Redefining possible.

Presentation to:
Canadian Prairie and Northern Section, AWMA
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Are GHG Assessments Killing Pipelines?

**NEB hearing process**
- Affected projects
- Oversight/mandate
- ESA objectives, interactions
- Traditional filing requirements
- Typical GHG emissions, pipelines, marine

**Typical Project**
- Direct vs indirect
- Project/cumulative GHG emissions
- Effects of Project on climate change

**Additional NEB Filing Requirements**
- Upstream GHG emissions
- Indirect downstream GHG emissions
- Public interest
- New federal agencies proposed
- Conclusions
Projects Affected by Changes to NEB Review Process

- Enbridge, Line 3 Replacement
- Kinder Morgan Canada, Trans Mountain Expansion Project
- TransCanada Pipelines, Energy East and Eastern Mainline
Oversight and Mandate

- Department of the federal government
- Energy and safety regulator, life cycle of project
  - Construction, operation, and abandonment of international and inter-provincial pipelines
  - Construction and operation of international and inter-provincial power lines
  - Imports and exports of fossil fuels and electricity
  - Oil and gas exploration and production where there is no joint federal/provincial accord
  - Environmental assessments
  - Supplies health and safety officers
  - Monitors aspects of energy supply, demand, production, development, and trade
- Regulates and provides guidance within the limits of several laws; *previous hearing decisions tend to set precedence*
- *Role and function of NEB has recently been challenged*
Overview, ESA Objectives

NEB has a broad mandate and is responsible for assessing the environmental and socio-economic effects of energy projects within its jurisdiction ... and related facilities and activities.

When assessing proposed projects, the Board uses a risk-oriented approach to evaluate issues, considering the probability and consequence of potential issues.

Objectives for environmental and socio-economic assessment (ESA) include:

- determine potential effects of projects before proceeding;
- projects are not likely to cause significant adverse effects or contribute to significant adverse cumulative effects;
- opportunity for meaningful public and Aboriginal participation; and
- NEB’s process and its decisions or recommendations are transparent and reflect the input received.

National Energy Board, Filing Manual, revised July 2017
Circumstances and Interactions Requiring Detailed Biophysical and Socio-Economic Information, GHG Emissions

Information triggers consider whether:

- The project may result in an increase in GHG emissions during the operation or maintenance of a gas plant, pump or compressor station.
- There may be annual GHG emissions above federal or applicable provincial reporting criteria.
- There is an outstanding concern about this element of the project, which has not been resolved through consultation.

The applicant is not expected to provide extensive descriptions of features of the environment or socio-economic components that would clearly not be impacted by a proposed project.
Examples of GHG Emissions, Crude Oil

Pump station

Vapour recovery via carbon-based adsorption beds

Incinerator or vapour combustion unit

Floating roof storage tanks
Typical GHG Emission Sources, Crude Oil

Construction activities include land clearing and heavy equipment.

No emissions here – it's welded steel!

Fugitives from rail car loading

Marine emissions include boilers and main engines
Fugitive GHG Emissions, Marine and Tanker Loading

- Product loading booms
- Deck hatch
- Piping for VOC recovery
- VOC piping connected
Typical GHG Emission Assessment

1) Provide an assessment of the construction-related GHG emissions with a description and justification of the methods used.

2) For projects that result or may result in an increase in GHG emissions during operations or maintenance, describe/quantify:

   - methods used, rationale, and assumptions to estimate GHG emissions;

   - sources (e.g., point emissions, area sources, flaring and incineration emissions, and fugitive sources);

   - measures to be implemented for continuous improvement of GHG emissions management; and

   - participation in provincial/federal reporting programs or provide rationale why participation is not required.
The physical components can include:

- installation of new pipeline segments and reactivation of deactivated lines or conversion (from gas to oil) of existing lines;
- construction of new or expansion of existing pump stations;
- expansion of storage tank terminals;
- other infrastructure such as a new dock complex for crude oil loading into tankers;
- installation of new mainline block valves; and
- addition of new power lines under the jurisdiction of the appropriate provincial authorities.
Typical Direct and Indirect GHG Emissions

Construction, Direct
- trucks and heavy equipment;
- earth moving;
- *land clearing and brush burning*;
- berth construction; and
- tunnel boring.

*Need to explore timber salvage, mulching, and other end uses or products like production of wood pellets and charcoal.

Operations, Direct
- contractor maintenance work;
- flying pipeline ROW; and
- vapour combustion unit.

Operations, Indirect
- electric pumps;
- storage tanks;
- tanker loading; and
- releasing inert gases from tanker hold.
Direct and Indirect GHG Emissions

Construction, Direct

- Total GHG emissions approximately 300 to 800 t CO$_2$e per km constructed. Dependent on amount of biomass burning.

Operations, Direct

- Minor amount.

Operations, Indirect

- Rely on local jurisdiction for available power from grid for pumps. Large difference between AB and BC (793 t CO$_2$e/GWh vs 11 t CO$_2$e/GWh)

- Relative to provincial and national annual GHG emission totals, Project related changes are always small, <0.2 % increase

Environment Canada (2015). National Inventory Report 1990-2013 Part 3, Table A11-7,
Predicted Increase in the Earth’s Global Temperature,

Assuming GHG emissions of 540,000 t CO$_2$e for annual operations, the total emissions over 40-year life of pipeline project would be about 21,500,000 t CO$_2$e.

The resulting increase in Earth’s global temperature from the Project would be 1.01×10$^{-5}$ C, which is very small.

<table>
<thead>
<tr>
<th>Environmental Parameter</th>
<th>Best Estimate</th>
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<tbody>
<tr>
<td>Precipitation changes</td>
<td>±0.0001%</td>
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<tr>
<td>Increase in heavy rainfall</td>
<td>0.0001%</td>
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<tr>
<td>Yield reduction in a number of crops</td>
<td>0.0001%</td>
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<tr>
<td>Changes in stream flows</td>
<td>±0.0001%</td>
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<tr>
<td>Decrease in the extent of annually averaged Arctic sea ice</td>
<td>0.0003%</td>
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<tr>
<td>Decrease in the extent of September Arctic sea ice</td>
<td>0.0003%</td>
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The List of Issues the NEB **will consider** in its public hearing will include GHG emissions directly related to construction and operation of the Project.

The NEB will **not consider** upstream or downstream GHGs in its review of the BC Project or in the final recommendation report.

Government of Canada committed to assess upstream GHGs for EA’s. Review completed by Environment Canada and Climate Change.
Additional NEB Requirements, August 2017

It was announced that “The NEB will consider upstream and downstream greenhouse gas emissions in determining whether these projects [Energy East and Eastern Mainline] are in the public interest.

The NEB also wants to examine the potential market impacts of GHG reduction targets embedded in laws and policies on the economic viability of the projects.”
NEB will take into account direct GHG emissions that would be produced not only during the pipeline's construction and operation, but **indirect GHG emissions** during the refining, processing and transportation of its oil as well.

In its determination of whether the project is in the **public interest**, the NEB will also consider Canada's mix of climate change policies, including provincial energy and greenhouse gas strategies, policies laws and regulations.

NEB acknowledged that upstream and downstream GHG emissions are "beyond the control" of project applicants, and are not part of the "designated project(s)" as defined by the 2012 Canadian Environmental Assessment Act (CEAA). But given the public's interest in such emissions, the NEB concluded that they may be relevant to its "**public interest**” determination.

NEB proposed to review the possible impacts on **marine shipping**, along with the environmental and social impacts of **power lines** that will connect with pump stations.
Public Interest

“The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social interests that change as society's values and preferences evolve over time... the Board must estimate the overall public good a project may create and its potential negative aspects, weigh its various impacts, and make a decision.”

Parties directly affected:
- First Nations
- Nearby residents and general public
- Other government agencies such as port authorities, local municipalities
- Visitors to recreational areas
- Environmentalists and other activists

Provincial governments (Alberta):
- Market access (‘tide-water access’)
- Royalty revenues
- Resource dependent economy

Federal government: balancing all of the above with other expectations:
- GHG reductions
- Reliable resource delivery
- International trade agreements
- Gross Domestic Product (GDP) of which energy is ~30%
Government of Canada announces replacement of NEB and Canadian Environmental Assessment Agency (CEAA) and the creation of Canadian Energy Regulator (CER) and Impact Assessment Agency of Canada (IAAC).

CER will have governance structure like AER with separate chair and Board of Directors, separated from chief executive and hearing commissioners.

IAAC will assess the impacts of projects encompassing economic, environmental, social and Indigenous issues.

Two regulators with IAAC prevailing in decision-making.

Timelines for decisions to be shorter and fixed duration.

Proposed act must still be passed by parliament.
Conclusions

GHGs don’t kill pipelines but point to a need for:

- clarity for project assessment review process that is valid for duration of assessment;
- clarity regarding jurisdictional involvement between federal, provincial, regional and municipal governments; and
- effective procedures for evaluation of projects that keep the focus on the project in question.

Not clear whether new federal agencies will resolve the uncertainties and opposition that have created a difficult investment climate in Canada.
QUESTIONS?

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