NRT

NATIONAL ROUND TABLE ON THE ENVIRONMENT AND THE ECONOMY

Cautious Optimism

WESTERN PERSPECTIVES ON A LOW-CARBON ECONOMY

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Executive Summary

Finding a way for Canada to thrive and prosper in a low-carbon future is arguably one of the most important public policy issues facing the country today. This is particularly the case for western Canada, which—with its diversity of energy systems and natural resource-based economy—is the epicenter of the challenges facing Canada when it comes to a low-carbon growth strategy.

In November 2011, nearly 50 western Canadians were brought together by the Canada West Foundation and the National Round Table on the Environment and the Economy (NRT) to talk about the risks and opportunities for western Canada as the global economy becomes more carbon-constrained and the key elements and barriers to the development and implementation of a low-carbon growth strategy. Participants included experts from government, academia, non-governmental organizations, agriculture, manufacturing, transportation, energy and mining.

The information and insights from these meetings will feed into the NRT's sixth report in its Climate Prosperity program, a multi-year policy initiative exploring how Canada can not only cope with climate change, but prosper through it. The focus of Climate Prosperity Report 6 is to articulate a feasible and coherent policy framework for ensuring Canadian economic growth and competitiveness under future global carbon constraints—or, phrased differently, to develop a low-carbon growth plan for Canada.

The roundtables were held in Saskatoon, Vancouver, Calgary and Winnipeg. A number of key themes emerged regarding the primary challenges and opportunities facing the West:

- external factors, such as the impact of climate change and the political and economic actions of other countries, matter to the West;
- there is considerable room for improvement in western Canada's performance around carbon emissions;
- western Canada has the potential and the ability to be a global supplier of energy solutions to the world;
- if western Canada is to position itself successfully for a low-carbon transition, it needs to foster the commercialization of its energy innovations;
- the level of education and literacy around energy and environmental issues needs to be raised; and
- there is a need to change the language and scope of the low-carbon conversation.

While there was considerably more similarity than there were differences, provincial variation was evident. Most of the differences arose out of the unique political, economic and environmental realities facing each of the provinces. In Saskatchewan, for example, there was emphasis on maintaining the province's recent economic growth, while in BC, the conversation focused on

what kind of carbon constraint should be put in place and the importance of distributional effects. In Alberta, participants emphasized the need for a comprehensive policy framework that would enable certainty around technological investments whereas Manitoba participants struggled with how to apply efficiency programs in a province with an abundance of cheap power and a policy commitment to continued low power prices.

One of the clearest public policy recommendations to emerge from the roundtables is the need for a national vision that links together energy, environmental and economic issues. There was a strong sense that, while the vision needs to be national, it has to account for differences among provinces and between rural and urban populations. The strategy also needs to put a price on carbon and move the conversation beyond a fairly narrow focus on carbon emission reduction targets. Participants stressed that a successful strategy requires leadership and vision from Canada's politicians and business leaders—something that is currently lacking in their opinion.

It was clear from the conversations that western Canada is in the unique position of having an incredible bounty of natural resources combined with the wealth, skilled labour and expertise to fully benefit from them. While there are definitely challenges ahead and policy levers that need to be pulled, there is no question that western Canada can prosper in a low-carbon future and participants were cautiously optimistic about western Canada's ability to transition to a position of low-carbon strength.

Introduction

Finding a way for Canada to thrive and prosper in a low-carbon future is arguably one of the most important public policy issues facing the country. This is particularly the case for western Canada given that it relies so heavily on natural resource development and international exports. While there is still some uncertainty about the pace of the global transition to a low-carbon future, the direction is relatively certain and so the need to identify how it can prosper is imperative for the West.

The reality is that the impacts of a carbon-constrained future will vary considerably across the country. The strength of the western Canadian economy combined with the diversity of the energy and environmental profiles of the four western provinces, make the region a critical test case of the challenge of developing a low-carbon growth strategy for the country. If a low-carbon growth strategy is going to work for Canada, it has to work for the West.

In the summer of 2011, the NRT approached the Canada West Foundation about partnering on a series of roundtables about a low-carbon growth strategy for Canada with particular emphasis on the opportunities and risks facing the West. These meetings were designed to ensure that western perspectives on a low-carbon future were part of a low-carbon growth strategy being developed for the country by the NRT. Development of a low-carbon growth plan for Canada is the focus of the NRT's sixth report in its broader Climate Prosperity initiative, a multi-year policy project exploring how Canada can not only cope with climate change, but prosper through it. The focus of the Climate Prosperity Report 6 is to articulate a feasible and coherent policy framework for ensuring Canadian economic growth and competitiveness under future global carbon constraints—or, phrased differently, to develop a low-carbon growth plan for Canada.

Roundtables were held in Saskatoon, Vancouver, Calgary and Winnipeg in November 2011 (see Appendix for a full list of participants) to discuss the broad question of how western Canada could prosper in a low-carbon global economy. The sessions were organized around the following topics:

1) What low-carbon opportunities stem from western Canada's economic advantages/strengths? What is needed to move forward and capitalize on these opportunities?
2) What are the most significant barriers/challenges to capturing these opportunities? How can the barriers be overcome?
3) How do the opportunities and challenges of western Canada fit into the national context of a low-carbon growth plan for Canada? What are the key elements of a national low-carbon growth plan? What are the drivers?
4) Considering both the regional and the national dimensions of a low-carbon future, what is the role of the private sector in capturing these opportunities? What is the role of public policy?

When building the list of roundtable participants, the Canada West Foundation worked in coordination with the NRT to identify experts from a variety of sectors including government, academia, non-governmental organizations, agriculture, manufacturing, transportation, energy (including renewable energy) and mining. We strove for diversity at the tables by bringing together groups of people with different experiences and perspectives.

We would like to thank all the participants for the generous donation of their time and expertise. Additionally, we want to thank the National Round Table board members for co-hosting the provincial sessions and for the value of their contributions: David Bishop in Saskatoon; Richard Prokopanko in Vancouver; Robert Kulhaway in Calgary; and David McLaughlin in Winnipeg. Last, but certainly not least, thank you to John Cuddihy and Jill Baker of the National Round Table who helped facilitate the sessions and gather the information.

Summary of the Roundtable Discussions

Although each of the roundtable discussions was unique, a number of common themes emerged:

- external factors, such as the impact of climate change and the political and economic actions of other countries, matter to the West;
- there is considerable room for improvement in western Canada's performance around carbon emissions;
- western Canada has the potential and the ability to be a global supplier of energy solutions to the world;
- if western Canada is to position itself successfully for a low-carbon transition, it needs to foster the commercialization of its energy innovations;
- the level of education and literacy around energy and environmental issues needs to be raised; and
- there is a need to change the language and scope of the low-carbon conversation.

The overall mood of the roundtables was one of cautious optimism. Participants did not feel that the idea of a low-carbon *growth* strategy was contradictory and discussed the opportunities that could be in store for western Canada if the right steps were taken. At the same time, however, participants were not blind to the challenges ahead.

External Factors Matter

While the focus of the roundtables was on Canada and what Canadians can do to prosper in a changing world, there was a clear acknowledgement from participants that there are many *external* factors likely to impact Canada's future over which we have little if any control. These include, for example, the effects of a changing climate, the political and economic actions of other countries and the environmental policy choices made by other jurisdictions.

There is considerable uncertainty about what the effects of climate change will be on the western Canadian landscape and how those changes might affect our ability to prosper in the future. Will there be more or less water in some areas than we have seen in the past? Should we expect more forest fires? Will we still be able to grow the same kinds of crops in the same quantities? While there are no certain answers to these questions, they are of critical importance to western Canadians because our heavy reliance on natural resources.

In addition to changes in the ecosystems that support the western Canadian economy, there are also political and economic challenges from outside our borders that we cannot control. Broadly, these can be broken down into concerns about trade competitiveness and environmental policy decisions.

Trade competitiveness

In a global marketplace, it is impossible to ignore the actions of other countries on an issue like greenhouse gas emissions. This is particularly true for western Canada because it is an export driven economy. The political and economic choices of other countries have significant implications for our economic prosperity. As a result, there was considerable discussion at the roundtables about the advantages and disadvantages of waiting for definitive action from the Americans on carbon policy issues. Some participants expressed concern that if we move ahead with a policy on carbon—be it a price, a cap and trade program, or some other solution—this will put Canadian businesses at a disadvantage compared to their American counterparts. As one participant noted: "The concern is that we do not get too far out of step with other jurisdictions. Talk of a carbon tax or cap and trade has to be nested in a national and international framework. It's global solutions that are going to drive a low-carbon economy."

Alternatively, other participants indicated that the political and economic situation in the United States has become so stagnated that it would be unwise to wait for the Americans to act because we would only be making the situation worse for Canadian businesses when the world begins to demand clear action on carbon emissions.

Trade competitiveness does not only involve the United States, and an additional concern was that economies such as China, India and Brazil already have an economic advantage as a result of lower labour costs and less stringent environmental regulations. There was, then, an additional fear for some participants that if we put a price on carbon, we would be further disadvantaging Canadian businesses compared to their international counterparts. As one participant noted: "We've got to create a level playing field, and if we start penalizing our own industries, we are just going to run them out of business."

"If we are price constrained on carbon and other jurisdictions are not, then their products will be cheaper and economics 101 says the cheaper product will prevail."

Environmental policies

The flip side of the argument that a proactive carbon policy is an economic disadvantage is that we may lose out on trade opportunities if we fail to put in place a policy on carbon emissions. It seems sure that the world is moving—however slowly and haphazardly—toward a low-carbon economy. The direction is clear, only the pace is uncertain. Roundtable participants were acutely aware that if Canada does not take action on greenhouse gas emission reductions, it might be punished by jurisdictions that do take action and/or fall behind in the race to adjust to new low-carbon standards. This may, in the end, result in higher costs to achieve the necessary reductions in addition to lost opportunities for new market growth.

An example of the dangers that could come from not moving fast enough on emission reductions—or not being *seen* to move fast enough—can be found in the campaign against the oil sands and the corresponding blows to Canada's environmental reputation. As one participant observed: "When Canadians go out onto the world stage, the elephant in the room is the oil sands in Alberta."

The underlying question is: if the world is moving toward a low-carbon future, at what point should Canada enact carbon policies to deal with emission rates so that we are well positioned to take advantage of growth in low-carbon goods and services by not being either too far ahead or too far behind the global trend? These are external factors over which we have little control and yet they have the potential to derail our plans.

From a policy perspective, this speaks to the need to prepare for uncertainty, to make sure that we are able to absorb the shocks of a global economy and to position ourselves to adapt to changing norms around greenhouse gas emissions. We cannot simply assume that all will be well and the world will always need the types of resources that we sell. It also speaks to the need to understand our strengths as a country and as a region to ensure that our policy frameworks facilitate building on these strengths in a low-carbon context.

Room for Improvement

Western Canada is the most carbon-intensive region in the country. This is the result of a heavy reliance on coal for the generation of electricity, a large geographic space that is sparsely populated, a cold climate and significant natural resource development.[1] There is, of course, considerable variation across the region and it should be noted that Alberta and Saskatchewan are by far the most carbon-intensive, with over three times the per capita greenhouse gas emissions of the average Canadian. British Columbia and Manitoba, by contrast, have a lower emissions rate per capita than the Canadian standard (Environment Canada).

Roundtable participants were very aware of western Canada's regional contribution to the country's emission rates, but rather than seeing this as a negative, they highlighted this as an opportunity for the region. The logic is simple: since our emissions rates are so high, there is a great deal of room for innovation, system adjustments and efficiency measures that will have a huge impact. Virtually everyone agreed that the West has a long way to go before it can truly prosper in a low-carbon context, but rather than becoming disheartened about the prospect, there was a sense of optimism that the West has many tools and even more opportunities to apply those tools—all of which could make a substantial improvement to its carbon footprint.

[1] While petroleum resources account for a significant portion of regional development, western Canada is home to a broad range of natural resources. These include, but are not limited to: an abundance of water which is a critical source of electric power in BC and Manitoba; forests that cover over half of western Canada; almost three-quarters of Canada's dependable agricultural land; the third largest proven oil reserves in the world; the largest reserve of potash in the world; one of the world's largest reserves of uranium; and virtually all of the coal that Canada mines. For more information see: Roach, Robert. 2010. *State of the West 2010: Western Canadian Demographic and Economic Trends.* Canada West Foundation.

Alberta and Saskatchewan, for example, emitted between 13 and 15 tonnes of carbon per capita in 2009 due to the generation of electricity and heat—compared to 0.28 and 0.13 tonnes per capita in British Columbia and Manitoba, respectively (Environment Canada). To be clear, this does not include emissions from other sources, only the generation of electricity and heat, but the numbers are striking nevertheless and this is partially due to a heavy reliance on coal in Alberta and Saskatchewan. If investments are made in systems to clean the coal, sequester the carbon, transition to natural gas and bring on other, more renewable, forms of electricity generation, there is a real potential to improve the emissions profiles of these provinces.

"It amazes me how few people are taking advantage of conservation measures when, as Amory Lovins says, the most efficient and the least expensive kilowatt hour is the one that you don't use in the first place."

Another example of where there is a lot of room for improvement can be found in the transportation sector. This sector is one of the largest consumers of fossil fuel products and emitters of greenhouse gases. This includes personal automobiles, freight trucks, airplanes, ships and railways. Technological change in the transportation sector could have enormous implications for our carbon footprint, particularly in cities and areas of high population density (changing modes of transport is substantially more difficult in rural communities). As one participant noted: "If you think about the energy consumption in the world, more than half of the oil in the world goes into personal transportation, so if you change the car technology you change the demand for oil."

While there is considerable room for the application of new technology and increased use of renewable technologies and products, an equally important aspect of altering our emission rate is energy efficiency. This involves everything from making our buildings more energy efficient, exploring co-generation opportunities, reducing electricity transmission line losses and rethinking how we plan our cities. Learning how to use the energy potential of our resources to their maximum could drastically improve our carbon footprint. Energy efficiency also has the added benefit of not creating new, unintended consequences when it is applied at scale. As one participant noted: "The only green energy we've got is conservation, everything else has issues."

"Canada is the third least efficient in the OECD in terms of our energy use. So any time you are on the bottom of that pack, that's a huge opportunity for improvement."

A barrier identified by roundtable participants to capitalizing on our energy strengths and becoming more efficient was the lack of cooperation between the provinces on everything from infrastructure to transportation standards. An example is the abundance of hydropower (both developed and potential) in British Columbia and Manitoba that could be used to help Alberta and Saskatchewan wean themselves off coal as an electricity-generating source. There is also the potential to use hydro resources as a storage solution for renewable energy sources. Geographically it would make sense to connect BC's hydro reserves with Alberta's vast wind power and use the hydro reservoirs as a storage system for the wind power. As one expert noted: "We have a unique synergy here with all the dam infrastructure—those lakes are the largest batteries in North America."

Coordinating these energy systems would mean, however, that we would have to break away from the current system where each province's transmission infrastructure, utilities, regulatory frameworks and energy markets operate either as an island or as a supplier to the large American market. There is no question that would be difficult from a political and economic perspective, but unless we overcome these provincial barriers, western Canada will not be able to take full advantage of its potential.

"There are so many things that governments could be doing to ensure greater consistency and efficiency, things like our weight loads on roads and what kinds of tires truckers can use that make it impossible for them to be as efficient as they could possibly be. In my mind, if we let an environment exist where every province has within its professional policy cadre that they are unique, it will get in the way of how great Canada could be around things like efficiency."

Solutions for the World

Building off of the idea that we have a lot of room for improvement in the West—and that we should see this as an opportunity rather than a challenge—participants emphasized that if we could develop the solutions to these problems, we have the opportunity not only to improve our own carbon footprint, but also to sell that technology and expertise around the world. "As much coal as we burn here, it's nothing compared to China, and if we can develop technology that addresses how to clean coal, it seems to me there is an opportunity to sell that to China and other countries."

Participants were clear that this was more than just wishful thinking on our part by emphasizing that we have the ingredients needed for success in this area. We have a skilled work force, natural resources, financial capital, an entrepreneurial spirit and a cluster of energy expertise in the West. All of this could be leveraged to a new low-carbon future.

"We have all the ingredients. Canada is the promised land on this planet. We have more natural resources per capita than almost anybody else so it is ours to do right."

There are many examples of Canadian technology and expertise that could be sold around the world and, in turn, have environmental and economic consequences on a global scale. A point of consensus at the roundtables was that our main contribution to the carbon challenge will be by way of our innovations, our ideas and our expertise in solving complex energy problems and selling this expertise to the world.

"What Saskatchewan does or does not do is not going to change the world, but what we do from a technology perspective, may in fact have that leverage."

While participants were clear that this was an opportunity, they were also conscious that there are some barriers to the realization of this potential. These barriers include the problem of commercialization (which is discussed in detail below) and access to international markets.

The Canadian market is simply too small to be a significant "buyer" of these goods, and if Canadian companies are going to succeed, they need to be able to access larger commercial markets around the world.

Participants were clear that all levels of government—as well as private industry—have a role to play in facilitating international market access for Canadian products and services. The model participants most preferred was one where governments could pave the way for business by establishing trade envoy missions and promoting Canadian innovations around the world. A provincial example that was pointed to as a success by participants was Saskatchewan's Trade and Export Partnership (STEP), which participants believed had made an impact on the province's ability to access markets outside of Canada.

Within the broader conversation about our energy and environmental future it is clear that Canada has all the skills, energy expertise and resources to be at the forefront of energy and technology innovation, but unless we can access global markets, they will not have the impact needed to sustain economic investment and environmental protection. Roundtable participants picked up on this idea and noted that we have some of the solutions the world needs and we have the potential to develop more of those solutions. This is an incredible opportunity for western Canada.

"Innovation is not just about technology. The oil sands did not become economic just because of technology but through process innovations that allowed companies to reduce costs. So there was innovation of both the technology and around the processing of that resource."

Encourage Innovation and Commercialization

Given that we have the potential to develop solutions to the world's problems, one of the dominant themes of the western Canadian roundtables was the need to do more to encourage innovation and commercialization. The reality is that, while we have the potential to be technology innovators, Canadians are notoriously bad at getting ideas off the laboratory workbench and into the commercial marketplace. Roundtable participants underscored the importance of commercialization to economic success in a low-carbon future: "Speeding up the commercialization of technology solutions is a critical aspect of environmental enhancement and ensuring continuing market access for our products in an increasingly competitive world."

A considerable amount of discussion was devoted to talking about solutions to the commercialization gap. Two main suggestions were put forward: 1) governments should be investing more in research, innovation and commercialization programs; and 2) governments should facilitate other groups—such as industry, venture capitalists, philanthropists and Canadian businesses—to close the commercialization gap by providing incentives and removing barriers.

"There seems to be a lot of funding for the bench-scale activity, but there is a commercialization gap that is difficult to overcome."

Government investment

There was extensive discussion about the appropriate role of government when it comes to spending tax dollars to encourage innovation and commercialization. Some participants argued that choosing what technology to invest in is not the appropriate role of government: "Governments aren't good at picking winners. This is what the private sector does best." Others pointed out that strategic government investment in key sectors can pay off. A frequently cited example is the Athabasca oil sands that, through government investment, has become an economic driver for the country.

While it is difficult to pinpoint a consensus on this issue, there was general agreement that some areas are of sufficient strategic importance to the country that it would be a failure of leadership if government did not get involved in a meaningful way. A participant summed this up by asking: "What sectors are strategic for Canada in a low-carbon future? This is where government should be investing."

Participants pointed to two government investment opportunities that have, and could have, an important impact. The first was the continued (and expanded) funding of Sustainable Development Technology Canada (SDTC), which makes targeted investments in innovations with a specific emphasis on making them commercial (See Figure 1).

FIGURE 1: SPOTLIGHT ON SUCCESS

Sustainable Development Technology Canada

Created in 2001 by the Government of Canada, Sustainable Development Technology Canada (SDTC) is a nonprofit foundation that finances and supports the development and demonstration of clean technologies that provide solutions to issues of climate change, clean air, water quality and soil, and that deliver economic, environmental and health benefits to Canadians.

They do more than simply fund groundbreaking technologies, though, as their mission is to act as the primary catalyst in building a sustainable development technology infrastructure in Canada. To accomplish this, they work closely with a network of stakeholders and partners to build the capacity of Canadian clean technology entrepreneurs, helping them form strategic relationships, formalize business plans and build a critical mass of sustainable development capability in Canada.

SDTC focuses on three particular areas: 1) bridging the gap between research and commercialization through development and demonstration work; 2) reducing the risk of clean technologies in order to attract downstream private-sector investment; and 3) building capacity by assembling consortia of partners who strengthen go-to-market capabilities.

To date, SDTC has allocated $548 million to 223 projects. That amount has been leveraged with an additional $1.3 billion in funding from other project partners for a total value of $1.9 billion. All of the portfolio projects, as well as more information, can be found on their website www.sdtc.ca.

The second policy decision that could make a difference is more support for demonstration projects. Many energy innovations are capital intensive and require systems integration. This means that it is very difficult for alternative energy companies to move from the idea stage to the pilot stage. There is a role here for governments to make targeted investments by being an early adopter or pilot demonstrator of new technologies. This not only gives companies the ability to see how their innovations work at scale—and to make adjustments as needed—but it also goes a long way toward validating the innovation to a foreign market. International buyers are understandably suspicious of Canadian innovations that do not have any domestic sales. This means that governments taking on demonstration projects can not only advance the technology, but can also facilitate market access for those technologies.

According to roundtable participants, there is a role for governments to encourage innovation in cases where the technology is strategically important for the country and to facilitate international market access.

Enabling investment

While there was some uncertainty among the participants about whether it was appropriate for governments to be directly involved in funding innovation, there was unequivocal support for the idea that governments should enable others to invest in innovation. Participants indicated the key way to make this happen is to encourage venture capitalists, angel investors, philanthropic organizations, companies and private citizens to invest in Canadian innovation by reducing their investment risk and by removing the red tape that is preventing low-carbon solutions from being applied. As one participant noted: "We need to reduce the cost of investing in new technology."

Participants had a variety of suggestions about how government policy could encourage greater investment in Canadian innovation, almost all of which focused on the need to reduce risk in one way or another. An example of this is tax policies that incorporate risk sharing between government and investors. This could involve the government providing tax credits to reduce the amount of loss suffered by unsuccessful investors.

Another suggestion was to create scholarship programs to reduce human resource risks for small companies. This would enable small businesses to bring in the marketing and development professionals they need to take an idea from the development stage into the commercialization stage. Other ideas ranged from accelerated write-off programs for energy entrepreneurs to additional R&D tax credits.

"There really has to be an understanding that an exclusive regulatory approach from the federal government is going to stifle innovation and a variety of other things that are essential going forward."

While there was some conversation about the lack of venture capital available in Canada compared to other countries, the idea that this is a significant barrier was questioned by the group. Indeed, the consensus seemed clear that "venture capital markets are global. Money is a fungible commodity that travels across countries and continents very easily, so there is money out there."

The ability of Canadian innovators to get their ideas to market is a critical aspect of our ability to prosper in a low-carbon future. Without this investment in the commercialization gap it is unlikely that we will be able to compete on the world stage in the area of low-carbon technology. This is a hugely important issue going forward and there is a clear role for government in encouraging commercialization. A participant summarized the situation this way: "A new economy is emerging that is green, clean and renewable and the intellectual capacity of Canada, across all provinces, is tremendous… but there is not enough capacity to get it all to market. If you have great ideas and they don't make it to market, they just die, and that's one area where government policy can help."

> "A lot of money being put into the renewable or low-carbon space has been in the form of program dollars. That doesn't generally work as efficiently as using the tax code to encourage investment because the tax code allows the market to decide where the money should go rather than government bureaucrats."

Education and Literacy

One of the largest barriers to ensuring a prosperous low-carbon future identified by roundtable participants was the lack of education and literacy in the general population around energy and environmental issues. This is a challenge because it is more difficult to persuade governments to take action on low-carbon initiatives when there is little appetite or awareness in the voting population of the need for change. It is also a challenge because end-use consumption is one of the most significant greenhouse gas emission sources, which means that if we are going to reduce our carbon footprint, everyone needs to understand the impact of how they live, work and play in this country.

Participants identified the need for a national conversation around energy and the environment. In particular, they emphasized the need for a fact-based conversation: "What are the facts? What are the impacts on jobs and on our economy? Is it sustainable? If we start to have that conversation and have our media ask those questions we could define the issues in a more logical way. I think that will make the most difference."

There are a number of reasons why Canadians are not more engaged and educated on this issue, ranging from not having adequate price signals to a lack of useful metrics, unclear language and the prevalence of misinformation in the public conversation. With respect to the lack of useful metrics and unclear language, it was observed by several participants that most Canadians do not understand how this issue directly relates to them. What exactly does a tonne of carbon look like, for example? What does a low-carbon economy mean?

The point here is not that Canadians do not care about our carbon profile, but rather that they do not have a framework in place to make low-carbon choices. One participant stated the following to emphasize this point: "The lack of a fact-based adult discussion stems largely from the fact that when we talk to people about things like climate change, greenhouse gas emissions, etc., people don't know what it means. I think we have to start dedicating some resources to finding germane ways to talk about this and metrics to solve the problems we have. Then the consumers will be in a better position to vote with their dollars on what matters to them."

An important caveat around this issue is the need to be holistic in our thinking around energy and the environment. Participants noted that too often there is a tendency to think in silos and to focus exclusively on the economic impact of our choices, or to only think about emissions to the exclusion of other environmental impacts. There is a need, for example, to consider the social and environmental implications of our economic actions and to keep the big picture in mind.

"I would start with the public and help the public to understand that a low-carbon growth plan is actually a tremendous opportunity and it links to economic wealth and prosperity. Because if the public isn't on side, all the things we would like to see done may not happen."

A poignant example of this comes from our agricultural sector where others may pay the price for increased cost in our system. Agricultural products produced in western Canada are shipped around the world via trains, trucks and ships. All of this is very energy intensive and adding extra costs to account for the carbon emissions could have social implications. As one expert noted: "Now, where does all this food go? It goes to places that really can't afford a price increase. So as we add cost to the system, how is that going to be paid for? And can the people who actually need the food afford to pay for it?"

The need for an energy and environmentally literate population is critically important for securing our ongoing prosperity. Not only because end-use consumption is such a large contributor to our emissions profile, but also because in a democratic system, the people elect the government and none of these policy recommendations are likely to get much traction unless people are aware of the implications of their energy choices. The question remains: "How can we persuade a skeptical electorate that it is worth making a major change in the relative price of energy?"

"We have the policy answers, so how do we put all the pieces together? I keep coming back to educating the electorate and making it an issue that isn't about climate change but is about sensible policy that is going to give us economic advantages moving forward in a low-carbon future."

Change the Conversation

Tying into the idea that people need to be more literate on these issues, one of the themes that emerged was the need to change the language, tone and scope of the conversation around a low-carbon future. In general, there was a sense that the conversation needed to be both more positive and broader than it currently is.

Negative to positive

The conversation in Canada around a low-carbon future has historically been a very negative one. There is a focus on emission reduction targets that have been missed, the risk of crippling impact of pricing carbon on our economy, the need for wholesale change in our lifestyles and an overall sense of guilt and failure. This negativity has not compelled people to change and embrace the low-carbon future, instead it has fostered a "bunkering down" mentality and defensiveness that precludes people from seeing opportunity. As such, the need for a more positive conversation about our low-carbon future was a strong point of consensus at the roundtables.

One participant summarized this problem as follows: "It is striking how much the climate change discussion in Canada, and to some degree the energy conversation, is a discussion about failure. And we keep setting ourselves up for failure, we establish targets and we don't meet them, we talk about energy in terms of what can go wrong and not in terms of opportunity. It can be a very negative conversation and, not surprisingly, it doesn't animate or engage people. There is something wrong with the language around this issue."

This challenge was identified as prevalent both in the public conversation around a low-carbon future as well as in our government. With respect to the role of government, it was observed that even our lawmakers are focused on what could go wrong rather than what new opportunities could be created: "We are confronting an era of fear versus opportunity, populism versus effectiveness and on the regulatory front right now, virtually all of our statutes are geared toward avoiding that which is bad rather than creating opportunities for that which is good."

The result, of course, is that governments have tended to put in place regulations that tell people what they are *not* to do, rather than encouraging them to think creatively about what is possible. This affects the conversation because, "if what you really want is cultural change, for people to embrace what is happening and understand it, to encourage their creativity and innovation, to me, that is where the carrots come out. The regulations don't do as much." The challenge going forward is finding a new way to think about these issues, maybe even a new language that our political leaders can use to inspire and motivate people toward low-carbon solutions.

"I think it's critical that we get past the perspective of doom and gloom and get started on what the vision is for how things could be tomorrow."

This is a difficult problem to overcome because it is a mood, a sense and a general perception. Roundtable participants were clear that this is a problem going forward, but there was less certainty around how to solve it.

They were confident, however, that if we could transform the conversation so that it focused on our common values and the economic potential of the low-carbon economy, that most Canadians would embrace this future. Participants were certain that Canadians would want to protect the

environment, be efficient in their energy use and develop the opportunities presented by the low-carbon economy. The conclusion, therefore, is that if we can find a way of transforming the conversation away from one that focuses on fear and failure toward one that emphasizes growth and a higher quality of living, it will inspire our politicians and the public to move more purposefully toward a prosperous low-carbon future.

Broadening the scope

In addition to changing the tone or the language around these issues, there was also a strong consensus that we need to be broader in our thinking and discussions around energy and environmental issues. Broadening the conversation means that we must have clarity and understanding around what our social, economic, and environmental objectives are and how they all interact rather than thinking about them in silos.

Some participants emphasized the need to incorporate social and environmental considerations into our business and policy models. One participant stated: "We need to stop measuring our economic performance just on GDP and add two other factors: our social and environmental performance."

The challenge is what do when there are competing policy priorities. An example of this was highlighted at the roundtables: when governments promise to both keep energy prices low and to promote efficiency measures. One seems to rule out the other and so there needs to be a broader understanding of what our social, environmental and economic goals are and how they can be balanced. This is not a problem unique to Canada, though, and one participant noted that many other countries have struggled with finding this balance:

> In many developed countries there is not a directive to deliver low prices because it's good for people, instead there is a directive to price carbon because they realize that emissions reductions are important. But they also recognize that low-income families are going to have problems with these rising energy prices and they deal with that in a different way. So they are not going to direct low cost pricing just because they want to address social needs. There is a more holistic approach of addressing our environmental needs while taking care of the social aspects.

Finding ways to balance the social needs of society with environmental and economic needs is clearly difficult but this is an example of how thinking more broadly can help to navigate seemingly antagonistic policy priorities. There needs to be clarity about what our social, environmental and economic objectives are so that we do not become bogged down in the status quo and promoting contradictory messages.

The common threads of the four roundtables—from the need for greater commercialization of Canadian technology to the importance of language in a national conversation—highlight both the challenges and the opportunities ahead. There was considerably more similarity between the provinces than there were differences, and most participants were reasonably optimistic that we as a nation could find the right levers to pull that will move us into a position of low-carbon strength. However, while it is critically important to see what unites western Canadians on this subject, it is also interesting to see the points of difference.

"As a country, particularly in the West, we see ourselves as an oil and gas based economy. But to take a longer term view, the sooner we can shift our thinking from being an energy commodity provider to an energy service provider, that will create a different context for how we think about our energy policies."

Differences Across the West

While many similar themes came up in all of the western roundtables, there were some notable differences as well. The differences between the provinces stemmed primarily from the different economic and political environments in play. In Saskatoon, the conversation was focused on growth and development. The economic boom in the province was seen as an opportunity on the grounds that it is much easier to make changes to how we live, work and play when times are good. However, concern was expressed that a low-carbon future might inhibit growth and reduce the province's competitiveness on the global stage. As one participant noted: "It's an exciting time in Saskatchewan. Now, we are a little nervous about the new regulations and everything that is coming down. Is that going to stifle our competitiveness and our 'time in the sun'? There is a certain feeling of hoping we don't get stopped by regulation when things are just turning the corner."

In Vancouver, the reality of a low-carbon future was undisputed and, as such, the conversation was dominated by a discussion about the merits of different policy tools and how they would be accepted by the general population. For example, a participant made the case for a carbon tax this way: "We swallowed a massive increase in our income taxation in the form of the Canada Pension Plan because it was an earmarked tax. Maybe this is a tactic for carbon taxing? Perhaps we could justify it provided we were credible in how we use that incremental revenue?" There was also considerable discussion about the competing interests of rural and urban populations and strong acknowledgement that distributional effects matter when it comes to developing a low-carbon growth strategy for the country.

The clearest message in Calgary was the need for a national framework around energy and environmental issues. Participants expressed a strong desire for government leadership on this front and the putting in place of a policy framework that would manage the sometimes competing priorities of the federal and provincial governments, position Canada well on the international stage and help transition us to a place of low-carbon strength. As one participant noted: "I really think it's important for people to begin to look at the framework of the federal and provincial policies here, not just at the policies themselves. I'm fearful that until we get the framework right, it's going to be all the more difficult to get the specifics right."

There was also considerable discussion about how difficult it will be to put in place an effective framework and how this should be considered a *process* rather than a quick policy move. "The time that it takes to develop a comprehensive framework that will apply economy-wide is very substantial. The European Emission Trading System is the most sophisticated and advanced in the world—not that it doesn't have problems, it is a work in progress—but the point is that it took almost a decade to establish that system. The time and the difficulty of establishing a framework should not be underestimated."

A strong theme in Winnipeg was how Manitoba could put into action, and benefit from, some of the low-carbon solutions already out there. The province already has a very low emissions rate, power is cheap and the question is how to convince people to care about energy and emission issues when things are going pretty well. As one participant observed: "Manitoba has a huge advantage in our electricity as a renewable resource. We are not using it to full advantage. We need change in policy to achieve energy efficiencies. We don't need technological innovation, the things we need are known and tested—we simply need to adopt them here."

Similarly, it was noted that: "We are in a promising stage with more leaders willing to talk about these things publicly and engage with the idea of a national energy strategy. But the issues have been on the table for a long time. And Manitoba needs to be more assertive about what we would like to see coming out of those conversations because we are in an unusual position of standing to gain from some of these changes."

The regional variations added depth and complexity to the conversations and illustrate the importance of balancing a national vision with provincial flexibility. The existence of variance should not detract from the fact that there was considerable agreement among the four roundtables on what the main challenges and opportunities are for the West in a low-carbon future.

A number of other themes were noted but did not generate extensive discussion. One of these was labour market issues in western Canada. Mention was made about the fact that we have a skilled labour force in the West, but there was little discussion about how we will be positioned in the future with respect to labour availability. Because labour market issues did not feature in the conversations, there was also almost no discussion about immigration issues and the engagement of Aboriginal populations.

The role of cities in fostering low-carbon prosperity was discussed at the Saskatoon roundtable within the context of the opportunities around growth and the ability of planners to create new community models during times of economic prosperity, but the topic only came up in passing at the other roundtables, perhaps because there was strong agreement that cities play a crucial role in a low-carbon future.

The role of universities and post-secondary institutions in facilitating low-carbon prosperity was not a general point of interest at the roundtables. Mention was made about the fact that western Canada is home to a number of high quality institutions that are conducting innovative research, but there was only limited discussion around how post-secondary institutions could be better integrated with industry and government on strategic technology development.

While it is difficult say why these topics did not garner more attention, one potential explanation is that there was a general sense that the main challenge for western Canada in creating low-carbon prosperity was not the absence of any foundational characteristics (such as lack of labour or insufficient post-secondary capability), but rather in the application of those characteristics to the problem. In other words, we have the tools and resources we need, the challenge now is putting them to work on the transition to a low-carbon economy.

Public Policy Implications

Roundtable participants offered a range of public policy prescriptions aimed at achieving a prosperous low-carbon future.

Canada Needs a National Vision Around Energy, the Environment and the Economy

One of the dominant public policy recommendations to emerge from the roundtables was the need for a national vision—that subsequently informs a strategy—around energy, environmental and economic issues in Canada. A vision around these issues could, if done well, help Canadians make strategic choices about which policy areas are priorities for the country. There was a clear sense at the roundtables that unless we as a nation have a clear vision (along with the supporting policy framework), it will be difficult to effectively manage the transition to a low-carbon economy: "I think our biggest challenge in dealing with a low-carbon economy today is that we lack two things in Canada: 1) we lack a comprehensive climate change framework that will address greenhouse gas emissions; and 2) we lack a national energy strategy."

Two main reasons why a national vision is important were cited. First, a vision will allow us to focus attention and make investments that are strategic for the country. Canada has the good fortune of having a wide range of energy options. Roundtable participants spoke passionately about the potential of western Canada to be a global leader in solar, wind, geothermal, tidal, nuclear, biomass, ethanol, methanol, conventional oil and gas, unconventional oil and gas, hydroelectricity, carbon capture and sequestration and many more. The challenge, of course, is that Canada has a population of just over 30 million and we cannot possibly be world leaders in all of these. There is a need, therefore, for a nationally coordinated plan that would identify the areas in which we have a competitive advantage and focus funding and resources in developing these properly—perhaps through enabling infrastructure and technology—rather than investing small amounts in all forms of energy. We need a national vision that can act as a diligent gardener who cultivates and tends the flowers that will have the most success and be the greatest prize for the country.

Second, having a national vision can help to resolve the problem of competing policy priorities between and within different levels of government. This is particularly important given that governments are faced with rising costs and constrained resources. An example of how policy inconsistencies can cause problems was highlighted in British Columbia:

> I think there needs to be some realism injected into the energy policy conversation. We need to keep in mind that there are some very steep fiscal challenges now and moving forward, particularly around health care costs and the baby boomer generation beginning to retire. Those costs are going to go up. So where are the fiscal resources going to be drawn from? In the last 2-3 years, it has been coming from the northern part of the province. The forest industry

> is coming back strong, energy is a tremendous opportunity with LNG and there is a true renaissance in mining going on in northern BC. So all of these things are energy intensive and within the last 12 months a lot of the assumptions that were in the Clean Energy Act have been severely challenged by the industrial development that is coming on-stream in northern BC.

These arguments illustrate why a national vision is important, and the majority of roundtable participants agreed that Canada needs an overarching vision to deal with climate change and energy issues. Agreement on the details of that vision, however, was considerably more elusive. There were four aspects or considerations around this issue that emerged from the roundtables for what a successful vision for Canada would entail: 1) a national strategy must account for provincial differences; 2) there must be a price put on carbon; 3) we should stop focusing so exclusively on emissions reduction targets; and 4) there is a need for leadership and vision around these issues.

Account for differences

Perhaps unsurprisingly, one of the messages across the region with respect to a national strategy was the need to account for provincial differences. It is no secret that Alberta and Saskatchewan have the most carbon intensive economies in the country but it also needs to be kept in mind that these provinces contribute a considerable amount to the national economy. One participant expressed the concern this way: "If there is a national policy, there has to be some sort of recognition that what works in highly dense parts of the county may not be appropriate here. And if there are policies that are going to be developed nationally, please remember how that will affect places like Saskatchewan."

The importance of recognizing the disparate effects that a national policy will have on urban and rural environments was also stressed. As an example, one participant observed: "A carbon tax doesn't work for a rural, resource based economy in many respects. When it was introduced in BC it was just a cost, there is no alternative. People drive large trucks up north for a reason. We don't have the choice." If a national policy is going to be effective, it will have to take into account the reality of all Canadians and find ways of managing diversity underneath a unified national policy umbrella.

What is interesting about this theme is how much agreement there was that any vision and policy framework must happen at the national level. Participants emphasized this because of the inconsistencies, inefficiencies and unhealthy competition that emerge when policies of this magnitude are managed provincially. "The fact that we have no national energy strategy, that we have interprovincial conflict that precludes energy efficiency, is one of our great liabilities. We absolutely have to have a national energy policy that is coordinated provincially. As I look at Alberta and Saskatchewan, they have some problems with oil that our electricity could help with, but for reasons that are complex, we send our power south. That is unfortunate for us as a country."

A concrete example of this was drawn from the transportation sector where trucking companies are forced by provincial inconsistencies to run trucks at less than full capacity—thereby increasing the number of trucks on the roads and using more fuel. This is because some provinces have lower weight load restrictions than others, which forces carriers to run at the lowest limit when they travel between provinces. As one participant noted: "There's been so much change in the last 20 years but no new national caps on weights and dimensions, so we struggle with provinces having different standards. That is a big opportunity. Put more freight in those same trucks and there will be less trucks on the road."

The resulting message is one of complexity. A policy around energy and the environment must be developed nationally and it must unify the country rather than divide it. At the same time, it must take into account the different economic, environmental, social and political realities of Canadians. While this is something of a tall order, participants were clear on what should be the first step in moving in that direction: Canada needs to put a price on carbon.

Put a price on carbon

There was an almost remarkable consensus across the four roundtables that a central component of any national plan to deal with emissions, energy use and the economy is putting a price on carbon. "We need a carbon price in Canada. It will be the stimulant that will make R&D and innovation much more attractive."

While there was considerable discussion about how a carbon price could be implemented and the associated political barriers, perhaps the more important conversation focused on the question of what is done with the money once it is collected. A switch from focusing on the negatives associated with "taxation" to a conversation about what the revenue from a carbon pricing policy could accomplish for the country is needed.

A strong point of consensus was a preference for a system with targeted funding as opposed to a general revenue model. Rather than having the money go into general revenue to be spent on a wide range of government priorities, there was a preference for the money to be targeted toward technology and innovation that would impact environmental performance. One participant spoke passionately about using the revenue to encourage low-carbon solutions: "The whole point is to take money from the people who are polluting and put it into the clean up. So where could the money go? It could pay farmers to do no-till farming." It could also be used to foster the innovation and commercialization of low-carbon technologies across a range of sectors.

An additional suggestion was to ensure that the provinces decide how the revenue is spent: "I would say a national price on carbon would be the best bet, you would either have a tax or do cap and trade where you auction permits, and then all of the proceeds raised in a province would go back to that province and they would decide how those would be used locally."

By far, the majority of roundtable participants supported the idea that this money should be reinvested in research, development and the commercialization of technologies that would address issues of climate change and clean air, water and land. The emphasis of the conversations was that it was imperative that a price be put on carbon and that we should focus on the transformative potential of that revenue to change our carbon future.

"The barriers to adapting or adopting environmental measures are never technological, never economic, they are always institutional and I think we see plenty of evidence of that coming out around the table. We could be doing lots of things, we just don't want to."

Move beyond emission targets

Another point of majority agreement at the roundtables was that Canada's vision should go beyond emission reduction targets. A number of reasons for this were articulated including the negativity of targets that are set without a clear strategy in place for how they will be met, the exclusive focus on emissions to the exclusion of other environmental priorities and the unhelpful level of competition targets create across the country.

"One of the things we are not very good at in Canada is setting targets. What setting targets does (it did with Kyoto and is doing it with Copenhagen) is it paralyzes the country in terms of what we need to do to move forward." In part this is because there is typically a great deal of uncertainty about what it would mean to meet those targets. Does every province need to reduce emissions by 17% by 2020, for example, or is that a national measurement? If it is national, does that mean that if some provinces, like Alberta, cannot meet the target, that other provinces will have to reduce by a greater extent to compensate in the aggregate? One participant highlighted these outstanding questions when he asked: "How do we achieve that 17%? Does it have to be overnight or can we scale it? Is it unit-by-unit or fleet-wide? Some flexibility here is important. I don't think having some flexibility detracts from the target."

An important point that emerged from the roundtables is that having too narrow a focus on emission mitigation targets can have the unintended consequence of promoting competition rather than cooperation. They can discourage cooperation on systems integration and infrastructure developments that could help reduce aggregate emissions and have the potential to get tangled up in distributional effects that draw out historic regional differences. Targets create something of a zero-sum game because as long as a province or country is doing better than another, it wins, potentially to the detriment of all involved.

One participant spoke passionately about this issue and highlighted how an exclusive focus on emission targets can actually cause us to lose sight of the overall goal of reducing global greenhouse gas emissions and can foster animosity between jurisdictions:

> I think we need to move away from a seemingly single-minded focus on emission reduction targets. They mean different things to different provinces and it's a problem in Manitoba because we export a lot of power—we are helping other jurisdictions meet their emissions reduction target but we don't get to count those credits. But because the focus at the political level is so stuck on emission reduction targets, we seem to lose sight of positive actions that we could be taking and positive things we can be doing that don't necessarily help us meet our target… So there is a government focus, as well as a public focus, on getting to x number by x year for a reduction of x per cent and we kind of lose sight of things like an energy strategy. Even if we were to put in an east-west grid, we still have this focus on targets so we will be helping Saskatchewan to meet its target but the Manitoba government could still be raked over the coals for not meeting its target. So I think we need to take into account that targets are part of our low-carbon growth strategy but we have to recognize they aren't everything, they are just one part of a larger plan.

The other issue of focusing only on greenhouse gas emission targets is the exclusion of all other environmental considerations such as land management, water quality, protection of biodiversity and others. There is often a tendency to equate greenhouse gas emissions with a country or region's environmental performance—perhaps because climate policy has tended to dominate the environmental policy discussion—but roundtable participants were clear that emissions are not an effective proxy for environmental performance. Instead they argued that Canada should be setting environmental goals that are holistic in nature and quantifiable. These goals would foster interprovincial cooperation, account for all aspects of environmental protection, encourage energy efficiency and facilitate the creation of a nationally coordinated plan for dealing with energy and environmental issues.

Need for leadership and vision

A final, critical, aspect of a national policy framework identified by roundtable participants was the need for leadership and vision. There were two key aspects of this identified: the need for a positive vision that transcends the political cycle and speaks to our common values as Canadians and an ability for policymakers to link the complex issues of a low-carbon economy in a meaningful way to the lives of individual citizens.

The idea that there needs to be a vision that transcends the political cycle speaks to the importance of having a strategy that is long-term and focuses on what is good for the country rather than what is good for re-election. As one participant noted: "The sales job [of the need for a national energy strategy] needs to be made not only to the public but across all political parties so that the debate becomes about what the best way to do it is, not whether it needs to be done."

Some of the key ingredients for how this can happen have already been identified, including changing the language around the issue so that there is an emphasis on the opportunities ahead rather than the challenges and the need for useful metrics of measurement. The fact remains,

FIGURE 2: COMMON THEMES AND POLICY IMPLICATIONS

however, that there is a role for leadership because effective leaders have the ability to explain complex issues to people in ways that are relevant and cogent. The point is not to reduce choices to a simplistic level, or arbitrary black and white options, but to focus on the core questions and to find a way to communicate them in meaningful ways.

Roundtable participants had a number of ideas and suggestions for how public policy could help create the supporting framework that would facilitate Canada's transition to a low-carbon future. It is imperative to keep in mind, though, that none of these recommendations can be looked at in isolation and there must be an overarching vision or plan around how we as a nation are going to cope with, and prosper through, the global transition to a low-carbon economy. Figure 2 illustrates this relationship. The outer ring highlights the common themes that emerged from the roundtables. The middle ring outlines the key public policy recommendations that emerged from each of these themes. These recommendations, however, cannot be examined in isolation and all of them feed into the center, which is the need for a national vision around energy, environmental and economic issues in Canada. Without that central vision, and the leadership to put it into action, it will be exceedingly difficult to manage competing priorities and to make strategic investments for our collective future. For this reason all of the policy recommendations need to be looked at with a broad understanding of our position in the world, our values as Canadians and our aspirations for the future.

Roundtable participants emphasized during these conversations that while there is a clear role for governments—at all levels—to create the conditions for success, there is also a role for the private sector to take a leadership role and to facilitate a low-carbon transition. They emphasized that Canada has some of the best and the brightest people in the world working in small, mid-size and large businesses and they can be working now (and many of them are) to adopt best practices in how they manage their environmental impact, developing new low-carbon technologies, streamlining their manufacturing and processing systems for maximizing efficiency and in educating the general populace about why these issues matter. Similarly, they emphasized that there is a role for individuals in this transition. It can be easy to overlook these aspects when the focus is explicitly on public policy measures but roundtable participants were clear that this is an issue of importance to all Canadians.

Conclusion

Figuring out how Canada can thrive and prosper in a low-carbon future is arguably one of the most important public policy issues of the day. This is particularly the case for western Canada with a heavy reliance on natural resource development and an export-based economy. While there is still some uncertainty about the pace of this transition to a low-carbon future, the direction is relatively certain and so the need to identify how we can survive and thrive is imperative for the West.

While there are many reassuring messages to take away from these roundtables, perhaps one of the most important is to emphasize that we are not in the starting blocks of this transition but already well underway. There are many people working on new technologies, developing effective partnerships, securing international trade relationships, building policy frameworks and thinking creatively about the challenges to come. We have the resources, expertise and tools needed for success, all that we require is the will and the vision to put the pieces into action in a coordinated way.

As one participant noted: "If we get it right in western Canada, we can probably get it right for Canada. If we look at the West, the energy market is as diverse as it is across the country so I think there is a real opportunity to provide leadership. We have the expertise. We also have an entrepreneurial spirit around energy. We have a cluster here in western Canada and if we mobilize it, we could export that expertise around the world."

While there are defiantly challenges ahead and there are policy levers that need to be pulled at the federal and provincial levels, there should be no question that Canada can prosper in a low-carbon future.

So where do we go from here? One of the points that came consistently through the roundtables was that if we can find a way to transition the conversation around low-carbon away from fear and toward opportunity, this will stimulate the creative energy of Canadians, inspire our politicians and help put in place the right conditions for the development of a comprehensive national framework around energy, environment and the economy.

Once again, thank you to all of the roundtable participants from across western Canada who generously donated their time, insights and ideas. We hope we captured the essence of the conversations in this report and that these ideas will help the region and Canada prosper in a low-carbon world.

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Appendix: Roundtable Participants

LAST NAME	FIRST NAME	TITLE	ORGANIZATION
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Baker	**Jill**	*Senior Policy Advisor*	National Round Table on the Environment and the Economy
Battershill	**James**	*Policy Analyst*	Keystone Agricultural Producers
Bishop	**David**	*Partner*	McKercher LLP
Blagden	**Norm**	*Vice President*	Manitoba Trucking Association
Boulton	**Rosemary**	*President*	Kitimat LNG, Inc.
Brown	**James**	*Principal*	Kaya Strategies Inc.
Burns	**Shawn**	*President & CEO*	Carbon Credit Corp.
Butler	**David**	*Executive Director*	Canadian Clean Power Coalition
Carson	**Tom**	*Director of Manitoba Office*	Canada West Foundation
Carter	**Dick**	*CEO*	Crown Investment Corporation of Saskatchewan
Cuddihy	**John**	*Senior Policy Advisor*	National Round Table on the Environment and the Economy
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Ertel	**Gerry**	*Manager, Regulatory Affairs*	Shell Canada
Fjeldsted	**John**	*Executive Director*	Manitoba Environmental Industries Association
Gartner	**Brett**	*Research Fellow*	Canada West Foundation
Gass	**Philip**	*Project Manager with the Climate Change & Energy Program*	International Institute for Sustainable Development
Ghatala	**Fred**	*Assistant Director*	Canadian Bioenergy
Goodman	**Sarah**	*Vice President, Business Development & Services*	Tides Canada
Hartney	**Laura**	*Future Growth Manager*	City of Saskatoon
Henley	**Thomas**	*Associate Head & Associate Professor, Natural Resources Institute*	University of Manitoba, Natural Resources Institute

Hogg	**Ken**	*Founder & President*	Renewable Energy Solutions; Alberta Energy Efficiency Alliance
Howard	**Peter**	*President & CEO*	Canadian Energy Research Institute
Isaacs	**Eddy**	*CEO*	Alberta Innovates
Kenny	**Brenda**	*CEO*	Canadian Energy Pipeline Association
Kulhawy	**Robert**	*Executive Chairman*	Calco Environmental Group
Kunin	**Roslyn**	*Director of BC Office*	Canada West Foundation
Lohrenz	**Ed**	*Vice President*	Geo-Xergy Systems; Manitoba Geothermal Energy Alliance
Macklin	**Lois**	*Principal Business Advisor – Foresight*	Alberta Innovates – Technology Futures
MacLean	**Dan**	*President & CEO*	Tundra Oil and Gas Partnership
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