Ms. Kathy Hering
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Climate Change and Environmental Policy Division
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March 27, 2015

RE: Climate Change Discussion Paper - **EBR Registry Number: 012-3452**

Dear Ms. Hering,

Thank you for the opportunity to provide comments on the Climate Change Discussion Paper developed by Ontario Ministry of the Environment and Climate Change (MOECC). We are submitting this letter in our respective capacities as Wildlife Conservation Society (WCS) Canada scientists[1] specializing in fish and wildlife ecology, conservation biology, co-management, and landscape ecology in northern Ontario. A national organization, our research and conservation priorities in Ontario are largely focused on the Far North. Our expertise in climate-related issues includes scientific research on the effects of climate change on freshwater fish species[2,3] as well as adaptation planning for freshwater fish in Ontario's Far North given land use and climate change[4,5].

[1] WCS Canada (www.wcscanada.org) was established in May 2004 as a Canadian non-government organization with a mission to conserve wildlife and wildlands by improving our understanding of and seeking solutions to critical problems that threaten key species and large wild ecosystems throughout Canada. We implement and support comprehensive field studies that gather information on wildlife needs and then seek to resolve key conservation problems by working with First Nation communities, Government and regulatory agencies, conservation groups, and industry.

[2] Browne, D. R. 2007. Freshwater fish in Ontario's boreal: Status, conservation and potential impacts of development. No. 2, Wildlife Conservation Society Canada, Toronto.

[3] McDermid, J. L., B. J. Shuter, and N. P. Lester. 2010. Life history differences parallel environmental differences among North American lake trout (Salvelinus namaycush) populations. Canadian Journal of Fisheries and Aquatic Sciences **67**:314-325.

[4] Chetkiewicz, C., J. McDermid, M. Cross, and E. Rowland. 2012. Climate Change and Freshwater Fish in Ontario's Far North. WCS Canada.

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In response to Ontario's Climate Change Discussion Paper, we make the following recommendations, all of which are necessary to address climate change mitigation and adaption going forward:

1) Acknowledge and account for the value of ecosystem services provided by intact peatlands and wetlands, specifically climate regulation through carbon sequestration, within Ontario's Far North in addressing climate change mitigation and adaptation.
2) Ensure that planning and assessment approaches in Ontario's Far North address regional processes like climate change, carbon sequestration, and protection of peatlands and wetlands.
3) Incorporate a climate change lens in planning for new industrial development and transportation planning in the Ring of Fire.
4) Establish a provincial carbon budget to address carbon use and conservation, including targets for GHG emissions, sector GHG emissions targets, sector subsidies, and conservation and protection of carbon sinks.
5) Develop an Ontario-specific GHG report and share the GHG and energy data with federal counterparts.
6) Review and update Ontario's Adaptation Strategy and Action Plan and include both adaptation and mitigation goals in Ontario's future climate plan.

We recognize Ontario's efforts in addressing climate change including phasing out coal, investments in renewable energy, developing efficiency standards, and meeting its 2014 GHG emission target. We also welcome Ontario's commitment to climate change including renaming the Ministry of the Environment to MOECC and the clear direction for addressing climate change provided to Minister Murray in Premier Wynne's public mandate letter in July 2014. Ontario's hosting of the Climate Summit of the Americas in July 2015 should provide an important opportunity for Ontario to release its vision for addressing climate change goals and objectives in Ontario.

Yet, despite these positive developments, Ontario is clearly not on track to meet its 2020 target. To illustrate, the Environmental Commissioner of Ontario (ECO) reported in 2014[6] that the government's future projections indicate an upward trend in emissions after 2014. According to Climate Vision, the government's last climate change progress report (released in November 2012), GHG emissions will exceed the target by 28 Mt in 2020, almost twice the total emissions from the electricity sector in 2012. Therefore, the long-term climate change strategy will be instrumental in defining Ontario's ability to meet this and subsequent targets.

Our comments are divided into three sections. Section 1 highlights the importance of Ontario's Far North, which receives limited consideration in the current discussion paper as a mitigation and

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[5] Chetkiewicz, C. 2013. Kitchenuhmaykoosib Inninuwug (KI) and Climate Change: Co-Creating an Adaptation Strategy for the Big Trout Lake Watershed. Workshop Summary Report. 50 pp. WCS Canada Report Available online at: http://www.wcscanada.org/AboutUs/Publications.aspx

[6] Environmental Commissioner of Ontario (ECO). 2014. Looking for Leadership: The Costs of Climate Inaction. Toronto.

adaptation strategy for Ontario. We also explore why a lack of attention to climate change mitigation and adaptation in environmental planning currently unfolding in Ontario's Far North has the potential to undermine accomplishment of Ontario's targets and highlight the invisibility of values around ecosystem services such as climate change regulation and sequestration, particularly in Far North peatland and wetland conservation. Section 2 provides comments on Ontario's overall climate change approach in Ontario. Section 3 responds to the climate change policy discussion paper questions posed where we felt we had sufficient expertise or knowledge to comment.

Section 1. Ontario's Far North warrants more attention as a necessary component of commitments to climate mitigation and adaptation

The discussion paper references Ontario's Far North in a few places, primarily to acknowledge the impact of a changing climate on First Nations, to emphasize that the Far North is the most rapidly changing region in Ontario due to climate change, and to acknowledge the significant area of undeveloped peatland as a carbon sink. Missing, however, is any explicit discussion of either how the Far North will be considered as a key part of efforts to mitigate or adapt to rising GHG, or how development planning and assessment will support rather than undermine achievement of provincial targets. In particular, we would like to see Ontario consider how it will value ecosystem services that support climate regulation and carbon sequestration, how it will work across ministries to plan for conservation of intact wetlands and peatlands in community-based and regional land use planning approaches, and how it will consider mitigation and adaptation more explicitly in approvals for new industrial development, through environmental assessment, that will contribute to Ontario's GHG emissions in mining and new proposed transportation, particularly in the Ring of Fire.

- **Ontario must value and account for ecosystem services provided by Ontario's Far North for all Ontarians, particularly the protection of intact peatlands and wetlands, in its efforts to address climate change mitigation and adaptation.**

The 2009 Expert Panel on Climate Change in Ontario identified wetland peats in the Far North as an important area for the Ontario government to consider in addressing both mitigation and adaptation to climate change. Like forests, the vast expanse of wetland peats on the Hudson Bay Lowlands in Ontario's Far North are part of an immense carbon store among other values. For example, an estimated 12.5 million tonnes of carbon dioxide are absorbed annually and the lowlands store about 33 billion tonnes of carbon -nearly 4 years of current global carbon emissions from fossil fuels[7]. Disturbance of the peat through climate-induced changes in the water-table - whether due to climate change or new industrial land uses - will release either methane or carbon dioxide, both GHG, depending on the local circumstances.

The Expert Panel on Climate Change, Ontario's Far North Science Advisory Panel, and the ECO all recommended Ontario protect the resilience of peatlands as a mitigation strategy because it would

[7] Far North Science Advisory Panel Report. 2010. Science for a Changing Far North. Ontario Ministry of Natural Resources.

limit the release of GHG (mitigation) and maintain the natural ecosystem functions (adaptation) that benefit all of us through climate regulation. The current discussion paper includes no details on how Ontario will value ecosystems or consider their role in market-based instruments. It is critical that the conservation of peatland and wetlands in Ontario's Far North be an integral part of mitigation and adaptation plans in order to meet Ontario's emissions targets and adaptation goals.

- **Planning approaches in Ontario's Far North must address regional processes like climate change, carbon sequestration, and protection of peatlands and wetlands.**

In practice, Ontario is not currently undertaking planning that will conserve these globally significant peatlands and wetlands nor can planning and decision-making approaches consider the value of these systems within current approval processes. In Ontario's Far North, environmental planning and approvals proceed under two different processes: 1) land use planning under the *Far North Act, 2010* led by Ontario's Ministry of Natural Resources and Forestry (MNRF); and, 2) environmental assessment under either federal or provincial legislation, with the latter led by MOECC.

These planning processes are piecemeal in nature (i.e., address one development at a time in a proponent-driven process and/or at the community scale as First Nations decide to engage on land use planning) and limited in spatial and temporal scope. These processes do not address climate change or cumulative effects specifically despite a number of legal requirements to do so. For example, Ontario's *Far North Act, 2010* mandates consideration of regional-scale processes, including carbon sequestration and climate change , environmental decision making and approvals by MOECC indicate the need to consider cumulative effects (which includes climate change). In terms of policy, the Growth Plan for Northern Ontario (2011: 38) recommends the incorporation of climate change mitigation and adaptation in planning and decision making.

A lack of regional-scale planning processes in the Far North, particularly in the Ring of Fire where new industrial activity and transportation development on a scale unparalleled elsewhere in Ontario, increases the likelihood of poorly planned infrastructure and piecemeal development under a patchwork of approvals and regulation processes in one of the most intact peatland and wetland complexes in the world. We urge Ontario to consider how current land-use planning processes will serve to value and conserve peatlands and wetlands in the Far North as an explicit mitigation action for carbon sequestration. We have detailed elsewhere the necessity for a more strategic approach to planning in the Far North, in particular, to address the risks due to climate change that will be exacerbated by a piecemeal approach to land use planning and impact assessment.

Finally, in Ontario's Climate Adaptation Strategy and Action Plan, MOECC identifies the Far North Land Use Strategy as Ontario's Action for addressing climate change. However, it seems clear from initial drafting of this strategy by MNRF that it will fall short in this regard. As such, we urge MOECC to consider more carefully the role this Strategy will (or will not) play in meeting provincial climate change goals and objectives. WCS Canada has also provided public comments on the current Far North Land Use Strategy (2014) to this effect. Of particular note, MNRF considers peatlands as a development

opportunity in the emerging Far North Land Use Strategy rather than an ecosystem service to support climate change mitigation and adaption. Yet, the only way peatlands can provide services to people for climate mitigation and adaptation is if they are proactively conserved. Similarly, we also recommended that the Far North Land Use Strategy consider how Ontario will meet its commitments and responsibilities for adaptation and mitigation in the final version and that MNRF explicitly address MOECC's role in addressing climate change moving forward (see also our comments on land use planning in Section 3).

- **The Ring of Fire provides an important opportunity to view new industrial development and transportation planning with a climate change lens.**

Mineral development remains a clear priority for the Ontario government. Ontario made $11 billion in mineral production in 2014 from 43 mines, 10 smelters and refineries and there are currently 300 exploration projects, 30 of which are at an advanced exploration stage. In addition, the current draft provincial Mineral Development Strategy (March 2015) is focused on maximizing Ontario's mineral potential. While the discussion paper highlights that Ontario's industrial sector has witnessed only a slight decline in energy and GHG intensities, overall emissions have begun to trend upwards in recent years as industrial production recovers. This suggests that a more concerted effort is required to put this sector's absolute emissions on a steady downward trajectory and to decouple GHG emissions from industrial production.

Mines in remote regions like Ontario's Far North represent an important opportunity to consider both the response to new industrial development within intact peatland and wetland complexes as well as the requirement to build new infrastructure to create viable mining operations. For example, proposed projects like Noront's Eagle's Nest Project, advanced exploration projects like Metalex Ventures Ltd., expansion of the Victor Diamond mine and the existing Musselwhite mine, as well as other exploration projects that may enter into advanced phases in the near future (particularly in the Ring of Fire), generate high demand for fossil fuels and contribute to GHG emissions. While the mining sector is sensitive to the issue of climate change in northern regions, new mines within the Far North also reduce the capacity of the environment to function as a carbon store, given the known challenges in achieving ecological restoration of peatlands and wetlandsat scales relevant to the Far North ecosystem processes and services. We see this as a mixed signal from Ontario given the efforts to move to a low-carbon economy and warrants more discussion and thought in addressing climate change.

Accordingly, the Ring of Fire provides an important opportunity for Ontario to consider more explicitly how it can shift away from a carbon-based transportation system. For example, Ontario has recently committed $1 billion for new infrastructure for accessing the Ring of Fire. Currently, there are routes proposed by proponents such as Noront and a study to consider various routes based on funding from the Ontario and the Federal governments, and regional infrastructure and energy planning and implementation is a key area of negotiation in Regional Framework Agreement. The Growth Plan for Northern Ontario (2011) describes a multi-modal transportation strategy, but we have seen no

information on the status of this development nor how it will consider climate change. While the Regional Framework Agreement with Matawa First Nations is a step in the right direction to considering how infrastructure planning may unfold, it is not apparent how this and other planning processes will help or hinder Ontario's achievement of proposed GHG emissions targets, given the lack of discussion around climate change in planning processes. New infrastructure, and the transportation it will enable, requires careful consideration in the Far North where remote infrastructure will also be vulnerable to climate change[8], creating safety and liability risks for communities, industry, and Ontario. The current climate change discussion provides an important opportunity to consider how infrastructure planning into new and intact landscapes in the Far North will support reduced emissions goals for Ontario. Proposals for new infrastructure need to viewed through the lens of a carbon-constrained future.

Section 2. Ontario's Plan for Climate Change Mitigation and Adaptation

1) Establish a provincial carbon budget.

In 2014, the Intergovernmental Panel on Climate Change (IPCC) report[9] introduced a global carbon budget, with models predicting that total cumulative CO_2 emissions cannot exceed 2,900 Gt in order to have a 66% chance of preventing a 2°C rise in average global temperature. To date, our industrial societies have already emitted 1,900 Gt. Consequently, the ECO (2014: 18) posed two questions: 1) how does this remaining budget get spent; and, 2) what can Ontario do to show leadership in accelerating the transition to a low-carbon economy to address this limit?

While setting targets is an important first step, there is no mechanism on how to achieve them. There are a number of programs and actions underway, but we have no idea if they are going to work. The measurement and monitoring of Ontario's programs and progress towards its targets requires a provincial carbon budget that quantifies the expected and projected inflows and outflows of carbon, identifies how Ontario plans to both conserve and use carbon, and what portion of Canada's carbon budget Ontario will be responsible for.

The budget could include:

- **Sector-specific GHG targets.** The information provided in the Discussion Paper as well as by the ECO (2014) indicates that contributions by different sectors vary dramatically, with transportation and industry emitting the highest levels of GHG based on 2012 data. However, without sector-specific targets, it will be difficult to determine whether any proposed activities aimed at specific sectors to reduce emissions are adequate, on track, or even related to government plans, policies, or programs aimed at the various sectors. Short-term targets for

[8] Bristow, M. and V. Gill. 2011. Northern Assets: Transportation Infrastructure in Remote Communities. Publication 12-139, Ottawa.
[9] http://www.ipcc.ch/report/ar5/index.shtml

each sector would also benefit government with respect to monitoring and developing new policy or actions in an adaptive approach.

- **A review and assessment of subsidies to key sectors.** Any discussion on efforts to address sector-specific emissions must make transparent provincial and federal subsidies (e.g., resource, financial, infrastructure) that support and benefit these sectors in Ontario, namely mining, logging, and water rights. These subsidies can undermine efforts to improve energy efficiency and sustainability. Perverse subsidies, such as Ontario's forest access roads program on Crown lands[10] and in mining, are indirect methods of assisting an industrial sector that inadvertently undermine environmental objectives such as sustainability because they reduce costs or distort revenue beyond normal economic levels. We encourage an independent task force to consider these subsidies within the broader conversation Ontario is undertaking on climate change and the transition to a low-carbon economy.
- **An approach to conserving and sequestering carbon.** We recommend including actions that Ontario could undertake to conserve ecosystem services that sequester carbon (i.e., sinks) such as protecting peatlands and wetlands, as well as actions that include land uses and management approaches that sequester carbon in order to contribute to a carbon budget (e.g., forest management[11,12]).

Ontario is required to report on GHG emissions and the ECO is required to provide periodic independent reviews of Ontario's progress in meeting its GHG emissions targets under Ontario's *Environmental Bill of Rights, 1993.* These reports, while helpful for gauging progress, do not provide the whole picture on what is required in order for Ontario to meet these targets. We suggest that providing information on GHG emissions within a carbon budget would provide a more transparent and effective means for the public to understand how Ontario is doing and what is and isn't working. This reason joins those we have mentioned above for our strong recommendation that Ontario develop a provincial carbon budget as the framework for the long-term climate change strategy and plan.

2) Develop an Ontario-specific GHG report and share the GHG and energy data with federal counterparts.

Following the 2014 recommendations by the ECO, we suggest that MOECC should produce a sound, science-based, comparable and consistent report on GHG sources and sinks for Ontario as it moves forward with climate change mitigation and adaptation action. MOECC will require accurate data for assessment and decision making that are relevant to Ontario's programs and new actions such as carbon pricing. We concur with the ECO that Ontario could also proactively share its GHG and energy

[10] http://www.ontario.ca/environment-and-energy/forest-roads-funding-program

[11] Kurz, W. A., C. H. Shaw, C. Boisvenue, G. Stinson, J. Metsaranta, D. Leckie, A. Dyk, C. Smyth, and E. T. Neilson. 2013. Carbon in Canada's boreal forest — A synthesis. Environmental Reviews **21**:260-292.

[12] Carlson, M., J. Chen, S. Elgie, C. Henschel, A. Montenegro, N. Roulet, N. Scott, C. Tarnocai, and J. Wells. 2010. Maintaining the role of Canada's forests and peatlands in climate regulation. Forestry Chronicle **86**:434-443.

data with federal counterparts, such as the federal Ministry of Environment, which in turn would increase the accuracy of the annual National Inventory Report (NIR).

3) Review and update Ontario's Adaptation Strategy and Action Plan.

Ontario's Climate Adaptation Strategy and Action Plan was an important first step in providing a public overview of Ontario's goals and objectives to address how it will manage the current volume of GHG emissions in the atmosphere and its impact on Ontarians. However, the relationship between this plan and other Ontario-led processes that impact climate change, particularly in the Far North, warrant more attention. For example, as we mention above, the key action item is to develop the Far North Land Use Strategy. However, in the current version of the draft Far North Land Use Strategy the ecosystem services of peatlands and wetlands are missing, and neither are addressed in protected area design considerations. There is also little attention to the implications for species and ecosystems range shifts in response to climate change. Range shifts of various species[13] require attention in protected area planning and design as well as management of invasive species and have potential implications for Aboriginal and treaty rights. An update and review of what was and wasn't accomplished would support the development of more robust action if current actions are not achieving Ontario's goals.

Section 3. Discussion Questions

In this section, we address the questions presented (in the order they appear) in the discussion paper, focusing on the questions we feel we have some experience and knowledge about.

1. Traditional Knowledge

- *What are the best ways to employ the traditional knowledge of First Nations and Métis communities in the process of developing the climate change strategy and action plan and in implementing their provisions?*

Ontario has received a number of recommendations regarding First Nations, albeit not explicitly traditional knowledge. For example, 2009 Expert Panel on Climate Change explicitly refers to First Nations:

"in order to address the climate change risks of First Nations communities in Ontario, especially those in the Far North, the Province should coordinate with Indian and Northern Affairs Canada and relevant political and territorial organizations and Tribal Councils to:

[13] Varrin, R., J. Bowman, and P. A. Gray. 2007. The Known and Potential Effects of Climate Change on Biodiversity in Ontario's Terrestrial Ecosystems: Case Studies and Recommendations for Adaptation. Climate Change Research Report CCRR-09, Queen's Printer for Ontario.

- Assess community climate vulnerability and future risks, evaluate adaptive capacity, promote the development of adaptation plans and encourage the building of resilience in First Nations communities, and
- Assess existing climate change adaptation planning tools and their potential for application in Ontario First Nations communities. This should be followed by pilot or demonstration projects with two or three First Nations communities to investigate and demonstrate applications of these tools."

To our knowledge, very little is happening with First Nations communities in the Far North in this regard.

Some tools do exist that may be useful for considering traditional knowledge for climate change planning. The Centre for Indigenous Environmental Resources (CIER) *Climate Change Planning Tools and Guidebooks*[14] take community members through the process of assessing the impacts of climate change, evaluating community vulnerability to climate change, as well as developing adaptations approaches to minimize community exposure to climate change-related risks. Similarly, *Managing the Risks of Climate Change: A Guide for Arctic and Northern Communities,* includes a risk assessment for climate change, a workbook of case studies, and an online database aimed at helping communities to look at what is happening in their jurisdictions, and how it may affect them in the future. The materials help communities identify their climate change priorities and find ways to deal with them but are positioned within the dominant economic, governance and social paradigms (e.g., progress, sustainable development, sedentarization, etc.). Consequently, these resources and tools are inadequate in capturing the full spectrum of climate change risks, community vulnerabilities, and climate change adaptation and resilience options.

Finally, research co-created with First Nations and other Indigenous Peoples on climate change would offer important insights into lessons learned and what has worked elsewhere with respect to determining how traditional knowledge can support climate change efforts both in the subarctic[15] and Arctic[16].

Ultimately, Ontario needs to build more equitable and transparent processes with Indigenous peoples around the land and its resources before it can really consider how it can work with First Nations on employing traditional knowledge to address climate change. Supporting adaptation planning or research may be a short-term opportunity to help consider this, but a lack of jurisdiction by First Nations makes it very difficult to address this complex issue, except at a superficial level.

[14] CIER. 2006. Climate Change Planning Tools for First Nations: Guidebooks 1-6. Available for download at: http://ccrm.cier.ca/index.php

[15] Golden, D. M., C. Audet, and M. A. Smith. 2014. Blue-ice": framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada. Climate and Development: 1-13.

[16] Krupnik, I. and D. Jolly, editors. 2002. The Earth is Faster Now: Indigenous Observations of Arctic Environmental Change. Arctic Research Consortium of the United States, Fairbanks, AK.

2. Actions in Key Sectors

- *What can each of the key sectors, including transportation, industry, buildings, electricity, agriculture, waste, and forestry, do to contribute to Ontario's 2020 and 2050 targets?*

As we described above, it will be most important to first establish targets for each sector to address sector-specific policies, incentives, and programs. Having clear targets will enable the government to assess how well these programs are doing in meeting the overall GHG targets for Ontario. As we mentioned, a carbon budget that includes the sources and sinks from various sectors would be much more transparent and amenable to considering progress across various sectors than the current reporting on various sector emissions and a description of programs that have been implemented to date.

- *What Industry sectors may best be able to achieve voluntary emissions reductions by 2020 and by 2050 sufficient to achieve Ontario's emissions targets?*

To be able to address this question, each sector (e.g., Ontario's Mining Association, Ontario's Forest Industry Association) will need to review and make public the activities they are undertaking to address climate change with regards to emissions and carbon storage. Ultimately, if Ontario is serious about meeting its targets, it seems likely that difficult decisions will be needed on sector emissions that will not be met through voluntary approaches unless these measures do not affect profit. Finally, reconciling competing and contradicting mandates within various ministries, especially MNDM, with respect to climate change action will be needed. For example, we describe above the challenges for climate change emissions budgets posed by new transportation and mining in remote regions of the province such as the Ring of Fire.

- *What role should land use planning have in affecting Ontario's boreal carbon storage*?

Land use planning is a significant concern with respect to Ontario's boreal carbon storage and we allude to a number of these issues in section 1. Specifically in the Far North, two objectives of the *Far North Act, 2010* ("Act") are focused on conservation: one on protecting at least half of the Far North and the other on maintaining biological diversity, ecological processes and ecological functions, including the storage and sequestration of carbon in the Far North . While conservation of carbon is implicit in the first objective, it is clear in the second.

MNRF has not developed any metrics to determine whether it is on track towards meeting these objectives. In addition, the Minister of Natural Resources and Forestry is required under the Act to develop a Far North Land Use Strategy, the purpose of which is to assist in the preparation of community-based land use plans and guide the integration of matters that are beyond the geographic

scope of the planning area of each of those plans[17]. Of relevance to this climate discussion paper is advice on ecological systems, processes and functions, including considerations for cumulative effects and for climate change adaptation and mitigation. Yet on review, there are a number of missing pieces in the most recent (2014) discussion paper (stage 2) of the Far North Land Use Strategy that will need to be addressed if Ontario wishes to meet its goals and objectives for climate change.

We highlight some of the topics in the Far North Land Use Strategy that require more critical input from MOECC including:

- Protected area planning and design. Protected areas across wetlands and peatlands are in the Far North are emerging through community-based land use plans that are piecemeal in spatial and temporal scale. The current Far North Land Use Strategy provides no guidance on how to conserve measures of intactness in ecosystems such as peatlands, wetlands, and forests to promote resilience against climate change, given implications for First Nations communities, Aboriginal and treaty rights, and biodiversity and ecosystem range shifts anticipated with changes to the Far North ecosystems.
- Climate Change. There is a lack of information on mitigation policy and planning as well as the role of MOECC in delivering adaptation and mitigation planning for climate change. This speaks to the need for coordination between MNRF and MOECC to on developing appropriate guidance on climate change (adaptation and mitigation) for the Far North, given mutual mandates.
- Ecosystem Services. There is no recognition of the value of peatlands or wetlands in offering services such as carbon sequestration and regulation. This topic is currently missing.

Although environmental assessment is not integrated with land use planning in the Far North, it is a key process in land-use decision making. As such, the lack of consideration of climate change in environmental impact assessment processes managed by MOECC is well worth mentioning. Because decisions about new development can affect carbon storage (e.g., the Ring of Fire), it becomes important for MOECC to provide more direct and current guidance to proponents on how development proposals will need to include climate change. At a minimum, proponents for individual projects should consider the implications of climate change scenarios on their project. It remains particularly unclear to us how MOECC considers climate change in Class EA projects and suspect, as with cumulative effects, that these processes warrant an independent review. Each sector generating GHG emissions in Ontario should be considering climate change more explicitly through the environmental assessment process before approvals are made. We submit that climate change would be most appropriately addressed through strategic or regional environmental assessments[18,19] and encourage MOECC to consider this approach as a more useful way to address sector developments.

[17] The strategy must take into account the Act's objectives, as well as advice, if any, provided by a joint planning body. The joint body can also offer policy statements on a variety of issues, including climate change.

[18] Chetkiewicz, C. and A. M. Lintner. 2014. Getting it Right in Ontario's Far North: The Need for a Regional Strategic Environmental Assessment in the Ring of Fire [*Wawangajing*]. WCS Canada and Ecojustice, Toronto, ON.

[19] Posas, P. J. 2011. Exploring climate change criteria for strategic environmental assessments. Progress in Planning **75**:109-154.

For example, under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), the Federal Minister of the Environment can undertake a regional environmental assessment at request of the province. Going forward, Ontario will need to consider more carefully how it hopes to meet its climate change goals given the current approaches to environmental planning - both land use planning and environmental assessment.

Finally, given the changes in CEAA 2012, including increasing deference to provincial process, Ontario, in particular MOECC with mandates for both environmental assessment and climate change, has an opportunity to establish itself as leader in addressing climate change through environmental impact assessment.

3. A price on Carbon

- *What market mechanism or mechanisms will best achieve these goals, naming emissions reduction certainty, for Ontario?*

We certainly support putting a price on carbon, and stress the importance for Ontario to join many other jurisdictions of the world that have already done so. Although we do not have the expertise to recommend which specific mechanism for carbon pricing would be most effective, we stress the importance of reviewing the body of existing evidence in the decision to adopt an approach that has the best chance for reaching Ontario's 2020 emissions reduction targets. Although there are obviously myriad practical and socio-economic factors to consider, we urge Ontario to be transparent about potential trade-offs associated with the choice of a particular pricing approach, and to be open to revising this if careful monitoring indicates that it is not sufficiently robust for achieving Ontario's goals.

4. Communities and Built Form

- *Risk assessment will be critical in the design and rehabilitation of infrastructure. How can Ontario communities best determine their local vulnerabilities and risks, engaging local leaders in government, First Nations, and Metis communities and the private sector?*

Ontario has developed some useful tools for conducting vulnerability assessments[20] for a variety of values, including built form. We suggest that Ontario consider developing a vulnerability assessment approach tailored to the Far North. We encourage an ecoregional or ecozonal scope that would engage First Nations directly and develop both a participatory process and product for community-based land use planning as well as decision making on new development proposals such as the Ring of Fire.

[20] Gleeson, J., P. Gray, A. Douglas, C. J. Lemieux, and G. Nielsen. 2011. Practitioner's Guide to Climate Change Adaptation in Ontario's Ecosystems. Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR), Sudbury.

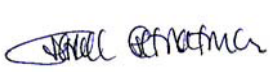
5. Science and Technology

Although the emphasis on science and technology in the questions provided is encouraging, it is narrowly considered in this discussion paper. The focus on low-carbon science and technology as well as research that could be commercialized for economic benefits ignores the role of science in how Ontario could consider the value of natural capital more explicitly in the growth of its modern, low-carbon economy.

In conclusion, the Far North provides an unprecedented opportunity for Ontario to address carbon use and conservation to address climate protection today and into the future. We encourage Ontario to address Far North ecosystems and the services they provide for climate change mitigation and adaption more explicitly going forward. Ultimately, Ontario needs to consider how it will measure societal progress, prosperity and quality of life through the lens of climate change. One of the main causes of climate change is a failure to recognize the limits of nature on economic growth (e.g., consumption, population growth, pollution). These include the limits on how much can be systematically removed from nature even with dedicated protected areas, limits to how much nature can absorb in terms of wastes, toxins, and pollutants generated by consumption in human societies, and a limit to how much diversity, productivity and capacity for renewal can be systematically harvested to generate wealth. Putting a value on the "commons" (e.g., nature), we take for granted may be one way to address this, but government policies rely on the same economic model that created the problems to begin with. The historical emphasis on GDP and conventional economic growth are no longer adequate. New indicators need to combine social, economic, and environmental factors. These indicators should be used to develop laws and policies that encourage decisions about reducing consumption, not maximizing it. We suggest that while there is a lot of emphasis in public documentation put forward by the Ontario government on sustainable development and "green economies" to address climate change, delivering on sustainability requires a more explicit consideration of limits to consumption, waste, and growth. We look forward to working with the province on advancing these efforts.

We thank you for the opportunity to comment on this important document and process and we are available to discuss any of the information in our letter.

Yours sincerely,



Cheryl Chetkiewicz, Ph.D. Justina C. Ray, Ph.D.