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I. FOREWORD

Tugliq Énergie S.A.R.F. in partnership with Canadian Royalties Inc., which operates the Nunavik Nickel mine, plans to construct and operate close to its mining facilities a wind-turbine farm, with a power output of 6 MW. The site is situated in Nunavik on category III lands. The project aims, among other things, to reduce the diesel-fuel consumption needed to meet the energy demands of the mining site that was authorized in 2008. In addition to the wind turbines, the project includes one or two containers to house the energy storage system comprised of lithium-ion batteries, a 25-kV power transmission line between the wind-turbine farm and the diesel-fired power generating station at Expo, as well as access roads from the existing road network.

This wind-turbine farm is subject to the environmental and social impact assessment and review procedure established under Section 23 of the James Bay and Northern Québec Agreement (JBNQA) and Chapter II of the Environment Quality Act (R.S.Q., c. Q 2). The Kativik environmental Quality Commission (KEQC), created under Section 23 of the JBNQA, is responsible for the evaluation of the project.

Preliminary project information was sent to the KEQC on February 15, 2022. Pursuant to the KEQC decision, the project is subjected to the environmental and social impact assessment and review procedure. This document constitutes the project directives. The directive indicate the various elements that must be included in the environmental and social impact study of the project, in particular its nature, scope and extent. The directive is a process for developing the information needed to carry out the environmental and social assessment of the project in compliance with the authorization procedure.

This directive must not be considered exhaustive and the project proponent is required to include in the impact study any other element that might be relevant to the analysis of the project and the proponent is required to include in its impact study any other element(s) relevant to the analysis of the project.

II. INTRODUCTION

This introduction lays out the basic elements under environmental and social assessment and the requirements for preparing the environmental and social impact assessment.

Environmental and social assessment

Environmental and social assessment is a key instrument in planning the development and use of resources and land. Its aim is to ensure that environmental concerns are taken into account at all stages of a project's development, including in its design, operation and decommissioning. It helps the proponent design a project that is sensitive to the receiving environment without jeopardizing the project's technical and economic feasibility.

The environmental and social assessment takes all components of the biophysical and human environments likely to be affected by the project into account. It makes it possible to analyze and interpret the relationships and interactions between the factors that influence ecosystems, resources and the quality of life of individuals and communities. The comparison and the selection of alternatives for the project's implementation are intrinsic to the environmental and social assessment process. The impact study therefore clearly presents the objectives and the selection criteria for the proponent's preferred alternative.

The environmental and social assessment takes into consideration the opinions, reactions and primary concerns of individuals, groups and communities. In this regard, it reports on how the various relevant parties were involved in the project planning process and considers the results of the consultations and negotiations carried out.

The environmental and social assessment aims to highlight any issues associated with the project and the environmental and social components that will be significantly affected. The relative importance of an impact helps determine the issues on which choices and decisions will be based and, if applicable, under what conditions.

Impact study

The impact study is the document presenting the proponent's environmental and social assessment approach. It must use scientific methods and meet the requirements of the Ministère as well as the Kativik Environmental Quality Commission (KEQC) regarding the analysis of the project and the consultation of the public and the Indigenous communities concerned. It provides an overall understanding of the project development process. More specifically, it:

- Presents the project's characteristics and explains its purpose, taking into account the context in which the project will be carried out;
 - Provides the most accurate picture possible of the environment in which the project will be carried out and the evolution of this environment during and after project implementation;
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- Demonstrates how the project fits into the environment by presenting a comparative analysis of the impacts of the various implementation variants;
- Defines the measures designed to minimize or eliminate negative impacts on the environment and to maximize those likely to improve it; when the impacts cannot be sufficiently mitigated, it proposes compensation measures;

Suggests monitoring and follow-up programs to ensure compliance with government requirements and fulfilment of the proponent's commitments, to monitor the evolution of certain components of the environment affected by the project and to verify the effectiveness of the planned mitigation measures.

III. BASIC PRINCIPLES

The following sections describe four main basic principles that must guide the proponent in conducting its impact study.

Integration of sustainable development objectives

Sustainable development aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. Its three objectives are to maintain the integrity and characteristics of the environment, to improve social equity and to enhance economic efficiency. A project design must therefore integrate and balance these three aims.

It is the proponent's responsibility to take sustainable development objectives into account when developing its project and to determine how the actions to be implemented must be adapted to the specific environmental and social context north of the 55th parallel. These objectives can be included as much in the planning and management of the project as in the proposed mitigation and compensation measures. The impact study must summarize the sustainable development approach followed by the proponent and explain how the project design takes these measures into account. The proponent is strongly encouraged to implement responsible management programs that include concrete and measurable environmental protection, economic efficiency and social equity objectives.

Taking climate change into account during project development and impact assessment

For the KEQC, and particularly in the northern context, the fight against climate change is a priority and fundamental issue. To reduce greenhouse gas (GHG) emissions and adapt to climate change, the proponent must take climate change into account from the very start of the project development and when conducting the impact study. The analysis of alternatives, the various implementation variants and the impacts of the project must therefore be carried out in the context of climate change. In particular, the proponent must assess the project's contribution to Quebec's overall GHG emissions. The proponent must also assess the potential effects of climate change on the project and the environment in which it is to be implemented, particularly if they are likely to change the nature and significance of the project's impacts on the environment, human safety or the stability and sustainability of infrastructure (see suggested methodology in the appendix).

To ensure that the project's GHGs are properly considered for each of the project phases, the proponent must draw different perimeters when delineating the study area. These boundaries must make it possible to consider direct and indirect GHG emissions, which are modulated by the choice of project implementation variants.

Integration of inuit knowledge

The knowledge of the communities affected by the project in regards to their biophysical and human environment is key to adequate assessment of the impacts of a project of this nature. Each cultural group has its own system for perceiving itself, its neighbouring communities and environment, as well as its past and future. Since it partly determines the group's reaction to change, this system of representation and the communities' knowledge of their environment must be both known and integrated into the impact study. This includes their understanding of the temporal and spatial boundaries of the project and its area of influence.

The integration of inuit knowledge into the impact study is necessary and requires the collection of information from the communities concerned and the land users. The analysis of this data also requires the participation of the latter at various levels. As a whole, this exercise promotes the involvement of the communities concerned and their knowledge of the project.

Consultations and communications

The proponent must take advantage of the capacity of the communities concerned and of citizens to express their views and concerns about the project. To this end, it is recommended that a public information and consultation process be implemented as early as possible, involving the parties concerned (individuals, groups and communities, etc.), in order to consider the opinions of interested parties when making choices and decisions. The earlier in the process leading up to a decision that a consultation takes place, the greater the influence of citizens on the project as a whole and, necessarily, the more likely the project is to be socially acceptable.

A section of the impact study should be devoted to presenting and analysing the public consultations. The proponent must describe its consultation program, the public meetings it has organized and those planned at each stage of the project. The proponent must indicate the dates, locations and duration of the information and consultation sessions. It must have to produce minutes for these meetings, which will include the methodology used, the list of participants, the comments, concerns, opinions and reactions of individuals, groups, organizations north of the 55th parallel and users of the territory. It should be noted that the final version of minutes must be validated by the participants, a third party or an independent observer. The proponent is invited to consult the documents related to public information and consultation published on the MELCC website.¹

On this subject, the proponent must ensure that any information that is confidential or could harm the environment or persons is excluded; it must submit this information in a separate document, requesting that it not be made public. It is recommended that the proponent place this information and data in a document separate from the impact study and clearly marked as being of a confidential nature.

¹ <http://www.environnement.gouv.qc.ca/evaluations/documents/guide-initiateur-projet.pdf>

The proponent should indicate how the views of interested parties have influenced the issues to be considered, choices, decision making and changes to the project. The proponent must explain how it will take into account the concerns raised by the project and the economic aspects addressed, and how this may influence a potential Impact Benefit Agreement (IBA) with the communities involved.

Moreover, holding information and consultation processes as early on as possible will also allow the proponent to gauge individuals' interest in sitting on one or more monitoring committees, which should be considered from the outset of project planning.

Finally, the proponent must implement the necessary means to ensure that the documents essential to the project are understood by the communities concerned; make these documents public; ensure the dissemination of information to interested persons and groups using the appropriate media, and keep this information up to date.

IV. IMPACT STUDY CONTENT

The following sections describe the elements to be presented in the impact study

1. BACKGROUND

This section of the impact study should set out the elements motivating the project. It includes a short presentation of the proponent, the context in which the project will be carried out and the rationale for the project. The presentation of the context and purpose of the project must identify the environmental, social, economic and technical issues at the local and regional levels, as well as at the national and international levels, if applicable.

1.1 Presentation of the proponent

The impact study must introduce the project proponent and, if applicable, its consultants. This presentation must include general information on the proponent's history in relation to the proposed project and the sector of activity in which the project is located.

In addition, the study must clearly present the company's administrative structure that will make it possible to provide the required financial guarantees when environmental restoration, decontamination, infrastructure dismantling or other measures must be taken. The shareholders must also be identified and details on the distribution of the profits must be presented.

1.2 Project context

The proponent is required to provide a description of the project including its geographical coordinates and primary technical and economic characteristics. It must emphasize the general context in which the project is to be carried out, the goals of the project, the related components, the project's construction and operating schedule, its cost and the possibility of an expansion, if planned. The proponent must also detail the main environmental constraints to the project's implementation. The proponent must discuss the events that could cause a slowdown or temporary halt in operations or the abandonment of the project.

The history of the project and business opportunities in the project's sector of activity must also be described in the presentation of the project context and rationale.

The proponent must then provide background information, by stating the main steps that led to the definition of the proposed project and discussing the related exploration work. It must indicate the physical structures that were put in place and any environmental or social problems encountered at this stage. It must also mention any agreements already established for the use of certain services or partnership efforts with local communities. Where applicable, it must discuss similar projects currently under evaluation, construction or operation in the sector, and discuss the possibilities for coordination between these projects, among other considerations.

The legal framework within which the project will be inserted should be described, specifying the relevant conventions, laws and regulations at all levels of legislation. In addition, the proponent must not only list the laws, regulations, policies and directives applicable to its project, it must also refer to them in the appropriate sections of its impact study and describe how it plans to comply with them. The project must therefore reflect the main guidelines for the protection of receiving

environments and favour the at-source elimination rather than post-project treatment of contaminants.

The proponent and its consultant must ensure and demonstrate the significant participation of Indigenous communities in the development and operation of its project.

1.3 Rationale for the project

The rationale for the project should provide understanding of the need for the project and identify the environmental, social, economic and technical issues involved.

The proponent must situate the project among its business activities and discuss the incentive leading it to go ahead with the project.

The proponent must explain the project's environmental and socioeconomic context in the region and present its local and regional economic benefits, drawing a parallel with the project's lifespan and the presence of other similar projects in the area.

2. SELECTION OF LOCATION AND TECHNOLOGY ALTERNATIVES

2.1 Location variants

The proponent must describe the various locations considered for the implementation of the infrastructure required for its project. This description must be sufficiently detailed and use illustrations to allow a comparison of the various locations under consideration and an assessment of their respective biophysical, social, technical and economic advantages. In all cases, the proponent must demonstrate its concern for reducing the project's environmental footprint. In the event that there is only one physically possible site, the proponent must justify its reasoning.

In addition, the proponent must present the reasoning and criteria that led to the choice of the sites selected, indicating precisely how the criteria were considered. The choices should take into account, among other considerations:

- Land-use planning constraints (municipal, regional or government policies, land tenure, zoning, constraint zones, characteristics of the human and built environment)
- Biological, physical, hydrographic and hydrogeological constraints (presence of wildlife habitat or wetland/water environment, topography, level of soil and groundwater contamination, geotechnical capacity, potential for soil movement, potential for subsurface infiltration, sensitivity of the permafrost to thawing², etc.)
- The environment's vulnerability to the impacts of climate change
- Technical, operational and financial constraints or opportunities (carrying capacity, presence of buildings or equipment, availability of services or labour, network connection arrangements, possibility of facility layout or expansion, construction schedule, costs, etc.)
- The extent of certain apprehended impacts, particularly on valued ecosystem or human components (threatened species, sensitive environments, proximity of residences, sites of interest to Indigenous communities, traditional and current community use of the territory, health and safety risks, etc.)
- Social and economic conditions (major concerns, economic spin-offs, sources of employment, etc.)

The proponent must present relevant geographic information to locate these components, as well as variants and temporary infrastructure, if any, including the names of water bodies and their geographic location.

² regarding permafrost, the proponent is invited to consult these documents:
<http://www.habitation.gouv.qc.ca/fileadmin/internet/publications/0000024197.pdf>
<https://www.scc.ca/fr/standardsdb/standards/26121>

2.2 Technological variants

The choice of elements to be considered depends largely on the size and nature of the project. All these considerations must be made taking into account the particularity and evolution of the northern environment in a context of climate change. In this regard, the proponent must indicate how it intends to adapt its project to climate change³ to ensure the integrity and long-term stability of its facilities.

The proponent must identify and describe the variants likely to modulate greenhouse gas (GHG) emissions. For example, the proponent may consider the use of best available technology, alternative energy sources with a low carbon footprint, fuel substitution, and the choice of routes that reduce the distances required for the supply and transportation of materials. The comparison of alternatives should, in particular, be carried out with a view to avoiding, reducing or limiting GHG emissions.

With regard to energy supply and the technologies used, the proponent must present its preferred technologies, demonstrating its rationale and the technical, economic, environmental and social criteria justifying these choices. The proponent must also mention if it has assessed the possibilities of thermal heat valorization and provide justification for its answer. The method used for the selection of the technologies must be clearly explained and include the following elements:

- Effectiveness of the technologies in relation to the most recent technologies for the activity sector
- Ability to meet the demand (objectives, needs, opportunities)
- Availability and technical feasibility
- Completion at costs that do not compromise the project's economic viability
- The technology's evolutionary potential (technical and economic ability to upgrade or improve)
- A quantification report of annual GHG emissions attributable to energy supply and technology variants
- The ability to reduce GHG emissions, from the start of operations
- The ability to limit the extent of negative impacts on the biophysical and human environments and maximize positive benefits

3. PROJECT DESCRIPTION

In this section, the proponent must describe the various infrastructures and technologies selected from among those presented in the previous section. It must also make the required links with its energy supply and use of road, airport and/or port transportation infrastructure, when applicable. It must provide sufficient details so that the issues at stake can be fully understood, in particular by specifying whether certain infrastructure development is expected to affect the water environment or wetlands. The conservation of atmospheric quality and the conservation and protection of water resources must also be considered during project implementation.

The proponent must demonstrate the project's ability to meet legal and regulatory standards, criteria and requirements, in particular the Act Respecting the Régie de l'Énergie. The proponent must also specify whether there is a sales agreement for power between the parties.

The proponent must specify the project's timeline and indicate the dates or periods planned for carrying out the work and the anticipated duration of the work. This timeline must include steps to obtain rights (e.g. leases for commercial purposes, easement application for power line hook-ups and installation, temporary occupancy permits for work and manoeuvring areas for turbine installation, if not within industrial leases) and other approvals prior to the start of construction.

3.1 Project Description

The following items must be included in the impact study:

- Wind farm characteristics:
 - Turbines, access roads, electrical hook-ups, identification of stream crossings and of electrical hook-ups
 - Monitoring and follow-up systems
 - Conditions for the maintenance and operation of the wind farm
 - Nominal power per turbine, number of turbines, nominal power of the farm, expected utilization factor and availability factor of the turbines, expected annual energy production
 - Dimensions of the wind turbines (height, length of the blades, radius of the projection on the ground), dimensions of the planned sites (wind turbines and substations) and surface areas occupied on the site (wind turbines)
- An overall plan of the project components at an appropriate scale and a representation of all the planned developments and works, including the location of existing electrical lines and substations, if any, as well as the wind turbines, the collector system, the substation and the proposed operations and maintenance building (perspective plan, visual simulation, etc.), the access routes to the wind farm for the transportation of materials, components and workers, including, if possible, a recent aerial photograph of the area
- Plans of the substation design elements (voltage, necessary rights-of-way, area of the sites, type of connection to the grid, planned equipment, technical processes, etc.)
- Modalities for maintenance and operation of the wind farm, substation and other equipment
- Modalities for dismantling the wind farm at its life's end and for restoring the site, particularly in relation to the mining site restoration plan

3.7 Jobs and training

The proponent must make available the corporate policy on the hiring, on-the-job training and integration into the labour pool of Inuit workers. In particular, it must deal with possible measures (transportation, information, work schedules, frequency, etc.) to promote local workers' access to the project-generated employment and business opportunities and the retention of these workers. It must take into account similar experiences, including those related to recent projects carried out on the territory. It must also demonstrate regional hiring targets, particularly for Inuit workers, in a context of collaboration with the communities concerned.

3.8 GHG emissions

The proponent is required to produce a detailed identification and quantification report of annual GHG emissions that can be attributed to all sources of emissions at the project's different phases. The proponent must also develop an impact-mitigation measures plan and a GHG emissions monitoring plan. The proponent is invited to consult *Les changements climatiques et l'évaluation environnementale : Guide à l'intention de l'initiateur de projet* (MELCC, 2021)⁴, as well as the *Guide de quantification des émissions de gaz à effet de serre* (MELCC, 2019).⁵

Appendix A presents the detailed approach, including the sources of GHG emissions to be considered.

In addition, the proponent must describe what type of battery system will be used to enable energy storage and what is role of this system in the project. It must also quantify, if applicable, the potential impacts in GHG emissions.

3.8 Adaptation to climate particularities and changes

The proponent must specify how it intends to adapt its project to climate change to ensure the integrity of the project and the various infrastructures and technologies it selected. In this regard, the proponent must demonstrate, supported by professional opinions, that the foundation platforms and the pile anchors will ensure the wind turbine stability in the current and future climate, taking into account the potential thawing of the permafrost on the site. The proponent must also assess the risks climate change, including permafrost thaw, poses to the integrity of the access road and transmission lines. It must demonstrate how these risks have been addressed in the routing, design and maintenance of the access road and transmission lines.

⁴ <https://www.environnement.gouv.qc.ca/evaluations/directive-etude-impact/guide-intention-initiateur-projet.pdf>

⁵ <https://www.environnement.gouv.qc.ca/changements/ges/guide-quantification/guide-quantification-ges.pdf>

The proponent can refer to the document *Portrait bioclimatique futur du Nunavik: Élaboration du portrait bioclimatique futur du Nunavik*, which presents projections for climatic hazards of Nunavik,⁶ to carry out its assessments.

⁶ [Projections for climate hazards in Nunavik have been carried out by Ouranos. The proponent can refer to the document *Portrait bioclimatique futur du Nunavik: Élaboration du portrait bioclimatique futur du Nunavik - Tome I* \(gouv.qc.ca\) \(online\)](#)

4. DESCRIPTION OF THE ENVIRONMENT

In this section, the proponent must describe the environmental, cultural and socio-economic context of the project in this region and sector, in a way that takes local Inuit knowledge and cultural values into account. The proponent must delineate its study area to describe the components of the biophysical and human environments relevant to the project.

4.1 Delimitation of the study area

The proponent must delimit a study area the scope of which must encompass all of the proposed activities and the direct and indirect effects of these latter on the biophysical and human environments likely to be affected by the project and its related infrastructures. The proponent must justify the boundaries of the study area and its scope, and must indicate the biophysical, technical, economic and social constraints that led to its delimitation. It must also demonstrate the consideration of traditional and local knowledge in determining the boundaries of the study area.

4.2 Description of the environment

The proponent must describe the state of the environment as it exists in the study area prior to the project. It should describe as factually as possible the components of the biophysical and human environments that may be affected by the project, including features of the ecosystem. If the data available from government, Inuit or other agencies is insufficient or no longer representative, the proponent must complete the description of the environment with state-of-the-art inventories.

The proponent must indicate the source of all data used to describe the environment and the purposes for which it has used such information. In addition, it must comment on the quality and reliability of the available data. For many components in the environment, government agencies have developed guides or reference documents to assist proponents and their consultants in collecting and presenting information. We encourage the proponent to consult these documents in advance to ensure that they provide the basic required information.

The proponent must describe, for the study area, the following components using specific maps that show existing and proposed infrastructure. Where appropriate, information must be mapped at appropriate scales and photographs must be provided for:

- The nature of the soils and surface deposits, lithology, drainage, topography, extraction areas, the areas sensitive to erosion and ground movements
 - Characterization of the soils and a description of past soil uses
 - Aquatic and wetland environments (marshes, swamps, bogs), paying particular attention to locations where a crossing is planned
 - The nature of the watercourse substrate
 - Uses of streams and other water bodies
 - Erosion and disturbance areas (cuttings, fills, etc.)
 - Animal and plant species and their habitats (annual cycles and migration patterns), especially species that hold threatened or vulnerable status or are likely to be so designated, and species of special social, economic, cultural or scientific importance
 - Local weather conditions (temperature, precipitation, prevailing winds), including areas with icing and likely to freeze
-

- Protected areas listed in the Registre des aires protégées au Québec⁷ whether these are permanent, projected or reserved
- The presence of the Parc national des Pingualuit
- The presence of biological refuges, under the responsibility of the Ministère des Forêts, de la Faune et des Parcs

For avian fauna (birds of prey, migratory birds and bats), the proponent must verify the period of validity for the data collected during previous events. In addition, it must use the standardized protocols of the Ministère des Forêts, de la Faune et des Parcs,⁸⁹ before and after the project, to update inventories.

In terms of social impact, particular attention must be paid to land use, in particular by Inuit communities. Emphasis should be placed on the presence of hunting territories and traditional travel routes by land or water. The periods of land use by families and the project's impact on access to and occupation of hunting, fishing, trapping and gathering territories must be explained in detail. Without limitation, the proponent must describe:

- The current use of the study area, including the practice of hunting, fishing, trapping and gathering activities, the presence of outfitters and resort leaseholders
- Areas that have sites of historical or archaeological interest or sites with archaeological potential
- Areas of special value to the public for recreational, tourism, historical, cultural and spiritual reasons
- Access issues (particularly in relation to temporary road construction), which will need to be clearly addressed in meetings with land users

⁷ https://www.environnement.gouv.qc.ca/biodiversite/aires_protegees/registre/

⁸ <https://mffp.gouv.qc.ca/documents/faune/protocole-inventaire-oiseaux.pdf>

⁹ <https://mffp.gouv.qc.ca/documents/faune/protocole-chauves-souris.pdf>

5. IMPACTS ANALYSIS OF THE PROJECT

The project proponent must identify the impacts of the selected variant during the construction, operation and decommissioning phases, and assess their importance using an appropriate method and suitable criteria. The positive and negative as well as direct and indirect impacts on the natural and social environments, and if applicable the cumulative and irreversible impacts of the project must be taken into consideration.

While determining the impacts draws on facts, the assessment of impacts entails value-judgments. This may not only help establish acceptability thresholds or levels, but also make it possible to determine the impact mitigation criteria and monitoring or follow-up needs.

The proponent must describe the chosen method, as well as its uncertainties or biases. The techniques and methods used will have to be objective, concrete and reproducible. The reader must be able to easily follow the proponent's reasoning in determining the impacts. At the very least, the study must provide a monitoring tool to link project activities and the presence of structures to environmental components. These can be summary tables, checklists or impact sheets. The implementation of citizen participation mechanisms and the consultation of literature specific to the type of project in question (including impact studies of similar projects) are other means of identifying and evaluating potential impacts according to the different stages of the project.

5.1 Impact identification and assessment

5.1.1 Biophysical environment

The assessment of impacts on the biophysical environment must address, but not be limited to impacts:

- On aquatic and wetland environments, effects on their integrity, water flow and sediment regime
- Of the works on soil and surface water quality
- Of transporting materials, components and workers
- On vegetation, bats, local or migratory wildlife (including on their movements and habitats), on species that are threatened or vulnerable or likely to be so designated, or on species of specific social, economic, cultural or scientific importance (areas affected, number of species affected, population density, etc.)
- On the protected areas in the study area, considering their respective conservation objectives

For the wildlife component, the proponent must detail the influence of all planned infrastructures (wind turbines, access roads, electrical transmission lines) on the territory's sensitive wildlife species, particularly migratory caribou and birds of prey. Particular attention must be paid to the project's impact (construction and operation phases) during the calving period of the Leaf River migratory caribou, the nesting period of birds, and the migration of birds and bats. The project must therefore take into account caribou calving grounds and the periods when caribou are likely to be in this area.

5.1.2 Social environment

The assessment of impacts on the human environment must address, but not be limited to the:

- Impacts of transporting materials, components and workers
- Impacts of the project on the operations and infrastructure of Donaldson Airport
- Economic benefits associated with the development and operation of the facilities
- Direct and indirect effects associated with job creation, such as the development of workers' knowledge and skills
- Effects of noise from project construction and operation activities
- Impacts on land users, particularly Inuit communities, including on the practice of local activities for food, ritual or social purposes (hunting, fishing, trapping, berry harvesting, collection of medicinal plants, use of sacred sites, etc.); these must be determined by considering the impact on resource abundance and quality, experience and access
- Impacts on the visual environment, due to the addition of new visual elements and changes in the aesthetic quality of the landscape
- Impacts on terrestrial or submerged archaeological heritage: sites (including burials and paleontological sites), sectors and areas of archaeological potential

5.2 Cumulative effects

Cumulative effects are broadly defined as changes to the environment caused by an action in combination with other past, present and future actions. The concept of cumulative effects is based on the idea that each impact, individually and independent of its own magnitude, can represent a high marginal cost to the environment.

The proponent must submit a justification regarding the geographic and temporal delineation of the cumulative impact study. It should be noted that these boundaries may vary depending on the components selected to assess cumulative impacts, depending on their distribution and specific characteristics. The proponent must propose and justify the choice of projects and activities selected for the cumulative impact analysis, which must include past, current and future activities or projects (with a high probability of occurrence). The methods used to predict cumulative environmental impacts must be clearly described in order to better understand the reasoning of the conclusions presented and how the analysis was carried out. The local knowledge of the communities concerned has to be integrated into the assessment of the cumulative environmental effects. The assessment of cumulative environmental impacts must:

- Consider the actions and effects in combination with other past actions (including development work that has taken place), present and future actions
- Take natural disturbances into account
- List the valued components¹⁰
- Determine spatial delimitations based on the characteristics of the valued components
- Identify or map out features, impacts and other land uses in reference conditions
- Establish trends or changes in the condition of valued components across time

Thus, the proponent must identify the valued components to be addressed in the cumulative effects assessment. The environmental components for this analysis must be those related to project issues, including use of the land by all kinds of users and also wildlife and its habitat

¹⁰ Valued components are the environment's aspects or characteristics identified as important to Indigenous people, government agencies, the proponent or the public, and that may be affected directly or indirectly by a project.

6. MITIGATION MEASURES, RESIDUAL IMPACT AND COMPENSATION MEASURES

6.1 Mitigation

The proponent must describe the measures it will put in place to maximize the positive effects on the environment and the social milieu as well as the corrective measures it intends to implement to reduce the project's negative impacts (including cumulative effects). The proponent must give priority to measure that make it possible to avoid negative impacts and reduce the significance of the negative impacts. For residual negative impacts that cannot be mitigated, the proponent must propose compensation or restoration measures.

For instance, the following measure could be considered:

- The measures planned to mitigate noise pollution
- The selection of routes for the transportation of materials, components and workers, and the scheduling of the works to avoid accidents and nuisances
- The choice of the best period to carry out the works, in order to avoid sensitive areas and periods for terrestrial, avian and aquatic fauna, and not to compromise the practice of recreational activities (hunting and fishing)
- The modalities and measures for the protection of soil, surface water and flora
- The modalities and measures for the protection of wildlife (taking into account local, migratory and nesting species) and their habitats, including the placement of wind turbines away from caribou nesting areas and calving grounds
- The choice of period for carrying out the various project phases to avoid certain critical periods for fauna (i.e. migration or nesting)
- The means planned to prevent oil or other spills and, if applicable, the means to contain leaks
- The measures and guarantees provided for the restoration of the site after the works (restoration and clean-up of the site, etc.)
- The development of measures to maximize the project's economic benefits in Nunavik, including the awarding of certain contracts to local businesses

It should be noted that compliance with laws and regulations, as well as the means of compliance, cannot be considered mitigation.

6.2 Residual impacts and compensation measures

The proponent presents compensation measures for unavoidable residual impacts, i.e. impacts that remain after avoidance efforts have been made and after mitigation measures have been applied, both for the physical and biological environments and for the human environment.

Finally, the proponent must provide a summary list of all mitigation measures, specific compensation measures and commitments proposed in connection with its project.

6.3 Summary

The proponent must provide a summary of the mitigation measures, impacts and compensation measures planned for the project. This summary will be a reminder of the modalities for carrying out the project and the foreseen mode of operations. It presents the main impacts of the project and the resulting mitigation measures. It illustrates how execution responds to the needs initially raised and accounts for the sustainable development objectives of preserving environmental quality, improving social equity and enhancing economic efficiency. A table showing all mitigation and compensation measures, as well as any other commitments, should also be included in the summary.

7. RISK MANAGEMENT

Some projects may cause accidents, the consequences of which may extend beyond the boundaries of the project. The project impact study therefore requires a risk analysis for major technological accidents. In all cases, the study must describe the planned safety measures and present a preliminary emergency preparedness plan for the construction and operation phases.

Accidents or damage affecting the project's infrastructure, other components or operations, and that are caused by natural disasters or extreme weather events must be assessed. This assessment will also take climate change into account. The proponent must explain how the remoteness of the project will guide the design of emergency measures.

7.2 Safety measures

The impact study will describe the security measures planned for the operating sites, including related facilities located outside the main site. Among other things, it must describe the following elements:

- Site access limitations (marking of the site)
- Security measures for the transportation of employees, materials and hazardous materials
- Security installations and preventive measures (monitoring systems, emergency shutdown, firefighting systems, sprinklers, emergency generators, leak detectors, high-level alarms, catchment, safety distances, etc.)
- Storage of products according to their dangerousness

7.3 Preliminary emergency preparedness plan

The impact study must present a preliminary emergency preparedness plan, covering both the construction and operating periods, in order to demonstrate adequate response in the event of an accident. This plan must lay out the main actions planned in response to an incident or accident situations, as well as the transmission mechanisms for alerting the authorities, workers and the public. It must describe the link with the municipal authorities or the Northern Village concerned, the other regional entities involved and, if applicable, the way in which the various emergency measures plans are connected.

The proponent is invited to consult the various publications on the preparation of emergency measures plans, including the information document on public safety risk management,¹¹ the risk management guidelines for major industrial accidents¹² and the *Emergency Preparedness and Response Standard*.¹³ A final emergency preparedness plan, including scenarios for each type of major potential accident, must be completed by the proponent before the launch of operations.

¹¹ Ministère de la Sécurité publique, 2009. *Gestion des risques en sécurité civile*. [<https://www.securitepublique.gouv.qc.ca/index.php?id=1265>].

¹² Conseil pour la réduction des accidents industriels majeurs, 2017. *Guide de gestion des risques d'accidents industriels majeurs*. [<http://www.craim.ca/produit/guide-de-gestion-risques-daccidents-industriels-majeurs-2017/>].

¹³ Standard CSA-Z731-03 (R2014) *Emergency Preparedness and Response* [<https://www.scc.ca/en/standardsdb/standards/18899>].

Given the project's remoteness, the proponent must be the first to apply emergency measures in the event of a technological accident, spill, etc. In particular, the proponent must provide information on its response capability and handling methods in the following cases:

- Transportation of chemical products (tankers, explosives, etc.) or products deemed potentially dangerous
- Petroleum and/or hazardous product spills at the project site, with emphasis on methods for prompt on-site response
- Storage of chemical, petroleum and hazardous products
- Fire hazards at the project site
- Coordination with relevant regional entities in the event of evacuations or incidents involving a high number of victims
- Risks of wind turbine breakage and ice formation on the blades

8. MONITORING AND FOLLOW-UP PROGRAMMES

The following sections are intended to lay out how the monitoring and follow-up programs related to the project will be designed and carried out. The programs will need to be designed with sufficient flexibility to allow for changes to be made in response to new information and unforeseen events.

8.1 Monitoring program

The aim of the environmental monitoring program carried out by the project proponent is to ensure this latter's compliance with:

- Requirements in the relevant laws and regulations
- Measures proposed in the impact study, including the mitigation or compensation measures
- Its commitments foreseen in the Ministerial authorizations
- Conditions set out in the certificate of authorization

Environmental monitoring must cover the project's construction, operation, closure or decommissioning phases. The proponent must propose a preliminary environmental monitoring program in its impact study. This preliminary program will be improved once all the project's components are better defined. It must be completed, if necessary, following authorization of the project. The program will describe the means and mechanisms put in place to ensure compliance with the legal and environmental requirements. The program will make it possible to verify the smooth operation of the works, the equipment and the facilities, and to supervise any disturbance of the environment caused by the project's implementation, operation, closure or dismantling. The monitoring program may make it possible, if necessary, to redirect the work and possibly improve the progress of construction and implementation of its various components.

In particular, the environmental monitoring program must include:

- A list of elements requiring environmental monitoring
 - All of the measures and means foreseen to protect the environment
 - The characteristics of the monitoring program (for each environment: surface water, atmosphere, soil, etc.), when these are foreseeable (e.g., location of interventions, planned protocols, list of measured parameters, analytical methods used, implementation schedule, human and financial resources allocated to the program, participation of the Inuit and other target communities, if applicable);
 - An intervention mechanism in case of the observation of non-compliance with the legal and environmental requirements or the proponent's commitments
 - The proponent's commitments to file monitoring reports (number, frequency, content and distribution)
 - The proponent's commitments regarding the dissemination of environmental monitoring results to the population concerned
-

The monitoring program must also include the project's GHG emissions. In general, the program will cover the elements required in the project design stage to quantify the GHG emissions the project generates and monitor their evolution over time. Given the large number of possible scenarios, there is no model (as each case is unique) for tracking and monitoring GHG emissions. An example of the data to be included is presented in the appendix. The GHG follow-up and monitoring plan is generally very succinct and is primarily intended to facilitate the proponent's work in quantifying GHG emissions. This plan may evolve over the life of the project.

8.2 Environmental and social monitoring program

The purpose of the environmental monitoring carried out by the proponent is to verify in the field the accuracy of the evaluation of certain impacts and the effectiveness of certain mitigation or compensation measures in the impact study and for which some uncertainty remains.

The knowledge gained from environmental and social monitoring programs can be utilized not only to improve predictions and assessments of the impacts of new projects of a similar nature, but also to develop mitigation measures and possibly revise environmental protection standards, guidelines or principles.

The proponent must propose a preliminary environmental and social monitoring program in its impact study. This preliminary program, if necessary, must be completed following authorization of the project. The program must include:

- The reasons for the follow-up, including a list of the elements requiring environmental monitoring (including valued components)
- The minimum duration of the monitoring program, its objectives and targeted components (e.g., validate the impact assessment, evaluate the effectiveness of mitigation measures for water, air, soil, etc.)
- The number and main characteristics of the follow-up studies planned (list of parameters to be measured, projected completion schedule, participation of the Inuit and other target communities in the monitoring, if applicable)
- The terms and conditions for the production of follow-up reports (number, frequency, format and distribution)
- The response mechanism that will be implemented in the event of unexpected environmental degradation
- The response mechanism that will be implemented in the event of an unforeseen impact on the human environment
- The program for communicating monitoring results to the populations concerned, in an appropriate format

9. PRESENTATION OF THE IMPACT STUDY

The impact study must be written in clear and concise language and be limited to the ideas that are necessary to a solid understanding of the project and its impacts. To ensure general comprehension, a glossary defining technical terms, acronyms and abbreviations should be included. More technical information should not be included in the main document, unless key to the reader's understanding. Information that can be diagrammed or mapped must be presented in that format and at the appropriate scale. Project components must be displayed in thematic as well as composite maps

The proponent must illustrate the highlights of the study using graphs, maps and photographs. Maps must be presented using common scales and reference data to allow for comparison and superimposition of the mapped elements. The availability and quality of the data used must be evaluated by the proponent. All sources of information must be referenced. In addition, the methods used in conducting the impact study (inventories, surveys, interviews, comparative analyses, etc.) must be presented, explained and scientifically validated.

The proponent must also prepare a summary of the impact study. This summary must be intended for the general public and include illustrations and maps to provide quick understanding of the work being planned as part of the project. The summary must be sufficiently detailed so that readers may become familiar with the project. They must be able to understand the issues at stake, the main anticipated impacts, the proposed mitigation measures, the residual impacts and any conclusions on the significance of these impacts. It should be noted that other initiatives by the proponent to encourage public participation, such as the production of videos, radio clips, models, information sheets, etc., are also strongly encouraged. It is suggested that the proponent translate the summary into English in order to increase accessibility to the information by the community(ies) concerned by the project.

The KEQC may request that English versions of documents other than those mentioned above, or summaries thereof, be filed. Finally, the KEQC will post all documents provided by the proponent on its website.

Annexe A

Démarche à suivre pour l'évaluation des impacts du projet sur les émissions de gaz à effet de serre (GES)

La présente annexe, vise à présenter des précisions supplémentaires au regard des émissions de gaz à effet de serre (GES) et réfère au Guide de quantification des émissions de gaz à effet de serre², ci-après nommé, « Guide de quantification », disponible en ligne à l'adresse suivante :

<http://www.environnement.gouv.qc.ca/changements/ges/guide-quantification/index.htm>.

Les lignes suivantes comportent la méthodologie générale pour la quantification des émissions de GES, soit les sources d'émissions de GES à considérer (A.1), ainsi que le plan des mesures d'atténuation (A.2) et le plan de surveillance des émissions de GES (A.3).

1. *Sources d'émission de GES à considérer (non limitatives)*

À titre indicatif, des sources spécifiques d'émission de GES à considérer dans l'étude d'impact sont présentées ci-dessous. Il est à noter que cette liste est non exhaustive et qu'il est de la responsabilité de l'initiateur du projet d'établir la liste complète des sources potentielles d'émission de GES.

Les équations et les méthodes de calcul à appliquer pour évaluer les émissions de GES sont présentées à la section 3 du Guide de quantification. Pour chacune, des sources identifiées ici-bas, les références aux formules de calcul dans les différentes sous-sections du Guide de quantification, sont indiquées entre parenthèses. Les résultats de la quantification doivent être présentés sur une base annuelle, lors des différentes phases du projet, en distinguant chacune des catégories de sources d'émissions applicables ainsi que chaque GES (CO₂, CH₄, N₂O, etc.). Il est de la responsabilité du promoteur d'identifier toutes les sources qui pourraient ne pas être listées ci-bas et de faire la quantification des émissions de GES afférente.

Phase de construction et d'exploitation (présenter les deux phases séparément) :

- systèmes de combustion fixes, si applicable (ex. : génératrices) (3,1) ;
- systèmes de combustion mobiles (ex. : chargeuses-pelleteuses) (3,2) ;
- transport des matériaux de construction ainsi que transport des matériaux d'excavation et de remblai (3,2) ;
- émissions indirectes reliées à la consommation d'électricité, si applicable (3,3) ;
- utilisation d'explosifs, si applicable (3,6) ;
- émissions fugitives d'hexafluorure de soufre (SF₆) et de perfluorocarbures (PFC) (3,7) ;
- activités de déboisement ou interventions sur les milieux humides (3,9) ;

Toutes les sources jugées non pertinentes ainsi que toutes les sources qui, cumulativement, représentent moins de 3 % des émissions totales de GES du projet peuvent être considérées comme

négligeables. Pour ces dernières, une quantification sommaire devra être effectuée, à titre de justification. Dans tous les cas, le retrait d'une source doit être justifié.

2. *Plan des mesures d'atténuation des émissions de GES*

Atténuer les émissions de GES est une action incontournable pour le développement d'un projet durable et fait partie de la démarche de quantification. Les mesures visant à réduire les émissions de GES peuvent être physiques, organisationnelles ou comportementales. L'initiateur de projet peut consulter la section 4 du Guide de quantification pour plus d'information sur les types et exemples de mesures de réduction des émissions de GES.

Le plan de réduction des émissions de GES présenté par l'initiateur doit décrire comment les possibilités de réduction des émissions de GES sont incorporées dans la conception ou dans les opérations subséquentes du projet, et il peut inclure aussi des mesures applicables aux puits de carbone associés ou affectés par le projet. Ces réductions doivent être quantifiées. La quantification du potentiel de réduction d'une mesure se calcule par la différence entre les émissions de GES du scénario de référence et les émissions de GES du projet avec la mesure. Le scénario de référence est défini comme le scénario le plus susceptible de se réaliser en l'absence de mesures de réduction. En règle générale, le scénario de référence représente ordinairement le cours normal des affaires.

Voici certains exemples de mesures permettant la réduction des émissions de GES qui pourraient être présentées dans l'étude d'impact.

Tableau 1 : Exemples de mesures permettant la réduction des émissions de GES (non limitatifs)

<ul style="list-style-type: none"> • Utiliser des équipements motorisés en bon état ; • Surveiller la consommation de carburant ; • Examiner les programmes d'économie d'énergie ; • Considérer l'usage de biocarburants ; • Minimiser les distances de transport des sédiments et autres matériaux ; • Remplacer des équipements à combustion par des équipements électriques ou hybrides, lorsque possible ; • Branchement au réseau électrique principal pour le fonctionnement des équipements mobiles à combustion, si possible ; • Utiliser des matériaux provenant de sites plus près ; etc.

Dans le présent projet, l'utilisation d'éolienne est une mesure d'atténuation en elle-même. Il sera donc important pour le promoteur de quantifier les réductions de GES estimées en lien avec la diminution de l'utilisation de mazout pour la production d'électricité au profit de l'énergie éolienne.

3. *Plan de surveillance des émissions de GES*

Le plan de surveillance permet de quantifier les émissions de GES engendrées par le projet et de suivre leur évolution à travers le temps (section 4.4 du Guide de quantification). Il vise surtout à faciliter le travail d'un initiateur dans la mise en place de bonnes pratiques en matière de quantification des émissions de GES. Typiquement, un plan de surveillance inclut notamment le type de données à recueillir (ex. : la consommation de carburant, le processus et les méthodes pour recueillir ces données, la fréquence, etc.). Il vise à faciliter la quantification des émissions de GES

et peut évoluer sur la durée de vie du projet et doit être présenté dans le cadre de l'évaluation du projet. Ce plan revêt une plus grande importance pour démontrer les bénéfices de l'utilisation d'éoliennes pour réduire les émissions de GES.

La norme ISO 14064 et le document « Mitigation Goal Standard du GHG Protocol » (World Resources Institute, 2018) peuvent être utilisés à titre de références. Étant donné le grand nombre de cas de figure possibles, chaque cas étant unique, un exemple de plan de surveillance et de suivi des émissions de GES est présenté ci-après.

Category	Type of data	Units	Data source	Frequency
Équipements motorisés	Fuel consumption of each vehicle	Liters	Invoices	Monthly/annual
	Kilométrage de chacun des véhicules	Kilometers	Odometers	Monthly/annual
	Hours of operation of off-road vehicles	heures	Operations log	Monthly/annual
	Acquisition de nouveaux véhicules	Litres/100 kilomètres	Invoices	Annuelle