Introduction to Long-Term Energy Planning

The operation of a large and complex electric system requires careful study and continuous planning. BC Hydro must plan ahead to ensure that adequate resources will be available to meet future electricity demands. Resource acquisition requirements are determined in accordance with policy and to balance supply and demand. The provincial government’s energy policy is described in the B.C. Energy Plan\(^1\).

Between now and the end of 2005, BC Hydro will develop the 2005 Integrated Electricity Plan (IEP). An IEP is a long-term plan that outlines how BC Hydro will meet anticipated customer needs using a combination of existing and new energy resources and energy conservation programs. An IEP ensures that BC Hydro meets its obligation to supply reliable electricity to customers at a low cost while factoring in key environmental and social considerations.

Since most new resources require significant lead times to build, electric utilities must plan ahead to be sure that the required resources will be in place when needed. Because integrated electricity systems are complex and capital-intensive, IEPs are typically based on load forecasts and resource options that cover 15 to 20 years. Taking such a long-term view does not mean that BC Hydro is locked into the resource options outlined in the IEP. An IEP is designed to be sufficiently flexible to respond to changing market conditions and future uncertainties.

BC Hydro provides an IEP biannually to its regulator, the BC Utilities Commission (BCUC) and the IEP is developed in accordance with the BCUC’s Resource Planning Guidelines\(^2\). Each time BC Hydro undertakes a review of the plan, it may choose to update the entire plan or focus on a particular part of the plan. BC Hydro’s most recent IEP was issued on March 31, 2004. The 2005 IEP will be completed by the end of 2005 (and will subsequently be completed every two years) to support business planning and regulatory processes.

The six major steps involved in creating an Integrated Electricity Plan are:

1. Establish BC Hydro’s Initial Planning Objectives for the Overall IEP Process
2. Develop a First Nations and Stakeholder Engagement Plan: Confirm Participants’ Objectives Around Energy Planning and How to Measure Them
3. Develop a Demand-Supply Outlook
4. Identify Resource Options
5. Evaluate Portfolios and Choose a Preferred Portfolio
6. Create an Action Plan

\(^1\) Energy For our Future: A Plan for BC was published by the Provincial Government in November 2002. Four cornerstones of the BC Energy Plan that relate to the electricity sector are low electricity prices and public ownership of BC Hydro, a secure and reliable supply of energy, more private sector opportunities, and environmental responsibility with a guarantee of no nuclear generation in B.C. A number of other aspects in the energy Plan with significant implications for BC Hydro have already been implemented.

A brief overview of these six steps is provided in this document. More detail about some of the steps is provided in separate documentation.

Establish Planning Objectives

Clear objectives for the Integrated Electricity Plan are developed. Some sample objectives include:

- Ensuring a reliable electricity supply
- Minimize rate payer cost
- Minimize environmentally impact
- Maximize jobs in British Columbia

First Nations and Stakeholder Engagement Plan

The First Nations and Stakeholder Engagement Plan outlines how interested parties will be engaged throughout in the IEP process. The plan explains how interested parties will be informed about the IEP process and how their feedback will be elicited, documented and incorporated into the planning process.

First Nations, stakeholders and the general public are being engaged in the 2005 IEP process in five different ways:

a. Public Engagement Opportunities
b. Regional Workshops
c. Technical Resource Option Workshops
d. The Provincial IEP Committee (PIEPC)
e. First Nations Engagement

Develop a Demand-Supply Outlook

A 20-year load forecast is developed to estimate how much electricity our customers will need during the next 20 years (demand). This is compared to how much electricity the existing BC Hydro system and committed electricity resources can supply during that time (supply.) The requirement and timing of new resources is determined from the magnitude of the gap between the projected supply of available energy and customer demand.

Identify Resource Options

New resource options available in the 20-year planning period to fill the gap between projected demand and supply are identified and described. Resource options include:

- Supply-side resource options (for example, a new hydroelectric facility or natural gas-fired generation plant)
- Demand-side resource options (for example, Power Smart conservation programs).
Evaluate Portfolios and Choose a Preferred Portfolio

A portfolio is a mix of resource options (e.g., natural gas, coal or wind) that provides the required supply to meet the demand over the 20-year planning period. Potential portfolios are created, evaluated and compared against established criteria based on the planning objectives. Key risks and uncertainties are also considered.

Taking into account input from the First Nations and Stakeholder engagement process, a preferred portfolio is selected that best meets the planning objectives.

Create an Action Plan

Once a preferred portfolio has been identified, BC Hydro develops an Action Plan to set out the short-term steps to develop projects and programs identified in the portfolio.