9%
11-20 hours (2)	30	8%	9%	13 (13) – 9%	17 (17) – 9%
21-35 hours (3)	20	6%	6%	8 (8) – 6%	12 (12) – 6%
Full-time from home (4)	160	44%	46%	69 (66) – 49%	89 (92) – 45%
Missing	17	5%			
65.Income	**n=331**	**3.88**	**3.88**	**Chi Square 17.434 (.042)**	
Less than $25,000 (1)	18	5%	5%	8 (7) – 6%	10 (11) – 5%
$25,000-$33,999 (2)	22	6%	7%	12 (9) – 9%	10 (13) – 5%
$34,000-$67,999 (3)	81	22%	24%	28 (32) – 21%	51 (47) – 26%
$68,000-$99,999 (4)	82	23%	25%	36 (33) – 27%	45 (48) – 23%
$100,000-$134,999 (5)	45	12%	14%	9 (18) – 7%	35 (26) – 18%
$135,000-$199,999 (6)	42	11%	13%	17 (17) – 13%	25 (25) – 13%
$200,000-$259,999 (7)	8	2%	2%	3 (3) – 2%	5 (5) – 3%
$260,000-$339,999 (8)	8	2%	2%	6 (3) – 4%	2 (5) – 1%
Greater than $340,000 (9)	6	2%	2%	4 (2) – 3%	2 (4) – 1%
Don’t know (0)	19	5%	6%	10 (8) – 7%	9 (11) – 5%
Missing	31	9%			
65.Income brackets	**n=331**	**3.09**	**3.09**	**Chi Square .795 (.977)**	
$0 - $30,000 (1)	38	11%	11%	18 (16) – 14%	20 (22) – 10%

$30,000 - $70,000 (2)	83	23%	25%	30 (33) – 23%	51 (48) – 26%
$70,000 - $100,000 (3)	82	23%	25%	36 (33) – 27%	45 (48) – 23%
$100,000 - $200,000 (4)	87	24%	26%	26 (35) – 20%	60 (51) – 31%
$200,000+ (5)	22	6%	7%	13 (9) – 10%	9 (13) – 5%
Don't know (0)	19	5%	6%	10 (8) – 7%	9 (11) – 5%
Missing	31	9%			
66.Postcode	**n=362**	**N/A**	**N/A**	**Chi Square N/A**	

Appendix 4: Univariate Analysis: Means, Standard Deviations, T-tests

Variable	Count	Mean	Standard Deviation	T tests
1.Province	n=362	0.47	.500	17.878
1a.Project Site Type	N=362	0.48	.500	18.078
1a.Project Province & Site Type (4 cats)	N=362	0.48	1.134	41.438
1a.Project Site (5 cats)	n=362	3.07	1.558	37.443
2.Moved in before turbine construction (collapsed)	n=362	0.65	.479	25.690
3.Turbine on personal property (collapsed)	N=361	0.01	.117	2.249
4.Feel connectedness to community (collapsed)	n=360	2.77	.495	106.215
5.Found out too late to influence decision-making (collapsed)	n=355	2.59	1.087	44.831
6. Personally had a meaningful influence (collapsed)	n=355	2.11	1.249	31.794
7. No desire to influence decision-making (collapsed)	n=352	2.20	1.109	37.16
8. Developer was transparent with community (collapsed)	n=336	3.06	1.122	50.035
9. Planning authority was transparent with community (collapsed)	n=338	3.06	1.140	49.076
10.Community had a meaningful say in project (collapsed)	n=354	2.54	1.234	38.706
11.Planning process was fair (collapsed)	n=353	2.70	1.187	42.723
12. Construction process was annoying (collapsed)	n=354	2.37	1.239	35.936
13.Developer is trustworthy (collapsed)	n=334	3.16	1.059	54.576
14.Planning authority was trustworthy (collapsed)	n=335	3.08	1.083	51.997
15a.Trustworthy information sources (top 1, 2, or 3)	n= variable	N/A		
Leaseholders	59	16% - .17	.379	8.437
Developers	66	18% - .19	.396	9.036
Local government	188	52% - .55	.498	20.477
Provincial government	102	28% - .30	.459	12.053
Federal government	55	15% - .16	.369	8.088
Local news or media	150	41% - .44	.497	16.359
Concerned citizen websites	125	35% - .37	.483	14.039
Family & friends	91	25% - .27	.443	11.131
Other	22	6% - .06	.246	4.843
Missing	22	6%		
15b.Untrustworthy information sources (top 1, 2, or 3)	n= variable	N/A		
Leaseholders	132	37% - .40	.490	14.795
Developers	205	57% - .62	.486	23.171

Local government	59	16% - .18	.383	8.461
Provincial government	121	33% - .37	.482	13.789
Federal government	94	26% - .28	.452	11.441
Local news or media	64	18% - .19	.393	8.808
Concerned citizen websites	95	26% - .29	.453	11.526
Family & friends	67	19% - .20	.402	9.152
Other	18	5% - .05	.208	3.958
Missing	31	9%		
16.Adequate access to project information (collapsed)	n=353	1.88	.798	44.346
17. Change in attitude from planning process (collapsed)	n=320	1.86	.584	56.987
18.Current attitude about turbines (collapsed)	n=354	2.34	.833	52.761
19.Attitude about turbines pre-construction (collapsed)	n=348	3.20	.816	50.226
20.Relationship with leaseholders (collapsed)	n=348	2.12	.539	73.353
21.Leaseholders were unfairly blamed (collapsed)	n=346	1.99	.599	61.706
22.Initial reaction to turbines (collapsed)	n=339	1.77	.569	57.346
23.Reaction during construction (collapsed)	n=347	1.84	.637	53.873
24.Reaction to turbines now (collapsed)	n=348	1.84	.451	67.803
25.Turbines are attractive in the landscape (collapsed)	n=352	1.94	.870	41.838
26.Support extending turbine lifetime (collapsed)	n=353	2.39	.828	54.093
27.Adequate access to financial information (collapsed)	n=350	1.63	.752	40.577
28.Given the opportunity to invest in turbines	n=350	1.48	.806	34.291
29.Chose to invest in turbines	n=333	0.66	.753	16.080
29a.Primary reason to invest in turbines	n=351	0.08	.583	2.472
29b.Primary reason not to invest in turbines	0.20	0.20	.885	4.278
30.Provided direct benefits (collapsed)	N=354	0.01	.118	2.249
31.Payment type	n=353	0.15	.726	3.957
31a.Lump sum payment	n=354	0.18	1.104	3.080
31b.Regular payment	n=352	0.22	1.182	3.473
32.Community benefits are fair (collapsed)	n=353	3.09	1.203	48.284
33.Community benefits were distributed fairly (collapsed)	n=345	3.09	1.256	45.722
34.Impact of turbines on property values	n=342	2.66	1.178	41.736
35.S1 I support the developer-led development scenario (collapsed)	n=347	2.12	.878	42.980
36.S1 Engagement process is fair (collapsed)	n=344	1.97	.855	42.700
37.S1 Would be involved in planning (collapsed)	n=344	2.31	.800	53.555

38.S1 Time required is acceptable (collapsed)	n=344	2.05	.762	49.967
39.S1 Siting process is fair (collapsed)	n=347	1.84	.838	40.872
40.S1 Benefits distribution is fair (collapsed)	n=347	2.02	.822	45.843
41.S1 Reaction to the developer-led scenario (collapsed)	n=342	1.73	.694	60.632
42.S2 I support the community-based scenario development (collapsed)	n=346	2.50	.751	61.863
43.S2 Engagement process is fair (collapsed)	n=346	2.51	.735	63.626
44.S2 Would be involved in planning (collapsed)	n=345	2.52	.735	63.765
45.S2 Time required is acceptable (collapsed)	n=344	2.42	.708	63.445
46.S2 Siting process is fair (collapsed)	n=343	2.40	.762	58.403
47.S2 Benefits distribution is fair (collapsed)	n=340	2.45	.725	62.318
48.S2 Reaction to the community-based scenario (collapsed)	n=346	1.88	.563	62.253
49.Scenario preference	n=316	0.89	.318	49.497
50.Dimension importance - investment source	n=318	1.50	.714	37.397
50.Dimension importance - decision making	n=323	2.44	.755	58.125
50.Dimension importance - benefits distribution	n=321	2.07	.761	48.769
51.Preferred investment source	n=323	1.95	.224	156.492
52.Preferred decision making	n=324	1.90	.307	111.130
53.Preferred benefits distribution	n=328	1.38	.486	51.391
54.Preferred individual benefits	n=324	2.82	.961	52.784
55.Collective benefits - municipal	n=311	2.53	.904	49.285
55.Collective benefits - established org	n=312	2.93	.772	66.962
55.Collective benefits - elected committee	n=311	3.34	.812	72.664
55.Collective benefits - other	n=317	1.22	.726	29.941
56.Energy project preference - wind	n=321	3.92	1.118	62.810
56.Energy project preference - nuclear	n=318	1.97	1.041	33.816
56.Energy project preference - coal	n=318	1.56	.758	36.671
56.Energy project preference - natural gas	n=320	2.90	.935	55.491
56.Energy project preference - solar	n=336	4.48	.874	93.895
57.Future projects should be…	n=349	1.73	.860	57.055
58.Climate change opinion (collapsed)	n=349	2.71	.637	79.540
59.Wind energy opinion (collapsed)	n=350	2.49	.811	57.546
60.Gender	n=349	0.53	.500	20.192
61.Age	n=347	3.41	1.026	61.926
61.Age brackets	n=347	2.50	.586	79.357
62.Education	n=350	2.99	.742	75.527
63.Employment	n=346	2.92	1.942	27.953
63.Employment Brackets (collapsed)	N=346	.54	.499	20.027
64.Work from home	n=345	2.28	1.787	23.647
65.Income brackets	n=331	3.09	1.324	42.428

Appendix 5: Statistical Significance Testing of full survey

This appendix includes three comparisons: positivity toward local wind project versus lack thereof; Ontario residents versus Nova Scotia residents; and developer-led local site versus community-based local site. Statistical significance is identified with asterisks (*= p≤.050, **= p≤.005)

Variable	Province		Local Project Type		Local Project Opinion	
Variable	Chi Square	Spearman	Chi Square	Spearman	Chi Square	Spearman
1.Province			.342 ns	-.031 ns	40.128**	.337**
1a.Project Site	.358**	.880**	362.00**	-.476**	50.497**	.272**
1.Project site type	358.028**	.887**	362.000**	-.480**	41.697**	.293**
1.Project site type (collapsed)	.342 ns	-.031 ns			.046 ns	.011 ns
2.Moved in before turbine construction (collapsed)	1.160 ns	-.057 ns	3.245 ns	-.095 ns	.802 ns	-.048 ns
3.Turbine on personal property (collapsed)	4.463*	-.111*	5.634*	.125*	.019 ns	007 ns
4.Feel connectedness to community (collapsed)	.917 ns	-.042 ns	5.539 ns	-.115*	1.433 ns	.030 ns
5.Found out too late to influence decision-making (collapsed)	23.156**	.245**	12.410**	-.006 ns	12.329*	-.015 ns
6. Personally had a meaningful influence (collapsed)	18.097**	.187**	4.794 ns	.097 ns	19.055**	.221**
7. No desire to influence decision-making (collapsed)	18.347**	.208**	5.264 ns	.107*	19.130**	.217**
8. Developer was transparent with community (collapsed)	12.853**	.182**	2.364 ns	.027 ns	65.325**	.209**
9. Planning authority was transparent with community (collapsed)	22.126**	.228**	4.836 ns	.031 ns	81.285**	.250**
10.Community had a meaningful say in project (collapsed)	52.762**	.369**	7.588 ns (.055)	.097 ns	97.229**	.400**
11.Planning process was fair (collapsed)	46.623**	.328**	5.393 ns	.077 ns	115.850**	.402**
12. Construction process was annoying (collapsed)	42.263**	.142**	3.986 ns	-.015 ns	64.457**	-.149**
13.Developer is trustworthy (collapsed)	14.362**	.180**	4.815 ns	.044 ns	64.044**	.163**
14.Planning authority was trustworthy (collapsed)	17.638**	.194**	7.180 ns	.054 ns	82.098**	.205**
15a.Trustworthy information sources (top 1, 2, or 3)						
Leaseholders	.779 ns	-.048 ns	.014 ns	.006 ns	.139 ns	.020 ns
Developers	4.510*	.115*	3.845*	.106 ns	15.713**	.216**
Local government	2.178 ns	.080 ns	.176 ns	-.023 ns	27.655**	.287**
Provincial government	9.828**	.170**	.298 ns	.030 ns	27.104**	.284**

Federal government	.051 ns	.012 ns	.937 ns	.052 ns	9.269**	.166**
Local news or media	1.629 ns	-.069 ns	1.811 ns	-.073 ns	.198 ns	.024 ns
Concerned citizen websites	3.555 ns	-.102 ns	.306 ns	-.030 ns	15.801**	-.217**
Family & friends	.186 ns	-.023 ns	.360 ns	.033 ns	16.725**	-.223**
Other	.161 ns	.022 ns	.099 ns	.017 ns	4.151*	-.111*
15b.Untrustworthy information sources (top 1, 2, or 3)						
Leaseholders	4.468*	.116*	.162 ns	.022 ns	.384 ns	-.034 ns
Developers	6.403*	-.139*	6.940**	-.145**	15.425**	-.217**
Local government	1.392 ns	-.065 ns	1.199 ns	-.060 ns	9.206**	-.168**
Provincial government	12.708**	-.196**	.215 ns	-.025 ns	28.436**	-.294**
Federal government	1.038 ns	-.056 ns	.101 ns	-.017 ns	6.450*	-.140*
Local news or media	1.307 ns	.063 ns	5.431*	.128*	14.101**	.207**
Concerned citizen websites	.157 ns	-.022 ns	4.010*	.110*	32.286**	.314**
Family & friends	3.942*	.109*	.025 ns	-.009 ns	5.679*	.132*
Other	7.248**	.149**	.001 ns	-.002 ns	.001 ns	.002 ns
16.Adequate access to project information (collapsed)	7.913*	-.102 ns (.056)	4.650 ns	.074 ns	22.337**	.252**
17. Change in attitude from planning process (collapsed)	25.483**	. 264**	3.710 ns	.089 ns	117.185**	.599**
18.Current attitude about turbines (collapsed)	47.638**	.364**	4.287 ns	.041 ns	354.000**	.962**
19.Attitude about turbines pre-construction (collapsed)	44.423**	.339**	1.303 ns	.024 ns	158.670**	.676**
20.Relationship with leaseholders (collapsed)	11.402**	.081 ns	1.938 ns	.075 ns	57.768**	.372**
21.Leaseholders were unfairly blamed (collapsed)	4.948 ns	-.020 ns	.029 ns	.009 ns	6.818**	.120*
22.Initial reaction to turbines (collapsed)	47.423**	.324**	.339 ns	.031 ns	161.616**	.499**
23.Reaction during construction (collapsed)	45.328**	.302**	1.347 ns	.059 ns	165.353**	.457**
24.Reaction to turbines now (collapsed)	44.726**	.288**	.512 ns	.026 ns	176.355**	437**
25.Turbines are attractive in the landscape (collapsed)	38.977**	.309**	6.848*	.131*	147.017**	.646**
26.Support extending turbine lifetime (collapsed)	36.261**	.320**	3.895 ns	-.004 ns	161.811**	.678**
27.Adequate access to financial information (collapsed)	0.636 ns	-.005 ns	12.852**	.181**	24.804**	.266**
28.Given the opportunity to invest in turbines	2.254 ns	-.003 ns	12.370**	.134*	.100 ns	-.001 ns
29.Chose to invest in turbines	7.109 ns	-.009 ns	4.954 ns	.074 ns	4.215 ns	-.006 ns
29a.Primary reason invest in turbines	6.376 ns	-.077 ns	5.234 ns	.059 ns	4.708 ns	.095 ns
29b.Primary reason not to invest in turbines	10.651 ns	-.092 ns	13.970*	.113*	45.539**	-.194**

29b.Primary reason not to invest in turbines (edited)	-.064 ns	5.378 ns	.134*	9.842*	19.515**	-.029 ns
30.Provided direct benefits	9.212*	.108*	.210 ns	.096 ns	9.338*	.155**
30.Provided direct benefits COL	1.417 ns	-.065 ns	2.078 ns	.077 ns	3.785 ns (.052)	.104 ns
31.Payment type	8.951*	.056 ns	2.376 ns	.076 ns	3.425 ns	.059 ns
31a.Lump sum payment	2.664 ns	.080 ns	2.340 ns	.074 ns	1.338 ns	-.025 ns
31b.Regular payment	5.815 ns	-.012 ns	6.356 ns	.066 ns	3.609 ns	.017 ns
32.Community benefits are fair (collapsed)	32.556**	.251**	13.560**	-.034 ns	90.358**	.259**
33.Community benefits were distributed fairly (collapsed)	32.168**	.284**	16.542**	-.030 ns	45.026**	.258**
34.Impact of turbines on property values	28.580**	.034 ns	6.935 ns	-.020 ns	76.640**	-.275**
35.S1 I support this development (collapsed)	13.348**	.196**	1.018 ns	.051 ns	56.814**	.406**
36.S1 Engagement process is fair (collapsed)	12.697**	.192**	1.696 ns	.070 ns	32.012**	.306**
37.S1 Would be involved in planning (collapsed)	18.729**	.185**	2.965 ns	-.060 ns	78.998**	.460**
38.S1 Time required is acceptable (collapsed)	12.397**	.179**	.228 ns	.026 ns	41.694**	.349**
39.S1 Siting process is fair (collapsed)	11.968**	.178**	7.039*	.142**	30.161**	.293**
40.S1 Benefits distribution is fair (collapsed)	5.754 ns (.056)	.114*	1.032 ns	.051 ns	28.230**	.283**
41.S1 Reaction to the development scenario (collapsed)	18.228**	.160**	5.080 ns	.122*	88.405**	.401**
42.S2 I support this development (collapsed)	15.419**	.211**	.188 ns	-.023 ns	79.280**	.480**
43.S2 Engagement process is fair (collapsed)	10.594**	.154**	.268 ns	.027 ns	62.561**	.411**
44.S2 Would be involved in planning (collapsed)	15.863**	.213**	.661 ns	-.044 ns	67.143**	.433**
45.S2 Time required is acceptable (collapsed)	8.185*	.147**	1.219 ns	.008 ns	51.159**	.372**
46.S2 Siting process is fair (collapsed)	14.234**	.154**	.475 ns	-.018 ns	61.442**	.389**
47.S2 Benefits distribution is fair (collapsed)	5.918 ns (.052)	.083 ns	.903 ns	.049 ns	57.285**	.390**
48.S2 Reaction to the development scenario (collapsed)	21.973**	.132*	.245 ns	-.018 ns	94.461**	.301**
49.Scenario preference	1.498 ns	-.069 ns	.070 ns	.015 ns	1.877 ns	-.077 ns
50.Dimension importance - investment source	.365 ns	.027 ns	3.248 ns	.084 ns	1.888 ns	.044 ns
50.Dimension importance - decision making	1.345 ns	-.015 ns	3.773 ns	-.098 ns	3.223 ns	-.099 ns
50.Dimension importance - benefits distribution	.023 ns	.007 ns	6.960*	.023 ns	3.523 ns	.100 ns

51.Preferred investment source	.176 ns	-.023 ns	.006 ns	-.004 ns	3.551 ns	-.105 ns
52.Preferred decision making	4.171*	-.113*	1.849 ns	.076 ns	7.639*	-.154**
53.Preferred benefits distribution	.000 ns	.000 ns	6.940**	.145**	.181 ns	.024 ns
54.Preferred individual benefits	10.565*	-.044 ns	4.809 ns	-.093 ns	20.718**	-.157**
55.Collective benefits - municipal	6.433 ns	-.104 ns	1.257 ns	.000 ns	7.503 ns	.070 ns
55.Collective benefits - established org	4.817 ns	.121*	.180 ns	.015 ns	1.039 ns	.031 ns
55.Collective benefits - elected committee	.864 ns	.003 ns	2.225 ns	.023 ns	.868 ns	.050 ns
55.Collective benefits - other	1.830 ns	-.045 ns	5.303 ns	-.050 ns	7.467 ns	-.141*
56.Energy project preference - wind	32.574**	.266**	2.854 ns	.072 ns	84.695**	.433**
56.Energy project preference - nuclear	11.578*	-.144**	3.567 ns	-.084 ns	13.017*	-.059 ns
56.Energy project preference - coal	.705 ns	.018 ns	6.951 ns	.129*	10.086*	-.141*
56.Energy project preference - natural gas	51.405**	-.295**	4.179 ns	-.089 ns	59.022**	-.307**
56.Energy project preference - solar	13.207**	-.042 ns	.465 ns	-.001 ns	14.217**	-.056 ns
57.Future projects should be…	61.907**	-.358**	2.332 ns	.018 ns	197.948**	.484**
58.Climate change opinion (collapsed)	1.572 ns	.059 ns	3.552 ns	-.081 ns	36.311**	.324**
59.Wind energy opinion (collapsed)	20.773**	.240**	.873 ns	-.022 ns	116.019**	.577**
60.Gender (collapsed)	.370 ns	-.033 ns	.558 ns	-.040 ns	7.857**	.149**
61.Age	.237 ns	-.026 ns	10.078*	-.109*	2.168 ns	-.077 ns
62.Education	5.604 ns	-.033 ns	11.306**	-.175**	2.774 ns	.088 ns
63.Employment brackets (collapsed)	5.267*	-.123*	.376 ns	.033 ns	1.412 ns	.064 ns
64.Work from home	5.242 ns	.086 ns	1.836 ns	-.023 ns	2.240 ns	-.029 ns
65.Income brackets	10.446 ns	-.110*	6.592 ns	-.108*	.795 ns	-.003 ns
Total Number of Significant Variables per Column	56	53	20	20	70	68

Appendix 6: Regression Omissions Justifications

Survey Section	Regression Omission Justifications		
	Collinearity	**Homogeneity**	**Other Conflicts**
1 – context	Connectedness to community (with age & fair process).	Turbine on property (98% no). Connectedness to community (80% agree).	**Same variable different categories:** Project site (5 category version; collinear with project type & province). Project site (4 category version, i.e. province & site type; collinear with project type & province).
2 – attitudes	No desire for influence (with personal influence, too late to influence, community influence). Transparent & trustworthy developer & planner (with each other). All but top 3 most common trustworthy & untrustworthy information sources. Leaseholder relationship (with leaseholders unfairly blamed).	Leaseholder relationship (70% neutral).	**Similar to dependent variable:** Attitude change due to planning process. Attitude pre-construction. Attitude now (dependent variable). Initial reaction to turbines. Reaction during construction. Reaction now.
3 – benefits	Fair community benefits (with fair benefits distribution). Impact on property values (with turbines attractive in landscape).	Given opportunity to invest (72% no). Chose to invest (93% no). Reason to invest 98% not applicable). Reason to not invest (99% not applicable). Given direct benefits (99% no). Payment type (95% none). Amount ($) in lump sum payment (97% none). Amount ($) in regular payments (96% none).	
4 – scenarios	All collinear with each other & dependent variable.		
5 – hypotheticals	Ranked importance of three dimensions (collinear with each other). Preferred investment source. Preferred decision-making. Preferred benefits distribution. Preferred individual benefits.	Preferred investment source (95% local). Preferred decision-making (90% local).	

	Ranked preference for benefits decision-maker (collinear with each other). Ranked preference of local energy development (collinear with each other). Future projects (collinear with wind energy opinion, attractive in landscape, extend lifetime). Wind energy opinion (collinear with attractive in landscape, renewable energy opinion).		
6 – demographics	Work-from-home status (with employment).		**Impacted sample size:** Income. Work-from-home status.

Appendix 7: Regression Output (Full), SPSS

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	267	73.8
	Missing Cases	95	26.2
	Total	362	100.0
Unselected Cases		0	.0
Total		362	100.0

Dependent Variable Encoding

Original Value	Internal Value
Other	0
Positive	1

Block 0: Beginning Block

Classification Table[a,b]

			Predicted Q18COLNEW		
	Observed		Other	Positive	Percentage Correct
Step 0	Q18COLNEW	Other	0	101	.0
		Positive	0	166	100.0
	Overall Percentage				62.2

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.497	.126	15.502	1	.000	1.644

Block 1: Method = Forward Stepwise (Conditional)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	94.068	3	.000
	Block	94.068	3	.000
	Model	94.068	3	.000
Step 2	Step	13.128	1	.000
	Block	107.196	4	.000
	Model	107.196	4	.000
Step 3	Step	17.915	3	.000
	Block	125.111	7	.000
	Model	125.111	7	.000

Step 4	Step	7.143	1	.008
	Block	132.254	8	.000
	Model	132.254	8	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	260.089[a]	.297	.404
2	246.960[a]	.331	.450
3	229.045[b]	.374	.509
4	221.903[b]	.391	.532

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.
b. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	2	1.000
2	2.966	6	.813
3	1.703	8	.989
4	1.663	8	.990

Classification Table[a]

	Observed		Predicted Q18COLNEW Other	Positive	Percentage Correct
Step 1	Q18COLNEW	Other	49	52	48.5
		Positive	5	161	97.0
	Overall Percentage				78.7
Step 2	Q18COLNEW	Other	49	52	48.5
		Positive	5	161	97.0
	Overall Percentage				78.7
Step 3	Q18COLNEW	Other	61	40	60.4
		Positive	12	154	92.8
	Overall Percentage				80.5
Step 4	Q18COLNEW	Other	64	37	63.4
		Positive	10	156	94.0
	Overall Percentage				82.4

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	COLFair planning process			52.529	3	.000			
	COLFair planning process(1)	3.093	.541	32.699	1	.000	22.050	7.637	63.660

	COLFair planning process(2)	4.544	.664	46.798	1	.000	94.080	25.590	345.873
	COLFair planning process(3)	3.206	.522	37.769	1	.000	24.681	8.878	68.616
	Constant	-2.282	.469	23.635	1	.000	.102		
Step 2[b]	COLFair planning process			50.433	3	.000			
	COLFair planning process(1)	3.063	.553	30.721	1	.000	21.401	7.244	63.227
	COLFair planning process(2)	4.554	.678	45.181	1	.000	95.050	25.189	358.673
	COLFair planning process(3)	3.203	.533	36.076	1	.000	24.606	8.652	69.979
	Local Gov representatives T (Y/N)	1.138	.319	12.714	1	.000	3.120	1.669	5.833
	Constant	-2.897	.519	31.127	1	.000	.055		
Step 3[c]	COLFair planning process			25.518	3	.000			
	COLFair planning process(1)	2.473	.588	17.680	1	.000	11.858	3.744	37.555
	COLFair planning process(2)	3.407	.714	22.786	1	.000	30.177	7.449	122.243
	COLFair planning process(3)	2.107	.685	9.448	1	.002	8.221	2.146	31.500
	COLAnnoying construction			13.474	3	.004			
	COLAnnoying construction(1)	-1.238	.465	7.081	1	.008	.290	.116	.722
	COLAnnoying construction(2)	-3.552	1.149	9.561	1	.002	.029	.003	.272
	COLAnnoying construction(3)	-.366	.524	.489	1	.485	.693	.248	1.936
	Local Gov representatives T (Y/N)	1.265	.335	14.273	1	.000	3.542	1.838	6.826
	Constant	-1.521	.594	6.546	1	.011	.219		
Step 4[d]	Province	.927	.350	7.011	1	.008	2.527	1.272	5.020
	COLFair planning process			23.933	3	.000			
	COLFair planning process(1)	2.340	.599	15.273	1	.000	10.383	3.211	33.574
	COLFair planning process(2)	3.403	.725	22.035	1	.000	30.042	7.256	124.372
	COLFair planning process(3)	1.980	.699	8.027	1	.005	7.239	1.841	28.471
	COLAnnoying construction			12.067	3	.007			
	COLAnnoying construction(1)	-1.259	.476	6.992	1	.008	.284	.112	.722
	COLAnnoying construction(2)	-3.187	1.148	7.704	1	.006	.041	.004	.392
	COLAnnoying construction(3)	-.541	.545	.987	1	.320	.582	.200	1.692
	Local Gov representatives T (Y/N)	1.234	.341	13.075	1	.000	3.435	1.760	6.705
	Constant	-1.813	.614	8.734	1	.003	.163		

a. Variable(s) entered on step 1: COLFair planning process.

b. Variable(s) entered on step 2: Local Gov representatives T (Y/N).

c. Variable(s) entered on step 3: COLAnnoying construction.

d. Variable(s) entered on step 4: Province.

Block 2: Method = Forward Stepwise (Conditional)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	42.681	2	.000
	Block	42.681	2	.000
	Model	174.935	10	.000
Step 2	Step	12.584	2	.002
	Block	55.265	4	.000
	Model	187.519	12	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	179.222[a]	.481	.654
2	166.638[a]	.505	.687

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.827	8	.450
2	3.613	8	.890

Classification Table[a]

			Predicted Q18COLNEW		Percentage Correct
	Observed		Other	Positive	
Step 1	Q18COLNEW	Other	73	28	72.3
		Positive	13	153	92.2
	Overall Percentage				84.6
Step 2	Q18COLNEW	Other	80	21	79.2
		Positive	14	152	91.6
	Overall Percentage				86.9

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Province	.618	.398	2.411	1	.120	1.855	.850	4.048
	COLFair planning process			12.745	3	.005			
	COLFair planning process(1)	2.293	.718	10.195	1	.001	9.910	2.425	40.501
	COLFair planning process(2)	2.707	.849	10.167	1	.001	14.981	2.838	79.093
	COLFair planning process(3)	1.593	.826	3.722	1	.054	4.918	.975	24.807
	COLAnnoying construction			7.615	3	.055			
	COLAnnoying construction(1)	-1.097	.533	4.228	1	.040	.334	.117	.950

	COLAnnoying construction(2)	-2.587	1.163	4.950	1	.026	.075	.008	.735
	COLAnnoying construction(3)	-.684	.620	1.219	1	.270	.505	.150	1.700
	Local Gov representatives T (Y/N)	1.045	.382	7.493	1	.006	2.842	1.345	6.005
	COLAttractive in landscape			29.907	2	.000			
	COLAttractive in landscape(1)	1.137	.444	6.562	1	.010	3.119	1.306	7.446
	COLAttractive in landscape(2)	3.286	.603	29.685	1	.000	26.726	8.196	87.149
	Constant	-2.554	.765	11.150	1	.001	.078		
Step 2[b]	Province	.482	.421	1.309	1	.253	1.619	.709	3.695
	COLFair planning process			7.458	3	.059			
	COLFair planning process(1)	1.938	.758	6.537	1	.011	6.942	1.572	30.661
	COLFair planning process(2)	2.124	.913	5.410	1	.020	8.365	1.397	50.093
	COLFair planning process(3)	1.390	.864	2.593	1	.107	4.017	.739	21.822
	COLAnnoying construction			4.067	3	.254			
	COLAnnoying construction(1)	-.693	.586	1.397	1	.237	.500	.158	1.578
	COLAnnoying construction(2)	-2.257	1.206	3.506	1	.061	.105	.010	1.111
	COLAnnoying construction(3)	-.488	.652	.561	1	.454	.614	.171	2.202
	Local Gov representatives T (Y/N)	.952	.402	5.602	1	.018	2.592	1.178	5.702
	COLAttractive in landscape			17.235	2	.000			
	COLAttractive in landscape(1)	.523	.493	1.124	1	.289	1.687	.642	4.433
	COLAttractive in landscape(2)	2.642	.649	16.553	1	.000	14.039	3.932	50.127
	COLExtend lifetime			12.302	2	.002			
	COLExtend lifetime(1)	.347	.730	.226	1	.634	1.415	.338	5.923
	COLExtend lifetime(2)	1.781	.665	7.181	1	.007	5.937	1.614	21.845
	Constant	-3.170	.857	13.687	1	.000	.042		

a. Variable(s) entered on step 1: COLAttractive in landscape.

b. Variable(s) entered on step 2: COLExtend lifetime.

Appendix 8: Bivariate Comparison: Respondents who moved in before versus after turbine construction

Survey Question	Disagree		Neutral		Agree		Unaware / Don't Know	
	Moved After / Unsure	Moved Before	Moved After / Unsure	Moved Before	Moved After / Unsure	Moved Before	Moved After / Unsure	Moved Before
Learned about project too late to have an influence*	13.7%	29.0%	16.1%	17.7%	32.2%	38.1%	37.9%	15.2%
Personally had a meaningful influence*	38.7%	51.9%	14.5%	23.4%	4.8%	7.8%	41.9%	16.9%
No desire to have a meaningful influence*	27.3%	42.0%	21.5%	23.8%	22.3%	24.2%	28.9%	10.0%
Developer was transparent*	9.7%	19.3%	4.4%	15.2%	18.6%	24.2%	67.3%	41.3%
Planning authority was transparent*	10.5%	21.0%	7.0%	12.1%	16.7%	25.4%	65.8%	41.5%
Community had a meaningful influence*	20.3%	33.8%	13.8%	26.8%	14.6%	13.9%	51.2%	25.5%
Planning process was fair*	13.9%	27.3%	15.6%	25.1%	13.1%	21.2%	57.4%	26.4%
Construction process was annoying*	22.0%	42.4%	17.1%	25.1%	10.6%	13.9%	50.4%	18.6%
Developer was trustworthy*	8.0%	10.4%	8.8%	26.2%	14.2%	14.5%	69.0%	48.9%
Planning authority was transparent*	7.9%	14.0%	11.4%	23.1%	15.8%	19.5%	64.9%	43.4%
Leaseholder unfairly blamed	15.8%	19.9%	67.5%	62.4%	167%	17.7%	N/A	N/A
Positive relationship with leaseholders	7.6%	10.0%	74.6%	67.0%	17.8%	23.0%	N/A	N/A
Turbines attractive in landscape	33.6%	44.8%	29.5%	21.3%	36.9%	33.9%	N/A	N/A
Would like to extend project's lifetime*	14.6%	26.5%	17.9%	16.1%	67.5%	57.4%	N/A	N/A
Positivity toward local project	17.4%	26.6%	22.3%	18.0%	60.3%	55.4%	N/A	N/A

[1] Statistically significant variables are identified in the Survey Questions column ($p \leq .050$).

Note: About 20% more people were 'unaware' of the turbines from the group who either moved in after turbine construction or did not know whether they moved in before or after turbine construction; that 20% was accounted for primarily in 'neutral' attitudes amongst those who had moved in before construction. Most interesting from this table is the fact that such a large proportion of people who lived in their current residence at the time of turbine construction still reported that they did not know about it or were unsure about the topics covered in this survey.

Appendix 9: Curriculum Vitae

Sara M. Wilson

EDUCATION

MA Geography & Environment Candidate, *Western University* Sept 2019-Aug 2021
Thesis-based; International survey of community attitudes toward local wind development projects
Collaborative Specialization in Environment & Sustainability

BHSc Health Sciences, *Western University* Sept 2015-Apr 2019
Honours Specialization in Health Promotion
Minor in Geography

AWARDS & SCHOLARSHIPS

Pleva Teaching Award 2020-2021, *Teaching Assistantship Award* Sept 2020-April 2021
$300 for excellence in teaching, awarded by students & faculty

AER Award (Collaborative Program), *Research Scholarship* April 2021
$5,000 research scholarship awarded for engagement with collaborative program & research merit

Social Sciences and Humanities Research Council, *Research Scholarship* Sept 2020- Aug 2021
$17,500 research scholarship awarded for thesis research proposal

Geography Graduate Student Society, *Co-President Award* Jan 2020-Jan 2021
CAG Membership, 1 year (duration of presidency)

Western University, Deans List 2016, 2018, 2019

TEACHING EXPERIENCE

Preceptor, *Geog1400 Intro to Human Environments* Jan 2021-Apr 2021
- 'Head Teaching Assistant', responsible for creating lab activities and rubrics, teaching them to other TAs, creating PowerPoint presentations for all tutorial sections, liase between prof & TAs
- Direct contact for all student grade inquiries, responsible for approving student extensions & accommodations requests
- Regular TA duties: led 35 students through 5 lab assignments, marking assignments and exams, answering student emails from my tutorial section
- Some additional language & grammar help to international students who request it

Teaching Assistant, *Geog1500 Environment &Development Challenges*
- Led two classes of 32+ students, in a two-hour session per week, for 10 weeks of the semester
- Responsible for creating PowerPoint presentations, lesson plans, providing learning materials to students (articles, videos), introducing lab assignments

- Graded 5 lab assignments, midterm exam, final exam. Questions and inquiries from my tutorial section via email or Zoom.
- Some additional language & grammar help to international students who request it

Teaching Assistant, *Geog1400 Intro to Human Environments* Jan 2020-Apr 2020

- Regular TA duties: led 35 students through 5 lab assignments and 5 tutorial sessions
- Marking lab assignments and exams, answering student emails from my tutorial section
- Some additional language & grammar help to international students who request it

Teaching Assistant, *Geog2145 Geography of Hazards* Sept 2019-Dec 2019

- Marking TAship: weekly in-class assignments for attendance grades; midterm and final exams; hazard essay. Answering student emails, meeting about essay and exam grades as needed

LEADERSHIP EXPERIENCE

Preceptor, *Geo1400 Intro to Human Environments* Jan 2021-Apr 2021

- 'Head Teaching Assistant', responsible for creating lab activities and rubrics, teaching them to other TAs, creating PowerPoint presentations for all tutorial sections, liase between prof & TAs
- Direct contact for all student grade inquiries, responsible for approving student extensions & accommodations requests

Director of Outreach, Internal Relations, Admin, *OnCovid19 Project* May 2020-Oct 2020

- Directed various portfolios in a student-led volunteer public health start-up producing educational content about COVID-19 for social media (audience ages 13-30). More information available at oncanadaproject.ca, or @OnCanadaProject on Instagram
- Day-to-day social media account operation, topic selection & framing, ideation and creation of engagement-focused graphics about COVID-19
- Recruited & trained volunteers virtually, assigned associates to portfolios, volunteer management duties, organizational structure production & management; managed internal communications including conflict resolution duties & associate accountability tracking
- Managed project's Google Drive & Microsoft Teams, ran official email account & internal organizational communications, i.e. meeting minutes & agendas, moderating meetings

Council President, *Geography Graduate Students Society* Jan 2020-Jan 2021

- Represented the interests of geography graduate students and assisted with the organizing and implementing of events, including during summer term (usually omitted from events calendar)
- Attended monthly departmental council meetings, union meetings, sent update emails to peers

Panel Moderator, *Western University* Nov 22, 2019

- Moderated a 1.5-hour panel on water policy and the impact of climate strikes, as part of the Collaborative Specialization in Environment and Sustainability. Three panelists, audience of 50

RESEARCH EXPERIENCE

Research Assistant, *Western University* Summer term 2019, 2020, 2021

- Assisted Dr. Jamie Baxter with ongoing projects related to renewable energy sources, electric vehicles and waste-to-energy initiatives. Experience in SPSS, Stata

- Conducted literature reviews for various staff members in Geography, Women's Studies

Research Assistant, *Western University* Apr 2018-April 2019

- Assisted Dr. Shannon Sibbald with administrative duties, preparation of documents for submission to journals. Editing assistance & proofreading on many projects. Qualitative & quantitative coding experience, theme development.
- Collaboration on projects related to knowledge translation, community paramedics

VOLUNTEER EXPERIENCE

EnviroCon Conference, *Various Activities* Mar 26, 2021

- Co-hosted EnviroCon virtually via Zoom alongside program director Paul Mensink, audience ranging from 200 people during my opening remarks/instructions to 60 people during closing remarks; the "face of the event"
- Troubleshooting duties throughout; moderated research talks & answered attendee questions
- Presented 15-minute research talk about thesis project, titled "*Analysis of the communities around wind energy projects in Canada: Priorities, policies and power*"; runner-up for student presentation award

Let's Talk Science, Educational Material Consultant Sept 2019-Apr 2020

- Produced a learning module for grades 8-10 about regional impacts of water pollution and water rights in Canada (roleplay format with information cards & integrated voting system)
- Created in collaboration with Western University chapter of Let's Talk Science, a volunteer-run organization that provides education modules to elementary & high school students
- Modified for use with first-year university students in a lecture hall setting; cancelled once classes went fully online at end-of-term

EnviroCon Conference, *Center for Environment & Sustainability* – CANCELLED Mar 14th, 2020

- Selected, contacted and maintained rapport with three panelists
- Organized room bookings & conference schedule, call for abstracts & other documents
- Assisted in formal cancellation steps including contacting panelists & formatting official cancellation email for attendees (cancelled 2 days before the conference – Covid19)

Stem Cell Club, *General Member* Sept 2017-Apr 2019

- Assisted at stem cell drives, recruiting potential stem cell donors
- Debriefed potential donors about risks & benefits of donation
- Prepared swabbing kits to provide to OneMatch (partnered organization)

Student Placements, *Western University*

Jan-Apr 2019 **City of London, Water Engineering**. Created & produced Teaching Toolkit for Stormwater Systems including video with audio, informational handouts for families, homework activities for students.

Sept-Dec 2018 **Public Health Ontario, Healthy Kids Community Challenge** (HKCC). Review of Healthy Sideline Snacks Guidelines. Created & disseminated surveys to parent/guardian & coach demographics. Coded quantitative & qualitative data, interpreted themes. Wrote paper to represent findings.

Jan-Apr 2018	**Student Research Project**, 'Connectedness Café'. Conducted a needs assessment within UWO student population. Acted as sole moderator in a 1.5h focus group, transcribed verbatim & coded for themes. Conceptualized and implemented a connectedness program for students.
Sept-Dec 2017	**Merrymount Children's Center**. Interviewed employees to conduct informal needs assessment. Prepared infographics and upgraded existing slideshows. Developed design coaching resources for employees.

GRADUATE COURSES

Fall Graduate	Environment & Health	(86)
	Debates in Geographic Thought	(85)
	Advanced Multivariate Statistic Analysis	(88)
Winter Graduate	Research Design & Presentation	(88)
	Energy & Environmental Justice	(85)
	Gender & the Environment	(86)
Seminar	Collaborative Program, Environment and Sustainability (2 years)	

PUBLICATIONS

Now is the Time: Analysing the push for a sustainability focused recovery from COVID-19, *Alternatives Journal (under review), co-authors Elizabeth Blokker, Colton Geil, Siddarth Gupta*

Challenges in scientific communication and knowledge translation: The importance of multi-stakeholder engagement, *Alternatives Journal (currently unpublished), co-author Meredith Fyfe*

PRESENTATIONS

Analysis of the communities around wind energy projects in Canada: Priorities, policies and power (Graduate Presentation)
Submitted to EnviroCon 2021, Mar 26th 2021

Survey of communities around wind energy developments: Measuring social acceptance & procedural justice in Canada (3-Minute Thesis)
Collaborative Specialization Seminar, Nov 20th 2020

Social acceptance of community-based wind energy (Speed Talk)
Submitted to EnviroCon 2020 (cancelled due to COVID-19), Mar 26th 2020

PROFESSIONAL DEVELOPMENT EXPERIENCE

Teaching Assistant Workshops, *Center for Teaching and Learning* Sept 2020

- Completed five (5) seminar-style learning modules for effectively teaching courses online