

Acting on Climate Change: Indigenous Innovations

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Context

Acting on Climate Change: Indigenous Innovations proposes novel ways of fully engaging Canada's Indigenous peoples in climate change policy, by putting Indigenous initiatives at the heart of the solutions agenda. The project would bring together representatives from Indigenous nations and researchers from across Canada to carry out research, reflection and action in three core areas of the Trudeau Foundation: Human Rights and Dignity, Responsible Citizenship, and People and their Natural Environment. Acknowledging that “the goal of decolonial thinking and doing is to continue reinscribing, embodying and dignifying those ways of living, thinking and sensing that were violently devalued or demonized by colonial, imperial and interventionist agendas”¹, my Trudeau project is one step forward in the pathway of reconciliation called for by the Truth and Reconciliation Commission².

In 2011, Canada's Assembly of First Nations submitted the report *Gap analysis. First Nations Climate Change Adaptation South of the 60th degree latitude*³ to the then Indian and Northern Affairs Canada. The report unveils the existence of a number of climate initiatives led by First Nations in Canada, many of which are in renewable energy, as well as a general perceived lack of capacity amongst First Nations' leaders vis-à-vis climate change action. Over 80% of the report's survey respondents perceived that their communities lacked the capacity to pursue climate change adaptation related research and funding. The first recommendation of the report is to develop a First Nations climate change communication and capacity-building strategy which could “serve[s] to build the adaptive capacity of southern First Nation communities through education, communication and information dissemination.”

The perceived gap in capacity and ability to act on climate change was echoed in 2014, in the context of natural resource extraction, by Professor James Anaya, at the time the United Nations Special Rapporteur on the Rights of Indigenous people, who wrote: “One of the most dramatic contradictions Indigenous peoples in Canada face is that so many live in abysmal conditions on traditional territories that are full of valuable and plentiful natural resources. These resources are in many cases targeted for extraction and development by non-Indigenous interests. Perhaps more importantly, Indigenous nations' efforts to protect their long-term interests in lands and resources often fit uneasily into the efforts of private non-Indigenous companies, with the backing of the federal and provincial governments, to move forward with natural resource projects.”⁴

A Trudeau Fellowship would provide me with the means of extending the work of *Sustainable Canada Dialogues*⁵, an informal network of 60+ researchers from 10 provinces representing climate change expertise across a wide range of disciplines, from engineering to sociology, which I spearhead. In our first report, *Acting on Climate Change: Solutions from Canadian Scholars*⁶, a scholarly consensus around a made-in-Canada Climate Action Plan, the researchers

¹ <https://transnationaldecolonialinstitute.wordpress.com/decolonial-aesthetics/>

² <http://www.trc.ca/websites/trcinstitution/index.php?p=890> (last visited Nov 13th 2015)

³ Scurr, C. and Beaudry, J. 2011. Gap analysis. First Nations Climate Change Adaptation South of the 60th degree latitude. Report submitted to INAC.

⁴ The Situation of indigenous peoples in Canada A/HRC/27/52/Add.2

⁵ <http://sustainablecanadadialogues.ca/en/scd>

⁶ <http://sustainablecanadadialogues.ca/en/scd/endorsement>

emphasize that “as Canada moves forward to meet the challenges posed by renewable energies, future resource extraction, and industrial development, Indigenous sovereignty and Indigenous governance are defining issues.”

Trudeau Project Objective

The main **objective** of this Trudeau project is to facilitate cross-cultural learning on climate change, ensuring that Indigenous peoples of Canada become full partners in the country’s transition to a low-carbon economy and sustainable society.

To reach this objective, I propose two specific goals:

- (1) Develop a participatory process to identify, document and give visibility to inspiring Indigenous peoples’ climate change and sustainability initiatives as key elements of Indigenous-Indigenous learning;
- (2) Establish the foundation of a long-term cross-cultural dialogue between Canada’s Indigenous peoples, a community of scholars working on climate change and decision-makers to support culturally-relevant, evidence-based climate decision-making informed by Indigenous traditional knowledge.

Two threads, intricately woven, form the guiding path to my career, providing me with the experience and knowledge to ensure this project’s success: my expertise on global environmental changes and my longtime collaborations with Indigenous peoples. More specifically, I have been working at the interface of conservation science, political decision-making and participatory research for over twenty years. Of key relevance are: (1) my work in Panama on land use conflict resolution⁷, (2) my participation in the negotiations at the UN Framework Convention on Climate Change for Panama where, amongst other achievements, I successfully advocated for the inclusion of Indigenous peoples in the official Convention’s text for reducing emissions from deforestation and forest degradation⁸, (3) my leadership of *Sustainable Canada Dialogues* and (4) my engagement in building bridges fostering Indigenous-Indigenous learning between Indigenous peoples in Panama and Canada through video-making (see p. 9 for details).

During the March 2015 launch of *Sustainable Canada Dialogues*’ first report, *Acting on Climate Change: Solutions from Canadian Scholars*, a representative of the Assembly of First Nations brought to our attention many forward-thinking climate change-related initiatives from First Nations across Canada. Initial discussions with a number of different communities indeed highlight the wealth and breadth of different exciting initiatives that are taking place across the country. Some initiatives rest on technological development, others are rooted in traditional knowledge and they are all informed by Indigenous peoples’ unique vision of sustainability and links to the land. Here are a few examples:

- T’Sou-ke Nation of British Columbia, a community that embraced solar energy and sustainability at the heart of their sustainable development strategy:
<http://www.tsoukenation.com/>

⁷ <http://biology.mcgill.ca/faculty/potvin/>

⁸ FCCC/SBSTA/2008/L.23, Article 11 <http://unfccc.int/resource/docs/2008/sbsta/eng/l23.pdf>

- Innu from Mashteuiatsh, who run an interesting hydroelectric project with neighbouring Quebec communities: <http://www.energievertelsj.ca/fr/11/Raison-d-etre/>
- Bigstone Cree Nation, who live in the context of oil sand exploitation and have developed alternative environmental impact assessment guidelines that better respect their vision of the land: <http://www.bigstone.ca/>
- Attikamek from Manawan, who have modified the school curriculum to allow children and youth to learn on the land: <http://www.manawan.com/>

These and other similar initiatives have the potential to inform decision-making in Indigenous communities, as leaders and community members take a stand on climate change and discuss a way forward. Yet, to date, such initiatives lack national and international visibility. As indicated by the Assembly of First Nations: “Communities must be made aware of other First Nations adaptation efforts within their regions and across the country... There is a wealth of talent and ability within First Nations communities that must be realized and developed to ensure the growth of community capacity to address climate change in the future.”⁹

The initiatives I mention above are of First Nations because this project proposal was elaborated in collaboration with personnel from the Assembly of First Nations and the First Nations of Quebec and Labrador Sustainable Development Institute. We plan to also include Métis and Inuit communities and leaders as the project develops. Collaboration with preminent Indigenous Fellows and Mentors of the Trudeau Foundation (see p. 7) could facilitate the necessary connections.

By offering examples of successful Indigenous initiatives, *Acting on Climate Change: Indigenous Innovations* would favour Indigenous-Indigenous learning as well as a decision-making process in which climate policy is informed by traditional knowledge. The highly positive experience of the T’Sou-ke shows that many members who were laid off from the fishing and lumber industry have now found new hope in the cutting edge renewable energy sector. Besides developing diffusion material and creating capacity, a tangible result of the project could be to open up new opportunities for Indigenous peoples exploring energy and sustainability in terms of training, new jobs and long-term economic development.

Methods

Specific Goal 1: Develop a participatory process to identify, document and give visibility to inspiring Indigenous peoples’ climate change and sustainability initiatives as key elements of Indigenous-Indigenous learning.

I propose developing *Acting on Climate Change: Indigenous Innovations* as an action-research¹⁰ project in which every step will be decided after discussions with the project’s coordination committee and team. The project’s coordination committee will consist of, in alphabetical order:

⁹ Scurr and Beaudry, 2011, Section 6

¹⁰ Greenwood, D. J., & Levin, M. (2007). *Introduction to Action Research* (2nd ed.). Thousand Oaks, California: Sage Publications, Inc.

filmmaker Mme Manon Barbeau (Wapikoni Mobile¹¹), Mme Catherine Béland and Mme Mylène Clavreul (First Nations of Quebec and Labrador Sustainable Development Institute), Professor Ann Dale (2004 Trudeau Fellow and *Sustainable Canada Dialogues* scholar), Mr. William David (Assembly of First Nations) and Mr. Andrew Moore (T'Sou-ke Nation of British Columbia) a representative from partner communities (see below), all of whom have accepted.

The **first year of the project** will be used to develop a database of Indigenous climate change and sustainability initiatives, using as a basis the numerous projects identified by Assembly of First Nations and known to the First Nations of Quebec and Labrador Sustainable Development Institute, as well as through informal queries through the collective networks of the project participants, reaching out also to Métis and Inuit scholars and leaders. The first output of the project will, therefore, be an updated and expanded list documenting Indigenous climate change initiatives in Canada.

The best way to give visibility to these initiatives will be decided jointly by the project's team and coordination committee. For example, a web presence could be developed allowing communities to highlight their accomplishments in their own way, including but not restricted to short videos, illustrations, technical briefs or photo reportages. Because artistic expressions can serve to decolonize the way forward¹², in my preliminary consultation with the coordination committee, I proposed producing a documentary giving a voice to a subset of these initiatives. The chosen initiatives would serve to inform discussions of possible climate actions.

The coordination committee will seek input on, discuss and agree upon criteria to select core projects for the documentary. In essence, the projects selected will be those that best illustrate state-of-the-art positive climate actions from an Indigenous perspective. Giving visibility to Indigenous achievements would serve to develop a sense of pride and respect for Indigenous climate change initiatives. For now, it is envisioned that five to six communities would be invited to join the project as partners in the documentary, each given 10-15 minutes of film time. De facto, these partner communities would form the project's team, clearly linking the project to the land. If the Trudeau Foundation approves my project, I will seek additional funding from a range of sources such as SODEC, Telefilm Canada, and Indigenous and Northern Affairs, to include two to three additional communities in the documentary.

The **second year of the project** would focus on developing a deeper understanding of the chosen initiatives with each of the participating communities. If the idea of a documentary is retained, then a scenario needs to be developed by each community. We will also need to ensure "unity amongst diversity" for the overarching documentary. An experienced Indigenous filmmaker will be invited to join the coordination committee, his/her role being to ensure a common artistic signature throughout the film. Interesting novel approaches to co-creation, such as that of the Embargo Project¹³, will be discussed as model. The lead filmmaker and the project's team would work together to ensure that the film is locally, nationally and

¹¹ <http://www.wapikoni.ca/home>

¹² Pedri-Spade, C. 2014. Nametoo: Evidence that he/she is/was Present. *Decolonization: Indigeneity, Education & Society* Vol. 3, No. 1, 2014, pp. 73-100

¹³ <http://www.indigenoucinema.com/event/reel-kanata-the-embargo-project/>

internationally significant. The coordination committee, in close consultation with the project's team, will identify the lead filmmaker and the production company.

In each community, a local filmmaker will join the lead filmmaker, and the filming crew will be local. Wapikoni Mobile's participation would ensure the necessary technical and cinematographic know-how to do so. Wapikoni was founded in 2003 by filmmaker Manon Barbeau in collaboration with the Atikamekw Nation Council and First Nations of Quebec and Labrador Youth Network, with the support of the Assembly of First Nations of Quebec and Labrador. Wapikoni Mobile therefore has 10 years of experience in sharing a voice of First Nations through filmmaking. It has worked in 28 communities in Quebec, assisting in the realization of over 800 films and winning 100 prizes in the process.

The **third year of the project** will be dedicated to post-production and early diffusion. Initial discussions with the project coordination team have identified three target audiences for the documentary. First, the film will be screened in Indigenous communities and could serve as an input to future decision-making and to build pride for the impressive successes underway in so many Indigenous communities of Canada. Emphasizing successes is particularly important in view of the troubling socio-economic situation in which Indigenous peoples in Canada live: according to the United Nations, 96 of the 100 Canadian communities at the bottom of the Community Well-Being Index are First Nations.¹⁴

Second, the film will be screened and distributed to decision-makers at the federal, provincial and municipal levels where appropriate. The new government of Canada has promised to advance on Indigenous policy and it is noteworthy that the new Minister of Indigenous and Northern Affairs is a member of the Cabinet Committee on Environment, Climate Change and Energy. Providing case studies of success could help identify projects with a potential for replication and help build trust in Indigenous peoples' own ability to take control of their climate change actions. As *Sustainable Canada Dialogues* has unfolded in 2015, we have directly met with over 50 policy-makers, including Premiers, Ministers, Deputy Ministers and Members of Parliament¹⁵. This initial contact list will facilitate enhanced exchanges with decision-makers.

Finally, we will broadly distribute the film to non-Indigenous Canadians as an educative tool, hopefully providing an antidote to widespread negative stereotypes and open racism against Indigenous peoples¹⁶. As the project unfolds the coordination committee and the project's team will develop together a communication strategy to ensure these different audiences are reached in the most efficient manner. Broad diffusion will be facilitated by the vast distribution network of Wapikoni in both Indigenous and non-Indigenous circles. In addition, ongoing discussions with the Centre des Sciences de Montréal¹⁷ identified possible synergies between my Trudeau project and an exhibition on Indigenous peoples' knowledge upon which the Centre des Sciences is working in the context of the 375th anniversary of Montreal and the 150th anniversary of the

¹⁴ The Situation of indigenous peoples in Canada A/HRC/27/52/Add.2

¹⁵ <http://sustainablecanadialogues.ca/en/scd/follow-us>

¹⁶ King, T (2012) *The Inconvenient Indian: A Curious Account of Native People in North America*; and Palmater, P (2015) *Indigenous Nationhood, Empowering grassroots citizens*, Fernwood publishing, Halifax, Winnipeg.

¹⁷ <http://www.centredessciencesdemontreal.com/>

Confederation. The exhibition of the Centre des Sciences could incorporate some of our output and will be circulated throughout Canada starting in 2018 for a five-year period.

Specific Goal 2: Establish the foundation of a long-term cross-cultural dialogue between representatives from Canada's Indigenous peoples, a community of scholars working on climate change and decision-makers, to support culturally-relevant, evidence-based decision-making informed by Indigenous traditional knowledge.

Engaging with the Trudeau Foundation Scholars and Fellows is key to reaching the project's second objective. Taking advantage of the intellectual power of the Foundation, a call will be extended to Trudeau Fellows, Mentors and Scholars to join the project team together with *Sustainable Canada Dialogues* scholars. The project team would therefore be comprised of community partners and researchers who would share knowledge and experiences over three years in close interaction with the project coordination committee.

I anticipate that many synergies could emerge between the project team and several Trudeau Fellows and Scholars, such as Trudeau Fellows Nancy Turner (2015), Evan Fraser (2014), Jason Edward Lewis (2014) or Maria Campbell (2012); Trudeau Mentors Madeleine Redfern (2013) or Cindy Blackstock (2012); and Trudeau Scholars Nathan Lemphers (2014), Aaron Mills (2014), Sebastien Jodoin (2011) or Karina Benessaiah (2010), all of whom have either extensive networks with Indigenous communities or other highly relevant scholarly knowledge. Five *Sustainable Canada Dialogues* researchers (Ashlee Cunsolo-Wilcox, U. of Cape Breton; Ian Mauro, U. of Winnipeg; Pam Palmater, Mi'kmaw, Ryerson U. and Chantelle Richmond, Anishinaabe, U. of Western Ontario) have also confirmed their interest in joining the project's team and would provide continuity in the development of a climate change solutions agenda in Canada.

Two series of virtual encounters will be organized during the duration of the project using web-based tools to bring together interested project members, whether community members or researchers or decision-makers. The first series of virtual meetings will address specific questions/concerns of Indigenous partners and leaders across Canada. The idea is to host three to four one-hour encounters every year. The encounters could be akin to a lecture in which a guest speaker is invited or to a discussion forum in which participants can share opinions and concerns. The other series of virtual meetings will be called as needed and will serve to provide feedback on the project's specific decisions, such as project selection criteria, diffusion modes, and so on. Regular meetings will favour Indigenous to Indigenous mentorship and facilitate Indigenous-researchers-decision makers' exchanges. The minutes of these discussions could serve to produce Resource Guides, Toolkits and How-To Guides.

Building on Past Projects

I was trained as an ecologist and my Ph.D. work centered on the feedback between plants and atmospheric carbon dioxide concentration (CO₂). Plants are the only natural pumps that take up CO₂ from the atmosphere to store it in their tissues. Forests are, therefore, natural carbon reservoirs and play a key role in regulating climate. In 1994, I visited for the first time the forest of Darien in eastern Panama, a global hotspot of biological diversity. During that first visit to Darien more than twenty years ago, I encountered the Emberá Nation who inhabit these forests,

and I discovered the close interrelationships between forests and people. They taught me that “the tree is the forest and the forest is the territory”. Since then my career has largely focused on ways to improve the livelihoods of forest dwellers while conserving the forest itself. A few years ago, my graduate students chose “Science for Empowerment” as the laboratory motto. This choice speaks to what we have been working for in the past twenty years: providing knowledge to Indigenous communities of Panama to support their decision-making related to land use. My work on tropical forest carbon stocks was central to my invitation by the Government of Panama to negotiate reducing emissions from deforestation and forest degradation at the UN Framework Convention on Climate Change.

My interest and experience with international climate negotiations led me, in the build-up to the Paris Climate Summit (December 2015), to shift some of my research activities towards bringing science into the realm of Canadian policy. To this end, three years ago I spearheaded *Sustainable Canada Dialogues*¹⁸, fostering collaboration among researchers representing climate change expertise across a wide range of disciplines, from engineering to sociology, biology to business. The collaboration, funded by the McGill Faculty of Science and the Trottier Institute for Science and Public Policy, resulted in the scholarly consensus *Acting on Climate Change: Solutions from Canadian Scholars*¹⁹, a made-in-Canada Climate Action Plan proposing 10 policy orientations that can kick-start Canada’s transition to a low-carbon economy starting now. Referred to in some 100 print and online articles, 50 radio interviews and 30 conferences across Canada since the launch in March 2015, *Sustainable Canada Dialogues* has been very successful at reaching decision-makers and the general public.

Through *Sustainable Canada Dialogues*, I was able to bring some of the best minds in Canadian universities out of the academy and into the public sphere. Our objective has been to communicate with the people of Canada about science-based evidence for climate change mitigation in order to stimulate policy action. *Sustainable Canada Dialogues* was highly innovative in many ways.

- (1) **Consensus:** We developed, for the first time in Canadian history, a broad-based consensus around comprehensive solutions to climate change amongst scholars from coast to coast. Reaching consensus among climate scholars from different provinces, areas of expertise, age, language, disciplines and gender was a lofty goal, and one not previously accomplished in Canada.
- (2) **Actionable Now:** In response to the helplessness that people feel when they think of climate change, *Sustainable Canada Dialogues* proposed practical solutions. We answered the question: “What can we do, starting today, at all levels of government and across all sectors, regardless of political affiliation?”
- (3) **Positive and inclusive:** We believe that all sectors of Canada must engage in the transition toward a new model of development. *Sustainable Canada Dialogues* does not put blame on anyone, but rather seeks solutions viable in all provinces and territories.
- (4) **Reaching out to Canadians:** Outreach has been a central objective of *Sustainable Canada Dialogues* from the beginning. Scholars who joined the initiative participated in public events, from submitting op-eds to newspapers to hosting workshops, speaking with

¹⁸ <http://sustainablecanadadialogues.ca/en/scd>

¹⁹ <http://sustainablecanadadialogues.ca/en/scd/endorsement>

the media or meeting with policy-makers and community members – a significant success for professors more accustomed to classrooms than to journalists and politicians.

Convinced that putting options on the table will stimulate action and is long overdue in Canada, *Sustainable Canada Dialogues* opened the discussion to diverse Canadians. Conscious of the need for feedback from Indigenous groups, I invited several Indigenous organizations to provide us with comments. In a period of a few months, we received 28 contributions from business associations, NGOs, labour groups, youth organizations and private citizens from across Canada, who shared their climate policy proposals in *Acting on Climate Change: Extending the Dialogue Among Canadians*. The First Nations of Quebec and Labrador Sustainable Development Institute was amongst the contributors, with a chapter calling for the decolonization of climate change actions.

In addition, through my UNESCO-McGill Chair for Dialogues on Sustainability, I reached out to Wapikoni Mobile three years ago to collaborate in providing training in video-making to young Emberá, Kuna and peasant farmers in the Bayano Region of eastern Panama, an area riddled with land-use conflict. Overall three workshops were held and seven documentaries were produced. One of them, *Nuestro Hogar*, has been selected for screening at the Festival Cine de las Americas in Austin, Texas²⁰. Following the success of this collaboration, three Indigenous Anishnaabe from Kitcisakik, Canada, were invited to Panama for a cultural exchange with Indigenous Panamanian youth as part of a documentary filmmaking project in collaboration with Wapikoni Mobile. While students identified this experience as life-changing, the same was apparently true for the Anishnaabe²¹. Because of this first exchange, I was invited to participate in a Social Sciences and Humanities Research Council of Canada funded project “Power of the Lens”, led by Dr Thora Herrmann of l’Université de Montréal. This action-research project builds bridges amongst six Indigenous groups worldwide using cross-cultural video research on territory, identity, and bio-cultural diversity. Our experiences from this project will facilitate the present proposal.

Conclusion

This year’s annual Trudeau Conference, entitled “Fail, Adapt and Innovate: Institutions for a Changing Society” noted that the extent of changes faced by humans in this century is unprecedented. Nurturing collaboration amongst and with Indigenous peoples in Canada to identify culturally appropriate ways to face global environmental changes, as proposed in my project, is thus in complete coherence with the Trudeau’s Foundation goal to “engage in the most pressing challenges of our time”.

²⁰ <http://www.wapikoni.ca/search?Keyword=panama>

²¹ <http://www.wapikoni.ca/actualities/news/kevin-papaties-travelogue-for-panama>

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November 16, 2015

c/o Catherine Potvin, Fellow of the Royal Society
of Canada
Canada Research Chair Climate Change Mitigation and
Tropical Forests
Professor, Department of Biology
Trottier Fellow, Trottier Institute for Science and Public Policy
1205 Dr. Penfield
Montreal, Quebec H3R 2B7

TO WHOM IT MAY CONCERN:

Please accept this letter as an indication of the Assembly of First Nations' (AFN) interest in collaborating on the proposed project entitled *Acting on Climate Change: Indigenous Innovations*. The proposal is consistent with AFN Resolution #38/2015, *Canada's Obligation to Develop with Indigenous Peoples a National Action Plan for Implementation of the UN Declaration on the Rights of Indigenous Peoples*.

First Nations across Canada have been undertaking action on climate change, both in furtherance of mitigation initiatives and in terms of adapting to the impacts of climate change, for the past 15 years. Our collaboration on this project will be founded in the projects and initiatives which First Nations have already started or completed, as evidence in our report entitled *Literature Review of First Nations programs and initiatives*.

In addition, the AFN intends to rely on regional information gathered as part of a bi-national (Canada/United States) project on impacts and adaptation to climate change among Maine tribes and New Brunswick First Nations. This project explored the importance of both culture and public policy on assessment of climate change impacts, as well as on adaptive measures implemented by both tribes and First Nations.

Finally, the AFN intends to contribute conclusions from ongoing research, undertaken in collaboration with the University of Ottawa and Université de Montréal. The First Nations Food, Nutrition and Environment Study, while mainly focused on First Nations diets and chemical contamination, has produced significant and novel data on the impacts of climate change on First Nations diets, particularly as related to traditional foods.

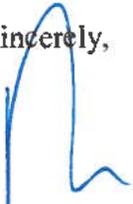
In closing, the AFN notes that the kind of collaboration evidenced by the Sustainable Canada Dialogues and continued through this project proposal is exactly the kind of

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initiative required to address climate policy in Canada: founded in dialogue, collaboration, justice and information-sharing.

Sincerely,



Peter Dinsdale
Chief Executive Officer





IDDPNQL
INSTITUT DE DÉVELOPPEMENT DURABLE DES
PREMIÈRES NATIONS DU QUÉBEC ET DU LABRADOR

FNQLSDI
FIRST NATIONS OF QUEBEC AND LABRADOR
SUSTAINABLE DEVELOPMENT INSTITUTE

Québec, November 13th, 2015

The Pierre Elliott Trudeau Foundation
600 - 1980 Sherbrooke Street West
Montréal, Quebec Canada H3H 1E8

Re: FNQLSDI's support for the Catherine Potvin/Trudeau's project "Acting on Climate Change: Indigenous innovations".

The First Nations of Quebec and Labrador Sustainable Development Institute (FNQLSDI) fully supports the above-mentioned project, which concords with the FNQLSDI's mission. As partners of the project (conditional to funding), we sincerely value the expected outcomes of this project, which would greatly contribute:

- 1) To emphasize the First Nations communities' initiatives.
- 2) To develop a useful network of knowledge and capacities in order to push forward our actions on climate or environmental change.

The FNQLSDI was established in 2000 by the First Nations of Quebec and Labrador Chiefs' Assembly in order to support the deployment of the First Nations Sustainable Development Strategy. The FNQLSDI works in partnership with the 43 First Nation communities located in the province of Quebec. The FNQLSDI's main mission is to provide First Nations a vibrant hub services, in support of their efforts to the health of the land and its resources, to the development of sustainable communities and to the recognition of First Nations' rights.

In hopes the Trudeau Foundation will see the value of contributing to this important project,

Best regards,

Michael Ross, Coordinator of the FNQLSDI

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ACTING ON CLIMATE CHANGE

Solutions
from Canadian Scholars



SUSTAINABLE CANADA DIALOGUES

Sustainable Canada Dialogues (SCD) seeks to motivate change and help Canada in its necessary transition toward a low carbon economy. Through mobilization of scientific expertise, the initiative identified positive solutions that overcome obstacles to sustainability.

The initiative is oriented around three central activities :

Mobilizing scholars and Canadian expertise

More than 60 Canadian scholars from all 10 provinces

Identifying possible futures by fostering public discussion

A possible pathway for a sustainable Canada

ACKNOWLEDGEMENTS

This project was made possible thanks to the support of the **Trottier Institute for Science and Public Policy** of **McGill University** to C.P. and **UNESCO-McGill Chair for Dialogues on Sustainability**.

Many dedicated people made this project possible, to whom we owe our deepest gratitude. We are grateful to **Rosine Faucher**, who ensured implementation of the Delphi survey. **Taysha Palmer** did a great job as copy editor. Thanks also to **Martine Larouche** for proofreading the document. We are most grateful to **David Aldred** who provided the information necessary to produce the map of sustainable energies in Canada. The magical touch of **Globaïa** and **Felix Pharand-Deschênes** gave life to our position paper. **Jocelyne Néron** came to help when fatigue was setting in. Last but not least, **Natalie Richards** helped keep the ship afloat over an intense 18 months of work.

Thanks to **M. Anjos, F. Bouffard, C. A. Cañizares, E. Feurtey, J. Gibbons, L.D. D. Harvey, R. Lanoue, W. Locke, G. Marleau, J. Meadowcroft, N. Mousseau, P.-O. Pineau, I. H. Rowlands, H. Tremblay, L. Trottier, M.S. Winfield, J. Whitmore** and **E. Yiridoe** for contributions to a stimulating discussion during a workshop on Energy in Eastern Canada.

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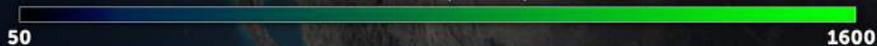
March 2015

To **Adèle** (2 months), **Alice** (4 years), **Arthur** (17 months), **Avery** (2 years), **Brookelyn** (7 years), **Camille** (3 years), **Elias** (5 years), **Emma** (1 week), **Evan** (8 years), **Gabriel** (2 days), **Hannah** (9 years), **Isis** (3 years), **Jai** (10 years), **Josh** (10 years), **Jules** (2 weeks), **Keestin** (5 years), **Louve** (11 years), **Maggie** (13 years), **Megan** (13 years), **Manami** (2 years), **Matthew** (6 years), **Mireille** (13 years), **Naomi** (13 years), **Penelope** (7 years), **Samantha** (18 months), **Tal** (16 months), **Wilson** (12 years), **Wusko** (9 years), and all other children:

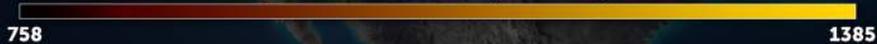
YOUR FUTURE IS OUR INSPIRATION.

Canada's vast renewable energy potential

WIND ENERGY (W/m²) AT 50M



SOLAR ENERGY (kWh/kW)



 **Existing Dams**

 **Potential Dams**

 **Transmission Lines**

DATA
Solar Energy: Published by Natural Resources Canada and Environment Canada. Reproduced with the permission of Natural Resources Canada © Her Majesty the Queen in Right of Canada, 2007.
Wind Energy: Images downloaded from <http://www.windatlas.ca> on February 1, 2015. Environment Canada.
Transmission Lines: Government of Canada, Natural Resources Canada, Earth Sciences Sector, Canada Centre for Mapping and Earth Observation.
Existing Dams: Natural Resources Canada, Atlas of Canada 1,000,000 National Frameworks Data, Hydrology - Dams (V6.0), 2010.
Potential Dams: Global Forest Watch Canada, Hydropower Developments in Canada: Number, Size and Jurisdictional and Ecological Distribution, 2012.
Earth: NASA, Globaia. | Thanks to David Aldred for providing several datasets.

DESIGN
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10 KEY POLICY ORIENTATIONS

SHORT TERM	MIDDLE TERM	LONG TERM
POLICY ORIENTATION 1 Put a price on carbon.		
Adopt either a national carbon tax or a national cap and trade program.		
POLICY ORIENTATION 2 Include aggressive goals for low-carbon electricity production in federal and provincial climate action plans.		
Adopt ambitious sectorial targets for low-carbon electricity production.		
Support interprovincial electricity transportation infrastructure.		
POLICY ORIENTATION 3 Integrate the oil and gas production sector in climate policies.		
Eliminate all direct and indirect subsidies to the fossil fuel industry.		
Develop a clear regulatory framework coherent with the transition to a low-carbon economy.		
POLICY ORIENTATION 4 Adopt a multi-level energy policy with energy efficiency and cooperation in electrification at its core.		
Develop a national energy policy with long-term plans for transitioning to low-carbon energy.	Implement efficiency targets for energy use in the extractive industry.	
Ensure government efficiency standards and procurement.		
POLICY ORIENTATION 5 Throughout Canada, rapidly adopt low-carbon transportation strategies.		
Update emissions standards for vehicles and support fuel diversification.	Electrify road transport.	
Support new models of transportation.		
Favor active transportation.	Improve and increase intercity rail and intermodal transportation.	
POLICY ORIENTATION 6 Integrate landscape, land use, transportation and energy infrastructure planning policies at multiple scales to ensure climate change mitigation.		
Integrate climate change into the heart of territorial and urban planning and identify new avenues for financing.		
Acknowledge the importance of, and support, green infrastructure and "smart growth" ¹ city planning.		
POLICY ORIENTATION 7 Support evolution of the building sector toward a carbon neutral or carbon-positive sector.		
Adopt ambitious targets for energy demand and efficiency of buildings and include climate change mitigation in national building codes.		
Invest in renewable and ambient energy for new and existing buildings.		
POLICY ORIENTATION 8 Safeguard biodiversity and water quality during Canada's transition to a low-carbon society, while aiming for net positive approaches.		
POLICY ORIENTATION 9 Support fisheries, forestry and agriculture practices offering opportunities to limit GHG emissions, enhance carbon sequestration, protect biological diversity and water quality.		
POLICY ORIENTATION 10 Facilitate the transition to a low-carbon sustainable society through the implementation of more participatory and open governance institutions.		

¹ "Smart growth" cities are designed for high amenity, mixed land use and medium to high dwelling density, with all systems (water, waste, energy, transportation, buildings, etc.) made sustainable, clean, accessible, integrated, and connected using advanced technologies.

EXECUTIVE SUMMARY

In fall 2014, UN Secretary Ban Ki-moon exhorted all countries in the world to raise the ambition of their climate change policies to avoid a global temperature increase of more than 2°C during this century. Answering this call, the scholars of *Sustainable Canada Dialogues*¹ (SCD), an initiative that mobilizes over 60 researchers from every province, worked collectively to identify a possible pathway towards a low carbon economy in Canada. Our network of scholars represents disciplines crossing engineering, the sciences and social sciences, where sustainability is at the heart of our research programs.

Acting on Climate Change: Solutions from Canadian Scholars identifies ten policy orientations illustrated by actions that could be immediately adopted to kick-start Canada's necessary transition towards a low carbon economy and sustainable society. **We unanimously recommend putting a price on carbon.**

Climate simulations, carried out in the context of SCD by the Consortium OURANOS² based on the mitigation scenarios of the Intergovernmental Panel on Climate Change, show that immediate global action would successfully limit temperature increases in Canada. We must act today to ensure tomorrow.

Besides putting a price on carbon, *Acting on Climate Change: Solutions from Canadian Scholars* examines how Canada can reduce its greenhouse gas emissions (GES) by: 1) producing electricity with low carbon emissions sources; 2) modifying energy consumption through evolving urban design coupled with a transportation revolution; and 3) linking transition to a low-carbon economy with a broader sustainability agenda, through creation of participatory and open governance institutions that engage the Canadian public. Our proposals take into account Canada's assets and are based on the well-accepted "polluter pays" principle. They are presented in detail in the core document that can be downloaded from the SCD website.

In the short term, policy orientations that could trigger climate action include:

- Implementing either a national carbon tax or a national economy-wide cap and trade program;
- Eliminating subsidies to the fossil fuel industry and fully integrating the oil and gas production sector in climate policies;
- Integrating sustainability and climate change into landscape planning at the regional and city levels to ensure that, amongst other goals, maintenance and new infrastructure investments are consistent with the long-term goal of decarbonizing.

1 <http://www.sustainablecanadialogues.ca/en/scd>

2 <http://www.ouranos.ca>

In the short to middle term, the transition could be facilitated by:

- East-West smart grid connections that allow provinces producing hydro-electricity to sell electricity to their neighbors to take full advantage of Canada's low-carbon energy potential;
- Well-managed energy efficiency programs that produce significant positive economic returns across the board, through cost savings as well as job creation. Energy efficiency programs could target the building sector as well as businesses and industries.

In the short to long term, the transition could support a transportation “revolution”:

- Transportation strategies that move the sector away from its dependence on fossil fuel could rest on the implementation of a basket of options, ranging from electrification of transport to collective and active transportation.

Because renewable energy resources are plentiful, we believe that Canada could reach **100% reliance on low-carbon electricity by 2035**. This makes it possible, in turn, to adopt a long-term target of at least an **80% reduction in emissions by mid-century**, consistent with Canada's international climate mitigation responsibility. In the short-term, we believe that Canada, in keeping with its historical position of aligning with US targets, could adopt a **2025 target of a 26-28% reduction in GHG emissions relative to our 2005 levels**.

We envision climate policy as the ongoing, long-term project of making the *transition* to a low-carbon society and economy. This notion of transition has many advantages: the 80% target establishes the direction of change, allowing Canada to plan for the future while recognizing that goals will take time to accomplish. It permits governments, businesses and citizens to situate their activities within a dynamic context. As with other past and future major transitions, e.g. industrialization or electrification, there will be controversies and setbacks. Some economic sectors will contract as others expand. The most important aspect of Canadian climate policies is to build a sustainable future *starting today*.

Recognition that certain forms of economic development cause environmental damage led to the notion of sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” We have adopted a more recent definition of sustainability that emphasizes the importance of desired futures. We propose that the specific transition pathways to low-carbon economy in Canada could rest on the hopes of Canadians for social and environmental well-being and help to articulate a vision for the country.

The transition to a low-carbon sustainable society will usher in great opportunities for innovation by developing new technologies, businesses and employment. The international landscape has changed substantively since Canada withdrew from the Kyoto Protocol in December 2011. Canada's major trade partner, the USA, doubled their GHG emissions reduction target in 2014. For example in 2011, the International Energy Agency (IEA) estimated that investments for energy efficiency were worth USD 310-360 billion³. A clear climate policy framework would reduce uncertainty in the business environment, encouraging companies to invest in low-carbon technologies.

We have identified policy orientations designed to deliver substantial, viable change based on our expertise and dialogue among our members. We do not claim to offer all possible policies or incentives to achieve sustainability, and we understand that further analyses, debate and refinement will be required. However, in virtually all cases, our proposals are in line with a number of international and national analyses of viable policy options to decarbonize.

We believe that putting options on the table is long overdue in Canada and hope that our input will help governments at all levels to make ambitious and thoughtful commitments to emissions reductions before December 2015 and the *2015 Paris-Climat Conference*. We wish for an intense period of consultation and policy development to identify the policy instruments, regulations and incentives best suited to Canada. We offer our full cooperation to all levels of government in this challenging, but exciting, period. The time is now ripe to initiate ambitious climate change mitigation efforts.

3 http://www.iea.org/bookshop/463-Energy_Efficiency_Market_Report_2014

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