

## Conserving biodiversity along distribution lines



Hydro-Québec is a government-owned utility with a single shareholder, the Québec government. Its mandate is to generate, transmit and distribute electricity in Québec. It sells surplus power on wholesale markets and is also active in arbitrage and purchase/resale transactions. The company has more than 23,000 employees and operates essentially with renewable energy sources, especially hydropower. Hydro-Québec relies on a total installed capacity of 36,427 MW, of which 97% comes from its 59 hydroelectric generating stations and 26 large reservoirs. Besides hydropower, it relies on wind power, which makes up 1% to 2% of its total capacity now and should rise to about 10% by 2015.

### Hydro-Québec's perspective on biodiversity

#### Impacts on biodiversity

On a global scale, climate change is a primary threat to conserving biodiversity. As a producer of energy mainly relying on renewable sources, Hydro-Québec does not contribute significantly to greenhouse gas emissions. The company's three major activities that impact on biodiversity are:

- **Generation:** The main effect of using water to generate power is to modify watersheds by flooding land and thus transforming terrestrial ecosystems into lacustrine ones. Several major studies document these effects<sup>1</sup>.
- **Transmission:** Hydro-Québec manages a vast transmission grid with over 33,000 km of high-voltage lines. The grid carries energy generated primarily in northern Quebec to load centres in the south. Hydro-Québec conducted a **study program** comparing biodiversity within rights-of-way to that adjacent to them in Quebec's three major bioclimatic zones.
- **Distribution:** The Hydro-Québec distribution system carries electricity to all Quebec consumers. More than 110,000 km of distribution lines cross farmland, forests, residential districts and urban areas. The effects of the distribution system on biodiversity have been studied and specific conservation measures have been taken.

#### Hydro-Québec's biodiversity management policy

The Hydro-Québec Environment Policy was first implemented in 1984. The company has been publishing environmental performance reports since 1995 and sustainability reports since 2002. The reports contain a specific section on biodiversity<sup>2</sup>.

Hydro-Québec first obtained ISO 14001 certification in 1999. Since then, all its activities have been covered by an environmental management system (EMS).

In 2006, Hydro-Québec adopted a corporate strategy establishing a frame of reference and objectives regarding biodiversity:

- Ensure conservation of biodiversity in company activities through projects based on the various components of the physical, biological and human environments, and adhere to all existing laws and regulations regarding biodiversity.
- Participate in restoring species that are threatened or vulnerable in Quebec.
- Raise the profile of Hydro-Québec's contribution to conserving biodiversity.

For each objective, the strategy also sets out a series of action items for 2010. For instance, Hydro-Québec is participating in 6 restoration teams working to safeguard 13 of the 22 wildlife species designated as threatened or vulnerable in Quebec.

Since its creation in 2001, the Fondation Hydro-Québec pour l'environnement has allocated \$8.8 million in support to local and regional organizations implementing 145 projects to enhance Quebec's natural heritage<sup>3</sup>.

With the passing of Quebec's *Sustainable Development Act*, Hydro-Québec has adopted its *Sustainable Development Action Plan 2009–2013*<sup>4</sup>. The Plan sets out 10 actions, one of which is to "Improve vegetation control methods on the distribution system to better protect biodiversity."

## Conserving biodiversity along distribution lines

### Rationale

Hydro-Québec carries out vegetation control work on distribution line rights-of-way in order to avoid outages and to ensure safe, optimal operation. Since vegetation causes 40% of distribution system outages, controlling it is a key maintenance activity for distribution, and has been included in the company's EMS.

Distribution line rights-of-way along roads, through fields and across forests, provide habitat for numerous animal, birds and other species that rest, breed, feed or travel there. They also serve as refuge for numerous plant species otherwise absent in urban, peri-urban and farm environments.

The distribution system includes about 3,000,000 spans (the distance between two utility poles) along 110,127 km of lines. Vegetation control along the distribution lines occupies 150 employees, as well as a number of contractors, and costs \$60 million per year.

In 2006, the company identified ways of improving vegetation control operations within distribution rights-of-way that cut the cost of dealing with waste wood and refined land clearing methods that maintain or create microhabitats that protect biodiversity.

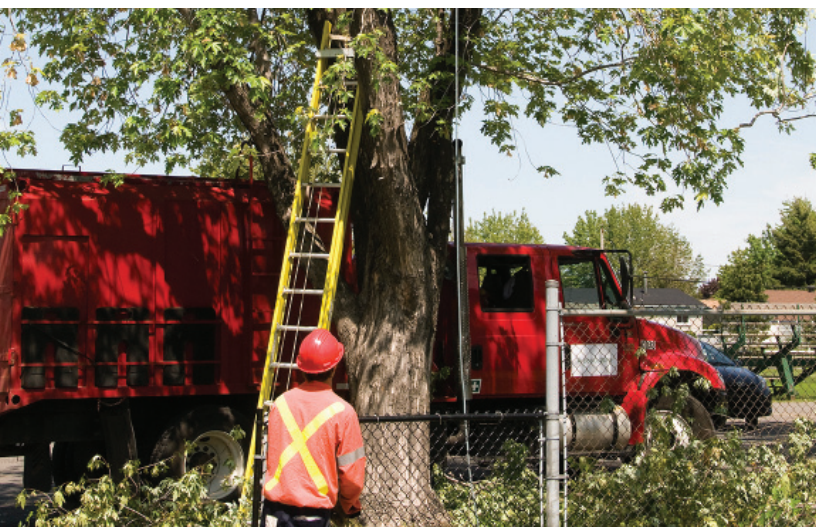
### Description

A pilot project was run in 2007 and 2008 on 2,500 spans in the Bois-Francs, Estrie and Mauricie regions. It introduced three biodiversity protection measures into vegetation control operations. The new measures replace clear cutting and consist in the following:

- Perform selective cutting to keep as many trees and shrubs standing as is feasible without jeopardizing power system security.
- Manage waste wood on site by piling or scattering it to help develop microhabitats. Traditionally, waste wood is chipped and hauled to a central location where it is composted or buried. However, it can contribute to biodiversity by providing a habitat or substrate for insects, amphibians, small mammals, mushrooms, mosses and other organisms.
- Keep a number of standing dead trees or trunks (snags) for the benefit of many species of plants, invertebrates, mammals and birds, such as woodpeckers. They can also serve as nesting sites for numerous species of birds and mammals.

These measures are written into the procedures intended for employees and contractors working in the field. A methodology guide will also be drafted to help those in charge of vegetation control select the most appropriate method for conserving biodiversity, while taking environmental, safety and technical constraints into account.

This is a change in the procedure for managers, who must now select one or more vegetation control techniques for protecting biodiversity based on an analysis of the situation.





Hydro-Québec's objective is to roll out the program so that by the end of 2013, it covers 90% of scheduled vegetation control work carried out each year on the distribution system. Intermediate targets to support rollout will be set for 2009 to 2012. The target for 2009 is that 80% of such work includes biodiversity enhancement measures.

A study will be conducted during the program to identify other biodiversity conservation measures (e.g., preserving remarkable trees). It is anticipated that approximately twenty new measures will be identified.

### Stakeholders and roles

The vast majority of distribution line rights-of-way are not Hydro-Québec property. The company thus wants the new measures to be socially acceptable. Though less biodiversity-friendly, clear cutting rights-of-way may appear "cleaner" than on-site waste management and conserving dead trees. The pilot project has thus been the focus of meetings in 2008 with **municipalities**, **RCMs** (regional county municipality) and **citizens' associations**. These organizations, in addition to the **majority of the 2,500 landowners** concerned, have accepted the biodiversity protection measures proposed by Hydro-Québec.

The positive response to the pilot project will be all the more important as it will provide a basis for promoting awareness among all landowners whose property is subject to all distribution line vegetation control work.

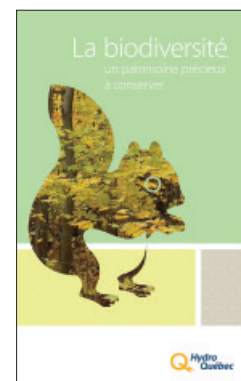
Distribution managers at Hydro-Québec are responsible of the implementation of the measures in cooperation with its Department of Environment and sustainable development affairs.

Hydro-Québec also wishes to set up a scientific committee to monitor and assess the project. Membership will include scientists recognized for their contribution to biodiversity. One committee duty will be to issue an opinion regarding approaches proposed by Hydro-Québec in its biodiversity enhancement program.

### Communication

The following communications activities have been initiated:

- Distribution of a leaflet entitled *La biodiversité, un patrimoine précieux à conserver* (Biodiversity: a precious heritage to conserve), which covers the pilot project's three measures as an awareness and training tool for operators and contractors;
- Organization of information meetings with municipalities and RCMs;
- Development of an intranet site for employees.



A meeting was held in fall, 2009, with municipal representatives and landowners to update them on the results of the work completed in 2008 and 2009, and its impact on biodiversity.

Hydro-Québec has developed employee training sessions entitled *Bonnes pratiques environnementales concernant les travaux de maîtrise de la végétation* (Good environmental practices in vegetation control work). Hydro-Québec will check that employees are adhering to the program and incorporating the new practices. Meetings will be held in 2010.

## Outcomes

### Benefits

#### Economic

Implementing these measures will result in savings in the annual budget for distribution line vegetation control. Measures already implemented, e.g., on-site waste wood management, offer a high potential for savings, which should be confirmed when future land clearing contracts are awarded. Hydro-Québec intends to reinvest savings in projects promoting biodiversity.

#### Management

The initial year of the project (2008–2009) has helped to gauge the project's social dimension and the importance of creating partnerships with key external stakeholders (RCMs, municipalities, citizens, scientific community, environmental associations, etc.). It has also provided an opportunity to develop a strategy, establish indicators and targets, develop management tools (training and awareness), and standards supporting biodiversity measures can soon be implemented.

#### Biodiversity

The pilot project is now being assessed to determine whether biodiversity measures applied actually make a lasting contribution. Results are expected in late 2009. Hydro-Québec estimates that when the project ends in 2013, 90% of spans subject to vegetation control will have benefited from biodiversity enhancement measures.

## Lessons learned

A key facet of the project is employee and stakeholder awareness. The issue of protecting and enhancing biodiversity has been an important driver in project acceptance despite changes that the measures entail in managerial practices at Hydro-Québec.

As yet, little resistance has been encountered among internal and external stakeholders. The pilot project has nonetheless highlighted the importance of clearly communicating to the community the objectives pursued. Program rollout must not neglect a sustained awareness effort.

### Changes in company's practices

As mentioned above, implementing this program entails changes to how vegetation control is managed, and to the procedures for performing it.

Hydro-Québec guidelines will also be amended to make biodiversity enhancement measures permanent. Biodiversity measures will also soon be entered into the Geographic Information System used by forest technicians in conducting surveys.

They also mean a change in the way Hydro-Québec communicates with communities affected by this type of work, especially regarding the visual impact of applying biodiversity measures.

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<sup>1</sup> [www.hydroquebec.com/sustainable-development/documentation/pop/doc\\_specialise\\_06.html](http://www.hydroquebec.com/sustainable-development/documentation/pop/doc_specialise_06.html)

<sup>2</sup> [www.hydroquebec.com/publications/en/enviro\\_performance/pdf/rdd\\_2008\\_en.pdf](http://www.hydroquebec.com/publications/en/enviro_performance/pdf/rdd_2008_en.pdf)

<sup>3</sup> [www.hydroquebec.com/fondation-environnement/en/index.html](http://www.hydroquebec.com/fondation-environnement/en/index.html)

<sup>4</sup> [www.hydroquebec.com/sustainable-developpement](http://www.hydroquebec.com/sustainable-developpement)