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Climate change and environmental assessment

Environmental assessment (EA) is a process of identifying, predicting, evaluating, and mitigating the broad environmental effects of proposed initiatives before they are carried out. In recent years, we have become increasingly aware of the importance of the issue of climate change. EA practitioners have responded by asking how climate change can and should be considered in EAs.

Regulatory context

There are currently no legally binding federal, provincial, or territorial regulations or targets for greenhouse gas emission reductions. In addition, climate change is not an explicit requirement of Canadian EA legislation. However, the *Canadian Environmental Assessment Act* was recently amended to require EAs of proposed development projects to be consistent with the precautionary principle. As defined by the 1992 United Nations Conference on Environment and Development, the precautionary principle states, "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing conservation-effective measures to prevent environmental degradation" (Rio Declaration, Principle #15, June 1992).

> *In the administration of this Act, the Government of Canada, the Minister, the Agency and all bodies subject to the provisions of this Act, including federal authorities and responsible authorities, shall exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.*
>
> CEAA SECTION 4.2

In keeping with the precautionary principle, the federal, provincial and territorial governments jointly released a report that provides guidance to EA practitioners on how to incorporate climate change in EAs in November 2003. This guidance document is to be used at the discretion of jurisdictions and regulatory authorities, and marks a unique initiative in Canada's response to climate change.

Climate change considerations

As summarized in Table 1, there are two ways in which climate change can be considered in EAs: where a project may contribute to greenhouse gas emissions (greenhouse gas considerations); and where climate change may affect a project (impacts considerations). Some projects may be more closely associated with one climate change consideration than the other. For example, GHG considerations would be relevant to a proposed coal-fired plant, impacts considerations may be more applicable to a proposed ski resort, and both considerations may be important to a proposed pipeline with compressor stations.

Case study: Diavik Diamond Mine project

The 1999 environmental assessment (EA) of the Diavik Diamond Mine, located in the Northwest Territories, considered both the potential contributions of the project to climate change and the potential impact of climate change on the project.

Since scoping of the project indicated that potential emissions were likely to be approximately 9% of the combined emissions of the Yukon and NWT, further consideration of how this project might contribute to climate change was given in the EA. Scoping also determined that the project's sensitivities to climate change related mainly to the containment dam, which relied heavily on permafrost for its structural integrity in the initial proposal.

As part of its commitment to reduce emissions associated with this project, the mine agreed to register with the Voluntary Challenge and Registry Program, and agreed to consider using alternative energy sources—specifically wind power—at the site. Even though no immediate concerns for permafrost stability arose, the mine made some design modifications to the containment dams, emergency spillway, and rock cap proposed for closure to reduce the risk of instability.

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Table 1: Recommended procedures for incorporating climate change considerations in environmental assessments

Environmental Assessment Process	GHG Considerations *(where a project may contribute to GHG emissions)*	Impacts Considerations *(where climate change may affect a project)*
1. Scoping	Preliminary scoping for GHG considerations. Are there likely GHG considerations associated with the project that should be addressed in greater detail?	Preliminary scoping for impacts considerations. Are there likely impact considerations associated with the project that should be addressed in greater detail?
2. Data and information collection	If needed, identify GHG considerations: • Determine magnitude, intensity, and timing of project emissions • Compare project specifics with industry profile, provincial/territorial and national GHG inventories	If needed, identify impacts considerations: • Identify project sensitivity to possible changing climatic parameters • Collect detailed regional climate change information and clarify changing climate parameters
3. Analysis of environmental effects	Assess GHG considerations: • GHG considerations should be assessed in greater detail if project is likely to have medium or high emissions, or diverges from industry or jurisdictional profile • Describe direct and indirect GHG emissions and related effects, including large-scale impacts on carbon sinks, possible consequences of accidents or malfunctions	Assess impacts considerations: • Determine the range and extent of possible impacts of climate change on the project • Assess the potential risks to the public and the environment
4. Identification of mitigation measures	If the project is likely to result in medium or high emissions, or depart from industry or jurisdictional profiles, prepare GHG management plan	If the project is likely to pose risks to the public or the environment, prepare impacts management plan to reduce risks associated with climate change
5. Monitoring and follow-up	Monitoring, follow-up, and adaptive management: • Verify GHG emissions forecasts • Determine effectiveness of GHG reduction or offset measures • Implement remedial action as necessary • Address evolving project and climate change knowledge, technology, policy, and legislation	Monitoring, follow-up, and adaptive management: • Monitor effectiveness of impacts management plan • Implement remedial action as necessary • Address evolving project and climate change knowledge, technology, policy, and legislation.

SOURCE: Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment. November 2003

Recommended reading

Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment. November 2003. *Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners.* Available at www.ceaa-acee.gc.ca.

Burn, Chris. November 2003. *Climate Change Scenarios for the Mackenzie Gas Project.* Available from Indian and Northern Affairs Canada, Water Resources Division, Yellowknife.

Lee, Rick. 2001. *Climate Change and Environmental Assessment: Part 1: Review of Climate Change Considerations in Selected Past Environmental Assessments.* Available at www.ceaa-acee.gc.ca.

Barrow, Elaine and Rick Lee. 2001. *Climate Change and Environmental Assessment Part 2: Climate Change Guidance for Environmental Assessments.* Available at www.ceaa-acee.gc.ca.