How To Sustain Social Acceptance of Wind Energy: Perspectives from Canada

9th St. Gallen Forum for Management of Renewable Energies

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#REMforum 2018
May 31 – June 1, St.Gallen


North Pole
Norwegian Sea
Norway
Russia
Greenland Sea
UK
Arctic Ocean
Ellesmere Island
Alert
Kalaallit Nunaat (Greenland) (Denmark)
Iceland
Bering Strait
Axel Heiberg Island
Arctic Circle
Beaufort Sea
Melville Island
Banks Island
Devon Island
Resolute (Qausuittuq)
Baffin Bay
Alaska (USA)
Prince of Wales Island
Victoria Island
Baffin Island
Davis Strait
Inuvik
Dawson
Great Bear Lake
Yukon Territory
Foxe Basin
Iqaluit
Atlantic Ocean
Labrador Sea
Whitehorse
Northwest Territories
Nunavut
Southampton Island
Hudson Strait
Yellowknife
Baker Lake (Qamanittuaq)
Pacific
Fort Nelson
Great Slave Lake
Ungava Bay
Newfoundland and Labrador
Nain
Kuujjuaq
British Columbia
Hudson Bay
Fort McMurray
Lake Athabasca
Churchill
Smallwood Reservoir
Prince George
Alberta
Reindeer Lake
Churchill Falls
St. John's
Ocean
Lac Caniapiscau
Edmonton
Saskatchewan
Manitoba
Newfoundland
Vancouver Island
Reservoir La Grande 2
James Bay
Sept-Îles
Saint-Pierre and Miquelon (France)
Vancouver
Kamloops
Calgary
Lake Winnipeg
Sandy Lake
Gulf of St. Lawrence
Quebec
Victoria
Saskatoon
Charlottetown
Prince Edward Island
Regina
Winnipeg
Lake Nipigon
Ontario
Fredericton
Québec
Halifax
Thunder Bay
Montréal
Nova Scotia
New Brunswick
Ottawa
Lake Superior
Toronto
Lake Michigan
Lake Huron
Lake Ontario
Lake Erie
Atlantic Ocean
United States of America
Canada – Political
International boundary
370 km Exclusive Economic Zone (EEZ) boundary
Provincial/territorial boundary
Alberta Province/territory
Ottawa National capital
Regina Provincial/territorial capital
Kamloops Other locale
Scale
0 250 500 750 1 000 km

Workshop 5:
The Canadian Context

Energy Update:

- [Wind] energy under provincial governments
  - 6% of Canada's demand (295 wind projects)
  - Growth in 2017 of 341 MW
- Renewable energy targets
  - Some relevance to 2020 climate targets
  - Select provinces actively pursuing RE goals (e.g. Nova Scotia)
- Barriers include local opposition; very high in rural Ontario (79%, Walker and Baxter, 2017)

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The Canadian Context: Ontario – Streamlined, top-down planning

- Perfect storm of factors led to bold, fast-paced wind energy development
  - "NIMBY will not prevail!"
  - Objections now only based upon:
    - Human health and/or environmental harm

Wind turbines near Shelburne, Ontario

The Canadian Context: Nova Scotia – Community Ownership (Community Feed-In-Tariff)

Small-scale producers typically cannot compete successfully against much larger developers in a competitive bidding process. More than forty-five jurisdictions around the world, including Spain, Germany, and ~~Ontario~~, have established FITs that support small-scale and community ownership. These programs let newcomers participate in the renewable electricity industry, and encourage the development of projects over widely-dispersed rural areas.

Eligibility

COMFIT is open to community-based organizations to ensure that projects are rooted in communities and that investment returns remain there. Eligible entities include municipalities or their wholly-owned subsidiaries, community economic development investment funds (CEDIFs), co-operatives, Mi'kmaw band councils, not-for-profit organizations, universities, and combined heat and power biomass facilities.

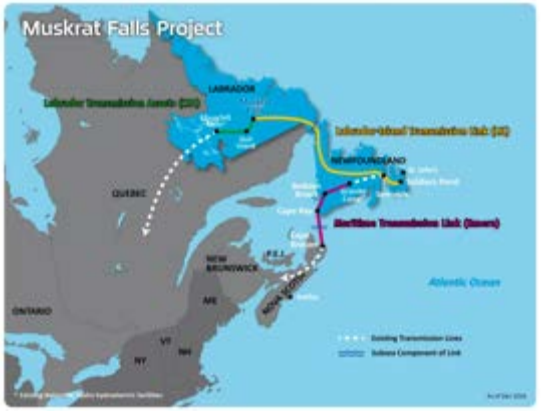
The Canadian Context

Policy/regulation Update:

- Ontario has suspended its Large Renewable Procurement II
- Alberta announced (12/17) first round of its first REP (5k MW)
  - For wind, average price of 3.7c/kWh (Ontario's LRP of 8.59c/kWh)
- Push by territorial/provincial governments to reduce diesel dependency in remote, Indigenous communities

The Canadian Context

- Other policy & development notes:
  - Nation-wide carbon in Fall 2018 ($50/tonne by 2022)
  - Mandated phase-out of coal by 2030
  - Canada's RE baseload source of nuclear/hydro --> but is controversial (e.g. Muskrat Falls, Site C)



Canada: Issues of Social Acceptance

- **Local impacts**
  - *Perceptions of health effects*
  - Property values
  - Wildlife concerns
- **Process - Local perceptions of (environmental) justice**
  - *Distributive Justice*
  - *Procedural Justice*

Protest in provincial capital (Toronto) organized by Wind Concerns Ontario

'Artist's 'rendering of my former research groups at Western University

Local Impacts from WED - Health

- Post-GEA, huge rise in those reporting health problems
- Research showing caused by annoyances → 'unfair' development, lack of benefits, media scare tactics, objection framework
- Our data (Ontario):
  - 2011: 11.9% (3% and 20%)
  - 2014: 15.8%

The now 'iconic' anti-wind slogan of Ontario

Local Perceptions of Justice

(I) Local ($) Benefits

JOURNAL OF ENVIRONMENTAL POLICY & PLANNING, 2017
VOL. 19, NO. 6, 754–768
https://doi.org/10.1080/1523908X.2016.1267614

Routledge
Taylor & Francis Group

Check for updates

"It's easy to throw rocks at a corporation": wind energy development and distributive justice in Canada

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(II) Planning process

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

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Original research article

Procedural justice in Canadian wind energy development: A comparison of community-based and technocratic siting processes

CrossMark

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Distributive Justice

Regression model (adequacy of benefits as DV)

Table 5. Four-stage regression analysis[a] (adequacy of benefits[b] as DV).

	Model 1	Model 2	Model 3	Model 4
General opinion of benefits				
More financial benefits should be given to community	−.017	−.017	.096	.132
More financial benefits should be given to residents	.129	.064	.041	.388
Positive impacts are distributed fairly	.909**	.824**	.756**	.827*
The project pays sufficient taxes	.38	.045	.050	.118
Construction and operation staff were local	.079	.064	.158	.261
Model 1: $r^2 = .852$				
Negative impacts of turbines				
Experienced negative health effects		.006	−.064	−.243
Property or dwelling has lost value		−.061	−.144	.532
Landscape is less appealing		.061	.141	−.213
Turbine noise is annoying		−.179	−.234	−.085
There are threats to wildlife		−.002	.055	.048
Turbines have created community conflict		.099	.051	−.031
Model 2: $r^2 = .871$				
Provincial and policy context variables				
Ontario (Nova Scotia)			.297	.278
Public ownership (%)			−.148	−.326
COMFIT (no)			.014	−.220
Electricity production is one of the most important issues in my province			.078	.133
Fossil fuels pose a climate change threat			.078	−.268
Fossil fuels pose a threat our economy			.058	.308
Trust in wind developer to make fair decisions			−.59	.172
Model 3: $r^2 = .909$				
Demographic variables				
Male (female)				−.252
Age				−.229
Political view				.080
Years in community				.059
Education				.133
Annual family income				−.254*
Turbine on property (no)				.376
Model 4: $r^2 = .973$				

[a]The first two blocks of variables were chosen because of suggestions in the literature and/or were strongly correlated (.235–0.743; $p = .000$) with the DV. The final two blocks were added as controls.

[b]The local wind energy development in my community has brought with it adequate economic benefits'. Distribution of benefits and 'adequate economic benefits' were tested for multi collinearity and showed that they are not related in that way (Pearson correlation of.654).

*Standardized regression coefficients were statistically significant at the $p = .05$ level.

**Standardized regression coefficients were statistically significant at the $p = .01$ level.

Distributive Justice

But what kind of benefits?

- QUAN: 83% of those opposed would like to see direct reductions to electricity bills (75% of overall sample)

- ***QUAL: "Joanne"***
  - *"Yeah…that might take some of the sting out of all the nastiness!"*

Procedural Justice

Regression model (local support as DV)

Procedural justice (indexes)[c]	
Index – information	.111
Index – opportunity	.054
Index – dealing with developer	−.028
Index – ability to affect outcomes	.330*
Attitudes toward wind energy[c]	
Wind energy is environmentally friendly	.343**
Wind turbines are an unacceptable threat to human health	−.124
Wind power projects lower property values	−.086
Provincial/local context	
Ontario (Nova Scotia)	−.244*
Importance of electricity issues in my province	.166**
Community ownership (%)	−.102
Approximate distance to closest turbine	−.202**
Number of turbines seen from home	−.080
Size of project (number of turbines)	−.114
Demographic variables	
Age	.050
Political view	−.065
Education	.014
Annual family income	−.033

Implications

- Distribution and careful [local] design of benefits
  - More important than the total amount
- Balancing the move toward more community ownership and local benefits with the need to keep costs low re: RE?

Implications

- Participation and engagement does not overcome lack of power
  - Worse off by consulting, hosting open houses, sharing information, etc.?
  - People's time and local knowledge matters
- Best ways to allow for local control?
  - Is full community ownership the only way?

Student protest poster (France, 1968): Part of a larger social movement against the rise of capitalism

Many Thanks

Queen's University

Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada
Canada

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

FOR THE HEC Research Lab
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QUESTIONS?

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