

# Revelstoke Unit 5

## Project Update Number 1

October 2005

An Introduction to the Revelstoke Unit 5 Project



This update provides information about the proposed addition of a fifth generating unit to the Revelstoke Dam and Generating Station in Revelstoke, B.C.

BC Hydro is now initiating First Nations and stakeholder engagement and the regulatory approvals process for the Revelstoke Unit 5 project.

Installing a fifth unit at the Revelstoke Dam would enable the facility to generate more power when all five units are operating. The plant would continue to operate as a daily peaking facility within the current water license requirements. The additional unit would add 500 megawatts (MW) of dependable capacity, bringing the dam's total installed capacity to 2,480 MW. The additional capacity would provide electricity to the equivalent of 40,000 additional homes at peak demand periods.

Projects such as Revelstoke Unit 5 take years to plan and build and BC Hydro is beginning the process now to ensure that the dependable capacity is in place when needed. The proposed in-service date for the fifth unit is October 2010.

### Why Revelstoke Unit 5?

Revelstoke Unit 5 has been identified in BC Hydro's Integrated Electricity Plan (IEP) as a dependable, low-cost option for meeting future customer electricity requirements. The IEP is a long-term plan that outlines how BC Hydro will meet anticipated customer needs over the next 20 years. BC Hydro has identified a need for more dependable capacity in the

province-wide system to ensure that it can continue to meet peak customer demand for electricity.

As part of the integrated electricity planning (IEP) process, BC Hydro considers a variety of portfolios (bundles of resource options) for meeting the province's electricity needs. Revelstoke Unit 5 is included in all the portfolios currently under discussion in the 2005 IEP process.

Revelstoke Unit 5 would provide a number of important operational benefits, including:

- **Plant Efficiency gains** – with a new, more efficient turbine, Unit 5 could generate more energy from the same volume of water.
- **System efficiency gains** – given Revelstoke Dam's location between the Kinbasket and Arrow Reservoirs, adding a fifth unit would provide flexibility in regional and province-wide operations, allowing more capacity to be produced when required.
- **Additional dependable system capacity** – to help BC Hydro meet future peak electricity demand.
- **Increased trade opportunities** – once domestic demand is met, the additional dependable capacity created by Revelstoke Unit 5 would enable BC Hydro to generate more power at times when it has high value in the energy marketplace.

### The Revelstoke Dam and Generating Station

The Revelstoke Dam and Generating Station began operating in 1984. It was originally designed as a six-unit facility, with the

installation of Units 5 and 6 being deferred until additional capacity was needed. The dam currently has four generating units with a combined maximum capacity of 1,980 megawatts (MW), which accounts for about 18 per cent of BC Hydro's current installed capacity.

## Revelstoke Unit 5 project description

The Revelstoke Unit 5 project involves installing a turbine, generator, penstock and associated equipment in an existing empty bay at the Revelstoke Dam. The project would also require some transmission equipment upgrades at the Ashton Creek Substation, near Enderby.

Most of the work required to install Unit 5 would take place within the existing powerhouse and switchgear building and would use the Westside Road for access.

### How does capacity differ from energy?

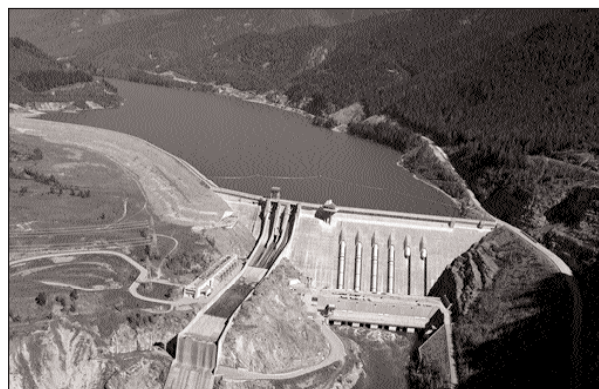
**Energy**, measured in kilowatt hours (kWh), megawatt hours (MWh) and gigawatt hours (GWh), describes the amount of electricity used or produced over a period of time. BC Hydro uses this measurement to describe the amount of energy generated over the course of a year.

**Capacity**, measured in megawatts (MW), is the amount of electricity a facility can produce in a single instant. Capacity is important during peak demand periods such as cold winter nights, when lights, stoves, baseboard heaters, televisions and computers are all in use.

## Operational changes related to Unit 5

Changes related to Revelstoke Unit 5 will depend on a number of factors, such as the number of units running at a given time, the time of year, time of day, reservoir elevations and other system operational considerations.

With the addition of Unit 5, the Revelstoke Reservoir will continue to operate within its current normal operating range (i.e., within one metre of maximum



elevation). In winter, daily fluctuations may increase up to 0.2 m. Flow velocities in the Revelstoke Reservoir would remain virtually unnoticeable, at less than 0.03 metres per second.

Downstream of the Revelstoke Dam, rivers and reservoirs levels would remain within the existing licensed operating range, although there will be increased flows, water levels and velocities when all five units are operating (estimated to average about 20 per cent of the time). The area that will have the most noticeable changes in water flows is the section of river immediately downstream of Revelstoke Dam to the TransCanada Highway bridge. The requirement for a year-round minimum flow of 5,000 cubic feet per second – as proposed in the recent Draft Columbia Water Use Plan – will be considered as a baseline for operations with a fifth unit.

There would be no changes to the operating ranges of the Arrow Lakes and Kinbasket Reservoirs, as recommended in the Draft Columbia Water Use Plan.

## Potential project impacts and opportunities

In the mid-1990s a number of studies were undertaken to assess how the project could impact the environment and the community. This information will be updated as required and will cover such topics as:

### Environmental

- fish and aquatic habitat
- wildlife and terrestrial habitat
- shoreline erosion

## Revelstoke Unit 5 project schedule

- vegetation resources
- archaeological and cultural resources

### Socio-economic/community

- workforce accommodation
- local employment and contracting opportunities
- impact on community services

BC Hydro will build on the knowledge gained through earlier studies and work with stakeholders to identify and quantify potential impacts. A Core Committee (made up of stakeholders, regulatory agencies, First Nations and BC Hydro) will develop appropriate strategies to address the social, environmental and economic impacts related to the project.

Copies of project-related reports and studies from the mid-1990s and any update reports will be made available at the City of Revelstoke offices and on the project website.

### Regulatory requirements

To obtain the necessary regulatory approvals to proceed with the Revelstoke Unit 5 project, several processes must be completed, including:

- A harmonized provincial and federal environmental assessment review must be conducted to identify and assess the potential effects of the project and develop measures for preventing or managing those effects.

As part of this process, BC Hydro will draft and submit a Supplemental Report for an Environmental Assessment Certificate. This Application will include

information collected during the mid-1990s environmental assessment process, updated as required. The Supplemental Report will also document the potential project impacts, and the proposed mitigation and compensation measures. It will also review the engagement activities undertaken, issues raised by stakeholders and First Nations and BC Hydro's responses to those issues.

- A review of the Draft Columbia River Water Use Plan (WUP) in view of the incremental operational impacts of Revelstoke Unit 5.

Date	Decision points and/or milestones
Summer 2005	BC Hydro confirms regulatory requirements and designs engagement processes.
September 2005	First Nations consultation, stakeholder engagement and regulatory approval processes were initiated.
October 2005	Turbine and generator contract tender issued to allow sufficient time to undertake turbine design and meet target in-service date.
October 2005 – Summer 2006	Ongoing stakeholder engagement and First Nations consultation.
Summer 2006	Application for an Environmental Assessment Certificate (EAC) submitted by BC Hydro to the Environmental Assessment Office for review and approval.  Proposed amendments to the Draft Columbia Water Use Plan submitted to B.C. Comptroller of Water Rights for review and approval.  Internal BC Hydro Board of Director approval must be received for project to proceed.
Fall 2006	Regulatory agencies refer Application for EAC to the broader public and First Nations for review and comment.  The provincial Comptroller of Water Rights undertakes review and approval of amendments to the Draft Columbia Water Use Plan.
2006	BC Hydro submits application for Certificate of Public Convenience and Necessity to the B.C. Utilities Commission.
Early 2007	Regulatory agencies provide decisions regarding proposed Revelstoke Unit 5 project.
2007	Subject to regulatory approvals, project implementation phase begins. Further detailed engineering and contracting work undertaken.
Early 2008	On-site construction scheduled to begin.
October 2010	Target in-service date for Revelstoke Unit 5.

- Application for a Certificate of Public Convenience and Necessity (CPCN) from the B.C. Utilities Commission (BCUC).

The approval of BC Hydro's Board of Directors is also needed for the project to be implemented.

## Stakeholder and First Nations engagement

The Revelstoke Unit 5 engagement process is designed to address different levels of interest and involvement. The process will be open, inclusive and responsive to the interests of participants. Members of the Columbia Water Use Plan Consultative Committee, members from the former Unit 5 Consultative Committee formed in the mid-90s and other interested groups and individuals are welcome to participate.

Depending on their level of interest and their availability, individuals and organizations can get involved in a variety of ways:

1. **Stay up to date:** Learn about project progress through updates such as this that will be provided to the community throughout the process. Visit the website.
2. **Give us your input:** Attend open houses to speak directly with project team members about your specific interests and issues, or give us your comments directly by phone, letter or email.
3. **Join the Core Committee:** Members of this committee will include representatives of the community at large, First Nations, regulatory and government agencies and BC Hydro. The committee will work at a technical level and will hold an estimated series of three or four meetings between October 2005 and May 2006, as well as additional sub-committee meetings to work on specific topics.

The objective of the committee is to reach consensus on: 1) a preferred package of mitigation and compensation measures to address the impacts of the Revelstoke Unit 5 project, and 2) a preferred

set of amendments to the Draft Columbia Water Use Plan in view of the project.

First Nations are invited to participate in all of the engagement activities outlined above. BC Hydro will also consult directly with First Nations with interests in the area, including the Ktunaxa Nation Council Society, Shuswap Nation Alliance and Okanagan Nation Alliance and their member bands, along with local First Nations associations.

### How can I get involved?

- Attend the Revelstoke Unit 5 Open House being held on Tuesday, November 1, from 5 p.m. to 9 p.m. at the Revelstoke Community Centre (600 Campbell Avenue). A project presentation is scheduled at 7 p.m.
- Participate on the Core Committee
- Visit the Revelstoke Unit 5 website for project information at [www.bchydro.com/revelstokeunit5](http://www.bchydro.com/revelstokeunit5)
- Sign up for the Revelstoke Unit 5 project mailing list

### We want to hear from you

If you would like more information about the Revelstoke Unit 5 project, please visit our website, send us an email or give us a call.

We also invite you to attend a Project Open House, which will take place on Tuesday, November 1, from 5 p.m. to 9 p.m. at the Revelstoke Community Centre, 600 Campbell Avenue. A brief project presentation is scheduled at 7 p.m.

Community groups may also wish to ask BC Hydro for a project presentation or to meet with their organization to discuss project-related interests.

[www.bchydro.com/revelstokeunit5](http://www.bchydro.com/revelstokeunit5)

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