Canadian Environmental Assessment Agency | Agence canadienne d'évaluation environnementale

Operational Policy Statement

Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the *Canadian Environmental Assessment Act*

Original: October 1998
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Purpose

This operational policy statement provides clarification to federal authorities and proponents when considering the following factors under the *Canadian Environmental Assessment Act* (the Act):

- "**need for**" the project (paragraph 16(1)(*e*));
- "**purpose of**" the project (paragraph 16(2)(*a*));
- "**alternatives to**" the project (paragraph 16(1)(*e*)); and
- "**alternative means**" of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means (paragraph 16(2)(*b*)).

The need for clarification from the Agency arose from concerns about the inconsistent application of the above-mentioned provisions by different responsible authorities and from the desire to strengthen the application of the environmental assessment process.

Environmental Assessment as a Planning Tool

This guidance on "alternatives to" and "alternative means" emphasizes the use of environmental assessment as a decision-making and planning tool, in addition to a project impact assessment tool.

The approach links considerations of "need for" the project, "purpose of" the project, "alternatives to" the project and "alternative means" of carrying out the project, in the early stages of project planning, and before irrevocable decisions on the project are made.

In this way, a responsible authority and/or proponent will be in a better position to define potential solutions to a problem, and to establish the viability of alternatives.

Their consideration will also help to establish the conditions under which significant adverse environmental effects may or may not be justified in the circumstances, should such a determination subsequently be required.

Procedural Guidance

The following sections explain the key considerations related to the "need for", "purpose of", "alternatives to" and "alternative means" of carrying out a project.

"Need for" and "Purpose of" the Project

The "need for" the project is defined as the problem or opportunity that the proposed project is intending to solve or satisfy. That is, "need for" establishes the fundamental justification or rationale for the project.

The "purpose of" the project is defined as what is to be achieved by carrying out the project.

Consideration of the purpose of the project is required in every comprehensive study, mediation and assessment by a review panel. The consideration of the need for the project is strongly encouraged in these types of assessment. Responsible authorities are also encouraged to consider these factors in screenings, particularly for large or complex projects.

The "need for" and "purpose of" the project should be established from the perspective of the project proponent and provide the context for the consideration of alternatives. For private sector projects, proponents should provide a clear statement of the need for the project. Such a statement will establish the scope of the alternatives to be subsequently considered (i.e., those within the control or interest of the proponent). In cases where the proponent is a federal authority, the statement of the need should reflect the direct involvement of government in the project and will necessarily be broader in context.

Alternatives to the Project

The "alternatives to" the project are the functionally different ways to meet the project need and achieve the project purpose.

Consideration of alternatives to the project is at the discretion of responsible authorities in a screening, and is at the discretion of the Minister of the Environment/responsible authority(ies) for a comprehensive study, mediation or assessment by a review panel.

The Agency recommends that "alternatives to" a project be considered as part of comprehensive studies, mediations and assessments by review panels. Responsible authorities are encouraged to include this consideration in screenings of large or complex projects. (For example, alternatives to the project should be considered if there are adverse effects on a species at risk or its critical habitat as defined under the *Species at Risk Act*.)

The Agency recommends the following approach for addressing "alternatives to" a project:

- "alternatives to" a project should be established in relation to the project need and purpose and from the perspective of the proponent; and

- analysis of "alternatives to" a project should serve to validate that the preferred alternative is a reasonable approach to meeting need and purpose and is consistent with the aims of the Act.

The responsible authority should take the following steps:

- Identify the alternatives to the project.
- Develop criteria to identify the major environmental, economic and technical costs and benefits.
- Identify the preferred alternative to the project based on the relative consideration of the environmental, economic and technical benefits and costs.

Analysis of alternatives to the project should describe the process the proponent used to determine that the project is viable (technically, economically and environmentally).

The level of assessment should reflect the more conceptual nature of the alternatives to the project at this stage of the process.

Alternative Means of Carrying out the Project

"Alternative means" are the various technically and economically feasible ways the project can be implemented or carried out. This could include, for example, alternative locations, routes and methods of development, implementation and mitigation.

Consideration of alternative means of carrying out a project is required during every comprehensive study, mediation and assessment by a review panel. Responsible authorities are encouraged to consider "alternative means" during a screening, particularly for large or complex projects.

The Agency recommends the following procedural steps for addressing alternative means:

- Identify the alternative means to carry out the project. The responsible authority should:
  - develop criteria to determine the technical and economic feasibility of the alternative means;
  - describe each alternative means in sufficient detail; and
  - identify those alternative means that are technically and economically feasible.
- Identify the environmental effects of each alternative means. The responsible authority should:
  - identify those elements of each alternative means that could produce environmental effects.
- Identify the preferred means. The responsible authority should:
  - identify the preferred means based on the relative consideration of environmental effects, and of technical and economic feasibility;
  - determine and apply criteria that identify alternative means as unacceptable on the basis of significant adverse environmental effects; and
  - determine criteria to examine the environmental effects of each remaining alternative means to identify a preferred alternative.

Examples

The following examples illustrate the recommended approach for addressing the questions of the need for a project, the purpose of a project, alternatives to a project and alternative means of carrying out a project.

EXAMPLE 1: COMPREHENSIVE STUDY

Proposed Project:

Construction and operation of an oil refinery with an input capacity of more than 10,000 m^3/day.

Need for the Project

Question:

What is the problem or opportunity the project is intended to solve or satisfy?

Response:

Increased demand for refined oil products.

Purpose of the Project

Question:

What is to be achieved by carrying out the project?

Response:

The production of refined oil products in a manner which returns an economic benefit to the company.

Note: The purpose is established in the context of the proponent and helps establish the viability of the alternatives ("which returns an economic benefit to the company"). Its link to other components would be stressed.

Alternatives to the Project

Question:

What are the functionally different ways to meet the project need and achieve the project purpose?

Response:

An explanation of the various ways in which the company could produce refined oil products in a manner which returns an economic benefit to the company. These ways could include utilizing or expanding existing company refining facilities, contracting refining capacity with others and developing new refining capacity.

The evaluation of these alternatives would include the broad consideration of environmental effects and whether and what kind of economic benefits would be returned to the company. Criteria would be developed which illustrate the broad environmental effects and the costs and benefits of the alternatives being considered. A preferred alternative would be identified, based on those broad environmental effects and their costs and benefits. The preferred alternative should be one that meets the need for the project and achieves the purpose of the project.

Alternatives Means of Carrying Out the Project

Question:
What are the various technically and economically feasible ways that the preferred alternative could be implemented or carried out?

Response:
Consideration of alternative means should, at a minimum, include:

- a description of the alternatives and how or why they are technically and economically feasible;
- the identification of the environmental effects of the feasible alternatives (technically, economically and environmentally feasible); and
- the rationale for the preferred alternative.

In the example, the following issues should be addressed:

- where the new refining capacity is to be developed;
- how much capacity will be required;
- the kinds of refining technology to be employed; and
- the supporting infrastructure required.

In the case of determining where the new refining capacity would be developed, the basis for determining suitable sites would need to be described. The location of each alternative would be described, the environmental effects of each alternative location defined and the criteria and analysis leading to the selection of a preferred site presented.

In the case of determining how much refining capacity is required, consideration would be given to world demand, crude supply and whether the demand could be met through various facility configurations.

Consideration of refining technology would involve identifying the various ways in which crude oil can be refined, determining whether these ways would be economically and technically feasible, determining the environmental effects associated with the feasible (technically and economically) options, and examining the criteria and analysis leading to the selection of a preferred refining technology.

Determining and considering infrastructure requirements would involve identifying the range of infrastructure needs associated with the project. These could include power supply, crude oil storage, on-site crude oil transportation, on-site refined product storage, on-site refined product transportation, waste treatment/management, water supply and emergency and spill response.

EXAMPLE 2: SCREENING

Proposed Project:

Construction and operation of a boat-launching ramp on Green Lake. The proponent of this project is also the responsible authority.

Need for the Project

Question:

What is the problem or opportunity the project is intending to solve or satisfy?

Response:

Increased demand for boat access to Green Lake.

The screening should include a brief description of the basis of the demand (e.g., requests for access to the responsible authority, surveys, etc.) and if there are demands for specific types of access.

Purpose of the Project

Question:

What is to be achieved by carrying out the project?

Response:

To secure permanent and safe boat access to Green Lake.

The purpose would be established in the context of the proponent and helps establish the viability of the alternatives. Its link to the other components should be stressed.

Alternatives to the Project

Question:

What are the functionally different ways to meet the project need and achieve the project purpose?

Response:

The various ways in which permanent and safe boat access to Green Lake could be provided. These ways could include:

- using or expanding existing boat access; and
- developing new boat access.

The evaluation of these alternatives would include the broad consideration of the relative costs, benefits and environmental effects. Criteria would be developed that illustrate the broad environmental effects and the cost and benefits of the alternatives being considered. A preferred alternative that meets the need for the project and achieves the purpose of the project would be identified.

Alternatives Means of Carrying Out the Project

Question:

What are the various technically and economically feasible ways the preferred alternative could be implemented or carried out?

Response:

Consideration of alternative means should, at a minimum, include:

- a description of the alternatives and how or why they are technically and economically feasible;

- the identification of environmental effects of the feasible alternatives (technically, economically and environmentally feasible); and
- the rationale for the preferred alternative.

In the example, the following issues should be addressed:

- the kinds of boat access to be provided;
- the capacity of the access;
- the location of the access; and
- the supporting infrastructure required.

In the case of determining what kinds of boat access would be required, the types of boats that would be accessing the lake should be described. Based on the type of boat traffic expected, the different kinds of access could be identified. These could include a simple trailer ramp access or a more complex cradle/crane access.

In determining the capacity of the access, consideration should be given to the demand for access and whether the demand could be met through a single facility or multiple facilities.

In determining where the new boat access would be located, the basis for determining suitable sites would need to be described. The location of each alternative would be described, the environmental effects of each alternative location defined, and the criteria and analysis leading to the selection of a preferred site presented.

Determining and considering infrastructure needs associated with the project could include an examination of power supply, parking water supply, rest facilities and access roads.

Additional Information

For more information on this operational policy statement or on the requirements of the Act, please contact the Agency office in your region.

Head Office:
www.ceaa-acee.gc.ca/411/index_e.htm

Regional Offices:
www.ceaa.gc.ca/001/regions_e.htm

Additional Agency policies and guidance can be found on the Agency's Web site at:
www.ceaa-acee.gc.ca

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