BC Hydro is implementing the Water Use Plan (WUP) Order Review Program as the final step of implementing the provincial Water Use Planning guidelines. The WUP Order Review Program will determine whether the ordered water management constraints on BC Hydro’s operations are achieving the specific environmental and social objectives identified in each Water Use Plan Order and to recommend how the Order could be modified or sustained for future operations. Over the next 15 years, these reviews will focus on the operational and environmental outcomes for each of BC Hydro’s 23 WUP Orders.

**What was the purpose of water use planning?**

In 1998 the B.C. provincial government issued Water Use Plan Guidelines with an overall goal of finding a better balance between sometimes competing uses of water such as domestic water supply, fish and wildlife, recreation, heritage protection, flood control, and electrical power generation requirements. BC Hydro is implementing all 13 steps of the guidelines.

**What was the scope of the water use plans?**

The water use planning process was intended to clarify BC Hydro’s operations by making incremental adjustments to benefit fish, wildlife, and other interests on our licensed reservoirs and downstream of our generation and water conveyance (non-power) facilities. Water use planning was not intended to address issues related to the construction or footprint of generation facilities, such as fish passage.

**What came out of the water use planning process?**

Between 1999 and 2004 BC Hydro engaged with First Nations, stakeholders, and regulatory agencies to develop and submit to the B.C. Comptroller of Water Rights 23 Water Use Plans for 31 of our hydroelectric generation facilities.

The WUPs included recommendations to benefit non-power interests through constraints on facility operations including water flows, recreation and habitat enhancement projects, and monitoring studies to confirm the benefits.

As a means to implement the WUPs, the Comptroller issued *Water Act* Orders to BC Hydro directing us on how to balance power production operations with these other water uses. Order conditions require us to undertake WUP-related, site-specific actions at each facility with varying combinations of:

- Incremental adjustments to flows and reservoir elevations
- Recreation and habitat enhancement
- Multi-year environmental monitoring studies

BC Hydro continues to follow the provincial WUP Guidelines. Step 13—the last step—requires reviews to be undertaken on a periodic basis, focusing on specific priority issues. BC Hydro’s WUP Order Review Program will focus on the facility- or system-specific Orders; the original Consultative Committee Report and Water Use Plan will continue to serve as important foundational guides as these were used as inputs by the Comptroller to develop the Orders.
What has been accomplished so far through the WUP orders?

Approximately 750 operation constraints have been implemented at BC Hydro’s generation facilities and dams, including minimum flows, seasonal reservoir elevation targets, and ramping (flow change) rates. These are intended to provide the benefits for fish, wildlife, recreation, and cultural and heritage resources protection. In addition, BC Hydro is managing more than 350 projects throughout the province as part of the WUP Orders. Projects still active are continually monitored, adaptively managed, and adjusted to meet the original objectives. Monitoring Advisory Committees were recommended for a number of facilities; a number are still active. To date, BC Hydro is delivering:

- Greater than 200 monitoring studies, more than half of which are complete and the remainder are ongoing for their prescribed period. These studies are primarily focused on addressing information gaps that will assist decision-making for or confirm operations. These monitoring programs cover fish and aquatic issues, and address wildlife, vegetation, recreation use, archaeology/heritage, and cultural and spiritual interests.
- Greater than 130 physical works (construction) project of which more than half are complete and the remainder are in progress. Physical works have been undertaken as an alternative to operating constraints. These projects cover fish, wildlife, and recreation enhancement projects (including boat launches). A variety of non-fish projects have been implemented and include wetland creation and protection, revegetation, erosion control, and dust and debris mitigation.
- Many feasibility studies were completed as a foundation for these projects and studies.

What additional BC Hydro programs are in place?

BC Hydro has other programs related to the construction and operation of its generation facilities and reservoirs, including:

- The Fish & Wildlife Compensation Program (FWCP). The FWCP is a partnership between BC Hydro, the Province of B.C., Fisheries and Oceans Canada, First Nations, and public stakeholders to conserve and enhance fish and wildlife impacted by BC Hydro dam footprints.
- Reservoir Archaeological Program—Responds to a need to ensure that BC Hydro is in compliance with the Heritage Conservation Act for our reservoir operations.
- Fish Impact Mitigation Program—Three strategies have been developed to address impacts to fish populations at specific facilities:
  - Fish Entrainment Strategy—Where fish entrainment was not addressed through operation changes, this strategy addresses fish impacted by the involuntary movement of fish through water passages and generator turbines at our facilities, ensuring compliance with the federal Fisheries Act.
  - Total Dissolved Gas Strategy—Allows us to minimize environmental and regulatory risks associated with operations during high flow and low energy demand periods.
  - Fish Passage Decision Framework—Supports the FWCP in evaluating proposals for fish passage at our facilities.

What will BC Hydro be doing for the WUP order reviews?

The activities that BC Hydro was ordered by the Comptroller to implement will be reviewed by the WUPOR Program. The key goals of the program are to:

- Synthesise and document the outcomes of the water management constraints, physical works, monitoring, and other activities with respect to the objectives in the Orders.
- Understand BC Hydro’s compliance with the Orders.
- Identify any areas where it was not possible to fully comply with the Orders and why.
- Describe what remaining actions are needed to fulfill requirements of the Orders.
○ Document the recommended costs compared to actual costs and provide a variance analysis where applicable.

○ Prepare for the Comptroller of Water Rights recommendations or conclusions to fulfil the objectives of the Order. This may include ongoing constraints on operations and other commitments.

The reviews will be primarily based on data and documents that have been generated from the many studies and projects that have been implemented under the Orders. Much of this information is routinely posted and stored on bchydro.com.

The Comptroller of Water Rights may confirm, revise, replace, or rescind Order conditions to reflect the current status of implementation activities associated with the original Order.

**How will BC Hydro involve first nations, government agencies, and stakeholders?**

Environmental, heritage, operations, and order review reports will be prepared and provided to federal and provincial government agencies, First Nations, regional and municipal governments, and key stakeholders. They will also be posted on bchydro.com.

Input from these groups will be considered by the Comptroller of Water Rights and BC Hydro, along with the technical and financial information, to inform any additional action that may be needed and what constraints on operations and commitments should be maintained. Issues raised during the review process will be evaluated to determine if additional engagement is needed, while remaining mindful of the work already accomplished, the need to contain costs, and to keep rates affordable for British Columbians.

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**When will the wup order reviews happen?**

WUP Order Reviews for Jordan River and Ash River were started in 2015 as pilot projects. Ash River was completed in Oct. 2018; Jordan River was completed early in 2019.

It is expected the remaining 21 reviews will be implemented over approximately the next 15 years. The timing of each review is linked to the final completion of studies, as well as other factors such as capacity to undertake concurrent reviews and anticipated complexity and effort. Although the sequence of the Order reviews may change, it is generally anticipated they will be initiated as follows:

- Ash River (complete)
- Jordan River (complete)
- Shuswap Falls (started)
- Alouette (pending)
- Cheakamus (pending)
- Stave Falls/Ruskin
- Elko
- Seven Mile Falls River
- Puntledge (Comox Dam)
- Duncan Dam
- Columbia River Projects
- Walter Hardman
- Whatshan
- Aberfeldie
- Wahleach
- Bridge River
- Coquitlam Dam
- Spillimacheen
- John Hart
- Clayton Falls
- Peace System
- Clowhom

Note that Alouette and Stave/Ruskin will be recommended to be combined into one Order after reviews of the environmental results are complete.

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For more information

bchydro.com/wupor
gov.bc.ca/water use planning

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