

PROJECT PIONEER

CANADIAN AND ALBERTAN PERCEPTIONS
OF CARBON CAPTURE AND STORAGE (CCS) –
ESTABLISHING BASELINES

NON-CONFIDENTIAL SUMMARY

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Capital Power
Corporation



ENBRIDGE



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Table of Contents

1.0	Introduction to Pioneer	1
2.0	Introduction to the Polling Activity	1
3.0	A Tool in the Public Consultation and Public Engagement Kit	2
4.0	A Quick Word on the Methodology	2
5.0	National and Alberta Research Objectives	3
6.0	Exploring What the Poll Results Told Us	4
	Canadians and Albertans are aware that something has to be done	4
	Canadians and Albertans awareness of CCS	6
	Canadians and Albertans will support CCS	15
	Level of interest in learning more about CCS	17
	Investigating views on coal fired generation and CCS	19
	Local area communities – key impressions	21
7.0	Conclusion	22

Table of Figures

Figure 1 Urgency of Climate Change and Global Warming – Canadian Polling Results	4	Figure 10 Perceived Drawbacks of CCS	14
Figure 2 Urgency of Climate Change and Global Warming – Alberta Polling Results	5	Figure 11 Prioritizing and Supporting CCS – National Total	15
Figure 3 National Aided Awareness	7	Figure 12 Prioritizing and Supporting CCS	16
Figure 4 Alberta Aided Awareness of CCS	8	Figure 13 Interest in Information About CCS	17
Figure 5 National Unaided Awareness	9	Figure 14 Interest in Information About CCS	18
Figure 6 Alberta Unaided Awareness	10	Figure 15 CCS and Support for Expanding the use of Coal – National Total	19
Figure 7 Perceived Benefits of CCS – By Region	11	Figure 16 CCS and Support for Expanding the use of Coal – Alberta	20
Figure 8 Perceived Drawbacks of CCS – By Region	12	Figure 17 Project Pioneer Impressions	21
Figure 9 Benefits of CCS – Alberta	13		

1.0

INTRODUCTION TO PIONEER

Project Pioneer represents a major step toward advancing the reduction of a key greenhouse gas (GHG) emission – carbon dioxide.

TransAlta and its project partners believe that maintaining the long-term viability of fossil-fired generation is a global necessity. Through economic carbon capture and storage (CCS) we can keep coal and natural gas as fuel options while addressing climate change concerns. Much of the world, including Canada, is fortunate to have huge, reliable reserves of low-cost coal – more coal than oil, in fact. Within the global electricity generation mix, coal is vital and often the only practical fuel for some regions. With billions of dollars of energy infrastructure already built (and billions more to come) carbon capture and storage (CCS) may be the only way to minimize the long-term impact these facilities will have on the environment over the course of their lifespan.

Project Pioneer will demonstrate a post-combustion, retrofit CCS process that can be attached to existing energy infrastructure.

A solution to the CO₂ emissions challenge exists through CCS technology. CCS is a safe, tested and effective technology for reducing the amount of CO₂ entering the atmosphere. A number of projects have already demonstrated that with proper site selection, design and management, CO₂ can be successfully stored for many years.

2.0

INTRODUCTION TO THE POLLING ACTIVITY

In partnership with Shell Canada, TransAlta commissioned a polling firm in the summer of 2010, to conduct research amongst Canadians and Albertans regarding their perceptions of carbon capture and storage (CCS).

Both corporate entities, with two separate CCS projects (Shell's Quest, and TransAlta's Pioneer), felt that with the shortage of established data on the subject of public perceptions on CCS, this initial research would serve to create baselines of perceptions not only at the local level, where the coal-fired plant Keephills 3 and the future carbon capture facility (CCF) of Pioneer would be located, but also to gauge the broader public acceptance for CCS, and to better understand where people would have questions regarding the technology, so that we could work to address those.

What people would tell us through public polling, would form one of a number of pillars that would help determine a public engagement strategy, so we could ensure we were addressing the right issues that people had questions about.

This initial polling activity in 2010 was designed to establish both an *Alberta* and a *Canada* baseline for the purposes of Project Pioneer.

3.0

A TOOL IN THE PUBLIC CONSULTATION AND PUBLIC ENGAGEMENT KIT

We value the communities we work in, and therefore want to ensure that we are addressing the issues that matter to those communities.

Each of the industry partners involved in Pioneer – TransAlta, Capital Power and Enbridge – has experience in consulting and building relationships with stakeholder groups. TransAlta has a long history of working with the general public and other stakeholders in the communities in the Project region. For over 30 years, TransAlta has maintained an open dialogue with local residents and the community and has worked to address concerns of local stakeholders.

In designing our public consultation program, consideration was given to the potential impacts of the Project; expected levels of public interest; and potential areas of concern. The nature and type of the work was also taken into account.

Our objectives for the stakeholder consultation program included:

- To inform and consult with stakeholders regarding Project plans in the region;
- To actively seek to identify and address any concerns of the stakeholders; and
- To provide regular updates on Project activities in the region.

We will continue to work to build strong, long-term relationships by collaborating with and listening to our neighbours, and to seek to understand the different priorities and concerns of communities.

One mechanism we have to do this is by polling the public.

4.0

A QUICK WORD ON THE METHODOLOGY

The research methodology used in the Canadian component of data-gathering was the following; a total of 2108 online interviews were completed for this study, broken out per region as follows:

- 307 in British Columbia;
- 81 in Saskatchewan;
- 69 in Manitoba;
- 894 in Ontario;
- 592 in Quebec; and,
- 165 in Atlantic Canada.

Overall, the Margin of Error for this study was $\pm 2.13\%$, nineteen times out of twenty.

Interviews were fielded from August 19th to August 30th, 2010. The average interview length was 9 minutes.

Respondents were screened to exclude anyone who works for or lives in a household with someone working for:

- TransAlta or Shell;
- An advertising, public relations or communications agency; or,
- The media, including television, radio, or newspaper.

Respondents also had to be 18 years of age.

The research methodology used in the gathering of the Alberta data, was the following; a total of 1,600 telephone interviews were completed for this study:

- 800 interviews were conducted with a random and representative sample of adult Albertans (i.e. 18 years of age and older) living across the province.
- 400 interviews were conducted specifically for TransAlta with residents in the Keephills 3 area (Duffield, Wabamun, Seba Beach, Tomahawk, Warburg, Calmar, Thorsby, Sunnybrook, Drayton Valley and Devon).
- 400 interviews were conducted specifically for Shell with residents of the Edmonton Industrial Heartland (Sturgeon County, Lamont County, Thorhild County, Strathcona County, and the City of Fort Saskatchewan).

The Margins of Error for the study were:

- Alberta General Public Sample
±3.5 percentage points
- TransAlta or Shell Community Sample
±4.9 percentage points

Interviews were fielded from June 17 to June 28, 2010. The average interview length was 19 minutes.

Respondents were screened to exclude anyone who works for or lives in a household with someone working for:

- TransAlta or Shell;
- An advertising, public relations or communications agency; or,
- The media, including television, radio, or newspaper.

5.0

NATIONAL AND ALBERTA RESEARCH OBJECTIVES

Specific research objectives for the polling done, included, measuring the perceived urgency of climate change and global warming as an issue; determining awareness, knowledge and viewpoints on CCS; establishing the relative importance of CCS; exploring the interest levels of Canadians/ Albertans in learning about CCS and investigating views on coal fired generation and potential impact of CCS.

6.0

EXPLORING WHAT THE POLL RESULTS TOLD US

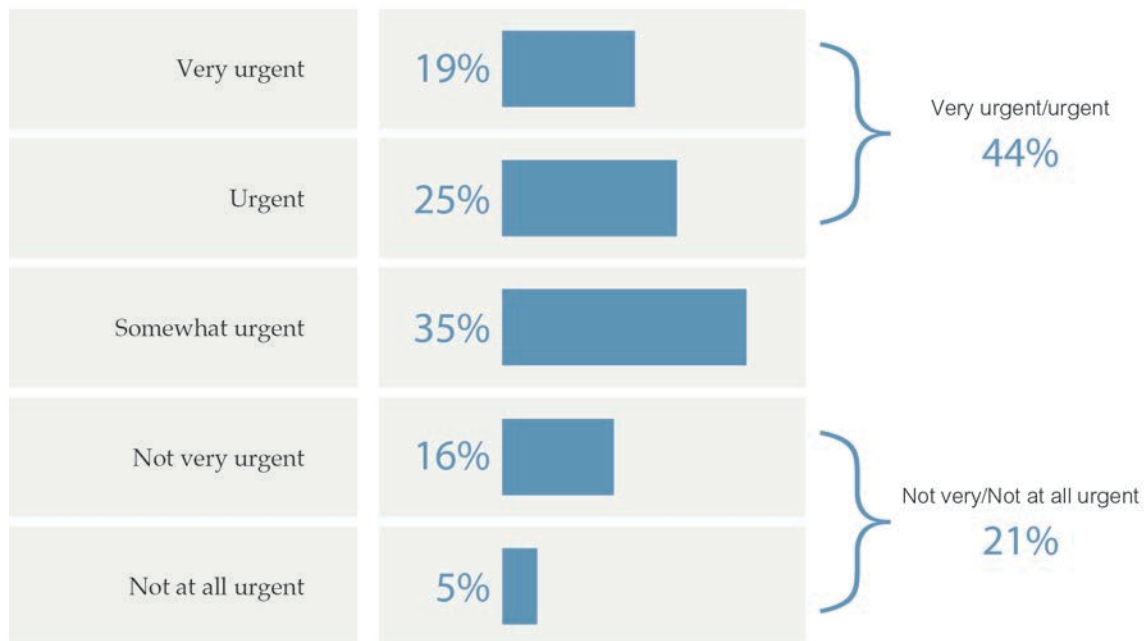
Canadians and Albertans are aware that something has to be done

After having conducted our research, we found that Canadians and Albertans are environmentally aware and conscious; most will say they recognize the urgency of doing something to mitigate climate change and global warming:

fig. 1.0

URGENCY OF CLIMATE CHANGE AND GLOBAL WARMING – CANADIAN POLLING RESULTS

Q. These days you may hear some people talking about climate change and global warming. For you personally is this an issue that is...?

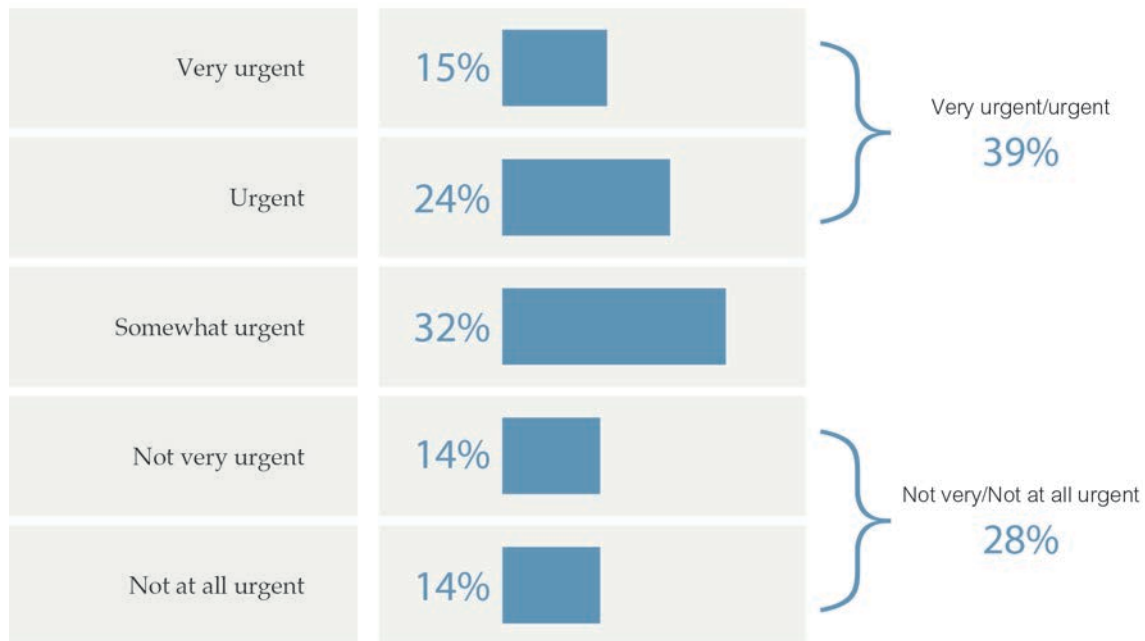


* note: Total does not include Alberta as data was collected in a separate survey, via telephone survey in the month of June

fig. 2.0

URGENCY OF CLIMATE CHANGE AND GLOBAL WARMING –
ALBERTA POLLING RESULTS

Q. These days you may hear some people talking about climate change and global warming. For you personally is this an issue that is...?



Base: All respondents (n=800)

Canadians and Alberta awareness of CCS

As one of our objectives for the polling activity, we wanted to be able to understand what the level of knowledge was of carbon capture and storage, at both the national and Alberta levels.

Aided Awareness vs. Unaided Awareness:

- **Aided awareness** is when you give people a list, or a prompt, or a description and you ask them to tell you whether they recognize something.
 - **Unaided awareness** then follows, is a question that has no list or prompt or description. Rates of recall are usually much lower because you're relying on people to pull the information from their memory. Unaided awareness is commonly referred to as "top of mind" because that's essentially what you're doing – you're asking people to give you the first few answers that occur to them.
-

fig. 3.0

NATIONAL AIDED AWARENESS

Q. Before today, have you heard, seen or read anything about a technology called Carbon Capture and Storage – also known by its initials as CCS?

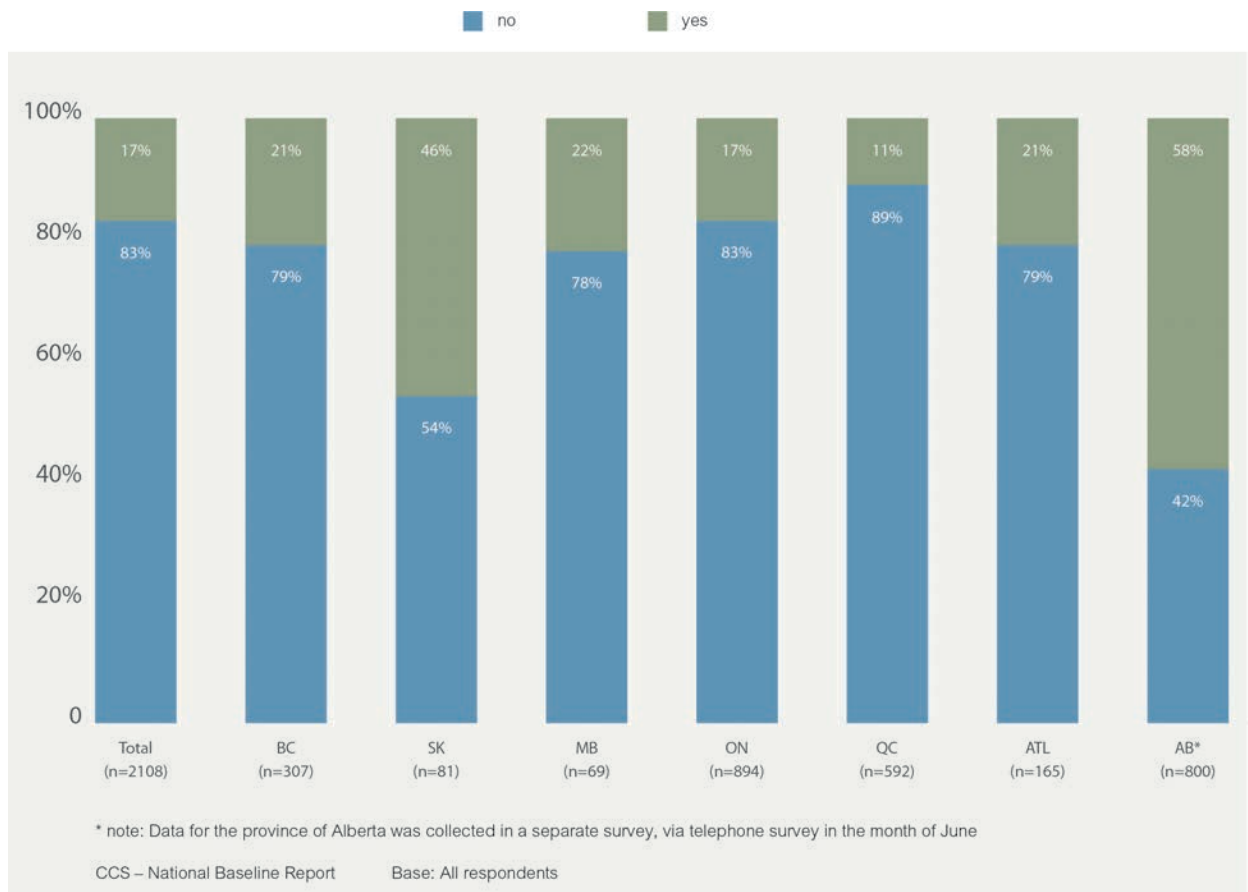
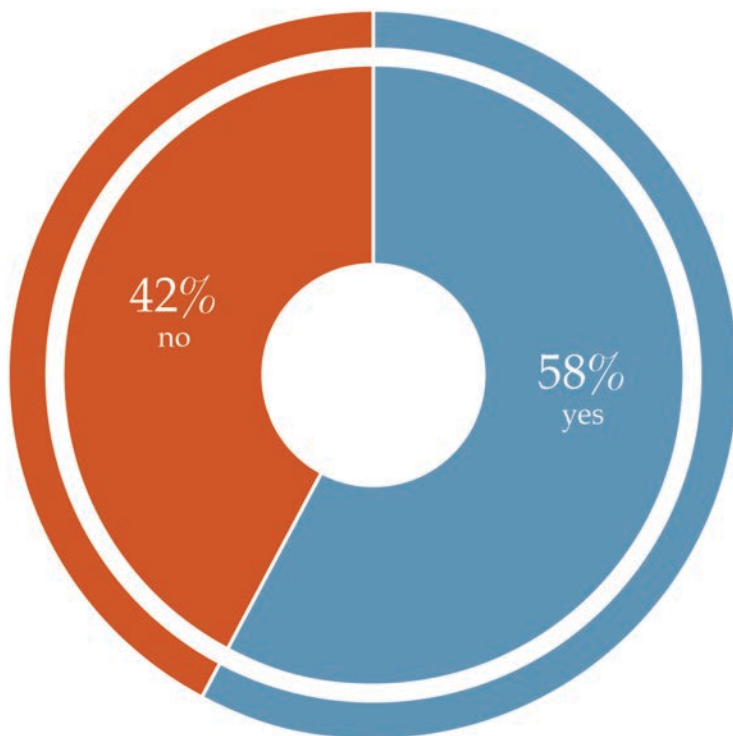


fig. 4.0

ALBERTA AIDED AWARENESS OF CCS

Q. Before talking to me today, have you heard, seen or read anything about a technology called Carbon Capture and Storage – also known by its initials as CCS?



Base: Not aware of Carbon Capture and Storage (n=681)

fig. 5.0

NATIONAL UNAIDED AWARENESS

Q. As you are probably aware, efforts are being made to use new technology to reduce carbon dioxide emissions in Canada. We're interested in learning how well information about these technologies has been communicated to Canadians. To the best of your knowledge, what technology or new approaches are – or soon will be – used to reduce carbon dioxide emissions in Canada?

	Total (n=2108)	BC (n=307)	SK (n=81)	MB (n=69)	ON (n=894)	QC (n=592)	ATL (n=165)
Alternative energy (net)	17%	14%	12%	9%	23%	9%	23%
Wind turbines	12%	7%	9%	4%	18%	6%	19%
Solar energy	8%	8%	4%	7%	12%	3%	7%
Use of alternative/green energy	2%	2%	2%	1%	2%	1%	1%
Environmentally friendly cars (net)	16%	18%	15%	14%	14%	19%	16%
Electric vehicles	11%	15%	12%	12%	9%	13%	11%
Hybrid vehicles	7%	6%	6%	6%	7%	7%	7%
Vehicle emission reduction	8%	8%	4%	13%	10%	6%	9%
Reduce usage/emissions	4%	4%	2%	7%	5%	4%	7%
Eliminate coal-powered generation	3%	1%	1%	—	5%	<1%	2%
Biofuel	2%	2%	2%	7%	3%	2%	2%
Carbon capture	2%	2%	6%	7%	2%	1%	3%
Recycle	2%	3%	—	1%	2%	3%	1%
More public transit	2%	4%	2%	3%	1%	3%	—
Carbon tax	2%	3%	2%	—	2%	2%	—
Don't know	59%	57%	65%	64%	55%	63%	60%

CCS – National Baseline Report

Base: All respondents

fig. 6.0

ALBERTA UNAIDED AWARENESS



The following National perceptions were observed amongst the entire sample size of 2108 respondents:

fig. 7.0

PERCEIVED BENEFITS OF CCS – BY REGION

Q. What do you think are the benefits of CCS?

	Total (n=2108)	BC (n=307)	SK (n=81)	MB (n=69)	ON (n=894)	QC (n=592)	ATL (n=165)
Reduce the amount of carbon dioxide (CO ₂) in the atmosphere	26%	25%	35%	30%	29%	18%	30%
Concerned about the safety of carbon dioxide being put in the ground	10%	12%	9%	6%	9%	12%	8%
Better/cleaner air quality	8%	8%	10%	7%	10%	4%	15%
Positive mentions	8%	6%	4%	6%	8%	8%	12%
Short term solution	7%	8%	2%	6%	6%	9%	7%
Negative mentions	6%	6%	9%	6%	6%	6%	3%
Less pollution	5%	3%	5%	1%	5%	8%	1%
Helpful/beneficial for the environment	5%	6%	10%	6%	4%	4%	9%
Slow down global warming/ climate change	4%	6%	2%	4%	4%	3%	6%
Capture/store the carbon dioxide in the ground	3%	3%	4%	—	4%	3%	2%
Slower deterioration of the ozone layer	3%	4%	1%	3%	3%	3%	4%
Reduce greenhouse effect	2%	2%	2%	7%	2%	3%	1%
Other	8%	8%	9%	6%	9%	7%	7%
None	10%	12%	4%	14%	10%	13%	4%
Don't know	16%	17%	17%	16%	15%	19%	13%

CCS – National Baseline Report

Base: All respondents

fig. 8.0

PERCEIVED DRAWBACKS OF CCS – BY REGION

Q. What do you think are the potential concerns about or drawbacks of CCS?

	Total (n=2108)	BC (n=307)	SK (n=81)	MB (n=69)	ON (n=894)	QC (n=592)	ATL (n=165)
Leakage	26%	32%	30%	38%	29%	17%	28%
Potential consequences of long term storage	12%	13%	17%	13%	12%	9%	15%
Cost concerns	10%	10%	14%	7%	13%	6%	11%
Delays the problem/solution	9%	11%	9%	7%	8%	12%	2%
Running out of storage space	8%	7%	12%	7%	9%	5%	9%
Ground pollution	7%	7%	1%	3%	7%	9%	6%
Effectiveness of the process	6%	7%	2%	6%	7%	4%	7%
Need a better solution	5%	7%	5%	—	4%	6%	3%
Safety	4%	5%	2%	6%	4%	5%	4%
Contamination of water table	4%	3%	4%	6%	5%	3%	4%
Must be monitored closely	4%	4%	2%	—	3%	5%	3%
None/nothing	4%	2%	5%	6%	3%	4%	8%
Don't know	19%	14%	21%	17%	17%	25%	13%

CCS – National Baseline Report

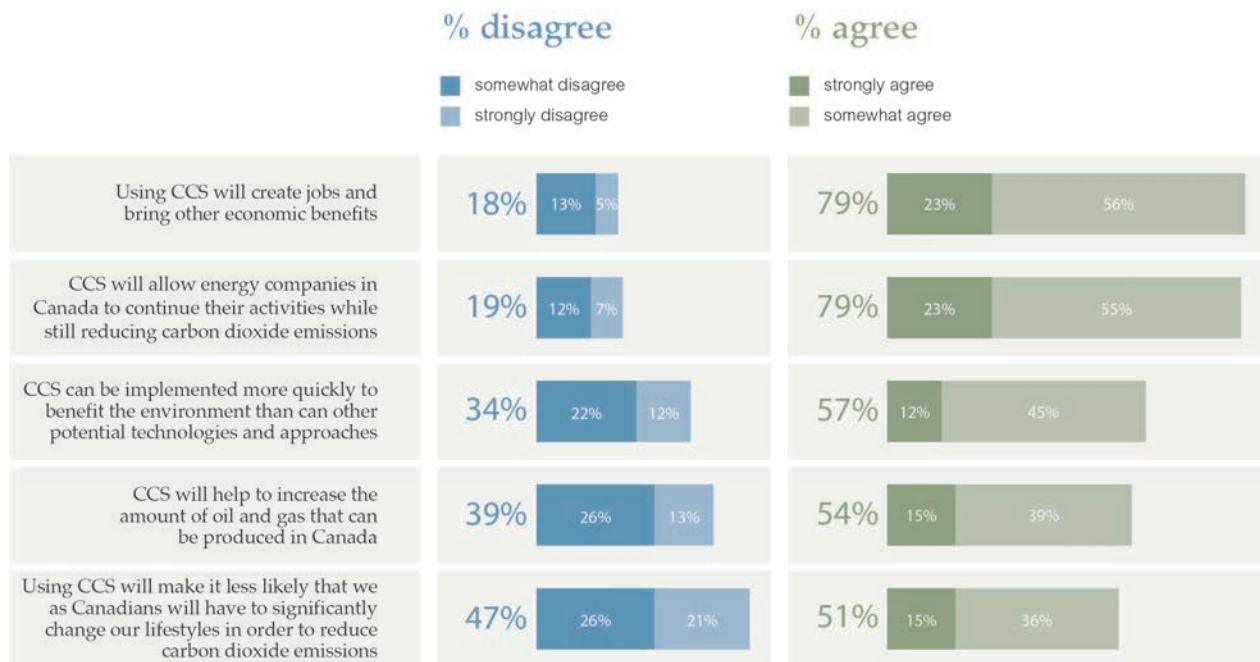
Base: All respondents

The following Alberta perceptions were observed amongst the entire sample size of 800 respondents:

fig. 9.0

BENEFITS OF CCS – ALBERTA

Q. Now, I'd like to read you some statements about benefits that people may think will come from using Carbon Capture and Storage. We'd like to know what you think about each of these possible benefits. Please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each one. The first is... What about...?



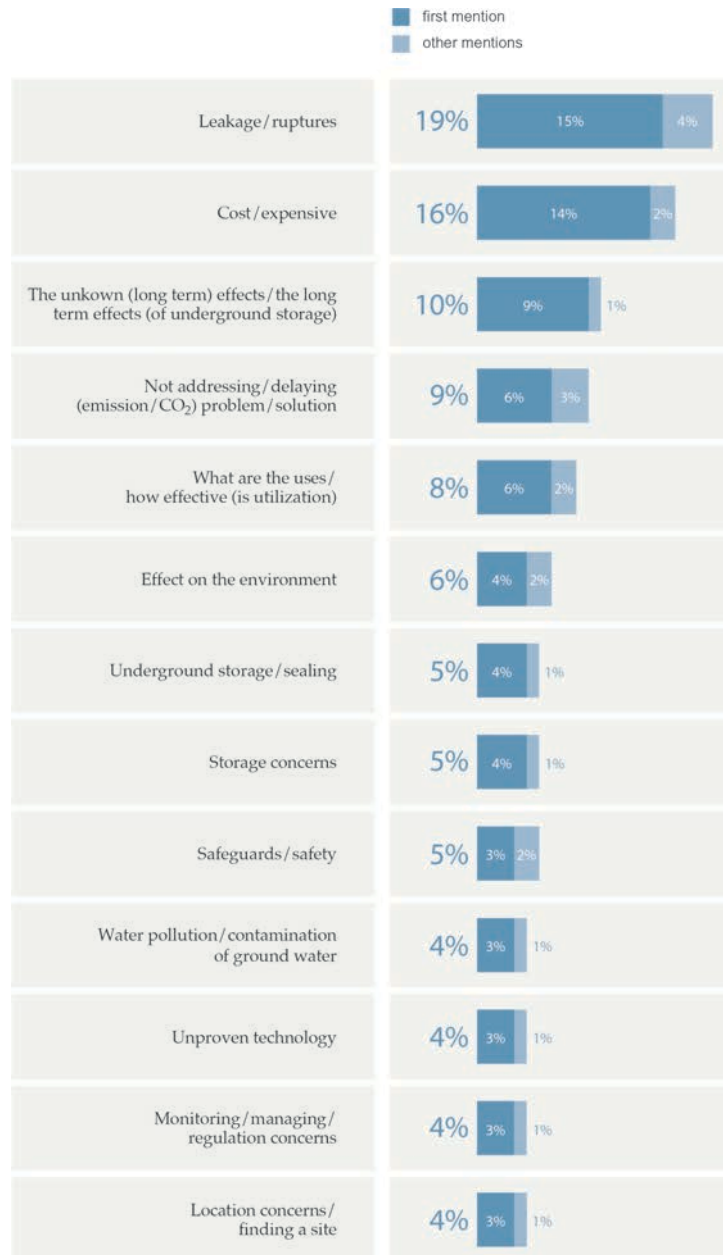
CCS – National Baseline Report

Base: All respondents (n=800)

fig. 10.0

PERCEIVED DRAWBACKS OF CCS

Q. What do you think is a main concern or drawback of CCS?



Base: All respondents (n=800)

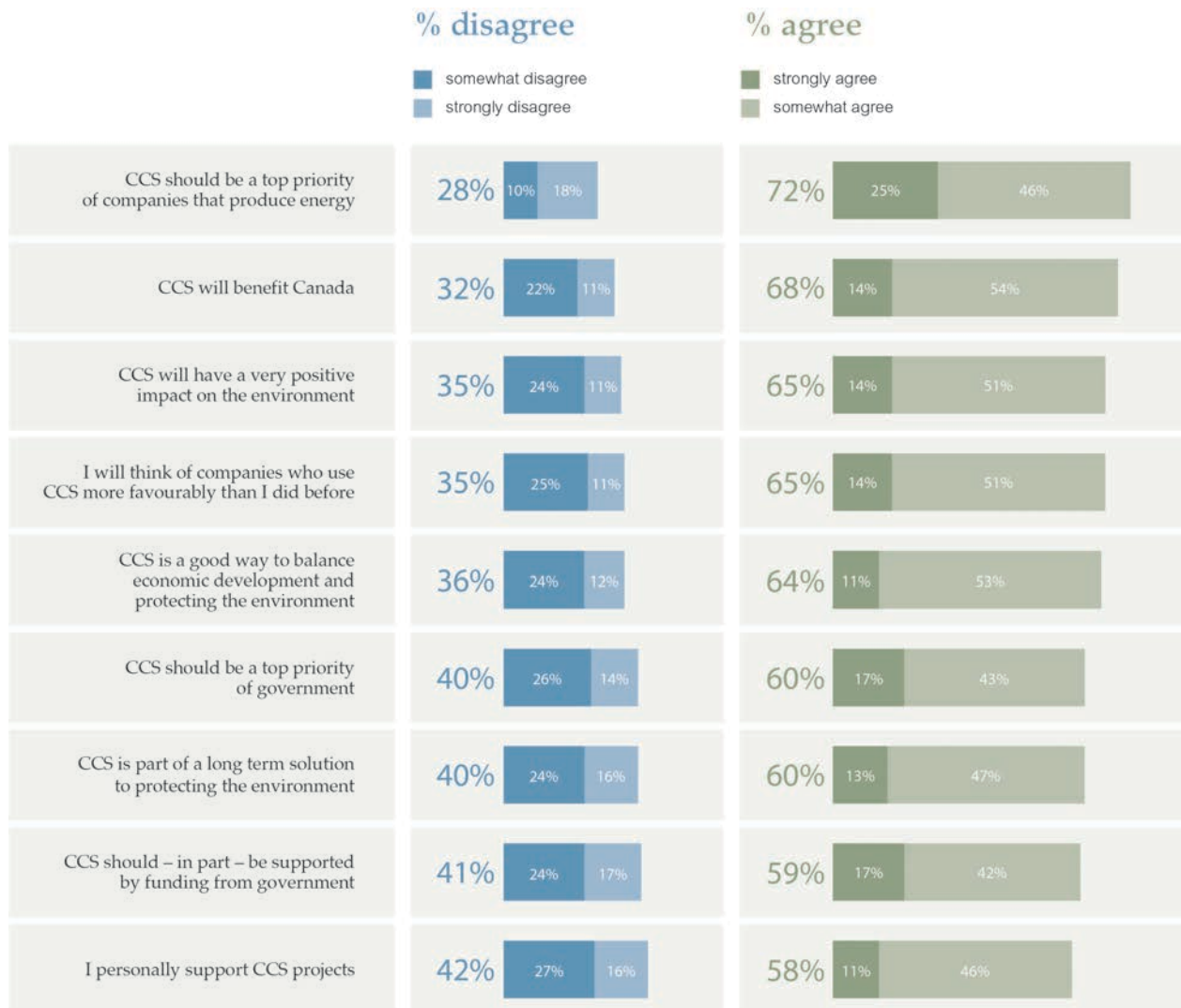
Canadians and Albertans will support CCS

Our polling also confirmed that Canadians are in favour of prioritizing and supporting CCS, as observed amongst the entire sample size of 2108:

fig. 11.0

PRIORITIZING AND SUPPORTING CCS – NATIONAL TOTAL

Q. Please tell us whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each of the following...?



* note: Total does not include Alberta as data was collected in a separate survey, via telephone survey in the month of June

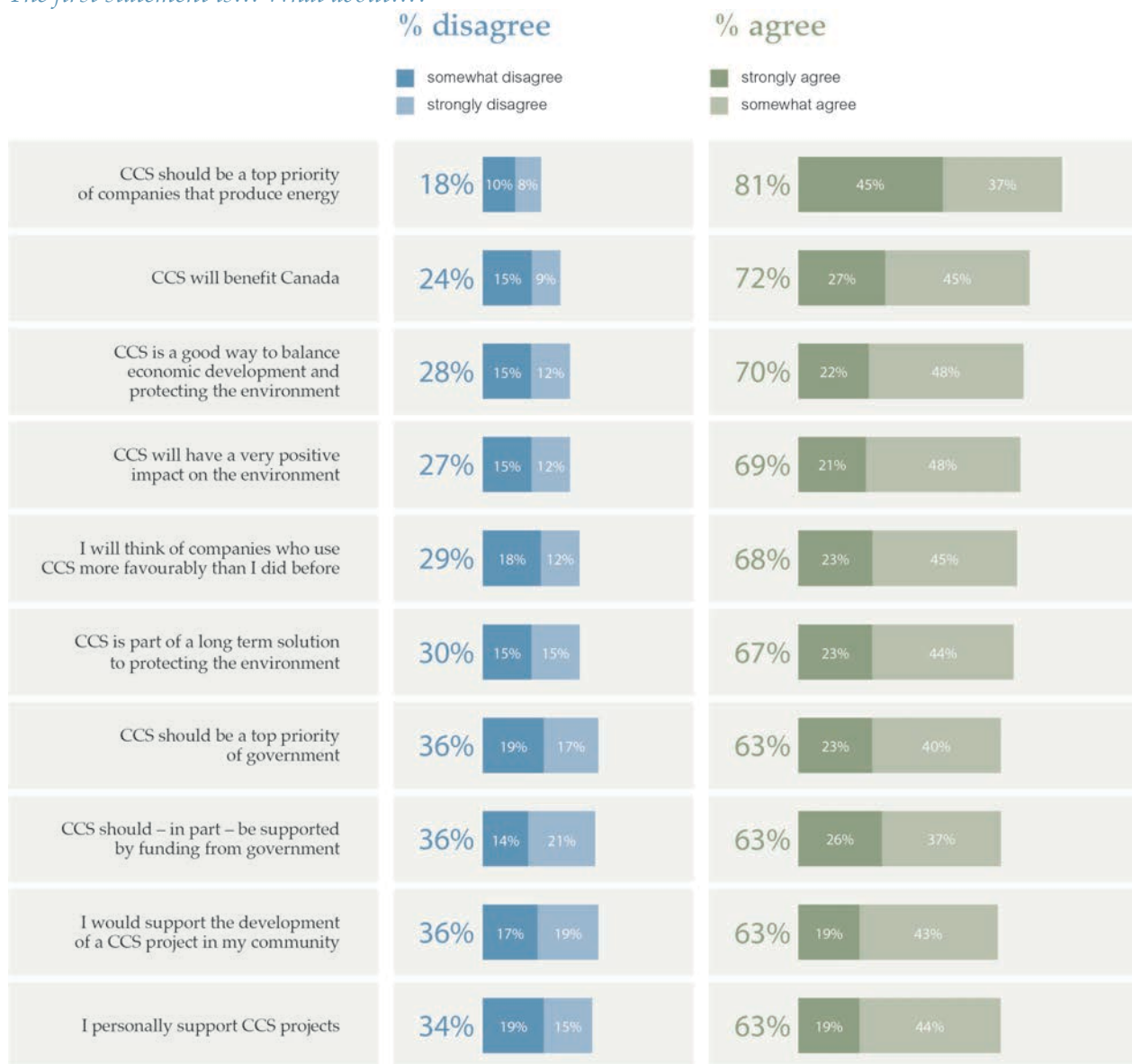
CCS – National Baseline Report Base: All respondents (n=2108)

Out of 800 Albertans polled, 512 indicate that they will either strongly or somewhat support carbon capture and storage:

fig. 12.0

PRIORITIZING AND SUPPORTING CCS

Q. I'm now going to read you some statements about Carbon Capture and Storage overall. Please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each. The first statement is... What about...?



Base: All respondents (n=800)

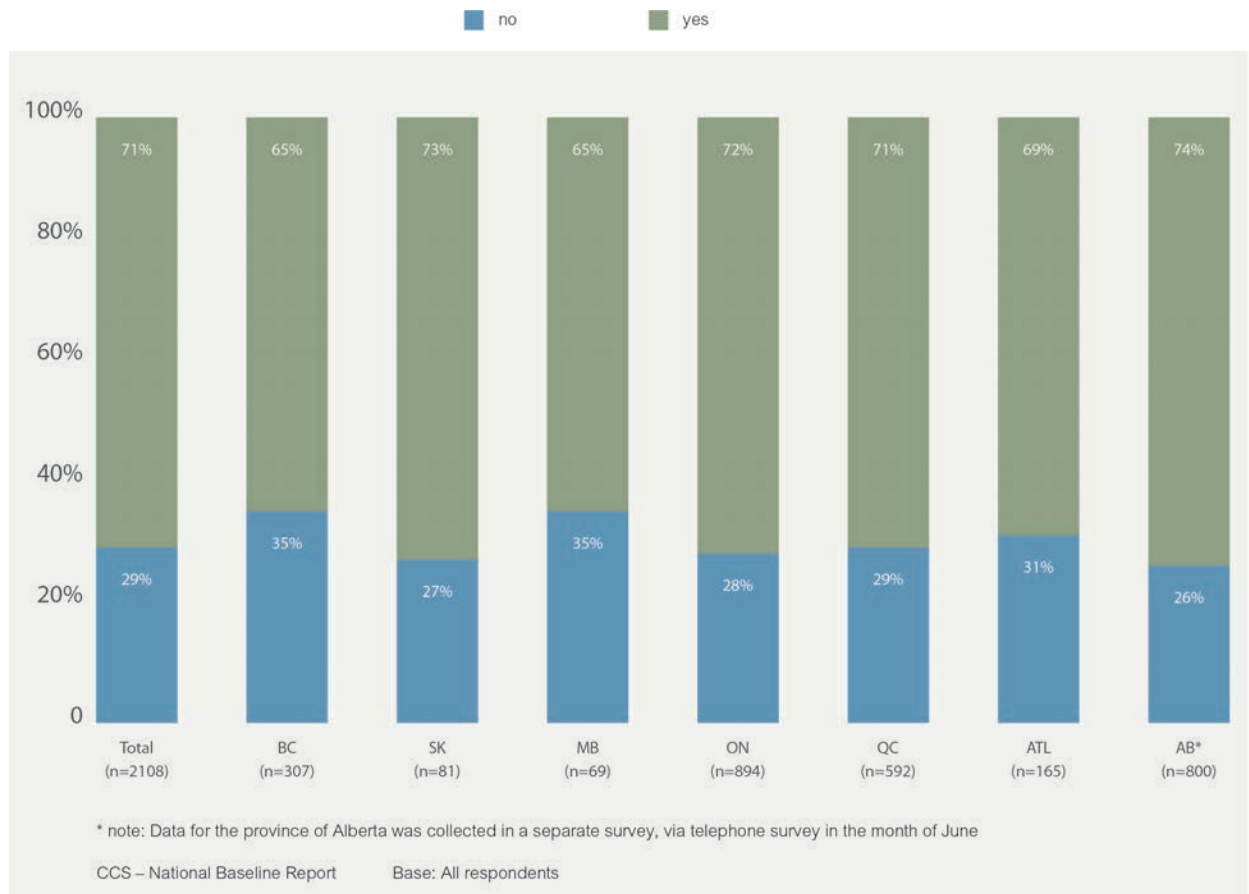
Level of interest in learning more about CCS

National results amongst the entire sample size indicated that most would like to learn more about carbon capture and storage.

fig. 13.0

INTEREST IN INFORMATION ABOUT CCS

Q. If you could get information in a way that works well for you, would you be interested in learning more about how CCS is being used in Canada?

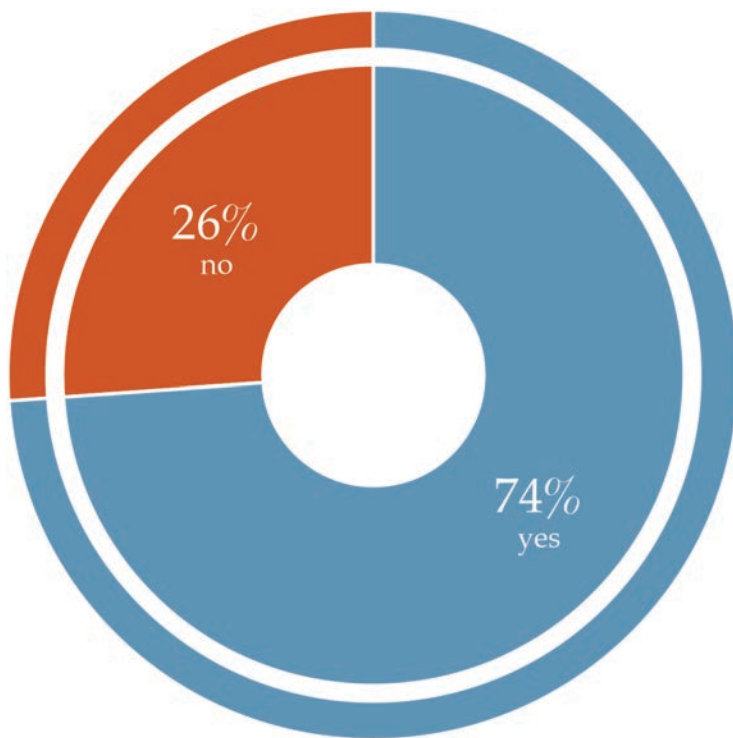


Equally, we found that Albertans were also interested in learning more about CCS.

fig. 14.0

INTEREST IN INFORMATION ABOUT CCS

Q. If you could get information in a way that works well for you, would you be interested in learning more about how CCS is being used in Canada?



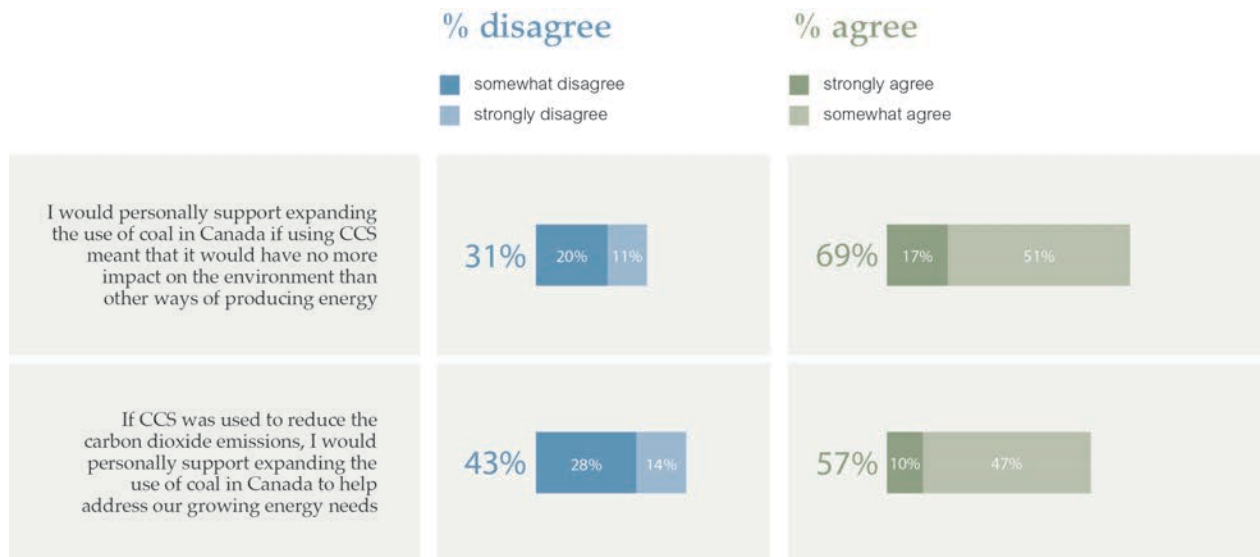
Investigating views on coal fired generation and CCS

Again, in the following results, the entire sample size, 2108 for the National portion, and 800 respondents for the Alberta portion, were surveyed:

fig. 15.0

CCS AND SUPPORT FOR EXPANDING THE USE OF COAL – NATIONAL TOTAL

Q. Please tell me whether you personally strongly agree, somewhat agree, somewhat disagree or strongly disagree with each of the following statements.



* note: Total does not include Alberta as data was collected in a separate survey, via telephone survey in the month of June

CCS – National Baseline Report

Base: All respondents (n=2108)

fig. 16.0

CCS AND SUPPORT FOR EXPANDING THE USE OF COAL – ALBERTA

Q. Please tell me whether you personally strongly agree, somewhat agree, somewhat disagree or strongly disagree with each of the following statements.



CCS – National Baseline Report

Base: All respondents (n=800)

Local area communities – key impressions

We know that public acceptance of carbon capture and storage and Project Pioneer is critical for project success, and given the results from the National and Alberta baseline polling activities that we engaged in, we feel that we are starting from a very positive position, in relation to those two audiences.

Of interest to us, in addition, were the results from some questions directed specifically at 400 respondents who resided in local area communities (Duffield, Wabamun, Seba Beach, Tomahawk, Warburg, Calmar, Thorsby, Sunnybrook, Drayton Valley, Devon):

fig. 17.0

PROJECT PIONEER IMPRESSIONS

- Today, strong support for Project Pioneer by two-thirds (66%)
- 80% see the benefit of Project Pioneer to Albertans/Canadians
- Strong desire to learn more about Project Pioneer, 66%
- Perceived concerns tied to management of public health and safety; unproven technology; cost to implement (as taxpayers and consumers)



7.0

CONCLUSION

We anticipate that with these initial baselines established, future polling activity will be even more valuable and insightful, especially if there are any perception shifts. Polling is an important tool to gather information on perceptions about CCS and Pioneer. And now having conducted baseline research, any additional polling will allow us to gauge changes in public attitudes on CCS technology and the project, and adjust our communications and engagement accordingly.

Given this initial set of results, we know that we need to address specific issues with Canadians, Albertans, and local area residents to the proposed site of Pioneer:

- The need to provide more information on CCS;
- Addressing safety and risk management concerns;
- Demonstrating the value of public investment in CCS.

We feel quite strongly about interpreting aggregated polling results conducted over time, rather than the findings of any one single poll, so we are planning further polling activity in Q3 of 2011, and will test all of the findings against the most up-to-date impressions of Albertans and Canadians.

This new data will enable Project Pioneer to make determinations and decisions on focus for continued public engagement strategy, and what concerns or education needs the public and the community has, and to develop strategies accordingly to address those.

More broadly, the Pioneer team will continue to engage in local proactive stakeholder relations to build trust and foster relationships with area stakeholders, as well as to build understanding of CCS and support for Pioneer, and identify issues of concern, as they arise.



www.projectpioneer.ca

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