OVERCOMING WIND RESISTANCE: 
ENHANCING COMMUNITY ACCEPTANCE OF WIND 
PROJECTS IN ONTARIO

by

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Abstract

This study explores policy options the province of Ontario could undertake to increase community acceptance of wind power projects. Escalating opposition by communities to wind power developments threatens the province’s goal to increase its supply of renewable energy. Guided by a research framework examining the roles of procedural justice, distributional justice and trust, I examine the characteristics, policies and planning systems of three European jurisdictions who have successfully implemented a high capacity of wind power. I then compare case study findings with the views and opinions of best practices of wind power development as expressed by residents of Ontario who have experienced wind power in their community.

Drawing on these findings, I propose three policy alternatives to enhance community acceptance in Ontario. The final policy recommendation to the province suggests a provincial planning exercise to define areas for wind power development.

Keywords: wind power; renewable energy; community acceptance; energy policy; Ontario

Subject Terms: Energy policy – Ontario; Energy development - Ontario; Renewable energy sources – Ontario; Wind power - Ontario; Wind power - Canada; Land use - Ontario
Executive Summary

Increasing concern among scientists and policymakers over the threatening consequences of emitting harmful greenhouse gases into the environment has lead provincial governments in Canada to evaluate and consider using renewable energy sources in their future energy supply. The stated political goal to increase wind power in Ontario has led to a dramatic increase in wind power projects around the province. The surge in development is triggering intense opposition from local communities in several municipalities within range of current or future wind farms. Evidence of this opposition is seen across the province through the cancellation and delay of wind projects, the commencement of legal action by developers and communities at the Ontario Municipal Board and the implementation of municipal barriers to development.

This study investigates why communities oppose and reject onshore wind projects. Using a case study analysis guided by a research evaluation framework, I investigate the predominant factors of community acceptance of procedural justice, distributional justice and trust in three European jurisdictions: Denmark, Scotland and Germany. Findings from the case study analysis are compared with the results of a focus group study of best practices of wind development in Ontario. The results of both methodologies reveal the following key findings:

- Community ownership can overcome issues of procedural justice, distributional justice and trust.
- Land-use planning builds consensus and promotes sustainable development.
- Information from trusted sources reduces community resistance.
These findings, along with key stakeholder interviews and a survey of existing literature, inform the design of policy alternatives that address community acceptance of wind projects. The policy alternatives considered include the following:

- A public education campaign with a task force to study wind power impacts in Ontario to dispel myths and misconceptions and inform communities about wind power and its impacts.
- A provincial land-use planning exercise to locate wind development within the province.
- A community ownership initiative to provide financial assistance to communities to build capacity and develop viable wind projects.

After identifying the policy alternatives, the study assesses their viability by using a set of criteria that includes cost, effectiveness, acceptability among key stakeholders, administrative feasibility and equity. This multi-criteria analysis reveals that a provincial land-use planning exercise is the best policy for the government of Ontario to pursue. This policy is cost-effective, highly acceptable to all stakeholders, equitable to all communities in Ontario, and is effective in achieving a high capacity of wind power. A provincial land-use planning exercise will contribute to the successful implementation of wind power in the province, while reducing community conflict and increasing local acceptance of wind development. The implementation of this policy is an important step in reconciling the private interests of Ontario residents with the need for clean energy in the province.
Dedication

To Bruce, Candy, Briar, Lauren, Caroline, Shirley and Frank for their continuous love and support. I feel lucky to be part of such a family.

To Marie, whose strength and positivity is felt every day.

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Glossary

CanWEA  Canadian Wind Energy Association
EAA  Environmental Assessment Act
ESP  Environmental Screening Process
MEI  Ministry of Energy and Infrastructure
MOE  Ministry of the Environment
MW  Megawatt
NIMBY  Not In My BackYard
OMB  Ontario Municipal Board
OPA  Ontario Power Authority
PPS  Provincial Policy Statement
RESOP  Renewable Energy Standard Offer Program
RFP  Request for Proposal
1: Introduction

Increasing concern among scientists and policymakers over the threatening consequences of emitting harmful greenhouse gases into the environment has lead provincial governments in Canada to evaluate and consider using renewable energy sources in their future energy supply. A survey of more than 40 different studies of electricity externalities suggests wind power is an electricity source with a relatively small environmental impact (Ek, 2004). Both the environmental and economic benefits of wind power have made this renewable energy source an important component of Canada’s collective future energy plans.

Across Canada, electricity generated from wind is currently powering over 671,000 homes and businesses. Ontario has set the most ambitious targets for wind power among provinces, calling for 4,600 megawatts of power by 2020. Over 700 MW of wind power are operational in Ontario, with an additional 1300 MW contracted by the Ontario Power Authority in the development stage (CanWEA, 2008).

The stated political goal to increase renewable energy in Ontario has led to a dramatic increase in wind power projects around the province. The surge in development is triggering intense opposition from local communities in several municipalities within range of current or future wind farms. While public attitudes towards supporting this type of power has been found to be 96 percent, local attitudes towards it has caused both large and small projects to be delayed extensively, and in extreme cases, cancelled (CanWEA, 2005). In the absence of a directed, province-wide approach to wind power development, each project in Ontario develops under a wide range of circumstances. This lack of direction is causing social and community conflicts over the siting of wind projects and the potential impact on residents.
This study investigates why communities oppose and reject onshore wind projects.\(^1\) Understanding the reasons behind community opposition is a first step in reconciling the private interests of Ontario citizens with the need for clean energy in the province. Using a case study analysis guided by a research evaluation framework, I investigate the predominant factors of community acceptance in three European jurisdictions. Additionally, I examine focus group findings of best practices of wind development in Ontario and interview stakeholders in this arena to develop policies the government of Ontario could utilise to increase community acceptance. I evaluate each policy against a set of criteria and recommend policy alternatives that are shown to increase community acceptance of wind projects. The results of this analysis are relevant to the provincial government, members of the wind power industry and Ontario residents.

This study is organized in the following way: Section 2 provides an overview of wind power, with a focus on international and national development. In Section 3, I discuss the economics of wind power, including its environmental and monetary benefits as well as its costs. Section 4 provides a brief description of wind power in Ontario and the recent opposition to wind power in the province. Section 5 reviews relevant literature on the subject of community acceptance, with a focus on the prominent factors of procedural justice, distributional justice and trust. In Section 6, I introduce the cases selected for analysis and describe the research evaluation framework utilized in this study. Section 7 analyses three case studies and reviews findings from a focus group study on wind development. In Section 8, I present three policy alternatives derived from my case study analysis and focus group findings, and introduce five criteria used to evaluate each alternative. In Section 9, I evaluate the policy alternatives against the established criteria and make recommendations to the province of Ontario. Finally, in Section 10, I summarize the study and identify opportunities for further research on community acceptance of wind projects.

\(^1\) The focus of this study is on onshore wind power as offshore wind power is a different technology that is still in its infancy in Ontario with no installations constructed or approved.
2: Wind Power

Wind power is one of the most successful renewable energy technologies to emerge in the past decade. However, harnessing the power of wind is not a new idea. As early as the 7th century, windmills were responsible for grinding grain, pumping water and other industrial purposes. Recent technological advances have made this renewable source a prime candidate to meet the growing challenges of climate change and the ongoing depletion of fossil fuels. In recognising the economic and environmental benefits of this new technology, governments around the world are establishing ambitious targets for rapid wind power growth. Canada is no exception.

2.1 Wind in the World

Global capacity for wind is approaching 100,000 Megawatts (MW), representing 1.5 percent of total global power generation with installations in more than 70 countries. In 2007, 94,112 MW of wind were operational, a 31 percent increase from 2006 (GWEC, 2008). Germany (22, 247 MW), the United States (16, 800 MW) and Spain (15,600 MW) are global leaders in terms of installed wind power capacity, with India (7, 800 GW) and China (5, 900 MW) greatly increasing their individual installed capacity in 2007, as seen in Figure 1 (GWEC, 2008).
While these countries lead in terms of installed capacity, they do not lead in terms of the penetration of wind power as a percentage of their national energy demand. Denmark is the global leader, providing for 19.7 percent of power consumption through wind, which will increase to 25 percent in 2008. Wind in Germany accounts for 6.4 percent of national energy demand, 9.8 percent in Spain and just over 1 percent in the United State (IEA, 2008). The technological and commercial developments of wind in these countries have set a high level of expectation for the rest of the world.

### 2.2 Canada’s Wind Power

While wind is the fastest growing renewable energy source in the country, Canada has not achieved the same installation and penetration success as Europe. Canada ranks 11th globally in installed wind power capacity and 16th in market penetration, generating 0.8 percent of total energy needs. In Canada, more than 1400 wind turbines line the landscape, with the largest development in Alberta, Quebec and Ontario. Figure 2 illustrates the breakdown by province of Canada’s total installed capacity.

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2 Renewable energy is created from three sources, the sun, gravity and the earth’s core and includes wind, solar, geothermal, wave, tidal, hydropower, biomass landfill gas, biogases and sewage treatment gases.
As of December 2008, 85 wind farms in Canada totalled 2,246 MW of installed wind power, with a generating capacity producing enough power to meet the needs of 671,000 homes.\(^3\) Wind power development is under provincial jurisdiction, and each province in Canada oversees its own resource management and is responsible for electric power production, transmission and generation. The federal government stimulates wind development through financial incentives under the ecoENERGY for Renewable Power Program.\(^4\)

### 2.3 The Mechanics of Modern Wind

A global research and development focus on this renewable source has produced a sophisticated technology, resulting in safer, less noisy and more energy-efficient turbines. Wind turbines create mechanical power from large, steel blades that rotate in response to wind. This mechanical power turns a generator and produces electricity. Wind turbines begin to turn when the wind reaches 13 km/h and shut off when the wind is too strong, i.e., 90 km/h and above (CanWEA, 2005). Typically, wind turbines generate more power during the day than at night,

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\(^3\) The statistics are from CanWEA (2008b).

\(^4\) Budget 2009 did not provide additional funding to this program, putting into question the federal government’s future role in wind development.
more in the winter than in the summer, patterns that are compatible with electricity demand. As wind power does not have the ability to efficiently store electricity, this form of energy is complementary to hydro-electricity systems. In periods of peak wind and low demand for energy, water is stored behind the dam for release during periods of higher demand for energy, a practice frequently used in Denmark (DSF, 2004). Wind power therefore works well with existing power plants in Canada that can be used only when needed, such as hydro plants, or must-run power plants like biomass that tend to have excess power at night.

Global and Canadian growth of wind power are on the rise and this technology brings a set of attributes that are unlike any seen in conventional energy installations. In the next section, I discuss its economics including both its environmental and monetary benefits, as well as its costs.
3: The Economics of Wind Power

When selecting an energy source to play a role in a province’s energy mix, policymakers evaluate environmental and economic benefits, as well as costs. Renewable resources, and wind power in particular, have external costs and benefits that need to be taken into account if socially optimal investments are to be made. The considerable size of the wind industry and the rapid development of wind power across the globe give testimony to the sizeable benefits of wind in comparison to its costs. In this section, I discuss the environmental and economic benefits of wind power, as well as the costs associated with implementation of a wind power project.

3.1 The Benefits of Wind Power

Wind power has specific qualities that set it apart from other renewable and non-renewable energy sources. Wind power is a clean source of energy, which neither creates pollution, nor disrupts sensitive ecosystems. Its source is abundant, renewable and free. It creates unique economic conditions for citizens and communities through its development. In this section, I discuss both the environmental and monetary benefits of wind.

3.1.1 Environmental Benefits

Wind power has many attributes that make it a successful candidate for renewable energy projects. One of the most compelling reasons for increasing the world’s wind power is its very low environmental impact in construction and generation. The lifecycle environmental costs of wind power, which calculate the total environmental impact of bringing energy from its initial source to the consumer, including site construction, mining, transportation, fuel and the cost of

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5 The global wind market is estimated to be worth $36 billion annually. Moreover, global wind power capacity has grown at an average cumulative rate of over 32 percent in the past ten years (GWEC, 2008).
closing down the project, is very low. The bulk of environmental costs associated with wind power concern the production and installation of turbines. These costs are much lower than those of a coal or natural gas plant, which include the high environmental cost of extraction and shipping the coal or gas. Additionally, wind power produces no emissions and does not contribute to air pollution during generation. In a world where the power sector accounts for 38 percent of CO\textsubscript{2} and 25 percent of overall emissions, the development and production of clean and renewable energy sources is necessary in order to reduce harmful emissions (GWEC, 2008). Lastly, wind power does not impact upon fresh water supplies, using less than 1/600 as much water per unit of electricity produced as nuclear, and approximately 1/500 as much as coal (AWEA, 2008).

Perhaps the most attractive benefit of wind power is its ability to operate independently of any fuel requirements, keeping its price stable. When a wind farm is built and begins operating, the price of electricity is set and will remain the price for the lifespan of the project. As wind is the only required input for the turbines to operate, the only additional costs post-implementation are costs associated with maintenance and depreciation.

### 3.1.2 Monetary Benefits

Wind power projects provide a range of direct and indirect economic benefits to communities. Relative to other non-fossil fuel sources, the technology does not require the same high level of investment; also, it has the potential to enhance economically depressed rural areas (Hanley and Nevin, 1999). The development of a wind farm will provide both short and long-term employment, during the construction phase and afterwards for operation and maintenance. The manufacturing of wind turbine equipment and the purchasing of local services and supplies provide direct economic benefits to local communities. Additionally, wind farms contribute to the Canadian municipal tax base. In 2007, wind farms contributed approximately $5.6 million to municipal tax revenues (CanWEA, 2008c). Lastly, wind farms have also become a tourist attraction for visitors. For example, the North Cape Wind farm in Prince Edward Island drew in
60,000 visitors in 2007, providing additional economic support to the community (CanWEA, 2007).

Among the unique economic benefits wind development provides are the specific financial opportunities to landowners. Wind turbines can be co-located with most existing land use, offering an opportunity to lease land in return for payments (DSF, 2004). Specifically, wind turbines have provided a new ‘cash crop’ for farmers who can lease out land for wind turbine use. When farmers struggle financially, leasing agricultural property to wind power companies can provide much-needed financial support. The area required to locate turbines is often less than five percent of the total available land, allowing farmers and landowners to access and use the majority of their land as they wish (Gipe and Murphy, 2005).6

When wind developers identify a suitable area, they must approach landowners to secure usage of their land. ‘Optioning’ takes place in the preliminary phase of the process. Under a legal agreement, the developer pays the landowner for the right to erect an anemometer, which measures wind speed, on their property, and/or conduct other feasibility tests. At the end of the option period, the wind developer must either enter into a long-term lease agreement with the landowner, or, release the landowner from further obligation (Gipe and Murphy, 2005). Land lease payments are negotiated between the developer and the landowner, and vary according to the number of turbines and the wind resources in the area. Depending on the amount of wind power produced, leaseholders could receive $2,500 to $13,000 per MW per year (DSF, 2004).

The financial benefits produced by wind power are evident in the Municipal District of Pincher Creek, Alberta. With an installed capacity of 168 MW, the wind development at Pincher Creek has provided significant economic benefits in the form of $3 million in municipal taxes, 21 new full-time jobs and lease payments to landowners of $3,000 per MW for every installed turbine (CanWEA, 2008b).

6 Cattle can graze around wind turbines and most other agricultural activities can continue to take place.
3.2 Costs of Wind

The adverse effects of wind turbines are often stated as explanations for opposition to wind power development. While the validity of this concept will be discussed in Section 5, attention must be paid to the costs specific to this technology. The most significant concerns identified by those who oppose wind turbines include bird and bat mortality, noise and health impacts, and their effect on land values.

Wind turbines have the potential to disturb birds by affecting their natural habitat and through possible collisions with structures. A study undertaken to determine the effect of wind turbines on birds in the United States found that, on average, only two birds per turbine die each year from collisions (Erickson et al., 2001). This number is significantly lower than the number of bird fatalities associated with collisions with buildings, high-tension lines, communication towers or vehicles; run-ins with cats; or poisoning from pesticides (Erickson et al., 2001). In Toronto alone, 10,000 migratory birds die each year in collisions with brightly lit office towers (CanWEA, 2006).

Recent concerns about the effect of wind turbines on bats have spurred an increasing amount of studies on the issue. In one such study, researchers at the University of Calgary related the deaths of bats near wind turbines to internal trauma caused by a sudden drop in air pressure around turbine blades. ‘Barotrauma’ causes the balloon-like lungs of bats to over-expand, bursting surrounding capillaries (Baerwald, et al., 2008). Environmental assessments are required during the development process to identify any negative effects the project may have on the natural habitat and vitality of birds and bats.7

Wind turbines produce a “whooshing” sound when they are in operation. A wind turbine 350 metres away has a noise level of 35-40 decibels, similar to the level of a quiet bedroom or

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7 The development of turbines in ecologically sensitive areas is not advised, nor would it pass an environmental assessment.
night time background noise in a rural area (BWEA, 2008). Background ambient noise, topography, weather conditions and terrain conditions together create a complex mix of factors that affect the sound heard by nearby residents. The noise level is dependent on the area in which wind turbines are located, as well as the distance from them, making the siting of wind structures a prime consideration in the development process.

The effects of wind turbines on health are not fully understood or agreed upon, with studies stating conflicting results. Individual citizens have expressed personal concerns about the effect of wind turbines upon their health. Some citizens have cited symptoms including headaches, heart problems, nosebleeds and a constant ringing in their ears, which dissipate when individuals are not near the turbines. A recent publication states that wind turbines could affect the health of individuals who live within a close proximity (Pierpont, 2008). This view is not supported by scientists who are specialists in the area of acoustics, low frequency sound and its impact on human health. Several studies have concluded that there is no reliable evidence that infrasound produced by wind turbines produces physiological or psychological effects (Ramakrishnan 2007; Leventhall 2006). According to experts, undertaking proper siting and environmental assessments mitigates the risk to residents.

A common concern among residents in areas of wind development is the adverse effect the turbines may have on their land value. However, studies that have investigated the impact of wind developments on property prices have found no evidence to suggest a link exists. The Renewable Energy Policy Project in the United States found no statistical evidence that property values within sight of wind projects are lower than those in a comparable region (Sterzinger et al., 2003). No Canadian study has been undertaken to study the effects of wind turbines on land values.

While the significant growth of wind power around the world attests to the benefits of this technology, there remains concern at the local level about the advantages of implementing
turbines. This concern has manifested into opposition in many communities, stalling development and putting into question wind power’s ability to contribute to renewable energy targets. In the next sub-section, I discuss the policy problem as it exists in Ontario and discuss the stakeholders who have an active role in wind power development in the province.

3.3 Policy Problem and Stakeholders

In meeting the global challenge to reduce greenhouse gas emissions while securing a sustainable and reliable energy source for the province, the government of Ontario has set a goal to increase the supply of wind power to the province’s energy mix in the 21st century. This study examines the current policy problem in Ontario of opposition by communities to wind projects, which has the potential to threaten the province’s goal to increase its wind power supply and reach its stated target. The benefits of wind power are realised at the provincial level, while the costs are incurred in the locality where the turbines are installed. Certain communities are exhibiting resistance and low levels of tolerance towards the development of wind in their locality.

Ontario is the focus of this study as it is the Canadian leader in installed capacity of wind, while also setting the most ambitious target for wind power as a component of its energy supply. The goal of this study is to identify successful policies that increase community acceptance of wind power. To address the policy problem, I use a case study analysis to identify the characteristics, policies and planning systems of three European jurisdictions in which wind power has overcome local barriers to comprise a significant portion of national energy usage.

While community opposition is the largest barrier to wind development in Ontario, there are additional obstacles in the province that negatively affect development. These include a confusing and repetitive regulatory environment, a lack of financial support for projects from the government and an energy infrastructure system that cannot support this technology. Each of
these obstacles are important to recognize, however, this study focuses solely on the barrier of community acceptance.

This section summarized the economics of wind power, including its environmental and monetary benefits, as well as its costs. Understanding the unique attributes of this renewable technology helps to provide a context for the policy problem. While the benefits of this technology are mostly experienced on a provincial and national level, a majority of the costs are experienced in the locality. In the next section, I examine the emergence of wind power in Ontario, including the province’s shift towards renewable energy, the process for wind development and the opposition that has emerged out of the increase in the number and size of wind power projects.
4: Wind Power in Ontario

Ontario’s energy sector is responsible for 82 percent of the province’s GHG emissions, emphasizing the need for the province to increase aggressively its share of renewable energy projects (Environment Canada, 2009). This section explores the stakeholders involved in this issue, Ontario’s move to renewable energy (wind power in particular), the process for developing wind power, and the opposition that has emerged in response to the rapid development of wind power in the province.

4.1 Stakeholders

Four stakeholders have a significant interest in the development of wind power projects in Ontario: municipal governments, the wind power industry, wind farming communities and citizen advocacy groups. Municipal governments in Ontario have a large role in the development process as they exert responsibility over land-use and zoning practices in the province, a contentious and central issue in this debate. They also have primary responsibility for resolving community conflicts, and as a result are frequently at the centre of disputes.

The wind power industry in Ontario has grown significantly with the government-lead expansion of wind power projects since 2004. Energy companies working in wind power, including Canadian Hydro Developers and Brookfield Renewable Power, have placed a significant amount of capital towards the development of wind power, having heavily invested in the technology that supports these developments, as well as the extensive planning process, a timely and expensive precursor to development.
Wind farming communities, those with existing and those with potential wind projects feel firsthand positive and negative impacts of development. Any change to the current process is of great interest to community members.

Lastly, citizens across Ontario have included themselves in the wind power debate, many forming or joining community groups, solidifying support for and against wind power projects. In October 2008, 24 wind action groups joined together to form Wind Concerns Ontario, a province-wide coalition publicizing the impacts of wind development on health, the environment, the economy and quality of life (Wind Concerns Ontario, 2008). This coalition represents a powerful advocacy group with demonstrated its ability to cancel and severely delay wind projects.

4.2 The Shift to Renewable Energy

Recent events and ideological shifts have reinforced the need for energy system reform in Ontario. The historic Northeast blackout of 2003, which cut power to almost 10 million people in the province, highlighted the need to rethink Ontario’s energy supply and develop a new overall strategy. This event coincided with citizens’ increased awareness of climate change; in particular, about the need to reduce harmful emissions from fossil fuels, bringing into question the sustainability of Ontario’s heavy reliance on coal-fired power plants. The provincial government has committed to eliminating coal-fired generation by 2014. Within the next 20 years, almost 80 percent of the province’s generating capacity will have to be replaced (OPA, 2008a). The need for new energy infrastructure and the increased public demand for cleaner energy sources have made the creation of a reliable, sustainable and clean energy supply an important policy issue for the government.

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8 There are 29 groups as of March 2008.
9 Currently, nuclear power produces 37 percent of Ontario’s electricity supply, coal-fired generating facilities, 21 percent, oil- and natural gas fired generation, 16 percent and the remaining 26 percent is supplied through different types of renewable energy sources, primarily hydroelectric generation (OPA, 2008a).
The Ontario Power Authority (OPA) is the provincial organisation responsible for ensuring an adequate, long-term supply of electricity in the province. At arm’s-length from the Ministry of Energy and Infrastructure, the OPA is responsible for planning the province’s energy system for the next 20 years. In 2006, the Ministry of Energy instructed the OPA to develop a new, optimal energy supply mix that would meet the province’s needs. This directive includes a provision calling for a prominent role for renewable energy in Ontario’s new supply mix. In 2007, the OPA set forth the province’s plans to increase the electricity produced from renewable sources, including wind, to 15,700 MW by 2025 (OPA, 2007). This supply will complement increases in nuclear and clean-burning natural gas capacity (OPA, 2008a). Ontario has set ambitious targets for wind power, calling for 4,600 MW of wind power by 2025, comprising 30 percent of electricity produced by renewable sources in the province (OPA, 2007). This target will require significant development of the wind resources. Southern Ontario alone has an identified capacity to generate 58 percent of provincial consumption; with the strongest winds found along the shores of the Great Lakes and in areas with high elevations and exposure (DSF, 2004).

4.3 Provincial Programs for Wind Power

To reach the new target, the government of Ontario has called for the development of both large and small wind projects. Three programs are available within the province under which wind projects can develop, varying in accordance to the size (MW) and scope of the project. These programs include: (i) the Net Metering Regulation; (ii) the Renewable Energy Standard Offer Program, and (iii) the Request for Proposals process.

The Net Metering Regulation allows residents who generate electricity from renewable sources primarily for their own use to sell the electricity they produce to the grid. The difference between the value of energy provided by the residents and the value of energy they take from the grid results in either an amount owing to the utility provider or a credit to the resident on their
energy bills (MEI, 2008b). Several restrictions on the Net Metering Regulation prohibit its widespread use in Ontario: possible production cannot exceed 0.5 MW; residents are responsible for the high costs required to access the electrical grid; and there is no special pricing system for producing electricity from renewable sources to account for the high cost of production and implementation.

Projects under 10MW can access the Renewable Energy Standard Offer Program (RESOP). RESOP encourages small, renewable projects of 10 MW or less to sell their electricity to the Ontario grid system under a fixed cost system. RESOP is similar to the net metering regulation; however, projects receive a feed-in tariff price to accommodate the higher costs of producing energy from renewable sources.

The last policy instrument used to promote the development of wind and other renewable energy sources is a Request for Proposals (RFP) process performed by the OPA. The RFP is a competitive process in which developers submit wind project proposals to a committee that selects projects based on the project with the lowest cents per kilowatt. The RFP process is directed at large-scale commercial renewable energy projects and thus differs from the RESOP process, which focused on small projects under 10 MW.11

Through competitive RFP submissions and the RESOP program, Ontario has become a leader in Canadian wind development. Investments in Ontario wind farms in place or under construction total about $2.5 billion. By summer 2009, Ontario is expected to have 1,200 MW of wind power online, an 80-fold increase from 2003 (MEI, 2008a). Ontario has eight large wind power projects in commercial operation across the province, ranging in scale from 39 to 132 MW. Five large-scale wind farms are under development and construction, each with a generating capacity of over 100 MW.

10 This credit lasts for 12 months

11 RFP processes initiated by the OPA in 2004 and 2005 approved the development of wind projects totalling 1309 MW.
4.4 Developing Wind Power

The Ontario wind power planning system is a complex path, taking developers through a series of federal, provincial and local permit processes, depending on the size, nature and location of the project. The limited mention of wind projects in the planning directives of the province is found in the Provincial Policy Statement (PPS), the highest planning policy under the provincial Planning Act. While the PPS states that “increased energy supply should be promoted by providing opportunities for energy generation facilities to accommodate current and projected needs and the use of renewable energy systems”, there are no specific, legislated guidelines on the means by which municipalities engage, interact and proceed with developers (MAH, 2005, p. 14). Therefore, each municipality directs development as it sees fit, causing developers across the province to face different sets of rules and regulations depending on the municipality they choose to develop in. The most standardized component of the wind development process is the environmental assessment process, which contains the only legal requirement for consultations with the public.

4.4.1 Provincial Environmental Assessment

The *Environmental Assessment Act* (EAA) in Ontario provides for the protection, conservation and wise management of Ontario’s environment through the establishment of a provincially led process for decision-making prior to a project commencing (MOE, 2001). Wind projects are classified as Category A (projects expected to have minimal environmental effects), Category B (projects which have potential environmental effects that can likely be mitigated) or Category C (major projects with known significant environmental effects) depending on their size and potential environmental impact. Wind projects less than 2 MW in size are classified as Category A projects and have no requirements under the EAA. Developments larger than 2 MW are classified as Category B projects and are required to complete an Environmental Screening Process (ESP; MOE, 2001).
The ESP is a self-assessment process. It requires all projects to undertake a screening stage, in which proponents apply a series of screening criteria to identify the potential environmental effects of a project. A more detailed environmental study is required if potential concerns are raised during the screening stage that cannot be addressed. The developer’s report under the ESP is made available to the public and agencies for a minimum 30-day review period. During the review period, members of the public and agencies with outstanding environmental concerns have the opportunity to request that the project be elevated to an Environmental Review within the ESP, or to an individual Environmental Assessment (MOE, 2001).

### 4.4.2 Consultation with the Public

The consultation process is a central component of the ESP, requiring all proponents of projects larger than 2 MW to identify and address public concerns and issues (Ministry of Environment, 2001). Consultations are required by the province to: (i) properly notify potentially interested and affected stakeholders; (ii) identify and assess the range of environmental and socio-economic effects of the project; and (iii) address the concerns of adjacent property owners, interest groups and members of the public that may be directly affected by some aspect of the project (MOE, 2001). It is entirely up to the project proponent to design and carry out this process, as well as include any additional consultations with the public.¹²

Many citizens in wind farming communities find the consultation process too developer directed and limited in citizens’ ability to participate. As the ESP is the only legally required public consultation for wind projects in the province, many citizens believe there is a need to

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¹² For example, the Wolfe Island Wind Project, located off the shore of Kingston, commenced community consultations early on in the project, with informational workshops and open houses beginning in 2002, a full five years before the project began construction.
expand the process to all projects (not just those over 2 MW) and increase the time, scope and public input required.13

4.5 Opposition to Wind Power

While Ontario is the leading Canadian province in terms of installed wind capacity, the development of this renewable resource is increasingly met by community opposition that could threaten the government’s goal. Large-scale wind projects are being cancelled or severely delayed; developers and citizens are taking legal action; and municipalities are creating barriers to development. The environment for wind development in Ontario is becoming increasingly crowded, hostile and uncertain.

4.5.1 Cancelled Projects

In October 2008, EPCOR Utilities Inc. announced its decision to cancel a planned 160 MW, $300 million wind farm in Goderich, Huron County. EPCOR currently operates a 20 MW wind development in Goderich, called Kingsbridge I. The cancelled project, Kingsbridge II, would have produced electricity for 50,000 homes. This project had signed a Standard Offer with the province in 2005, with a specified in-service date of October 2008. EPCOR stated the main reason for the cancellation of the project was the extensive wait for provincial and municipal approvals. Municipal approvals were delayed because of appeals by individuals opposing the development. This is not the first large-scale project in Ontario to be cancelled. In July 2006, Brookfield Power terminated its proposed 50 MW Blue Highlands wind development in Blue Mountains, near Collingwood. Similar to the cancellation of Kingsbridge II, the Blue Highlands project was cancelled because of excessive municipal approval delays. Without the requisite municipal approvals, Brookfield was unable to meet the timelines imposed in the contract.

13 However, if the project is built on crown land in Ontario, there must be an aboriginal consultation process; if it is built within a conservation area, there must be an additional public consultation process.
4.5.2 Legal Action

The Ontario Municipal Board (OMB) has played a large role in mediating and resolving disputes regarding wind development. The OMB is an independent tribunal that hears applications and appeals on land-use planning, municipal issues and financial issues related to development. Its decisions are based on evidence, relevant law, provincial policies and the principles of good planning (OMB, 2008). Developers and community members have taken cases to the OMB in hopes of changing the course of development.

Developers can file a case with the OMB when negotiations with municipalities fail or when they are dissatisfied with the decision of a municipal council to impose limitations or amendments to a project, or reject it all together. In 2008, Brookfield Renewable Power appealed the decision of the Kingsville town council to reject a proposed wind project. After adjudication, the OMB approved the official plan and zoning bylaw of a proposed wind development in Kingsville.

Community members may file a case with the OMB to express their dissatisfaction with the municipality’s approval of a development. Residents of Wolfe Island appealed to the OMB in an attempt to prevent the development of a proposed wind project by Canadian Hydro Developers Inc. While the OMB dismissed the appeal, the appellants and the developer did come to an agreement on several outstanding issues, including the creation of a Community Liaison Group that would include a representative of the Canadian Hydro Developers Inc. and members of the community.

4.5.3 Municipal Barriers to Development

In October 2008, the Township of South Algonquin placed a ten-year moratorium on wind farms, effectively shutting down any current or future development. This decision by the township’s council followed a public meeting on a proposed wind development on the Highway
60 corridor in Eastern Ontario. Citizens of the township, many part of the Save Our Skyline community group, expressed their opposition to development, citing health, environmental, economic and safety concerns. Similarly, in February 2009, the County of Oxford commenced plans to freeze wind power development applications. Council members based the decision on the lack of information regarding the health impacts of wind turbines on local populations.

The Deputy Premier and Minister of Energy and Infrastructure expressed his disappointment with the South Algonquin moratorium, stating “We cannot expect to build a more environmentally sustainable energy system without some trade-offs. We need every community, every Ontarian, on board and working together to create a greener energy future” (Osprey Media, 2008). As seen in this section, achieving a balance between the progressive development of Ontario’s wind resources, with the need to respect a community’s views and opinions on development is a growing challenge in Ontario. In the next section, I examine factors affecting community acceptance as identified in the literature.
5: Literature Review

Several studies have shown strong public support for wind power at a general level (Devine-Wright, 2005 and Wolsink, 1999). In Canada, 88 per cent of individuals support provincial government requirements that a specific portion of energy produced come from emerging renewable sources such as wind and solar (CanWEA, 2007). However, on a local level, support steadily declines and Ontario is no exception, as seen in Section 4. Wind farms have met opposition all over the province as power companies heed the provincial government’s call for clean renewable energy. This section discusses the factors widely regarded as affecting community acceptance of wind projects. I also discuss the theoretical argument of Not-In-My-BackYard behaviour, dismissing it as a defining factor of community acceptance.

5.1 Community Acceptance and Renewable Energy

The study of community acceptance of renewable energy systems was initially limited, deterred by the high level of general public support for renewable energy technologies. However, certain attributes about renewable technologies have brought new issues to the community acceptance debate. Firstly, renewable technologies tend to be smaller-scale than conventional power plants, which increases the number of siting decisions that are required. Secondly, renewable energy conversion is typically characterised by lower energy densities (less output per development than non-renewable sources). Because of this, the relative visual impact per unit of output tends to be higher. For example, wind turbines have a considerable visual range and harnesses energy in a much more visible way than nuclear or fossil fuel based extraction. Thirdly, renewable energy conversion happens closer to where the consumer lives, increasing visibility and bringing the environmental impact closer to their residence (Wüstenhagen et al., 2007). These
characteristics are exclusive to renewable energy, therefore putting these technologies on an unequal playing field with conventional energy sources, and making acceptance of them a choice between short-term costs and long-term benefits.\textsuperscript{14}

Wüstenhagen et al. (2007) give clarity to the issue of social acceptance by describing it in three dimensions: socio-political acceptance, community acceptance and market acceptance. Each category of social acceptance and its underlying factors are described in Figure 3.

\textit{Figure 3: Social Acceptance of Renewable Energy Innovation}

\begin{center}
\begin{tikzpicture}
  \node {Social Acceptance Of Wind Projects}
  \node [below] {Socio-Political Acceptance} child {node {Procedural Justice}
    child {node {Public Participation}}
    child {node {Compensation}}
  } child {node {Market Acceptance}
    child {node {Distributional Justice}
      child {node {Ownership}}
    }
  } child {node {Community Acceptance}
    child {node {Trust}
      child {node {Siting}}
    }
  }
\end{tikzpicture}
\end{center}


Socio-political acceptance refers to acceptance on a broad, general level. Policies relating to renewable energy innovations and the technology itself are subject to acceptance by the public, key stakeholders and policymakers (Wüstenhagen et al., 2007). The increasing trend among

\textsuperscript{14} The majority of conventional energy sources are located out of view and produce large amounts of energy.
policymakers to implement renewable energy legislation, set renewable energy targets, and introduce financial tools to promote investment in these technologies collectively signals growing socio-political acceptance of wind power in Canada and internationally.

Market acceptance refers to the process of adoption of an innovation by consumers, investors and within the energy industry (Wüstenhagen et al., 2007). Firstly, the changing nature of consumer choice with regards to energy consumption demonstrates the increasing consumer acceptance of renewable technology. Consumers in many areas of Canada are now able to purchase their energy from renewable sources, a significant shift from the previous model in which consumers were tied to the utility provider in their area and were without choice as to the type of energy they were buying. Secondly, the growth and success of the wind industry in Canada, as well as the entrance of Canadian energy companies previously solely focused on the production of energy from non-renewable sources further prove increasing market acceptance of wind power.

While success has been achieved with both socio-political and market acceptance of wind power, the same cannot be said for acceptance at the community level. Community acceptance refers to the specific acceptance of siting decisions and renewable energy projects by local stakeholders, particularly residents and local authorities (Wüstenhagen et al., 2007). As wind developments across the world are spreading, the level of community acceptance has become a large determinant of the success of a project. The rejection of a project at the local level can be a powerful barrier to the achievement of renewable energy targets set by policymakers.

Figure 3 acts as a guideline to study the common factors affecting community acceptance of wind power as they appear in the literature. Community acceptance is divided into three components, procedural justice, distributional justice and trust, each exerting considerable influence over the success of a wind power development.
5.2 Procedural Justice

The idea of a fair decision-making process is central to community acceptance. A lack of consultation in the planning and implementation process can cause communities to object to development in their area. A case study of 18 wind power projects in England, Wales and Denmark finds that projects with high levels of participatory planning are more likely to be publicly accepted and successful (McLaren Loring, 2006). Additionally, residents living nearby wind power installations in Sweden emphasised the role of collaborative approaches and the benefits of involving local populations in early stages of planning wind power developments (Hammerlund, 2002). These findings suggest that communities may be more likely to accept a wind project if given the opportunity to influence its design and/or location. Pasqualetti (2002) suggests that the success of wind power depends on how well the industry learns to incorporate the public into decisions through consultations; including suggestions the public can bring to the discussion about its concerns and how to accommodate them.

This concept is in line with the Participatory Planning Theory, which argues that if people are informed very early in the project’s development, they do not feel threatened, anticipate benefitting from the project, and are more likely to react positively to the project (McLaren Loring, 2006). A participatory decision-making process with direct involvement by citizens beyond formal consultations can also enhance the democratic legitimacy of the process and the outcome. Eltham et al. (2008) suggest that collaborative approaches to decision-making in development are shown to be more effective than top-down imposed decision-making, with public engagement in the process serving to reduce opposition. As wind turbines have a direct and visible impact on the people who live in the local area, citizen participation becomes crucial to acceptance.
5.3 Distributional Justice

Planning outcomes perceived to be unfair can result in protests, damaged relationships and divided communities particularly when decisions benefit some sections of the community at the perceived expense of others (Gross, 2007). The distribution of the costs and benefits of a wind project play a large role in a community accepting its development. Those who stand to benefit directly from the development of wind power are arguably more open to the idea and support its implementation. Therefore, extending benefits in the form of lease payments, shares, reduced electricity bills, and local tax revenues, expands the circle of financial winners beyond just developers. According to Gipe (2005) turbine envy has led to opposition to some wind projects by neighbouring landowners who feel excluded or cheated out of potential revenues.15 Under most optioning agreements, landowners with structures on their land receive financial benefits, while neighbours do not, despite living with the physical impacts, such as sight and sound, of the wind turbine. Thus, adjoining landowners often have an economic reason to oppose wind power development.16 The creation of financial winners and losers can increase opposition from those who do not see direct benefits from its implementation.

One of the direct ways in which local residents have altered the distribution of costs and benefits is through local ownership of wind projects. Locally inspired and locally owned projects can help improve the prospects of getting planning consent and improve the general planning environment for wind power. Wind co-operatives involve large numbers of people investing in wind power, enlarging the pro-wind lobby at the local level (Toke et al., 2006). The analysis of a wind farm development in Germany demonstrates that by “reducing the gap between a few ‘winners’ and many ‘losers’, local ownership might well have helped to form a network in

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15 Turbine envy is likened to the concept of ‘Please-In-My-BackYard’.
support of the park” (Jobert et al., 2007, pg. 2759). While co-operative ownership is widespread in Europe, the best expression of co-operative ownership is Denmark. Danish citizens who own shares in turbines are significantly more positive towards wind energy than people with no economic interest in wind turbines (Devine-Wright, 2004). Additionally, members of wind co-operatives are more willing to accept further turbines in their locality compared with non-members. The issue of local ownership not only contributes to acceptance in terms of distributional justice, but also influences the level of trust that residents have in the project.

5.4 Trust

Trust is a key issue in the community acceptance of wind projects, and is found to be a large factor in not only the decision-making process, but more importantly in the siting of wind turbines and the information received by the public. Local resistance may be an expression of suspicion towards the people or the company who want to install them. This explanation resonates in Ontario, where large corporations dominate wind power development, as opposed to Denmark, where the majority of wind power projects are owned co-operatively. A 2008 survey of Canadians shows 63 percent of Canadians believe that project developers are not very trustworthy or not trustworthy at all when providing information or a point of view on energy projects (McLaren, 2008). Municipal governments did not fare well either, with only 13 percent of respondents believing them to be extremely or very trustworthy. In contrast, 33 percent of respondents believe environmental groups to be extremely or very trustworthy.

This distrust of project developers and municipal governments can lead to perceived unfairness in the decision-making process. Wüstenhagen et al. (2007) suggests that when investors and facility owners come from outside the community, trust in their aims, attitudes and competence becomes an issue. An Australian study on community perspectives of wind energy indicates that perceptions of fairness do influence how people regard the legitimacy of the

17 Park here refers to wind park, a term equated with wind farm.
outcome of development, most specifically, that a fairer process will increase acceptance of the outcome (Gross, 2007). A perceived fairer process can create a mutual trust between developers and local actors, increasing acceptance of the outcome.

Perceived impacts on scenery and the visual intrusion on the landscape combine to be a large predictor of attitude towards wind power. The perceptions of fairness in decision-making about siting wind farms is connected with perceived environmental risk and core values about how society should take such decisions, not only among the public, but also among stakeholders involved in these processes (Wolsink, 2007). Warren et al. (2005) suggest that aesthetic perceptions, both positive and negative, are the strongest single influence on individuals’ attitudes towards wind power projects, making the siting of such structures a contentious issue in communities.

Developers often take public support towards wind power for granted and are subsequently confronted with public resistance to the placement of turbines. The alteration of a landscape can be abrupt and shocking to community members. The siting of wind farms in the landscape reveals a significant difference between the logistical requirements of developers and the wishes of local communities. Developers choose to site wind projects in areas where there is a strong wind resource, reasonable proximity to the electrical grid infrastructure and available land to secure with lease agreements. Land selected to fulfil these requirements is often in direct opposition to the desire of local residents, who have an interest in locating the turbines in areas in which there is little attachment to the landscape. Landscape impacts of wind farms are further increased by the fact that locations with the highest wind resource are often exposed areas that are valued for their scenic qualities (Warren et al., 2005). The translation of a natural landscape into a landscape of power has the potential to cause citizens to oppose wind power projects in their communities. In an examination of French and German wind power developments, Jobert et al. (2007) find that planning rules allay public fears of uncontrolled growth.
The second component of trust concerns information about wind power and its impacts. Misconceptions and myths concerning the human, health, safety, land values and wildlife impacts of wind turbines can fuel opposition to development. The public’s concern regarding the impacts of wind farms is subjective and sociological factors such as a person’s knowledge of the technology, exposure to particular media reports and the opinions of friends and relatives living locally are important in determining their extent (Eltham, 2008). The use of awareness campaigns to educate communities of the impacts of wind power projects can reduce public resistance to new generation (Fouqet, 1998). Education from a neutral and trusted source about the genuine impacts, as well as the protections in place to reduce the impacts, is shown to increase acceptance.

5.5 Not-In-My-Backyard

It is necessary to address the concept of Not-In-My-BackYard (NIMBY) behaviour in relation to wind power projects. The media and some policymakers have conventionally attributed NIMBY behaviour as the source of opposition by individuals and communities towards wind power developments. However, this claim is discounted by researchers (Wolsink, 2007; Devine-Wright, 2005; Wolsink, 2000; Krohn, 1998) who question the validity of the NIMBY argument as it relates to wind power development. NIMBY syndrome reflects a protectionist attitude towards unwanted development in which community members exercise oppositional behaviour. This behaviour is not new to policymakers, as it appears in a variety of circumstances, such as residential rehabilitation centres, waste facilities and large infrastructure projects. In opposition to unwanted development, community members engage in a variety of strategies to shut the contentious project down, which include letter-writing campaigns, public demonstrations at sites under consideration, engagement with the local media and the development of formal opposition groups.
In the case of wind development, people exhibiting NIMBY behaviour are in favour of wind power, but oppose wind turbines in their own area (Wolsink, 2000). The validity of the NIMBY argument rests upon studies that show national, but not local, support. However, many studies have identified a positive relationship in terms of support, namely those people in favour locally are also in favour of development nationally (Devine-Wright, 2005). In Ontario, a CanWEA study (2007) finds that 89 percent of respondents who live within one mile of wind farms support its development. More importantly, the NIMBY label leaves the cause of opposition unexplained (Wolsink, 1999).

In a survey of three Dutch wind farm sites, Wolsink (1999) found that several other factors, including the visual perception of wind, annoyance of sound, and perceptions of environmental factors influence attitudes about wind farms more than NIMBYism. Furthermore, he found that institutional factors, such as the style in which wind projects are planned, the relationships between developers and residents, and the amount of public consultation undertaken have more to do with the success or failure of a wind project than residents’ NIMBY behaviour. Wolsink (1999) asserts that by labelling all protests as NIMBY, “one misses the multitude of underlying motivations” behind opposition to wind power developments (Wolsink, 1999, p. 61).

In order to determine how community acceptance is achieved through policy measures, it is necessary to examine the interplay of interests and planning institutions which determine community acceptance. Hence, in the following sections, I identify the underlying factors that explain community acceptance: procedural justice, distributional justice and trust. The next section describes the methodology, including the research evaluation framework and cases selected.
6: Methodology and Case Study Selection

The goal of this section is to examine various policy tools used to overcome community resistance to wind power developments. I examine three European jurisdictions that have each achieved success in installing a high capacity of wind power: Denmark, Scotland and Germany. Through the study of academic literature and reports from government, industry and non-governmental organisations, I investigate each case to highlight the strengths of the frameworks that exist for developing wind power, including the characteristics, policies and planning systems of each jurisdiction. While the analysis of these cases allow me to make conclusions that are meaningful within the context of Ontario, I also examine a focus group study identifying best practices for wind power development in the province to verify the transferability of the case study results.18 This section describes each case study and presents a research evaluation framework.

6.1 Selection of Case Studies

Wind power has developed at different times and under different models in Denmark, Scotland and Germany, providing a diverse examination of the process of wind power development. I chose cases based on whether they met three criteria: success, public support and transferability (see Table 1).

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18 Transferability focuses on general similarities of findings under similar environmental conditions, contexts or circumstances.
Table 1: Case Study Criteria

<table>
<thead>
<tr>
<th></th>
<th>Denmark</th>
<th>Scotland</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Installed Capacity 2007 (MW)</strong></td>
<td>3,124</td>
<td>1,550</td>
<td>22,247</td>
</tr>
<tr>
<td><strong>Installed Capacity Per 100,000 People</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56.7</td>
<td>30.3</td>
<td>27.1</td>
</tr>
<tr>
<td><strong>National Energy Usage 2007 (%)</strong></td>
<td>19.7</td>
<td>5</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Level of Support in Favour of Wind 2007 (%)</strong></td>
<td>86</td>
<td>85</td>
<td>88</td>
</tr>
<tr>
<td><strong>Renewable Energy Target</strong></td>
<td>50% by 2025</td>
<td>50% by 2020</td>
<td>27% by 2020</td>
</tr>
</tbody>
</table>


Each jurisdiction has achieved success in wind power implementation. This criterion is measured not only by the installed capacity of wind power in MW and per capita, but also by the penetration of wind into the national energy mix, as a percentage of national energy demand.\(^\text{19}\) Installed capacity per capita is a helpful indicator of success. Ontario’s low capacity per capita of 12.9 illustrates its under achievement in comparison with the selected cases. Secondly, in each case there is a high level of public support for wind power, as shown in surveys of public opinion. Finally, each case is similar enough to Ontario. While the cases selected represent different levels of government, commonalities exist allowing for transferability of lessons learned. Electric power production, transmission and distribution are the responsibility of provinces in Canada. Similarly, each jurisdiction is responsible for its energy planning and generation.\(^\text{20}\) Each case has set a target for renewable energy production, creating the same impetus for development as in Ontario.

Additionally, each case is similar to Ontario in regards to the scale of development. Denmark, Scotland and Germany have both small-scale and large-scale projects, ranging in size from one MW to over 100 MW (DWIA, 2009; BWEA, 2009; BWE, 2008).

\(^\text{19}\) Each jurisdiction has different energy demands; therefore, solely looking at the installed capacity in MW can be misleading.

\(^\text{20}\) Comparing Canada at the national level to each jurisdiction is not possible due to the legislated powers of the provinces in Canada.
Denmark has long stood as a leader in wind power, with development beginning over 30 years ago in the country’s search for energy independence and security. Denmark was especially sensitive to the oil crisis of 1973, with 99 percent of its energy imported from foreign sources (Gipe, 1995). It has achieved the highest penetration of wind energy in its total national energy usage in the world, with wind comprising 19.7 percent of national energy demand in 2007 (IEA, 2008). Onshore capacity for new wind projects has reached a high level of concentration. Current development in Denmark focuses on replacing first-generation turbines with modern and more efficient multi-megawatt wind turbines, as well as offshore development.

Scotland had a total of 1,550 MW of wind power in 2007. With an identified wind resource of 36,500 MW, Scotland accounts for 25 percent of Europe's potential wind power (BWEA, 2008). Sixty percent of the United Kingdom’s onshore wind installed capacity is located in the region (Scottish Renewables, 2009). The government’s renewable energy target of 50 percent by 2020 will be met primarily through onshore wind power, as Scotland not only has an abundance of wind resources, but also enjoys a high level of local acceptance of wind power, with 76 percent of projects approved in 2008 (BWEA, 2008). In this study, I treat Scotland as a separate jurisdiction due to key conditions affecting community acceptance which differ from those in England, Wales and Northern Ireland (Toke 2005a, Toke et al., 2008 and McLaren Loring, 2006).

The last case is Germany, which leads the world in installed wind power. In 2007, Germany had 22,247 MW of wind power installed, accounting for 6.4 percent of the country’s national electricity demand (IEA, 2008). Wind is the cornerstone of Germany’s renewable energy sector, with a booming wind industry accounting for over 100,000 jobs (BWE, 2008). The explosion of the wind industry over the past 15 years can be attributed to a variety of support

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21 This is evident in Denmark’s low installed new capacity for 2007 of three MW.
programmes from the national and State governments. However, growth is expected to slow down over the next few years due to the current limited availability of land. Future development in Germany, as in Denmark, focuses on replacing old turbines and offshore wind power implementation.

6.2 The Research Evaluation Framework

I assess each case based on the inclusion of specific characteristics that relate to the three factors of community acceptance identified in Section 5: procedural justice, distributional justice and trust. Table 2 outlines the specific characteristics of community acceptance, as well as the measurements used to determine how and to what extent each jurisdiction has integrated these factors into their wind development frameworks. Procedural justice includes the characteristic of public participation. Distributional justice includes the characteristic of compensation and ownership. Trust includes the characteristics of siting and information.
### Table 2: Evaluation Framework

<table>
<thead>
<tr>
<th>Factor of Community Acceptance</th>
<th>Characteristic</th>
<th>Definition</th>
<th>Measure</th>
</tr>
</thead>
</table>
| **Procedural Justice**        | Public Participation | Degree of inclusion of the public (community) in the development process. This can include consultation at some point in the project, or more direct involvement by citizens in decision-making beyond consultations. | • Community consultations required?  
• Community role in decision-making process? |
| Compensation                    | Public returns from the development of wind projects provided to the community such as local tax revenue, in-kind donations and monetary compensation. Private returns to neighbours include benefits such as direct monetary compensation and land-pooling arrangements. | • Compensation extended to communities?  
(Standard or Ad hoc)  
• Compensation extended to neighbours?  
(Standard or Ad Hoc) |
| **Distributional Justice**     | Local ownership can take the form of co-operative or citizen ownership. Co-operative schemes are participative and locally based or run for non-profit purposes. Citizen wind farm refers to citizen-investor-owned schemes with strong local participation. (Farmers are included in this group). Corporate ownership refers to a range of non-local type of ownership including traditional utilities, independent power producers and other hybrids. | • Local ownership of wind power by percent capacity.  
• Incentives to encourage community ownership? |
| **Trust**                      | The process which locates wind power turbines and infrastructure in the landscape. | • Land-use planning system for wind farms?  
• Defined ‘wind zones’?  
(Mandatory / Not Mandatory)  
• Areas protected from wind development?  
• Responsibility for siting decisions  
• Who proposes locations? |
| Information                    | The dispersal of neutral information from government to community members. | • Education campaign about wind power? |
7: Case Study Analysis

This section summarizes the findings of the analysis for Denmark, Scotland and Germany. Each factor of community acceptance is analysed in turn for all three cases. Following a detailed explanation of each factor, Table 3 presents a summary of the findings.

7.1 Procedural Justice

Procedural justice refers to the degree of participation by community members in the development process. Each country has made Environmental Impact Assessments (EIA) a required step in the process of wind development. Rules for EIAs are based on directives from the European Union, making the process very similar across functions. The similarity most germane to this study is the requirement for a public comment period in the EIA process.

Denmark is the only country to go well beyond the EIA process in terms of public participation. Danish public participation in the development process is spaced out temporally. That is, citizens are able to participate at several steps of development: before, during and after construction. Miles and Odell (2004) identify the formal public participation avenues available in Danish wind project development:

- Public participation and comment periods on regional plans;
- Public participation and comment periods on municipal plans;
- Eight week comment period for local plans;
- Comment period on environmental impact assessment;
- Appeal to the Nature Protection Board of Appeal; and
- Appeal to civil courts
The participation process in Scotland begins after a project has been announced. After a public notification by the developer of the intent to construct a wind project, citizens have 28 days to register as objectors to the project (Scottish Renewables, 2009). If a project is not approved by the local authority, Scottish Ministers have the discretionary power to call a public inquiry into the project which allows developers, community members and other stakeholders to make their case for or against a wind project. Additionally, participation in Germany is limited beyond the EIA. The German municipal code does not provide the opportunity for residents who attend public meetings on wind projects to participate in the process. (Rogers et al., 2008)

7.2 Distributional Justice

As identified in the literature, providing compensation to local communities, as well as to the neighbours of wind turbines can play a significant role in sustaining public support for a project.

7.2.1 Compensation

Public returns: Among the three cases, variations exist across the type of benefits extended, as well as the nature of the benefit, with some being legislated by government, while others are undertaken voluntarily by developers. The most explicit rules regarding community compensation are in Germany, where environmental legislation compels developers to provide compensation to the communities affected by wind power development. The Law on Environmental Protection calls for developers to provide compensation measures for unavoidable damage through environmental protection and landscaping measures, or replacement measures which can include monetary payments (Pasqualetti et al., 2001). The aim of these measures is to increase the value of these locations from an environmental protection viewpoint and to compensate for any intrusion on the natural environment. Compensating measures can include the planting of trees to increase the structural diversity in rural areas, constructing ponds to create
breeding and food habitats for birds and small animals, or planting meadows with mixed vegetation (Windstrom, 2009).

Precedence is given to measures that can be taken to reverse impacts on the environment. However, if this is not possible, alternative measures equivalent to the environmental impact are required. An examination of wind projects in the federal State (Länder) of Saxony-Anhalt, shows compensation to communities in the form of one-time payments range between €210 and €80,000 per turbine, with annual payments varying between €360 and €5,600 (Centre for Sustainable Energy, 2005). In addition to these compensatory measures, communities receive income in the form of a trade tax from the operation of the wind turbines. Additional types of community compensation, such as road maintenance and community facilities, are offered only on an ad hoc basis by developers, and are not required by law.

Community benefits in Scotland are all voluntary in nature, carried out entirely at the discretion of the developer. Additionally, Scottish communities do not realise any tax benefit from the wind power projects. When submitting applications for wind projects to planning councils, developers may include the provision of benefits to communities. The types of benefits that have been included in planning applications include: visitor’s centre to boost local tourism, walking and bike trails and contributions to environmental and community funds. Moreover, payment into a community fund is increasingly becoming a standard feature of planning applications, however no standard level of payment or approach to the management of the funds exists (Centre for Sustainable Energy, 2005). In recognition of the negative reactions of the public to the informal nature of community benefits, the Renewable Advisory Board has

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22 German Länder may have additional environmental laws that further specify compensation requirements.
23 This information is from correspondence with a Scottish civil servant working in the Renewable Policy Unit of the Scottish Government.
24 Two local planning authorities in Scotland have developed policies explicitly seeking financial contributions to community funds from wind projects.
developed a toolkit for developers, local authorities and local communities to make meaningful community benefits systematic in wind projects (Energy Savings Trust, 2009).25

The fact that Denmark does not have defined community compensation relates to the high level of community ownership of wind projects.26 These high rates of community ownership provide, on an ongoing basis, monetary benefits to many people in communities with wind projects. Danish communities do not receive specific local tax revenues from wind projects above property taxes from landowners who have turbines located on their property (Centre for Sustainable Energy, 2005).

Private returns: The absence of financial benefits to neighbours living with the negative externalities of nearby wind turbines can negatively affect the local acceptance of wind projects, as seen in Section 5.3. However, Denmark is the only case which is developing policy to mitigate the costs felt by neighbours of turbines. The Danish government has developed a document outlining a policy that will include the provision of a compensation scheme for neighbours of new wind turbines. This compensation will account for any loss in property value above one percent and will be given by wind turbine owners at the time of installation of the turbines.27 This compensation scheme will be worked into the upcoming Renewable Energy Law (Danish Energy Agency, 2008).

While there are no laws regulating the dispersal of benefits to neighbours in Germany or Scotland, German developers have experimented with the creation of pooling arrangements among neighbouring landowners. For example, in the City of Paderborn developers have combined all neighbouring landowners in a land association which leases the combined land to

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25 This toolkit examines the range of ways in which ‘host communities’ can benefit from wind energy developments, the possible justifications for ensuring greater local benefits, the factors which may influence the nature and scale of benefits available to host communities, the options for managing the delivery of benefits locally and the role each of them can potentially play in securing local benefits.

26 This information is from personal correspondence with an employee of a Danish wind power firm.

27 These payments will be determined by a yet-to-be announced assessment authority.
several investor-owned co-operatives (Gipe, 2005). Benefits from this pooling arrangement extend not only to those with turbines on their land, but also to neighbours.

7.2.2 Ownership

Local ownership comprises 45 percent of wind projects in Germany, owing to the development favourable legislation and policy tools (Toke, 2005b). In Germany, a favourable pricing system for wind power induced many individuals to invest in local schemes. Electricity produced from renewable energy sources in Germany is given priority for grid connection, grid access in both distribution and transmission grids, and power dispatch (GWEC, 2008). Grid operators are obliged to feed-in electricity produced from renewable sources and buy it at a minimum price within their supply area (BWE, 2008). The price set for electricity generated by wind is high enough to properly compensate the generator and make a project profitable. These favourable conditions have allowed many individuals to invest in local power schemes, becoming ‘energy experts’ and creating a strong lobby for wind power (Toke et al., 2008). Additionally, favourable lending conditions by banks for wind projects have also supported local ownership.28

As of 2002, 80 percent of turbines in Denmark were owned by individual farmers or wind energy co-operatives, with 150,000 Danish families owning turbines or shares in turbines (IEA, 2008). Bottom-up efforts in Denmark have been supported and encouraged by the Danish government, which introduced subsidies, tax credits and ownership criteria that encouraged co-operative ownership of turbines. Until 2000, restrictive ownership regulations were in place to support the growth of local ownership models. Prior to these restrictions being lifted, one person could own no more than one wind turbine and co-operatives could only consist of members of the municipality or neighbouring municipality. Additionally, a cap was put on the maximum shares

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28 Farmers have specifically enjoyed favourable lending through agricultural financial institutions. Additionally, 80 percent of all existing wind turbines are financed by Deutsche Ausgleichsbank environmental protection loans.
members could own in wind projects (McLaren Loring, 2006). Restrictions were placed on the feed-in tariff for wind power in 2000, due to constraints in the national budget.

While there is a low level of local ownership in Scotland, the Scottish government has implemented programs to encourage growth in this area. The Scottish Community and Householder Renewable Initiative (SCHRI) supports the development of community scale renewable energy projects through advice and financial support. SCHRI provides grants up to £100,000 for communities to install renewable technologies, as well as advisory and project management support providing expertise in developing renewable energy projects (Energy Savings Trust, 2009). Hybrid ownership schemes, in which a developer collaborates with a community under the supervision of a third party, are spreading through Scotland. Under this arrangement, shares of the development are sold to the public.

7.3 Trust

Trust in wind power development is measured in two ways. It includes trust in the siting decisions which determine the location of wind projects, as well as trust in information regarding the impacts of development on the community and its residents.

7.3.1 Siting

Each jurisdiction has implemented a land-use planning strategy with defined wind zones; however, only Denmark has made the identification of these zones compulsory for municipalities. The reason for undertaking comprehensive spatial planning in Denmark is to control unregulated growth and limit land-use conflicts (Miles and Odell, 2004). Counties and municipalities are required to undertake a strategic process of developing regional and municipal plans which reflect national goals, while including regional and local priorities. Municipalities have been required to

29 This cap was set at 9MW per year.
30 In 1998, tax refunds and output subsidies paid by the Danish government to wind power producers amounted to €75 million.
allocate zones for wind power development since 1994.\textsuperscript{31} Specific national planning guidelines require them to concentrate wind projects in clusters, while accounting for the landscape and nearby residents (Miles and Odell, 2004). In allocating zones for wind power use, municipalities are also required to involve the public, non-governmental organizations and utilities early on (Toke et al., 2008).

In Germany, the Federal Regional Planning Act, with the Federal Building Act, play the most significant role in the siting of wind power projects. Germany’s national planning legislation regulates the coordination of wind turbines under national objectives, principles and basic conditions of spatial planning. While detailed land-use planning is executed on a regional and municipal level, national and federal state requirements are to be included. In order to allow municipalities some control over development, this act compels local planning authorities to restrict wind power utilisation by designating specific priority or preferential zones for wind power utilisation. Germany has taken further steps in ensuring the success of wind projects, amending the Federal Building Act in 1997 to include wind power projects as privileged projects, \textit{Privilgierung} (BWE, 2008). This status forces municipalities to accept wind development in their area. However, in compliance with this Act, regional and local planning authorities may refuse wind development outside designated zones. However, in municipalities where local authorities have not indicated areas suitable for wind, developers are free to develop a wind project anywhere outside the built-up area (Toke et al., 2008).\textsuperscript{32}

Similarly, Scotland’s National Planning Framework (NPF) sets out a strategy for its long-term spatial development, with a goal to ensure the achievement of renewable energy targets (SEDD, 2007). The Scottish Planning Policy on Renewable Energy requires all local planning authorities to use national directives to support and encourage the continued growth of all

\textsuperscript{31} Municipalities were exempt from designating zones for wind development if a plan covering wind power had already been adopted or if no suitable locations for wind energy could be found that could be justified on planning grounds.

\textsuperscript{32} As long as they respect designated areas.
renewable technologies. Scotland’s land-use planning policies guide local planning authorities to allocate broad areas of land for wind power to encourage developers to locate projects there. However, this is guidance, not rule. The existence of defined wind zones does not rule out development of wind farms elsewhere if it is consistent with the approaches set out in the NPF (SEDD, 2007). Local planning authorities are required to update their planning policies to indicate areas protected from development over 20 MW. Protected areas include land which has national or international natural heritage, green-belt designation, or where the development could result in cumulative natural impacts (SEDD, 2007). Local planning authorities must identify broad criteria that developers need to address in relation to local communities. Development is not permitted if it could have a significant long-term detrimental impact on the quality of life of people living nearby.

Across the case studies, planning and building permission is shared between both the regional and local governments. Danish wind projects receive planning permission from regional governments, and building permission from local governments. In Scotland, local authorities are responsible for approving projects under 50 MW, while the Scottish government is responsible for projects over 50MW. The building permission of wind turbines is a matter of state in Germany, and municipalities are not permitted to allow wind turbines or a wind turbine park against a decision of the regional planning of the state (or vice versa). Local decision-making is a strong component of the planning process in each case.

7.3.2 Information

All three jurisdictions have carried out education campaigns about renewable energy, including wind power. In 2005, the Scottish Government organized a national public road show entitled ‘It's Only Natural’, visiting 38 communities across Scotland with a goal to dispel the myths and misunderstandings that surround renewable energy, as well as to provide a neutral source of information on renewable energy (Forum for Renewable Energy Development in
Scotland, 2005). The government has also supported the distribution of newsletters to homes outlining the benefits of renewable energy, as well promoting current projects in the area. Similarly, the Danish Wind Industry Association, with support from the government, undertook a promotional and educational campaign in the summer of 2006. This campaign visited 20 Danish cities, drawing attention to the economic and environmental advantages of wind power, as well as addressing landscape impacts and negative myths (DWIA, 2007). A German renewable energy campaign was designed to fill information deficits and to strengthen trust in renewable energy. This campaign is ongoing in Germany, with a permanent office and website.
### Table 3: Case Study Results

<table>
<thead>
<tr>
<th>Factor of Community Acceptance</th>
<th>Characteristic</th>
<th>Measurement</th>
<th>Case Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Denmark</td>
</tr>
<tr>
<td>Procedural Justice</td>
<td>Public Participation</td>
<td>Community Consultations Required</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Community Role in Decision-Making Process</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Benefits</td>
<td>Compensation Extended to Communities</td>
<td>Ad Hoc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of Compensation</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community Trust Fund</td>
<td>Monetary Compensation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nature Trails</td>
<td>• Local Tax Revenue</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Visitor’s Centre</td>
<td>• Landscape Improvements</td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
<td>Compensation Extended to Neighbours</td>
<td>Standardized</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of Compensation</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monetary Land-Pooling Agreements</td>
<td>Ad Hoc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local Ownership of Wind Power by Percent Capacity.</td>
<td>Monetary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incentives to Encourage Community Ownership</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
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<table>
<thead>
<tr>
<th>Germany</th>
<th>Scotland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Ad Hoc</td>
<td>Standardized</td>
</tr>
<tr>
<td>Monetary Compensation</td>
<td>• Local Tax Revenue</td>
<td>• Landscape Improvements</td>
</tr>
<tr>
<td>• Community Trust Fund</td>
<td>• Landscape Improvements</td>
<td></td>
</tr>
<tr>
<td>• Nature Trails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Visitor’s Centre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88%</td>
<td>1.5%</td>
<td>45%</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<p>| 46 |</p>
<table>
<thead>
<tr>
<th>Trust</th>
<th>Siting</th>
<th>Land-use Planning Strategy for Wind Farms</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Defined ‘Wind Zones’</td>
<td>Yes</td>
<td>Mandatory</td>
<td>Yes</td>
<td>Not Mandatory</td>
</tr>
<tr>
<td></td>
<td>Areas Protected from Wind Development</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Responsibility for Approval</td>
<td>Regional / Local</td>
<td>Local &lt;50MW</td>
<td>Scottish Government &gt; 50MW</td>
<td>Regional</td>
</tr>
<tr>
<td></td>
<td>Who Proposes Locations</td>
<td>Community</td>
<td>Developer / Community</td>
<td>Community</td>
<td>Developer / Community</td>
</tr>
<tr>
<td>Information</td>
<td>Education Campaign on Wind Power</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

7.4 Case Study Results

Despite the diversity of each case study, the three jurisdictions have a number of common characteristics. Table 4 provides a summary of results of key characteristics from my analysis.

Table 4: Case Study Summary

<table>
<thead>
<tr>
<th>Factor of Community Acceptance</th>
<th>Characteristic</th>
<th>Denmark</th>
<th>Scotland</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural Justice</td>
<td>Public Participation Beyond EIA</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Distributional Justice</td>
<td>Standard Compensation to Communities</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Compensation Neighbours</td>
<td>[✓]*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community Ownership Incentives</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Composition of Community Ownership**</td>
<td>✓✓✓</td>
<td>✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Trust</td>
<td>Land-Use Planning Strategy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Defined ‘Wind Zones’</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Protected Areas</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Educational Campaign</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

* This compensation scheme is not yet in effect in Denmark and is currently in the planning stages.

**Composition of community ownership is indicated in three ways: Greater than 50% of total ownership is indicated with three checkmarks; between 10% - 50% of total ownership is indicated with two checkmarks; and less than 10% of total ownership is indicated with one checkmark.

Finding #1 Public Participation Beyond the EIA is Not Standard

Public participation in the wind development process is required in each case during the Environmental Impact Assessment (EIA). However, as each EIA is dependent upon the size of the wind farm, projects will be approved that do not consult with the community. An explicit and legally bound community consultation process, which takes place throughout the development process, is not present in any case. In Denmark and Scotland, there is an opportunity for those who oppose wind development to register their objections after the project is announced. While
this process is conducive to those who object to wind power, it does not allow those who want to be positively involved in the process an opportunity to take part.

**Finding #2 – Compensation to Communities and Neighbours is Ill-Defined**

Compensation to communities is standard in Germany, ad hoc in Scotland and not offered in Denmark. As noted in the Danish case, the benefits from local ownership have made the provision of additional benefits unnecessary. Plans for compensation directed to neighbours of wind turbines is currently being developed in Denmark, however, it is not standard in Scotland and exists in Germany only via limited community ownership models.

**Finding #3 – Support for Community Ownership by Government is Central to Acceptance**

There is a contrast between Scotland, where corporations own most wind projects, and Germany and Denmark, where there is a high proportion of local ownership by co-operatives and farmers. The high level of local ownership of wind projects in Germany and Denmark is a direct result of government support. In Germany, a favourable financial environment continues to encourage local ownership, while in Denmark, restrictive ownership criteria contributed to a control of projects by local citizens. The recognition of the positive influence local ownership exerts on community acceptance in Scotland is apparent in the creation of supportive and financial programs for communities.

**Finding #4 – Land-Use Planning Strategies are Necessary and Support Public Participation**

In order to achieve national renewable energy objectives, Denmark, Scotland and Germany have each implemented spatial planning policies at the national level. Planning directives have maintained the balance between the need to develop renewable energy sources, and controlling growth in a sustainable and optimal fashion. Explicit spatial planning directives at
the national level have allowed for the successful integration of wind turbines in the landscape, while avoiding land-use conflicts.

A secondary benefit of implementing land-use strategies is the inclusion of a public participation process in defining areas for wind development. As seen in Finding # 1, structured public participation is limited in each case. However, in each case the public has an opportunity to comment and assist in directing the location of areas for wind development during the planning stage. This allows community members to become involved in the development process well before construction has begun, therefore avoiding potential confrontations associated with developer-directed siting decisions.

Finding # 5 – Defining Areas for Wind Reduces Confrontation

The inclusion of defined wind zones, while not mandatory in all jurisdictions, reduces resistance to wind by concentrating developments in areas acceptable to communities. While Danish municipalities are required by law to create designated areas for wind development, Germany and Scotland have compelled municipalities to designate areas for wind for two reasons: to control growth in a manner consistent with the wishes of the community, and to posture municipalities in a position to exert control in the decision-making process. Knowing in advance where wind can develop has provided a less hostile setting for development. Additionally, all three cases included policies for protecting land from wind development. Excluding land from development helps to allay fears of environmental degradation and avoid siting conflicts over contentious areas of land.

Finding # 6 – Informational, Education Campaigns Dispel Myths and Increase Acceptance

Each government has taken the lead on a number of public education campaigns aimed at increasing the flow of correct information on wind power. Contradictory and inconsistent
information available in the media and on the internet has led to a low degree of faith in facts and figures. Government-led public awareness campaigns not only dispel myths on an ongoing basis, but can also offer support to communities about the integration of wind in their landscape.

### 7.5 Ontario Focus Group Results

To complement findings from Denmark, Scotland and Germany, I include a secondary methodology in this study. A focus groups study was conducted to determine what constitutes best practices for wind development in Ontario (Cone, 2008). The study took place in three wind farming communities in April and May of 2008. Focus groups were comprised of individuals who had experience with wind power development in their community: landowners and participants in public consultations or council meetings, and information sessions. Each of the three focus groups were asked to explain: (i) how they were involved with wind development; (ii) what worked, what did not work and what constitutes good development; and, (iii) how they were affected by wind power development. The findings of this study have been classified under the characteristics of community acceptance outlined in Table 2.

**Public Participation**

Participants in focus groups noted the importance of being involved in siting decisions. Focus groups were weary of top-down decision-making, advocating for a consensus-based approach to development:

> When it comes to renewables, if you provide adequate information and involve the public, once you have established it then the public gains a vested interest in it (Cone, 2008, p. 133).

An area not revealed in case study analysis relates to the trust that communities hold in developers. Focus group results find that developers play a tremendous role in determining the

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33 All of the information in sub-section 7.5 comes from Cone (2008).
attitude communities have towards wind power development. Participants find that developers must be approachable, open and transparent. Ideal development includes an open dialogue and engagement strategy, taking place during the entire process: before, during and after construction of the wind project.

**Compensation to Communities and Neighbours**

One area in which results from the focus groups are inconsistent with those of the case studies concerns compensation to communities and neighbours. Participants believe that wind farming communities should receive additional compensation, such as discounts on electricity bills, that would act as a constant reminder of the benefits of the wind project to the community. Additionally, participants in the focus groups felt there is a need to compensate those living within view of wind turbines, stating:

> I think it is a good idea to find these solutions, because it can change all the parameters of how people interact with each other, because some people are compensated and others aren’t. They think that every turn of the router would give you a dollar or something and they are sitting there counting the turns. People are jealous (Cone, 2008, p. 130).

Focus group participants were aware of how the distribution of benefits within a community can affect how its citizens view wind power development.

**Ownership**

Focus groups agree that local investment is the best way of involving the community in the project, and increasing acceptance of future projects:

> The best way to go about it is that communities should be enabled and allowed to invest. Having a project that keeps jobs and money in the community would be great rather than having an external body come in and work (Cone, 2008, p. 133).

Select participants believe that the developers are viewed as the ‘winners’ of wind projects, while community members bear much of the cost without any direct benefits. Providing a broader range of investment, profit sharing and employment opportunities to citizens is understood by participants as a sure way to increase acceptance.
**Siting**

A frequently mentioned concern of participants centred on the potential harm that wind projects could do to the local environment. The involvement of local environmental groups in siting decisions is viewed as a potential improvement to the process. Participants also identify the need to work with other municipalities and regions to identify areas for wind development. A lack of planning and preparedness towards wind power development has resulted in confusion and uncertainty in communities.

**Information**

Participants in the focus groups find the lack of a reliable source of information on wind power hurts development and lowers community acceptance. Without such source of information, potential impacts of wind development, both positive and negative, are skewed and not fully understood by community members. It was believed to be the government’s job to combat misinformation by producing outreach initiatives that provide neutral and unbiased information. The need for factual information based on research and empirical evidence was deemed necessary to combat the extensive and well dispersed myths surrounding wind power. It was stated that a greater understanding of wind power would be beneficial to all citizens; not just those in wind farming communities.
7.6 Summary of Findings

Three findings are common to both the case study analysis and focus group results:

- Community ownership can overcome issues of procedural justice, distributional justice and trust;
- Land-use planning builds consensus and promotes sustainable development;
- Information from trusted sources reduces community resistance.

The following section of the study outlines a number of alternative policy options that address these issues within the context of community acceptance of wind projects in Ontario.
8: Policy Alternatives and Criteria for Analysis

This section develops policy alternatives that the province of Ontario could consider to increase community acceptance of wind projects. I derive these policy options from the case study and focus group analysis, as well as the literature. I also conducted six key informant interviews in March 2009 with stakeholders in the wind industry, municipal and provincial governments and non-governmental organisations. These interviews provided input in the creation and assessment of the policy alternatives. I identify several short and long-term policy objectives to direct the selection of policy alternatives. In this discussion, the short-term is defined as within the next three years (from 2009 to 2012) and the long-term is defined as within 10 - 15 years. Table 5 summarizes these objectives.

Table 5: Short and Long-term Policy Objectives for Wind Development Reforms

<table>
<thead>
<tr>
<th>Long-term (10-15 years)</th>
<th>Short-term (next 3 years)</th>
</tr>
</thead>
</table>
| • Achieve 4,600 MW of installed wind capacity 2025  
• Attain high degree of community acceptance of wind projects | • Increase wind projects to meet average global growth  
• Achieve progressively higher rates of community acceptance of wind projects and reduce community conflict |

The first key long-term objective is to achieve the provincial goal of 4,600 MW of wind power by 2025. This goal was set by the OPA and is a significant component of the province’s future energy supply.

34 Additional information about these interviews can be found in Appendix A.
The second long-term goal is to attain a high degree of community acceptance of wind projects. McLaren Loring (2006) identifies five progressive indicators of acceptance and success of wind power development:

- Planning consent obtained;
- Reasonable time taken for decisions;
- Appeal on planning not necessary;
- Planning process did not involve costs requests from planning authorities for additional information from the developer; and,
- Planning conditions placed on project did not introduce extensive costs or delays to the project construction.

A long-term goal will be to succeed at all of these indicators on every project in Ontario.

In the short-term, there must be a progressive increase in the number of wind projects in the province to achieve the long-term goal of installing 4,600 MW of wind by 2025. The global average growth of countries with wind power was estimated at 21 percent in 2007 (IEA, 2008). Therefore, for the province to meet their 2025 goal, there is a need to increase installed capacity on a yearly basis.

In order to achieve the second short-term goal, there must be a reduction in local conflict caused by the development of wind projects. This will be evident through the achievement of some of the indicators of acceptance as outlined above. An additional indicator that is specific to Ontario would be a reduction in the number of cases that are adjudicated at the Ontario Municipal Board.

8.1 Policy Alternatives

I present three policy alternatives in this sub-section. I develop each policy alternative from the key findings of my case study analysis, as well as from results of focus groups who have
experienced wind farm development, and key stakeholders involved in wind development in Ontario.

8.1.1 Status Quo

Each policy alternative is created in addition to the status quo; therefore, the status quo is only briefly reviewed and not analysed separately. Wind power in Ontario currently develops under a limited framework, as noted in Section 4.4. While different programs to support wind projects are available in Ontario, there is limited guidance as to the overall process for development. The current process is developer driven, with decision-making authority on the siting of projects and the degree of public participation resting firmly with developers. Municipalities exert control over the planning process, without substantial direction from the province. In most cases of development, interaction and participation with the public has been limited.

Under the status quo, the future of wind power in the province is uncertain. The progressive development of wind power in Ontario has brought significant media attention, opposition from across the province and increase tension towards projects in communities. In assessing the current context for development, the cancellation of two large-scale wind developments, as well as the delay of several more, has created an unstable environment for development in Ontario.\(^{35}\) It is likely that there will be more cancellations and delays resulting from low community acceptance, putting in jeopardy the provincial target for wind power. Therefore, I do not consider the status quo as a viable policy alternative.

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\(^{35}\) Cancelled projects include the 50 MW Blue Highland windfarm and the 160 MW Kingsbridge II windfarm. Additionally, 50% of projects in 2008 required OMB hearings (OPA, 2008b).
8.1.2 Policy Alternative # 1 - Public Education Campaign + Task Force to Study Wind Power Impacts

This policy would have the Government of Ontario initiate a public education campaign about wind power. This would help to dispel incorrect myths, as well as create support for the government’s renewable energy goal. Easily accessible information and widely publicised education material, delivered through a neutral source such as the government, allows for informed decision-making regarding the possible impacts of a proposed development.

This policy would also include the creation of a task force to study the environmental, health and socioeconomic impacts of wind power in the province. There is a lack of Ontario-specific information on wind power, leading to uncertainty in communities of the potential impacts on a variety of issues. Most of research on the impacts of wind farms on local economies, the environment, land values and the health and safety of citizens living nearby originates in Europe and the United States. While these studies have provided important information on several fronts, wind power opponents have selectively surveyed the literature and publicised information that is misleading and not transferable to Ontario. A government commissioned task force on the issue with members from both industry and non-governmental organizations could shed light on the impacts of wind development with have on residents of Ontario.

8.1.3 Policy Alternative # 2 - Provincial Land-Use Planning Exercise to Locate Wind Projects

This policy would have the Government of Ontario undertake a province-wide land-use planning exercise to define areas for wind development. Going further than the Provincial Planning Statement, this policy would require all municipalities with wind resources in Ontario to identify areas for wind development. Under the direction of the Ontario Wind Atlas, provincial environmental planners would identify areas of the province with significant resources. Municipalities would play a large role in defining potential locations for development within their jurisdictions. An important component of this policy alternative is an extensive consultation
process which involves the public, environmental organizations and industry. This policy alternative will also provide municipalities identified for wind development with a government-led information seminar about community-specific impacts. This aspect would help to ensure that the community is adequately informed during the consultation process of siting prospective developments.

Similar to the spatial planning policies of Denmark, Scotland and Germany, this policy would open the siting process to the community. Reversing the responsibility for siting decisions from the developer to the community allows for local input and consultation in deciding the best locations for turbines. This policy aims to find a balance between the requirements of developers and the wishes of communities in locating wind projects. For example, locating turbines in already industrially affected areas can be perceived as less interfering than an energy system constructed in a previously untouched landscape (Zoellner et al., 2008).

8.1.4 Policy Alternative # 3 - Community Ownership Initiative

This policy would have the Government of Ontario establish a sustainable, community ownership initiative. This policy would support the development of wind power projects that are controlled in full or in part by residents of the community in which the project is located (OSEA, 2008). A key feature of community ownership is that local community members have a significant, direct financial stake in the project beyond land lease payments and tax revenue. The mandate of this organization would be to build the capacity of local communities to develop viable wind projects. This policy would include a funding stream that provides financial assistance for capital projects and development initiatives, including feasibility studies, as well as provide management and advice.

Wind power projects have very high capital costs, creating a significant barrier to local ownership. It is estimated that between $ 2 million to $2.5 million. Almost $1 million of these
costs are spent during the pre-development stage, determining the feasibility, assessing the resources, and undertaking an Environmental Screening Report depending on the size of the project. German financial institutions have historically required only 10 percent of the project capital to be secured by communities in order to qualify for a loan. This contrasts with Ontario where financial institutions require at least 30 percent of capital. Therefore, if a community wanted to install a 3MW project, it would need to raise more than $2 million in the community in order to secure financing, a difficult task in most communities.

8.2 Criteria for Analysis

This sub-section outlines the criteria used to evaluate each policy alternative. Each alternative is assessed against a set of five criteria: cost, effectiveness, acceptability to stakeholders, administrative feasibility and equity. The criteria and measures selected in this study are the result of interviews with a variety of stakeholders, as well as the case study analysis, focus group results and literature review. Table 6 presents a summary of the criteria used to assess each alternative, as well as the respective measures of each individual criterion.

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36 Confirmed with Interview # 1.
37 Confirmed with Interview # 3.
Table 6: Criteria and Measures for Analysis of the Policy Alternatives

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Definition</th>
<th>Measurement</th>
<th>Evaluation Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>The capital and operating costs for the period of implementation.</td>
<td>Costs as compared to the funding the Conservation Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 75% of CF</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75 – 100% of CF</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 100% of CF</td>
<td>1. Low</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>installed capacity</td>
<td>The average global increase in wind power for 2007.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Does this policy increase the number of proposals submitted to construct wind projects?</td>
<td>&gt; 30% increase</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21% - 30% increase</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 20% increase</td>
<td>1. Low</td>
</tr>
<tr>
<td>Reducing Conflict</td>
<td>Does this policy include more than one factor of community acceptance?</td>
<td>Three factors</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two factors</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One factor</td>
<td>1. Low</td>
</tr>
<tr>
<td>Acceptability to Stakeholders</td>
<td>Does this policy provide development guidance to municipalities or local government input?</td>
<td>Provides guidance and input.</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td>How does the policy affect the risk industry will face when developing in Ontario?</td>
<td>Increases input.</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not provide guidance or increased input.</td>
<td>1. Low</td>
</tr>
<tr>
<td>Industry</td>
<td>Degree of support from wind farming communities and advocacy groups</td>
<td>Increases local input and control.</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Addresses lack of information or ‘Unchecked rush’ of development</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not address primary or secondary concerns.</td>
<td>1. Low</td>
</tr>
<tr>
<td>Wind Farming Communities / Advocacy Groups</td>
<td>Degree of coordination required to implement policy between different levels of government and provincial ministries</td>
<td>No coordination required.</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Horizontal coordination required.</td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vertical coordination required.</td>
<td>1. Low</td>
</tr>
<tr>
<td>Administrative Feasibility</td>
<td>How does this policy affect different parts of the population?</td>
<td>Estimation of the impact of each policy on various communities in Ontario</td>
<td>3. High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. Low</td>
</tr>
</tbody>
</table>

Cost: The global economic downturn has put financial pressure on the province, with Ontario expecting to post an $18 billion deficit over the next two years. These financial circumstances have the potential to compromise the delivery of services and implementation of new programs. Therefore, it is necessary to take into account the costs associated with each policy alternative. The costs incurred under the status quo include a variety of monetary losses.
affecting several different parties, including the costs incurred from failed projects, the costs associated with project delays and the forgone benefits (or opportunity costs) from the cancellation and delay of projects. I provide a brief explanation of these costs, however, in this study, only the monetary costs of each policy alternative will be calculated and used in the policy analysis.

Costs incurred from failed projects: The cancellation of projects results in direct costs to developers of money invested in the early planning and development stages. These costs are considered sunk costs as they cannot be recovered. The cancellation of the Kingsbridge II project in October 2008 resulted in a loss to project developers EPCOR of $20 million.38

Costs of delayed projects: Project delays cost both the developer as well as the provincial and/or municipal governments. It is estimated that a project delayed one year will directly cost developers an additional $10 million per year.39 If a project delay is caused by an appeal to the Ontario Municipal Board (OMB), the costs of a hearing will also be incurred. The costs of a hearing at the OMB can cost anywhere between $100,000 and $4 million, depending on the length and scope of the hearing. Municipalities can be required to pay the costs of these hearings if the OMB finds in favour of the developer.

Forgone benefits: There are also lost opportunity costs associated with the cancellation and delay of wind projects. Lost opportunity costs include the lost tax revenue to municipalities, the lost revenue from land leases, the lost local revenues from jobs associated with development and the lost revenue created from the electricity from the project. It is estimated that the forgone benefits of the cancelled 160 MW Kingsbridge II project total $252,668 per MW per year.40

Monetary costs of policy: Each policy alternative is evaluated in terms of the capital and operational costs associated with its implementation. These costs will be measured against the capital and operating costs of the Conservation Fund (CF) of the OPA. The provincial

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38 Confirmed with Interview # 6.
39 Confirmed with Interview # 1.
40 Confirmed with Interview # 6.
government has stated that conservation will play a large role in achieving future energy supply goals. The CF is used as a benchmark for cost in this study as it has a comparable scope, as well as similar goals as the policies presented. This fund was established in 2005 to provide funding for electricity conservation pilot projects. The CF had a budget of $3 million in 2008 (OPA, 2008a). A policy alternative which costs less than 75 percent of the yearly CF budget will be ranked as high (which translates into low costs). A policy alternative which costs between 75-100 percent of the CF budget will be ranked as medium. A policy alternative which costs more than 100 percent of the CF budget will be ranked as low (which translates into high costs).

**Effectiveness:** This criterion attempts to gauge the effectiveness of each policy alternative in achieving the short-term objectives set out in Section 8.1. Policy alternatives are evaluated to determine their expected effect on the: (i) the increase in the number of wind projects; and, (ii) the reduction in community conflict.

The first component will be measured against the average global growth of wind capacity, found to be 21 percent in 2007 (IEA, 2009). A policy alternative that will increase wind projects by more than 30 percent per year will be ranked high; between 21 – 30 percent will be ranked medium; and, below 21 percent will be ranked low.

The second component measures how well each policy addresses the factors of community acceptance of procedural justice, distributional justice and trust. Policy alternatives receive a ranking of high if they include all three factors, medium if they include two, and low if they include only one.

**Acceptability to Stakeholders:** This criterion attempts to gauge the support of alternative policy options by the key stakeholders outlined in Section 4.1: municipal governments, the wind power industry, and wind farming communities and advocacy groups.

**Municipal Government:** The absence of provincial direction on turbine setbacks, siting, public participation, compensation and information has resulted in municipalities finding
themselves in unchartered territories. Local governments are overwhelmed, diverting a large amount of resources to deal with wind power developments. Municipalities have identified the need for a more comprehensive framework for wind development, which outlines specific municipal responsibilities and rules for development, as well as an increased level of municipal control. Therefore, I evaluate the acceptability of each policy alternative as to how well it provides strategic guidance to municipalities, as well as increases municipal control. A policy that provides both strategic development guidance as well as increased municipal control will receive a ranking of high; a policy which includes only increases municipal control will be given a ranking of medium; and, a policy which does not provide strategic guidance or increase municipal control will receive a ranking of low.

**Industry:** I measure the acceptability of each policy alternative to the wind industry according to how each will affect the current level of risk the wind industry faces in developing projects in Ontario. A policy alternative which reduces risk will be ranked as high; keeps risk at its current level will be ranked medium; and, increases risk will be ranked as low. This measure was determined in collaboration with industry stakeholders though interviews.

**Wind Farming Communities and Advocacy Groups:** Citizens of wind farming communities have formed advocacy groups to address a number of issues regarding the development of wind in the province. Their primary concern focuses on the lack of local input and control of projects. Secondary concerns include the lack of knowledge on the real impacts of wind power, as well as the ‘unchecked rush’ of wind development projects in the province. I therefore evaluate each policy as to how well it addresses each of these concerns, with attention given to the primary concern of local control and input. Policies which address the primary concern of local input and control receive a ranking of high; policies which address either of the secondary concerns of will receive a ranking of medium; and, policies which do not address
either primary or secondary concerns will receive a ranking of low. These stakeholders are combined in the analysis section as there is significant similarities between their respective goals.

**Administrative Feasibility:** This criterion attempts to gauge the degree of complexity required to implement each policy alternative by the provincial government. Complexity is measured in terms of horizontal and vertical coordination. Horizontal coordination refers to coordination between provincial ministries, while vertical coordination refers to coordination between the provincial and municipal governments. Horizontal coordination is viewed as less complex, as provincial ministries operate under similar goals as directed by the Premier. Conversely, vertical coordination is considered more complex as there is not always consistency in terms of municipal goals across the province.\(^\text{41}\) Therefore, alternatives which require no vertical or horizontal coordination receive a high performance rating; alternatives which require only horizontal coordination receive a medium performance rating, and alternatives which require vertical coordination receive a low performance rating.

**Equity:** This criterion attempts to estimate if a policy alternative has the potential to affect particular groups negatively, while benefitting others. Specifically, the criterion of equity attempts to evaluate who pays and who benefits from policy alternatives. In regards to this study, this criterion will estimate if a policy alternative equitable to all communities in Ontario.

\(^{41}\) Confirmed with Interview # 5.
9: Evaluation of Alternatives

This section evaluates the proposed policy alternatives using the criteria outlined in Section 8. Rankings of high, medium and low are translated into numerical scores of three, two and one, respectively. Each criterion is given equal weight in the evaluation. The scores of criteria with more than one component (effectiveness and acceptability to stakeholders) are averaged. Table 7 provides a summary of the policy evaluation. The analysis presented here informs the final policy recommendation.
Table 7: Evaluation of Policy Alternatives

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Alternative #1: Public Education Campaign + Task Force</th>
<th>Alternative #2: Provincial Land-Use Planning Exercise</th>
<th>Alternative #3: Community Ownership Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Costs are less than 75 % of CF (3) High</td>
<td>Costs are less than 75 % of CF (3) High</td>
<td>Costs are more than 100% of CF (1) Low</td>
</tr>
<tr>
<td>Effectiveness (Average Score)</td>
<td>(1)</td>
<td>(2.5)</td>
<td>(3)</td>
</tr>
<tr>
<td>Installed Capacity</td>
<td>(1) Low</td>
<td>(3) High</td>
<td>3 (High)</td>
</tr>
<tr>
<td>Reducing Conflict</td>
<td>Trust</td>
<td>Trust Procedural Justice</td>
<td>Trust Procedural Justice Distributional Justice</td>
</tr>
<tr>
<td></td>
<td>(1) Low</td>
<td>(2) Medium</td>
<td>(3) High</td>
</tr>
<tr>
<td>Acceptability to Stakeholders</td>
<td>(1.3)</td>
<td>(3)</td>
<td>(2.3)</td>
</tr>
<tr>
<td>(Average Score)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Governments</td>
<td>Does not clarify role</td>
<td>Provides municipalities with clear guidance, increased control</td>
<td>Allows for increased control (2) Medium</td>
</tr>
<tr>
<td></td>
<td>(1) Low</td>
<td>(3) High</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>Dispersal of information may increase concern</td>
<td>Defined areas avoid potential siting conflict</td>
<td>Decrease financial risk, brings community as partner (3) High</td>
</tr>
<tr>
<td></td>
<td>(1) Low</td>
<td>(3) High</td>
<td></td>
</tr>
<tr>
<td>Wind Farming Communities and</td>
<td>Addressed concerns of environmental, socioeconomic and</td>
<td>Increase the potential for local input in siting and planning decisions</td>
<td>Local input will only increase in communities which initiate community projects (2) Medium</td>
</tr>
<tr>
<td>Advocacy Groups</td>
<td>health impacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Medium</td>
<td>(3) High</td>
<td></td>
</tr>
<tr>
<td>Administrative Feasibility</td>
<td>Horizontal coordination required</td>
<td>Horizontal and vertical coordination required</td>
<td>Horizontal and vertical coordination required (1) Low</td>
</tr>
<tr>
<td></td>
<td>(2) Medium</td>
<td>(1) Low</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>Information is beneficial to all citizens</td>
<td>No negative effect on communities without resources</td>
<td>Not equitable to communities without wind resources (1) Low</td>
</tr>
<tr>
<td></td>
<td>(3) High</td>
<td>(3) High</td>
<td></td>
</tr>
<tr>
<td>SCORE</td>
<td>10.3/15</td>
<td>12.5/15</td>
<td>8.3/15</td>
</tr>
</tbody>
</table>

9.1 Evaluation of Policy Alternative # 1

Cost: This alternative receives a rank of high with respect to cost. This policy requires the province to fund an education campaign focusing on wind power, as well as a task force to...
study the impacts of this technology. In order to ensure the information is perceived as from a neutral source, the government alone should provide funding. Recently, the province contributed $500,000 to the energy efficiency campaign, “Flick Off”. However, this campaign included corporate sponsorship of the remaining $500,000. It is estimated therefore that a public education campaign would cost the government $1 million per year.

Costs for the task force are much less. Previous task forces in Ontario in the areas of health, government procurement and energy efficiency have included between 10-15 members committing their time on voluntary basis, with the government reimbursing any travel or related expenses.\textsuperscript{42} These task forces were also supported by a full-time staff of 1-2 persons, and were supported out of the offices of their home ministry.\textsuperscript{43} As the task force is only estimated to last one year, its costs have been spread out over three years to provide compensation to the other policy alternatives. In total, a task force would cost $60,437 per year.

Combined, both components of this policy option total $1,060,437 per year, giving this policy a ranking of high.

\textbf{Effectiveness:} In terms of the first component of effectiveness, this policy scores low. Following Scotland’s ‘Its Only Natural’ Campaign, only 16 percent of communities visited went on to approve and install wind projects (BWEA, 2009). Additionally, this campaign was not renewed by the Scottish government as it was not seen to aid in the approval of wind projects on a local level.\textsuperscript{44}

In regards to the secondary component of this criterion, this policy includes one factor of community acceptance, trust. Focus groups in Ontario noted the need for neutral information from a trusted source, identifying the provincial government as this source. Focus groups

\textsuperscript{42} Cost of expenses per task force member is estimated at $5,000.
\textsuperscript{43} Cost of two full-time civil servants in Ontario per year is $121,312.
\textsuperscript{44} Confirmed through personal correspondence with a Scottish civil servant.
identified that only government could provide trusted, unbiased information on the environmental, socioeconomic and health impacts of wind power.

**Acceptability to Stakeholders:** A public information campaign rates low overall in terms of stakeholder acceptability.

*Municipal Government:* This policy receives a ranking of low in terms of acceptability to municipal governments. This policy does not provide strategic guidance for municipalities and does not increase the local control of a municipality in the development process.

*Industry:* In terms of acceptability to the wind industry, this option ranks low, as it will not work to reduce the risk to developers. A survey taken before and after an informational open house on a potential wind farm in British Columbia shows local approval of the project decreased after the educational session. Prior to the open house, 76 percent of citizens were in favour of the project. However, after the information session, only 62 percent of citizens were in favour.\(^{45}\) There is concern among developers that those who oppose wind power could potentially manipulate the information delivered by the government to derail projects. An additional concern is that information can be dangerous to a project’s success if people chose to pay attention to only the negative statistics and impacts. Therefore, industry stakeholders are not confident that this policy will decrease the risk of development in Ontario.

*Wind Farming Communities and Advocacy Groups:* This policy scores medium in terms of acceptability to wind farming communities and advocacy groups in Ontario. This policy will address the information gaps that exist in wind power, a secondary concern for these two groups of stakeholders, however, it does not address the primary concern of local input and control in project development.

\(^{45}\) Confirmed with Interview # 1.
Administrative Feasibility: This policy scores medium in terms of the coordination required to implement it. There is a requirement for horizontal coordination between the Ministry of Energy and Infrastructure, the Ministry of Natural Resources and the Ministry of Health, however, there is no requirement for vertical coordination between the province and municipalities. Additionally, there is also no regulatory requirement to engage with the federal government if the project receives its funds from the province.

Equity: This policy ranks high in terms of equity. As information is a public good, this policy does not benefit one portion of the population over another.

9.2 Evaluation of Policy Alternative # 2

Cost: This alternative receives a rank of high with respect to cost. Under this policy the province would initiate a planning exercise for wind development. This exercise would require the hiring of three full time employees at the provincial level, who would be responsible for coordinating with stakeholders in different regions of the province to locate potential wind projects.\(^{46}\) It is expected that there would be no capital costs for this policy, as a wind mapping exercise completed by the Ministry of Natural Resources would be utilized. Additionally, there are no additional costs to municipalities, as land-use planners are already charged with following the Provincial Policy Statement. This brings the total financial cost of the alternative to $204,000 per year.\(^{47}\)

Effectiveness: In terms of the first component of effectiveness, this policy ranks high in terms of installed wind power. In the three years after the Danish government implemented its spatial planning process, wind projects in the country increased by an average of 32 percent (Danish Energy Agency, 2007).

\(^{46}\) Confirmed with Interview # 2.
\(^{47}\) The average salary for an environmental planner in Ontario is $68,000.
In regards to the second component, this policy includes two factors of community acceptance: procedural justice and trust. An inclusive land-use planning policy will allow the public, environmental groups, and municipal governments to take part in choosing an appropriate location for wind development, therefore increasing the number of avenues for public participation. A spatial planning exercise to locate wind turbines creates certainty and eliminates the element of surprise (Miles and Oddell, 2004). Clear expectations about future development formulated through an open and consultative process will increase trust in wind projects by communities.

Acceptability to Stakeholders: A land-use planning strategy for the province ranks high in terms of acceptability to stakeholders in Ontario

Municipal Government: This policy receives a ranking of high in terms of acceptability to municipal governments in the province. A land-use planning process both provides strategic guidance to municipalities and also increases local control over siting. Under this policy, municipalities play a large role in determining which areas would be acceptable to wind development, a process currently directed by developers.

Industry: This policy ranks high in terms of industry acceptability. Locating turbines can often be the most drawn out, costly, and contentious aspect of development. Proactively identifying areas where wind power can develop will significantly reduce the risk developers face when initiating projects in Ontario.

Wind Farming Communities and Advocacy Groups: This policy receives a high ranking in terms of acceptability to advocacy groups. Creating a siting and planning process which is inclusive to different stakeholders, instead of solely under the control of developers, is a primary goal of advocacy groups. A process that allows citizens in wind farming communities to actively

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48 Confirmed with Interview # 1.
49 Ibid.
influence the location of wind power projects is viewed as more democratic, open and trustful to
citizen collation groups. Several advocacy groups in Ontario have identified their primary
concern with wind projects as a decision-making process that has resulted in projects being sited
without adequate consultation with the community and environmental experts. A proactive
planning exercise that consults widely would receive support from many advocacy groups.

**Administrative Feasibility:** This policy does not score well in terms of administrative
feasibility, as it will require horizontal coordination between several provincial ministries as well
as vertical coordination with municipal governments in the province. Provincial ministries
involved in this policy include the Ministry of Agriculture and Rural Affairs, Aboriginal Affairs,
Culture, Natural Resources, Environment, Energy and Infrastructure and Municipal Affairs and
Housing.\(^50\) As municipalities will be actively involved in the planning exercise, coordination
between both levels of governments will be required.

**Equity:** This policy receives a ranking of high in terms of equity. This policy does not
negatively affect communities without wind resources in their area.

### 9.3 Evaluation of Policy Alternative # 3

**Cost:** This alternative is given a ranking of low with respect to cost. Under this
alternative the province would provide funding for a grant and loan program. The majority of
funding would be spent on capital costs, which include the dispersal of grants and loans for large
community programs. The cost of such a funding program has been estimated at $25 million,
which would include funding for all types of renewable sources.\(^51\) It is estimated that wind
projects would require 40 percent of such a fund.\(^52\) Therefore, I have estimated the capital cost of
this alternative to be $10 million over three years. A staff of five would require operating costs of

\(^{50}\) Confirmed with Interview # 2.

\(^{51}\) This amount reflects the funding request of OSEA for a Community Power Corporation.

\(^{52}\) Confirmed with Interview # 2.
$303,280 per year. Therefore, the total cost of this project is $3,838,800 per year, receiving a ranking of low with respect to cost criterion.

**Effectiveness:** This policy ranks highly on both components of effectiveness. McLaren Loring (2006) notes a concurrent decline in Danish community acceptance with the removal of restrictive community ownership requirements in 2000, paving the way for the larger corporations to develop wind projects. Resistance towards wind projects increased when policy tools which supported community ownership were removed, underscoring their critical role in achieving acceptance. This change in policy caused a decline in wind power implementation of 31 percent from the previous year (Danish Energy Agency, 2007). Additionally, evidence shows that participation in local community renewable schemes increases an individual’s acceptance of other large-scale projects (Walker and Devine-Wright, 2008).53

In terms of the second component of effectiveness, this policy scores the high as it includes all three factors of community acceptance: procedural justice, distributional justice and trust. Firstly, community ownership increases citizens’ input in the planning of a project and decision-making regarding its location and design. Secondly, community based projects increase the number of people who benefit financially from a project. In contrast with non-locally owned projects, community projects will provide financial returns to a wide range of shareholders within the community. Lastly, there is also an identified increase in trust of locally based projects as compared to those which are undertaken by non-local developers (Gross, 2007).

**Acceptability to Stakeholders:** This policy receives an average score of medium in terms of acceptability to all three stakeholders.

*Municipal Government:* This policy will increase control to municipal governments, however, it will not provide strategic guidelines for development. Community ownership projects will require input from municipalities in the planning of the project, especially if the local

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53 Confirmed with Interview # 6.
government is a partner in the project, a possibility depending on the type of project developed. However, this policy will not clarify the development process in Ontario for municipalities; therefore, it receives a ranking of medium.

**Industry**: This policy receives a score of high as it reduces risk to industry. Firstly, collaborating with communities in joint-venture projects has the positive side-effect to developers of helping to ‘green’ their image, increasing their support in the community for current and future projects. Secondly, collaborating with communities in community power projects reduces the financial risk developers face. Joint projects with communities spread the financial risk associated with wind projects, which are heavily debt-based. Partnering with communities who receive stable government financing will significantly reduce the risk to developers.

**Wind Farming Communities and Advocacy Groups**: In terms of acceptability to wind farming communities and advocacy groups, this policy receives a ranking of medium. A community-based project will increase the amount of local input and control. Local participation in community ownership schemes can take various forms, including project initiation, administration, construction, financial support and decision-making (Rogers et al., 2008). However, this policy will not eliminate the need or presence of large-scale developments in Ontario. Therefore, advocacy groups operating in communities where locally based projects are initiated may have an increased presence in the planning process; however, advocacy groups in areas where large developers operate will continue to be less involved.

**Administrative Feasibility**: This project will require both vertical and horizontal coordination, and therefore receives a ranking of low. Provincial ministries that will be involved include the Ministry of Energy and Infrastructure, Natural Resources, Municipal Affairs and

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54 Confirmed with Interview # 1.
55 Ibid.
Housing and Economic Development. As this policy would see the development of community based wind power, there will also be a requirement for vertical coordination with municipalities.

**Equity:** This policy scores poorly with regards to equity. The primary goal of this policy is to increase financial benefits to communities through project ownership. An intended side effect will be financial returns to both the community at large as well as individual shareholders in the project. This policy will create financial winners and losers in Ontario communities. For example, communities with adequate wind resources will qualify for financial assistance to undertake a project. When the project is developed and is profitable, members of the community will receive financial benefits. Conversely, communities that do not have sufficient wind resources will not benefit from the potential revenues of a locally owned project.

### 9.4 Policy Recommendation

This section outlines the recommendation for the province of Ontario based on the policy alternatives that the preceding analysis determined to be most viable. While the three policy alternatives evaluated are not mutually exclusive, a provincial land-use planning system to locate wind projects not only received the highest score in the policy analysis, but also achieves the short-term policy objectives of this study. The case study analysis, focus group results and literature review suggest that a land-use planning policy for wind power is cost-effective, highly acceptable to all stakeholders, equitable to all communities in Ontario, and is effective in achieving a high capacity of wind power.

The first step in implementing this policy would require the province to engage with municipalities and industry to decide which areas in Ontario are best suited to locate wind power projects. This will be based on a number of factors including the wind resource, land availability, population density and availability of energy infrastructure. After large areas of land have been identified, municipalities will need to consult with the public, industry and environmental groups...
to determine specific locations for wind projects. Future steps could include provincial guidelines on the aesthetic and design aspects of wind projects, including their size, pattern etc.

A province-wide planning process is considered the best way to promote local interests in wind power, while ensuring acceptance among communities. Firstly, successful wind power implementation supported by stakeholders addresses conflict and allows for consensus building. Secondly, a provincial wind project planning system has the effect of creating certainty and avoiding surprise for stakeholders in the process. Finally, a land-use planning process, which defines wind power as a priority for municipalities, creates a clear and consistent policy to support the province’s wind power goal. Therefore, a land-use planning policy can contribute to the successful implementation of wind power in the province, while reducing community conflict and increasing local acceptance of wind development.
**10: Conclusion**

The rapid growth of wind power in Ontario has resulted in the province leading the country in terms of turbine installation as well as wind power produced. However, opposition to this development has caused projects to fail and experience extensive delays, and conflicts to emerge in wind farming communities. An examination of relevant literature suggests that tree factors have a significant impact on communities accepting wind projects in their locality. Factors of procedural justice, distributional justice, and trust are found to influence a community’s acceptance or rejection of wind development.

In this study, I have explored ways to increase community acceptance of wind projects in Ontario by examining the development frameworks, policies and planning systems of jurisdictions in Europe. Through a case study analysis, I discovered that other successful jurisdictions have several key similarities, including incentives to support community ownership, land-use planning strategies which define areas for wind development as well as protected areas, and public education campaigns clarify the impacts of wind power. I then discussed the findings of a focus group study in Ontario to compare the case study findings with the views and opinions of those who have experienced wind development in their community.

After considering the context in Ontario, I established long and short-term policy objectives and translated the findings into a series of policy alternatives. These policy alternatives included a public education and information campaign with a task force to study wind power impacts in Ontario, a provincial land-use planning exercise to locate wind projects, and a community ownership initiative. Using a set of criteria and information from interviews with key stakeholders, I analyzed these policies and determined that a land-use planning policy is the best way to increase community acceptance of wind projects in Ontario.
A Green Energy Act was introduced by the government of Ontario in February 2009. This Act will exempt renewable energy generation facilities and renewable energy projects from zoning by-laws under the Planning Act and municipal development permit regimes, create a province-wide feed-in tariff, and provide priority access to the grid for renewable energy projects. It is yet to be determined whether this Act will create the same conditions for success as seen in Europe, as it contains similar policy tools used to promote renewable energy sources. Ontario residents will be following this Act into action, as it changes the future environment for wind development in communities across the province.
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Appendix
Appendix A

Six key informants were interviewed to provide input in the creation and assessment of the policy alternatives.

Interview One (March 2009) Wind Industry Employee

Interview Two (March 2009) Provincial Civil Servant

Interview Three (March 2009) Community Power Analyst

Interview Four (March 2009) Wind Community Municipal Councillor

Interview Five (March 2009) Provincial Civil Servant

Interview Six (March 2009) Wind Industry Employee