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## ENVIRONMENT **north**

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April 22, 2015

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720 Bathurst Street, Suite 500B  
Toronto, ON M5S 2R4

Re: Ontario Energy Board Consultation on the Energy East Pipeline Part Two

This letter will update our concerns regarding the Energy East pipeline proposal. We will briefly restate the concerns in our initial letter (dated May 12, 2014), address some aspects of the Ontario Energy Board final technical reports and make recommendations to the OEB for their report to the Ontario Minister of Energy. To remind you, Environment North is a regional non-governmental charitable organisation based in Thunder Bay with an over forty year history in public education, community sustainability and participation in government processes on environmental issues concerning northwestern Ontario.

### OEB PUBLIC CONSULTATION PART ONE:

In our initial letter dated May 12, 2014 we discussed three main concerns:

1. The construction of a pipeline facilitates expansion of Canada's oil production and invests in new fossil fuel infrastructure. These are both incompatible with Canada's responsibility to reduce greenhouse gas emissions.
2. The risk of a spill in the Great Lakes watershed.
3. The benefits do not outweigh the consequences, especially for Ontario.

### OEB ENERGY EAST CONSULTATION PART TWO: COMMUNITY MEETING

At the community consultation meeting in Thunder Bay on January 14, 2015 members of the public expressed many similar concerns to those mentioned above. Before beginning with the next section of our letter we wish to acknowledge the skill and professionalism exhibited by Ms. Swerhun in facilitating this community discussion.

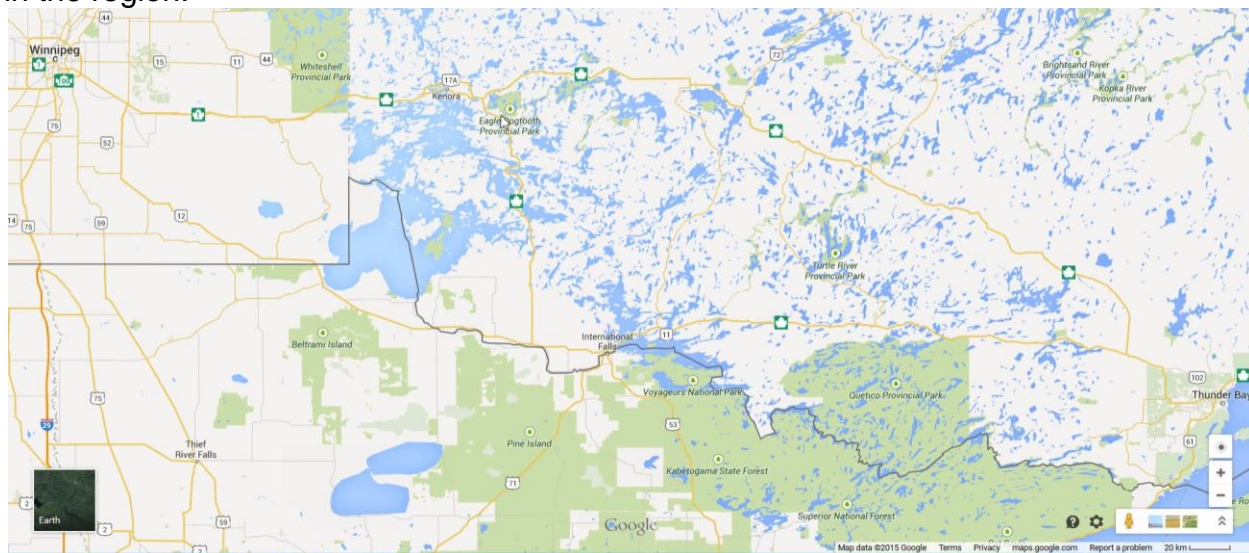
### OEB ENERGY EAST CONSULTATION PART TWO: TECHNICAL REPORTS

#### ***“Assessment of Impacts on the Natural Environment”***

We essentially concur with the findings of Det Norske Veritas (Canada) Ltd. (DNV-GL). Given the incomplete Application it is premature to assess the conclusion of “no

significant adverse environmental effects ...`. Det Norske Veritas has outlined a number of areas which are incomplete or insufficient.

We would like to draw attention to some particular concerns of Northern Ontario relating to water, isolation and wildlife. A visit to the region or a look at a map (see figure below) will give an indication of the network of numerous lakes, rivers, creeks and bogs found in the region.



Map showing difference between prairies and northwestern Ontario in terms of waterbodies and roads.

Det Norske Veritas also commented that “that previous pipeline conversions in Canada have not been located in a project area which encounters hundreds of pristine water crossings ...”. In many cases these ecosystems are sources of food, drinking water, employment and recreation - part of a way of life for many people. Many other groups such as the Northern Ontario Municipal Association (NOMA) and the Council of Canadians have discussed concerns regarding water crossings and how water will be safe-guarded. We add our voice to their concerns.

In Northern Ontario sections of the pipeline are at considerable distance from Emergency Response Units and one section currently has no road access. More needs to be known about how well monitoring could be conducted or how emergency responses would perform especially in circumstances of severe weather such as winter storms or flooding making travel impossible. In recent years there have been a number of heavy rain events in the area resulting in road damage and wash-outs requiring a number of days to repair. Climate change forecasts are for increasing risk of severe weather.

Information on the current state of wildlife and sensitive ecosystems in the areas around the pipeline needs updating. Changes may have occurred since the initial environmental assessment conducted for the original pipeline and there are different impacts from an oil pipeline versus a gas pipeline. Northern Ontario is home to Ontario’s woodland caribou. The State of the Woodland Caribou Resource Report, released in January 2014 by the Ontario Ministry of Natural Resources and Forestry, has concluded that virtually all caribou populations in Ontario are in decline. The pipeline travels through Kesagami range (north of Timmins) and two pump stations and associated power sources are also found within the range. The Kesagami is one of two ranges that are considered high risk, and range conditions have been assessed as "insufficient to

sustain caribou" by the Province's researchers.<sup>1</sup> Activities related to the pipeline conversion and operation could add further stresses.

### ***“Assessment of Impacts on Pipeline Safety”***

There are reasons for concern regarding oil pipeline safety. US Transportation data indicate that pipelines released 6,592,366 gallons (24,953,434 litres) of petroleum product per year from 2005 to 2009<sup>2</sup>. Members of the Canadian Energy Pipeline Association reported 8,481,200 litres of oil and refined products were released between 2002 and 2013<sup>3</sup>. There are also catastrophic spills such as in Kalamazoo, Michigan where at least 843,000 gallons of diluted bitumen was spilled<sup>4</sup>.

The research done by DNV-GL has helped to provide some additional understanding regarding pipeline safety and they have made several valuable recommendations.

#### Pipeline Integrity: Previous Pipeline Conversions

We note that DNV-GL has examined code and regulatory requirements and advisories for pipelines in various jurisdictions and regulatory conditions imposed on NEB-regulated oil pipeline projects including the TransCanada Keystone Pipeline Project. We certainly agree that an examination of recent pipeline conversions in the United States and Canada, in particular TC Keystone Line 100-1 in which 864 km of Line 100-1 (primarily running through southern Saskatchewan) was converted from gas to oil service are likely to provide insights for the Energy East project.

We wish to raise a number of points below for consideration. The points reveal that the conversion process is still evolving, there are economic trade-offs and there are opportunities to assess the performance of past conversions. We have highlighted in yellow key sections of various quotes from documents.

1. The Engineering Assessment from the Energy East Application (Volume 5 Conversion Appendix Vol. 5-1, Engineering Assessment) refers to the “lessons learned in the Keystone conversion and evolving procedures.”<sup>5</sup> It would be helpful to have a summary of the lessons learned.

“1.2 Liquid Integrity Management Program TransCanada’s Liquid IMP and the referenced procedures have evolved extensively since the Keystone conversion application submitted in support of the NEB Order OPLO-T241-05-2009. The Liquid IMP was recently audited by the NEB in its 2012/2013 Management System Protocol Audit of TransCanada. An additional PHMSA US audit provided TransCanada **the opportunity to extend the lessons learned.**

...

#### 2.0 CONVERSION PROGRAM

From a pipeline integrity perspective, and in the context of the EA, the conversion program has been broken out into four phases. **Incorporating the lessons learned from**

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<sup>1</sup> <http://www.ontario.ca/environment-and-energy/state-woodland-caribou-resource-report-part-1>

<sup>2</sup> <http://www.fraserinstitute.org/uploadedFiles/fraser-ca/Content/research-news/research/publications/intermodal-safety-in-the-transport-of-oil.pdf>

<sup>3</sup> <http://www.cepa.com/about-pipelines/maintaining-safe-pipelines>

<sup>4</sup> [http://environmentreport.org/en/bridge\\_oil\\_spill.php](http://environmentreport.org/en/bridge_oil_spill.php)

<sup>5</sup> <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll?func=ll&objId=2541568&objAction=browse&viewType=1>

the Keystone conversion, several specific update reports to the NEB are proposed during the course of the conversion. ...”

2. There are guideline changes by the Pipeline and Hazardous Materials Safety Association (PHMSA):

“PHMSA is issuing this advisory bulletin to alert operators of hazardous liquid and gas transmission pipelines of the potential significant impact flow reversals, product changes and conversion to service may have on the integrity of a pipeline. ...”<sup>6</sup> (Sept. 18, 2014)

The new Guidance for Pipeline Flow Reversals, Product Changes and Conversion to Service US DOT PHMSA was released in September 2014.<sup>7</sup>

3. In the National Energy Board (NEB) *Reasons for Decision TransCanada Keystone Pipeline GP Ltd. OH-1-2007*<sup>8</sup> regarding the conversion of Line 100-1 there was by discussion by Keystone regarding the limits of hydrostatic testing and also a discussion of delays and costs that it would incur. As hydrostatic testing of MLV 58-59 has been recommended by DNV-GL as an additional means of integrity assessment we are interested in TCPs response to hydrostatic testing. Also of interest would be the results of their testing after one year of operation as indicated below.

In order to provide the required level of assurance of pipeline integrity on Line 100-1, Keystone determined that it would be necessary to complete a crack detection in-line inspection (ILI) before the end of gas service and complete subsequent investigations and repairs prior to liquid service. Keystone stated that this approach would provide better certainty that Line 100-1 would perform properly in oil service than the results of a hydrostatic test to 1.25 times the maximum operating pressure (MOP).

Keystone indicated that Line 100-1 contains corrosion fatigue sensitive features which in oil service would be subjected to large pressure cycles. Under these circumstances, Keystone was of the view that hydrostatic testing is an ineffective integrity management tool as it would not verify the pipeline’s integrity when put into liquid service. It would merely establish the minimum static strength of a pipeline at the time of testing. Keystone indicated that failure could potentially occur during the filling of the line. Furthermore, a hydrotest is a binary test that provides no information on potential flaws that remain, other than the flaws that do not exceed the envelope of dimensions that would have failed at test pressure.

Keystone also stated that hydrostatically pressure testing Line 100-1 would have two significant impacts. The first impact would be a delay to the Project schedule of one quarter of one year. The second impact would be increased costs from hydrostatic testing and the need to accelerate construction activities.

... During the oral portion of the hearing, Keystone agreed to complete a second ILI of Line 100-1 within one year of liquid operation. With a second ILI run after one year, Keystone stated that it would be able to perform more analysis and compare the results from the two tool runs to validate the methods being used to manage the integrity of the pipeline. Keystone expected there would be sufficient pressure cycling of the line in the first year of operation to allow it to assess actual defect growth rates.

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<sup>6</sup> <https://www.federalregister.gov/articles/2014/09/18/2014-22201/pipeline-safety-guidance-for-pipeline-flow-reversals-product-changes-and-conversion-to-service>

<sup>7</sup> <http://www.occeweb.com/PLS/2014Gas/Guide-Flo%20Rev-Prod%20Ch-Conver.pdf>

<sup>8</sup> [https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/446070/478070/477791/A1A4H2\\_-\\_Reasons\\_for\\_Decision\\_OH-1-2007.pdf?nodeid=477856&vernum=-2](https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/446070/478070/477791/A1A4H2_-_Reasons_for_Decision_OH-1-2007.pdf?nodeid=477856&vernum=-2) page 24

... Keystone indicated that a risk assessment approach to identifying potential integrity threats would be used to initiate appropriate inspection and mitigation activities. Keystone stated it would perform an economic assessment and weigh both the economic impacts of conducting additional integrity management activities against the consequences of a failure. Keystone stated that the goal of its integrity program is to achieve zero ruptures and leaks.

However, Keystone stated there would be considerable financial costs to ensure a zero rupture condition and these costs would far outweigh the benefit given the low probability of a rupture occurring.

4. NEB post construction reports are an example of performance measures to assess. The following from the NEB Certificate OC-51<sup>9</sup>: It would be useful to have a summary of various post construction reports.

32. Keystone shall file with the Board, 6 months after the commencement of operation, and on or before the 31st January for each of the subsequent 5 years, a post-construction environmental monitoring report that:

- (a) provides a summary of the effectiveness of the environmental mitigation measures applied during construction;
- (b) identifies deviations from plans and alternate mitigation applied as approved by the Board;
- (c) identifies locations on a map or diagram where corrective action was taken during construction and the current status of corrective actions;
- (d) provides proposed measures and the schedule Keystone shall implement to address any unresolved concerns; and

...

36. Keystone shall conduct line patrolling (aerial or ground) of Line 100-1 once a week during the first year of operation.

37. Keystone shall report to the Board all reportable commodity pipeline accidents and incidents on Line 100-1, as defined by section 2 of the Transportation Safety Board Regulations, during the first year of operation.

## Pipeline Integrity: Energy East Pipeline

1. The Engineering Assessment included with the Energy East application outlines many more moderate to high level hazards for the Northern Ontario Line than the Prairie Line. There are 44 geotechnical hazards and 37 hydro-technical hazards along the 1160 km long Northern Ontario Line. The Prairie Line of comparable length (940 km) has only 24 moderate to high risk geo-hazard sites and only 12 moderate to high risk hydro-technical hazard sites.<sup>10</sup>

We draw attention to the Dog River site where there is a high level risk of potential for long unsupported pipe exposure due to “avulsion of tortuous meanders along a relatively large river”. The Dog River runs into Dog Lake (a large lake) which runs into the Kaministiquia (a major river) and then to Lake Superior. We are particularly interested in safety measures planned for this site.

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<sup>9</sup> <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/446070/489870/486791/A1C2T4 - Certificate OC-51 for Construction and Operation of the Keystone Pipeline Project.pdf?nodeid=486792&vernum=-2> page 27

<sup>10</sup> <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll?func=ll&objId=2541568&objAction=browse&viewType=1>

In addition future climatic changes are anticipated to cause increased heavy rainfall and flooding, increased cold spells at times combined with reduced snow cover. Heavy rainfall events and flooding can impact pipelines. Extreme cold could impact pipeline safety where the pipeline will be exposed or with deep frost penetration.

2. In the Engineering Assessment (Appendix Volume 5-1)<sup>11</sup> for the Energy East Pipeline project a crack was not report by the EMAT tool but was detected in the excavations. The current plan by TCP is for further assessment would take place after crude oil service begins. We are interested in knowing if DLV GL would concur with this decision.

Attachment 5-5

Rosen memo: Statement of Unreported Crack of October 9, 2013

15.1.8 Conclusion and Response to Correlation Results

... The ROSEN technical memo "Statement of Unreported Crack of October 9, 2013" provided in Attachment 5-5 indicates that, although the feature was detected by the tool, the signal strength was not of sufficient amplitude to be classified as a crack-like indication. It is in consideration of these short and shallow cracks that TransCanada will run the Shear Wave UT tool after entering crude oil service, given its superior and extensively validated detection threshold of 1 mm depth by 25 mm length. A further 12 crack-like features are scheduled for excavation in 2014 based on ROSEN's final reports incorporating additional refinements from the excavation results produced late in the field program.

Emergency Management Response:

1. In the National Energy Board (NEB) *Reasons for Decision TransCanada Keystone Pipeline GP Ltd. OH-1-2007*, "Keystone stated that a preliminary investigation into the level of attainable performance of the leak detection system indicates the following detection times for various sizes of leaks<sup>12</sup>:

Leak Relative to Pipeline Flow	Approximate Detection Time (minutes)
2%	102
5%	45
15%	18
50%	9

The current Energy East pipeline project leak detection is to be determined within 10 minutes. We would be interested in knowing the size of the leak associated with this detection time.

2. We repeat the concern about challenges specific to our region such as distance from Emergency Response and areas without road access and impacts of severe weather on response time.

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<sup>11</sup> <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll?func=ll&objId=2541568&objAction=browse&viewType=1>

<sup>12</sup> [https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/446070/478070/477791/A1A4H2\\_-Reasons\\_for\\_Decision\\_OH-1-2007.pdf?nodeid=477856&vernum=-2](https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/446070/478070/477791/A1A4H2_-Reasons_for_Decision_OH-1-2007.pdf?nodeid=477856&vernum=-2)

## ***“Greenhouse Gas Emissions Resulting from the Energy East Pipeline Project”***

There have been two reports on the greenhouse gas (GHG) impacts of the Energy East pipeline project. The Pembina analysis estimates that 30-32 Mt of CO<sub>2</sub>e would be emitted per year within Canada<sup>13</sup>. This large increase in GHG is primarily due to the increase in upstream emissions from the production of oil to fill the pipeline. The Navius Research Inc. concluded 1.2 to 10 Mt CO<sub>2</sub>e<sup>14</sup>. While both reports determine an estimate of the impact on Canada’s GHG emissions, they vary considerably on their basic premises for this calculation. Navius states that the main difference in the methodology is the assumption on the availability of rail and that the oil would have been produced regardless of the mode of transportation. These two studies are examining quite different scenarios.

The Navius scenario may or may not represent the future in regards to rail availability. Until the recent plummet of oil prices there were plans for significant oil sands expansion and concerns about insufficient transport capacity. If/when oil prices increase there could be a return to the above scenario in regards to expansion being constrained by lack of transport capacity. The maximum potential GHG contribution of the project in which one barrel of pipeline transport capacity implies one barrel of increased oil production must be considered.

However, an increase in total oil transport capacity, whether by pipeline or rail, would facilitate increased oil production and GHG emissions. Expansion of the oil industry would prevent Canada from meeting its Copenhagen GHG reduction target for 2020.<sup>15,16</sup>

This process does highlight the challenges in attempting to understand the GHG emissions of Canada’s oil industry by examining one oil transport project in isolation. This problem was addressed by a group of scientists primarily from Simon Fraser University in a four page commentary published in the journal Nature last year<sup>17</sup>:

“Both Canada and the United States treat oil-sands production, transportation, climate and environmental policies as separate issues, assessing each new proposal in isolation. A more coherent approach, one that evaluates all oil-sands projects in the context of broader, integrated energy and climate strategies, is sorely needed....

Current public debate about oil-sands development focuses on individual pipeline decisions. Each is presented as an ultimatum — a binary choice between project approval and lost economic opportunity. This approach artificially restricts discussions to only a fraction of the consequences of oil development, such as short-term economic gains and job creation, and local impacts on human health and the environment. Lost is a broader conversation about national and international energy and economic strategies, and their trade-offs with environmental justice and conservation. This pattern of incremental decisions creates the misguided idea that oil-sands expansion is inevitable....”

The maximum GHG impacts of Energy East pipeline project need to be considered, not only those by the Navius scenario.

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<sup>13</sup> Pembina Institute, 2014. Climate Implications of the Proposed Energy East Pipeline: A Preliminary Assessment. <http://www.pembina.org/pub/2519>

<sup>14</sup> OEB Energy East Consultation and Review, Climate Change

<sup>15</sup> International Institute of Sustainable Development, 2012. Regulating Carbon in Canada.

<http://www.iisd.org/publications/regulating-carbon-canada-flexibility-and-federal-oil-and-gas-greenhouse-gas-regulations>.

<sup>16</sup> Canadian Energy Research Institute, Study No. 143, July 2014

<sup>17</sup> Consider the Global Impacts of Oil Pipelines. 2014.

[http://www.nature.com/polopoly\\_fs/1.15434!/menu/main/topColumns/topLeftColumn/pdf/510465a.pdf](http://www.nature.com/polopoly_fs/1.15434!/menu/main/topColumns/topLeftColumn/pdf/510465a.pdf)

## RECOMMENDATIONS TO THE OEB

What are the 3 most important things that the Ontario Energy Board should focus on in its report to Ontario's minister of energy?

### **1. Focus on Climate Change**

Even if the Energy East pipeline never leaks, its construction facilitates expansion of the oil industry and prevents Canada from meeting its global commitment to reduce GHG emissions.<sup>18,19</sup>

The maximum potential increase in Canada's GHG emissions due to the Energy East pipeline project needs to be considered and thus the Pembina value of 30 Mt should be included in the climate change assessment.

Climate scientists continue to warn that in order to avoid the most damaging impacts of climate change the world has to turn the GHG emissions curve downward<sup>20</sup> now and much of the fossil fuel reserves need to stay in the ground<sup>21</sup>. Canada currently has a disconnect between our global commitment to reduce GHG emissions and the plans for expansion of the oil industry.

### **2. Focus on Safety of Oil Transport**

Large scale transport of oil through Northern Ontario is more risky than other locations such as the prairies. There are numerous water bodies, there is limited road access and the terrain has more geological and hydro-technical hazards.

#### **A. Pipeline Safety**

- Examine the performance of previous gas to oil service conversions in Canada and the United States, in particular the details of TC Keystone Line 100-1 conversion.
- Continue to evaluate the pipeline integrity assessment plans.
- Assess how the geological and hydro-technical hazards will be managed.
- Analyse worst case scenarios: considering emergency response in an inaccessible location with severe weather and multiple system failures.

#### **B. Rail Safety**

Likely oil traffic by rail will continue to some extent with or without the pipeline and the Ontario government can increase engagement in the rail safety discussion. Rail lines cross nearly the same waterways as the pipelines. An International Energy Agency study based on U.S. Department of Transportation data from 2002 to 2012 determined that the risk of a train spill was six times more than a pipeline but pipelines spill three times more oil than trains.<sup>22</sup> Oil transport by rail has already

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<sup>18</sup> International Institute of Sustainable Development, 2012. Regulating Carbon in Canada.  
<http://www.iisd.org/publications/regulating-carbon-canada-flexibility-and-federal-oil-and-gas-greenhouse-gas-regulations>.

<sup>19</sup> Canadian Energy Research Institute, Study No. 143, July 2014

<sup>20</sup> [http://www.nytimes.com/2014/04/21/opinion/running-out-of-time.html?\\_r=0](http://www.nytimes.com/2014/04/21/opinion/running-out-of-time.html?_r=0)

<sup>21</sup> <http://www.independent.co.uk/environment/climate-scientists-beg-governments-to-leave-buried-fossil-fuel-reserves-in-the-ground-9963405.html>

<sup>22</sup> [http://business.financialpost.com/2013/05/14/pipelines-spill-three-times-as-much-oil-as-trains-iaea/?\\_lsa=2a31-6161](http://business.financialpost.com/2013/05/14/pipelines-spill-three-times-as-much-oil-as-trains-iaea/?_lsa=2a31-6161)



increased significantly without safety regulations keeping pace. The following is a list of some of the questions surrounding rail safety in Ontario

- What is the current capacity of the rail system for large scale oil transport?
- Are the new federal regulations being implemented in a timely fashion?
- Are the new safety regulations sufficient?
- Would diluents be transported back to the Prairies from the east coast?
- How could communities be better safe-guarded: e.g. rail by-passes, speed of trains, knowledge of which hazardous materials are about to be transported through the community?
- Do municipalities have sufficient emergency response resources?

### 3. Focus on the “Need” for the Project

One need for the project expressed by NOMA (and others) is to avoid oil transport by rail due to safety concerns of oil transport through communities<sup>23</sup>. Will the energy east pipeline achieve this goal? The future modes of oil transport depends on a number of interdependent factors including global oil prices, carbon pricing, oil production, other pipeline projects, possible transport of diluents from the east coast back to Alberta by rail and the cost of rail transport. It is often stated that pipelines are a less costly way to transport oil but there are also reports such as “...rail can be cheaper by pipeline, the most profitable way to move bitumen by rail is in thermally-jacketed cars that allow for the oil to be heated...”<sup>24</sup> (It is also possible that by trying to make a pipeline essentially leak proof the cost will exceed that of rail.) An analysis is needed to determine the impacts of the Energy East project on the transport of oil by rail through Ontario.

Is the Energy East pipeline project able to weather decreases in oil prices, competition from rail transport or carbon pricing? If the project were not viable after construction would public funds be used to assist TCP in managing a financial crisis?

The hazards of increased oil transport, by either pipeline or rail, stem from increased oil production. Canada does not need to invest in major new fossil fuel infrastructure and increased oil production. Canada does need to operate within an energy–climate framework that will allow us to meet our global GHG emission reduction commitments.

Thank you for this opportunity to participate in the OEB consultation process,

Graham Saunders,  
President, Environment North

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<sup>23</sup> <http://www.noma.on.ca/upload/documents/resolutions-for-website.pdf>

<sup>24</sup> <http://www.desmogblog.com/2014/08/21/all-aboard-tar-sands-oil-rail-set-eclipse-pipelines>