

***Environmental Impact Assessment Studies at Hydro-Québec:
A Major Effort to Harmonize Communities’
Energy, Economic and Social Development***

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Background

By their very nature, environmental impact assessments prompt us to pay a great deal of attention to the impacts of building and operating new power generation facilities. Given the basic concern for applying caution and due care, these assessments tend to look at the “worst-case scenario” in order to induce the proponent to plan appropriate mitigation measures. While they may shed light on the negative effects associated with projects, assessments underplay the extensive work devoted to ensuring that projects are harmoniously integrated into the environment.

Here, I would like to focus on the procedures in use at Hydro-Québec and present a review of the methods we favor to help foster the transition to a greener economy and accentuate the positive environmental effects of hydropower development. This will be an opportunity to show an often overlooked aspect of environmental impact assessments: namely, the considerable efforts made to inform the communities affected by our projects, and to implement mitigation measures designed to limit their impacts and maximize their beneficial effects.

My demonstration will be based on a recent undertaking, the hydropower complex now being built on the Romaine River. This project is the largest of the current decade in Québec, and the largest infrastructure project in Canada. The impact assessment for the Romaine complex is an in-depth evaluation that runs to 10 volumes totaling nearly 2,500 pages. This assessment is backed by about 60 component studies in over 20 fields of expertise, carried out between 2004 and 2008. Dozens of highly regarded technicians and specialists took part in the field surveys and the impact analysis. The evaluation conducted by the various levels of government gave rise to more than a thousand supplementary questions, which were answered in an additional 1,200 pages.

Hydro-Québec also established an ambitious environmental follow-up program that will run until 2040. Local and Innu communities will continue to participate in this program, the aim of which is to verify the efficacy of the measures implemented and make any necessary changes. The overall project cost, estimated at \$6.5 billion (Canadian dollars), includes the costs of the studies, mitigation measures and environmental follow-up, which alone total nearly \$300 million.

Description of the Romaine Complex

Main components

The Romaine complex will consist of four hydropower developments with an average annual output of 8.0 TWh. Each development will include a rockfill dam, a powerhouse with two generating units and a spillway. The four reservoirs planned will have a total area of 279 km². A permanent road approximately 150 km long will also have to be built to link the only provincial highway (Highway 138) that runs along the St. Lawrence River with the four developments built to the north. The three temporary workcamps that will be set up for the duration of construction will house as many as 2,400 workers at the project's expected peak in 2014. The output generated by the complex will be brought onto the transmission grid by 315-kV and 735-kV lines totaling nearly 500 km in length.

Geographic location and description of the environment

The Romaine River is located in the province of Québec, Canada. Its watershed (14,500 km²) lies between Labrador to the north and the St. Lawrence River to the south. The river flows 500 km before emptying into the St. Lawrence. The area of influence of the four planned reservoirs covers a nearly 300-km stretch of the Romaine that receives inflows from 20 or so tributaries.

The bulk of the study area is made up of state-owned lands. Land use is concentrated along the river and the road next to it. The area comprises several towns, the largest of which is Havre-Saint-Pierre (3,150 habitants). It also includes four Innu communities, as well as some cottage areas beside the river. All of these towns and communities lie within the regional county municipality (RCM) of Minganie, which has a population of 6,390, 19% of it Innu.

The hinterland is used only for hunting, fishing and trapping, and by cottagers there is no permanent occupation.

Highway 138, which runs along the Gulf of St. Lawrence, is the only land route connecting the Côte-Nord with other regions in Québec. Mining, commercial fishing and tourism are the main sectors of economic activity in the Minganie region. The unemployment rate there (17.2%) is twice as high as in the rest of Québec.

Environmental issues

Substantial economic spinoffs

The expenditure involved in building the Romaine complex will total nearly \$4.9 billion, including \$3.5 billion to be spent in Québec. The Côte-Nord region, where the project is located, will benefit from over one-third of this amount, or \$1.3 billion. The project will potentially create or sustain an estimated 33,410 person-years in jobs, one-third of them directly related to the construction phase, with an approximately 60% rate of participation by the region's workers.

A large-scale project such as this gives rise to high expectations from the public and regional stakeholders in terms of the number of jobs created and the value of spinoffs for local businesses. The project's startup also aroused fears about the social consequences of accelerated development in small communities. To facilitate its smooth integration into the host environment, we set up a community relations committee and will continue to monitor regional economic spinoffs.

Opening up a vast territory

The construction of a road providing access to a huge territory was received very positively by the population concerned. This new road will allow easier and more frequent hunting, fishing and cottage activities. However, increased land use has prompted fears among some users of the area. To take these concerns into account, the follow-up program will track changes in land use patterns and intensity, and in resource harvesting.

Ancestral rights of Innu communities

The entire Romaine complex will be built on land that is the subject of claims by the Innu communities. The need for Innu consent was raised by local stakeholders. It should be noted, however, that all matters of ancestral rights and Aboriginal title come under the jurisdiction of the Québec and Canadian governments. As negotiations on these issues are ongoing, Hydro-Québec has reached agreements with the communities concerned that constitute neither recognition nor denial of Aboriginal rights.

Enhancement of Atlantic salmon

Atlantic salmon is found only in the first 53 kilometres of the Romaine River, up to an impassable waterfall that will serve as the site for Romaine-1 generating station. The survival of this species and preservation of fishing conditions remain major concerns for local communities. To maintain favorable conditions for the species, Hydro-Québec has established a regime of instream flows below Romaine-1. These flows will vary according to the season in order to meet all of the salmon's needs. In addition, the project will incorporate several measures to enhance this highly valued species:

- A major 20-year enhancement program to preserve salmon in the Romaine River and its tributaries.
- Development of spawning grounds and nurseries in the Romaine.
- A program for bolstering or expanding existing salmon populations in other watersheds in the region (with Minganie being the priority).
- Participation in drawing up a salmon management plan in cooperation with representatives of the Innu community of Ekuanitshit, the local hunting and fishing association and the government department in charge of managing the resource.

Transitioning to a Greener Economy

Internal policies and guidelines

Hydro-Québec has adhered to the concept of sustainable development since the late 1980s. This commitment is reflected in various corporate policies, such as *Our Environment* and *Our Social Role*. One of the company's main business objectives involves promoting hydropower, other renewables and energy efficiency to meet its customers' needs. In addition, Hydro-Québec has submitted to the provincial authority—Ministère du Développement durable, de l'Environnement et des Parcs—an action plan integrating the principles of sustainable development at all levels and in all facets of its activities.

Reducing social inequality

Listening to local representatives and disseminating information in timely fashion

For over a decade, Hydro-Québec has made social, environmental and economic acceptability a requirement for all the projects it proposes. Accordingly, to obtain the support of the various Innu and other Côte-Nord communities affected by the planned Romaine complex, major efforts were made to reach out to them.

Specifically, an information and discussion panel was formed to bring together the political representatives, social and economic stakeholders, users of the land (engaged in either traditional or recreational and tourist activities) and land use managers. Through this panel, information was disseminated at key stages in the project: inventory of the study area, environmental impact assessment, formulation of mitigation and compensation measures, and establishment of an environmental follow-up program. This forum also encouraged the timely expression of local concerns and expectations, which helped improve the project content. As well, the panel contributed to the sharing of knowledge between land users and specialists in various areas of expertise.

To achieve all these objectives, a number of measures were introduced. We established working groups made up of users who had a common interest (hunting and fishing, snowmobiling, economic development, etc.). We also used communication tools tailored to the public in question: radio spots, messages broadcast on community television, Web site, newsletters, open houses, meetings with specialists, posters, thematic workshops on issues specific to each community, follow-up committees, etc. These varied means of communication call for great flexibility with regard to the form and content of the information being conveyed. Technical and environmental information must be clearly expressed in non-technical language—for example, by translating texts into Innu and illustrating various concepts—so that it is understood by the groups concerned.

Once this process was complete, Hydro-Québec was able to reach agreements with the different communities so that they could derive the greatest possible benefit from the project. These agreements are designed to promote the communities' economic and social

development. In the case of Innu communities, they include provisions for maintaining activities connected with their culture, fundamental values and traditional way of life.

Ensuring an equitable distribution of the fruits of development

An equitable distribution among the communities is a major objective of Hydro-Québec's approach. The debates and discussions dealing with the difficult socioeconomic environment in the Côte-Nord region yielded numerous measures to maximize spinoffs from the Romaine project. One of the goals is to develop regional expertise that would offer the region's workforce access to larger contracts in the future. This effort calls for setting up new businesses, consolidating existing experience and allocating funds to labor training and development.

The Innus wonder about their real potential for involvement in the construction phase, as they are aware of their low level of formal education and lack of experience. Therefore, training an Innu workforce and securing contracts suited to their skill sets is a key concern. That is why we must focus on improving workers' qualifications and local companies' know-how, which will have lasting effects on business and employment. Furthermore, construction of the Romaine highway could stimulate local economies by providing access to the resources of a little-used region.

Limiting nuisances

Reducing waste

During the 11 years in which the Romaine complex will be built, various steps will be taken to limit the amount of waste. For example, a composter has been installed to collect waste from the workcamp cafeteria. The success of this type of installation depends on choosing the right technology, but even more so on the commitment of cafeteria staff. Consequently, an effort to raise awareness is needed to ensure these employees' involvement in the composting initiative.

Over the years, Hydro-Québec has developed a number of internal guidelines and practices for recovering certain materials and seeing that those that require special handling—such as waste metal, tires and contaminated soil—are transported to authorized disposal sites, in accordance with the regulations in force. The company also includes various provisions in its contracts to ensure that the contractors in charge of the work manage their operations and maintain their equipment properly.

Reducing greenhouse gases

Opting for hydropower projects considerably reduces greenhouse gas emissions by replacing the output of gas or coal-fired generating stations with clean, renewable electricity. The Romaine complex will thus help avoid annual emissions of 3 million tonnes of GHGs compared with a gas-fired plant of equal capacity, and 7.5 million tonnes compared with a similar coal-fired plant.

Furthermore, Hydro-Québec has undertaken to monitor fuel consumption (of vehicles, generators, helicopters, etc.) and the volumes of cement used in project construction, in

order to evaluate the quantity of GHGs produced by these activities. The company has also launched a life-cycle analysis of the hydroelectric facilities' environmental impacts, from construction and operation through to dismantling.

Conclusion

An environmental impact assessment is an opportunity to round out our knowledge of vast areas of land, including how they are used and the valued species that are found there. This new (or updated) knowledge, added to existing information and traditional knowledge, enriches our understanding of the environment and enables us to improve our management of these lands.

A large-scale project is also a means of stimulating the regional economy. It allows a new generation of workers to view the labor market with optimism.

Furthermore, a wide range of mitigation and compensation measures will be taken to limit the Romaine project's impacts and even, in some cases, improve on the original conditions. These include building a footbridge across the Romaine River and developing high-quality wetlands that offer food and shelter to migratory birds and semi-aquatic wildlife, as well as the wide-ranging salmon enhancement programs that will improve this species' use of high-potential rivers in the region.