

Public opinion on climate change and support for various policy instruments in Canada and the US: Findings from a comparative 2013 poll

a report from the National Surveys on Energy and Environment

Introduction

This report summarizes results from national-level surveys on public attitudes toward climate change administered in Canada and the US in Fall 2013. Since 2008, the National Surveys on Energy and Environment (formerly the National Surveys of American Public Opinion on Climate Change) has examined the perceptions and preferences of residents of the United States regarding their views on the existence of climate change and potential policy approaches to address the issue. In early 2011, a survey was fielded in Canada at roughly the same time as in the US, providing some comparative perspective on attitudes in the latter.¹ In 2013, the Fall 2013 fielding of the National Surveys on Energy and Environment (NSEE) was accompanied by a second Canadian wave, supported by the Université de Montréal and Canada 2020.

Results from these surveys allow for direct comparisons between the views of the Canadian and American publics on matters pertaining to climate change and its mitigation, providing insight into one of the factors affecting trends in both policy and emissions trajectories. In what follows, we highlight key findings emerging from the most recent 2013 wave of our comparative project. Where appropriate, some tables draw on findings from previous waves to illustrate the change in Canadian and American public opinion regarding climate matters.

Any opinions, findings, conclusions, or recommendations expressed in this report are those of the author(s) and do not necessarily reflect the views of the Center for Local, State, and Urban Policy.

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Key Findings

1. Most Canadians and Americans agree that global temperatures have increased in recent decades, although Canadians are more likely to agree with this view than Americans (81% to 61%).
2. Despite their perceptions of rising global temperatures, however, a substantial number of Canadians and Americans continue to question the extent of a human role.
3. Climate change is not a major concern for most Canadians and Americans, despite the warnings of climate science.
4. Majorities of both Canadians and Americans believe their country's relative wealth morally obligates it to show international leadership by reducing their greenhouse gas emissions, yet this view is more prevalent among Canadians (84%) than Americans (57%) overall.
5. Strong majorities in both countries support their respective federal governments signing onto an international agreement to reduce greenhouse gas emissions, even ahead of such developing countries as China. Yet, these views are both more than 20 percentage points higher among Canadians than Americans.
6. There continues to be wide variation in support across both countries for different policy tools available to regulate greenhouse gas emissions, both when a specified cost is attached to the respective policies and not.
 - A majority (53%) of Canadians support carbon taxes when no cost is specified with the policy, but this drops below the majority threshold (47%) when a 10% cost is added. Just under a quarter of Americans support carbon taxes under both scenarios.
 - Support for a cap-and-trade system is also comparatively high in Canada, both without (46%) and with (52%) costs specified. Among Americans, these figures are substantially lower, respectively 32% and 27%.
 - Renewable Portfolio Standards receive the highest support from Canadians and Americans among all options, with around 80% for residents of both countries without costs specified. Support dips slightly among Canadians (to 72%) and more substantially among Americans (to 45%) when costs are specified.
 - Canadians are willing to pay more for renewable energy production than are Americans under all scenarios under which a tangible cost is specified.
 - Canadians are more willing to support regulations on coal-fired generation power plants, both with and without specific mentions of Stephen Harper and Barack Obama.
 - Canadians and Americans hold similar views on the expanded use of pipelines to transport oil and gas across the continent, though significant differences between provinces and partisan lines persist.



Background

Building on the international scientific consensus on climate change,² the Intergovernmental Panel on Climate Change's Working Group I published its highly anticipated Fifth Assessment report in September 2013, concluding with more certainty than ever that climate change is primarily driven by human activity.³ In the same year, other scientific reports warned that the widely agreed-upon target of limiting global warming to two degrees Celsius may in fact no longer be achievable given anticipated emission levels.⁴ Meanwhile, the world broke a new record for global emissions of carbon dioxide from fossil fuel combustion,⁵ as 2013 continued to be an unusually warm year marked by extreme weather and climate events, including record snowfall and blizzard conditions in the central and northeastern United States, and flooding in Alberta, Canada.

Politically, climate change continued to take a back seat to other issues, though the gap between governmental action—particularly through the executive branch—also appeared to widen between Canada and the United States in 2013. While President Obama promised action on climate change in his State of the Union Address, Prime Minister Stephen Harper largely ignored the environment and failed to even mention the climate as he addressed Parliament in his Speech from the Throne. These diverging discourses reflect a disjuncture in emissions trajectories, which continue to grow in Canada but have begun to fall in the US, as well as actual policy commitments demonstrated in 2013. Despite opposition to action on climate change in Congress, President Obama released a major climate action plan that included a directive for EPA to begin regulating emissions from coal-fired power plants in the US.⁶ This began issuance of permits under the Clean Air Act for new electricity generation plants but was later expanded to begin to consider existing facilities. Although years in the making, Prime Minister Harper's proposal for similar regulations on coal, oil and gas have yet to take effect, as emissions from various Canadian sectors, including the Canadian oil sands, continue to rise. These diverging actions, and Canada's inability to curb its emissions from its fast-growing oil sands development, has now been linked to the President's slow decision on whether to approve the controversial Keystone XL energy pipeline, which continues to be a thorn in diplomatic relations between the two countries.

In this context of a growing scientific consensus on the existence and causes of climate change, increasingly alarming predictions from climate scientists on potential consequences, and diverging emissions and policy paths in Canada and the US, this report compares public opinion in Canada and the US on matters pertaining to climate change science and policy. To the extent that carbon emissions are associated with a wide range of essential human activities – like heating our homes, fueling our economies and moving around – emissions reductions will require changes to the way individuals work, play, and go about their daily lives. Behavioral change is thus a crucial variable in responding to climate change, making it necessary to better understand what the public thinks about the issue, and how they are prepared to respond. Moreover, to some extent, emissions reductions involve costs associated with innovation and capital stock turnover, raising important distributional questions, equity concerns, and questions about the public's willingness to pay for mitigation. Finally, both Canada and the US are relatively large emitters of carbon, especially on a per capita basis. Given the interdependent nature of the two economies, and the extent to which Canadian and American lifestyles are culturally linked, understanding public attitudes and behavior in both countries are important for addressing this global collective action problem.

Perceptions of Evidence of Climate Change

Beginning with perhaps the most fundamental question of whether Canadians and Americans believe climate change is happening, the survey results indicate solid majorities of individuals in both countries believe there is strong evidence that the average temperature on Earth is increasing. However, results also show that Canadians are considerably more likely than Americans to hold this position. As *Table 1* indicates, 80% of Canadians believe that the climate is warming, compared to only 60% Americans in 2013. In addition, Americans are roughly twice as likely as Canadians (25% to 12%) to believe that there is no solid evidence of global warming, or are not sure about their views (14% to 8%). Despite substantial fluctuations in American views on the issue over the past decade (Borick & Rabe, 2013),⁷ survey results indicate very little movement between the two comparative survey waves.

Table 1
Perceptions of evidence of climate change in Canada and the United States

“Is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”

	There is Solid Evidence	There is Not Solid Evidence	Not Sure
Canadians 2013	81%	12%	8%
Canadians 2011	80%	14%	6%
Americans 2013	61%	25%	14%
Americans 2010	58%	26%	16%

Although Canadians are more likely than Americans to believe there is solid evidence of rising global temperatures, the national Canadian average masks an important difference in opinion at the regional level. The 2013 Canadian survey oversampled in the largest Canadian provinces, ensuring a minimum of at least 70 respondents in all of the major regions and over 300 respondents from the provinces of Alberta (n=320), British Columbia (n=322), Quebec (n=330) and Ontario (n=390). Comparisons for the larger provinces are thus accurate within a reasonable margin of error outside of which significant differences can be observed.^a No such oversample was conducted among American states and regions. As *Table 2* indicates, belief in climate change is relatively high and stable among most Canadian provinces and regions, with the notable exception of Alberta. Here, belief in climate change is 71%, ten percentage points below the national average, but disbelief is almost ten points higher (at 21%), as well (see *Table 2*). Belief in the existence of climate change is significantly lower in this relatively more carbon-intensive province, where the oil and gas sector is responsible for an important component of economic growth, but also, for steadily rising absolute and per-capita greenhouse gas emissions. At 65%, aggregate levels of belief in Manitoba and Saskatchewan are below that of Alberta, but given the smaller sample size of this region, the lower and upper bounds are much wider, at 49% and 79%, respectively. Despite these regional differences, perceptions of increasing global temperatures in all provinces remain above the American national average for this same period.

Table 2
Regional breakdown of perceptions of climate change in Canadian provinces, 2013

“Is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”

	QC	ON	MB/SK	AB	BC	MA	National
Yes	85%	82%	65%	71%	81%	85%	81%
No	7%	12%	14%	21%	13%	6%	12%
Not sure	7%	6%	21%	7%	5%	8%	8%

Note: Margin of error differs by sample size across various provinces and provincial groupings.

^a The Margin of Error for Quebec, Alberta and British Columbia is +/-5.5% at a 95% level of confidence. The margin of error for Ontario is 4.9%. A total of 70 respondents were sampled from the Maritime (PEI, NS, NB, NF) and Central (Manitoba and Saskatchewan) provinces, yielding a margin of error of 11.7% in 19 of 20 samples.



Partisan Divides

Beyond this regional divide in Canada, past research has consistently found a partisan divide in the way members of the American public perceive the existence of climate change.⁸ Findings from our comparative surveys demonstrate how this well-established link additionally apply to non-American contexts. In both the United States and Canada there is a wide gap in opinion between individuals who align with parties on the right and those on the centre and left, with the latter more willing to express belief in climate change generally. In Canada, for instance, acceptance of climate change is highest among self-identified supporters of the New Democratic Party (NDP) at 92% and lowest among self-identified supporters of the Conservative Party (68%). In the United States a similar pattern emerges, with self-identified Democrats significantly more likely than those identifying as Republicans to express a belief that global warming is occurring, 71% to 52% (see *Table 3*). Although these partisan differences in Canada and the United States are similar, they are relative, as Canadians who support the Conservative Party are still 7% more likely than the average American to believe that global warming is occurring. However, consistent with partisan divide, Canadian Conservatives are slightly less likely to hold this belief than American Democrats, respectively 68% to 71%.

Table 3
Perceptions of climate change by party affiliation, 2013

“Is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?”

	There is Solid Evidence	There is Not Solid Evidence	Not Sure
Canada			
NDP	92%	6%	2%
Bloc Quebecois	89%	9%	2%
Liberal	88%	5%	7%
Conservative	68%	24%	8%
Unaffiliated	79%	11%	10%
ALL Canada	81%	12%	7%
US			
Democrat	71%	15%	13%
Republican	52%	38%	9%
Unaffiliated	59%	23%	19%
ALL US	61%	25%	14%

Confidence in Beliefs

The level of confidence people attach to their views on the existence of global warming also reveals cross-national differences. Of those Canadians and Americans who express belief in climate change, the vast majority have remained “fairly” or “very” confident in their views since the previous survey wave (see *Table 4*). However, the percent of “very confident” responses has fluctuated over time. For instance, although Canadians today are just as likely as they were in 2011 to express a belief in climate change (see *Table 1*), they are more likely to say they are very confident that this change is occurring in 2013 (57%) than they were in 2011 (48%); see *Table 4*. Interestingly, this dynamic has worked in the opposite direction in the US, where the percent of Americans who both believe in climate change and are also “very confident” in this view has fallen to 47% in 2013 from 55% in 2010. This divergence in relative confidence among majorities of climate change believers may potentially reflect the different political, media and elite discourses around the issue in both.⁹

Table 4
Level of confidence in perceptions of climate change

“How confident are you that the average temperature on Earth is increasing?”

	Very Confident	Fairly Confident	Not Too Confident	Not Confident at All	Not Sure
Canadians 2013	57%	35%	5%	2%	1%
Canadians 2011	48%	41%	7%	2%	2%
Americans 2013	47%	49%	3%	<1%	1%
Americans 2010	55%	37%	6%	1%	1%

Note: Asked only of those respondents who think there is evidence of global warming.

Human versus Natural Contributors to Change

One important distinction among those who believe that the climate is warming is their perception of the underlying cause of the change. Generally, individuals may attribute the causes of climate change to human activity, to natural causes, or to a combination of both. These differences are important because to accept global warming but deny its anthropocentric causes is to implicitly reject the idea that changing human practices and behavior might help stem the trend, thereby legitimating emission mitigation policies. In both waves of this survey, Canadians are more likely than Americans to accept the prevailing scientific view regarding the anthropocentric factors primarily responsible for climate change.¹⁰

Table 5
Perceived drivers of climate change

“Is the Earth getting warmer because of human activity such as burning fossil fuels, or mostly because of natural patterns in the Earth’s environment?”

	Primarily Human Factors	A Combination of Human and Natural Factors	Primarily Natural Factors	Not Sure
Canadians 2013	58%	23%	15%	4%
Canadians 2011	43%	36%	15%	5%
Americans 2013	40%	36%	21%	3%
Americans 2010	37%	40%	18%	5%

Note: Asked only of those respondents who think there is evidence of global warming.

As Table 5 shows, among respondents who perceive that climate change is occurring, nearly 60% of Canadians see human factors as the primary cause of it, compared to only 40% of Americans holding the same view in the most recent survey. Moreover, the distribution of opinion on this question has shifted far more markedly among Canadians than Americans over the sampling period. The percent of Canadians who believe that there is evidence of global warming and attribute this primarily to human factors has jumped from 43% in 2011 to 58% in 2013. Most of this shift appears to have come from a significant decrease in the number of



Canadians attributing climate change to a combination of factors. Interestingly, the number of Canadians attributing climate change primarily to natural forces has stayed constant over time. Meanwhile, American attitudes shifted only modestly during this period, with the percent of American climate change believers attributing human factors as the primary driver increasing from 37% in 2010 to 40% in 2013. Strong majorities of Americans continue to support both primarily human factors and a combination of human and natural factors, contrary to their Canadian counterparts. To the extent that these views are at odds with the majority of climate scientists who believe that this is primarily a human-created phenomenon,¹¹ this is a form of “stealth denial” that may help explain why individuals deny any emotional connection to climate change, or eschew any sense of personal responsibility, despite agreeing with the basic science.¹² Such views on the natural drivers of climate change, a form of climate skepticism that is apparent in both but more so in the US, are also likely to be consequential, as they may feed into what individuals believe is the appropriate way to respond to a warming world.

Issue Importance

Another key dimension of public attitudes on climate change the survey examined is issue salience; namely, to what extent rising global temperatures are concern amongst members of the public. To this end, the survey asked respondents in both countries to identify their level of concern regarding the issue (see *Table 6*). Framing the question around the salience of climate change as an *issue* makes no presupposition that the phenomenon is real, and was thus asked of all respondents, even if they initially expressed skepticism around perceptions of rising temperatures.

Table 6
Concern with climate change, 2013

“How concerned are you about the issue of climate change?”

	Very concerned	Somewhat concerned	Not too concerned	Not concerned at all	Not sure
Canadians 2013	32%	45%	14%	8%	<1%
Americans 2013	23%	34%	21%	22%	1%

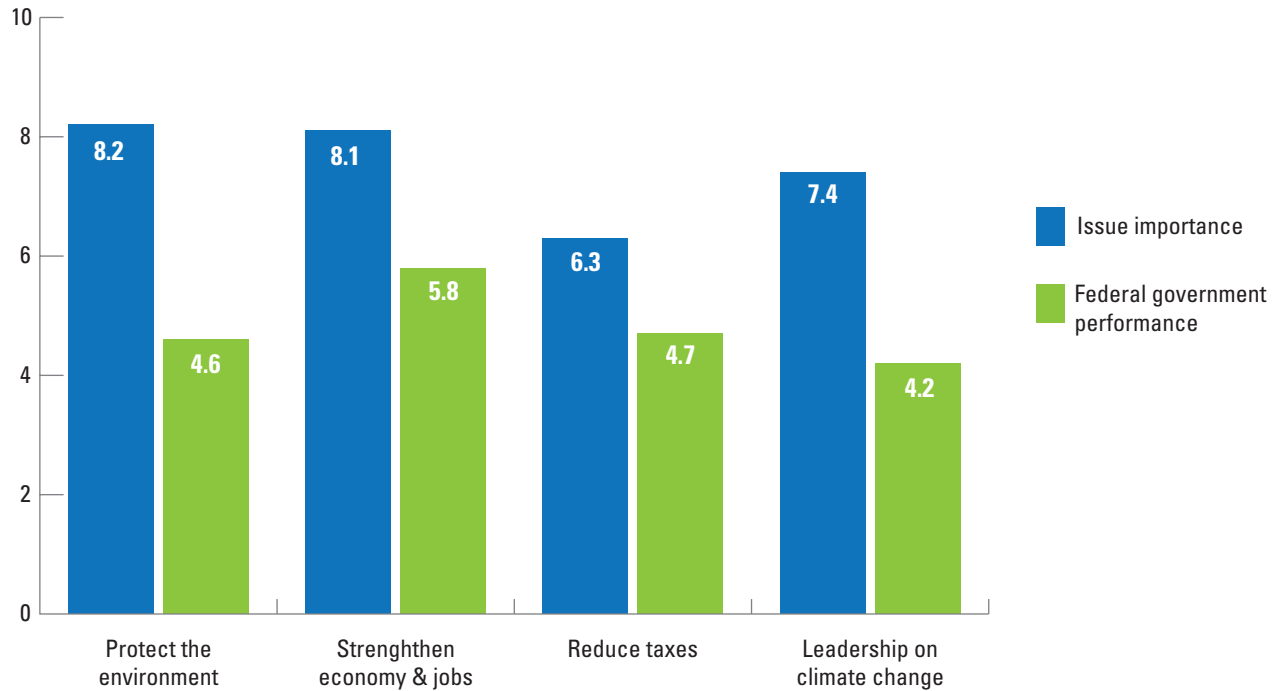
Overall, a majority of both Canadians and Americans indicate some degree of concern about the issue of climate change. However, Canadians are considerably more likely than Americans to say that they are very or somewhat concerned about the issue (77% to 57%, respectively), while those in the United States are considerably more likely to be either not too concerned or not concerned at all than residents of Canada (43% to 22%). At the same time, a modal response of “somewhat” concerned suggests that there is additional evidence of stealth denial in both countries. While a majority of individuals in both countries agree on the existence of rising temperatures (see *Table 1*), these views do not appear to translate into high levels of concern (see *Table 6*). In the context of steadily rising emissions, much of the Canadian and American public appears to have some way to go before perceiving climate change as a serious problem, despite predictions from leading scientists that climate change poses a significant existential threat for humanity.¹³

To be sure, climate change is not the only issue facing citizens and their governments, and the public may be preoccupied with different priorities. Moreover, issue saliency may evolve and follow a pattern in which issues compete with one another in the issue attention cycle described by Downs (1972).¹⁴ This dynamic points to the importance of tracking salience over time, and in comparing the importance of competing issues. In order to gauge relative saliency, the Canadian 2013 survey began asking a battery of questions probing issue importance, followed by a similar battery of questions asking respondents to evaluate the performance of the current Canadian government in each area (see *Figure 1*). These questions were not asked in the United States. To guard against question order effects, issues were randomized in each interview conducted.

Figure 1
Issue importance and perceptions of federal government performance in Canada, 2013

“Thinking about the various economic and environmental issues facing the federal government in Ottawa, please tell me, on a scale from 0 to 10, where 0 means not at all a priority and 10 means should be a major priority, how much of a priority should it be for the federal government to do the following...”

“Now on the same scale, where 0 means very poor and 10 means very good, how would you rate the performance of the Harper government in Ottawa on...”



Overall, Canadians attach a lower level of importance to the issue of showing leadership on climate change (mean = 7.4; standard deviation = 2.7) than they do for protecting the environment (mean = 8.2; standard deviation = 1.9; $p=0.000$) or strengthening the economy and jobs (mean = 8.1; standard deviation = 1.9; $p=0.000$). At the same time, the largest gap between public perceptions of an issue’s importance and perceptions of government performance is on environmental matters (3.6) and for climate change (3.2). Thus, while the issue of climate change does not appear to be highly salient at the time of our survey, there appears to be a substantial deficit between how much of a priority the public thinks the government ought to give to showing leadership on climate change, and perceptions of what the current Conservative government in Ottawa is actually doing on the issue.

Responsibility for International Leadership on Climate Change

Perceptions of warming temperatures, some concern about this phenomenon, and in the Canadian case, evidence of an overall governance deficit, raise questions about what exactly should be done in terms of national engagement in any international strategy to address climate change. Given substantial per capita emissions levels between Canada and the US, along with their relative wealth, a case can be made regarding moral responsibility accruing to their respective governments to show international leadership on the question of climate change.



Indeed, the 2013 survey finds that a majority of both Canadians (84%) and Americans (57%) believe that rich countries like their own have a moral obligation to show international leadership by reducing their greenhouse gas emissions (see *Table 7*). Moreover, findings demonstrate a substantial gap between Americans and Canadians on this question, with residents of Canada over twice as likely as their counterparts in the United States (57% to 22%) to strongly agree about the moral obligation of their government to reduce greenhouse gas emissions. Conversely, Americans are over twice as likely as Canadians to strongly disagree that their country has such a moral responsibility.

Table 7
Moral obligation to show international leadership on climate change, 2013

“Rich countries like Canada [The US] have a moral obligation to show international leadership by reducing their greenhouse gas emissions.”

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Not Sure
Canada	57%	27%	5%	7%	4%
US	22%	35%	14%	18%	11%

To be sure, moral obligations can be confounded by the realities of world politics. An ongoing point of contention in climate diplomacy has been the status of China and other rapidly developing countries in international regimes created to coordinate emissions cuts. For instance, in both Canada and the United States, various groups have voiced their opposition to joining multilateral treaties committing to emissions reductions that exempt other major carbon-emitting nations. This position is perhaps most clearly reflected in a bi-partisan resolution sponsored by Senators Robert Byrd and Chuck Hagel that passed by a vote of 95 - 0 in the US Senate in 1997. A similar position was also behind Canada’s decision in December 2011 to abandon the Kyoto protocol, which failed to bring large emitters like China and the US under a common set of legally-binding emissions constraints. Fueled primarily by concerns over international competitiveness, China’s participation has increasingly become a political condition for the future negotiation of a comprehensive, multilateral treaty tasked with coordinating global emissions reductions. The “China question” has become particularly salient in the American case given China’s well-publicized passing of the United States in total annual emissions in recent years. In this context, our surveys included an embedded experiment in which we asked respondents a question probing support for a new international treaty on climate change, but respondents were randomly assigned to one of two possible question formulations. In the first condition, we asked respondents their level of support for their country signing onto a new international agreement to limit global emissions of greenhouse gases. In the experimental condition, we asked respondents the identical question, but with a qualifier mentioning the absence of China taking on similar commitments.

Table 8
Support for signing a new international treaty, 2013

“How much do you support Canada [the US] signing onto an international agreement to limit global emissions of greenhouse gases [...even if it means doing so ahead of other countries such as China]?”

	Canada		US	
	No conditions specified	Even if ahead of China	No conditions specified	Even if ahead of China
Strongly Support	51%	49%	29%	22%
Somewhat Support	25%	29%	26%	30%
Neither Support or Oppose	7%	7%	22%	23%
Somewhat Oppose	5%	6%	7%	6%
Strongly Oppose	7%	6%	9%	11%
Not Sure	5%	3%	8%	8%

As *Table 8* shows, there is overwhelming support in Canada and the US for governments in both countries to play an active role in international climate diplomacy. Although stronger in Canada, there is broad public support for signing a new international treaty in both Canada (76%) and the US (55%) with no conditions specified. Comparing across the experimental and control conditions,

priming the idea of going ahead of China barely moves public opinion in either country, with support increasing to 78% in Canada and dropping slightly to 52% in the US. This is at odds with the elite discourse in both countries, and suggests that the members of the public are ahead of their respective governments on the need for an international agreement on climate change. To be sure, the question wording does not prime some of the arguments made by opponents of international leadership, such as cross-border emissions leakage and international competitiveness concerns. However, results are robust across two populations in which these concerns may be more or less known to the public, and suggest that, at least on the surface, public appetite for international cooperation on the climate is not contingent upon the actions—or inactions—of developing countries like China.

Support for Domestic Policy Options

Given Canadians’ and Americans’ overall concerns with climate change and their desire for international action to address the issue, we turn to consideration of more specific policy options that may be implemented domestically. Previous research on this subject has shown that even if members of the public express belief in global warming and even if they report concern about the implications of this trend, support for policy options to fight the problem is by no means guaranteed. In fact, past studies of public opinion on this matter in both Canada and the United States have shown very mixed levels of support for many of the major policy tools that are most commonly considered as means to reduce greenhouse gas emissions.¹⁵ Meanwhile, several US states and Canadian provinces have taken a leadership role in implementing climate change policy ahead of their respective federal governments in Ottawa and Washington.¹⁶

In our most recent wave, we asked respondents their views on an array of policy options such as carbon taxes, cap-and-trade emissions trading, renewable portfolio electricity standards and other forms of regulation. Over the last decade, each of these methods has been employed, to varying degrees, throughout the United States and Canada, and remain part of broader policy debates in Ottawa, Washington, and in provincial and state capitals. The results of the 2013 survey indicate dramatically different levels of support across policy tools as well as between the Canadian and American publics.^b

Carbon Taxes

Table 9
Support for carbon taxes in Canada and the US, 2013
With and without costs specified

“Provincial/State governments should increase taxes on all fossil fuels in order to decrease greenhouse gas emissions.”

	Canada		US	
	No cost specified	Even if it raises cost of energy by about 10%	No cost specified	Even if it raises cost of energy by about 10%
Strongly support	16%	15%	5%	9%
Somewhat support	37%	32%	19%	14%
Somewhat oppose	16%	22%	16%	19%
Strongly oppose	25%	28%	55%	53%
Don't know	5%	4%	5%	5%

Economists and policy analysts often tout carbon taxes as the most efficient means of reducing greenhouse gas emissions. This is largely because they equalize the cost of emitting additional greenhouse gases in the atmosphere, encouraging emissions cuts where they are cheapest. Only those polluters that find it cost-effective to change their emissions behavior will invest in such changes in order to avoid paying the tax, thus ensuring emissions reductions at a lower aggregate social cost.

^b The complete results, including the distribution of opinions in other policy areas, are available at http://canada2020.ca/climatepoll/docs/Cross_Tabs-Canada_2020_U_of_M_Climate_Poll.pdf



Yet, the adoption of carbon taxes in North America has been very limited. Though a variety of states and provinces have some form of carbon fees attached to fossil fuel use, only British Columbia has implemented a broad-based and comprehensive carbon tax. Thus, it may not be surprising to find fairly limited support for this policy alternative among Canadians and more particularly Americans. Employing a split sample design, our survey measures support for this tool under two scenarios – one with and another without a specification of costs in the question wording. The results demonstrate a considerable gap in support for carbon taxes between Canadians and Americans: while a slight majority (53%) of Canadians support a carbon tax without an affixed cost, only about a quarter (24%) of Americans maintain the same view (see *Table 9*). When asked if they support a tax even if it raised monthly energy costs by about 10% there is a slight drop in support for carbon taxes in Canada (53% to 47%), but no net change in support among Americans (24% to 23%).

Cap-and-Trade

A second policy option that has received positive appraisals from economists involves the development of cap-and-trade systems for the emissions of greenhouse gases. Under such a system, the government sets an overall limit on the amount of carbon that regulated entities are allowed to emit, then issues emissions permits (either freely allocated or auctioned) allowing companies to emit a certain amount. Those companies that are able to reduce emissions below their allocated limit are then permitted to sell their permits to others who would otherwise fail to comply. The idea is that companies will have an incentive to find ways to decrease emissions in order to avoid paying for permits.

Over the last decade, this type of system has become more popular among US states and Canadian provinces, with one such system, the Regional Greenhouse Gas Initiative in the Northeastern United States, fully operational and flourishing. However, other systems that at one time included numerous states and provinces (such as the Western Climate Initiative and Midwest Greenhouse Gas Reduction Accord) have either completely dissolved or have experienced severe membership attrition and slow progress. This pattern of retrenchment is consistent with falling public support for cap-and-trade systems in the US (Lachapelle & Borick, 2013).¹⁷

Table 10
Support for cap-and-trade in Canada and the US, 2013
With and without costs specified

“Provincial/State governments should allow businesses to buy and sell permits to release greenhouse gases.”

	Canada		US	
	No cost specification	Even if it increases the cost of some goods by about 10%	No cost specification	Even if it increases the cost of some goods by about 10%
Strongly support	19%	16%	10%	5%
Somewhat support	27%	36%	22%	22%
Somewhat oppose	20%	17%	11%	24%
Strongly oppose	26%	26%	34%	43%
Don't know	8%	5%	22%	6%

While there is slightly more support in the United States for a cap-and-trade system than there is for a carbon tax (see, respectively, *Tables 10* and *9*), Americans' support for cap-and-trade fails to attain even close to majoritarian levels regardless of question wording and (a lack of) specification of costs. More specifically, only about one in three (32%) Americans support cap-and-trade without costs assigned, while 5% fewer (27%) support this type of system when told it will raise the cost of some goods by about 10% (see *Table 10*). By contrast, Canadians are evenly split in support (at 46%) for a cap-and-trade policy when no cost is specified, but become slightly more supportive (52%) when a 10% increase in the cost of goods is attached to the policy. Thus, including information on the cost of the policy (in this case, a modest increase in the price of goods) has a limited impact on levels of public support and opposition to this type of policy.

Renewable Portfolio Standards

A third approach to reduce greenhouse gas emissions is the use of renewable portfolio standards (RPSs), which are regulatory requirements for the use of renewable resources. Since the beginning of this century state governments have increasingly turned to renewable energy standards as a key component of their energy policies.¹⁸ Under this policy approach, a set portion of energy produced within a jurisdiction is required to be produced from renewable sources such as solar and wind. It is a relatively prevalent policy approach across North America, as twenty-nine American states and several Canadian provinces have adopted some version of an RPS. Our survey results also indicate very strong support for this policy option in both the Canadian and American publics, with large majorities of both Canadians (82%) and Americans (79%) supporting such policies when no cost is assigned (see *Table 11*). However, when a \$100 per-year electricity cost increase is attached to the policy, support decreases by 34 points to below majority level in the US (45%), while the drop is less pronounced in Canada (about 10 points).

Table 11
Support for Renewable Portfolio Standards in Canada and the US, 2013
With and without costs specified

“Provincial/State governments should require a set portion of all electricity to come from renewable energy sources such as wind and solar.”

	Canada		US	
	No cost specified	Even if it increases the cost of electricity by about \$100 per year	No cost specified	Even if it increases the cost of electricity by about \$100 per year
Strongly support	58%	44%	46%	18%
Somewhat support	24%	28%	33%	27%
Somewhat oppose	8%	11%	7%	13%
Strongly oppose	7%	15%	11%	39%
Don't know	4%	2%	3%	3%

As the patterns identified in *Tables 9 through 11* illustrate, policies deemed more costly appear less likely to receive substantial levels of public support. As associated costs rise, general support for a policy option tends to erode, though support for policies may actually increase when modest costs are involved. These different public reactions to cost specification raise the question of the public’s willingness to pay (WTP) for the types of energy that would reduce greenhouse gas emissions. To measure WTP, we asked Canadians and Americans to specify the amount of additional cost they would be willing to pay in order to have more renewable energy produced. *Table 12* summarizes the closed version of this question asked in two of the survey waves.

Table 12
Willingness to pay for more renewable energy production in Canada and the US

“If it required you to pay extra money each year in order for more renewable energy to be produced, how much would you be willing to pay?”

	Canada 2011	Canada 2013	US 2010	US 2013
Nothing each year	21%	18%	41%	42%
\$1 to 50 per year	28%	23%	26%	19%
\$50 to 100 per year	19%	24%	17%	16%
\$100 to 250 per year	13%	16%	7%	11%
\$250 to 500 per year	6%	8%	4%	4%
Over \$500 per year	7%	4%	2%	1%
Not sure	5%	5%	4%	6%



As *Table 12* shows, Canadians are generally more willing than Americans to pay for the increased production of renewable energy. Specifically, Americans are roughly twice as likely as Canadians (42% to 18%) to indicate that they would pay nothing each year for more renewable energy to be produced, findings comparable to those in the previous survey iteration. In turn, 52% of Canadians are prepared to pay \$50 or more per year versus only 32% of Americans. At the high end, a much larger proportion of Canadians (nearly 1 in 3) are prepared to pay at least \$100 more per year in order to increase the generation of renewable energy, compared to a much smaller proportion of Americans (about 1 in 6). Also noteworthy, willingness to pay in both countries is relatively stable over the two waves analyzed here. For instance, WTP for the production of more renewable energy in Canada and in the United States barely changed between the two waves reported in *Table 12*. Though more analysis is required, especially to control for ability to pay, which tends to be highly correlated with WTP measures, these large and enduring cross-national differences in WTP suggest one reason why Canadians may react differently to cost specifications regarding various types of climate policy examined here.

Regulations on Coal-fired Power Generation

An alternative policy targeting emissions from the electricity sector is to increase regulations on coal, the most carbon intensive fossil fuel. This approach has been adopted in both Canada and the US, reflecting a chorus of failed efforts to put a price on carbon at the federal level, and an attempt to regulate a sector responsible for a significant proportion of emissions in both countries. In the United States, Democratic President Barack Obama announced a new directive instructing the US Environmental Protection Agency to begin regulating greenhouse gas emissions from power plants in 2013. Mirroring these efforts in the US, Conservative Prime Minister Stephen Harper has also announced regulations for reducing greenhouse gas emissions from coal-fired electricity generation in Canada, though these standards won't likely apply until mid-2015. This type of regulatory policy imposes less direct and less visible costs on consumers than carbon pricing. Nevertheless, we observe significant differences in support for this policy across Canada and the United States (*Table 13*).

Table 13
Support for Regulations on Coal-Fired Power Generation in Canada and the US

"An alternative policy would set [Stephen Harper/Barack Obama has proposed setting...] a hard cap on emissions from coal-fired electricity. Do you strongly support, somewhat support, somewhat oppose or strongly oppose imposing new regulations on coal-fired electricity generation to address climate change?"

	Canada		US	
	No government mention	Harper mention	No government mention	Obama mention
Strongly support	35%	37%	9%	14%
Somewhat support	35%	37%	27%	26%
Somewhat oppose	10%	8%	18%	16%
Strongly oppose	12%	8%	26%	25%
Don't know	0%	1%	20%	19%

In order to assess attitudes toward a policy approach adopted by a Conservative Prime Minister in Canada and a Democratic President in the US, our survey employed an experiment in which half of respondents were randomly assigned to a question wording that made specific reference to Stephen Harper and Barack Obama (*Table 13*). A few things stand out. First, Canadians are about twice as likely to support new regulations on coal-fired power than Americans when no mention of political leadership is made. This difference is slightly smaller when priming Stephen Harper and Barack Obama. Second, Americans are roughly twice as likely as Canadians to oppose new regulations on coal-fired power generation, irrespective of whether or not leaders are mentioned in the question wording. Unlike in the Canadian case, however, where mentioning Stephen Harper leads to a drop in opposition, priming Obama has a much smaller effect. Overall, much of the difference in attitudes toward new coal regulations in Canada and the US is explained by the significantly higher proportion of Americans (roughly 1 in 5) who are not sure of whether to support or oppose this type of policy.

Support for Energy Pipelines

Recent high profile events such as the Lac Mégantic disaster and ongoing debate around major proposals to move oil and gas across the continent have made energy pipelines a lightning rod for controversy. On the one hand, the oil industry—particularly Alberta’s oil sands sector—continues to push for new pipeline capacity to expand transport of oil sands to refineries and ports across North America. These efforts have expanded in the face of a price gap between North American and World benchmark oil prices, rising production in the US and the cost of rail transport, which affect the profitability of oil sands output. On the other hand, these proposals have been met with substantial opposition from organized groups warning of the local and global consequences of expanded Canadian oil sands production, which would be further buttressed by an expanded network of pipeline infrastructure across the continent. Proposals, including TransCanada’s Keystone XL, Northern Gateway, Energy East and Enbridge’s Line 9 reversal, have consistently made headlines, with major protests complete with celebrity endorsements made on both sides of the Canada-US border. In the 2013 wave of our comparative Canada-US climate change and energy survey, we asked respondents how they felt about plans for the expanded use of pipelines to transport oil and gas across Canada and the United States.

Table 14
Support for the Expanded Use of Energy Pipelines in Canada and the US

“There is currently some discussion around the expanded use of pipelines to transport oil and gas across Canada and the United States. Do you strongly support, somewhat support, somewhat oppose or strongly oppose the expanded use of pipelines to transport oil and gas?”

	Strongly support	Somewhat support	Somewhat oppose	Strongly oppose	Don’t know
Canada	27%	32%	17%	16%	9%
Alberta	43%	32%	12%	9%	4%
British Columbia	20%	24%	19%	31%	6%
Ontario	29%	29%	19%	15%	8%
Quebec	15%	32%	18%	22%	13%
US	28%	34%	13%	15%	10%
Democrat	24%	34%	16%	15%	11%
Independent	23%	36%	13%	19%	9%
Republican	43%	36%	7%	7%	8%

A few things are clear from *Table 14*. In contrast to the other climate attitudes examined in our survey, Canadians and Americans hold similar opinions on the pipelines issue, on the aggregate. In both Canada and the US, we find majority support for the expanded use of pipelines to transport oil and gas across the continent, though with substantial levels of opposition in both countries as well. Digging deeper, we find significant differences in support across various categories of respondents. As one might expect, support for pipelines in Canada is highest in Alberta, the province that stands to gain most from an expanded pipeline infrastructure that will help get expanded oil sands production to market. Similarly, we find levels of opposition to be highest in British Columbia, where many groups have mobilized against the proposed Northern Gateway pipeline, that would see Alberta oil sands pass through sensitive environmental areas before reaching ports for export in British Columbia. Perhaps more surprisingly, support is lowest in Quebec, despite the touted advantages of pipelines in terms of safety following the disaster in Lac Mégantic, Québec, earlier that year. In the US, party polarization is again evident. Republicans are significantly more likely than either Democrats or Independents to strongly support the expanded use of pipelines. This position is consistent with Republican views on climate change, which tend to be more skeptic of climate change as an important policy problem. Comparing across the two cases, Republicans are as likely to support pipelines as respondents from Alberta.



Conclusion

As two of the world's most carbon-intensive economies, the United States and Canada have an important role to play in leading international efforts to address the issue of global warming. If governments in both federations are to act on the growing body of scientific evidence documenting the role of human activity on the Earth's changing climate, publics in both countries must also play a key role. This study has helped demonstrate that most Canadians and Americans believe that global warming is happening, although there is correspondingly less concern within these populations than one might expect, given the more alarming claims of leading climate scientists.¹⁹ This level of issue salience is likely behind the relatively low level of support for some of the more direct ways of dealing with climate change, including putting a price on emissions.

At the same time, we find wide and enduring differences in the two publics, in terms of levels of support for various instruments of climate policy, and in their willingness to pay. In general, Canadians are more likely than Americans to support key policy tools such as carbon taxes, cap-and-trade systems, renewable energy standards and new regulations on coal. There is also a substantial divide among Americans and Canadians when it comes to willingness to spend money to move their respective countries away from carbon-intensive fuels, though attitudes toward the issue of pipelines appear to be more similar, if only at the aggregate level. These differences reflect a general trend in comparative Canada-US opinion – Canadians appear to be more convinced, more concerned, and more willing to do something about climate change than their neighbors in the United States.

Beyond these generalities, we also find cleavages within the Canadian and American publics on issues related to climate change. Observed opinions fracture on regional and party lines, reminding us to caution against hasty generalization of an aggregate consensus on general views. Moreover, in some ways, the issue is far from being as salient as might be necessary to spur significant policy change. The gap between perceptions of scientific fact and perceptions of personal risk here require further research.

Looking forward, evolution on the types of attitudes examined here will have consequences for policy. Given the substantial costs involved with mitigation and the transformation of energy systems, the public will inevitably be called upon to bare some of the costs of efforts to mitigate or otherwise adapt to a changing climate. Moreover, given the extent of cultural, economic, and political ties between the two countries – to the point of considerable implicit and explicit policy harmonization – opinion trends in both countries will have an impact on the shared fate of both publics. If past research is any indication, public opinion moves in sequence with various contextual and individual level factors over time.²⁰ As a result, the patterns identified here are also likely to change over time, making continued temporal comparison an important intellectual and practical endeavor to track in the foreseeable future.

Methodology

Findings included in this report are drawn from multi-year nationally representative telephone surveys using random digit dialing samples in the United States and Canada. Three of the four waves analyzed in this report include landlines and cell phones. The 2011 Canadian sample includes landlines only. The following table presents the sample size and margin of error for each of the respective samples:

Country/Year	Fielding Dates	Sample Size	Cell phones included?	Margin of Error
Canada 2011	January 13 – February 4, 2011	1214	No	+/-2.8%
Canada 2013	October 10 – October 20, 2013	1502	Yes	+/-2.5%
United States 2010	November 15 – December 9, 2010	916	Yes	+/-3%
United States 2013	October 3 – October 14, 2013	984	Yes	+/-3.5%

Note: Margin of Errors are calculated at a 95% level of confidence.

All data summarized in this report are weighted to reflect population estimates in both Canada and the United States. Specifically, Canadian results are weighted according to gender, age, language, and region to reflect the latest population estimates from Statistics Canada (2012).²¹ American results are weighted to gender, race, income, educational attainment, and age to reflect the most recent population estimates in the United States according to the 2010 US census.²² Percentages throughout this report are rounded upward at the .5 mark, thus many totals in the results will not equal 100 percent.

The survey instruments were designed by Chris Borick (Muhlenberg College), Barry Rabe (University of Michigan) and Erick Lachapelle (Université de Montréal). All Canadian survey waves were administered via telephone in either English or French and were conducted by Leger in Montréal, Quebec.

Funding and Financial Disclosure

The Canadian think-tank, Canada 2020 and the Université de Montréal supported the 2013 wave of the Canadian survey.^c All of the United States surveys were conducted by the Muhlenberg College Institute of Public Opinion in Allentown, Pennsylvania and were funded by Muhlenberg College and the Center for Local, State, and Urban Policy (CLOSUP) at the Gerald Ford School of Public Policy at the University of Michigan.

^c The Public Policy Forum and Sustainable Prosperity funded the 2011 Canadian wave, with additional financial support from Internat Energy Solutions Canada.



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