

# Wind Energy in Canada: A Survey of the Policy Environment

June 2013



# 1. Background

Since 2003, provincial governments in Canada have encouraged substantial private investment in renewable energy sources, notably in wind power which can provide environmental benefits at lower cost than other forms of renewable energy.<sup>i</sup> Designing targeted energy policies and procurement programs to attract new privately-financed wind power capacity has thus been a central element of several provincial governments' broader energy agendas.<sup>ii</sup> Until now, however, there has not been an assessment of the role of these policies in attracting new investment into the provinces.

This Policy Brief reports results from a unique national survey of firms active in the wind energy industry in Canada. The purpose of the survey was to assess private sector views on the policy environment for wind energy in each province. The survey, conducted in late 2012 and early 2013 by the Ivey Business School at Western University and The School of Public Policy at the University of Calgary, asked 146 senior executives at 89 companies involved in the development, operation or ownership of wind projects in Canada to answer two central questions: how important are specific policy and market factors in shaping the attractiveness of a jurisdiction for potential investors; and how do the provinces in which the respondents have had experience compare on a relative basis for each factor. The survey yielded a fairly robust 64 responses (44 per cent response rate), providing the basis for a detailed examination of the strengths and weaknesses of the policy environment for the wind sector in most provinces. The median survey respondent had six to ten years of experience in the industry across three provinces, and worked in a company with 100 to 499 MW of wind power capacity.



## 2. Factors Affecting the Attractiveness of a Jurisdiction for Wind Power Firms

**Table 1.** How does your company rate the following factors when deciding whether to become active in wind power in a jurisdiction?

### Importance rating

(Likert 5-point scale where 5 = “Essential”, 1 = “Not Important”)

Rank	Factor	Mean
1	Rate paid for wind power	4.26
2	Availability of transmission capacity	4.21
3	Stability of provincial policies for renewable energy	4.16
4	Ease of obtaining provincial environmental assessment approval	4.07
5	Ease of obtaining grid connection approval	4.06
6	Fairness of administrative processes for wind project procurement	3.96
7	Length of power purchase contracts	3.95
8	Ease of obtaining rights to land	3.93
9	Ease of obtaining development approvals from municipal governments and local communities (including First Nations groups)	3.89
10	Natural wind conditions	3.65
11	Presence of a long-term government target for renewable energy	3.63
12	Coordination between all organizations involved in wind project procurement processes, environmental permits, local development permits, and grid connection	3.38
13	Feed-in tariff for wind power	3.11
14	Costs for construction, engineering and technical services	3.02
15	Level of government investment subsidies or tax incentives	2.59
16	Local availability of engineering and construction expertise specific to wind power	2.51
17	Proximity to equipment manufacturers and suppliers	2.05
18	Domestic content rules for wind power	1.89
	Average	3.46
	N=	57

Table 1 presents the Importance ratings of a set of selected factors that appear to influence the attractiveness of a jurisdiction from an investor’s perspective. Three main findings are apparent. First, policy has a pivotal role in attracting new investment. Perhaps unsurprisingly, the rate paid for wind power ranks as the most important factor for wind firms, though the average score is not statistically different from the other top five factors. The duration of power purchase contracts also ranks as fairly important. By contrast, most operational considerations – such as natural wind conditions, construction costs, and proximity to suppliers – rank lower than policy factors (with the one exception of the availability of transmission capacity). While operational factors influence expected financial returns for wind projects, any shortcomings at the provincial level can potentially be compensated for by sufficiently generous government policy.

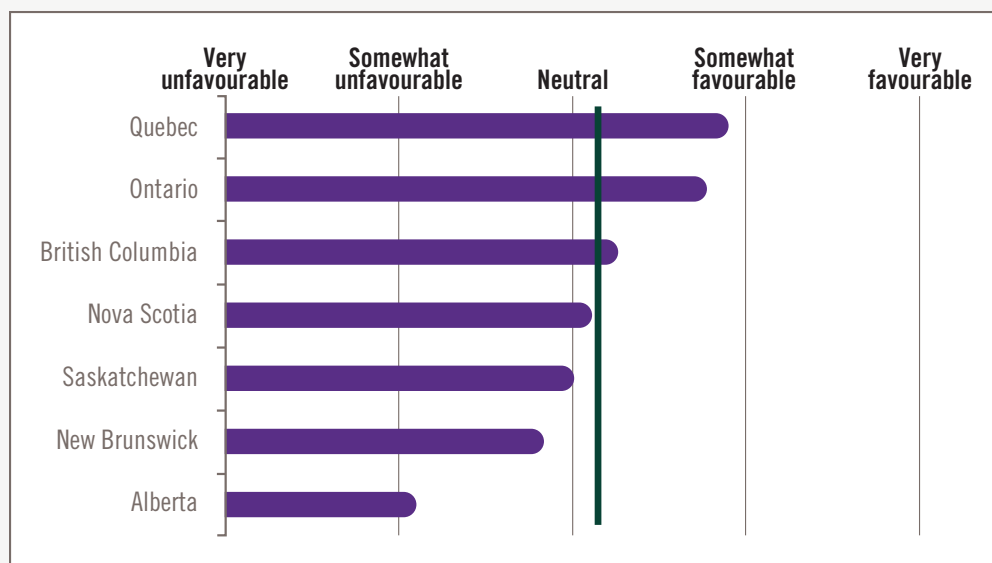
Second, the *processes* by which policy is implemented are as important as the nature of policy itself. The ease of obtaining approvals and permits, and the fairness of procurement processes, rate as very important. Firms indicated in subsequent interviews that delays in permitting and approvals stages could lead them to quickly reallocate capital to other projects within their portfolios in jurisdictions that offered shorter time horizons.

Third, the stability of the provincial policy environment for renewable energy rates as particularly crucial: given the often lengthy duration of the development process and the longevity of installed assets, investors prefer greater predictability and certainty that policies will not change in an adverse manner, especially before off-take contracts have been agreed. Policy-making processes that yield stable policies can thus influence investor decisions as much as the rate paid for wind power.

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# 3. Ratings of Provincial Policy Environments for Wind Power

**Figure 1.** How attractive is the public policy environment for wind power firms in the province(s) you have personally had experience in?



Overall assessments of each province’s policy environment for wind power are shown in Figure 1. Respondents with experience in Quebec rated Quebec’s policies on average as “Somewhat Favorable” which placed it as the most attractive province in Canada for wind firms, with Ontario in second place. Alberta ranked last with a rating of “Somewhat Unfavorable”. British Columbia, Nova Scotia, Saskatchewan and New Brunswick all rated close to “Neutral”. Due to low response rates for the other three provinces, we are unable to report on their policy environments.

Table 2 provides the relative rankings of five provinces on each of the factors. The net figure in each box represents the percentage of times that respondents rated the province the ‘Best’ (out of the provinces in which they had experience) minus the percentage of times that respondents rated the province the ‘Worst’. Some caution must be used in interpreting these figures since not all

respondents had experience in each of the five provinces, though each province had at least 14 individual responses and up to 35. The green (red) boxes highlight the net best (worst) ranked province on each factor.

Out of the 18 selected factors, Quebec ranked as the best of the provinces on six, and as the worst on none. The stability of renewable energy policy and the availability of transmission capacity, two of the top three factors by average importance, rated as favorable in Quebec. More than half of the respondents rated Quebec on each of these dimensions as the best among provinces, reflecting a strong degree of consensus in the industry – consistent with Quebec’s top ranking on the overall

policy environment. The ease of obtaining grid connection approval and the fairness of administrative processes also ranked comparatively highly.

Alberta and Ontario had very mixed results, with significant numbers of ‘Bests’ and ‘Worst’ on different factors. Somewhat surprisingly, Alberta ranked Best in seven categories and Worst in six, while Ontario ranked Best in only five and Worst in seven.

While Ontario ranked as the best province for the rate paid for wind power (reflecting comparatively high FIT rates) and for contract duration, it ranked as the worst province for availability of transmission capacity and second worst for stability of renewable policy (the second and third most important factors). It also ranked as the worst on several policy-making process dimensions<sup>iii</sup> – ease of obtaining rights to land, municipal approvals, and coordination between government agencies. Its strong performance on

## Table 2. Comparative rankings of provinces on policy environment factors

(respondents with experience in at least two provinces)

### Net ranking of each factor

('Best' ranked percentage of responses minus 'Worst' ranked percentage of responses)

100% = all respondents ranked that province as the Best. -100% = all respondents ranked that province as the Worst

Rank	Factor	AB	BC	NS	ON	QC
1	Rate paid for wind power	-100%	-5%	0%	77%	8%
2	Availability of transmission capacity	31%	5%	0%	-38%	64%
3	Stability of provincial policies for renewable energy	-17%	17%	40%	-16%	57%
4	Ease of obtaining provincial environmental assessment approval	80%	-9%	36%	-26%	8%
5	Ease of obtaining grid connection approval	35%	-19%	-7%	-3%	35%
6	Fairness of administrative processes for wind project procurement	31%	-15%	-17%	6%	53%
7	Length of power purchase contracts	-62%	24%	0%	35%	27%
8	Ease of obtaining rights to land	53%	28%	9%	-31%	-7%
9	Ease of obtaining development approvals from municipal governments and local communities (including First Nations groups)	80%	-21%	25%	-25%	7%
10	Natural wind conditions	60%	-10%	23%	-52%	29%
11	Presence of a long-term government target for renewable energy	-77%	-5%	42%	47%	29%
12	Coordination between all organizations involved in wind project procurement processes, environmental permits, local development permits, and grid connection	64%	-16%	27%	-33%	7%
13	Feed-in tariff for wind power	-50%	-20%	29%	60%	0%
14	Costs for construction, engineering and technical services	31%	-30%	40%	16%	-8%
15	Level of government investment subsidies or tax incentives	-62%	-11%	22%	31%	15%
16	Local availability of engineering and construction expertise specific to wind power	14%	-19%	8%	42%	47%
17	Proximity to equipment manufacturers and suppliers	14%	-30%	18%	41%	57%
18	Domestic content rules for wind power	46%	22%	36%	-36%	-27%
	N=	17	21	14	35	17

rate paid for wind power helps explain its second place ranking in the overall assessment of the policy environment (see Figure 1).

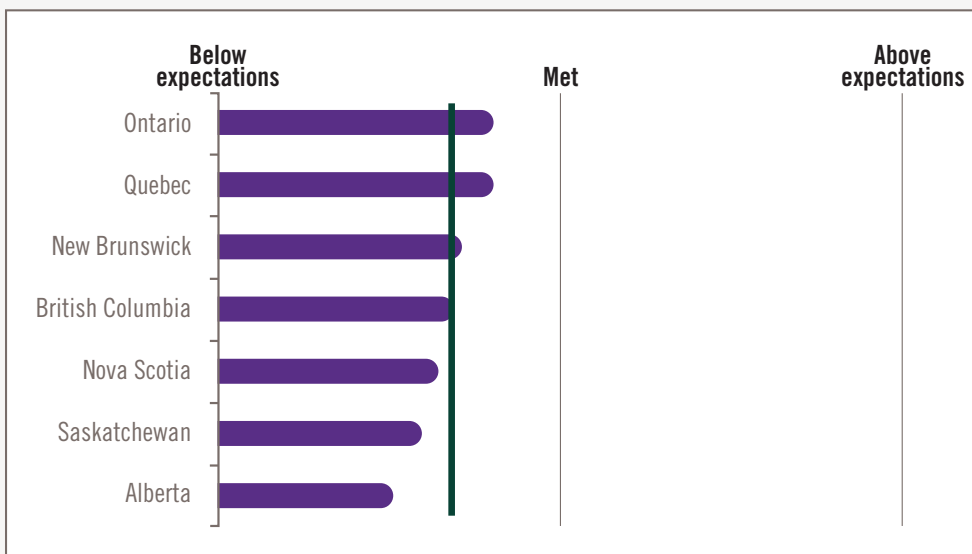
Alberta ranked comparatively well on process dimensions: it is rated as the best province for seven factors, including ease of obtaining development approvals, environmental assessments, grid connection, rights to land, and for government coordination. It is also deemed to have the best natural wind conditions. The province's actual renewable energy policies, however, ranked poorly. Every respondent with experience in Alberta ranked Alberta as the worst province for the rate paid for wind power – firms sell into the wholesale power market where prices fluctuate and are significantly lower than government-set rates in Ontario. Since the rate paid was identified by respondents as one of the most important factors for wind firms, Alberta's weak rating on this single dimension

contributes to the province's bottom place ranking in the overall assessment of the policy environment (Figure 1).<sup>iv</sup> The majority of respondents also ranked Alberta as the worst province for contract duration, long-term renewable energy targets, and government tax incentives/subsidies. From this comparison, Alberta appears to be the opposite of Ontario: one province's strengths are the other's weaknesses.

Nova Scotia appears to perform moderately among the five provinces, with just one Best ranking and one Worst ranking. Notably, British Columbia ranked as the best province on none of the 18 factors. It ranked as the worst province on four factors (mostly on operational issues), though none of these were among the top three most important issues for firms.

## 4. Wind Firm Investment Experiences

Figure 2. How would you rate your company's experience of doing business in the province(s) you have personally had experience in?

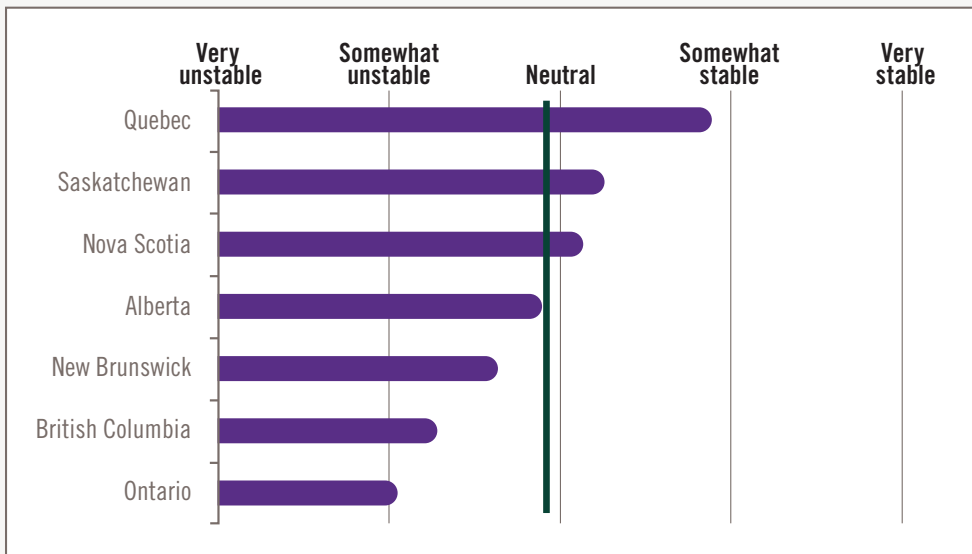


The survey also asked respondents to rate their experiences of doing business in the wind sector in each province relative to their expectations (see Figure 2). On average, respondents reported that their companies' investments had not met expectations in all provinces. Quebec and Ontario came closest to meeting expectations, whereas Alberta and Saskatchewan were furthest away, suggesting that these provinces may especially struggle to attract new investment under current policy regimes. Ratings were more favorable for a respondent firm's 'home' province (in which the firm was headquartered) than for 'foreign' provinces – presumably reflecting a better ability of executives to identify opportunities and risks in their most familiar

environments. Respondents in larger companies (by wind power capacity) and those with experience in a greater number of provinces also tended to rate their experiences closer to expectations than respondents in smaller companies and with less geographical experience. These patterns are consistent with experience conferring more accurate forecasting of project performance.

# 5. Implications for Public Policy

Figure 3. How would you rate the stability of the policy environment for wind power in the province(s) you have personally had experience in?



Private investment in wind power capacity is highly dependent on the nature of power purchase agreements, the stability of government policy-making processes, and long term policy incentives. In this unique national survey, industry executives rated the attractiveness of the public policy environment on average as approximately Neutral. Moreover, executives reported that their investment experiences in wind projects have not met expectations in any province. There is thus clear scope for policy improvement in Canada's wind energy sector.

For provincial governments that wish to incent greater investment in wind power, the survey results provide a priority ranking of factors that wind firms rate as influential in their decision-making for the location of new investments. Increasing the rate paid for wind power is perhaps the most straightforward and effective policy mechanism to implement, but it naturally imposes an

additional cost burden on electricity rate payers and/or tax payers. Extending transmission network capacity to facilitate wind farm connections is another option, though this too is costly as well as lengthy to implement. An important caveat on our results is that they do not inform policy-makers about how effective given policies are, just the relative importance in firms' decision-making processes.

Improving other highly ranked factors can have a similar effect of encouraging investment without increasing costs. First, enhancing the stability and consistency of renewable energy policy should be a priority for governments in provinces with a history of instability, such as Ontario (see Figure 3) where renewable energy feed-in tariffs and/or capacity targets have changed almost every year since 2006. Fluctuating policies, or even the perception that future policies could change, increase the cost of capital - deterring investment unless expected financial

returns also increase. Carefully diagnosing the causes of instability can generate insights for reform. In Ontario, the minister of energy has accrued extensive directive powers to control most aspects of renewable policy, subjugating professional agencies. New energy ministers have been appointed on an almost annual basis; successive ministers have all used directive powers to either halt or modify predecessors' policies, or else to start entirely new initiatives. Removing ministerial directive powers and enhancing expert agency control would thus improve policy stability by limiting the scope for short-term political intervention. Lessons may be learnt from the approach of Quebec which respondents deem to have a relatively stable policy environment.

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Second, streamlining government administrative processes for project approvals and permits can significantly improve the attractiveness of a province for wind firms. Ex ante predictability over approval durations and criteria - e.g. environment, municipal, network system, local grid connection - reduces uncertainty, thereby facilitating long term project planning. Better coordination between multiple government departments, agencies, and utilities involved in approvals can reduce the expected duration of the development stage of wind projects, lowering investment costs. Governments that successfully address such policy issues will attract greater investment in wind power and ultimately at lower cost to consumers.

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### Endnotes:

i. U.S. Department of Energy, Energy Information Administration, "Assumptions to the Annual Energy Outlook 2013, Electricity Market Module" (Table 8.2, page 103)

ii. Canadian Wind Energy Association, "Canadian Wind Energy Market," September 2012

iii. Process dimensions are factors determining the ease of the regulatory process for new project approvals.

iv. This could also reflect inconsistent commitment to create additional transmission capacity in Alberta.



## **About The Ivey Energy Policy and Management Centre, Western University**

The Ivey Energy Policy and Management Centre is the centre of expertise at the Ivey Business School focused on national energy business issues and public policies. It conducts and disseminates first class research on energy policy; and promotes informed debate on public policy in the sector through supporting conferences and workshops that bring together industry, government, academia and other stakeholders in a neutral forum. The Centre draws on leading edge research by Ivey faculty as well as by faculty within Western University. More information is available at [www.ivey.ca/energy](http://www.ivey.ca/energy)

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