A sustainable approach to public participation in large hydroelectric projects

Michel Bérubé, Chef Environment
Hydro-Québec Équipement
Canada

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Concept Research Programme: http://www.concept.ntnu.no/english/

A sustainable approach to public participation in large hydroelectric projects

The Eastmain 1-A La Sarcelle Rupert diversion

Michel Bérubé
Oslo – September 20-21

Hydro Québec

Hydro Québec
Équipement et services partagés

Société d'énergie de la Baie James

1. Introduction

2. The project

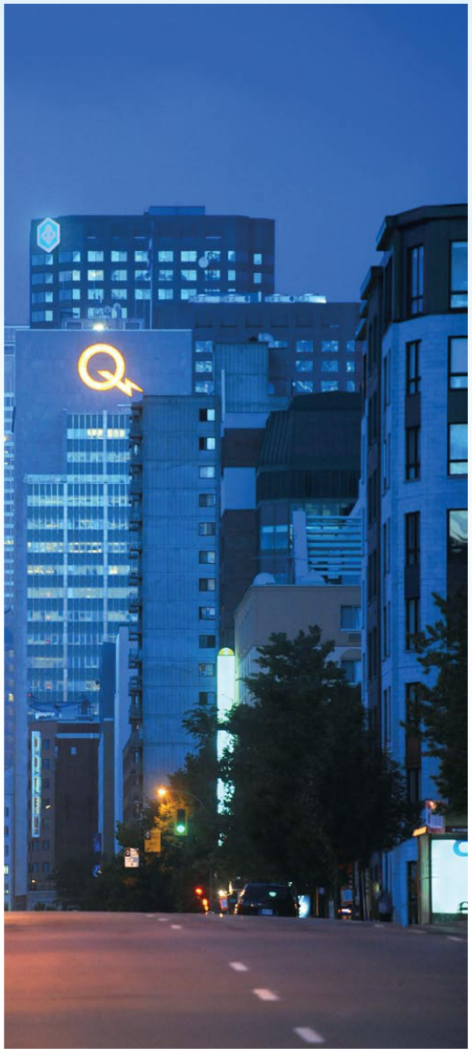
3. The public participation process

4. The optimization of the project

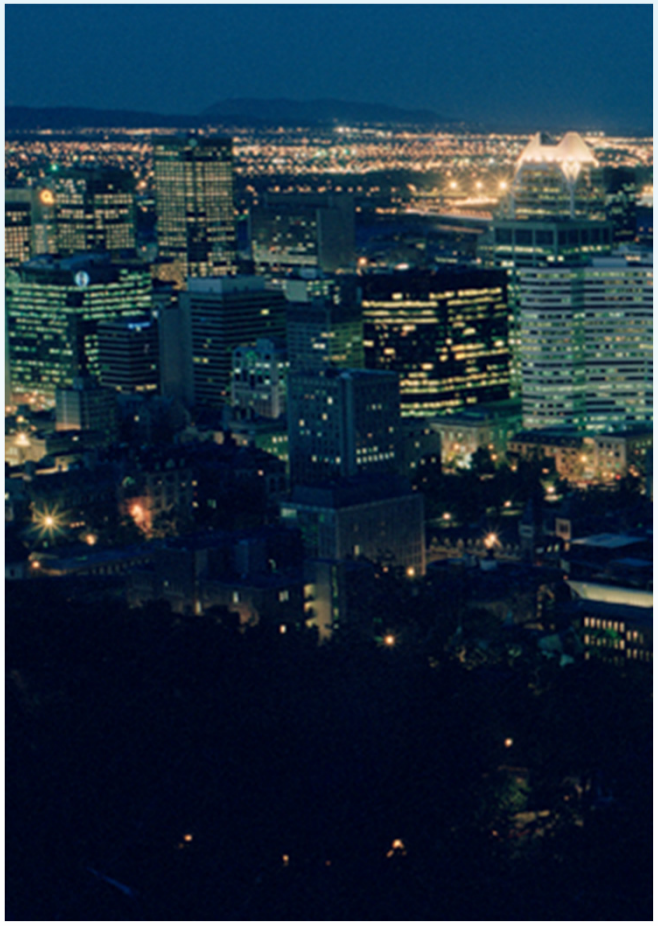
5. Best practices conclusion

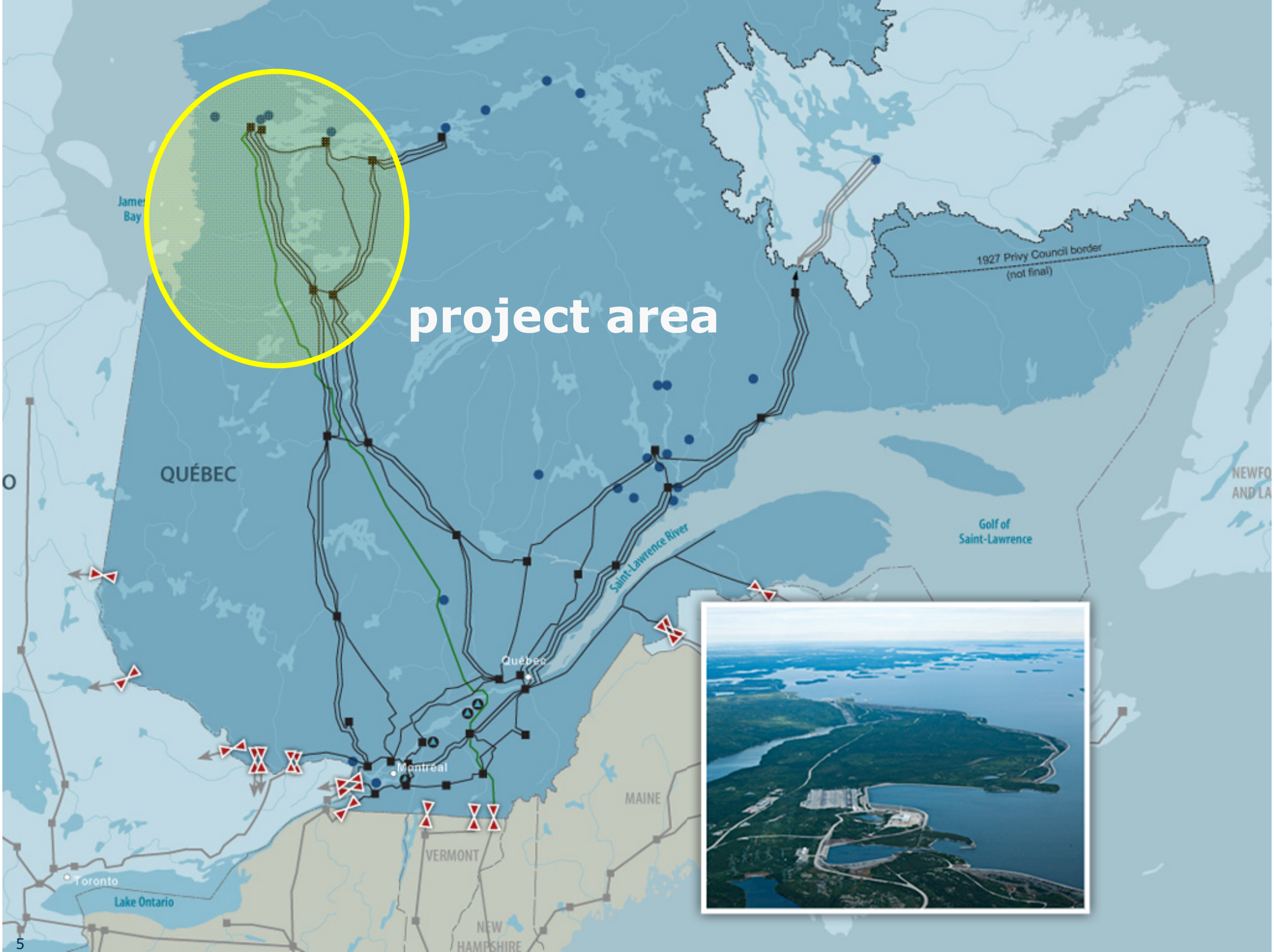
Hydro-Québec Overview

- Generates, transmits, and distributes electricity in Québec
- Installed capacity > 36 000 MW
- Clean energy Leader – **98 %** of its total output generated by hydropower
- In Québec, the electric sector produces only **0,8 %** of GHG emissions
- Exportation to the neighbouring provinces and USA



Socially acceptable; Environmentally sound; Economically profitable




project area
QUÉBEC
1927 Privy Council border
(not final)
Golf of
Saint-Lawrence
Saint-Lawrence River
Québec
Montréal
MAINE
VERMONT
NEW
HAMPSHIRE
Toronto
Lake Ontario

The project

5 billions $CAN investment

Installed capacity: 918 MW

Annual energy : 8,7 TWh

Diversion: 450 m3/s, 72% of mean annual flow at km 314

4 dams and 74 dikes

2 powerhouses

8 hydraulics structures downstream

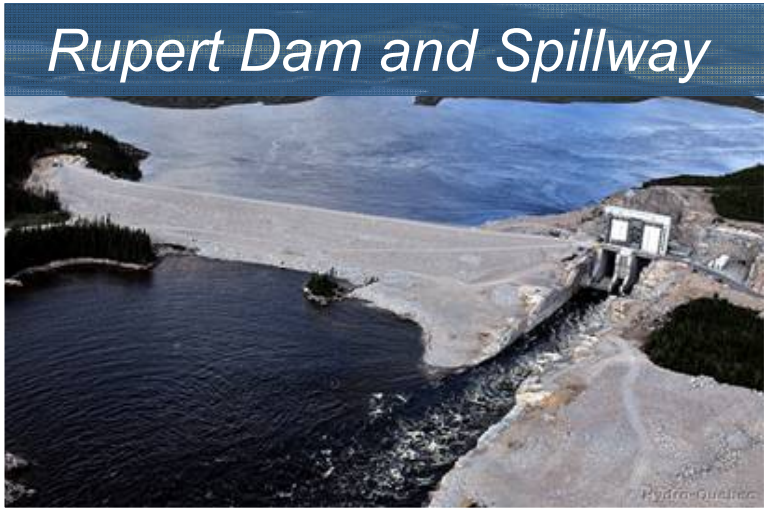
Tailbay / forebay : 346 km²

Transfer tunnel : 2,9 km

6 work camps

Major infrastructures of the project

Eastmain-1-A



Rupert Dam and Spillway

Tunnel

Sarcelle


Eastmain
Eastmain-1-A
Eastmain-1

Rupert river downstream hydraulic structures

Weir km 170

Spur km 85

Weir km 290

Rock blanket km 20,4

Some technology from Norway…

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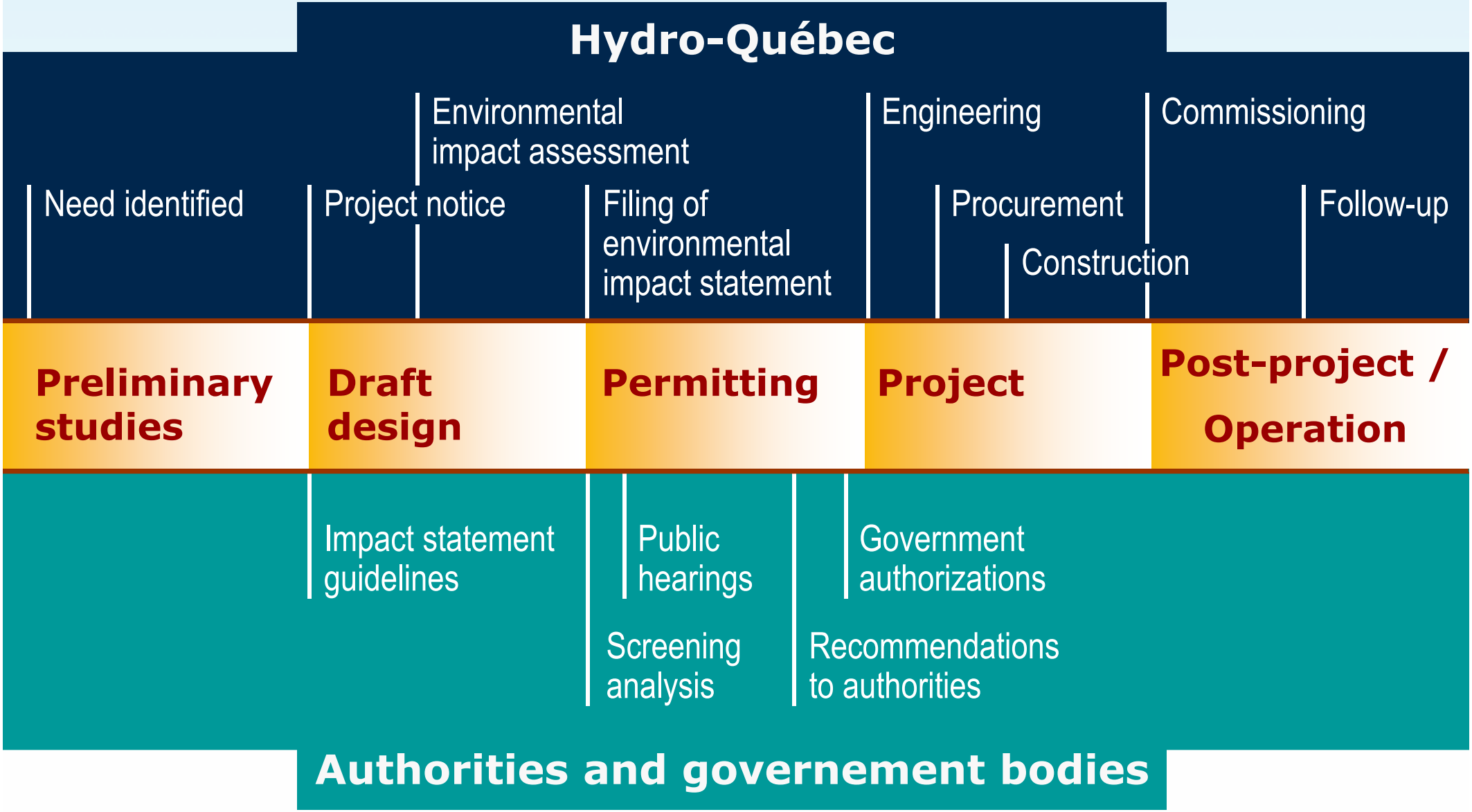
James Bay Region (Eeyou Istchee)

6 Cree Communities

297 Traplines

33 Tallymen

Phases of a large Hydropower project



Public participation in large hydro projects (step 1)

- Invest in our relationship with the local community
- Preliminary discussions with regional county municipalities and aboriginal communities with a view to signing agreements
- Identification of basic expectations and issues
- Duration: 1-2 years

Public participation in large hydro projects (step 2)

Draft Design and permitting

- Validate our perceptions :
  - Information and discussion panels
  - Continuous communication (open house events, information meetings, media relations etc.)
  - Incorporation of local knowledge in our studies
- Public consultation by government authorities
- Duration: 2 to 5 years

Public participation in large hydro projects (step 3)

Construction

- Economic spinoffs committee
- Environmental and agreement monitoring committees
- Public information on work progress (bulletin, press release etc.)
- Duration varies: 2 to 12 years

Public participation in large hydro projects (step 4)

- Environmental and agreement monitoring committees
- Follow-up duration varies (over 20 years for the last two projects)

Agreements

Preliminary studies

1998-2002

- **Paix des Braves (2002)**
  (Cree Nation and Québec government)
- **Boumhounam Agreement**
  (Cree Nation and Hydro-Québec)

Projects criteria in the agreement

Preliminary studies

1998-2002

1. **Minimal flooding of land**
2. **Ecological instream flow regime in the Rupert River**
3. **Hydraulic structures on the Rupert River to protect fish communities and habitat, preserve the landscape, maintain navigation and land use**
4. **Mesgouez Lake, Champion Lake and Lake Nemiscau to be kept at their natural levels**
5. **Supply of drinking water to the village of Waskaganish**

Participation to studies

Draft design
2002-2004

- **Cree – Hydro-Québec Feasibility study group** (Boumhounam Committee)
- Cree participation to technical and environmental studies and EIA
- Workshops with tallymen
- Gathering and integration of traditional knowledge

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Traditional knowledge studies

Draft design

2002-2004

Land use studies

Draft design

2002-2004

Biophysical studies

Draft design

2002-2004

Communication with local communities during technical and environmental studies

Draft design

2002-2004

Newsletter

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Radio program

Web sites and CD-ROM

www.hydroquebec.com/rupert/en/index.html
www.hydloandfriends.com

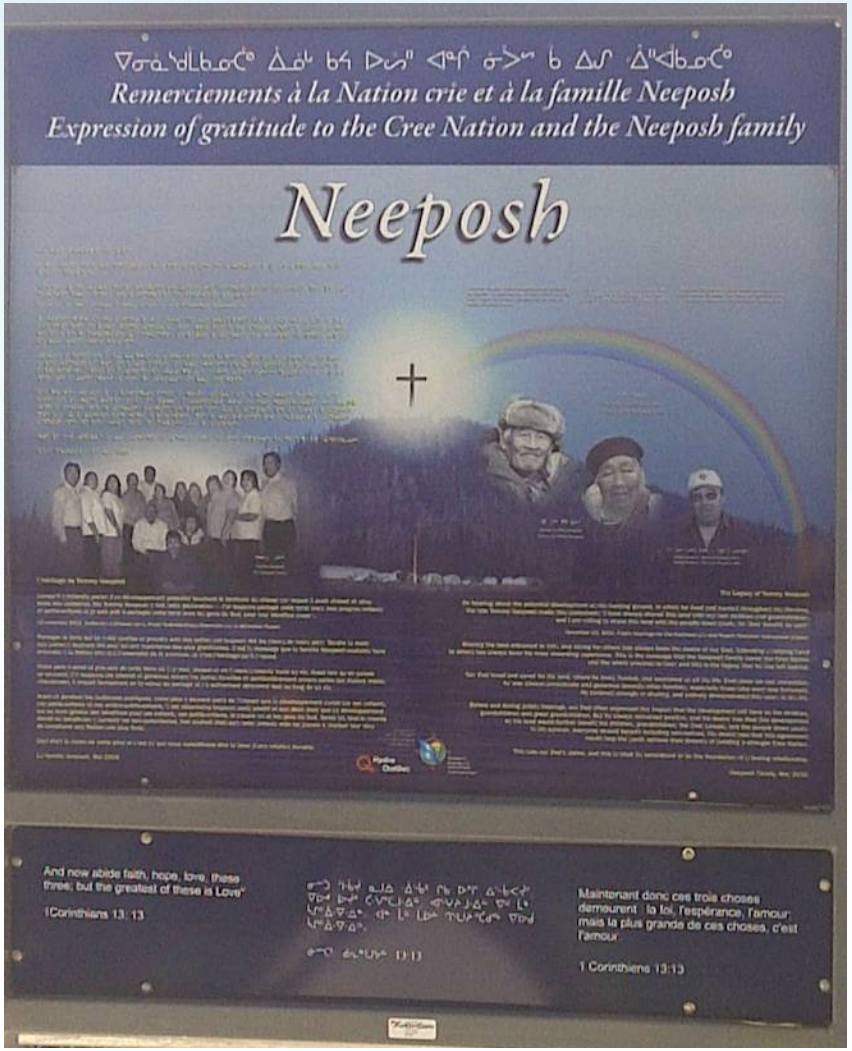
Permitting 2003-2007

Government authorizations Main steps	Schedule
Public consultation on the guidelines	May – June 2003
Public consultation on EIA compliance	February to April 2005
Public hearings	15 March – 9 June 2006
Provincial authorization	November 2006
Federal authorization	February 2007

Tommy Neeposh Tunnel and commemorative site

Project EPC

2007-2012



Monitoring and Cree participation

Project EPC
2007-2012

- Monitoring Committee (Cree communities - HQ)
- Rupert River Water Management Board
- Smokey Hill Liaison Committee
- Cree participation to technical and environmental studies
- Annual individual interviews with tallymen
- Tour of all communities every two years

Measures to promote economic spinoff within Cree communities

Project EPC

2007-2012

- 5 million $ in contracts during the EIA
- Construction contracts worth $600 million
- Cree employment counselor
- 1.5-million $ fund for training of Cree workers
- 45 million $ worth of contracts during operations

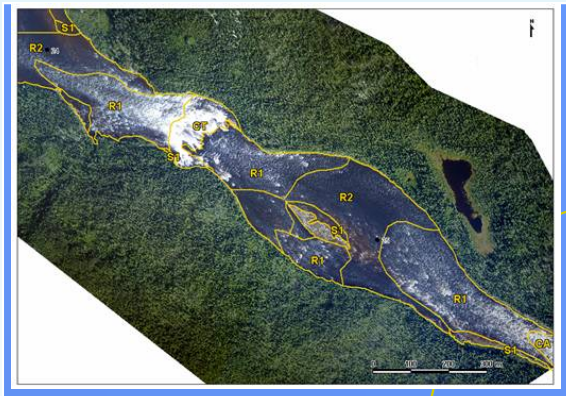
Optimizing the environmental aspects of the project

Project EPC

2007-2012

Main works

Rupert river
Ecological Instream Flow Regime



416 m³/s

Spring

45 days

5 days

9 days

267 m³/s

3 days

Fall

20 to 30 days

127 m³/s

127 m³/s

127 m³/s

Winter

Summer

Winter

Never before May 8

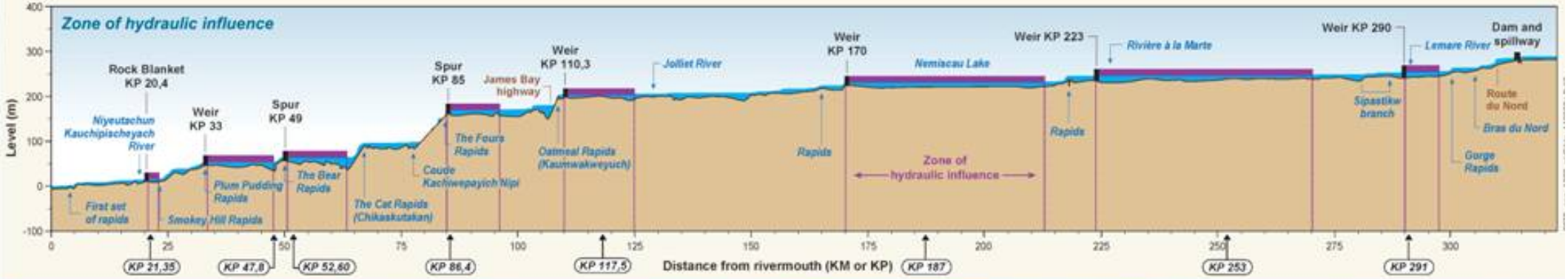
Early July

October 5

Flow

Time

Rupert River hydraulic structures



Reach water level control for navigation and protection of valuable habitats

Clearing of diversion bays for navigation and land use

Clearing of corridor

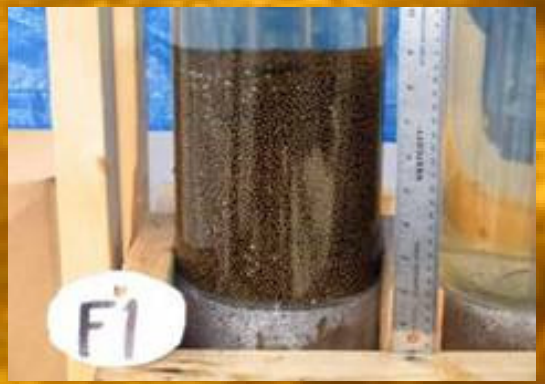
Boat ramps

Safety signs

Portage signs

Goose hunting area

Lake Sturgeon
Spawning ground and hatchery



Scoop fishing at Smokey hill

Hydro-Québec best practices

1. Continuous Involvement of stakeholders at every step of the projects
2. Agreements with the indigenous communities and Regional Authorities
3. Social, environmental and technical criteria of the project embedded in the agreements
4. Extensive Public Consultation
5. Social and economic spin-off for host-communities
6. Extensive environmental monitoring program

In its 12th annual world inventory of renewable electricity, the "Observ'ER" describes this project as a model of good environmental constraints integration

Observ'ER

Douzième inventaire / Twelfth inventory
Édition 2010

La production d'électricité
d'origine renouvelable dans le monde

Collection chiffres et statistiques

Worldwide electricity production
from renewable energy sources

Stats and figures series

Observ'ER

EDF

24 FÉVRIER 2011

ANNONCE

Dans son douzième inventaire annuel de la production d'électricité d'origine renouvelable dans le monde, l'Observatoire des énergies renouvelables – l'Observ'ER* – souligne que le projet de l'Eastmain-1-A–Sarcelle–Rupert est « un modèle du genre en matière d'intégration des contraintes environnementales».

Pour Hydro-Québec, le projet est une réussite, car il s'intègre de façon harmonieuse dans son milieu. Le territoire de chaque projet présente des caractéristiques spécifiques. Hydro-Québec a trouvé, en collaboration avec les utilisateurs du territoire et les communautés, un scénario de moindre impact, qui permet la poursuite des activités traditionnelles. Hydro-Québec réalise des études sur l'environnement, met en place des mesures d'atténuation et effectue des suivis environnementaux afin d'évaluer les incidences du projet sur l'environnement, de préserver la biodiversité et d'atténuer au maximum les effets sur le milieu.
La mention à l'international de la part de l'Observ'ER* confirme cette réussite.

serv'ER est une référence dans le domaine des énergies renouvelables.

consulter le rapport de l'Observ'ER

Présent dans la rivière Rupert et hautement prisé par les Cris, l'esturgeon jaune fait l'objet d'un suivi qui porte notamment sur la descente de ses larves vers l'aval au printemps et le maintien de sa production.

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Tusen Takk!