

MANITOBA) **Order No. 73/15**
)
THE PUBLIC UTILITIES BOARD ACT) **July 24, 2015**

BEFORE: Régis Gosselin, B ès Arts, MBA, CPA, CGA, Chair
Richard Bel, B.A.,M.A.,M.Sc., Member
Hugh Grant, Ph.D., Member
Marilyn Kapitany, B.Sc. (Hon), M.Sc., Member

**FINAL ORDER WITH RESPECT TO MANITOBA HYDRO'S
2014/15 and 2015/16 GENERAL RATE APPLICATION**

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1.0 Executive Summary

By this Order, the Public Utilities Board of Manitoba (Board) approves rates for Manitoba Hydro for the April 1, 2014 to March 31, 2015 fiscal year and also for the April 1, 2015 to March 31, 2016 fiscal year.

The Board approves a total 3.95% increase in Manitoba Hydro consumers' billed rates effective August 1, 2015. This will increase the monthly bill of an average residential customer without electric space heat (using 1,000 kWh per month) by \$3.20 and an average customer with electric space heat (using 2,000 kWh per month) by \$6.11.

However, of the 2015/16 rate increase, only the revenues from a 1.8% rate increase will flow to Manitoba Hydro's general revenues to improve its financial position.

The revenues generated from a 2.15% rate increase are to be placed in the previously established deferral account to mitigate rate increases when the Bipole III Transmission Reliability Project (Bipole III), including the Riel Converter Station, comes into service in 2018/19. Because very significant rate increases will be needed at that time, the Board sees a compelling policy reason to gradually increase rates to avoid rate shock for consumers three years from now.

This Order also finalizes the previously approved interim 2.75% rate increase for Manitoba Hydro's 2014/15 fiscal year. Because this increase was previously granted and is already being collected, there will be no additional impact on ratepayers.

Reasons for the Rate Increases

Manitoba Hydro is making very large capital investments to meet its projected energy and capacity requirements and to replace its aging assets. These investments, which will double Manitoba Hydro's assets and associated costs, will be funded mostly by debt and the remaining balance funded by monies generated from its ongoing operations. Including the refinancing of old debt, Manitoba Hydro projects that it will borrow \$2.4 billion in 2015/16 and approximately \$3 billion annually between 2016/17 to 2018/19.

Manitoba Hydro has advised that its investments will place pressure on its financial strength and will require significantly higher electricity rates to support its increased costs.

The 1.8% portion of the total rate increase will generate additional revenues that will strengthen Manitoba Hydro's finances and support its borrowing plans. The increase is broadly aligned with the anticipated inflation rate.

The funds set aside in the Board-ordered deferral account, including the revenues from the 2.15% portion of the total rate increase, will be used to smooth the significant rate increases that may otherwise be required when the Bipole III Transmission Reliability Project (Bipole III) is completed, mitigating the resulting rate shock. The capital costs of Bipole III have increased by \$1.4 billion (or 44%) in the past year, resulting in a total projected capital cost of \$4.6 billion. The project is currently expected to increase Manitoba Hydro's annual costs by \$384 million in 2020 and will not generate any related offsetting incremental revenues. A rate increase in excess of 20% would be needed to support this annual cost.

Furthermore, Manitoba Hydro has forecasted lower export revenues, largely because of continued lower export prices. Because export revenues are decreasing, domestic rates will need to increase.

Manitoba Hydro announced that successive increases of 3.95% are indicated until 2031. Despite those rate increases, the utility still projects losses from 2019 to 2025 (the total to exceed \$980 million) and deterioration in its financial condition.

While the Conawapa Generating Station is no longer part of Manitoba Hydro's Capital Expenditure Forecast, the combination of higher capital expenditures than initially planned, increased investments in energy efficiency measures and declining export revenues means that significant rate increases will be needed for the next decade.

The Board is extremely concerned about the impact of successive and significant rate increases on ratepayers. However, in setting just and reasonable rates, the Board must balance the interests of ratepayers with the financial health of the utility.

Manitoba Hydro has advised that rate increases in excess of inflation are required into the future. The Board will scrutinize all future requested rate increases and approve rates that are justified by the evidence examined. Because financial projections are highly variable, regular applications and reporting by Manitoba Hydro will allow the Board to be better informed and responsive to changing conditions.

The Board previously advised Manitoba Hydro that it would not consider new rates for April 1, 2016 in the Hearing. Manitoba Hydro is studying the financial targets that are embedded in its integrated financial forecasts. The Board will consider various options regarding a process to review rates for April 1, 2016. The Board does not expect to award any further rate increases until a Cost of Service Study (COSS) Application has been filed and the Board has sufficient time to review the COSS Application.

Bill Affordability

The Board recognizes that higher electricity rates will have an impact on all Manitobans but especially lower income Manitobans. In this Order, Manitoba Hydro is directed to file Terms of Reference for a collaborative process led by Manitoba Hydro to develop a bill affordability program harmonized with Manitoba Hydro's other programs supporting low-income ratepayers. The goal of the process should be to develop a program for implementation within one year from the Board's approval of the Terms of Reference.

The Board continues to support the implementation of Manitoba Hydro's Affordable Energy Program (AEP) which offers assistance to lower income homeowners who are in need of energy efficient upgrades such as insulation. The Board approves the proposed increased budget to the AEP for 2015 and directs Manitoba Hydro to consider additional measures to increase participation rates and to assist all-electric customers, particularly those living in communities without access to natural gas heating options,

and to provide regular reports on the implementation of the Program and any additional measures developed.

The Board recommends to the Consumer Coalition, the Green Action Centre, the Manitoba Métis Federation and Manitoba Keewatinowi Okimakanak that these interveners encourage their eligible members to take advantage of potential savings that can be generated by the AEP along with other energy efficiency measures. The Board is encouraged by Manitoba Hydro's increased efforts to identify customers eligible for the AEP, and believes that these interveners may have additional valuable information to contribute.

Manitoba Hydro's Capital Expenditures

In addition to investing in major new capital projects, such as the Keeyask Generating Station and Bipole III, Manitoba Hydro also intends to increase its investment in base or sustaining capital (i.e., electric service replacements and expansions), and Demand-Side Management (DSM).

Manitoba Hydro is bringing several major new generation and transmission projects, including the two projects discussed above, into service in Manitoba Hydro's fiscal years 2018/19 and 2019/20, respectively. The Keeyask Generating Station was reviewed by the Board at the NFAT Review in 2014, while Bipole III was excluded from that review. Manitoba Hydro advised that Bipole III, which is currently under construction, is intended to increase system reliability and decrease the risk of outages by providing a third transmission line from northern Manitoba to the south.

When these projects enter service, they will increase Manitoba Hydro's revenue requirement, as Manitoba Hydro will need to recover depreciation, finance costs, operations, maintenance, and administration costs (OM&A), and other expenses related to these projects on an annual basis. As Manitoba Hydro's rates are set to recover its revenue requirement, rates would need to increase by the amounts shown in the following table if these projects were considered in isolation. Manitoba Hydro is

indicating that 3.95% annual rate increases may be sought for the next 15 years, a concept known as rate smoothing, instead of large, lump-sum increases when these projects enter service. Manitoba Hydro projects to incur losses beginning in 2018/19 which will temper the need for rate increases in the near term, such that the cumulative rate increase proposed by Manitoba Hydro is 42% by 2024, even though larger rate increases would be required to avoid the projected losses. The rate increases approved by the Board for 2014/15 and 2015/16 reflect a policy decision by the Board to mitigate rate shock to consumers by phasing the rate increases in over time.

The following table illustrates Manitoba Hydro's new revenue requirements attributable to new major projects, starting in 2019:

Revenue Requirement Impacts (\$ Million)

Year Ending March 31	2019	2020	2021	2022
Bipole III Transmission Reliability Project	234	384	382	377
Keeyask Generating Station	28	80	316	462
Manitoba/Minnesota Transmission Project / Great Northern Transmission Line	1	5	85	115
Conawapa Sunk Costs	35	34	34	33
Additional Annual Revenue Required for New Projects	298	503	817	987
Cumulative Indicative-Only Annual Rate Increase Required to Pay New Costs	20%	34%	54%	65%

Sources: Application Appendix 11.15, Exhibit MH-118

Although all of Manitoba Hydro's new major capital projects have been approved by the Province, the Board is very concerned about possible cost escalations associated with these projects. Any future capital cost increases have a direct impact on domestic rates. Over the past year, the projected cost of Bipole III has increased by \$1.4 billion to \$4.6 billion and projected cost of the Great Northern Transmission Line has increased from \$507 million to \$676 million US dollars.

The Board expects Manitoba Hydro to demonstrate cost control efforts with respect to its capital expenditures, including its staffing for these projects. Furthermore, in order to

obtain timely and transparent information on the evolution of Manitoba Hydro's capital projects, the Board directs Manitoba Hydro to file quarterly progress reports on its major capital projects. These reports are to outline the proposed budget (at time of contract), budget changes and the reasons for such changes, and the revised projected in-service costs. Where capital costs have increased materially, Manitoba Hydro is to explain how such increases will impact domestic revenue requirements and projected impacts on Manitoba Hydro's financial forecasts and targets.

Given the significant risks Manitoba Hydro ratepayers are facing during this decade of large capital expenditures, the Board reiterates its recommendation to the Province of Manitoba that the Board should be provided with the statutory jurisdiction to review and approve Manitoba Hydro's major capital projects.

Sustaining capital expenditures address aging utility assets, improve the capacity of the existing system and maintain system reliability. The Board is approving the recovery, through rates, of increased sustaining capital investments during the 2013/14 and 2014/15 fiscal years. However, the Board directs Manitoba Hydro to file terms of reference for a more comprehensive asset condition assessment report before approving the rate impacts from increased sustaining capital spending for future years.

Operating Expenditures

The Board is encouraged by Manitoba Hydro's plans to slow the growth of its operating and maintenance costs to 1% annually, since this is below the expected increase in inflation. The Board directs Manitoba Hydro to provide quarterly reports on its current OM&A expenditures so as to demonstrate that its target is being met.

Accounting Changes

The Board accepts some of the proposed accounting changes, but denies Manitoba Hydro's request to calculate depreciation expense using the Equal Life Group (ELG) method and requires Manitoba Hydro to continue to utilize the existing Average Service

Life (ASL) method for rate-setting until a full comparison study has been filed for the Board's consideration.

Load Forecast, Demand-Side Management and Power Resource Plan

Manitoba Hydro's load forecast predicts reduced load growth in the future, largely as a result of decreases in the projected pipeline load. This further erodes any potential business case for the Conawapa Generating Station and pushes back the need for new post-Keeyask generation for Manitobans to more than 20 years from now.

Demand side management (DSM) is another way to mitigate the impact of rate increases. While the Board recommended to the Government of Manitoba that Manitoba Hydro be divested of its responsibilities for DSM, this recommendation has yet to be implemented and Manitoba Hydro continues to be responsible for DSM. The Board supports plans and the associated expenditures to enhance DSM programs, such as improved codes and standards, and to increase investments in energy efficiency measures by \$0.9 billion over the next 20 years as a means of mitigating the impacts of future rate increases.

DSM reduces the utility's revenues but defers the need for new generation and provides ratepayers with a means to reduce their electricity bills.

The Board is encouraged by Manitoba Hydro's increased DSM efforts but notes that the utility's 2014/15 DSM budget was underspent by approximately \$19 million, while Manitoba Hydro is planning to significantly increase expenditures for 2015/16. As a result, the Board orders Manitoba Hydro to retain the DSM deferral account and place the 2014/15 underspent funds in that account, to be utilized for Board-approved ongoing DSM expenditures.

Special Rates

By this Order, the Board further addresses a number of special rates, namely Light-Emitting Diode rates for Area and Roadway Lighting, the Curtailable Rate Program and the Surplus Energy Program.

2.0 Overview

Previous Rate Increases

In Order 43/13, the Board approved a 3.5% increase in Manitoba Hydro consumers' billed rates effective May 1, 2013. However, the revenues from a 1.5% rate increase were to be placed into a deferral account to mitigate required rate increases when the Bipole III Transmission Reliability Project (Bipole III) and related infrastructure, including the Riel Converter Station, comes into service later this decade. The Board also set Manitoba Hydro's revenue requirement based on Demand-Side Management (DSM) spending of \$24 million for 2012/13 and \$35 million for 2013/14, ordering the discrepancy resulting from any underspend to be placed into a deferral account for disposition at the present General Rate Application (GRA).

In Order 49/14, the Board further approved a 2.75% increase in Manitoba Hydro consumers' billed rates effective May 1, 2014 on an interim basis. However, of this increase, the revenues from a 0.75% rate increase were to be placed into the Bipole III deferral account established in Order 43/13. In Order 49/14, the Board further directed Manitoba Hydro to file a two-year GRA for the 2014/15 and 2015/16 fiscal years.

The Current General Rate Application

On January 16, 2015, Manitoba Hydro filed the current GRA for a three-year period, involving the 2014/15, 2015/16 and 2016/17 fiscal years. In the GRA, Manitoba Hydro sought the following approvals:

- (a) Approval, on an interim basis, of rate schedules incorporating an across-the-board 3.95% rate increase to all components of the rates for all customer classes effective April 1, 2015, sufficient to generate additional revenues of \$57 million in 2015/16;

- (b) Approval of a further 3.95% across-the-board rate increase to all components of the rates for all customer classes effective April 1, 2016, sufficient to generate additional revenues of \$60 million in 2016/17;
- (c) Final approval of Orders 49/14 and 51/14 which approved, on an interim basis, a 2.75% rate increase effective May 1, 2014 applied on an across-the-board basis, and final approval of any other interim rate Orders issued subsequent to the filing of the Application and prior to conclusion of this proceeding;
- (d) Final approval of the Light Emitting Diode (LED) rates for the Area and Roadway Lighting class approved on an interim basis in Order 79/14;
- (e) Approval to implement Time-of-Use Rates for the General Service Large customer class served at greater than 30 kilovolts (“kV”), effective April 1, 2016, including the change in the definition of billing demand to be the highest measured on-peak demand in the month, 50% of contract demand or 50% of the highest on-peak demand in the previous 12 months;
- (f) Confirmation that the Board accepts the rate approval process given proposed modifications to the Terms and Conditions of Option 1 of the Surplus Energy Program (SEP) as outlined in Tab 6 of this Application, that were approved on an interim basis in Order 43/13;
- (g) Confirmation that the Board accepts the rate approval process given proposed modifications to the Curtailable Rate Program (“CRP”), as outlined in Tab 6 of this Application, that were approved on an interim basis in Order 43/13;
- (h) Final approval of all SEP interim ex parte rate Orders as set forth in Tab 10 of this Application, as well as any additional SEP ex parte Orders

issued subsequent to the filing of this Application and prior to the Board's Order in this matter;

- (i) Final approval of CRP ex parte Order 46/14 as well as any additional ex parte Orders in respect of the CRP issued subsequent to the filing of this Application and prior to the Board's Order in this matter;
- (j) Final approval of Orders 116/12 and 117/12 that approved, on an interim basis, a 6.5% rate increase to the full cost portion of the General Service and Government rates in the four remote communities served by diesel generation effective September 1, 2012, and final approval of diesel zone interim Orders 17/04, 46/04, 159/04, 176/06, 1/10, 134/10, 1/11 and 48/11, subject to confirmation that MKO has provided the parties to the agreement with the required affidavits from representatives of signatories to the agreement; and,
- (k) Approval to rescind the Demand-Side Management deferral account established pursuant to Order 43/13 for the 2012/13 and 2013/14 fiscal years and on a go-forward basis.

The Current General Rate Application – Procedural Matters

The Board considered Manitoba Hydro's GRA and, by letter dated January 27, 2015, advised Manitoba Hydro that it would not set rates for 2016/17 at this time and would limit the GRA process to 2014/15 and 2015/16, as per its directive in Order 43/13. In the letter, the Board further indicated that it did not consider interim rates effective April 1, 2015 to be in the public interest and instead would seek to set final rates in the GRA process.

On January 30, 2015, Manitoba Hydro applied to review and vary the Board's decision, as set out in the January 27 Board letter, submitting that a three-year rate approval

would be a more practical and efficient process, and that a lack of new interim rates on April 1, 2015 would result in lost revenues in the amount of \$4 million per month.

In Board Order 17/15, the Board denied Manitoba Hydro's request to review and vary the Board's decision set out in the January 27 Board Letter.

On February 5, 2015, the Board held a Pre-Hearing Conference with prospective interveners at the Board's offices in Winnipeg. Subsequent to the Pre-Hearing Conference, the Board granted Intervener status to the following entities by way of Board Order 18/15:

- The Consumer Coalition, a coalition between The Consumers' Association of Canada (Manitoba) Inc. and Winnipeg Harvest;
- The Green Action Centre;
- The Manitoba Industrial Power Users Group;
- Manitoba Keewatinowi Okimakanak Inc.;
- The Manitoba Métis Federation; and
- The City of Winnipeg.

Two rounds of written Information Requests were directed to Manitoba Hydro, and one round of Information Requests to Interveners. The Board received oral evidence from May 25, 2015 to June 15, 2015, with closing submissions taking place on June 17, 18 and 19, 2015.

3.0 Rate Increases for 2014/15 and 2015/16

Issues

In the current General Rate Application (GRA), Manitoba Hydro requests the 2.75% rate increase, awarded on an interim basis in Orders 49/14 and 51/14 for the 2014/15 fiscal year, to be finalized and an additional 3.95% increase for the 2015/16 year to be approved. The 2.75% rate increase generated \$35 million in additional revenue in fiscal 2014/15 and is projected to generate \$39 million of additional revenue in 2015/16. The proposed 3.95% rate increase for 2015/16 is projected to generate \$57 million of additional revenue in that year.

Combined with the interim 2.75% rate increase granted for 2014/15, Manitoba Hydro is seeking approval to collect an additional \$96 million annually from consumers.

The requested rate increases will raise over \$1 billion for Manitoba Hydro over the next 20-year period.

Operating Results Update

In April 2014, in support of its Interim Application, Manitoba Hydro filed Integrated Financial Forecast IFF13 with the Board. In that forecast, Manitoba Hydro indicated it would have net income of \$116 million for the year ended March 31, 2014. Actual results for that year were \$147 million, or \$31 million better than forecast, due mainly to the effects of the coldest winter in 100 years in Manitoba.

Manitoba Hydro filed IFF14 in support of its application for 2014/15 & 2015/16 rates, which included the interim rate increase of 2.75% granted May 1, 2014. Manitoba Hydro's forecast net income was to be \$55 million for 2014/15 and \$12 million for 2015/16. In IFF14, Manitoba Hydro revised its forecast for 2014/15 to \$102 million, which is a \$48 million improvement, and revised its forecast for 2015/16 to \$115 million, which is a \$103 million improvement from IFF13.

Overall, Manitoba Hydro's recent financial outlook for 2013/14 to 2015/16 has improved by \$182 million as reflected in the following table:

Comparison of Forecast /Actual Net Income IFF14 vs. IFF13 (\$Millions)

Fiscal Year	IFF14	IFF13	Change
2013/14 (Actual to Forecast)	\$147	\$116	\$31
2014/15 (Revised Forecast)	\$102	\$55	\$48
2015/16 (Revised Forecast)	\$115	\$12	\$103
Total Net Income	\$364	\$183	\$182

Manitoba Hydro attributed the improvement largely to favourable water flows, lower financing costs and lower depreciation expense, although this was partially offset by lower than expected export prices.

During the hearing, Manitoba Hydro provided an update of its forecast for 2014/15 indicating that the net income forecast of \$102 million would be lower than forecast by no more than \$10 million. This lower financial result was in part attributed to lower export revenue as well as the renegotiation of the Wuskwatim Power Limited Partnership Agreement, which resulted in an estimated net income reduction to Manitoba Hydro of \$16 million in 2014/15.

Forecast Need for Rate Increases

Manitoba Hydro indicates 3.95% annual rate increases must be implemented for the next decade and a half, even in years with average water flows and projected financial results. According to Manitoba Hydro, the long term rate setting perspective is beneficial to customers. Focusing only on the shorter-term financial outlook will defer required rate increases several years into the future, resulting in larger rate increases in future years and rate instability for ratepayers. Manitoba Hydro stated that confirmation of the interim

rate increase of 2.75% and the approval of a 3.95% rate increase for the 2015/16 fiscal year will start Manitoba Hydro on a sustainable path that will prevent higher rate increases in future years.

Manitoba Hydro maintains that the approval of the proposed rate increases is necessary to maintain net income and financial ratios at acceptable levels and to promote longer term rate stability for customers. Absent approval of the proposed 3.95% rate increase, Manitoba Hydro is projecting net income of \$57 million in 2015/16. Manitoba Hydro indicated that rate increases in line with inflation of 2% would result in Manitoba Hydro earning \$87 million in 2015/16.

Manitoba Hydro attributes the need for rate increases to several factors. One of the factors cited was lower forecast net export revenues. The utility has seen a material decline in export revenue since 2009. Historically, net export revenues have enabled Manitoba Hydro to maintain low electricity rates for Manitobans, with export revenues averaging \$365 million a year between 2005 and 2009. Net export revenues have not been as strong as in previous years and are projected to be \$150 million in 2014/15 and \$181 million in 2015/16. Manitoba Hydro believes that rates need to gradually increase to compensate for this reduction in export revenues.

Another factor cited by Manitoba Hydro for the requested rate increases was the need for additional cash flow to assist in funding major and sustaining capital investments. Manitoba Hydro is entering a period of extensive capital investment to meet growing energy requirements of its export and domestic customers, to replace aging utility assets and address increased capacity constraints on its system.

Manitoba Hydro plans on increasing its base (also referred to as 'sustaining') capital spending, which excludes Major New Generation and Transmission, by about \$100 million annually from previous levels and forecasts. Base capital expenditures typically represent requirements to meet electricity service replacements and expansions throughout the province. The utility spent \$470 million in base capital spending in

2013/14 and plans on increasing its base capital spending to \$571 million in 2014/15 and \$577 million in 2015/16. IFF14 reflects \$12.3 billion in base capital spending over the 20 year forecast.

Manitoba Hydro stated that cash flow is an important consideration for rate-setting purposes and that rates should generate sufficient cash flow to fund its operations, including its sustaining capital expenditures. Manitoba Hydro indicated that it needs rate increases to generate additional cash flow to meet its higher level of sustaining capital spending.

Manitoba Hydro stated that the 3.95% rate increase would not provide sufficient cash flow to fully fund sustaining capital requirements in all years of the forecast. The funding of Manitoba Hydro's forecast sustaining capital from its revenues falls short in six of the next ten years of the forecast. Manitoba Hydro is projecting that it may be required to borrow funds to finance sustaining capital expenditures in these years.

Manitoba Hydro also experienced significant increases in the capital costs of Major Generation and Transmission projects. In the past year, the cost of the Bipole III Transmission Reliability Project (Bipole III) has increased from \$3.2 billion to \$4.6 billion, a \$1.4 billion or 44% increase in the cost estimate previously provided to the Board. Coupled with the current estimated cost of the Keeyask Generating Station of \$6.5 billion, the proposed amortization of \$397 million in Conawapa Generating Station sunk costs, as well as updated costs for the Great Northern Transmission Line to \$675 million, these new major capital projects are contributing to the need for rate increases.

Domestic revenues must increase to cover some of the costs to bring these new major capital projects into service. The 2019/20 additional annual in-service revenue requirement of Bipole III will be \$384 million. The additional 2021/22 annual revenue requirement of a fully in-service Keeyask Generating Station will be \$462 million after deducting the net export revenues.

To support and fund these new capital expenditures, Manitoba Hydro indicated that electricity rates will have to increase by 42% by 2024.

Manitoba Hydro acknowledged that these investments in new capital spending will place pressure on Manitoba Hydro's financial strength. The current IFF14 forecasts operating losses commencing in 2019 and totaling \$980 million over eight years.

The Consumer Coalition (Coalition) submitted that the Board should approve, as final, the 2.75% interim rate increase granted for 2014/15. The Coalition further recommended the Board approve a 2.5% rate increase for 2015/16. The Coalition did not support rate smoothing in principle, suggesting that rate increases should be assessed based on the needs in each year under consideration.

The Coalition did not believe the higher requested rate increase for 2015/16 was supported and that Manitoba Hydro should first demonstrate it has its financial house in order, including demonstrating that its interest rate forecast is accurate.

The Coalition has no confidence in the current financial forecast which it believes embeds a financial cushion. The Coalition also believes that higher rate increases should not be considered until the planning and prioritization of sustaining capital spending is refined. The Coalition expressed concerns with the quality of information used in determining the level of sustaining capital spending. The Coalition also noted Manitoba Hydro's current financial position, which is expected to improve by \$180 million for a three-year period, should assist in affording a lower rate increase while Manitoba Hydro addresses its information shortcomings with respect to sustaining capital.

The Manitoba Industrial Power Users Group (MIPUG) agreed that the 2.75% interim rate increase for 2014/15 should be confirmed as final. MIPUG did not support the 3.95% rate increase sought for 2015/16. MIPUG stated that cash flow is not the normal tool for determining appropriate rate levels. MIPUG noted that Manitoba Hydro could take internal actions to improve its cash flow forecast position, such as pacing and

prioritization of spending on Demand-Side Management (DSM) and sustaining capital, as well as recognizing higher staff vacancy rates than forecast. MIPUG indicated that the pacing and prioritization of capital spending merits attention as a way to reduce rate increase requirements over the next ten years.

MIPUG submitted that DSM spending during the period of investment merits review to avoid adding to operating cash flow issues when export revenues are low and other capital spending is in a 'bulge' period, with a large amount of new hydro generation coming into service.

MIPUG also noted that the cash flow forecast could be further improved if interest rates remain lower than forecast, or if any government relief – from current fixed charges on capital spending or water rentals – was provided during the major investment period.

MIPUG recommended the Board grant a 2015/16 rate increase in the range of 2% to 3% and urged the Board to set requirements for the next GRA, including a meaningful assessment of pacing and prioritization of: capital spending, Operations, Maintenance, & Administration (OM&A) spending, DSM, and how such options could reduce future rate increase requirements below 3.95%.

The Manitoba Métis Federation (MMF) did not support Manitoba Hydro's requested rate increase in light of the MMF's opinion that Hydro has failed to provide adequate mitigation opportunities through DSM initiatives or bill assistance, most notably for the MMF's citizens, many of whom are all-electric customers who heat their homes or businesses using electricity. The MMF submits the Board's jurisdiction and mandate is to set just and reasonable rates for Manitoba Hydro that are in the public interest, which includes consideration of the fiscal health of the utility, as well as the impact of rates on customers. According to the MMF, it is not in the public interest to award the rates sought by Manitoba Hydro in the present GRA without providing the utility with the necessary motivation to ensure it provides vulnerable customers with the required tools to alleviate the burden associated with a long term forecast of rate increases. The MMF

did not offer a recommendation on the alternative level of rate increase, deferring to other interveners.

Manitoba Keewatinowi Okimakanak Inc. (MKO) recommended that there be no increase in rates over the amount of 2% for the next two years. MKO submitted a rate increase of 3.95%, or 5% as alternatively presented by Manitoba Hydro, would be severely prejudicial to MKO ratepayers. The percentage of customers in arrears in MKO First Nations communities ranges from 27% to 80% and having these new rates put into effect immediately is going to result in a majority of the MKO communities not being able to pay their bills. According to MKO, Manitoba Hydro has not proposed any solutions to mitigate the impact of the rate increases.

Board Findings

The Board will approve as final the 2.75% rate increase granted on an interim basis in Order 43/13.

The Board will grant a further rate increase of 1.8% effective August 1, 2015 to improve Manitoba Hydro's financial position. The Board considers this increase to be justified in light of decreased export revenue projections and the revenue requirement created by Manitoba Hydro's newly renegotiated agreement with its First Nations partners in the Wuskwatim Generating Station, the wages and benefit increases by the utility and the impacts of additional planned base capital expenditures. The Board notes that this rate increase broadly aligns with the anticipated inflation rate.

Manitoba Hydro is already ramping up borrowings because it is entering a period of significant investment in its physical installations. The 1.8% rate increase will improve Manitoba Hydro's retained earnings and its financial ratios in the near-term. The Board will expect Manitoba Hydro to manage its operations with this increase in rate revenues.

Bipole III Transmission Reliability Project Deferral Account

The Board notes that Manitoba Hydro is continuing to spend money for the construction of Bipole III, which capital cost estimate has increased from \$3.2 billion to \$4.6 billion.

In Order 43/13, the Board determined that the project will require additional annual revenue requirements of approximately \$300 million when put into service, which yearly amounts will have to be recovered from domestic customers' rates. Based on the updated capital cost estimate, the annual revenue requirement when Bipole III is fully in in-service has now increased to \$384 million.

As part of the last GRA, the Board in Order 43/13 required Manitoba Hydro to establish a deferral account into which the revenues from a 1.5% rate increase were to be accumulated to defray a portion of the rate impacts of the project. In Order 49/14, while approving a 2.75% interim rate for 2014/15, the Board directed that revenues from 0.75% of the 2.75% rate increase granted be accumulated in the deferral account.

The Board notes that along with the annual \$384 million impact of Bipole III starting in 2020, the annual revenue requirement of the Keeyask Generating Station will be approximately \$462 million, net of revenues from export sales, when it is brought fully into service in 2022.

In light of these looming costs, the Board will approve an additional rate increase of 2.15%, the revenues from which are to be directed into the Bipole III deferral account that will be used to meet the rate increase impacts required when Bipole III comes into service. The disposition of the deferral account will be addressed at a future GRA.

When the Board is requested by Manitoba Hydro to review and approve changes to electricity rates, the Board seeks to determine whether the proposed changes in rates are just and reasonable in relation to the public interest. In broad terms, the public interest includes the balancing of the interests of the utility's ratepayers with the financial health of the utility. Included in the many factors that may be considered by the

Board, in reaching a decision as to new rates, are the policy considerations that the Board considers relevant to the matter.

The following table shows the revenue requirements when Manitoba Hydro's major capital projects come into service and the cumulative indicative only rate increases required at that time:

Revenue Requirement Impacts (\$ Million)

Year Ending March 31	2019	2020	2021	2022
Bipole III Transmission Reliability Project	234	384	382	377
Keeyask Generating Station	28	80	316	462
Manitoba/Minnesota Transmission Project - /Great Northern Transmission Line	1	5	85	115
Conawapa Sunk Costs	35	34	34	33
Additional Annual Revenue Required for New Projects	298	503	817	987
Cumulative Indicative Only Annual Rate Increase Required to Pay New Costs	20%	34%	54%	65%

Sources: Application Appendix 11.15, Exhibit MH-118

The Board has determined that there is a compelling policy interest to phase in the required rate increases over a number of years in advance of the in-service dates of the new major capital projects and avoid rate shock for consumers. If the Board waited until the new capital projects come into service before raising consumer rates, the rate increases would have to be substantially higher. For example, compared to current rates, when the revenue requirement impacts of Bipole III fully materialize in 2020, a rate increase of 25% would be required to pay the additional \$384 million of annual Operating Statement costs.

The Board accordingly directs that the annual revenues from a 2.15% rate increase (of the total 3.95% rate increase) should also be designated to flow into the Bipole III deferral account to assist in the payment of future in-service costs.

The Board will consider various options regarding a process to review rates for April 1, 2016. The Board does not expect to award any further rate increases until a Cost for Service Study (COSS) Application has been filed and the Board has sufficient time to review the application.

4.0 Bill Affordability

Issues

In light of above-inflation rate increases projected by Manitoba Hydro for the next 17 years, the affordability of electricity bills to lower-income ratepayers will become an ever greater concern. Manitoba Hydro is currently offering ratepayers some relief through its Demand-Side Management (DSM) programs, including the Affordable Energy Program (AEP) (both of which are discussed in Chapter 10.0), but it is prudent to recognize that bill affordability will become a more pressing issue in the years to come and that some additional measures may be required.

Manitoba Hydro's current targeted bill affordability programs include emergency bill assistance through the Neighbours Helping Neighbours program administered by the Salvation Army as well as deferred payment arrangements for customers in arrears. Green Action Centre's (GAC) witness noted that Manitoba Hydro's deferred payment arrangements fail 50% of the time, indicating that this is not a suitable response to bill affordability. In GAC's view, Manitoba Hydro has not investigated non-payment of bills resulting from affordability problems.

GAC recommended that the Board direct the establishment of a collaborative process that would address bill affordability for lower income ratepayers. GAC's witness explained several different bill affordability models are used throughout North America, but did not recommend a particular model for Manitoba. Those different models include capping a customer's bill, providing a fixed credit on the bill, a fixed credit percentage on the bill, or a tiered rate discount, all based on household income. Additional models include a uniform rate discount for all customers or an inclining block (inverted) rate. According to GAC's witness, with a bill affordability program, Manitoba Hydro can expect to receive a greater percentage of bills paid in full, overall greater recovery of billed amounts, and improved cost effectiveness of its collections activities.

GAC submitted that the Board has the jurisdiction to require Manitoba Hydro to implement a bill affordability program and cited the case of *Advocacy Centre for Tenants-Ontario v. Ontario Energy Board* (2008), O.J. No.1970 in support of its proposition.

The collaborative process as proposed by GAC would be directed by the Board with stakeholders including Manitoba Hydro. GAC's expectation is that the collaborative process will not result in a consensus among all stakeholders. Where there is disagreement, GAC expects the Board to adjudicate and direct the implementation of a program to address bill affordability. GAC recommended that conservation rates, otherwise known as inverted rates, should be considered in the collaborative process. Conservation rates are proposed to be implemented in 2018/19 by Manitoba Hydro as part of its Power Smart Plan.

The Manitoba Metis Federation (MMF) stated that Manitoba Hydro's current bill assistance programs are inadequate and recommended elimination of late payment charges on accounts in arrears, or, alternatively, reduce the interest rate from 16% to the equivalent interest rate charged by Manitoba Hydro for its Pay-As-You-Save program. Manitoba Keewatinowi Okimakanak Inc. (MKO) recommended that all current arrears be alleviated by a combination of long term repayment terms and write-offs of interest on past due accounts. MMF and MKO supported GAC's collaborative process. Manitoba Keewatinowi Okimakanak MKO asserted that it needs to be involved in the collaborative process because of the unique needs of lower income First Nations customers.

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Manitoba Hydro submitted that a bill affordability program falls outside of Manitoba Hydro's legislative mandate as set out in *The Manitoba Hydro Act*. According to Manitoba Hydro, the utility is legally required to recover the cost of supplying power pursuant to section 39(1) of that statute and section 43(3) prohibits the use of Manitoba Hydro's funds for purposes of the Government or any government agency. Manitoba Hydro further submitted that the Board does not have the jurisdiction to order it to implement a bill affordability program as the Board's jurisdiction is limited to setting the prices to be charged for the provision of power but does not extend to the setting of social policy. Manitoba Hydro also indicated that in *Dalhousie Legal Aid Service v. Nova Scotia Power Inc.*, 2006 NSCA 74, the Nova Scotia Court of Appeal found that the Nova Scotia Utility and Review Board had no jurisdiction to order a bill affordability program to be implemented. Manitoba Hydro acknowledged that cases in other jurisdictions are not determinative of this Board's jurisdiction to order such a program in Manitoba.

Board Findings:

The Board recognizes that higher electricity rates will have an impact on lower income ratepayers. This is a particular concern with respect to all-electric customers, many of whom live in areas in which natural gas is not available as an alternative heating source.

The Board sees merit in the approach recommended by GAC's witness to start a collaborative process to determine the best options to address affordability issues. However, it is the Board's view that Manitoba Hydro is in a better position to lead such a process than the Board. Manitoba Hydro has expertise with respect to low-income programs, as evidenced by the recent successes in the AEP discussed in Chapter 10.0.

The Board therefore directs Manitoba Hydro to initiate a collaborative process to develop a bill affordability program harmonized with Manitoba Hydro's other programs supporting low-income ratepayers. Manitoba Hydro shall file, for Board approval, Terms of Reference for this process (including proposed facilitators and proposed stakeholder

participants) by October 31, 2015. The Terms of Reference should explain and include items in scope as well as items specifically out of scope. If Terms of Reference cannot be agreed upon between Manitoba Hydro and participating stakeholders, the Board is prepared to receive submissions from the parties and adjudicate the appropriate scoping. The goal of the process should be to develop a program for implementation within one year from the approval of the Terms of Reference.

The Board is prepared to entertain submissions for participant funding to be charged to Manitoba Hydro in appropriate cases and in accordance with the Board's Rules of Practice and Procedure.

Upon completion of the collaborative process the Board will evaluate the options presented and decide on their implementation.

The Board has been asked to consider establishing a bill assistance program before, notably in Order 116/08, in which the Board required Manitoba Hydro to propose such a program for approval. In Order 116/08, the Board concluded that it has jurisdiction to order the implementation of a bill affordability program. This remains the Board's view. However, the Board notes that at this time, it is not ordering such a program to be established and the collaborative process should not be limited to the consideration of special lower income rates. From a policy perspective, there may well be better solutions that have not been proposed to date. Furthermore, the optimal solution may well involve a portfolio of measures rather than a single measure. However, the idea of lower income rates should not be discarded upfront due to jurisdictional concerns.

The Board interprets section 39(1) of *The Manitoba Hydro Act* to require the aggregate price of power realized by Manitoba Hydro to be such as to achieve full cost recovery, subject to the requirement that such rates must be just and reasonable. This is illustrated by several examples:

- The power from historical generating stations is currently being sold for significantly more than the actual cost to generate, while power from new

generating stations is sold for significantly less than the cost to generate. Rates are set based on Manitoba Hydro's aggregate revenue requirement, not the cost attributable to individual stations.

- While Manitoba Hydro exports some power (primarily firm power) at prices higher than the average cost to generate, it also sells opportunity power for less than the average cost to generate, attributing no fixed costs to such power.
- Certain classes of customers, such as existing Curtailable Rate Program customers, achieve benefits not available to other customer classes or customers in the same class.

The Board does not read the legislative requirement for "postage stamp" rates to prohibit the creation of a lower income customer class, provided that no geographic limitations are imposed on such a class. Similarly, while subsection 43(3) prevents the commingling of government funds with Manitoba Hydro funds, it does not prohibit the creation of a rate class that pays less than the average cost to serve such customers.

The Board notes that while Manitoba Hydro is regulated on a cost of service basis, section 26(4) of *The Crown Corporations Public Review and Accountability Act* specifically authorizes the Board to consider "any compelling policy considerations that the Board considers relevant to the matter." In that respect, the Board's jurisdiction is similarly broad as that of the Ontario Energy Board pursuant to *The Ontario Energy Board Act, 1998*. Subsection 26(3) of *The Crown Corporations Public Review and Accountability Act* further stipulates that *The Public Utilities Board Act* applies with any necessary changes to the Board's rate-setting mandate. As such, rates are not only required to meet the requirements of subsection 39(1) of *The Manitoba Hydro Act* but must also be "just and reasonable." In the Board's view, affordability is a factor to consider when setting just and reasonable rates.

As such, it is the Board's intention to evaluate any future proposals for bill assistance programs from a comprehensive policy perspective rather than through the lens of

jurisdictional constraints, provided that such proposals fall within the legislative framework set by *The Manitoba Hydro Act*, *The Crown Corporations Public Review and Accountability Act*, and *The Public Utilities Board Act*.

5.0 Operation, Maintenance & Administration Expenses

Issues

Growth in Operating Expenses

Operation, Maintenance & Administration (OM&A) expense is one of Manitoba Hydro's highest expense categories constituting its revenue requirement, most of which relates to labour costs.

From 2011/12 to 2015/16, Manitoba Hydro's total annual electric OM&A cost has grown from \$773.8 million to \$883.3 million. The increase is due to growth in staffing levels driven by the major capital projects as well as accounting policy changes, including the implementation of International Financial Reporting Standards (IFRS). Taking into account the portion of the electric operating costs that are capitalized, OM&A expense has increased from \$412.0 million in 2011/12 to a forecast \$541.7 million in 2015/16.

The actual and forecast OM&A expenses for fiscal years 2011/12 to 2015/16 are as follows:

Operating, Maintenance and Administrative Costs (\$Millions)

Fiscal Year	Actual			IFF14-1	
	2012	2013	2014	2015	2016
Labour and Benefits	\$611.4	\$658.1	\$700.0	\$725.0	\$751.5
Other Expenses	185.1	183.1	188.0	199.8	198.5
Total OM&A	796.5	841.2	888.0	\$924.8	\$950.0
OM&A Charged to Centra	(62.7)	(63.7)	(66.8)	(67.8)	(66.7)
Total Electric Costs	\$733.8	\$777.5	\$821.8	\$857.0	\$883.3
Capitalized Costs	(321.8)	(314.5)	(340.4)	(371.2)	(341.6)
Total OM&A Expense	\$412.0	\$463.0	\$480.7	\$485.8	\$541.7

Manitoba Hydro capitalized \$321.8 million (44%) of OM&A cost in 2011/12 and forecasts to capitalize \$371 million (42%) in 2015/16 and \$341.6 million (41%) in 2015/16. The vast majority of costs capitalized are labour and benefits. Employees involved with capital projects have grown in 2013/14 from 2,204 Equivalent Full Time positions (EFT) with a payroll cost of \$234.5 million to a forecast in 2015/16 of 2,568 EFTs with a payroll cost of \$287.9 million.

Accounting Changes

Since 2007/08, Manitoba Hydro has made changes to its capitalization practice to move away from “full cost” accounting and provide consistency with other Canadian utilities. Manitoba Hydro capitalizes overhead costs directly attributable to capital initiatives and has identified certain previously capitalized costs that it now plans to expense as period costs. Canadian Generally Accepted Accounting Principles (CGAAP) have converged in some areas to be consistent with IFRS. Manitoba Hydro has adopted these changed accounting policies gradually in its transition to IFRS in 2015/16. Manitoba Hydro made system changes in 2012/13, including changes to its cost allocation methodology and overhead rates to support Manitoba Hydro's transition to IFRS. The change in capitalization practice is consistent with CGAAP and is directionally consistent with IFRS.

In total, Manitoba Hydro indicated at the last General Rate Application (GRA) that \$93 million in overhead costs would be expensed. However, in this GRA, Manitoba Hydro proposed that \$118 million in overhead costs be expensed when IFRS is implemented in 2015/16.

Manitoba Hydro will adopt interim standard IFRS 14 Regulatory Deferral Accounts upon transition to IFRS. This interim standard allows Manitoba Hydro to continue to recognize rate regulated assets and liabilities. Manitoba Hydro's forecast assumes that regulatory deferral accounts will continue to be recognized throughout the 20-year forecast period.

The International Accounting Standards Board (IASB) is continuing its comprehensive rate-regulated activities project, which could result in a standard on rate regulation or decision not to develop specific requirements. By issuing IFRS 14, the IASB has indicated it is not anticipating the outcome of the comprehensive project.

The Manitoba Industrial Power Users Group (MIPUG) recommended the Board reject Manitoba Hydro's proposal and maintain, for rate-setting purposes, capitalization policies consistent with those in place prior to IFRS. This change is consistent with the longstanding interpretation of fair cost distribution, balancing costs that should be paid today versus those that are capitalized and paid over the life of the new capital plant. The Board, by clarifying this requirement, will provide Manitoba Hydro options on how to reflect the decision in its IFRS-compliant financial statements.

Staffing Levels

Almost 79% of OM&A costs relate to labour costs, including employee benefits. Wages and salaries have increased by an average of 4% per year, primarily as a result of contract settlements with bargaining units and an increase in total Equivalent Full-Time positions (EFTs). Staffing levels are projected to grow from 5,769 EFTs in 2004 to 6,902 EFTs in 2015/16, an increase of over 1,100 EFTs. Manitoba Hydro attributed the increase in EFTs to growth in its capital program, including new generation and transmission projects such as Bipole III, the Keeyask Generating Station and the Pointe du Bois Generating Station spillway.

Cost Containment Measures

Manitoba Hydro committed to containing the growth of OM&A expenses to one percent, excluding the impact of accounting changes. Manitoba Hydro completed a review of staffing and operational efficiency to meet customer needs in the most cost effective and efficient manner. As part of the process, the utility committed, within the next three years (2014/15 through 2016/17), to reduce its full time staff complement by at least 331 positions through attrition and process efficiencies as follows:

Planned Position Reductions:

	2014/15	2015/16	2016/17	Cumulative
President & CEO	2	2	2	6
General Counsel & Corporate Secretary	1	1	1	3
Human Resources & Corporate Services	33	27	21	81
Corporate Relations	3	2	1	6
Finance & Regulatory	4	3	3	10
Generation Operations	9	12	6	28
Major Capital Projects	1	1	0	2
Transmission	30	18	42	90
Customer Service & Distribution	46	19	13	78
Customer Care & Energy Conservation	16	6	5	27
Annual Commitment	<u>146</u>	<u>91</u>	<u>94</u>	<u>331</u>
Forecast Cost Savings:				
Annual Savings (\$M)	\$ 7.3	\$ 12.3	\$ 10.0	\$ 5.1
Cumulative Annual Savings (\$M)	7.3	19.3	29.7	35.8

Manitoba Hydro reported that for 2014/15, it exceeded its targeted position reductions by 80 positions for that year. Manitoba Hydro had forecast 146 operational position reductions in that year and attained 226 position reductions, which represents an additional \$8 million in OM&A expense savings.

Further, Manitoba Hydro set a target to limit operating cost increases to 1% per year over the ten-year period, excluding the impacts of accounting changes. To accomplish this 1% target, the utility has identified the need for an additional 600 position reductions by 2022/23.

The Coalition acknowledged Manitoba Hydro's efforts related to cost containment to manage operating costs but is not satisfied with capital cost containment efforts related to capital spending.

First Nation Partnerships

Manitoba Hydro currently incurs ongoing expenditures related to its First Nations partnership arrangement with the Wuskwatim Power Limited Partnership (WPLP). The WPLP Operating Statement indicates allocated revenues of \$100 million to \$150 million per year out to 2034/35.

Manitoba Hydro amended the contractual arrangement with WPLP and filed finalized documentation during the hearing. Overall, the amendments reduce net income to Manitoba Hydro by \$16 million for each of 2014/15 and 2015/16, as well as \$15 million on average annually thereafter.

When the Keeyask Generating Station comes into service, contractual arrangements with the Keeyask Hydropower Limited Partnership will also have a revenue requirement impact on Manitoba Hydro. The contractual arrangements have not been finalized.

Board Findings

At the last General Rate Application (GRA), the Board agreed that the accounting changes were appropriate for 2012/13 and 2013/14 and that no further accounting changes be made for rate-setting purposes until the Board had reviewed an IFRS status update. The Board understood that with the adoption of IFRS, additional overhead costs of \$36 million per year would be no longer capitalized. The quantum of those costs has increased materially in Manitoba Hydro's Status IFRS Status Update, by \$20 million per year.

The Board understands that Manitoba Hydro has made changes in 2012/13 to its integrated cost allocation methodology and overhead rates in its compliance with IFRS. The increases in overhead costs have been primarily attributed to changes in capital activity and overhead allocations. The Board will not accept the higher level of OM&A costs requested in this application but will allow \$36 million of additional costs be

expensed for 2015/16 as indicated at the last GRA. The remaining administrative costs will continue to be capitalized as per existing practices.

6.0 Depreciation and Amortization

Issues

Overview

Depreciation Expense is Manitoba Hydro's third-highest expense category and is scheduled to almost double by 2033/34 as a result of both new major generation and transmission assets and planned sustaining capital expenditures. Depreciation Expense was \$410 million in 2013/14 and is forecast to be \$404.5 million in 2014/15 and \$401 million in 2015/16.

Depreciation Expense is forecast to grow to \$873 million by 2033/34.

Proposed Changes to the Calculation of Depreciation Expense

Depreciation Expense is recognized on a straight-line basis over the estimated remaining service life of assets, based upon depreciation studies conducted periodically by the utility. Manitoba Hydro engaged Gannett Fleming Inc. to prepare an updated depreciation study of assets in service as of March 31, 2014. The depreciation study and recommended depreciation rates replace the rates that have been in effect since April 1, 2011 based on a depreciation study of assets in service as of 2010 which was presented at Manitoba Hydro's 2012/13 & 2013/14 General Rate Application (GRA).

Gannett Fleming provided updated service lives for several asset classes as well as rates for new asset classes. The study resulted in changes that extended the average service lives of certain plant components, such as substation transformers, whose service lives were extended from 35 years to 50 years based on updated historical experience. The changes in expected service lives resulted in a reduction of depreciation expense of \$25 million in 2014/15 and \$29 million in 2015/16 compared to the methodology from the 2010 depreciation study.

Gannett Fleming also developed new rates reflecting two changes in the depreciation methodology effective April 1, 2015, namely:

- Switching from the Average Service Life (ASL) methodology of group depreciation to the Equal Life Group (ELG) procedure; and
- Removing the pre-collection of net salvage costs from depreciation. To date, Manitoba Hydro has added 10 percent to the up-front cost of capital assets to recover the eventual cost of decommissioning.

The combined annual financial impacts of the proposed changes to the calculation of depreciation expense during 2014/15 and 2015/16 are as follows:

Revenue Requirement Impacts of Depreciation Study Changes

(\$ millions)	Years Subject to this GRA IFF14-1		Outlook IFF14-1	
	2015	2016	2024	20 Year Total
Fiscal Year ended March 31				
Change in service life – Property Plant & Equipment (net of contributions)	(25)	(29)	(42)	(746)
Overhead Ineligible for Capitalization	-	-	(14)	(310)
Change to (ELG) Procedure	-	36	69	1,238
Removal of Asset Retirement Costs (Net Salvage)	-	(60)	(119)	(2,141)
Net Impact	(\$25)	(\$53)	(106)	(\$1,959)

Manitoba Hydro recommended that the Board should consider the combined overall impact of the collective depreciation changes for rate-setting purposes under the regulatory principle of fairness, rather than concentrating on any individual changes. According to Manitoba Hydro, the overall impact of the changes is to reduce Depreciation Expense and the associated revenue requirement.

Equal Life Group vs. Average Service Life

To date, Manitoba Hydro has used the ASL methodology of calculating Depreciation Expense. Gannett Fleming testified on behalf of Manitoba Hydro to recommend a switch to the ELG procedure. While the ASL methodology groups assets by type of asset and then depreciates the assets in the group according to their average service lives, ELG groups assets according to their lifespan, not the type of asset. According to Gannett Fleming, the ELG approach more closely tracks the actual depletion of the underlying assets. In Canada, both methods are in use by utilities.

Both the ELG and ASL methodologies are appropriate under International Financial Reporting Standards (IFRS). However, Gannett Fleming indicated that if ASL were to be utilized, the level of componentization into asset groups would have to be more granular than what is currently being presented. Gannett Fleming was of the opinion this additional componentization would significantly reduce the annual difference in Depreciation Expense between ASL and ELG.

Manitoba Hydro estimated that it would cost approximately \$2.5 million to further componentize its plant assets to the degree required in order to be IFRS compliant using the ASL procedure. Gannett Fleming further submitted that changing to the ELG procedure would comply with the depreciation requirements of IFRS without the need to further componentize to the level of detail that using an ASL method would require.

Manitoba Hydro also noted that in applying the ASL method to an asset group with a wide dispersion in service lives, it can be expected that assets will retire at ages different than the average life used to depreciate the group resulting in gains and losses

upon retirement. IFRS requires that these gains and losses be recognized immediately to net income. Manitoba Hydro submitted that such gains and losses are expected to be much smaller under ELG since this method calculates depreciation with consideration of the different service lives of the assets in a component group.

Manitoba Hydro acknowledged that the existing regulatory practice, whereby asset retirement gains and losses are recorded in the accumulated depreciation account for the retired asset's respective component group and then factored into future depreciation rate changes for the group, may be continued for rate-setting purposes if ordered by the Board pursuant to rate-regulated accounting.

Manitoba Hydro also indicated that if the ASL methodology was retained for rate-setting purposes, IFRS would require Manitoba Hydro to establish a regulatory deferral account and to maintain two separate sets of asset sub-ledgers to capture the differences between depreciation determined for financial reporting and depreciation determined for rate-setting purposes.

Manitoba Hydro initially indicated to the Board that it wanted to switch to ELG in its 2012/13 & 2013/14 GRA. In Order 43/13 the Board stated:

The Board also is concerned that not enough information has been provided to date to assess the true impact on ratepayers of a switch to Equal Life Group. As such, the Board will require Manitoba Hydro to file additional information, including a determination of depreciation rates and schedules based on the Average Service Life methodology, to provide a meaningful comparison between the two approaches. [Order 43/13 pg 18]

The Board will require Manitoba Hydro to provide a comparison, for the next General Rate Application, of the impact on the Integrated Financial Forecast of an Average Service Life methodology (without net salvage) and an Equal Life Group methodology (without net salvage), where each of the accounting methodologies are applied to planned major capital additions in the Integrated Financial Forecast. Given the forecast to increase net plant by over \$21 billion over a 20 year period, it will be important to understand the

implications on ratepayers of using each approach at the next General Rate Application.

The Board further expects Manitoba Hydro to file, as part of its next General Rate Application, additional information to support Manitoba Hydro's view that an Average Service Life methodology compliant with International Financial Reporting Standards requires increased componentization. As part of this information, the Board expects to see evidence as to what level of componentization would be required, and how such level of componentization would increase Manitoba Hydro's costs, if at all. [Order 43/13 pg 18- 19]

...

IT IS THEREFORE ORDERED THAT:

...

8. That Manitoba Hydro file updated depreciation rates and schedules based on an International Financial Reporting Standards-compliant Average Service Life methodology with the next General Rate Application.

9. That Manitoba Hydro file with the Board, with the next General Rate Application, a chart showing a comparison of the impact on its Integrated Financial Forecast (i.e. 'Budget') of asset depreciation pursuant to the Average Service Life methodology (without net salvage) and the Equal Life Group methodology (without net salvage), applying both methodologies to all planned major capital additions.

Instead of preparing a depreciation study based on IFRS-compliant ASL, Manitoba Hydro submitted an extrapolation study prepared by Gannett Fleming, based on a sample of plant accounts representing approximately 20% of Manitoba Hydro's total asset base. The analysis was not based on a random statistical sample but based on plant accounts chosen collaboratively with Manitoba Hydro based on select criteria. A random statistically-based sample was not considered because of the time and effort required to evaluate the level of componentization of the selected accounts on this basis.

Based on the results of the study, Gannett Fleming determined a difference in depreciation expense of \$700,000 on the plant accounts tested. Extrapolating the results of the analysis indicated that an ASL-based IFRS-compliant depreciation methodology would result in a depreciation expense \$3.6 million lower than one based on the ELG procedure.

In cross-examination, it was demonstrated that the extrapolation study was sensitive to changes in assumptions. For example, one of the asset components analyzed was Manitoba Hydro's head office building, which represented less than three percent of Manitoba Hydro's total asset base. Exclusion of this account from the extrapolation analysis increased the difference between ASL and ELG to \$4.4 million. Similarly, while the extrapolation study analysis included the Bipole III Transmission Reliability Project, it focused on synchronous condensers, which represent approximately 15% of the cost of the project, but not the metal transmission towers and conductors, which represent approximately 36%. In cross-examination, Gannett Fleming indicated that using the towers and conductors would increase the difference between ASL and ELG.

Both the Consumer Coalition (Coalition) and the Manitoba Industrial Power Users Group (MIPUG) recommended that the Board not approve Manitoba Hydro's proposal to change to the ELG procedure for rate-setting purposes, but retain the ASL methodology without including any net salvage in depreciation rates.

MIPUG submitted that ASL is appropriate for rate setting and is used by the vast majority of regulated North American utilities, particularly Canadian Crown utilities and hydro-based operations.

MIPUG submitted that the use of ASL benefits the intergenerational perspective and that a Crown-owned, hydro-electric utility, such as Manitoba Hydro, should take a consistent and properly matched long term approach to collection of depreciation which matches the use and usefulness of the assets. This is done by using ASL, which charges the same depreciation rate in each year of the asset's life.

MIPUG further submitted that ELG is not a more precise method of depreciation as the claims of ELG precision are linked to a theoretical construct of ELG that is not used in practice, where the theoretical purity of the method is significantly diluted.

Both the Coalition and MIPUG expressed concern related to the extrapolation analysis. An expert witness on behalf of the Coalition and MIPUG testified that the extrapolation study was not reliable and counterintuitive as ELG with a growing asset base will always lead to a higher depreciation expense. MIPUG submitted that the Board should not attribute any evidentiary weight to the extrapolation study.

Both MIPUG and the Coalition argued that the extrapolation study does not comply with the Directive given in Order 43/13 for an IFRS-compliant ASL study. The Coalition recommended the Board find that Manitoba Hydro has not complied with Board Directive 8 from Order 43/13, in which Manitoba Hydro was to file updated depreciation rates and schedules based on IFRS-compliant ASL methodology. The Coalition also recommended that the Board find that its response to Board Directive 9 is inadequate.

The Coalition recommended that the Board not accept ELG for rate-setting purposes on the grounds that Manitoba Hydro failed to comply with Board Directives 8 and 9. The Coalition further recommended that the Board direct Manitoba Hydro to provide a timeline by which it intends to comply with Directives 8 and 9 and, until then, set Manitoba Hydro's revenue requirement based on the traditional ASL methodology.

Removal of Net Salvage

Gannett Fleming advised that IFRS would no longer permit the inclusion of net salvage in the depreciation rate calculations for financial reporting purposes. Depreciation rates currently include a provision for net salvage, representing the cost of disposal of property, plant, and equipment when it is taken out of service. Under IFRS, the future cost to retire and salvage assets will become a cost of the replacement asset.

Manitoba Hydro plans on removing net salvage from depreciation rates when it implements IFRS in conjunction with its proposed change to the ELG methodology.

Manitoba Hydro indicated that it was a policy decision to not request the Board to allow Manitoba Hydro to establish a regulatory deferral account. Manitoba Hydro suggested that this choice was made to reduce the impact of switching to the ELG methodology of depreciation. Manitoba Hydro indicated the impact of removing net salvage from depreciation rates is to lower Depreciation Expense by approximately \$60 million in 2015/16.

The Coalition supported MIPUG's recommendation that the Board approve Manitoba Hydro's request for the elimination of ongoing accumulation of net salvage charged through depreciation. MIPUG believes net salvage should be removed from annual calculations as a sound regulatory principle, as the assets are expected to be replaced upon retirement with a new generation of assets that benefits from the pre-existence of the original assets.

Book Accumulated Depreciation Surplus

The change in estimated service lives resulted in a book accumulated depreciation surplus of over \$474 million. Book accumulated depreciation surplus is 'over-depreciation' that has resulted from an excess of collected Depreciation Expense on Manitoba Hydro's books. Removing net salvage from the current ASL methodology-based depreciation rates increases the accumulated depreciation surplus to over \$1 billion. If depreciation is calculated based on the ELG methodology and no net salvage, the book accumulated depreciation surplus is reduced to approximately \$603 million. Manitoba Hydro proposes an annual true-up to refund the balance over the remaining life of each asset account. This approach is consistent with the approach followed in prior depreciation studies.

Board Findings

The Board accepts the calculated book accumulated depreciation surplus based on the 2014 Gannett Fleming study.

The Board also accepts Manitoba Hydro's position that net salvage should be removed from depreciation rates as of April 1, 2015, concurrent with Manitoba Hydro's implementation of IFRS. The Board notes that while the inclusion of net salvage creates a cash flow due to eventual asset removal obligations, any such cash flow is not sheltered in any reserve accounts and forms part of the general revenue requirement of Manitoba Hydro instead. The Board heard evidence that energy-generating assets are rarely decommissioned and removed entirely, and are most frequently replaced. In such instances, IFRS requires removal costs for the existing asset to form part of the overall capital cost of the new asset recovered from future ratepayers. In the Board's view, there are no compelling reasons to set up a deferral account to allow for the continued collection of net salvage.

However, the Board, at this time, is not prepared to determine Manitoba Hydro's revenue requirement for rate-setting purposes based on a switch from the ASL methodology to the ELG procedure.

Under either ASL or ELG, Manitoba Hydro is eventually made whole, since by the time an asset is decommissioned, the entire capital cost has been recovered by Manitoba Hydro from ratepayers. However, there is no doubt that over the next twenty years (the timeframe for Manitoba Hydro's integrated financial forecast), a switch to ELG would increase Depreciation Expense in every single year. Furthermore, Manitoba Hydro was unable to advise the Board at which point ratepayers should expect a "crossover point" at which the increased Depreciation Expense recovered in the early years reduces Depreciation Expense in the later years. As such, the Board must assume that during the entirety of the foreseeable 20 year planning horizon, a switch to ELG would increase the amount of Depreciation Expense consumers are expected to fund through their rates.

For purposes of rate-setting, the Board orders Manitoba Hydro to continue to determine Depreciation Expense based on its existing ASL methodology at this time.

This is not to say that the Board is rejecting outright an eventual adoption of ELG. However, to the extent that the choice is between IFRS-compliant ASL and IFRS-compliant ELG, the Board does not currently have sufficient information upon which to make a decision. As shown in the table above, a change in methodology leads to significant long term consumer rate consequences and is a decision which the Board cannot make on an incomplete record.

While the Board considers the extrapolation study filed by Manitoba Hydro to be illustrative, and the Board accepts that additional componentization would reduce the difference between ASL and ELG, the Board does not consider the extrapolation study reliable enough to base a rate-making decision on it. As such, the Board will order Manitoba Hydro to retain the existing ASL methodology for rate-setting purposes until Directives 8 and 9 from Order 43/13 have been complied with and the Board has been provided with an IFRS-compliant depreciation study based on ASL.

Accepting Gannett Fleming's testimony that additional componentization tends to reduce the difference between ASL and ELG, the Board requests that the IFRS-compliant ASL depreciation study, if and when filed by Manitoba Hydro, be based on the minimum level of additional componentization required by IFRS, but avoid optional additional componentization. The study should also demonstrate whether and when there would be a cross-over point at which time Depreciation Expense as calculated using ELG becomes lower than that calculated using ASL. If Manitoba Hydro is able to file such a study in time for the next GRA, as well as comply with Directive 9 from Order 43/13, the Board intends to make a final disposition with respect to the appropriate long term depreciation methodology for rate-setting purposes at the hearing of that Application.

7.0 Finance Expense

Finance expense, which includes the annual interest payments on Manitoba Hydro's debt, is forecast in Integrated Financial Forecast IFF14 to be \$495 million in 2014/15 and \$510 million in 2015/16. After Operating and Administrative expenditures, Finance Expense is the second largest annual expenditure by Manitoba Hydro in 2015/16 and is expected to be the largest component of revenue requirement by 2017/18.

At the last General Rate Application (GRA), Finance Expense was forecast to be over \$1.6 billion in 2028. Given the termination of the \$10.2 billion Conawapa Generating Station and the current historically low interest rates, Finance Expense is now forecast to peak at \$1.3 billion in 2023/24, some \$300 million lower than what was forecast at the last GRA.

Manitoba Hydro capitalizes all interest on capital projects until the project is placed into service, which means the annual interest payments are added to the cost of the capital project and are not recovered from current year revenues. Once the capital project is brought into service, then the previously capitalized interest payments are included in Finance Expense in the annual operating expenses of Manitoba Hydro.

Of its total annual interest costs, Manitoba Hydro is forecasting to capitalize \$146 million (or 23%) in 2014/15 and \$207 million (or 29%) in 2015/16. Manitoba Hydro has capitalized over \$2.1 billion of interest costs as of 2013/14. Based on IFF14, Manitoba Hydro is forecasting to capitalize an additional \$2.2 billion in interest over the next 20 years which will result in \$4.4 billion of capitalized interest.

In the near term, Manitoba Hydro plans on new borrowings, including refinancing of existing debt, totalling \$1.9 billion in 2014/15, \$2.4 billion in 2015/16, and in the order of \$3 billion annually between 2016/17 to 2018/19 to fund its capital program. Long term interest rates in IFF14 were estimated based on a Fall 2014 interest rate forecast.

Manitoba Hydro's long term interest rates were projected to be 4.50% in 2014/15 and 5.10% in 2015/16 (inclusive of the 1% Provincial Debt Guarantee Fee Manitoba Hydro pays to the Province of Manitoba in exchange for guaranteeing Manitoba Hydro's debt).

Manitoba Hydro is forecasting long term interest rates to increase from 5.10% in 2015/16 to 5.50% by 2016/17, to reach 6.2% in 2019/20, and to remain at that level for the remainder of the forecast through 2033/34.

However, Manitoba Hydro provided a January 2015 update to its interest rate forecast. The update indicated that long term rates had fallen by 30 basis points in 2014/15 from 4.50% to 4.20%. The long term interest rate for 2015/16 dropped by 110 basis points to 4.0%. The interest rates over the forecast period have all declined from Manitoba Hydro's forecast level with the forecast long term rate falling by 45 basis points to 5.75%. Manitoba Hydro stated that it had taken advantage of the low interest rates with its new borrowings to the benefit of ratepayers.

Manitoba Hydro provided a further update based on the Spring 2015 Economic Outlook and forecasts received in May and June 2015. These forecasts indicated that rates for 2015/16 had fallen from the January 2015 update by an additional 5 basis points in 2015/16 to 3.95% and by 15 basis points for 2016/17 to 4.40%.

Manitoba Hydro indicated that based on the January 2015 update, Finance Expense in 2015/16 would be lower than initially forecast by \$13 million. The updated forecast also indicated that the long term interest rate beyond 2017/18 increased to be more in line with the rates included in IFF14.

The Consumer Coalition (Coalition) stated that it had little confidence in Manitoba Hydro's interest rate forecasting and that the utility has consistently overestimated short and long term interest rates. The Coalition cited recent new debt issues negotiated by Manitoba Hydro which were at lower rates than what is forecast in the IFF. The Coalition believes that the Finance Expense for 2015/16 and 2016/17 will be lower than that forecast by Manitoba Hydro and that the utility will benefit from some positive

developments due to lower interest rates over the short term. In this current year, the Coalition submitted there is an ability to lock in substantially lower than forecast interest rates, suggesting a reduction of risk for this very substantial year of borrowing, and a significant rate mitigation opportunity.

The Coalition stated that Manitoba Hydro's interest rate forecast has been a source of substantial uncertainty, with a prevailing trend to overestimate interest rates. The Coalition noted anecdotally that this uncertainty is also prevalent with Manitoba Public Insurance and recommended the Board direct a technical conference involving both Manitoba Hydro and Manitoba Public Insurance to address interest rate volatility and forecasting.

The Manitoba Industrial Power Users Group (MIPUG) also noted the lower interest rates as a positive factor for ratepayers, indicating that favourable changes since last Integrated Financial Forecast (IFF) can have large impacts on Manitoba Hydro's forecasts which remove an immediate need for the 3.95% rate increase.

Board Findings

The Board notes that Manitoba Hydro's long term debt is forecast to grow from \$10.8 billion in 2013/14 to peak at over \$24.5 billion by 2028/29. This will lead to Finance Expense that will exceed \$1.3 billion in 2021/22 once the Keeyask Generating Station is in service. The annual Finance Expense to pay the carrying costs of the debt, along with other revenue requirement items, will ultimately be borne by ratepayers when assets are placed into service.

The Board notes that in the near term, there is a benefit of lower interest rates and borrowing costs that is not currently reflected in Manitoba Hydro's financial forecast. Additionally, and since the close of evidence at the GRA, the Board notes that the Bank of Canada has further reduced interest rates. A lower long term trend in interest rates, if sustained, would be to the benefit of ratepayers due to lower borrowing costs.

The Board also notes that Manitoba Hydro remains vulnerable to the risk of rising future interest rates above those currently forecast. There is great uncertainty related to interest rate movements in Manitoba Hydro's forecast. The Board awaits reviewing the risk report Manitoba Hydro commissioned from KPMG (a business consulting firm), which is expected to examine Manitoba Hydro's interest rates, at the next GRA.

The Board will not require a technical conference on interest rate forecasting at this time, as recommended by the Coalition. The Board notes that Manitoba Hydro has implemented Board-recommended changes to its interest rate forecasting methodology and obtains forecasts from a number of external sources. Furthermore, interest rate risk is expected to be examined in the KPMG report, allowing the Board to conduct a more comprehensive review at the next GRA. As such, the Board is of the view that it is premature to start an interest rate forecasting review outside the regular GRA process.

The Board also takes judicial notice that Manitoba Hydro's credit rating was not affected by Moody's recent downgrade of the provincial credit rating.

8.0 Risks and Financial Targets

Issues

As a proxy for its financial strength, Manitoba Hydro has the stated goal of meeting a set of three financial targets:

- To achieve and maintain a minimum debt to equity ratio of 75:25.
- To achieve and maintain an annual gross interest coverage ratio of greater than 1.20, meeting all interest payment obligations from annual operating revenues without having to borrow additional funds to make interest payments; and
- To achieve and maintain a capital coverage ratio of greater than 1.20, funding all base or sustaining capital expenditures from internally generated funds.

In setting its financial targets, Manitoba Hydro recognizes that targets may not be attained during years of major investments in the generation and transmission system. While credit rating agencies are aware that financial targets will not be met during the period of Manitoba Hydro's major capital expansion program, Manitoba Hydro indicated that rate increases were needed so as to demonstrate progress towards attaining the targets over the long term.

Manitoba Hydro advised the Board that it commissioned a risk review study from KPMG (a business consulting firm), which is expected later this year. As part of KPMG's mandate, the firm will review and consider the appropriateness of Manitoba Hydro's financial targets.

Debt-to-Equity Ratio

The debt to equity ratio measures the relationship of long term and short term debt less short term and sinking fund investments to equity (retained earnings including Accumulated Other Comprehensive Income and unamortized customer contributions).

This ratio is used to assess the overall financial risk to Manitoba Hydro by examining the level of debt in relation to the amount of equity held. Historically, Manitoba Hydro's equity has ranged from a low of 5% in 1990 to a high of 25% in 2009 when the utility met its target level several years ahead of schedule.

Manitoba Hydro's capital structure is forecast to weaken to a debt to equity ratio of 90:10 over the period 2022/23 to 2026/27 due to planned capital spending on major projects. Manitoba Hydro stated that it is important that its financial position improve following the investment period as external stakeholders, such as credit rating agencies and lenders, will closely monitor Manitoba Hydro's progression towards its financial targets. Further, the utility indicated that, in its judgment, the projected deterioration in the debt to equity ratio in IFF14 to 90:10, predicated on the requested 3.95% rate increase, is the minimum acceptable financial operating level. Manitoba Hydro indicated that it would be financially vulnerable to drought risk if the ratio dipped any lower.

As previously mentioned, Manitoba Hydro retained KPMG to conduct a review of its financial targets, which is expected to be completed in the fall of 2015. At that time, Manitoba Hydro will consider the recommendations from KPMG's report as well as further internal financial modelling changes and submit the recommendations to the Manitoba Hydro Electric Board for approval for inclusion in the next Integrated Financial Forecast (IFF15). Manitoba Hydro submitted that until the financial target review is complete and the results of the review have been approved by the Manitoba Hydro Electric Board, the current financial targets remain as the key measure of the utility's financial strength and are the appropriate guide for rate-setting purposes.

Manitoba Hydro noted that even with on-going 3.95% annual rate increases, the debt to equity ratio target of 75:25 will not be reached again until 2033/34.

Based on IFF14, long term debt is forecast to be over \$24 billion in 2029 versus \$29 billion forecast in IFF11-2 at the previous General Rate Application (GRA). The lower debt level is due to the suspension of construction of the \$10.2 billion Conawapa G.S.,

offset by increased capital spending of \$1.4 billion on the Bipole III Transmission Reliability Project and approximately \$2 billion of increased sustaining capital spending.

Interest Coverage Ratio

The Interest Coverage Ratio is calculated to measure the degree to which Manitoba Hydro can meet its interest payment obligations from the current year's operating revenues. An interest coverage ratio below 1.0 indicates that Manitoba Hydro may have to finance interest payments with new debt rather than pay them out of revenue from operations. In IFF14, the 1.20 target is not achieved throughout the forecast period with the ratio falling below 1.0 from 2019 to 2026, an extended period during which Manitoba Hydro is forecasting \$900 million in losses.

Manitoba Hydro is considering changing the determination of the interest coverage ratio to include consideration of depreciation and amortization, a non-cash expense. KPMG has recommended that Manitoba Hydro change its interest coverage ratio to be based on earnings before interest, taxes and depreciation and amortization (EBITDA) rather than earnings before interest (EBIT). This change would be consistent with the way credit rating agencies view the interest coverage ratio.

Manitoba Hydro indicated that in the company's 20-year forecast, the lowest interest coverage ratio calculated based on the existing methodology will be 0.85; however, on an EBITDA basis, the ratio would not fall below 1.35. The Manitoba Industrial Power Users Group (MIPUG) noted that, based on the revised formula, even in the worst year of the forecast, Manitoba Hydro has a substantial ability to meet its interest obligations.

Capital Coverage Ratio

The capital coverage ratio measures the ability of internally generated funds from the current period to finance sustaining capital expenditures (excluding major new generation and transmission capital expenditures).

A capital coverage ratio less than 1.0 indicates that Manitoba Hydro must borrow to fund some of its sustaining or base capital requirements. Manitoba Hydro's target capital coverage ratio is set at 1.20. To the extent the ratio exceeds 1.0, it provides internally generated funds that are used by Manitoba Hydro to fund major capital projects. The use of such funds displaces the requirement for additional borrowings that are the primary source of funding major capital projects. Manitoba Hydro has historically funded its sustaining capital spending from internally generated funds.

In 2013/14, the utility spent \$470 million on sustaining capital projects. Manitoba Hydro forecasts increased spending in the order of an additional \$100 million annually over the next ten years and specifically \$571 million in 2014/15 and \$577 million in 2015/16. As a result of the increased level of spending, the utility is forecasting capital coverage ratios below 1.0 in six years of the 10-year forecast, which indicates that the utility will not generate sufficient revenues to fund its sustaining capital expenditures and must borrow in order to renew or replace existing infrastructure.

Risk Factors Identified by Manitoba Hydro

Manitoba Hydro's risk analysis was largely focused on three risk areas:

- Drought Risk, which reflects a five-year drought starting in 2016/17 that reduces net revenues by a total of \$1.7 billion or a seven-year drought starting in 2016/17 that reduces net revenues by a total of \$2.3 billion. Manitoba Hydro also indicated that a 15-year low-water scenario (e.g. 1929/30 to 1943/44) starting in 2016/17 would reduce net revenues by \$4 billion.
- Infrastructure Failure Risk, wherein Manitoba Hydro has flagged an "unspecified" major facility failure outage resulting in a revenue reduction of \$2 billion or more. Manitoba Hydro did not provide a specific project scenario that supports this value.

- Loss of Export Market Access, wherein Manitoba Hydro suggested that 30% of total revenues are at “risk”. It is unclear whether this risk relates to current contract sales, future contract sales, or all export sales. Manitoba Hydro estimates that a loss of export market access could result in a revenue reduction of \$200-300 million per year.

Another risk currently facing Manitoba Hydro is the pending finalization of the utility's Lake Winnipeg Regulation licence by the Clean Environment Commission. Manitoba Hydro indicated that if the Clean Environment Commission was to reduce the upper licence limit for Lake Winnipeg water levels from 715 feet to 714 feet, it could reduce Manitoba Hydro's retained earnings by \$172 million by 2022.

Only MIPUG took issue with Manitoba Hydro's evaluation of drought risk, suggesting that Manitoba Hydro's use of 100 years of flow scenarios input to the SPLASH Model already account for the financial impact of historical droughts. MIPUG suggested a reduced level of retained earnings be employed and that the rate increases during the drought would avoid depletion of the retained earnings reserve.

Drought Reserves

Manitoba Hydro indicated that its current retained earnings are \$2.7 billion and are forecast to fall to \$2 billion by 2024. According to the utility, this level of retained earnings is just sufficient to absorb the \$1.7 billion impact of a five-year drought. Historically, Manitoba Hydro has experienced drought situations in approximately 25 of the last 100 years.

The Board previously expressed concern with respect to the level of reserves to meet drought and other risks and stated as follows in Order 43/13:

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

sees a need to further examine and quantify the other risks that Manitoba Hydro faces at the next General Rate Application and determine whether these should be subject to separate reserve provisions. The Board will require Manitoba Hydro to provide an analysis of risks on a quantitative and probabilistic basis at the next General Rate Application. [Order 43/13]

Manitoba Hydro did not provide this analysis at this application, but requested KPMG to provide this analysis in conjunction with the review of Manitoba Hydro's financial targets.

MIPUG submitted that Manitoba Hydro's focus on keeping its equity at \$1.7 billion or higher is misplaced, as the level is arbitrary in light of the current review of financial targets being undertaken by KPMG. MIPUG further suggested that the forecast level of retained earnings is also not reasonable in light of the current investment spending and the utility's historical track record of having an equity level of less than 10 percent for extended periods of time. According to MIPUG, the existing retained earnings level exceeds the estimated cost of a five-year drought throughout a period of intense capital spending pressures, providing an exceptional level of financial protection for Manitoba Hydro.

Board Findings

The Board notes that Manitoba Hydro's financial targets are not going to be fully achieved over the next 10 years of the 20-year forecast. The Board reiterates its concern expressed in Order 43/13 of the forecast deterioration in the utility's financial measures and notes that the current outlook contemplates a further deterioration from what was presented to the Board at the last GRA.

The Board recognizes that Manitoba Hydro's near-term drought risks are adequately reflected in the 5-year and 7-year drought net revenue reductions. However, it is questionable whether a retained earnings level of \$2.5 billion is sufficient to also cover the loss of major infrastructure or loss of export market access. These additional risk consequences can be concurrent with low water or drought events. However, the

financial impacts of a temporary loss of infrastructure will be reduced when the Bipole III Transmission Reliability Project and Keeyask Generating Station come into service later this decade.

To the Board, it seems likely that the pending U.S. Environmental Protection Agency's Clean Energy Rule and the Clean Environment Commission's Lake Winnipeg Regulation licence constraints will be resolved within the next four to five years. At this time, the Board cannot anticipate whether they will impact Manitoba Hydro's financial position positively or negatively.

The Board reiterates its concern raised in Order 43/13 that the move towards a 90:10 debt-to-equity ratio by the end of the decade may not provide sufficient retained earnings reserves to deal with droughts and other risks faced by the utility. The Board's ruling in this Order should not be taken as a tacit acceptance of a 90:10 scenario. However, in light of KPMG currently examining Manitoba Hydro's risk and being scheduled to provide a comprehensive report later this year, the Board considers it premature to stray from Manitoba Hydro's existing plan. The Board notes that in setting rates, it has balanced consumer rates with improving Manitoba Hydro's financial strength and meeting the utility's internally established financial targets, including the 75:25 debt to equity target. In its Needs for and Alternatives To (NFAT) report, the Board supported a relaxation of Manitoba Hydro's 75:25 debt-to-equity ratio to moderate proposed rate increases.

The Board looks forward to reviewing the KPMG report, which will analyse the adequacy of reserves on a quantitative and qualitative probabilistic risk basis. Among other things, the Board expects this report will examine the Board's NFAT recommendation. The Board will reserve judgment on this very important issue until it has an opportunity to review the KPMG report with a fulsome public review of this issue at the next GRA.

9.0 Capital Expenditures

Issues

Major New Generation and Transmission

Manitoba Hydro is currently in the midst of an unprecedented capital investment campaign. After the Needs For and Alternatives To (NFAT) Review of Manitoba Hydro's Preferred Development Plan in 2014, the Board recommended that spending on the Conawapa Generating Station be discontinued. The Province of Manitoba adopted that recommendation, but allowed technical environmental studies and analyses required to preserve knowledge gained through extensive fieldwork and Aboriginal Traditional Knowledge (ATK) studies to continue. Manitoba Hydro also continues to invest in the Bipole III Reliability Project (Bipole III) as well as the Keeyask Generating Station.

Manitoba Hydro's IFF14 forecasts \$25 billion of capital spending over the next 20 years, \$12.6 billion of which relates to major new generation and transmission. \$3.8 billion of electric assets are projected to be placed into service by 2017 and \$20.1 billion between 2015 and 2024. In the medium term, it is this investment in new assets that drives the requirement for rate increases and higher revenue requirements over the next 20 years. The projects have been approved by the Province of Manitoba and received the requisite environmental licences.

By 2021/22, the annual in-service costs for the Major New Generation and Transmission projects will be \$1.14 billion, consisting of revenue requirements for the Wuskwatim Generating Station, Bipole III, the Riel Converter Station, the Manitoba-Minnesota Transmission Project, Great Northern Transmission Line, the Keeyask Generating Station, and the write-off of expenditures with respect to the Conawapa Generating Station.

The Impact of Successive Cost Escalations

The impact of the various projects on Manitoba Hydro's revenue requirement is amplified by increases in the projected cost of those projects over successive capital expenditure forecasts. The following table illustrates how the projected capital costs have increased over the past eight years.

Progression of Capital Cost Estimates

(\$ millions)	Capital Expenditure Forecast Year (CEF)								
	CEF6	CEF7	CEF8	CEF9	CEF10	CEF11-2	CEF12	CEF13	CEF14
Wuskwatim G.S.	1,094	1,275	1,275	1,275	1,275	1,375	1,449	1,449	1,449
Wuskwatim Transmission	257	320	316	316	291	298	323	320	320
Wuskwatim Total Project	1,351	1,595	1,591	1,591	1,566	1673	1,771	1,768	1768
Herblet Lake Transmission	54	95	93	93	75	75	77	76	76
Bipole III Transmission Line	1,880	2,248	2,248	2,248	3,280	3,280	3,280	3,280	4,653
Riel C.S.	103	105	268	268	268	268	268	330	330
Kelsey G.S.	166	184	190	190	302	302	302	302	340
Kettle G.S.	61	61	76	76	166	166	166	166	192
Pointe du Bois Spillway	-	-	-	318	398	398	560	560	575
Pointe du Bois Trans.	-	83	86	86	86	86	86	114	114
Pointe du Bois Rebuild	834	818	818	-	1,538	1,538	1,538	1,538	1,852
Slave Falls G.S.	179	192	198	198	223	230	230	126	126
Conawapa G.S.	4,978	4,978	4,978	6,325	7,771	7,771	10,192	10,492	397
Keeyask G.S.	-	-	3,700	4,592	5,637	5,637	6,220	6,220	6,496
500 KV Dorsey U.S. Border	-	-	205	205	205	205	205	350	350
Total	9,606	10,359	14,451	16,190	21,515	21,629	24,894	25,322	17,270

The significant drop in the Capital Expenditure Forecast CEF-14 "total" amount is due to the removal of Conawapa. In CEF-14, the most significant jump is a \$1.4 billion increase to the projected cost of Bipole III. Manitoba Hydro indicated that the increase reflects a change to the approved control budget. This will place significant upward pressure on domestic electricity rates, since there is virtually no export revenue associated with this transmission line to mitigate or offset such cost increases.

The projected cost of the Keeyask Generating Station also increased an additional \$300 million but remains within the overall budget presented to the Board at the NFAT.

Since Bipole III was outside of the scope of the Board's NFAT Review into Manitoba Hydro's Preferred Development Plan, the Board has not been in a position to assess the economics of the project or the risk factors with respect to capital cost escalations. However, given the very significant projected cost increase of which the Board was advised in this hearing, the causes of the cost escalation were explored further.

Manitoba Hydro advised that the Bipole III cost increase is primarily attributable to a price increase related to the converter stations. Manitoba Hydro was initially optimistic that it could utilize lower-cost voltage-source conversion (VSC) technology in the Bipole III converter stations. However, while vendors initially indicated that the use of this technology was feasible, they ultimately were not prepared to design and provide VSC technology, resulting in a requirement for line-commutated converter (LCC) technology and synchronous condensers to meet performance requirements.

Manitoba Hydro advised that the three bids for High Voltage Direct Current (HVDC) conversion equipment closed on March 20, 2014. All bids were based on LCC technology. Manitoba Hydro completed its technical review of the proposals by June 20, 2014. The revised control budget was prepared in August of 2014 and approved by Manitoba Hydro's executive committee in August 2014. Manitoba Hydro indicated that it did not advise the Board of cost increases during the NFAT since it took several months to prepare the control budget.

Manitoba Hydro also currently includes a replacement of the Pointe du Bois Powerhouse in its Capital Expenditure Forecast, at a cost of \$1.8 billion. Like Bipole III, this project was expressly excluded from the Board's NFAT mandate and review that took place last year. Accordingly, the economics of this project have not been independently reviewed to date.

Manitoba Hydro is also investing in the Manitoba/Minnesota Transmission Line and taking responsibility for the majority of the cost of the Great Northern Transmission Line in the United States. Starting in 2021/22, these projects will create an in-service revenue requirement of \$115 million annually for Manitoba Hydro. The two projects will be used to facilitate 1,000 GWh per year of 5x16 (5 weekdays by 16 hours per day) dependable sales and 400 GWh per year of 2x16 (i.e. 16 hours on weekends) dependable sales to Minnesota Power. At this time, there are no other contracted export revenues to offset the in-service cost of these two transmission line projects, nor is there any indication that Manitoba Hydro will receive transmission tariff revenue.

The Consumer Coalition (Coalition) noted that the Board identified during the NFAT Review that the cost of Bipole III may have been understated and expressed disappointment that Manitoba Hydro was still pursuing a 3.95% rate increase despite development on Conawapa ceasing. The Coalition further noted that salary and benefits charged to capital projects are increasing at a rate of 7.6% per year and that Manitoba Hydro should be directed to demonstrate, for the review of 2016/17 rates, that the utility is implementing cost control measures with respect to its capital program. The Coalition also requested the Board to recommend to the Province that the Board receive authority to review and approve Manitoba Hydro's major capital projects.

The Coalition submitted that to the extent Manitoba Hydro is seeking gradual rate increases to avoid rate shock at the time the new major projects come into service, there is a difference between increasing rates to fund adequate reserves and increasing rates to fund projects that are not yet in service. The Coalition stated that it was not convinced that the Board had the authority to require current ratepayers to pay for future projects.

The Manitoba Industrial Power Users Group (MIPUG) questioned Manitoba Hydro's transparency with respect to capital costs, noting that since the NFAT Review last year, the parties have been presented with an additional \$2 billion in capital costs. MIPUG submitted that a repeat of the Bipole III experience, with several successive rounds of

significant cost increases, must be avoided. In MIPUG's submission, the parties should move away from an adversarial information-gathering process with respect to capital cost estimates.

MIPUG also suggested that since a final decision as to whether to pursue the construction of Conawapa has not yet been made, and Manitoba Hydro is keeping open the option to revive the project, it would be inappropriate to include \$19 million of Conawapa's amortization costs in 2016/17 rates as Manitoba Hydro is currently planning. If Conawapa is permanently stopped, MIPUG suggests extending the amortization of existing costs over 30 years.

MIPUG also expressed disappointment with Manitoba Hydro's current capital spending plan and submitted that there was a need for a stepped approach and adequate prioritization. In MIPUG's view, the capital savings associated with the discontinuance of Conawapa were replaced with other capital spending in only six months.

Sustaining Capital Expenditures

Sustaining capital (also known as "base capital") spending is used to replace and refurbish existing assets, extend the electrical distribution system to new customers, and to meet the load growth of existing customers. In 2013/14, Manitoba Hydro spent \$470 million on sustaining capital. In CEF-14, Manitoba Hydro plans on increasing its sustaining capital spending by approximately \$100 million annually to \$570 million in 2014/15. This represents planned spending of \$5.6 billion over the next ten years and \$12.4 billion over the 20 year forecast period, which is a \$1.8 billion increase in sustaining capital spending forecast in CEF-13. Manitoba Hydro justified this planned increase as being required to address system reliability issues, stating that much of the existing infrastructure was built decades ago and is nearing the end of its life span.

Manitoba Hydro attempts to fund all sustaining capital expenditures from cash flow, without taking on new debt to make such investments. Even with the additional planned spending during the 2014/15 and 2015/16 fiscal years, Manitoba Hydro will continue to

be able to fund such expenditures from cash flow. However, Manitoba Hydro states that in the absence of the proposed rate increases, Manitoba Hydro would be required to fund an increasing portion of its sustaining capital expenditures through debt financing as opposed to cash flow generated from operations. These rate increases reduce the need for borrowing and additional financing costs that must be borne by customers through rates.

Despite the fact that sustaining capital expenditures replace existing assets, any such investments are fully capitalized, which means they are depreciated over the expected life of the new asset. As such, the incremental effect on revenue requirement of the \$100 million spending increase during 2015/16 is only approximately \$4 million, and sustaining capital is not a significant driver of the 2015/16 rate increase.

Manitoba Hydro established the following sustaining capital expenditure budgets to 2020:

- \$132 million per year for seven years for generation projects;
- \$125 million per year for six years for transmission projects; and
- At least \$206 million per year for six years for distribution projects.

In its prior capital expenditure forecasts (e.g. CEF-08), Manitoba Hydro provided details of individual capital projects over \$1 million. Now, Manitoba Hydro provides a top-down budget for each of generation, transmission, and distribution and separately identifies only projects over \$50 million. As a result, the number of specific projects identified in the CEF decreased from 98 in CEF-08 to 11 in CEF-14.

Manitoba Hydro's Asset Condition Assessment Process

In Board Order 116/08, the Board directed Manitoba Hydro to prepare an Asset Condition Assessment Report that set out the following:

- (a) major assets and categories of assets;

- (b) the estimated remaining economic life of each major asset and category of asset;
- (c) an indication of the implications for operation, maintenance & administration (OM&A) costs related to required and scheduled maintenance;
- (d) a listing of scheduled, planned or anticipated major upgrading/decommissioning of major assets and/or categories of assets;
- (e) forecast expenditures for planned renovations and/or replacements with respect to now available energy supply and transmission; and
- (f) Dam Safety Condition Assessment and Maintenance requirements.

In Order 150/08, the Board varied this Directive and set a timeframe for Manitoba Hydro to file terms of reference by June 30, 2009. No terms of reference were ever filed, and in Board Order 73/13, the Board directed Manitoba Hydro to file an Asset Condition Assessment Study no later than the filing of the next depreciation study.

Manitoba Hydro submits that the Asset Condition Assessment Study filed during the current hearing meets the Board's directive, and that the utility also prepared an in-house distribution asset study, a transmission asset study by Kinectrics, and an in-house generation asset study. It further indicated that Manitoba Hydro's view on the life expectancy of its distribution assets was primarily based on age for planning and forecasting purposes, but Manitoba Hydro makes the decision to replace or refurbish assets based on the internal staff views of the condition of the specific assets. Manitoba Hydro also advised that in 2010 it purchased an asset investment planning system called Copperleaf to assist it in planning and prioritizing expenditures.

The Coalition was critical of the distribution asset study filed as part of Manitoba Hydro's GRA and stated that Manitoba Hydro provided a 'pitch', not a 'plan'. In the Coalition's view, the Board has been asking for a plan since 2008 and the quality of capital

planning material filed is not appropriate for approving an increase in capital costs. According to the Coalition, both the Kinectrics report and the distribution asset study were available prior to CEF-13. Additional sustaining capital spending could have been included in CEF-13, yet Manitoba Hydro now insists that an additional \$100 million annually is needed in CEF-14.

The Coalition suggested that the Board has not been provided with an adequate explanation of the capital spending optimization process, the types of alternatives considered, the reasons for significantly increasing distribution expenditures, and the anticipated performance outcomes. The Coalition provided information requirements mandated in other jurisdictions and suggested that such information might indicate different levels of required spending. The Coalition called the increases in distribution project spending individually desirable but collectively not sustainable. The Coalition also submitted that the spending increase with respect to buildings cannot be said to be linked to reliability and that the utility's asset planning report provides conclusions without sufficient supporting analysis. The Coalition requested that the Board find that it is unable to conclude whether the proposed magnitude of sustaining capital investment in 2014/15 and 2015/16 is prudent and direct Manitoba Hydro to provide a more robust asset health assessment and capital asset management strategy for the next General Rate Application (GRA).

The Coalition's submissions were largely mirrored by MIPUG, which suggested that Manitoba Hydro has not proved that it is adequately pacing and prioritizing its capital spending, and that existing asset conditions are good, with no urgent, short term replacement needs. MIPUG also argued that Manitoba Hydro's sustaining capital plan for generation assets is a placeholder, not an actual plan. In addition, since at the NFAT Manitoba Hydro alleged that it could safely maintain assets based on CEF-13 spending levels and the current spending levels fill some of the gap created by the discontinuance of Conawapa, the Board should view Manitoba Hydro's plan skeptically. MIPUG further

suggested that it might make sense to fund some of the replacement of long-lived assets through borrowing rather than from cash flow.

Board Findings

Manitoba Hydro's medium-term revenue requirements are primarily driven by major new generation and transmission assets, the cost of which will amount to two-thirds of Manitoba Hydro's \$3.2 billion revenue requirement by 2021/22. This cost will be borne by Manitoba ratepayers, as available projected net export revenues in 2021/22 are estimated at \$553 million, which roughly equates to the in-service requirements for the Pointe du Bois spillway, Demand-Side Management (DSM) expense, and the incremental sustaining capital requirements.

The Board reviewed Manitoba Hydro's Preferred Development Plan but not the Bipole III or Pointe du Bois at the NFAT Review last year due to a provincial directive as to the scope of that proceeding. The Board has no inherent jurisdiction to review and approve the costs and economics of Bipole III. The Board agrees with the Coalition's suggested recommendation to the Province of Manitoba for a change in legislation and that the Board should have approval authority relative to Manitoba Hydro's major capital projects. Between planning to spend \$4.6 billion on Bipole III (which, in and of itself, will lead to an annual revenue requirement of \$384 million in 2019/20) and \$1.8 billion on the Pointe Du Bois powerhouse replacement, Manitoba Hydro is making very large capital investments without independent oversight. The utility is a provincially owned Crown corporation regulated on a cost of service basis, which means that any downside risk of these investments is borne by the ratepayers of Manitoba.

The Board shares the concern expressed by Interveners that updated capital cost information with respect to major new generation and transmission projects is not provided on a timely and transparent basis.

The Board is of the view that Manitoba Hydro knew or ought to have known prior to the conclusion of the NFAT that bidders were opting for the LCC converter technology

which Manitoba Hydro had priced at \$2.48 billion in August of 2009 - \$0.65 billion higher than Manitoba Hydro's March 2011 estimate for the converter contract(s). As such, there is information to suggest that the Bipole III cost estimate provided during the last GRA hearing was out of date and an updated budget should have been provided during the NFAT Review as opposed to a year later.

With respect to the Keeyask Generating Station, the Board is concerned that Manitoba Hydro's project costs are not updated annually and that contingency reserves and management reserves are not tracked separately in the capital cost justifications. A quarterly reporting process on each of the Keeyask contracts, identifying costs to date and an update of the project cost target for each contract, would allow potential problems to be identified earlier.

While the Board has never been asked to consider the economic viability of the Pointe du Bois powerhouse rebuild, the Board is skeptical of the economic viability of the project and recommends that a thorough cost-benefit analysis be performed and alternatives considered.

The Board also sees a need to monitor both the project costs and the revenues attributable to the Manitoba-Minnesota Transmission Project and the Great Northern Transmission Line.

Overall, the Board sees a need for Manitoba Hydro to file detailed quarterly reports for all Major New Generation and Transmission projects, including the ones currently under development. These reports are to outline the proposed budget (at time of contract), budget changes and reasons for such changes, and the revised projected in-service costs. Where capital costs have increased materially, Manitoba Hydro is to explain how such increases will impact domestic revenue requirements and projected impacts on Manitoba Hydro's financial forecasts and targets. These reports will allow the Board to identify capital cost overruns and the associated impact on revenue requirement in a timely manner.

As part of the quarterly reports, the Board should be provided with all capital cost justifications for Major New Generation and Transmission and other projects greater than \$50 million approved by the appropriate Division Vice Presidents, even if such capital cost justifications are subsequently deferred by the Manitoba Hydro Electric Board or Manitoba Hydro's Executive Committee.

The Board accepts that Manitoba Hydro is faced with aging infrastructure and there may be a genuine need to expand sustaining capital expenditures. As such, for the 2014/15 and 2015/16 fiscal years, the Board accepts Manitoba Hydro's increased sustaining capital spending. However, the Board is not satisfied that Manitoba Hydro has adequately evaluated the long term pacing and prioritization requirements. The Board considers that top-down caps or placeholders are insufficient to justify increased spending in the future. As such, the Board's acceptance of the increased sustaining capital spending during this GRA should not be construed as an endorsement of Manitoba Hydro's long term sustaining capital plan.

To bridge what the Board considers to be an information gap, the Board expects Manitoba Hydro to file, by October 31, 2015, updated Terms of Reference and schedules for an Asset Condition Assessment. The schedules should contemplate completion of the Assessment in advance of the next GRA. In the Board's view, the Terms of Reference should, at minimum, include the items set out in Appendix G of this Order.

10.0 Load Forecast and Demand-Side Management

Issues

Load Forecast

Manitoba Hydro prepares an annual Load Forecast of domestic electricity consumption, the most recent of which was prepared in 2014. Manitoba Hydro forecasts growth over the next ten years in residential electric consumption of 1.4% per year and in the General Service (i.e., mass market commercial) sector of 1.7% per year. In prior years, General Service load growth tended to closely track Residential load growth. Manitoba Hydro is forecasting load growth for Top Consumers (the utility's largest customers, for whom consumption is forecast individually for the short term) of 2.8% per year for the next ten years, despite this sector experiencing essentially zero load growth over the past ten years.

By 2023/24, the gross firm energy forecast is 29,626 GWh and the gross total peak forecast is 5,400 MW, compared to the 2013/14 weather-adjusted actual load of 24,677 GWh and 4,587 MW.

These projected growth forecasts are lower than Manitoba Hydro forecasted at the Needs For and Alternatives To (NFAT) Review, where Manitoba Hydro forecasted gross firm energy of 30,491 GWh and a gross total peak of 5,498 MW by 2023/24. The following charts show the progression of load forecasts since 2012:

Energy (GWh)					
	2012 Base Forecast	2013 Base Forecast	NFAT 2013 Update (with pipeline)	2014 Base Forecast	NFAT 2013- 2014 Difference
2013/14	25734	25239	25239	24677	-562
2014/15	26071	25676	25676	25639	-37
2015/16	26393	26013	26013	26130	117
2016/17	26677	26322	26691	26436	-255
2017/18	27128	26606	27345	27174	-171
2018/19	27616	27003	28111	27662	-449
2019/20	27919	27398	28876	28247	-629
2020/21	28400	27789	29268	28583	-685
2021/22	28859	28197	29675	28937	-738
2022/23	29322	28605	30084	29284	-800
2023/24	29779	29013	30491	29626	-865
10 yr inc	4045	3774	5252	4949	

denotes weather adjusted actual

Winter Capacity (MW)					
	2012 Base Forecast	2013 Base Forecast	NFAT 2013 Update (with pipeline)	2014 Base Forecast	NFAT 2013 - 2014 Difference
2013/14	4609	4601	4601	4587	-14
2014/15	4677	4680	4680	4716	36
2015/16	4738	4742	4742	4803	61
2016/17	4794	4801	4851	4861	10
2017/18	4874	4857	4959	4985	26
2018/19	4959	4930	5082	5068	-14
2019/20	5024	5002	5205	5166	-39
2020/21	5109	5074	5276	5223	-53
2021/22	5192	5147	5350	5284	-66
2022/23	5276	5222	5424	5342	-82
2023/24	5360	5296	5498	5400	-98
10 yr inc	751	695	897	813	

Notably, the weather-adjusted actual load in 2013/14 was 562 GWh lower than forecasted in the NFAT Updated forecast, while the forecasted load for 2014/15 is nearly the same in the NFAT Updated forecast and the 2014 Load Forecast.

The NFAT load forecast included expected growth in the Top Consumers sector attributed to increased pipeline load in the oil and gas sector. The reduction in the load forecast from the NFAT to 2014 was primarily attributed to the reduction in the expected pipeline load. The pipeline load initially forecasted by Manitoba Hydro at the NFAT was 1,700 GWh, which was reduced to 1,487 GWh by the end of the NFAT. According to Manitoba Hydro, this was further revised downwards in the 2014 Load Forecast to 655 GWh based on more current information obtained by Manitoba Hydro from the pipeline operators. Manitoba Hydro does not include an assessment of the load factor (as a percentage of the contract demand) in its load forecasting, nor does it forecast demand by customer or sector.

Also in the Top Consumers sector, Manitoba Hydro includes Potential Large Industrial Load (PLIL) of 91 GWh per year starting in Year 4 of the Load Forecast. The inclusion of PLIL recognizes that industrial load is not added gradually in the same way as residential or General Service load, but through infrequent, large increments. PLIL adds about 1,700 GWh to the 20 year forecast for the Top Consumers load.

Manitoba Hydro re-introduced a price elasticity variable into its Load Forecast to account for the fact that some customers have the option to switch from electricity to natural gas for space and water heating. The price elasticity variable reflects the ratio of gas rates to electricity rates. Manitoba Hydro hired an external consultant to review the price elasticity in its load forecast model, although the consultant's findings are not yet available.

Keeyask is expected to enter service in 2019 with full operation in 2020. The reduction in the domestic load forecast, specifically the pipeline load, coupled with the projected energy and capacity savings from Manitoba Hydro's Power Smart Plan, means that

energy from Keeyask is not needed to meet domestic load and existing export commitments until 2030/31. On a capacity basis, without Keeyask, Manitoba Hydro would need other capacity resources such as diversity exchanges in 2021/22 to address a capacity shortfall of approximately 50 to 150 MW. With Keeyask, new capacity resources are needed initially in 2033/34 but not on a persistent basis until 2037/38, while new energy resources are not needed until approximately 2038. This further highlights that there is no requirement for Conawapa or its associated expenses in the foreseeable future.

Conawapa's average annual energy output of 7,000 GWh would have an in-service cost of approximately 13 ¢/kWh. In 2029/30, Manitoba Hydro currently forecasts average unit export revenues of 9 ¢/kWh. In the Board's view, based on the large surplus of dependable generation from Keeyask and the more economical alternatives to supply new capacity, there is no evidence to support construction of Conawapa in the foreseeable future. Based on the current forecasts of export prices, Conawapa as a merchant plant does not seem viable.

Demand-Side Management

Demand-Side Management (DSM) is the reduction of the demand for electricity through targeted measures. While DSM reduces a utility's net income in the short term, it has the potential to defer or eliminate the need for new generation in the long term.

The Power Smart Plan is Manitoba Hydro's plan for DSM energy conservation and load management activities designed to lower the demand for both electricity and natural gas in Manitoba. In Accordance with *The Energy Savings Act*, Manitoba Hydro prepares a Power Smart Plan annually in cooperation with the provincial government. The most current Power Smart Plan for 2015/16 is a single year plan, in contrast with the previous two Power Smart Plans which are three year plans. For its long term internal planning purposes, Manitoba Hydro also prepares a 15 year supplement to the Power Smart Plan. Manitoba Hydro has not updated the supplement since 2014, but it has updated

its forecast of capital expenditures related to DSM. Compared to CEF-13, Manitoba Hydro has forecast increased spending on DSM of \$900 million over the next 20 years, with an additional \$500 million over the first ten years.

Manitoba Hydro forecasts increased energy savings along with the increased spending in each of 2014/15 and 2015/16, although the overall savings for 2015/16 year compared to those projected a year ago are significantly reduced. Energy savings targets have increased to 1,136 MW and 3,978 GWh (including savings resulting from changes to codes and standards) over 15 years, compared to the targets in the 2013-16 Power Smart Plan of 490 MW and 1,552 GWh. The 3,978 GWh of energy savings represents 12.7% of the base load forecast for 2028/29. In 2015/16, the utility intends to spend \$63.4 million to achieve 217 GWh of savings at the customer meter.

Manitoba Hydro's DSM priorities include lower income, Aboriginal, and Northern community customers, as well as customers that were previously excluded from Power Smart programs because they were in arrears. For industrial customers, Manitoba Hydro is focusing on load displacement measures, which are typically onsite generation facilities. In Aboriginal communities that do not have access to natural gas, Manitoba Hydro is promoting community geothermal programs implemented by AKI Energy, a third party organization to which Manitoba Hydro supplies funding. AKI Energy trains First Nation members to install the geothermal systems, and has installed 177 geothermal systems to date in four First Nation communities.

The Consumer Coalition (Coalition) supported DSM as one of only a few tools customers have to mitigate the impacts of increasing rates. The Coalition did not support cutting back on DSM as part of the pacing and prioritization that it recommends Manitoba Hydro undertake with respect to its other capital programs, but it did suggest that Manitoba Hydro consider amortizing the cost of DSM over a longer period than the current ten years to mitigate rate impacts. MIPUG recommends DSM programs be amortized over the life of the benefits realized from each measure, not at an arbitrary ten years.

The Manitoba Industrial Power Users Group (MIPUG) questioned whether it made sense to aggressively invest in DSM at the same time as constructing Keeyask, recognizing that Keeyask's output will primarily be sold as opportunity exports at depressed prices in the near future. MIPUG characterized this as spending money on DSM in order to lose money on export sales.

Natural gas is currently a more efficient and economical fuel choice for space and water heating, with the cost of heating with gas approximately half that of electricity. Manitoba Hydro educates consumers on the benefits of natural gas through its Heating Fuel Choice Initiatives, which are educational and advertising programs. Natural gas is only available in Southern Manitoba, and not to all rural communities, although Manitoba Hydro stated it had submitted an application to Natural Resources Canada for funding of a gas pipeline extension to The Pas.

The Manitoba Metis Federation (MMF) recommended that DSM efforts be expanded to assist lower income customers in Northern and rural communities that do not have access to natural gas and thus incur higher bills due to use of electricity for heating. Such programs could include incentives for air source heat pumps, appliance replacements, and fuel switching opportunities. Education and incentives should be provided to home builders to encourage construction of homes with natural gas heating.

Manitoba Keewatinowi Okimakanak Inc. (MKO) recommended implementation, over the next two years, of First Nations DSM programs that provide equivalent bill savings to customers as would be available if those customers were to switch to natural gas for space and water heating.

Manitoba Hydro noted that geothermal heating is the only technology that has the potential for energy bill savings comparable with switching from electric to natural gas heating. However, geothermal heating does not lower the overall cost to the customer because the high cost of financing the installation. Manitoba Hydro stated that the payback period on geothermal installations is typically in the order of 25 years.

The Green Action Centre (GAC) and MIPUG recommended that, contrary to the Board's NFAT recommendation, Manitoba Hydro should retain control over DSM instead of creating a new, external entity to deliver DSM programs. According to GAC, removing responsibility for DSM from Manitoba Hydro will have a disruptive effect and there is a risk that Manitoba Hydro's DSM expertise will not adequately be replicated in the external entity.

At the 2012/13 GRA, Manitoba Hydro initially presented its 2011 Power Smart Plan. It then presented a revised 2013-16 Power Smart Plan with reduced forecasts of spending on DSM programs. The Board ordered a DSM deferral account to be established which captured any deficiencies in spending compared to the minimum spending levels in 2012/13 and 2013/14, which the Board set at the levels forecasted in the 2011 Power Smart Plan. In 2012/13 and 2013/14, Manitoba Hydro underspent the targets by a total of \$16.3 million. Accordingly, this amount accrued to the DSM deferral account.

Manitoba Hydro applied to have the DSM deferral account rescinded for 2014/15 and future years, citing the increased DSM budgets and savings forecasts in its revised Power Smart Plan and Supplement compared to the 2013-16 Power Smart Plan. MMF supported the continuation of the deferral account, using the 2015/16 spending target in the 2015 Power Smart Plan.

In the 2014-17 15-year Power Smart Plan supplement filed during the NFAT Review, Manitoba Hydro planned to spend \$52.3 million in 2014/15. Actual spending levels fell short of this goal by \$19 million. Manitoba Hydro attributed this primarily to a temporary delay in the implementation of several programs but expressed optimism about meeting its expanded 2015/16 spending target.

In its NFAT report, the Board recommended the Province of Manitoba mandate incremental annual DSM savings targets in the order of 1.5% of domestic electricity sales. Manitoba Hydro presented a forecast of energy savings that meets or

approaches this target in the years 2016/17 through 2020/21, but then the forecasted savings diminish over time to 0.4% per year. At this time, there is no legislation in place to mandate specific DSM targets, although the Board notes that pursuant to *The Energy Savings Act*, the Province of Manitoba reviews and approves Manitoba Hydro's Power Smart Plans.

Affordable Energy Program

On several past occasions, the Board expressed concerns about the effect of continued rate increases on lower income customers. Manitoba Hydro's Affordable Energy Program (AEP) provides DSM measures to lower income residential customers to help them to offset some of the rate increases through energy efficiency measures. Eligibility is based on the Statistics Canada Low Income Cutoff (LICO) measure, which is based on the number of persons in a household and the size of the community. Until 2014, Manitoba Hydro used 125% of the LICO for each respective community size. In 2014, Manitoba Hydro changed the eligibility criterion across Manitoba to use Winnipeg LICO-125, which extends the program eligibility to more customers in rural areas by setting the income thresholds at higher levels.

Manitoba Hydro has 115,000 lower income customers, excluding customers in apartments, as defined by Winnipeg LICO-125 that are the targets of the AEP. Approximately 11,000 households have participated in the AEP to date. Manitoba Hydro expects 45,500 households to participate by 2028/29. Manitoba Hydro also recently extended eligibility of the AEP to private landlords who commit to having lower income tenants for at least one year.

The energy efficiency measures available under the AEP include water saving and weatherization measures, energy efficient lighting, and improved insulation. These measures are all free to the occupant. If a home has a low-efficiency natural gas furnace, it is eligible to be replaced with a high efficiency furnace at a cost to the occupant of \$9.50 per month for five years.

At the NFAT, the Board heard that customers in arrears were not eligible for Power Smart programs, including the AEP, unless they had made and were current with alternative payment arrangements. The Board concluded that the exclusion of customers in arrears from Power Smart programs precluded those that are most in need of these programs from receiving their benefits and that Manitoba Hydro should immediately address this exclusion. Following the NFAT, Manitoba Hydro removed the requirement that customers in arrears must be current in their pay arrangements to access the AEP.

In its NFAT report, the Board was of the view that an independent evaluation of the DSM program performance was important. Manitoba Hydro undertook a third-party evaluation of its AEP by Dunsky Energy Consulting and Summerhill Group. This evaluation concluded that the AEP was “well managed”, was “achieving strong results”, used “best practices”, and that “results [participation rates and savings] are strong”. Shortcomings identified include Manitoba Hydro relying on estimates of energy savings instead of verifying actual energy savings, and that there were not many measures for electrically heated homes. Dunsky and Summerhill recommended making the AEP mandatory if and when emergency bill assistance (the Neighbours Helping Neighbours program) is received as well as adding measures for electrically heated homes.

The Coalition noted Manitoba Hydro has made progress with its AEP since 2013 but would still like to see a faster implementation pace. The Coalition, MMF, and MKO see a gap in measures available to rural electrically-heated homes because, if gas is not available, there are no measures available under the AEP to reduce bills to the same extent.

The MMF recommends that Manitoba Hydro hire an engineering contractor to conduct a physical survey of insulation levels in homes to assess the quality of existing insulation levels. The MMF also recommends that Manitoba Hydro enhance its efforts to increase the pace of the program, consider the cost effectiveness of an appliance replacement program, and implement a cold climate air source heat pump pilot project in the AEP.

Board Findings

Load Forecast

The Board learned that expected domestic demand stemming from the increased pipeline load has been revised downward, further delaying the need for new generation after the completion of Keeyask. Manitoba Hydro forecasts that it will have an even greater surplus of electricity that it can export, due to the decreased domestic demand. The Board previously recommended to the Province of Manitoba that the Conawapa project and the North-South Transmission Upgrade Project be discontinued, and the forecasted reduction in future load further supports this recommendation. With the reduction in the load forecast, Keeyask will primarily be serving the export market until 2030 and new generation after Keeyask would not be needed for domestic demand until approximately 2038. The reduction in the load forecast further highlights that there is no requirement for Conawapa in the foreseeable future, as once Keeyask is built, no additional energy will be required for two decades.

The Board welcomes the external review of the price elasticities re-introduced into the 2014 Load Forecast. Continued growth in the saturation of electric space and water heating appears inconsistent with escalating electricity rates and stable natural gas prices. Appropriate price elasticities in the Load Forecast model should result in more accurate forecasts as consumers respond to the increasing price advantage natural gas is expected to have over electricity for space and water heating.

There is evidence that Manitoba Hydro consistently over-estimates the Top Consumers load growth. The first year of each load forecast for the past five years over-estimated the Top Consumers load in the greater-than-100 kV sub-class. The Potential Large Industrial Load (“PLIL”) does not recognize the last ten years of near-zero load growth in the Top Consumers sector, or that using PLIL in addition to large pipeline load additions overlaps in some years and may be double-counting. The Board sees Manitoba Hydro's PLIL as an inappropriate upward adjustment that does not reflect the

recent Top Consumers load growth history. The Board recommends that Manitoba Hydro take a more rigorous approach to forecasting the Top Consumers load.

Demand-Side Management

The Board reiterates its view from Order 43/13 that Manitoba Hydro should be providing ratepayers with the tools to mitigate their exposure to rising electricity rates through DSM. The Board supports Manitoba Hydro's DSM priorities as these were the same priorities articulated by the Board in its NFAT report. While DSM reduces revenue in the short term, DSM has the potential to push back or eliminate the need for new generation in the long term.

The Board heard that Manitoba Hydro underspent its 2014/15 Demand-Side Management target of \$52.3 million by \$19 million. Manitoba Hydro explained that a number of projects were delayed or deferred, including \$5.5 million that was expected to be spent to upgrade Area and Roadway Lighting to energy efficient light-emitting diodes (LEDs). The Board recognizes that in some instances, delays to DSM initiatives are beyond Manitoba Hydro's control, but that further reinforces the need for the deferral account. Accordingly, the Board denies Manitoba Hydro's application to rescind the DSM deferral account.

The Board wants to be sure that Manitoba Hydro has the necessary funding for any DSM programs that are delayed to a future year. In the case of the \$19 million of projects that were not implemented in 2014/15, Manitoba Hydro is to record this amount in, and can draw on the funds in, the DSM deferral account to implement those projects in 2015/16, without affecting the available funds for any projects previously planned for 2015/16. As such, in setting rates for 2014/15, the Board will order the \$19 million to be placed in a deferral account, and will direct the accrued amount from 2012/13 and 2013/14 to remain in the account.

In setting rates for 2015/16, the Board sets the DSM spending target at the forecast spending level in the 2015/16 Power Smart Plan of \$63.4 million, inclusive of

contributions from the Affordable Energy Fund. The accrued amounts in the DSM deferral account can be used to cover any spending increase above the planned \$63.4 million in 2015/16.

At this time, the Board will continue the amortization of DSM capital expenditures over ten years.

Affordable Energy Program

The Board continues to support the AEP, including the increased budget of \$9.4 million for 2015/16, compared to the previous budget of \$7.3 million. The Board notes, however, that these amounts include spending on natural gas matters, and are not solely devoted to electric DSM.

The Board heard that Manitoba Hydro no longer excludes customers in arrears from participating in the AEP, which the Board applauds. The Board is pleased with the progress made by Manitoba Hydro in reaching out to First Nations communities with AKI Energy community geothermal projects as well as with the AEP.

The Board recommends to the Consumer Coalition, the Green Action Centre, the Manitoba Métis Federation and Manitoba Keewatinowi Okimakanak that these interveners encourage their members to take advantage of potential savings that can be generated by the AEP. The Board is encouraged by Manitoba Hydro's increased efforts to identify customers eligible for the AEP, and believes that these interveners may have valuable additional information to contribute.

11.0 Power Resource Plan

Issues

Manitoba Hydro annually prepares a Power Resource Plan that identifies the domestic load and export commitments as well as the generation and import resources to meet the expected load.

According to the 2014/15 Power Resource Plan, new generation resources are not needed until 2033/34 due to a shortage of winter generation capacity, with persistent capacity shortages starting in 2037/38. A shortfall in dependable energy does not occur until 2038/39. Therefore, the earliest post-Keeyask date that new resources are needed is 2033/34. Manitoba Hydro currently assumes that single cycle combustion turbines will be installed beginning in 2037/38, although that new generation is not the only option. Other options available to address capacity shortfalls could include:

- capacity from a modified Curtailable Rate Program that includes long term commitments from industrial customers, although Manitoba Hydro stated that it is not interested in contracting for additional capacity through the Curtailable Rate Program now when that additional capacity is not needed for 15 years;
- extension of existing diversity exchange agreements with utilities in the United States. Manitoba Hydro currently has 550 MW of diversity exchange agreements with Great River Energy and Northern States Power;
- contracted imports from the United States, especially considering the additional 700 MW of import capacity provided by the Manitoba-Minnesota Transmission Project;
- advancing combined cycle combustion turbines by several years to provide 200-300 MW of capacity as well as a more economical supply of energy than a single cycle combustion turbine; and

- capacity inputs to Manitoba Hydro's grid from self-generation by customers.

Manitoba Hydro undertakes periodic maintenance and repair of its hydraulic generating stations. Hydraulic generation outages over the last five years averaged approximately 2.5% of total generation, or about 100 MW per year. These outages primarily relate to four generating stations that are not on the Lower Nelson River. These maintenance outages may be accounted for in the Power Resource Plan under winter capacity reserves, but do not appear to be included in the dependable energy calculations.

More hydraulic generator drive-train units are approaching replacements in the next 5-15 years. In the longer term, Manitoba Hydro indicated that it plans to replace all 32 Lower Nelson drive-train units within next 14 to 49 years with an average generator size of 98 to 135 MW. This will result in significant capacity outages while generators and turbines are replaced or refurbished.

Typically, Manitoba Hydro expects these outages to last about two years for each unit. This suggests that two units will be out of service every year for 35 years, with a corresponding outage rate of 200 MW per year or 5% of total generation. These outages would be in addition to ongoing outages of generating units on the Winnipeg River, Saskatchewan River, and Upper Nelson River, resulting in total outages of 7.5% or 300 MW per year.

It does not appear that the pending major outages of generation on the Lower Nelson are reflected in either IFF14 as a reduction in export revenue or in CEF-14 as a capital cost.

Board Findings

The Board notes that new post-Keeyask generation is not needed until 2033/34 at the earliest or 2037/38 with the addition of new capacity resources, such as the extension of existing diversity exchange agreements or an expansion of the Curtailable Rate Program.

At the NFAT, the Board heard that a major benefit of the Manitoba-Minnesota Transmission Project was enhanced intertie transmission capacity and the ability to access more capacity and energy resources from the United States. The 2014 Power Resource Plan does not recognize this resource and the 700 MW of additional available import capacity.

The Board notes that Manitoba Hydro's existing hydraulic generation refurbishment and replacement program does not appear to have been integrated into either the 2014 Power Resource Plan or defined in the CEF14 sustaining capital requirements.

12.0 Export Markets

Issues

Manitoba Hydro exports electricity, primarily to the United States, by way of long term fixed price contracts with U.S. utilities and also by way of opportunity sales into the Midcontinent Independent System Operator (MISO) market. The opportunity sales are made during either 'On-Peak' hours or 'Off-Peak' hours. Typically, the volumes of electricity sold on the opportunity market greatly exceed the volumes of electricity sold pursuant to long term fixed-price contracts, as the latter sales are made from 'dependable' resources whereas opportunity sales are made from surplus hydraulic generation in years when water flows are above minimum flows.

Since 2008/09, Manitoba Hydro has been competing with natural gas-fueled electricity generation, such as combined cycle combustion turbine (CCCT) generators, for peak MISO opportunity market share. The on-peak market price has been 3.0 to 4.5 ¢/kWh, while off-peak market prices have averaged about 2.5 ¢/kWh.

Over the past seven years, export prices have not materialized as planned, with prices significantly decreasing around the time of the 2008 recession. This has placed, and continues to place, upward pressure on domestic rates, as any revenue that cannot be obtained from exports must be obtained from domestic ratepayers. However, the overall impact on rates has been somewhat mitigated by many years of higher-than-average water flows, allowing Manitoba Hydro to generate and sell more energy into the export market.

Manitoba Hydro's 2014 export pricing projections do not assume any additional value attributable to carbon dioxide (CO₂) through 2019/20 and, combined with continued low natural gas prices, may signal opportunity market prices remaining below 4 ¢/kWh.

Manitoba Hydro obtains forecasts from five independent forecasters to prepare its own forecast. Manitoba Hydro's export price update in IFF14 shows average prices down

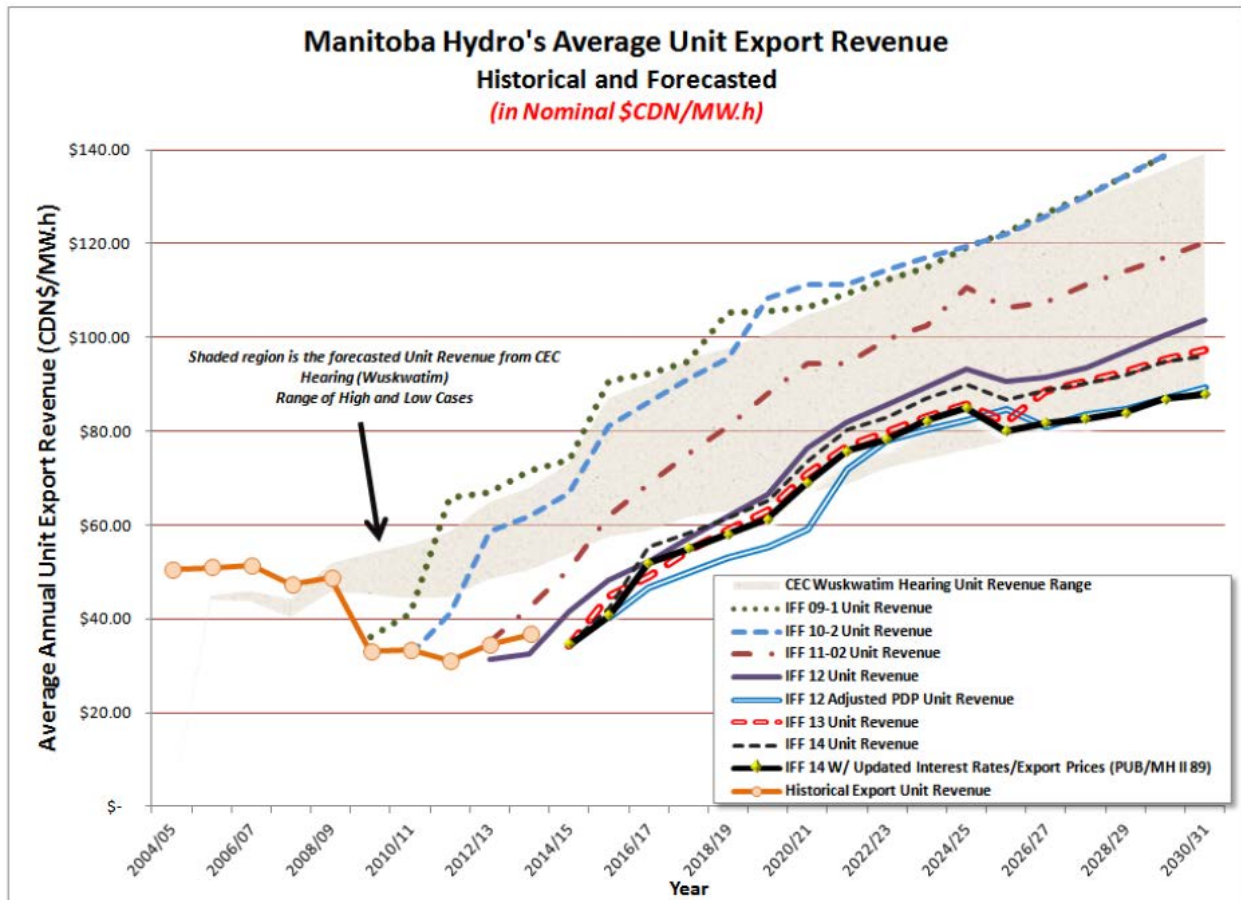
7% over the next 20 years, compared to the prior forecast based on the suite of Manitoba Hydro's independent consultants' price forecasts.

Manitoba Hydro's update to IFF14 suggests net export revenues will decline a further \$276 million in the next 10 years and \$838 million over the next 20 years, which is an approximate further decline in export revenues of 5%.

Manitoba Hydro is awaiting clarification of the U.S. Environmental Protection Agency's (EPA) Clean Power Rule which is expected in the summer of 2015. This EPA Rule may provide some clarity to the expected reduction in coal generation which may be replaced by natural gas-fired combined-cycle combustion turbines (CCCTs), wind generation, and solar generation. Until the final Rule is released, the future role of Manitoba Hydro exports into the U.S. is unclear as is the value of future export contract opportunities.

The graph below illustrates the history of Manitoba Hydro's average unit export revenues and export forecast projections. Since IFF09-1, when Manitoba Hydro signed most of its term sheets, the average unit revenue forecasts circa 2024/25 have trended downward about 33% from \$120/MWh to \$80/MWh. Actual average unit revenues since 2008/09 have been below \$40/MWh.

Average Unit Export Revenue Forecasts



Intervenors also commented on the adverse export price declines in the successive Manitoba Hydro forecasts. The Consumer Coalition (Coalition) noted that since Manitoba Hydro provided IFF10-2, the value of the export revenues declined approximately \$3.9 billion and this decline places stress on domestic ratepayers to fund Manitoba Hydro's operating revenue shortfall through rate increases.

The Coalition submitted that Manitoba Hydro's export price forecasts are 'perpetually too high', such that the Board should have little confidence in them when setting rates. The Coalition suggested that the strengthening U.S. economy, coupled with the weakening of the Canadian dollar, could change the export pricing paradigm.

Board Findings

The Board is concerned that successive Manitoba Hydro export price forecasts have been revised downward and consistently overestimate actual results. That trend continues since, according to IFF14, Manitoba Hydro expects a further price decline which will negatively impact the business case for Manitoba Hydro's new investments in generation and transmission.

The Board notes that Manitoba Hydro's latest export price and export revenue forecasts still appear to increase annually due to assumed, but uncertain, increasing natural gas prices.

The Midcontinent Independent System Operator (MISO) market that Manitoba Hydro exports into has changed since 2008 when Manitoba Hydro signed term sheets with Northern States Power and Minnesota Power. The Board anticipates that new contracts for firm export sales may not achieve prices that are as attractive as those agreed to by Northern States Power and Minnesota Power in 2008.

The Board notes that Manitoba Hydro's future exports into the United States are highly dependent on evolving United States Environmental Protection Agency (EPA) rules on carbon dioxide (CO₂) emissions reductions. These future export sales will be competing with new wind, solar, and natural gas-fired combined cycle combustion turbine generation. Manitoba Hydro's hydraulically generated energy is not assured of favourable treatment under the EPA Clean Power Rule as are other United States-based renewable energy resources.

In the Board's view, Manitoba Hydro's export price and export revenue forecast will be affected by the pending EPA Rule, the cost of natural gas-fired generation in MISO, the subsidies provided to other renewable energy generation options, and the access to additional markets through increased peak period intertie transmission capacity.

13.0 Special Rates

Curtable Rate Program

Manitoba Hydro's Curtable Rate Program (CRP) allows Manitoba Hydro to curtail a portion of participating industrial customers' peak load in exchange for reduced rates on the same portion of the load when not curtailed. The program currently has three customers, only two of which received any credits in 2013/14. Manitoba Hydro stated that the value of short term capacity in the MISO market has greatly diminished, and because the capacity is contracted on an annual basis, it is not included as a capacity resource in the utility's Power Resource Plan. Manitoba Hydro indicated that, to date, it has not considered entering into multi-year contracts to allow the program to be used as a capacity resource in future planning.

Manitoba Hydro seeks to reduce the amount of Option A and Option R loads available to customers, while eliminating options C and CE entirely and making changes to the terms and conditions imposed on participating customers. According to Manitoba Hydro, this would not affect the current operations of existing customers.

The Manitoba Industrial Power Users Group (MIPUG) was critical of the plan to cap the program and suggested that Manitoba Hydro should take a long term view and consider multi-year contracts, stating that the CRP currently represents 23% of the capacity savings in the Power Smart Plan.

Board Findings

The Board accepts Manitoba Hydro's explanation that, at the present time, the value of the CRP is diminished and notes that new long term capacity resources in Manitoba, once Keeyask is constructed, will not be required until 2033/34. As such, while the Board believes that there may be merit in MIPUG's suggestion that an expanded CRP with long term contracts could provide capacity benefits, it is premature at this time to expand the program. The Board therefore approves the finalization of Manitoba Hydro's proposed changes to the CRP, including the proposed cap.

Surplus Energy Program (SEP)

The Surplus Energy Program (SEP) is a system by which Manitoba Hydro prices electricity generated in excess of its immediate requirements and then sells it based on a pricing mechanism approved by the Board. The pricing of the SEP energy is established to approximate the price offered by Manitoba Hydro to export sales customers on the opportunity market or, in the case where the utility expects to import power, at a price reflective of Manitoba Hydro's cost with a 10% surcharge.

Board Findings

In Order 43/13, the Board approved several changes to the SEP on an interim basis, to be reviewed at the Cost of Service proceeding. With a Cost of Service hearing expected to take place prior to the next General Rate Application (GRA), the Board will keep those changes approved on an interim basis and not finalize them at this time.

The Board approves SEP rates on a weekly basis by way of interim orders that Manitoba Hydro seeks to finalize in this proceeding. In this Order, the Board approves the finalization of all interim SEP Orders since the issuance of Order 43/13.

The Board notes that Manitoba Hydro has undertaken to provide enhanced quarterly SEP reporting upon formal direction of the Board. The Board will therefore direct Manitoba Hydro to set out, in each quarterly report, the National Energy Board pricing and other factors that have influenced prices over the past quarter.

Time of Use (TOU) Rates

In its GRA, Manitoba Hydro applied for the approval of Time of Use (TOU) rates effective April 1, 2016. However, the Board determined that TOU rates would be addressed as part of the upcoming Cost of Service hearing rather than the GRA. As such, the matter was not explored and the Board makes no findings on TOU rates in this Order.

Area and Roadway Lighting Rates

Manitoba Hydro's annual billings for Area and Roadway Lighting are approximately \$23 million, approximately half of which is for service to the City of Winnipeg. Area and roadway lighting is not metered – rather, a flat rate is charged for each type of luminaire. The City of Winnipeg was critical of what it perceived to be a lack of data as to the actual luminaires based on which the City of Winnipeg is billed. Manitoba Hydro indicated that its data are improving due to the use of a geographic information system (GIS), and that the utility relies on data provided by the City of Winnipeg at the time Manitoba Hydro acquired Winnipeg Hydro.

Manitoba Hydro indicated that it is currently involved in a seven-year project to replace existing Area and Roadway Lighting with light-emitting diode (LED) luminaires, and seeks final approval of the LED rates. Manitoba Hydro derived the proposed LED rates by determining the annual kilowatt hour savings expected to be achieved by converting from high-pressure sodium (HPS) lighting to LED. Manitoba Hydro then determined the monthly cost savings using the Area and Roadway Lighting energy charge from Manitoba Hydro's 2013 Prospective Cost of Service Study (PCOSS13) updated to reflect the actual and proposed rate increases. The monthly cost savings were then deducted from the proposed April 1, 2015 HPS rates to determine the proposed LED rates.

While the City of Winnipeg did not object to the LED conversion program, which will reduce rates per luminaire, it expressed concern about Manitoba Hydro intending to wait until completion of the program to prepare another Area and Roadway Lighting-specific cost of service study. The City of Winnipeg noted that the most recent study is already over 25 years old and there is no guarantee that the LED conversion program will be completed on schedule. Manitoba Hydro suggested that the LED conversion program should run its course before another Area and Roadway Lighting-specific cost of service study is prepared.

Board Findings

The Board agrees with the City of Winnipeg's submission that there are deficient data on which the City is being billed almost \$12 million per year. The Board was provided with insufficient evidence to determine whether the lack of data is due to the state of Winnipeg Hydro's records at the time of sale or the historical state of Manitoba Hydro's own records, but notes that technology now exists to significantly improve data, as evidenced by Manitoba Hydro's GIS system. Nonetheless, no conclusive evidence was presented as to whether there are actual errors in the City of Winnipeg's bills and, unless such errors are proven, the Board has no reason to doubt that Manitoba Hydro's bills are fair and reasonable.

The Board will direct Manitoba Hydro to, by December 31, 2015, file with the Board a five-year plan to complete the City of Winnipeg's luminaire GIS mapping.

The Board shares the City of Winnipeg's concern about the most recent Area and Roadway Lighting-specific cost of service study now being over 25 years old. However, in light of most HPS lighting being replaced over the next six years, the Board cannot justify an Area and Roadway Lighting-specific cost of service study at this time. The Board notes that the overall cost allocated to the Area and Roadway Lighting class will be reviewed at the upcoming Cost of Service hearing, while the City of Winnipeg's bills for the Area and Roadway Lighting class are expected to be reduced as the conversion program proceeds. In the Board's view, an Area and Roadway Lighting-specific cost of service review should take place upon the completion of the LED conversion program. Since the timeframe for the completion of this program is not yet certain, the Board will not schedule such a review at this time. However, the Board expects to be apprised of the LED conversion progress at each GRA hearing.

14.0 Presenter Submissions

The following parties made presentations to the Board in respect of this proceeding. Presentations are not sworn evidence and do not form part of the evidentiary record.

Allan Ciekiewicz

Mr. Allan Ciekiewicz indicated that while the current proceeding does not discuss inverted rates, any future proceeding on inverted rates must address the all-electric customer without an alternative source of heating. He also expressed his concern about the implications on having to supply pipeline projects with electricity during a drought. He submitted that the \$1.4 billion already spent on Keeyask would have been better spent on efficient gas turbine generators, that the existing plan is subject to drought risk, and that Manitoba Hydro should focus on domestic needs first.

Mike Velie – International Brotherhood of Electrical Workers

Mr. Mike Velie presented on behalf of the International Brotherhood of Electrical Workers (IBEW), Local 2034, which represents 2,849 employees of Manitoba Hydro. IBEW supports Manitoba Hydro's rate application, stating that otherwise there would be an impact to safe and reliable service. As an example, Mr. Velie provided a freeze on training and a migration of workers to other employers and provinces. According to Mr. Velie, financial constraints led Manitoba Hydro to fall into a deficit position with respect to asset maintenance and 40% of substations are operating above their limitations. He submitted that outside contractors do not have the same level of understanding of the utility's operations, nor the same commitment as Manitoba Hydro employees, and provided an example in which a decision to save on protective equipment injured an employee. Mr. Velie identified the planned reduction in the workforce as a false economy if quality would suffer as a result.

Albertine Spence

Ms. Albertine Spence stated that the communities along the Nelson River are significantly impacted by hydroelectric development, and that these communities have approximately \$6.4 million in arrears. She stated that her Manitoba Hydro bill for a trailer has been between \$327 and \$437 a month when her annual income was less than \$32,000. She indicated that she moved to Winnipeg in December 2014 but still receives billings from Tataskweyak Cree Nation, referencing creative accounting and the need for an audit. She also described some of the hardships faced by people in the communities due to electricity bills, and suggested that low-income earners should pay reduced rates.

Dave Mouland

Mr. Dave Mouland with Winnipeg Harvest spoke to the effect of continued rate increases on people living in poverty, stating that the budgets of those living on poverty do not go up by 3.95% every year. Even if utilities are paid through EIA, costs are still indirectly passed on through higher food prices. He also submitted that every major project drives Manitoba Hydro deeper into debt, while little is done to renew existing infrastructure.

Bill Turner (MIPUG) and Dale Bossons (Canexus)

Messrs Bill Turner and Dale Bossons, the chair and co-chair of MIPUG, spoke to the impact of rate increases on industrial consumers. They expressed concern about Manitoba Hydro's proposal to introduce caps on the Curtailable Rate Program (CRP), stating that companies such as Canexus have invested significantly to avail themselves of the program. They also stated that companies in the U.S. can alter their loads to capture the benefits of daily or seasonal energy price fluctuations. According to MIPUG, Manitoba used to be among the lowest-cost jurisdictions, but no longer is at this time. MIPUG also expressed concern regarding industrial DSM being removed from Manitoba Hydro, stating that the utility has the in-depth knowledge and longstanding relationships with industry required for these programs. Lastly, MIPUG expressed surprise that even

with Manitoba Hydro no longer pursuing Conawapa, the utility continues to request 3.95% rate increases, stating that industry could not survive with another decade of such rate increases. Mr. Bosson's added that a 3.95% rate increase represents an additional \$2.5 million cost increase to Canexus per year.

Pam Pugh

Ms. Pam Pugh farms west of Portage la Prairie and will have the Bipole III transmission line cross her land. She spoke to security issues with respect to the line, stating farmers do not want to be liable for coming into contact with electric poles, and submitted that the line should be routed underground.

Garland Laliberte and Dennis Woodford – Bipole III Coalition

Messrs Garland Laliberte and Dennis Woodford spoke on behalf of the Bipole III Coalition. They addressed the changing ways in which we use electricity and spoke to the development of microgrids in the U.S. and Europe. They also submitted that once solar grid parity is achieved, it would be reasonable for residential customers to generate with solar power. With respect to the Bipole III transmission line, Mr. Woodford stated that if the Bipole III converters already purchased would be connected to the Bipole I and II transmission lines, there would be sufficient capacity for Keeyask. The Coalition also questioned Manitoba Hydro's case for the reliability need for the Bipole III Transmission Reliability Project, stating that Manitoba Hydro's assumption that a failure of the two existing lines could occur once every 17 years is incorrect, and such a failure would occur only once in 90 years.

Manitoba Hydro

Manitoba Hydro offered to provide, and the Board accepted to hear, a presentation by Manitoba Hydro in response to the presentation made by the Bipole III Coalition. Like the other presentations received by the Board, Manitoba Hydro's presentation was not received as sworn evidence and as such does not form part of the evidentiary record of the proceeding.

Manitoba Hydro indicated that from a global perspective, Manitoba Hydro currently routes a disproportionate amount of power through a single system. Dr. Swatek referred to the 1996 wind storm in which 19 HVDC towers were lost, submitting that risks to the system are not just academic. He suggested that if an F5 tornado were to hit the Dorsey Converter Station, outages could last from several months to three years. Dr. Swatek also spoke to the NERC reliability criteria Manitoba Hydro has to comply with and stated that if Dorsey or the Interlake corridor was lost, Manitoba Hydro would be 1,500 MW short at this time, while in 2020, there would be a deficit of 700 MW compared to a surplus of 1,300 MW with the Bipole III Transmission Reliability Project in service.

Per Stokke

Mr. Per Stokke filed a written presentation but did not make oral submissions. His submission focused on the Pointe du Bois and Wuskwatim spillways. With respect to Wuskwatim, Mr. Stokke alluded to a number of alleged planning errors that caused the initial construction cost estimates to be significantly exceeded. With respect to Pointe du Bois, Mr. Stokke questioned Manitoba Hydro's conclusion that the spillway had to be replaced.

15.0 IT IS ORDERED THAT:

1. The rate increase of 2.75% previously approved as interim on May 1, 2014 **BE AND IS HEREBY APPROVED AS FINAL.**
2. Manitoba Hydro's Application for a 3.95% across-the-board rate increase effective April 1, 2015 **BE AND IS HEREBY DENIED** as filed.
3. A 3.95% overall increase in billed rates for the Basic Charge, the Demand Charge, and the Energy Charge for all rate classes to take effect August 1, 2015, with revenues from a 2.15% portion of the rate increase accruing into a deferral account to be utilized to mitigate the required rate increases when Bipole III enters service and 1.8% accruing to Manitoba Hydro's general revenues, **BE AND IS HEREBY APPROVED.**
4. Manitoba Hydro recalculate and refile, for Board approval, a schedule of rates reflecting a 3.95% increase effective August 1, 2015 to the Basic Charge, Demand Charge, and Energy Charge for all rate classes, together with all supporting schedules including proof of revenue, customer impacts, and revenue requirement.
5. Manitoba Hydro shall lead a collaborative process to develop a bill affordability program harmonized with Manitoba Hydro's other programs supporting low-income ratepayers. Manitoba Hydro shall file proposed Terms of Reference for this collaborative process with the Board (including proposed facilitators and stakeholder participants) by no later than October 31, 2015. If Terms of Reference cannot be agreed upon between Manitoba Hydro and participants, the Board is prepared to receive submissions and adjudicate the issue.
6. Manitoba Hydro shall consider additional measures to increase participation rates in the Affordable Energy Program and to assist all-electric customers, particularly those living in rural Manitoba and aboriginal communities without

access to natural gas heating options, and to provide annual reports on the implementation of the Affordable Energy Program and any additional measures developed by the end of June of each calendar year.

7. Manitoba Hydro shall file terms of reference for an Asset Condition Assessment Report for approval by the Board that, at minimum, include the information set out in Appendix “F” of this Order, by no later than October 31, 2015.
8. The removal of net salvage from 2015/16 depreciation rates in the 2014 Depreciation Study **BE AND IS HEREBY APPROVED.**
9. The incorporation of the use of the Equal Life Group methodology to set depreciation rates in 2015/16 as set out in the 2014 Depreciation Study **BE AND IS HEREBY DENIED.**
10. Manitoba Hydro is to continue to use its existing Average Service Life Methodology for calculating depreciation rates for rate-setting purposes until the Board is satisfied that a change in methodology is warranted.
11. Manitoba Hydro’s request to rescind the DSM deferral account **BE AND IS HEREBY DENIED.**
12. Manitoba Hydro is to continue the DSM deferral account to capture shortfalls in Demand-Side Management spending compared to the forecast spending in the Power Smart Plan. The shortfall in Demand-Side Management spending in 2014/15 of \$19 million shall accumulate in the DSM deferral account. To the extent Manitoba Hydro’s actual spending on Demand-Side Management in 2015/16 falls below the forecasted spending in the 2015 Power Smart Plan of \$63.4 million, the shortfall shall accumulate in the DSM deferral account. To the extent Manitoba Hydro’s actual spending on Demand-Side Management in 2015/16 exceeds \$63.4 million, the excess shall be paid from the balance of the DSM deferral account. The DSM deferral account is to continue with each annual

spending target equal to the forecast spending stated in the most current Power Smart Plan, inclusive of funding from the Affordable Energy Fund.

13. Manitoba Hydro shall file detailed quarterly reports for all Major New Generation and Transmission projects, including the ones currently under development. These reports are to outline the proposed budget (at time of contract), budget changes and reasons for such changes, and the revised projected in-service costs. Where capital costs have increased materially, Manitoba Hydro is to explain how such increases will impact domestic revenue requirements and projected impacts on Manitoba Hydro's financial forecasts and targets.
14. Manitoba Hydro shall file quarterly updates regarding its Operation, Maintenance & Administration (OM&A) expenditures and the actual OM&A expenditures compared to Manitoba Hydro's target.
15. Manitoba Hydro shall identify and provide details of individual capital projects with a value greater than \$1 million in future Capital Expenditure Forecasts.
16. The Curtailable Rate Program changes approved on an interim basis by way of Directive 13 of Order 43/13 **BE AND HEREBY ARE APPROVED AS FINAL.**
17. All Curtailable Rate Program Orders from Order 46/14 up to and including all Curtailable Rate Program Orders issued prior to the date of this Order **BE AND HEREBY ARE APPROVED AS FINAL.**
18. All weekly Surplus Energy Program interim ex-parte rate Orders – from Order 47/13 up to and including all Surplus Energy Program Orders issued prior to the date of this Order, **BE AND ARE HEREBY APPROVED AS FINAL.**
19. As part of any future quarterly Surplus Energy Program reports, Manitoba Hydro include an explanation of the National Energy Board (NEB) pricing and other factors that have influenced the pricing during the quarter addressed by the report.

20. By December 31, 2015, Manitoba Hydro shall file with the Board a five-year plan to complete the City of Winnipeg's luminaire geographical information system (GIS) mapping.

Board decisions may be appealed in accordance with the provisions of Section 58 of *The Public Utilities Board Act*, or reviewed in accordance with Section 36 of the Board's Rules of Practice and Procedure. The Board's Rules may be viewed on the Board's website at www.pub.gov.mb.ca.

THE PUBLIC UTILITIES BOARD

Régis Gosselin, B ès Arts, MBA, CPA, CGA

Chairman

"Kurt Simonsen"

Acting Secretary

Certified a true copy of Order No. 73/15 issued
by The Public Utilities Board

Acting Secretary

APPENDIX A – APPEARANCES

R. Peters / S. Hombach	Counsel for the Manitoba Public Utilities Board
O. Fernandes / B. Czarnecki	Counsel for the Manitoba Hydro-Electric Board
D. Pambrun	Counsel for the City of Winnipeg
B. Williams	Counsel for the Consumer Coalition
B. Gange	Counsel for the Green Action Centre
A. Hacault	Counsel for the Manitoba Industrial Power Users Group
G. Orle	Counsel for Manitoba Keewatinowi Okimakanak Inc.
T. Masi	Counsel for the Manitoba Métis Federation

APPENDIX B – WITNESSES FOR MANITOBA HYDRO

S. Thompson	President & CEO
D. Rainkie	VP, Finance & Regulatory
L. Kuczek	VP, Customer Care & Energy Conservation
S. Bauerlein	Corporate Controller
D. Cormie	Division Manager, Power Sales & Operations
T. Miles	Division Manager, Power Planning
R. Elder	Division Manager, Bipole III Project
D. Bowen	Manager, Keeyask Project
N. Read	Manager, Generation Maintenance Engineering
D. Swatek	Manager, System Planning (Transmission)
M. Morin	Manager, Distribution Asset Maintenance
L. Carriere	Manager, Financial Planning
M. Schulz	Corporate Treasurer
I. Page	Division Manager, Corporate Planning & Strategic Review
G. Barnlund	Division Manager, Rates & Regulatory Affairs
P. Chard	Division Manager, Business Support Services
L. Morrison	Division Manager, Consumer Marketing and Sales
C. Galbraith	Affordable Energy Supervisor
M. Hooper	Asset Accounting Systems Supervisor
L. Kennedy	External Depreciation Expert, Gannet Fleming

APPENDIX C – INTERVENERS OF RECORD & WITNESSES

City of Winnipeg
Consumer Coalition (P. Lee)
Green Action Centre (R. Colton)
Manitoba Industrial Power Users Group (P. Bowman, P. Lee)
Manitoba Keewatinowi Okimakanak Inc.
Manitoba Métis Federation

APPENDIX D

A. Ciekiewicz	Private Citizen
M. Velie	International Brotherhood of Electrical Workers
A. Spence	Private Citizen
D. Mouland	Winnipeg Harvest
B. Turner & Dale Bossons	Manitoba Industrial Power Users Group
Pam Pugh	Private Citizen
G. Laliberte and D. Woodford	Bipole III Coalition
Manitoba Hydro	
P. Stokke (written presentation only)	Private Citizen

APPENDIX E – UNITS OF MEASUREMENT

Demand/Power represents the size of electricity load over a specific period of time.

expressed in:

- Watts (W)
- Kilo-watts (kW) - 1,000 watts
- Mega-watts (MW) - one million watts
- Giga-watts (GW) - one billion watts

Energy represents the amount of electricity provided to customers to do work or create heat, light, or sound. It is typically expressed as:

- Kilo-watt hours (kWh) - 1,000 watt hours
- Mega-watt hours (MWh) - 1,000 kilo-watt hours
- Giga-watt hours (GWh) - one million kilo-watt hours

Voltage represents the electric potential between two points expressed in:

- Volts
- Kilo-volts (kV) – 1,000 volts

Water Flow represents the rate at which water enters or leaves a system, expressed in:

- Cubic Meters per Second (m³/s)

APPENDIX F – LIST OF ABBREVIATIONS

AEP	Affordable Energy Program
ASL	Average Service Life
ATK	Aboriginal Traditional Knowledge
CCCT	Combined-Cycle Combustion Turbine
CEF	Capital Expenditure Forecast
CGAAP	Canadian Generally Accepted Accounting Principles
COSS	Cost of Service Study
CRP	Curtable Rate Program
DSM	Demand-Side Management
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EFT	Equivalent Full-Time
ELG	Equal Life Group
EPA	Environmental Protection Agency
GAC	Green Action Centre
GIS	Geographical Information System
GRA	General Rate Application
HPS	High-Pressure Sodium
HVDC	High-Voltage Direct Current
IASB	International Accounting Standards Board
IFF	Integrated Financial Forecast
IFRS	International Financial Reporting Standards
IFRA	International Financial Reporting Standards
LCC	Load-Commutated Conversion
LED	Light-Emitting Diode
LICO	Low Income Cut-Off
MIPUG	Manitoba Industrial Power Users Group
MISO	Mid-Continent Independent System Operator
MKO	Manitoba Keewatinowi Okimakanak Inc.
MMF	Manitoba Metis Federation
NFAT	Needs For and Alternatives To
OM&A	Operation, Maintenance & Administration
PCOSS	Prospective Cost of Service Study
PLIL	Potential Large Industrial Load
SEP	Surplus Energy Program
VSC	Voltage Source Conversion
WPLP	Wuskwatim Power Limited Partnership

APPENDIX G - MINIMUM TERMS OF REFERENCE FOR ASSET CONDITION ASSESSMENT

Manitoba Hydro's Asset Condition Assessment Report should include, at minimum, the following:

- For each of Manitoba Hydro's hydraulic generating stations and thermal generating stations, a timeline for the refurbishment and/or replacement up to 2049/50 along with an Asset Health Index. For the hydraulic generating stations, this should include the following components:
 - powerhouse structure and gates.
 - spillway structures and gates
 - main dam
 - secondary dams/dikes/weirs
 - access lands and building facilities.
 - breakers
 - exciters (separately for each unit)
 - generators (separately for each unit)
 - governors (separately for each unit)
 - transformers
 - turbines (separately for each unit)
- Identification of specific components of generating assets that are scheduled for replacement based on chronological age life expectancy as opposed to an Asset Health Index.

- For each of Manitoba Hydro's HVDC and HVAC transmission systems, a timeline for the refurbishment and/or replacement up to 2049/50 along with an Asset Health Index. This should include the following components:
 - Bipole I & II, further broken down into:
 - ◆ HVDC breakers
 - ◆ HVDC transformers
 - ◆ HVDC transmission steel structures.
 - ◆ HVDC transmission tower footings.
 - ◆ HVDC transmission line cables
 - ◆ HVDC converter transformers.
 - ◆ HVDC valve groups.
 - ◆ HVDC synchronous condensers
 - ◆ HVDC shunt reactors.
 - ◆ HVDC smoothing reactors
 - Bipole III (to include same listing as above out to 2049/50)
 - HVAC regional transmission lines (to include for each region and as applicable):
 - ◆ transmission breakers
 - ◆ transmission transformers
 - ◆ protector relays

- ◆ AC transmission steel towers
 - ◆ AC transmission tower footings
 - ◆ AC transmission wood poles
 - ◆ AC transmission overhead
- For each of Manitoba Hydro's regional distribution systems, a timeline for the refurbishment and/or replacement up to 2049/50 along with an Asset Health Index. This should include the following components:
 - City of Winnipeg
 - ◆ underground services
 - ◆ overhead services
 - Southern Manitoba.
 - ◆ natural gas available.
 - ◆ natural gas not available.
 - Eastern Manitoba
 - Northern Manitoba