Supplement to Tab 3

Index

July 11, 2017

MANITOBA HYDRO

2017/18 & 2018/19 GENERAL RATE APPLICATION

SUPPLEMENT TO TAB 3 - FORECAST UPDATE

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Appendices

MANITOBA HYDRO

2017/18 & 2018/19 GENERAL RATE APPLICATION

SUPPLEMENT TO TAB 3 – FORECAST UPDATE

1.0 OVERVIEW

The Supplement to Tab 3 provides an overview of an update to the Integrated Financial Forecast IFF16 for Electric Operations and is referred to as the "MH16 Update".

IFF16 filed as Appendix 3.1 of the 2017/18 & 2018/19 General Rate Application incorporated forecasts and assumptions gathered over the timeframe from May 2016 to January 2017. Since the preparation of IFF16, new forecasts have become available for Manitoba load, electricity export prices, and economic and financial indicators. Additionally, as is inherent in a primarily hydraulic generation utility, water conditions have changed since MH16 was produced. The MH16 Update reflects the financial impacts associated with the updated 2017 Electricity Load Forecast, the 2017 Energy Price Forecast (formerly the Electricity Export Price Forecast and the Energy Price Outlook), the 2017 Economic Outlook, as well as a preliminary 2017 Forecast of Generation Costs and Interchange Revenues.

The MH16 Update Projected Financial Statements were reviewed for information by the MHEB on July 5, 2017. Manitoba Hydro is filing this Supplement and the MH16 Update Projected Financial Statements (found in Appendix 3.6) in advance of the filing date included in the PUB's approved timetable for the GRA in order to provide adequate time for consideration prior to the Interim Submission Oral Hearing on July 18th and Interveners' preparation of Information Requests to Manitoba Hydro on July 24th.

Section 2.0 of this Supplement discusses the updated forecasts and assumptions and their impacts on revenues and expenses, and Section 3.0 outlines the impacts of the updates on Manitoba Hydro's financial results.

2.0 UPDATED FINANCIAL OUTLOOK (MH16 UPDATE)

A discussion of the updated forecasts and assumptions and their impacts on revenues and expenses included in the MH16 Update follows.

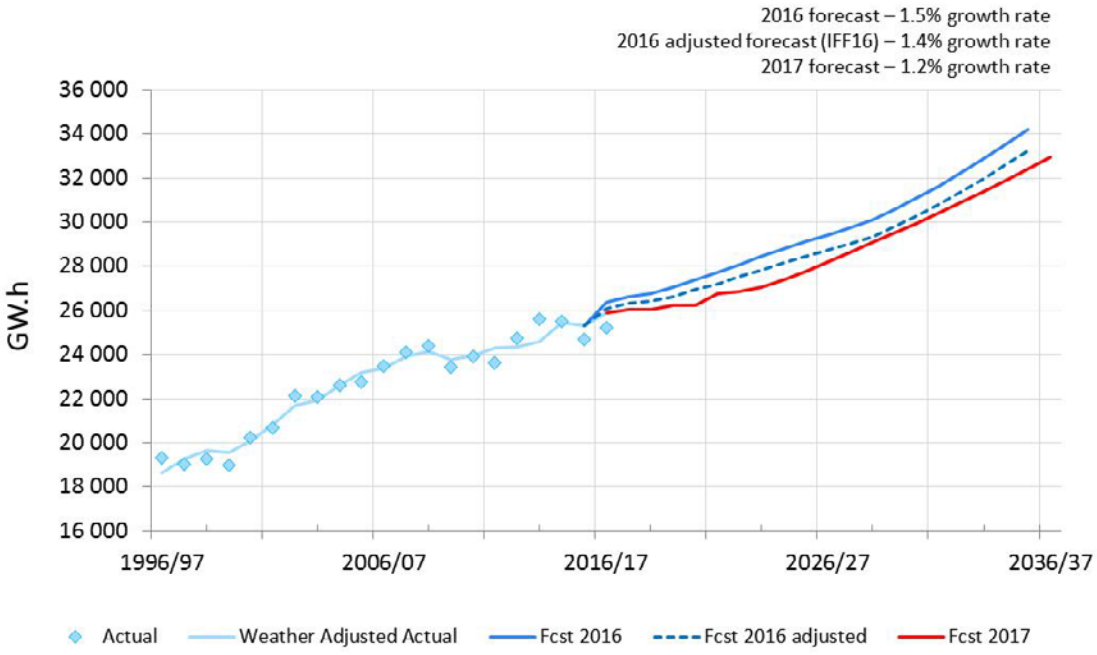
2.1 Manitoba Demand for Electricity

The MH16 Update provides a forecast of domestic revenue based on the future load requirements in Manitoba as projected in the 2017 Electric Load Forecast. The 2017 Load Forecast (filed as part of revised PUB MFR 65), supersedes the 2016 Load Forecast with corresponding adjustments which was incorporated in MH16 and underpins the GRA, as well as the 2016 Load Forecast filed in Appendix 7.1 of this Application.

The Load Forecast includes Demand Side Management ("DSM") savings achieved to March 31, 2017 as well as projected savings achieved through codes and standards. Planned additional savings are incorporated in the forecast of domestic revenue separately from the Load Forecast and are discussed in Section 2.2 below.

Figure 1 below shows the comparison of Gross Firm Energy in Manitoba as projected in the 2017 Load Forecast, the 2016 Load Forecast with adjustments, and 2016 Load Forecast.

Figure 1. Gross Firm Energy Comparison (before DSM)



Gross Firm Energy in Manitoba is forecast to grow from a weather adjusted value of 25,896 GWh in 2016/17 to 28,208 GWh in 2026/27. This represents an average growth of 231 GWh or 0.9% per year for 10 years. By 2036/37, Gross Firm Energy is forecast to be 32,930 GWh, representing a growth rate of 352 GWh or 1.2% per year (compared to 1.4% in the adjustment to the 2016 Load Forecast).

Gross Total Peak is forecast to grow at a similar pace, from an adjusted value of 4,751 MW in 2016/17, growing 41 MW or 0.8% a year for the next 10 years, and 65 MW or 1.2% a year for the next 20 years (compared to 1.4% in the adjustment to the 2016 Load Forecast). By 2036/37, the system peak is forecast to be 6,043 MW.

Compared to the 2016 Load Forecast with adjustments, the 2017 Load Forecast projects a reduction of approximately 800 GWh by 2035/36 due mainly to the lower forecast of Real Gross Domestic Product (350 GWh) and higher forecasted rate increases (175 GWh). The adjustments to the 2016 Load Forecast previously included an approximate 1,000 GWh reduction in Manitoba Gross Firm Energy by 2035/36. These reductions were associated with more conservative methodologies in forecasting Potential Large Industrial Loads (930 GWh decrease) and price elasticity model enhancements (360

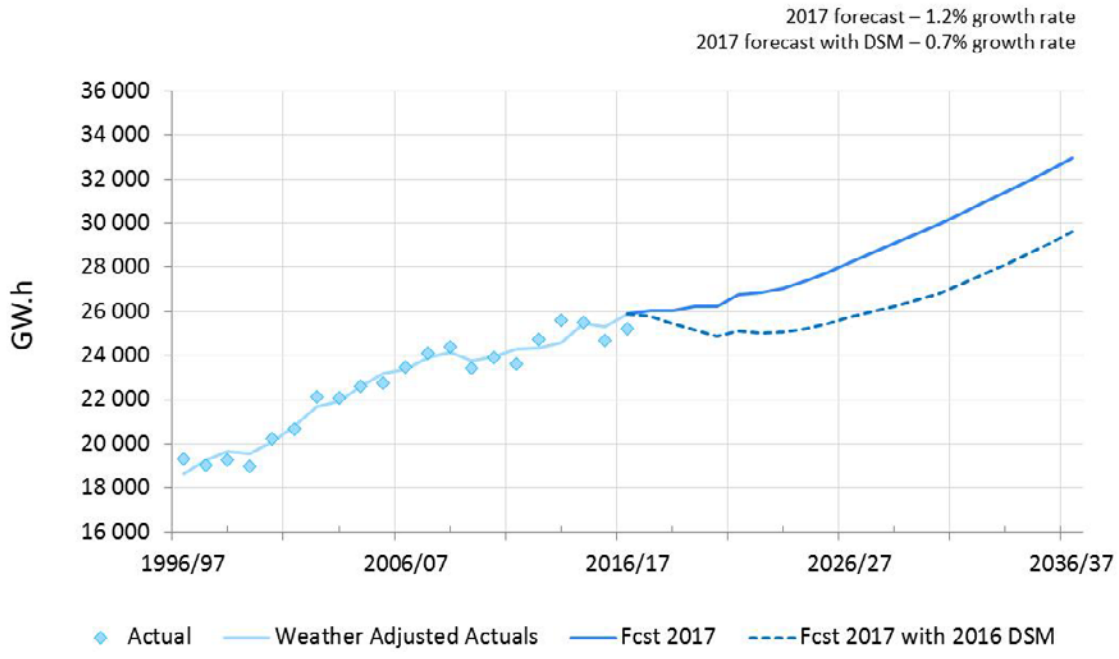
GWh decrease) which were partially offset by an increase in population (514 GWh increase). Together, the 2017 Load Forecast and the adjustments to the 2016 Load Forecast comprise an overall 1,800 GWh reduction in Manitoba Gross Firm Energy compared to the original 2016 Load Forecast.

2.2 Demand Side Management

The MH16 Update incorporates planned additional savings from the 2017/18 Power Smart Plan developed in consultation with the Province as outlined under *The Energy Savings Act*. The planned additional savings in the longer term (2018/19 to 2029/30), included in the 2016/17 Demand Side Management Supplemental Plan, remains unchanged from MH16, except to the extent that the savings projected in the 2017/18 Plan accumulate through the MH16 Update forecast horizon. As with MH16, the MH16 Update incorporates no incremental impact to DSM investment or energy savings in connection with attaining legislated targets under the *Efficiency Manitoba Act* which will come into force on a date to be fixed by proclamation.

Figure 2 shows the forecast of Manitoba load before and after DSM savings.

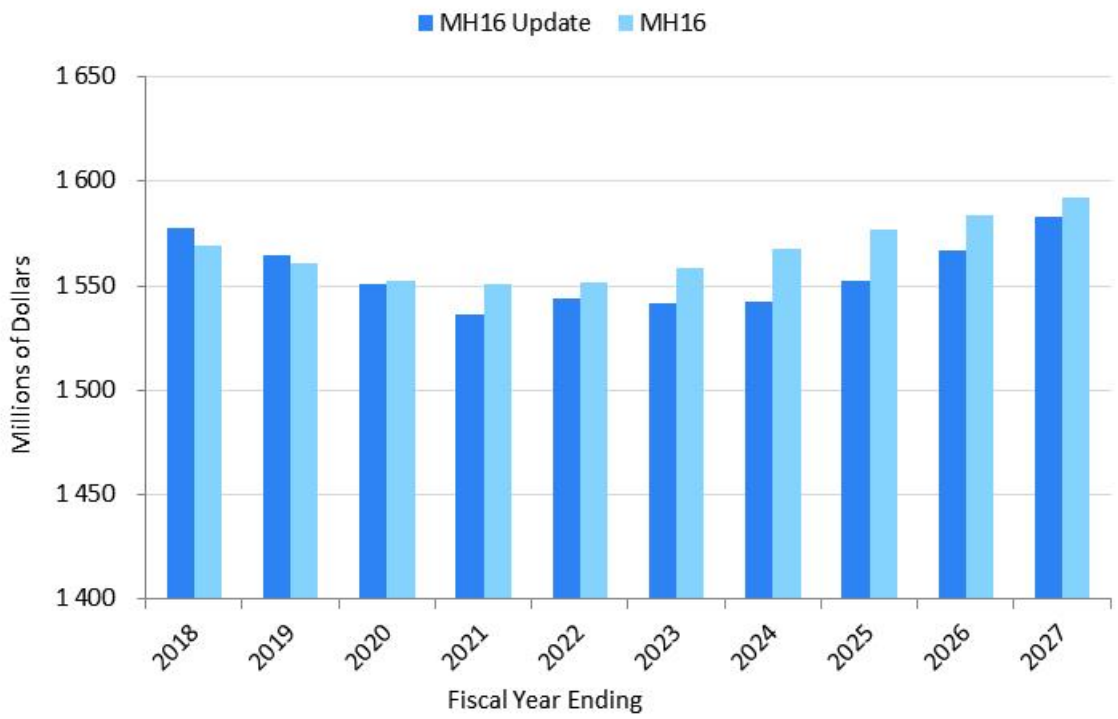
Figure 2. Manitoba Firm Energy (before and after DSM)



2.3 Domestic Revenues

The following **Figure 3** compares Domestic Revenues between the MH16 Update and MH16. Over the 10-year period, Domestic Revenues at approved rates are down $103 million compared to MH16.

Figure 3. Domestic Revenue Comparison



2.4 Electricity Export Prices

MH16 incorporated a January 2017 forecast of electricity export prices adjusted for developments in the MISO market since the preparation of Manitoba Hydro's 2016 Electricity Export Price Forecast ("EEPF") (July 2016). The former Electricity Export Price Forecast and Energy Price Outlook have been consolidated into one forecast for 2017 that is now referred to as the Energy Price Forecast ("EPF"). Since the Application was filed, Manitoba Hydro has completed the 2017 EPF and the forecast has been incorporated into the MH16 Update.

The 2017 EPF is a consensus forecast of equal weightings applied to the independent forecasts of four consultants for prices in the MISO market. As in past forecasts, each consultant utilizes their own electricity price forecast model, assumptions and view of the future.

Relative to the assumptions in MH16, long-term export prices continue to see further flattened growth, with natural gas price declines along with the increased buildout of renewables putting downward pressure on price appreciation. On-peak prices are down approximately 7% compared to the forecast underpinning MH16 and down approximately 17% from the 2016 EEPF. Off-peak prices have seen a larger decline than on-peak prices, down 10% compared to the forecast underpinning MH16 and down 20% from the 2016 EEPF, showing the larger effect that wind generation has in pushing the prices down overnight. The 2016 EEPF was itself an approximately 15% decline in export prices in comparison to those assumed in MH15.

Average unit revenues and costs have been revised in PUB MFR 24 and the 2017 third-party and consensus forecast prices have been provided in revised PUB MFR 79.

2.5 Water Conditions

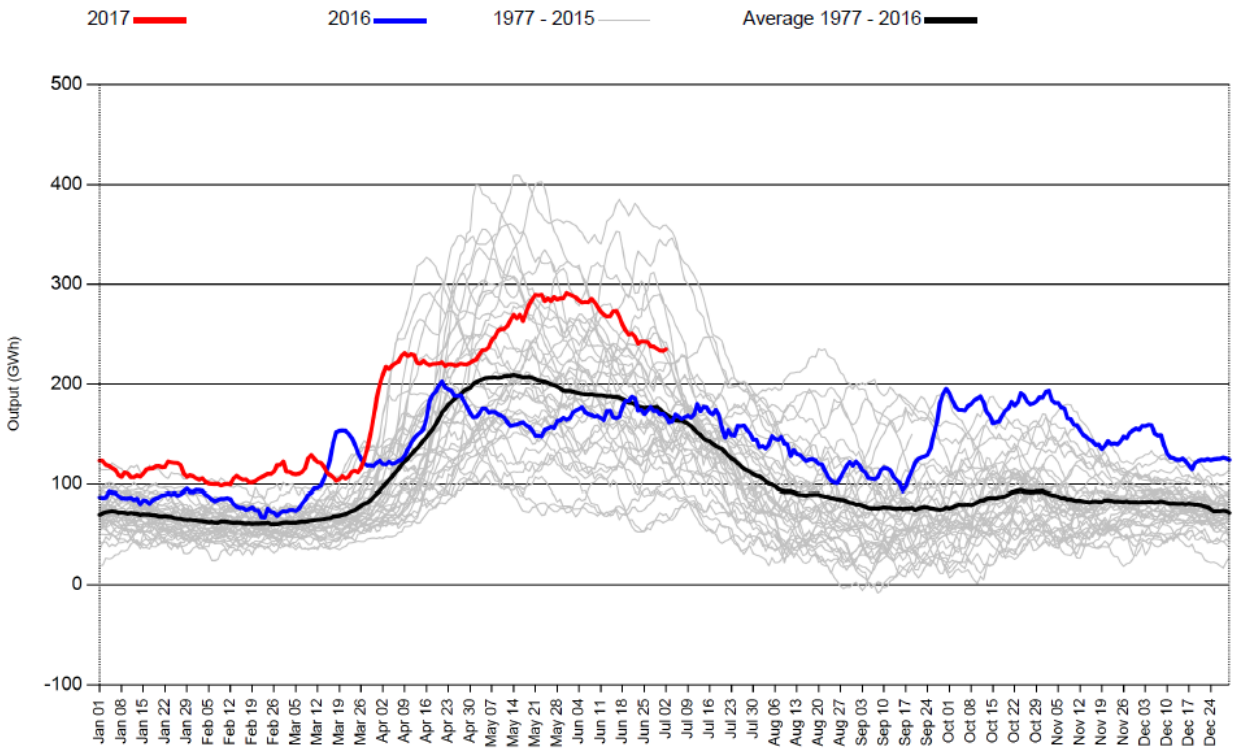
Precipitation

System precipitation since March 1, 2017 has been normal to above normal for all basins with the exception of the Winnipeg River Basin being below normal. Runoff volumes in the Churchill and Saskatchewan River basins were well above average to record highs due to significant accumulated winter snowpack. The precipitation report for the past 60 days has been below average for all basins.

Inflows

Figure 4 (which is an update to Figure 7.13 from Tab 7) below shows historical daily inflows beginning in 1977, with inflows for 2016 and 2017 and the average shown as highlighted. Despite the below average precipitation in the past two months, hydraulic energy from inflow is still above average as the significant runoff volumes in the north slowly recede.

Figure 4. Daily Hydraulic Energy from Inflow

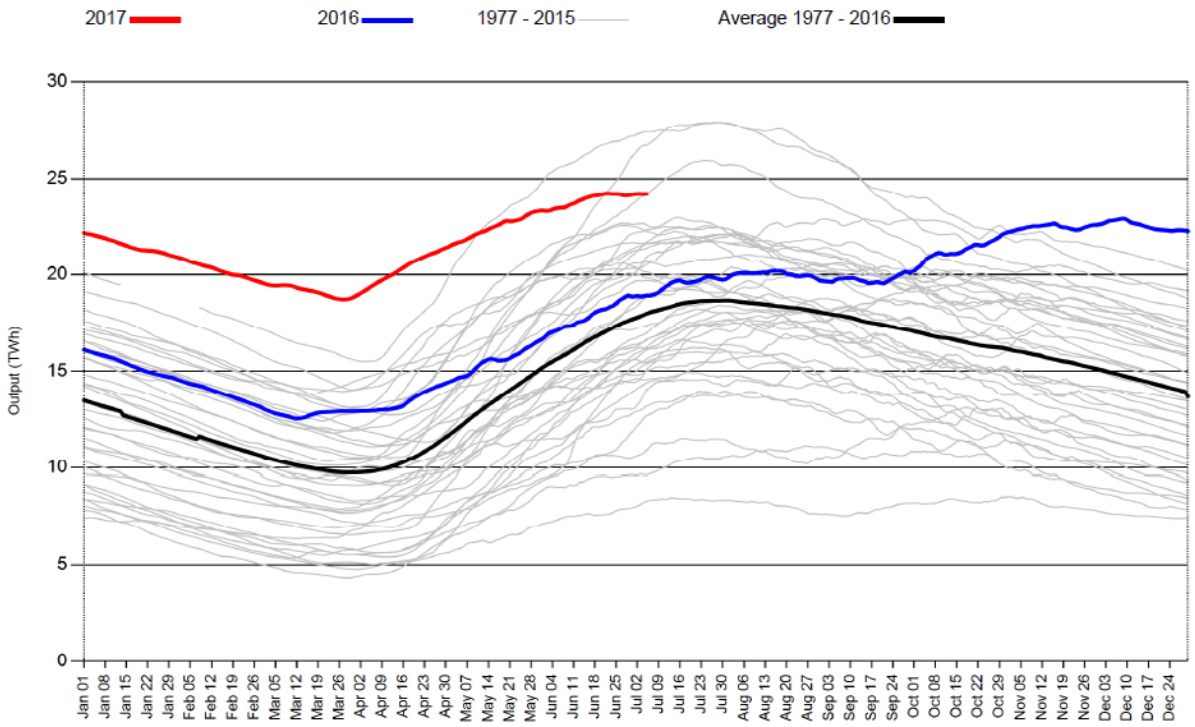


Energy in Reservoir Storage

Figure 5 (which is an update to Figure 7.14 from Tab 7) shows historical daily energy in reservoir storage beginning in 1977, with values for 2016 and 2017 and the average shown as highlighted. This indicator is for the major reservoirs in Manitoba Hydro's watersheds including reservoirs regulated by other agencies whose operations affect the flows at Manitoba Hydro's generating stations.

Due to the record high carry over storage from 2016/17 and significant runoff volumes through the spring, current system energy in reservoir storage is third highest on record. Manitoba Hydro continues to spill a significant portion of this water. Spill conditions with maximum Lake Winnipeg outflow operations are expected to continue into August 2017.

Figure 5. Total Energy in Reservoir Storage

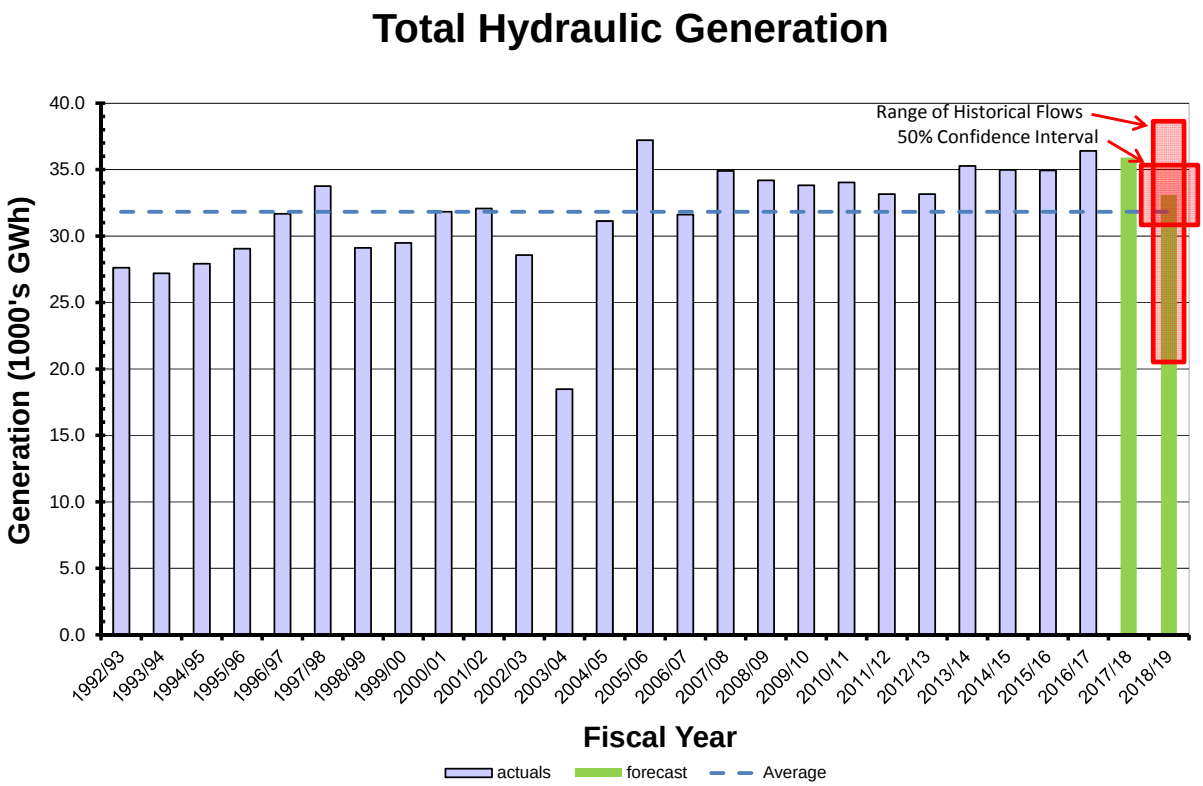


Total Hydraulic Generation

Figure 6 (which is an update to Figure 7.15 of Tab 7) below shows the forecast hydraulic generation for 2017/18 based on expected inflows as at July 5, 2017. For 2017/18 the main driver for hydraulic generation will be future precipitation, which is highly uncertain. A favourable factor will be the record high storage carry-over from 2016/17, primarily in Lake Winnipeg.

Figure 6 shows the forecast hydraulic generation for 2018/19 as well as a range reflecting various levels of uncertainty in inflows. The forecast hydraulic generation is the average hydraulic generation from a simulation using the 104-year flow record (1912/13 through 2015/16), all in conjunction with expected reservoir starting levels. In terms of the financial impact in 2018/19, the range of flow-related costs and revenues is $93 million favourable relative to average with highest flows, and $380 million unfavorable relative to average with lowest flows on record.

Figure 6. Total Hydraulic Generation



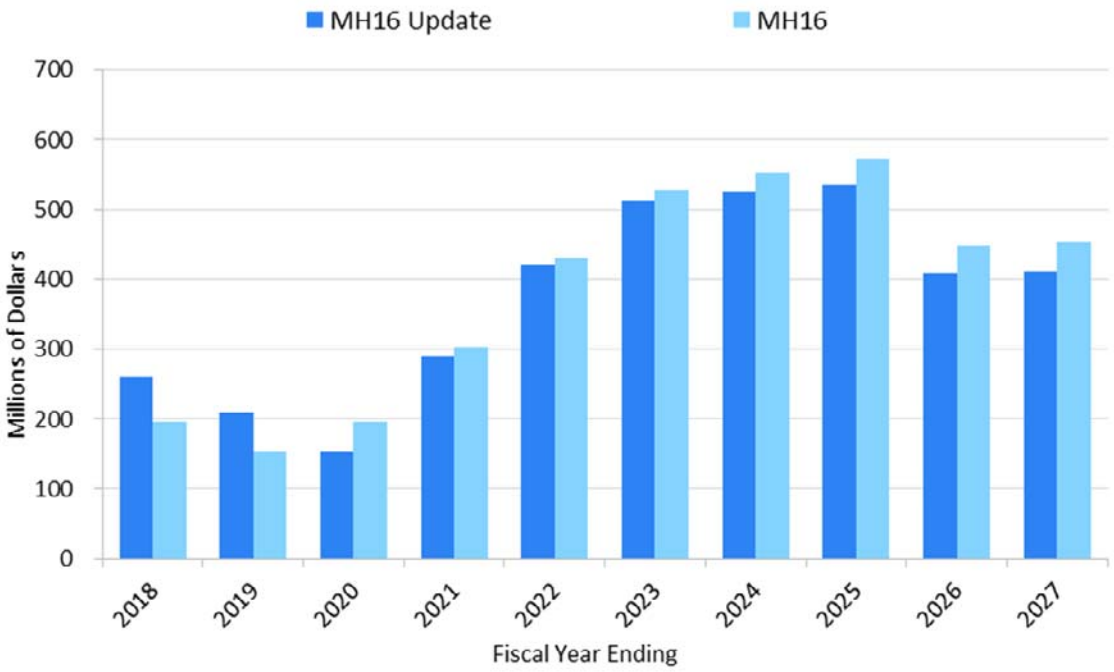
Due to the very wet conditions, hydraulic generation is forecast to be 36.0 TWh in 2017/18 in the MH16 Update, a 1.7 TWh increase over MH16. Thermal generation and purchased energy are forecast to be 1.3 TWh, a 350 GWh reduction over MH16. Net supply is forecast to be 37.3 TWh, a 1.4 TWh increase compared to MH16.

The MH16 Update forecast hydraulic generation for 2018/19 benefits from the expected high storage carry-over from 2017/18. Hydraulic generation is forecast to be 32.8 TWh, thermal generation and energy purchases 2.1 TWh, for net supply of 34.9 TWh. Compared to MH16, this is a 2.0 TWh increase, 167 GWh decrease and 1.8 TWh increase, respectively.

Figure 7 shows a comparison of MH16 and MH16 Update extraprovincial revenues (net of generation costs). Favourable water conditions, discussed above, result in $120 million in higher extraprovincial revenues over the two years 2017/18 and 2018/19 relative to MH16. Over the 10-year period to 2026/27, MH16 Update extraprovincial

revenues have decreased by $310 million (net of U.S. exchange). As discussed above, higher net supply in 2017/18 and 2018/19 along with higher export sales resulting from high water conditions in the next two years and lower domestic load over the planning horizon result in an increase in extraprovincial revenues of $131 million over the 10-year period. However, lower export prices more than outweigh the increase in sales volumes resulting in a reduction due to prices of $441 million compared to MH16.

Figure 7. Extraprovincial Revenue Comparison (Net of Generation Costs)



2.6 Economic Outlook

The economic assumptions used in the forecast are based upon Manitoba Hydro's 2017 Economic Outlook, with rate and demographic forecasts as of March 2017. The Economic Outlook forecasts are based on a consensus view of several independent sources including Canada's primary financial institutions and several other independent sources.

Figure 8 provides the key economic indicators incorporated in the MH16 Update compared to those incorporated in MH16 and filed in Tab 3 of the Application.

Figure 8. MH16 Update Escalation, Interest and Exchange Rate Forecasts

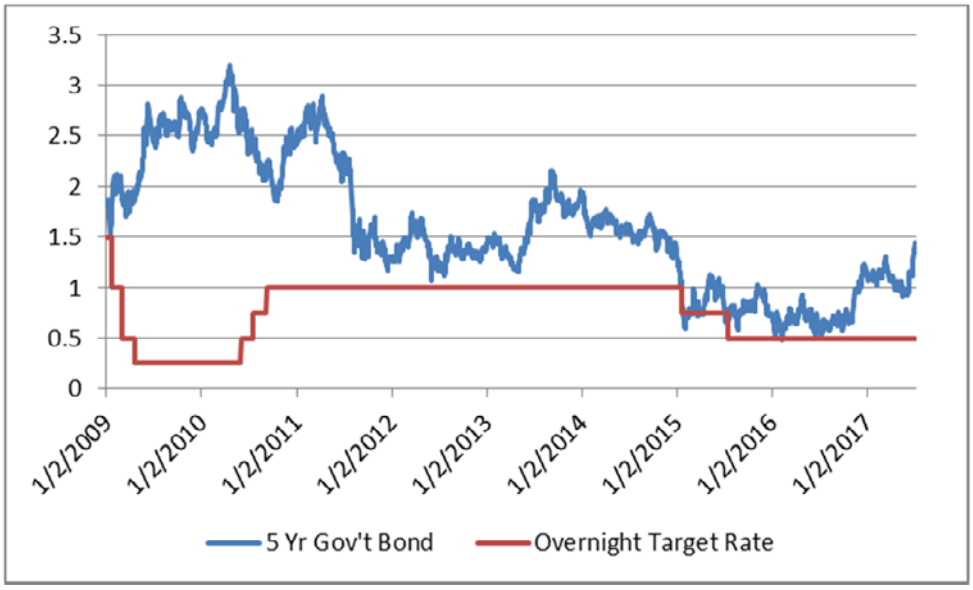
	MB Consumer Price Index %			Cdn L.T. Interest Rate %			U.S.-Cdn Exchange Rate Cdn$/US$		
	MH16 Update	IFF16	Change	MH16 Update	IFF16	Change	MH16 Update	IFF16	Change
2018	2.00	2.00	-	3.55	3.50	0.05	1.35	1.28	0.07
2019	2.10	2.00	0.10	4.05	3.95	0.10	1.32	1.25	0.07
2020	2.10	2.00	0.10	4.45	4.25	0.20	1.29	1.21	0.08
2021	2.10	1.90	0.20	4.70	4.45	0.25	1.27	1.21	0.06
2022	2.00	1.90	0.10	4.95	4.75	0.20	1.25	1.18	0.07
2023	2.00	1.70	0.30	5.35	5.10	0.25	1.21	1.15	0.06
2024	2.00	1.70	0.30	5.45	5.10	0.35	1.17	1.15	0.02

The Manitoba Consumer Price Index shows modest recovery to at or around the recent historical level of 2% inflation due to a revised outlook on increased cost of imports resulting from the lower value of the Canadian dollar. CPI is stable over the forecast period.

The economic outlook forecasts that short and long-term benchmark interest rates will gradually rise over the last half of the forecast period. Compared to the December outlook, the consensus interest rates are 5 to 35 basis points higher.

Following preparation of the 2017 Economic Outlook, Canadian long-term interest rates are showing signs of a slight rebound in anticipation that policy makers may raise interest rates for the first time as early as mid-July 2017, something the Canadian economy hasn't seen since September 2010. **Figure 9** shows the change in interest rates since the 2017 Economic Outlook was prepared. The 5 year Government of Canada bond rate on March 31, 2017 (MH16 Update interest rates are based on 2017 Q1 data) was 1.12%. As of July 6, 2017, the rate increased to 1.44%. A 30 basis point increase in forecasted interest rates would result in approximately a $300 million reduction in retained earnings by the end of the forecast period.

Figure 9. 5 Year Government of Canada Bond Rates and the Bank of Canada Overnight Target Rate

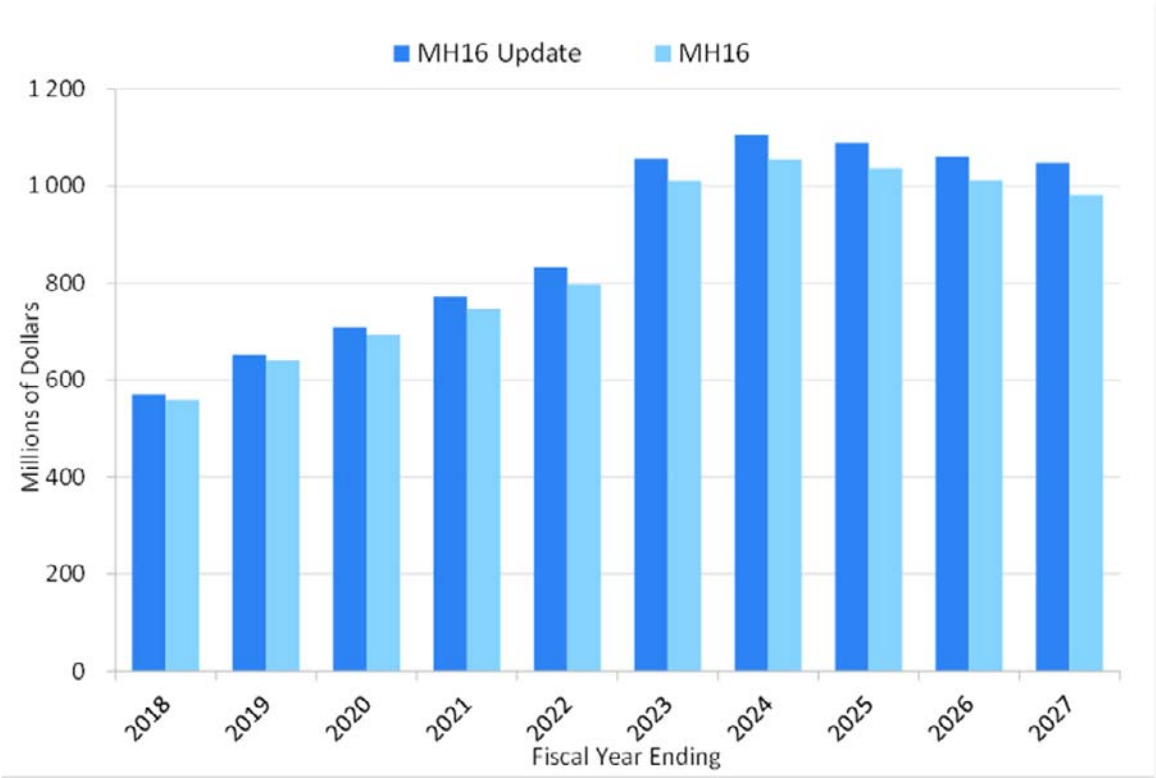


The MH16 Update Canadian exchange rates are expected to trend from $1.35 in 2017/18 to $1.17 in the long-term. Relative to MH16, the Canadian dollar forecast has further weakened due to sustained low oil prices and the interest rate differential between the U.S. and Canada. The Economic Outlook forecasts that as oil prices begin to climb and with expected interest rate hikes by the Bank of Canada, upward pressure will be put on the Canadian dollar causing it to appreciate.

Similar to interest rates, the Canadian dollar is showing a slight boost attributable to the anticipation that policy makers may raise interest rates for the first time since 2010, as well as a fall in the U.S. dollar related to signs the U.S. economy is slowing.

Figure 10 provides a comparison of finance expense between MH16 and the MH16 Update. Overall, finance expense is up $230 million net of foreign exchange impacts. The increase is partially due to the higher interest rates discussed above ($98 million increase) and higher volumes of debt issued over the 10-year period ($132 million increase) due to lower domestic and extraprovincial revenues.

Figure 10. Finance Expense Comparison



2.7 Amortization of ELG and ASL Depreciation Methodology Differences

MH16 included an assumption that ELG and ASL depreciation methodology differences would accrue to a regulatory deferral account until March 31, 2023, the fiscal year end of the last Keeyask unit in-service.

MH16 assumed amortization of the ELG regulatory deferral balance over 20 years beginning in 2017/18. Manitoba Hydro has removed the amortization of ELG and ASL differences from 2017/18 and 2018/19 in the MH16 Update and deferred the commencement of amortization to 2019/20 to reflect that the PUB's review of Manitoba Hydro's proposed recovery of the deferral account will occur in 2017/18.

The deferral of amortization results in an increase in net movement and net income of $22 million over the 10-year period to 2026/27.

2.8 Other Assumptions

General Service Top Consumers Load

Section 2.1 above, discusses the impacts of price on the load forecast for the Residential and General Service Mass Market customer classes. General Service Top Consumers are forecast individually for the first five years, based upon information obtained from customers regarding current and planned operating and expansion plans. It should be noted that the proposed rate increases had not been announced at the time the Top Consumers were canvassed. For year six and beyond, the projections of GDP and price based on the MH16 Update are used to forecast the future increase in Top Consumer growth.

Long-Term Firm Contract Sales

The MH16 Update does not include any new or changes associated with long-term firm contract sales since MH16 was filed with the Application, except to the extent short-term firm sales are captured in the estimate of net interchange revenues and generation costs in 2017/18 and 2018/19. Manitoba Hydro continues to pursue firm sales from surplus dependable energy and is in discussions with other utilities. If there are new term sheets or agreements announced, Manitoba Hydro will advise the PUB accordingly.

Capital Costs

Capital costs in the MH16 Update are consistent with those projected in the 2016 Capital Expenditure Forecast (CEF16) and MH16. Any capital project over or under-expenditures for 2016/17 relative to CEF16 has been carried-forward on an aggregate basis into the MH16 Update 2017/18 fiscal year but project total costs are unchanged.

Workforce Reduction Plan and Supply Chain Initiatives

Operating and capital cost reduction savings and costs associated with workforce reductions and Supply Chain Initiatives are unchanged from MH16.

3.0 MH16 UPDATE FINANCIAL RESULTS

Figure 11 provides an overview of the financial results in MH16 Update compared to MH16.

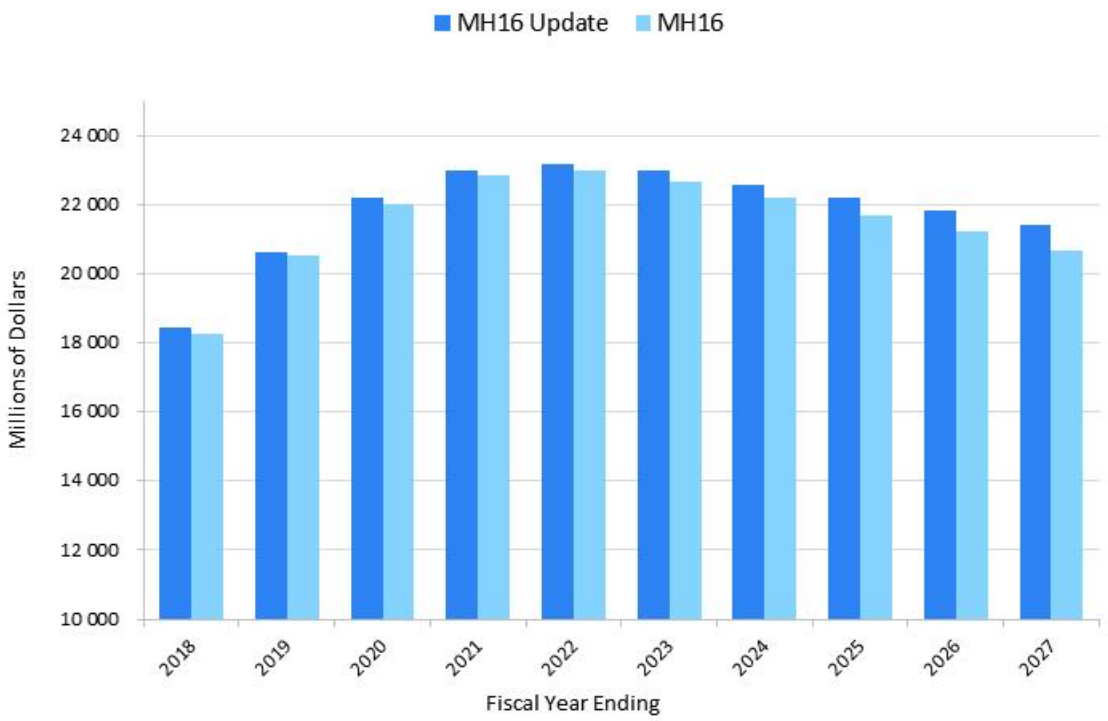
Figure 11. Comparison of Electric Operations Revenues and Expenses (MH16 Update vs. MH16)

Increase/(Decrease)
(millions of $)

	2018-2019			2018-2027		
	MH16 Update	MH16	Variance	MH16 Update	MH16	Variance
Domestic Revenues (at MH16 Rate Increases)	3 374	3 362	12	22 061	22 224	(163)
Extraprovincial	983	886	97	6 373	6 494	(121)
Other	61	61	-	332	332	-
Total Revenues	4 419	4 309	109	28 766	29 050	(283)
Operating and Administrative	1 020	1 020	-	5 364	5 364	(0)
Finance Expense	1 260	1 236	25	9 137	8 768	369
Finance Income	(38)	(36)	(2)	(240)	(236)	(4)
Depreciation and Amortization	867	867	(0)	6 155	6 151	4
Water Rentals and Assessments	250	237	14	1 240	1 230	10
Fuel and Power Purchased	264	301	(38)	1 411	1 434	(23)
Capital and Other Taxes	277	276	1	1 632	1 624	8
Other Expenses	225	224	2	1 242	1 240	2
Corporate Allocation	17	17	-	81	81	-
Total Expenses	4 142	4 141	1	26 023	25 656	367
Net Income before Net Movement in Reg. Deferral	**277**	**169**	**108**	**2 743**	**3 394**	**(650)**
Net Movement in Regulatory Deferral	185	174	11	636	615	22
Net Income Attributable to:						
Manitoba Hydro	**472**	**353**	119	**3 343**	**3 975**	(632)
Non-controlling Interest	(10)	(10)	0	37	**33**	3
Equity Ratio	**15%**	**14%**		**23%**	**25%**	
Net Extraprovincial Revenue	469	348	121	3 722	3 830	(108)

Overall, lower domestic and export revenues and higher finance expenses result in a deterioration of the forecast compared to MH16. As indicated in Section 2.0 above, these factors result in higher net debt as shown in the following **Figure 12**.

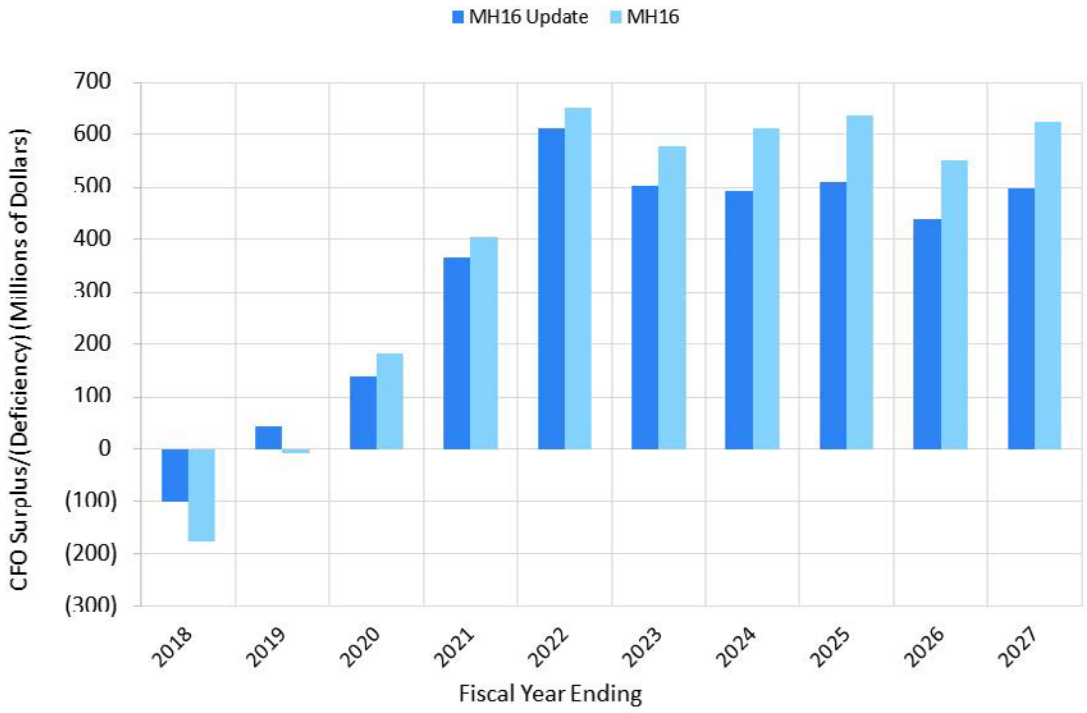
Figure 12. Net Debt Comparison



By the end of the forecast period in 2026/27, net debt is approximately $800 million higher compared to MH16 representing a further increase in costs to be borne by customers as well as a cost that is at risk for further increases in interest rates.

As can be seen in **Figure 13** below, the favourable water conditions assist in reducing the cash flow deficit in 2017/18 and actually turn the deficit in 2018/19 to a small surplus.

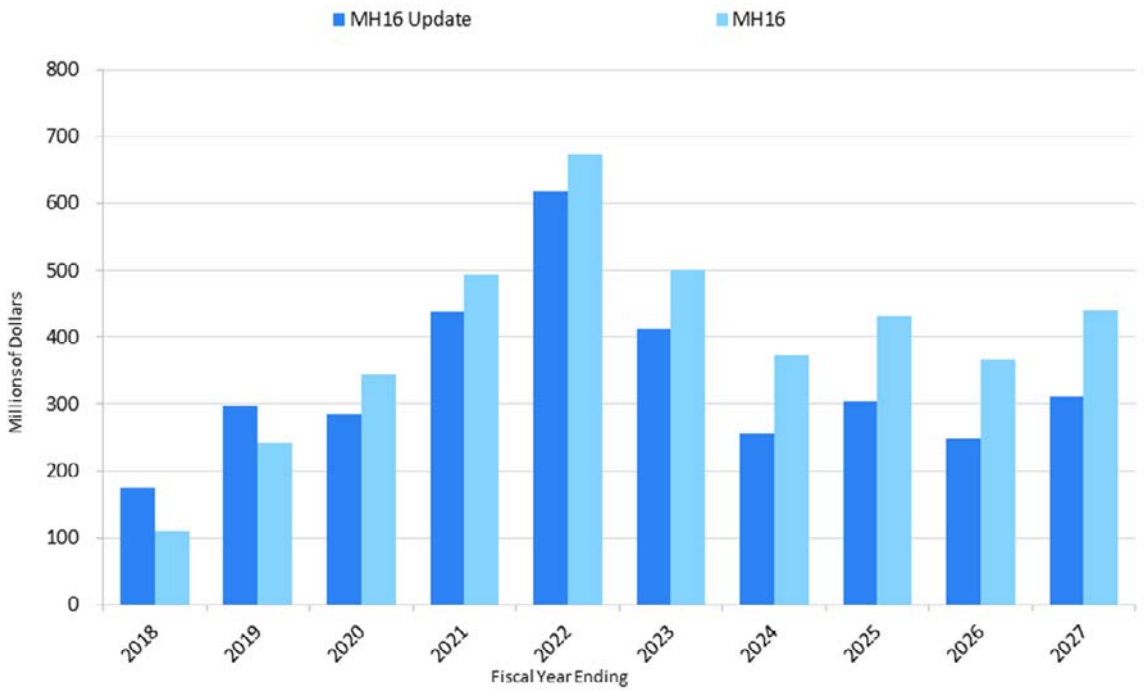
Figure 13. Cash Flow from Operations to Capex Surplus/(Deficit)



Over the longer term, and assuming that Manitoba Hydro obtains approval for its proposed and indicative rate increases, cash flow would be sufficient to fund capital expenditures and may be available to retire debt as it matures.

Figure 14 below compares net income under the MH16 Update and MH16.

Figure 14. Net Income Comparison



Over the 10-year forecast, net income is over $600 million lower in the MH16 Update compared to MH16.

In the near term, favourable water conditions result in a $120 million increase over 2017/18 and 2018/19. The positive financial results in the near term do not reduce the need for the proposed rate increases, but rather the additional revenues should be reinvested in Manitoba Hydro to reduce debt levels which would provide the corporation borrowing room in the event of a drought or other risk.

As shown in **Figure 4** above, the spring of 2017 produced near record inflows. **Figure 5** above demonstrates that energy in storage has continued at record levels. Throughout 2017, Manitoba Hydro has been spilling water in order to manage water levels within regulatory limits and mitigate flooding impacts. Nonetheless, generation in 2017/18 is now forecast to be 36.0 TWh which is 16% above average following on 2016/17 when generation was 18% above average.

As shown in **Figure 6** above, 2017/18 will continue a multi-year trend of significantly higher than average generation. Manitoba Hydro estimates that above average

generation from high water flows contributed $62 million to 2015/16 net income and $87 million to 2016/17 net income as shown in **Figure 15** below. Under the MH16 Update, high water and above average generation will contribute approximately $91 million to 2017/18 earnings and $41 million to 2018/19 earnings, which reflects an increase in net extraprovincial revenues of $65 million and $56 million from MH16 even after taking into account the impact of softer expected export prices. **Figure 15** also shows that under average generation and no proposed rate increases, MH16 Updated earnings would be essentially break-even in 2017/18 and 2018/19, and 2015/16 and 2016/17 would have resulted in net losses indicating that Manitoba Hydro's domestic revenues at approved rates and export revenues are not sufficient to fund operations or make reasonable contributions to retained earnings.

Figure 15. Net Income under Average Generation and No Proposed Rate Increases

	(Millions of Dollars)			
	Actual	MH16	MH16 Update	
	2015/16	2016/17	2017/18	2018/19
Net Income	37	34	175	297
Revenue Attributable to Above Average Water	(62)	(87)	(91)	(41)
Additional Revenue from Rate Increases	-	-	(88)	(256)
Adjusted Net Income/(Loss)	**(25)**	**(53)**	**(4)**	**0**

Figure 6 above demonstrates how quickly water conditions can transition from wet to dry. The 2003/04 drought was the quickest and largest transition on record. It can be seen that from average generation in 2001/02, generation dropped approximately 60% by 2003/04. Water conditions then rapidly reversed and generation increased to approximately 20% above average by 2005/06. **Figure 6** also shows that water conditions similar to that of the 2003/04 drought are not out of realm of possibility for 2018/19 (bottom of the red box representing generation at the lowest flow on record), reducing net income in 2018/19 by a further $194 million from a breakeven adjusted net income.

The following **Figure 16** updates the scenarios requested by the PUB in its letter of June 9, 2017 and filed as Attachments 1 and 2 of Manitoba Hydro's Interim Written Submission (the projected Financial Statements underlying each scenario can be found in Appendix 3.7).

Figure 16. Impact on Future Rate Increases of Foregoing a 2017/18 Rate Increase

	2017/18 Interim Rate Increase	2018/19	2019/20	2020/21	2021/22
MH Proposed	**7.90%**	**7.90%**	**7.90%**	**7.90%**	**7.90%**
PUB Scenario (ii) - 1	0.00%	10.63%	10.63%	10.63%	10.63%
PUB Scenario (ii) - 2	1.60%	10.10%	10.10%	10.10%	10.10%
PUB Scenario (ii) - 3	3.36%	9.51%	9.51%	9.51%	9.51%
PUB Scenario (ii) - 4	3.95%	9.32%	9.32%	9.32%	9.32%

Figure 16 shows that if all or part of the interim rate increase is forgone, future rate increases rise to the 9% to 11% level to achieve the target 25% equity by the end of the planning horizon in MH16 Update. If a low flow year were to occur in 2018/19, as illustrated in **Figure 6,** the rate increase required to just break-even would be equivalent to a one-time 12% rate increase over and above the rate increases shown above and even higher in order to return to 25% by 2027/28.

Lower net income and lower cash from operations in the MH16 Update contribute to placing further downward pressure on the equity ratio as seen in **Figure 17** below. Most notably, the equity ratio slips from the 25% target by one year to 2027/28. In order to return to the target 25% equity ratio, an additional year of 6.25% in 2022/23 would be required.

Figure 17. Equity Ratio Comparison