

# 2004

## Integrated Electricity Plan



### Part 4 Draft Action Plan

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**Volume 2  
Appendix G.  
2004 Integrated Electricity Plan  
Draft Action Plan**

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## 1. Draft Action Plan

The 2004 Integrated Electricity Plan (IEP) is intended to be flexible and broadly directional. However, BC Hydro needs to take specific actions over the next few years to realize the IEP's broad directional goals. This Draft Action Plan, Part 4 of the IEP, which is filed as part of BC Hydro's 2004 Revenue Requirement Application, sets out those actions for fiscal years F2005 to F2008.

The Draft Action Plan is subject to revision following the issuance of the BC Utilities Commission's final Integrated Resource Planning Guidelines and completion of the 2004 IEP

## 2. Planning Context

BC Hydro's resource planning process is described in Part 1 of the 2004 IEP – Introduction and Planning Context (Draft). Part 1 provides an overview explaining why BC Hydro's business environment requires a dynamic, flexible, market-driven, broad directional, long-term approach to the Integrated Electricity Plan in order to meet the future electricity needs of its customers. The planning process also considers changing market structures and conditions, government policies and directives, and applicable electricity technology developments.

Through the planning process, BC Hydro will develop a robust IEP that:

- Ensures that BC Hydro will develop a supply of electricity to reliably meet its obligations and requirements;
- Tests various scenarios and uncertainties on both the supply and demand sides;
- Assesses lead times for new additions; and
- Balances supply and demand appropriately to manage and mitigate risk.

Some key facets that this Draft Action Plan will highlight are as follows:

- **Obligation to Serve.** BC Hydro continues to have the obligation to serve and provide non-discriminatory service to its existing customers in accordance with filed rate schedules, the Electric Tariff for customers served at the distribution voltage and Electricity Supply Agreements with customers served at transmission voltage.
- **B.C. Energy Plan priorities.** Since the release of the B.C. Energy Plan in November 2002, BC Hydro has developed 24 policy actions that support the Energy Policy cornerstones of:
  - Low electricity rates and public ownership of BC Hydro;
  - Secure reliable supply;
  - More private sector opportunities; and
  - Environmental responsibility and no nuclear power sources.

BC Hydro will align the objectives of the 2004 IEP with the Energy Plan objectives. The Action Plan Matrix that follows details BC Hydro's 25 policy actions.

**Shareholder Expectations.** BC Hydro continues to abide by the Letter of Shareholder Expectations between the Minister of Energy and Mines (the Shareholder) and BC Hydro. The letter details accountabilities for BC Hydro such as:

- Achieving its mandate and the performance expectations and objectives of the Shareholder.
- Managing its business in a commercial manner.
- Adopting a forward-looking view for the next 10 to 20 years.
- Preparing a Service Plan
- Optimizing financial performance

### **3. Portfolio View – Then and Now**

BC Hydro has an obligation to serve its domestic customers. The Company oversees its portfolio of resources to:

- Ensure that the least-cost resources are available;
- Optimize the planning and operation of the electrical generation, transmission and distribution system; and
- Minimize risk to ratepayers.

BC Hydro has been managing its portfolio of resources in this manner for many years. The Company focuses on understanding the uncertainties of the market and responding proactively to them, while minimizing the risk and exposures due to the volatility of the system. BC Hydro works toward system and supply reliability through its supply planning, portfolio management and supply procurement actions. These actions result in continued shareholder earnings and rate stability.

BC Hydro uses several methods to evaluate a variety of scenarios based upon different demand, price and technology outlooks to determine an appropriate mix of electricity supply resources. In addition, it forecasts corporate net income based on key risk drivers. These models and processes allow BC Hydro to test various factors in the supply and demand for electricity.

The B.C. Energy Plan requires BC Hydro to move from building generation resources to meeting its future energy and capacity needs predominantly through purchases from the private sector. This shifts the management of its energy portfolio. The Company must now monitor the energy market in B.C. and anticipate the types of projects (size, technology and location) that might come forward in incremental calls for energy and capacity. A variety of factors beyond BC Hydro's control will determine the success of these projects, and BC Hydro expects to build a diversified supply portfolio as a result. This will have an impact on the electricity planning process and the scope and detail of the Integrated Electricity Plan that results.

BC Hydro expects to supplement its IEP, which has a 20-year horizon, with annual portfolio plans that have a shorter focus of one to four years. The portfolio plans will look specifically at the composition of the current resource portfolio and how it should change over the next 20 years in the context of market price forecasts for gas and electricity, load forecasts, reservoir conditions, transmission availability, Green Energy and Clean Energy targets, and other relevant factors.

## 4. Action Plan Matrix

Action Plan Matrix		
Focus	Draft EP Action Plan	Target for Completion
<b>Generation – Supply Side</b> <b>Heritage Contract</b>	<ul style="list-style-type: none"> <li>• Develop an Accountability Framework/Service Level Agreement between BC Hydro Distribution and BC Hydro Generation by winter 2004. This agreement will guide the management and administration of the Heritage Contract. The following items will be addressed by the Service Level Agreement:               <ul style="list-style-type: none"> <li>○ Capital resource additions (Resource Smart projects);</li> <li>○ Optimization of resources (including water use plans);</li> <li>○ Accountability and coordination of gas and electricity hedging decisions;</li> <li>○ Gas and electricity price forecasting;</li> <li>○ Coordination of the transition from operational planning to resource planning; and</li> <li>○ Reporting and performance measurement.</li> </ul> </li> <li>• Continue to integrate the water use planning process into operations and planning of the Heritage Resources.</li> <li>• The Burrard MLA Review Committee is examining options for the future of the Burrard Thermal Generating Station. The Committee is due to provide its report to government this fall. Once the government has responded to the report, there may be a need to follow up on the results of the technical review of the Burrard Thermal Generating Station.</li> </ul>	Winter 2004

<b>Action Plan Matrix</b>		
<b>Focus</b>	<b>Draft EP Action Plan</b>	<b>Target for Completion</b>
<b>Resource Smart</b>	<ul style="list-style-type: none"> <li>• Resource Smart projects are upgrades and rehabilitations to existing BC Hydro facilities. These projects result in incremental or restored energy and/or capacity from the Heritage Resources.</li> <li>• BC Hydro Distribution will work with BC Hydro Generation to determine the most cost-effective Resource Smart projects to advance in terms of cost and system need (including location and timing) and BC Hydro Generation will pursue projects that are economically justified.</li> </ul>	Ongoing
<b>Purchases – Private Sector</b>	<ul style="list-style-type: none"> <li>• Identify the tentative timeline in which future calls for tenders will take place to make sure that resource options will be available when required. This research and subsequent electricity calls will augment BC Hydro's supply portfolio to maintain reliability and security within industry standards, and according to industry best practices in risk management. BC Hydro will solicit and obtain new supply from the private sector through competitive calls in order to meet the goal of 50 per cent Clean Energy from new electricity resources.</li> <li>• Continue to streamline and simplify the process for IPPs to interconnect to BC Hydro's distribution system.</li> <li>• Develop a set of portfolio performance metrics including measures for: <ul style="list-style-type: none"> <li>○ 50 per cent Clean Energy target;</li> <li>○ Allowable exposure to market prices;</li> <li>○ Fixed versus floating price;</li> <li>○ Technology mix (e.g.: gas cogeneration versus biomass versus hydro with storage versus run-of-river); and</li> <li>○ Mix of contract terms.</li> </ul> </li> </ul>	March 2004

<b>Action Plan Matrix</b>		
<b>Focus</b>	<b>Draft EP Action Plan</b>	<b>Target for Completion</b>
<b>Purchases – Vancouver Island Specific</b>	<ul style="list-style-type: none"> <li>Conclude the Call for Tenders for Dependable Capacity on Vancouver Island. As part of the call, the Vancouver Island Generation Project will be benchmarked against other tendered projects.</li> </ul>	Summer 2004
<b>Demand-Side Management Customer Choice</b>	<ul style="list-style-type: none"> <li>Implement a database to track the consumption of customers that have access to the market to enable forecasters to predict future patterns of use. (BC Hydro must manage an electricity supply portfolio that has the flexibility to allow for reduced customer demand. In the event that BCUC approves a tariff that gives existing customers access to the market, there is the potential for increased variability in domestic demand.)</li> </ul>	Mar 2005
<b>Demand-Side Management Product and Rate Options</b>	<ul style="list-style-type: none"> <li>Re-confirm the viability of demand-side product based on current long-run marginal cost as evidenced by most recent acquisitions.</li> <li>Study the opportunity for using technology to make demand reduction from improved efficiency (customer load curtailment) a more viable form of equivalent dependable capacity.</li> <li>Through Power Smart, continue to support market developments of energy-efficient products and services to promote customer-driven energy efficiency.</li> <li>Design and implement stepped rate and time-of-use rate options in accordance with the B.C. Energy Plan.</li> </ul>	Mar 2005

<b>Action Plan Matrix</b>		
<b>Focus</b>	<b>Draft EP Action Plan</b>	<b>Target for Completion</b>
<b>Transmission</b>	<ul style="list-style-type: none"> <li>• Continue to streamline and simplify the process for IPPs to interconnect to BC Hydro's distribution and transmission system. (Prior to the formation of the BC Transmission Corporation, only two parties were involved in this process – the IPP and BC Hydro. Now BCTC, as a separate legal entity, is responsible for interconnections to the transmission system. BC Hydro is still involved when the IPP sells its output to BC Hydro. BC Hydro will need to nominate the IPP as a Network Resource under BC Hydro's Network Integrated Transmission Service [NITS] contract.)</li> <li>• Develop business processes to ensure that BC Hydro's and BCTC's planning functions are coordinated and optimized, in order to maintain reliability and to minimize the net cost to domestic ratepayers.</li> <li>• As part of its contingency plan for supply to Vancouver Island, BC Hydro has formally requested that BCTC preserve the earliest in-service date (2009) for the first phase (600 MW) of the 230 kV submarine cable project. In addition, given the uncertainty about the future of Burrard Thermal Generating Station, BC Hydro has requested that BCTC manage the 5L83 project for 500 kV cables from the Interior to the Lower Mainland to preserve its earliest in-service date.</li> </ul>	March 2004

<b>Action Plan Matrix</b>		
<b>Focus</b>	<b>Draft EP Action Plan</b>	<b>Target for Completion</b>
<b>Planning and Portfolio Management Processes and Improvements</b>	<ul style="list-style-type: none"> <li>• BC Hydro Distribution will augment its capabilities with respect to energy procurement and supply portfolio management. BC Hydro Distribution will implement a risk management policy to guide the management of the portfolio of transmission, energy and capacity resources.</li> <li>• In response to the BCUC hearings on the Vancouver Island Generation Project, BC Hydro will update its operations, planning and econometric models to make them more transparent to the BCUC, the shareholder, stakeholders and interested parties. These models are used extensively for decision support, financial forecasting and integrated energy planning.</li> <li>• In order to arrive at more accurate energy demand forecasts, BC Hydro will re-examine the minimum temperature weather adjustment methodology to refine the sensitivity of peak demand to variations in temperature throughout the year.</li> <li>• Current price forecasting methods are deterministic and result in an expected value. Uncertainty is assessed through sensitivity analysis by varying input assumptions. BC Hydro will evolve its price forecasting process to reflect random variables rather than pre-determined ones. This will allow the uncertainty to be reflected in a price forecast based on probabilities.</li> <li>• In response to the BCUC hearings on the Vancouver Island Generation Project, BC Hydro will undertake a review of its approach to ensuring that sufficient energy supply resources are available to satisfy system annual energy requirements, even under adverse water conditions. For example, BC Hydro has previously applied a reliability energy planning criterion that allows for up to 2,500 GWh/yr of resources based on non-firm hydro and market purchases. The application of this criterion meant that BC Hydro would plan new long-term resources based on limiting its reliance on short-term market purchases during low streamflow conditions to 2,500 GWh/yr. This criterion relates to the trade-off between making long-term commitments to acquire resources versus uncertain market availability and prices. This trade-off will be investigated further as part of the 2004 IEP portfolio evaluation.</li> </ul>	March 2004

<b>Action Plan Matrix</b>		
<b>Focus</b>	<b>Draft EP Action Plan</b>	<b>Target for Completion</b>
<b>Planning and Portfolio Management Processes and Improvements (cont'd)</b>	<ul style="list-style-type: none"> <li>Positive correlation exists between gas and electricity prices in North America. Gas-fired generation resources are the marginal source of supply in North America. BC Hydro will continue to advance its analytical capability to assess and refine the correlation between gas and electricity prices at the local and regional levels.</li> </ul>	Ongoing