FRIENDS IN LOW (CARBON) PLACES

Supporting Clean Economies for Rural and Indigenous Canadians

Your Energy Future

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PREFACE

We envision a Canadian energy future in 2050 that is low-carbon, resilient and cost-effective, and ensures reliable and secure energy access for all.

This includes our rural and Indigenous communities, which are important to all Canadians and are closely integrated into Canada's economic and cultural identity. This report explores how the Government of Canada can help to build resilient, lower-carbon economies.

If we get this right, Canada's rural and Indigenous communities will become thriving and vibrant places to live and work, and continue to be key players in the Canadian economy.

WHO WE ARE

We are a task force of 2017-2018 Your Energy Future Fellows.

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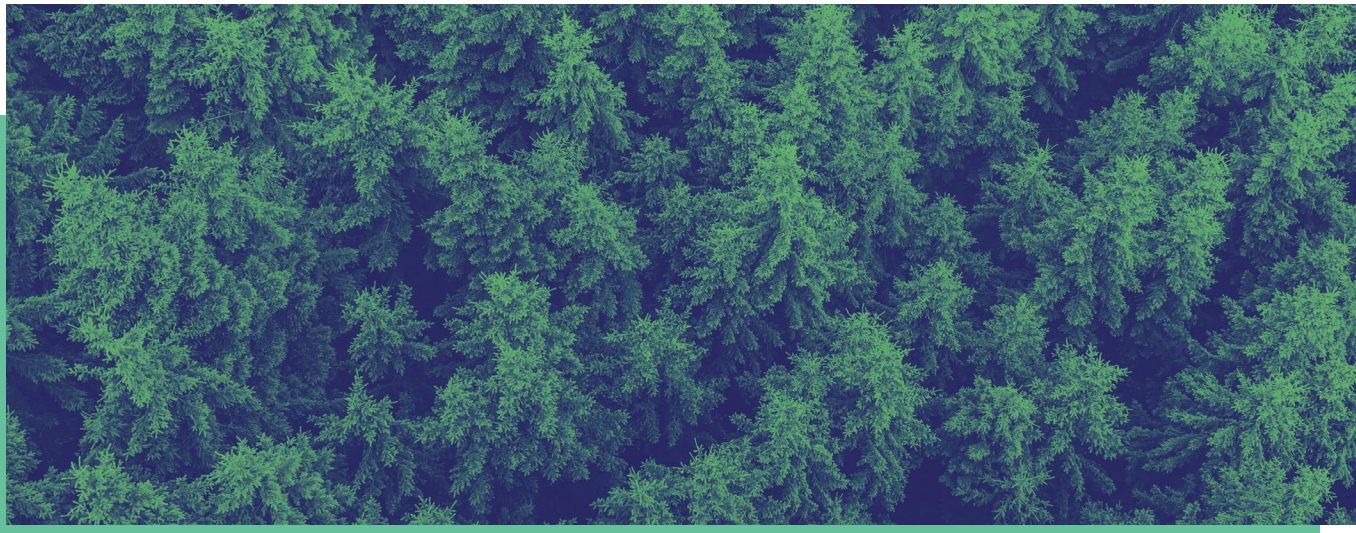
Most importantly, we would like to express our gratitude to industry experts, community leaders and academics who took the time to meet with us, share their deep experience, challenge our assumptions and support our journey. We hope this report does justice to their knowledge and perspectives and passion for their communities.

DISCLAIMER

This project has been undertaken pursuant to a Your Energy Future fellowship, a national policy engagement and leadership development program delivered in partnership by PPF and Action Canada. The views, opinions, positions and/or strategies expressed herein are those of the author alone, and do not necessarily reflect the views, opinions, positions or strategies of PPF, Action Canada, Action Canada Foundation or the Government of Canada.



EXECUTIVE SUMMARY

Vision: We envision a 2050 Canadian energy future that is low-carbon, resilient and cost-effective, and ensures reliable and secure energy access for all. In this future, Canada's rural and Indigenous (R&I) communities are thriving and vibrant places to live and work, and continue to be key players in the Canadian economy. In 2050, rural Canada is driven by Indigenous and non-Indigenous communities who have equitably shared in new opportunities. Their integrated economies thrive in nation-to-nation partnerships. They are Friends in Low (Carbon) Places. We asked: How do we get there?

What we know: R&I communities are economically and strategically important for all of Canada, particularly due to their proximity to natural resources like metals, minerals, oil and gas, forests, agricultural land and fisheries. Thirty per cent of Canadians live in rural communities and 60 per cent of Canada's export economy is dependent on rural areas. Canadians depend on secure access to food, minerals, energy and other natural resources for personal consumption and export activities. Canada and countries around the world will continue to need existing natural resources and new commodities such as green metals used in battery storage technology and novel agricultural products.

Climate change policy and the low-carbon energy transition put these resources and manufacturing industries, and the jobs they create, at risk. With few exceptions, these

industries are highly carbon emissions-intensive. Without these industries, R&I communities would not exist. Yet not all aspects of the Canadian energy transition are negative for R&I communities. New opportunities and industries are emerging, such as renewable electricity generation, biofuels production, and mining.

Today's policy decisions will have long-term consequences. The voices of young R&I people and their community leaders must be included in this national conversation, alongside experts.

What we found: Both experts and young R&I Canadians hope for a positive low-carbon future for their communities. But they worry their vision will not be realized on our current path. We recommend policy that supports a just transition to a prosperous low-carbon future for R&I communities.

Throughout our research, we heard three qualities that are fundamental to good policy-making for strong R&I communities and economies. We call them our guiding principles:

Promoting Self-Determination: R&I communities take enormous pride in their communities and cultures. We heard the path to self-sufficiency lies in place-based policy that enables robust economic development, private investment, local entrepreneurship and regional development.

Cooperation between Jurisdictions: A successful low-carbon transition will demand cooperation between the federal government, Indigenous governments, the provinces/territories and municipalities. Support must be harmonized with provincial/territorial plans and priorities. Governments must provide equitable social services and infrastructure to R&I communities.

Supporting Economic Reconciliation: Closing gaps in economic prosperity will be key to reconciliation between Indigenous and non-Indigenous Canada. This two-way process will happen at the places where Indigenous and non-Indigenous communities meet.

RURAL AND INDIGENOUS CANADA'S PATH FORWARD

Our research and consultation with experts and young R&I leaders revealed several strategic priorities and policy recommendations across four themes. While rooted in long-term thinking, these four themes also include many practical actions that the federal government can take right now:

KEY THEME	RECOMMENDATIONS
1. Engaging Rural and Indigenous Communities in Policy Development Meaningful change for R&I communities must come from policy that is sensitive to local needs, cultures and priorities.	**1.1:** Ensure R&I policies can be applied in diverse community contexts. **1.2:** Ground policy-making in communities' lived experience.
2. Planning for the Role of Energy in Economic and Social Development In order to be successful through the low-carbon energy transition, there needs to be recognition of the role energy plays in a community's wider vision for itself.	**2.1:** Provide direct financial support for community-led energy planning. **2.2:** Generate better intelligence through improved data collection and consultation.
3. Building Resilience for a Low-Carbon Future We live in a time of rapid technological and social change. R&I communities must have the capacity to thrive in a low-carbon future and the resilience to withstand uncertainty and rapid change.	**3.1:** Enhance support for entrepreneurship in R&I communities. **3.2:** Deliver on the broadband coverage targets of the Canadian Radio-television and Telecommunications Commission (CRTC). **3.3:** Design more flexible labour market readiness programs for R&I people.
4. Delivering Effective Energy Transition Supports R&I communities face difficulties navigating through a patchwork of funding sources and regulatory systems	**4.1:** Establish a 'single window' for financial support for communities' low-carbon energy transition. **4.2:** Adopt a technology-agnostic approach to supporting renewable energy and emission reduction of heavy emitters. **4.3:** Establish a wider spectrum of federal government financing tools, including a standardized loan guarantee instrument.

INTRODUCTION

To reduce the adverse impacts of climate change, countries are working to reduce their greenhouse gas (GHG) emissions. In developed countries like Canada, this requires a fundamental overhaul of our current energy system. This low-carbon energy transition is a top priority of the Government of Canada and will require many changes, including increasing energy efficiency, replacing carbon-based fuels with low-carbon energy sources and finding new ways to manage emissions.

The communities that make up Canada's non-urban areas are rural and Indigenous (R&I) communities. They are economically and strategically important because of their resources, including mineral resources, oil and gas, forests, agricultural land and fisheries. Further, it is R&I Canada that understands, protects and develops the resources that sustain our lifestyles and economies.

The energy transition presents R&I communities with unique risks and opportunities. Climate change policy exposes these communities to risks because they often consume more energy for heating and transportation. Further, their economic activity is mainly tied to natural resource sectors that, with few exceptions, are highly carbon-intensive. The energy transition also presents R&I communities with opportunities because natural resource development will continue to be important for Canada's economic future. Even if domestic energy demand slows, international energy demand continues to grow from developing countries. New technologies are creating markets for novel resources such as metals used for battery storage technologies and innovative agricultural products. As stewards of Canada's natural resources, our R&I communities will continue to play a vital role in Canada's future. The economic well-being of Canada's R&I communities is an issue of national importance.

Rural and Indigenous Communities: Friends in Low (Carbon) Places

R&I communities may not share a common history, but they share a common future. The energy transition will affect non-urban people, economies and communities in similar ways. Economic reconciliation must lead to mutual prosperity for R&I communities that are connected through regional economies. This report examines a shared positive future for these communities.

Low-Carbon vs. Low-Emission

Most literature uses the term "low-carbon" to describe a switch from energy sources with high GHG emissions to low-emission energy. We recognize that not all carbon-based energy is high-emission, and not all GHGs are carbon-based. The terms low-carbon and low-emission are used interchangeably throughout this report.

This report seeks the path forward for Canada's energy future. We will examine what a low-carbon future means for R&I communities and their economic well-being, and we will identify strategies and policies that will put R&I communities on a path to resilient and clean economies.

Canada's energy future is at a crossroads; policy decisions made now will have consequences for generations to come. As a result, the voices of young R&I people must be included in this conversation. This report integrates evidence from literature and subject-matter experts with evidence from engagement with R&I Canadians aged 18-35.

THE MAIN OBJECTIVES OF THIS REPORT ARE TO:

Provide strategic considerations to the Government of Canada concerning key pathways through which the low-carbon energy transition will affect the economic well-being of R&I communities;

Identify approaches to prioritize the vision and values of R&I Canadians in government policy-making, particularly those aged 18-35; and

Recommend structures that will provide equitable access to efficient and effective federal government programs that enable R&I communities to achieve their vision for a low-carbon future.

REPORT METHODOLOGY

Environmental Scan:

- Literature review
- Policy review
- Internal and external strategic analysis
- Review of R&I community projects

We conducted an environmental scan to understand the broad context of R&I economic development, with a focus on the energy transition and the federal government's policy role. We identified and compiled statistics, trends, examples and policies from relevant reports, case studies, websites and panels/events attended as part of our participation in Your Energy Future. A summary of our findings can be found in the "Rural and Indigenous Communities Today" section.

Primary Research:

- R&I youth survey
- R&I young expert roundtables
- In-depth case studies
- Expert interviews

We undertook several methods of original qualitative and quantitative research: 1) Case studies to examine examples of communities that have successfully implemented renewable power for economic development; 2) Expert interviews with experts in the field of R&I economic and resource development; 3) Two roundtable discussions with young experts in (a) rural and (b) Indigenous community economic development; and 4) An online survey for R&I young people to understand their values and vision for their communities, and the role of energy in their day-to-day life. Insights from this research are featured throughout this report and additional details can be found in the appendices.

Key Insights and Recommendations:

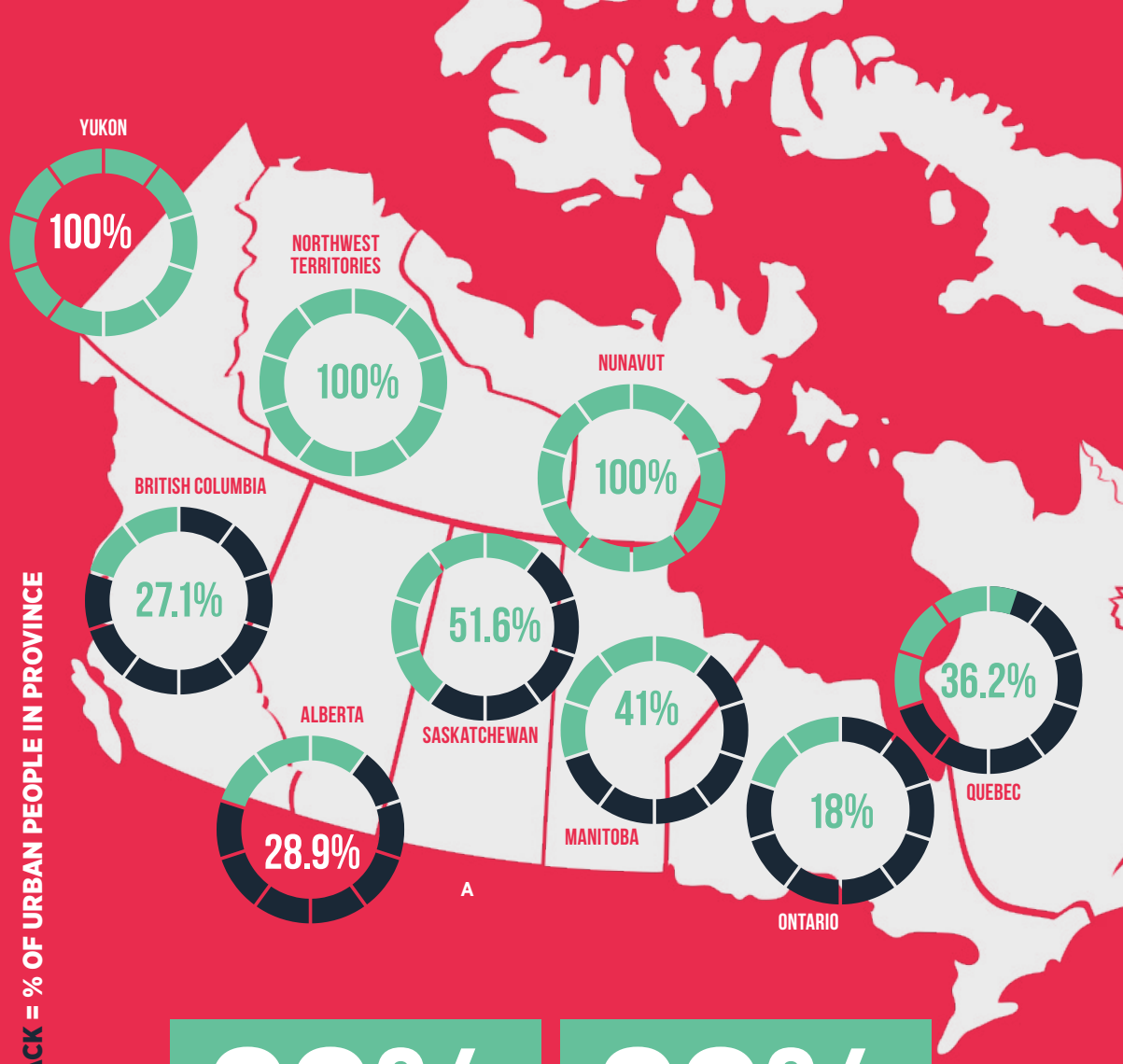
- Thematic analysis
- Development of recommendations
- Expert reviews (validation)

Key insights from our literature review and environmental scan were compared to the evidence gathered from primary research in order to develop key themes. For each theme, we outlined the identified problems and provided recommendations. Our key themes and recommendations were sent for review to experts, including members of the Your Energy Future Advisory Board, those who participated in our expert interviews and roundtable panel discussions, and one external reviewer, Merelda Fiddler-Potter. For our results, please see the 'Discussion & Recommendations' section.

PROFILE OF RURAL AND INDIGENOUS CANADA

GREEN = % OF RURAL PEOPLE IN PROVINCE

BLACK = % OF URBAN PEOPLE IN PROVINCE



30%

OF CANADIANS LIVE IN COMMUNITIES WITH A POPULATION OF LESS THAN 30,000 [A]

60%

OF ALL INDIGENOUS PEOPLE IN CANADA LIVE IN COMMUNITIES UNDER 30,000 PEOPLE [B]

A http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/pd-pl/Table.cfm?Lang=Eng&T=205&S=3&RPP=100

B http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/abo-aut/Table.cfm?Lang=Eng&T=102&S=104&O=A&RPP=25

C http://atlas.cid.harvard.edu/

D https://www.sei-international.org/mediamanager/documents/Publications/Climate/Cities-low-carbon-future-2015-Canada-briefing.

E, F Rural revitalization 2015

G http://www.oecd.org/eco/surveys/Canada-overview-OECD-economic-survey-2016.pdf

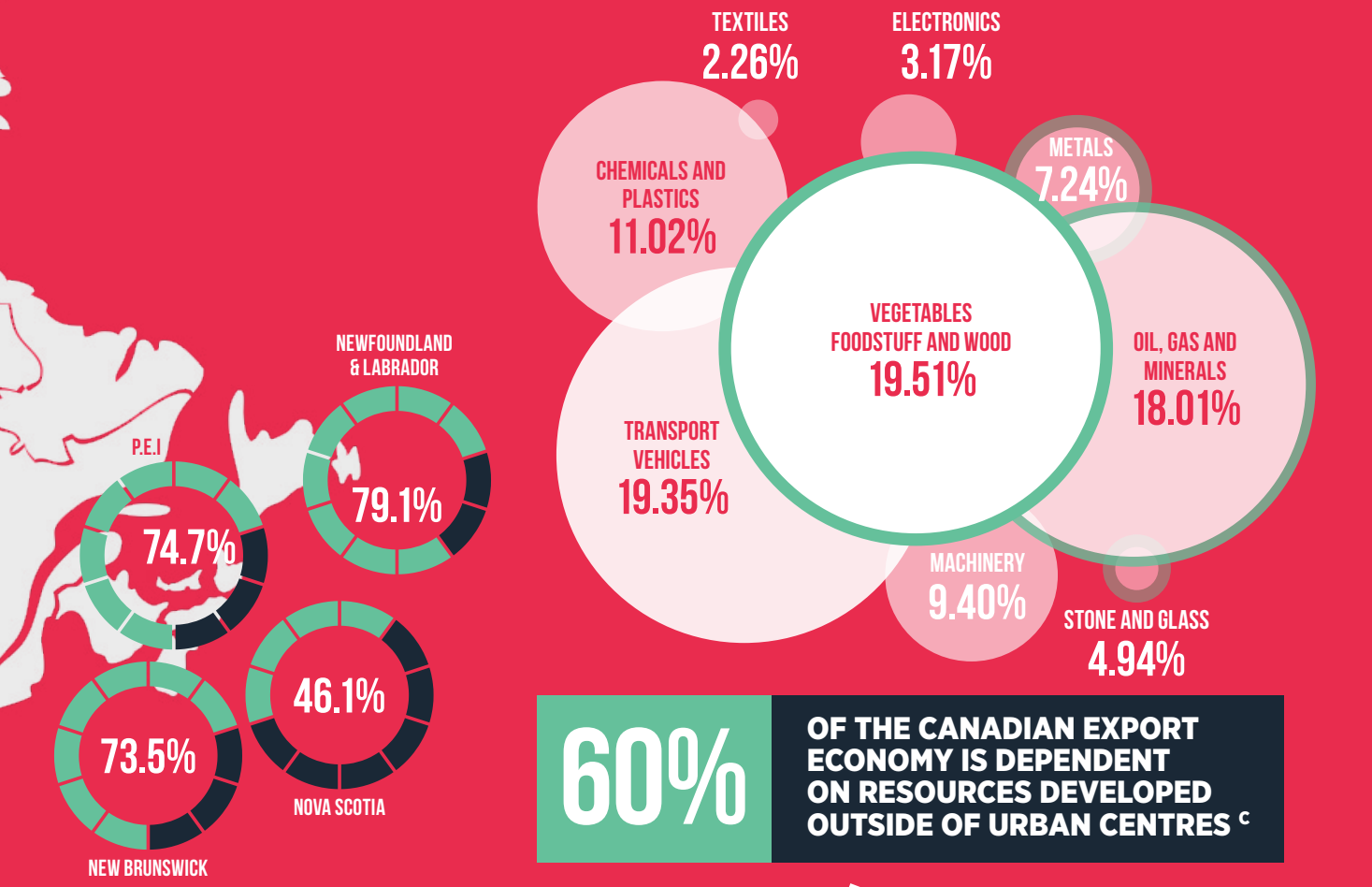
H http://www.statcan.gc.ca/pub/21-006-x/21-006-x2008005-eng.pdf

I http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/abo-aut/Table.cfm?Lang=Eng&T=102&S=104&O=A&RPP=25

J http://www.oecd.org/eco/surveys/Canada-overview-OECD-economic-survey-2016.pdf

K http://www.oecd.org/eco/surveys/Canada-overview-OECD-economic-survey-2016.pdf

CANADA'S $390 BILLION EXPORT ECONOMY (2016) DIVIDED BY SECTOR



60% **OF THE CANADIAN EXPORT ECONOMY IS DEPENDENT ON RESOURCES DEVELOPED OUTSIDE OF URBAN CENTRES** [C]

Rural Canada contributes 59% of Canadian GHG emissions [D]

Forestry, fishing, quarrying, and oil and gas extraction are the highest GDP contributors in the rural economy [E]

Rural communities have higher high school dropout rates (16.4%) relative to urban communities (9.2%) [F]

30% of Indigenous people do not have a high school diploma [J]

Rural youth unemployment rates are higher than urban youth unemployment rates [H]

Indigenous people, including those in rural areas, are Canada's fastest growing population [I]

Off-grid communities largely rely on diesel generators for their for main source of electricity [J]

Indigenous people are three times more likely to experience food insecurity [K]

Rural Canada constitutes 95 per cent of the country's land mass and up to 30 per cent of the Canadian population lives in rural communities, including Indigenous communities.[1] The proportion of Canadians who live in rural areas has been steadily declining for the past 150 years. Three-quarters of a million people with "Aboriginal identity" live in rural communities (including municipalities and First Nations communities), which is nearly half of all Indigenous people in Canada.[2]

R&I economies rely on having a productive population to sustain growth. However, in many rural communities, demographic factors such as aging populations, migration to urban centres and job losses are fuelling community decline. This trend is expected to continue.[3]

In contrast, young Indigenous people are a rapidly growing demographic, and will be a vital part of the future workforce in R&I communities. However, their participation in a high-tech future economy is challenged by poor education outcomes, especially in math and science.[4] Indigenous people face numerous additional barriers to economic participation, including lower levels of literacy, numeracy, employment, income and health when compared to non-Indigenous people in Canada.[5]

The cost of living is a key constraint in many R&I communities, which are characterized by their distance from urban centres and low population densities. It can also mean less access to specialized skills or technologies, slowing innovation and growth. R&I people rely on fossil fuels more than people in urban centres, as they often must travel longer distances for basic needs like food, hospitals and schooling, with limited or no options for public transportation.[6] This is especially true for remote or fly-in communities.

1 Moazzami, B. 2015. *Strengthening Rural Canada: Fewer & Older: Population and Demographic Challenges Across Rural Canada.* Essential Skills Ontario

2 Statistics Canada. "Aboriginal Peoples Highlight Tables, 2016 Census." Accessed October 25, 2017

3 Moazzami, B. *Strengthening Rural Canada: Fewer & Older: Population and Demographic Challenges Across Rural Canada. Essential Skills Ontario.*

4 Mas, S. 2014. "First Nations students in Ontario and Alberta failing in literacy, math." CBC News. Accessed December 29, 2017

5 Organisation of Economic Cooperation and Development (OECD). 2016. "OECD Economic Surveys: Canada 2016."

6 Bollman, R.D. 2007. Factors Driving Canada's Rural Economy - 1914 to 2006. Ottawa: Statistics Canada, Agriculture Division; see also sources cited at pp. 9-10.

RURAL ECONOMIES AND THE ENERGY TRANSITION: OPPORTUNITIES AND THREATS

The energy transition will create new opportunities and threats for rural economies through changes in technology, demography and costs. Rural economies have weathered such transitions before; in the past century, rural industries were transformed as machinery replaced labour in farming, forestry and resource extraction. In 2016, 60 per cent of Canada's export GDP was reliant on resources largely developed in rural Canada.

Employment in R&I communities is often concentrated in primary industry sectors such as oil and gas, mining, agriculture or pulp and paper.[7] The economic life of many small towns is intrinsically linked to natural resources and will be impacted by policy shifts favouring low-carbon industries. More than 20 per cent of Canadian businesses are located in communities under 10,000 people, and the share of those directly engaged in primary resource industries such as mining,

7 Canadian Rural Revitalization Foundation. 2015. State of Rural Canada Report.

Automation alongside the Energy Transition

Automation and artificial intelligence are expected to fuel another wave of human labour replacement in Canada. Rural jobs in the Prairies, Southern Ontario and Quebec are at highest risk, where an estimated 60 per cent of tasks in agriculture, mining and manufacturing could be replaced.[8] This automation disruption will happen alongside the energy transition, amplifying pressure on rural economies.

Growth in clean energy technology and expanded natural resource development could offset some of these expected losses. Currently, Clean Energy Canada, a British Columbia-based think tank, projects significant growth in renewable energy[9] and mining of 'green metals' used in solar panels, batteries, LED lighting and electric cars. Similarly, 14 out of the 19 minerals required to manufacture solar panels are found in Canada.[10]

8 Lamb, C. and Lo, M. 2017. Automation Across the Nation: Understanding the potential impacts of technological trends acros

9 Clean Energy Canada. 2014. Tracking the Energy Revolution - 2014 Global Edition. Accessed December 29, 2017.

10 Clean Energy Canada. 2017. Mining for Clean Energy 2017. Accessed December 29, 2017.

oil and gas, and forestry is 16 per cent in rural areas closer to urban centres and 30 per cent in remote areas. Construction, manufacturing, and social/personal services account for the remaining business activities in these areas.[11]

For decades, R&I industries have relied on inexpensive fossil fuel for operations, transportation and shipping. The cost competitiveness of these industries may be threatened by regulatory changes such as carbon taxation and the new Clean Fuel Standard, especially if commercially viable clean technologies are not available or adaptable to R&I economies. Cost pressures will compound if widespread replacement of fossil fuel-based electricity generation results in higher electricity costs.

However, if renewable electricity costs continue to fall relative to fossil fuel-based generating sources, it will present new opportunities. In Alberta, a recent renewable electricity auction attracted over $1 billion in private investment at a record-low cost per kilowatt hour.[12] Lower-cost renewable electricity and energy-efficiency measures could create opportunities for industries with high electricity consumption, such as greenhouse-based agriculture[13] or server and data warehouses.[14] Biofuels production, either from forest or agricultural products, is also a significant opportunity for rural communities as the federal government considers changes to national fuel standards.[15]

A FRAGMENTED LANDSCAPE OF CLEAN ENERGY AND ECONOMIC DEVELOPMENT PROGRAMS

The Government of Canada plays a major role in the economic and social development of R&I communities through numerous policies and programs. The majority of the federal government's non-

11 Moazzami, B. Strengthening Rural Canada: Fewer & Older: Population and Demographic Challenges Across Rural Canada. Essential Skills Ontario

12 Government of Alberta. 2017. "Alberta renewables auction record-setting success." Accessed 29 December 2017.

13 Government of Yukon. Greenhouses for the Northern Climate. Accessed 29 December 2017.

14 Van Praet, N. "Quebec's Hydro Surplus to Lure Companies into Data Hub Initiative." The Globe and Mail. Accessed 29 December 2017.

15 Environment and Climate Change Canada. 2016. "Environment and Climate Change Canada - Acts & Regulations - Clean Fuel Standard: Discussion Paper."

agricultural funding for R&I economic development comes from Infrastructure Canada, Natural Resources Canada, Environment and Climate Change Canada, Indigenous and Northern Affairs Canada, Innovation, Science and Economic Development, Transport Canada, Employment and Social Development Canada, and through regional development agencies.

While the federal government provides significant funding directly to Canadian individuals and businesses, federal funding also flows as transfer payments to provincial, territorial and municipal levels of government.[16] The Government of Canada also plays a significant regulatory role in many sectors affecting R&I communities. Together, these policy and program levers contribute to a system of federal support for R&I economic development.

Figures 1 and 2 detail some of the main policy and program areas where the federal government plays a role in the economic and social development of R&I communities. We acknowledge that there are systems within First Nations communities that are not represented here, and that the territories also have a unique regulatory infrastructure.

Pan-Canadian Framework on Clean Growth and Climate Change

The Government of Canada's guiding framework for GHG emission reduction is the Pan-Canadian Framework on Clean Growth and Climate Change, known as the Pan-Canadian Framework. This action plan, ratified by most provinces in 2016, sets out high-level policy objectives related to rural, remote and Indigenous communities. Signees committed to working together to support Indigenous peoples and northern and remote communities in adopting clean technologies and taking action to support economic opportunities and improve environmental outcomes.[17] There is not yet a detailed action plan to achieve this goal. The first annual implementation report of the Pan-Canadian Framework shows that no specific actions have been taken to date.

17 Environment and Climate Change Canada. 2016. Pan-Canadian Framework on Clean Growth and Climate Change: Canada's Plan to Address Climate Change and Grow the Economy.

16 Department of Finance Canada. "Federal Transfers to Provinces and Territories."

Figure 1: Economic and social support for rural and Indigenous communities provided by the Government of Canada

TRANSFERS TO INDIVIDUALS / BUSINESSES	TRANSFERS TO OTHER LEVELS OF GOVERNMENT	DIRECT FEDERAL PROGRAM SPENDING	REGULATORY ROLES UNDER FEDERAL JURISDICTION
Employment Insurance - expanded support to higher unemployment (often rural) areas	Infrastructure funding to provinces and territories, gas tax to municipalities	Research across a broad range of energy and clean technology sectors	Transport infrastructure - railways, ports, airports, interprovincial pipelines and electrical lines
Financial support for regional economic development initiatives	Provincial/Territorial education and social development	Direct financial support for some energy megaprojects	Environmental assessment for major projects
Financial support for the adoption of renewable energy and energy efficiency measures	Indigenous economic and social development		Personal and business taxation (including those paid by First Nations) and carbon taxation

There is currently no specific Government of Canada program that supports rural and/or Indigenous economic development through the low-carbon energy transition. The current siloed approach results in a complex constellation of disparate programs, which require a high level of community capacity to navigate. Some communities may have to hire expensive consultants to navigate this policy landscape, and this may mean that the communities who need the most government support are shut out of receiving funding, perpetuating inequalities.

Where funding programs do exist, they often support power generation projects, and operate without a specific link to community economic development. The transition to renewable energy is an opportunity for sustainable economic growth, but this is by no means an automatic outcome. The Organisation for Economic Co-operation and Development (OECD) found that poorly-designed renewable energy policies have in many cases negatively affected the welfare of rural communities.[18]

18 OECD. 2012. Linking Renewable Energy to Rural Development.

Figure 2: Recent Federal Funding for Rural and Indigenous Energy Development:

$400 MILLION for an Arctic Energy Fund to address energy security in communities north of the 60th parallel (Budget 2017);

$220 MILLION to reduce the diesel reliance of rural and remote communities south of the 60th parallel (Budget 2017);

ACCELERATED CAPITAL COST ALLOWANCE for the development of electricity storage technologies (Budget 2016) and geothermal projects (Budget 2017);

$200 MILLION for research, development and demonstration of clean technologies in the natural resources industry (Budget 2017);

Doubling regional development agencies' support for clean technologies to **$100 MILLION**

$1.4 BILLION for the Low-Carbon Economy Fund, including the Low-Carbon Economy Challenge, which will support projects submitted by provinces and territories, municipalities and Indigenous governments (Budget 2016).

R&I communities have specific needs around energy. Recent federal budgets have included significant new supports for R&I energy development as outlined in Figure 2.

A PLACE-BASED APPROACH TO RURAL DEVELOPMENT

One size does not fit all for rural Canada. For at least a decade, rural development literature has highlighted the need for flexible policies to adapt to the diverse circumstances of rural places.[19] The apparent failures of the traditional sectoral approach of picking winning sectors and picking winning firms within sectors highlights the need for a "place-based approach" to policy-making, in which policy is focused on investing in the capacity of a place to develop itself. A place-based approach requires local actors to participate in the design and implementation of rural policies. By involving local actors in a bottom-up approach, governments can rely on a specific area's knowledge base when devising policies, building on the expertise and experience of local people.[20]

19 Gadsby, L. and Samson, R. 2016. Strengthening Rural Canada: Why Place Matters in Rural Communities. Decoda Literacy Solutions; Canadian Rural Revitalization Foundation. 2015. State of Rural Canada Report.; OECD. 2016. The New Rural Paradigm: Policies and Governance; Bryden, J. and Hart, K (eds.) 2004. A New Approach to Rural Development in Europe: Germany, Greece, Scotland, and Sweden. Lampeter: the Edwin Mellen Press

20 Ibid.

Carbon Taxation

The Pan-Canadian Framework introduces a Canada-wide price on carbon emissions. While each province will develop and administer its own carbon taxation system, a 'federal backstop' will be used to support a uniform and gradually increasing Canada-wide price per tonne of emissions.[21] The federal government has committed to ensuring that carbon taxation revenues will remain within the jurisdiction in which they are collected, responding to concerns that carbon taxation could become a form of inter-provincial wealth transfer.

A central issue of the carbon tax is its revenue neutrality, with debate around whether carbon tax revenues should be returned directly to taxpayers, or re-invested in transitional programs and technologies. Because emissions have no borders, the federal role in implementing Canada-wide carbon taxation is critical, both from an operational perspective in collecting and remitting revenues, and from a regulatory perspective in preserving a relatively uniform cross-Canada price per tonne of emissions.[22]

Because the GHG emissions intensity of R&I economies is often higher than other economies, a carbon tax will have a more expensive impact on these communities than on urban and suburban communities. Canada's three northern territories, two of which are highly reliant on diesel for electricity, will also be disproportionately affected if the same carbon pricing rules are applied in Canada's North.[23]

Carbon Leakage: Concerns have been raised that stringent emissions regulations, including through implementation of carbon pricing, will reduce the competitiveness of export goods by making operations and transportation more expensive. In response, companies will reduce local investment or relocate their operations to jurisdictions outside Canada with less stringent requirements, resulting in no global emission reductions. This phenomenon is called "carbon leakage."[24]

21 Environment and Climate Change Canada. "Technical Paper: Federal Carbon Pricing Backstop"
22 Ibid.
23 Thomson, N. 2017 'Everything Is on the Table, Including Exemptions, for North Carbon Tax: Federal Official', CBC News, accessed 18 December 2017
24 Conference Board of Canada. 2017. "Carbon Leakage and Canadian Climate Policy."

> *..focus less on diesel specifically and more on the energy system as a whole and community economic development. Many [stakeholders] discussed the need to shift from looking at problems as distinct pieces to how they all fit together and could be addressed together. Reducing diesel is just one part of the equation for communities. Housing and economic stimulation are significant barriers for some communities and without addressing some of the underlying concerns, reducing diesel may do little to stimulate change."*
>
> **— Pan-Canadian Summit on Reducing Diesel in Remote Communities.**

A place-based approach to rural policy represents a major paradigm shift developed over the past decade. This approach to policy requires more innovative forms of governance and collaboration within and across all levels of governments, civil society and the private sector. It also entails new roles and new competencies for all stakeholders, and thus requires investment in developing the capacity of stakeholders. It is essential to combine a move to place-based policy-making processes with significant capacity-building and policy-support tools. Otherwise, many communities will simply lack the expertise they need to effectively implement place-based policy-making processes.

LINKING THE ENERGY TRANSITION TO RURAL AND INDIGENOUS ECONOMIC AND SOCIAL DEVELOPMENT

Citizen Dialogues on Canada's Energy Future: Getting to 2050 looked at how to protect low-income people, rural areas, northern communities and trade-exposed industries in the energy transition.[25] It found that transition plans should address economic development, job retraining, community self-sufficiency, long-term energy access and affordability. The Provincial and Territorial Task Force on Reducing Diesel in Remote Communities also highlights the interplay between energy issues and economic development for these communities.[26] Many stakeholders emphasized the need to shift from complex funding and policies to streamlined and consolidated resources where possible. Building capacity within the communities was also seen as crucial, not for energy

25 Citizen Dialogues on Canada's Energy Future. 2017. "Getting to 2050, Citizen Recommendations"

26 Province of Manitoba. "Pan Canadian Summit on Reducing Diesel in Remote Communities." Accessed 29 December 2017.

planning, but to navigate projects through regulatory and approval processes.[27]

Energy issues are also closely linked to economic reconciliation with Indigenous people. Economic reconciliation is a two-way process to close economic gaps between Indigenous and non-Indigenous peoples through traditional economic development and community empowerment.[28] The Truth and Reconciliation Commission (TRC) Final Report included a call to action for Canada's business community to use the United Nations Declaration on the Rights of Indigenous Peoples as a framework for reconciliation within their operations.[29] The TRC also recommended that the business community engage in "meaningful consultation, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects."[30]

Figure 3: Potential growth in the Canadian economy from improved Indigenous participation.

A recent report by the National Indigenous Economic Development Board found that Canada's economy would grow by

1.5 %

or

$27.7 BILLION

if education, health and infrastructure-related barriers preventing Indigenous Canadians from participating in the Canadian economy were removed.[31]

31 The National Indigenous Economic Development Board. 2016. Reconciliation: Moving Canada Forward by $27.7 Billion. Accessed 30 December 2017.

27 Ibid., p. 9-16.

28 Reconciliation Canada – A New Way Forward Society. "Economic Reconciliation."

29 Truth and Reconciliation Commission of Canada. 2015. Truth and Reconciliation Commission of Canada: Calls to Action. Accessed 30 December 2016,

30 Ibid, p. 14.

PRIMARY RESEARCH SUMMARY

Roundtables on Indigenous and Rural Economic Development

In November 2017, we held two 90-minute online panel discussions with young leaders in R&I economic development. The objective of the roundtables was to gain their understanding of the future of R&I communities in a low-carbon energy world. Key insights from these roundtables are featured throughout the report and a summary of the discussions can be found in Appendix 1.

Powerful Changes: Rural Communities and the Energy Transition Survey

In December 2017, we conducted an online survey to engage young people aged 18-35 living in R&I communities. The objective of the survey was to understand the values and beliefs held by R&I youth about their long-term vision for their communities, economic well-being and the energy transition. Approximately 50 youth completed the survey. Key insights from the survey are featured throughout this report and summary of the results can be found in Appendix 2.

Expert Interviews

We conducted four 30- to 60-minute interviews with experts in the fields of R&I economic development. Experts gave their opinions on the impact of the energy transition on R&I communities, opportunities and challenges, and recommendations regarding federal support. Insights from several expert interviews are featured throughout this report. We would like to offer sincere thanks to Ken Coates, Cheryl Cardinal, Chris Lefebvre, Eryn Stewart and Chris Henderson for sharing their wisdom.

Ken Coates. PPF photo

DISCUSSION AND RECOMMENDATIONS

In this section, we present a list of strategic priorities and policy recommendations for federal policymakers and stakeholders in R&I economic development. While rooted in long-term thinking, these recommendations also include many practical actions that the Government of Canada can take right now to ensure a prosperous future for R&I communities.

Four policy themes emerged from our environmental scan and primary research.

- **Engaging Rural and Indigenous Communities in Policy-Making**
- **Planning for the Role of Energy in Economic and Social Development**
- **Building Resilience for a Low-Carbon Future**
- **Delivering Effective Energy Transition Supports**

The worst case scenario [for Indigenous people] is more of the same of what we have now."

— Indigenous Economic Development Roundtable Panellist

Governments cannot allow the mass abandonment of rural Canadian communities. While it is not possible to reverse the decline of every community, we believe a just transition to a low-carbon future is vitally important. Communities and workers who are negatively affected by the energy transition must have the opportunity and support to redefine a new, prosperous energy future for themselves. For some rural communities, the energy transition may require protecting the status quo, while for Indigenous communities, this transition must result in significant improvements in quality of life.

We believe the Government of Canada has a significant role to play in the energy transition in R&I economies. Government intervention is both ethically and financially necessary to ensure that the cost of the energy transition is not disproportionately borne by R&I communities, and that communities have the resources to create their own path to a vibrant economic future. Young R&I Canadians and the experts we consulted overwhelmingly hoped for a positive low-carbon future for their communities. However, many respondents worried carbon taxes, struggling economies, globalization and demographic changes would be too disruptive for R&I communities to overcome, and predicted a less-prosperous future.

Community Pride, Community Pressures: Survey Results

60% of R&I youth said they want to stay in their community long-term.

70% said their communities boasted beautiful landscapes.

70% said they have strong community connections to family and friends.

Respondents said they worry their vision will not be realized on Canada's current path. They cited high costs of transportation, food insecurity and a lack of access to schools, jobs and other services as concerns for their long-term well-being and resilience.

YEF Fellow steps into the mechanical room of a wind turbine. *Darren Brown*

GUIDING PRINCIPLES

Through our research, we consistently heard three values that are fundamental to good policy-making for strong R&I communities and economies. We call them our guiding principles:

#1. Promoting Self-Determination: R&I communities take enormous pride in their communities and cultures. Autonomy and the right to self-determination are the foundation of their identity and future vision. In that vision, R&I communities are self-sufficient, yet remain integrated in the economic and social fabric of Canada. We heard the path to self-sufficiency lies in robust economic development rooted in private investment, local entrepreneurship, and regional development.

> *We are working hard to be very competitive and government needs to recognize that. We are not here asking for a handout. We are here to participate and compete in the economy."*
>
> **— Indigenous Economic Development Roundtable Panellist**

#2. Cooperation between Jurisdictions: A successful low-carbon transition demands cooperation between the federal government, Indigenous governments, provincial and territorial governments, and municipalities. While many energy and economic decisions affecting rural communities are made at the provincial/territorial level, they often have substantial implications for other jurisdictions, including Indigenous governments.

R&I experts and community leaders told us decisions and programs must be cohesive and consistent, yet adaptable to unique community circumstances. Eryn Stewart of Lumos Energy noted that Ontario and Alberta's efforts to harmonize energy planning programs resulted in better use of relevant federal funds for both provinces. We also found young people in particular expect federal and provincial/territorial governments to harmonize their energy transition efforts in partnership with Indigenous and territorial governments. This includes delivering equitable access to programs, basic services and infrastructure across the rural/urban divide and in Indigenous communities.

#3. Supporting Economic Reconciliation: Reconciliation between Indigenous and non-Indigenous Canada is the path forward, and closing gaps in economic prosperity will be key to this process. We heard that if reconciliation is to be realized, it must be a two-way process. It will happen at the places where Indigenous and non-Indigenous people and communities meet. Outside Canada's cities, experts noted reconciliation will happen in rural regions where municipalities and First Nations are connected by regional economies.

There are many active legal issues affecting reconciliation and the social and economic relationship between Canada as a nation and Indigenous peoples. Discussing these issues in detail is beyond the scope of this report. However, we recognize the fundamental need for Canada to respect the rights of Indigenous people, especially the formal legal requirements of consultation. Our four themes and associated recommendations focus on policies that foster conditions for effective economic development.

> *"Our relationship particularly in rural communities to our neighbouring First Nations and Indigenous people is fundamentally different than what it is in an urban context. Therefore the experiences we are having in rural communities are inextricably linked to reconciliation, and we need to recognize that."*
>
> **— Indigenous Economic Development Roundtable Panellist**

THEME #1: ENGAGING RURAL AND INDIGENOUS COMMUNITIES IN POLICY DEVELOPMENT

Meaningful change for R&I communities must come from policy that is sensitive to local needs, cultures and priorities. To build effective and acceptable policies for the energy transition in R&I communities, the government should support place-based policy-making processes, improve community consultation mechanisms and ensure policy-making and implementation is grounded in communities' lived experience.

One of the strongest messages we heard through our research is that R&I communities have not been sufficiently engaged in the development of provincial/territorial and national social and economic development policies. As illustrated on page 9, R&I communities lag behind urban/suburban Canada in virtually all socio-economic indicators, despite numerous policies, programs and funding at all levels of government.

R&I communities are frustrated about their lack of input into policy development processes. Several experts pointed to the December 2016 decision by the Government of Canada to place a moratorium on offshore oil and gas development in the Arctic as a top-down policy decision. In their view, this decision was made without adequate consultation with territorial governments or communities, who wanted to choose for themselves whether to participate in the resource extraction economy.

> *"Canada desperately needs to re-engage with rural Canada and create policy that actually is supportive of local needs."*
>
> **— Ken Coates, Canada Research Chair in Regional Innovation, University of Saskatchewan**

Many also felt that federal policymakers have limited lived experience in R&I communities, and may not be able to adequately consider the real-life implications of their policies. "Our communities have ideas and solutions; talk to us and let us implement them" was a common refrain through our engagements. R&I communities emphasized the diversity of their geography, capacity, culture, values and needs, highlighting the need for local engagement and avoiding 'one size fits all' approaches.

Our literature review echoed these findings, especially the growing support for place-

based policy-making.[32] To effectively implement this type of process, a paradigm shift in governance arrangements is required. Better coordination mechanisms across all levels of government, R&I communities and the private sector are critical for success. This theme also emerged from the January 2017 Pan-Canadian Summit on Reducing Diesel in Remote Communities. Further, there was strong consensus that communities should be allowed to take more leadership in project and policy development.

Inadequate consultation with local communities can stall socioeconomic development by halting important infrastructure and resource projects. Experts and panellists unanimously said these projects are critical to the future prosperity of R&I communities. Federal policy and regulatory processes must include meaningful consultation of Indigenous communities, which has mired many economic projects in litigation. The federal government is currently in the process of modernizing the National Energy Board Act, and part of this modernization includes improving engagement with Indigenous communities.[33] The importance of meaningful consultation was recently highlighted in a Supreme Court case which clarified that the National Energy Board must explicitly consult Indigenous communities on planned energy projects, and provide communities with full opportunity to participate in the process.[34]

> *"Engage with us. Allow us to participate. Allow us to draft those policies. It can create greater opportunities for us over the long term and instead of trying to know about what we want, we'll tell you exactly what we want... governments should be coming to us for ideas."*
>
> **— Indigenous Economic Development Roundtable Panellist**

32 Gadsby, L. and Samson, R. 2016.

33 The Expert Panel on the Modernization of the National Energy Board. 2017. Forward, Together: Enabling Canada's Clean, Safe, and Secure Energy Future. Natural Resources Canada.

34 Clyde River (Hamlet) v. Petroleum Geo-Services Inc., 2017 SCC 40.

Recommendation 1.1: Ensure rural and Indigenous policies can be applied in diverse contexts.

All levels of government should develop structures and capacity to design and implement place-based policy-making. This includes developing communication and coordination mechanisms vertically between levels of government and horizontally between government, communities, and the private sector. It also requires developing new roles, skills and competencies for all actors in the new system. Significant investment needs to be made to build the capacity of community members to engage in such policy-making, through both education and development of policy-support tools such as easy-to-use community toolkits. Finally, to maximize effectiveness, local community members must be integrated directly in the policy development process from the outset, to ensure pan-Canadian policies can be implemented regardless of a community's geography, culture or needs. Meaningful consultation must be based on careful, appropriately-wide and systematic discussion with local communities in such a way that all parties support and accept the outcomes of the process.

Recommendation 1.2: Ground policy-making in communities' lived experience.

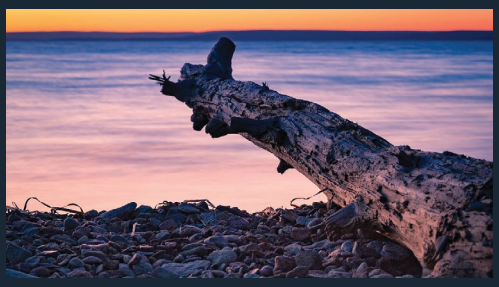
Implementing a place-based approach to policy-making requires integrating real-life experience into government decision-making around policies and programs. Such expertise is not consistent, especially when policymakers live in other regions of the country. When policies or programs related to rural and/or Indigenous issues are being developed, governments will benefit by ensuring that perspectives and experience from these communities are foundational in analysis and decision-making.

If Canada doesn't get this right, there won't be natural resource development, only more Standing Rocks, more protests. It will be enormously counterproductive for the whole country."

— Cheryl Cardinal, President/CEO of the Indigenous Center for Energy

Bras D'Or Lakes Collaborative Environmental Planning Initiative (CEPI)

In Nova Scotia, the Bras d'Or Lakes Collaborative Environmental Planning Initiative (CEPI) develops policy through engagement with R&I communities. In 2003, the Cape Breton First Nations Chiefs sought to develop and implement an environmental management plan for the Bras d'Or lakes and their watershed.



Bras d'Or Lakes in Nova Scotia. Wikimedia Commons photo

The Bras d'Or Lakes CEPI's organizational model includes a Steering Committee that meets quarterly (with broad representation from federal, provincial, municipal and Mi'kmaq governments, as well as industry, academia and civil society), a Management Committee that meets monthly, and a Mi'kmaq Elder Advisor and Elders Council. [37]

37 Bras d'Or Lakes Collaborative Planning Initiative.

This can be improved by giving greater weight to rural and/or Indigenous lived experience and knowledge when hiring or promoting policymakers, and by decentralizing operational staff through regional offices or remote work options. Governments can also develop programs to support R&I community members to obtain the skills and education needed to enter policy careers. Finally, governments can take steps to enhance the knowledge of policymakers through exchange or secondment programs between governments and R&I communities.

"Have government employees that influence policies that are related to energy or rural economies spend some time in multiple rural communities…spend a week, or a couple of months…to see what the opportunities are, what the challenges are, and what life is like, to try and develop an appreciation for that lifestyle."

— Indigenous Economic Development Roundtable Panellist

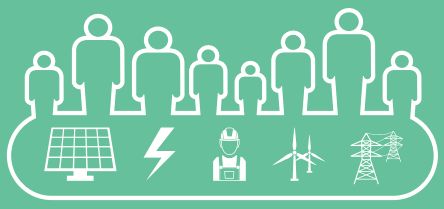
THEME #2: PLANNING FOR THE ROLE OF ENERGY IN ECONOMIC AND SOCIAL DEVELOPMENT

To be successful through the low-carbon energy transition, we need to recognize the role energy plays in a community's wider vision for itself. R&I communities need to be supported in their energy planning efforts. Effective planning also relies on reliable data, which is sometimes in short supply.

The role of energy in a community is highly dependent on its geography. If a community is far from other population centres or is off-grid, energy affordability and access can constrain economic and social development. Conversely, if an R&I community is in an area with significant oil and gas or with renewable energy potential, energy production can be a major driver of economic growth and community well-being. This dichotomy highlights the need for each community to have a unique community energy plan.

Past energy planning has often been conducted in a piecemeal way, where community energy initiatives are considered one-off projects or developed based on a narrow set of perceived benefits. The number of direct construction, operation and maintenance jobs created from many energy projects can be limited and are often filled by specialists from outside of the community. As such, the direct benefits of a project should not be the only drivers of an investment.

Community Energy Planning is Key



The 2017 Pan-Canadian Summit on Reducing Diesel in Remote Communities identified community energy planning as a key theme:

"Participants really focused in on the need for community energy plans that are developed by or/and with communities directly in order to understand local priorities, account for costs and benefits to these communities, and support community building, economic development, and ownership. Local knowledge could be instrumental in energy projects moving forward and should be considered for projects and plans in the energy system. These plans can also help communities understand when they do need assistance, or when/where government and industry can play a supportive role."[35]

35 Province of Manitoba. "Pan-Canadian Summit on Reducing Diesel in Remote Communities." Accessed 30 December 2017.

Instead, community energy projects should be grounded in wider community motivations, such as economic independence, energy affordability or environmental stewardship. Identifying how specific projects can support broader goals should be a key output of community energy planning. Our survey and other community engagement activities also clearly identified that youth in R&I communities strongly value a healthy environment, and will prioritize community projects that are aligned with that goal.

Recommendation 2.1: Provide direct financial support for community-led energy planning.

The federal government should play a larger role in supporting community energy planning by establishing two parallel grant mechanisms at Natural Resources Canada for rural communities with a population below 30,000 and at Indigenous and Northern Affairs Canada for Indigenous communities. Funding could be provided through an annual grant for which communities would apply, and which would have relatively minimal reporting and compliance requirements. An example of a successful existing program which could be emulated is the 20/20 Catalyst Program created by Lumos Energy.[36] The federal government can also support communities by developing and sharing well-researched toolkit and planning guides to facilitate energy planning processes.

This funding could be used to build community capacity and to conduct research to help inform community discussions. While communities would have full ownership of the plans and data developed through these planning processes, the program would seek to facilitate voluntary knowledge exchange and sharing of lessons learned from communities' energy planning.

Recommendation 2.2: Generate better intelligence through improved data collection and consultation.

Business, governments and communities rely on quality information for energy and economic planning. This requires accurate and accessible information on R&I communities' energy use and emissions in order to frame policy initiatives. Enhanced inter-departmental collaboration between Natural Resources Canada, Transport Canada and Environment and Climate Change Canada would be a first step in robust data collection.

Better analysis and consultation should also occur on the vulnerability of trade-exposed

36 Aboriginal Power Community. "20/20 Catalysts Program." Accessed 13 January 2018

industries, particularly commodity producers, to emissions reduction regulations, including carbon taxation. In contrast to domestic production, the emissions and broader environmental profile of imported products are not currently considered in the context of Canadian domestic consumption. Policymakers should consider the risk of carbon leakage as industries migrate to less regulated jurisdictions. Data collection and distribution should accurately represent how GHG emissions are calculated on both domestically produced and imported products.

As R&I economies are often more dependent on emissions-intensive sectors than urban and suburban economies, they will likely be disproportionately impacted by policy and regulatory changes designed to reduce emissions. Canada's federal and provincial/territorial governments should be cautious about the disproportionate impact of these policies of R&I communities, and consult these communities on the probable impacts. Failure to do so will threaten cohesive national action to reduce GHG emissions. Interprovincial and federal-provincial relations have already been strained by the implementation of the Pan-Canadian Framework, with Ottawa currently withholding some clean energy funding to Saskatchewan and Manitoba.[37] Governments should also be transparent about the different impacts of emission reduction policies on different communities.

Christina Lake Oilfield Engineer explains heat recovery to YEF Participants. *Todd Korol*

37 Geary, A. 2017. "Feds' deadline to sign carbon plan or lose $66M funding an 'ultimatum,' Manitoba environment minister says" CBC News, Accessed Dec. 30, 2017.

THEME #3: BUILDING RESILIENCE FOR A LOW-CARBON FUTURE

We live in a time of rapid technological and social change. R&I communities must have the capacity to thrive in a low-carbon future and the resilience to withstand uncertainty and change. Providing more support for entrepreneurship and innovation, designing more flexible labour-market readiness programs for R&I people, and delivering on the CRTC's broadband coverage targets will help prepare R&I communities for the low-carbon future.

R&I youth believe that Canada's economy is in a period of disruptive change caused by the energy transition and technological trends like automation and the digitization of knowledge. A low-carbon future will challenge our emission-intensive and trade-exposed export economy to remain competitive. When combined with increased automation, these changes will mean fewer employment opportunities for blue-collar workers. Employment opportunities will be increasingly limited to those with technical or post-secondary training.

Experts consistently agreed that hydrocarbons and other natural resources will remain an important energy source for some activities in 2050. There was less agreement among young experts and R&I community members; 44 per cent of our survey respondents said oil and gas will be just as important and 42 per cent said it will be less important in Canada's future economy. There was strong agreement that there would be demand for non-renewable resources, such as metals, minerals and hydrocarbon by-products, especially since many low-carbon technologies rely on these resources. As a result, there is a significant future for natural resource extraction in the low-carbon future, and continued responsible resource extraction will continue to be a major driver of R&I economies.

R&I communities cannot participate in the low-carbon future without high-quality services and infrastructure, including education and social services. Quality infrastructure enables individuals and businesses to participate in digital economy of the future, yet R&I people have less access to digital services.

Broadband internet is particularly important. In 2016, the CRTC named universal telecommunications as a service that should be accessible to all Canadians.[38]

38 CRTC. 2016. "CRTC establishes fund to attain new high-speed Internet targets." Accessed December 30, 2017.

Recommendation: 3.1 Enhance support for entrepreneurship in rural and Indigenous communities.

Small- and medium-sized business can be a key driver of R&I economies, providing access to affordable food, hiring local employees and paying tax revenue to municipal and Indigenous governments. Supporting entrepreneurship in R&I communities requires a broad spectrum of support, but can be kick-started by certain specific interventions.

In 2015, the federal government procured almost $20 billion in goods and services.[39] While individual departments and agencies currently focus some procurement on Indigenous communities, the government should take a 'whole of government' inventory of how it currently procures goods and services from R&I communities, and direct more economic benefit towards these communities where possible. It should ensure procurement opportunities are equitably accessible to companies that are owned by and employ people in R&I communities. This recommendation would need to be reconciled with existing trade agreements and bilateral procurement agreements.

Governments can also provide greater access to low-interest debt and equity financing for R&I business owners. Business Development Canada already provides these services, but private sector financial institutions could also play a larger role if provided appropriate incentives.

> *"We need to create an economic future for ourselves, and it starts with how government procures their contracts."*
>
> **— Indigenous Economic Development Roundtable Panellist**

A subsequent recommendation later in this report relates to the potential of a new federal loan guarantee instrument to reduce the risk of private investment in R&I communities.

Recommendation 3.2: Deliver on the CRTC's broadband coverage targets.

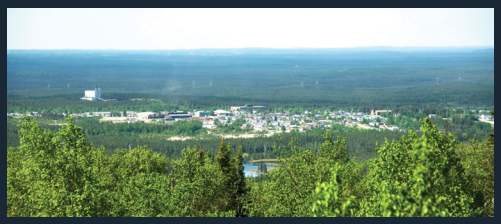
If internet is not available in a community, its members cannot fully participate in the economy. Yet a significant gap in broadband access exists between rural and urban communities. In 2016, the CRTC

39 Treasury Board of Canada Secretariat. "2015 Purchasing Activity Report." Accessed 29 December 2017.

Economic Revitalization in Chapais, Quebec through Forest Biomass

Chapais is a small rural community of 1,610 in the Jamésie region of northern Quebec. The community was settled in the 1950s after the discovery of gold, silver and copper. The city's economy diversified with the opening of the Barrette-Chapais Ltée sawmill in 1974. Chapais's economy relied heavily on forestry after the closure of the mine in 1991.

With the decline of the softwood lumber industry in the 1990s, Barrette-Chapais began exploiting forest biomass by opening the first cogeneration plant in Quebec. Forest biomass turns wood waste into fuel for electricity, and is considered carbon-neutral when collected from sustainably managed forests.[40] Today, the plant directly and indirectly supports more than 100 jobs and is the biggest contributor to the municipal tax base. Electricity generated is sold to Hydro-Québec through a power purchase agreement.[41]



Ville de Chapais. Photographs courtesy of Ville de Chapais and Pierre Dunnigan

The biomass plant drives other economic development. The municipality wants to implement waste heat recovery and the development of a heated greenhouse network. According to the mayor, this will further diversify Chapais's economy and support the community's vision to double their population by 2025. Innovative biomass products are being developed at the plant, where waste ashes are used to stabilize and fertilize reclaimed mining sites.

40 Natural Resources Canada. 2016. "Forest bioenergy." Accessed December 30, 2017.
41 Paulette, C. 2015. "Chapais Énergie voit son contrat renouvelé." La Sentinelle de Jamêsien. Accessed December 30, 2017.

created a $750-million dollar fund dedicated to closing the broadband gap for 90 per cent of Canadians. The fund will be split into $250 million for Indigenous communities and $500 million for non-Indigenous and rural communities. CRTC has set an ambitious broadband target of 90 per cent of Canadians having access to high-speed broadband with unlimited data by 2021.[42] Federal, provincial and territorial governments should monitor progress in reaching this ambitious target and provide resources to meet it, if required.

This will still leave 10 per cent of Canadians without broadband access. It is important an access plan is developed for these communities, with transparency as to which communities these are.

Jobs that Stay and Pay: Blueberry River First Nation's Oilfield Job Training and the BC Indigenous Skills Training Fund

In the Blueberry River First Nation in northern British Columbia, Black Swan Energy and other oil and gas companies sponsored a course to train Indigenous community members to operate gas pipelines in the area. At the time, no federal or provincial funding was provided to this initiative, but could have helped offset trainee living costs. This program was showcased as a promising practice at the 2017 Indigenous Conference on Energy and Mining in Calgary.

In December 2017, the British Columbia government announced the Blueberry River First Nation would receive funding to expand skills training through their promising $30-million Indigenous Skills Training Development Fund. More than 2,700 Indigenous people accessed training supported through this fund from 2015-2017. Of these participants, 52 per cent found employment and 21 per cent went on to further education. A critical component of this fund is its flexible, place-based design, "provid[ing] the education and transferable skills that fit the needs of the community."[43]

42 CRTC. "Closing the Broadband Gap."

43 Province of British Columbia. 2017. "Education upgrades benefit northeast First Nations." Accessed December 30, 2017.

Recommendation 3.3: Design more flexible labour-market readiness programs for Indigenous and rural people.

Federal and provincial governments can improve the long-term economic participation of R&I people by supporting flexible education initiatives. It is important to offer local opportunities for community members to develop important skills, without requiring them to leave their communities, sometimes never to return. Only 30 per cent of young survey respondents said their community had good schools, training programs or colleges. New structures and funding for labour-market readiness and skills training programs would support youth to remain living and working in R&I communities.

Programs like British Columbia's Indigenous Skills Training Development Fund could provide a blueprint for future investments in labour market development for underserved rural people and for programs led by the private sector. When programs support energy job training, they should be available for renewable and non-renewable sectors. Long-term planning beyond political cycles would also increase the success of these programs.

THEME #4: DELIVERING EFFECTIVE ENERGY TRANSITION SUPPORTS

R&I communities face difficulties navigating through a patchwork of funding sources and regulatory systems. Policy coordination across departments and cooperation among governments at all levels is critical to effectively support a holistic approach to R&I economic development and clean growth. Effective funding for energy transition projects in R&I communities also requires a variety of financing tools and clear, depoliticized funding criteria.

There is no dedicated federal funding mechanism to support and protect R&I economies through the low-carbon energy transition. Instead, there is a patchwork of energy and economic development funding programs across a wide range of federal departments and agencies. However, the programs have different eligibility criteria and funding objectives, leading to a time-consuming and fragmented process for communities seeking funding.

Regulatory systems and policy processes can be incredibly burdensome for communities and projects. Experts and panellists echoed the findings of our literature review in recommending streamlined systems and flexible policy that is responsive and adaptive to community needs and contexts. Important qualities

of effective funding for energy transition projects in R&I communities include: stable, long-term sources of funding; a variety of financing tools; and clear, depoliticized funding criteria. Finally, many participants desired to see all levels of government better coordinate funding programs.

Energy decisions impact many community issues, such as proper housing, affordable food, indoor heating and clean water. Federal funding opportunities should be coordinated in a way that supports a holistic approach to R&I economic development through the energy transition. Departments and agencies need to work across silos to address complex problems. Greater coordination between the federal, provincial and territorial governments is also necessary.

Transition Énergétique Québec

Some jurisdictions, both in Canada and abroad, have made governance issues a central part of their energy policies. Quebec's 2030 Energy Policy relies on four key strategic pillars, the first one aimed at improving "integrated governance of the energy transition."

To that effect, Quebec has created Transition Énergétique Québec, a new agency that coordinates "through a single administration the services and programs that government departments and bodies offer."[44] With this coordination, Quebec hopes stakeholders in the energy transition will act in more coherent and concerted ways and provide better economic development support.

Quebec's approach is inspired by the governance structure already established in other countries including Germany (Deutch Energy Agency), Norway (National Energy Agency and Enova SF) and the United Kingdom (Energy Efficiency Deployment Office and the Energy Saving Trust).

44 Government of Quebec. 2016. Energy in Québec: A Source of Growth.

Recommendation 4.1: Establish a 'single window' for financial support for communities' low-carbon energy transition.

All levels of government should explore opportunities to enhance collaboration and coordination in their financial support for the energy transition of R&I communities. Evidence from Quebec's Transition Énergétique Québec and several European countries demonstrates the advantages of single window approaches for funding delivery. The single window is already used for other federal funding programs, including the recently established Clean Growth Hub established by Innovation, Science and Economic Development Canada and Natural Resources Canada to support Canadian clean technology companies in growing and exporting their products and services.[45] A similar approach to fund the energy transition of R&I communities could yield strong results.

> *"There are a lot of opportunities for innovation and doing things differently [...] but government policies are so slow to change... Communities often have to work around governments because working with them has not worked."*
>
> **— Rural Economic Development Roundtable Panellist**

A single funding window could include a harmonized application process to ease the application and compliance burden on R&I communities.

Recommendation 4.2: Adopt a technology-agnostic approach to supporting renewable energy.

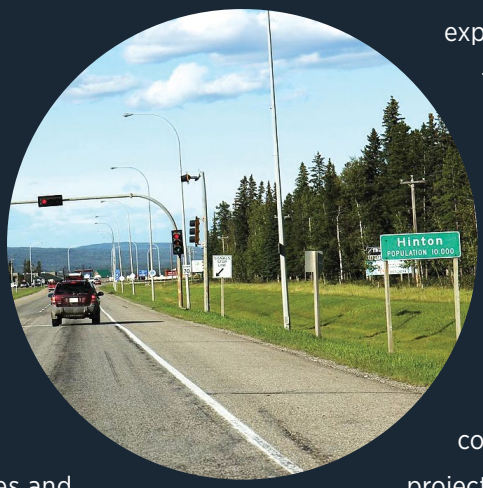
The federal government currently prioritizes certain renewable energy technologies, like wind and solar, with special tax exemptions and funds. Instead, the Government of Canada should adopt a technology-agnostic approach to supporting renewable energy. Communities that do not wish to develop particular renewable energies, but seek alternatives like geothermal, do not currently receive the same federal government support.

All forms of renewable energy technologies should have exceptions within the Canadian Renewable and Conservation Expenses technical guide, be treated equitably within the tax structure for Canadian Resource

45 Clean Energy Canada. 2017. "A clean energy cheat sheet for budget 2017."

Toward a Geothermal Heating District in Hinton, Alberta

Hinton is a municipality of less than 10,000 in northern Alberta. Its economy is composed of forestry, coalmines, oil and gas, and tourism. Town councillor Dewly Nelson leads the Hinton Energy Alternative Team (HEAT), which focuses on an alternative energy strategy for the town. Hinton is working to implement the first municipal geothermal heating district in Canada. In the geothermal heating district system, waste heat from decommissioned oil and gas infrastructure is recovered and used to heat private homes and commercial properties through a centralized distribution system. Hinton hopes to develop economic and employment opportunities through ecotourism and exportable expertise in heating. They also aspire to improve food security by generating low-cost energy to heat greenhouses and support aquaculture.



Despite the initiative's potential, it initially struggled to obtain community support. HEAT systematically engaged citizens and invited deeper questions from geotechnical experts. Few community members were motivated by the environmental benefits of the project; many more prioritized job creation and economic opportunities, and expressed concerns about this technology harming existing economies. Hinton learned the importance of early engagement of community members, which is a best practice for future community-led energy projects in other communities.

The project is seeking private and government funding to prove its viability. The town says funding is difficult to access because it is the first of its kind, and geothermal heating districts are not often included within the same policy framework as other renewable energy sources.

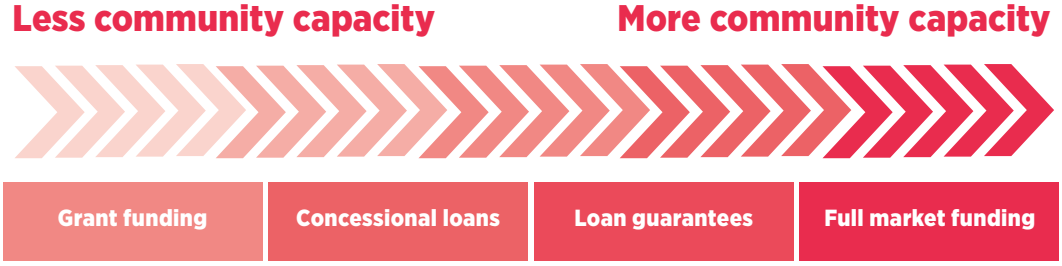
Property management, and have access to revamping funds like the Renewable Power Production Incentive.[46] This would allow for equitable access for communities to develop low-emission energy based on available local resources and preferences.

A technology agnostic approach not only applies to renewable energy, but can also be used to support emissions reduction measures in energy and emissions intensive industrial sectors. The Government of Canada could consider creating funding programs or tax measures that encourage innovative approaches to cut industrial emissions through a combination of fossil fuel reduction, renewable energy development, energy efficiency measures, and carbon sequestration, without marginalizing R&I economies or harming Canada's resource processing and export economy.

Recommendation 4.3: Establish a wider spectrum of Government of Canada financing tools, including a standardized loan guarantee instrument.

R&I communities are different from other communities, including in their planning and management capacity. This range in capacity lends itself to employing a wider range of financial tools. Where a community has less capacity, the federal government should provide grants for energy transition projects. However, where communities have more capacity or propose projects with revenue-generating potential, the federal government should consider the use of concessional loans (loans with low-interest

Spectrum of federal financial tools



46 Canadian Geothermal Energy Association. 2015. "Tell our Government to bring geothermal energy to Canada." Accessed 29 December 2017.

rates and/or long maturities). This type of financing would allow the Government of Canada to share its low borrowing cost to improve the economic viability of socially or economically advantageous projects.

One expert we spoke with also noted the opportunity for the federal government to play a larger role in guaranteeing private sector lending to projects in R&I communities. While the federal government does provide loan guarantees for large projects, such as the Muskrat Falls hydro project in Labrador, it does not currently guarantee loans for smaller projects. A loan guarantee instrument could mobilize additional capital, provide financing for revenue-generating projects in R&I communities and serve as a tool to increase community ownership in specific projects. The loan guarantee could be structured to provide partial coverage against loan default, in order to avoid moral hazard issues and limit financial risk. The newly established Canada Infrastructure Bank could offer these proposed non-grant instruments, while also establishing a dedicated team to focus on smaller community energy transition projects.

How do rural and Indigenous young people envision their future?

In our Powerful Changes: Rural Communities and the Energy Transition Survey, we asked respondents to describe what their lives and communities would look like in 2050. They told us they envisioned:

- Local economies strengthened through new knowledge-based jobs and the renewable energy industry
- A renewed focus on environmental sustainability
- Significantly improved public transportation, with most personal transport to be done in electric vehicles
- The majority of shopping to be done online, with the exception of groceries
- Economically-independent communities
- Increased self-reliance (i.e. greenhouses for locally produced food, manufacturing furniture on-site)
- Communities where people live out of choice, not necessity

CONCLUSION

The role of R&I communities in the low-carbon energy future is important to all of Canada. If we get this right, 2050 will see strong R&I economies: Friends in Low (Carbon) Places. There are substantial risks and opportunities in Canada's low-carbon energy transition. To help communities transition to their best possible future, we encourage the Government of Canada to implement the recommendations outlined in this report.

ENGAGING RURAL AND INDIGENOUS COMMUNITIES IN POLICY DEVELOPMENT	PLANNING FOR THE ROLE OF ENERGY IN ECONOMIC AND SOCIAL DEVELOPMENT	BUILDING RESILIENCE FOR A LOW-CARBON FUTURE	DELIVERING EFFECTIVE ENERGY TRANSITION SUPPORTS
Meaningful change for R&I communities must come from policy that is sensitive to local needs, cultures and priorities. To craft effective and acceptable policies for the energy transition in R&I communities, the government should support **place-based policy-making** processes, improve **community consultation mechanisms** and ensure policy-making and implementation is grounded in communities' **lived experience**.	In order to be successful through the low-carbon energy transition, we need to recognize the role energy plays in a community's wider vision for itself. R&I communities need to be supported in their **energy planning** efforts. Effective planning also relies on **reliable data**, which can be in short supply.	We live in a time of rapid technological and social change. R&I communities must have the capacity to thrive in a low-carbon future and the resilience to withstand uncertainty and change. This can be facilitated by providing more support for **entrepreneurship and innovation**, designing more **flexible labour-market readiness programs** for R&I people, and delivering on the CRTC's **broadband coverage targets**.	R&I communities face difficulties navigating a patchwork of funding sources and regulatory systems. Policy coordination across departments, including a **single-window approach**, and cooperation among governments at all levels is critical to effectively support a holistic approach to R&I economic development and clean growth. Effective funding for renewable energy and de-carbonizing technology in R&I communities also requires a **variety of financing tools**, and clear, **depoliticized funding criteria**.

Young people and experts from R&I communities want to be optimistic about their future. They hope that in 2050, their communities will be prosperous, healthy and environmentally and socially sustainable. For the people that live, work and learn in these communities, it is not a question of whether there will be a healthy and vibrant R&I Canada in 2050, but how long and difficult the path will be to get there. The Government of Canada can play an important role in supporting this change by implementing the 10 recommendations in this report.

Youth Fusion annual regional leadership conference in Eeyou Istchee. *Hyungu Kang*.

> *We are a bright and vibrant town with so much hope and resilience and we believe we can prevail and overcome these issues with a combination of great strength, hard work and relentless drive to attain for our vision for a better, more prolific [community].”*
>
> **— Powerful Changes Survey Respondent**

APPENDIX 1: ROUNDTABLES ON INDIGENOUS AND RURAL ECONOMIC DEVELOPMENT

On November 28 and 30, 2017, we held two 90-minute online panel discussions with young leaders (aged 35 and under) in rural economic development and Indigenous economic development, respectively. The objective was to understand their perspective of the future of R&I communities in a low-carbon energy world. Panellists were asked questions including:

- When you imagine your future, and/or the future of other young people in rural/Indigenous communities, what do you see? What are people doing and how are they living?
- What do you think will happen to rural/Indigenous communities as a result of the energy transition? What will happen to their economies?
- What suggestions can you offer to ensure that rural/Indigenous communities are supported through the energy transition? What do you think the federal government should do to assist?

While there were differences between the two roundtables, many insights were consistent:

- R&I communities are not homogenous. There was clear consensus that "one size doesn't fit all" and that federal policies must be flexible enough to adapt to the unique needs of individual communities.
- Canada's transition to a low-carbon economy could have numerous negative impacts on R&I communities, especially those that are emissions-intensive and trade-exposed. This is a particular concern for youth when considered in tandem with other forces of change, such as automation. The energy transition could result in higher costs of living (especially higher transportation costs), higher costs for resource extraction activity and a widening of the rural-urban divide. However, the energy transition also provides economic opportunities, given both panels identified resilience and innovation as strengths of R&I communities.
- The energy transition will have a multifaceted and complex impact on R&I communities. Policy-making must consider the impacts as a whole and not as individual problems that need to be solved. Economic development opportunities were described as the most important factor to ensuring a successful transition for communities.

- R&I communities are not interested in power production projects as standalone economic opportunities. They are first and foremost looking to meet community needs, such as food security, and consider their energy requirements to support those needs. An integrated community planning approach, as opposed to a siloed project-specific approach, is necessary for a vibrant R&I future.

- While economic viability remains an important consideration in community decision-making, communities are increasingly prioritizing social and environmental impacts. Environmental sustainability, in particular, has been identified as a core value of R&I youth. However, this value is balanced with a sense of pragmatism. For example, communities only support renewable energy when it makes geological and financial sense. They express concerns about renewable energy failing to meet expectations for economic and social benefits, and the potential for negative side effects, such as landscape pollution and water contamination.

- R&I communities have found government funding programs fragmented and challenging to access.

- Given the uncertainty of Canada's energy future, both panels strongly supported federal policies that encourage and support small-scale innovation and entrepreneurship in order to ensure diversity of ideas and community resilience. This includes grants and access to low-cost capital and greater support through federal procurement policies. Both panels also strongly advocated for skills training and education programs in R&I communities. In particular, programs should build capacity in technology, business, governance and leadership.

- R&I communities, and youth within those communities, do not feel adequately understood by policymakers and wish to engage in more meaningful dialogue with the federal government.

- Panellists were not united on the future of the hydrocarbon extractive sector. Some had a personal stake in oil field services and saw a bright future for its economic benefits, while others felt that these projects were not in the best interest of R&I communities.

We offer our sincere thanks to all panellists for taking the time to share their experience and wisdom.

Rural Economic Development Panel

- Brock Endean
- Natalya Melnychuk
- Mary Beth Doucette
- Jason Tweten

Indigenous Economic Development Panel

- Thomas Benjoe
- Paul-Emile McNab
- Jacquelyn Cardinal

APPENDIX 2: POWERFUL CHANGES: RURAL COMMUNITIES AND THE ENERGY TRANSITION SURVEY

In December 2017, we surveyed young Canadians, aged 18-35, living in R&I communities. The objective of the survey was to understand R&I youth's long-term vision for their communities, economic well-being and the energy transition. Approximately 50 youth completed the survey. We thank our validators, Rick Flett and Louis Adams, for their help to design a great survey.

INSIGHT #1: While there are significant challenges living in an R&I community, the majority of respondents want to remain there. However, their views on future economic opportunities in their communities are generally negative, with most are worried about a lack of job opportunities. More than 40 per cent of respondents have struggled to afford food or gasoline in the last year and many expect their communities to continue on a slow decline. As a result, it's not surprising that R&I youth want the government to develop energy policy that "ensur[es] energy does not become too expensive."

> *"Before installing more renewable energy generation, we should be pursuing energy efficiency and conservation to reduce emissions... as low carbon sources still have impacts locally (clearing land) and internationally (mining heavy metals)."*

INSIGHT #2: Somewhat contradictory to their desire for cheap energy and negative feelings on a carbon tax, R&I youth are concerned about climate change and care about the environment and want to protect it. In fact, young people believe that the most important consideration for governments with respect to the energy transition is "protecting the air, water, land and animals and/or preventing climate change".

INSIGHT #3: While approximately half of respondents believe that carbon-based energy will continue to be important or very important to the future economy of Canada, they were divided on the role of carbon-based energy in the future of their own communities. R&I youth generally feel that current carbon policies disproportionately negatively impact R&I communities versus urban communities. There was greater support for leveraging renewable energy as an economic and environmental opportunity for R&I communities than protecting jobs in carbon-intensive industries.

KEY SURVEY RESULTS

HOW WORRIED ARE YOU ABOUT EACH OF THE FOLLOWING FOR YOURSELF OR OTHER COMMUNITY MEMBERS?

= NUMBER OF RESPONDERS

Attribute	Not worried	#	Mildly	#	Moderately	#	Very	#	Don't know	#
Availability of good job opportunities	11%	6	29%	16	20%	11	36%	20	5%	3
Social problems	20%	11	23%	13	25%	14	30%	17	2%	1
Affordable transportation	14%	8	38%	21	25%	14	21%	12	2%	1
Affordable housing	18%	10	30%	17	30%	17	21%	12	0%	0
A healthy environment	31%	17	22%	12	24%	13	24%	13	0%	0
Access to my family and friends	55%	31	20%	11	21%	12	4%	2	0%	0

RIGHT NOW, GOVERNMENTS ARE LOOKING AT HOW AND WHEN TO MAKE THE SWITCH FROM HIGH-CARBON ENERGY (LIKE OIL, GAS, AND COAL) TO CLEANER ENERGY SOURCES (LIKE WIND, SOLAR AND HYDRO). WHAT ARE THE MOST IMPORTANT THINGS THEY SHOULD CONSIDER? RANK YOUR ANSWERS FROM MOST IMPORTANT (1) TO LEAST IMPORTANT (5).

	1		2		3		4		5		Total
Protecting the air, water, land and animals and/or preventing climate change	44%	17	21%	8	13%	5	13%	5	10%	4	39
Ensuring energy (e.g. electricity, fuel) does not become too expensive	22%	10	27%	12	9%	4	24%	11	18%	8	45
Improving the living conditions of First Nations, Metis and Inuit people	22%	9	10%	4	32%	13	15%	6	22%	9	41
New jobs in industries like wind and hydropower	8%	3	26%	10	28%	11	28%	11	10%	4	39
Protecting existing jobs in industries like oil and gas, coal, transportation and farming	6%	3	19%	9	15%	7	15%	7	45%	21	47

WHAT KIND OF IMPACT DO YOU THINK A CARBON TAX WILL HAVE ON EACH OF THE FOLLOWING:

= NUMBER OF RESPONDERS

Attribute	Negative	#	None	#	Positive	#	No opinion	#	Total
The environment	12%	6	16%	8	65%	33	8%	4	51
The lives of people in cities	24%	12	31%	16	31%	16	14%	7	51
The economy of Canada	33%	17	14%	7	43%	22	10%	5	51
The lives of people in your community	45%	23	27%	14	18%	9	10%	5	51
The economy of your community	48%	24	30%	15	16%	8	6%	3	50

IMPORTANCE OF CARBON-BASED ENERGY IN THE FUTURE ECONOMY OF CANADA, INCLUDING BIG CITIES:

Answer Choices	Responses	
Attribute	%	#
Somewhat important	27%	14
Important	27%	14
Not important at all	21%	11
Very important	21%	11
No opinion/don't know	4%	2

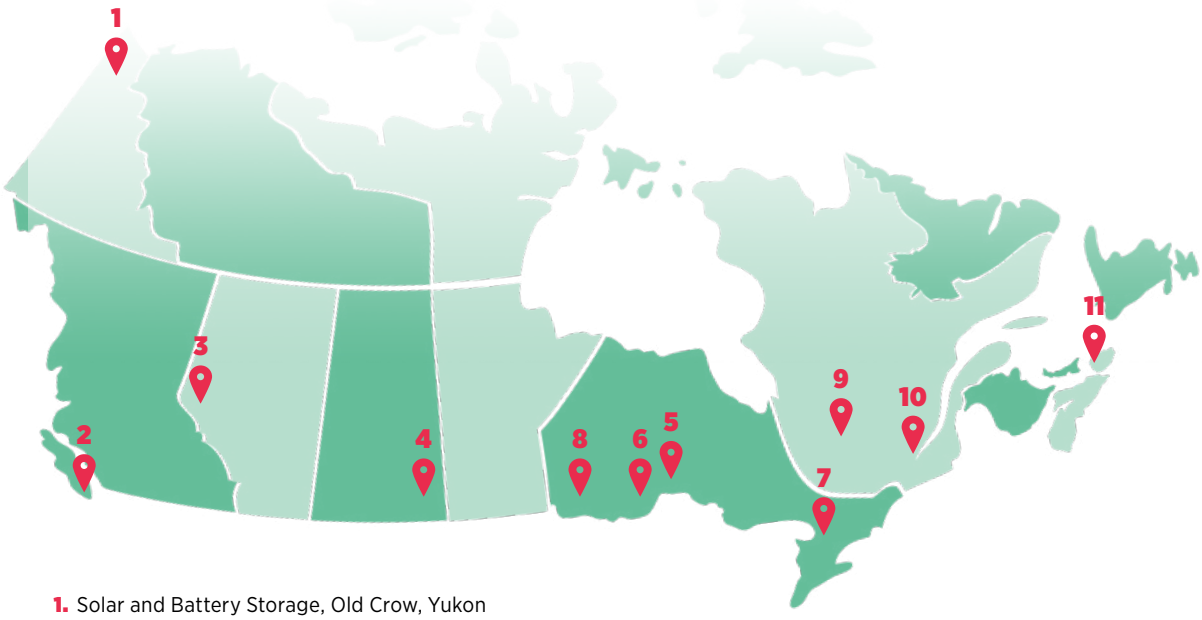
IMPORTANCE OF CARBON-BASED ENERGY IN THE FUTURE OF ABORIGINAL COMMUNITIES:

Answer Choices	Responses	
Attribute	%	#
Just as important	44%	23
Less important	42%	22
More Important	10%	5
I don't know / no opinion	4%	2

APPENDIX 3: SUMMARY OF RURAL AND INDIGENOUS COMMUNITY PROJECTS REVIEWED

In the course of our research, we learned about various R&I community energy initiatives through our research, attendance at events, and meetings with community members.

The experiences of these communities and initiatives informed our work and provided many positive examples of the low-carbon energy we envision for Canada in 2050. We would like to thank all experts and community members for sharing their experiences with us.



1. Solar and Battery Storage, Old Crow, Yukon

2. Rooftop Solar and Wasabi Greenhouses, T'Sou-ke First Nation, British Columbia

3. Community Geothermal, Hinton, Alberta

4. Wind and Battery Storage demonstration project, Cowessess First Nation, Saskatchewan

5. Off-Grid Solar, Gull Bay First Nation, Ontario

6. Wataynikaneyap Transmission Project, Nishnawbe Aski Nation Territory, Ontario

7. Dokis Hydro, Dokis First Nation, Ontario

8. Food Quality Distribution Centre, CreeWest GP Inc. in partnership with Kitchenuhmaykoosib Inninuwug and Lac Seul First Nation, Sioux Lookout, Ontario

9. Community Biomass Co-generation, Chapais, Quebec

10. Transition énergétique Québec, Quebec

11. Bras d'Or Lakes Collaborative Planning Initiative, Nova Scotia

GLOSSARY

Low-carbon energy transition:

The collective economic, social and policy changes required to switch from a high-emission to a low-emission energy system and broader economy.

Rural communities:

Canada-wide definitions of rural are inconsistent. In some cases, it refers to communities with a population centre under 1,000 and low population density, and in other cases a population centre under 10,000. In this paper's statistics and numerical analysis, 'rural communities' means small and rural population centres, and includes First Nations communities. However, for discussion purposes, the term 'rural communities' is used to mean small communities under provincial jurisdiction (e.g. municipalities).

Indigenous communities:

In this report, the term 'Indigenous communities' refers specifically to communities of Indigenous (First Nations, Métis and Inuit) peoples not under provincial jurisdiction. Communities of Indigenous peoples under provincial jurisdiction (i.e. many Métis communities) are categorized as rural communities for the purposes of this report.

Energy system:

An energy system refers to the full value chain of production, conversion, delivery and consumption of energy. It is important to note the difference between electricity, which must be used immediately in the absence of electricity storage infrastructure such as batteries, and fossil fuels or biofuels, which can be transported and consumed at the desired date.

Greenhouse gas (GHG) emissions:

Any gaseous compound that retains heat or absorbs infrared radiation from the earth. The three greenhouse gases that contribute most to climate change are nitrous oxide, methane and carbon dioxide. These compounds do occur naturally, but the rate at which humans produce them contributes to the greenhouse warming effect.

Place-based policy-making:

In contrast to the traditional sectoral approach of supporting specific sectors and firms within sectors, place-based policy-making highlights the need to invest in the capacity of a place to develop itself. Place-based approaches are more holistic, and require local

actors to participate in the design and implementation of policies that suit their specific community needs.

Trade-exposed commodities:

Emission-intensive resources and products that are extracted and sold internationally at a market price. By their commoditized nature, producers of these products are exposed to risks from carbon reduction policy and regulatory changes.

Technology agnostic:

A neutral approach to selecting energy production, conversion, delivery and/or storage technologies. For example, carbon capture technology and renewable energy sources are two forms of GHG emission-reducing technology, and a technology-agnostic approach would not prefer one technology over another if they both achieve similar policy or performance objectives.

Lived experience:

Knowledge gained through direct, first-hand involvement living as a member of a community or group.

Community energy plan:

A community-developed plan outlining the role of energy within a community's broader economic, environmental and social vision. This may include aspects of energy conservation, environmental stewardship, energy security and resilience, sustainability and economic development. Community energy plans should be developed through a deliberative approach that engages all community members in an informed discussion to develop a shared vision and clear understanding of the resources required to meet it.

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Your Energy Future

Votre Avenir Énergétique