

**BC Hydro Rebuttal Evidence  
Direct Testimony of Dana Hardy**

1. *State your full name and position please.*

My name is Dana Hardy, and I currently hold the position of Manager, Finance Projects.

2. *What is the purpose of this direct testimony?*

This rebuttal evidence is filed on behalf of BC Hydro, and in partial response to the evidence of David Craig wherein he claims that BC Hydro or the Commission are free to set a minimum debt-equity ratio for BC Hydro, and that doing so would affect BC Hydro's rates.

3. *Are there restrictions on the ability of BC Hydro to adjust its actual debt-equity ratio, or the jurisdiction of the Commission to use a deemed debt-equity ratio for the purpose of rate-setting?*

Yes there are. Before describing what those restrictions are though it might be helpful to describe provide some of the legislative background to the issue.

4. *Please do so.*

With respect to setting BC Hydro's rates the Commission is obliged to abide by Heritage Special Direction No. HC2 (HSD#2). HSD#2 is a direction from the Lieutenant Governor in Council to the Commission. It is made under the authority of section 3 of the *Utilities Commission Act*. HSD#2 requires the Commission, when setting BC Hydro's rates, to "ensure those rates allow the authority to collect sufficient revenue in each fiscal year to enable the authority to achieve an annual rate of return on equity equal to the pre-income tax annual return allowed by the Commission to the most comparable investor-owned energy utility regulated under the *Utilities Commission Act*."

With respect to BC Hydro's capital structure BC Hydro is obliged to abide by Heritage Special Directive No. HC1 (HSD#1). HSD#1 is a directive from the Lieutenant Governor in Council to BC Hydro. It is made under the authority of section 35 of the *Hydro and Power Authority Act* (Hydro Act), which provides that such directives are "despite the *Utilities Commission Act*". HSD#1 requires BC Hydro to make an annual payment to the province each year, on or before June 1.

5. *How does HSD#1 limit the ability of BC Hydro to adjust its actual capital structure?*

As a Crown corporation BC Hydro can not raise money through equity financing. It can fund new projects solely through cash flow from operations or through taking on more debt. However its ability to fund projects through cash flow is limited by the annual payment requirement in HSD#1. That requirement obliges BC Hydro to make an annual payment to the province equal to (a) 85% of BC

Hydro's distributable surplus for the previous fiscal year, or (b) if the payment would result in a debt-equity ratio greater than 80:20, the greatest amount that can be paid by BC Hydro without causing BC Hydro's debt-equity ratio, after the payment is made, to exceed 80:20.

6. *How does HSD#2 limit the ability of the Commission to adjust BC Hydro's debt-equity ratio for rate-making purposes?*

As mentioned above, the Commission is obliged to set BC Hydro's rates at a level sufficient to ensure that it can earn an "annual rate of return on equity...". "Equity" is defined in HSD#2 (and HSD#1) as the sum of the following amounts at the end of the fiscal year:

- retained earnings;
- deferred revenue;
- contributions arising from the Columbia River Treaty; and
- contributions in aid of construction.

"Retained earnings" is simply the accumulation over time of BC Hydro's net income, less the payment to the province required by HSD#1. Retained earnings can also change as a result of changes in generally accepted accounting principles which require a retroactive adjustment to retained earnings.

"Deferred revenue" consists principally of amounts received pursuant to agreements under the Skagit River Treaty. Under these agreements, BC Hydro is required to deliver a predetermined amount of electricity each year for an 80 year period ending in F2066. In return BC Hydro receives approximately US \$22 million each year for a 35-year period ending in F2020 and \$ US \$100,000 (adjusted for inflation) each year for an 80 year period ending in F2066.

"Contributions arising from the Columbia River Treaty" relate to three dams built by BC Hydro in the mid-1960s pursuant to the Columbia River Treaty. The proceeds were contributed to BC Hydro to assist in financing the dams' construction. These proceeds were deferred and are amortized to income over the period ending in F2025, the minimum term of the treaty.

"Contributions in aid of construction" are amounts paid by certain customers toward the cost of capital assets required for the extension of services, in accordance with BC Hydro's Commission-approved Electric Tariff. Contributions in aid of construction are amortized over the expected useful life of the related assets.

7. *Does this complete your rebuttal testimony?*

Yes it does.

**BC HYDRO REBUTTAL EVIDENCE  
DIRECT TESTIMONY OF STEVE HOBSON**

- Q. Please state your full name and position.
- A. My name is Steve Hobson. I hold the position of Manager, Marketing, Customer Care & Power Smart.
- Q. What is the purpose of this direct testimony?
- A. This rebuttal evidence is filed on behalf of BC Hydro, in partial response to the evidence of Dr. Marvin Shaffer on behalf of the BC Old Age Pensioners *et al* ("BCOAPO") and the evidence of Roger Belland and Harvie Campbell on behalf of the Independent Power Producers Association of BC ("IPPBC").
- Q. Have you read that evidence?
- A. Yes.
- Q. Please compare BCOAPO's methodology for calculating the Rate Impact Measure (RIM) with BC Hydro's methodology.
- A. In either case, the *net present value* (NPV) of the RIM equals avoided supply costs – (lost revenues + utility costs). Thus, both approaches yield the same net benefit or net cost to ratepayers, as long as other assumptions remain the same.
- Q. Are the RIM benefit-cost ratios in Tables 1 to 4 of BCOAPO's evidence therefore the same as the RIM benefit/cost ratios that BC Hydro would calculate?
- A. No. Although both BCOAPO and BC Hydro calculate a RIM benefit/cost ratio, the BCOAPO evidence indicates at p. 15 that the RIM ratio was calculated as (avoided supply costs - lost revenues)/utility costs. This is not the approach used by BC Hydro nor the standard approach used by North American utilities, as set out in the *California Standard Practice Manual: Economic Analysis of Demand Side Management Programs and Projects, October 2001* ("*CPUC Standard Practice Manual 2001*"), a frequently cited reference on DSM cost-effectiveness analysis.<sup>1</sup>
- The *CPUC Standard Practice Manual 2001* defines RIM benefits on p. 13 as avoided energy supply costs; it defines RIM costs as the sum of utility DSM costs (that is, program administration costs and incentives) and lost revenues. The BCOAPO formula, in contrast, defines RIM benefits as the difference between avoided energy supply costs and lost revenues.

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<sup>1</sup> Attached to the direct testimony of Penny Cochrane, Commercial Energy Consumers of British Columbia, and also attached to this rebuttal evidence.

The BCOAPO benefit/cost ratio is thus simply a variant of the RIM test. Regardless of which ratio is used, the *value* of RIM (that is, the net benefit or cost to ratepayers) remains the same, and is the more important indicator of distributional impact.

Q. Please compare IPPBC's methodology for calculating the Rate Impact Measure (RIM) with BC Hydro's methodology.

A. At pages 14 to 16 of the IPPBC evidence, Mr. Belland develops a test that he labels "ERIM." This test is mathematically identical to that used by Dr. Shaffer and has no effect on the NPV calculation of the RIM, which is common to all of BC Hydro's, BCOAPO's, and IPPBC's evidence.

Q. Please compare BCOAPO's methodology for calculating avoided energy supply costs with BC Hydro's methodology.

A. Page 10 of the BCOAPO evidence suggests that the Mid-C market value is an appropriate measure of BC Hydro's avoided supply costs. This misconstrues the intent of clause 6.6 in the Power Smart Incentive Program Agreement—Industrial Load Displacement Projects.<sup>2</sup>

Clause 6.6 is an anti-gaming provision that protects BC Hydro against a situation in which the customer fails to displace the contracted load, while simultaneously generating power for market sales. In such an event, the Agreement takes away any market sales gain by applying to the gain the prevailing market price, defined as the greater of Mid-C or BC Hydro's transmission service rate prevailing at the time of default. Also, such an event would still require the customer to provide the contracted load displacement. The Agreement does not reflect the long-run value that BC Hydro places on the displaced electricity over the life of the project.

The avoided cost value used to evaluate individual incentives is based on the long-run market price forecast at the time the evaluation is done; substituting a short-term price intended to avoid gaming is an inappropriate measure of the BC Hydro's long-run avoided energy supply costs.

Q. Does this complete your rebuttal testimony?

A. Yes.

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<sup>2</sup> See BC Hydro's response to BCOAPO IR 1.89.0(e), Attachment 1, page 8 of 20.