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TESTIMONY OF PROFESSOR LEONARD WAVERMAN

Before the Newfoundland and Labrador Board of Commissioners of Public Utilities

September 5, 2003

Table of Contents

I. CREDENTIALS, PURPOSE, AND CONCLUSIONS

Q. Please state your name and business address.

A. My name is Dr. Leonard Waverman. I am a Special Advisor to National Economic Research Associates, Inc. ("NERA"), 15 Stratford Place, London, W1C 1BE, UK. My curriculum vitae is contained in Exhibit LW-1.

Q. Please state your qualifications.

A. I am an economist and a regulator. In 2002, I was appointed a non-executive Board member of OFGEM, the UK's electricity and gas market regulatory authority. Previously, I was on the Advisory Committee introducing competition in Ontario's electricity system (1995-1996) and was a part-time Board Member of the Ontario Energy Board (1978-1980) as well as the Ontario Telephone Service Commission (1989-1994). I was a member of the National Association of Regulatory Utility Commissioners ("NARUC") for six years.

I am Professor of Economics and Director of the Centre for the Network Economy at the London Business School. I was recently appointed Director of the Economic and Social Research Council's E-Society Research Programme and have been awarded a research grant from the Leverhulme Trust for "The social/economic impact of information and communication technology." I received the honour of *Chevalier dans l'Ordre des Palmes Academiques* of the Government of France. I was the editor of the major journal in the field of energy economics, *The Energy Journal*, for six years, and I have taught energy and resource economics for over 30 years.

I received my B. Comm. and M.A. from the University of Toronto and my Ph.D from MIT. My recent teaching and research includes the economics of e-Competition and I specialise in telecommunications and energy economics. My latest paper is "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach" with H. Roeller, *American Economic Review*, September 2001.

I have consulted extensively in North America, Europe and Australia and have appeared before regulatory authorities, competition tribunals and agencies and courts. I have provided analyses and testimony in antitrust, regulatory (telecommunications and energy) and damages cases in Europe, the U.S. and Canada. Most recently, I testified at merger hearings before the European Commission in Brussels and the Court of First Instance in Luxembourg.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to provide my policy recommendations on the issue of how Newfoundland and Labrador Hydro's ("Hydro") cost of capital should be evaluated and set by the Newfoundland and Labrador Board of Commissioners of Public Utilities ("Board" or the "Commission"). Specifically, I address the question of whether Hydro's cost of shareholder's equity should be assumed to be equivalent to that of investor-owned electric utility companies or whether, as a Crown corporation, Hydro enjoys a lower cost of capital that is consistent with its ability to raise funds under Provincial debt guarantees.

The cost of capital-related questions that I have discussed in my testimony are important ones for consumers and I have strived, therefore, to provide to the point, and economically-correct policy advice to the Board on this matter. While some questions have no easy answer, the key questions that I was asked to discuss, have, in my view, answers that are, from an economic perspective, quite clear—and I therefore draw my recommendations and conclusions on these matters for the Board's consideration.

In preparing this testimony, I respond to the positions taken by Hydro witnesses Mr. Roberts and Ms. McShane. Mr. Roberts presents evidence (Roberts Schedule V) on Hydro's proposed weighted average cost of capital, which includes a requested cost rate of 10.75 percent for retained earnings.[1] Ms. McShane presents evidence on a number of matters relating to Hydro's cost of capital, including the cost of equity capital. Based on Ms. McShane's analyses, she concludes (p. 60): "a fair return for an average risk

[1] In an amended application, I understand that this has recently been reduced to 9.75 percent.

Canadian utility is in the range of 11.25%-12.0%, or approximately 11.5%." Mr. Roberts, in order to "expedite the disposition of this issue," explains (p. 11) that Hydro is "prepared to accept the same rate of return on equity [as Newfoundland Power]." Newfoundland Power is an investor-owned utility.[2]

II. SUMMARY OF CONCLUSIONS

Q. Please summarize your conclusions.

A. The fair rate of return to include in Hydro's rates is: (1) the embedded cost of Hydro's outstanding Provincial guaranteed debt, including the premium that the Province requires (one percent) for providing that guarantee; and (2) the opportunity cost for the Province for the portion of Hydro's capital structure represented byshareholder's equity which is primarily retained earnings.[3] That opportunity cost is, at the margin, the cost of newly issued, Provincially- guaranteed debt. From the perspective of cost-based utility ratemaking, there is no other capital cost for Hydro, as there is no common stock equity[4]—which is the highest cost component of capital structures for investor-owned utilities.

Q. What principles lead you to these conclusions?

A. It has long been a fundamental tenet of utility ratemaking that prices be based on cost. Indeed, Professor Bonbright, long considered a key figure in the articulation of the elements of sound utility rates, stated:

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[2] I understand that Newfoundland Power is an investor-owned, fully-regulated electric utility that operates an integrated electric utility system throughout the island portion of the Province and that all of the common shares of Newfoundland Power are owned by Fortis Inc., a diversified holding company headquartered in St. John's. *See*: Newfoundland & Labrador Board of Commissioners of Public Utilities, In the Matter of the 2003 General Rate Application filed by Newfoundland Power Inc., *Decision and Order of the Board*, Order No. P.U. 19 (2003), p. 8.

[3] "Retained earnings" is generally defined as the portion of net income retained for reinvestment in the company rather than being paid in dividends to common stockholders. For Hydro, the term refers to the excess of net income over what has been used to make payments to the Province.

[4] Section 25 of the Newfoundland and Labrador Hydro-Electric Corporation Act allows the shareholders to authorize common or preferred shares. $22.5 million of share capital is issued and on the books but this is not *common stock equity* as in a publicly held corporation whose shares are tradable.

> Nevertheless, one standard of reasonable rates can fairly be said to outrank all others in the importance attached to it by experts and by public opinion alike—the standard of cost of service…[5]

Thus, it is *cost* that determines the schedule of utility rates for both investor-owned and publicly owned utilities throughout North America—not ability to pay or harmony of one utility's rates with the rates of a utility in a neighboring Province or State or the rates of investor-owned utilities.

The cost standard of public utility rates is both fair from a general perspective and consistent with economic efficiency. Efficiency in the use of resources—labor and capital—requires that regulated rates reflect the opportunity cost of the factors employed. For labor, competitive wages reflect the market's verdict on the opportunity cost of employee's time. For capital, opportunity cost is the price at which investors are willing to have their capital used for the provision of public utility services.

Paying the opportunity cost, as a component of regulated rates, to the factors (labor and capital) that produce utility services promotes "allocative efficiency." Allocative efficiency refers to a condition achieved when resources are allocated in a way that allows the maximum possible net benefit from their use. When an efficient allocation of the resources has been attained, it is impossible to increase the well being of any person without harming another person. Paying the opportunity cost, as a component of regulated rates, to the factors (labor and capital) that produce utility services promotes allocative efficiency.

As an economist and regulator, I would recommend that Hydro's rate schedules—the general *level* of its tariffs—should be a function of the cost of funds available to Hydro, and *not* a function of the cost of funds of a collection of investor-owned electricity companies. After all, Hydro's funds come almost exclusively from Provincial-guaranteed debt and retained earnings (which earnings arise after debt interest

[5] Bonbright, J.C., *Principles of Public Utility Rates*, Columbia University Press, New York (1961), p. 67 (from Chapter IV, entitled "Cost of Service as the Basic Standard of Reasonableness").

obligations are covered). Hydro is a Crown corporation,[6] and, has no common stock equity[7], and, as such, need not compensate common stockholders for the risks such common stock shareholders face in providing equity capital to investor-owned utilities. My explanation of the differences here depends critically on the point of departure I described earlier—namely, that Hydro's regulated prices be based on Hydro's own costs. I recognize that publicly owned utilities are often used by their government owners to raise revenues over and above their cost of service. But if cost-based rates are the goal of regulation, then the capital charges for Hydro are adequately covered by recognizing its actual interest charges on its embedded debt and the opportunity cost—to the Province's citizens—for the retained earnings component of the capital structure cost. Thus, from an economics standpoint, the regulator setting cost-based rates *should* consider providing a return on retained earnings equal to the opportunity cost of debt.

From a policy perspective, resting on the cost standards for public utility service, a major contentious issue facing investor-owned utilities in rate cases—the cost of common stock equity—does not arise in the same manner for Crown corporations. Hydro has no common stock equity, and, the Province's citizens are its ultimate "owners." Compensating those owners simply means raising through regulated rates funds sufficient to maintain operations and satisfy: (1) the interest obligations on the outstanding guaranteed debt; and (2) the opportunity cost of the Province's citizens (as represented by the marginal cost of Provincial guaranteed debt) for the shareholder's equity portion of the capital structure. When the actual interest costs are covered and the opportunity cost of funds to the Province is recognized, then the cost-based capital

[6] In a previous paper, I explained that "Crown corporations are wholly-owned federal or provincial organizations that enjoy a greater degree of freedom from direct political control than government departments. They are usually structured in a manner similar to private enterprises but are typically not subject to the same incentives or market forces." *See*: Leonard Waverman and Adonis Yatchew, "Regulation of electric power in Canada," *International Comparisons of Electricity Regulation*, R.J. Gilbert and E.P. Kahn, ed. (New York: Cambridge Univ. Press, 1996), p. 379 fn 11.

[7] See footnote 4

charges lying at the foundation of cost-based ratemaking are covered. It is suggested there that there are no other capital-based charges for Hydro to recover.[89]

To be sure, Hydro as a corporation faces business risks. The general economic environment, the weather, the uncertain costs of inputs and level of demand all serve to make its prospective revenues somewhat unpredictable. Canadian capital markets are well aware of these risks and provide appropriate credit ratings commensurate with their assessment of Hydro's (and the Province's) ability to meet its debt obligations in a timely and predictable manner. Thus, Hydro's business risk is priced by Canadian capital markets and will be a normal part of Hydro's regulated prices if regulated rates reflect its capital costs—*i.e.*, its embedded cost of debt, and for shareholder's equity (primarily retained earnings) the marginal cost of debt.

For public sector electric utilities like Hydro, operating under a Provincial guarantee for debt, financial ratios, as such, carry less importance than they would for investor-owned utilities with no such government guaranteed source of debt. It is true that those who rate Hydro's debt pay close attention to the "self-supporting nature" of Hydro, which mitigates concerns about the Province's contingent liability given the debt guarantee.[10]

Hydro's retained earnings support Hydro's ability to be self-supporting, which is no doubt merited in view of the ease with which such funds can serve to cover regularly scheduled interest payments. A moderate level of retained earnings—compared to the level exhibited by investor-owned utilities—is likely both prudent and a way of showing bond analysts that Hydro's fixed interest payments are manageable.

Q. Please distinguish between the capital charges you identify for Hydro and those traditionally computed for investor-owned utilities.

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[8] While there is also the one percent charged by the Province for Hydro's use of its credit, I understand that this is recovered as a cost of service, and not as part of the cost of capital.

[9] In addition, setting rates on such bases would meet Power policy 3(iii) as set out in Chapter E-5.1 "An Act to Regulate the Electrical Power Resources of Newfoundland and Labrador." That is, rates set on these bases would be a just and reasonable return so as to achieve and maintain a sound credit rating in financial markets of the world.

[10] *See*: Moody's Investors Service, *Analysis: Newfoundland and Labrador, Province of*, October 2002, p. 2.

A. Without private common stockholders, I suggest that the Board need not engage in the difficult task of determining the opportunity cost of such investors' funds.

Q. Please explain.

A. Investor-owned utilities are generally composed of both debt and common stock equity. For ratemaking purposes (in North American generally), the debt component of the cost of service is not contentious—as it is simply a recognition of the actual interest charges projected during the test year used for calculating costs. The cost of common stock equity is not so simply computed, however, as the opportunity cost of private stockholder's funds cannot be directly observed (either before or after the fact)—it must be derived indirectly by the use of financial theories. These financial theories are usually applied to "proxy groups" (or "comparable groups") of companies to provide reasonably stable estimates. Considerable contention surrounds the calculation of the cost of common stock equity in utility rate cases, precisely because of the complexity and judgment devoted by cost of capital experts to its measurement.

With no common stock equity holders to compensate, Hydro does not need to engage in the complicated analysis that is necessary to derive the cost of common stock equity of an IOU. Rather, for the shareholder's equity (retained earnings) component of capital Hydro need only compute the opportunity cost of its ultimate public "owners"—the people of the Province of Newfoundland and Labrador. As an economist, I conclude that this opportunity cost is reasonably measured as the level of Hydro's marginal cost of Provincial guaranteed debt.

Q. How do Hydro's experts measure the cost of capital?

A. Measuring the cost of capital for non-market traded companies is difficult. Hydro's cost of equity witness assumes that Hydro's cost of equity is comparable to that of IOUs—Ms. McShane states (p. 21) that "the total compensation to the debt guarantor and the shareholder should be no greater than if Hydro were financed on a stand-alone basis." As I said in my introductory conclusion section, however, cross-utility comparisons are not the foundation for North America's utility rates. It is *cost* that forms the basic standards for such rates, and, under the cost standard, comparisons with

IOU capital costs would be irrelevant to Hydro. Simply put, the focus should be on Hydro's costs.

Given the fundamental differences between Hydro's capital-raising circumstances and that of IOUs, I have not been able to find any convincing demonstration that *assuming* cost of equity parity between Hydro and IOUs is reasonable from either an economic/financial or a public policy standpoint. Based on my many years of experience as an economist and regulator, I would recommend that the Board consider setting the opportunity cost of shareholder's equity (*i.e.*, retained earnings) of this Crown corporation at a rate that is equal to Hydro's opportunity cost of debt. From a public policy standpoint, the tariffed rates that are set in this way would be allocatively efficient—that is, Hydro's prices would be set in a way that accurately signals the economic cost of providing service to its customers, including the cost of capital embedded in Provincial guaranteed debt and the opportunity cost of debt, which is used for the shareholder's equity portion of the capital structure.

III. THE PUBLIC UTILITY CONCEPT

Q. What are public utilities?

A. The essence of traditional public utility ratemaking—the "regulatory compact"—is that utilities have been protected against certain specific and limited types of competition. In return, the utility has accepted the obligation to provide service on just and reasonable terms. The utility has also accepted the duty to reasonably anticipate the future needs of its customers and to make whatever investments it judges necessary in order to meet those needs as efficiently as possible. Finally, the utility has accepted that prices would be set so as to recoup operating costs plus a reasonable profit. For the purpose of this rate proceeding, the Board should (1) use a capital structure that reflects Hydro's balance of debt and retained earnings; (2) allow the utility to recover its embedded cost of debt; and (3) consider allowing an opportunity cost of capital on Hydro's retained earnings that is equal to Hydro's opportunity cost of debt.

Hydro is a Crown corporation. Hydro raises capital by issuing debt, supported by the unconditional guarantee by the Province as to principal, interest, and, where applicable, sinking fund payments. Given these basic facts, Hydro's consideration of its optimal capital structure, Provincial dividend payment policy, and "cost of equity" will be different from that of an investor-owned utility ("IOU").

For utilities in general, it is well recognized that the reasonable return, under the law and in the financial world, has been defined as a rate of return sufficient to attract capital. The capital attraction—or "opportunity cost"—standard has been key in determining the fair rate of return for public utilities. When investors make their funds available to a utility, they forego the option to use those funds for another purpose (either current consumption or another investment). They also put their funds at risk. In return for foregoing current consumption and bearing risk, utility investors require a return on their funds. This return to investors is a cost to the utility—the "*cost of equity capital*." In order for the utility to compensate its investors adequately for the current consumption foregone and the risk incurred, the utility should be allowed, as a component of its rates for service, a *fair rate of return* that covers its cost of capital, including its cost of common stock equity.

Hydro raises debt capital, supported by the unconditional guarantee of the Province. As a Crown corporation, Hydro should strive to provide efficient, safe, adequate, and reliable service to its customers, while earning returns that support Hydro's ability to be self-sufficient.

Q. Does Hydro have the same risk as an IOU?

A. Hydro faces many of the same business risks (*i.e.*, weather, the economy, the price of inputs, etc.) that confront IOUs. However, as Hydro does not have common stock equity investors, it does not face the risk borne by common stock equity investors in IOUs—for example, the risk that Provincial (or state) rate regulation will create volatility in common stock equity returns or prevent common stockholders from earning a fair return. Thus, the common stock equity risk premium that is a standard component of the cost of common stock equity for IOUs does not exist for Hydro.

Q. Do Orders In Council or other acts of the Provincial government raise the risk for Hydro and affect the cost of capital?

A. To the extent that investors in Provincial debt believe that such Orders could impair the ability of Hydro to pay its interest obligations, it is possible. However, to the extent that the Province continues to guarantee Hydro's debt, only Orders that impair the credit-worthiness of the Province as a whole would cause Hydro to seek extra compensation in its utility rates for the increased cost of borrowing.

IV. COST OF CAPITAL

A. Principles

Q. Why is it important to properly determine the overall cost of capital for a public utility?

A. If a public utility is authorized an overall rate of return equal to its overall cost of capital, and then the interests of ratepayers and owners are properly balanced. If the rate of return is set at a level higher than the cost of capital, then the ratepayers are burdened with prices that are excessive (*i.e.*, allocatively inefficient). Conversely, if the rate of return is set at a level lower than the overall cost of capital, then for a Crown corporation, subsidies will be required in order to maintain adequate levels of service. Therefore, it is in the best interest of ratepayers that the rate of return set by the Board be no higher and no lower than the public utility's overall cost of capital.

Q. Does the way you have just defined the concept of fair rate of return comport with its traditional definition?

A. Yes. In Canada, the Supreme Court of Canada has confirmed the same principles as the U.S. Supreme Court has in decisions rendered in 1929 (*Northwestern Utilities Ltd. v. City of Edmonton*) and 1961 (*British Columbia Electric Railway v. Public Utilities Commission of British Columbia*).

The United States Supreme Court established the traditional standard for a fair and reasonable return in its *Hope* decision (*Federal Power Commission et al. v. Hope Natural Gas Co.*, 320 U.S. 591 (1944)):

> …the return to the equity owner should be *commensurate with returns on investments in other enterprises having corresponding risks*. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to *maintain its credit and attract capital*. (Emphasis added.)

These legal standards make no reference to the ownership of the utility—the capital attraction standards work well for both IOUs and publicly owned utilities (like Hydro as a Crown corporation). But this does not mean that the standard implies the same costs should be applied in both cases. For companies like Hydro, with only debt capital to raise from the public, the "capital attraction" charges in regulated rates are lower than they are for IOUs who have an extra layer of common stockholders to compensate.

B. Risk and the Cost of Capital

Q. Please contrast a Crown corporation's risks relative to an IOU.

A. Crown corporations, such as Hydro, have important differences from investor-owned utilities. In the North American electric utility industry, numerous institutional forms have emerged to govern firms, including investor-owned utilities, Crown corporations, municipal utilities, and cooperative utilities, with differing risks and costs of capital. In the case of Hydro, important factors that tend to lower its costs and risks include:

- *Debt guarantee*. Hydro's debt is unconditionally guaranteed by the Province as to principal, interest, and, if applicable, sinking fund payments, which allows Hydro to carry a higher proportion of debt in its capital structure than could an investor-owned utility.[11]

[11] Waverman and Yatchew, *supra* note 5 p. 391.

- *Tax exempt status*. Hydro is not required to pay most forms of taxes, which should tend to reduce Hydro's costs and result in lower prices to customers.[12] In contrast, investor-owned utilities are exposed to numerous taxes.

- *Crown corporation*. As a Crown corporation, the owners are the Province's government and citizens. This fact should tend to ease Hydro's ability to recover its just and reasonable costs in rates.

Q. Given these factors, would a Crown corporation be comparable, in terms of risk, to a proxy group comprised of IOUs?

A. Debt investors in Hydro bear less risk than common stockholders in IOUs, meaning that using a weighted average cost of capital that utilizes an IOU proxy group's cost of common equity for Hydro's retained earnings would result in rates for Hydro's customers that contain capital charges in excess of Hydro's own costs.

C. WACC Inputs

Q. What is the required overall rate of return for a firm?

A. The required rate of return for a firm is the firm's weighted average overall cost of capital ("WACC"). The WACC is the sum of the costs of the component parts of the capital structure weighted by their relative proportions in the capital structure. Schedule V (J.C. Roberts) presents Hydro's estimates of its capital structure components (total debt, employee future benefits, and retained earnings).

1. Capital Structure

Q. What is the appropriate capital structure to employ in determining the Hydro's overall cost of capital?

A. There are two considerations that are noteworthy in determining the appropriate capital structure. First, since this rate proceeding will set rates to be charged for service in future periods, it is appropriate to base the capital structure components upon the best

[12] One side effect of being tax exempt is that Hydro cannot deduct interest on debt when calculating its income taxes, which raises its effective debt rate. An IOU's debt costs are effectively lowered because they can deduct interest expense.

available estimates for the test year The appropriate capital structure should reflect all known changes, including new security issuances and retirements. Hydro's actual capital structure is composed mostly of debt (the rest is mostly retained earnings), reflecting its lack of common equity stock owners, its ability to raise debt that is supported by the unconditional guarantee of the Province, and its need to accommodate the payments required by the Province. Both Hydro and the Province are rated BBB from DBRS, which is an investment-grade rating.

Q. Do you recommend that the Board use the Company's current actual capital structure?

A. Yes, I do. Given that Hydro is a Crown corporation, which raises new capital only by issuing debt, Hydro's capital structure ratios, albeit relatively highly leveraged, do not appear to be unreasonable. I would add a note of caution here—I would be skeptical of Hydro's ability to support further increases to its ratio of debt to retained earnings, given the already high proportion of debt in its capital structure. For example, Standard & Poor's notes that "common practices among crown-owned utilities in Canada with a Provincial debt guarantee" is to maintain a consolidated capital structure "of 70% debt to 30% equity [*i.e.*, retained earnings]."[13] Given Hydro's more highly leveraged capital structure, it is important to emphasize that Hydro (and the Province)[14] should be governed in a way that allows it to maintain its investment grade bond rating and I would expect that further increases in its debt ratio would place additional pressure on Hydro's ability to maintain an investment grade bond rating.[15]

[13] Standard & Poor's, "Newfoundland and Labrador Hydro," July 4, 2003, p. 3. See: NP-104 NLH Attth C, p. 3 of 4.

[14] A below-investment-grade bond rating for Hydro could make it more difficult for the Province to maintain its own investment-grade bond rating.

[15] In the U.S., the only State that is not rated A- or higher by S&P is the State of California. In addition, both the District of Columbia (Washington) and Puerto Rico are rated A- by S&P and Baa1 by Moody's with respect to their state general obligation bonds. Guam is rated B by S&P with respect to its general obligation bonds.

2. Embedded cost of debt

Q. How are the individual fair returns or costs of capital pertaining to debt (and preferred stock) observed directly in a rate case?

A. Fixed payment obligations (interest) typically accompany issued debt. Calculating the dollars needed to cover interest payments currently or over the period of time in which the rates in question for a utility will be in effect is not difficult. The *embedded* cost of debt proceeds directly from these calculations. I understand that Hydro witness Mr. Roberts presents a cost of debt in his Schedule VII that shows an embedded cost of debt of 8.28 percent for 2004.

I highlight the word "embedded" because, for debt, all that we usually need in a base rate case is the embedded cost of these financial instruments (the payments to investors proceeding from existing agreements accompanying the existing bonds). Thus, parties in rate cases seldom have significant disagreements about the embedded cost of debt capital. One can compare the promised interest payments with the company's proceeds from the sale of those securities. The current market is irrelevant for such embedded cost calculations.

Q. In a rate proceeding, is there sometimes a need to estimate the opportunity cost of debt?

A. Yes. It may be necessary to estimate the opportunity cost of debt in three possible instances. First, the firm may have floating-rate debt, which means that an estimate of the interest rate applicable during the test year will be needed. Second, if it is known that an existing debt issue will be refinanced or new debt will be needed during the test year, than an estimate of that opportunity cost of debt will be needed. This may be necessary in order to ensure that the Company's tariffed rates reflect the debt it will have in place during the period when rates will be in place. Third, as in the case of Hydro, the opportunity cost of debt is the reasonable measure to place on the retained earnings in the business, reflecting the cost of maintaining those funds in the business.

3. Cost of Shareholder's Equity

Q. Earlier you concluded that Hydro is not comparable to the IOUs in Ms. McShane's proxy group. How, then, would you recommend that the Board determine Hydro's allowed cost for the shareholder's equity portion of its capital structure?

A. I would support an allowed cost that reflects Hydro's opportunity cost of Provincial guaranteed debt, which can be determined by investigating Hydro's cost of new debt. I understand that in Hydro witness Ms. McShane's prepared testimony, she states (p. 21) that the long-term opportunity cost of new debt to Hydro is about 6.75 percent. A review of the yields to maturity of other electric utility Crown corporation debt in Canada, with bond ratings comparable to Hydro, would also be useful.

I would recommend that the Board consider applying the opportunity cost of debt when determining the appropriate return for the shareholder's equity portion of Hydro's capital structure.

Q. How should the Board take into account the Provincial guarantee, which is currently one percent? Should this be added to the opportunity cost of debt?

A. There are two possible approaches, either of which is theoretically supportable. As the one percent would be an additional cost, it could be added to the opportunity cost of debt.

An approach I favor, on the other hand, would be to *not* add the one percent cost of the Provincial guarantee to the opportunity cost ofshareholder's equity. After all, when debt is issued, the cost of the guarantee is added in as a cost, which is added into rates directly. If the opportunity cost of debt was to include the one percent, there could be double counting of the cost of the guarantee.

Q. Does this conclude your testimony?

A. Yes, it does.