

ENERGY LITERACY IN CANADA[†]

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SUMMARY

Energy plays an important role in everyday activities, whether at a personal, institutional, corporate or social level. In this context, an informed or literate public is critical for the long-term conservation, management, pricing and use of increasingly scarce energy resources.

A series of surveys were used to probe the literacy of Canadians with regard to energy issues ranging from relative ranking and importance of energy compared to other national issues, preference for various fuel types and willingness to pay for offsetting environmental impacts from energy generation. In addition, they were asked how Canada's government should prioritize national energy independence over trade, even if ultimately reducing imports might impact national economic health.

The survey revealed that Canadians have a good general knowledge of energy use and relative cost but lack detailed knowledge about sources of energy fuels, as well as sources and linkages with environmental impacts. However, an overwhelming majority of respondents indicated they were concerned about environmental issues; most seemed to direct that concern towards fuels such as coal and nuclear power where support was low compared to a relatively unconcerned view about the often substantial environmental effects of hydro dams or wind farms.

Canadians say they have been willing to make adjustments to their own energy-consumption habits, to save money and conserve energy. Further, respondents generally expressed a willingness to pay a surcharge on monthly utility bills, if it would help mitigate the environmental impact of energy generation. There were limits to this view. Support for extra charges falls off rapidly as the costs go up; drivers showed themselves highly resistant to switching their commute to transit, even despite rising gas prices; and respondents were less enthusiastic to the idea of installing home solar panels or switching to electric cars, even when offered a subsidy to do so.

In spite of some limitations regarding overall energy literacy, Canadians are also highly skeptical about the information they do get from virtually every stakeholder in the energy arena. In terms of trust and confidence, overall, respondents said they were more willing to listen to academics and economic experts; only a small majority was willing to *fully* trust those information sources at even low levels. In this serious topic area, respondents indicated they could not trust the credibility of environmental groups, and considered the oil and gas industry and governments by far the least trustworthy sources of information.

Finally, in terms of future policy development, most cite the importance of Canada's energy-trading relationship with the United States, but believe it is too dominant, and should diminish, with more effort focused on opening up new export markets elsewhere.

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I. INTRODUCTION

Energy is critical to everyday life. From transportation to heating, lighting, work and leisure, societies depend on access to usable forms of energy to survive, participate in commerce and derive motive power. The systems that supply energy in its myriad forms are complex and dependent on a web of science, engineering, economic markets, public regulation and policy making in order to satisfy demand and develop and maintain physical structures and supply capability. In recent years, the environmental impact of energy production has come under increased scrutiny, adding another layer of complexity to the management of the energy system. This challenge is particularly acute in Canada, with our vast lands and plentiful resources.

One of the inherent features of energy that makes it difficult for the consumer to understand is the connection between the value, or price, of the commodity — whether oil, natural gas or delivered electricity — and the opaque nature of the product itself. Consumers use energy for its ability to do work or enable transportation systems. In the case of electricity, the energy can't be easily stored, is invisible, and it is very difficult to price relative to use. In using a good such as energy, which has very limited or no substitutes, consumers must adjust to availability and price, even when they do not understand the market forces at work. For instance, in an environment of rising gasoline prices, consumers complain and often cut back their consumption. Ultimately, they adjust to higher prices and begin to adapt behaviours that allow them to continue to support their needs, with changes in behavioural patterns reflected in where they choose to live and how and where they work.

In Canada, energy is a key component of the national and provincial economies. Canadian development patterns range from several large cities close to the Canadian-American border, to vast open areas with towns and settlements separated by long distances. Fuels are generally expensive, reflecting the cost of long-range distribution, while climate variation creates higher per-capita demand on seasonal heating and cooling loads. The daily interactions that Canadians have with different sources of energy and the costs associated with higher demand for energy in all forms (electric, transportation fuels, natural gas heating) helps explain high levels of awareness for energy as a public policy issue.

Table 1 shows energy use per capita for most developed countries, reflecting the relative importance of energy in people's daily lives and each country's economy. Canada's energy use per capita is the third highest of the countries listed, behind only Iceland and Luxembourg. Compared to the United States, over the period 2002 to 2009, Canada's per-capita energy use was, on average, higher by 457 kg of oil equivalent.⁴ Canada's energy use per capita is about five times higher than Mexico's in any given year.

⁴ Kilogram(s) of oil equivalent (kgoe) is a normalized unit of energy, with a net calorific value of 41,868 kilojoules/kg, and is the approximate amount of energy that can be extracted from one kilogram of crude oil.

TABLE 1 ENERGY USE PER CAPITA⁵

Country	Energy Use Per Capita (kg of oil equivalent)		
	2007	2008	2009
Australia	5,929	6,019	5,971
Austria	4,008	4,017	3,784
Belgium	5,367	5,470	5,300
Canada	8,260	8,000	7,534
Denmark	3,618	3,498	3,369
Finland	6,953	6,641	6,213
France	4,130	4,151	3,959
Germany	4,033	4,076	3,889
Greece	2,700	2,707	2,609
Hungary	2,658	2,636	2,480
Iceland	15,709	16,542	16,405
Ireland	3,452	3,367	3,216
Italy	3,016	2,943	2,735
Japan	4,032	3,880	3,700
Luxembourg	8,723	8,564	7,934
Mexico	1,611	1,637	1,559
Netherlands	4,844	4,837	4,729
New Zealand	3,999	4,043	4,032
Norway	5,849	6,249	5,849
Sweden	5,472	5,380	4,883
Switzerland	3,412	3,501	3,480
United Kingdom	3,448	3,390	3,183
United States	7,758	7,488	7,051

Source: World Bank energy-use tables (<http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE>)

Given the nature of Canada's development and settlement, use of energy in all forms is generally reflected in higher per-capita or production unit demands than elsewhere in North America. This is not only due to temperature-related characteristics, but also the result of longer distances for average trips, fewer final product energy processing facilities and higher demands for imported finished fuels. This is exacerbated by the fact that the Canadian economy in general is dominated by high energy-consuming industries, such as mining, forestry, petrochemicals, pulp and paper, aluminum smelting, refining and steel manufacturing.

Canada is a small, open economy, with limited access to tidewater ports for export and import. Tombe and Winter show that the volume of internal trade (inter-provincial) is nearly as large as the volume of international trade.⁶ Canada is a small market, and the majority of international trade takes place with the United States (72% of exports and 62% of imports in 2011⁷). Purchasing power parity data from OECD Statistics indicate prices in Canada are generally higher than in most other countries.

⁵ Source: World Bank energy-use tables, <http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE> (accessed October 2012).

⁶ Trevor Tombe and Jennifer Winter, "Internal Trade and Aggregate Productivity: Evidence from Canada," *LCERPA Working Paper*, 2012-02.

⁷ Source: Statistics Canada, CANSIM Table 228-0058.

At the same time, the fact is that Canada has one of the most extensive natural resource bases in the world, with abundant hydroelectric, natural gas, coal and conventional and unconventional oil resources. Though not evenly distributed throughout the country, each province or territory either has substantial resource recovery in place, or significant potential to exploit energy resources. Moreover, the energy sector employs about 150,000 workers in a range of industries, as summarized in Table 2 below. While electricity production has a high employment share relative to its contribution to GDP, the oil and natural gas production sector represents a share of GDP more than twice its relative share of the total labour force.

TABLE 2 ENERGY AND THE CANADIAN ECONOMY

Industry	Workforce (as of 2011)⁸	Workforce as a Percentage of Canadian Total	Contribution to Canadian Economy (2008 \$Million)⁹	Percentage Contribution to Canadian Economy (2008)
Oil and Natural Gas Production	54,070	3.6%	118,108	7.8%
Mining, Oil and Natural Gas Production	206,667	13.8%	154,757	10.3%
Electricity from all Sources ¹⁰	96,680	6.5%	30,330	2%

Recent publicity around Canadian energy issues, including the question of increasing access for oil delivery to tidewater ports, and the complexity of managing tariffs and agreements pertaining to trans-border shipment of energy products, has served to heighten public awareness of energy as a trade good. It has also inspired Canadians to become more aware of energy as a domestic commodity that must be conserved or otherwise managed in both the public and private interest.

There are also special and unique issues that must be addressed both provincially and at the federal level with regard to the future of Canadian fuel supplies and energy use, including: the development and extension of transmission systems; support and subsidies for environmental protection and renewable energy systems; water for power production and hydrocarbon processing; and, ultimately, the price of energy for end-users.

The pervasiveness of energy-related issues has pushed energy onto the public policy agenda. This has prompted many governments to find methods of reconciling conflicting public and private agendas. For instance, many have enlisted the support of different stakeholders, such as interest groups, producers and businesses, to design appropriate public policy responses. This includes the need to enlist the support of individual citizens. Elected officials will need the support of an informed electorate to design the energy policies of the future. A starting point in this process is the need to assist Canadians in becoming as energy literate as possible.

⁸ Source: CANSIM Table 281-0024. Total Canadian employment in 2011 is estimated to be 14,948,338.

⁹ Source: CANSIM Table 379-0023. Total Canadian GDP in 2008 is \$1,509,227 million (latest estimates available).

¹⁰ Includes coal, natural gas, renewables and hydro and nuclear power.

The aim of this research project is to ascertain the current level of energy literacy¹¹ in Canada. To meet this objective, two separate studies were conducted. First, 3,600 Canadians were asked to participate in the first phase of our study. Interviews were conducted through an online panel between March 24 and April 2, 2012. The sample was designed to mirror the socio-demographic characteristics of the general Canadian adult population according to the latest census data. The participation rate was 41.9%, giving us a final sample of 1,508 respondents. The findings are accurate within a margin of error of +/- 3.0 percentage points within a confidence interval of 95%. We discuss the findings from this first phase in this report. In the second phase, over 500 interviews were conducted with decision-makers and elected officials. The results from that phase will be presented at a later date.

This report first reviews the public opinion environment and the level of public concern for energy-related issues, as well as some of the behavioural changes that have resulted from increased awareness about energy. Second, we examine Canadians' level of awareness and general literacy about energy issues. We look at a range of Willingness to Pay (WTP) questions, used to derive a relative scale of value for changes in energy production externalities and determine the relative weight that Canadians place on the use of and access to energy products. We conclude with a look at the strategic implications of the findings and some recommendations for use of the outcomes in designing public policy.

II. THE PUBLIC OPINION ENVIRONMENT

Energy and energy issues often dominate news reports. Given the magnitude of the energy industry in Canada, energy production is a substantial source of jobs and income across the nation. However, energy-related issues are rarely one of the top salient concerns identified by Canadians. When asked to mention the most important issue currently facing the nation, 22% of Canadians mention the economy, ahead of the 15% who identified health care, and the 11% who name unemployment the most important issue. Issues related to "oil and gas, energy prices and production" are named as the most important concern by only 2% of Canadians.

According to Statistic Canada's Survey of Household Spending, the average Canadian household in 2008 spent \$4,164 dollars on energy-related household expenditures, which is 5.9% of average total household expenditures. The majority of energy expenditure went to gasoline (\$2,218) and electricity (\$1,183).¹² This is a relatively small amount of total household expenditures, and could relate to the low priority Canadians place on energy as an issue. However, it should be noted that respondents were only asked to name the *most important* issue facing the country. While energy was the top issue of concern for only 2% of respondents, it may still be a relatively important concern for most households, as indicated in Figure 1.

¹¹ Energy "literacy" can be defined as fundamental understanding of energy – from the basic units of measurement (watts, British thermal units, etc.), to energy production and distribution, to the economic and environmental factors that affect decisions about energy use.

¹² Sources: CANSIM Tables 203-0001, 203-0003, and 203-0007.

TABLE 3 MOST IMPORTANT ISSUE FACING CANADA TODAY (ALL RESPONDENTS)

Economy	22%
Health Care	15%
Employment	11%
Government Spending/Debt/Deficit	8%
Environment/Climate Change	5%
Poverty/Homelessness	4%
Pensions/Retirement	3%
Taxes	3%
Oil and Gas/Energy Prices and Production	2%

Even when respondents are probed more directly, energy issues remain a second-tier issue, behind economic concerns and health care. Specifically, we asked Canadians to rate the level of importance of a series of issues using a zero to ten scale, where zero is “not at all important” and ten is “very important.” As Figure 1 and Table 4 show, energy (with an average score of 7.57) rates significantly lower than health care (8.84), the economy (8.71), jobs and unemployment (8.43), and education (8.24). The importance rating for energy is tied with the environment (7.57) and is slightly ahead of crime (7.22).

FIGURE 1 RELATIVE IMPORTANCE OF CURRENT ISSUES (ALL RESPONDENTS)

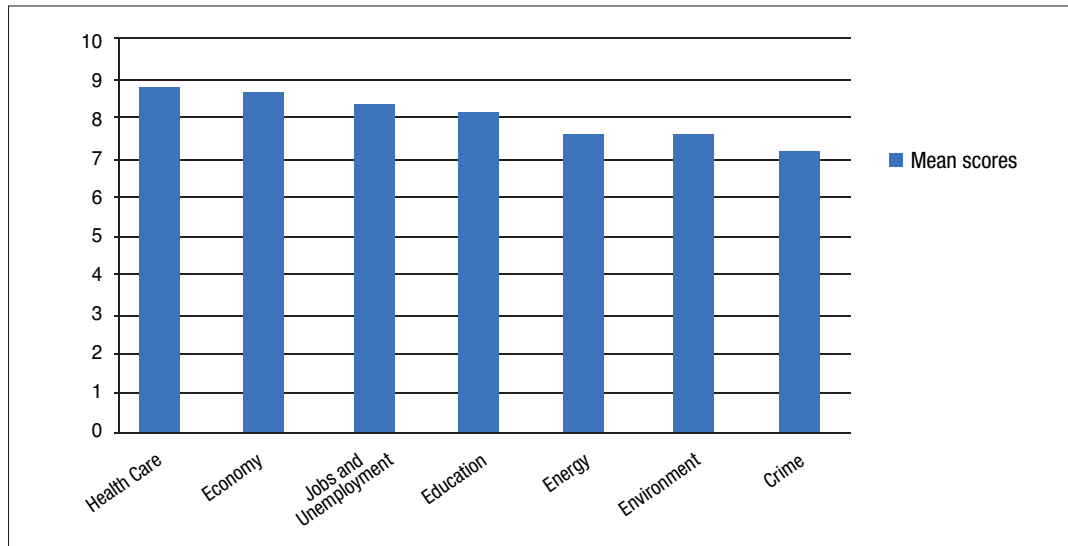


TABLE 4 MAJOR ISSUES AND RELATIVE IMPORTANCE RANKING (ALL RESPONDENTS)

	AVERAGE SCORE
Health Care	8.84
Economy	8.71
Jobs and Unemployment	8.43
Education	8.24
Energy	7.57
Environment	7.57
Crime	7.22

Looking at the importance of energy among sub-segments of the population, we observe some variation. The next table shows the percentage of Canadians in specific groups who give a high to very high importance score to energy (scores of six or higher on the zero to ten scale). For example, the first column of Table 5 indicates the percentage within a group who rated the importance of energy issues with a score of six or higher. The second column indicates the share of that sub-group that rated energy as important, relative to the total percentage of respondents in the group. The third column reports what percentage of the total survey sample the particular sub-group represents. Looking at the homeowners group, we see that more than 85% of homeowners score energy at six or higher on the importance scale; that homeowners comprised 63.3% of the total survey sample; and that 53.9% of all survey respondents are homeowners who also scored energy importance at six or higher.

TABLE 5 IMPORTANCE RATINGS FOR ENERGY BY GROUPS AND PERCENTAGE OF TOTAL PERCENT INDICATING HIGH TO VERY HIGH IMPORTANCE

	Percent of Group Indicating Importance	Percent Share in Group (of Total Respondents) Indicating Importance	Percent of Total Respondents in Group
Age			
18-39	79.3%	28.1%	35.4%
40-64	83.8%	39.4%	47.0%
65 and over	90.1%	15.9%	17.6%
Home Ownership			
Homeowners	85.2%	53.9%	63.3%
Renters	80.1%	24.5%	30.6%
Education			
Some High School	78.2%	1.9%	2.5%
High School/College/Undergrad	83.0%	74.5%	89.8%
University	87.7%	6.8%	7.8%
Gender			
Men	80.2%	40.3%	50.3%
Women	86.5%	43.0%	49.7%

We can see that people over the age of 65 (90% of whom ranked energy issues higher than six on the importance scale), university-educated Canadians (88% of whom did so), women (87%) and homeowners (85%) perceive energy to be of relatively high importance. The results reveal that women ranked energy considerations as having high to very high importance slightly more than men did, while homeowners were slightly more inclined to rank energy importance as high to very high than renters were, yet the numbers were still impressively high across both categories. The level of support for energy as an important issue appears closely correlated to education, and climbs steadily beyond high school education through college.

A. Concern Over the Impact of Energy Generation on the Environment

As noted above, Canada is a country closely associated with a wide variety of resources, ranging from water, forests and vast land areas, to minerals, hydrocarbon and renewable fuels. In this context, it is not unexpected to find that Canadians associate the development and use of energy with impacts on the environment and, ultimately, with their quality of life. The association and importance that Canadians attach to environmental issues vary according to several different metrics, such as their province of residence, age, gender and employment, and ultimately — as we will explore later — those values can be tied to the stated preferences for supporting environmental quality, measured as Willingness to Pay (WTP).

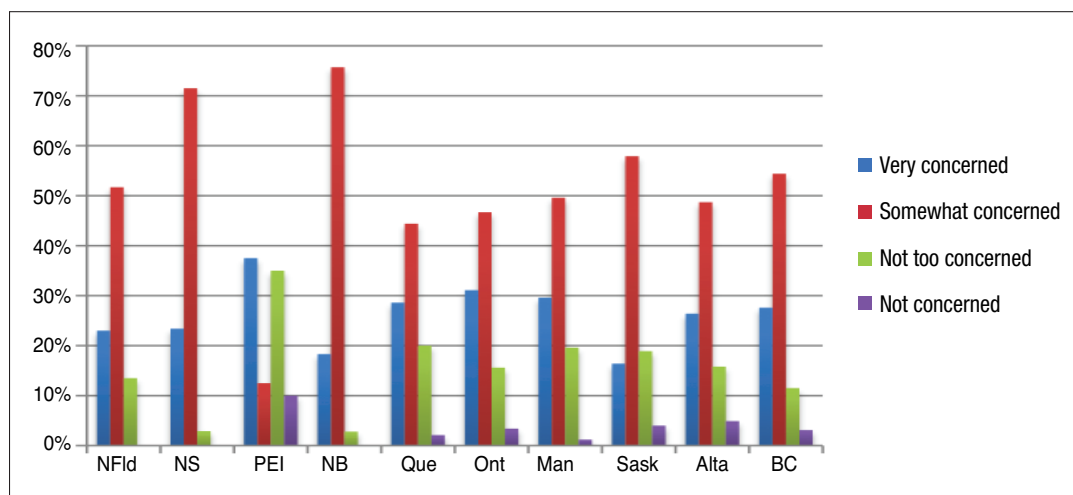
Questions about “concern” allow for a wide range of responses, indicating anything from a respondent’s personal experiences to his or her reactions to public reports of environmental damage or declines in overall environmental quality. In our study, we asked Canadians whether or not they were concerned about the impact of energy generation on the environment. Overall, 77% of Canadians are “very” (28%) or “somewhat” (49%) concerned about the impact of energy generation on the environment, while 16% are “not too concerned” and 3% are “not at all concerned.”

TABLE 6 CONCERN WITH THE IMPACT OF ENERGY GENERATION ON THE ENVIRONMENT (ALL RESPONDENTS)

Very concerned	28%
Somewhat concerned	49%
Not too concerned	16%
Not at all concerned	3%
Don't know	4%

Regional variation is apparent in the data. The range of concern varied with those “very concerned” extending from 15% in New Brunswick to a high of 35% in P.E.I., as illustrated in Figure 2. Negative answers to this question (i.e. “not concerned”) were low, although indifference (“not too concerned”) approached the levels of those who said they were “very concerned.”

FIGURE 2 RANGE OF CONCERN FOR ENVIRONMENTAL IMPACT BY PROVINCE (ALL RESPONDENTS)



When asked to identify the source of their concern, respondents indicated a range of issues, which we then tabulated from verbatim answers. Concerns over the uncertainty of environmental impacts, the source of and/or the mitigation of those impacts are apparent in the range of answers. It is clear that a significant number of Canadians (32%) associate long-term health issues, including the future well being of the country, and a responsibility to ensure adequate levels of environmental quality for future generations (33%), with energy use. Lack of information or knowledge does not appear to be a major concern to respondents, suggesting that they believe themselves relatively aware of environmental problems associated with energy generation, such as climate change. It is also interesting that the response “all energy impacts the environment” also has a low rate of principal concern (2%). This indicates respondents are aware of and concerned about pollution created by fossil fuel energy production, but are less concerned about the (often substantial) environmental effects of hydroelectric dams or wind farms.

**TABLE 7 PRINCIPAL STATED REASONS FOR CONCERN¹³
FOR RESPONDENTS WHO INDICATED SOMEWHAT OR VERY CONCERNED (77% OF RESPONDENTS)**

Effect On Environment/Pollution/People's Health	32%
Be Environmentally Responsible/Find Alternatives	21%
Future Of Environment/For Next Generations	11%
Use/Waste Too Much/Using Up Resources	3%
Cost Of Energy/Production/New Is Costly	3%
Mismanagement/Badly Regulated/Hidden	3%
People Don't Know Much/Enough About It	2%
All Energy Generation Impacts Environment	2%
Balance Environment And Economy/Cost	2%
Energy is Important/Needed	1%
Demand Keeps Increasing	1%
Way I Feel/Just Concerned/All Should Be	1%
Don't Know/Refused	10%
Other	5%

The verbatim responses from those respondents who said they were not concerned about environmental impacts highlighted associated areas and clarified some of the ancillary issues considered by most of those respondents. The dominant response to the question, identified by 16% of the respondents, was an expressed skepticism about the pervasive nature of environmental issues, while 12% identified a view that the Canadian economy and the national well being depended on power generation, and 12% of responses reported a belief that the current policy approach is the right course. As discussed above, a low response rate for a given reason does not mean it is not an issue for most respondents, only that other reasons were judged to be more salient at the time of response.

¹³ Each respondent only indicated their key or principal area of concern, as opposed to a list or range, which was recorded verbatim, and, as a consequence, the total reflects 100% of a subset of the surveyed population or approximately 77%.

**TABLE 8 PRINCIPAL STATED REASON FOR NOT BEING CONCERNED¹⁴
RESPONDENTS WHO INDICATED NO OR LITTLE CONCERN (19% OF RESPONDENTS)**

Environmental Impact Overstated	16%
Need Power/Energy/Need For The Economy	12%
On Proper Course/Guidelines in Place	12%
Other Things to Worry About/Don't Care	10%
Not Worried/Concerned/Don't Think of It	7%
Don't Know Enough About It	7%
Nothing We Say Will Change Anything	3%
Other Factors Affect The Environment More	3%
Have Enough Power Sources/Sell Power	2%
Green Costs Too Much For The Benefits	1%
Will Not Be Around To See it	1%
It Does Concern Me	1%
Others Pollute Much More Than We Do	1%
Can Improve When Needed/Find Solutions	1%
It's a Complex Issue	1%
Other	3%
Don't Know/Refused	20%

B. Behavioural Changes

Ultimately, heightened concern and awareness about the environmental impacts of energy demands should logically translate into changes in energy use and other behavioural patterns. If individuals say they are concerned about the impact of energy consumption on the environment, one would expect to see them take steps to minimize their own contribution to that negative environmental impact.

Respondents in this study were presented with categories of energy-efficiency steps readily available to them, and asked if they had previously utilized or were utilizing any of these methods in order to save energy or reduce costs. As Table 9 shows, most Canadians have taken some steps along those lines or believed they had changed their behaviour in order to effect changes. Specifically, two-thirds of Canadians (66%) say they “have replaced all light bulbs with energy-efficient light bulbs” while 59% believe they have managed to reduce household waste by about 50%. There were other behavioural changes that a substantial number of Canadians said they had made: virtually half of respondents (49%) said they had achieved a reduction of power consumption at home by at least 30%, while 48% said they were keeping their thermostats at 18°C or less during the winter; 43% said they had shifted to buying local produce in season and then canning or storing it; the same proportion said they were spending less than five minutes in the shower and no longer taking baths; while 32% said they had reduced their driving by at least half. However, it may have been difficult for respondents to accurately measure their own behavioural changes — for example, precisely assessing their actual reduction in household waste or power consumption. Therefore, it is possible respondents who responded in the affirmative did reduce consumption and waste, but by less than the stated level.

¹⁴ This group represents the approximately 19% of all respondents who stated they were “somewhat concerned” or “not very concerned” about the effect of energy use on environmental quality.

TABLE 9 BEHAVIOURAL CHANGES (99% OF RESPONDENTS)

Replaced all light bulbs with energy-efficient light bulbs	66%
Reduced household waste by at least 50%	59%
Reduced power consumption at home by at least 30%	49%
Keep thermostat at 18 C or less during winter	48%
Buy local produce in season and can/store it	43%
Spend less than five minutes in shower, with no baths	43%
Cut driving by at least 50%	32%
Reduced air travel by at least 50%	27%
Bought a more energy-efficient vehicle	24%
Taking public transit every day	19%
Paid \$250 for a home energy audit	9%
None/Don't know	5%

III. GENERAL LITERACY OF CANADIANS ABOUT ENERGY ISSUES

The links between public opinion support and policy making have been the subject of much academic scrutiny as well as extensive commentary in the popular press. Similarly, we know that information is a key behavioural determinant of support for public policy. In this light, our study investigated the extent of Canadians' knowledge about energy issues. When asked questions about specific energy characteristics, most opined that they had a fair, but not comprehensive understanding of energy issues. A series of questions probed respondents' knowledge of various issues and probed whether they felt they knew anywhere from "a lot" about the matter, to "don't know anything" about it, without citing specific characteristics. The specific subject areas, and responses, are included in Table 10 below, which reveals a majority claim to knowledge about energy generation, where 60% of respondents reported knowing at least a little about energy generation and 63% knew at least a little about energy use. This was followed by knowledge about energy distribution (53%) and energy waste products (43%).

TABLE 10 BROAD KNOWLEDGE OF ENERGY ISSUES (ALL RESPONDENTS)

	Energy Generation	Energy Distribution	Energy Use	Energy Conservation	Energy Waste Products
Know a lot	11%	8%	10%	14%	6%
Know a little	49%	45%	53%	53%	37%
Heard of it	33%	40%	32%	27%	46%
Never heard of it	4%	4%	2%	4%	7%
Don't know	3%	3%	3%	3%	4%

This tracks fairly closely with a more general question asking whether respondents agreed or disagreed with the following statement: "I have a good understanding of energy issues in Canada." Here, 60% of respondents said they either somewhat or strongly agreed.

TABLE 11 SELF: GOOD UNDERSTANDING OF ENERGY ISSUES (ALL RESPONDENTS)

Strongly agree	8%
Somewhat agree	52%
Somewhat disagree	28%
Strongly disagree	7%
Don't know	5%

While the previous questions give us a general sense of what people think they know about energy, the objective was to go further and establish a more substantive understanding of the general literacy of Canadians in energy-related matters. Respondents often tell questioners what they believe to be the right or appropriate answer, so the questionnaire offered a proxy of “other people’s opinions,” which often reveals a more accurate reflection of individual preferences or actions. By slightly rewording the question to read “How much do you agree or disagree with the following statements: The average Canadian has a good understanding of energy issues in Canada,” we find a different view of the public knowledge of energy issues, with only 30% of those responding indicating that “other” Canadians have a good understanding of energy issues.

TABLE 12 OTHERS: GOOD UNDERSTANDING OF ENERGY ISSUES (ALL RESPONDENTS)

Strongly agree	2%
Somewhat agree	28%
Somewhat disagree	45%
Strongly disagree	20%
Don't know	5%

An interesting result from comparing Tables 11 and 12 is that most respondents consider themselves to be better informed about energy issues than the average Canadian. When asked about what they perceived to be the specific areas where Canadians lack a good understanding of energy matters, or reasons why Canadians lack that understanding, the most popular responses were: a lack of basic knowledge about cost and production, that the issues were too complicated, a lack of knowledge around conservation methods, general indifference, and a lack of basic knowledge around the impact of energy production on the environment (see Table 13). Respondents provided only their *main* reason for believing *other Canadians* are uninformed. The variety of suggested reasons indicates the presence of several energy literacy issues.

TABLE 13 WHAT OTHERS MISUNDERSTAND ABOUT ENERGY ISSUES¹⁵
RESPONDENTS INDICATING OTHER CANADIANS ARE UNINFORMED (65% OF RESPONDENTS)

Costs/Why Energy is Expensive to Produce	12%
Don't Understand Enough/Too Complicated	9%
What Can Be Done/Why/How To Conserve	8%
Everything/Don't Understand Much	7%
Not Staying Informed/Not Educated Enough	6%
They Don't Care/Not Interested/Too Busy	6%
Environmental Impact Of Energy Generation/Pollution	6%
There Are Issues/What To Do About Them	5%
Where Energy Comes From/How Produced	4%
How Much/Too Much is Used/Wasted/Usage	2%
Need Renewable Energy/Consequence If Not	2%
Energy/Oil/Resource Limited/Will Run Out	2%
Why Sell Power/Sell Cheaper Than Costs	2%
Differences/Different Energy Sources	2%
They Don't Think/Know Much About Them	1%
The Real Cost Of Green Energy	1%
How it is Managed/How Government Manages it	1%
How Serious/Important it is	1%
Can Produce it/Why Not Use Our Own	1%
It's Local/Provincial, Not Countrywide	1%
Alternatives to/Reduce Fossil Fuels	1%
Distribution/How it is Distributed	1%
Other	6%
Don't Know/Refused	14%

Table 13 also points to the fact that the majority of respondents were aware of the controversy and misunderstandings over home (or domestic) use of energy.

The following group of questions focused on public perception and knowledge of the need for adequate provision of energy for future domestic needs. For instance, when asked “As far as you know, which one of the following statements best describes where Canada gets its energy?”, an overwhelming majority of respondents (81%) suggested Canada produces most, if not all of the energy it needs for domestic consumption.

TABLE 14 WHERE CANADIAN ENERGY COMES FROM (ALL RESPONDENTS)

Canada produces most of the energy it needs at home	53%
Canada produces all of the energy it needs at home	28%
Canada imports most of the energy it needs from other countries	8%
Canada imports all of the energy it needs from other countries	<1%
Don't know	11%

Respondents were asked a question that addressed the market issue of imports versus exports: “As far as you know, which one of the following statements best describes the relationship between Canada’s energy imports and energy exports?”. Here, 55% of respondents indicated that Canadian energy resources were sufficient to support domestic needs as well as maintain a robust export industry in energy. To put the responses in context, net energy imports (energy use less production) for Canada, as a percentage of total energy use, have averaged around

–51% from 2002 to 2011.¹⁶ According to the National Energy Board, in 2010, energy exports were valued at \$94 billion and imports were valued at \$40 billion.¹⁷

TABLE 15 CANADIAN ENERGY ECONOMY (ALL RESPONDENTS)

Canada is a net exporter of energy – that is, it exports more	55%
Canada is a net importer of energy – that is, it imports more	9%
Canada's energy imports and exports are roughly the same	11%
Don't know	25

The views reported in Table 15 stand in contrast to the series of public policy questions discussed in section VI, below, where respondents indicated some reservations about continuing or expanding current export policies for energy products in the future.

In trying to get a real understanding of the energy literacy of Canadians, we asked Canadians: “As far as you know, which one of the following is the major source of electricity generation in your province?”. Table 16 shows the comparison between the *actual* main source of electricity generation in each province and what residents of that province believe the main source is. Overall, most Canadians appear to have a relatively accurate understanding of where their electricity comes from. However, notable gaps in electricity literacy are observed among residents of P.E.I., Ontario, Saskatchewan and Alberta. As a caveat, the majority of respondents in Saskatchewan and Ontario did correctly identify the two largest sources of electricity generation in their provinces. In addition, Alberta does import electricity from BC Hydro, and some Alberta residents may be aware of this.

TABLE 16 MAIN SOURCE OF PROVINCE'S ELECTRICITY GENERATION

	Actual Source, 2010 (%) ¹⁸					Residents' Literacy (% answering as main source of generation)				
	Hydro	Nuclear	Coal	Natural Gas	Renewables ¹⁹	Hydro	Nuclear	Coal	Natural Gas	Renewables ²⁰
Average	59.16%	15.75%	13.69%	6.49%	2.32%	64%	11%	9%	11%	1%
Newfoundland	97.29%	0.00%	2.26%	0.00%	0.45%	93%	0%	3%	0%	0%
Nova Scotia	8.27%	0.00%	57.96%	19.41%	3.54%	28%	0%	66%	2%	0%
P.E.I.	0.00%	0.00%	0.00%	0.00%	99.18%	18%	27%	18%	9%	18%
New Brunswick	31.34%	0.00%	19.61%	17.31%	3.67%	56%	35%	0%	3%	0%
Quebec	95.90%	2.11%	0.00%	0.14%	1.13%	94%	1%	<1%	2%	2%
Ontario	21.52%	55.42%	8.31%	10.24%	2.18%	53%	29%	5%	7%	2%
Manitoba	98.73%	0.00%	0.13%	0.07%	1.02%	94%	0%	0%	4%	2%
Saskatchewan	19.19%	0.00%	60.00%	15.09%	2.52%	34%	0%	34%	21%	2%
Alberta	3.20%	0.00%	71.73%	17.90%	3.66%	18%	1%	35%	42%	1%
British Columbia	86.70%	0.00%	0.00%	4.68%	6.05%	89%	0%	0%	10%	0%

¹⁶ World Bank tables on net energy imports, <http://data.worldbank.org/indicator/EG.IMP.CON.S.ZS> (accessed October 2012).

¹⁷ National Energy Board, “Energy Trade – Energy Facts,” <http://www.neb-one.gc.ca/clf-nsi/rmgynfntn/nrgyrprt/nrgdmnd/nrgytrdfct2011/nrgtrdfct-eng.html>, (accessed October 2012).

¹⁸ Source: CANSIM Tables 127-0006, 127-0007, 127-0010.

¹⁹ Renewables: tidal, wind, solar, other.

²⁰ Renewables: wind and solar.

C. Energy Fuels and Preferences

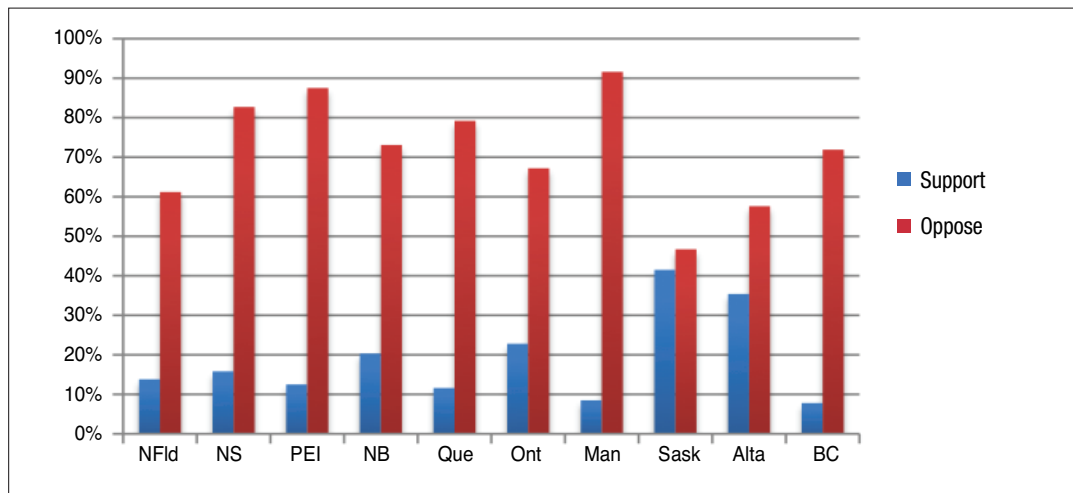
The responses to questions C1A through C1F indicate a preference for fuel types and electricity generation (energy generation) technologies that are perceived to be more environmentally friendly. Respondents were asked about specific technologies or fuels by common or popular names; for example, “How much do you support or oppose the increased use of each of the following in your province: Solar power?” The questions did not provide a definition or context for each fuel source, as the survey was not designed to elicit responses about types of electricity generation, but rather to uncover opinions about the various fuel sources generally. Renewable technologies were more popular and more broadly supported than fossil fuel combustion, and produced higher support across all categories measured. These results, however, illustrate relative rather than absolute values for respondents. It should also be noted that natural gas is used for heating as well as electricity generation, which makes it a different type of fuel in the eyes of consumers.

The survey reveals public support for fossil fuels is waning in provinces outside the West, and support for nuclear-sourced electricity is very low, except in the Maritimes and Ontario, where opposition is balanced by support. Support for natural gas — perceived as a clean fuel with low environmental impact — is high across the nation, and similar to support for renewables. The most popular fuel for energy supply is electricity from hydro resources, which is strong in every province, even in those with low supplies of this renewable source. We now review Canadians’ opinions about each potential energy source, in turn.

COAL

Coal energy generation is regarded with disfavour by a clear majority throughout Canada, with the exception of Saskatchewan, where there is a well of existing public support. As is clear from Figure 3, only Alberta and Saskatchewan, where coal is still a dominant form of electricity generation, have residual support. This is, effectively, only temporary when viewed against the increasing and dominant support for natural gas as shown in Figure 4.

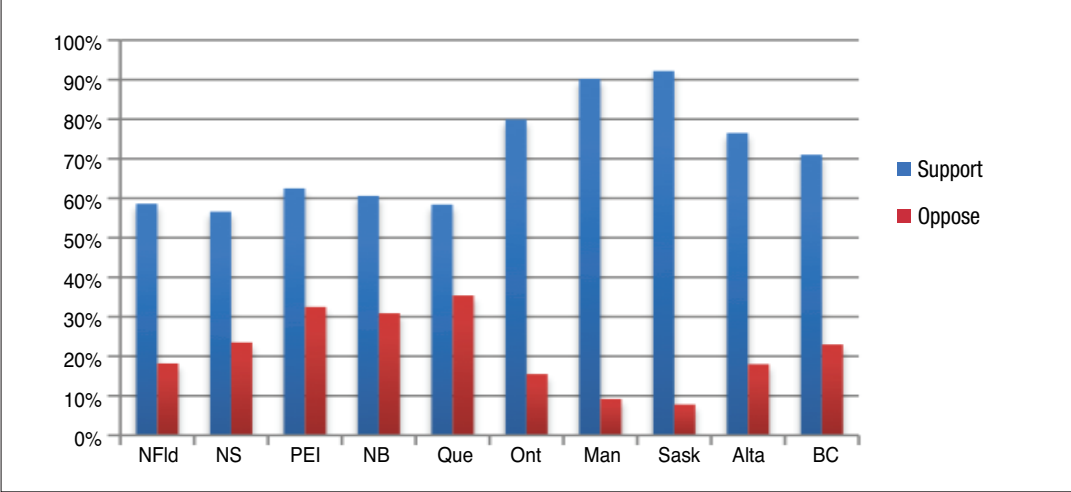
FIGURE 3 SUPPORT VERSUS OPPOSITION FOR COAL ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)



NATURAL GAS

Natural gas as a fuel source is generally perceived as safe and less environmentally threatening than other sources such as coal, and currently enjoys the status of a low-priced alternative for other forms of energy. Long-term effects — such as impacts from extracting unconventional gas — may ultimately threaten this viewpoint, but currently Canadians across the country overwhelmingly favour this fuel source, with very low negative reaction in every province.

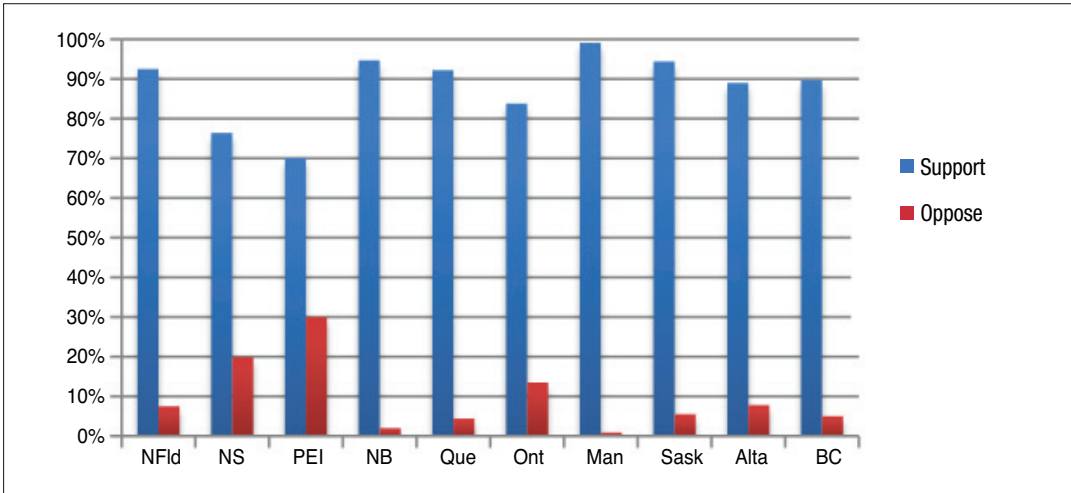
FIGURE 4 SUPPORT VERSUS OPPOSITION FOR NATURAL GAS ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)



HYDROELECTRIC FACILITIES

Hydropower is not significantly available in every province, but is favourably viewed by a majority of respondents. Most felt it was a clean, dependable and affordable alternative to other forms of energy generation. There was no significant reaction to any environmental attributes voiced during verbatim responses, and consequently, the negative values recorded were extremely and routinely low.

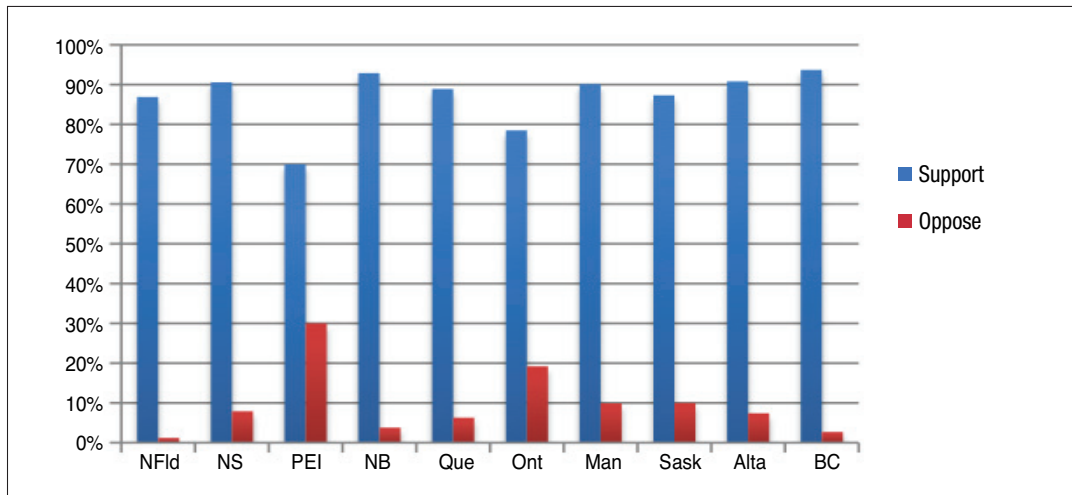
FIGURE 5 SUPPORT VERSUS OPPOSITION FOR ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)



WIND

Wind energy is popular with the public, well beyond its contribution to overall power generation. It is perceived as having a generally low environmental footprint, and is considered desirable across the country, even in locations where wind resources are low or minimal and where installed facilities are limited.

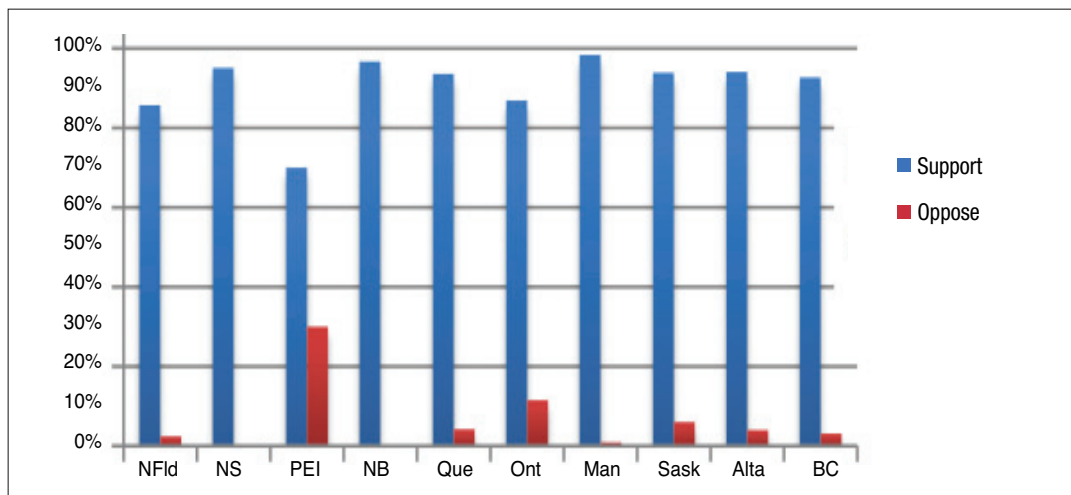
FIGURE 6 SUPPORT VERSUS OPPOSITION FOR WIND ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)



SOLAR

Solar facilities are strongly favoured by the public, even when opportunities for installation of solar energy facilities lack public subsidy or incentive programs (respondents were not advised whether the technology in question was photovoltaic (PV), or solar thermal (CSP). Negative opinions were uniformly low, except among respondents in P.E.I.

FIGURE 7 SUPPORT VERSUS OPPOSITION FOR SOLAR ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)

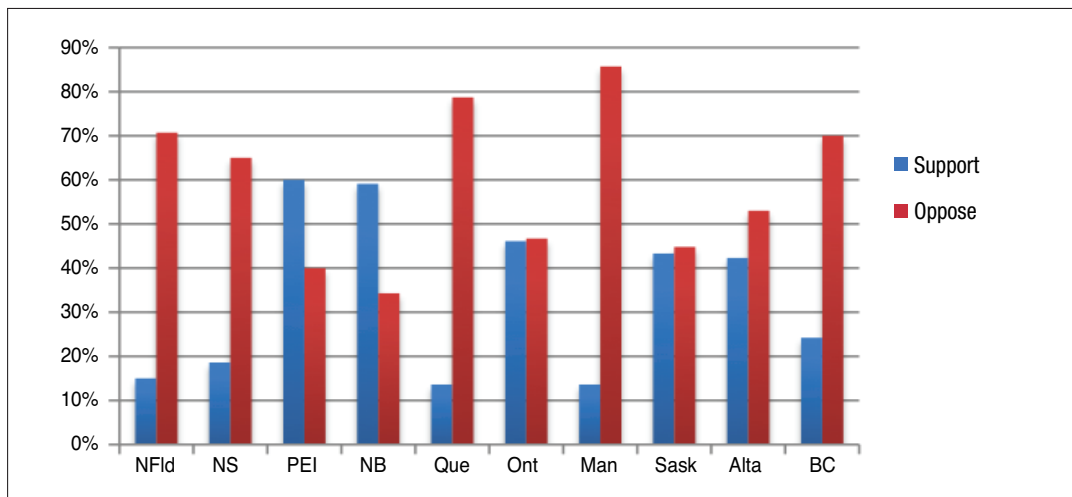


NUCLEAR POWER

Nuclear energy facilities generated a range of strong opinions, with the four Maritime provinces split — two with the majority in support and two with the majority opposed. Support and opposition were close to parity in Saskatchewan, Alberta and Ontario. There was overwhelming opposition to nuclear power in Quebec, Manitoba and British Columbia.

The survey did not probe reasons for these differences; however, the range suggests that future public opinion programs should examine the reasons for the variation and potential solutions aimed at resolving the place for this power generation source in future grid policy discussions.

FIGURE 8 SUPPORT VERSUS OPPOSITION FOR NUCLEAR ENERGY GENERATION BY PROVINCE (ALL RESPONDENTS)



IV. WILLINGNESS TO PAY

We utilized a series of questions in the survey to determine a hypothetical willingness to pay for an assumed program or process that would focus on maintaining or improving environmental quality in the context of energy use. Here the willingness to pay (WTP) is the maximum amount a person would be willing to pay, sacrifice or exchange in order to receive a good, or to avoid something undesired, such as pollution. The questions were randomly varied at three price levels, so only one third of the total number of respondents were asked to respond at each of the three various dollar levels. When asked about the magnitude of payment, respondents were asked if they agreed that preserving the environment is worth a \$10, \$30 or \$50 per month increase in energy costs in the future. The simulation is useful for understanding the latent sensitivity of the respondents to various commitments they and policy makers might make. Respondents are not responsible or liable for outcomes, so these values are more likely to reveal the response we could expect if a vote were required and a tax or bond measure were on the ballot.

This is the opposite of the case where respondents are provided with alternative scenarios, where some of the parameters (including environmental damage and the cost and cost apportionment) vary across scenarios, and they can supply a preference between costs and environmental trade-offs. Thus, in a strict sense, these preferences are stated rather than revealed by respondents, but they still provide the opportunity to examine relative rates and comparisons between subgroups in the total sample population.

Comparing responses to the three levels of willingness to pay, there is a steady decrease in positive responses, and a steady increase in negative responses as the suggested price increases. However, when deconstructing the responses across provinces, there are some apparently anomalous responses where relative support increases as the suggested price increases. Examples of these anomalies are P.E.I., Manitoba, and New Brunswick. While these responses are not definitive, they do highlight broad regional variation and the nexus between a perception of environmental quality change and the commitment to affect a solution.

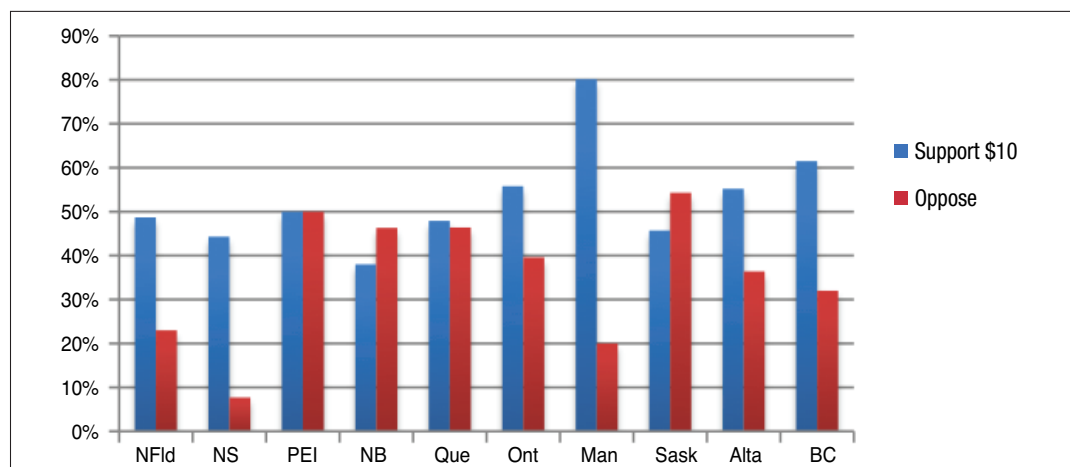
Presented with a proposal of paying \$10 per month extra in energy costs to protect the environment, 54% of respondents across the country somewhat or strongly agreed to support the added fee. The negative values — ranging from “somewhat disagree” down to “strongly disagree” — were slightly lower, at 39%, while 7% expressed no preference.

TABLE 17 \$10 PER MONTH INCREASE IN ENERGY COSTS (37.1% OF RESPONDENTS)

Strongly agree	21%
Somewhat agree	33%
Somewhat disagree	23%
Strongly disagree	16%
Don't know/Refused	7%

When viewed by province, these results are more ambiguous, with Ontario, Alberta, Manitoba and British Columbia showing strong support, while Quebec’s results were more mixed and the response in Saskatchewan was not favourable.

FIGURE 9 WILLINGNESS TO PAY \$10 PER MONTH TO MITIGATE ENVIRONMENTAL IMPACTS, BY PROVINCE (37.1% OF RESPONDENTS)



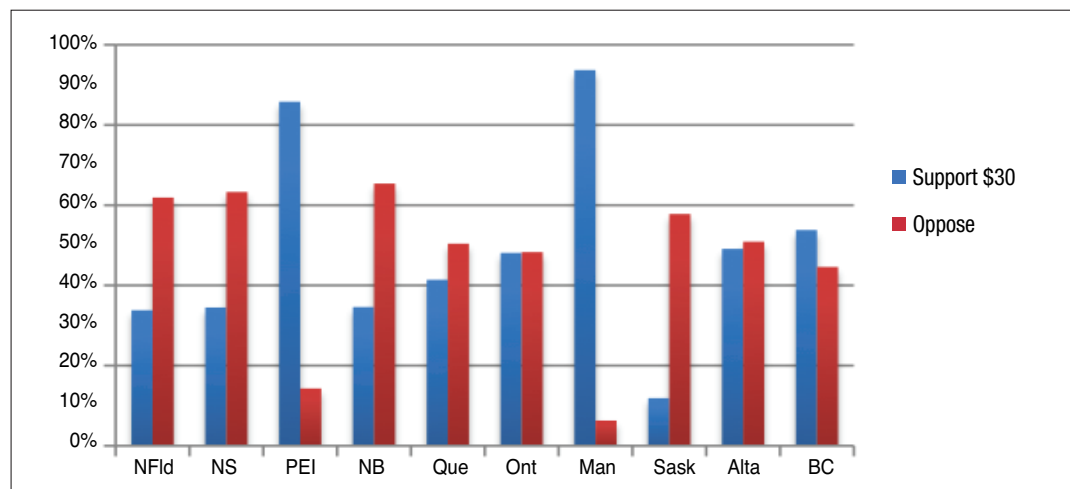
Monetary support for environmental protection is very sensitive. An increase from \$10 to \$30 a month leads to a drop in support from 54% to 47%, with negative responses increasing simultaneously, from 39% to 48%. This points to a zone beyond which support is not likely to increase without a concomitant change in the perceived value of environmental improvement benefits.

TABLE 18 \$30 PER MONTH INCREASE IN ENERGY COSTS (31.3% OF RESPONDENTS)

Strongly agree	14%
Somewhat agree	33%
Somewhat disagree	30%
Strongly disagree	18%
Don't know/Refused	5%

This is reinforced when examining regional differences, where only Manitoba and P.E.I. remain strongly committed to funding environmental support programs, as shown in Figure 10. Other provinces move towards more balanced division between support and opposition.

FIGURE 10 WILLINGNESS TO PAY \$30 PER MONTH TO MITIGATE ENVIRONMENTAL IMPACTS, BY PROVINCE (31.3% OF RESPONDENTS)

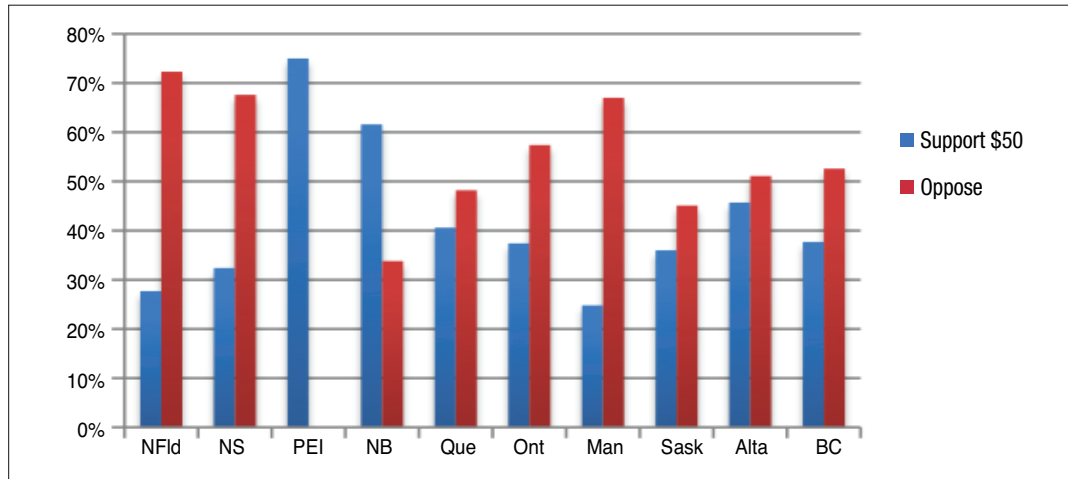


At a level of \$50 a month, agreement with paying additional fees to maintain environmental protection falls off considerably, with only P.E.I. and New Brunswick retaining support — and with New Brunswick specifically showing a clear anomaly in expressed preferences.

TABLE 19 \$50 PER MONTH INCREASE IN ENERGY COSTS (31.5% OF RESPONDENTS)

Strongly agree	10%
Somewhat agree	29%
Somewhat disagree	31%
Strongly disagree	23%
Don't know/Refused	7%

**FIGURE 11 WILLINGNESS TO PAY \$50 PER MONTH TO MITIGATE ENVIRONMENTAL IMPACTS, BY PROVINCE
(31.5% OF RESPONDENTS)**



EDUCATION LEVELS AND WTP

In general, a higher level of education seems to correlate with a greater WTP for environmental quality assurance to mitigate perceived negative externalities associated with energy use. The fact that support is so uniform, and that it is relatively consistent through the middle levels of payment values, is very important for the design of policy initiatives that must rely on financial support from the public, which in turn can have significant implications for the nature of the vehicle chosen — for instance, choosing between taxes and fees or charges.

For respondents with less than a high school education, total negative responses increased as the price increased from \$10 to \$30, and then declined for the highest suggested price of \$50 (18%, 59%, 47%). Positive responses (agreement with WTP) were relatively stable across the three price scenarios (21%, 27%, 23%). When considering the group with at least a high school degree or an undergraduate degree, negative responses consistently increased as the suggested price increased (41%, 49%, 55%), and positive reactions declined steadily with the increases in price (54%, 46%, 38%).

For respondents with a graduate degree or higher, there was an anomalous decline in negative responses from \$10 a month (32%) to \$30 (24%) and then an increase (to 36%) at \$50 a month. Conversely, positive WTP responses increased between the \$10 per month to \$30 per month scenarios (rising from 60% to 76%) and then declined in the \$50 per month category (64%).

The difference in reactions to the proposed increase in energy prices could reflect that different subsamples were each presented with one particular price scenario. On the other hand, the answers could reflect what different respondents considered to be a “reasonable” fee to protect the environment. For example, support for \$10 per month could be relatively low because it is perceived to be a low fee, and hence ineffective.

SUMMARY

The willingness-to-pay questions reveal differences in support for environmental protection across provinces, though there is a fairly even split between positive and negative responses in each question asked. While these questions strictly revealed a stated willingness to pay, and did not ask respondents to choose their preferred state of the world, there is an indication of regional variation in the desire for environmental protection. This can (tentatively) be linked back to the responses in Section III regarding support for various energy sources. Respondents in Alberta expressed relatively equal support for, and opposition to coal and nuclear power, and also showed equal support for, and opposition to increased future energy prices in support of environmental protection. Provinces with greater opposition to fossil fuels and nuclear power — such as B.C. and Manitoba — exhibited higher support levels than opposition levels in the questions regarding WTP for environmental protection. This indicates that respondents are consistent in their responses: support for renewable energy sources and opposition to nuclear and (cheap) coal would lead to higher future energy prices, as reflected in their affirmative responses to environmental protection questions.

V. SOURCES OF DEMAND FOR ENERGY AND CONSUMER INITIATIVES

Energy is a basic good and it serves demands ranging from heating and lighting living spaces to transportation. While relative costs vary, it is clear that energy supplies and the cost of energy over time factor into our individual and collective behaviour. Faced with increasing costs generally, respondents revealed preferences for those technologies or behavioural choices that would help them control consumption and costs. Additionally, their answers gave some indication as to how high incremental or cumulative prices might have to climb before their behaviour would change significantly, as well as revealing those steps they had already taken to conserve energy or to save on costs of consumption.

The majority of the respondents are homeowners or renters and nearly half use natural gas as a heat source in their residences, with a very small proportion, primarily in the Eastern provinces, using heating oil. This is reflected in Table 20, which suggests the sensitivity most residents have to changes in the price of natural gas, and to a lesser but significant extent, the price of electricity, another main source of heating.

TABLE 20 HOME HEATING SOURCES CLAIMED BY RESPONDENTS (ALL RESPONDENTS)

Natural gas	44%
Heating oil	6%
Electric	37%
Other	9%
Don't know	4%

Transportation costs for most Canadians are a significant, visible and ongoing cost of living. Most respondents own one or more automobiles (49% have at least two cars per household). It is clear that cars are the dominant form of daily transportation (69%). Conversely, a small number of respondents (16%) identify transit as their primary mode of transportation, indicating the low importance of transit to the majority of Canadians. This could reflect recent large, long-term but inconsistent investments for transit systems in many urban areas.

TABLE 21 TOTAL HOUSEHOLD VEHICLE OWNERSHIP (ALL RESPONDENTS)

0.00	10%
1.00	41%
2.00	36%
3.00	9%
4.00	3%
5.00	1%
6 or more	<3%

TABLE 22 TRANSPORTATION MODES USED MOST OFTEN FOR SCHOOL AND WORK (54% OF RESPONDENTS)

Car	69%
Public transit	16%
Walk or run	9%
Bicycle	2%
Other	2%

Respondents were also asked at what price per litre they would consider gasoline to be so expensive they would not consider buying it next month. The average response was a price of \$2.63 per litre, with peaks in responses at \$1.50 (19%) and \$2.00 (21%). The maximum price tolerance recorded was \$10 per litre. This indicates many respondents anticipate continued increases in gasoline prices. Some of the responses to this question (E5) may reflect respondents' feelings of powerlessness to change events (price increases) or their reluctance to give up a sense of mobility, or to accept the opportunity cost of utilizing transit facilities. The question about maximum WTP for gasoline did not appear to influence their near-term demand for gasoline (see Table 23 below).

**TABLE 23 LIKELY NEAR-TERM DEMAND FOR TRANSPORTATION FUELS
RESPONDENTS WITH CARS (91% OF RESPONDENTS)**

Absolutely certain	70%
Very likely	14%
Somewhat likely	6%
Not too likely	5%
Not at all likely	4%
Don't know	1%

Alternatives to driving don't always exist, especially in suburban or rural areas. Consequently, the current pool of potential consumers who could or would switch modes is limited, although for those who do enjoy a choice, a limited number (16%) indicated they were absolutely certain they had, or were very likely to have a preference for purchasing a transit pass (if

available) in the near term. Transit as a preferred alternative mode was generally rejected (64% indicated that they were not at all likely to prefer transit, even if it were available). This majority group was not likely to buy transit passes, although we did not measure if they had access to transit under normal conditions, which limited the veracity of this claim. Even among respondents without a car, just over 50% were likely to purchase a transit pass. However, when evaluating the group who told us they took transit every day, when answering the question about behavioural changes (Question C4N, which asked what steps respondents had taken, if any, to reduce their energy consumption, as reported in Table 9), 52% said they were certain to purchase a pass, while 20% were very or somewhat likely to purchase a transit pass.

TABLE 24 RESPONDENTS EXPRESSING A PREFERENCE FOR PURCHASING A TRANSIT PASS IN THE NEAR TERM

	All Respondents	Those Owning a Car	Those Without a Car
Absolutely certain	11%	6%	39%
Very likely	5%	3%	5%
Somewhat likely	7%	5%	7%
Not too likely	10%	11%	7%
Not at all likely	64%	71%	38%
Don't know	2%	2%	4%

In terms of energy efficiency, Canadians generally appear to have made efforts to reduce costs and ultimately to save energy (where clear or popular choices were available). While Canadians have taken a number of positive steps both in terms of installed technology or behavioural changes, support for making further energy-saving changes was mixed. Specifically, survey participants were asked how certain they would be — with the support of a hypothetical rebate of up to \$500 for an energy-saving improvement that could be used in daily life — to pursue each of several opportunities to invest in new energy-saving technologies or programs. These included: replacing all light bulbs; investing in solar energy systems; purchasing an electric vehicle; or purchasing new, energy-efficient major appliances.

A large proportion of respondents (66%, see Table 9) had already reported replacing incandescent lights with energy-saving bulbs as an action they had already taken to maximize the value of energy conservation. Thus, the most revealing fact about this question, which asked about their willingness to make further changes, is that most respondents did not discriminate between a \$500 subsidy to replace all light bulbs in a home, which may have already occurred, and \$500 towards purchasing a solar energy system (Table 27) or a hybrid or electric vehicle (Table 28), where \$500 would represent only a small fraction of the purchase price. The question about purchasing energy-efficient appliances (see Table 26), did not specify the type or quantity of appliances, forcing the respondent to answer the question in terms of the relative attraction of this type of energy-saving tool in general.

TABLE 25 USE \$500 SUBSIDY TO REPLACE ALL OF THE LIGHT BULBS IN YOUR HOME (ALL RESPONDENTS)

Absolutely certain	40%
Very likely	24%
Somewhat likely	18%
Not too likely	10%
Not at all likely	6%

Respondents were also enthusiastic when asked about new energy efficient appliances, where a clear association between use and ongoing costs of operation was apparent. Here 62% said they were very likely or certain to purchase new, energy efficient systems. This can be interpreted as a combination of variable cost savings in terms of monthly bills as well as the contribution of new systems to the resale value of homes.

TABLE 26 USE \$500 SUBSIDY TO PURCHASE ENERGY EFFICIENT APPLIANCES (ALL RESPONDENTS)

Absolutely certain	31%
Very likely	31%
Somewhat likely	25%
Not too likely	7%
Not at all likely	4%

When asked about more capital intensive measures, such as investing in solar systems for heating or electric production, respondents were more reserved, with only 27% indicating they were very likely or certain to commit to this type of investment. This is in contrast to respondents' general view that solar could and should provide a significant and important share of Canadian energy production in the future. This can be interpreted partly as a function of the cost level as a fraction of total home costs (a solar PV array for a \$500,000 house could approach \$75 for per kW) and the anticipated lower performance of solar at northern latitudes.

TABLE 27 USE \$500 SUBSIDY TO INVEST IN A SOLAR ENERGY SYSTEM FOR HOME (ALL RESPONDENTS)

Absolutely certain	13%
Very likely	14%
Somewhat likely	25%
Not too likely	26%
Not at all likely	18%
Don't know	5%

When the choice involved support for a new hybrid or electric vehicle, the results were more mixed, reflecting in part the uncertainty of fuel prices and the long-term commitment of the purchase. In addition, replacement of lights and appliances are less expensive alternatives than a hybrid or electric car, and the difference in responses could reflect the differing nature of costs respondents were asked about.

TABLE 28 UP TO \$500 DOWN PAYMENT ON HYBRID OR ELECTRIC VEHICLE (ALL RESPONDENTS)

Absolutely certain	8%
Very likely	10%
Somewhat likely	21%
Not too likely	31%
Not at all likely	26%
Don't know	4%

VI. STRATEGIC IMPLICATIONS FOR ENERGY POLICY LEADERSHIP

The starting point for developing a comprehensive energy policy is to enlist the support of trusted spokespeople to convey the importance of the issue and explain the policy ramifications. In our study, we attempted to identify the individuals or groups most trusted (or not) by Canadians on matters related to energy. Overall, most stakeholders enjoy lukewarm credibility at best. Using a scale of zero to ten, where zero is “not at all trustworthy” and ten is “very trustworthy,” only academics (with a mean score of 6.13), economic experts (score: 5.59), community groups and activists (5.38) and environmental groups and activists (5.33) garner generally positive scores. At the other end of the scale, oil and gas companies (3.11), energy company executives (3.39) and CAPP, the Canadian Association of Petroleum Producers, (3.65) suffer from serious image problems.

FIGURE 12 WHO DO YOU TRUST ON ENERGY ISSUES (ALL RESPONDENTS)
MEAN VALUES 0 - 10

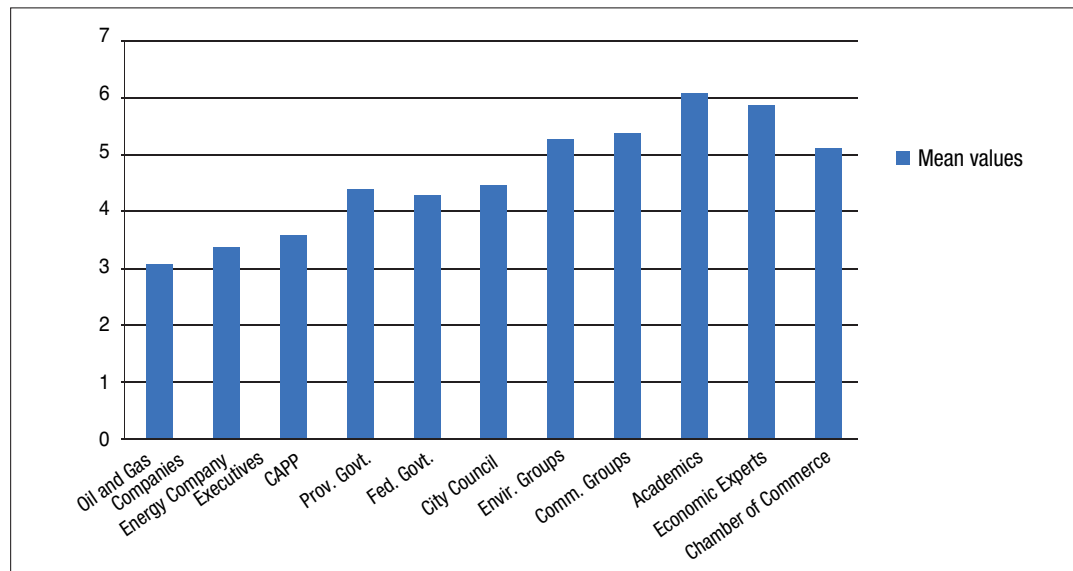


Table 29 reinforces the perceptions of trustworthiness displayed in Figure 12. Oil and gas companies, energy executives and CAPP were seen to be not trustworthy at all by a significant number of respondents. Academics ranked highest in the full trust and relative trustworthiness categories. Overall, however, respondents reported a distinct lack of trust in most groups. This suggests that respondents do not perceive the various groups as neutral.

**TABLE 29 WHO DO YOU TRUST (ALL RESPONDENTS)
PERCENTAGE OF TOTAL RESPONDENTS RANKING TRUSTWORTHINESS**

	Not at all to Neutral (0 - 5 of 10)	Neutral to Full Trust (6 - 10 of 10)	Not at All (0)	Full Trust (10)
Oil and Gas Companies	67%	19%	26%	1%
Energy Company Executives	74%	21%	22%	1%
CAPP	69%	24%	19%	2%
Provincial Government	62%	34%	13%	2%
Federal Government	62%	34%	15%	2%
City Government	63%	31%	8%	2%
Environmental Groups	47%	46%	7%	4%
Community groups & activists	49%	47%	5%	4%
Economic Experts	43%	51%	4%	3%
Academics	34%	58%	3%	6%
Chamber of Commerce	53%	39%	6%	3%

A. Energy Policy in Canada

Energy is an important issue area for Canadians. Several of the responses to questions about *energy policy* suggest directions that may be valuable at both provincial and federal levels in the future. Much of Canadian public policy discussion in the future is likely to be focused on the prudence of using traditional fuel and resource stocks to support Canadian exports, and significantly, exports focused largely on a single customer, the United States.

When asked whether or not Canada should limit energy exports in order to preserve domestic supplies for future use, a majority (74%) somewhat or strongly agreed. Only a small minority disagreed (20%) with only a minimal proportion expressing no opinion.

TABLE 30 AGREE OR DISAGREE WITH CANADA LIMITING ENERGY EXPORTS TO PRESERVE SUPPLIES FOR FUTURE USE (ALL RESPONDENTS)

Strongly agree	32%
Somewhat agree	42%
Somewhat disagree	16%
Strongly disagree	4%
Don't know	6%

Since energy exports are linked to overall revenue flows into the Canadian economy, the question of establishing energy independence versus revenue increases, and the employment created by that revenue growth, enters the discussion prominently. In this case, a clear majority favours the concept of energy independence over the flow of export revenue (respondents were not given a ratio of jobs gained or lost from changes in revenues).

TABLE 31 INDEPENDENCE VS. REVENUES (ALL RESPONDENTS)

Canada's energy policy: bringing money in	22%
Canada's energy policy: energy independence	60%
Don't know	17%

A perceived link between domestic energy production and consumer prices was clear in the responses to the survey. Not only were respondents aware of Canada’s energy resource base, but a clear majority (66%) associated domestic production and supply with their own costs and consumption patterns.

TABLE 32 GREATER RELIANCE ON CANADIAN ENERGY PRODUCTION WILL LOWER OVERALL ENERGY COSTS (ALL RESPONDENTS)

Strongly agree	26%
Somewhat agree	42%
Somewhat disagree	18%
Strongly disagree	6%
Don't know	9%

Canadians are generally aware of their country’s long-term relationship with the principal consumer of Canadian fuels and resources, the United States. They are not, however, clearly or consistently aware of the fact that certain provinces are net importers of fuels, such as natural gas in the Maritime regions. Nor are they generally aware of the net export of electricity to the U.S. from Ontario and Quebec.

When asked about their interest in achieving and maintaining Canadian energy independence, respondents expressed strongly (60%) that Canada needs to find new markets for its energy goods and/or needs to save them for future domestic use. This is further highlighted in Table 33 where approximately 62% of respondents determined it somewhat or very important for Canada to reduce its close energy ties with the United States.

TABLE 33 THE IMPORTANCE OF REDUCING THE CURRENT STRONG ENERGY RELATIONSHIP WITH THE U.S. (ALL RESPONDENTS)

Very important	23%
Somewhat important	39%
Not too important	20%
Not at all important	8%
Don't know	10%

Looking towards the future potential of this country, Canadians are cautious, but a plurality still believe the country’s best days are ahead, with 46% responding positively compared to 36% who believe that Canada’s best days have passed. A significant number (17%) of those surveyed who were unsure or didn’t know. Those who think a bright future lies ahead do not comprise a majority, and only moderately outnumber those who believe we cannot improve on the past. Therefore, a clear role for future public policy should be to target the ambiguity underlying this sentiment, with a focus on the proper and cost-effective use of Canada’s abundant energy resources.

TABLE 34 ARE CANADA'S BEST YEARS YET TO COME IN THE FUTURE, OR ARE THEY IN THE PAST? (ALL RESPONDENTS)

Canada's best years are yet to come	46%
Canada's best years are in the past	36%
Don't know	17%

VII. CONCLUDING REMARKS

Per-capita energy use in Canada is higher than elsewhere in North America, largely reflecting the distances people must travel and the need to provide higher levels of space conditioning to adapt to harsh climatic conditions. Consequently, Canadians are generally knowledgeable regarding the effects of using energy, in terms of price, environmental impacts and the influence that various energy technologies have on their lifestyle. Canadian consumers tend, like consumers most everywhere, to be price sensitive, but they have also proven adaptive to changes in the price and availability of energy forms.

Canadians are aware of the role that energy plays in the Canadian economy and the relationship it engenders with our most significant trading partner, the United States. In this context, Canadians feel a proprietary interest not only in controlling this long-term trading relationship, but also in using this important resource to establish a level of independence in energy systems and markets. This attitude is not unique to energy alone, of course: throughout the NAFTA negotiations in the 1990s, similar issues and reactions were voiced concerning water and forestry reserves. In short, Canadians feel the need to husband, and get fair value for, the resources they control, even in the face of limited export market access. In general, the fundamental reactions of respondents reveal a desire for a less-dominant relationship with the U.S., but when reflecting on the value of the current relationship, few want it to significantly change in terms of economic exchange.

The majority feels as though energy independence is a worthy goal, and it dominates the issue of revenue flows in the country. The majority feels that increasing domestic energy development and production will serve to lower or stabilize energy costs for consumers.

The results of the survey point to the dichotomy that exists between views of energy used for transportation and energy used in residential contexts. The respondents clearly treat price levels and demand for energy in these categories differently and are willing to respond with different solutions (i.e. taking transit rather than cars, versus refitting energy systems in their homes).

In spite of this awareness, energy literacy is not uniform across the country, and there does seem to be a division between the East and the West. A similar characteristic is also apparent in the support for and awareness of energy sources in those provinces that most heavily supply the primary or dominant sources of everyday energy. While most respondents, for instance, do not favour the use of coal as an energy resource, it still enjoys core support in those provinces where it is or has in the past been the dominant supply.

Most Canadians profess to have a good level of knowledge about energy in general, but not specifically when technologies or operating characteristics are taken into account. In terms of overall “literacy,” which can be described as a combination of knowledge and behaviour consistent with that knowledge, there are significant differences that are not consistent geographically or by population density. P.E.I., Ontario, Saskatchewan and Alberta are clearly deficient in overall energy literacy. Although the survey did not probe the likely reasons underpinning this characteristic, higher energy literacy tends to be associated with areas relying less on hydrocarbon fuels and more on renewable sources.

However, respondents do see a strong association between energy generation and environmental impacts, with 77% of respondents somewhat concerned to very concerned over environmental impacts and a minority (16%) not very concerned. Of these, a significant number were concerned about pollution and health. A slightly lower number cited more moral concerns as dominant issues, citing environmental responsibility and social conscience, including environmental quality left to future generations. This translated into respondents committing to support increased energy costs of between \$120 and \$360 per year for environmental mitigation, a not insignificant level of support.

Most respondents have already moved to integrate energy conservation into living patterns and the part of the built environment they can control. They demonstrate that they know the value of conservation technologies, and allow for increased use of them in everyday life. This does not seem to translate to transportation, however, where the prospect of changing vehicle characteristics or moving to use transit facilities elicits a weak and inconsistent response.

Support for historical forms of energy generation such as coal is declining with awareness of alternatives such as natural gas and renewable energy, while the low-carbon alternative of nuclear energy does not elicit support for long-term future use, except in very limited cases.

Importantly, Canadians profess a low level of trust in stakeholders associated with the energy industry, including key governmental agencies. This is key to understanding how energy literacy can be improved in the future, since using trusted sources, or improving the image of those who currently lack trust, will fundamentally influence the public's responsiveness to future policy initiatives.

APPENDIX A – ENERGY SURVEY QUESTIONS

[INTRO]

Thank you for taking the time to complete this survey about important issues in Canada today. Please rest assured that this is strictly a survey. Any information you provide in this survey will be kept confidential and combined with other survey responses. As a result, your privacy and anonymity are guaranteed. This survey should take less than 15 minutes to complete, and we encourage you to be open and honest in your responses.

SECTION A: Warm-up

[A1]

In your opinion, what is the most important issue facing Canada today?

[VERBATIM RESPONSE]

[A2]

Using a scale of zero to ten where zero is “not at all important” and ten is “very important,” how important are each of the following issues in Canada right now?

[GRID ROWS; RANDOMIZE]

- Health care
- Economy
- Jobs/unemployment
- Crime
- Education
- Environment
- Energy

[GRID COLUMNS; SINGLE RESPONSE PER ROW]

- 0 – Not at all important
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 – Very important
- Don't know

SECTION B: Awareness and Familiarity

[B1]

How much would you say you know about each of the following?

[GRID ROWS; RANDOMIZE; SINGLE RESPONSE PER ROW]

- Energy generation in Canada
- Energy distribution in Canada
- Energy use in Canada
- Energy conservation
- Management of the by-products of energy generation (waste)

[GRID COLUMNS]

- Know a lot
- Know a little
- Heard of it but don't know much
- Never heard of it

[B2]

How much do you agree or disagree with the following statements?

[GRID ROWS; DO NOT RANDOMIZE; SINGLE RESPONSE PER ROW]

- "I have a good understanding of energy issues in Canada."
- "The average Canadian has a good understanding of energy issues in Canada."

[GRID COLUMNS]

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

[B3]

[IF DISAGREE TO "AVERAGE CANADIAN" IN A4]

What do you think that the average Canadian does not understand about energy issues in Canada?

[VERBATIM RESPONSE]

[B4]

As far as you know, which one of the following is the major source of electricity generation in your province?

[RANDOMIZE; SINGLE RESPONSE]

- Coal
- Natural gas
- Hydro
- Wind power
- Solar power
- Nuclear

SECTION C: Environmental Concerns

[C1]

How much do you support or oppose the increased use of each of the following in your province?

[GRID ROWS; RANDOMIZE; SINGLE RESPONSE PER ROW]

- Coal
- Natural gas
- Hydro
- Wind power
- Solar power
- Nuclear

[GRID COLUMNS]

- Strongly support
- Somewhat support
- Somewhat oppose
- Strongly oppose

[C2]

Overall, how concerned are you with the impact of energy generation on the environment?

[SINGLE RESPONSE]

- Very concerned
- Somewhat concerned
- Not too concerned
- Not at all concerned

[C3]

Why do you say that?

[VERBATIM]

[C4]

Which of the following activities are you already doing or have already done? Please check all that apply.

[MULTIPLE RESPONSE, RANDOMIZE]

- Bought a more energy-efficient vehicle.
- Cut driving by at least 50%.
- Taking public transit every day.
- Replaced all light bulbs with energy-efficient light bulbs.
- Reduced power consumption at home by at least 30%.
- Keeping thermostat at 18 degrees Celsius or less during the winter, and wear a sweater.
- Spend less than five minutes in the shower, with no baths.
- Reduced household waste by at least 50%.
- Reduced air travel by at least 50%.
- Paid \$250 for a home energy audit.
- Buying local produce in season and can/store it for off-season.
- None of these.

SECTION D: Energy Imports and Exports

[D1]

As far as you know, which one of the following statements best describes where Canada gets its energy?

[RANDOMIZE; SINGLE RESPONSE]

- Canada produces all of the energy it needs at home.
- Canada produces most of the energy it needs at home.
- Canada imports most of the energy it needs from other countries.
- Canada imports all of the energy it needs from other countries.
- [ANCHOR] DK

[D2]

As far as you know, which one of the following statements best describes the relationship between Canada's energy imports and energy exports?

[RANDOMIZE; SINGLE RESPONSE]

- Canada is a net exporter of energy – that is, it exports more energy than it imports.
- Canada is a net importer of energy – that is, it imports more energy than it exports.
- [ANCHOR] Canada's energy imports and exports are roughly the same.
- [ANCHOR] DK

[SPLIT SAMPLE: D3A; D3B]

[D3a]

Some people say that Canada's energy policy should be focused on bringing money into the country even if it means that we have to import some of our energy from other countries. Other people say that Canada's energy policy should be focused on achieving energy independence from the rest of the world (that is, no imports from other countries) even if it means reducing our profitability.

Which of these two viewpoints is closest to your own?

- Canada's energy policy should be focused on bringing money into the country even if it means that we have to import some of our energy from other countries.
- Canada's energy policy should be focused on achieving energy independence from the rest of the world (that is, no imports from other countries) even if it means reducing our profitability.

[D3b]

Some people say that Canada's energy policy should be focused on achieving energy independence from the rest of the world (that is, no imports) even if it means reducing our profitability. Other people say that Canada's energy policy should be focused on bringing money into the country even if it means that we have to import some of our energy from other countries.

Which of these two viewpoints is closest to your own?

- Canada's energy policy should be focused on achieving energy independence from the rest of the world (that is, no imports from other countries) even if it means reducing our profitability.
- Canada's energy policy should be focused on bringing money into the country even if it means that we have to import some of our energy from other countries.

[D4]

As you may know, currently up to 98% of certain Canadian energy exports go to the United States. In your opinion, how important is it that we reduce our reliance on the United States by exporting more of our energy to other countries?

[SINGLE RESPONSE]

- Very important
- Somewhat important
- Not too important
- Not at all important

SECTION E: Attitudes and Behaviours

[E1]

How much do you agree or disagree with the following statements?

[GRID ROWS; DO NOT RANDOMIZE; SINGLE RESPONSE PER ROW]

- “Preserving the quality of the environment is worth a \$10/\$30/\$50 per month increase in energy costs in the future.”
- “If we could rely more on energy produced in Canada (that is, we could achieve “energy independence”) our overall household energy costs would go down.”
- “Canada should limit exports of energy (e.g., oil, gas, coal) in order to preserve supplies for future use here at home.”
- “Most of the gasoline we use in our cars is produced here in Canada.”

[GRID COLUMNS]

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

[E2]

If the government were to give you a rebate of up to \$500 toward an energy-saving improvement you could use in your daily life, how likely would you be to spend it on the following?

[GRID ROWS; RANDOMIZE; SINGLE RESPONSE PER ROW]

- Replace all of the light bulbs in your home.
- Invest in a solar energy system for your home.
- Make a down payment on a hybrid or electric vehicle.
- Use toward purchase of energy efficient appliances (e.g., water heater, oven, washer/dryer, etc.).

[GRID COLUMNS]

- Absolutely certain
- Very likely
- Somewhat likely
- Not too likely
- Not at all likely

[E3]

Using a scale of zero to ten where zero is “not at all trustworthy” and ten is “very trustworthy,” how trustworthy do you consider the following as a source of information on energy issues in Canada?

[GRID ROWS; RANDOMIZE]

- Oil and gas companies
- Energy company executives
- Canadian Association of Petroleum Producers
- Provincial government
- Federal government
- City councillors
- Environmental groups and activists
- Community groups and activists
- Economic experts
- Academics
- Local chamber of commerce
- Other

[GRID COLUMNS; SINGLE RESPONSE PER ROW]

- 0 – Not at all trustworthy
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 – Very trustworthy
- Don't know

How likely are you to fill up your car with gasoline next month?

[SINGLE RESPONSE]

- Absolutely certain
- Very likely
- Somewhat likely
- Not too likely
- Not at all likely

[E5]

[IF AT LEAST SOMEWHAT LIKELY IN E4]

At what price per litre would you consider gasoline to be so expensive that you would not consider buying it next month?

[NUMERICAL RESPONSE \$0.01-\$9.99]

[E6]

How likely are you to purchase a transit-pass next month?

[SINGLE RESPONSE]

- Absolutely certain
- Very likely
- Somewhat likely
- Not too likely
- Not at all likely

[E7]

[IF AT LEAST SOMEWHAT LIKELY IN E6]

At what price would you consider a monthly transit pass to be so expensive that you would not consider buying it next month?

[NUMERICAL RESPONSE \$1-\$999]

SECTION F: Profiling Questions

[F1]

Do you currently have air conditioning in your home?

[SINGLE RESPONSE]

- Yes
- No
- DK

[F2]

What kind of heat do you currently use in your home?

[SINGLE RESPONSE]

- Natural gas
- Heating oil
- Electric
- Other

[F3]

What is the total number of vehicles currently owned by you and all the members of your household?

[NUMERICAL RESPONSE 0-100]

[F4]

In your opinion, are Canada's best years yet to come in the future, or are they in the past?

- Canada's best years are yet to come in the future.
- Canada's best years are in the past.

[F5]

Please indicate if you have done any of the following within the past 12 months:

[GRID ROWS; RANDOMIZE]

- Spoken at a public meeting, demonstration or protest.
- Written a letter to a newspaper editor, or an article for publication, or called into a television or radio talk show that deals with current affairs.
- Helped to circulate a petition.
- Been a board member or served as an officer of a charity, volunteer, fraternity, or community service organization.
- Written to, or held a formal meeting or conversation with an elected representative.
- Been a member of, or worked for a political party.
- Published, maintained or updated your own website or blog.
- Posted ratings or reviews of products or services online.
- Frequently and actively participated in an online social network such as Facebook or Twitter.

[GRID COLUMNS; SINGLE RESPONSE PER ROW]

- Yes
- No

SECTION Z: Demographics

Thank you for your time and openness so far. We have just a few more questions to help us classify your responses today.

[Z1]

Are you...

[SINGLE RESPONSE]

- Male?
- Female?

[Z2]

In what year were you born?

[NUMERICAL RESPONSE: RANGE = 1900-1994]

[Z3]

Please enter the first three digits of your postal code in the space below.

[ALPHANUMERIC RESPONSE; FORMAT A1A]

[Z4]

Including yourself, how many people currently live in your household in each of the following age groups?

[GRID ROWS; DO NOT RANDOMIZE]

- Children aged 12 and under
- Children aged 13 to 17
- Adults 18 and older

[GRID COLUMNS]

- 0
- 1
- 2
- 3 or more

[Z5]

What, if any, is your religious affiliation?

[SINGLE RESPONSE]

- Protestant
- Catholic
- Christian
- Jewish
- Muslim
- Hindu
- Buddhist
- Other
- No Preference / No religious affiliation
- Prefer not to say

[Z6]

What is the highest level of education that you have completed or the highest degree that you have received?

[SINGLE RESPONSE]

- Less than high school (Grades 1-8)
- High school diploma or equivalent
- College, CEGEP or other non-university certificate or diploma
- Undergraduate university degree, certificate or diploma
- Master's degree
- Degree in medicine, dentistry, veterinary medicine or optometry
- Doctorate
- None of the above
- Prefer not to answer
- Employment

[Z7]

Within which of the following categories does your yearly total household income fall?

[SINGLE RESPONSE]

- Under \$20,000
- \$ 20,000 to under \$39,999
- \$ 40,000 to under \$59,999
- \$ 60,000 to under \$79,999
- \$ 80,000 to under \$99,999
- \$100,000 to under \$124,999
- \$125,000 to under \$149,999
- \$150,000 or more
- Prefer not to answer

[Z8]

Which one of the following categories best describes your current employment status?

[SINGLE RESPONSE]

- Employed full-time
- Employed part-time
- Self-employed
- Currently between jobs
- Student
- Homemaker
- Retired

[Z9]

What is your current occupation? That is, which of the following best describes your means for earning income? If you have multiple occupations, please choose the one that provides the highest proportion of your net income.

[SINGLE RESPONSE]

- Office worker
- Management/executive
- Professional
- Entrepreneur
- Scientist/technician
- Skilled trade
- Manual labour
- Other

[Z10]

Do you rent or own your home?

[SINGLE RESPONSE]

- Own
- Rent
- Neither – other arrangement

[Z11]

[IF EMPLOYED FULL-TIME, EMPLOYED PART-TIME, SELF-EMPLOYED OR STUDENT IN Z8]

What type of transportation do you use most often to get to work or school?

- Car
- Public transit
- Bicycle
- Walk or run
- Other

[Z12]

What is your average commute time in minutes?

[NUMERICAL RESPONSE 0-250]

[Z13]

If there was a federal election tomorrow, which party would you most likely vote for?

- The Conservative Party
- The NDP
- The Liberals
- The Green Party
- Other
- Don't know / Undecided
- Would not vote

[OUTRO]

Thank you very much for your valuable feedback. We greatly appreciate your participation in this important survey. You may now close this browser window.

APPENDIX B – RAW DATA RECAP

The sample obtained in the survey was broad and generally representative of Canadians in most demographic categories. When viewed as a reflection of residence, compared with estimates provided by Statistics Canada, there is a very close correspondence with the most recent census estimate (Statistics Canada 2010) as portrayed in Table B1 following.

TABLE B1 GEOGRAPHIC LOCATION OF RESPONDENTS IN % OF TOTAL

Province	N.L.	N.S.	P.E.I.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Fraction of Canada	1.8	2.8	0.42	2.2	23.6	38.4	3.6	3.1	10.9	13.1
Fraction of Poll	1.9	3.2	0.6	2.5	24.0	37.9	3.6	3.0	10.3	13.0

The characteristics of respondents across all provinces demonstrate a close correspondence with national residence characteristics as well. Residential use does not constitute the bulk of energy demand, but it is generally the source most clearly associated with individual or family unit demand for all types of energy.

Although on average, Canadian residents are distributed widely across all provinces, survey results were dominated by urban (83%) versus rural (16%) respondents, including 22% of households with children under 12, 10% with one child and 12% with two or more. Those households with children aged 12 to 18 comprised 13% of the sample (87% of all households had no children in this category).

When viewing adults over 18 years old in all households, we found that a clear majority (73%) was comprised of households with two or more adults. Only 27% of all surveyed households were single person, with the mean number of adults across the survey equal to 1.9.

The demographics of the survey closely match the nation as a whole with 50% evenly distributed between male/female respondents, 63% of whom owned their own home, 31% were renters (landlord made most decisions on design) and the residual reported living in other hybrid arrangements. The respondents reflected a diverse employment base in Canada, with 22% claiming office-work jobs, 18% reporting professional status, 13% in skilled trades and 11% in a management or executive position. The balance of employment was distributed between manual labor (8%), private entrepreneurs (4%), technicians and scientists (3%) and “other” jobs claiming the balance (18%).

Education and income levels are important variables when understanding energy literacy and information and the data from the survey show a well educated (2% with less than a high school degree and approximately a third with at least a high school diploma or equivalent) and generally well-paid (58% reporting more than \$40,000 annual income) population distribution.

TABLE B2 EDUCATION AND INCOME

Less than high school (Grades 1-8)	2%
High school diploma or equivalent	30%
College, CEGEP or other non-university certificate or diploma	34%
Undergraduate university degree, certificate or diploma	24%
Master's degree	5%
Degree in medicine, dentistry, veterinary medicine or optometry	1%
Doctorate	1%

TABLE B3 TOTAL HOUSEHOLD INCOME

Under \$20,000	11%
\$ 20,000 to under \$39,999	17%
\$ 40,000 to under \$59,999	18%
\$ 60,000 to under \$79,999	14%
\$ 80,000 to under \$99,999	13%
\$100,000 to under \$124,999	7%
\$125,000 to under \$149,999	3%
\$150,000 or more	3%
Prefer not to answer	14%

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Michal C. Moore, (PhD) is an economist and Professor of Energy Economics at The School of Public Policy at the University of Calgary.

He is the former chief economist at the U.S. National Renewable Laboratory in Golden Colorado, where he led a research team engaged in examining over-the-horizon issues for the U.S. Department of Energy and developing new methods for cross-cutting analysis. He is an economist and a former commissioner with the California Energy Commission, where he held the designated economist position.

André Turcotte, (PhD) is an Associate Professor at Carleton University's School of Journalism and Communication. He is also the Graduate Supervisor for the Clayton H. Riddell Graduate Program in Political Management. He lectures in advanced quantitative research, political communication theory and persuasion.

Over the years, Dr. André Turcotte has provided public opinion research advice to many of Canada's leading private sector firms as well as several government organizations. Between 1992 and 1993, he was the co-editor of The Gallup Poll. He was part of the polling team for the Chretien Liberals in the 1993 Federal Election. Between 1994 and 2000, Dr. Turcotte was the official pollster of the Reform Party of Canada and its Leader, Preston Manning. During that period, he acted as a political commentator on all major Canadian TV networks both in English and French, as well as providing commentary in print and on the radio. He has also published articles in academic journals and chapters in several books. More recently, he has co-authored *Dynasties and Interludes* which look at the dynamics of electoral politics in Canada from 1867 to the present day.

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