

SUN, WIND OR WATER? PUBLIC SUPPORT FOR LARGE-SCALE RENEWABLE ENERGY DEVELOPMENT IN CANADA

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Study in Brief

Public acceptance is one important aspect of broader social acceptability of renewable energy. Using a national, representative survey dataset of Canadian citizens ($n = 1407$), we examine public support for three infrastructure-scale renewables: large hydropower, wind farms, and solar farms. Due to differing levels of historical and current development of energy technologies, the Canadian provinces of Alberta, British Columbia, Ontario, and Québec provide a unique case for regional comparison. The aim of the study is to improve the understanding of public acceptance by comparing public attitudes to different types of renewable energy. Factors influencing differences in attitudes are identified and explored to understand public resistance to future development of renewable energy in Canada. Our specific research objectives are to:

- (1) Compare levels of public acceptance for large-scale solar, wind and hydro renewable energy and explore public perceptions of their impacts;
- (2) Explore and compare key factors that are hypothesised to influence individual attitudes in relation to public acceptance of the three technologies.

Key Findings

At the national level, results demonstrate high levels of familiarity with large-scale wind, solar and hydro, and strong levels of support for development of these renewable technologies (see Figures 1 and 2).

Figure 1. Canadians' level of support for solar, wind and hydro development (n=1407)

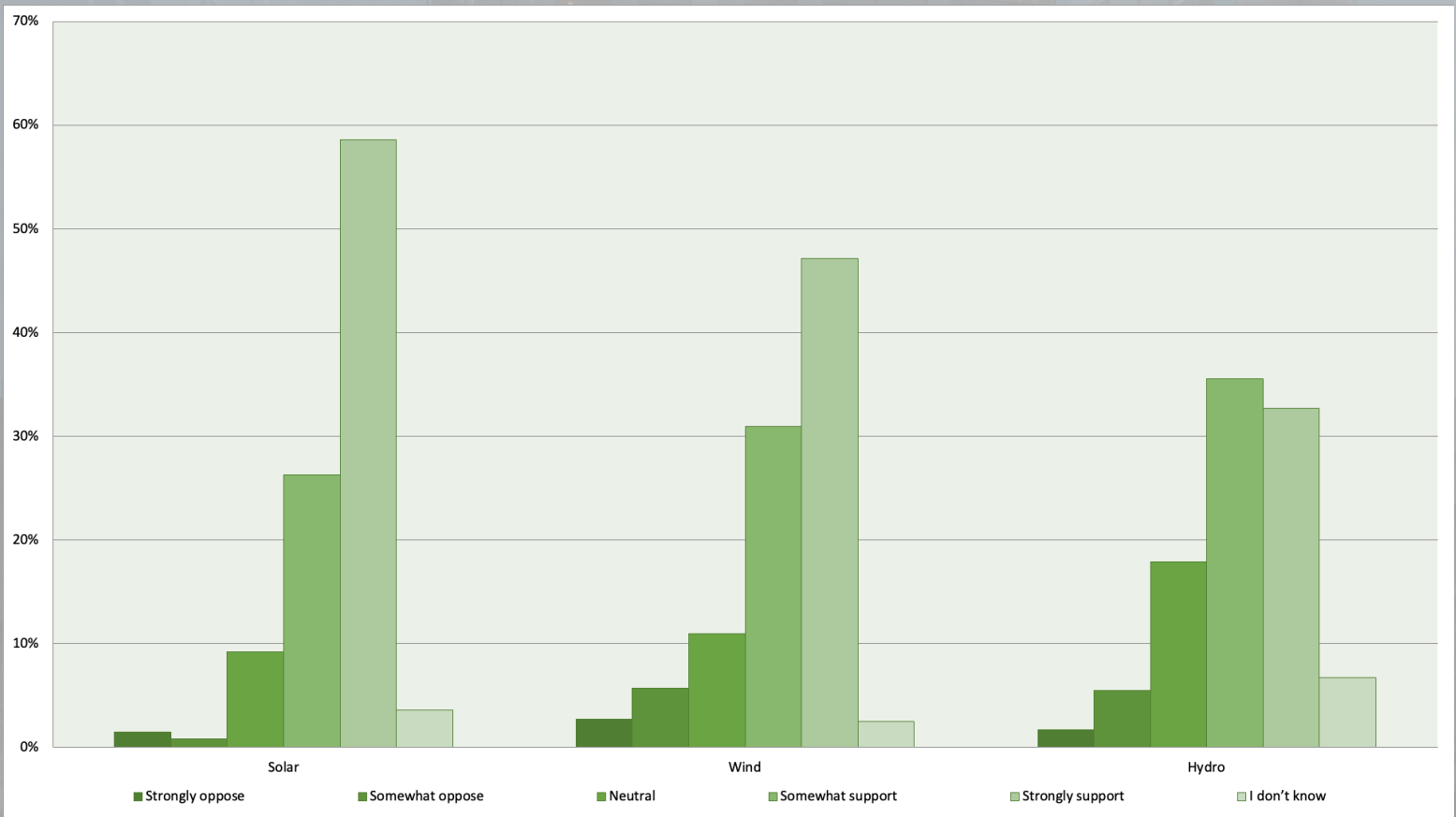
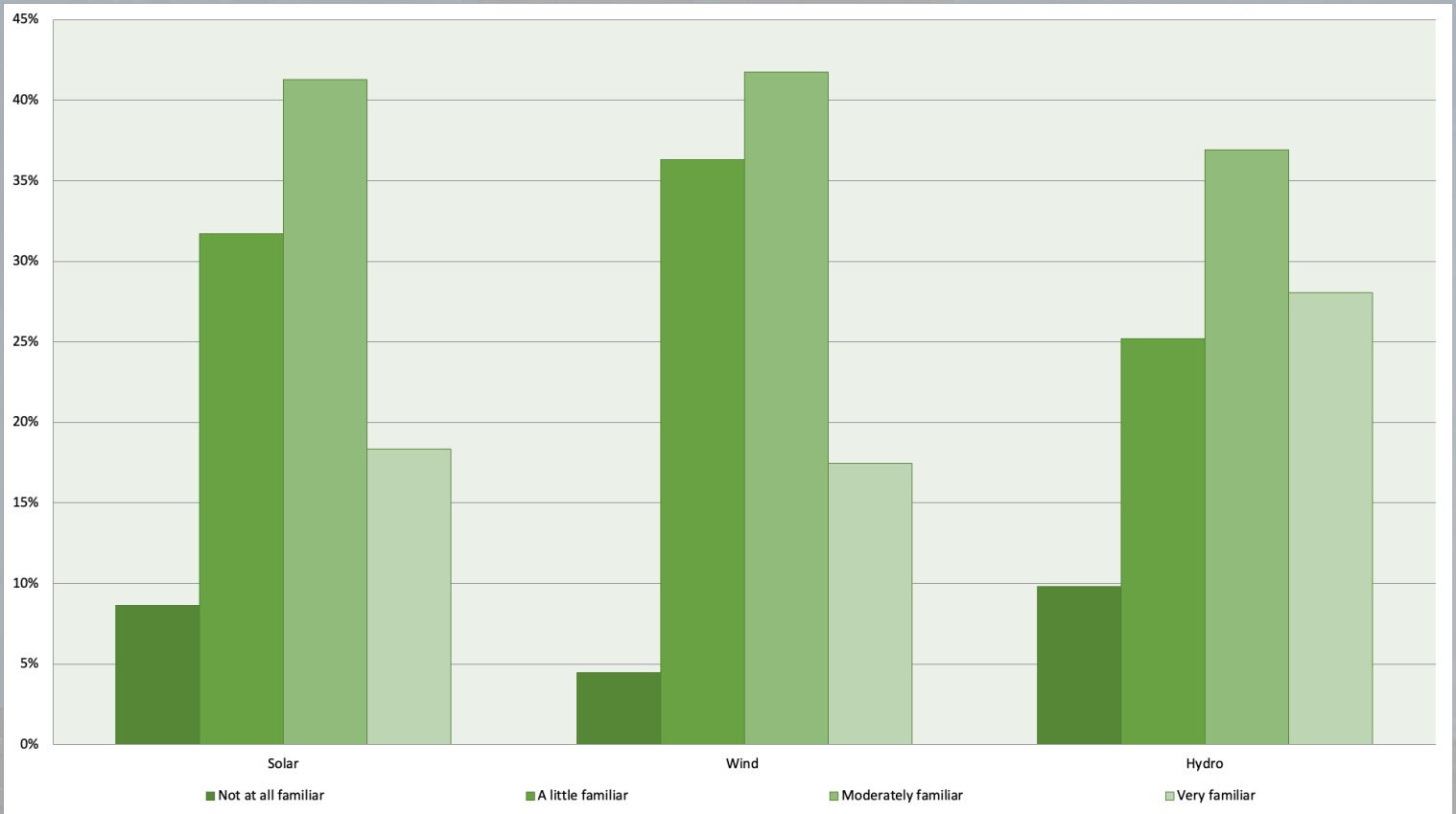


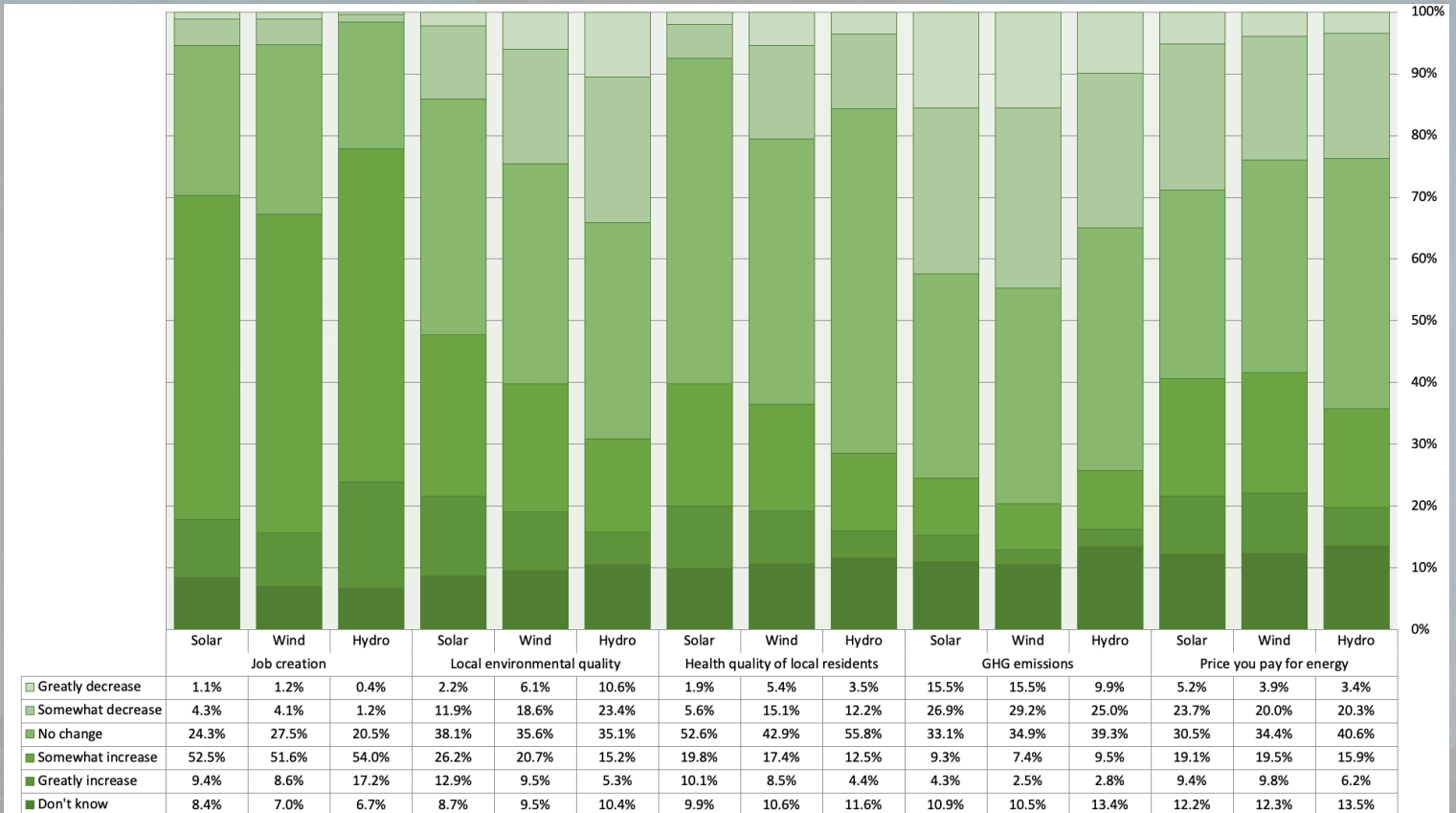
Figure 2. Canadians' self-reported level of familiarity with large-scale solar, wind and hydro (n=1407)



Analysis of the variance in mean responses of support for development of these technologies in each province, relative to the rest of Canada, shows lower levels of support for development of wind in Ontario and hydro in British Columbia. These lower levels of support coincided with active resistance towards current development of those technologies in those provinces at the time of the survey.

An analysis of the perceived impacts of development of the three technologies showed that most Canadians believe they will bring positive economic benefits, for example through increased job creation. Interestingly, despite very high levels of support for these technologies, less than half of respondents felt that development of large-scale solar, wind or hydro at large would actually reduce greenhouse gas emissions (see Figure 3).

Figure 3. Canadians' perceptions of selected economic, health and environmental impacts of solar, wind and hydro development (n=1407)



Using regression analysis, we found support for each of the technologies was influenced by a different set of factors. Important influencing factors included environmental and climate concern, familiarity with the technology, personal values, political affiliation, gender, age and education.

Discussion and Implications

Polarization

In this research we see issues relevant to polarization of opinion arising in different ways for these technologies.

For new technologies, such as solar, general familiarity with the technology may be high, but with experience of actual development being low, people may only be expressing an initial or in-principle opinion. These types of opinion may well be subject to change as people experience development of the technology. The process of increasing development can bring to light issues that were not previously apparent, dividing opinion and potentially reducing support. The lower likelihood of supporting wind development seen in this study from residents of Ontario is an indication of this type of polarizing effect.

This situation can also arise for an established technology like hydro. There is evidence that new development, such as was taking place in British Columbia at the time of survey, can be contentious and cause support for that technology to decline. This may be because issues or impacts caused by the technology, that had been forgotten or were historically downplayed in the minds of the public, are re-surfacing.

The results also showed that political affiliation has an influence on support for wind development. This aligns with the view that opinions on new technologies can become politicised as development increases. Politicisation is another factor which may exacerbate polarization of opinions on the merits of increasing development of a renewable energy technology.

What are the key takeaways?

By exploring public opinions on large-scale renewable energy technologies in Canada, this study found significant public support for the development of solar farms, wind farms and hydro dams. The Canadian public felt familiar with these technologies and believed their development would bring economic benefits. These are all positive factors for public acceptance of efforts to transition the energy system to lower greenhouse gas emissions. However, Canadian's were also sceptical that development of these technologies would actually lead to reductions in greenhouse gas emissions. Evidence was also found for increasing development of these technologies leading to divided or polarized opinions, including along partisan lines.

Relevance for Decision-Makers

Policymakers must be mindful of the challenges arising from actual deployment of these renewable energy technologies at scale. Opinions on technologies can easily become politicised and polarized as development increases and negative impacts become more evident to the public. While support for large scale renewable energy is high in a general sense, this does not necessarily translate into support for actual deployment. A lack of belief that renewable energy will deliver emissions reductions may mean that support erodes rapidly if development processes fail to address the negative impacts of development in the minds of the public.

[Link to full report](#)