Long-Term Rate Forecast

PURPOSE

To provide information on the Long-Term Rate Forecast (LTRF) used by BC Hydro in the Integrated Resource Plan (IRP)

OVERVIEW

This brief provides background information on the Long-Term Rate Forecast (LTRF) used in the 2011 Integrated Resource Plan (IRP). It is similar to the report filed as Attachment 1 to BCUC IR 1.7.1 in the 2008 Long-Term Acquisition Plan (2008 LTAP), which represented BC Hydro's compliance with directive 17 from the British Columbia Utilities Commission (BCUC) decision on BC Hydro's 2006 Integrated Electricity Plan and Long-Term Acquisition Plan (2006 IEP/LTAP)[1].

The forecasting of BC Hydro's electricity rates over an extended period of time (10 to 20 years) requires a significant number of input assumptions with respect to a wide range of variables:

- external forecasts, such as interest rates, inflation rates, and exchange rates;
- timing and magnitude of capital programs and projects, and demand-side management (DSM) expenditures (and energy savings); and
- other revenue requirement inputs (for example, the different elements of the cost of energy, operating costs, amortization rates, trade income, deferral account transfers and recoveries).

A long-term rate forecast is highly uncertain and is subject to significant variability depending on the assumptions made. The forecasting exercise is not a trivial task and necessitates many simplifications. In addition, any such forecast does not capture potential future changes in government policy and changes in legislation and regulations.

Because of the above, the LTRF presented in this brief is indicative only, produced for the purpose of informing the load forecast and DSM analysis in the context of the IRP planning process. The forecast does not represent BC Hydro's view as to its future revenue requirements applications beyond F2011. Any rate increases requested in those applications will be based on BC Hydro's detailed assessment of its expected revenues and costs at the time of filing, taking into account the operating conditions and plans forecast for the relevant test period.

In particular, a rate increase forecast beyond a 10-year period relies on so many uncertain assumptions, and in theory could come about from many possible future scenarios, that, in BC Hydro's view, to attempt to make specific year-by-year forecasts of annual rate increases for that period is of little value. For that reason BC Hydro chooses to assume a uniform annual rate increase for the second 10 years of the 20-year forecast.

Section 1 of this brief summarizes the financial forecast overview and the input assumptions used to develop the forecast. Section 2 provides the rate increase forecast in both real and nominal terms. Section 3 describes how the long-term rate increase forecast will be used in the 2011 IRP, and shows the variance from the long-term rate forecast provided in the 2008 LTAP. Section 4 describes recent activities regarding rate mitigation.

[1] *In the Matter of British Columbia Hydro and Power Authority's 2006 Integrated Electricity Plan and 2006 Long-Term Acquisition Plan,* Decision, May 11, 2007, page 154.

1. Forecast Overview and Assumptions

1.1 Forecast Overview

The financial forecast uses F2010 rates, including the deferral account rate rider, as the reference rate, or starting point. The forecast has been developed using a variety of inputs including forecast revenues, operating expenses, capital expenditures, debt balances, and economic variables over a 20-year forecast period (F2011 to F2030). The inputs are used to estimate the incremental revenue required to achieve an assumed return on equity each year during the 20-year period. This incremental revenue can be presented in real or nominal terms, and is an indicative estimate of across-the-board rate changes that the assumptions and inputs would give rise to. The forecasted changes in rates also take account of the change in the deferral account rate rider from year to year, using BC Hydro's deferral account rate rider mechanism.

The forecast rate increase for F2011 is based on the F2011 Revenue Requirements Application (F11 RRA) Negotiated Settlement approved by the BCUC on December 2, 2010. The forecast rate increase for F2012 – F2015 is based on the quarterly financial update prepared for the BC Hydro Board and Shareholder in October 2010 ("October 2010 Quarterly Update"), updated to include the estimated impact of both the December 2, 2010 F11 RRA decision and recent rate mitigation announcements which impact the method by which water rental rates and return on equity are calculated.

1.2 Inputs and Assumptions

The inputs and assumptions used in the financial forecast are described below.

Economic Variables – Forecasts of economic variables provided by the B.C. Ministry of Finance in July 2010 for the period F2011 to F2015 are used as inputs into the financial forecast. Table 1 below summarises the assumptions. For the F2016 to F2030 forecast period, the forecasts for F2015 are assumed.

Table 1: Economic Variables

Economic Variables	F2011	F2012	F2013	F2014	F2015	F2016-F2030
Inflation (BC CPI) (%)	1.7	1.9	2.1	2.1	2.1	2.1
Short Term Interest Rate (%)	0.93	2.20	3.15	4.15	4.96	4.96
Long-Term Interest Rate (%)	4.16	4.63	5.08	5.91	6.72	6.72
Exchange Rate C$/US$	1.04	1.01	1.02	1.02	1.02	1.03

Capital Structure – The forecast assumes the definition of equity as set out in Special Directive HC1 and Special Direction HC2, but incorporates the expected changes to the definition of deemed equity arising from the rate mitigation measures announced by the Province on December 2, 2010 (see below). The forecast also assumes that dividend payments to the Province must not result in a greater than 80:20 debt to book equity ratio, to be consistent with Special Directive HC1.

Return on Equity – Consistent with the F11 RRA, the forecast assumes a return on equity for BC Hydro of 14.35 per cent in F2011. For F2012, the forecast return on equity is 14.37 per cent, decreasing to 12.74 per cent throughout the F2013 to F2030 forecast period. The forecast assumes a deemed equity for ratemaking purposes equalling 30 per cent of the 'rate base', to be consistent with a recent rate mitigation announcement which will result in changes to Special Direction HC2. Beginning in April 2011, deemed equity will be based only on assets in service and not on debt and equity levels.

Load Forecast – For the 20-year forecast period, the forecast assumes the 2009 Load Forecast, with the exception that for the F2011 to F2015 period, the forecast assumes updated load forecast volumes used to inform the October 2010 Quarterly Update.

DSM (Energy Savings and Expenditures) – The financial forecast assumes DSM energy savings that are consistent with the DSM Option A – Mid scenario (included as part of the 2008 LTAP) throughout the forecast period. The forecast also assumes:

- DSM expenditures that are consistent with the DSM Plan costs included in the 2008 LTAP; and
- DSM expenditures will continue to be subject to regulatory deferral treatment, and are amortized over a 10-year period.

Domestic Revenue – The forecast calculates domestic sales volumes based on the 2009 Load Forecast and DSM energy savings described above. F2010 rates by customer class (including the deferral account rate rider) are applied to forecast domestic sales volumes to determine forecast total domestic revenue before rate increases, on an annual basis, for the F2011 to F2030 forecast period.

Trade Income – Trade Income is the net income of Powerex Corp., adjusted for rate-setting purposes to be no more than $200 million and no less than $0. The forecast assumes net trade income for F2011 to F2015 will increase from approximately $70 million to $100 million. For F2016 to F2030, trade income is assumed to be $100 million annually.

Energy Costs – For F2011 and F2015, the forecast assumes the cost of energy forecast as per the October 2010 Quarterly Update. These costs are based on the resource operating decision process documented in the F11 RRA at section 4.2 “System Optimization Overview”.
For the fiscal years beyond F2015, the forecast assumes cost of energy, on an annual basis, based upon the hypothetical resource portfolio consistent with an IRP level Base Resource Plan. It was developed using the combination of the HYSIM and MAPA models, which are described in on page 5 of Appendix F15 to BC Hydro’s 2008 LTAP. The portfolio assumes that BC Hydro will achieve self-sufficiency by 2016 and will meet the 3,000 GWh annual insurance requirement by 2020. Mica 5, Mica 6 and Site C are included in this portfolio as future resources.

Water Rental Costs –The forecast assumes water rental rates as of January 1, 2011 are applied to forecasted hydroelectric generating capacity and forecasted generation output on an annual basis to estimate water rentals. Additionally, the forecast assumes that future water rental rates are indexed to forecasted inflation (BC CPI), as per a December 2, 2010 rate mitigation announcement from the B.C. Government.

Operating Costs – For F2011 and F2015, the forecast assumes operating costs as per the October 2010 Quarterly Update. From F2016 operating costs, excluding those subject to regulatory treatment, are assumed to increase by inflation.

Capital Expenditures – The forecast includes estimated capital expenditures by major business group, developed for this forecasting exercise. On average, capital expenditures are assumed to total approximately $2 billion per year through the forecast period. These are high level estimates only, and actual capital plans and projects over the forecast period will depend on many variables. For the F2011 to F2015 forecast period, the forecast assumes capital expenditure and additions as per the October 2010 Quarterly Update. For the F2016 to F2030 period, high level estimates were used solely for the purposes of preparing the LTRF.

Amortization – The forecast assumes property, plant and equipment in service are amortized over the expected useful lives of the assets using the straight-line method. All depreciation rates used are the same as those used in the F11 RRA.

Finance Charges – Finance charges represent the cost of BC Hydro's debt portfolio, and mainly comprise of interest charges on BC Hydro debt. The forecast assumes interest costs on existing debt are based on actual interest rates at the time the debt was issued. Interest costs on future debt are based on forecast debt issues at forecast interest rates, as provided by the B.C. Ministry of Finance for F2011 to F2015 (see Table 1).

Deferral & Regulatory Accounts – The forecast assumes the ongoing treatment of the Deferral Accounts and other regulatory accounts as either previously approved by the BCUC or as proposed by BC Hydro in the F11 RRA, including the deferral account rate rider mechanism (DARR). As part of the F11 RRA Negotiated Settlement approved by the BCUC on December 2, 2010, BC Hydro has committed to propose a new DARR effective April 1, 2011, based on a 5-year amortization of the Trade Income Deferral Account and 10-year amortization of the Non-Heritage Deferral Account and Heritage Deferral Account. As this work has not been completed, the LTRF assumes a 2.5 per cent rate rider will remain in place until the Deferral Account balances would be fully amortized in F2021.

Basis of Presentation – The LTRF has been prepared based on current Canadian GAAP. Commencing in Fiscal 2013, BC Hydro will report its financial results based on accounting standards in accordance with a Directive issued by Treasury Board pursuant to section 23.1 of the Budget Transparency and Accountability Act and section 9(1) of the Financial Administration Act. The new standard is International Financial Reporting Standards plus the application of United States Financial Accounting Standards Board Accounting Standards Codification 980 (Regulated Operations). We have not reflected the impact of the transition to IFRS on the LTRF.

2. Forecast Changes in Rates

As noted in the initial Overview section of this brief, the forecast changes in rates provided below are indicative only, rely on a large number of assumptions, and have been produced solely for the purpose of informing the load forecast and the DSM analysis. Estimated changes in future rates include the impact of changes to deferral account rate rider, and are presented in Table 2 below in real terms (net of forecasted inflation rates) with 2010 as the base year. The rate forecast uses F2010 rates, including the deferral account rate rider, as the starting point.

Table 2: Estimated Real Changes in Rates (net of forecasted inflation rates)

F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21-F30
5.5%	11.4%	3.5%	6.0%	5.5%	5.4%	3.4%	1.5%	2.3%	2.8%	0.9%

Note that nominal rate increases for each year would be around 2.1 per cent higher, based on the forecast of inflation.

3. Use of Forecast Output

As part of the 2011 IRP, BC Hydro is incorporating the LTRF for the purpose of determining the 2010 Load Forecast and the energy savings and lost revenue associated with the DSM Plan.

3.1 DSM Analysis

The LTRF is used to estimate energy savings from proposed conservation rate structures in the DSM Plan as part of the 2011 IRP. The resulting pricing levels within the rate structures, along with the rates savings estimates, are also used to inform DSM program assumptions, such as incentive levels and participation rates. In addition, the resulting pricing levels are used to estimate lost revenues in the DSM Plan. Lost revenues are an input to the Non-Participant test.

3.2 2010 Load Forecast

The LTRF contained in this brief has been used as an input to the 2010 Load Forecast presented in the 2011 IRP. The rate increase forecasts impact the after-DSM load forecast in two ways, and these impacts are determined separately. Firstly, the assumed across-the-board rate increases under current rate structures produce a demand response (given an assumed price elasticity), and reduce the before-DSM load forecast. Secondly, assumed new stepped rate structures (with prices based on the forecast rate increases), produce a demand response (given assumed price elasticity). These rate structure-induced energy savings are considered to be part of DSM savings and are subtracted to produce the after-DSM load forecast.

3.3 Current Forecast Compared to 2008 LTAP Rate Increase Forecast

The August 2008 Long-Term Rate Increase Forecast set out in the attachment to BCUC IR 1.7.1 of the 2008 LTAP was used in developing the 2008 Load Forecast as part of the 2008 LTAP Evidentiary Update. Since that time, updates have been made to the long-term rate forecast inputs and assumptions including: (1) updated 5-year financial forecast; (2) updated capital expenditure estimates; (3) changes to assumptions regarding basis of water rental rate escalation; (4) updated energy portfolio from the 2008 LTAP; (5) new policy directions regarding timing of self-sufficiency and insurance energy requirements; and (6) updated trade income estimates, among others.

The difference between the current long-term rate increase forecast and the 2008 LTAP long-term rate forecast is shown in Table 3. The variations between the two forecasts illustrate generally the sensitivity of rate increase forecasting to the inputs and assumptions, and demonstrate why such a forecast must be viewed as indicative only.

Table 3: Variance from January 2008 forecast

	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21-F28
Increase (decrease)	0%	8%	0%	2%	2%	1%	0%	(3)%	2%	3%	1%

4. Rate Mitigations

In the recent F11 RRA Negotiated Settlement, approved on December 2, 2010, BC Hydro committed to increase its focus on the management and control of its cost structure with the objective of reducing potential future rate increases, and to undertake to propose to government changes to government-related aspects of BC Hydro's revenue requirement, also with the objective of mitigating potential future rate increases.

BC Hydro acknowledges the concern of customers regarding the currently projected future rate increases, and shares this concern. BC Hydro has already been in active discussions with the Province on potential rate mitigation measures and on December 2, 2010, BC Hydro and the Province announced changes to water rental rate escalation, as well as to the methodology of calculating shareholder return on equity.

The estimated impact of these changes have been included in the LTRF and, on average, these measures help reduce the annual real rate increases by 0.75 per cent through F2015, and by 0.3 per cent annually over the 20-year forecast period.

KEY PLANNING QUESTIONS

LTRF Update – the rate forecast is based on several assumptions (load forecast, DSM plans, and financial assumptions, among others) which may be revisited over the next several months. We will determine the appropriate time to update the LTRF that would result based upon the Base Resource Plan developed as part of the draft IRP.