

HYDRO-QUÉBEC

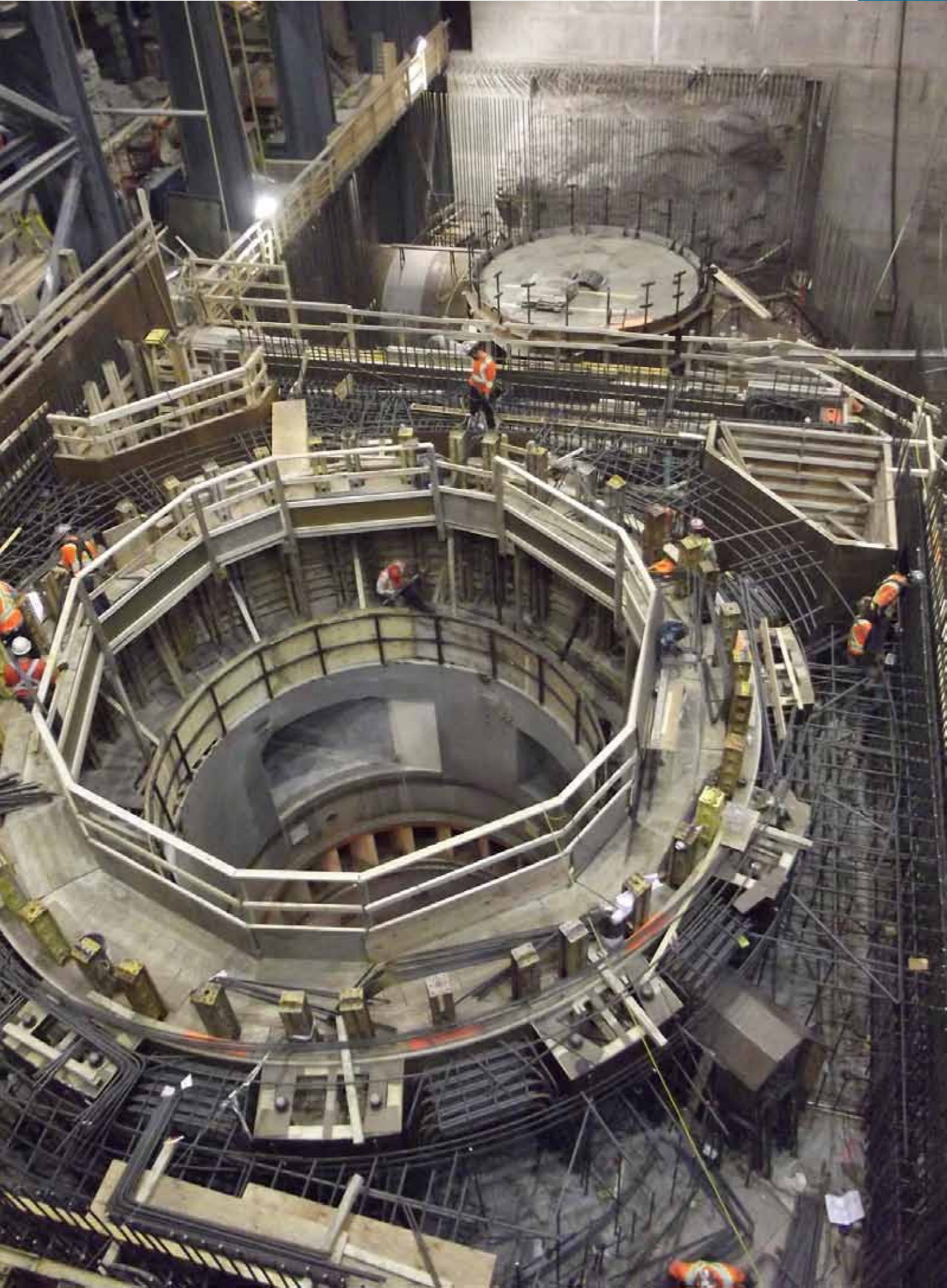
ENERGY FOR THE FUTURE



ENERGY FOR THE FUTURE

*Hydro-Québec is the largest energy supplier
in the Province of Québec: it harnesses
Canada's fast-flowing rivers to satisfy the
demands of both domestic and export
markets in North America*

**WRITTEN BY: JOHN O'HANLON
RESEARCH BY: DAVID BROGAN**



A view of the dam
as the ground work
begins to take shape




Hydro-Québec owns and operates 60 power-generating facilities across the province. It was created in 1944. “At that time it was essentially an electricity distribution operation, with some generation in the greater Montreal region,” explains President and CEO Thierry Vandal, who has led the company since 2005, having joined it in 1996. “That was the situation until 1963 when, through a number of acquisitions, the corporation grew to develop a footprint which covers all the territory of Québec. Hydro-Québec became a regional player.”

Over several decades the company mainly expanded hydroelectric power, with 98 percent of its output today coming from hydroelectricity, a clean and renewable energy. Hydro-Québec built the 15,000MW La Grande River complex at James Bay in northern Québec between 1971 and 1996. The complex accounts for half the province’s installed capacity and is still today one of the most important hydroelectric complexes in the world. 1,000 kilometres north of Montreal, La Grande demonstrated the company’s ability to deliver huge capital projects, in challenging conditions with all the associated infrastructure of roads, campsites, transmission lines and airstrips.

The most recent project to be completed was the \$5 billion Eastmain 1A-Sarcelle-Rupert project, in the James Bay area. It was launched in 2007 with approval to build the Eastmain-1-A and Sarcelle powerhouses and divert part of the Rupert River’s flow. The diversion began in 2009, two of the three generating units at Eastmain-1-A powerhouse

www.neilsonex.com


GIGANTIC IS WHAT WE DO BEST



NEILSON IS ONE OF THE LEADERS IN QUEBEC FOR MAJOR CIVIL ENGINEERING WORKS.

Clients benefit from Neilson's huge...





- Know-how
- Fleet of leading-edge equipment
- Multidisciplinary first-rate technical team
- Ability to carry out large-scale projects



Wuskwatim Generating Station Intake
Powerhouse under Construction, Wuskwatim, MB

Hydro-Quebec, Péribonka Generating Station,
Péribonka, QC

St. Lawrence Pipeline, QC

GENERAL and HEAVY CIVIL CONTRACTOR

- ✚ Hydro Project
- ✚ Heavy Civil
- ✚ Tunnel
- ✚ Mine
- ✚ Building

www.ebcinc.qc.ca

1095 Valets Street, PO Box 158, L'Ancienne-Lorette, QC, G2E 3M3
T: 418 872-0600 F: 418 872-8177

3900 Isabelle Street, Brossard, QC, J4Y 2R3
T: 450 444-9333 F: 450 444-9330

740 W. Notre-Dame Street, Suite 750, Montréal, QC, H3C 3X6
T: 514 844-0660 F: 514 844-9249

160 George Street, Suite 200, Ottawa, ON, K1N 9M2
T: 613 564-0660 F: 613 564-0759

were commissioned in 2011, the third in January 2012. The first generating unit at Sarcelle powerhouse was commissioned in April 2013 and the two other units have now come on line. “From an environmental and logistic standpoint it was the most challenging project in the history of Hydro-Québec,” he says. “It covers an area the size of some European countries but we were able to bring it in on time and a little under budget so we are very proud of that result.”

Hydro-Québec is unusual in that it manages these large construction projects by itself instead of outsourcing the engineering, procurement and construction. “We are an organisation with a strong culture of growth and project execution,” says Vandal. “That expertise has developed over the years as we went from one project to another and it’s taken us to a level where we can undertake very sophisticated large capex projects involving challenging infrastructure and logistics. That is an area in which we very much excel.”

But it’s not all about delivery. Another significant factor has been the way the company has arrived at a deeper understanding of what he calls ‘the equilibrium of development’ – the balance between finance, the regional economy, and also, crucially, how to address environmental and social aspects. “A very significant

NEILSON

Neilson is a general contractor specialized in civil engineering on a monumental scale. Since 1963 public and private sector partners in Quebec, and elsewhere in Canada, have counted on Neilson to break new ground, meeting the most extreme challenges while standing behind the quality of our work. Partnership with Hydro-Quebec on La Romaine project is an example of what we proudly realize.

www.neilsonex.com



Spillway construction

EBC INC.

EBC Inc., for over 30 years, has been a proud partner in the success of Hydro Quebec projects. Besides hydro-electric works, EBC diversifies its achievements in sectors such as building, civil engineering, earthworks, marine engineering, mining works (open pit and underground), wind farms and pipelines, with its works being performed throughout Canada.

www.ebcinc.qc.ca



“A VERY SIGNIFICANT KEY TO OUR SUCCESS OVER THE LAST 15 YEARS HAS BEEN THE RENEWED PARTNERSHIPS WITH ABORIGINAL COMMUNITIES”

key to our success over the last 15 years has been the renewed partnerships and understanding of the importance of our relationships with aboriginal communities. We never tackle a new project without strong buy-in from local populations.”

You can’t put a multi billion-dollar megaproject into the environment without some impact, but Hydro-Québec’s goal is to fit in with the ecosystems in a way that

guarantees that those ecosystems afterwards will be just as productive as they were before. That applies to natural habitats and wildlife, the way of life and the cultural expectations of the trappers and tallymen among the First Nations and other long-term inhabitants. “We take our ideas to the aboriginal communities before they are fully formed, then work together to develop it so it becomes their project as much as ours.”

This gives space to traditional knowledge, which any incomer ignores at peril. “There is more than science to these things, there is a traditional understanding of ecosystems that has been carried over the centuries.” It takes humility to put aside your scientific assumptions and listen to what the locals say, he recognises.

The old ways of living and the associated wisdom do have to be preserved, but the First Nations live in the 21st century just as much as Montrealers. They want to see their share of the economic upside of development in their territory and Hydro-Québec always wants to make sure to maximise the business capacities in the communities. “We reserve a portion of contracts with these communities so at the end there remains a significant

Hydro-Québec’s goal is to fit in with the ecosystems

business infrastructure and ecosystem that can go beyond and work in other areas whether it is mining or other infrastructure development,” Vandal observes. “We have been working in some of these communities for up to 40 years, and today they have very sophisticated capacities in terms of executing civil works and being present in the supply chains for things like catering, fuel supply, air transport, helicopters and the like.”

The Eastmain 1A-Sarcelle-Rupert project was completing just as Hydro-Québec entered what is undoubtedly its flagship project today. The \$8.5 billion Romaine Complex launched four years ago is one of the largest construction projects currently under way in Canada. It has two large components, Vandal explains: a \$6.5 billion four-powerhouse complex on

the Romaine River in eastern Québec and a \$2 billion new high voltage transmission lines to carry the 1,550 MW it will generate to markets further to the south. “We are now almost half way through the project,” he says. “The first power house, Romaine-2 will be commissioned by this time next year so it is very advanced and we are well under way

with RO-1, RO-3, and the fourth one, RO-4, which is way up north on the river, will be started in the coming year.” The entire project is scheduled to be delivered in 2020.

That the terrain is difficult was recognised as long ago as the 1630s when the first Jesuits to arrive described the locals as Montagnais – mountain dwellers. For this, construction

“THE WAY THE MARKETS WORK IN NORTH AMERICA, THE BORDER DOES NOT REALLY EXIST!”



Camp Murailles



Hydro-Québec works with the local communities

camps for some 2,500 people had to be built, as well as 150 kilometres of road. “Before we went through the environmental review we made sure we had signed impact benefit agreements (IBAs) with both the aboriginal and non-aboriginal communities living within a perimeter of a couple of hundred kilometres from the river.” The Innu communities of Ekuanitshit, Nutashkuan, Unamen Shipu and Pakua Shipi participated in the environmental impact studies and will participate in the environmental follow-up monitoring until 2040. The estimated cost of the studies, mitigation measures and environmental monitoring is \$320 million and covers fish habitats, wildlife and

archaeology which has shown evidence of settlements going back 2,000 years.

In terms of local benefits, employment and contracts, Hydro-Québec typically tries to work with existing community organisations who will hire themselves. This works better according to Thierry Vandal: “We find that when the project is completed we leave an organisation that can take on other work.” The companies and institutions are made stronger and more sustainable.

The supply chain for a large scale project like the Romaine is a global one. For example turbines are supplied by Alstom and Voith, the transmission grid will involve global suppliers like Alstom, ABB, Siemens. The assembly

A view of the dam
as the ground work
nears completion

\$8.5 BILLION

Cost of the Romaine Complex
(generation and transmission)

being made right on-site pulls in a lot of trades. Contracts and purchases of goods and services are estimated at \$3.5 billion for all of Québec, with about \$1.3 billion for the Côte-Nord region alone. About 40 percent of the workforce consists of people from the Côte-Nord, including a significant number of the Innu people.

The Romaine Complex will secure Québec's energy future and take advantage of opportunities to sell power outside the province. The USA's demand for green Canadian hydropower is growing. In a project with Blackstone Group Hydro-Québec may take up 75 percent of the capacity of a new 333-mile transmission line being built by Blackstone Group from the Canadian border and running underground and under the Hudson River, into the heart of New York City. "We are also very active in the development of high-voltage DC transmission, which allows the interconnection of import and transmission systems in a very efficient and cost effective way," he says. "The way the markets work in North America, the border does not really exist!" **BE**

For more information about
Hydro-Québec visit:
www.hydroquebec.com



HYDRO-QUÉBEC

www.hydroquebec.com

Produced by:

ACHIEVING BUSINESS EXCELLENCE ONLINE

BE Business Excellence

www.bus-ex.com