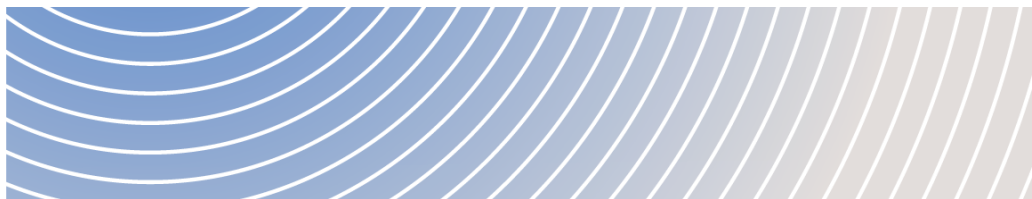


Summary of Guidance: Describing Effects and Characterizing Extent of Significance



THIS GUIDANCE IS PART OF THE PRACTITIONER'S GUIDE TO
FEDERAL IMPACT ASSESSMENTS UNDER THE *IMPACT
ASSESSMENT ACT*

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The [Practitioner's Guide](#) is an evergreen document. Check it periodically, its contents may have been updated because of ongoing engagement and feedback received. If you have feedback, please send it to guidancefeedback-retroactionorientation@iaac-aeic.gc.ca





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Disclaimer

This document provides a summary of the *Guidance: Describing Effects and Characterizing Extent of Significance*. It is intended to provide an overview and to be read in conjunction with the full guidance document.



1. Purpose and scope

The guidance explains how to assess a designated project's potential effects and applies to projects under the *Impact Assessment Act* (IAA). As shown in Figure 1, the guidance specifically outlines the approach to:

- **describing** the environmental, health, social and economic effects that are likely to be caused by the carrying out of a project; and
- **characterizing** the extent to which the likely adverse effects within federal jurisdiction, and those that are adverse direct or incidental effects ("**adverse federal effects**"), are significant.¹

This document is intended to support proponents of designated projects in the preparation of an **Impact Statement**, in conjunction with other Impact Assessment Agency of Canada (Agency) policy and guidance instruments. This document informs the preparation of the Agency's **Impact Assessment Report**. It informs the analysis of factors to be considered in impact assessments, such as a project's contributions to sustainability, and the extent to which a project hinders or contributes to the government's ability to meet its environmental obligations and climate change commitments.

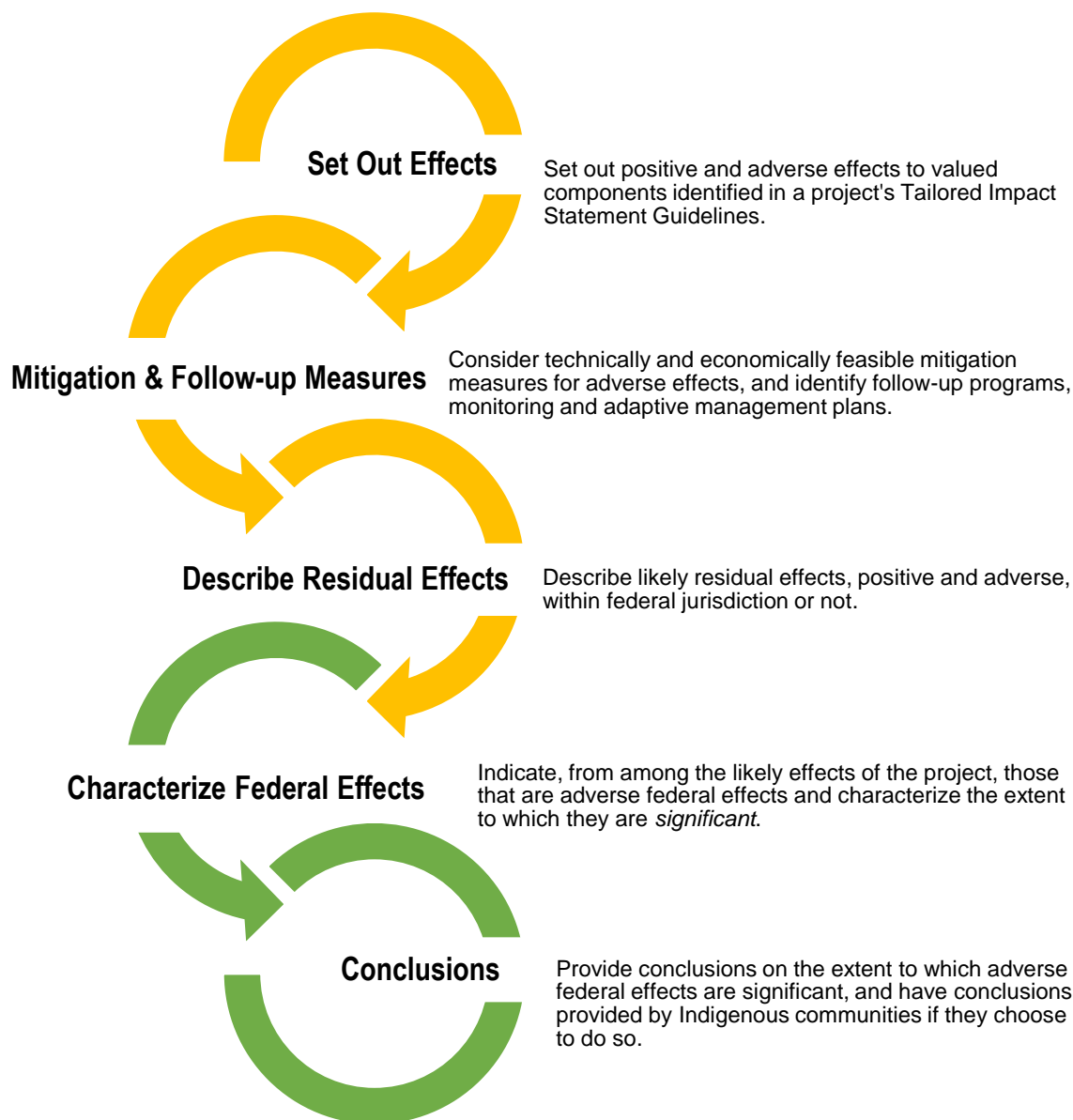
The description and characterization of a designated project's likely effects supports **Indigenous peoples and the public** in understanding the potential effects of a project, the interactions between these effects and their positive and negative consequences.

The guidance **informs decision-making**. The Agency or review panel's description of the project's likely positive and adverse effects, its determination of the extent to which the adverse federal effects are significant, and its rationale, conclusions and recommendations in the Impact Assessment Report supports the decision-maker in making the public interest determination.

¹ In this guidance, the term "adverse federal effects" is used to refer to a project's adverse effects within federal jurisdiction and the adverse direct or incidental effects. Effects within federal jurisdiction are defined in section 2 of the IAA. Direct or incidental effects are defined as effects that are directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of a physical activity or designated project, or to a federal authority's provision of financial assistance to a person for the purpose of enabling that activity or project to be carried out, in whole or in part.



Figure 1: Describing effects and characterizing extent of significance



Consider Indigenous knowledge, community knowledge and input received from Indigenous communities, the public, federal authorities and other stakeholders.



2. Key Policy Changes: *Canadian Environmental Assessment Act (2012)* and *Impact Assessment Act*

Table 1: Key policy changes in describing effects and characterizing extent of significance between CEAA 2012 and the IAA

<i>Canadian Environmental Assessment Act (2012)</i>	<i>Impact Assessment Act</i>
Environmental assessments focus on minimizing adverse environmental effects.	A move from environmental assessments to impact assessments based on the principle of sustainability. The scope of assessments is broadened to include positive and adverse environmental, health, social and economic effects.
Environmental Assessment Report focuses on describing adverse effects in federal jurisdiction.	Impact Assessment Report describes the likely positive and adverse effects, and concludes on the extent of significance of adverse federal effects.
Significance is a binary description of whether adverse effects in federal jurisdiction are significant or not.	Extent of significance of adverse effects in federal jurisdiction integrates and considers all relevant science- and evidence-based knowledge and perspectives along a gradient of negligible/lower to moderate to higher significance.
Designated projects that are likely to cause significant adverse effects in federal jurisdiction are referred to the Governor in Council.	For impact assessments conducted by the Agency, the Minister is responsible for making the public interest determination or may refer to the Governor in Council. For assessments conducted by a review panel, the Governor in Council is always responsible for making the public interest determination.



3. Describing positive and adverse effects

The description of effects must consider likely effects.² The description of effects:

- Sets out positive and adverse effects on valued components identified in a project's Tailored Impact Statement Guidelines.
- Considers technically and economically feasible mitigation measures for adverse effects, and identifies follow-up programs, monitoring and adaptive management plans required.
- Considers likely residual environmental, health, social or economic effects, positive and adverse, within federal jurisdiction or not.
- Includes the effects from accidents and malfunctions that may occur in connection with a project.
- Is based on a comparison of baseline conditions and the predicted future conditions with the project in place.
- Should provide the probability or likelihood of the effect occurring and the degree of confidence in the analysis.
- Must rely on evidence-based methods that are informed by science and Indigenous knowledge, and describe the degree and nature of uncertainty related to the data and methods used.
- Applies **criteria** (magnitude, geographical extent, timing, frequency, duration, reversibility, social and ecological contexts, and uncertainty) and **benchmarks** (evidence-, science- or value-based management or ecological standards, guidelines, objectives or descriptors, such as environmental benchmarks for scarce or unique resources and sensitive receptors).

The description of effects must include a separate cumulative effects assessment that considers any cumulative effects likely to result from the project in combination with other physical activities that have been or will be carried out. The criteria used to quantify and qualify adverse effects also apply for cumulative effects.

Proponents and practitioners should work with Indigenous communities to define and apply criteria and benchmarks relevant to the description of effects on Indigenous peoples. Criteria may include those identified in [Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples](#), as well as other relevant criteria proposed by an Indigenous community.

² Likely effects are interpreted to mean “more likely than not” (i.e., greater than a 50% probability of occurrence) but should also be understood in the context of risk as even an unlikely effect may be unacceptable if it is severe enough. The degree of confidence in the probability or likelihood of the effect occurring should be included in the analysis. In the case of low-probability, catastrophic effects where the potential consequences, although unlikely, are certain and determined to be severe (e.g., risk of blowouts in offshore drilling), these effects may be considered high risk, and warrant a precautionary approach and a higher characterization of extent of significance.



4. Effects on Indigenous peoples and impacts on Indigenous rights

Under the IAA, all impact assessments must assess:

- the effects of a project on the health, social and economic conditions of the Indigenous peoples of Canada; and
- the impacts that may result from any change to the environment, on physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Impact assessments also require a separate assessment of potential impacts on the rights of Indigenous peoples as outlined in [Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples](#).

Indigenous peoples play a crucial role in the impact assessment process, and may identify key issues of concern, including effects on Indigenous peoples and impacts on Indigenous rights. Indigenous communities often engage with proponents to scope and undertake studies, in addition to informing or co-developing relevant information for the description of a project's likely effects and to understand and characterize the extent to which adverse federal effects are significant. Indigenous communities may choose to lead the assessment of impacts on their rights. In such cases, the Agency would work with the Indigenous community on the assessment while coordinating the process with other federal authorities and the proponent, as needed.



5. Characterizing extent of significance of adverse federal effects

Understanding the extent to which adverse federal effects are significant³ is central to decision-making under the IAA and enables the Minister or Cabinet to understand the adverse effects a project may have on areas of federal jurisdiction. For impact assessments under the IAA, significance is not a binary determination but considers the **extent to which adverse federal effects are significant**.

The approach for characterizing extent of significance is based on the principle that significance determinations systematically integrate and consider all relevant science- and evidence-based knowledge and perspectives, such as benchmarks (where they exist) and criteria that are clearly defined and appropriate to the assessment of effects.

Benchmarks such as standards, guidelines, descriptors or objectives may help to understand the extent to which effects alter a valued component's environmental, health, social or economic conditions (whether through specific or multiple stressors) and provide information on the levels of effects on a valued component.⁴ Such benchmarks may include tolerance or acceptability levels as defined by Indigenous communities.

Criteria should be based on both the physical characteristics of an effect (e.g., magnitude, geographical extent, timing, frequency, duration, reversibility and uncertainty) and the context-specific value characteristics (e.g., environmental, health, social and economic conditions).

In addition, the characterization of extent of significance:

- is not exclusively technical or quantitative, but may be value dependent (e.g., considers the lived experiences and perceptions of individuals and communities, including experiences resulting from cumulative effects);
- allows scientific quantification, qualification and prediction of effects to be jointly considered alongside Indigenous knowledge;
- ensures that methods are fully defined, substantiated and appropriate to the assessment of effects and their interactions;

³ In consideration of the other factors set out in section 63 of the IAA.

⁴ Standards, guidelines, descriptors and objectives are evidence-based (e.g., based on Indigenous knowledge), science-based (e.g., Lethal Concentration 50; *Canadian Ambient Air Quality Standards*; Canadian Water Quality Guidelines for the Protection of Aquatic Life) or value-based (socially derived thresholds of risk) benchmarks and should be identified and developed in cooperation with Indigenous communities and other participants before the effects assessment is conducted.



- ensures that Indigenous peoples are provided the opportunity to identify relevant criteria and benchmarks, and to validate and provide conclusions on the extent of significance of effects on their communities;
- considers whether effects may be experienced differently among diverse populations; and
- considers the sources and degree of uncertainty in the assessment.

Table 2 provides suggested criteria for extent of significance determinations and represents a sliding scale of likely adverse effects on a valued component, ranging from negligible/low to moderate to high (see Annex for case studies of lower to higher extent of significance). Adverse residual federal effects may include criteria from different levels. For example, an effect may be low in magnitude, moderate in spatial extent and irreversible. **The final characterization of extent of significance should be informed by a reasonable weighing of all evidence and rationales provided.**

The Agency or review panel's description of the project's likely positive and adverse effects, its determination of the extent to which the adverse federal effects are significant, and its rationale, conclusions and recommendations in the Impact Assessment Report supports the decision-maker in making the public interest determination. After considering the Impact Assessment Report, the Minister or Cabinet determines whether the project's adverse federal effects are in the public interest.

**Table 2: Suggested criteria for characterizing extent of significance of adverse federal effects⁵**

Negligible* or Low	Moderate	High
<p>Effects are likely to be negligible or minor in scale if they are negligible or low in magnitude, of short duration, infrequent, small in spatial extent, reversible or readily avoided, and to generate few or minor impacts in social or ecological contexts. Mitigation measures will allow baseline conditions to remain largely unchanged.</p>	<p>Effects are likely to be medium in scale if they are moderate in magnitude, of moderate duration, occasionally frequent, possibly/partially reversible, and to generate a moderate level of impacts in environmental, health, social or economic contexts. Mitigation measures may not fully eliminate, reduce, control or offset effects but should enable affected communities to maintain health, social and economic well-being, and should prevent the diminishment or loss of key components of the environment.</p>	<p>Effects are likely to be severe in scale if they are high in magnitude, permanent/long term, frequent, irreversible, and over a large spatial extent or within an area of exclusive/preferred Indigenous use or of ecological/environmental sensitivity. High levels of impacts in environmental, health, social or economic contexts are expected. There is a high degree of uncertainty of the effectiveness of mitigation measures, or mitigation measures are unable to fully address effects such that valued components are diminished or lost.</p>

** A “negligible” effect does not mean “no effect” but that an effect is sufficiently small to likely not result in a noticeable change to the valued component. However, in the context of cumulative effects, a negligible effect may be important in understanding regional effects as a whole. For example, while an effect may be negligible on its own, it may be amplified if other physical activities affect the same valued component.*

⁵ For the assessment of potential impacts on the rights of Indigenous peoples as outlined in the [Guidance: Assessment of Potential Impacts on the Rights of Indigenous Peoples](#), see “[Table 1: Degree of severity for adverse impacts on rights of Indigenous peoples](#)”.

6. Annex: Examples of lower to higher extent of significance

Table 3 presents case studies of lower to higher extent of significance for a range of adverse federal effects.

** Note that this table includes an example of gender-based violence that may be upsetting for some readers. The example in this table is intended to emphasize the importance of identifying and addressing the potential effects of gender-based violence in a meaningful way. Although dealing with difficult subjects, every attempt has been made to present the example respectfully.*

Table 3: Case studies of lower to higher extent of significance of adverse federal effects

Extent of Significance Is Low	Extent of Significance Is Moderate	Extent of Significance Is High
<p>The potential adverse effects of a pipeline project were identified as disturbance or mortality to a species at risk. An Indigenous community identified the species as a culturally valued component of the ecosystem and a source of revenue through outfitting.</p> <ul style="list-style-type: none"> The valued component was identified as a species at risk. Baseline information provided by the Committee on the Status of Endangered Wildlife in Canada demonstrated how recent conservation measures and restrictions on industrial activity meant that the species no longer exceeded cautionary thresholds of disturbance. <i>Species at Risk Act</i> (SARA) species survival and recovery thresholds also placed the species at low to moderate risk of decline. 	<p>A natural gas liquefaction facility was determined to have potential adverse effects on human health as a result of changes in air and water quality.</p> <ul style="list-style-type: none"> The valued component was identified as human health. Health Canada determined that human health effects could occur during all phases of the project as a result of degradation of air quality from dust emissions, gaseous contaminants and volatile organic compounds, and potential contamination of drinking water through accidental spillage of hydrocarbons or hazardous materials into the environment. Members of the public living in the project area expressed concerns about the effects of the project on human health in relation to the exceedance of the nitrogen dioxide emission standard and the possibility of water contamination from a major spill. The cumulative effects of other industrial activities in the area that could combine with those of the project were also a concern. 	<p>The potential adverse effects of mining development in a remote Indigenous community were determined to include risks to the health, safety and security of Indigenous women, girls and gender-diverse peoples. An influx of transient workers, fly-in, fly-out rotation schedules, and rapid social change (including the loss of traditional mixed economies) were found to be accompanied by racial and sexual violence, substance abuse, sexually transmitted diseases, crime and adverse effects on home and family life.</p> <ul style="list-style-type: none"> The valued component was identified as the health and well-being of Indigenous peoples, including the safety and security of Indigenous women, girls and gender-diverse peoples. Information gathered throughout the impact assessment process focused on the experiences of women and gender-diverse peoples, and on intersecting forms of violence within communities. Qualitative and quantitative data drew from community-specific health and socio-economic information, interviews and focus groups, workshops and ethnographic studies. Despite strong participation by women's groups and individuals with diverse identities throughout the impact assessment process, women and diverse populations felt that their requests for support, programs and services to influence mining development outcomes and to manage the risks of gender-

Extent of Significance Is Low	Extent of Significance Is Moderate	Extent of Significance Is High
<ul style="list-style-type: none"> The information gathered throughout the impact assessment included the oral history and records of Indigenous harvesters, information from traditional ecological studies, scientific research and baseline studies, and ecological benchmarks. In collaboration with the Indigenous community, the proponent committed to mitigation measures that would restrict the laying of the pipeline to winter months, so that only a small percentage of foraging habitat would be lost and species disturbance would be low. With the implementation of mitigation measures, individual project components were determined to have effects on species stability that were adverse, low in magnitude, of short duration, intermittent in frequency and reversible. SARA species recovery and survival thresholds placed the species at low risk of decline. <p>The extent of significance of potential adverse effects on a species at risk was determined to be low.</p>	<ul style="list-style-type: none"> The proponent committed to implementing mitigation measures to reduce air emissions to a minimum, including emissions for which there is no known health effect threshold. The proponent also developed a risk management plan in the event of spills or accidental releases of hydrocarbons or hazardous materials to drinking water. Mitigation measures took into account the advice of federal experts and were in compliance with environmental regulations and standards. The proponent also committed to discussing with stakeholders the potential effects on recreational and drinking water in the event of spills or accidental releases. Based on Health Canada water and air quality guidelines, and on human health effects assessment criteria, and taking into account the implementation of mitigation measures, the project was determined to cause moderate effects on air and water quality. Adverse effects could occur in relation to exceedances of criteria and standards regulating sulphur dioxide and hydrocarbons, and non-threshold substances such as nitrogen dioxide. The extent of these effects would be local and long term, extending beyond the project area and throughout the life of the project. These human health effects would be continuous over time as the liquefied natural gas plant would contribute to air and water quality degradation and potential health effects. These effects could be partially reversible if baseline conditions returned after plant closure. <p>The extent of significance of potential adverse effects on human health as a result of changes in air and water quality was determined to be moderate.</p>	<p>based violence were weakened by toxic masculinity and systemic barriers within the industry.</p> <ul style="list-style-type: none"> Gendered and culturally sensitive approaches to analyzing the effects of violence towards women and gender-diverse peoples highlighted the persistence of such effects in the community, particularly as a result of family breakdown, risks posed by transient workers, and disruptions to cultural traditions. The proponent committed to providing mechanisms to ensure that Indigenous women and gender-diverse individuals would be consulted throughout the impact assessment process and during all project phases. This would allow gendered effects, including the potential rise in domestic and sexual violence, to be identified early on and to develop mitigation measures to eliminate, reduce or control such effects. Other mitigation measures included the provision of childcare services, training to promote and improve cultural and gender-based awareness, zero-tolerance policies for harassment and violence, appropriate healthcare and the removal of barriers to employment through Impact Benefit Agreements that prioritize the hiring of women and diverse populations. Risk assessment modelling determined that there was high uncertainty that mitigation measures would ameliorate the potential for sexual or racial violence. Potential effects extended beyond employment equity to concerns about safety and well-being within the community. Based on this information, the effects on the health, safety and security of Indigenous women, girls and gender-diverse peoples were determined to be high in magnitude, permanent or long-term, irreversible, with high uncertainty regarding the effectiveness of proposed mitigation measures and high risk of violence. <p>The extent of significance of the potential effects of gender-based violence on the health and well-being of Indigenous peoples, including the safety and security of Indigenous women, girls and gender-diverse peoples, was determined to be high.</p>