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Manitoba Hydro

Financial Targets Review

May 2015

KPMG LLP

Available in accessible formats upon request

Notice

KPMG LLP ("KPMG") has drafted this report (the "Report") pursuant to its engagement to assist Manitoba Hydro-Electric Board ("Manitoba Hydro" or "MH") in its review of financial targets ("Financial Targets Review") in accordance with the terms of a services agreement dated December 5, 2014.

This Report has been prepared for Manitoba Hydro. Its contents may not be shared with or disclosed to anyone by the recipient without the express written consent of Manitoba Hydro and KPMG, unless Manitoba Hydro files the report or substantive components of the report for its regulatory purposes. KPMG does not accept any liability or responsibility to any third party who may use or place reliance on this Report.

Purpose of the Report

The purpose of this Report is to:

- Provide background information on the Financial Targets Review, as well as an overview of the process used by KPMG to assist Manitoba Hydro in its work;
- Present Canadian and international research material on subjects relevant to conducting the financial targets review;
- Outline various analyses undertaken; and
- Summarize other relevant considerations and recommendations with respect to Financial Targets.

Basis of Information

The data and information included in this Report were obtained primarily from secondary sources such as annual reports, financial statements and regulatory filings of MH and other power utilities, Decisions and Orders of the Public Utilities Board of Manitoba ("PUB") and of other regulatory agencies, credit agency reports, bank reports, and other sources of Canadian and international research and statistics. Financial forecasts were derived from MH's Integrated Financial Forecast ("IFF14") and similar documents from other sample power utilities. Scenario analyses were performed on KPMG's behalf by MH using its own in-house models.

This Report relies on data and information from these secondary sources and makes no representations with respect to their accuracy or completeness.

The procedures performed do not constitute an audit, examination or review in accordance with standards established by the Canadian Institute of Chartered Accountants ("CICA"), and we have not otherwise verified the information we obtained or presented in this report. KPMG expresses no opinion or any other form of assurance on the information presented in our report, and make no representations concerning its accuracy or completeness.

Acronyms

AC	Alternating Current
AOCI	Accumulated Other Comprehensive Income
BTU	British Thermal Unit
BTU/h	British Thermal Unit per hour
CEA	Canadian Electricity Association
CIAOC	Contributions in Aid of Construction
Cfm	cubic feet per minute
CO_2	Carbon dioxide
CSA	Canadian Standards Association
DC	Direct Current
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
FRS	Fair Return Standard
GHG	Greenhouse Gas
GST	Goods and Services Tax
Gw	Gigawatt
GWh	Gigawatt-hours
HCFC	Hydrochlorofluorocarbon
HVDC	High Voltage Direct Current
IFF	Integrated Financial Forecast
IFPS	Interactive Financial Planning System
IPL	International Power Line
IRR	Internal Rate of Return
IUS	International Utility Services
J	Joules
kV	kilovolt
kVA	kilovolt-amperes
kW	kilowatts
kWh	kilowatt-hour
LEED	Leadership in Energy Efficiency and Environmental Design
LGD	Local Government District
LGS	Large General Service
LWR	Lake Winnipeg Regulation
MAPP	MidContinent Area Power Pool
MB	Manitoba
MBH	Thousand BTUs Per Hour

Mbps Megabit per second
MH or MHEB Manitoba Hydro or Manitoba Hydro-Electric Board
MHEB OAIT Manitoba Hydro Electric Board Open Access Interconnection Tariff
MHEB OASIS Manitoba Hydro Electric Board Open Access Same Time Information System
MHI Manitoba Hydro International Ltd.
MIPUG Manitoba Industrial Power Users Group
MISO Midcontinent Independent System Operator
MLF Mainline Firm Service
MPC Manitoba Power Commission
MVA Mega Volt Amps
MW Megawatt
MWh Megawatt Hours
NEB National Energy Board
NFA Northern Flood Agreement
NFAT Needs For and Alternatives To
NFC Northern Flood Committee
NGX Natural Gas Exchange
NLH Newfoundland and Labrador Hydro
OPG Ontario Power Generation
OIESO Ontario's Independent Electricity System Operator
PDA Project Development Agreement
PQ Power Quality
PSEM Power Smart Energy Manager
PSFB Power Smart for Business
PUB The Public Utilities Board (Manitoba)
ROE Return on Equity
RRT Regulated Rate Tariff
RSM Rate Setting Methodology
SGS Small General Service
TWh Terawatt hours
TCPL TransCanada Pipelines Limited
UPS Uninterrupted Power Supply

Executive Summary

In December 2014, Manitoba Hydro-Electric Board retained KPMG to undertake a review of its current financial targets, and to provide recommendations with respect to appropriate financial targets for Manitoba Hydro that align with the mandate of Manitoba Hydro and the interests of its stakeholders considering its operating and business outlook and associated risks.

The financial target review considered: the objective of maintaining rate stability for customers while at the same time maintaining safe and reliable service; the period of significant capital investment and infrastructure renewal that Manitoba Hydro is entering into; and the maintenance of Manitoba Hydro's self-supporting status for credit rating purposes.

The scope of the work did not extend to reviewing broader policy questions associated with Manitoba Hydro's overall structure, governance framework, and business strategy and plans. The objective was to identify appropriate targets in light of Manitoba Hydro's current structure and plans, i.e., the proposed development plan in Manitoba Hydro's Integrated Financial Forecast ("IFF14"), dated December 2014.

Our research work was based on three primary streams of research and analyses – benchmarking, capital markets analysis, and scenario analysis – designed to provide a comprehensive and balanced perspective on the development of financial targets for Manitoba Hydro.

There is no single method or formula that can readily identify the most appropriate target or targets. Rather, the selection of targets must be based on judgment, taking into account a broad range of evidence and multiple objectives. The material in this report is designed to provide an appropriate base of evidence for target selection.

The report is organized in eight chapters. Chapters 2 through 7 conclude with summary observations.

- Chapter 1 outlines the objectives, scope and review process.
- Chapter 2 reviews the legislative framework within which Manitoba Hydro operates and discusses the notion of self-supporting status.
- Chapter 3 summarizes Manitoba Hydro's current financial targets, recent financial results and current financial forecast.
- Chapter 4 identifies regulatory and other developments at other government-owned power utilities in Canada that are similar to Manitoba Hydro for context.
- Chapter 5 provides research and analysis from benchmarking Manitoba Hydro to other government-owned power utilities, primarily in Canada, as the peer group.
- Chapter 6 summarizes the perspectives of capital markets and rating agencies.
- Chapter 7 provides scenario analysis and quantitative and probabilistic assessments of Manitoba Hydro's possible future financial position.
- Chapter 8 outlines our recommendations on Manitoba Hydro's financial targets.

The three streams of research and analysis were used to inform our recommendations on financial targets. The determination of specific financial targets is a decision of the Manitoba Hydro-Electric Board.

Key factors that influence our recommendations on financial targets are as follows:

- Relative to other Crown utilities with a significant base of hydro-electric generation, Manitoba Hydro faces a number of heightened risks:
  - Manitoba Hydro has a large capital investment program relative to its current installed asset base and its projected revenues going forward.
  - Manitoba Hydro faces relatively greater hydrology risks than other major utilities.
  - Manitoba Hydro relies on export markets for a significant proportion of its revenue.
  - Utility debt and utility assets in Manitoba are relatively high on a per capita basis compared to other jurisdictions. Manitoba Hydro thus has a relatively limited customer base over which to spread potential future cost overruns or business set-backs.

These risks suggest that Manitoba Hydro should have financial targets that provide a significant amount of equity cushion.

- Two of Manitoba Hydro's three financial targets are consistent with those used at other government-owned power utilities: debt/equity ratio, and an interest coverage ratio.
- As shown through benchmarking, Manitoba Hydro's target equity ratio is at the low end of those maintained or forecast by other power utilities: both Hydro-Quebec and Nalcor maintain equity ratios that are close to 30%; BC Hydro and NB Power have plans to increase their equity ratio over the long-term to 40% and 30% respectively.
- A weakening of Manitoba Hydro's relative financial position over the next decade may put pressure on Manitoba Hydro to improve its own equity base, given that rating agencies and lenders will compare Crown utilities' relative financial strengths.
- Loss of self-supporting status would have very detrimental effects on the Province and the utility. It could lead to credit downgrades and significantly higher interest costs for both the utility and the Province. Notwithstanding this point, the exact point at which Manitoba Hydro's self-supporting status would be put at risk is unclear. Uncertainty with respect to when self-supporting status would be at risk suggests that financial targets should err on the side of caution.
- Additional rate increases in the early years of the forecast horizon could result in a significant improvement in Manitoba Hydro's financial metrics in later years. This improvement reflects the benefit of reducing the impact of interest compounding on the additional debt that is required when rate increases are lower.
- Manitoba Hydro has limited ability to restrain a drop in financial ratios during adverse conditions, such as a drought. This highlights the risk of having an equity ratio that approaches 10%. For this reason, we believe that equity ratios near 15% or higher are the minimum that should be accepted even for short periods.
- Unlike the shareholders of Hydro-Quebec and, in the near term, of BC Hydro, the shareholder of Manitoba Hydro does not expect to receive dividend income. The absence of dividend payments removes one lever that the utility could use in adjusting its financial position in times of stress.
- Manitoba Hydro's capital investment program is characterized by periodic "bumps" or "hills" of large magnitude. These fluctuations magnify the challenges associated with Manitoba Hydro's limited levers for financial control.
- As shown in benchmarking, Manitoba Hydro's current electricity rates for its domestic consumers are among the lowest in North America. This may give Manitoba Hydro additional ability to raise rates in the event of financial distress.
- Government guarantees enable government-owned utilities to have lower equity ratios in their capital structure and to have lower financial metrics than averages observed for investor-owned utilities.
- Credit rating agencies recognize that hydro generation may support higher debt leverage than fossil-fuel generation.

The following is a summary of our recommendations:

Recommendation 1: debt/equity ratio target of 75/25 to 70/30

- Manitoba Hydro's current debt/equity target of 75/25 is a reasonable long-term target. Notwithstanding this finding, we note that a target of 70/30 would provide additional financial strength to address the utility's unique financial challenges and risks. Accordingly, our overall recommendation is that the debt/equity ratio should fall within the range of 75/25 to 70/30.
- Manitoba Hydro will need to depart from its equity target during major build programs: this reflects the utility's limited financing tools and reliance on retained earnings as its dominant source of equity. Accordingly, the equity position should rise above 25% in advance of major build programs to mitigate the deviations from target that are observed.
- We have significant concerns that an 11% equity level, as forecast under IFF14, provides a less than desirable equity base to accommodate potential adverse developments. We suggest that Manitoba Hydro's plans be adjusted to maintain an equity ratio near 15% under forecast conditions.
- In the long-term, with respect to deviations from any target, it would be desirable to limit decreases in the equity ratio to 5-10 percentage points.
- Higher equity ratios need not translate into higher rates, because Manitoba Hydro has the option to seek lower rates of return on equity than investor-owned utilities.

Recommendation 2: minimum EBITDA interest coverage ratio target of 1.8 or greater

- An interest coverage ratio is an important element of financial targets.
- Our recommendation is a minimum EBITDA interest coverage ratio, at a target level of 1.8 or greater.
- Should Manitoba Hydro continue its existing debt/equity target and prefer to stay with a minimum EBIT interest coverage ratio, the current target of 1.2 or greater is reasonable.

Recommendation 3: maintain a minimum capital coverage ratio target of 1.2 or greater

- The capital coverage ratio is also an important financial target and a unique measure to Manitoba Hydro.
- The current target of 1.2 or greater is reasonable.
- An inherent limitation of this ratio is that it does not reflect the financial challenges associated with major expansion programs. Hence it may be misunderstood or misinterpreted by stakeholders. We suggest a note in the annual reports and/or financial statements that outlines the capital coverage ratio calculation including the specific value of the numerator and denominator.

Recommendation 4: other metrics to continue to monitor

- Manitoba Hydro should maintain three Financial Targets.
- Manitoba Hydro should also continue to regularly monitor other financial metrics. These include but are not limited to: revenue growth, controllable operating costs, EBITDA, net income, cash flow from operations to net debt, net debt to assets, EBITDA to revenue, capital expenditures to fixed assets, average electricity prices across different customer groups.

Contents

1 Background

This chapter outlines the objectives, scope and process of the project.

1.1 Objective

Manitoba Hydro-Electric Board ("Manitoba Hydro" or "MH") has retained KPMG LLP ("KPMG") to undertake a review of its current financial targets (the "Financial Targets Review"). The specific objectives of this engagement are to:

- Provide recommendations with respect to appropriate financial targets for Manitoba Hydro that align with the mandate of Manitoba Hydro and the interests of its stakeholders considering its operating and business outlook and associated risks.
- The financial target recommendations should consider at a minimum the following:
  - The objective of maintaining rate stability for customers while at the same time maintaining safe and reliable service.
  - The period of significant capital investment and infrastructure renewal that Manitoba Hydro is entering into.
  - The maintenance of Manitoba Hydro's self-supporting status for credit rating purposes.
- Conduct scenario analysis to help address PUB's directive to Manitoba Hydro to review key operating and financial risks in order to assess the adequacy of financial reserves.

This report presents the results of our review.

1.2 Scope and Overview of Review Process

1.2.1 Scope of review

As noted above, KPMG was retained to review Manitoba Hydro's financial targets. The scope of our work does not extend to reviewing broader policy questions associated with Manitoba Hydro's overall structure, governance framework, and business strategy. Rather, our objective was to identify appropriate targets in light of Manitoba Hydro's current structure and plans. Accordingly, our work has been performed in the context of the following:

- The current proposed development plan as embodied in Manitoba Hydro's Integrated Financial Forecast ("IFF14"), dated December 2014.
- The integrated structure of the utility, in which generation and export activities are combined in one business entity with the transmission and distribution of electricity to Manitoba ratepayers.
- The existing relationship of the utility to the government, including:
  - The government's role as shareholder and as guarantor of the utility's debt.
  - The level of payments made to the Province as a fee for its debt guarantee.
  - Policies with respect to the payment of water rental charges.
  - Expectations for direct investment by the government in the utility and for the payment of dividend income.

Our recommendations on financial targets take into account Manitoba Hydro's current business structure and strategy. If significant changes to this structure were to be made, our recommendations on financial targets may be affected.

1.2.2 Work streams

Our research work was based on three streams of research and analyses as follows:

- Benchmarking: This entailed research into other jurisdictions to understand and compare the current financial targets and metrics of other government-owned power utilities, as well as to assess their relevance for Manitoba Hydro.
- Capital Markets Analysis: In this stream, the perspectives of financial markets and ratings agencies were documented. Their implications for financial targets going forward were then considered.
- Scenario Analysis: This involved analytical work to understand the range of scenarios that Manitoba Hydro may face in the future, based on MH's projected build-plan, potential provincial demand growth, and MH's current export sales contracting strategy.

1.2.3 Rationale for Work Streams

The three primary streams of analysis noted above are designed to provide a comprehensive and balanced perspective on the development of financial targets for Manitoba Hydro. They help address the fact that financial targets must take into account not only the economic and market context within which Manitoba Hydro operates but also its specific challenges and needs. There is no single method or formula that can readily identify the most appropriate target or targets. Rather, the selection of targets must be based on judgment, taking into account a broad range of evidence and multiple objectives. The material in this report is designed to provide an appropriate base of evidence for target selection. Thus:

- Our benchmarking process, which is summarized in Chapters 4 and 5 of our report, identifies developments at other organizations that are similar to Manitoba Hydro. Since these organizations face many similar challenges, the decisions that they have made with respect to their own financial targets may be useful for Manitoba Hydro and its stakeholders to consider in the selection of its targets.
- Our capital markets perspective, which is summarized in Chapter 6 of our report, identifies the requirements of capital markets and rating agencies and, by implication, of the lending community. This provides evidence on the minimum requirements that targets must meet.
- Our scenario analysis, which is summarized in Chapter 7 of our report, provides some quantitative analyses of Manitoba Hydro's possible future financial position. These scenario analyses are designed to shed light on the implications for rates and for Manitoba Hydro's financial risks of existing and potential alternative financial and rate-setting strategies.

These streams of research and analysis are discussed in Chapters 4 through 7 of our report. They were used to inform our recommendations on financial targets as outlined in Chapter 8. Additional context for our review is provided as follows:

- Chapter 2 reviews the legislative framework within which Manitoba Hydro operates. The framework identifies the statutory mandate of the corporation, and its objectives.
- Chapter 3 summarizes Manitoba Hydro's recent financial results and current financial forecast.

1.3 The Objectives of Manitoba Hydro's Financial Targets

In the process of setting financial targets for Manitoba Hydro, an important first step is to explicitly identify the objectives that these targets will be designed to achieved. To set the context for this review, the following goals were identified as the primary objectives for Manitoba Hydro in its financial planning process:

> *Financial targets should enable Manitoba Hydro to provide reasonable rate stability to Manitoba ratepayers while maintaining its self-supporting status. Manitoba Hydro's long-term plans are to avoid short-term rate increases and fluctuations that would cause undue shocks to ratepayers and/or interfere with MH's own financial planning and budgeting.*
>
> *Financial targets should be established so as to reduce the risk of Manitoba Hydro experiencing financial distress over the projection horizon to at or below a threshold level. Financial distress is interpreted to mean that Manitoba Hydro would be unable to meet its financial obligations, including the repayment of outstanding debt, and hence would no longer be deemed to be self-supporting.*

The objectives established above were based on a review of Manitoba Hydro's statutory mandate, discussions with management, and our understanding of the requirements of capital markets. In interpreting these primary objectives, it should be noted that:

- The level of risk to accept under the primary objectives is a policy decision for the Manitoba Hydro-Electric Board, its shareholder, and the regulator.
- The ability of Manitoba Hydro to meet its financial obligations must be evaluated on a long-term basis. Because of temporary business and/or market conditions (e.g. drought, recession), Manitoba Hydro may have to borrow additional debt in any given period to meet its operating costs and other financial commitments. Short-term shortfalls in the ability of rates to cover costs do not necessarily imply that Manitoba Hydro is no longer self-sustaining. In this context, short-term may refer to periods of up to several years.

In the context of Manitoba Hydro financial objectives, maintaining sufficient retained earnings is an important strategy for ensuring rate stability. Retained earnings provide a reserve, or "cushion", to offset financial events that could cause financial distress, require undue rate increases, or both.

Our scope of work included a review of Manitoba Hydro's key operating and financial risks to assess the adequacy of financial reserves. This included quantitative and probabilistic analysis with respect to significant risk factors impacting Manitoba Hydro's financial outlook. As noted in the section on the scenario analysis undertaken, however, there are limitations to such analysis.

1.3.1 Self-supporting status

The objectives that are identified above are closely linked to the imperative that Manitoba Hydro should remain "self-supporting". A loss of self-supporting status would be a very adverse event for the utility and the Province. In this section, we provide additional detail as to how this concept may be interpreted.

A reasonable hypothesis is that Manitoba Hydro would be considered unable to meet its financial commitments, and therefore no longer self-supporting, once its debt has grown to the point at which it cannot reasonably be recovered from Manitoba Hydro electricity ratepayers going forward. Under this scenario, some portion of debt would need to be assumed by the Province.

As noted in our analysis in Chapter 6, the exact point at which rating agencies might deem Manitoba Hydro (and its debt) to be no longer self-supporting is not clear. Similarly, it may not be clear when debt reaches a level where it cannot reasonably be expected to be repaid by ratepayers. However, to create a working definition of financial distress for the purposes of scenario analysis, the following general approach was used:

> Manitoba Hydro would be deemed to be no longer self-supporting once it reaches a position of near zero retained earnings and rates have increased in real terms such that Manitoba can no longer be considered a cost-competitive jurisdiction with respect to electricity rates.

Considerations in support of this definition of financial distress include the following:

- The level of retained earnings is a useful metric because it captures the cumulative earnings effect of decisions and events over time. It is a key indicator of whether or not the utility has been profitable over time. Thus, it is a more robust measure than single-period measures such as earnings in a period and the associated debt service coverage ratios. While companies can operate with negative net income for a period of time, a retained earnings deficit is an accepted harbinger of potential financial distress. A severe downward trajectory approaching technical insolvency could also signal financial distress.
- Once rates have increased to a level where Manitoba is no longer a low-cost jurisdiction for electricity, the Province's competitive position would have been compromised. In such a circumstance, the ability of ratepayers to accept additional rate increases to support company costs would be called into question. This would make it difficult for Manitoba Hydro to build a positive equity balance and to thereby ensure its ongoing status as a self-supporting entity.
- In light of the above considerations, the two metrics combined (level of retained earnings and the cumulative real rate increase) should therefore provide an indication of financial distress and potential loss of self-sufficiency.

In respect of Manitoba Hydro's rate levels, we acknowledge that the threshold beyond which Manitoba would no longer be considered a low-cost jurisdiction is difficult to identify precisely. The threshold will be influenced by a number of factors such as the future rate trajectory of other utilities and the exchange rate that is used to compare Canadian and U.S. utility rate levels. It is likely, however, that a doubling of real (or inflation-adjusted) rates by Manitoba Hydro would be highly problematic. A doubling of rates equates to a 100% increase. In comparison, real rates increase by only about 34% by 2033 under the current IFF.

A conceptual approach for identifying acceptable rate increases might be to determine, for example, that Manitoba Hydro should remain among the bottom quartile of North American utilities in its consumer rates. Within this framework and given Manitoba Hydro's current very cost-competitive position among North American utilities, cumulative real rate increases of 50% or more might still be acceptable from a competitiveness perspective (notwithstanding the fact that they would be perceived negatively by affected ratepayers). The appropriate objectives with respect to the level and annual rates of increase of Manitoba Hydro tariffs are ultimately policy questions for Manitoba Hydro, its shareholder and regulator. Decisions on these issues will nevertheless have implications for Manitoba Hydro's financial targets and for the deviations from targets that will be acceptable in the short term.

Just as it is difficult to quantify the threshold beyond which rate increases would render Manitoba uncompetitive in cross-jurisdictional comparisons, it is also difficult to quantify, under any particular rate trajectory and/or forecast financial position, the level of risk of financial distress. The primary objectives outlined earlier in this Chapter suggest that financial targets should be set to reduce the risk of financial distress below some threshold level. In practice, difficulties in precisely quantifying risk mean that we cannot reliably target any specific risk level. Nevertheless, the concept of targeting a particular level of risk is a useful conceptual approach and can thus help stakeholders consider risk issues in a structured manner.

The above issues are further addressed later in this report.

2 Legislative Context

This chapter reviews the legislative context in which Manitoba Hydro operates, and discusses the notion of a self-funding or self-supporting government business enterprise.

2.1 Manitoba Hydro Act

The Manitoba Hydro-Electric Board ("Manitoba Hydro") operates under the provisions of the Manitoba Hydro Act ("the Act"). This Act was initially proclaimed in 1988 but has been subject to a number of amendments, most recently in 2014.

2.1.1 Key provisions of the Act

In this section, we review a number of key sections within the Act that are particularly relevant to the setting of financial targets for the corporation. These sections are:

- Section 39 (1) Price of power sold by corporation
- Section 40 (1) Establishment of reserves
- Section 40 (2) Use of reserves.

Each of these sections is reproduced in the sections below, along with a short review of its intent and/or implications.

Section 39 (1) Price of power sold by corporation

Section 39 (1) reads as follows:

> *The prices payable for power supplied by the corporation shall be such as to return to it in full the cost to the corporation, of supplying the power, including*
>
> *a.) the necessary operating expenses of the corporation, including the cost of generating, purchasing, distributing, and supplying power and of operating, maintaining, repairing, and insuring the property and works of the corporation, and its costs of administration;*
>
> *b.) all interest and debt service charges payable by the corporation upon, or in respect of, money advanced to or borrowed by, and all obligations assumed by, or the responsibility for the performance or implementation of which is an obligation of the corporation and used in or for the construction, purchase, acquisition, or operation, of the property and works of the corporation, including its working capital, less however the amount of any interest that it may collect on moneys owing to it;*
>
> *c.) the sum that, in the opinion of the board, should be provided in each year for the reserves or funds to be established and maintained pursuant to subsection 40(1).*

Section 39 addresses the need for the corporation to cover its full costs, consistent with its operation as a self-sustaining entity.

Section 40 (1) Establishment of reserves

Section 40 (1) reads as follows:

> *The board shall establish and maintain, and may adjust as required, such reserves or funds of the corporation as are sufficient, in the opinion of the board, to provide*
>
> *a.) for the amortization of the cost to the corporation of the property and works, (whether as a whole or in its component parts), of the corporation during the period, or remaining period, of the useful life thereof; The necessary operating expenses of the corporation, including for the amortization of the cost to the corporation of the property and works, (whether as a whole or in its component parts), of the corporation during the period, or remaining period, of the useful life thereof;*
>
> *b.) insurance, for which provision is not otherwise made, against loss or damage to any property of the corporation, or to the persons or property of others, caused by or arising out of the works or operations of the corporation;*
>
> *c.) for the stabilization by the board of rates or prices for power sold by the corporation, the meeting of extraordinary contingencies, and such other requirements or purposes as in the opinion of the board are proper.*

Section 40(1) thus indicates that the corporation should establish and maintain reserves. These reserves are to help fund the operating expenses of the corporation, to protect against adverse events, and to help stabilize rates.

Section 40(2) Use of reserves

Section 40(2) provides additional detail regarding the use of reserves, beyond that provided in Section 40(1). It reads as follows:

> *The reserves created pursuant to subsection (1) may be used or employed by the board,*
>
> *a.) towards the reservation and setting aside of the sinking fund established under section 41;*
>
> *b.) towards the renewal, reconstruction, or replacement, or depreciated, damaged, or obsolescent property and works;*
>
> *c.) towards restoration of any property lost or damaged, or the payment of any claims, in respect of which a reserve as insurance has been established;*
>
> *d.) in such manner towards the stabilization of rates or prices for power, the meeting of extraordinary contingencies, and for such other requirements or purposes, as the board in its discretion deems proper; and*
>
> *e.) subject to the approval of the Lieutenant Governor in Council, towards the cost of construction of new works and extensions, improvements, or additions, to any property and works of the corporation.*

Based on our interpretation of the language in Section 40(2), the primary objectives of Manitoba Hydro's reserves are therefore to:

- To allow for the stabilization of rates.
- To provide for the funding of sinking funds.
- To help fund new or replacement construction.

2.2 Our Observations with Respect to the Act

Overall, our observations with respect to the Manitoba Hydro Act are as follows:

- Retained earnings are considered to be reserves and are maintained for a number of specific purposes (e.g. funding of new construction, rate stabilization). These purposes do not include the earning of a return on these reserves, although a return may be made as a consequence of meeting other objectives.
- With the exception of some distributions that were made in Fiscal 2002, 2003 and 2004 as specifically called for under Sections 45(5) and 43(6) of the Act, the Act does not envisage the distribution of retained earnings (i.e. dividends) to the Province. Thus, a return on equity is used to build reserves, rather than to provide dividends to the corporation's legal shareholder.

In evaluating both the source and use of reserves, the equity of the corporation consists largely of retained earnings. Further, there is no expectation, either in legislation or in recent statements by the shareholder, that the Province would contribute new equity funding to Manitoba Hydro.

2.3 Self-Supporting Status

Almost all of Manitoba Hydro's debt is either obtained through or guaranteed by the Province of Manitoba.[1] As such, the credit ratings assigned to this debt are a flow-through of the ratings associated with debt issued by the Province of Manitoba. In turn, Manitoba Hydro debt is included in the overall fiscal position of the Province.

In their review of Manitoba's ratings position, the ratings agencies consider Manitoba Hydro's debt to be "self-supporting". They thus remove this debt when calculating the financial metrics related to the Province's fiscal position. The provincial debt that is remaining is referred to as "tax-supported debt".

From the Province's perspective, it is important that Manitoba Hydro's debt continue to be viewed as self-supporting. A change in this designation would likely have a very negative impact on perceptions of the Province's overall fiscal position and could lead to a downgrade in its debt rating. Such a downgrade could increase interest rates paid both by the Province and by Manitoba Hydro.

2.3.1 Criteria for Being Self-Supporting

While the maintenance of self-supporting status is essential, the specific criteria used to define self-supporting are not necessarily clear nor are they readily interpreted in practice. For example, in a drought-year, Manitoba Hydro's financial metrics may fall below those consistent with a self-supporting corporation over time. Thus, interest coverage ratios may fall below 1.0 in any given year without resulting in the loss of self-supporting status. In such a year, Manitoba Hydro would need to draw on its cash reserves and/or obtain additional debt to cover just its operating expenses and current debt service obligations. Thus, achievement of self-supporting status must be evaluated over time, and not just in any period.

In considering credit ratings, both the level and trend in the level of financial metrics appear to be important. Thus a weaker metric that is nevertheless improving may pose fewer concerns than a stronger metric that is deteriorating over time. Similarly, a deterioration in financial metrics may be acceptable if it results from temporary operating constraints (e.g. drought conditions and/or capital expenditures) and circumstances indicate that metrics will recover.

[1] Manitoba Hydro 2014 Annual Report, p.91, note to audited financial statements, "long-term debt is guaranteed by the Province of Manitoba, with the exception of Manitoba Hydro-Electric Board Bonds in the amount of $65 million issued for mitigation projects."

In its October 2014 rating report on the Province of Manitoba, Moody's noted[2]:

> "In anticipation of demand increase by 2022-23, and in order to boost electricity exports, Manitoba Hydro is currently executing major generation and transmission projects. Manitoba's financial metrics will be strained by the associated capital expenditures and debt needs in the coming years. We will monitor the increase in Manitoba Hydro's debt ratios and the progress of construction of these projects.
>
> "We note positively, that Manitoba Hydro has flexibility to increase utility rates given fairly low rates compared to other provinces and that it has already negotiated future long-term export contracts with customers in the U.S."

In its October 2014 rating report, Moody's noted[3]:

> "The province issues debt on behalf of its wholly-owned utility company Manitoba Hydro, which we view as a self-supporting entity and therefore, exclude the related net debt from the Province of Manitoba's debt metrics.
>
> "The anticipated increase in debt at Manitoba Hydro could increase the contingent liability for the Province of Manitoba in the next few years."

In its November 2014 report focused on Manitoba Hydro, Moody's noted[4]:

> "As part of its debt management strategy, Manitoba Hydro targets certain financial metrics such as an interest coverage ratio greater than 1.2 and equity to capitalization greater than 25%. However, both targets are not expected to be met for an extended period of time due to large generation and transmission projects underway such as Keeyask and Bipole III. Total capital expenditures are forecasted to be $13 billion, or on average $2.6 billion per year from FY2015 to FY2019.
>
> "The weakening financial profile restricts financial flexibility and adds risk in case of unexpected events such as low water levels, cost overruns and construction delays given the nature of a hydroelectric plant's long construction cycle prior to the start of operations and cash flow. However, we view Manitoba Hydro as being capable of prudently managing debt and mitigating such risks by seeking rate increases and curtailing spending to continue as a self-supporting corporation."

The following elements could be considered to be consistent with self-funding status:

- Revenues, taking into account both domestic and export markets, are sufficient to fund all of the costs incurred by the corporation and to build reserves in a manner consistent with the statutory framework.
- The corporation does not need to call upon the Province to add additional equity.
- The corporation is able, over time, to service (and repay) all debt issued on its behalf.

[2] Moody's Investors Service, Province of Manitoba, October 17, 2014, p.3.

[3] Moody's Investors Service, Province of Manitoba, October 17, 2014, p.3.

[4] Moody's Investors Service, Credit Opinion: Manitoba Hydro Electric Board, November 6, 2014.

2.3.2 Payments to the Province

Manitoba Hydro makes a number of payments to the Province that could, from a narrow perspective, be considered to be discretionary and that could theoretically be postponed or reduced in times of financial stress. For example:

- Manitoba Hydro makes water rental payments to the Province, at a rate of $3.34 per MWh of electricity generated from hydro sources ($125 million in fiscal 2014).
- Manitoba Hydro pays a Provincial Debt Guarantee fee equal to 1.0% of outstanding applicable debt annually. This fee recognizes the benefit that Manitoba Hydro and its ratepayers gain by having access to debt guaranteed by the Province ($99 million in fiscal 2014).
- Manitoba Hydro pays capital taxes equal to 0.5% of paid-up capital (debt and equity). (Capital taxes represent the majority of $117 million in capital, property and other taxes in fiscal 2014.)

In practice, there would be disadvantages for the Province in reducing these payments, perhaps through reductions in applicable tax, fees or water rental rates, in times of fiscal stress. In times of drought, water rentals will already have been reduced as a result of reduced water flows. Additional reductions in revenues through fee changes would further impair the Province's fiscal position, and thus its reported deficit or surplus. Funds from these fees help support other Provincial programs and objectives. In the event that payments were reduced, the government may then itself have to borrow additional funds, thus simply transferring any funding shortfall to its own debt position.

2.3.3 Defining a government business enterprise

Another important consideration in defining self-sustaining status is Section 1300 guidance by the Public Sector Accounting Board (PSAB) on what defines a Government Business Entity ("GBE").

PSAB Section 1300[5] guidance is as follows:

> *1300.28 A government business enterprise is an organization that has all of the following characteristics:*
>
> *a) it is a separate legal entity with the power to contract in its own name and that can sue and be sued;*
>
> *(b) it has been delegated the financial and operational authority to carry on a business;*
>
> *(c) it sells goods and services to individuals and organizations outside of the government reporting entity as its principal activity; and*
>
> *(d) it can, in the normal course of its operations, maintain its operations and meet its liabilities from revenues received from sources outside of the government reporting entity.*
>
> *1300.29 Selling goods and services involves a direct exchange relationship between the revenues and the goods and services provided. Selling prices are related to the quantity and quality of goods or services sold, and not just to the recovery of administrative costs. Imposed fees and penalties, such as licenses and fines, do not represent sales of goods and services. Insurance premiums charged by a government organization are a sale of a service and not an imposed fee.*
>
> *1300.30 A government business enterprise should, in the normal course of its operations, be able to maintain its operations and meet its liabilities from revenues received from sources outside of the government reporting entity. These revenues include not only amounts from the sale of goods and*

[5] Public Sector Accounting Board Section 1300.

services, but also transfers received from other governments or sources outside of the government reporting entity.

1300.31 When determining if an organization can maintain its operations and meet its liabilities with revenues received from outside of the government reporting entity, the following factors should be considered:

(a) the organization's history of maintaining its operations and meeting its liabilities;

(b) whether the organization would continue to maintain its operations and meet its liabilities without relying on sales to, or subsidies in cash or kind from, the government reporting entity;

(c) past, present and future economic conditions within which the organization operates; and

(d) whether the organization has realistic and specific plans that show how it expects to be able to maintain its operations and meet its liabilities in the future.

Consistent with other provinces, the Province of Manitoba in its budgets defines a Government Business Enterprise: it is a Crown organization delegated with the financial and operating authority to carry on a business. It sells goods or services to individuals and organizations outside the GRE [Government Reporting Entity] and can maintain its business on those revenues. [6]

The importance of this definition is that financial information for a GBE is consolidated only on a modified equity basis in a provincial government's consolidated Summary Financial Statements. Under the modified equity method, the original investment of the government in a GBE is initially recorded at cost. It is then adjusted annually to include the net income or losses and other net equity changes of the enterprise. The entity does not need to adjust its accounting policies to a basis consistent with that of the Government Reporting Entity. GBE debt is considered self-supporting and is not consolidated in Summary Financial Statements. Any change in GBE status could have major impacts on the provincial government's reported debt and fiscal position if the entity's debt were to be consolidated into the government's debt position.

PSAB discusses the notion of Government Business Enterprises as self-supporting:

> "Government business enterprises (GBEs) are different from other government organizations because their objectives and operations are more akin to a business. Business GAAP, as set out in the *CICA Handbook – Accounting*, is the best way of measuring a GBE's results of operations. GBEs sell goods or services to individuals and organizations outside of government. In the normal course of business, a GBE is able to maintain its operations and meet its liabilities with revenue from outside the government reporting entity. In other words, GBEs are "self-supporting" or "financially self-sustaining." [7]

Furthermore, PSAB notes that accounting for a GBE using the modified equity method shows the unique relationship with government, but separates the GBE's self-supporting debt from the government's tax-supported debt.

> "Because GBEs are self-supporting, they have a different relationship with the government than other departments and agencies. Government financial statements report a GBE as an investment because the government expects the enterprise to repay its debts and perhaps even to generate surpluses that may be available for the government to use. The investment in a GBE is reported as a financial asset because at a minimum, the GBE is expected to be financially self-sufficient and may

[6] Province of Manitoba 2014 Budget.

[7] Public Sector Accounting Board, The Canadian Institute of Chartered Accountants, *20 Questions About the Government Reporting Entity* (p. 25)

even provide resources that will finance future operations. Accounting for a GBE by the modified equity method avoids co-mingling the GBE's results with those of the government. By reporting net assets as a single-line investment in a GBE and by showing net income as a separate item on the statement of results, the accounting reflects the unique accountability relationship between a government and a GBE. Recording the net assets of a GBE as an investment shows the impact of the organization on the government's ability to repay its own debts or finance future government operations."[8]

2.4 Summary Observations

Both Manitoba Hydro's statutory framework and the presentation of its results for accounting purposes are consistent with its operation as a self-supporting entity. The statutory framework provides that Manitoba Hydro should recover its full costs over time from ratepayers and that it should operate on a stand-alone basis. The shareholder does not require Manitoba Hydro to pay dividends but nor does the shareholder expect to make direct equity injections. Overall, Manitoba Hydro is therefore expected to operate on a "closed-loop", user-pay basis.

For the corporation's financial targets, this has the following implications:

- Continuation of the corporation's status as a self-supporting entity is essential.
- Because the shareholder does not expect to earn a return as equity owner nor does it expect to provide new equity capital, financial targets need to recognize the dominant role that retained earnings play in building up the financial reserves of the corporation. Further, targets that are designed for investor-owned, or private-sector utilities are not directly applicable to Manitoba Hydro and its unique financial objectives, which focus on recovering costs from consumers over time.

[8] Public Sector Accounting Board, The Canadian Institute of Chartered Accountants, *20 Questions About the Government Reporting Entity* (p. 25)

3 Manitoba Hydro's Financial Targets

This chapter summarizes Manitoba Hydro's current financial targets, historical trends in key metrics, and its financial outlook under current plans, which involve major capital expenditures.

3.1 Structure of the Chapter

This Chapter is organized into the following sections:

- Section 3.2 reviews Manitoba Hydro's current financial targets.
- Section 3.3 summarizes data on the evolution of Manitoba Hydro's financial position over time.
- Section 3.4 reviews Manitoba Hydro's projected financial position in the future, as forecast under IFF14.
- Section 3.5 identifies key risks to Manitoba Hydro's performance.

3.2 Manitoba Hydro's Financial Targets

Manitoba Hydro has established three financial targets:

1. A debt/equity ratio of 75/25;
2. A minimum gross interest coverage ratio of 1.20; and
3. A minimum capital coverage ratio of 1.20, to facilitate funding of base or sustaining capital expenditure requirements out of current cash flow from operations, excluding major new generation and transmission facilities.

The three financial targets were established by Manitoba Hydro's Board in 1995. In connection with these targets, Manitoba Hydro commissioned two reports in 1995: Deloitte & Touche undertook a review of trends in the electric utility industry and RBC Dominion Securities provided a capital markets perspective on appropriate financial targets for Manitoba Hydro. The financial targets have been internally reviewed and periodically modified since 1995. These modifications have generally entailed modest adjustments in the minimum interest coverage ratio and the minimum capital coverage ratio. The debt/equity ratio target has remained at 75/25 since 1995, although the long-term timeline target to reach the target was pushed back from 2005/06 to 2011/12 following the drought in the early 2000s.

Manitoba Hydro has established the financial targets as long-term targets, recognizing that the targets will not be maintained during years of major investments in the generation and transmission.

3.2.1 Debt/Equity Ratio

The debt/equity ratio measures the relationship of long-term and short-term debt to equity. Effectively, Manitoba Hydro's calculation of its debt/equity ratio compares net debt to total capital (calculated as net debt plus equity). This ratio identifies the capital structure of the corporation and assesses the overall financial risk to Manitoba Hydro.

The ratio is calculated as follows:

Debt/Equity Ratio =

$$\frac{(A-B+C-D)}{(E+F+G+H+A-B+C-D)}$$

Where:

A = Long-Term Debt
B = Sinking Fund Investment
C = Short-Term Debt
D = Short-Term Investments
E = Retained Earnings
F = Unamortized Customer Contributions
G = Accumulated Other Comprehensive Income
H = Non-Controlling Interest

The capital structure as measured through the debt/equity (or debt to capital) ratio is universally accepted by the capital markets and financial and investment industry as one of the primary measures of financial strength.

Manitoba Hydro's objective is to maintain the appropriate balance between debt and equity. An adequate level of retained earnings is required to withstand the financial impacts of risks faced by Manitoba Hydro, including but not limited to drought and water flow, and is an important consideration in credit ratings and financing costs.

3.2.2 Interest Coverage Ratio

The Interest Coverage Ratio assesses the degree to which Manitoba Hydro can meet its interest ratio obligations with the net income generated annually.

Manitoba Hydro's Interest Coverage Ratio is calculated as:

$$\frac{(A+B+C)}{(B+C)}$$

Where:

A = Net Income
B = Finance Expense (interest on debt less capitalized interest and other adjustments)
C = Capitalized Interest

3.2.3 Capital Coverage Ratio

The Capital Coverage Ratio measures Manitoba Hydro's ability to fund its base capital expenditure (e.g., ongoing maintenance and replacement capital expenditure ("capex") from its current cash flow from operations.

The Capital Coverage Ratio is calculated as:

A/B

Where:

A = Cash Flow from Operations
B = Capital Expenditures (excluding Major New Generation and Transmission)

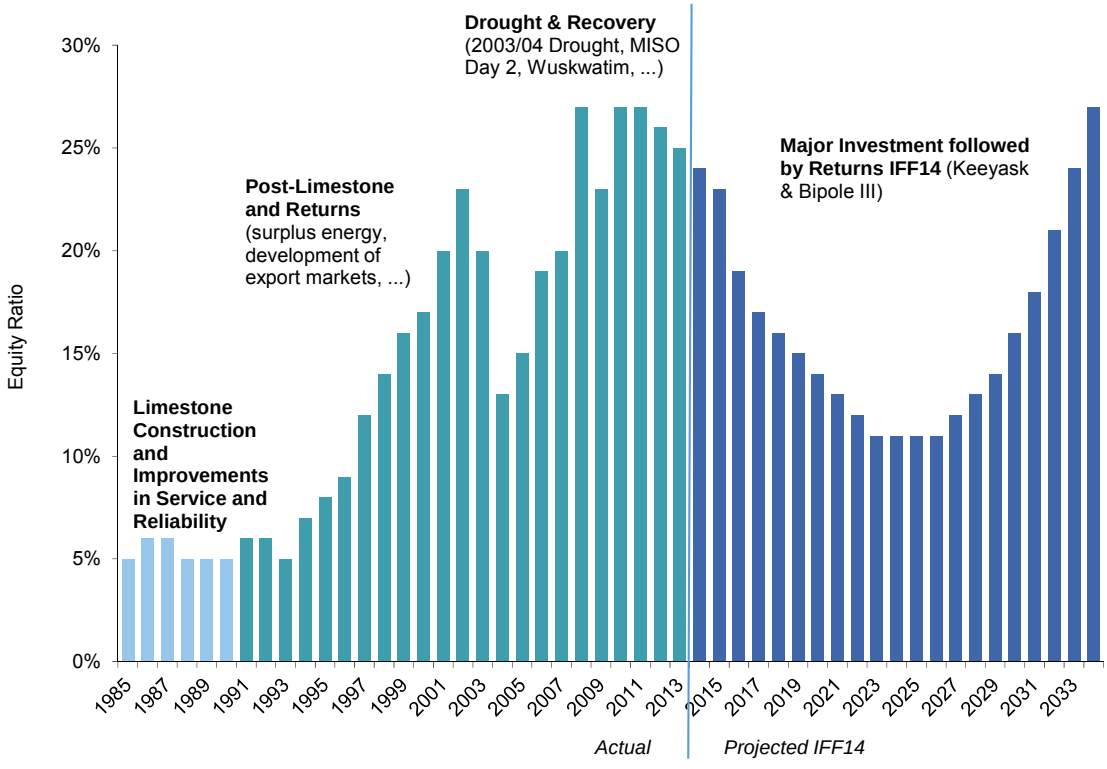
3.3 Historical Data and Trends

3.3.1 Equity ratio

The debt/equity ratio is often expressed simply as an equity ratio, thus focusing on the 25% equity component of capital and disregarding the proportion of debt (which remains at 75% by implication). Figure 3-1 below illustrates the long-term historical trends in Manitoba Hydro's equity ratio in the period from construction of the Limestone Generating Station, which started in 1985, through to 2014. The figure also shows the projected equity ratio under IFF14 over the next 20 years.

- During periods of development of large hydroelectric projects, Manitoba Hydro has experienced very low equity ratios (of under 10%).
- In the period following the completion of Limestone and with the development of export markets, the equity ratio grew rapidly. This continued through the 1990s until the drought in 2003-2004. The equity ratio then dropped sharply, from 25% in 2001/02 to below 15% in 2003/04.
- Since 2004, Manitoba Hydro has experienced a significant increase and recovery in the equity ratio, reaching the 25% equity ratio target in 2008 and in most years since 2008 until 2013/14. Under the IFF14 plan, however, the equity ratio is projected to deteriorate over the next decade as major capital projects are constructed, recovering once new assets are in service. Recovery is based on the rate increases of 3.95% annually under IFF14.

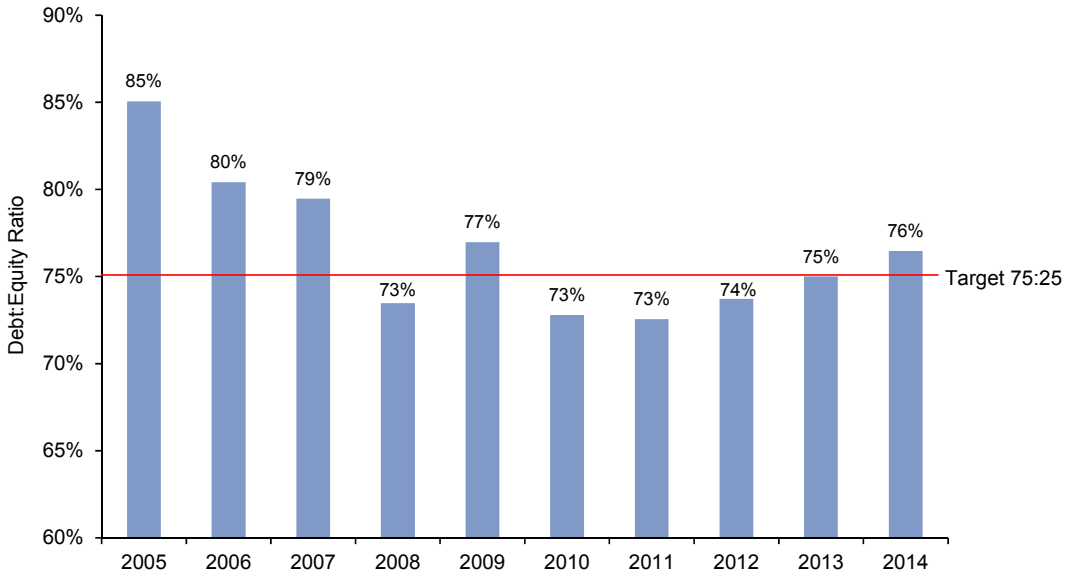
Figure 3-1: Manitoba Hydro's Equity Ratio from 1985 – 2034



Source: Manitoba Hydro

As indicated in Figure 3-2, over the past decade, after recovering from the 2003-2004 drought period, Manitoba Hydro's debt/equity ratio achieved the target in 2008 and has remained close to target through to 2013/14. The improvement in the debt/equity ratio since the 2003-2004 drought was assisted by above normal water conditions in the period following the drought.

Figure 3-2: Manitoba Hydro, Debt/Equity Ratio, 2004/05 to 2013/14



Source: Derived from annual report and financial statements for the years ended March 31.

The importance of capital structure is noted both in Manitoba Hydro's annual report and in an external review done on Manitoba Hydro's risk management practices in 2010.[9] The Board noted:

> "Manitoba Hydro manages its capital structure to ensure there is sufficient equity to absorb the financial effects of adverse circumstances and to ensure continued access to stable low-cost funding for capital projects and ongoing operational requirements. The Corporation monitors its capital structure on the basis of its equity ratio. Manitoba Hydro's long-term target is to achieve a minimum equity ratio of 25%. It is recognized that the equity ratio target may not be achieved during years of major investment in the generation and transmission systems."[10]

The external review noted:

> "Capital intensive industries such as electric utilities typically use greater leverage and have relatively high debt to equity ratios compared to most industries. In particular, a regulated utility with significant tangible assets and stable, relatively predictable future earnings will tend to use more debt financing and can take on higher debt than most companies in other industries. The more debt it can take on in its capital structure, the lower the overall cost of capital as the cost of debt is lower than the cost of equity. For utilities, equity, through retained earnings, provides confidence to financial markets and aids in securing financing at attractive rates, and provides increased assurance of future rate stability and a cushion against risk."[11]

[9] KPMG, Manitoba Hydro – External Quality Review, April 15, 2010.

[10] Manitoba Hydro 2014 Annual Report, p.97.

[11] KPMG, Manitoba Hydro -- External Quality Review, April 2010, p.16-17.

3.3.2 PUB comments on capital structure

Manitoba Hydro's capital structure has been a long standing issue that has drawn much attention in hearings at the Public Utilities Board of Manitoba ("PUB").

In September 1995, Manitoba Hydro adopted a target to achieve and maintain a debt/equity ratio of 75/25 by no later than 2006. Manitoba Hydro had an equity ratio of 9% in 1996 but, in response to its target, managed to increase the equity ratio to 20% in 2001.

In Board Order 101/04[12], the PUB noted that the 2003-2004 drought made it more difficult for Manitoba Hydro to achieve its equity target. The losses associated with the drought pushed back the date of realizing a 25% equity ratio by several years.

Prior to the drought, Manitoba Hydro had built up retained earnings of $1.3 billion. This equity provided a buffer for the financial impacts of the drought experienced in 2002/03 and 2003/04. Manitoba Hydro experienced a large loss in net income ($436 million) in 2003/04. Retained earnings subsequently declined to $734 million in fiscal 2004, a decrease of nearly 44% in just two years.

As a hydro-based system, drought periods have a significant adverse impact on power sales through reduced exports and, consequently, on net income. Conversely, high water flow periods contribute to additional surplus power and export sales and higher net income and retained earnings. Hence, drought is a major financial risk.

In 2004, the PUB provided the following comments on Manitoba's Hydro's debt/equity financial target:

> "Achieving a debt:equity level of 75:25 would provide increased rate stability benefits, and hold down financial charges. The 75:25 benchmark represents a modest target, one comparable with the current debt:equity ratios of similar Crown hydroelectric utilities in other Canadian provinces (BC Hydro and Hydro-Quebec). In summary, meeting this target within a reasonable period of time would reduce long-term pressure on domestic electricity rates, better assure bondholders and thus constrain financial charges and provide a hedge against a future drought."[13]

Subsequent PUB Board Orders reiterated the PUB's concern about Manitoba Hydro's overall debt level and the need to achieve the debt/equity target of 75:25 as quickly as possible. In a 2009 order, the PUB Board called for faster progress towards the 75:25 debt/equity target:

> "The Board notes the reported improvement in Manitoba Hydro's actual and forecast debt:equity ratio, and understands the improvement is largely attributable to two factors, the rate increases approved by the Board and recent favourable river flows bringing additional export revenues."[14]

The PUB has also commented on the importance of Manitoba Hydro's financial strength. For example, in 2008:

> "It is the Board's [PUB] understanding that rating agencies look prominently at MH's financial strength in assessing the credit rating of the Province. A weakening of the financial strength of MH would not be viewed favourably by those credit agencies and may have implications impacting the credit rating of the Province, making provincial borrowing more expensive. Such a development would not be in the public interest." [15]

[12] PUB Board Order 101/04, July 28, 2004, p.15.

[13] PUB, Board Order 101/04, July 28, 2004, p.31.

[14] PUB Board Order 31/09, March 30, 2009, p.14.

[15] PUB, Board Order 116/08, July 29, 2008, p.130.

In 2013, the PUB stated:

> "Manitoba Hydro currently has achieved its debt-to-equity target of 75:25. However, the Board is concerned about the contemplated deterioration in the utility's financial targets, particularly the fact that by 2021, the debt-to-equity ratio is projected to be 90:10. Any further escalations in the capital cost for Manitoba Hydro's major new capital projects will cause the financial structure to deteriorate further.
>
> "The Board is concerned that, by moving towards a 90:10 debt-to-equity ratio by the end of the decade, there will be an insufficient retained earnings reserve to deal with droughts and other risks such as infrastructure failure or rising interest rates.
>
> "The Board notes that Manitoba Hydro shares the benefit of the flow-through credit rating of the Province, which affords it preferential interest rates on its debt and access to funds to meet its major capital spending program. However, as its debt grows, there is a potential for Manitoba Hydro's financial condition to affect the credit rating of the Province. It is important that Manitoba Hydro remains a financially strong and viable organization."[16]

3.3.3 Interest coverage ratio

Figure 3-3 shows interest coverage ratios at Manitoba Hydro over the last decade. Manitoba Hydro has met its internal minimum interest coverage targets of greater than 1.2 in most years (except 2012 and 2013).

Figure 3-3: Manitoba Hydro, Interest Coverage Ratio, 2004/05 to 2013/14

Source: Derived from annual report and financial statements for the years ended March 31.

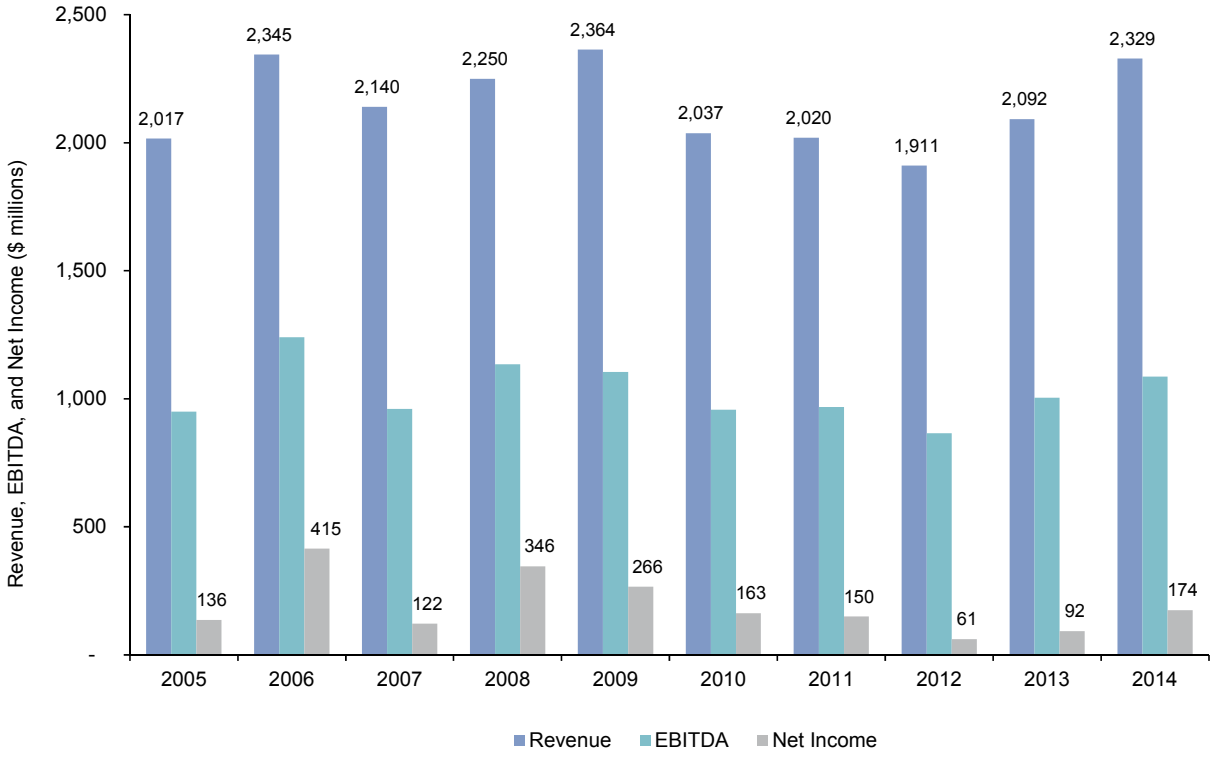
[16] PUB Board Order 43/13, pg.23.

3.3.4 Other financial indicators

Figure 3-4 shows trends in Manitoba Hydro's total revenues, in EBITDA (earnings before interest, taxes, depreciation and amortization), and in net income over the past ten years.

- Within total revenues, domestic electric sales within Manitoba have steadily increased throughout most of the past ten years to $1.4 billion in 2013/14.
- Extra-provincial electric sales have been significantly lower since 2010 and have averaged near $400 million annually from 2010 to 2014, compared to an annual average of $640 million from 2005 to 2009. A deterioration in pricing levels in adjacent US markets was the major reason for this decline.
- EBITDA has averaged over $1 billion annually over the past 10 years, and has fluctuated with net income.
- Manitoba Hydro's net income averaged over $190 million annually from 2005 to 2014, but net income has averaged $128 million in the past five years.

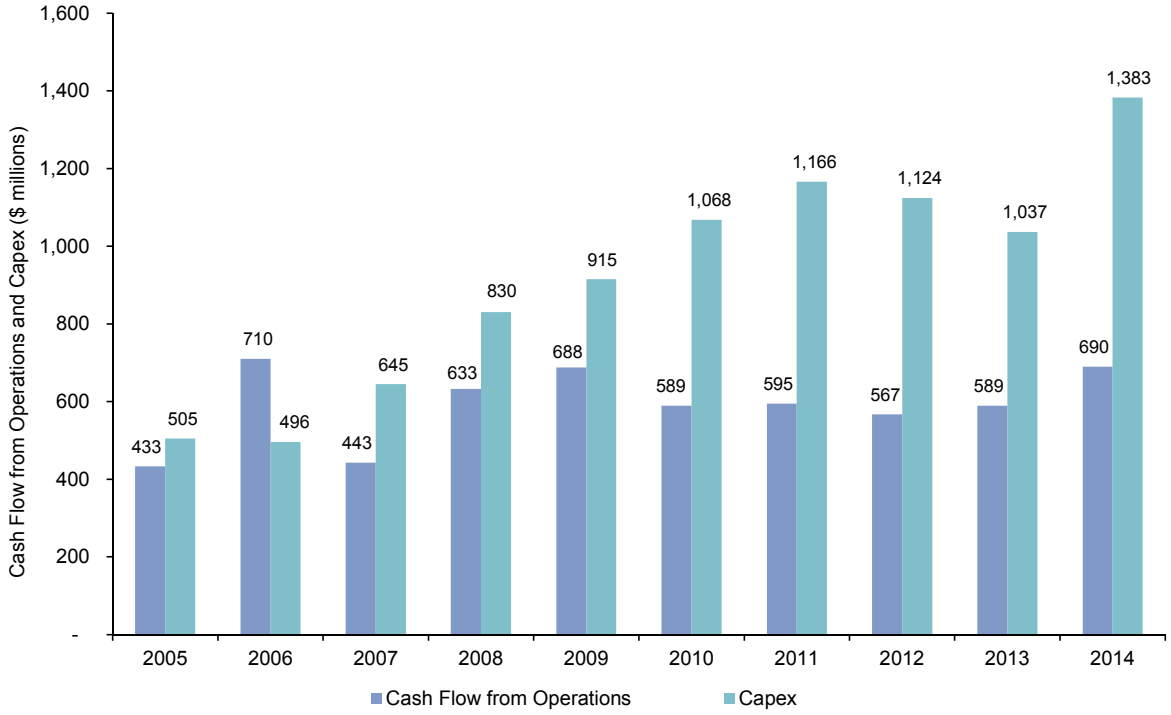
Figure 3-4: Manitoba Hydro Trends of Revenues, EBITDA and Net Income, 2004/05 to 2013/14



Source: Derived from annual report and financial statements for the years ended March 31.

Figure 3-5 shows trends in cash flow from operations and capital expenditures over the past 10 years. Manitoba Hydro's cash flow from operations has grown to $690 million in 2013/14 and has averaged close to $600 million from 2005 to 2014. Total capital expenditures have ramped up more rapidly since 2008, with the increase primarily related to the construction of the Wuskwatim generating station. This has resulted in an increasing gap between the two metrics, which is reflected in an increase in Manitoba Hydro's borrowing needs.

Figure 3-5: Manitoba Hydro, Cash Flow from Operations and Capex, 2004/05 to 2013/14

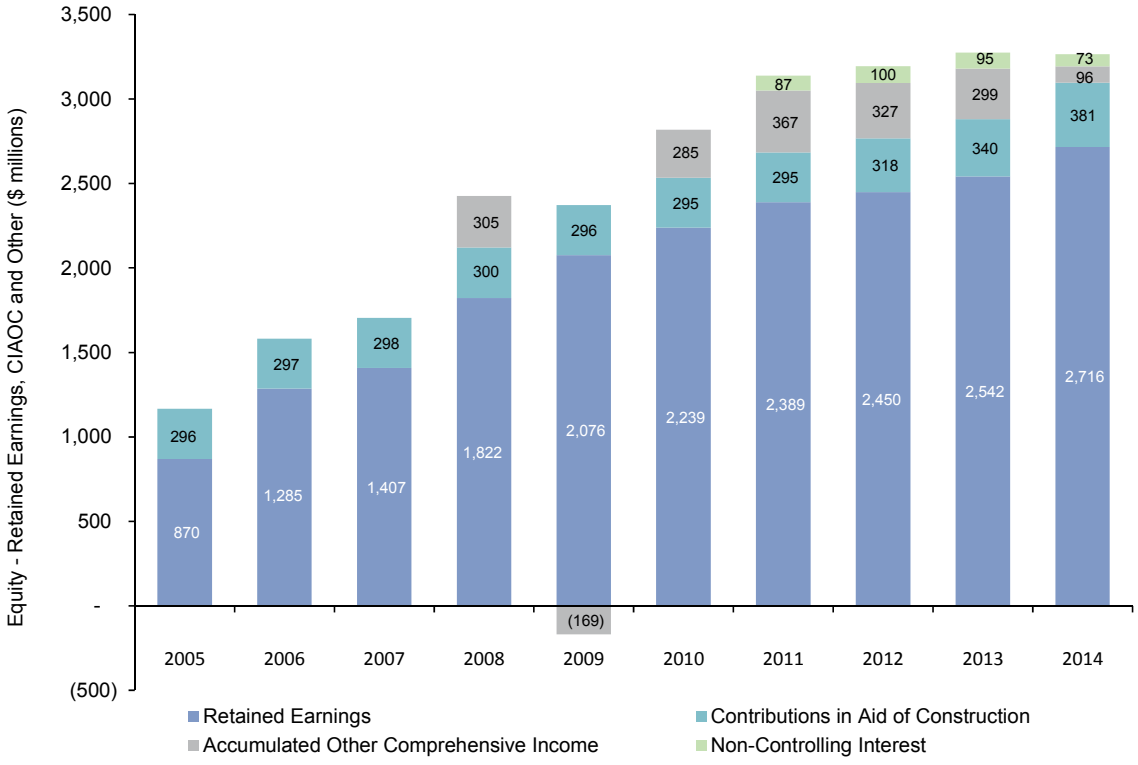


Source: Derived from annual report and financial statements for the years ended March 31.

Manitoba Hydro's retained earnings were significantly reduced during the 2002–2004 drought period. However, as shown in Figure 3-6, retained earnings then steadily increased over the ten year period to 2014, reaching a level of $2.7 billion in 2014. Total equity has grown to over $3.2 billion including contributions in aid of construction ("CIAOC"), accumulated other comprehensive income ("AOCI"), and non-controlling interest.

Manitoba Hydro's capital structure is put under considerable stress during times of major capital expenditures or a drought, due to reliance on retained earnings as its dominant source of equity.

Figure 3-6: Manitoba Hydro, Equity - Retained Earnings, Contributions in Aid of Construction, AOCI and Other, 2004/05 to 2013/14

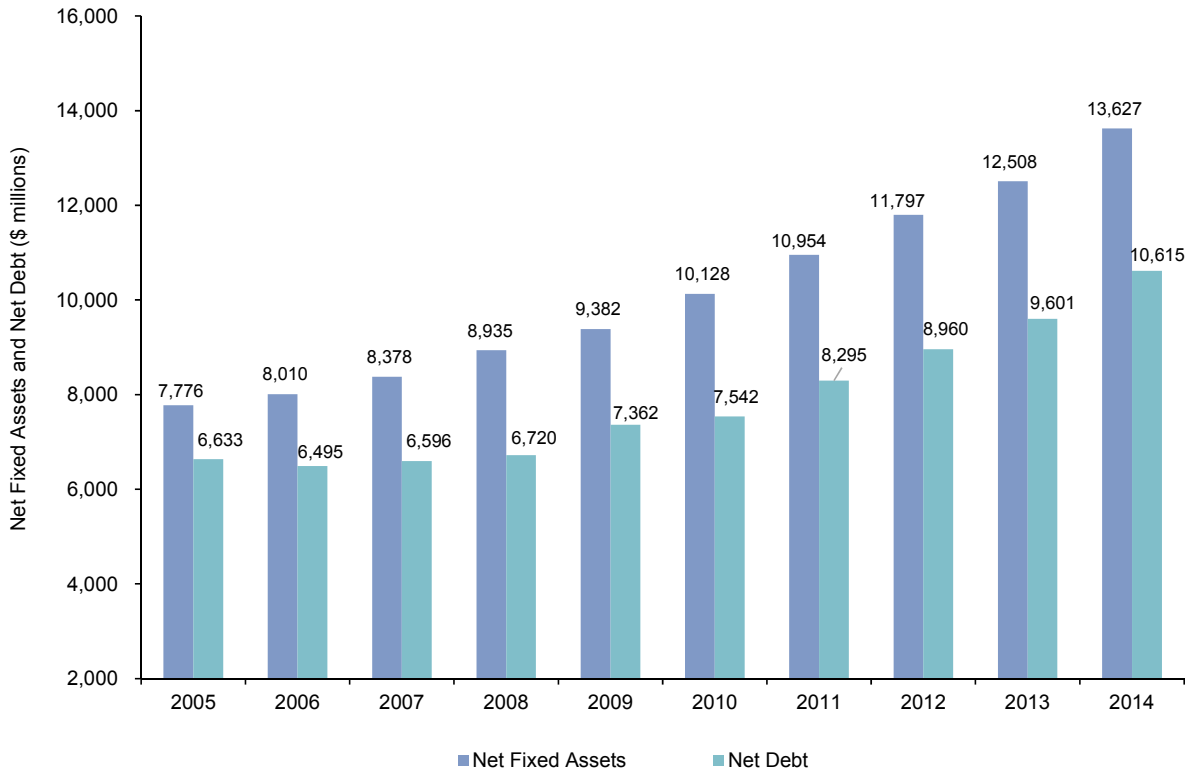


Source: Derived from annual report and financial statements for the years ended March 31.

Figure 3-7 indicates the level of Manitoba Hydro's net fixed assets and net debt over the past ten years.

- Manitoba Hydro's net fixed assets (net plant in service and construction in progress) have increased by approximately 75% since 2005 to over $13.6 billion in 2014.
- Manitoba Hydro's total assets were $15.6 billion in 2014 and are projected to nearly double over the next decade to over $28 billion in 2024 under IFF14, with net fixed assets expected to nearly double to over $25 billion in 2024.
- Net debt was relatively steady in the early and mid-2000s, but ramped up from 2009 to 2014 with the construction of the Wuskwatim project completed in 2012/13, and early stages of the Bipole III and Keeyask projects. Net debt increased from $6.7 billion in 2008 to over $10.6 billion in 2014, an average growth rate of nearly 10% annually. With major capital additions under construction, long-term debt is projected to double from 2015 to a level of over $23 billion in 2024.

Figure 3-7: Manitoba Hydro, Net Fixed Assets and Net Debt, 2004/05 to 2013/14



Source: Derived from annual report and financial statements for the years ended March 31. Net fixed assets include net plant in service and construction in progress.

3.4 Financial Metrics Forecast Over the Next 20 Years Under IFF14

Figure 3-8A illustrates forecast financial metrics over the next 20 years based on consolidated Manitoba Hydro projections under IFF14. Figure 3-8B provides the data table, and for illustrative purposes, shades the years where projections are above the target and within 10% of the target.

Figure 3-8A: Manitoba Hydro Financial Targets Based on Forecasts under IFF14

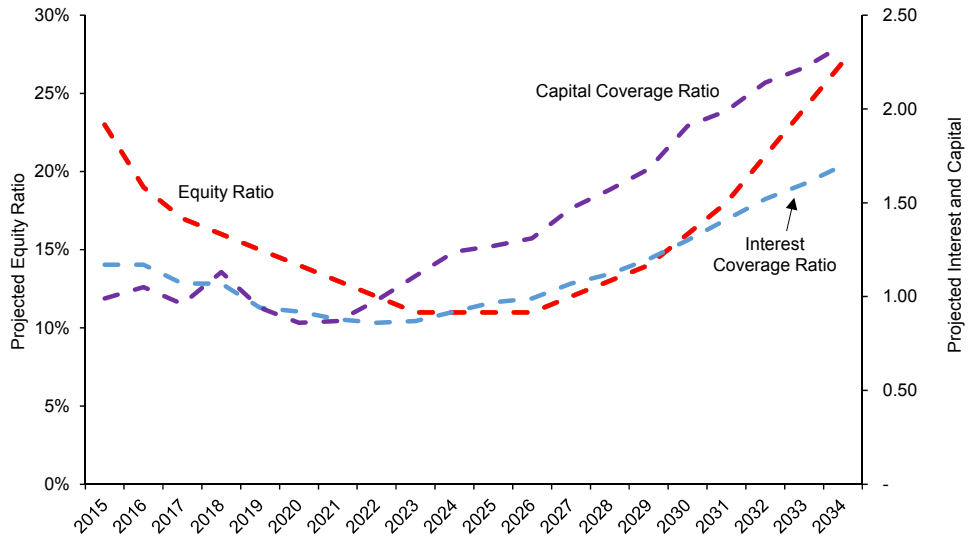
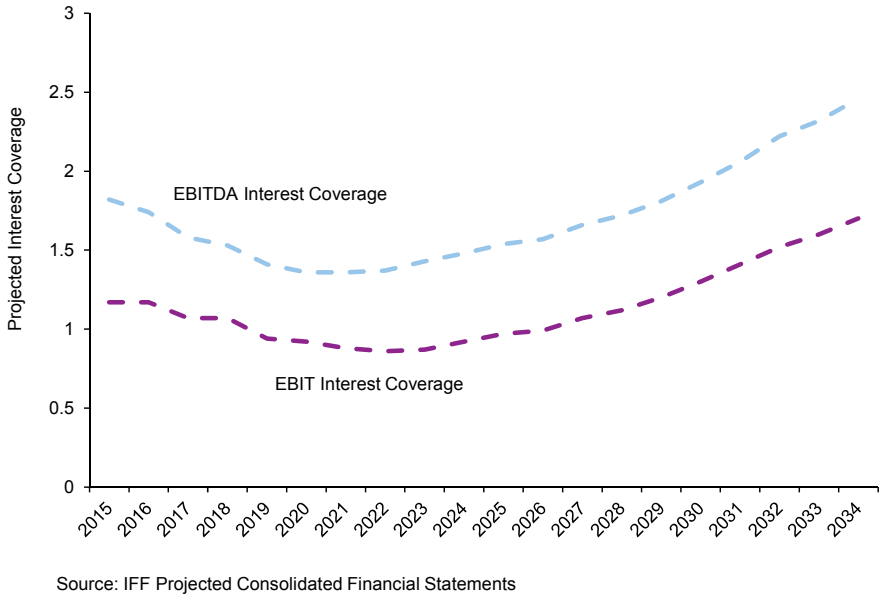


Figure 3-8B: Manitoba Hydro Financial Targets Data from Forecasts under IFF14

Projections from IFF14 (reflects within 10% of target)			
Year	Equity Ratio %	Interest Coverage	Capital Coverage
2015	23	1.17	0.99
2016	19	1.17	1.05
2017	17	1.07	0.96
2018	16	1.07	1.13
2019	15	0.94	0.94
2020	14	0.92	0.86
2021	13	0.88	0.87
2022	12	0.86	0.98
2023	11	0.87	1.11
2024	11	0.92	1.24
2025	11	0.97	1.27
2026	11	0.99	1.31
2027	12	1.07	1.47
2028	13	1.12	1.57
2029	14	1.20	1.68
2030	16	1.30	1.91
2031	18	1.41	1.99
2032	21	1.52	2.14
2033	24	1.60	2.22
2034	27	1.70	2.34

Source: from Projected Consolidated Financial Statements in Manitoba Hydro Integrated Financial Forecast (IFF14) 2014/15 - 2033/34, December 2014

Figure 3-9: Comparison of EBITDA and EBIT Interest Coverage Ratios under IFF14 for Manitoba



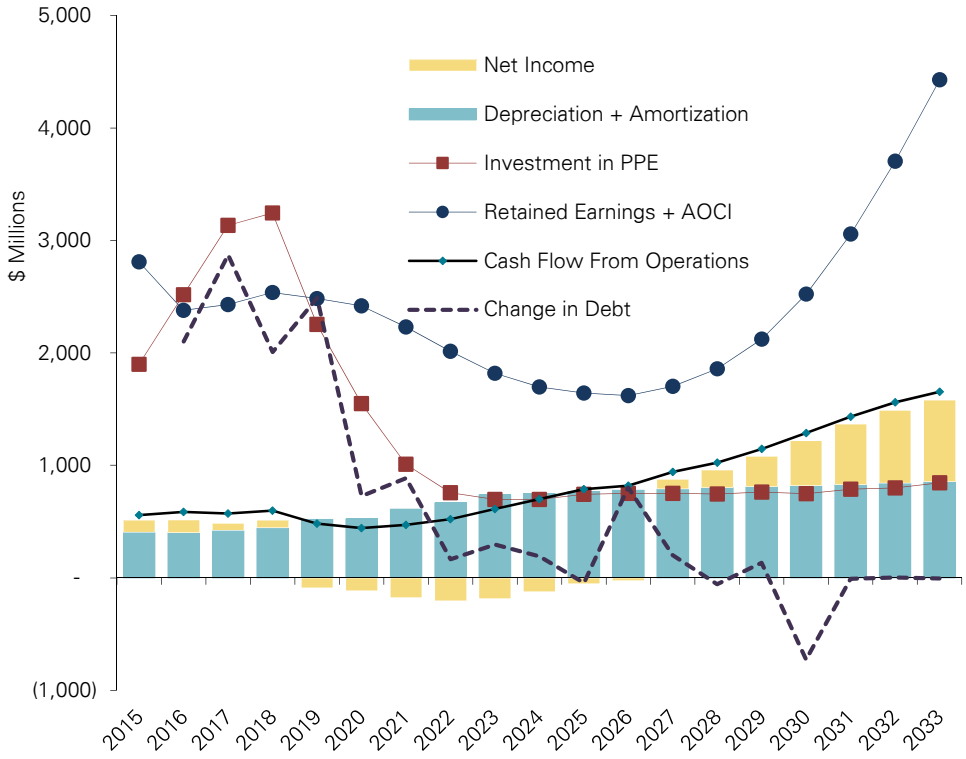
Source: IFF Projected Consolidated Financial Statements

Figure 3-9 provides a comparison of EBIT interest coverage and EBITDA interest coverage ratios under IFF14. As shown, these two ratios move in parallel, with the EBITDA interest coverage ratio, on average, approximately 50% higher than the EBIT interest coverage ratio. The EBITDA ratio provides an indication of cash flow interest coverage, since it adds back the non-cash expenses of depreciation and amortization to EBIT.

Although not shown on this graph, EBITDA grows steadily over the period. This is driven, in large measure, by increases in revenues as a result of the cumulative impact of successive 3.95% annual rate increases. The EBITDA interest coverage initially declines because of increases in interest expense. The EBITDA coverage ratio then grows steadily from its minimum level of 1.36 in 2021.

Figure 3-10 shows the forecast evolution of Manitoba Hydro's financial position over the next 20 years, based on projections in IFF14. All figures are shown in nominal dollars.

Figure 3-10: Forecast Evolution of Manitoba Hydro's Financial Position – IFF14



A review of Figure 3-10 indicates the following:

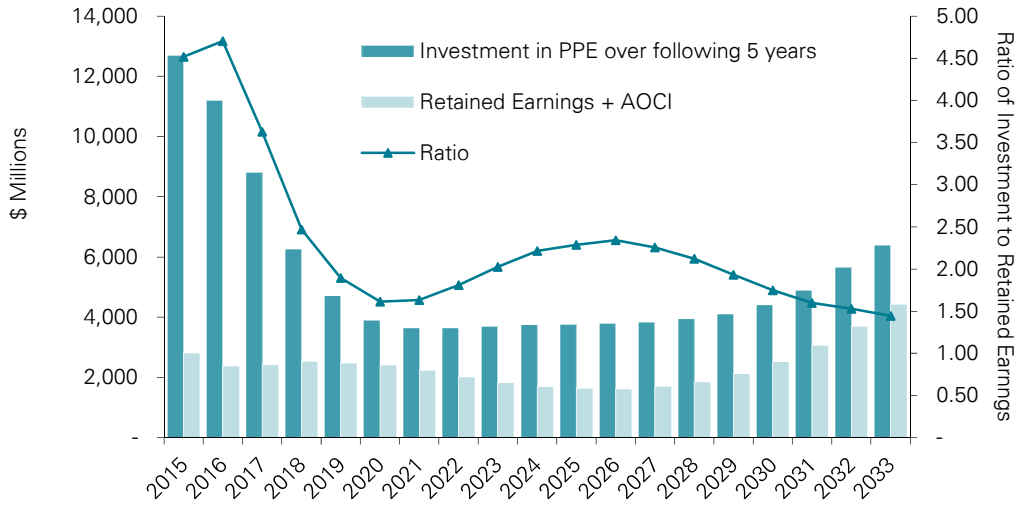
- Projected capital expenditures in property plant and equipment ("PPE") increase significantly over the next four years, reaching a peak of $3.2 billion in Fiscal 2018. They fall back again to about $800 million by Fiscal 2022 and then remain flat through to the end of the projection period. Growth in capital expenditures in the near term reflects work associated with the construction of Keeyask and Bipole III.
- Depreciation and amortization expense is just over $400 million in 2015, but increases gradually to $820 million by 2033. This non-cash expense provides a significant source of funding for new capital expenditures over the period.
- Net Income averages less than $100 million over the next four years, before turning negative in 2019 through to 2026.
- Cash Flow from Operations is roughly equal to the sum of net income and of expenses for depreciation and amortization over the period.
- Given the limited cash flow available from net income and from depreciation and amortization, capital expenditures in the near term must largely be funded by debt. Thus, the annual change in debt during the years 2016 through 2021 is closely related to capital expenditures.
- Beyond 2026, net income grows strongly. At the same time, projected capital expenditures are roughly equal to the cash flow available from depreciation and amortization expense. Because net income is retained rather than distributed as dividends, there is strong growth in retained earnings in this period. Strong cash flow avoids the need to add new debt and thus the annual change in debt falls to near zero or is negative.

The following observations and conclusions are in order:

- Retained earnings are currently the only source of new equity for Manitoba Hydro, given that the Province has not made a practice of investing new equity into its operations.
- Because annual earnings are relatively modest in comparison to projected capital expenditures in the near term, the result is a decline in the equity ratio. To maintain a stable equity ratio would require very large increases in rates to generate the income necessary to allow retained earnings to grow in proportion to the increase in debt.
- If rates are increased more than is forecast under IFF14 to improve the equity position during the upcoming period of construction, this will result in further increases in net income, and therefore additional potential reductions in debt, during the period post-2026.

Figure 3-11 provides an additional approach to examining Manitoba Hydro's financial position. This graph shows retained earnings (including AOCI) in each year as well as projected investments in PPE over the following 5 years.[17] The line shows the ratio between the two values. Higher ratios are indicative of higher capital cost risks, relative to the corporation's existing equity position, than lower ratios. Measured through this metric, capital cost risks peak on a relative basis in 2016. The ratio falls rapidly over the period to 2020, as investments in Keeyask and Bipole III are completed. The ratio rises again (to about 2.5) in the period to 2025. The rise in the ratio primarily reflects the fact that retained earnings are reduced over this period, reflecting annual net losses. Thus, although forward-looking capital expenditures remain roughly constant, they are divided by a smaller base of retained earnings. This increases the calculated ratio.

Figure 3-11: Ratio of Projected Capital Investment to Retained Earnings



[17] AOCI stands for Accumulated Other Comprehensive Income. It is a line item of the corporation's equity position.

Our observations with respect to Figure 3-11 are as follows:

- Relative to its equity base, Manitoba Hydro's risk with respect to capital costs is higher in the next two or three years than it will be for some time thereafter. There is a large cash outflow in the near term without corresponding cash inflows until Keeyask is in-service.
- The decline in Manitoba Hydro's relative capital cost risk going forward is contingent on there being no new large capital projects after Keeyask. The introduction of Conawapa into the planned development sequence would result in a significant increase in capital cost risks in the future.
- Manitoba Hydro's nominal equity position, as measured through retained earnings plus AOCI, does not grow beyond its current level until 2031. This indicates a substantial length of time during which Manitoba Hydro's nominal financial capacity will remain below current levels. Given the decline in real purchasing power over time with inflation, this suggests that Manitoba Hydro's real financial capacity will fall.
- As noted earlier in this Chapter, the projected equity position of the corporation is contingent on successive annual rate increases of 3.95%. Rate increases below this level would have a detrimental impact on relative capital cost risks.

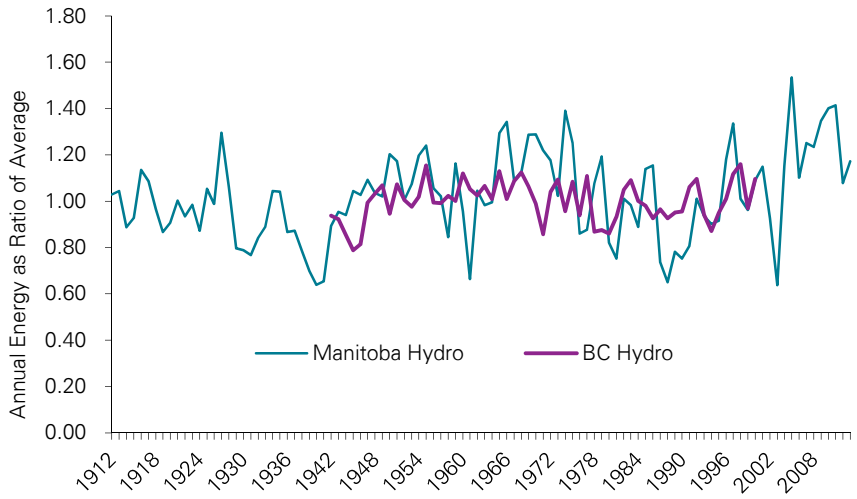
3.5 Key Risks at a High Level

3.5.1 Water Flows and Production Volatility

A distinguishing feature of Manitoba Hydro's system is that it is subject to relatively wide fluctuations in available energy due to variation in annual water flows. This is also referred to as hydrology risk. Figure 3-12 illustrates the annual variation in available inflow energy over the period 1912 to 2013. Energy available from water flows in any year is compared to average annual energy available over the sample period for the Manitoba Hydro system. Showing energy as a ratio of average energy is a way of normalizing the data to facilitate comparison with other systems of different size. For any year, available energy is estimated by assuming that the current MH system in place was in place for the entire period. This removes distortions associated with the growth in the MH system over time.

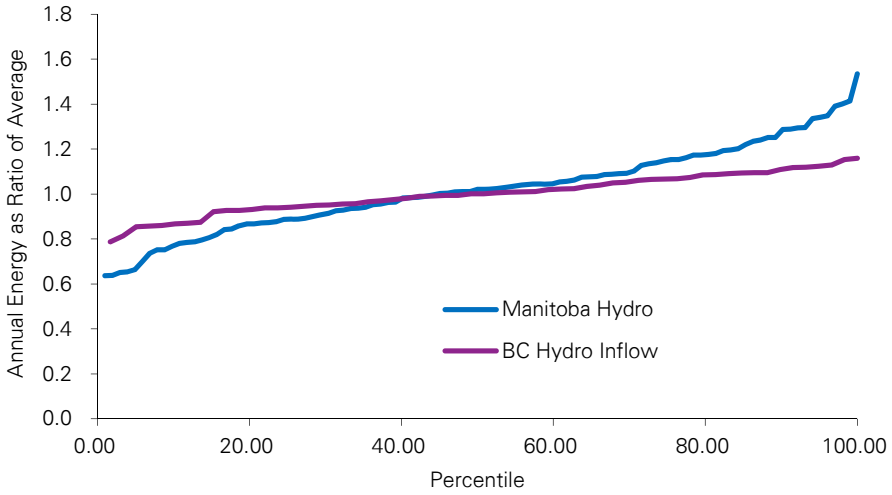
Data from BC Hydro are also shown, although for a shorter period (1942 to 2000). As shown, the MH system has a much wider fluctuation in available energy on a relative, or normalized, basis.

Figure 3-12: Comparison of Production Volatility



An alternative approach to showing the same data is to present data points for individual years in order of highest to lowest. This is done in Figure 3-13 below. As shown, the lowest flow year for the Manitoba Hydro system has just under 64% of the energy of an average year. In comparison, the lowest flow year for the BC Hydro system has about 79% of the average energy observed. These data show that the Manitoba system has higher flow volatility and, hence, higher inherent production risk. An additional consideration is that water flows in Manitoba exhibit greater serial correlation than those of other systems, resulting in greater potential for multi-year droughts. This heightens concerns over production risk.

Figure 3-13: Annual Production Levels from Lowest to Highest



Flow volatility is an important consideration in setting utility financial targets, since targets must be set so as to accommodate potential deviations from expected flows.

3.5.2 Other Key Risks

In addition to hydrology risk, Manitoba faces a number of other key risks. These are as follows:

- Infrastructure;
- Export markets;
- Interest rates;
- Construction cost and schedules.

These are discussed further below.

Infrastructure

Much of Manitoba Hydro's generating capacity is located in the northern part of the Province and is distant from major load centres and from inter-ties with neighbouring jurisdictions. As a result, Manitoba Hydro is very dependent on its long-distance transmission lines and supporting infrastructure. Service on these lines is at risk from catastrophic disruption, including as a result of weather events, equipment malfunction, or sabotage. Failure of one or more transmission lines could result in disruptions to service and in revenue losses. Failures may also require large expenditures for repair and rehabilitation.

Export Markets

As noted elsewhere, the nature of Manitoba Hydro's system is that, in most years, it has large amounts of excess (or "opportunity") energy that is available for export. The availability of excess supply reflects the fact that Manitoba Hydro builds out its system so that the amount of dependable energy available is sufficient to serve domestic and firm export commitments in low water flow years. Dependable energy is the sum of hydro-electric energy available under the lowest river flow conditions in the historical record, plus energy available from wind and thermal sources and from firm and contracted non-firm imports. The opportunity energy available in higher flow years is not viewed as dependable and hence not sold on a long-term basis.

Manitoba Hydro's extra-provincial and export revenues are very dependent on price levels in adjacent electricity markets, particularly that operated by the Midcontinent Independent System Operator ("MISO"). Further, because opportunity energy is, by definition, not available to support firm long-term contracts, this energy must generally be sold on a short-term basis. This heightens exposure to external price volatility.

Interest Rates

As a utility with a significant level of debt in its capital structure, Manitoba Hydro is very dependent on the level of interest rates, which influence its interest expense. This risk will grow as the utility completes the capital expansion program noted below. As a result of this program, both the quantity of debt and its share in Manitoba Hydro's capital structure will grow significantly.

Construction

Manitoba Hydro is embarking on a major capital expansion program, with the building of both Keeyask and Bipole III in the next few years. These major projects heighten Manitoba Hydro's exposure to the risks of construction cost over-runs and delays. While these construction risks moderate after the completion of these projects, Manitoba Hydro will also continue to face uncertainty with respect to the value of rehabilitation and renewal expenditures that will be required on its existing generation, transmission and distribution infrastructure. If additional expenditures are required relative to current forecasts, demands on the utility's cash flows will increase.

3.6 Summary Observations

Key observations from the analysis in this chapter are as follows:

- Manitoba Hydro has significantly increased its financial strength over the past two decades, consistent with the long-term objectives laid out when the current financial targets were first established back in 1995.
- Manitoba Hydro's financial position will be significantly challenged by the upcoming period of large capital expenditures.
- Manitoba Hydro faces a number of business and market risks that suggest that financial targets should provide additional equity cushion than if these risks were not present.

4 Overview of Developments and Issues Raised by Regulatory Bodies and Other Stakeholders in Canada

This chapter reviews developments with respect to the financial targets of Manitoba Hydro and of other Crown utilities in Canada. This includes discussions of issues raised by regulators, government shareholders, and other stakeholders in connection with utilities' financial targets.

4.1 Structure of the Chapter

This Chapter is organized into the following sections:

- Section 4.2 reviews statements by the Public Utilities Board of Manitoba on Manitoba Hydro's financial targets.
- As a prelude to our review of specific Crown utilities, Section 4.3 provides an overview of some conceptual issues that need to be taken into account when comparing the financial targets of Manitoba Hydro with those of other Crown utilities. These issues are also important when examining statements or decisions by other regulators with respect to financial targets.
- Section 4.4 reviews developments at BC Hydro.
- Section 4.5 reviews developments at Hydro Quebec,
- Section 4.6 reviews developments at Nalcor.
- Section 4.7 reviews developments at NB Power.
- Section 4.8 reviews conceptual issues with respect to the use of private-sector benchmarks for Crown-owned utilities.
- Section 4.9 provides our overall summary observations with respect to the analysis in this Chapter

4.2 Public Utilities Board of Manitoba

4.2.1 Mandate

Section 26(1) of *The Crown Corporations Public Review and Accountability Act* provides that rates for services provided by Manitoba Hydro shall be reviewed by The Public Utilities Board ("PUB") under *The Public Utilities Board Act*. Thus, Manitoba Hydro shall make no change in rates for services nor shall it introduce any new rates for services without the approval of The Public Utilities Board.

4.2.2 Rate setting methodology

The PUB has stated that Manitoba Hydro is regulated on a cost of service basis and that it recovers its costs from domestic consumers through PUB-approved rates. [18] In practice, this means that rates are set to allow Manitoba Hydro to meet, over the longer term, a number of financial targets. As noted elsewhere in this report, Manitoba Hydro's financial targets provide for Manitoba Hydro to maintain:

- A debt/equity ratio of 75/25.
- A minimum interest coverage ratio of 1.20, and

[18] NFAT Final Report, June 20, 2014, p. 162.

- A minimum capital coverage ratio of 1.20.

The PUB has referred to these targets as "self-imposed".[19]

It should be noted that rates are not set to produce a target return on equity. Manitoba Hydro is not regulated on a cost of capital or return on equity basis. Further, Manitoba Hydro may, in practice, deviate from the financial targets noted above in any given period.

4.2.3 Cost of capital

Although it does not target a particular return on equity, Manitoba Hydro does incorporate a notional cost of equity into the discount rate that it uses for evaluating alternative development plans. Thus, the discount rate used in its resource planning process is intended to represent a Weighted Average Cost of Capital ("WACC"), where:

- The cost of debt is based on Manitoba Hydro's actual cost of borrowing, including the debt guarantee fee.
- The cost of equity is estimated to be 3.00% plus the cost of debt.
- Debt and equity are weighted according to the 75/25 target shares for each.

The figure for WACC is not used directly in the rate setting process. In most years, the actual return on equity for Manitoba Hydro departs from the deemed cost of equity used in setting the discount rate for resource planning. In most recent years, the return on equity has been much lower than the return on equity used for resource planning.

4.2.4 Historical PUB statements on financial targets

In recent years, the PUB has expressed concern over the projected deterioration in Manitoba Hydro's financial position during its upcoming period of investment. In its review of Manitoba Hydro's preferred development plan, however, the PUB also suggested that financial targets might be relaxed to reduce rate impacts on consumers. Thus, PUB statements reflect the tension between the desire to minimize rate increases and the need to maintain Manitoba Hydro's financial health.

Specific statements by the PUB are summarized in more detail in the sections below.

Review of Manitoba Hydro's General Rate Application

In its Final Order with respect to Manitoba Hydro's 2012/13 and 2013/14 General Rate Application, the PUB wrote:

> "The Board is concerned with the projected future deterioration of Manitoba Hydro's financial targets, in particular the debt-to-equity ratio that will fall from a current level of 75:25 to 90:10 by 2021, even with projected annual rate increases of approximately 4%, which is twice the projected level of inflation. This deterioration will put Manitoba Hydro in a weaker financial position given its planned capital spending over the next two decades."[20]

[19] NFAT Final Report, June 20, 2014, p. 164.

[20] Manitoba PUB, Order No. 43/13, April 26, 2013, p.2.

NFAT Proceeding

In the NFAT proceeding following the above Final Order, the PUB noted as Recommendation 13:

> "The Panel recommends that Manitoba Hydro relax its 75/25 debt-to-equity ratio policy to moderate its proposed electricity rate increases." [21]

Elsewhere in the same report, the PUB noted:

> "The Panel supports a relaxation of Manitoba Hydro's 75/25 debt-to-equity ratio to smooth out rate increases and the Panel concludes that Manitoba Hydro would still be left with sufficient retained earnings if the equity level was decreased." [22]

Summary Discussion

In reviewing the statements made by the PUB above, it is important to recognize that a major challenge associated with MH's financial targets is that actual results will tend to fall short of these targets during periods of major investment. This reflects MH's reliance on retained earnings for growth in its equity base. Thus, the PUB's statement that the 75/25 debt/equity ratio should be relaxed could be interpreted simply as a practical recognition that this target will not be met during a period of large capital expenditures and when newly constructed assets are placed in service.

Accordingly, the 75/25 target could remain the long-term objective. The short-term question is then how large a short-fall can be allowed in the interim. In this respect, the Board expressed concern in an earlier rate proceedings regarding an increase in debt to 90% of capital. Thus, in the body of its Final Order following the 2013 rate proceeding, the PUB wrote:

> "The Board is concerned that, by moving towards a 90:10 debt-to-equity ratio by the end of the decade, there will be an insufficient retained earnings reserve to deal with droughts and other risks such as infrastructure failure or rising interest rates." [23]

The above quotation is consistent with a desire to minimize the risk that Manitoba Hydro will face financial distress, which is an important objective in the setting of financial targets. It also suggests that it would be helpful to have some guidance regarding how much deviation is appropriate in any circumstance.

4.2.5 Requirement for risk analysis

Inherent in the setting of financial targets is the need to analyse risk. Since a key objective of targets is to ensure that the corporation has adequate reserves to avoid financial distress, it is important to quantify the magnitude of the risks that could give rise to such distress. Risks are likely to grow in a period of large capital expenditures. The PUB has noted:

> "The Board notes that Manitoba Hydro shares the benefit of the flow-through credit rating of the Province, which affords it preferential interest rates on its debt and access to funds to meet its major capital spending program. However, as its debt grows, there is a potential for Manitoba Hydro's

[21] NFAT Final Report, June 20, 2014, p. 36.

[22] NFAT Final Report, June 20, 2014, p. 29.

[23] Manitoba PUB, Order No. 43/13, April 26, 2013, p.23.

> financial condition to affect the credit rating of the Province. It is important that Manitoba Hydro remains a financially strong and viable organization." [24]

In response to its concerns over risk, the PUB ordered Manitoba Hydro to file an analysis of its reserve requirements as follows:

> "It is ordered…That Manitoba Hydro file, with its next General Rate Application, a detailed quantitative and probabilistic risk assessment and review of all of its operating and financial risks in order to allow the Board to assess the adequacy of the reserves."[25]

Scenario analysis undertaken by Manitoba Hydro in the course of our review, and as outlined in more detail in Chapter 7, will help to address these requirements of the PUB.

4.3 Business and Regulatory Context

4.3.1 Overview of section

This section reviews a number of issues that need to be considered in evaluating statements by regulators and by other parties on the financial targets of Crown utilities. These issues are as follows:

- Business structure.
- The scope of financial targets.
- Requirements for dividend payments.
- Requirements for a target return on equity.

These issues are addressed in each of the sub-sections below in turn.

4.3.2 Business structure

In comparing the financial targets of Manitoba Hydro to other Crown utilities, differences in the various utilities' corporate structure need to be considered. Partly as a consequence of differences in structure, provinces also vary in the scope of a regulator's jurisdiction. Manitoba Hydro operates as an integrated utility and all generation and distribution activities, including those associated with export sales, are undertaken within one corporate entity. In many other jurisdictions, in contrast, generation and/or export activities are undertaken outside of the regulated utility. In these other jurisdictions, the regulator may then have jurisdiction only over a narrower scope of activity associated with the provision of electricity to consumers of the monopoly distribution utility. For example:

- Hydro-Quebec has separate business segments associated with generation, transmission and distribution. The regulator approves tariffs and makes associated decisions on capital structure only for the transmission and distribution segments. (The segments operate within a single corporate entity but have separate reporting.)
- Nalcor Energy ("Nalcor") is the holding company that owns Newfoundland and Labrador Hydro ("NLH"), in addition to the province's interest in the original Churchill Falls development and in the more recent Lower Churchill Project. Of these companies, only NLH is regulated by the Newfoundland and Labrador Board of Commissioners of Public Utilities ("Newfoundland PUB").
- Prior to the most recent restructuring in 2013, NB Power had been divided into separate generation, transmission and distribution companies. This division was in anticipation of the ultimate opening of a

[24] Manitoba PUB, Order No. 43/13, April 26, 2013, p.23.

[25] Manitoba PUB, Order No. 43/13, April 26, 2013, p.3.

competitive generation market following the standard competitive market model. The regulator had jurisdiction only over the transmission and distribution companies.

In jurisdictions with business separation, the pricing between an unregulated generation company and the monopoly utility may be the result of government legislation rather than being something that is subject to regulatory oversight. As a result, the regulator may be mandated to accept these pricing arrangements rather than having the jurisdiction to review them. Thus, for example, legislation provides that Hydro-Quebec Distribution has access from Hydro-Quebec Production to a set amount of power (the "Heritage Pool") at a favourable price. The regulator does not have oversight over associated generation costs.

4.3.3 The scope of financial targets

Because regulators may not have oversight over the entire scope of a Crown utility's operations, they may not have passed judgement on the financial objectives and targets of the overall corporation. This will make statements by these other regulators less relevant as precedents for Manitoba Hydro.

In those jurisdictions with limited scope of regulatory review, financial targets and guidelines of the overall corporation may thus be determined by decisions made outside of the regulatory process. Such decisions may be implemented through government legislation or via covenants associated with debt at the holding company level. Decisions may reflect considerations beyond simply an assessment of the utility's business risk profile; they may reflect, for example, government policy and related economic development or social objectives, such as desires for rate continuity or smoothing. Thus:

- Financial targets for BC Hydro have been imposed by the government as part of the government's 10-year plan issued in 2013.
- The New Brunswick government has directed NB Power to achieve a target equity ratio of 20% of total capital and to reduce its outstanding debt by 20% relative to levels in place in 2011.
- The government of Newfoundland and Labrador has specified the limits for the capital structure of NLH and also specified the benchmark that is used for its target equity return (which is the return set for Newfoundland Power). Thus, the Newfoundland PUB does not directly set the cost of equity reflected in rates or the capital structure of the utility.
- Nalcor has debt agreements that limit the ratio of unconsolidated debt to total capitalization to 70% and that require that debt service coverage ratios exceed 1.5.[26]

4.3.4 Requirements for dividend payments

Another consideration in the comparison of financial targets is the income expectations of the Province as shareholder. Many jurisdictions other than Manitoba have an expectation that the Crown utility will provide regular dividend payments. For example:

- BC Hydro was required to make dividend payments to the Province equal to 85% of its Net Income in each fiscal year. This requirement was subject to the constraint that dividends would only be paid to the extent that they did not result in increasing debt to more than 80% of the utility's capital.[27] (It is important to note that the requirement to pay dividends has recently been relaxed to allow the utility to move toward a long-term debt to equity ratio of 60:40.)

[26] Nalcor Energy, 2013 Business and Financial Report, p. 77.

[27] Review of BC Hydro, June 2011, p. 96.

- Hydro-Quebec's dividend policy is to distribute 75% of its net result.[28]

4.3.5 Target equity return

Manitoba Hydro has been one of the few Crown utilities in which rates have not been set using a specific weighted average cost of capital, based on a specific mix of equity and debt in the utility's capital structure, a target return on equity, and recovery of the costs of debt. It should be noted, however, that:

- For jurisdictions with regulation of only the distribution and transmission companies, such as Quebec and (formerly) New Brunswick, target rates of return set by the regulator applied only to the monopoly regulated activities and have not included generation.
- Similarly, the Newfoundland PUB regulates rates for NLH (which includes on-island generation) but not for the broader generation activities of Nalcor Energy, its parent. The target return on equity for NLH has been set by the government to equal that applied by the PUB to Newfoundland Power. The proportion of equity is limited by legislation to the proportion allowed by the PUB for Newfoundland Power, but the shareholder and management can chose (and have chosen) to have a lower proportion. Hence, the Newfoundland PUB does not have an unfettered role in setting NLH's level of return or its capital structure – it influences these parameters only through its decisions with respect to Newfoundland Power.
- The BC government has abandoned the use of specific target equity return for BC Hydro with the implementation of its 10-year plan for the utility.

For Manitoba Hydro, setting rates to achieve a specific target return on equity could be problematic. This reflects a number of considerations:

- The shareholder does not expect to earn a dividend stream and retained earnings are viewed as reserves that are to be used for rate smoothing and for protection against business and market risks. In the context of this "closed loop", there is limited practical difference between the ratepayer and shareholder. Accordingly, earnings generated in any period will necessarily be retained, facilitating investment in current or future periods. Additional earnings in one period will result, all else being equal, in lower required rates in future periods. Setting a specific target return on equity would limit the freedom of the utility and its regulator to smooth rates. Further, it may impede the utility's ability to achieve its financial targets and, in particular, its desire to maintain a certain debt/equity ratio.
- Export sales and supply to domestic consumers are integrated into one entity. Earnings from exports are used to lower the revenues that must be collected from local consumers. There is no business separation between market and monopoly services.

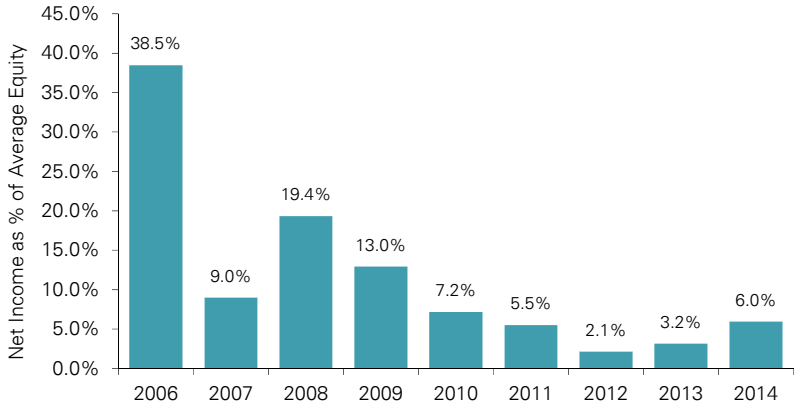
It is worth noting that Manitoba Hydro's actual return on equity over the past five years has generally been well below that of the allowed equity returns for other regulated utilities. Prior to that, however, earnings as a percent of equity have been higher than that of regulated utilities. This is shown in Figure 4.1 below. In this context, however, note:

- Earnings in 2006 were influenced by very high water flows. Above average flow conditions also applied in 2008 and 2009 (as well as in the years subsequent to this).
- Manitoba Hydro's equity base was below target prior to 2008, meaning that the observed return on actual equity is biased upward by the high leverage of the utility at the time.

[28] Hydro Quebec 2013 Form 18-K, p. 22.

- Prior to the global economic downturn in 2008, and subsequent weakness in natural gas prices and electricity demand growth, earnings were supported by high export prices for power sold into adjacent US markets.

Figure 4-1: Manitoba Hydro's Return on Average Equity[29]



Developments in specific jurisdictions are summarized in more detail in the following sections of this chapter.

4.4 BC Hydro

As a result of cost pressures associated with demand growth and the need for new generation expansion, BC Hydro's financial position has been the focus of significant attention. In particular, the Government of British Columbia commissioned a comprehensive financial and administrative review of the utility in response to a series of proposed rate increases. The government then provided specific direction to the utility and its regulator with respect to financial targets and objectives. As a result of this policy attention, this utility is an important component of our jurisdictional review.

Orders in Council from the Province of British Columbia establish the basis for determining BC Hydro's equity for regulatory purposes, as well as for the purpose of calculating the annual payment to the Province of BC. For these purposes, the applicable Order in Council defines debt as revolving borrowings and interest-bearing borrowings less investments held in sinking funds and cash and cash equivalents. Equity comprises retained earnings, accumulated other comprehensive income (loss) and contributed surplus.

4.4.1 New 10-Year Plan

In November 2013, the BC government announced a new 10-year plan for BC Hydro. A notable feature of this plan is that it provides very specific directives to the utility and to the regulator on issues related to rates and capital structure. It therefore pre-empts regulatory processes that might have otherwise been applied to these issues.

[29] For the purpose of this calculation, equity has been defined to include Accumulated Other Comprehensive Income (AOCI) and Non-Controlling Interest, but does not include Contributions in Aid of Construction.

The 10-year plan entailed significant changes in the utility's financial targets and in payments by the utility to its shareholder, the Province. Notable elements of this plan include the following:

- Dividend payments will be gradually reduced after Fiscal 2017, and will fall to zero by Fiscal 2022.
- The reduction in dividends noted above will support an increase in retained earnings and, hence, a decrease in the ratio of debt to equity from 80:20 to 66:34 by Fiscal 2022.
- Dividends will remain at zero after 2022 until the utility's debt/equity ratio reaches 60:40.
- Beginning in Fiscal 2018, the allowed net income will be increased annually simply by inflation.[30] The concepts of deemed equity and an allowed rate of return on such equity will no longer be used. As a result of this shift, projections provided at the time the plan was announced show that the return on equity for the utility will fall from 11.84% to 10.42% over the period to Fiscal 2024.[31]
- Tier 3 water rentals are eliminated in fiscal year 2018, which is expected to result in cost savings of near $50 million annually to BC Hydro. (For context, BC Hydro paid $361 million in total water rental fees in 2013/14. The Province of B.C. has three tiers of water rental rates for power, which increase for higher output thresholds in megawatt-hours.)

In addition to decreases in dividend payments, the plan also calls for reductions in operating expenses compared to those that would otherwise have been incurred.

The new 10-year plan was prompted by ratepayer concerns over a series of rate increases that had been requested by BC Hydro in 2011. In that year, BC Hydro had announced that it would seek a cumulative increase in rates of 32.1% over 3 years.[32] The impact of the plan was to reduce these cumulative rate increases to approximately 20%. More specifically, the government directed the British Columbia Utilities Commission ("BCUC") to impose rate increases of 9% and 6% in the first two years of the plan. For the following three years, BCUC has been directed to set increases within caps of 4%, 3.5%, and 3%.

The rate increases provided will not recover BC Hydro's full revenue requirement over the initial period of the plan. Accordingly, the plan provides for regulatory deferral accounts to cover the revenue shortfall. These deferral accounts grow to $1.09 billion by Fiscal 2020 but are subsequently eliminated by Fiscal 2024.

4.4.2 BC Hydro's use of deferral accounts

As noted above, regulatory accounts are used to defer costs and to help in rate smoothing over the period of the 10-year plan discussed above. BC Hydro has, in addition, used similar regulatory (or deferral) accounts for postponing the recovery of many other costs. This practice has been ongoing for many years. In particular, such accounts have been used to defer costs associated with large capital projects. The review of BC Hydro noted:

> "During periods of large increases in capital expenditures, BC Hydro debt will grow faster than it is being repaid. In an effort to smooth rate impacts, higher regulatory accounts and debt balances are being utilized. These increased balances will put continued pressure on rates for many years to come. Capital structures among other public sector utilities currently range between 60:40 and 73:27 debt to equity and have stated targets in place to maintain levels between 65:35 and 75:25. Private

[30] BC Hydro Service Plan 2014/15-2016/17, p.17.

[31] 10 Year Plan for BC Hydro, Presentation by Bill Bennett, Minister of Energy and Mines, November 26, 2013, p. 31.

[32] 10 Year Plan for BC Hydro, Presentation by Bill Bennett, Minister of Energy and Mines, November 26, 2013, p. 31.

> sector utilities maintain debt to equity ratios closer to 60:40…BC Hydro's current ratio is debt (80%) to equity (20%)."[33]

The report also stated:

> "There are also concerns that the extensive use of the regulatory accounts reduces transparency of the financial information, and that the transfer of these costs from present ratepayers to future ratepayers could be considered inequitable and unfair to future ratepayers in cases where the costs are not matched to future benefits to the ratepayers." [34]

The report went on to note:

> "If BC Hydro is unable to recover any of the deferred amounts, the costs would be passed on to the province (as sole shareholder) and covered by taxpayers." [35]

Regulatory accounts are an important consideration in the evaluation of financial targets. Where regulatory assets are a significant component of the balance sheet, it means that the asset position of the utility, and matching debt and equity balances, will be larger than they otherwise would be. This may have implications for the interpretation of debt/equity ratios: the equity ratio may appear higher than it otherwise would be when regulatory assets are used to defer costs.

Current Position

As at the end of March 31, 2014, BC Hydro's Net Regulatory Assets stood at $4.434 billion, which was equal to 17.2% of the utility's total assets.[36] This is the largest relative investment in regulatory assets among Crown utilities in Canada.

Regulatory assets generally represent costs that would have been recognized in current or prior income statements under typical accounting practice but which will instead be recognized in future periods. Deferral of such costs is allowed given that a regulator may allow these costs to be recovered from consumers in future periods. The concept of regulatory assets has been developed specifically to recognize the fact that regulators can decide when costs will be allowed into rates. The use of regulatory accounts then allows costs and revenues to be matched.

For BC Hydro, relevant deferral accounts at the end of Fiscal 2014 included the following:

- $1.305 billion in costs related to the transition to IFRS. (IFRS results, for example, in the reduction in costs that can be capitalized and results in greater recognition of certain pension costs.)
- $788 million in costs for Demand Side Management (DSM) programs.
- $467 million in costs associated with variances between actual and forecast costs for the operation of generating plants, for the acquisition of power, and for distribution system maintenance.
- $324 million in costs associated with variances between forecast and actual net income associated with electricity trades.

[33] Review of BC Hydro, June 2011, p.99.

[34] Review of BC Hydro, June 2011, p. 112.

[35] Review of BC Hydro, June 2011, p. 112.

[36] BC Hydro Annual Report 2014, p. 88.

The 2011 BC Hydro Review noted that a portion of the regulatory assets in place as at the end of Fiscal 2010 had resulted from lower than forecast water levels.[37] This is reflective of the fact that BC Hydro faces similar hydrology risks as Manitoba Hydro (although relatively less severe).

4.5 Hydro-Quebec

As noted earlier in this Chapter, the regulator in Quebec has jurisdiction only over the regulated business segments of transmission and distribution. It does not have jurisdiction over Hydro-Quebec Production, the business segment associated with generation and export sales.

4.5.1 Targets for regulated transmission and distribution

Relevant metrics set by the regulator for the regulated segments are as follows:

- For transmission, the deemed debt/equity ratio is 70:30.
- For distribution, the deemed debt/equity ratio is 65:35.

In setting equity targets for transmission and distribution, the regulator looked at the capital structure, and associated investor expectations, of similar investor-owned utilities. Rates of return for the transmission and distribution segments were also set based on benchmarks from investor-owned utilities. For 2014, the Return on Equity for both segments was set at 8.2%.[38]

The corporation as a whole has an equity capitalization rate of 30.5%. This is just slightly more than the allowed equity ratio of 30% for transmission, and less than the 35% equity ratio allowed for distribution. By implication, the equity ratio for the generation division is about the same, if perhaps slightly less than, the deemed equity ratio of transmission and generation combined. Like Manitoba Hydro, Hydro-Quebec's access to a provincial debt guarantee allows it, overall, to operate with higher levels of debt than a stand-alone investor-owned utility.

4.5.2 Role of generation

Exports play a significant role in Hydro-Quebec's business strategy (although such sales generally represent a smaller proportion of output than at Manitoba Hydro). Figure 4-2 summarizes revenues by segment. Exports account for 15% of overall sales volume and 12% of sales revenue. (In this table, export sales cover all sales outside of the province.) Revenue figures for sales in Quebec are at delivered prices and thus include amounts for transmission and distribution.

[37] Review of BC Hydro, June 2011, p. 112.

[38] Hydro-Quebec Form 18-K, 2013, p.23.

Figure 4-2: Hydro-Quebec's Sales Volume and Revenue by Segment[39]

Sales By Segment			
	Volume	**Revenue**	**Unit Price**
	(TWh)	($ Millions)	($/MWh)
Quebec	173.3	11,085	63.97
Long-Term Export	2.5	229	90.91
Short-Term Export	29.7	1,296	43.65
Subtotal - Export	32.2	1,525.0	47.35
Total	**205.5**	**12,610**	**61.37**
Quebec	84.3%	87.9%	
Long-Term Export	1.2%	1.8%	
Short-Term Export	14.4%	10.3%	
Subtotal - Export	15.7%	12.1%	
Total	100.0%	100.0%	

The revenue per unit for short-term export sales is considerably lower than for long-term export sales and also lower than delivered prices to Quebec consumers. This reflects:

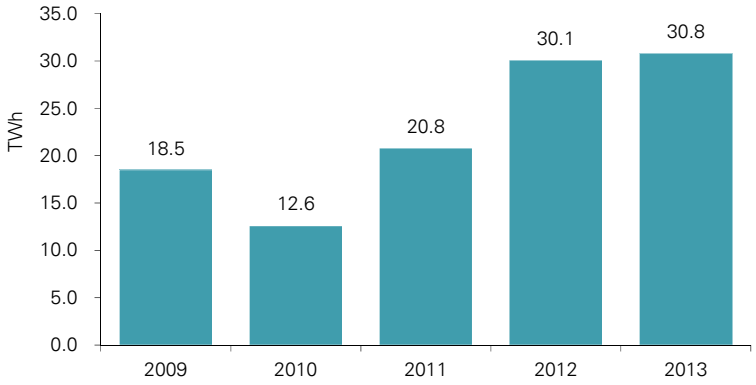
- The non-firm nature of many short-term export sales, which results in lower value in the marketplace.
- Pricing pressures in electricity markets in the US Northeast, which have seen price declines as a result of the availability of low-cost natural gas as an input fuel for thermal generating plants.

These factors play a similar role at Manitoba Hydro, which has also experienced pricing pressures in adjacent US markets. Similarly, Manitoba Hydro faces lower prices for its opportunity energy than for dependable energy. Opportunity energy, by virtue of its non-firm nature, cannot prudently be sold under long-term contract.

Figure 4-3 shows net electricity exports by Hydro-Quebec over a 5-year period ending 2013. Sales volumes have shown considerable volatility, indicating that Hydro-Quebec faces fluctuation in its available energy, similar in nature if not degree to that faced by Manitoba Hydro. Increases in exports in 2012 and 2013 are partly the result of the completion of new hydro and wind generating plants.

[39] Hydro-Quebec 2013 Annual Report, p. 99.

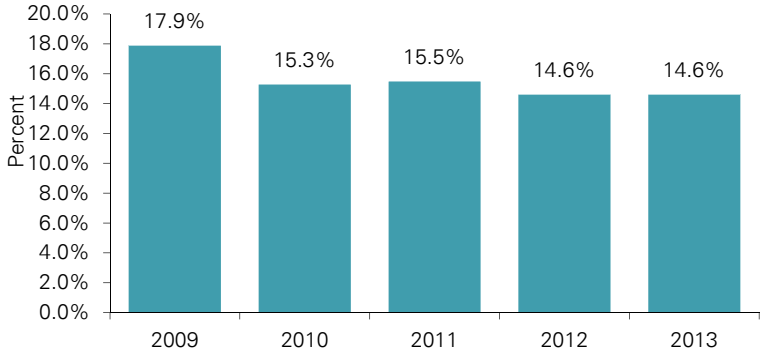
Figure 4-3: Hydro-Quebec's Trends in Net Electricity Exports



4.5.3 Financial returns

On an overall corporate basis, Hydro-Quebec has been consistently profitable. With a return on equity of 14.6% in 2013, overall corporate profitability has been well above the target returns set by its regulator (the Regie de l'energie) for the regulated segments of transmission and distribution. Figure 4-4 shows returns from continuing operations over a five-year period. Figures for 2012 exclude losses associated with its abandonment of a project to refurbish the Gentillly-2 nuclear generating plant.[40]

Figure 4-4: Hydro-Quebec's Return on Equity



In recent years, Hydro-Quebec has consistently paid out 75% of its net income to the shareholder. This approach is quite different from practices for Manitoba Hydro, which is not expected to pay dividends to its shareholder. (As noted elsewhere in this report, however, Manitoba Hydro pays higher fees for its debt guarantee and similar rates as Hydro-Quebec for water rentals.)

Under the Hydro-Quebec Act, dividends are declared once a year. For any given year, dividends cannot exceed the distributable surplus, equal to 75% of the net result (which is comparable to net income). Dividends cannot reduce the capitalization rate of the utility to less than 25%. [41]

[40] Hydro-Quebec Form 18-K, 2013, p.5.

[41] Hydro-Quebec Form 18-K, 2013, p.72.

4.5.4 The use of specific risk targets

Management of water flow uncertainty is an important element of Hydro-Quebec's operating strategy. Hydro-Quebec manages its system and water reservoirs to ensure that it can meet an inflow deficit of 64 TWh over two consecutive years, and 98 TWh over four consecutive years.[42] A 1998 consulting report prepared for the regulator indicated that Hydro-Quebec's reservoir management criteria were based on the objective of meeting loads with 98% confidence.[43] This specific probability level does not appear to be referenced in current documentation from Hydro-Quebec, although other elements of the current approach appear consistent with the 1998 report.

The explicit consideration of risk in the setting of reservoir levels provides an interesting precedent for Manitoba Hydro. In our initial discussion in this report on objectives for financial targets, we suggested that, conceptually, financial targets should be set to reduce the risks of financial distress to below a specified threshold. Hydro-Quebec's use of a risk threshold to set its operating strategy provides a useful parallel to our proposed approach.

4.6 Nalcor

4.6.1 Overall structure

Nalcor Energy ("Nalcor") is a holding company that holds the Government of Newfoundland and Labrador's interests in a number of energy companies, including:

- Newfoundland and Labrador Hydro ("NLH"), which is a regulated utility whose activities encompass generation, transmission and electricity sales. NLH supplies power to retail customers in Labrador and on the island and to Newfoundland Power, which is an investor-owned utility controlled by Fortis Inc.
- Two companies engaged in the oil and gas sector (Nalcor Energy – Oil and Gas Inc. and Nalcor Energy – Bull Arm Fabrication Inc.).
- A number of entities created to hold the Province's interest in the Lower Churchill Project ("LCP") and related investments in the Muskrat Falls generating project, the Labrador-Island Link ("LIL") and the Maritime Link. LIL will create a transmission link between Labrador and the Island, while the Maritime Link will connect the island transmission grid to Emera's transmission system in Nova Scotia.

With respect to Nalcor's business structure and scope of business:

- Nalcor is unique in pursuing investments in the oil and gas sector, which gives it a broader business scope than those of the other Crown utilities profiled here.
- Nalcor's major new generation investment (in the LCP) is being undertaken outside of the regulated utility NLH. Power from LCP will be sold to NLH under a Power Purchase Agreement (PPA) that provides for payments on a "full cost recovery basis". The PPA will include the delivery to NLH of energy, capacity, ancillary services and greenhouse gas credits.[44] Because a PPA governs sales to NLH, it appears that the incremental benefits of export activities will flow to the shareholder of Nalcor rather than to NLH ratepayers.

[42] Hydro-Quebec Form 18-K, 2013, p.43.

[43] Biggerstaff, Dodge and Mittelstadt, "An Assessment of Hydro-Quebec's Security of Supply in Accordance with their Energy Reliability Criteria", A Special Report Prepared for Regie de l'Energy, 18 December 1998, p. 14.

[44] Nalcor Energy, 2013 Business and Financial Report, p.30.

Accordingly, Nalcor's business structure is very different than that of Manitoba Hydro. There is a broader scope to its competitive market activities and these are more clearly separated from its regulated monopoly services.

4.6.2 Financial strategy

Nalcor is in the process of implementing the Lower Churchill Project and making related investments in the Muskrat Falls generating project, the Labrador-Island Link and the Maritime Link. Nalcor is notable because it made specific efforts to improve its capital position in advance of major investments in the Lower Churchill Project. In this context:

- The Government of Newfoundland and Labrador announced the completion of the financing and federal loan guarantee in December 2013.[45] Under the Intergovernmental Agreement for the federal loan guarantee, the Government of Newfoundland and Labrador provides a base level and contingent equity support and ensures that regulated rates for NLH (Nalcor's regulated subsidiary) allow it to collect sufficient revenues to recover costs. Nalcor will borrow through its subsidiaries, supported by provincial government guarantees to cover financing costs.
- To bolster Nalcor's capital position in advance of investments in the Lower Churchill Project, the Government of Newfoundland and Labrador contributed $706 million in equity capital in 2013.[46] The equity capital injection maintains NLH's equity position in excess of 25%, which is Management's target for the regulated portion of NLH's operations. Without this additional equity capital, Nalcor's overall equity ratio of 28% as of December 31, 2013, would drop to approximately 21% (assuming the same level of debt and other terms).
- Nalcor's annual report notes that increases in debt will be supplemented by additional capital contributions to fund Lower Churchill Project expenditures as the development proceeds.[47]
- For the regulated portion of hydro operations, NLH maintains a capital structure comprised of 75.0% debt and 25.0% equity, which is a ratio that management believes is optimal with respect to its cost of capital. This capital structure is maintained by a combination of dividend policy, contributed equity and debt issuance. [48]

Recent efforts to improve Nalcor Energy's financial position follow earlier actions by the government to improve the financial position of Nalcor's regulated subsidiary, NLH. In 2009, under the authority of the Electrical Power Control Act (1994), the government directed that:

- In calculating NLH's return on rate base, the EUB should use the same return on equity as was set for Newfoundland Power.
- NLH will earn a Return on Equity (ROE) on its entire rate base, including amounts related to rural assets.
- NLH will be permitted to have a proportion of equity in its capital structure up to a maximum level equal to the ratio of equity approved for Newfoundland Power.[49]

[45] Government of Newfoundland and Labrador. News Release, December 10, 2013.

[46] Nalcor Energy, 2013 Business and Financial Report, p. 33.

[47] Nalcor Energy, 2013 Business and Financial Report, p. 37.

[48] Nalcor Energy, 2013 Business and Financial Report, p. 77.

[49] Newfoundland and Labrador Hydro – 2013 General Rate Application, p. 3.30.

These changes were to be effective commencing with NLH's first General Rate Application following January 1, 2009. In parallel with the directives noted above, the government also provided NLH with a $100 million equity injection to improve NLH's financial profile by reducing its level of debt. [50]

Newfoundland Power's approved equity ratio is currently 45% of its capital base. [51] NLH's current dividend policy, however, is aimed at maintaining equity at approximately 25% of its regulated capital base. Accordingly, NLH is targeting an equity ratio that is considerably lower than that allowed for Newfoundland Power. Nevertheless, the 25% level is an improvement over earlier years, in which the ratio of equity to total capital was less than 20%.

4.7 NB Power

4.7.1 Overview

NB Power has faced significant financial challenges associated with its refurbishment of the Point Lepreau nuclear station:

- On their own, cost over-runs associated with the refurbishment put a strain on the financial resources of the corporation, as a result of the fact that they required the raising of additional debt.
- During the period of refurbishment, NB Power had to rely more extensively than usual on other sources of generation, including oil-fired and coal generation. These plants have considerably higher variable operating costs. Costs then escalated further than planned as a result of delays and increases in the price of fuel oil.

As at March 31, 2014, NB Power reported an equity ratio of only 5%based on its debt/equity formula. [52] This put its financial position among the weakest of the publicly-owned Crown utilities in Canada.

The structure of NB Power prior to 2013 reflected the Province's original intention to move to a competitive electricity market and to unbundle NB Power's generation activities from the monopoly services of transmission and distribution. New Brunswick had intended to follow the electricity market model that was originally adopted in Ontario. This transition process had stalled however, in part because of the difficulties of introducing competition in a small market such as New Brunswick but also because of retrenchment more broadly in the electricity sector's move to market competition.

4.7.2 The New Brunswick Energy Blueprint

The New Brunswick government has made improvements in NB Power's financial position an important policy objective. The Energy Blueprint, issued on October 2011, noted:

> "NB Power's capital structure consists almost entirely of debt. Altering this capital structure so there is both debt and equity would be more in line with other Canadian government owned electric utilities and is desirable for a number of reasons. These include lowering future debt servicing costs, less volatility in rates and allowing meaningful performance benchmarking against other electric utilities." [53]

[50] Newfoundland and Labrador Hydro – 2013 General Rate Application, p. 3.30.

[51] Newfoundland and Labrador Hydro – 2013 General Rate Application, p. 3.34.

[52] NB Power. 2014 Annual Report. p. 61.

[53] The New Brunswick Energy Blueprint, New Brunswick Department of Energy October 2011, p. 16.

The Blueprint also noted, however, that governments typically do not have excess cash that can be invested in a utility. Hence, any additional equity investment would likely be raised by the government through debt. The Blueprint noted:

> "Government owned utilities typically do not have equity invested by the government due to the fact that funds come from the same source: government either borrows on behalf of the utility and creates a corresponding debt, or borrows to make an equity injection. With 100 percent debt, financing costs are simply interest payments, and rates are set to recover against these costs. Alternatively, if a portion of the capital of the utility is private equity, then the costs would be higher by the difference between the return on equity (typically around 9 percent for regulated utilities) and the debt costs (approximately 5 percent for government backed debt). Rates would necessarily be higher to cover the financing costs of the capital structure of debt and equity." [54]

As a consequence, the Blueprint called for additional equity to be created primarily by allowing NB Power to build up its equity position through future earnings. In particular, it called on NB Power "to generate incremental cash flow by reducing expenses in the organization and other reasonable means, and using this cash flow to create equity while continuing to pay down debt". [55]

The Blueprint went on to note:

> "NB Power has regulated cash flows that will enable the utility to retire existing debt as it matures and there is no current requirement to borrow significant amounts for capital expenditures over the next decade. As a result, NB Power will be mandated to continue cost reductions and use the cash flows generated from those savings to reduce debt and to build equity within the utility. Both NB Power and the EUB will use a 20 percent reduction in current debt levels and an equity level of 20 percent of the capital structure as the ten year goals for NB Power.
>
> "NB Power will also be directed to follow the capital investment path set out in the utility's integrated resource plan in conjunction with corporate and operational cost reductions in order to ensure the lowest rates possible are achieved for ratepayers. The New Brunswick Energy and Utilities Board will ensure that NB Power's annual income is limited to the amount necessary to achieve these objectives." [56]

In summary, the Energy Blueprint has the following notable features:

- The government has given specific direction to NB Power and the Energy and Utilities Board ("EUB") that the utility should achieve an equity level equal to 20% of total capital. In addition, it has directed that current debt levels should be reduced by 20%.
- The government did not mandate a specific return on equity nor did it indicate that the capital structure or associated returns should match those required by a stand-alone, investor-owned utility. Rather, it suggest that rates should be set at the minimum level required to meet the equity and debt targets noted above.

4.7.3 New Legislative framework

On May 7, 2013 a new Electricity Act, Bill 39, was introduced in the New Brunswick legislative assembly. This bill was proclaimed on October 1, 2013 and alters the structure of the electricity sector in New

[54] The New Brunswick Energy Blueprint, New Brunswick Department of Energy October 2011, p. 16.

[55] The New Brunswick Energy Blueprint, New Brunswick Department of Energy October 2011, p. 16.

[56] The New Brunswick Energy Blueprint, New Brunswick Department of Energy October 2011, p. 16.

Brunswick. It results in the re-integration of NB Power into a single, integrated Crown corporation and provides for a revised regulatory framework.

The policy of the government of New Brunswick is set out in Section 68 of Bill 39. This important section clearly articulates the declared electricity policy and contains the following key provisions:

- That rates should:
  - be established on the basis of annual forecasted costs for the supply, transmission and distribution of electricity; and
  - provide sufficient revenue to the corporation to permit it to earn a just and reasonable return, in the context of the corporations objective to earn sufficient income to achieve a capital structure of at least 20% equity.
- That all of NB Power's sources and facilities for the supply, transmission and distribution of electricity within the Province should be managed and operated in a manner that is consistent with reliable, safe and economically sustainable service and that will:
  - Result in the most efficient supply, transmission, and distribution of electricity;
  - Result in consumers in the Province having equitable access to a secure supply of electricity; and
  - Result in the lowest cost of service to consumers in New Brunswick.
- That, consistent with the policy objectives set out above and to the extent practicable, rates charged for sales of electricity within the province shall be maintained as low as possible and changes in rates shall be stable and predictable from year to year.

Other notable elements of the Government's restructuring plan are as follows:

- At least once every three years, NB Power is required to file with the New Brunswick Energy and Utilities Board ("NBEUB") an Integrated Revenue Plan approved by the Executive Council.
- Each year, NB Power is required to file a 10 Year Plan.
- Starting in 2015/16, NB Power is required to apply each year to the NBEUB for approval of the rates the utility proposes to charge for that year.

4.7.4 NB Power's recent plans

In response to the provisions of the new Electricity Act, NB Power submitted a 10-Year Plan to the EUB in September 2014. This plan provides for:

- Even annual rate increases of 2% over the period ending Fiscal 2022, with rates increases of 1% annually thereafter to Fiscal 2025.
- Achievement of a 20% equity target by Fiscal 2024, representing a significant improvement in the current equity ratio of 7%.[57]

Forecast return on equity fluctuates over the period, reaching a high of 15% in Fiscal 2018 but declining to 6% by 2025. The focus of the plan is therefore on rate stability and building up the utility's equity cushion rather than on a specific target equity return.

NB Power's recent rate application notes:

> "This regulatory framework is best described as a modified cost of service regulatory model, modified in the sense that while rates are approved annually on the basis of a projected "test year"

[57] New Brunswick Power Corporation, 2015/16 General Rate Application, November 21, 2014, p. 6.

revenue requirement, the test year is to be considered in the context of a longer term statutory goal to reach a targeted debt/equity ratio, and the plan of NB Power to achieve that goal." [58]

4.8 Applicability of Private-Sector Benchmarks

A recurring theme in discussions on financial targets for Crown utilities is the potential to use private-sector benchmarks as guideposts. Regulators, for example, have sometimes used private-sector benchmarks in setting rates for the business segments of Crown utilities under their jurisdiction. Earlier reports for Manitoba Hydro have also raised the possibility of using private-sector benchmarks. In this section, we explore related issues further.

4.8.1 Differences between investor-owned and public utilities

An important consideration in the evaluation of financial targets is the nature of a utility's ownership structure and its impact on the default risk of utility debt. Metrics for investor-owned (or private-sector) utilities typically entail a much higher equity ratio than for publicly-owned or Crown utilities, which often have debt guarantees. Thus:

- Debt holders in a private-sector utility require a higher equity investment by shareholders to protect themselves against the risk of default. This reflects the fact that equity investors in a private-sector utility are limited in liability. In the event of financial distress that wipes out shareholders' equity position, debt-holders have no further ability to pursue such shareholders to compensate for any loss in the value of their debt.
- For Crown utilities such as Manitoba Hydro, in contrast, debt is either guaranteed by the Province or obtained through the province. Hence, in the event of financial distress, debt holders have a call on the resources of the Province and the provincial revenue base in seeking repayment of their debt, to remedy a default by the utility. This is a fundamental distinction and allows such Crown utilities to raise higher amounts of debt than would be consistent with a stand-alone, investor-owned utility.

Although Crown utilities may have access to a debt guarantee, one philosophy is that their financial targets should be set such that they have the same capital structure as a stand-alone, investor-owned, utility. Among other things, this would increase, relative to a more debt-intensive structure, the probability that the utility would remain self-supporting and would not impair the credit rating of its provincial shareholder. For Manitoba Hydro to reach the higher equity position that would be consistent with this approach, it would need to have higher rates for a period of time relative to those that would otherwise have been required. This reflects Manitoba Hydro's reliance on retained earnings for building its equity position.

4.8.2 Target equity return

A related issue in the determination of capital structure is whether or not a specific equity return should be pursued. For example, a Crown utility could seek to earn a return that is commensurate with the return required by private investors in an investor-owned utility with similar risks. From one perspective, a utility will not recover its full costs in any period in the event that rates are set to provide a lower return. In the case of Manitoba Hydro, however, a further consideration is that the utility does not pay mandatory dividends to the Province. The ultimate beneficiaries of any return earned are the ratepayers themselves.

[58] New Brunswick Power Corporation, 2015/16 General Rate Application, November 21, 2014, p. 6.

Accordingly, for Manitoba Hydro, the additional earnings from a higher return (and higher rates) in any given period will typically result in one or more of the following:

- A reduction in borrowings in the current period (for example, to fund capital expenditures).
- An increase in cash balances or their equivalent, which can offset borrowing needs in the future or reduce the need for future rate increases.

A consequence of these impacts is that higher rates in any given period will generally allow lower rates in subsequent periods, assuming all of the utility's operating and capital costs are unchanged. Given the closed-loop nature of Manitoba Hydro, which does not pay dividends to the Province, decisions on the corporation's overall equity return can therefore be a mechanism for shifting costs among generations of consumers, as well as for bolstering the utility's financial position.

4.8.3 The implications of debt for a Crown utility

The provincial guarantee of Manitoba Hydro debt represents a potential liability for taxpayers of the Province. Ratepayers, as distinct from taxpayers, benefit from the lower interest costs associated with the guarantee. Lower interest costs reduce the costs to be recovered through rates. In addition, as a result of the utility's ability to use more debt in financing its investments than it otherwise would, ratepayers can reduce the amount of equity that they need to contribute to the utility through earnings in advance of these investments.

While taxpayers face a potential liability as a result of Manitoba Hydro's debt guarantee, they also benefit from the receipt by the Province of the debt guarantee fee. It is beyond the scope of this study to examine the size of this fee or the resulting net benefits or costs to the Province, and hence to taxpayers, from these arrangements. However, while debt guarantee fees generate a steady stream of income, any offsetting liability could arrive in a sudden, large increment. Benefits and costs are therefore difficult to estimate and assess. This would make it more difficult to identify whether guarantee fees are set at an appropriate level, should this analysis be desired.

In considering the impacts of the debt guarantee on various parties, an initial assumption might be that taxpayers, in aggregate, correspond to roughly the same group of economic players as Manitoba Hydro ratepayers. However, there are differences:

- In its January 2014 report for the PUB, MPA noted that individuals and families pay a larger proportion of government revenues than they do of electricity costs.[59] Thus, any transfer of costs from ratepayers to taxpayers may shift costs from institutions and corporations towards individuals.
- Within the residential sector, income tax burdens may be expected to fall more heavily on higher income households than does electricity usage and hence electricity costs, which are more likely to be evenly distributed.

The overall impact of these factors is difficult to determine. Nevertheless, while the distribution of taxes within the population may differ from the distribution of electricity usage and hence electricity charges, it is still broadly true that the interests of Manitoba Hydro ratepayers and Manitoba taxpayers overlap.

Providing a debt guarantee reduces the immediate costs to the corporation, in terms of higher interest costs, that would result for a private-sector corporation from using excessive levels of debt. This could pose risks in the event that the corporation then pursues uneconomic or overly risky projects. In this context, financial targets can be an important mechanism for restraining the levels of debt. The

[59] Morrison Park Advisors, Commercial Evaluation of Manitoba Hydro Preferred Development Plan Business Case, January 2014, p. 27.

additional risk associated with additional debt does not disappear as a result of the provincial debt guarantee. This risk may be shared between ratepayers and taxpayers, but it can still result in financial distress for the utility and the Province in the event that debt levels become excessive.

4.8.4 Equity return

Because ratepayers themselves provide the equity at Manitoba Hydro, it is a reasonable and plausible policy outcome if the Province, as shareholder, decides to pursue a lower equity return at Manitoba Hydro in order to allow lower electricity rates, all else being equal. Rather than distribute dividends to itself, the shareholder may prefer that ratepayers pay lower electricity rates.

In this context, however, it is important to note that the selection of an overall return on equity for the corporation in any period can and should be separated from the pursuit of a particular target return for specific incremental investments. Thus, for example, the corporation can reasonably pursue a higher return on equity for the incremental investments needed to pursue additional export sales. Such a return on investment should be commensurate with the additional risks associated with this investment. Because domestic ratepayers shoulder the costs remaining after net export revenues are taken into account, high returns on investments for export should result in lower costs needing to be borne by domestic consumers in the future.

4.8.5 Using capital structure benchmarks to set a rate cap

Private-sector benchmarks could potentially be used to set an overall cap on rates, in addition to or as an alternative to providing a floor. Thus, in its 1995 report on the issue of financial targets for Manitoba Hydro, Deloitte and Touche noted:

> "A problem faced by Manitoba Hydro is that earnings are its only source of equity. Major construction programs require significant capital funding and, due to limited earnings, tend to reduce the equity ratio. Therefore prior to a major capital expenditure program, Manitoba Hydro should exceed its equity target. However, customers should not be disadvantaged by the existence of the additional equity. Earnings should be limited to what customers would be required to pay if Manitoba Hydro were a private owned utility with a capital structure comparable to that of the privately owned electricity electric utilities."[60]

This approach has some initial conceptual appeal:

- A private-sector capital structure, and associated revenue requirement, can serve to define an upper bound on the rates to be charged in any period.
- In many periods, rates can be lower than that defined by the private-sector model, which is consistent with the idea that, for a public-sector utility, ratepayers should benefit from their ownership of the utility through the Province.

Past experience shows that Manitoba Hydro in certain periods has earned an equity return higher than target equity returns for private-sector regulated utilities. This does not, however, necessarily imply that overall rates at Manitoba Hydro have been higher than those that would have been charged by private sector utilities. A proper comparison of rate levels requires consideration of the following factors:

- Private sector utilities have a higher proportion of equity in their capital structure, so target equity returns will be earned on a higher proportion of their capital structure.

[60] Deloitte and Touche, p. 45.

- Private sector utilities pay corporate income taxes, which must be provided for in the Revenue Requirement (and which are a function of the equity return required).

Given the above factors, it is not clear the extent, if any, to which Manitoba Hydro's rates have exceeded private-sector benchmarks in any period. Nevertheless, mandating that equity returns stay within a particular limit in any period could be too restrictive given that a positive return on equity is the only manner in which Manitoba Hydro is able to build up its reserves. Related challenges include:

- Variations in water flows from year-to-year, which have significant impacts on the energy available for export.
- Changes in market conditions in US competitive electricity markets, which influences the export prices received.
- Manitoba Hydro's need to boost its equity position in advance of major new construction programs.

The first two points above mean that actual returns can vary significantly from forecast, thus high returns may reflect temporary phenomena that should not be taken into account in setting rates. Rather, rates should reflect long-term expected conditions. The third point means that rates may need to be higher than they would be otherwise to support increases in equity in advance of major construction programs. A reasonable approach to having a hard cap on rates in any period might be to say that, over time, rates in Manitoba Hydro would be equal to or lower than what would be in place if Manitoba Hydro were an investor-owned utility with related return targets. This outcome should naturally follow given that the shareholder does not require a dividend income stream and hence retained earnings can be used to pay down debt and offset future costs.

As noted elsewhere, higher returns on equity than are usual for Manitoba Hydro may be required in advance of large capital programs. This will serve to build the corporation's equity position and provide additional debt capacity. However, higher returns on equity in a period preceding the in-service date of large new assets could give rise to concerns over a lack of inter-generational equity. A long-standing tenet of utility regulation is that consumers should pay for an asset only once it is in service and hence is "used and useful". These concerns may be dampened by the following considerations:

- Manitoba Hydro consumers continue to benefit from a large number of generation assets built many years ago. These assets will have a relatively low book value, reflecting both a large amount of accumulated depreciation and the fact that they were built when nominal costs were lower. Hence, costs measured using accounting metrics will be low. The long-life of hydro-electric dams, which form the bulk of Manitoba Hydro's asset base, make this a particularly important issue.
- The nature of cost of service methodologies is that they result in higher costs in the initial years of an asset's life, since this is the period when the asset's book value is higher. For large hydro-electric assets, which have large capital costs relative to their ongoing operating costs, this can result in a particularly large increase in the revenue requirement when these assets come into service. Also, rates under cost of service methodologies will tend to be front-end loaded. Again, this is a particularly relevant issue for hydro-electric assets.

Overall, we believe that issues of inter-generation equity are likely to be very difficult to evaluate objectively and are much less straightforward than they might at first appear. This may dampen some of the policy concerns associated with raising rates in advance of major build programs.

4.8.6 Benefits of a stand-alone financial structure

In its 1995 review of MH's financial targets, RBC Dominion Securities noted:

> While there are compelling reasons for the Corporation to continue to increase its financial flexibility beyond the 15% equity level, we are concerned in this report with only the financial aspects. In this

> context, once Hydro has sufficient retained earnings to pass its long-term target, and an adequate interest coverage ratio, there is arguably a financial no-man's land until true self sufficiency is achieved, defined as the ability to raise capital without a guarantee. Moving beyond 85:15 (assuming this is sufficient equity for planning purposes) is narrowly inefficient, unless the Provincial guarantee fee is reduced to recognize the improved security of the debt.[61]

Later in this report, RBC Dominion Securities noted the benefits of pursuing stand-alone status. This was interpreted to mean that it raises debt without a provincial guarantee, which also implies that Manitoba Hydro's capital structure will need to match those of an investor-owned utility. Their report reads as follows:

> "There are clear benefits to the Province to having Hydro finance its requirements away from the Province. A stand-alone Hydro would aid the Province's credit rating in three ways:
>
> – Removal of the Provincial guarantee on $4.5 billion in debt would improve lenders' view of the Province, since the aggregate obligations of the Province would be considerably lower. This is true despite the stated view by the agencies that this debt is considered self-supporting;
> – Hydro would be configured on a comparable basis to investor owned utilities, so that creditors to the Province would consider it a saleable asset from an operational perspective - that is, it would not need to be substantially recapitalized by the purchaser. If necessary to support the obligations of the Province, all or a portion of the equity of the Corporation could be sold to generate cash; and
> – Hydro would be in a position to pay dividends. Having a meaningful level of equity would produce sufficient cash flow to allow a cash return on equity. The level of dividends may be greater or less than the guarantee fee income that the Province receives currently." [62]

In evaluating these assertions, the following observations are noted:

- There is no indication that the Province would contemplate the sale of all or part of its equity interest in Manitoba Hydro. In the absence of such a willingness, the option to pursue such a sale may have little practical value.
- Similarly, Manitoba Hydro is not required to pay dividends to the Province. Any move to pay such dividends on an ongoing basis would be a major policy shift.
- In practice, it may be difficult to identify what capital structure would actually be required by capital markets for a utility such as Manitoba Hydro. We are not aware of any large hydro-electric utility in North America that is investor-owned. Investor-owned utilities, in practice, tend to have very different mixes of generating assets and, hence, will have different operational and risk characteristics. These factors will make it more difficult to determine the actual impact of using private-sector comparisons when setting electricity rates.

4.9 Summary Observations

Based on the findings in this Chapter, the following are overall summary observations:

- Manitoba Hydro differs from other major Canadian Crown utilities in important ways:
  - Manitoba Hydro operates on an integrated basis, with no business separation between generation, transmission, and distribution.
  - Manitoba Hydro is not expected to earn income for its shareholder.

[61] RBC Dominion Securities, Manitoba Hydro Capital Structure Review, p. 24.

[62] RBC Dominion Securities, Manitoba Hydro Capital Structure Review, p. 26.

- Notwithstanding the differences noted above, it is worth noting that other Crown utilities have specific plans to improve their financial position. This may put pressure on Manitoba Hydro to improve its own financial position, given that rating agencies and lenders will compare Crown utilities' relative financial positions.
- Governments in a number of other jurisdictions (specifically BC and New Brunswick) have stepped in to impose financial targets on their Crown utilities, to address concerns over deterioration in the utilities' financial metrics.
- Because of the "closed-loop" nature of Manitoba Hydro's equity and the utility's relationship with ratepayers, it is probably not useful, and may be counterproductive, to impose specific targets for return on equity as an element of the utility's financial targets.
- There are a number of reasons to suggest that private-sector benchmarks are not necessarily appropriate for Manitoba Hydro. These reasons include:
  - As noted above, the Province does not expect to receive dividend income.
  - The Province of Manitoba does not appear to contemplate sale of the utility.
  - Manitoba Hydro's access to a provincial debt guarantee allows it to raise more debt, at lower cost, than would be available to a private-sector utility.
- While access to a provincial debt guarantee provides important financial benefits for Manitoba Hydro, these benefits come at the cost of increased risk to Manitoba taxpayers. An important role of financial targets is therefore to ensure that access to provincially-guaranteed debt does not result in the utility taking on more debt than is prudent given its business risks and equity base.

5 Comparison to Other Government-owned Power Utilities in Canada

This chapter summarizes the findings from benchmarking and our review of the developments, targets and plans of government-owned power utilities in other jurisdictions.

5.1 Structure of the Chapter

This chapter is organized into the following sections:

- Section 5.2 provides an overview of government-owned power utilities in Canada, which have been selected as the peer benchmarking group, along with key operational metrics and comparisons on a per capita and per customer basis.
- Section 5.3 provides overview information on select government-owned international power utilities, including three based in the United States. These select utilities provide some interesting information but are secondary to benchmarking, and are not peer benchmarking comparisons.
- Section 5.4 compares current debt/equity ratios and capital structures.
- Section 5.5 compares interest coverage ratios among the Canadian peer group.
- Section 5.6 looks at cash flow to capital expenditure comparisons among the Canadian peer group.
- Section 5.7 compares a number of other financial metrics among the Canadian peer group.
- Section 5.8 provides a comparison of recent electricity prices and analysis of trends in electricity prices in Canada over the next ten years based on various assumptions.
- Section 5.9 discusses financial targets and plans of other government-owned utilities in Canada.
- Section 5.10 outlines summary points of the benchmarking comparisons.

5.2 Overview of Government-owned Power Utilities in Canada

5.2.1 Overview of key operational metrics

Figure 5-1: Overview of Operating Information on Government-owned Power Utilities

Overview of Operating Information					
	Installed Capacity (MW)	Peak Demand (MW)	Total Electric System Deliveries (TWh)	%Hydro generation	Number of Electricity Customers
Manitoba Hydro	5,715	4,720	32.9	95%	555,760
BC Hydro	12,047	10,072	103.1	91%	1,914,788
Hydro-Quebec	36,068	39,031	205.5	98%	4,141,990
Nalcor Energy	7,281	7,159	40.3	97%	36,000
Ontario Power Generation	16,229	n/a	80.3	41%	n/a
NB Power	3,513	3,000	18.7	25%	397,502

Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014.
2. BC Hydro Annual Report for the year ended March 31, 2014.
3. Hydro-Quebec Annual Report for the year ended December 31, 2013.
4. Nalcor Energy Annual Report for the year ended December 31, 2013. Note Churchill Falls represents installed capacity of 5,428 MW and its electricity is primarily exported to Hydro-Quebec. Number of customers is direct customers only, there are substantially more indirect customers through third party sales.
5. Ontario Power Generation Inc. Annual Report for the year ended December 31, 2013. All electricity generated is sold through Ontario's Independent Electricity System Operator.
6. NB Power Annual Report for the year ended March 31, 2014.

Government-owned power utilities with a significant reliance on hydroelectric generation are the most appropriate peer utilities in Canada for benchmarking the financial and operational position of Manitoba Hydro. These utilities are: BC Hydro, Hydro-Quebec, and Nalcor Energy ("Nalcor").

In our analysis, NB Power and Ontario Power Generation ("OPG") are also included, as both of these utilities have significant hydro assets and are Crown owned. NB Power is owned by the Province of New Brunswick and is the largest electric utility in Atlantic Canada. OPG is owned by the Province of Ontario, and operates a portfolio of hydroelectric, nuclear and other generating assets.

This group of six power utilities including Manitoba Hydro will represent the Canadian peer group for benchmarking and analysis in this Chapter.

To put into context the size of these power utilities in relation to their jurisdiction, the following is noted from comparisons in Figure 5-2:

- On a per capita basis, Manitoba Hydro has more installed generation capacity than BC Hydro, similar installed capacity as Hydro-Quebec and NB Power, and much higher capacity than OPG (although note that OPG is not the sole supplier in Ontario). It is lower only in comparison to Nalcor. (Figures for Nalcor, however, are distorted by the sale of power from Churchill Falls to Hydro-Quebec under long-term contract, which boosts its figures for capacity and sales per capita.)
- Manitoba Hydro's total power generation per capita is slightly higher but generally in line with per capita levels for Hydro-Quebec and NB Power, higher than BC Hydro, much higher than OPG, and much lower than Nalcor.
- Extra-provincial electricity sales represent 23% of total electricity sales, down somewhat in recent years, but a very significant level and a higher share than for other power utilities. BC Hydro categorizes its extra-provincial activity as "trade" revenues and these represent approximately 20% of electricity revenues. Hydro-Quebec, the largest electricity exporter in Canada, has a lower share with exports representing approximately 12% of its total sales.

Figure 5-2: Operational Metrics Per Capita and Value of Export Sales

Select Operational Metrics Per Capita	Provincial Population (2013)	Installed Capacity kW per capita	Electric System Deliveries thousands kWh per capita	Extraprovincial Electricity Sales ($ millions)	Extraprovincial / Trade Sales % electric sales
Manitoba Hydro	1,265,400	4.5	26.0	439	23%
BC Hydro	4,582,600	2.6	22.5	1,073	20%
Hydro-Quebec	8,154,000	4.4	25.2	1,525	12%
Nalcor	528,200	13.8	76.3	143	20%
Ontario Power Generation	13,550,900	1.2	5.9	n/a	n/a
NB Power	755,600	4.6	24.7	391	22%

Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014.
2. BC Hydro Annual Report for the year ended March 31, 2014. Extraprovincial exports reflects "trade" revenues.
3. Hydro-Quebec Annual Report for the year ended December 31, 2013.
4. Nalcor Annual Report for the year ended December 31, 2013. Extraprovincial sales from Churchill Falls and NLH's Energy Marketing.
5. Ontario Power Generation Inc. Annual Report for the year ended December 31, 2013.
6. NB Power Annual Report for the year ended March 31, 2014. Extraprovincial exports reflects "interconnection" revenues.
7. Populations from Statistics Canada.

Figure 5-3 indicates the size of Manitoba Hydro, BC Hydro, Hydro-Quebec and NB Power in relation to the size of their domestic customer base. (Nalcor and OPG are not included in this figure as their customer bases are not comparable – Nalcor's customer base includes Hydro-Quebec and one major wholesale customer, Newfoundland Power Inc., and OPG is one of many suppliers to the broader Ontario market.) For the utilities that are included in Figure 5-3, note the following:

- On a per domestic customer basis, Manitoba Hydro has more installed capacity and electric system deliveries than the other three electric utilities.
- Manitoba Hydro's domestic electricity revenues per customer is higher than BC Hydro, close to Hydro-Quebec and lower than NB Power. Manitoba Hydro has more extra-provincial export revenues in relation to its domestic customer base than BC Hydro and Hydro-Quebec. NB Power has higher extra-provincial trade revenues per domestic customer than Manitoba Hydro, although NB Power's trade revenues jumped significantly in 2013/14. NB Power's position adjacent to the US market makes it a natural conduit for some exports from Quebec and Atlantic Canada.

Figure 5-3: Operational and Financial Information on a Per Customer Basis

Select Operational and Financial Information on a Per Customer Basis	Electricity Customers	Installed Capacity kW per Customer	Electric System Deliveries thousands kWh per Customer	Domestic Electricity Sales per Customer	Extraprovincial Electricity Sales per Customer
Manitoba Hydro	555,760	10.3	59.2	$2,528	$790
BC Hydro	1,914,788	6.3	53.8	$2,256	$560
Hydro-Quebec	4,141,990	8.7	49.6	$2,676	$368
NB Power	397,502	8.8	47.0	$3,341	$984

Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014.
2. BC Hydro Annual Report for the year ended March 31, 2014.
3. Hydro-Quebec Annual Report for the year ended December 31, 2013.
4. NB Power Annual Report for the year ended March 31, 2014.

Figure 5-4 provides an overview of key financial metrics for the Canadian peer group for 2013/14. Appendix A provides financial data for Manitoba Hydro and the government-owned power utilities over the past five fiscal years.

Hydro-Quebec is considerably larger than the other utilities of the peer group, with annual revenues of nearly $13 billion, approximately 5.5 times that of Manitoba Hydro, and total assets of over $73 billion, approximately 4.7 times those of Manitoba Hydro. BC Hydro is the next largest. Manitoba Hydro is in the middle of the group, with revenues that are significantly larger than for NB Power and Nalcor. It should be noted, however, that Nalcor's revenues will grow with the completion of the Lower Churchill Project and Muskrat Falls.

Relative to utilities with fossil-fuel generation, the utilities based primarily on hydropower generally have significantly better operating margins and relatively higher EBITDA, EBIT and net income as a share of revenues. Hydro-Quebec's high levels of EBITDA, net income and cash flow relative to other utilities reflect its larger size and is partially due to the benefits of very low-cost electricity received under its long-term power contract with Churchill Falls in Newfoundland and Labrador.

Figure 5-4: Overview of Financial Information, Government-owned Power Utilities in Canada

Overview of Financial Information - Select Canadian Electric Power Utilities (CDN$ millions)					
($CDN millions)	Annual Revenues	EBITDA	EBIT	Depreciation & Amortization	Net Income
Manitoba Hydro	2,329	1,087	645	442	174
BC Hydro	5,392	2,142	1,147	995	549
Hydro-Quebec	12,881	7,867	5,371	2,492	2,942
Nalcor Energy	785	256	168	88	96
Ontario Power Generation	4,863	1,215	252	963	135
NB Power	1,797	389	191	198	55

Overview of Financial Information - Select Canadian Electric Power Utilities (CDN$ millions)						
($CDN millions)	Total Assets	Net Debt	Interest on Debt	Retained Earnings & Other Equity	Cash Flow from Operations	Capex
Manitoba Hydro	15,639	10,615	654	2,885	690	1,383
BC Hydro	25,711	15,461	731	3,865	815	1,943
Hydro-Quebec	73,110	42,211	2,585	19,394	5,017	4,055
Nalcor Energy	9,537	5,810	95	2,334	441	1,010
Ontario Power Generation	38,091	5,095	289	8,334	1,174	1,568
NB Power	6,863	5,018	222	399	223	182

Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014
2. BC Hydro Annual Report for the year ended March 31, 2014
3. Hydro-Quebec Annual Report for the year ended December 31, 2013
4. Nalcor Annual Report for the year ended December 31, 2013
5. Ontario Power Generation Inc. Annual Report for the year ended December 31, 2013
6. NB Power Annual Report for the year ended March 31, 2014

Note: Retained earnings and other equity includes share capital or contributed capital, accumulated other comprehensive income and non-controlling interest. Net debt includes long-term debt, short-term borrowings and current portion of long-term debt less sinking funding investments and cash and cash equivalents.

5.3 Some International Comparisons

Figures 5-5 and 5-6 provide an overview of operational and financial information for five international hydro-based utilities that are government owned – three U.S. utilities, New Zealand's largest hydro-based utility, and Norway's largest hydro-based utility. These international comparisons are for background information only. The regulatory environments and market structure in these other countries are substantially different than in Canada. As such, these international utilities are not part of our core peer benchmarking group. However, a review of these utilities can result in some interesting observations in relation to capital structure and capital markets.

Tennessee Valley Authority ("TVA"), the largest government-owned power utility in the United States, is a non-profit agency owned by the U.S. Government. TVA provides electricity for nine million people in parts of seven south-eastern states. TVA's electricity generation is primarily coal-based and nuclear, with some hydro. TVA also provides flood control, navigation and land management for the Tennessee River system and assists utilities and state and local governments with economic development. Tennessee Valley Authority's total revenue was US $11.1 billion in 2014, with limited growth over prior years. Net income was near US $0.5 billion, up from previous years. TVA has nearly US $46 billion in total assets. Equity grew to US $6.1 billion in 2014, and is composed primarily of retained earnings.

Bonneville Power Administration ("BPA") is non-profit agency owned by the U.S. Government and markets wholesale electric power from 31 federal hydro projects in the Columbia River Basin in the Pacific Northwest. The hydro dams are operated by the U.S Army Corp of Engineers and Bureau of Reclamation, and BPA also operates about three-quarters of the transmission in its service territory. Bonneville Power Administration has experienced slow growth in revenues in recent years and fluctuations in net income. Total assets are near US $25 billion and equity is near US $3 billion and has been generated primarily from retained earnings.

New York Power Authority ("NYPA") is owned by the State of New York and is the largest state-owned power utility in the United States. NYPA operates 16 generating facilities, mostly hydro, and 1400 circuit-miles of transmission lines. New York Power Authority revenues grew to over US $3 billion in 2013, with electricity sales increasing steadily in recent years. Net income was US $228 million and has been close to that range in recent years. Total assets are US $9.3 billion and net debt is relatively low at US $1.7 billion. Equity has grown to US $3.7 billion in 2013.

Meridian Energy is the largest electricity generator in New Zealand and sells to customers in New Zealand and Australia. Meridian is listed on New Zealand and Australia stock exchanges and is 51% owned by the New Zealand Government. Meridian Energy's revenues are over US $2 billion US and its financial metrics have been relatively steady in recent years.

Statkraft AS Group, Norway's largest hydropower producer is wholly owned by the Norwegian Government. Over 70% of installed capacity is in Norway, and Statkraft is also Europe's largest generator of renewable energy and is a global player in energy market operations. Statkraft's revenues, assets and debt have grown significantly in the past few years due to acquisitions, net income has fluctuated considerably, partly due to foreign currency gains and losses.

Overall, for the three US utilities examined, note that capital expenditures are relatively modest in comparison to overall utility size. In two out of the three cases, these expenditures can be covered by cash flow from operations.

Figure 5-5: Overview of Operating Information, Select International Government-owned Utilities

Overview of Operating Information				
	Location	Installed Capacity (MW)	Total Generation (TWh)	% Hydro Generation
Bonneville Power Administration	Portland, OR, USA	22,458	83.7	89%
Tennessee Valley Authority	Knoxville, TN, USA	33,326	142.1	10%
New York Power Authority	White Plains, NY, USA	5,786	24.8	80%
Meridian Energy	Wellington, New Zealand	2,955	13.4	89%
Statkraft AS Group	Oslo, Norway	16715	55.9	94%

Source:
1. Bonneville Power Administration Annual Report for the year ended September 30, 2014 and website information
2. Tennessee Valley Authority 10K Form for the year ended September 30, 2014
3. New York Power Authority Annual Report for the year ended December 31, 2013
4. Meridian Energy Annual Report for the year ended June 30, 2014
5. Statkraft AS Group Annual Report for the year ended December 31, 2013

Figure 5-6: Overview of Financial Information, Select International Government-owned Utilities

Overview of Financial Information (US$ millions)					
(US $millions)	Annual Revenues	EBITDA	EBIT	Deprec. & Amortiz.	Net Income
Bonneville Power Administration (U.S.)	3,600	1,144	703	441	443
Tennessee Valley Authority (U.S.)	11,137	3,481	1,638	1,843	469
New York Power Authority (U.S.)	3,030	628	400	228	228
Meridian Energy (New Zealand)	2,195	465	273	192	201
Statkraft AS Group (Norway)	8,173	2,646	2,144	502	34

Overview of Financial Information (US$ millions)						
(US $millions)	Assets	Net Debt	Interest on Debt	Retained Earnings & Other Equity	Cash Flow from Operations	Capex
Bonneville Power Administration (U.S.)	24,932	10,623	334	2,823	698	843
Tennessee Valley Authority (U.S.)	45,596	24,387	1,344	6,104	2,980	2,384
New York Power Authority (U.S.)	9,331	1,685	182	3,719	513	319
Meridian Energy (New Zealand)	6,640	758	77	4,054	379	248
Statkraft AS Group (Norway)	25,343	5,391	245	11,726	1,337	1,525

Source:
1. Bonneville Power Administration Annual Report for the year ended September 30, 2014
2. Tennessee Valley Authority Annual Report for the year ended September 30, 2014
3. New York Power Authority Annual Report for the year ended December 31, 2013
4. Meridian Energy Annual Report for the year ended June 30, 2014; converted to US dollar as of year-end date
5. Statkraft AS Group Annual Report for the year ended December 31, 2013; converted to US dollar as of year-end date

5.4 Capital Structure – Equity Ratio Comparisons

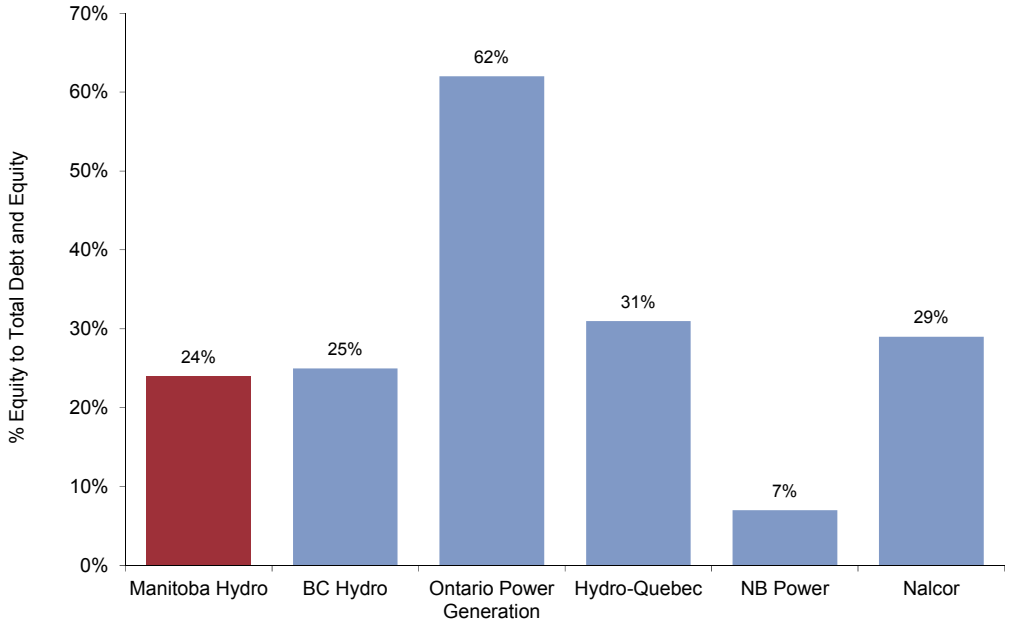
Manitoba Hydro's equity ratio was 24% as of March 31, 2014. This ratio is based on Manitoba Hydro's formula, which uses net debt in its calculation and includes contributions in aid of construction ("CIAOC") as part of equity, thus providing a debt/equity ratio of 76/24.

In comparing the equity ratios of government-owned electric power utilities in Canada, adjustments were made to reflect Manitoba Hydro's formula for calculating equity ratios. For example, BC Hydro's reported equity ratio has been 20% over the past five years. Adjusted for Manitoba Hydro's definition of net debt and including CIAOC in equity, however, results in an equity ratio of 25%. Even with these adjustments, there are still some differences remaining in accounting and reporting frameworks between utilities. However, the adjustments that have been made enable better direct comparison.

Retained earnings represent the large majority of equity for most of the government-owned power utilities in Canada. Of the Canadian utilities in the benchmarking group, all include Accumulated Other Comprehensive Income ("AOCI") as part of their equity. Some utilities such as Hydro-Quebec, OPG and Nalcor have also included contributed capital as part of their equity. For its part, Manitoba Hydro has a relatively small amount of non-controlling interest included in equity.

Investor-owned power utilities in Canada tend to have equity ratios in the 35-40% range, but a more appropriate comparison for Manitoba Hydro is to government-owned utilities. Manitoba Hydro's current equity ratio is among the lower end of government-owned power utilities and similar to BC Hydro. Only NB Power is lower, as NB Power has undergone considerable financial challenges and restructuring. Results are shown in Figure 5-7.

Figure 5-7: Comparison of Government-owned Power Utilities in Canada, Capital Structure - Equity Ratio, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments. For direct comparison to Manitoba Hydro, equity reflected in the chart above includes contributions in aid of construction ("CIAOC"), and net debt includes long-term debt, current portion of long-term debt and other current borrowings less sinking fund investment and cash and cash equivalents. BC Hydro reports equity to debt at 20:80, but with CIAOC, equity ratio is 25%.

BC Hydro's financial target has been maintained through its dividend policy.

> "The Company [BC Hydro] is required to make an annual Payment to the Province [the Payment] on or before June 30 of each year. The Payment is equal to 85 per cent of the Company's net income for the most recently completed fiscal year unless the debt to equity ratio, as defined by the Province, after deducing the Payment, is greater than 80:20. If the Payment would result in a debt to equity ratio exceeding 80:20, then the Payment is the greatest amount that can be paid without causing the debt to equity ratio to exceed 80:20." [63]

In recent years, the dividend has been significantly reduced to maintain the debt/equity ratio, and will be further reduced as a result of the BC Government's new 10 year plan for BC Hydro.

> "As part of the 10 year plan, the Province will restrict the amount of dividends received from BC Hydro starting in fiscal 2018 until such time as the debt to equity ratio reaches 60:40. BC Hydro does not anticipate reaching the debt to equity ratio of 60:40 during the ten year period." [64]

Hydro-Quebec's financial target is also maintained through its dividend policy.

> "Under the *Hydro-Québec Act*, the dividends to be paid by Hydro-Québec are declared once a year by the Québec government, which also determines the terms and conditions of payment. For a given financial year, the dividend cannot exceed the distributable surplus, equal to 75% of the net result. This calculation is based on the consolidated financial statements. However, in respect of a given financial year, no dividend may be declared in an amount that would have the effect of reducing the capitalization rate to less than 25% at the end of the year." [65]

In 2013 and 2014, the dividend was 75% of the net result. Hydro-Quebec's equity ratio has consistently been maintained over 30% over the past decade.

The capital structure of Nalcor changed considerably with an injection of $5 billion in debt financing, which was guaranteed by the Government of Canada, and a contribution of equity capital of $706 million from the Province of Newfoundland and Labrador. The new long-term debt funding was related to the Phase 1 Lower Churchill Falls project. Construction began in 2013 and is expected to take approximately five years to complete, and includes the Muskrat Falls Generating Station, Labrador Transmission Assets and the Labrador-Island Transmission Link.

NB Power's equity is very low at only $399 million in 2014, and has averaged approximately $300 million over the past five years; consequently, its equity ratio was only 7% based on net debt.

As noted previously, direct comparisons of Canadian power utilities to U.S. and international power utilities are difficult and limited due to very different regulatory environments, market structures, different extents of government involvement in ownership, and other factors. Nevertheless, there are some interesting observations in reviewing capital structures of government-owned utilities, particularly in the United States. For example, Bonneville Power Administration, a large hydroelectric power producer, and Tennessee Valley Authority, the largest government-owned power utility in the U.S., are both owned, supported and backed by the Government of the United States, operate as non-profit entities and have similar capital structures of near 20% equity and 80% debt.

[63] BC Hydro. 2014 Annual Report. Financial Statements Note 17, p. 95.

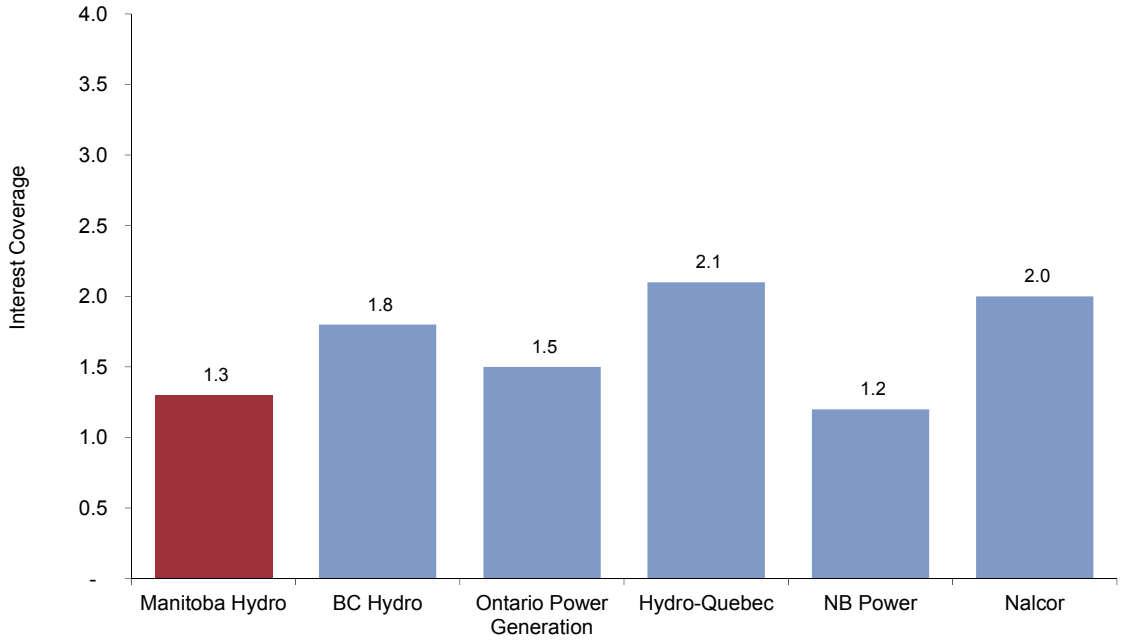
[64] BC Hydro. 2014 Annual Report. p. 35.

[65] Hydro-Quebec. 2014 Annual Report. Financial Statements Note 17, p. 90.

5.5 Interest Coverage Comparisons

As of March 31, 2014, Manitoba Hydro was slightly above its interest coverage target of greater than 1.20. Figure 5-8 provides a comparison of interest coverage ratios among government-owned power utilities in Canada.

Figure 5-8: Comparison of Government-owned Power Utilities in Canada, Interest Coverage, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments. Interest coverage reflects total interest paid on debt and net income divided by total interest paid on debt.

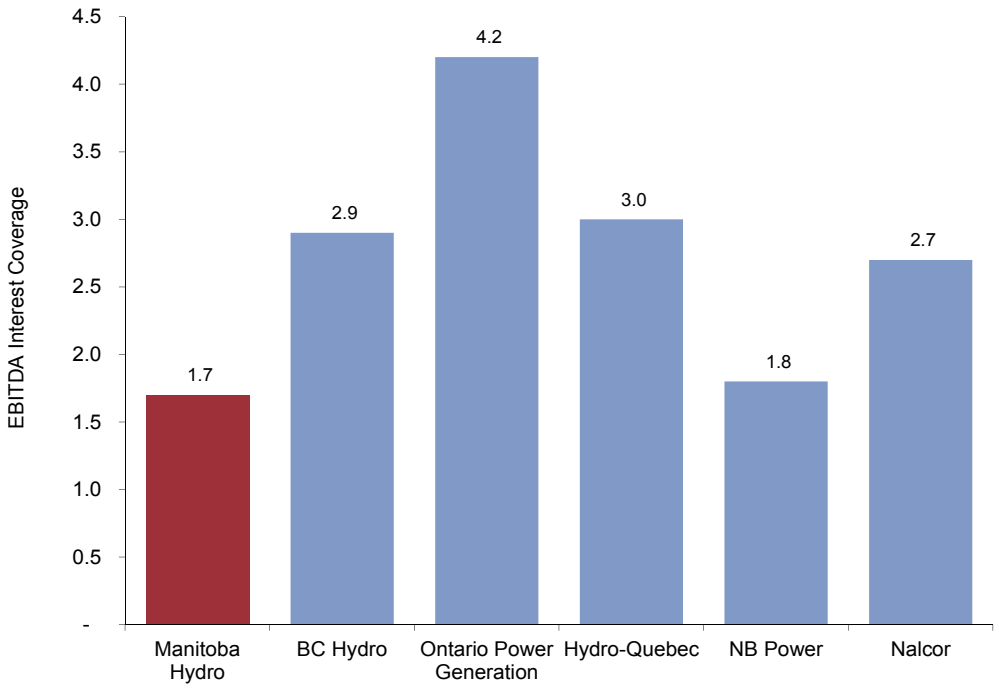
In analysing interest coverage ratios, the following observations are noted:

- Although in recent years, Manitoba Hydro has been near or above its interest coverage target, Manitoba Hydro's interest coverage is currently among the lowest of the select government-owned power utilities in Canada.
- For BC Hydro, net finance costs have grown modestly, however, interest paid on debt has averaged over 10% annual increases due to recent major capital projects. EBIT interest coverage is 1.75 times, down slightly in recent years.
- Hydro-Quebec's total interest on debt has been steady and has averaged approximately $2.5 billion annually. Capitalized interest has averaged $300 annually. EBIT interest coverage has generally been near 2.0 times, except for a dip in 2012 related to a sharp decline in net income due to discontinued operations.
- Nalcor's interest coverage was approximately 2.0 times in 2013, which was also its 5-year average.
- NB Power's interest coverage was 1.2 times in 2013, and has ranged from 0.1 to 2.1 times over the past five years.
- OPG's interest on debt has averaged in the $250 million range per year. Interest coverage dropped significantly in 2013 to 1.5 times but averaged 2.6 over the past five years.

In terms of EBITDA interest coverage, as indicated in Figure 5-9, Manitoba Hydro is currently the lowest of the group of government-owned power utilities in Canada, and substantially lower than hydroelectric peers BC Hydro, Hydro-Quebec and Nalcor. If capitalized interest was added, Manitoba Hydro's EBITDA interest coverage is nearly 1.9 times.

Over the past five years, BC Hydro's EBITDA interest coverage has been steady at near 2.9 times. Hydro-Quebec's EBITDA interest coverage has been near 3.0 times for the past five years except 2012. Nalcor's EBITDA interest coverage has averaged 2.7 over the past five years. NB Power's EBITDA interest coverage was 1.75 times in 2014, in line with the average of the past five years. OPG's EBITDA interest coverage was relatively strong at 4.2 times in 2013.

Figure 5-9: Comparison of Government-owned Power Utilities in Canada, EBITDA Interest Coverage, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments. EBITDA (earnings before interest, taxes and depreciation and amortization) does not include capitalized interest. Property and capital taxes are operating expenses and are not added back to EBITDA calculations; only income taxes, if any, are part of the EBITDA calculations.

5.6 Capital Coverage or Cash Flow to Capex Comparisons

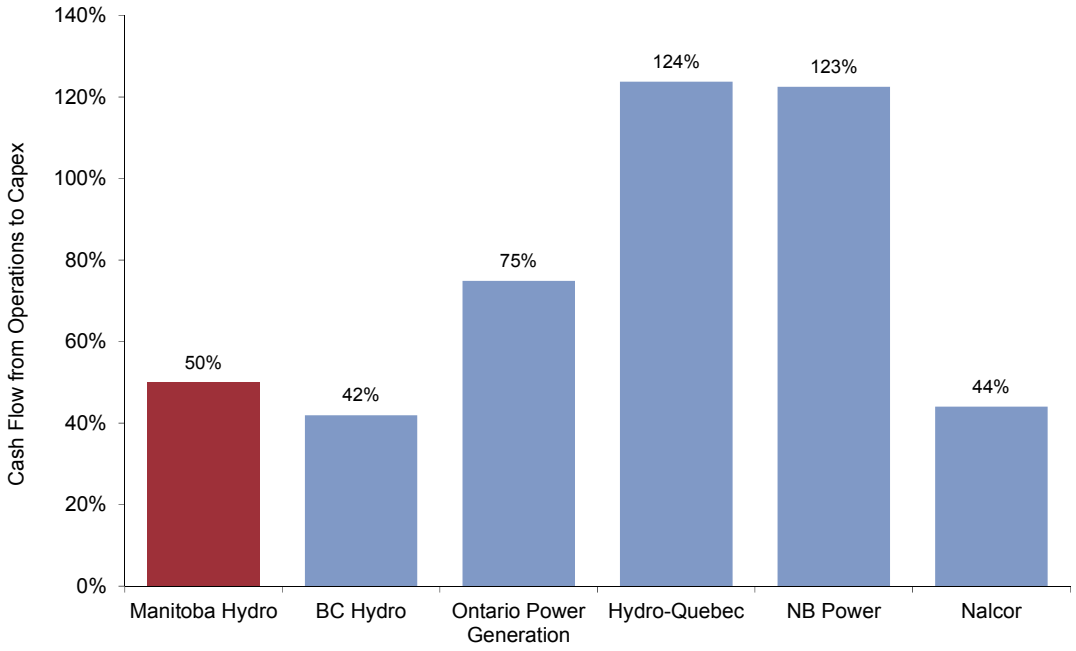
For Manitoba Hydro, the ratio of cash flow from operations to total capital expenditures was 50% in 2013/2014. As shown in Figure 5-10, this was higher than at BC Hydro and Nalcor, which are also in the process of major hydroelectric capital projects. Hydro-Quebec and NB Power had cash flows above their current capital expenditures in 2013/2014.

Note that cash flow to capex is subject to wide variation from year-to-year depending on the timing of major capital projects.

Among the government-owned utilities in Canada, capital expenditure trends in recent years include:

- Manitoba Hydro's capital expenditures have grown to over $1.3 billion in 2013/14, and have averaged over $1.1 billion in the past five years, up significantly from the previous five-year period. Under IFF14, capital expenditures are forecast to average $2.6 billion annually over the next five years.
- BC Hydro's capital expenditures have steadily increased each of the past four years to nearly $2 billion in 2014. Cash flow to total capex has averaged 42% over the past five years. Under the new 10 year Plan for BC Hydro, capital expenditures are expected to decrease to approximately $1.7 billion annually.
- Hydro-Quebec's capital expenditures have been steady, averaging $3.8 billion over the past five years, and were approximately $4 billion in 2013. Cash flow has significantly exceeded capex in recent years, and averaged 128% of capex from 2009 to 2013.
- Nalcor's capital expenditures averaged $315 million from 2009 to 2013, but are ramping up substantially over the next five years as construction proceeds on the Phase 1 Lower Churchill Falls project.
- NB Power's capital expenditures have averaged $270 million over the past five years, and cash flow to capex has averaged 41%. NB Power's new 10 Year Plan projects capital expenditures to decline to approximately $220 million annually over the next five years and ramp up in the subsequent five year period.

Figure 5-10: Comparison of Government-owned Power Utilities in Canada, Cash Flow from Operations to Capex, 2013/2014

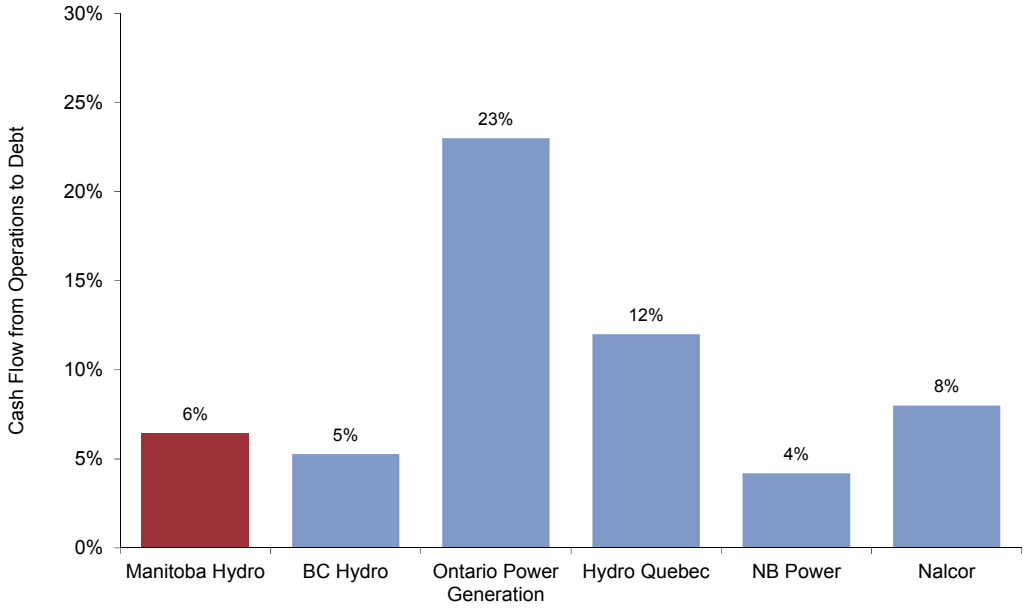


Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

5.7 Other Financial Metrics Comparisons

Cash flow from operations to debt is one of the key measures monitored by credit rating agencies. Note that cash flow from operations is as reported in audited cash flow statements and has not been adjusted for capitalized interest which may be reported differently among utilities. Figure 5-11 compares cash flow from operations to net debt. Manitoba Hydro was approximately 6% as of March 31, 2014, higher than BC Hydro and NB Power, but considerably lower Hydro-Quebec and OPG.

Figure 5-11: Comparison of Government-owned Power Utilities in Canada, Cash Flow from Operations to Net Debt, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

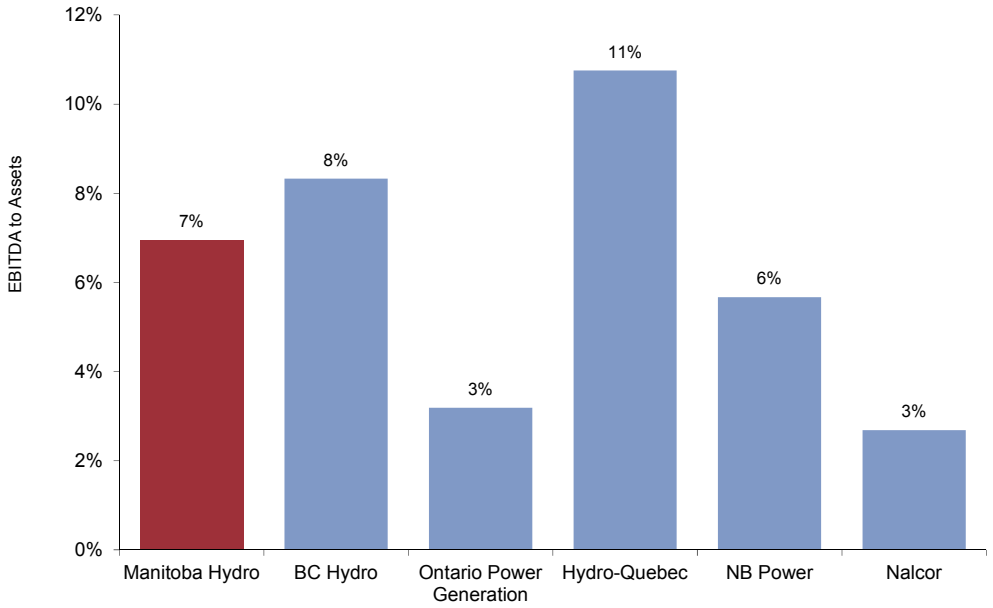
Figure 5-12 compares EBITDA to total assets. Manitoba Hydro was in the middle of select government-owned power utilities at 7%, with Nalcor and OPG lowest at 3% and Hydro-Quebec highest at 11%. Also of note is that most of the five international government-owned electric power utilities reviewed were in the range of 5% to 8%, and similar to Manitoba Hydro at 7%.

Manitoba Hydro has consistently generated relatively strong EBITDA and net operating margins, reflecting its position as a power utility that is based largely on hydropower. Margins in recent years have been further enhanced by above average water flows. Figure 5-13 compares EBITDA as a share of total revenues. In 2013/14, Manitoba Hydro's EBITDA was 47% of total revenues, among the highest levels of power utilities in Canada. Only Hydro-Quebec has a higher level of EBITDA to revenue.

Figure 5-14 compares net debt as a percentage of total assets among government-owned power utilities in Canada. Manitoba Hydro is second highest in net debt to assets of the select government-owned power utilities, next to NB Power. However, if OPG was removed, Manitoba Hydro, at 68% of net debt to assets, would only be slightly higher than the average of the government-owned power utilities.

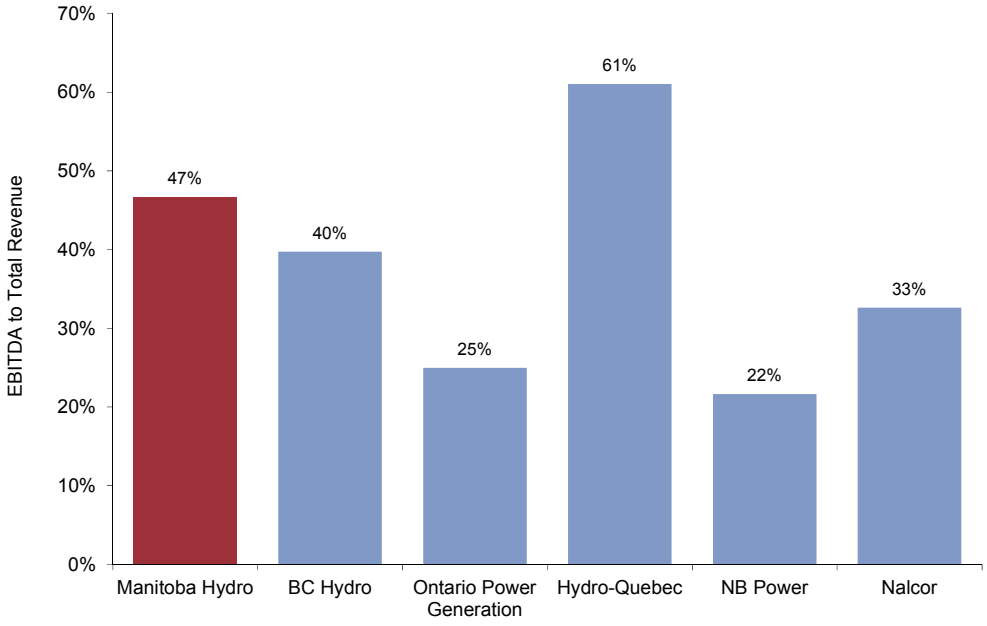
The ratio of net debt to EBITDA varies substantially across government-owned power utilities, from only 4.2 for OPG to 22.7 for Nalcor. As indicated in Figure 5-15, Manitoba Hydro's net debt to EBITDA was approximately 9.8 as of March 31, 2014, significantly higher than BC Hydro, Hydro-Quebec and Ontario Power Generation, and significantly lower than Nalcor and NB Power.

Figure 5-12: Comparison of Government-owned Power Utilities in Canada, EBITDA to Assets, 2013/2014



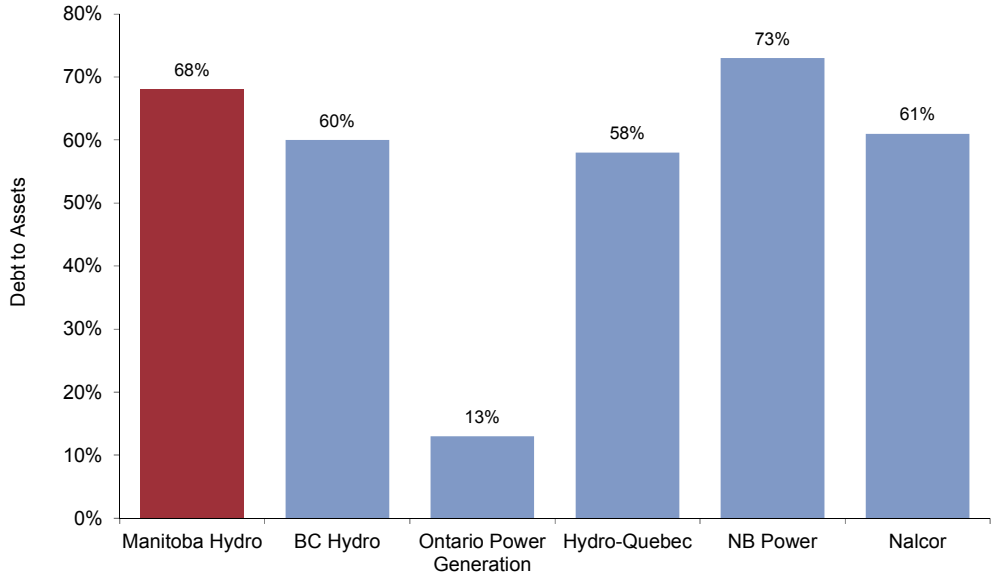
Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

Figure 5-13: Comparison of Government-owned Power Utilities in Canada, EBITDA to Total Revenue, 2013/2014



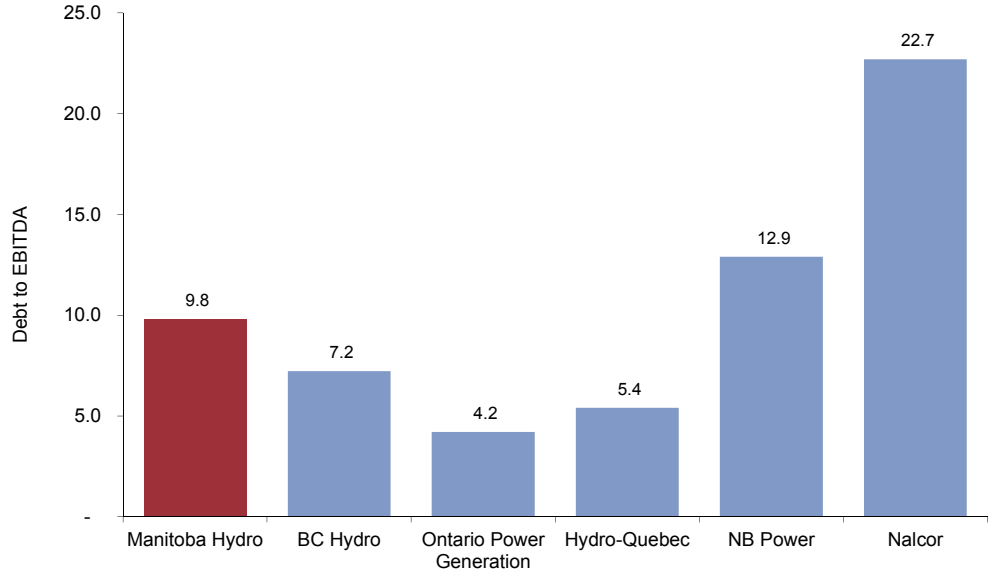
Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

Figure 5-14: Comparison of Government-owned Power Utilities in Canada, Net Debt to Assets, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

Figure 5-15: Comparison of Government-owned Power Utilities in Canada, Net Debt to EBITDA, 2013/2014



Source: Derived from annual report and financial statements for the year ended December 31, 2013 for OPG, Hydro-Quebec and Nalcor and for the year ended March 31, 2014 for Manitoba Hydro, BC Hydro and NB Power. Due to differences in accounting and reporting frameworks between utilities in Canada, may be subject to adjustments.

5.8 Electricity Price Comparison

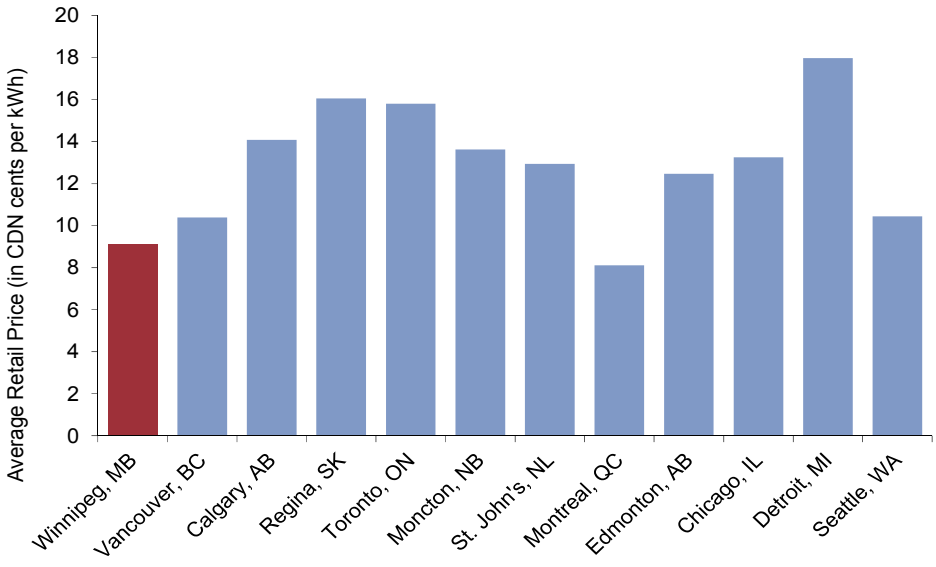
5.8.1 Manitoba Hydro's current competitive position

The charts below, Figures 5-16, 5-17 and 5-18, are based on data from Hydro-Quebec's 2014 annual electricity price survey[66] , and include taxes. The comparison of electricity prices is based on rates in effect April 1, 2014, and power usage assumptions include residential power consumption of 1,000 kWh; medium power consumption of 400,000 kWh; and large power consumption of 30.6 million kWh, at noted demand and load factors.

Based on this electricity price survey data:

- Manitoba currently has the second lowest electricity prices in the country for residential consumers (next to Quebec). The average price for residential customers in Winnipeg (including taxes) was 9.1 cents per kWh compared to an average of 13.5 cents per kWh among 12 Canadian cities in the survey, approximately one-third lower than the 12-city average.
- Manitoba has the lowest electricity prices for medium and large power consumers. The average price for "medium power" in Winnipeg (including taxes) was just over 7 cents per kWh compared to an average of 11.5 cents per kWh among 12 Canadian cities in the survey. The average price for "large power" customers in Winnipeg (including taxes) was 4.2 cents per kWh compared to the 12-city average of 8.2 cents per kWh.
- A few U.S. city are listed as examples. Generally, electricity prices from hydro-based utilities in Manitoba, British Columbia and Quebec are lower than jurisdictions across North America.

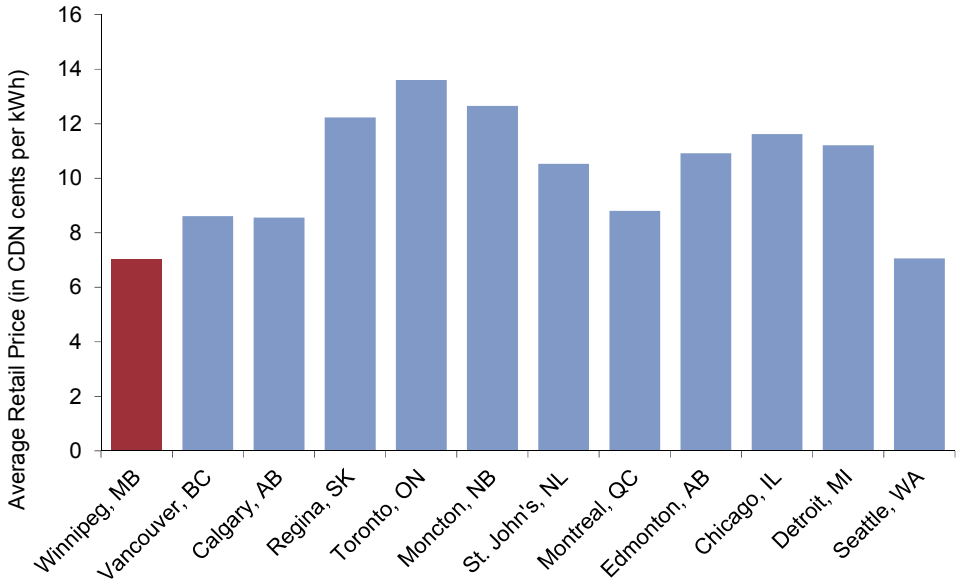
Figure 5-16: Comparison of Average Prices of Electricity, Residential, 2014



Source: Hydro-Quebec. Comparison of Electricity Prices in Major North American Cities, Rates in effect April 1, 2014 (including taxes). Residential assumption - power consumption 1,000 kWh. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills.

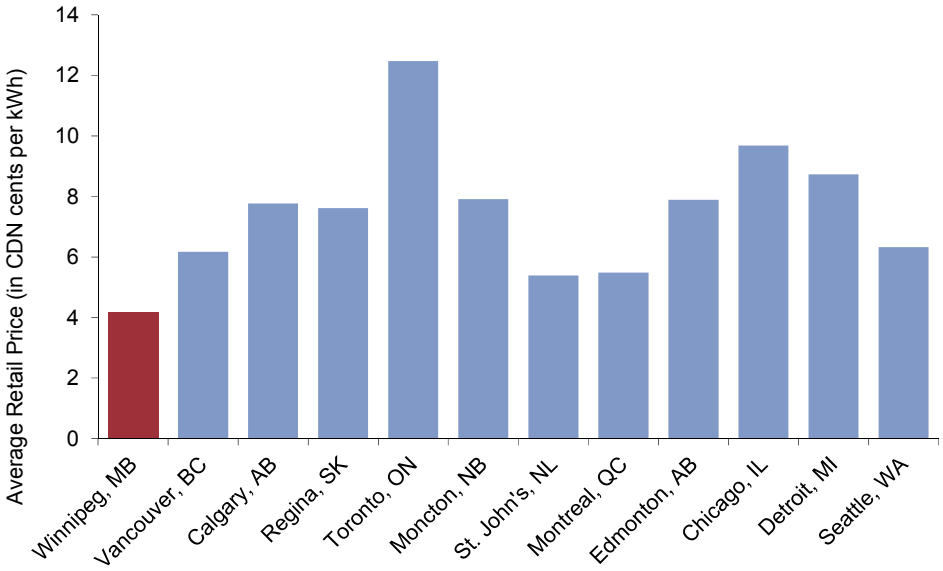
[66] Hydro-Quebec. *Comparison of Electricity Prices in Major North American Cities*. Average prices on April 1, 2014 (including taxes), p. 26.

Figure 5-17: Comparison of Average Prices of Electricity, Medium Power, 2014



Source: Hydro-Quebec. Comparison of Electricity Prices in Major North American Cities, Rates in effect April 1, 2014 (including taxes). Medium Power assumption - power demand 1,000 kW, power consumption 400,000 kWh, load factor 56%. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills.

Figure 5-18: Comparison of Average Prices of Electricity, Large Power, 2014



Source: Hydro-Quebec. Comparison of Electricity Prices in Major North American Cities, Rates in effect April 1, 2014 (including taxes). Large Power assumption - power demand 50,000 kW, power consumption 30,600,000 kWh, load factor 85%. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills.

5.8.2 Manitoba Hydro's projected future competitive position

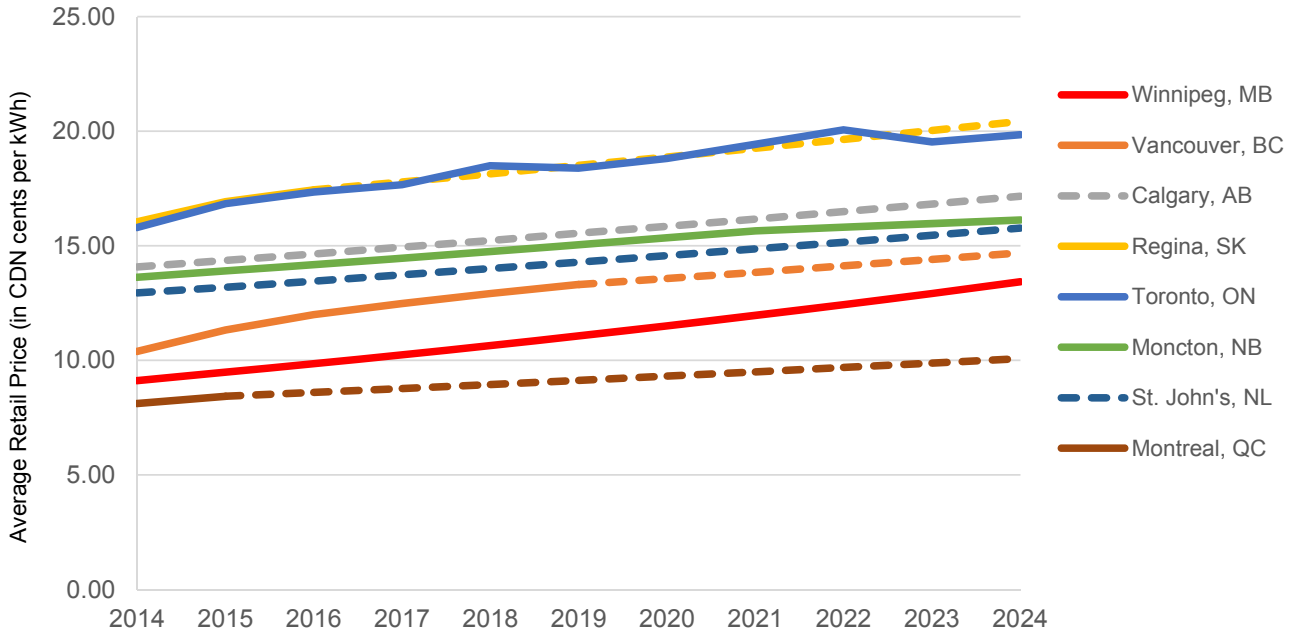
Figures 5-19, 5-20 and 5-21 indicate scenario forecasts of electricity prices over the next 10 years. These scenarios are based on public plans where available. The basis of these electricity price projections and assumptions is as follows:

- Manitoba electricity prices are based on proposed rate increases under Manitoba Hydro's IFF14.
- For B.C Hydro, rate increases are based on the Province of British Columbia's 10 Year Plan, of which rate increases are prescribed for the next five years.
- For N.B. Power, rate increases are based on N.B. Power's 10 Year Plan, which are outlined for the next ten years.
- For Ontario, projected rate increases reflect price forecasts for residential and large power under the long-term Ontario Energy Plan. Residential rate increases are applied for the medium power scenario.
- Hydro-Quebec's rate increase is for 2015 only and SaskPower, rate increases are outlined for the next two years.
- Where rate plans are not known, an assumption of 2% annually is applied.

Key findings from our review of Figures 5-19 through 5-21 are as follows:

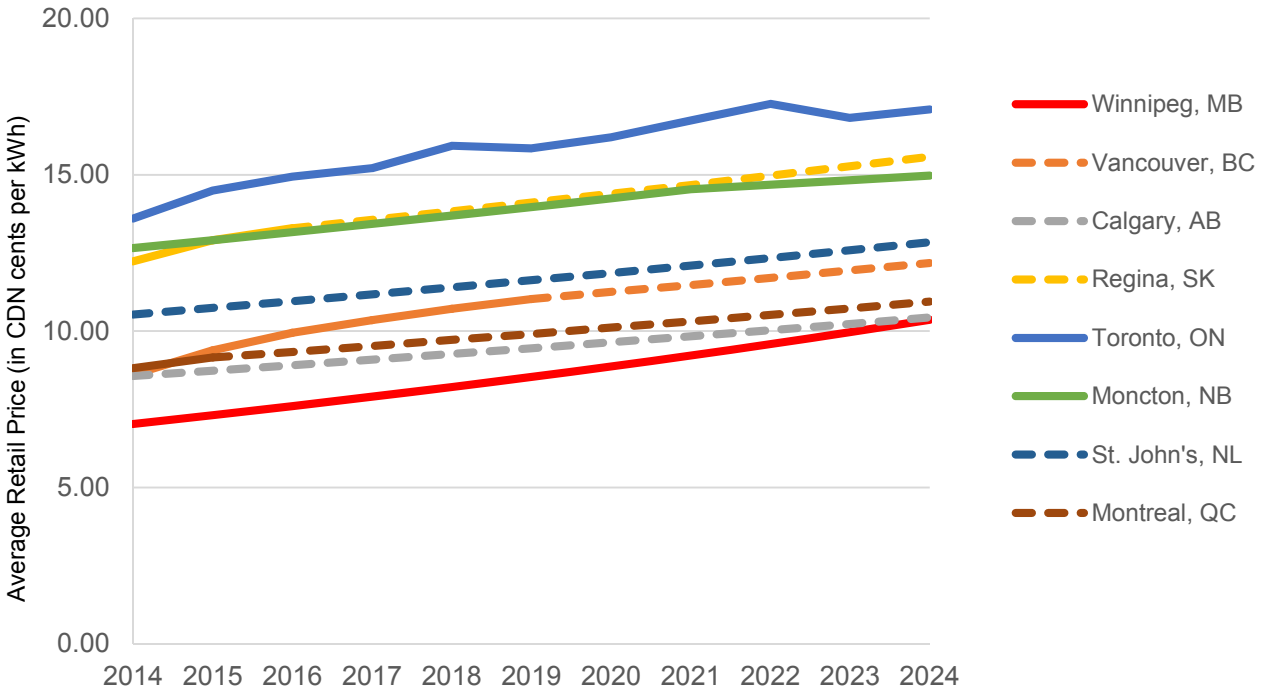
- Under 3.95% annual rate increases over the next decade, these scenario graphs show Manitoba Hydro maintains its position as lowest or second lowest electricity prices in Canada.

Figure 5-19: Comparison of Average Prices of Electricity in Canada, Scenario Projection 2014-2024, Residential



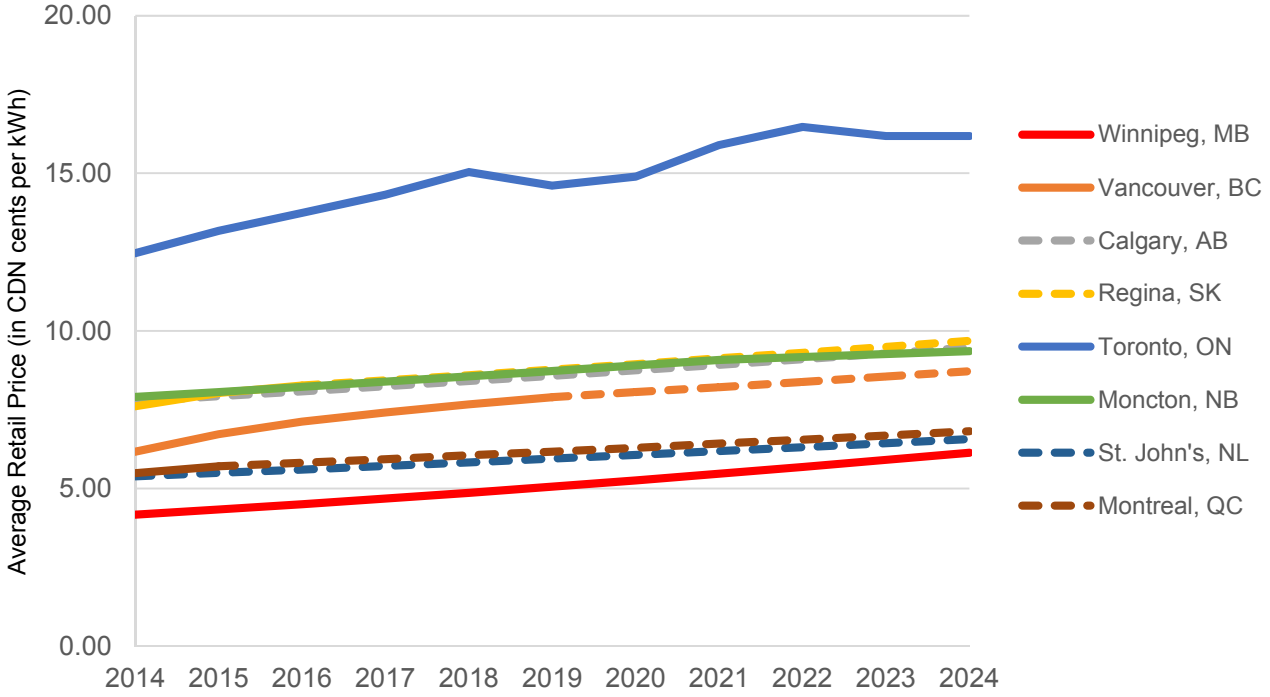
Source: 2014 base data from Hydro-Quebec Comparison of Electricity Prices in Major North American Cities, rates in effect April 1, 2014 (including taxes). Residential assumption - power consumption 1,000 kWh. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills. For jurisdictions, projected rate increases reflect projected plans and/or approved rates where available (see text for assumptions used). For all utilities and years where there is not a published plan, annual increases of 2% are used.

Figure 5-20: Comparison of Average Prices of Electricity in Canada, Scenario Projection, 2014-2024, Medium Power



Source: 2014 base data from Hydro-Quebec Comparison of Electricity Prices in Major North American Cities, rates in effect April 1, 2014 (including taxes). Medium Power assumption - power demand 1,000 kW, power consumption 400,000 kWh, load factor 56%. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills. For jurisdictions, projected rate increases reflect projected plans and/or approved rates where available (see text for assumptions used). For all utilities and years where there is not a published plan, annual increases of 2% are used.

Figure 5-21: Comparison of Average Prices of Electricity in Canada, Scenario Projection, 2014-2024, Large Power Users



Source: 2014 base data from Hydro-Quebec Comparison of Electricity Prices in Major North American Cities, rates in effect April 1, 2014 (including taxes). Large Power assumption - power demand 50,000 kW, power consumption 30,600,000 kWh, load factor 85%. Hydro-Quebec study notes that these bills have been estimated by Hydro-Quebec and may differ from actual bills. For jurisdictions, projected rate increases reflect projected plans and/or approved rates where available (see text for assumptions used). For all utilities and years where there is not a published plan, annual increases of 2% are used.

5.9 Financial Targets/Plans of Government-owned Power Utilities in Canada

Most of the government-owned power utilities in Canada include, as two of their primary financial metrics, one measure of capitalization (a debt to capital or debt/equity ratio) and one measure of interest coverage. Other metrics may be monitored in addition. Figure 5-22 indicates the financial targets/metrics highlighted in annual reports of select government-owned power utilities.

Figure 5-22: Key Financial Metrics or Targets of Government-owned Power Utilities in Canada

Key Financial Metrics or Targets of Government-Owned Power Utilities in Canada					
	Manitoba Hydro	**BC Hydro**	**Hydro-Quebec**	**Nalcor**	**NB Power**
Debt / Equity	• Long-term target of **75:25**, has been near target range from 2008 to 2014 • Forecast to deteriorate over the next decade due to major expansion	• Long-term target recently increased under new 10 Year Plan from **80:20** to **65:35** in 10 years • Target of 60:40 in the long-term	• Minimum requirement of **75:25**, practically has been steady in the range of **70:30** for several years • Expected to continue in the near term	• Minimum target of **75:25** for regulated hydro operations of NLH • Large increase in 2013 due to debt and equity for Lower Churchill Falls project	• Long-term target of **70:30** under new 10 Year Plan
Debt / Equity (as reported in latest annual report)	**74:26** (2014)	**80:20** (2014)	**68:32** (2014)	**72:28** (2013)	**95:05** (2014)
Interest Coverage	**> 1.2**	target not stated	target not stated	> 1.5	target not stated
EBIT interest coverage (as reported in latest annual report)	**1.28** (2014) • Has been at or close to target in recent years	**1.75** (2014) • Has averaged 1.8 - 1.9 in recent years	**2.25** (2014) • Has averaged near 2x in recent years	**2.3** (2013) • Has averaged near 2x in recent years	**1.12** (2014) • Wide variance from negative to 1.6 in recent years
Other financial metrics (highlighted in Annual Reports or Plans)	• Capital coverage **> 1.2** **1.35** (2014) • Reflects cash flow to cover sustaining capital expenditures (excluding major generation and transmission expansion projects). Has been at or close to target in recent years.	• Net income targets established for next 3 years, increasing from $549 M in 2014 to $701 M for FY 2017. • Operating cost targets established for next three years, slightly increasing from $702 M in 2014 to $730 M in FY 2017. • Maintain rates in the first quartile.	• Return on equity from continuing operations 16.2% (2014), has ranged from 14.6-16.2% in recent years. • Profit margin from continuing operations 24.8% (2014), has ranged from 20-25% in recent years. • Self-financing, defined as cash flow from operations less dividends paid, divided by cash flows from investing activities, 51.6% (2014), down in recent years.	• Fixed rate debt as % of total debt, 99.3% (2013) • Funds from operations to debt, 3.7% (2013), down significantly due to new debt financing for major expansion project.	• Operating margin, 8.8% (2014) • Cash flow from operations to total debt, 7% (2014) • Cash flow from operations/capital expenditures, 1.83 (2014)

Source: Derived from annual reports, Manitoba Hydro, B.C. Hydro and N.B. Power for the year-ending March 31, 2014, Hydro-Quebec for the year-ending December 31, 2014, and Nalcor for the year-ending December 31, 2013. Also from latest published plans for various utilities.

Over the past decade, Manitoba Hydro's equity ratio climbed from 15% to be slightly over its long-term target of 25% in 2008 and 2010-2013. It is currently near its long-term target. However, as Manitoba Hydro ramps up major generation and transmission projects, its equity ratio is forecast under IFF14 to deteriorate to 11% in 2023 – 2026. It will then recover after these new assets are in-service, and is forecast to approach its long-term equity target in 2033 – 2034.

On a relative basis, Manitoba Hydro's upcoming capital expansion program is large in comparison to other government-owned utilities in Canada. Note the following:

- Manitoba Hydro's total assets (consolidated) at the end of Fiscal 2014 were $15.6 billion. According to IFF14, projected capital expenditures over the period 2015-2019 are $13.0 billion. Thus, projected expenditures over the next five years equal 83% of the corporation's existing asset base.
- Nalcor Energy's assets at the end of Fiscal 2013 were $9.5 billion. As at December 31, 2013, total capital commitments to be incurred in the following five years related to the Phase 1 Lower Churchill Project, Regulated Hydro, and Churchill Falls were listed as $2.6 billon.[67] Thus, these capital commitments represent less than 30% of Nalcor's current assets, a much smaller ratio than noted for Manitoba Hydro above.
- NB Power does not have major capital projects planned over the next 5 years. Based on NB Power's 10 Year Plan, capital expenditures are forecast at approximately $1.1 billion from 2015/16 to 2019/20[68], representing only 16% of its existing total assets of $6.9 billion.
- Hydro-Quebec does not publish a long-term projection; however, capital spending in 2014 and 2015 are projected at close to $4 billion annually. Hydro-Quebec's major continuing project in its Generation division is the Romaine complex, which has a total estimated cost of $6.5 billion. Hydro-Quebec's total assets as of December 31, 2014 were $74.9 billion. Over all business segments, Hydro-Quebec's annual capital expenditures have been relatively steady and averaging near $4 billion annually, which over a five-year period represent would close to 27% of its existing asset base.
- In the 5-year period 2013-2017, capital expenditures for BC Hydro are projected at $9.96 billion, with approximately 56% of capital expenditures representing sustaining capex and 44% for growth capex.[69]
- Over the 10-year period from 2015 to 2024, BC Hydro is forecast to have capital expenditures of $17 billion. This compares to total utility assets of $25.7 billion at the end of Fiscal 2014.[70] Thus, capital expenditures over the next 10 years represent about 70% of existing total assets. As noted above, Manitoba Hydro will spend proportionately more (83%) just in the next 5 years. Forecast capital expenditures over the next 10-years at Manitoba Hydro are expected to equal 104% of its existing asset base.[71]

Figure 5-23 shows these spending ratios graphically.

[67] Nalcor Energy, 2013 Business and Financial Report, p. 37.

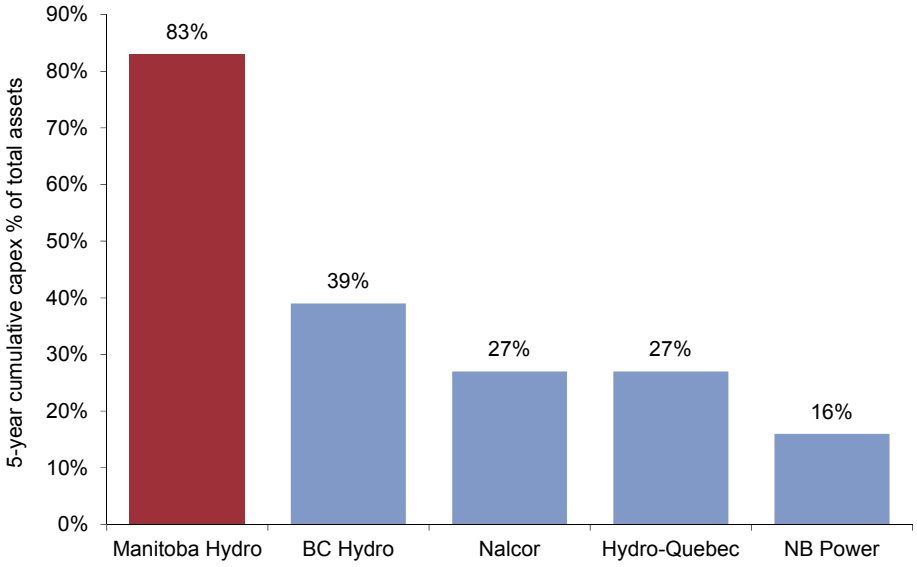
[68] N.B Power Ten Year Plan.

[69] BC Hydro Service Plan 2014/15-2016/17, p. 22.

[70] 10 Year Plan for BC Hydro, Bill Bennett, Minister of Energy and Mines, November 26, 2013, p. 31.

[71] Calculations for Manitoba Hydro are based on forecast capital expenditures of $17.76 billion over a 10-year period and total assets of $17.0 billion. Figures are taken from IFF2014.

Figure 5-23: Projected Capital Expenditures over the Next Five-Year Period Compared to Current Asset Base



Source: Derived from from annual reports and plans.

Hydro-Quebec

Hydro-Quebec has consistently maintained its equity ratio at slightly over 30% during the past decade, and this ratio is expected to remain near 30% over the next decade.

For Hydro-Quebec, capital structure targets are determined separately for the transmission and distribution business segments. Transmission's deemed capital structure provides for a target debt/equity ratio of 70/30, which was set in 2002. Distribution's deemed capital structure provides a target debt/equity ratio of 65/35, and was determined in 2003. Both Transmission and Distribution are regulated by the Régie de l'énergie ("Régie"). Generation is not regulated in Quebec.

Hydro-Quebec uses its capitalization ratio to monitor its capital structure. Hydro-Quebec's corporate equity ratio target is a minimum of not less than 25%. Under the Hydro-Quebec Act, the dividends to be paid by Hydro-Quebec are declared once a year by the Quebec government. For any given year, the dividend cannot exceed the distributable surplus, which is equal to 75% of the net result (net income before dividend). However, in a given financial year, no dividend can be declared in an amount that would have effect of reducing the capitalization rate to less than 25% at the end of the year.

NB Power

NB Power has faced a number of financial challenges and this resulted in it having very low equity ratios over the past decade. Recognizing that its capital structure must improve, NB Power introduced a new 10 Year Plan, with the support of its owner, the Province of New Brunswick. The plan provides for a significant increase in its equity ratio over the next decade, with a target of 30% in 2024.

On October 1, 2013, the *Electricity Act* substantially changed both the structure of NB Power and the regulatory framework governing NB Power. NB Power became a vertically integrated utility under the new regulatory framework.

Section 68 of the *Electricity Act* is a statutory expression of the policy of the Government of New Brunswick. The section requires that rates be set on the basis of least cost, reflect annual forecasted

costs for the supply, transmission and distribution of electricity, and provide sufficient revenue to the corporation to permit it to earn a reasonable return, in the context of the corporation's objective to earn sufficient income to achieve a capital structure of at least 20% equity by 2021 via a reduction in debt of $1 billion.

Filings by NB Power speak to the benefits of an enhanced equity ratio as follows:

> "The rationale for reaching the goal by 2021 [at least 20% equity], and reaching debt/equity target of 70 percent/30 percent by 2025, is twofold. First, NB Power recognizes that it requires an equity cushion as a risk management tool. The utility is subject to a variety of operational and financial risks, and an equity cushion will allow the utility to withstand negative contingencies without subjecting customers to sudden unpredictable rate changes. Second, … NB Power needs to take advantage of the opportunity to reduce debt and improve its capital structure due to the relatively low capital investments required in the first six years of the 10 Year Plan." [72]

The Plan therefore very clearly recognizes that equity provides an important cushion against operational and business risks and that enhancing the equity base is a key goal.

More detail with respect to the restructuring process and regulatory framework in New Brunswick is provided in Chapter 4.

BC Hydro

BC Hydro has maintained an equity ratio of 20% over the past decade. However, under the B.C. Government's recent 10-year plan for the utility, the Province directed that the utility move to a much more robust capital structure. Under the Plan, BC Hydro will increase its equity ratio to 40% in the longer term. The specific details of the 10-year Plan, and the context for its development, are discussed in more detail in Chapter 4. In this section, some specific provisions relating to BC Hydro's financial targets and capital structure are highlighted.

Prior to issuance of the 10-Year Plan, a government review had recommended that BC Hydro and the Province of B.C.,

> "determine collaboratively, as the economy improves, a capital structure to support the desired debt to equity ratio and dividend payout policy that balances the needs of the Province and the utility." [73]

The review further stated:

> "Capital structures among public sector utilities currently range between 60:40 and 73:27 debt to equity and have stated targets in place to maintain levels between 65:35 and 75:25. Private sector utilities maintain debt to equity ratios closer to 60:40. Private sector entities are exposed to the consequences of adding too much leverage to their capital structure. Tax advantages of financing with additional debt are weighed against the rising costs of debt. However, public sector utilities borrow at much lower rates as they borrow as agents of their respective provinces.
>
> Using the private sector ratio as a comparison, we would expect a public sector utility debt to equity ratio to be between 75:25 and 70:30, but capital structure is ultimately mandated by provincial regulation." [74]

[72] 2015/16 NB Power Corporation General Rate Application, November 21, 2014, pg. 6-7.
[73] Review of BC Hydro, 2011, pg. 701.
[74] Review of BC Hydro, 2011, pg. 99-100.

As noted above, the 10-Year Plan provides that BC Hydro will ultimately move to a 40% equity ratio, which is a ratio that is consistent with private-sector norms. Thus, the BC government went beyond the range cited by the review for public-sector utilities.

Nalcor

Nalcor is a holding company that holds the Government of Newfoundland and Labrador's interests in a number of energy companies, including Newfoundland and Labrador Hydro ("NLH"), which is a regulated utility whose activities encompass generation, transmission and electricity sales. Nalcor also holds entities created in the Lower Churchill Project and related investments. Nalcor's major new generation investment in the Lower Churchill Project is being undertaken outside of the regulated utility NLH.

As noted previously, the Government of Newfoundland and Labrador, with support of Government of Canada guarantees, made specific efforts to improve Nalcor's capital position in advance of major investments in the Lower Churchill Project. Further equity contributions from the Province are intended as debt increases as a result of additional capital spending in the Lower Churchill Project.

For its regulated hydro operations, NLH maintains a capital structure consisting of 75% debt and 25% equity, which drives Nalcor's equity ratio to be in the range of 25 to 30%.

5.10 Summary Observations – Benchmarking

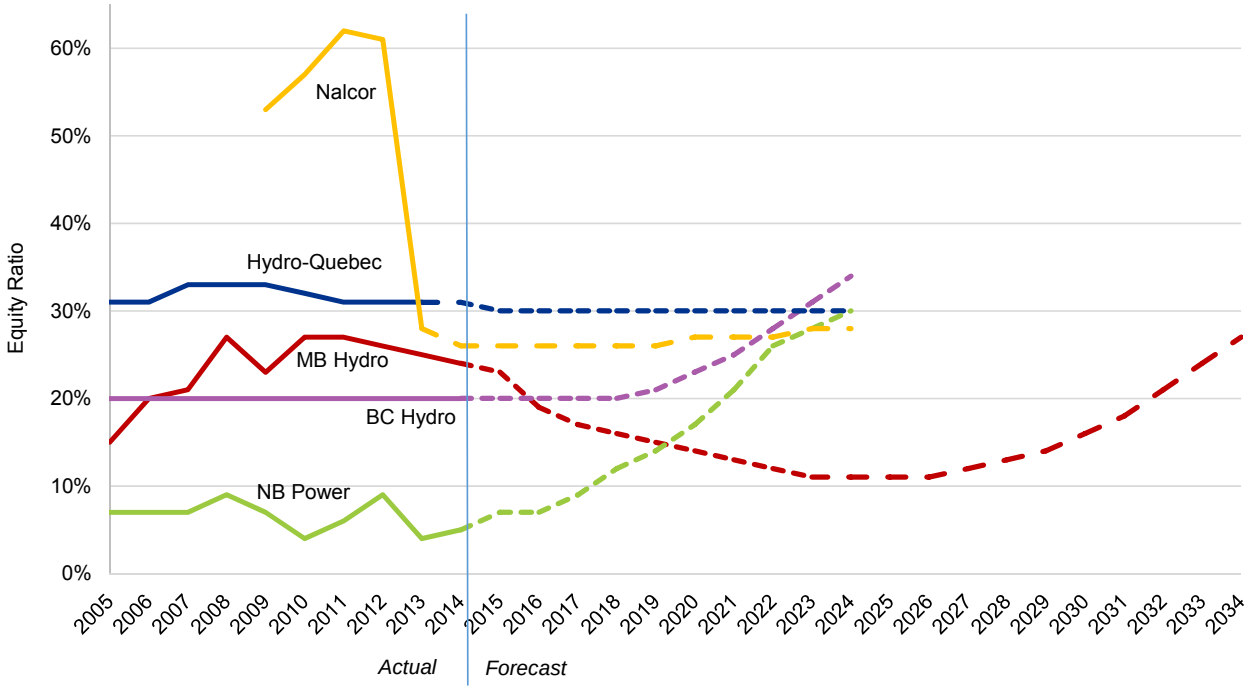
As indicated in Figure 5-24, the general trend of other vertically-integrated government-owned power utilities in Canada is to plan to increase their equity ratios over the long-term.

Based on benchmarking and various comparisons of government-owned power utilities, particularly with hydro-based peer utilities in Canada, the following are summary observations:

- Manitoba Hydro has been and is currently is at low end of power utilities in terms of key financial metrics including equity ratio, interest coverage ratio, cash flow comparison metrics, and other financial metrics.
- At a target of 25%, Manitoba Hydro's equity ratio is similar to BC Hydro using the same calculation methodology. Under its new 10-year plan, BC Hydro's target is to increase its equity ratio to 35% over the next decade and to 40% in the longer term. Manitoba Hydro's target is at the minimum equity ratio target of Hydro-Quebec and Nalcor's regulated hydro operations, although Hydro-Quebec and Nalcor maintain equity ratio targets close to 30%. Of the Canadian peer group, only NB Power is lower; however, NB Power has undergone financial challenges and its new plan is to ramp up to an equity ratio of 30% over the next decade.
- Manitoba Hydro has a relatively high EBITDA to revenue ratio. The nature of the development of hydroelectric generation is that it entails very long development cycles, with very high capital expenditures during construction and relatively low operating costs and relatively strong operating margins once in service.
- Manitoba Hydro has very competitive electricity rates in Canada and North America, providing a significant advantage for ratepayers compared to other jurisdictions.
- Manitoba Hydro has relatively larger installed capacity and electric power generation per capita than most utilities, and extra-provincial electricity sales represent 20 to 25% of total electricity sales, down somewhat in recent years, but a larger share than other utilities and a very significant part of electricity operations.
- Manitoba Hydro's upcoming capital expansion program is relatively much larger as a share of its existing asset base in comparison to other government-owned utilities in Canada. Manitoba Hydro's forecasted cumulative capex over the next five years equates to over 80% of its existing asset base, over double the same metric applied to BC Hydro and over triple that of other peer hydro-based utilities.

- Two of the three Financial Targets of Manitoba Hydro are based on financial metrics that are commonly used by government-owned power utilities as key indicators – debt or equity ratio to capital, and interest coverage ratio. Some utilities also regularly track an EBITDA interest coverage ratio. While the capital coverage ratio is somewhat unique to Manitoba Hydro, other utilities have at least one key financial metric based on cash flow from operations.
- In terms of capitalization, Manitoba Hydro's current trajectory in the next decade differs from trends at other government-owned utilities in Canada, which generally plan to increase their equity ratio. However, none of the other government-owned utilities except Nalcor are at the start of a major capital expansion at this time, and importantly, Manitoba Hydro's plan is to return to its long-term equity ratio target in the second decade of its long-term plan under IFF14. The dramatic increase in the equity ratio that is forecast for BC Hydro is facilitated by a sharp drop in dividends that will be paid to the Province. This will allow the utility to rapidly build its equity position.

Figure 5-24: Equity Ratios, Comparison of Select Government-owned Power Utilities in Canada, 10-year Historical Trends and Forecasts Based on Current Plans



Source: Historical data from annual reports as defined and reported by each utility. Forecasts for Manitoba Hydro are based on IFF 2014. Note plan is to recover and ramp up to 27% by 2034. Forecast for BC Hydro is based on the Province of British Columbia's 10-year plan for BC Hydro. Note BC Hydro does not include CIAOC in its equity calculation. Forecast for NB Power is based on NB Power's 10-year plan. Forecast for Hydro-Quebec assumes maintaining current policy. Nalcor established in 2008. Forecast from Nalcor assumes maintaining current policy and minimum required target under current major capital expansion program.

6 Financial Targets in a Capital Markets Context

This chapter reviews capital market expectations for utility performance, including the perspective of credit rating agencies.

6.1 Structure of the Chapter

This chapter is organized into the following sections:

- Section 6.2 briefly describes the types of factors considered by credit rating agencies in assessing regulated utilities.
- Section 6.3 provides an overview of recent credit rating reports on the Province of Manitoba and on Manitoba Hydro, which receives a flow-through credit rating of the Province.
- Section 6.4 provides a summary of credit rating comments on government-owned power utilities in other provinces and in a sample of other international jurisdictions.
- Section 6.5 discusses government-owned utilities in relation to their respective provincial economies and provincial debt, for the Canadian peer group. Contributions to government through dividends, taxes and various fees and charges are also compared.
- Section 6.6 discusses capital market structure and capital market expectations in financial targets.
- Section 6.7 outlines summary points.

6.2 Credit Rating Factors in Assessing Regulated Utilities

All credit rating agencies publish ratings criteria for various industries. This section summarizes ratings criteria for regulated utilities.

6.2.1 Moody's

Moody's rating methodology for the regulated electric and gas utility sector outlines four broad rating factors and weightings along with a number of sub-factors. Moody's four broad factors and weighting[75] for the regulated electric and gas utility sector are:

- Regulatory framework (25%);
- Ability to recover costs and earn returns (25%);
- Diversification (10%)
  - market position
  - generation and fuel diversity
- Financial strength, liquidity and key financial metrics (40%)
  - liquidity
  - cash flow interest coverage
  - cash flow to debt
  - debt/capitalization

[75] Moody's Investors Service. Rating Methodology: Global Regulated Electric and Gas Utilities.

The ratings methodology provides details on each factor and a grid to enhance transparency and to outline assumptions and limitations. Ratings may include additional factors and adjustments.

6.2.2 Standard and Poor's

Standard and Poor's outlines rating methodology and criteria for the regulated utilities industry.[76] Broad categories and factors include:

- Part I: Business Risk Analysis
  - industry risk
  - cyclicality
  - competitive risk and growth
  - effectiveness of barriers to entry
  - level and trend of industry profit margins
  - risk of sector change and substitution of products, services and technologies
  - risk in industry growth trends
  - regulatory framework
  - competitive position
    - competitive advantage
    - scale, scope and diversity
    - operating efficiency
    - profitability
- Part II: Financial Risk Analysis
  - accounting practices
  - purchased power adjustment
  - debt adjustment
  - infrastructure renewal expenditure
  - cash flow/leverage analysis
- Part III: Rating Modifiers
  - diversification/portfolio effect
  - capital structure
  - liquidity
  - financial policy
  - management and governance
  - comparable ratings analysis

Standard and Poor's has noted that in some jurisdictions, its view of government support can affect the final rating outcome, as per guidelines outlined in General Criteria: Rating Government-Related Entities: Methodology and Assumptions.[77]

[76] Standard and Poor's. Key Credit Factors for the Regulated Utilities Induction, November 19, 2013.

[77] Standard and Poor's. Key Credit Factors for the Regulated Utilities Induction, November 19, 2013, p.3.

Standard & Poor's provides a definition of self-supporting entities for non-U.S. Local and Regional Governments:

> **Self-supporting entities:** The debt of a GRE [Government Reporting Entity] that does not need financial support from its LRG [Local or Regional Government] and is unlikely to require support in the future is self-supporting debt. Financial support includes any direct or indirect contribution aiming at balancing operating accounts, financing investments, or repaying debt. When a GRE receives sizable revenues from its LRG for a service, we evaluate the exchange as if it were a remuneration at market rates for a service that could be provided in comparable terms by a private contractor. Self-supporting entities generally have investment-grade stand-alone credit profile (or estimated creditworthiness, if SACP [Stand-Alone Credit Profile] is not formally established). For speculative-grade LRGs, GREs whose SACPs (or estimated creditworthiness) are at the same level or higher than that of the LRG's (hence unlikely to require government support) can also be classified as self-supporting. [78]

6.2.3 DBRS

Business risk factors that DBRS assesses for utilities are outlined in Figure 6-1. DBRS analyses key drivers, strengths and challenges and it identifies where an average company would score on the matrix, providing transparency. [79]

In addition to other metrics, key financial risk factors assessed by DBRS include:

- adjusted debt in capital structure;
- adjusted EBIT interest coverage;
- cash flow to adjusted debt.

While these financial metrics are key factors in its financial risk analysis, DBRS notes that the nature of credit analysis must incorporate a broad range of financial considerations. For example, DBRS notes that utilities with hydroelectric generation assets are better positioned to maintain high levels of debt than their peers. It also notes that ratings are based on future performance expectations, so while past metrics are important, any final rating incorporates an opinion on future metrics. [80]

The final rating is a blend of both business risk and financial risk considerations in their entirety. [81]

[78] Standard & Poor's *Methodology for Rating Non-U.S. Local and Regional Governments, June 2014.*
[79] DBRS, Canadian Utilities Q3 2014. Company-Specific Business Risk Factors, p. 74.
[80] DBRS, Canadian Utilities Q3 2014. Company-Specific Financial Risk Factors, p. 77.
[81] DBRS, Canadian Utilities Q3 2014. Company-Specific Financial Risk Factors, p. 77.

Figure 6-1: DBRS Business Risk Factors, Utilities

Regulated Electric, Natural Gas and Water Utilities - Primary Business Risk Factors				
	AA	A	BBB	BB
Business Strength	**Exception**	**Superior**	**Adequate**	**Weak**
Regulation	Highly supportive regulatory framework with the vast majority of regulatory risk factors in Appendix A considered to be "excellent".	Supportive regulatory framework with the vast majority of regulatory risk factors in Appendix A considered to be "good" or better.	Reasonable regulatory framework with the vast majority of regulatory risk factors in Appendix A considered to be "satisfactory" or better.	Poor regulatory framework with a significant number of regulatory risk factors in Appendix A considered to be "below average" and/or "poor".
Business Mix and Diversification	Primarily electric transmission and/or distribution with modest (if any) power generation.	"Wires" or gas distribution, water or waste-water, or an integrated utility with very timely and certain fuel recovery.	Integrated utility with some fuel cost recovery lag or significant power generator with moderate risk profile.	No integration, with concentration in higher-risk non-regulated operations.
Franchise Area	Strong and consistent levels of load growth. Economically vibrant service territory. Customer mix primarily residential and commercial.	Reasonably load growth generally tracking the broader economy. Economically strong service territory. Customer mix heavily weighted toward residential and commercial.	Minimal load growth. Economically stagnant service territory. Customer mix a balance of residential, commercial and	Consistent load declines. Economically weak service territory. Customer mix weighted toward cyclical industrials.
Competitive Environment	Competition only from other forms of energy, with the utility maintaining a significant competitive cost advantage.	Competition only from other forms of energy, with the utility maintaining a competitive cost advantage.	Competition only from other forms of energy; however, the utility maintains only marginal cost advantage.	Competition only from other forms of energy; however, utility is at a cost disadvantage.

Source: DBRS, Canadian Utilities, Q3 2014

6.3 Overview of Credit Rating Reports on Manitoba and Manitoba Hydro

The Province of Manitoba has maintained a solid credit rating from three credit-rating agencies as indicated on Figure 6-2.

Figure 6-2: Province of Manitoba Credit Rating

	Standard & Poor's	Moody's	DBRS
Rating	**AA**	**Aa1**	**A (High)**
Rating Outlook	Stable	Negative	Stable
Rating History	Last upgrade was to AA/Stable from AA-/Positive in December 2007. Previous upgrade was in November 2006 to AA-/Positive from AA-/Stable since November 2002.	Outlook downgraded from Stable to Negative in August 2014. Last upgrade was November 2006, Aa2 to Aa1. Previously upgraded from Aa3 to Aa2 in January 2003, and after 13 years of A1 upgraded to Aa3 in September 1998.	Last upgrade was from A to A (High) in 2003 where it has remained since.

Source: Derived from information in credit agency rating reports – Standard and Poor's (December 2014); Moody's (October 2014); DBRS (October 2014). Note: some credit agencies also issue a separate report on Manitoba Hydro, which reflect that Manitoba Hydro's debt is guaranteed by its owner, the Province of Manitoba.

Sovereign analysts from credit rating agencies review a number of factors in assigning ratings to governments including:

- Fiscal position and performance,
- Debt burden,
- Economy and economic fundamentals,
- Operating environment,
- Institutional framework,
- Contingent liabilities, and
- Other factors.

The Province of Manitoba's credit rating has typically been in the middle of Canadian provinces, lower than the Western provinces, and higher than the Atlantic Provinces and Quebec. Manitoba ranks 4th highest of the Provinces in credit ratings of Standard and Poor's and Moody's, just ahead of Ontario, and 5th of the provinces in DBRS just behind Ontario.

The credit rating agencies also issue separate analyses on Manitoba Hydro, although these reflect the fact that Manitoba Hydro's debt is guaranteed by the Province of Manitoba as its owner. Thus, Manitoba Hydro's credit rating is effectively a flow-through of the Province's credit rating. Most other government-owned utilities also receive the benefit of the credit rating of their provincial owner.

Specific comments from individual ratings agencies are summarized in the sections below.

6.3.1 Standard and Poor's

In 2014, Standard and Poor's[82] affirmed Manitoba's "AA" rating. Key strengths included:

- Manitoba's very strong and diversified economy;
- Strong budgetary flexibility;
- Strong financial management;
- Low contingent liabilities;
- Support from the federal government;
- The fact that Canada's provincial-federal institution framework is very predictable and well-balanced.

Standard and Poor's noted that liquidity is adequate and neutral on its rating. Standard and Poor's did comment that the Province's high but stabilizing debt burden somewhat offset credit strengths:

> "We consider Manitoba's debt burden to be high. Tax-supported debt, which includes direct debt and guarantees and is net of sinking funds, rose moderately in fiscal 2014 to C$21.1 billion. Tax-supported debt rose modestly in fiscal 2014 to 153% of consoldiated operating revenues from 149% a year earlier. The province's interest expense remained stable compared to the previous year and represented about 6% adjusted operating revenue."[83]

[82] Standard and Poor's. Supplemental Analysis: Province of Manitoba, December 10, 2014.

[83] Standard and Poor's. Supplemental Analysis: Province of Manitoba, December 10, 2014.

6.3.2 Moody's

In August 2014, Moody's lowered its outlook on its rating for the Province of Manitoba from Aa1 stable to Aa1 negative.[84]

In its October 2014 rating report, Moody's[85] noted that Manitoba's ratings benefit from:

- The diversity and stability of its economy;
- The Province's high degree of financial flexibility by access to a broad and stable tax base;
- Manageable refinancing needs and exceptional access to capital markets;
- High debt affordability;
- Adequate, but declining level of liquidity.

Moody's commented that the rating is constrained by the Province's high debt burden. They noted that the negative rating outlook reflects assessment of the execution risk of Manitoba's plan to achieve a balanced budget by 2016/17 and the risk of a continued increase in debt beyond 2016/17.

Moody's report noted the inherent risks related to increasing debt at Manitoba Hydro.

A separate analysis by Moody's on Manitoba Hydro noted the following with respect to Manitoba Hydro's stable regulatory and economic environment.

> "Manitoba Hydro operates in a stable regulatory framework with steady yearly rate increases. It forecasts annual rate increases of 3.95% until FY2033 to contribute to replacing aging generation, transmission and distribution facilities. The rates are set on a cost-of-service basis. The MPUB independently oversees the rate setting process and has a supportive environment for cost recovery. Residents in Manitoba continue to pay rates that are among the lowest in North America. Revenues from exports to the US and other Canadian provinces accounts for over 20% of electric revenue, alleviating pressure of rate hikes and contrbiuting to the current low rates in the Province."[86]

On financial metrics challenged by high capex requirements in the near term, Moody's commented:

> "The weakening financial profile restricts financial flexibility and adds risk in case of unexpected events such as low water levels, costs overruns and construction delays given the nature of a hydroelectric plant's long construction cycle prior to the start of operations and cash flow. However, we view Manitoba Hydro as being capable of prudently managing debt and mitigating such risks by seeking rate increases and curtailing capital spending to continue as a self-supporting corporation."[87]

The Province's guarantee and liquidity was also noted by Moody's.

> "Manitoba Hydro's commercial paper is unconditionally guaranteed as to the principal and interest by the Province of Manitboa. Under the Manitoba Hydro Act, Manitoba Hydro can issue up to $500 million of commercial paper. While the Province does not maintain committed bank credit facilities in support of its short-term borrowing programs, Moody's believes that the probability that the Aa1-rated Province would be unable to obtain funding on a timely basis either from the capital markets or from its bankers is highly remote."[88]

[84] Moody's Investors Service, Rating Action: Moody's Changes Manitoba's Outlook to Negative, affirms Aa1 ratings, Aug. 18, 2014.

[85] Moody's Investors Service, Credit Analysis, Province of Manitoba, October 17, 2014, p.1.

[86] Moody's Investors Service, Credit Opinion: Manitoba Hydro Electric Board, p.2.

[87] Moody's Investors Service, Credit Opinion: Manitoba Hydro Electric Board, p.2.

[88] Moody's Investors Service, Credit Opinion: Manitoba Hydro Electric Board, p.2.

6.3.3 DBRS

In October 2014, DBRS confirmed the Province of Manitoba's "A(high)" rating with a trend of stable.[89] In its rating consideraitons, DBRS[90] outlined the following strengths and challenges:

Strengths

- Diversified and resilient economy,
- Manageable debt burden and sound debt management practices,
- Abundant low-cost hydroelecricity.

Challenges

- Slow fiscal progress dependent on successful renewal of public sector collective agreements,
- High reliance on federal transfers,
- Below-average income and GDP per capita.

In a separate report on Manitoba Hydro, DBRS confirms the rating of Manitoba Hydro are a flow-through of the rating of the Province of Manitoba, as the Province unconditionally guarantees almost all of Manitoba Hydro's outstanding third-party debt.[91]

DBRS notes the strengths of Manitoba Hydro including:

- Debt is a direct obligation of the Province,
- Low-cost hydro-based generation, and
- Access to favourable export markets.

Challenges noted by DBRS include:

- hydrology risks,
- high leverage, and
- high level of planned capex.

The 2014 DBRS report noted:

> "Manitoba Hydro's leverage remains one of the highest among government-owned integrated utilities in Canada, limiting financial flexibility going forward. The utility's leverage is also expected to increase modestly for the medium term because of the significant amount of planned capex."[92]

[89] DBRS Rating Report, Province of Manitoba, October 17, 2014.

[90] DBRS Rating Report, Province of Manitoba, October 17, 2014, p. 1.

[91] DBRS Rating Report, The Manitoba Hydro-Electric Board, October 23, 2014, p.1.

[92] DBRS Rating Report, The Manitoba Hydro-Electric Board, October 23, 2014, p.2.

6.4 Credit Rating Agency Comparisons of Government-owned Power Utilities

6.4.1 Canadian utilities

Each of the credit rating agencies conducts analyses of the key financial metrics of companies within an industry. Figure 6-3 compares select government-owned power utilities based on a ranking criteria used by DBRS in the utility industry as a whole (which primarily includes private, investor-owned utilities). Note that these three financial metrics are only one part of the analysis undertaken in determining the overall credit rating of a power utility. Other considerations include the presence or not of a government guarantee, the regulatory environment, the nature of markets, rate competitiveness, the nature of regional economies, the utilities' business mix, and other factors.

As government-owned utilities, credit ratings are a flow-through of the credit rating of the respective Province where the publicly-owned utility resides. While Manitoba Hydro scores below average on the financial metrics summarized in Figure 6-3, Manitoba Hydro is relatively strong on several other factors. These include its very competitive rates, regulatory environment, and operating margins.

Credit rating agencies note that because hydroelectric generation assets have very long lives, low outage rates and low operating costs (excluding capital), hydro-based power generation utilities are generally better positioned to maintain higher levels of debt. Higher levels of debt may be associated with the high capital costs of such facilities.

Figure 6-3: DBRS Overall Credit Rating and Ranking on Industry Financial Metrics – Government-owned Canadian Power Utilities

Company Name	12 months to	Rating	EBIT Gross Interest Coverage	Adjusted Debt in Capital Structure	Cash Flow-to-Adjusted Total Debt
B.C. Hydro	9/30/2014	AA (high)			
Saskatchewan Power Corporation	9/30/2014	AA			
Manitoba Hydro	3/31/2014	A (high)			
Hydro-Quebec	9/30/2014	A (high)			
Newfoundland and Labrador Hydro	9/30/2014	A			
Ontario Power Generation Inc.	9/30/2014	A (low)			

Ranking Criteria

		EBIT Gross Interest Coverage	Adjusted Debt in Capital Structure	Cash Flow-to-Adjusted Total Debt
	Strong	> 2.8	< 55%	> 17.5%
	Average	> 1.5 to < 2.8	> 55% to < 75%	< 17.5% to > 10%
	Below Average	< 1.5	> 75%	< 10%

Source: DBRS, Canadian Utilities, Q3 2014

"The ratings in the matrix below should not be understood as the final rating for an entity with matching metrics. This would only be the case to the extent that the business risk of the company and a wide range of other financial metrics were also supportive. The final rating is a blend of both the business risk and financial risk considerations in their entirety.

DBRS notes that given the unique features of hydroelectric generation assets (very long asset lives, low forced outage rates, low operating costs (excluding capital)), generators with a geographically diversified portfolio of contracted hydroelectric assets are generally better positioned to maintain higher levels of debt than their peers. (page 77)."

Figure 6-4 outlines adjusted financial metrics from DBRS' Canadian Utilities report for Q3 2014. Certain indicators such as interest coverage and debt to capital differ from data reported in annual reports and financial statements as a result of adjustments made and explained in the credit agency reports.

Figure 6-4 also shows average metrics for 31 Canadian utilities, which are mostly investor-owned and include relatively few hydro-based utilities. Debt/equity ratios average close to 60:40, which is generally in line with the ratios found among private sector, investor-owned utilities. The average debt/equity ratio of the four hydro-based, government-owned utilities that are listed in Figure 6-4 is near 70:30; this represents a more appropriate peer comparison for Manitoba Hydro.

Figure 6-4: DBRS Credit Rating and Metrics, Q3 2014

DBRS - Credit Rating and Credit Metrics - Select Government-owned Canadian Power Utilities (Q3 2014)							
	Rating	Cash Flow-to-Adjusted Total Debt	EBIT Gross Interest Coverage	EBITDA Gross Interest Coverage	Adjusted Debt in Capital Structure	Return on Adjusted Equity	Return on Capital
B.C. Hydro	AA (high)	7.9%	1.55	2.99	81.6%	14.7%	6.0%
Manitoba Hydro[1]	A (high)	6.4%	1.01	1.68	79.4%	6.7%	5.5%
Hydro-Quebec	A (high)	12.9%	2.25	3.24	66.8%	16.0%	8.5%
Newfoundland and Labrador Hydro	A	8.9%	1.31	2.10	51.6%	2.4%	5.2%
Average, 4 Government-owned Hydro Utilities		9.0%	1.5	2.5	70%	10.0%	6.3%
Average, 31 Canadian Utilities		12.3%	1.9	3.2	61%	8.2%	3.2%

[1] Based on year ended March 31, 2014.

Source: DBRS, Canadian Utilities, Q3 2014. DBRS adjusted.

Like Manitoba Hydro, other provincially-owned power utilities in Canada benefit from the flow-through credit rating of their respective provincial jurisdiction.

BC Hydro

BC Hydro benefits from the flow-through rating of the Province of British Columbia, which receives the highest credit rating from Standard and Poor's (AAA) and Moody's (Aaa) and second highest from DBRS (AA high). This exceptional credit rating assures access to debt financing at very favourable rates in capital markets.

In its latest report on BC Hydro, DBRS[93] noted:

Strengths

- All debt is held/guaranteed by the Province;
- Sizable and low-cost hydroelectric generation; and
- Reasonable regulatory environment.

Challenges

- High leverage ("As with most government-owned and supported utilities, BC Hydro's high leverage ratio is not unusual, given the provincial support it receives.")
- Large planned capital spending; and
- Hydrology risk.

[93] DBRS, British Columbia Hydro & Power Authority, August 13, 2014.

These strengths and challenges are similar to those noted for Manitoba Hydro.

In commenting on financial risks, DBRS noted:

> "BC Hydro's financial risk is expected to remain weak as the Utility continues to undergo a period of substantial capital expenditure (capex) to refurbish and maintain the reliability of its systems, and to expand generation capacity to meet growing demand. This capital spending has resulted in substantial free cash flow deficits, which the Utility has largely funded through incremental debt. As per the Province's ten-year plan for BC Hydro, the Province will capitalize the Utility toward a debt-to-capital of 60% from its current regulatory capital structure of 80% in order to reduce the total debt outstanding. The Province plans to achieve this partly through a growing equity base and the reduction of dividend payments beginning in FY2018, with dividends forecasted to be reduced to $0 until the Utility's debt-to-equity ratio reaches 60:40." [94]

Hydro-Quebec

Hydro-Quebec receives a flow-through of the ratings of the Province of Quebec, as the Government of Quebec unconditionally guarantees most of the Company's outstanding debt.

In its 2014, report, DBRS[95] noted:

Strengths

- Debt guaranteed by the Province,
- Low-cost hydroelectricity-based generation,
- Strong water reservoir capacity,
- Export access to major markets.

Challenges

- High level of planned capex,
- Hydrology risk,
- Regulatory risk.

Most of the strengths and challenges are similar to those indicated for BC Hydro and Manitoba Hydro.

> "Hydro-Quebec's business risk profile is supported by the Company's strong market position, integrated operations and low-cost production. The Company is one of the largest generators in the world, with low-cost hydroelectric generation accounting for over 98% of its installed capacity of 36,068 megawatts (MW). This provides Hydro-Quebec with a very competitive market position in the northeast region.
>
> "With the current low interest rate environment and the equity base rising at a similar pace as debt, Hydro-Quebec's key financial metrics remained relatively stable in 2013. DBRS expects this trend to continue in the foreseeable future despite continued high capex. The Company has substantial capex requirements for development projects and asset maintenance and improvements, with $4 billion planned for 2014. A large portion of this planned capex is for hydroelectric generation projects, such as the $6.5 billion Romaine Complex, and for integrating the additional capacity to the transmission grid. Hydro-Quebec's dividend policy remains the same, and the Company is expected to distribute 75% of its reported net results as dividends ($2.2 billion for 2014). The Company is

[94] DBRS, British Columbia Hydro & Power Authority, August 13, 2014, p.1.

[95] DBRS, Hydro-Quebec, May 29, 2014.

> additionally targeting a net result of $2.9 billion for 2014. DBRS anticipates that free cash flow deficits going forward will be manageable and will have no material impact on key financial ratios." [96]

In terms of regulatory risk, DBRS noted Hydro-Quebec's strong asset profile is undermined by relatively low regulated rates for transmission and distribution and by high dividend payouts.[97]

Similar to Manitoba, DBRS notes that low-cost hydroelectric generation is one of the rating consideration strengths of the Province of Quebec.[98]

Nalcor

DBRS noted the financing needs of the Lower Churchill Project as one of the challenges for the Province of Newfoundland and Labrador.

> "In November 2010, Newfoundland announced a decision to proceed with the development of a hydroelectric generating station at Muskrat Falls on the Lower Churchill River in Labrador. As of June 2014, the estimated capital cost of the development was roughly $7.0 billion, which is up from $6.2 billion when the project was sanctioned in December 2012. The project is being planned and developed by Nalcor Energy, a wholly owned crown corporation. In December 2013, Nalcor Energy raised $5.0 billion in debt financing in support of the project, with a federal loan guarantee. The Province has committed $2.1 billion in equity contributions to Nalcor Energy, of which roughly 30% has already been extended. In addition to the base equity contributions, the Province has also provided a contingent equity guarantee whereby it will provide additional equity in the event of cost overruns that cannot be recovered from electricity ratepayers. While DBRS is of the view that the long-term benefits of the Lower Churchill Project are substantial, potential cost overruns during the ongoing construction phase could put pressure on credit metrics and stand as a key impediment to ratings improvement."[99]

NB Power

In its 2014 rating report on the Province of New Brunswick, DBRS noted volatile financial results at NB Power as one of the province's challenges.

> "Historically, the financial performance of NB Power and its related subsidiaries has added volatility to provincial results and an element of uncertainty in the budgeting process." [100]

NB Power's financial challenges and capital project risks was cited as a factor in a credit rating downgrade in 2009 for the Province of New Brunswick. Moody's commented:

> "The rating action also reflects Moody's assessment of the risks associated with *New Brunswick Power (NBP)*. The narrowing of NBP's margins in recent years, in conjunction with high leverage and risks related to the refurbishment of the Point Lepreau nuclear generating station, represents an element of risk for the NBP. As such, NBP's provincially-guaranteed debt, which is borrowed by the province and on-lent to NBP, constitutes a contingent liability for the province." [101]

[96] DBRS, Hydro-Quebec, May 29, 2014, p.1.

[97] DBRS, Hydro-Quebec, May 29, 2014, p.1.

[98] DBRS, Rating Report, Province of Quebec, August 21, 2014.

[99] DBRS, Rating Report, Province of Newfoundland and Labrador, November 20, 2014, p.2.

[100] DBRS, Rating Report, Province of New Brunswick, April 8, 2014, p. 3.

[101] Moody's Investors Service. Rating Action: Province of New Brunswick, August 24, 2009, p.1.

6.4.2 U.S. and international utilities

In reviewing the credit ratings and associated rating reports of a sample government-owned utilities in other jurisdictions, we found that the U.S. government-owned utilities had strong ratings (of at least AA from Standard & Poor's and at least Aa1 from Moody's). Statkraft, Norway's largest hydro utility and Meridian Energy, New Zealand's largest hydro utility, have lower ratings, due to various factors.

Figure 6-5: Credit Ratings of Select International Government-Owned Electric Power Utilities

	Standard & Poor's	Moody's
Bonneville Power Administration (U.S.)	AA-/stable	Aa1/stable
Tennessee Valley Authority (U.S.)	AA+/stable	Aaa/stable
New York Power Authority (U.S.)	AA/stable	Aa1/stable
Meridian Energy (N.Z.)	BBB+	
Statkraft AS Group (Norway)	A-/stable	Baa1/stable

Source: derived from company Annual Reports and other financial/investor information, as at December 2014 and/or as at each company's latest annual report. Reflects underlying credit rating on senior debt.

TVA

Moody's provides Tennessee Valley Authority ("TVA") a long-term rating of Aaa. Rating drivers include:

- U.S. Government ownership;
- Protection from competition in its service territory;
- Long-term contracts with creditworthy counterparties; and
- The TVA Act's statutory rate setting mechanisms require the Board to set rates to cover operating expenses and debt service obligations.

Moody's noted:

> "These attributes combined with TVA's size, scale and economic importance within the Tennessee Valley, translate into a more predictable and stable financial profile relative to all other public power and investor owned utilities." [102]

Downsides include: weak financial metrics, sizeable pension obligations and a statutory debt ceiling that limits financial flexibility. U.S. Government ownership is a major factor in its high credit rating.

> "While we anticipate only modest improvements in TVA's key credit metrics over the near-term, the weak numbers are offset by statutory rate making authority, ownership structure, and other protective credit characteristics that drive TVA's Aaa rating." [103]

[102] Moody's Investors Service. Tennessee Valley Authority, August 13, 2014.

[103] Moody's Investors Service. Tennessee Valley Authority, August 13, 2014, p.4.

NYPA

New York Power Authority ("NYPA") is the largest state-owned power utility in the United States. In November 2014, both Standard & Poor's[104] and Moody's[105] upgraded their credit rating of NYPA.

- Standard & Poor's noted the upgrade reflects factors such as: a consistently strong fixed charge coverage; a favourable debt-to-capitalization ratio of 31% in 2013, down from 42% in 2009; and the utility's forecast use of cash balances to fund portions of its 2014-2017 capital program of nearly US$2 billion.
- It also notes that NYPA benefits from autonomous rate-setting authority and is not subject to NY State Public Service Commission oversight.
- Moody's noted strengths such as: the competitive advantage provided by well-run, low-cost hydro generation; its role as a key economic development instrument of the State; and strong internal financial liquidity and debt service coverage with limited use of leverage.

BPA

Bonneville Power Administration ("BPA") is the largest power utility in the U.S. Pacific Northwest. Moody's noted BPA's rating on its debt securities reflect:

- BPA's long history of meeting its contractual obligations;
- Fundamental credit strengths of U.S. Government support features;
- Strong hydro and transmission assets;
- Competitive power costs; and
- Long-term power supply contracts.

Moody's noted:

> "The implicit and explicit support features represents the key factor for the one notch difference between BPA's Aa1 rating and the Aa2 grid indicated rating under the US Public Power with Generation Ownership methodology." [106]

Furthermore in commenting on U.S. Government support features as a major strength, Moody's commented:

> "Overall, we see these strengths as providing at least a 2-3 notch lift to BPA's standalone credit quality and represent key considerations for BPA's Aa1 rating. In a major stress scenario, Moody's expects any US Government support to BPA is likely to be provided through the established US Treasury credit line or deferral of payments to the US Treasury." [107]

Long-term challenges were noted such as: hydrology and wholesale market price risk, environmental burdens, high debt load, a lengthy rate making process, declining liquidity and low financial metrics. It noted that hydrology and wholesale market prices are the greatest drivers of volatility in BPA's financial performance, with an almost $1 billion swing in net revenues between the best and most challenging years since 2000.

[104] Standard & Poor's. New York State Power Authority, November 1, 2014.

[105] Moody's Investors Service. New York State Power Authority, November 12, 2014.

[106] Moody's Investors Service. Energy Northwest, March 27, 2014, p. 2.

[107] Moody's Investors Service. Energy Northwest, March 27, 2014, p. 3.

Standard & Poor's report on BPA in March 2014[108], which maintained BPA's AA- rating with a stable outlook, reflected its view of BPA's status as a federal government agency, ongoing financial support provided by the federal government through long-term loans and credit lines, legislation that allows BPA to defer payments of federal obligations if in financial distress, and the utility's important contribution to the Pacific Northwest's economy.

Exposures noted by Standard & Poor's include the fact that financial performance hinges on hydrology conditions, highly politicized and protracted biennial rate proceedings can delay rate relief, and there are substantial capital needs that can add both debt and consume BPA's Treasury borrowing authority.

Statkraft

For Statkraft AS, Standard & Poor's report in October 2014 noted[109]:

- Strengths such as: very competitive, low-cost and flexible power generation, stable cash flows from long-term industrial supply contracts, limited exposure to carbon emission costs, flexibility in investment levels and asset disposals to maintain financial position, and ongoing support from the Norwegian government.
- Significant risks noted included: an investment program resulting in relatively high debt, and exposure to competitive power markets and volatile electricity wholesale prices.
- Statkraft's hydroelectric generation in the Nordic region represents about 90% of its total production and EBITDA and they are among the lowest-cost electricity producers in Europe.
- Statkraft has expanded its asset base through various investments such as wind power in the U.K., gas-fired power stations in Germany, and hydropower assets in Turkey, South America and Southeast Asia. These are viewed as higher risk markets.

Ownership by the Norwegian Government is a major factor in its credit assessment:

> "Our 'A-' long-term rating on Statkraft is two notches above the SACP [standalone credit profile], based on our criteria for government-related entities and our view that there is a moderately high likelihood that the Norwegian government would provide timely and sufficient extraordinary support to Statkraft in the event of financial distress." [110]

Moody's report on Statkraft also noted that its ratings incorporate two notches of uplift from its stand-alone baseline credit assessment due to strong ongoing support to Statkraft from the Norwegian government. [111] The report commented that while the Norwegian government has extracted a high dividend in many years, which has acted as a constraint on the company's flexibility, the government has also supported the company through occasional capital injections and a lowering of dividends.

Meridian Energy

Meridian Energy has recently transitioned to a mixed ownership model, where the Government of New Zealand owns the majority (51%) and shares were sold through an Initial Public Offering. Although Meridian Energy's financial results are relatively strong, the competitive market for electricity in New Zealand is evolving and there is some uncertainty as to future market structure.

[108] Standard & Poor's. Energy Northwest, Bonneville Power Administration, March 27, 2014.

[109] Standard & Poor's. Research on Statkraft AS, October 9, 2014.

[110] Standard & Poor's. Research on Statkraft AS, October 9, 2014, p. 8.

[111] Moody's Investors Service. Statkraft AS, December 19, 2014, p. 3.

6.5 Government-owned Power Utilities and Relation to Provincial Economies

6.5.1 Public power utilities in relation to provincial economies

As Government Business Entities and self-supporting entities, the assets and debt of Manitoba Hydro and other provincially-owned power utilities in Canada are not consolidated within the balance sheets of their respective provincial governments in Summary Financial Statements. Figure 6-6 illustrates the size of utility net debt in relation to provincial government net debt. It also shows the relative size of the combined net debt in relation to provincial population and GDP. Credit rating reports on governments in Canada focus their key debt metrics, such as net debt to GDP, on tax-supported debt, and do not include the self-supporting debt of Crown utilities. However, they do take utility debt into account and continue to monitor levels of debt. Rating agencies have generally commented that the combined debt burden is manageable for provinces.

The utility net debt of Manitoba Hydro is approximately 38% of combined provincial net debt and utility net debt, slightly lower than the figure for Nalcor (39%), and higher than values for NB Power and BC Hydro (which are near 30%). As a share of GDP, combined provincial net debt and utility net debt is highest in Quebec (at 62%), followed by New Brunswick (at 51%), and then Manitoba (at 45%).

Figure 6-7 indicates that Manitoba has a relatively high level of utility assets and net debt on a per capita basis, as Manitoba Hydro plays a significant role in its provincial economy.

Figure 6-8 shows the level of Manitoba Hydro's self-supporting debt in conjunction with the Province of Manitoba's total borrowings, guarantees and obligations (net of sinking funds). Debt advances to Manitoba Hydro are forecast in 2014/15 to be approximately 38% of total Provincial borrowings, guarantees and obligations, a share that has been relatively constant over the past five years. However, this share is expected to increase over the next five years, depending upon the level of increase in the Province of Manitoba's tax-supported debt. Based on Manitoba Hydro's projected debt under IFF14, and under an assumption that Provincial tax-supported debt continues to increase at a similar rate to the past five year period, self-supporting debt as a share of total Provincial borrowings, guarantees and obligations could increase to percentage range in the low 40s by 2019/20.

Figure 6-6: Overview of Utility Asset and Net Debt Information and Relationship to Provincial Economy

Overview of Utility Asset and Net Debt Information and Relationship to Provincial Economy									
($CDN billions)	Provincially-Owned Utility	Utility Assets 2013/14	Utility Net Debt at March 31, 2014	Provincial Net Debt at March 31, 2014	Provincial Net Debt and Utility Net Debt	Utility Net Debt % of Combined Provincial & Utility Net Debt	Provincial Population 2013	Provincial GDP 2013	Provincial Net Debt and Utility Debt % of GDP
Manitoba	Manitoba Hydro	15.6	10.6	17.3	28.0	38%	1,265,400	61.3	46%
B.C.	BC Hydro	25.7	15.5	38.8	54.2	29%	4,582,600	229.7	24%
Quebec	Hydro-Quebec	73.1	42.2	181.3	223.5	19%	8,154,000	362.8	62%
Newfoundland	Nalcor Energy	9.5	5.8	9.1	14.9	39%	528,200	35.8	42%
New Brunswick	NB Power	6.9	5.0	11.6	16.7	30%	755,600	31.9	52%

Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014
2. B.C. Hydro Annual Report for the year ended March 31, 2014
3. Hydro-Quebec Annual Report for the year ended December 31, 2013
4. Nalcor Annual Report for the year ended December 31, 2013
5. New Brunswick Power Annual Report for the year ended March 31, 2014
6. Province of Manitoba Public Accounts, 2013/14
7. Province of B.C. Public Accounts, 2013/14
8. Province of Quebec Public Accounts, 2013/14
9. Province of Newfoundland and Labrador, 2013/14
10. Province of New Brunswick Public Accounts, 2013/14
11. Statistics Canada

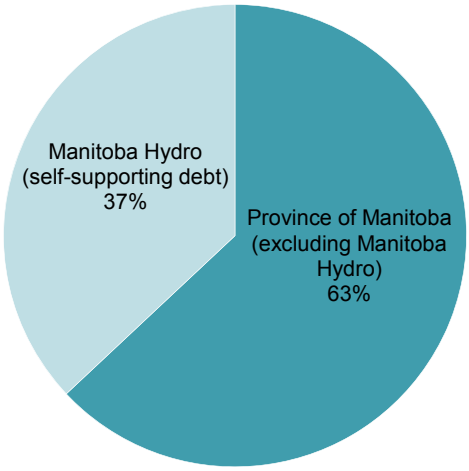
Figure 6-7: Overview of Utility Asset and Net Debt Information and Relationship to Provincial Economy Per Capita

Overview of Utility Asset and Net Debt Information and Relationship to Provincial Economy Per Capita							
($CDN)	Provincially-Owned Utility	Utility Net Debt Per Capita	Utility Net Debt - % of GDP	Utility Assets Per Capita	Utility Assets % of GDP	Net Debt/ Assets	Prov. & Utility Net Debt Per Capita
Manitoba	Manitoba Hydro	8,389	17.3%	12,359	25.5%	67.9%	22,095
B.C.	BC Hydro	3,374	6.7%	5,611	11.2%	60.1%	11,836
Quebec	Hydro-Quebec	5,177	11.6%	8,966	20.1%	57.7%	27,406
Newfoundland	Nalcor Energy	11,000	16.2%	18,056	26.6%	60.9%	28,200
New Brunswick	NB Power	6,641	15.7%	9,083	21.5%	73.1%	22,047

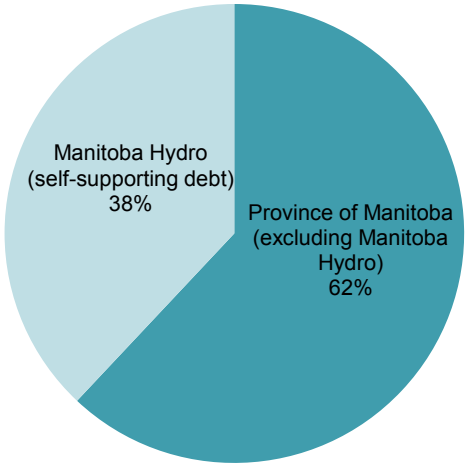
Source:
1. Manitoba Hydro Annual Report for the year ended March 31, 2014
2. B.C. Hydro Annual Report for the year ended March 31, 2014
3. Hydro-Quebec Annual Report for the year ended December 31, 2013
4. Nalcor Annual Report for the year ended December 31, 2013
5. New Brunswick Power Annual Report for the year ended March 31, 2014
6. Province of Manitoba Public Accounts, 2013/14
7. Province of B.C. Public Accounts, 2013/14
8. Province of Quebec Public Accounts, 2013/14
9. Province of Newfoundland and Labrador, 2013/14
10. Province of New Brunswick Public Accounts, 2013/14
11. Statistics Canada

Figure 6-8: Province of Manitoba Borrowings, Guarantees and Obligations, 2009/10 and 2014/15 Forecast

2009/10 Provincial Borrowings, Guarantees and Obligations = $21.1 Billion



2014/15 Forecast: Provincial Borrowings, Guarantees and Obligations = $33.3 Billion



Source: 2014/15 forecast from Province of Manitoba 2015 Budget Summary Financial Statistics. 2009/10 from Province of Manitoba 2014 Budget Summary Financial Statistics. (Provincial borrowings, guarantees and obligations are net of sinking funds.)

6.5.2 Government contributions from public-owned power utilities in Canada

Figure 6-9 provides a breakdown of contributions paid to governments from Manitoba Hydro and four other government-owned power utilities in the peer group. Of these five government-owned power utilities, only BC Hydro and Hydro-Quebec currently pay a direct annual dividend to their provincial owner. In both cases, dividends are based on a formula and are capped to ensure that a minimum equity ratio is maintained.

Most government-owned utilities pay a debt guarantee fee based on a percentage of outstanding debt to their respective provincial owner.

- Manitoba Hydro pays a 1.0% fee on outstanding applicable debt, which is the highest percentage fee in the group. The Province of Manitoba's debt guarantee fee was increased from 0.5% to 0.65% effective April 1, 2000 and to 0.95% effective April 1, 2001.[112] The fee was subsequently increased to 1.0% during fiscal 2006/07.
- NB Power pays a 0.65% fee on outstanding debt.
- Hydro-Quebec pays guarantee fees to the Quebec government related to debt securities. In 2014, these fees were $205 million in 2014 which represents slightly under 0.5% on outstanding debt.[113]
- In 2008, the Government of Newfoundland and Labrador temporarily waived the guarantee fee paid by Nalcor until 2011. Upon reinstatement in 2011, the fee was reduced from 1.0% of outstanding debt to a fee of 0.5% on outstanding debt with a remaining term of over 10 years and 0.25% on outstanding debt with a remaining term of under 10 years. The new fee rates were designed to better reflect the value of the debt guarantee, and are based on a comparison of yields on bonds issued by the Province to bonds with similar maturities issued by a group of investment-grade utilities comparable to Hydro.[114] NLH's recent rate application notes the cumulative impact of these fee initiatives to 2015 is $62.3 million.[115]

In fiscal 2014, Manitoba Hydro paid $99 million in debt guarantee fees to the Province of Manitoba, an amount that is expected to increase significantly over the next decade as borrowings ramp up for major generation and transmission projects. Under IFF14, Manitoba Hydro's long-term debt is projected to double from a projected $11.7 billion in 2015 to over $23 billion in 2024, and to be maintained near $24 billion during the period 2025-2034. Thus, over the next decade, Manitoba Hydro's long-term debt is forecast to average nearly $20 billion. As a result, the debt guarantee fee would approach $200 million annually on average.

Manitoba Hydro, BC Hydro and Hydro-Quebec pay annual water rental charges to their respective provinces. Manitoba Hydro's water rental charge is $3.34 per MW, which is a similar rate to Hydro-Quebec, and significantly lower than BC Hydro, which pays $6.896 per MW plus capacity charges. Under the *Water Power Act*, the Province of Manitoba approximately doubled water rental rates to its current level of $3.34 per MW effective April 1, 2001. Manitoba Hydro paid $125 million to the Province of Manitoba in water rental charges in 2013/14.

[112] PUB Board Order 7/03, p. 26.

[113] Hydro-Quebec 2014 Annual Report. Financial statements Note 6.

[114] Newfoundland and Labrador Hydro – 2013 General Rate Application, p. 3.31.

[115] Newfoundland and Labrador Hydro – 2013 General Rate Application, p. 3.32.

All utilities pay local property and related taxes in their respective jurisdictions. In addition to these taxes, Manitoba Hydro pays capital taxes to the Province of Manitoba, and Hydro-Quebec pays a Provincial Public Utility Tax to the Government of Quebec.

Based on information disclosed in annual financial statements, Manitoba Hydro's payments to government represent approximately 15% of total revenues. This is a similar share to BC Hydro in 2013/14 (although BC Hydro's dividend payments to the Province of B.C. have been lower in recent years), a much higher proportion than government-owned utilities in Atlantic Canada, but significantly lower than Hydro-Quebec. Hydro-Quebec contributes approximately 26% of its total revenues to government, with nearly two-thirds of its government contributions in the form of dividends to its owner.

Figure 6-9: Contributions Paid to Governments from Public-Owned Canadian Power Utilities
(FY2013 or FY2013/14 in annual $ millions)

	Manitoba Hydro	BC Hydro	Hydro-Quebec	NB Power	Nalcor
Dividend (1)	n/a	$167	$2,207	n/a	n/a
Debt guarantee fee	$99		$200	$32	$3.7
Water rental charges	$125	$361	$674		$5.6
Property & other taxes	$117	$203	$326	$36	not available
Other charges (payable from projects)					$19.6
Total	$341	$731	$3,407	$68	$29
Total % revenues	15%	14%	26%	4%	4%
Per Capita (rounded dollars)	*$270*	*$160*	*$418*	*$90*	*$55*

Note: derived from annual reports and financial statements, for the year-ending March 31, 2014 for Manitoba Hydro, BC Hydro, and NB Power and for the year-ending December 31, 2013 for Hydro-Quebec and Nalcor.

For Hydro-Quebec, dividend paid the Quebec government is 75% of net income; no dividend if it effectively reduced the cap rate/equity ratio to less than 25%. For BC Hydro, dividend is 85% of net income, subject to an 80:20 debt to equity cap. Dividend for the year ending March 31, 2014 is substantially less than 85% due to the cap. Note that BC Hydro's dividend payments to the Province of BC have been higher in previous years.

6.6 Importance of a Capital Structure and Financial Targets in Capital Markets

6.6.1 The role of capital structure

In modern financial theory, capital structure determines how the cash flow produced by corporate activities is divided between shareholders and debt holders. The general assumption is that the current and future cash flows from low-risk activities can be sold forward or monetized to support the issuance of debt capital. Higher risk cash flows accrue to the residual owner, being the equity or shareholder of a corporation.

The amount of debt used in the capital structure of a conventional (i.e., non-rate-regulated) corporation is a decision of financial management and is generally reflective of the entity's business risk – which is "the risk attributed to the nature of a particular business activity, including supply, market, regulatory, competitive and operating risks"[116]. Business risk is the inherent variability in operating earnings. In general, modern financial theory assumes that investors are rational and risk adverse, such that higher returns are required as risk increases.

As debt is added to the capital structure, the variability in operating earnings is borne by a progressively smaller shareholder or equity base; this concentration of the variability in operating earnings is commonly referred to as financial risk. As more debt is added to the capital structure, usually expressed as the ratio of debt to total capitalization, the risk borne by the equity holder becomes a correspondingly greater proportion of the equity holder's investment. The associated increase in financial risk is a non-linear relationship.[117]

The addition of debt has a number of general implications for financial risk[118]:

1. When the return on assets exceeds the interest cost of debt, increased financial leverage raises both Earnings Per Share ("EPS") and Return On Equity ("ROE");

2. Financial leverage increases the variability of EPS and ROE, due to the fixed nature of creditor claims; and

3. Financial leverage usually increases the expected levels of EPS and ROE, such that a financial plan that maximizes EPS and ROE is also likely to maximize financial risk.

Finance theory has typically focused on private-sector business corporations that are non-rate-regulated, that operate in a world with taxes, have exposure to costs arising from financial distress, and have debt costs that are market-based and reflect the relative business and financial risk profile of the entity. Under these conditions, financial management professionals will, in theory, continue to add debt to the capital structure until the marginal benefit arising from the reduction in taxes with interest deductibility is equal to the increase in the expected cost of financial distress[119]. Balancing will be done on a present value basis. At this point, modern financial theory would suggest that the value of the firm, and hence capital structure, has been optimized.

[116] National Energy Board. (RH-1-2008). Reasons for Decision: Trans Quebec & Maritimes Pipeline Inc. Cost of Capital for 2007 and 2008. March 2009. Page vii.

[117] Shapiro, A.C. Modern Corporate Finance. MacMillian Publishing Company, New York, 1990. Page 424.

[118] Ibid. Page 427-428.

[119] Ibid. Page 459.

In practice, the exact point at which an equilibrium between costs and benefits is achieved can be difficult to identify precisely. However, the amount of leverage added to a capital structure generally reflects:

- The quantitative analysis of the relationship between cost of debt and credit ratings; and
- The financial performance and key financial metrics of comparable entities, such as those discussed earlier in this report.

Analysts will also undertake a qualitative assessment of a corporation's drivers of operating income; these include capital intensity (also referred to as operating leverage), cyclicality, competition, commoditization, size, and business maturity.

6.6.2 Determination of utility capital structure

In most Canadian jurisdictions, vertically-integrated electric utilities and transmission and distribution utilities are considered to be natural monopolies. Regulators are therefore often tasked with determining utility rates such that:

- The interests of consumers are protected with respect to the price, quantity, and quality of service; and
- The financial integrity of the utility is maintained.

In setting rates for investor-owned utilities, regulators generally base these rates on their view of the appropriate capital structure for the utility. This structure typically takes into account capital market expectations, the stability of the financial profile of the utility, and its ongoing access to debt and equity capital.

The principles that drive the determination of a utility's capital structure in Canada have been identified by the courts over time and are not optional for investor-owned utilities, meaning that "this requirement that approved rates must produce a fair return is an absolute obligation"[120].

Fair Return Standard

The process used by a regulator to determine the capital structure, and hence the cost of capital, of an investor-owned utility is generally based on a number of governing principles. The most important principle relating to the cost of capital is the Fair Return Standard or FRS. The Fair Return Standard is a legal concept that has been articulated in three seminal court determinations[121]:

[120] *British Columbia Electric Railway Co. Ltd. v. Public Utilities Commission of British Columbia et al* [1960] S.C.R. 837, Page 848.

[121] Ontario Energy Board (EB-2009-0084). Report of the Board on the Cost of Capital for Ontario's Regulated Utilities. December 11, 2009. Pages 16 – 18.

1. In *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia* et. al. 262 U.S. 679 (1923), expressed the FRS as including concepts of comparable, financial soundness and adequacy:

   "A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding, risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."

2. *In Northwestern Utilities Limited v. City of Edmonton*, [1929] S.C.R. 186, the FRS was described as:

   "By a fair return is meant that the company will be allowed as large a return on the capital invested in its enterprise, which will be net to the company, as it would receive if it were investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company's enterprise."

3. In *Federal Power Commission v. Hope Natural Gas* 320 U.S. 591 (1944), the court articulates that balance achieved in the process to set rates and outlines the parameters of a fair return:

   "The rate-making process under the act, i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests…the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock…By that standard, the return to the equity owner should be commensurate with returns on investments in other 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 to attract capital. "

The FRS has also been articulated by the National Energy Board in its RH-2-2004 Phase II Decision as:

"A fair or reasonable return on capital should:

- Be comparable to the return available from the application of invested capital to other enterprises of like risk (the comparable investment standard);
- Enable the financial integrity of the regulated enterprise to be maintained (the financial integrity standard); and
- Permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the capital attraction standard)."[122]

The December 2009 Report of the Board on the Cost of Capital for Ontario's Regulated Utilities acknowledged that although the cost of capital determinations of a regulator must meet the legal requirements of the FRS, the FRS is "sufficiently broad that the regulator that applies it must still use

[122] National Energy Board. RH-2-2004, Phase II Reasons for Decision, TransCanada PipeLines Limited Cost of Capital. April 2005. Page 17.

informed judgment and apply its discretion in the determination of a rate regulated entity's cost of capital"[123] .

Federal Court of Appeal Reasons for Judgment

The Federal Court of Appeal (FCA) articulated a number of additional principles that enhance the parameters of the FRS and provide additional guidance to regulators in consideration of the cost of capital of an investor-owned utility. In its the 2004 Reasons for Judgment relating to TransCanada PipeLines Limited appeal of the National Energy Board's February 2003 Decision and Order RH-R-1-2002 (TransCanada's so-called "Fair Return" application), the FCA states the following:

1. Cost of capital is "equivalent to the aggregate return on investment investors require in order to keep their capital invested in the utility and to invest new capital in the utility"[124]. In other words, cost of capital refers to the aggregate amount of equity and debt used in the capital structure and the opportunity cost or return on equity and cost of debt recovered in rates.

2. While cost of capital may be difficult to estimate, it is a real cost that a utility must be able to recover through its revenues. Without recovery of the cost of capital (debt and equity), "the utility will be unable to raise new capital or engage in refinancing as it will be unable to offer investors the same rate of return as other investments of similar risk. As well, existing shareholders will insist that retained earnings not be reinvested in the utility"[125].

3. The process to determine the cost of capital aligns the private interest of the utility and its shareholders with the public interest:

   "…in the long run, unless a regulated enterprise is allowed to earn it cost of capital, both debt and equity, it will be unable to expand its operations or event maintain its existing ones…This will harm not only its shareholders, but also the customers it will no longer be able to service. The impact on customers and ultimately consumers will be even more significant where there is insufficient competition in the market to provide adequate alternative service."[126]

4. Overall ROE must be determined solely on the basis of a company's cost of equity capital. The "impact on customers or consumers cannot be a factor in the determination of the cost of equity capital"[127] and that "the impact of any resulting toll increase is an irrelevant consider in that determination"[128]. The National Energy Board further articulated this principle and stated "it does not mean that in determining the cost of capital that investor and consumer interests are balanced"[129].

5. It is the process of setting rates in which ratepayer and investor interests are balanced. The FCA states[130]:

   "…any resulting increase in tolls may be a relevant factor for the Board to consider in determining the way in which a utility should recover its costs. It may be that an increase is so significant that it would lead to "rate shock" if implemented all at once and therefore should be

[123] EB-2009-0084. Page 18.

[124] *TransCanada PipeLines Limited v. National Energy Board et al.* [2004] F.C.A. 149. Para. 6.

[125] Ibid. Para. 12.

[126] Ibid. Para. 13.

[127] Ibid. Para. 43.

[128] Ibid. Para. 36.

[129] National Energy Board. Reasons for Decision. Trans Quebec & Maritimes Pipeline Inc. RH-1-2008. March 19, 2009. Page 6.

[130] *TransCanada PipeLines Limited v. National Energy Board et al.* [2004] F.C.A. 149. Para. 43.

phased in over time. It is quite proper for the Board to take such considerations into account, provided that there is, over a reasonable period of would have to compensate the utility for deterring recovery of its cost of capital."

In particular, the FCA indicated "In the end, where a cost of service method is used, the utility must recover its costs over a reasonable period of time, regardless of any impact those costs may have on customers or consumers"[131].

6.6.3 Capital market expectations

The expectations of capital markets participants reflect the principles established by the courts and are routinely articulated in regulatory proceedings. For example, in the evidence filed in March 2012 by Foster Associates, Inc. in conjunction with the capital structure and return on equity of Newfoundland Power[132], Kathleen McShane conducts a qualitative and quantitative analysis to support recommendations regarding the optimal capital structure of Newfoundland Power and a fair rate of return on equity. The approach is not unique and is widely used in cost of capital proceedings in most Canadian jurisdictions and in North America more broadly by entities with rate-setting responsibilities. (We note, however, that this approach does not apply to Manitoba Hydro as it is not subject to a regulatory framework based on a rate of return approach.)

Capital structure

In general, the approach is based on the following analytical approach. To assess capital structure, the governing principles are delineated, the business risk profile is explored, bond ratings and credit metrics are examined to establish the parameters required to support the current credit rating or achieve a targeted rating, and an assessment of the proposed capital structure is conducted. In addition to creating a thorough understanding of the business and financial risk profile of the rate-regulated entity, an important product of the assessment is the identification of a relevant peer group of utilities, with similar profiles.

The principles used to determine an appropriate capital structure are grounded in the FRS. As set out by Ms. McShane, five key principles should be respected when establishing both the capital structure and cost of capital of a utility[133]:

1. Stand-Alone Principle: the cost of capital incurred by a utility should be equivalent to that which would be faced if it was raising capital in the public markets on the strength of its own business and financial parameters, as if it were operating as an independent entity. The cost of capital for the company should reflect neither subsidies given to, nor taken from, other activities of the firm. Respect for this principle is intended to promote efficient allocation of capital resources among the various activities of the firm.

2. Compatibility of Capital Structure with Business Risks: the business risk of a utility is the risk of not earning a compensatory return on the invested capital and the failure to recover capital that has been invested. Fundamental business risks include demand, competition, supply, and operating, technology-related and political risks. Regulatory risk relates to the framework that determines how the fundamental business risks are allocated between the utility's customers and its investors.

3. Maintenance of Creditworthiness/Financial Integrity: rates should support or provide a basis for stand-alone investment grade debt ratings at a current or target credit rating level. Debt ratings in

[131] Ibid. Para 43.

[132] Newfoundland Power Inc., 2013/2014 General Rates Application. PUB-NP-056.

[133] McShane, Kathleen. Foster Associates, Inc. Opinion on Capital Structure and Return on Equity for Newfoundland Power Inc. March 2012. Pages 8 – 11.

the A category ensure that the utility would be able to access the capital markets on reasonable terms and conditions during both robust and weak capital market conditions. This flexibility is required as utilities are required to provide service on demand and must access the capital markets when service requirements demand it.

4. Ability to Attract Capital on Reasonable Terms and Conditions: in order to continue to be able to attract capital on flexible terms and conditions, the rate regulated entity requires financial metrics (which reflect the combination of capital structure and ROE) that are competitive with those of its peers.

5. Comparability of Returns: the combination of the adopted capital structure and return on capital should be comparable to the returns of comparable risk companies.

Fair return

With respect to the determination of a fair return, the analysis is more quantitative and tends to be more focused on capital market conditions and investor expectations. The relevant data points are necessarily exogenous to the utility, as the purpose of the analysis is to determine the cost of capital required by the providers of capital. This point was highlighted by Dr. Bill Cannon in his prepared remarks at CAMPUT's 2009 Energy Regulation Conference, in which he defined the cost of capital as "the expected rate of return prevailing in the capital markets on alternative investments of equivalent risk and attractiveness"[134]. Dr. Cannon also indicated that four concepts are embedded in this definition.

> First, the expected rate of return is *forward-looking*, as investment returns are inherently uncertain and the ex post, actual returns experienced by investors may differ from those that were expected ahead of time. The cost of capital is therefore an *expected* rate of return.
>
> Second, it reflects the *opportunity cost* of investment. Since providers of capital are able to choose alternative investments, the return must be sufficient to compensate investors for the returns they might otherwise have received on foregone investments.
>
> Third, it is *market-determined*. That is, it is determined by those who are to provide capital to the rate regulated entity.
>
> Fourth, it reflects the *risk* of the investment. It reflects the expected returns on investments in the market place that are exposed to equivalent risks. It reflects the risk associated with the use of the funds, rather than the source of funds.

The analysis of a fair return on capital typically involves the delineation of the conceptual approach, including the use of multiple quantitative approaches to measure equity cost of capital, the selection/use of a relevant peer group of utilities, and the quantitative derivation of equity cost of capital, using the trading data from this comparator group. The quantitative derivation typically involves calculation of the cost of equity using the capital asset pricing model, discounted cash flow test, and an equity risk premium approach. The analysis will usually also consider issuance costs and allowances that may be required for financing flexibility.

6.6.4 Determination of capital structure in a world without taxes and costs of financial distress

Manitoba Hydro is a wholly-owned Crown Corporation of the Province of Manitoba. It does not pay tax and, as a result, does not benefit from the tax shield that accrues to taxable corporations. This eliminates

[134] Cannon, Dr. Bill. Presentation at CAMPUT's 2009 Energy Regulation Conference: Cost of Capital. July 3, 2009. Page 2.

one incentive to increase debt. At the same time, Manitoba Hydro's issued and outstanding debt is either guaranteed by the Province or issued directly by the Province and on-lent to the corporation. As such, the utility may not see the same increase in interest rates with increases in debt that would be experienced by a stand-alone, investor-owned utility. This may reduce a deterrent against increasing debt. Overall, based on the considerations above, the goal of "maximizing the value of the firm" via the determination of an appropriate capital structure is not a driver of the financial risk profile of the Corporation.

For Crown utilities with a shareholder debt guarantee, experience in Ontario has shown that there can be a risk that a utility assumes more debt than is prudent. Ontario Hydro was functionally and organizationally unbundled in 1999 in response to excessive levels of debt, material cost overruns on the Darlington Nuclear facility, and poor cost control. Poor operating and cost control practices had resulted in utility debt and other liabilities that totalled some $38.1 billion, including $30.5 billion of total debt. Of this amount of debt, approximately $20.9 billion could not be supported by successor utilities, which were capitalized using commercial metrics that meet the FRS. This remaining debt was referred to as "stranded debt".

The main successor entities to Ontario Hydro were capitalized using commercial metrics that met the FRS as part of a policy shift that envisaged:

- The introduction of a competitive electricity market, in which the generation activities of Ontario Hydro were transferred to a non-rate regulated company that was to compete in a competitive electricity spot market with other market participants.
- Removal of explicit debt guarantees for Ontario Hydro's successor entities, including those focused on monopoly transmission and distribution.
- Introduction of a commercial and legal framework that would facilitate privatization of one or more of these entities.

Partly in response to the presence of the initial stranded debt, the Ontario government implemented a requirement that publicly-owned utilities not considered taxable entities pursuant to the *Income Tax Act (Canada)* make payments-in-lieu ("PILs") of tax, emulating the taxation obligations of taxable entities. It was estimated that future PILs amounts would defease approximately $13.1 billion of the debt initially determined to be stranded, leaving approximately $7.8 billion of residual stranded debt. The residual stranded debt was to be serviced and ultimately retired by the payment by electricity customers of a Debt Retirement Charge equal to 0.7 cents per kWh[135]. The process was designed so that liabilities would not be borne directly by the Province. As a result, the ratepayer rather than the taxpayer was held responsible for the risks associated with electricity production, transmission and distribution.

The Province of Ontario has since substantially altered its original vision for electricity sector restructuring. The role of competition was significantly reduced and the successor entities remain publicly owned. However, the capital structures of OPG and Hydro One have not reverted to the model in place prior to the initial restructuring process.

The experience in Ontario illustrates the point that a provincial guarantee does not eliminate the financial risks arising from a capital structure that is overly reliant on debt, even if that debt is guaranteed by the Province. Nor does a provincial guarantee reduce business risks associated with utility investments.

[135] Ontario Ministry of Finance website.

6.7 Summary Observations – Capital Markets

In light of the above research findings, the following are summary observations:

- "Self-supporting is not the same as "stand-alone". Self-supporting means that Manitoba Hydro's debt is self-supported, not taxpayer-supported, and therefore Manitoba Hydro's debt is not consolidated into the Province's tax-supported debt position in its Summary Financial Statements. It does not mean that the financial risk profile of the utility meets industry metrics for investor-owned utilities.
- Absent the guarantee of Manitoba Hydro's debt by the Province, the utility's financial risk profile would be materially different, as would its required customer rate profile. Manitoba Hydro and other provincially-owned power utilities benefit from the flow-through credit rating of their respective provincial jurisdiction.
- Government-owned utilities in the United States are assessed as separate entities while government-owned utilities in Canada receive the flow-through rating of their respective jurisdiction. As noted in examples of credit agency reports on government-owned utilities in the U.S., government backing can account for 2-3 notches in credit ratings. Government guarantees are a major factor in enabling government-owned utilities to have lower equity ratios in their capital structure and to have lower financial metrics than the industry average. Credit rating agencies also recognize that the nature of hydro-based generation and transmission, with capital-intensive builds and higher operating margins, allows for higher leverage in capital structure than other power utilities.
- Relaxation of Manitoba Hydro's financial targets could transfer additional financial risk to the Province of Manitoba.

7 Scenario Analysis and Testing

This chapter reviews the process and results of our work on scenario analysis. This analysis was undertaken to analyse the potential impact of key risks on Manitoba Hydro's financial position.

7.1 Structure of the Chapter

This Chapter is organized into the following sections:

- Section 7.2 summarizes the rationale for, and limitations of, our scenario analyses and testing.
- Section 7.3 provides an overview of the modelling process.
- Sections 7.4 through 7.10 summarize the results of a series of scenario analyses.
- Section 7.11 summarizes our overall observations and conclusions from these analyses.

7.2 Rationale for Scenario Testing

7.2.1 Overview

In this review, we used scenario testing to examine Manitoba Hydro's financial results under a series of alternative scenarios for how the utility's operating and market environment may evolve. These scenarios build on the projections embedded in IFF14 but incorporate adjustments to examine potential alternative outcomes. The scenario analyses summarized in this Chapter include the following:

- Examination of an alternative rate trajectory designed to eliminate periods of negative net income under expected (or "Reference") conditions.
- A probabilistic analysis to consider the simultaneous impact of uncertainties across three key input parameters and with respect to water flows.
- An additional probabilistic analysis to consider the impact that changes in construction cost uncertainty will have on the distribution of outcomes under the full probabilistic analysis noted above.
- Examination of a specific water flow sequence to understand the potential impact of additional rate increases designed to offset the onset of drought conditions.

We believe that the scenario analysis presented in this Chapter can help address the PUB's desire for a "quantitative and probabilistic risk assessment". This assessment can support the identification of appropriate financial targets and, in particular, requirements for a minimum equity position.[136] We also caution, however, that it is unrealistic to expect that any risk analysis can identify precisely all of the potential risks or their potential cumulative impact. Limitations to risk analysis are discussed further in the section below. Limitations to our risk analysis mean that it is not appropriate or sufficient to identify required reserves simply through a bottom-up process of adding up the potential dollar impact of individual risks. This reflects the fact that one may not be able to identify all potential sources of risk and processes for quantification are imperfect. As a result, our benchmarking process and review of capital markets requirements are equally important to our recommendations on appropriate reserve levels.

[136] Manitoba PUB, Order No. 43/13, April 26, 2013, p.3.

The scenario analyses summarized herein are a subset of the scenario analyses undertaken in the course of our review. They have been selected for presentation because they provide, in our assessment, useful insight on the selection of financial targets.

7.2.2 Limitations

Any process that uses scenario analysis to quantify a company's financial risk requires assumptions as to the potential sources and magnitude of uncertainty in its operating environment. Because the true underlying distribution of potential economic and market inputs is unknown, however, we can only try to estimate the relevant input uncertainties. In addition, any modelling process is limited by the need to keep the analysis manageable from both computational and data management perspectives. For example:

- Our estimates of the potential variation in input parameters are often based on past observations. However, the distribution of input parameters may change in the future. This may be the case for both for water flows and for some economic variables.
- Models can handle only a limited number of variables and time steps before the number of data points and associated relationships overwhelm the computer processing and data storage capabilities that are currently available. Accordingly, one needs to focus on a limited number of key variables and will therefore ignore other variables that, in aggregate, may or may not have material impacts.
- New sources of risk may develop in the future.
- Correlations among variables may change over time and in ways that are not expected.

As a result of the above limitations, we cannot expect to identify the true distribution of all potential future outcomes and their probabilities. Nevertheless, the process of scenario analysis remains a useful exercise in helping to identify and think about risk issues.

A consequence of the limitations noted above is that it is unrealistic to expect that one can accurately gauge the exact level of risk associated with any particular set of financial targets. In the introduction to this study, we suggested that Manitoba Hydro may wish to establish its financial targets so that the risks of it experiencing financial distress remain at or below a threshold level. This remains a useful conceptual framework. However, it is unrealistic to expect to accurately quantify risk in a manner that will make the process of risk identification precise. Scenario analysis and probabilistic risk assessment are intended to assist in providing insight into directional changes and relative level of risk.

7.2.3 Key Findings

Key findings are as follows:

- Additional rate increases in the early years of the projection horizon can result in a significant improvement in Manitoba Hydro's financial metrics in later years. This improvement reflects the benefit of reducing the impact of interest compounding on the additional debt that is required when rate increases are lower.
- Hydrology risk, or the variation in potential water flows, provides the single greatest source of uncertainty with respect to Manitoba Hydro's future financial position. Uncertainties associated with other parameters can sometimes be offsetting, which means that expanding the analysis to include other variables does not significantly increase the range of outcomes observed.
- In periods of high capital investment or under adverse operating conditions (e.g. drought) it is not possible to maintain the equity ratio at a constant or target level while keeping rate increases within reasonable bounds. The additional equity called for by large investments or drought is significantly greater than available earnings in any given year.

As noted elsewhere, Manitoba Hydro's equity can be considered a "closed loop". In general, the only source of equity funds is retained earnings. Since dividends are not paid, additional income resulting from higher rates results in higher cash balances at the corporation. This cash can then be used to reduce the borrowing that Manitoba Hydro needs do when it makes capital investments. In turn, this reduces future requirements for principal and interest payments on debt.

As noted earlier, our general approach to the scenario analysis is to try to evaluate the risk that, under its current or projected capital structure, Manitoba Hydro would encounter financial distress. The equity ratio is used as a key metric in evaluating the likelihood of financial distress.

7.3 Overview of Modelling Process

7.3.1 Overview

All of the scenario analyses were undertaken by Manitoba Hydro. KPMG provided direction on specific scenarios of interest but the implementation of these scenarios was performed by Manitoba Hydro personnel. Given Manitoba Hydro's extensive in-house capability for forecasting and analysis, reliance on Manitoba Hydro models was the most efficient and effective method of undertaking the analyses. Because the results of our scenario analyses are therefore based on the same modelling framework as is used for the IFF forecasting process, results are consistent in terms of methodology and initial base case assumptions.

7.3.2 Finfor

Manitoba Hydro's FinFor model was the primary tool used in the scenario analysis for this study. In general, the FinFor model is used by Manitoba Hydro to prepare forecast financial statements and to prepare other analyses related to its forecast financial position.

The FinFor model is a final step in Manitoba Hydro's preparation of forecast financial statements and, as such, it relies extensively on inputs from other Manitoba Hydro forecasting tools. In particular, FinFor takes data on net export revenues from Hermes and SPLASH, which are models used by Manitoba Hydro for forecasting production over the medium and long terms respectively. Depending on the nature of the simulation runs required, revenues reflect either the average observed over all water flow scenarios or they can be provided for each individual water flow scenario.

The FinFor model was initially developed about 25 years ago using a financial modelling language called Interactive Financial Planning System ("IFPS"). This software runs only on a Unix platform and is command-line based, but is extremely fast in solving large models and is capable of sophisticated what-if, goal-seeking, and optimization analysis of the model solution. FinFor's model architecture is designed around the double-entry accounting framework, so that the analysts who use it can follow the model's logic easily, and are able to readily add or modify the model logic with relative ease.

FinFor can be run interactively by an analyst, so that individual model runs can be evaluated and tested with different sets of assumptions or goal-seeks in a fully dynamic and interactive manner. Alternately, IFPS has a command/macro capability which allows analysts to operate FinFor repetitively and at high speed when evaluating larger numbers of model runs that have been setup as a batch operation.

For the various probabilistic runs used in the financial targeting analyses, these command file scripts have been generated using a template to encompass the full range of uncertainties associated with forecast interest rates, export prices, capital costs, and hydrology. Because of the volume of FinFor output generated in these runs, all output is collected and converted to standard data files for subsequent loading into Excel pivot tables, from which the final financial statements and graphs are produced.

KPMG has not independently verified the computational accuracy or model logic of FinFor, Hermes, or SPLASH as part of this assignment.

7.4 Overview of Scenarios Conducted and Parameters

The remaining sections of this Chapter summarize, in turn, the following:

- The results of an alternative rate trajectory designed to eliminate periods of negative net income (i.e. maintain profitability) under expected input conditions.
- A probabilistic analysis to consider the simultaneous impact of uncertainties across three key input parameters and with respect to water flows.
- An additional probabilistic analysis to consider the impact that changes in construction cost uncertainty will have on the distribution of outcomes under the probabilistic analysis noted above.
- Examination of a specific water flow sequence to understand the potential impact of additional rate increases designed to offset the onset of drought conditions.

7.5 Rate Trajectory to Maintain Profitability

IFF14 projects eight consecutive years of negative net income beginning in 2019. Negative net income indicates that, on an accounting basis, MH will not be covering its costs nor will it be providing for positive additions to its financial reserves.

It is important to note that the IFF forecast provides results based on average net revenues calculated over all flow conditions (or flow sequences). Thus, forecast financial results will be worse under low water flow scenarios, implying even lower net income. The potential for even lower net income under adverse water flow sequences is clearly a concern. Ensuring that rate increases provide positive income under expected conditions can be a first step in minimizing risks associated with low water lows.

Accordingly, we asked Manitoba Hydro to identify the rate increases necessary to restore profitability under expected conditions in most years. (Small losses are still shown in two years for electricity operations.) This is achieved by the following sequence of rate increases:

- 3.95% for Fiscal 2016 and 2017, consistent with IFF14.
- 6.0% for the 5-year period 2018 through 2022.
- 2.0% thereafter.

These rate increases compare to equal annual rate increases of 3.95% annually under the IFF. The alternative scenario results in higher rates in the short-term, but lower rates in the long-term. This is shown in Figure 7-1 below.

Figure 7-1: Cumulative Nominal Increases under IFF and Alternative Scenario

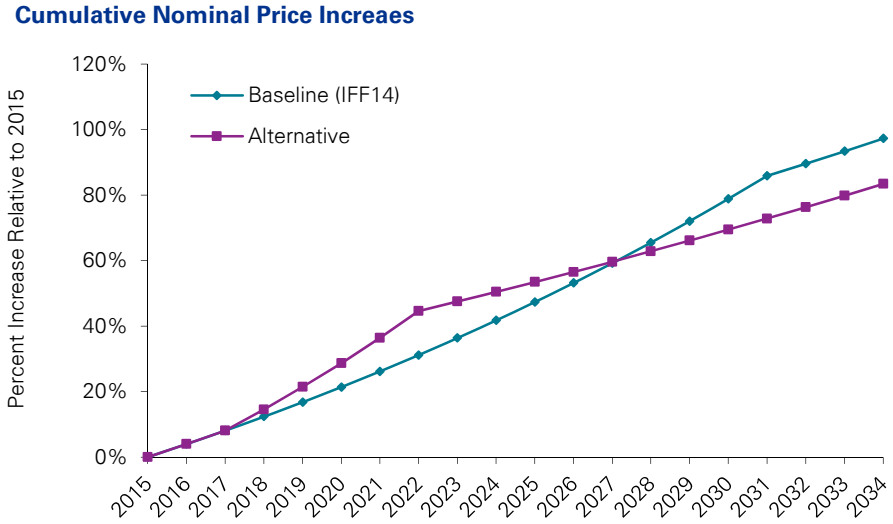
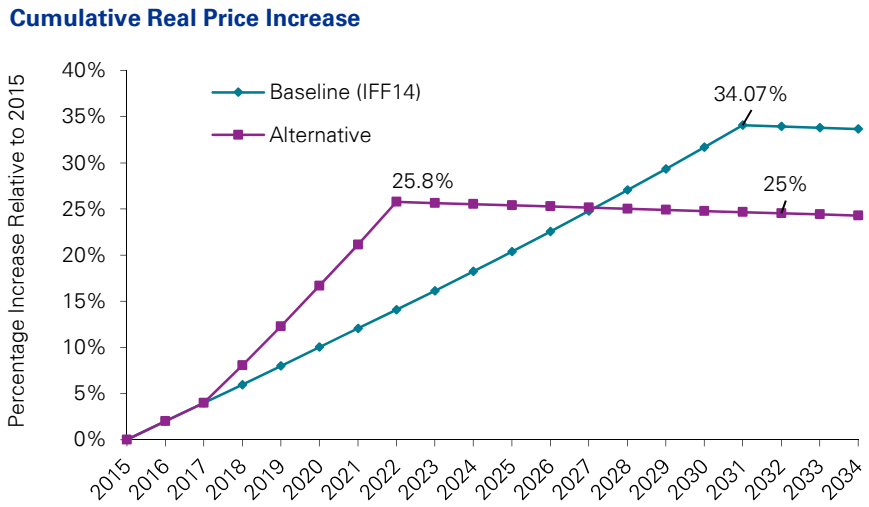


Figure 7-2 shows similar data as in Figure 7-1; the difference is that cumulative rate increases are shown in real, or inflation-adjusted terms, versus in nominal terms. This provides a more meaningful approach to comparing rate levels in different years. The following are noted:

- The Alternative scenario results in much greater cumulative increases in the short-term. By 2022, real rates have increased by 25.8% by 2022 under the Alternative Scenario, versus only 14.1% under IFF14.
- Because increases under the Alternative Scenario are slightly less than inflation after 2022, the rate trajectories ultimately cross paths around 2027. Thereafter, the Alternative Scenario provides lower cumulative rate increases. For example, the Baseline scenario (IFF14) provides real rate increases of 34.1% by 2031, versus only 24.7% under the Alternative Scenario.
- In both the Baseline and Alternative Scenarios, rate increases are still likely below the levels that would result in the loss of Manitoba Hydro's status as a low-cost utility within North America. (As an initial benchmark, this report suggested that cumulative real rate increases of 100% would clearly jeopardize the utility's competitive rate position.)

Figure 7-2: Cumulative Real Increases under IFF and Alternative Scenario



7.5.1 Impact on Equity Ratios and Net Income

The Alternative scenario results in significantly higher equity ratios, particularly in the period 2024 through 2031. This is shown in Figure 7-3 below. The equity ratio remains higher through to 2035, even though cumulative rate increases to 2035 are lower under the Alternative Scenario. This outcome illustrates the substantial benefit to Manitoba Hydro's financial position from higher rate increases in early years. These rate increases reduce the amount of debt that is required in the early years of the financial projection to fund MH's capital expenditure program. Reductions in the amount of debt result in subsequent benefits associated with reductions in the compounding of interest expense over time.

Figure 7-3: Equity Ratio under IFF and Alternative Scenario

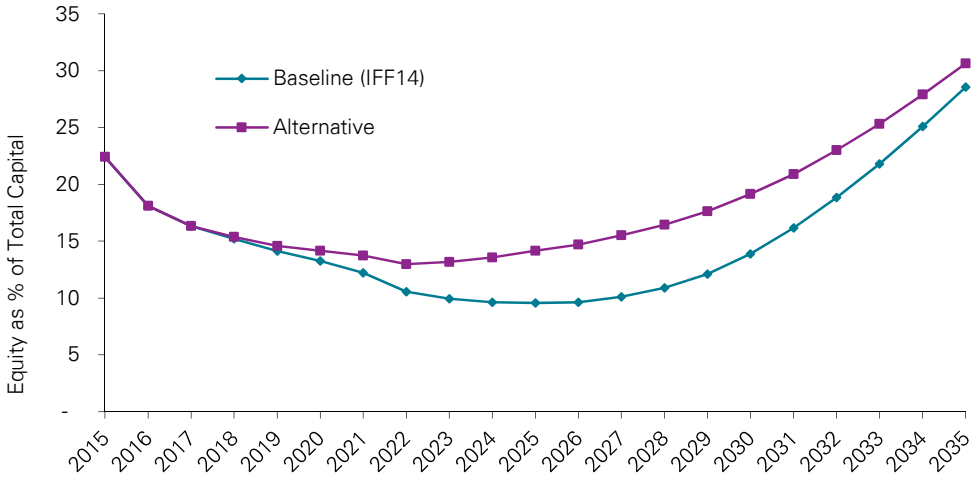


Figure 7-4 shows net income under the same two scenarios (IFF and the alternative rate trajectory). As shown, losses are largely eliminated under the alternative trajectory.

Figure 7-4: Net Income under IFF and Alternative Scenario

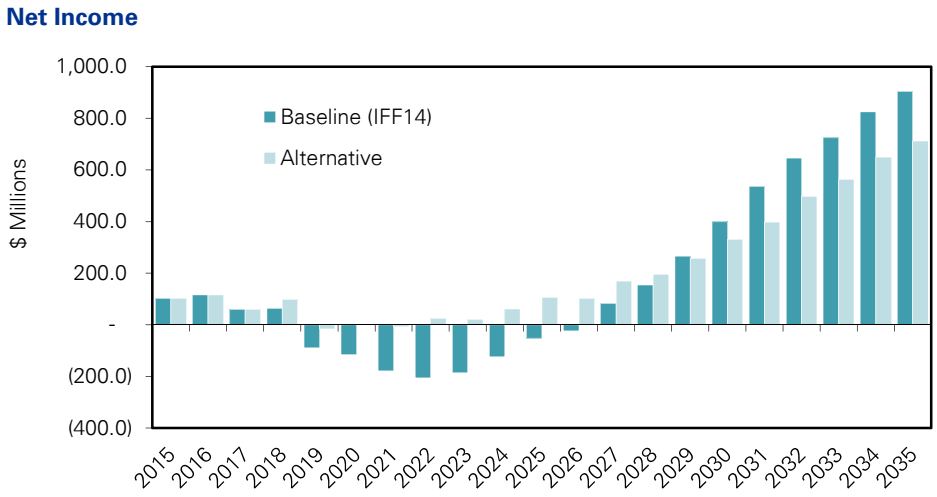
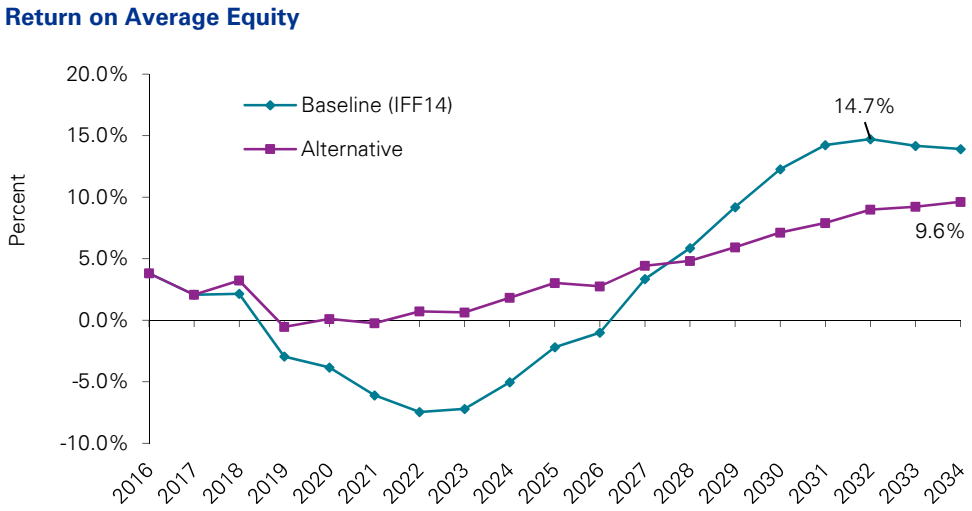


Figure 7-5 shows the return on average equity under the IFF versus the alternative trajectory. Note that the alternative trajectory provides more stability in rates of return. This alternative rate trajectory is arguably a better outcome from an inter-generational equity perspective, based on traditional rate-setting methodologies, since equity rates of return are more consistent over the projection period.

Figure 7-5: Return on Average Equity



7.6 Probabilistic Analysis

The scenario testing summarized in this section is built on the methodologies applied by Manitoba Hydro during the NFAT review. These methodologies are based on the following four dimensions of stochastic inputs:

- Interest rates (3 possible outcomes)
- Energy and Export prices (3 possible outcomes)
- Capital Expenditures (3 possible outcomes).
- Water Flow Sequences (99 possible scenarios).

Inputs are assumed to be uncorrelated, meaning that the probability of any given outcome for any particular variable (for example, interest rates) is uncorrelated with the probabilities for other variables (for example, energy and export prices).[137] When variability across the four dimensions of uncertainty (interest rate, energy and export prices, capital expenditures and water flows) is considered in combination, a total of 2,763 distinct financial projections can be generated. Figure 7-6 summarizes the dimensions and their associated probabilities. Input values and their probabilities were provided by Manitoba Hydro.

Figure 7-6: Summary of Input Variation – Economic Parameters

	Low	Reference	High
Interest Rates	- 1 percentage point (33%)	Reference (33%)	+ 1 percentage point (33%)
Energy / Export Prices	Low (30%)	Reference (55%)	High (15%)
Capital Expenditures	- $50 million (33%)	Reference (33%)	+ $50 million (33%)

Source: Manitoba Hydro.

As summarized in Figure 7-6, uncertainties other than those related to water flows are considered using three-way states. The mid-point assumptions, which are referred to as the "Reference Case", equal those used in the IFF14 and represent Manitoba Hydro's view of expected values. Values above and below these are examined in addition. Some points to note:

- The Energy / Export dimension captures values associated both with Manitoba Hydro's energy input costs (natural gas) and with export prices. Export prices are determined largely by price levels in the MISO market, which receives the largest share of Manitoba Hydro exports. The model assumes that energy input and export prices will tend to move in the same direction (they are correlated) and hence the model moves these variables in tandem.
- Probabilities associated with the energy/export dimension are not equally distributed among the three states. The Reference state has a higher than even probability (55%), while the remaining outcomes are skewed to the "low" side.

[137] Manitoba Hydro has undertaken some separate analyses that indicate that interest rates and energy prices may be positively correlated. Because higher interest rates tend to produce lower earnings and higher energy prices tend to produce higher earnings, such correlation would be a benefit. (In other words, it would reduce variation in the equity ratio.) This benefit has not been taken into account in this analysis, and thus the analysis will tend to be conservative.

- Uncertainty in exchange rates has not been modelled explicitly. Based on discussions with Manitoba Hydro personnel, we understand that exchange rates do not have a large impact on net financial results. This reflects the fact that Manitoba Hydro manages its borrowing program to result in natural hedges against revenue changes associated with changes in the exchange rate. Thus, Manitoba Hydro borrows some funds in US dollars such that the US dollar outflows approximately match the US revenue risk.
- Manitoba Hydro management believes that there may be some correlation between interest rates and energy prices. Thus, an improved economic climate in North America in the future may result both in increased interest rates and higher energy prices. Since higher energy prices tend to improve Manitoba Hydro's financial performance while higher interest rates tend to hamper it, the resulting financial impacts may be partly offsetting. Since the analysis assumes no correlation, it is more conservative – it will result in higher variability than the presence of such correlation would suggest.
- Interest rates sensitivities apply to floating rate debt as well as to new debt and debt that is refinanced. Existing fixed rate debt will retain its initial coupon rate until the date of maturity.

Some caveats with respect to the scenario testing are as follows.

- By its nature, the modeling is a simplification of the mechanisms associated with potential uncertainty. While the modeling considers some of the major sources of risk, it cannot encompass all sources. This reflects limitations as noted earlier in this Chapter in our understanding of sources of risk and in our computional capacity. Further, input values for each of the dimensions have been limited to three states, rather than being given a full probabilty distribution.
- Model inputs reflect assumptions as to the magnitude of uncertainty associated with given variables. The actual uncertainty associated wth these variables may be higher or lower. In other words, we do not have perfect insight.

Given the limitations noted above, it would be overly ambitious to assume that the resulting probability outcomes define the true probabiity of expected outcomes. Despite these caveats, scenario testing can help identify the major sources of risk for Manitoba Hydro and understand the corporation's sensitivities to key input parameters. The scenario testing undertaken is therefore reasonable for the purposes of evaluating financial targets.

7.6.1 Output metrics

To present the results of multiple runs, we have used cumulative probability curves, or "s-curves", a sample of which is provided in Figure 7-7 below. Figure 7-7 examines the minimum equity ratio observed over a sequence of runs for the period 2015-2024. We focus on the minimum equity ratio because this parameter is the single most relevant metric for assessing Manitoba Hydro's financial position – it reflects the cumulative impact of circumstances over time on Manitoba Hydro's financial capacity.

The following summarizes the key features of cumulative probability curves, in the context of Figure 7-7:

- The graphs show a given metric on the "x" axis and a cumulative probability on the "y" axis. For Figure 7-7 as noted above, the metric considered is the minimum equity ratio observed over a period of time.
- For any given value for the minimum equity ratio, as found on the "x" axis, the corresponding value on the "y" axis shows the percentage of runs that have a lower equity value. Thus, for example, the line on the graph indicates that a minimum equity ratio of 9% is matched to a probability of about 50%. This indicates the 50% of the runs examined had a lower minimum equity ratio over the period.

- A particular point of interest may be the point at which the equity ratio falls below 0%, given that we have used this level of equity as a potential indicator of serious financial distress. The graph indicates that about 7% of runs had a lower minimum equity ratio.

It is important to note that the results in Figure 7-7 assume that the rate trajectory remains unchanged even as circumstances evolve, including in an adverse direction. This rate trajectory is as outlined in IFF14 (and it entails 3.95% annual increases until 2031). In practice, it is likely that the corporation will adjust rates to provide additional rate increases if unfavourable conditions (such as a drought) are encountered. This may mitigate reductions in the equity ratio that would otherwise occur under adverse conditions.

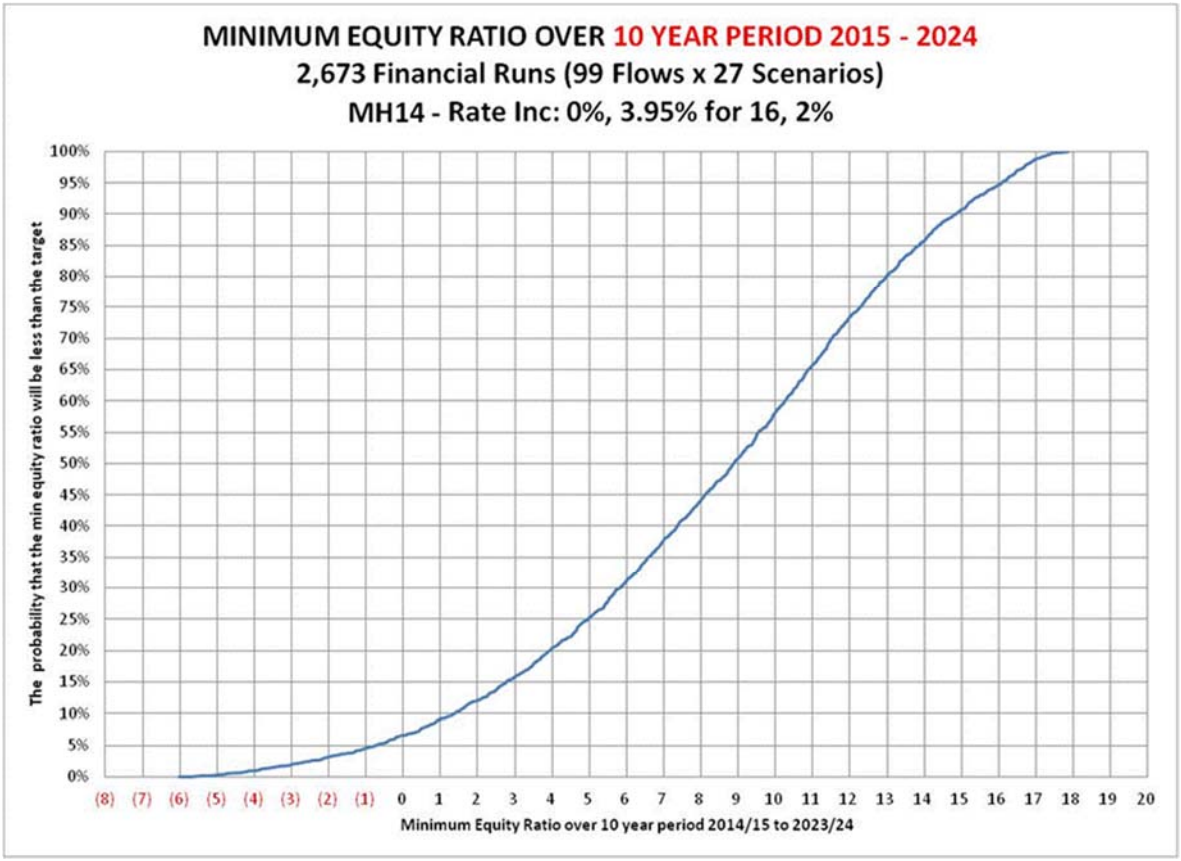
Because Manitoba Hydro and its regulator will likely respond to adverse events by allowing additional rate increases, the probability that negative equity ratios will occur is likely less than indicated in Figure 7-7. Thus, the graphic indicates indicates that there is a 7% probability that Manitoba Hydro will have an equity ratio that falls below zero. To the extent that additional rate increases are allowed when adverse events occur, this probability will be less.

An additional consideration in evaluating risks, as noted earlier, is the fact that our quantification of probabilities is likely to be imperfect. Actual probabilities may be different than this graph identifies.

As discussed elsewhere in this report, reaching a zero equity balance is highly undesirable from a capital markets perspective. This graphic suggests that the probability of having a zero equity balance is relatively high. If Manitoba Hydro reaches a zero equity ratio, this does not necessarily mean that Manitoba Hydro will immediately lose its self-supporting status. Loss of such status could potentially be avoided if Manitoba Hydro immediately takes steps, such as increasing rates, to increase its equity position. On the other hand, self-supporting status could be affected at equity ratios above zero in the event that its ongoing financial trajectory appears to be negative and if there are no steps being taken to correct this.

The above discussion is not meant to suggest that reaching a zero equity ratio is possible without considerable risk to Manitoba Hydro's or the Province's financial standing. The discussion also emphasizes the fact that the exact point at which self-sustaining status could be lost is not clear.

Figure 7-7: Cumulative Probability Graph



Source: Manitoba Hydro

An alternative way of looking at the data presented in Figure 7-7 is to present them in the form of a probability distribution, instead of through a cumulative probability curve. Figure 7-8 below shows this alternative presentation. This graph shows the percentage of runs that have a minimum equity ratio that fall within the ranges identified. For this graph, ranges have been structured to be equal in width to one-half of one percentage point. The values on the x-axis show the upper end of these ranges.

Figure 7-8: Probability Distribution over 2,673 runs.

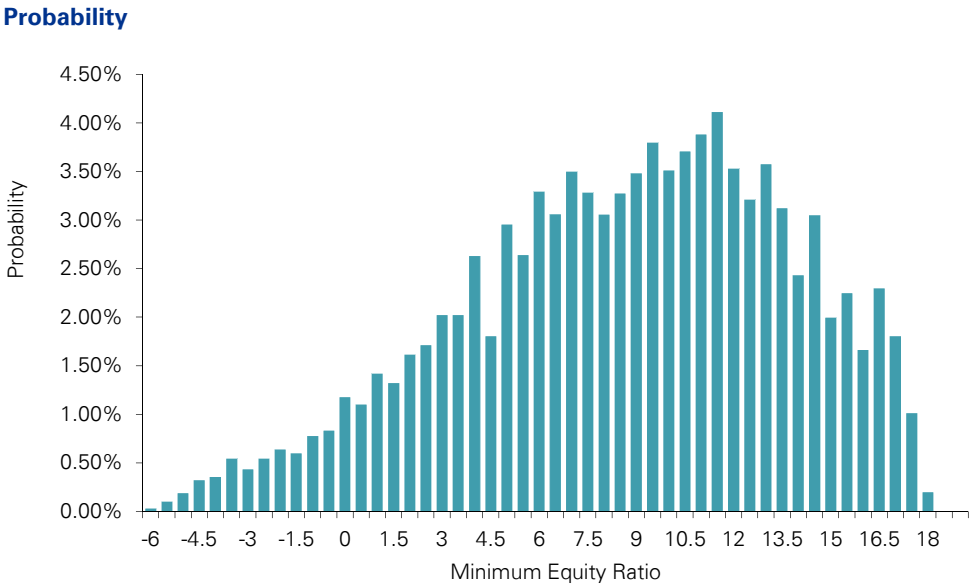
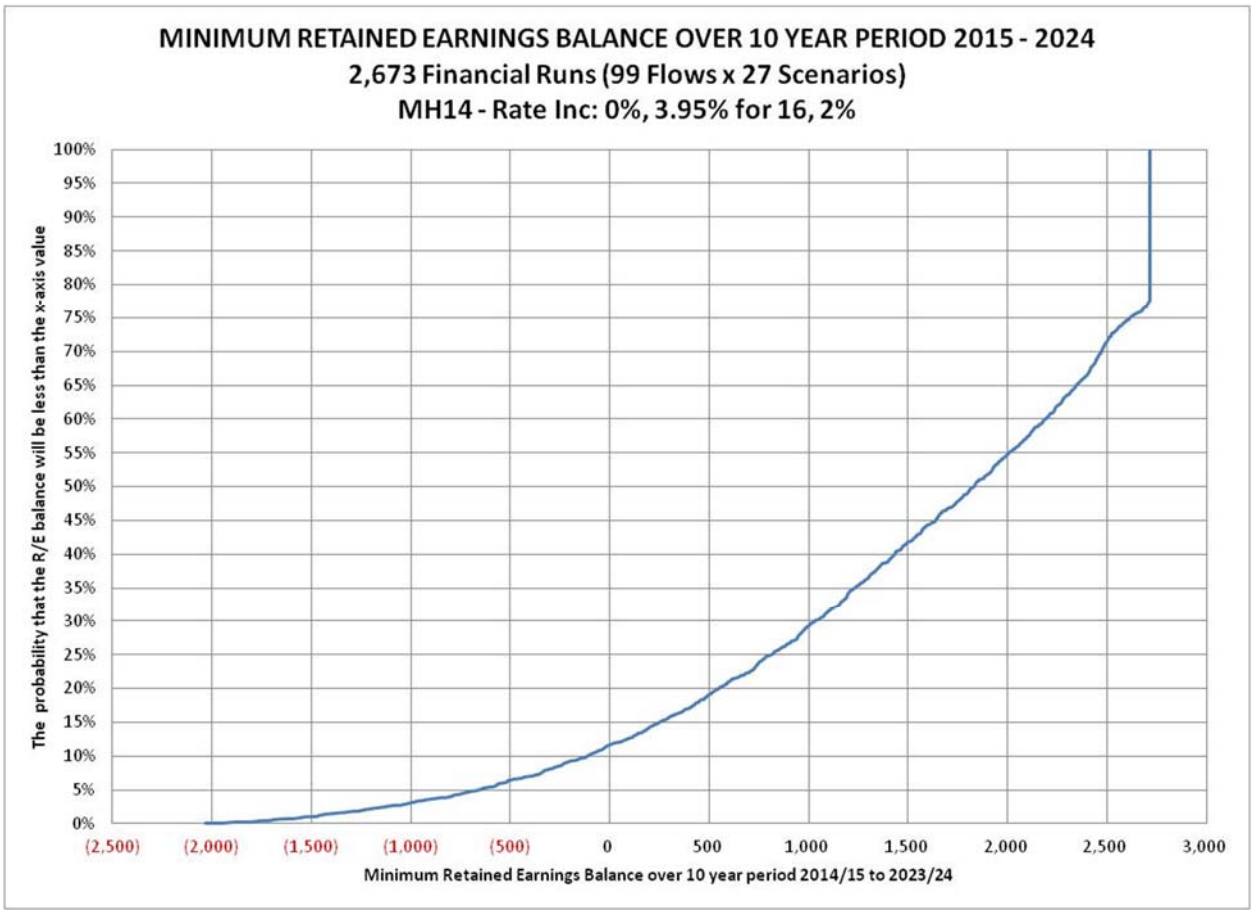


Figure 7-8 shows that the distribution of values is negatively skewed: low values relative to the average are more common than higher values. The maximum probability is found for the range between 11.0% and 11.5%: there is a 4.1% chance that the minimum observed equity ratio will fall within this range.

Figure 7-9 below shows, for the same set of 2,673 scenarios summarized in Figure 7-7 and 7-8, the distribution of values for the minimum retained earnings level over the period 2015-2024. This graph shows the magnitude, in dollar terms, for the metric minimum retained earnings.

Figure 7-9: Comparison of Probability Distributions



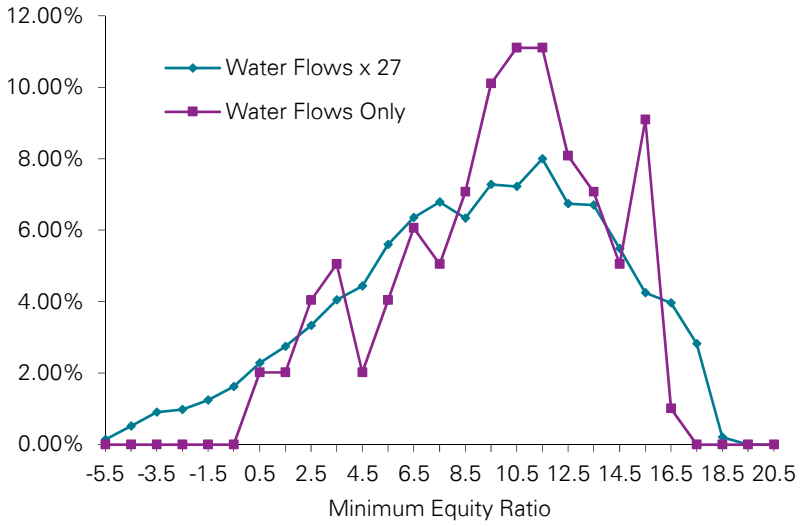
Two points to note with respect to Figure 7-9 are as follows:

- The minimum retained earnings balance under the worst-case, or lowest, scenario is about negative $2.0 billion.
- For most of the runs in the top quartile, the minimum retained earnings balance is about $2.7 billion. This amount is equal to the opening value of retained earnings in FY2015. For these runs, the retained earnings balance then increases over time, reflecting more favourable earnings from positive input parameters. Hence the minimum value for these runs is equal to the opening value, which is common across the runs. This accounts for the vertical portion of the line.

Figure 7-10 below compares the probability distribution shown in Figure 7-8 for the full scenario analysis (with 2,673 runs) against that obtained if we examine variation in water flows only under Reference assumptions. For the latter, we assume that all other variables match those of the IFF. The full scenario

analysis has been labelled "Water Flows x 27", where the 27 refers to the number of separate outcomes for 3 variables analysed under 3 input conditions for each.

Figure 7-10: Comparison of Probability Distributions



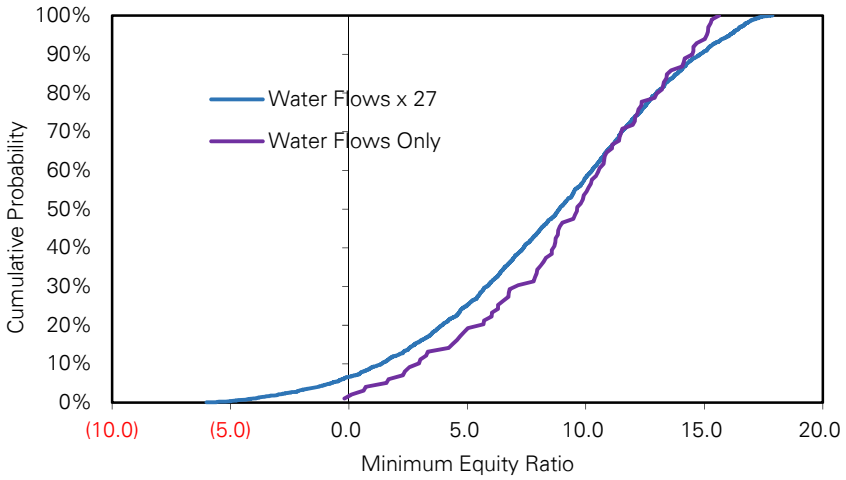
Examination of Figure 7-10 shows the following:

- As expected, the consideration of additional sources of uncertainty inherent in the full scenario analysis broadens the distribution. In other words, the range of equity ratios observed is wider when we add additional elements of risk. Minimum equity ratios range from -6% to 17.9% in the full analysis, versus -0.2% to 15.6% for the analysis that only considers variation in water flows.
- Notwithstanding the increase in the breadth of the distribution noted above, it is clear that water flow variation accounts for a majority of the uncertainty.

In interpreting the probability values on the y axis, note that the bin ranges used along the x-axis have been doubled in size to one-percentage point to minimize spikes in the probabilities obtained for the scenario with only water flow variation. (Because the analysis of water flows is based on only 99 separate flow sequences, there is much less smoothing in observed results.) Doubling the bin size results in an increase in the probabilities associated with the bins and, hence, higher observed values on the "y" axis.

The data in Figure 7-10 can also be presented in the form of a cumulative probability curve, as provided in Figure 7-11 below.

Figure 7-11: Comparison of Cumulative Probability Curves

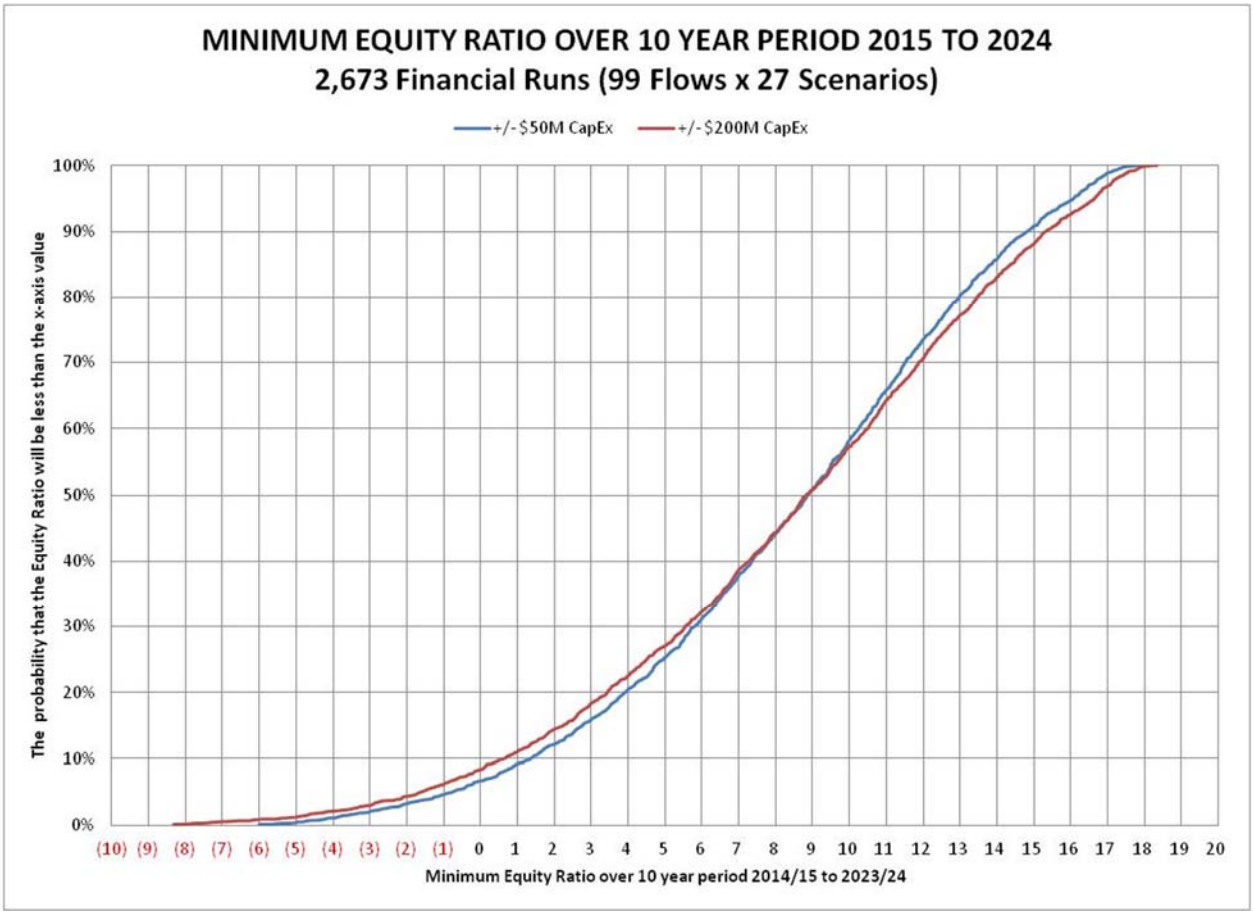


7.7 Probabilistic Analysis with Higher Capital Cost Risks

As part of its IFF14, Manitoba Hydro undertook a sensitivity analysis that examined the impact of annual capital spending of either $50 million more or less than forecast (or expected) values. This magnitude of capital cost variation was also incorporated into our full stochastic analysis as summarized in Section 7.6. Given the significant increase in capital spending in the next five years, we asked Manitoba Hydro to re-run the full stochastic analysis as summarized in Section 7.6 earlier with higher values for capital cost variation. For the runs in this section, Manitoba Hydro has examined the impact of annual capital spending that is either $200 million higher or lower than the expected value in each year over a 10-year period.

Figure 7-12 summarizes the cumulative probabilities associated with the minimum equity ratio. The blue line reflects the baseline assumption (of $50 million in capital cost variation) while the red line reflects the alternative level of $200 million. The blue line is the same as was presented in Figure 7-7 earlier.

Figure 7-12: Impact of Alternative Capital Cost Scenario

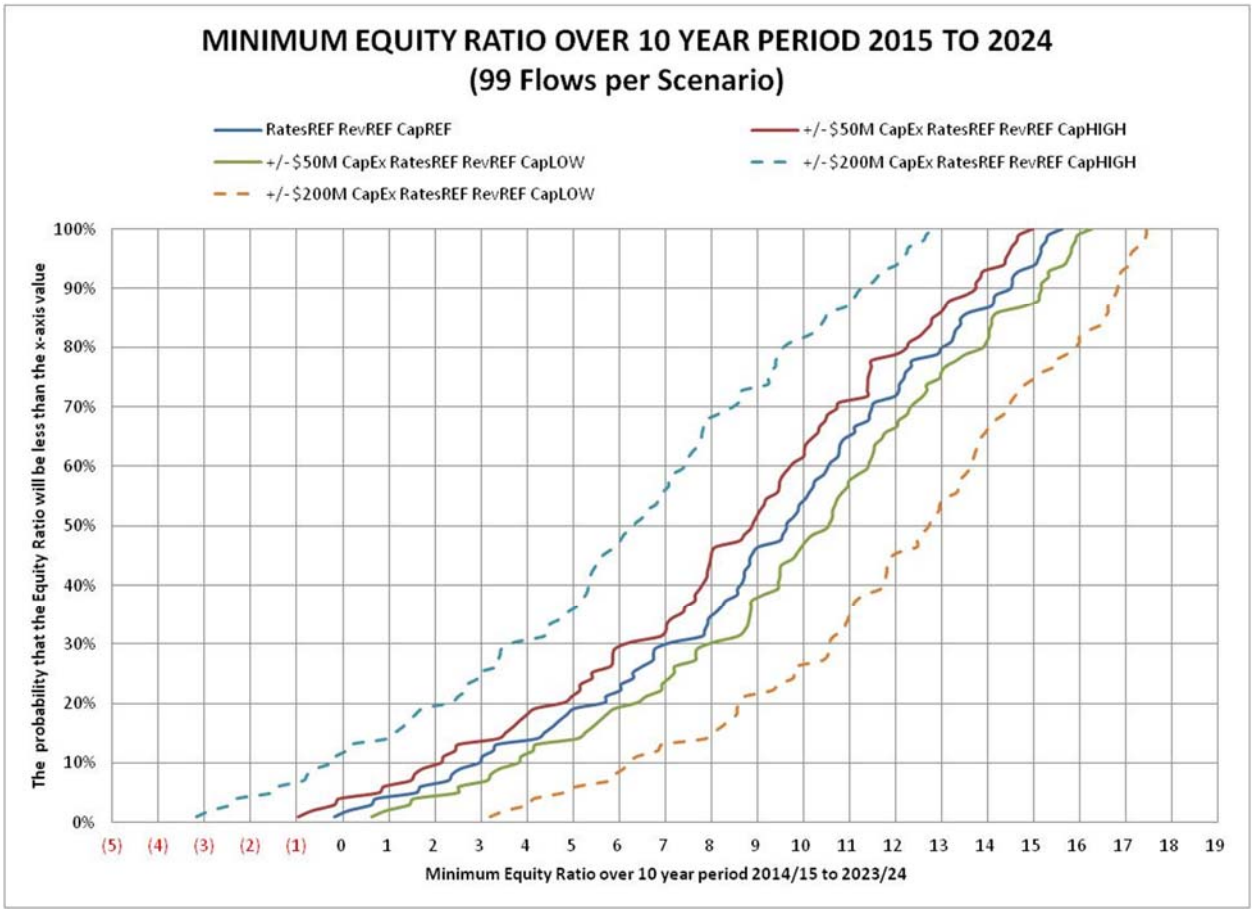


With higher capital cost variation, Figure 7-12 shows a slight increase in the probability of having a minimum equity ratio of zero or less in the period 2015-2024. Further, the minimum equity ratio in the worst-case scenario observed over all runs falls to just over negative 8 percent from about negative 6 percent.

Figure 7-13 below represents a slightly different approach to analysing the data. This graph shows cumulative probabilities for subsets of the broader probability distribution. In this graph, the scenarios corresponding to particular capital cost scenarios are examined individually. Uncertainties with respect to economic conditions (i.e. interest rates) and energy and export prices are suppressed. For these inputs,

values are kept at their Reference levels (which are the levels assumed in IFF14). Each individual line in Figure 7-13 therefore reflects the impact of water flow uncertainties only.

Figure 7-13: Uncertainties Related to Water Flow under Different Capital Cost Scenarios



We note the following:

- Under the Reference case scenario, the probability of having a zero equity balance or less by 2024 is less than 5%.
- In the event that capital costs in each year of the projection are $200 million higher than forecast, the probability that the equity balance will be zero or less by 2024 increases significantly, to about 12%. These scenarios assume that there is no change to the forecast rate trajectory (with increases of 3.95% annually over the period).

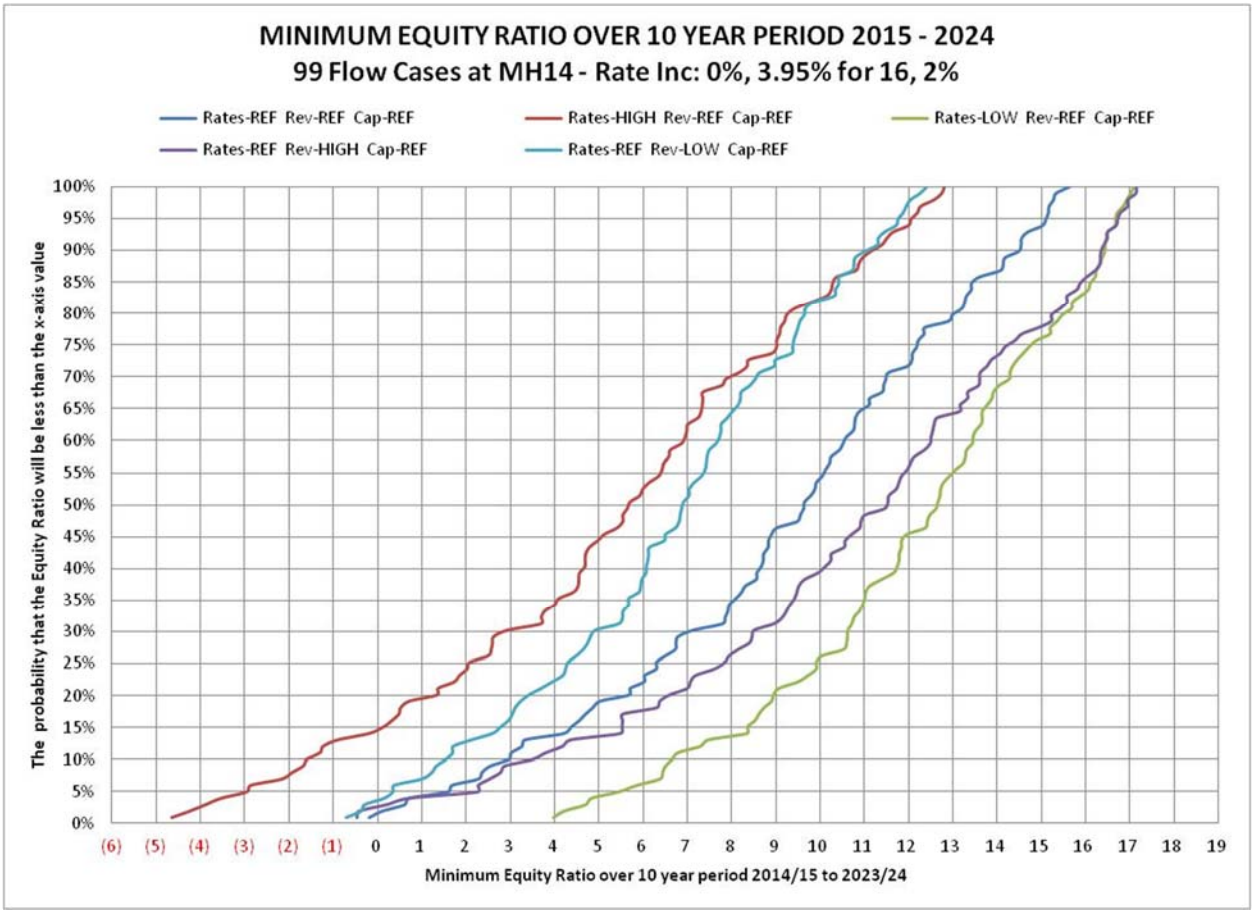
7.8 Impact of Energy Price Uncertainty and Higher Interest Rates

This section looks at the impact on the distribution of outcomes under the 99 flow sequences of the following changes, relative to Reference Case assumptions, in isolation:

- Higher Interest Rates (corresponding to a 1 percentage point increase relative to Reference Case Assumptions).
- Lower Interest Rates (corresponding to a 1 percentage point decrease).
- High Export Prices
- Low Export Prices

Figure 7-14 shows the results of these scenarios in the form of cumulative probability curves. The variable shown in the graph is the minimum equity ratio. (In the graph legend, the "Rates" label refers to the interest rate assumption, the "Rev" label refers to the Export Price scenario, and the "Cap" label refers to the capital cost assumption. The label "REF" indicates that Reference Case assumptions are used for the associated variable.)

Figure 7-14: Uncertainties Related to Water Flow under Different Export and Interest Rate Scenarios



Key observations with respect to this graph are as follows:

- Higher interest rate scenarios have a very significant impact on financial results. This can be seen by the fact that the red line in the graph (representing the high interest-rate scenario) is much farther to the left of the blue line (representing the Reference Case scenario) than the other sensitivity runs. Based on a comparison of the red and blue lines, the probability of having a minimum equity ratio of less than zero increases from under 5% under Reference Case assumptions to about 15% under a high interest rate scenario.
- The impacts of high and low export prices are much greater for high water flow scenarios than under low water flow scenarios. This is indicated by the increasing distance between the light blue, blue and purple lines on the above graph as you move up the cumulative probability curve. (Higher points on the curve correspond to flow sequences with higher flows overall through the period.)

The finding that export prices have a greater impact on higher water flow scenarios, as noted in the second bullet above, makes sense given Manitoba Hydro's system configuration. Higher flows result in greater export volumes and, hence, a greater revenue impact from higher or lower export (and energy)

prices. At very low water flows, Manitoba Hydro has limited surplus energy for export. Hence, differences in energy prices in export markets have much less dollar impact on its revenue position in low flow years than in high flow years. As noted elsewhere in this report, Manitoba Hydro signs long-term contracts only for the energy available from dependable resources, which are those that will be available even in low water flow years. As a result the additional energy available in higher water flow years is sold on a shorter-term basis, and more exposed to market price fluctuations.

In very low water flow sequences, the high energy price scenario has an even lower minimum equity ratio than the Reference case. In very low water flow periods, Manitoba Hydro may need to purchase additional natural gas to run its fossil generating units and it will purchase some additional power in export markets to serve Manitoba load or its export contracts. Lower equity ratios are indicated by the fact that the purple line moves slightly to the left of the blue line for about the lowest 4% of cases.

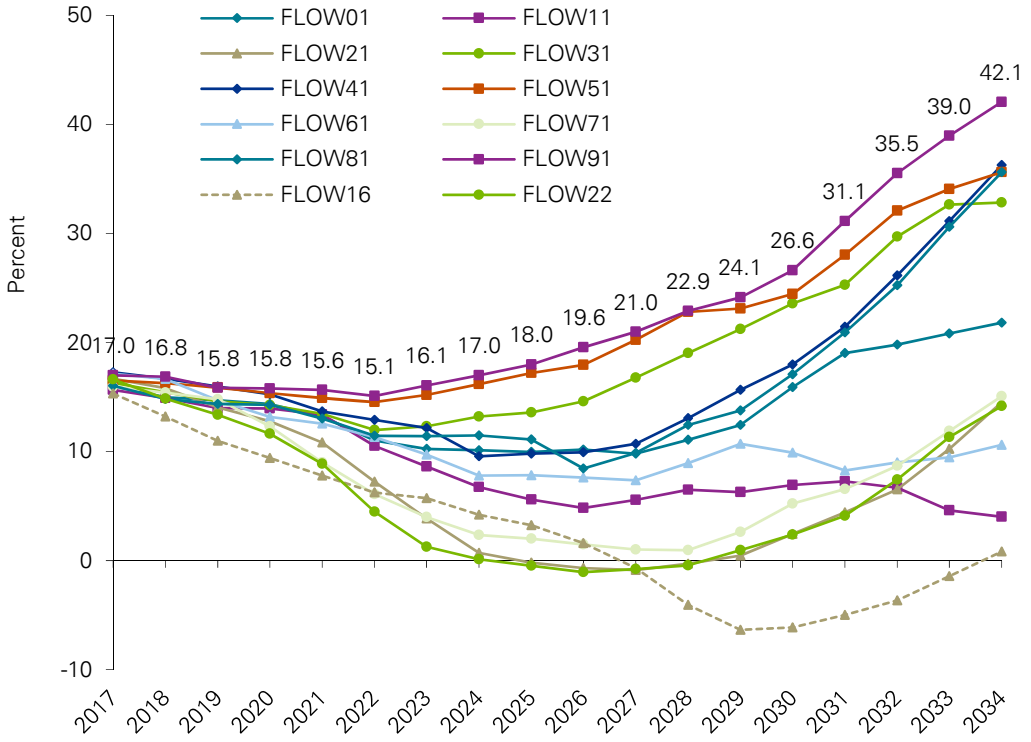
7.9 Analysis of Specific Water Flow Sequences

In this section, we examine the change in equity ratios over time under a number of different water flow sequences. Initially, these runs all entail Reference Case assumptions.

The rationale for looking at a number of specific water flow sequences is that it helps illustrate how metrics may evolve over time. Comparing a number of sequences also helps show differences in results that could occur specifically as a result of water flow variation. The nature of this analysis is that it assumes that future hydrological patterns will simply be a repeat of prior patterns, with only the starting point being uncertain. Of course, new patterns will occur in the future, so that actual events will not evolve in the manner identified. However, the use of actual historical sequences provides insight on the nature and types of patterns that may be observed.

As a first step in the analysis in this section, Figure 7-15 shows the evolution of equity ratios at Manitoba Hydro for a select number of sequences: more specifically we have shown every 10th sequence within the overall sample of 99 sequences. (We picked sequences 1, 11, 21, etc.) In addition, the graph shows Flow Sequence 16, which shows the lowest equity ratio of all sequences, and Flow Sequence 22, which is the worst over the time horizon to 2026. Examining a subset of runs, rather than the full spectrum, makes it easier to see individual flows on one graph. Since samples taken are evenly distributed within the 99 available, they should capture the range of variation that will be observed. Each line on the graph represents the evolution of equity ratios under one water flow sequence.

Figure 7-15: Equity Ratio under Sample Water Flow Sequences – Reference Case Assumptions

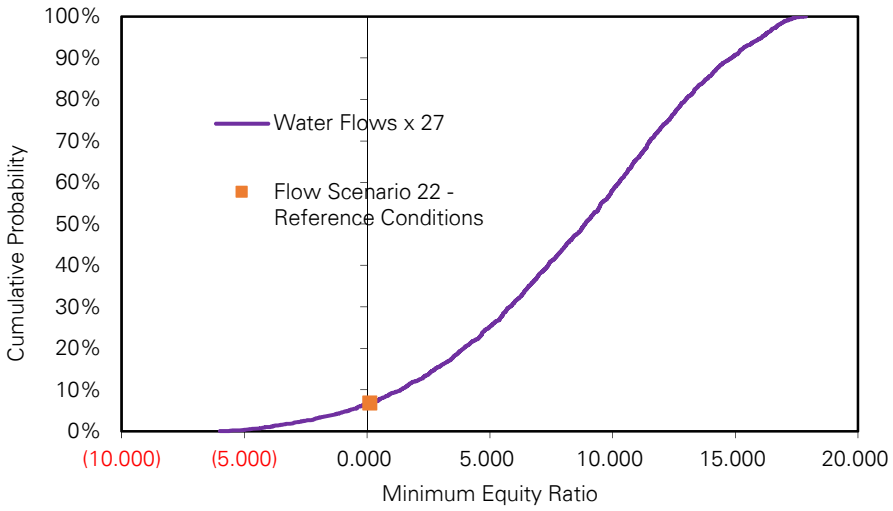


A notable feature of sequences 21 and 22 is the rapid deterioration in equity ratios over the period 2020 through 2024. For sequence 22, the equity ratio decreases from 12 percent to 0 percent between 2020 and 2024, representing a rapid decline in a short period of time as a result of adverse water flow conditions just shortly after the in-service date of Keeyask.

We think that this case highlights the risks to Manitoba Hydro of operating with a limited equity cushion. Accordingly, we have undertaken additional analysis of this particular water flow sequence to see what rate increases might be required to help cushion the decline in equity ratios under such adverse water conditions.

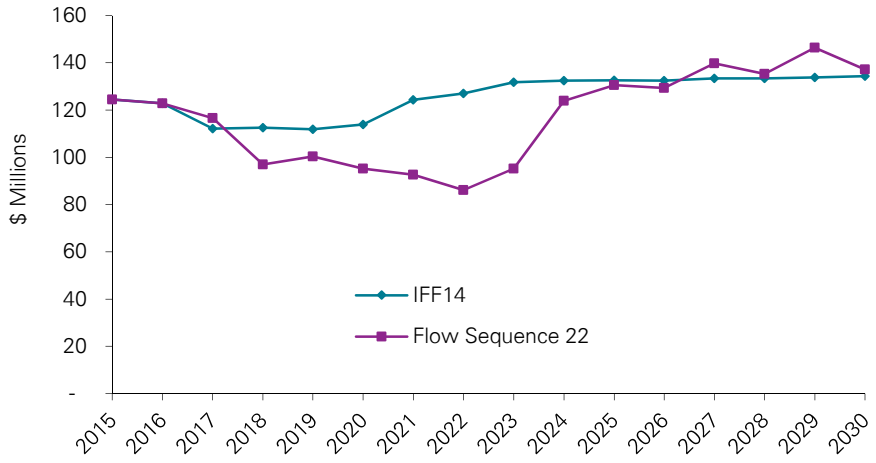
Prior to analyzing an alternative rate trajectory, however, we think it is useful to place this particular scenario within the context of Manitoba Hydro's overall estimated uncertainty. This flow case results in a minimum equity ratio of 0.1% (i.e. barely positive) over the period to 2024. If we examine the results of the full stochastic analysis summarized in Section 7.5 above, a lower equity ratio over the same period is observed in about 7% of cases. This is shown in Figure 7-16 below. Thus, the flow scenario examined here does not represent a particularly extreme outcome in the context of our probability analysis.

Figure 7-16: Placement of Outcome of Flow 22 Sequence on Full Probability Distribution



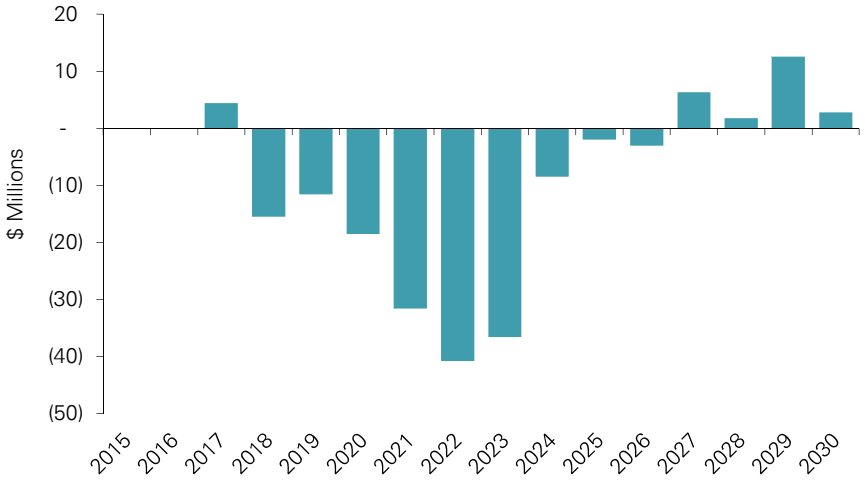
To highlight the reduction in hydro-electric power production that is implied under Flow Sequence 22, Figure 7-17 below shows water rental charges under this sequence as well as under IFF14. Water rentals are a good indicator of water flow variability since they are levied through a fixed charge per unit of hydro-electric production. Water rentals after 2020 ramp-up under IFF with the introduction of Keeyask into service. Under Flow Sequence 22, this increase is initially masked by low water flows.

Figure 7-17: Water Rentals under IFF14 and Flow Sequence 22



As an alternative perspective on the data in Figure 7-17, Figure 7-18 shows the difference in water rental charges between this sequence and IFF14. Under Flow Sequence 22, low water flows begin in 2018 but the shortfall becomes relatively more pronounced in the period 2021 through 2023.

Figure 7-18: Water Rentals under IFF14 and Flow Sequence 22

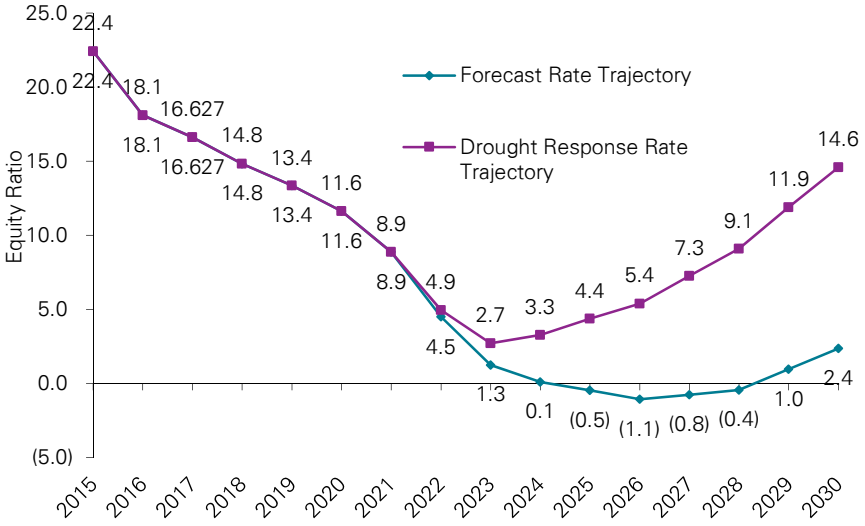


7.9.1 Proposed Drought Response Rate Trajectory

Figure 7-16 above is based on even annual 3.95% rate increases over the period to 2031. As an alternative case, we examined the impact of a series of 10% rate increases in each of the years 2022, 2023, and 2024. This represents a scenario in which Manitoba Hydro reacts to the adverse water conditions beginning in 2021 under Sequence 22 with a series of additional rate increases to attempt to maintain its financial position. Because these rate increases are only required as a result of these particular adverse flow conditions, this analysis focuses only on this flow scenario. For the years 2025 and beyond, annual rate increases were reduced to 2% from 3.95%. Lower rate increases are possible given the substantial cumulative impact that the three 10% annual rate increases in succession have on overall rate levels.

Figure 7-19 provides a summary of equity ratios under both the baseline and alternative rate trajectories.

Figure 7-19: Flow 22 – Equity Ratio under Baseline and Drought Response Rate Trajectory



Some observations in respect of this are as follows:

- As noted above, the Drought Response Rate Trajectory entails much higher rate increases beginning in 2022. However, even though the 2022 rate increase is 10%, versus 3.95% under the baseline, this serves only to dampen the drop in equity ratio in that year. It falls to 4.9% instead of 4.5%. The gap in equity ratio between the two trajectories widens to 3.2 percentage points by 2024, which is the third year with above average rate increases. This is a larger gap but still results in a drop in the overall equity ratio from 8.9% in 2021 to 3.3% in 2024. Thus, the series of large rate increases only moderates the fall in the equity ratio as a result of adverse water conditions.
- Beyond 2024, equity ratios under the Drought Response Rate Trajectory recovery more quickly than under the original trajectory. This reflects the fact that rates have reached a higher plateau.

Overall, we think that the scenario analyzed above highlights the considerable risks of moving to a low equity position: When equity ratios are about 10%, Manitoba Hydro has only a limited equity cushion to respond to adverse events in the short-term. Further, because net income is the only source of additional equity and is small relative to the magnitude of potential risks, even very large rate increases provide limited ability to generate sufficient additional income to offset equity declines.

Figure 7-20 shows net income under the two rate trajectories. Consistent with the figures for the equity ratio shown above, the increase in rates under the Drought Response Rate Trajectory only dampens the decrease in earnings under Flow 22 in the years 2022 and 2023. However, net income bounces back much more strongly in the years 2024 and beyond, reflecting the cumulative impact of additional rate increases and the benefits of less outstanding debt.

Figure 7-20: Flow 22 – Net Income under Baseline and Drought Response Rate Trajectory

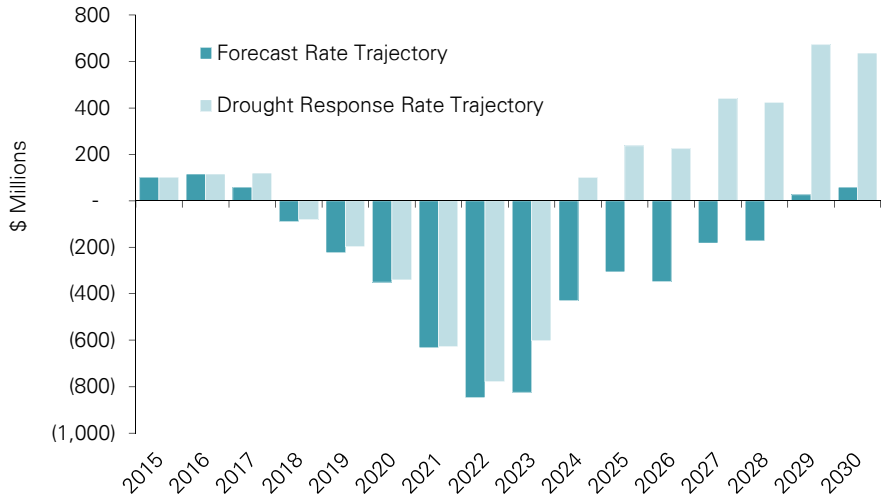


Figure 7-21 shows nominal rate trajectories under the two scenarios discussed above. Figure 7-22 shows the same rate trajectory but in real (inflation-adjusted) terms.

Figure 7-21: Baseline and Drought Response Rate Trajectories

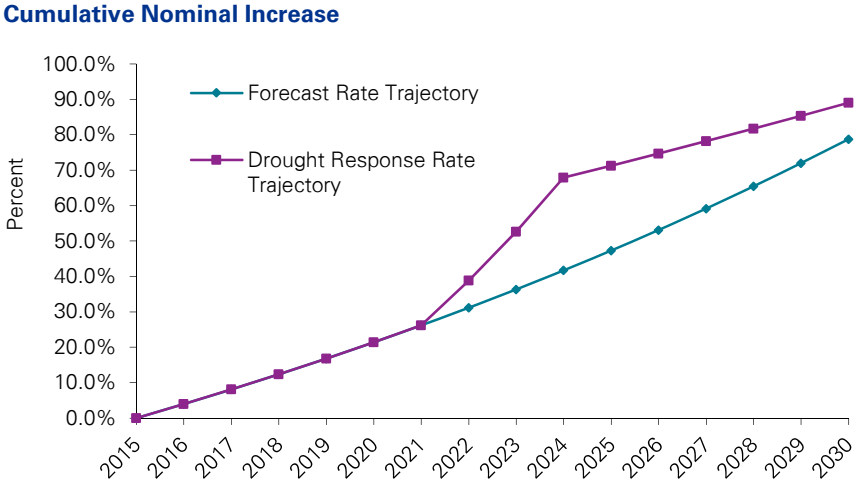
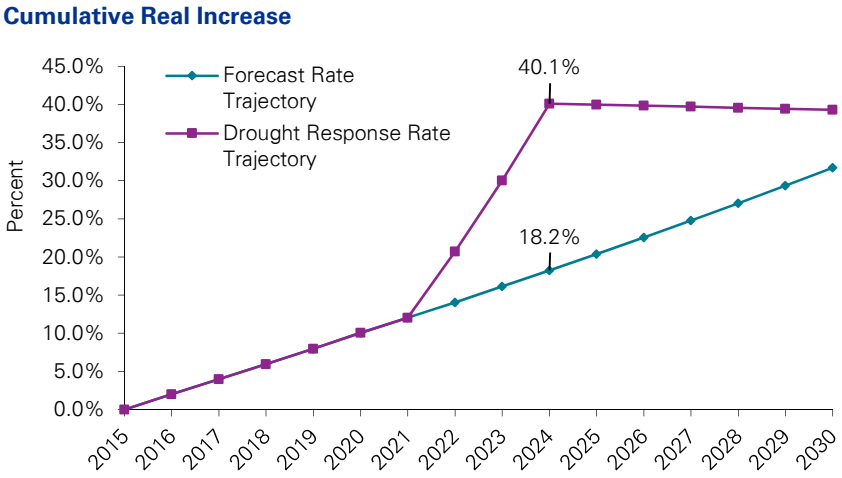


Figure 7-22: Baseline and Drought Response Real Rate Trajectories



7.10 Adverse Water Scenario with Additional Stresses

This section examines the impact of additional adverse assumptions in combination with flow sequence 22. More specifically, we examined the impact on results under Flow Sequence 22 with the following stress cases in addition:

- High Capital Costs.
- Low Energy / Export Prices
- High Interest Rates

These stress scenarios were run individually in conjunction with Flow Sequence 22; they were not combined amongst themselves. The specific stress cases are as defined for our full probabilistic analysis. Accordingly, for example, the high capital cost case is based on an additional $50 million in capital expenditures annually, relative to those under the Reference scenario.

Figure 7-23 shows the equity ratio over time for these scenarios.

Figure 7-23: Equity Ratio under Flow Sequence 22 – Reference + Stress Scenarios

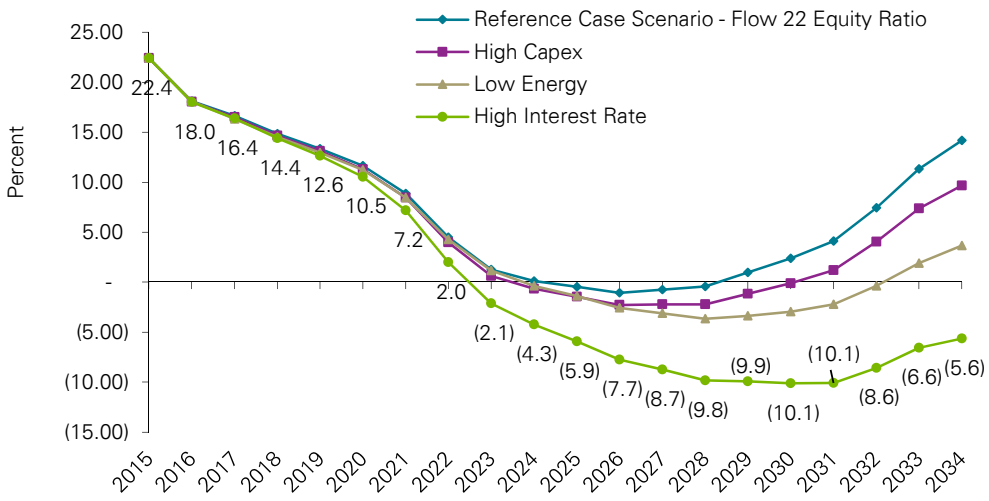


Figure 7-23 shows that high interest rates have the largest impact on the equity ratio.

The combination of an adverse water flow sequence (as represented by flow case 22) with other adverse inputs results in outcomes that are farther to the left on the cumulative probability curve. As noted earlier, our cumulative probability curve was estimated from a full probabilistic analysis.

Figure 7-24 shows the position of our Flow 22 scenarios on the cumulative probability curve of our full stochastic analysis. The purple line, representing the curve for our full analysis, is the same as shown in Figure 7-16. Differences in this figure are as follows:

- Axis values have been adjusted so that the plot area focuses on the bottom left portion of the full curve.
- The positions of the three additional stress cases under flow sequence 22 have been added as point values.

Figure 7-24: Cumulative Probability - Flow Sequence 22 – Reference + Stress Scenarios

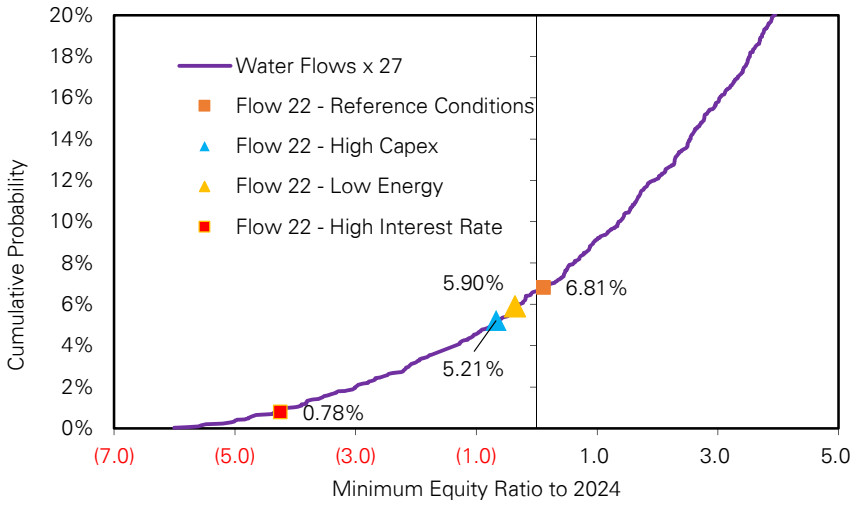


Figure 7-24 shows that the high interest rate scenario, when combined with flow sequence 22, results in an equity ratio that is below the 1 percentile point on the overall curve. More specifically, the minimum equity ratio observed over the period to 2024 is in the lowest 0.78% of values observed within this period. This suggests that this stress scenario produces outcomes that are relatively improbable in terms of outcomes.

7.11 Summary Observations – Scenario Analysis

Key findings are as follows:

- Additional rate increases in the early years of the projection horizon can result in a significant improvement in Manitoba Hydro's financial metrics, particularly in later years. This improvement reflects the benefit of reducing the impact of interest compounding on the additional debt that is required when rate increases in the early years are lower.
- Hydrology risk, or the variation in potential water flows, provides the single greatest source of uncertainty with respect to Manitoba Hydro's future financial position. Uncertainties associated with other parameters can sometimes be offsetting, which means that expanding the analysis to include other variables does not appear to significantly increase the range of outcomes observed.
- In periods of high capital investment or under adverse operating conditions (e.g. drought), it is not possible to maintain the equity ratio at a constant or target level while keeping rate increases within reasonable bounds. The additional equity called for by large investments or drought is significantly greater than available earnings in any given year.
- As illustrated by our analysis of Flow 22, Manitoba Hydro has limited ability to restrain a drop in financial ratios during adverse conditions, such as a drought. This highlights the risk of having an equity ratio that approaches 10%. For this reason, we believe that ratios near 15% or higher are the minimum that should be accepted even for short periods.

8 Considerations in Setting of Financial Targets

This Chapter summarizes our overall study findings and provide recommendations to Manitoba Hydro's Board and Management in respect of its long-term financial targets.

8.1 Context for our Recommendations

Our research work was based on three streams of analysis: benchmarking (Chapters 4 and 5), capital markets analysis (Chapter 6), and scenario analysis (Chapter 7). The three primary streams of analysis were designed to provide a comprehensive and balanced perspective on the development of financial targets for Manitoba Hydro. The scope of our work does not extend to reviewing broader policy questions associated with Manitoba Hydro's overall structure, governance, business strategy and plans. Financial targets must take into account not only the broader economic and market context within which Manitoba Hydro operates but also its specific challenges and needs. There is no single method or formula that can readily identify the most appropriate target or targets. The selection of financial targets must be based on the judgment of the Manitoba Hydro-Electric Board and Management of Manitoba Hydro, taking into account a broad range of evidence and multiple objectives. Similarly, we have had to apply judgment in making the recommendations herein.

The key factors that influence our recommendations on financial targets are as follows:

- Relative to other Crown utilities with a significant base of hydro-electric generation, Manitoba Hydro faces a number of heightened risks:
  - Manitoba Hydro has a large capital investment program relative to its current installed asset base and its projected revenues going forward. As noted in Chapter 3, this heightens risks related to capital investment. As shown in Chapter 5, Manitoba Hydro's forecast cumulative capex over the next five years equates to over 80% of its existing asset base, over double the value of the same metric at BC Hydro and over triple that of other peer hydro-based utilities.
  - As noted in Chapter 3, Manitoba Hydro faces relatively greater hydrology risks than other major utilities, with the potential for droughts of multi-year duration and with flow variability that is a higher proportion of its expected or average ouput.
  - As shown in Chapter 5, Manitoba Hydro relies on export markets for a significant proportion of its revenue. Much of this revenue is associated with opportunity energy, which is energy that is available only in years with water flows above their minimum. Because opportunity energy is not "dependable", it cannot be sold under firm long-term contract and hence is more exposed to short-term price volatility in adjacent export markets.
  - As shown in Chapter 5, utility debt and utility assets in Manitoba are relatively high on a per capita basis when compared to other jurisdictions. Manitoba Hydro thus has a relatively limited customer base over which to spread potential future cost overruns or business set-backs.

  These risks suggest that Manitoba Hydro should have financial targets that provide a significant amount of equity cushion.

- Two of the three Financial Targets of Manitoba Hydro are based on financial metrics commonly used by government-owned power utilities – debt or equity ratio to capital, and an interest coverage ratio.
- As shown in the benchmarking analysis in Chapter 5, Manitoba Hydro has been and currently is at the low end of power utilities in terms of key financial metrics, including with respect to equity ratio, interest coverage ratio, and others. At its target level of 25%, Manitoba Hydro's equity ratio is similar

to that of BC Hydro when calculations are done on the same basis. The 25% value is equal to the minimum level envisaged by Hydro-Quebec's corporate targets and equal to the target value for NLH, the regulated entity within Nalcor. On an overall corporate basis, however, both Hydro-Quebec and Nalcor maintain equity ratios that are close to 30%.

- As shown in Chapter 4 and Chapter 5, other Crown utilities are taking active steps to improve their financial risk profile. BC Hydro and NB Power, for example, currently have plans to increase their equity base over the long-term to 40% and 30% respectively. These plans reflect concerns regarding the risks of having lower equity balances.
- Current projections by Manitoba Hydro under its IFF14 show a weakening of its financial position, as measured through the debt/equity ratio. Combined with the strengthening of the financial position of other utilities as noted in the point above, current trends will place Manitoba Hydro in a relatively weaker financial position compared to other Crown utilities in Canada over the next decade.
- A weakening of Manitoba Hydro's relative financial position, as noted above, may put pressure on Manitoba Hydro to improve its own equity base, given that rating agencies and lenders will compare Crown utilities.
- Knowledgeable observers generally agree that Manitoba Hydro should avoid any risk of losing its self-supporting status as determined by the credit rating agencies. Loss of self-supporting status would have very detrimental effects on the Province and the utility. It could lead to credit downgrades and significantly higher interest costs for the both the utility and the Province. At the same time, however, and as discussed in Chapter 6, the exact point at which Manitoba Hydro's self-supporting status would be put at risk is unclear. The need to maintain self-supporting status suggests that appropriate long-term financial targets, and clear plans to achieve these targets, are essential to ensuring the confidence of capital markets over time. Uncertainty with respect to when self-supporting status would be at risk suggests that financial targets should err on the side of caution – in other words, they should provide for more financial cushion than might otherwise be the case.
- As shown in Chapter 7, additional rate increases in the early years of the forecast horizon can result in a significant improvement in Manitoba Hydro's financial metrics in later years. This improvement reflects the benefit of reducing the impact of interest compounding on the additional debt that is required when rate increases are lower.
- Manitoba Hydro has limited ability to restrain a drop in financial ratios during adverse conditions, such as a drought. This highlights the risk of having an equity ratio that approaches 10%. For this reason, we believe that equity ratios of near 15% or higher are the minimum that should be accepted even for short periods.
- Unlike the case of Hydro-Quebec and, in the near term, of BC Hydro, the shareholder of Manitoba Hydro does not expect to receive dividend income. This provides a significant benefit for ratepayers since rates can therefore be set at a lower level than they otherwise would be. However, the absence of dividend payments removes one lever that the utility could use in adjusting its financial position. Since Manitoba Hydro's dividend payments are already zero and cannot be reduced further, they are not available as a potential source of additional cash when circumstances suggest that additional equity would be desirable. In contrast, as summarized in Chapters 4 and 5, the dividend payment formulae for BC Hydro and Hydro-Quebec enable a reduction in dividend payments to the shareholder to ensure maintenance of the utility's debt/equity ratios. As with most other Crown utilities, it is not anticipated that the shareholder of Manitoba Hydro would make direct equity injections.
- Perhaps relatively more than those of other utilities, Manitoba Hydro's capital investment program is characterized by periodic "bumps" or "hills" of large magnitude. These spending patterns magnify the challenges associated with the fact that Manitoba Hydro has a limited number of levers with which to adjust its equity position.
- As shown in Chapter 5, Manitoba Hydro's current electricity rates for its domestic consumers are among the lowest in North America. This is a very important strength in evaluating Manitoba Hydro's

financial position. More so than many other utilities, Manitoba Hydro has an ability to raise rates in the event of financial distress without unduly jeopardizing its service territory's competitive position.

- As noted in Chapter 6 through examples of credit agency reports for government-owned utilities in the U.S., government backing can account for 2-3 notches in credit ratings. Government guarantees are a major factor in enabling government-owned utilities to have lower equity ratios in their capital structure and to have lower financial metrics than averages observed for investor-owned utilities.
- Credit rating agencies also recognize that the nature of hydro-based generation and transmission utilities, with capital-intensive builds and higher operating margins, may allow them higher leverage in their capital structure than power utilities that rely more extensively on conventional generation powered by fossil fuels.
- As expected given the point above, our benchmarking analysis in Chapter 5 shows that Manitoba Hydro has relatively higher operating margins than most utilities and a relatively high EBITDA to revenue ratio. This reflects the dominance of hydro-electric generation within the utility's generating fleet. The challenge is high capital requirements during periods of generating and transmission expansion and renewal.

In light of the considerations identified above, our recommendations are outlined below.

8.2 Key Recommendations

Our overall finding is that the current indicators used by Manitoba Hydro to measure its financial position are appropriate. Thus, it is appropriate to base financial targets on the following:

- An indicator of Manitoba Hydro's debt and equity position, such as the debt/equity ratio.
- An interest coverage ratio.
- A measure of the corporation's ability to cover its sustaining expenditures, such as a capital coverage ratio.

Specific additional findings and recommendations with respect to these indicators are outlined below.

8.2.1 Debt/Equity Ratio

- Manitoba Hydro's current debt/equity target of 75/25 is a reasonable long-term target for financial planning purposes. This finding is based on:
  - Our review of other Canadian and select international government-owned power utilities and, in particular, developments at other Canadian hydroelectric utilities,
  - Credit agency reports and capital markets perspectives, and
  - Scenario analyses.
- Notwithstanding our finding above, we note that an increase in Manitoba Hydro's equity ratio to 30%, implying a debt/equity ratio of 70/30, would provide additional financial strength to address the utility's unique financial challenges and risks.
- For greater certainty, our overall recommendation is that Manitoba Hydro's debt/equity ratio target in the long-term should fall within the range of 75/25 to 70/30.
- Whatever debt/equity target is selected by the Board of Manitoba Hydro, it is very likely that Manitoba Hydro would need to depart from any target during periods of large capital investment or during short-term periods of financial stress, such as may be associated with a drought. Deviations from target are a consequence of the fact that Manitoba Hydro must rely on retained earnings as the sole source of its equity. The utility's ability to adjust its earnings stream in the short-term is necessarily limited by the objective of providing rate stability to consumers. In light of these considerations, some additional recommendations are as follows:

- In advance of a major build-program, such as that associated with the building of large new generation assets, Manitoba Hydro should increase its equity position above the 25% target. This would provide the equity base to support the additional borrowings that will accompany such a program. The need for an increase in equity reflects the fact that earnings during the period of any large build will not be sufficient to keep debt/equity levels stable during the expansion. The inability to keep ratios stable was demonstrated through our analysis of Manitoba Hydro's current plans in Chapter 3 and our scenario analyses in Chapter 7. The extent of additional equity that is appropriate in advance of any major build program will need to be evaluated on a case-by-case basis.

- Manitoba Hydro has recently embarked on a major capital expansion program with a starting debt/equity level of about 76/24. This equity level is below what would be implied by the prior recommendation above. Given its current position, Manitoba Hydro will necessarily fall well below the equity ratio target of 25% during the upcoming build period. Current financial projections provided as per IFF14 call for Manitoba Hydro's equity ratio to fall to 11% by 2025 on a consolidated basis (10% for electric).

- We have significant concerns that an 11% equity level, even for just a short period, provides a less than desirable equity base to accommodate potential adverse developments. Our concerns are based on our scenario analysis in Chapter 7 as well as the precedents provided by other Crown utilities, summarized in Chapter 5. We suggest that Manitoba Hydro's plans be adjusted to provide that equity ratios of near 15% be maintained under forecast conditions.

- In the longer term, it would be desirable if decreases in the equity ratio as a result of major capital expansion were limited to 5 to 10 percentage points from the target level of 25% to 30% in advance of planned major capital expansions.

- It is reasonable for Manitoba Hydro to reduce its equity position during unanticipated periods of financial stress, as may result from drought. A corollary to this, however, is that increases in the equity ratio may be observed when results are more favourable than expected, such as during high water-flow years. If increases in the equity ratio are not observed during high water-flow years, this may imply that rates are too low to ensure financial health when water flows are at average levels.
- Increases in the equity ratio will not necessarily increase required electricity rate levels once higher equity ratios have been achieved. This reflects the following:
  - Manitoba Hydro can set rates at a level that provides a return on equity that is lower than would be sought by an investor-owned utility. This is consistent with the current policy framework, summarized in Chapters 3 and 4, in which provincial ownership is used to provide low rates rather than to provide dividend income to the provincial shareholder.

  - A high equity base, even if it is associated with low rates of return on equity, will provide financial flexibility as a result of the fact that the corporation will have additional borrowing capacity. Manitoba Hydro can then draw on this borrowing capacity when it embarks on an expansion program or as a result of other adverse events.

  - Having a larger equity base will reduce the amount of debt and associated debt service costs. If low equity rates of return are sought in parallel, the decrease in leverage does not imply an increase in the achieved cost of capital. This departs from the outcome that would be observed in respect of normal financing decisions by an investor-owned utility.

8.2.2 Interest Coverage Ratio

- A minimum interest coverage ratio remains an appropriate element of financial targets. As was observed with the equity ratio, the current minimum interest rate coverage target will not be met during much of the next decade under IFF14 assumptions, as the corporation's equity ratio declines in

parallel with Manitoba Hydro's capital expansion program. Failure to meet the interest coverage ratio over such a long period is problematic from financial markets' perspective. Our recommendation for increases in the equity level relative to forecast will have a similarly beneficial impact on interest coverage ratios.

- By its nature, an interest coverage ratio will be more votatile than the debt/equity ratio. The former is calculated using results in one period while the latter reflects the cumulative impact of decisions over time. Accordingly:
  - The debt/equity ratio should remain the primary measure of Manitoba Hydro's financial position, although the interest coverage ratio is an important indicator of trends and provides an early warning signal of potential future distress.
  - The interest coverage ratio observed in any period will be impacted by water flows, which may be above or below forecast. Thus, it may be useful to monitor, in addition, a "normalized" interest coverage ratio that estimates the ratio under expected or normal hydrological conditions. However, such a normalized indicator by necessity requires the use of additional assumptions and hence is less transparent.
- While using an interest coverage ratio based on EBIT is a reasonable approach, we recommend instead that Manitoba Hydro use an interest coverage ratio based on EBITDA. This recommendation is based on the following considerations:
  - EBITDA is a financial measure that is widely accepted and used in capital markets and by credit rating agencies for financial statement analysis, credit assessments, and valuation. It is straightforward to calculate and to benchmark using financial statetements for peer companies.
  - An EBITDA-based metric includes the cash flows associated with the accounting of depreciation and amortization expense in the numerator of the interest coverage calculation. As these cash flows can be used to make interest payments, this indicator uses an approach for calculating coverage that is more cash-flow based than that using EBIT.
  - EBITDA, however, is not an exact measure of cash flow since it does not incorporate capital expenditure requirements or working capital adjustments. Nevertheless, it is closer to a cash-flow metric than EBIT.
  - EBITDA interest coverage ratios should be at a higher level than EBIT-based interest coverage ratios.
  - Based on assessing forecasts under IFF14 and recent historical data, MH's EBITDA interest coverage ratio is approximately 50% higher than the EBIT interest coverage ratio on an average annual basis.
- In consideration of the above points, as a financial target, we recommend a minimum EBITDA interest coverage ratio of 1.8 or greater.
- Regardless of whether Manitoba Hydro choses to use an EBIT- or EBITDA-based measure of interest coverage as a Financial Target, Manitoba Hydro should continue to monitor both measures. The indicator remaining as a second measure would not be treated as one of the three primary targets in the financial planning process but will provide additional information to stakeholders and management.
- Should Manitoba Hydro prefer to stay with its existing debt/equity ratio and interest coverage metric based on EBIT, the current minimum interest coverage target value of 1.2 or greater is reasonable.

8.2.3 Capital Coverage Ratio

- The minimum capital coverage ratio is also an important financial target. The current minimum target of 1.2 or greater is reasonable.
- The capital coverage ratio is calculated as Cash Flow from Operations divided by Base (or sustaining) Capital Expenditures. Base Capital Eexpenditures exclude major new generation and transmission projects. The logic of this ratio is that the corporation should be able to fund its sustaining capital from current operations, without accessing external sources of funding.
- An inherent limitation of the capital coverage ratio is that it does not reflect the financial challenges associated with major expansion programs. Hence it may be misunderstood or misinterpreted by stakeholders. This suggests that clarity with respect to its calculation may be appropriate. We recommend that the calculation of the capital coverage ratio and the specific values of its numerator and denominator be clearly identified in Manitoba Hydro's annual reports and/or financial statements.

8.3 Additional Recommendations

Along with constant monitoring, reporting and forecasting of its three Financial Targets, Manitoba Hydro should continue to regularly monitor, assess and report on other financial metrics as outlined below.

Standard income statement metrics include but are not limited to:

- Revenue growth, domestic and extraprovincial revenues
- Operating costs, with attention to containing controllable operating costs
- EBITDA
- Net income.

In addition to the three Financial Targets, other financial metrics to monitor include but are not limited to:

- EBIT interest coverage ratio
- Cash flow from operations to net debt
- Net debt to assets
- EBITDA to revenues
- EBITDA to assets
- Capital expenditures to fixed assets
- Average electricity prices across different customer groups, continuing with the explicit objective of maintaining its position among the lowest electricity rates in Canada and North America.

Appendices

Appendix A: Financial Information of Government-owned Power Utilities

(source: from audited financial statements)

Manitoba Hydro Financial Information, 2010 to 2014 ($ millions)					
For the year ended March 31	**2014**	**2013**	**2012**	**2011**	**2010**
REVENUES					
Electric - Manitoba	1,405	1,341	1,219	1,218	1,156
Electric - extraprovincial	439	353	363	398	427
Other	70	69	-	-	-
Gas - commodity	252	182	197	261	316
Gas - distribution	163	147	132	143	138
Total Revenues	**2,329**	**2,092**	**1,911**	**2,020**	**2,037**
Cost of gas sold	252	182	197	261	316
	2,077	**1,910**	**1,714**	**1,759**	**1,721**
EXPENSES					
Operating and administrative	557	533	481	463	440
Water rentals and assessments	125	118	119	120	121
Fuel and power purchased	177	133	146	106	104
Capital and other taxes	117	105	103	102	99
Finance expense	471	489	423	425	410
Depreciation and amortization	442	423	381	393	384
Other expenses	36	30	-	-	-
Total Expenses	**1,925**	**1,831**	**1,653**	**1,609**	**1,558**
Net income before non-controlling interest	**152**	**79**	**61**	**150**	**163**
Non-controlling interest	22	13	-	-	-
NET INCOME	**174**	**92**	**61**	**150**	**163**
Interest on debt	654	636	603	573	569
Interest capitalized	(142)	(141)	(170)	(138)	(99)
Other finance expenses / adjustments	(41)	(6)	(10)	(10)	(60)
Finance Expense	**471**	**489**	**423**	**425**	**410**
ASSETS					
Net plant in service	10,684	10,541	8,647	8,215	8,076
Construction in progress	2,943	1,967	3,150	2,739	2,052
Cash and cash equivalents	142	32	50	70	174
Other current assets	601	518	438	492	469
Goodwill and intangible assets	281	276	268	260	253
Regulated assets	360	306	310	309	299
Sinking fund investments	111	352	372	282	822
Other long-term assets & pension assets	517	550	556	515	292
Total Assets	**15,639**	**14,542**	**13,791**	**12,882**	**12,437**
LIABILITIES AND EQUITY					
Long-term debt net of sinking fund investments	10,349	8,977	8,729	8,335	7,406
Current portion of long-term debt	408	656	281	30	310
Other current liabilities	661	500	465	431	418
Sinking fund investments shown as assets	111	352	372	282	822
Other liabilities	844	781	749	666	662
Contributions in aid of construction	381	340	318	295	295
Total Liabilities	**12,754**	**11,606**	**10,914**	**10,039**	**9,913**
Retained earnings	2,716	2,542	2,450	2,389	2,239
Accumulated other comprehensive income	96	299	327	367	285
Non-controlling interest	73	95	100	87	-
Equity	**2,885**	**2,936**	**2,877**	**2,843**	**2,524**
Total Liabilities & Equity	**15,639**	**14,542**	**13,791**	**12,882**	**12,437**
Equity with CIAOC	**3,266**	**3,276**	**3,195**	**3,138**	**2,819**
Net Debt	**10,615**	**9,601**	**8,960**	**8,295**	**7,542**
Cash provided by operating activities	**690**	**589**	**567**	**595**	**589**
Cash provided by financing activities	**1,101**	**635**	**725**	**674**	**1,124**
Cash used for investing activities	**(1,681)**	**(1,242)**	**(1,312)**	**(1,373)**	**(1,698)**
Capex	**1,383**	**1,037**	**1,124**	**1,166**	**1,068**

Manitoba Hydro Financial Information, 2005 to 2009 ($ millions)					
For the year ended March 31	**2009**	**2008**	**2007**	**2006**	**2005**
REVENUES					
Electric - Manitoba	1,161	1,098	1,040	1,001	954
Electric - extraprovincial	623	625	592	827	554
Other	-	-	-	-	-
Gas - commodity	431	386	379	397	384
Gas - distribution	149	141	129	120	125
Total Revenues	**2,364**	**2,250**	**2,140**	**2,345**	**2,017**
Cost of gas sold	431	386	379	397	384
	1,933	**1,864**	**1,761**	**1,948**	**1,633**
EXPENSES					
Operating and administrative	442	391	386	375	363
Water rentals and assessments	123	124	112	131	111
Fuel and power purchased	176	134	226	125	135
Capital and other taxes	87	80	77	77	75
Finance expense	471	440	506	503	502
Depreciation and amortization	368	349	332	322	311
Other expenses	-	-	-	-	-
Total Expenses	**1,667**	**1,518**	**1,639**	**1,533**	**1,497**
Net income before non-controlling interest	**266**	**346**	**122**	**415**	**136**
Non-controlling interest	-	-	-	-	-
NET INCOME	**266**	**346**	**122**	**415**	**136**
Interest on debt	545	587	575	569	561
Interest capitalized	(56)	(51)	(37)	(33)	(31)
Other finance expenses / adjustments	(18)	(96)	(32)	(33)	(28)
Finance Expense	**471**	**440**	**506**	**503**	**502**
ASSETS					
Net plant in service	7,944	7,697	7,500	7,408	7,301
Construction in progress	1,438	1,238	878	602	475
Cash and cash equivalents	159	133	1	119	9
Other current assets	522	552	553	586	499
Goodwill and intangible assets	248	108	108	108	108
Regulated assets	287	-	-	-	-
Sinking fund investments	666	718	630	555	562
Other long-term assets & pension assets	283	1,320	1,252	1,104	998
Total Assets	**11,547**	**11,766**	**10,922**	**10,482**	**9,952**
LIABILITIES AND EQUITY					
Long-term debt net of sinking fund investments	7,002	6,500	6,192	6,496	6,486
Current portion of long-term debt	519	353	405	118	156
Other current liabilities	530	445	591	423	421
Sinking fund investments shown as assets	666	718	630	555	562
Other liabilities	627	1,323	1,399	1,308	1,161
Contributions in aid of construction	296	300	298	297	296
Total Liabilities	**9,640**	**9,639**	**9,515**	**9,197**	**9,082**
Retained earnings	2,076	1,822	1,407	1,285	870
Accumulated other comprehensive income	(169)	305	-	-	-
Non-controlling interest	-	-	-	-	-
Equity	**1,907**	**2,127**	**1,407**	**1,285**	**870**
Total Liabilities & Equity	**11,547**	**11,766**	**10,922**	**10,482**	**9,952**
Equity with CIAOC	**2,203**	**2,427**	**1,705**	**1,582**	**1,166**
Net Debt	**7,362**	**6,720**	**6,596**	**6,495**	**6,633**
Cash provided by operating activities	**688**	**633**	**443**	**710**	**433**
Cash provided by financing activities	**424**	**487**	**227**	**77**	**236**
Cash used for investing activities	**(1,086)**	**(988)**	**(788)**	**(677)**	**(666)**
Capex	**915**	**830**	**645**	**496**	**505**

BC Hydro Financial Information, 2010 to 2014 ($ millions)					
For the year ended March 31	**2014**	**2013**	**2012**	**2011**	**2010**
REVENUES					
Domestic	4,319	4,038	3,748	3,438	3,289
Trade	1,073	860	982	578	739
Total Revenues	**5,392**	**4,898**	**4,730**	**4,016**	**4,028**
EXPENSES					
Cost of energy	1,607	1,291	1,382	924	1,058
Water rentals	361	352	346	305	315
Transmission charges	178	163	148	186	248
Personnel expenses	538	527	521	541	472
Materials and external services	579	606	586	585	605
Grants and taxes	203	196	184	184	178
Finance charges	598	540	499	435	500
Amortization	995	953	793	533	487
Other	28	20	(6)	4	(2)
Capitalized costs	(244)	(259)	(281)	(270)	(280)
Total Expenses	**4,843**	**4,389**	**4,172**	**3,427**	**3,581**
NET INCOME	**549**	**509**	**558**	**589**	**447**
Interest on long-term debt	731	647	612	549	514
Interest capitalized	(106)	(73)	(49)	(52)	(58)
Other finance expenses / adjustments	(27)	(34)	(64)	(62)	44
Finance Charges	**598**	**540**	**499**	**435**	**500**
ASSETS					
Cash and cash equivalents	107	60	12	27	9
Accounts receivable and accrued revenue	1,073	721	595	569	650
Inventories	114	173	142	128	118
Property, plant and equipment	18,525	17,226	15,991	15,211	13,713
Intangible assets	501	438	412	335	282
Regulatory assets	4,928	4,741	4,314	2,436	2,157
Sinking funds	129	112	105	97	96
Other assets	334	311	329	676	964
Total Assets	**25,711**	**23,782**	**21,900**	**19,479**	**17,989**
LIABILITIES AND EQUITY					
Accounts payable and accrued liabilities	1,886	1,544	1,423	1,515	1,101
Current portion of long-term debt	4,087	3,288	2,888	2,793	2,074
Long-term debt	11,610	10,846	10,062	8,851	8,727
Contributions in aid of construction	1,291	1,196	1,106	1,012	970
Other liabilities	2,972	3,408	3,202	2,428	2,443
Total Liabilities	**21,846**	**20,282**	**18,681**	**16,599**	**15,315**
Contributed surplus	60	60	60	60	-
Retained earnings	3,751	3,369	3,075	2,747	2,621
Accumulated other comprehensive income	54	71	84	73	53
Total Equity	**3,865**	**3,500**	**3,219**	**2,880**	**2,674**
Total Liabilities & Equity	**25,711**	**23,782**	**21,900**	**19,479**	**17,989**
Equity with CIAOC	**5,156**	**4,696**	**4,325**	**3,892**	**3,644**
Net Debt	**15,461**	**13,962**	**12,833**	**11,520**	**10,696**
Cash provided by operating activities	**815**	**888**	**816**	**668**	**373**
Cash provided by financing activities	**1,175**	**970**	**779**	**757**	**1,738**
Cash used for investing activities	**(1,943)**	**(1,810)**	**(1,610)**	**(1,407)**	**(2,292)**
Capex	**1,943**	**1,810**	**1,610**	**1,483**	**1,554**

Hydro-Quebec Financial Information, 2010 to 2014 ($ millions)					
For the year ended December 31	**2014**	**2013**	**2012**	**2011**	**2010**
REVENUES					
Electricity sales	13,638	12,878	12,136	12,245	12,019
Other					465
Total Revenues	**13,638**	**12,878**	**12,136**	**12,245**	**12,484**
EXPENSES					
Operations	2,417	2,460	2,364	2,410	2,579
Electricity and fuel purchases	1,915	1,568	1,183	1,154	1,390
Depreciation and amortization	2,518	2,483	2,415	2,603	2,565
Taxes	981	1,000	997	864	909
Finance expenses	2,427	2,429	2,441	2,528	2,526
Total Expenses	**10,258**	**9,940**	**9,400**	**9,559**	**9,969**
Result from discontinued operations		4	(1,876)	(75)	
NET INCOME	**3,380**	**2,942**	**860**	**2,611**	**2,515**
Interest on debt securities	2,593	2,584	2,576	2,662	2,495
Interest capitalized	(314)	(294)	(306)	(300)	(276)
Other finance expenses	148	139	171	166	307
Finance Expenses	**2,427**	**2,429**	**2,441**	**2,528**	**2,526**
ASSETS					
Cash and cash equivalents	1,275	1,695	2,183	1,377	80
Short-term investments (includes sinking fund)	1,664	1,689	609	1,102	1,230
Accounts receivable and other receivables	2,184	2,177	1,911	1,744	1,814
Derivative instruments	507	883	1,052	1,322	889
Regulatory assets	554	9	26	39	30
Materials, fuel and supplies	201	194	178	236	314
Property, plant and equipment	60,713	59,077	57,174	56,901	55,537
Intangible assets	2,278	2,323	2,241	2,187	2,083
Other assets	5,514	5,063	5,134	4,729	3,832
Total Assets	**74,890**	**73,110**	**70,508**	**69,637**	**65,809**
LIABILITIES AND EQUITY					
Borrowings	126	23	19	52	18
Accounts payable and accrued liabilities	2,099	2,229	2,069	2,099	1,987
Dividend payable	2,535	2,207	645	1,958	1,886
Accrued interest	907	890	835	862	909
Current portion of long-term debt	906	1,157	694	1,025	1,933
Long-term debt	43,571	43,067	42,555	40,744	36,439
Other liabilities	3,861	3,890	4,434	3,782	3,783
Perpetual debt	267	253	275	281	288
Total Liabilities	**54,272**	**53,716**	**51,526**	**50,803**	**47,243**
Share capital	4,374	4,374	4,374	4,374	4,374
Retained earnings	16,413	15,568	14,833	14,618	13,965
Accumulated other comprehensive income	(169)	(548)	(225)	(158)	227
Total Equity	**20,618**	**19,394**	**18,982**	**18,834**	**18,566**
Total Liabilities & Equity	**74,890**	**73,110**	**70,508**	**69,637**	**65,809**
Equity	**20,618**	**19,394**	**18,982**	**18,834**	**18,566**
Net Debt	**43,006**	**42,211**	**40,766**	**40,131**	**38,598**
Cash provided by operating activities	**5,623**	**5,017**	**4,768**	**5,161**	**4,639**
Cash provided by financing activities	**(2,187)**	**(127)**	**(639)**	**(185)**	**(1,725)**
Cash used for investing activities	**(3,875)**	**(5,386)**	**(3,321)**	**(3,683)**	**(3,302)**
Capex	**3,680**	**4,055**	**3,673**	**3,508**	**3,916**

Nalcor Energy Financial Information, 2009 to 2013 ($ millions)					
For the year ended December 31	**2013**	**2012**	**2011**	**2010**	**2009**
REVENUES					
Energy sales			700	589	562
Other revenue	785	726	14	31	29
Total Revenues	**785**	**726**	**714**	**620**	**590**
EXPENSES					
Fuels	191	182	155	140	155
Power purchased	63	61	53	44	47
Operating costs	215	207	200	182	171
Net finance expense	73	74	71	105	102
Amortization and depletion	88	79	85	68	55
Other	60	30	21	3	(1)
Total Expenses	**689**	**633**	**585**	**543**	**530**
NET INCOME	**96**	**93**	**129**	**77**	**60**
Interest on long-term debt	95	91	91	92	92
Interest capitalized during construction	(12)	(3)	(2)	(1)	(1)
Other finance income / expenses	(11)	(14)	(18)	15	11
Net Finance Expense	**73**	**74**	**71**	**105**	**102**
ASSETS					
Cash and cash equivalents	94	12	19	45	14
Accounts receivable	150	125	164	94	89
Inventory	75	62	64	63	60
Property, plant and equipment	3,218	2,435	2,110	1,969	1,902
Petroleum and natural gas properties	553	376	304	269	194
Regulatory assets	64	65	66	70	74
Other assets	5,383	372	316	296	299
Total Assets	**9,537**	**3,447**	**3,042**	**2,805**	**2,631**
LIABILITIES AND EQUITY					
Short-term borrowings	41	125	-		
Accounts payable and accrued liabilities	438	198	156	152	125
Current portion of long-term debt	82	8	8	8	38
Current portion of regulatory liabilities	214	169	138	119	90
Long-term debt	6,048	1,126	1,132	1,137	1,142
Other liabilities	380	256	179	124	95
Total Liabilities	**7,204**	**1,882**	**1,612**	**1,539**	**1,489**
Share capital	123	123	123	123	123
Contributed capital	1,142	436	391	374	334
Accumulated other comprehensive income	11	44	46	27	22
Retained earnings	1,059	963	870	742	664
Total Equity	**2,334**	**1,565**	**1,430**	**1,265**	**1,142**
Total Liabilities & Equity	**9,537**	**3,447**	**3,042**	**2,805**	**2,631**
Contributions in aid of construction	46	44	26	121	121
Sinking funds	268	263	247	208	180
Equity with CIAOC	**2,379**	**1,609**	**1,455**	**1,387**	**1,263**
Net Debt	**5,810**	**984**	**874**	**892**	**986**
Cash provided by operating activities	**441**	**300**	**167**	**211**	**212**
Cash provided by financing activities	**5,157**	**204**	**63**	**11**	**(16)**
Cash used for investing activities	**(5,516)**	**(510)**	**(256)**	**(192)**	**(232)**
Capex	**1,010**	**449**	**254**	**196**	**178**

NB Power Financial Information, 2010 to 2014 ($ millions)					
For the year ended March 31	**2014**	**2013**	**2012**	**2011**	**2010**
REVENUES					
Sales of power					
In province	1,328	1,269	1,266	1,246	1,207
Out of province	391	254	225	250	229
Transmission revenue			90	91	91
Other	78	82	65	29	108
Total Revenues	**1,797**	**1,605**	**1,646**	**1,616**	**1,635**
EXPENSES					
Fuel and purchased power	834	807	742	874	887
Operations, maintenance and administration	437	449	409	416	447
Amortization	198	184	217	199	199
Property and other taxes	36	39	40	40	40
Finance charges	136	143	95	114	132
Other	101	(82)	(30)	(94)	47
Total Expenses	**1,742**	**1,540**	**1,473**	**1,549**	**1,752**
NET INCOME	**55**	**65**	**173**	**67**	**(117)**
Interest expense	222	249	201	202	197
Interest capitalized	(53)	(99)	(113)	(97)	(76)
Other finance expenses / adjustments	(33)	(7)	7	9	11
Finance Charges	**136**	**143**	**95**	**114**	**132**
ASSETS					
Cash	3	1	4	10	4
Accounts receivable and prepaid expenses	313	265	278	275	316
Materials, supplies and fuel	211	206	221	252	205
Property, plant and equipment	4,072	4,072	3,909	3,773	3,703
Nuclear decommissioning & used nuclear fuel management funds	611	612	584	497	461
Long-term receivable	17	18	-	-	77
Derivative assets	157	25	-	18	11
Regulatory assets	1,052	1,072	943	728	482
Sinking funds receivable	404	376			
Other assets	23	42	67	79	120
Total Assets	**6,863**	**6,689**	**6,006**	**5,632**	**5,379**
LIABILITIES AND EQUITY					
Short-term indebtedness	858	687	583	483	673
Accounts payable and accruals	236	227	227	199	229
Accrued interest	46	50	37	38	35
Current portion of long-term debt	-	322	481	550	99
Current portion of derivative liabilities	13	60	77	27	118
Debentures	4,567	4,370	3,469	3,417	3,481
Other liabilities	744	696	678	612	570
Total Liabilities	**6,464**	**6,412**	**5,552**	**5,326**	**5,205**
Capital stock			140	140	140
Contributed surplus			187	187	187
Accumulated other comprehensive income	147	95	3	12	(62)
Retained earnings	252	182	124	(33)	(91)
Total Equity	**399**	**277**	**454**	**306**	**174**
Total Liabilities & Equity	**6,863**	**6,689**	**6,006**	**5,632**	**5,379**
Equity	**399**	**277**	**454**	**306**	**174**
Net Debt	**5,018**	**5,002**	**4,529**	**4,440**	**4,249**
Cash provided by operating activities	**223**	**104**	**191**	**1**	**(78)**
Cash provided by financing activities	**(42)**	**185**	**67**	**188**	**326**
Cash used for investing activities	**(179)**	**(294)**	**(264)**	**(183)**	**(250)**
Capex	**182**	**296**	**279**	**238**	**356**

Ontario Power Generation Financial Information, 2009 to 2013 ($ millions)					
For the year ended December 31	**2013**	**2012**	**2011**	**2010**	**2009**
REVENUES					
Revenues	4,863	4,732	4,964	5,367	5,640
Revenue limit rebate					(27)
Total Revenues	**4,863**	**4,732**	**4,964**	**5,367**	**5,613**
Fuel expense	708	755	754	900	991
	4,155	**3,977**	**4,210**	**4,467**	**4,622**
EXPENSES					
Operations, maintenance and administration	2,747	2,648	2,781	2,913	2,882
Depreciation and amortization	963	664	694	688	760
Property and capital taxes	53	47	50	77	86
Net interest expense	86	117	154	176	185
Income tax expense (recovery)	31	67	(27)	(60)	145
Other	140	67	220	24	(59)
Total Expenses	**4,020**	**3,610**	**3,872**	**3,818**	**3,999**
NET INCOME	**135**	**367**	**338**	**649**	**623**
Interest on debt	289	267	258	260	255
Interest capitalized	(127)	(126)	(86)	(76)	(57)
Other finance expenses / adjustments	(76)	(24)	(18)	(8)	(13)
Net Interest Expense	**86**	**117**	**154**	**176**	**185**
ASSETS					
Cash and cash equivalents	562	413	630	280	71
Accounts receivables and prepaid expenses	550	567	526	312	438
Fuel inventory	390	505	655	734	837
Materials and supplies	425	445	462	485	520
Property, plant and equipment	16,738	15,860	14,633	13,555	12,836
Intangible assets	59	52	50	48	52
Nuclear fixed asset removal & nuclear waste management funds	13,471	12,690	11,878	11,246	10,246
Regulatory assets	5,400	6,478	5,017	1,559	1,396
Other assets	496	591	592	1,358	1,188
Total Assets	**38,091**	**37,601**	**34,443**	**29,577**	**27,584**
LIABILITIES AND EQUITY					
Accounts payable and accrued charges	1,026	891	825	762	933
Short-term debt	32	-	60	155	-
Long-term debt due within one year	5	5	403	385	978
Long-term debt	5,620	5,109	4,341	3,843	3,068
Fixed asset removal & nuclear waste management liabilities	16,257	15,522	14,392	12,704	11,859
Other liabilities	6,817	8,170	6,796	3,643	3,265
Total Liabilities	**29,757**	**29,697**	**26,817**	**21,492**	**20,103**
Common shares	5,126	5,126	5,126	5,126	5,126
Retained earnings	3,892	3,757	3,390	3,024	2,375
Accumulated other comprehensive income (loss)	(684)	(979)	(890)	(69)	(24)
Non-controlling interest				4	4
Total Equity	**8,334**	**7,904**	**7,626**	**8,085**	**7,481**
Total Liabilities & Equity	**38,091**	**37,601**	**34,443**	**29,577**	**27,584**
Equity	**8,334**	**7,904**	**7,626**	**8,085**	**7,481**
Net Debt	**5,095**	**4,701**	**4,174**	**4,103**	**3,975**
Cash provided by operating activities	**1,174**	**876**	**1,179**	**817**	**299**
Cash provided by financing activities	**543**	**310**	**320**	**337**	**210**
Cash used for investing activities	**(1,568)**	**(1,403)**	**(1,138)**	**(945)**	**(753)**
Capex	**1,568**	**1,427**	**1,145**	**978**	**752**

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