



Brief on the Energy East Project by members of Sustainable Canada Dialogues:

**Quebec-Canada: Ambitious partners in a rapid transition  
to a low-carbon economy**

Regarding climate change, Quebec has adopted a target to reduce emissions by 37.5% from 1990 levels by 2030. This is the most ambitious target of all North American jurisdictions. We are proud of it, and congratulate the Quebec government on its visionary position. Additionally, the new federal government announced in Paris that Canada became a member of the High Ambition Coalition, a group of countries aiming to limit global warming to 1.5°C or less. It is in this context that we submit our brief about the Energy East pipeline to the BAPE.

We are members of Sustainable Canada Dialogues, a Canadian network of over 60 academics representing various disciplines in science and social sciences; sustainable development is at the heart of our research programs. We fear that, if Canada does not direct its economic and social development towards greater sustainability, future generations will suffer the harsh consequences of climatic disturbances, including extreme rise in global temperatures. We therefore published a climate action plan for Canada in March 2015. The report that we produced, *Acting on Climate Change: Solutions from Canadian Scholars*<sup>1</sup>, provides a science-based consensus of options for reducing greenhouse gas (GHG) emissions.

We recognize at the outset certain difficulties inherent in the environmental assessment process that is taking place in Quebec with respect to the Energy East pipeline. We think it would have been essential to consider, at the federal level, GHG emissions associated with oil production from tar sands in the Energy East pipeline's impact analysis. It is in fact Canada that reports emissions at the national level. Some may say that it is therefore not the role of Quebec, for jurisdictional reasons, to address emissions from oil sands. Given that climate change is a global problem, we are submitting this brief in Quebec anyway, because it is impossible to separate pipeline construction from the broader problem of production and use of fossil fuels.

We draw attention to the latest Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup> report<sup>3</sup>, which discusses in detail the vertical allocation of responsibilities between jurisdictions of the same state. According to the IPCC, given the global and public nature of climate change, the responsibility falls to the highest possible level of government. However, such allocation of responsibilities at the central government level does not exclude allocation of responsibility

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<sup>1</sup> <http://sustainablecanadialogues.ca/en/scd/endorsement>

<sup>2</sup> [http://ipcc.ch/home\\_languages\\_main.shtml](http://ipcc.ch/home_languages_main.shtml)

<sup>3</sup> IPCC AR5-WGIII (2014) Chapter 15: National and Sub-national Policies and Institutions Somanathan, E., Sterner, T., Sugiyama, T. Lead Authors. <http://mitigation2014.org/report/publication>



within a federation<sup>4</sup>, and it is sometimes the different position of a federal state's regions that leads to increased efficiency of implemented solutions<sup>5</sup>. Indeed, Ostrom<sup>6</sup>, Nobel Laureate in Economy, offered a polycentric approach to climate change mitigation involving various levels of action as well as the private and public sector. Subnational levels of jurisdiction can further offset the lack of political momentum at the national level<sup>7</sup>. In this theoretical context, the BAPE hearings on the Energy East pipeline offer us an opportunity to share our views.

One of the ten policy orientations that we suggest in *Acting on Climate Change: Solutions from Canadian Scholars* is to *integrate the oil and gas production sector in climate policies*. We believe that implementation of a robust regulatory framework in the fossil fuel sector, incorporating the carbon price, would promote development and deployment of innovations<sup>8</sup>. In our report, we recommend, *in the short term, elimination of all direct and indirect subsidies to the fossil fuel industry*<sup>9</sup>. Additionally, we hope that the federal government and the provinces guide the industry's development by introducing, *in the short or medium term, a clear regulatory framework coherent with the transition to a low-carbon economy*.

When writing our report, we asked the Ouranos Consortium on Regional Climatology and Adaptation to Climate Change<sup>10</sup> to analyze the projections of two IPCC scenarios of GHG emissions for Canada and to visualize the effect of different mitigation trajectories on Canada's climate (Figure 1). In its Fifth Assessment Report, the IPCC developed scenarios linking global efforts to mitigate GHG emissions and temperature changes. The first scenario assumes that global emissions will stabilize by 2050 provided that all countries in the world immediately put ambitious mitigation measures into effect. Under this scenario, anticipated temperature changes at the global level for the period 2081-2100 compared to 1986-2005 are in the range of 1.1°C to 2.6°C. The second scenario assumes that global emissions continue to rise until 2100. Under this scenario, anticipated temperature changes at the global level for the period 2081-2100 compared

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<sup>4</sup> Lachapelle E, CP Borick, and BRabe (2012) Public Attitudes toward Climate Science and Climate Policy in Federal Systems: Canada and the United States Compared. *Review of Policy Research* 29, 334 – 357. doi: 10.1111 / j.1541-1338.2012.00563.x, ISSN: 1541-1338

<sup>5</sup> Edenhofer O, C Flachsland, M, Jakob, and K Lessmann (2013) The Atmosphere as a Global Commons — Challenges for International Cooperation and Governance. In: *The Handbook on the Macroeconomics of Climate Change*. W. Semmler, L. Bernard, (eds.), Oxford University Press, Oxford

<sup>6</sup> Ostrom E (2010) Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change* 20, 550 – 557. doi: 10.1016 / j.gloenvcha.2010.07.004, ISSN: 0959-3780

<sup>7</sup> Schreurs M, A (2008) From the Bottom Up: Local and Subnational Climate Change Politics. *The Journal of Environment & Development* 17, 343 – 355. doi: 10.1177 / 1070496508326432, ISSN: 1070-4965, 1552 – 5465 and Dubash N K (2011) From Norm Taker to Norm Maker? Indian energy governance in global context. *Global Policy* 2, 66 – 79. doi: 10.1111 / j.1758-5899.2011.00123.x, ISSN: 1758-5899

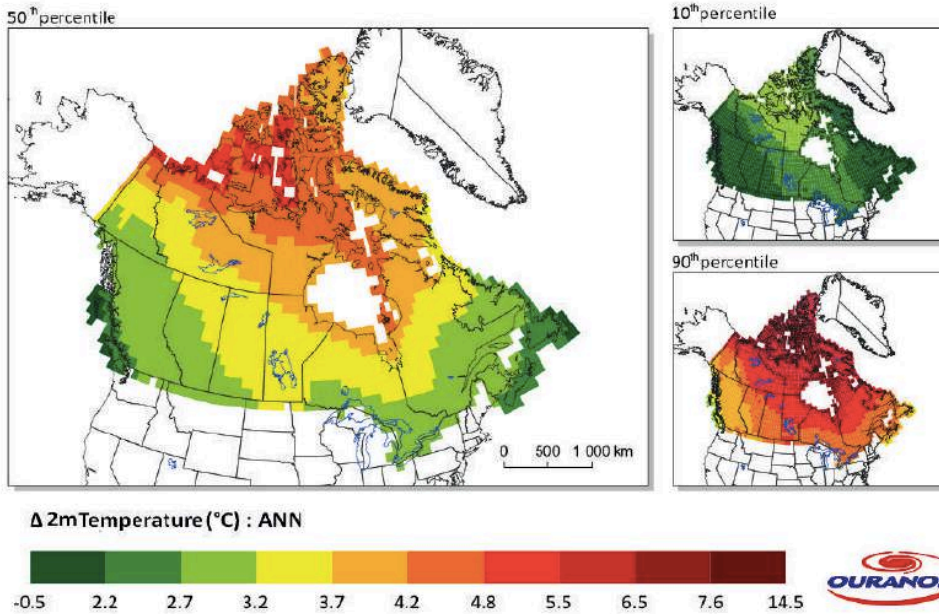
<sup>8</sup> van Alphen K., et al. (2010) “Accelerating the deployment of carbon capture and storage technologies by strengthening the innovation system”, *International Journal of Greenhouse Gas Control*, 4 : 396–409.

<sup>9</sup> According to the *The New Climate Economy Report*: “Governments of oil producing countries face the greatest risk of decreased assets, and it will be necessary to treat and manage the budgetary impact of reduced demand and falling oil prices that result. This should include a rapid elimination of existing subsidies for fossil fuels.” (NCE - Finance Chapter, p. 35-37, <http://newclimateeconomy.report/>).

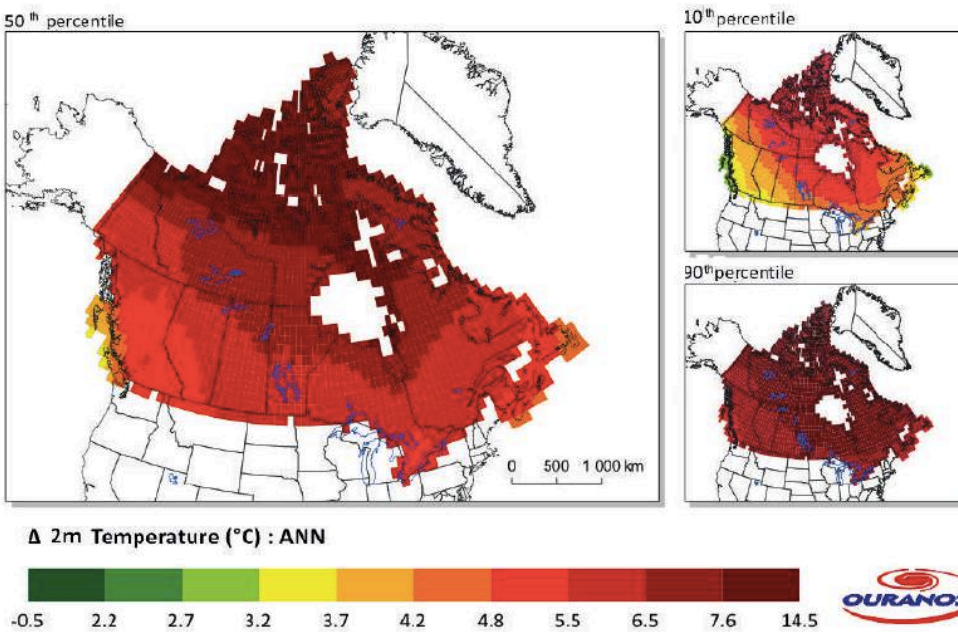
<sup>10</sup> <http://www.ouranos.ca/>

to 1986-2005 are in the range of 2.6°C to 4.8°C. Projections for the Canadian climate are obtained from the temperature difference between the late 20<sup>th</sup> century and the 21<sup>st</sup> century. Neither of these scenarios helps keep global warming below 2°C by the end of the century compared to pre-industrial times.

**2071-2100 : RCP 4.5**



**2071-2100 : RCP 8.5**



**Figure 1:** Change in annual mean 2 meters surface temperature between the two periods: 1971-2000 and 2071-2100 for two Representative Concentration Pathways (RCP) scenarios used in IPCC global climate scenarios ([http://ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5\\_SPM\\_brochure\\_en.pdf](http://ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5_SPM_brochure_en.pdf)). The first scenario (named RCP4.5 by the IPCC) assumes that GHG emissions will stabilize by 2050 while the second (RCP8.5) assumes strong and continuous emissions for the entire century.

These scenarios show that an immediate reduction in GHG emissions at the global level could help avoid extreme warming (Figure 1A). Conversely, a lack of ambitious mitigation would produce disruptions. For Canada, the second scenario means that coastal Atlantic provinces and British Columbia could witness, by the end of the century, a warming of about 4°C. The northern parts of Saskatchewan, Manitoba, Ontario and Quebec could warm by more than 6°C. The biggest change in temperature is predicted in the Canadian Arctic, with a warming of 14°C (Figure 1B).

The specific consequences of these climate change projections can be understood by thinking of past weather events, some of which may occur more frequently or have more serious consequences. Consider for example the 2013 floods in Toronto and Calgary, the record drought of 2012 that seriously affected the agricultural sector, and the large tides in December 2010 along the St. Lawrence coastline, which would be more damaging with a higher sea level. In Quebec, recurring events such as coastal erosion, heat waves or extreme rains will be more frequent and intense. The first scenario that we used, however, suggests that immediate efforts to reduce GHG emissions could limit temperature increases (Figure 1A) and thus limit the consequences. To safeguard the futures of our children and grandchildren as well as to meet the emission reduction target adopted in Quebec, it is time to act with ambition.

Energy, as the main source of GHG emissions, is at the heart of the fight against climate change. In Canada, according to the latest national GHG inventory report (1990-2012)<sup>11</sup>, energy represents 81% of all GHG emissions from human activities. The Canadian economy, which relies heavily on natural resource extraction, including oil and gas, proves very energy-hungry and strongly oriented towards export markets<sup>12</sup>. According to Environment Canada<sup>13</sup>, oil and gas production in 2012 was responsible for about 160 megatonnes CO<sub>2</sub> eq., more than triple the GHG emissions related to energy consumption by the rest of Canadian industry. Therefore, with respect to national GHG emissions, oil and gas extraction and production falls just after transport and could even surpass it if its growth continues.

Nevertheless, thanks to its vast hydropower capacity already in operation and a rich potential of untapped energy sources with low GHG emissions that can produce electricity (Figure 2), Canada could quickly switch from fossil fuels to the electricity sector<sup>14</sup>. This transformation would put

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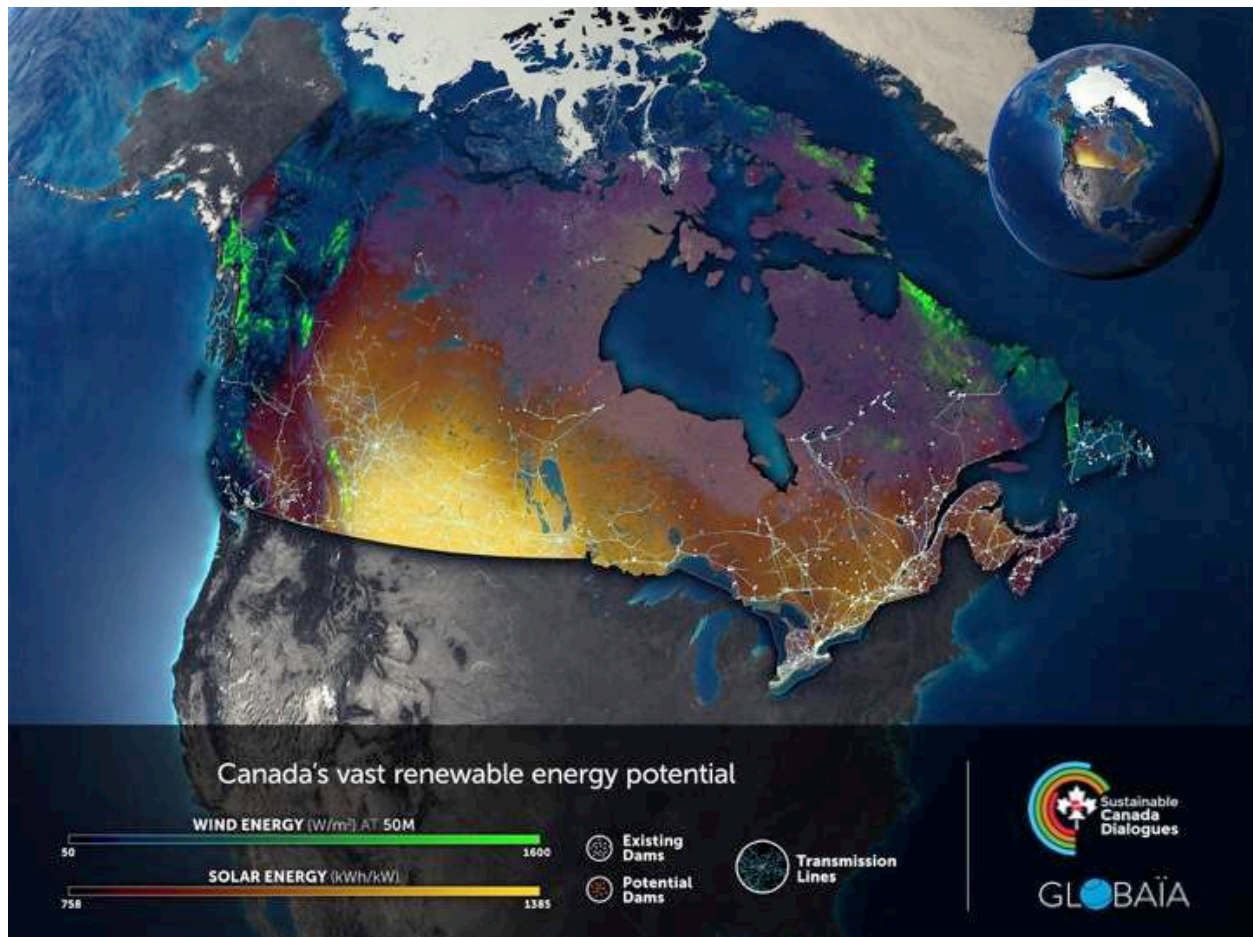
<sup>11</sup> <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=83A34A7A-1>

<sup>12</sup> <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=83A34A7A-1>

<sup>13</sup> <http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=83A34A7A-1>

<sup>14</sup> Barrington-Leigh, C., et Ouliaris, M. (Mars 2014), *The renewable energy landscape in Canada: a spatial analysis*, <http://wellbeing.research.mcgill.ca/publications/Barrington-Leigh-Ouliaris-DRAFT2014.pdf>

Quebec, well-endowed with hydropower, at the forefront of green electricity production in Quebec, in Canada and internationally. The transition to low-carbon electricity would also result in significant savings and benefit a number of industrial sectors in Quebec and Canada.



**Figure 2.** Map of existing renewable energy potential in Canada . 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://pv.nrcan.gc.ca/> on February 1 2015. 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. DESIGN: Félix Pharand-Deschênes, Globaia.

In this context, recent discussions on Alberta oil sands expansion leave crucial questions unanswered. In 2014, the federal government approved the delivery of 525,000 barrels of



bitumen per day by the Northern Gateway pipeline for export through Kitimat on the west coast of Canada. At this point, two other major pipelines are proposed to distribute increased oil sands production. Kinder Morgan offers to expand its Transmountain pipeline on the west coast, which would add 600,000 barrels per day. TransCanada wants to now build the East Energy pipeline, which is the subject of this BAPE analysis, to deliver 1.1 million barrels of oil sands production to refineries in Eastern Canada and a maritime terminal in New Brunswick. Together, Canada has approved and/or proposed pipelines for additional oil sands sales of 2.3 million barrels per day.

An analysis of fossil fuel reserves published by McGlade and Ekins (2015)<sup>15</sup> in the prestigious journal *Nature* shows that to maintain the increase in global temperature to 2°C, a third of the oil reserves will have to remain underground. This paper concludes that the desire to continue exploitation of oil reserves is inconsistent with commitments made by various jurisdictions in the fight against climate change. In this context, the evaluation of impacts related to the Energy East project must take into account that full capacity use of the new pipelines proposed, including Energy East, could require new production facilities since the total oil production of oil sands in 2015 was 3.9 million barrels per day<sup>16</sup>.

Current decision-making is made in a piecemeal way that unfortunately does not consider energy production, transportation and consumption as a whole. We call for an approach that would integrate the life cycle of energy-related projects. The real impact of a pipeline cannot in fact be reduced to that of the construction of a pipe running through the land. Indeed, Environment Canada forecasts that in 2030 Canadian GHG emissions will be 55% above the commitments made in Paris. We therefore argue that any discussion of new oil-related infrastructure should also take into account national and provincial targets for climate change mitigation. Every citizen of Quebec is in fact linked to reduction targets at the provincial and federal levels. An investment in new pipelines is clearly not what either Quebec or Canada need at the start of the transition to a low-carbon economy in terms of meeting our obligations in Paris.

We argue that diversification of national and regional energy portfolios would improve both the health and well-being of citizens and reduce the devastating effects of fossil fuel development on the people of Quebec, Indigenous peoples and the environment. Diversification of these portfolios would also improve energy and economic security. A redirection of investment towards renewable energy would reposition the oil workers into this sector. The transition to a sustainable society and a low-carbon economy could also improve citizens' welfare by modernizing infrastructure and encourage the creation of new businesses. Targeted investments in renewable energy would enable achievement of energy independence while significantly reducing our GHG emissions. Significant progress in reducing emissions would show the world that we really are facing our global responsibilities.

Since energy infrastructure has a lifespan of several decades, investments – even those of a private nature such as those for Energy East – in fossil energy transport infrastructure would

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<sup>15</sup> McGlade, C. and P. Ekins (2015). "The geographical distribution of fossil fuels unused when limiting global warming to 2 [deg]C." *Nature* **517**(7533): 187-190.

<sup>16</sup> <http://www.capp.ca/publications-and-statistics/crude-oil-forecast>



strongly align with development along specific pathways that would be undesirable in the fight against climate change, increasing our dependence on carbon-intensive energy. We therefore oppose the Energy East project due to the major risks to the environment, health and sustainable development it represents in the context of climate change.

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