December 2015

Proposed Capital Expenditure Forecast (CEF15)

2015/16 - 2034/35

Finance & Regulatory

Manitoba Hydro

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1.0 Overview

The Capital Expenditure Forecast (CEF15) is a projection of Manitoba Hydro's capital expenditures for new and replacement facilities to meet the electricity and natural gas service requirements in the Province of Manitoba as well as expenditures required to meet firm sale commitments outside the province. Expenditures included in the Capital Expenditure Forecast will provide for an ongoing safe and reliable supply of energy in the most efficient and environmentally sensitive manner.

The Capital Expenditure Forecast is comprised of a number of specifically identified large projects or "major items" as well as numerous unspecified smaller projects referred to as "base items." Major items are normally greater than $50 million in total cost and the construction period on each major item usually extends beyond one year. Base capital expenditure items typically represent sustaining capital requirements to meet electricity and natural gas service replacements and expansions throughout the province. All major and base capital projects are subjected to a rigorous review and approval process before being included in the Capital Expenditure Forecast

The CEF15 includes Major New Generation & Transmission projects which increase capacity and energy or provide increased reliability. Construction activities have commenced on the Bipole III Reliability project including the clearing of the right-of-way, completion of the northern converter station site preparation and support buildings. The planned in-service date for the Bipole III Reliability project is in 2018/19. Construction on the Keeyask station has also commenced, specifically the spillway cofferdam construction and dewatering, as well as the powerhouse excavation in preparation of major concrete placement activities to begin in the spring of 2016. The planned first power in-service date for this project is in 2019/20. Manitoba Hydro continues to develop the Manitoba-Minnesota Transmission Project, a transmission interconnection into the U.S. which supports enhanced export capability, reliability and drought risk mitigation. The Province also endorsed Manitoba Hydro's new, more aggressive demand side management PowerSmart plan which targets a significant increase in consumption savings.

Over the 20-year period 2015/16 to 2034/35, Major New Generation and Transmission forecast capital expenditures are $12.1 billion or $694 million higher compared to CEF14. The increase over the 20-year period is due mainly to higher Demand Side Management expenditures ($594 million), the additional expenditures in 2034/35 ($114 million) for the advancement of thermal resources, partially offset by removal of the Pointe du Bois Powerhouse Rebuild project from CEF15 ($176 million).

A Life Extension Review was conducted for the Pointe du Bois generating station and it was determined that the Powerhouse life could be extended to 2050 and possibly beyond. As a result CEF15 has assumed for forecast purposes, the deferral of the Pointe du Bois Powerhouse Rebuild beyond the 20 twenty year forecast period. Firm capacity requirements in 2033/34 will be filled through market resources until 2036/37 when in order to meet both firm energy and capacity requirements, a Simple Cycle Gas Turbine is planned to be placed in service.

Electric Major and Base Capital Targets remain unchanged from CEF14. Gas Base Capital Targets increased $30 million in the first three years of CEF15 2015/16 to 2017/18 reflecting emerging issues with respect to pipeline integrity, as well as load growth.

Although there is no increase in Major and Base Capital Targets for Electric, an increase in funding in future periods relative to CEF15 may be required as further extensive reviews and analyses progress to address the growth requirements of our customers and to sustain our current infrastructure. High priority areas of capital investment include:

- Distribution substation development both within and outside the city of Winnipeg to address operational load conditions beyond maximum load ratings;
- Supporting new customer service requests;
- Higher than average load growth exceeding firm capacity in certain geographic areas of the province;
- System capacity increases associated with Bipole III and new generation.

Any potential high priority increased capital requirements identified will be incorporated into future forecasts.

Capital Expenditure Forecast Summary

The CEF15 totals $25 695 million for the twenty year period to 2034/35. Expenditures for Major New Generation & Transmission (MNG&T) total $12 074 million, with the balance of $13 621 million comprised of expenditures for infrastructure renewal, system safety and security, new and increasing load requirements, and ongoing efficiency improvements.

Comparison to CEF14

The CEF15 for the twenty year period to 2034/35 totals $25 695 million compared to $24 974 million for the same twenty year period included in last year's Capital Expenditure Forecast (CEF14).

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10 Year Total
CEF14	2 556	3 124	3 161	2 113	1 470	1 039	793	724	724	778	16 481
Incr (Decr)	98	306	(191)	(70)	12	35	129	34	(2)	1	351
CEF15	2 654	3 430	2 970	2 043	1 481	1 074	922	758	723	778	16 833

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	20 Year Total
CEF14	784	785	776	793	771	820	834	875	963	1 092	24 974
Incr (Decr)	4	31	43	49	45	47	47	34	11	58	720
CEF15	787	815	819	842	817	867	881	909	975	1 150	25 695

	Total Projected Cost	10 Year Increase (Decrease)	20 Year Increase (Decrease)
		($ Millions)	
*Electric Demand Side Management	NA	132	594
Steinbach Area 230-66kV Capacity Enhancement	85	85	85
Bipole III - Transmission Line	1 655	78	78
Keeyask - Generation	6 496	76	76
Manitoba -Saskatchewan Transmission Project	57	57	57
Gillam Redevelopment and Expansion Program (GREP)	266	33	8
Bipole III - Collector Lines	260	24	24
Bipole III - Converter Stations	2 675	23	23
Pointe du Bois Spillway Replacement	595	15	15
Conawapa - Generation	405	15	15
Wuskwatim - Generation	1 449	10	10
Single Cycle Gas Turbines & Thermal Transmission	NA	-	114
Pointe du Bois Powerhouse Rebuild	-	-	(176)
Pine Falls Units 1-4 Major Overhauls	90	(52)	(52)
Target Adjustment (Cost Flow)	NA	(154)	(155)
Other System Upgrades	NA	10	5
		351	720

*Assumes that Demand Side Management expenditures continue to be capitalized upon adoption of IFRS under the interim standard that continues to permit rate regulated accounting.

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10 Year Total
Major New Generation & Transmission												
Wuskwatim - Generation	1 448.6	6.8	17.7	13.1	-	-	-	-	-	-	-	37.5
Keeyask - Generation	6 496.1	818.7	1 112.0	1 226.2	835.8	552.6	193.0	140.2	0.2	0.0	-	4 878.8
Grand Rapids Hatchery Upgrade & Expansion	23.5	1.2	4.0	7.4	7.9	1.9	0.0	0.0	0.0	0.0	-	22.5
Conawapa - Generation	404.7	27.4	30.5	9.1	-	-	-	-	-	-	-	67.0
Kelsey Improvements & Upgrades	338.8	5.5	12.6	6.5	0.2	-	-	-	-	-	-	24.7
Kettle Improvements & Upgrades	190.9	23.1	25.8	20.7	30.8	30.4	-	-	-	-	-	130.8
Pointe du Bois Spillway Replacement	594.8	60.5	10.4	-	-	-	-	-	-	-	-	70.9
Pointe du Bois - Transmission	118.1	5.0	4.5	12.5	12.3	8.2	0.0	-	-	-	-	42.4
Gillam Redevelopment and Expansion Program (GREP)	266.5	27.7	37.7	40.1	27.6	26.2	28.7	28.3	28.0	2.4	2.1	248.9
Bipole III - Transmission Line	1 655.4	447.1	495.0	359.8	86.5	-	-	-	-	-	-	1 388.5
Bipole III - Converter Stations	2 675.1	647.4	943.4	372.9	180.3	12.2	1.8	-	-	-	-	2 158.0
Bipole III - Collector Lines	260.2	81.2	56.1	44.1	11.3	-	-	-	-	-	-	192.8
Bipole III - Community Development Initiative	62.0	2.1	1.8	1.5	0.6	-	-	-	-	-	-	6.0
Riel 230/500kV Station	319.9	2.8	-	-	-	-	-	-	-	-	-	2.8
Manitoba-Minnesota Transmission Project	353.6	10.0	16.5	114.0	69.1	89.5	45.2	-	-	-	-	344.3
Manitoba-Saskatchewan Transmission Project	57.0	0.7	2.4	3.8	2.2	18.9	18.1	10.9	-	-	-	57.0
Demand Side Management	NA	62.3	58.0	98.8	94.6	90.2	92.4	96.6	72.4	67.4	70.9	803.6
Generating Station Improvements & Upgrades	NA	-	-	-	-	2.8	33.0	33.6	34.3	35.0	35.7	174.3
Single Cycle Gas Turbines & Thermal Transmission	NA	-	-	-	-	-	-	-	-	-	-	-
Target Adjustment (Cost Flow)	NA	(216.7)	(82.0)	45.7	101.3	62.3	48.5	15.5	16.6	4.2	0.4	(4.2)
MAJOR NEW GENERATION & TRANSMISSION TOTAL		**2 012.8**	**2 746.5**	**2 376.2**	**1 460.5**	**895.3**	**460.7**	**325.1**	**151.6**	**109.0**	**109.1**	**10 646.8**

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10 Year Total
Major & Base Capital												
Electric												
Generation Operations	**NA**											
Pine Falls Units 1-4 Major Overhauls	90.0	8.4	18.2	22.0	10.6	-	-	-	-	-	-	59.2
Jenpeg Overhaul Program	115.9	-	-	-	-	-	-	-	-	2.4	2.6	5.0
Slave Falls Major Overhauls	126.1	-	-	-	-	2.5	3.1	20.0	19.9	20.6	20.7	86.9
Pointe du Bois GS Safety Upgrades	50.0	3.4	13.4	11.3	4.8	0.5	12.7	-	-	-	-	46.0
Pointe du Bois Unit & Accessories Replacement	138.4	3.2	10.9	32.1	30.0	31.4	8.8	3.1	0.4	-	-	119.8
Great Falls Unit 4 Overhaul	48.8	9.2	1.6	-	-	-	-	-	-	-	-	10.8
Brandon Units 6 & 7 "C" Overhaul Program	50.6	-	-	-	-	-	1.1	13.1	11.8	13.7	10.9	50.6
Base Capital	NA	95.8	78.0	66.7	86.7	97.6	106.2	98.4	105.3	103.4	108.7	946.6
Generation Operations Total	**NA**	**120.0**	**122.0**	**132.0**	**132.0**	**132.0**	**132.0**	**134.6**	**137.3**	**140.1**	**142.9**	**1 324.9**
Transmission	**NA**											
Rockwood East 230/115kV Station	53.2	15.6	0.2	-	-	-	-	-	-	-	-	15.8
Lake Winnipeg East System Improvements	64.6	12.8	26.6	10.3	-	-	-	-	-	-	-	49.6
Letellier - St. Vital 230kV Transmission	59.0	2.4	1.3	1.8	34.5	16.1	-	-	-	-	-	56.1
Transmission Line Upgrades for NERC Alert	152.9	4.2	9.0	9.1	25.0	25.5	26.0	26.6	26.1	-	-	151.6
Steinbach Area 230-66kV Capacity Enhance	84.5	1.0	2.1	7.5	27.9	22.4	19.5	2.1	2.1	-	-	84.5
HVDC Dorsey Synchronous Condenser Refurbishment	73.1	3.2	7.2	7.2	2.3	2.4	2.4	1.5	-	-	-	26.1
Bipole 2 Thyristor Valve Replacement	235.8	-	-	2.2	13.4	23.2	57.8	58.9	60.0	20.4	-	235.8
Base Capital	NA	97.8	103.6	86.9	21.9	35.4	44.3	61.0	61.8	129.6	153.0	795.3
Transmission Total	**NA**	**137.0**	**149.9**	**125.0**	**125.0**	**125.0**	**150.0**	**150.0**	**150.0**	**150.0**	**153.0**	**1 414.9**

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10 Year Total
Major & Base Capital												
Customer Service & Distribution	**NA**											
New Madison Station - 115/24kV Station	87.1	42.3	9.7	-	-	-	-	-	-	-	-	52.0
St. Vital Station 115/24kV Station	51.3	3.7	25.1	22.2	-	-	-	-	-	-	-	51.0
Dawson Road Station - 66/24kV	51.8	0.2	4.2	17.8	20.0	9.6	-	-	-	-	-	51.8
Burrows New 66/12kV Station	54.8	(0.0)	-	-	-	-	-	-	-	-	-	(0.0)
New Adelaide Station - 66/12kV	62.1	22.5	27.3	6.9	3.4	0.7	-	-	-	-	-	60.8
Base Capital	NA	172.2	201.9	184.1	182.6	195.7	206.0	210.1	214.3	218.6	261.6	2 047.2
Customer Service & Distribution Total	**NA**	**240.9**	**268.3**	**231.0**	**206.0**	**206.0**	**206.0**	**210.1**	**214.3**	**218.6**	**261.6**	**2 262.8**
Customer Care & Energy Conservation	**NA**	**4.0**	**4.1**	**4.1**	**4.2**	**4.3**	**4.4**	**3.6**	**3.7**	**3.7**	**3.8**	**39.9**
Human Resources & Corporate Services	**NA**	**75.0**	**65.1**	**55.0**	**55.0**	**55.0**	**55.0**	**56.1**	**57.2**	**58.4**	**59.5**	**591.3**
Finance & Regulatory	**NA**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**2.2**
		577.0	**609.6**	**547.3**	**522.4**	**522.5**	**547.6**	**554.7**	**562.8**	**571.0**	**621.1**	**5 636.0**
Gas												
Customer Service & Distribution	**NA**	**48.6**	**56.3**	**31.6**	**21.2**	**24.4**	**26.1**	**27.7**	**30.0**	**28.3**	**33.7**	**328.0**
Customer Care & Energy Conservation	**NA**	**5.4**	**4.6**	**4.7**	**4.8**	**4.9**	**5.0**	**5.1**	**5.2**	**5.3**	**5.4**	**50.0**
Gas Demand Side Management	**NA**	**10.2**	**12.6**	**10.5**	**9.3**	**9.3**	**9.1**	**9.2**	**8.6**	**9.1**	**9.0**	**96.8**
		64.2	**73.5**	**46.8**	**35.3**	**38.6**	**40.2**	**41.9**	**43.7**	**42.6**	**48.0**	**474.8**
Major & Base Capital Target Adjustment	NA	-	-	-	25.0	25.0	25.0	-	-	-	-	75.0
MAJOR & BASE CAPITAL TOTAL		**641.2**	**683.0**	**594.2**	**582.7**	**586.1**	**612.8**	**596.6**	**606.5**	**613.6**	**669.1**	**6 185.8**
CONSOLIDATED CEF15 TOTAL		**2 654.0**	**3 429.5**	**2 970.3**	**2 043.2**	**1 481.4**	**1 073.5**	**921.7**	**758.1**	**722.6**	**778.2**	**16 832.6**
ELECTRIC CAPITAL TOTAL		**2 589.8**	**3 356.1**	**2 923.5**	**2 007.9**	**1 442.8**	**1 033.3**	**879.8**	**714.3**	**680.0**	**730.2**	**16 357.8**
GAS CAPITAL TOTAL		**64.2**	**73.5**	**46.8**	**35.3**	**38.6**	**40.2**	**41.9**	**43.7**	**42.6**	**48.0**	**474.8**

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	20 Year Total
Major New Generation & Transmission												
Wuskwatim - Generation	1 448.6	-	-	-	-	-	-	-	-	-	-	37.5
Keeyask - Generation	6 496.1	-	-	-	-	-	-	-	-	-	-	4 878.8
Grand Rapids Hatchery Upgrade & Expansion	23.5	-	-	-	-	-	-	-	-	-	-	22.5
Conawapa - Generation	404.7	-	-	-	-	-	-	-	-	-	-	67.0
Kelsey Improvements & Upgrades	338.8	-	-	-	-	-	-	-	-	-	-	24.7
Kettle Improvements & Upgrades	190.9	-	-	-	-	-	-	-	-	-	-	130.8
Pointe du Bois Spillway Replacement	594.8	-	-	-	-	-	-	-	-	-	-	70.9
Pointe du Bois - Transmission	118.1	-	-	-	-	-	-	-	-	-	-	42.4
Gillam Redevelopment and Expansion Program (GREP)	266.5	2.1	3.8	-	-	-	-	-	-	-	-	254.7
Bipole III - Transmission Line	1 655.4	-	-	-	-	-	-	-	-	-	-	1 388.5
Bipole III - Converter Stations	2 675.1	-	-	-	-	-	-	-	-	-	-	2 158.0
Bipole III - Collector Lines	260.2	-	-	-	-	-	-	-	-	-	-	192.8
Bipole III - Community Development Initiative	62.0	-	-	-	-	-	-	-	-	-	-	6.0
Riel 230/500kV Station	319.9	-	-	-	-	-	-	-	-	-	-	2.8
Manitoba-Minnesota Transmission Project	353.6	-	-	-	-	-	-	-	-	-	-	344.3
Manitoba-Saskatchewan Transmission Project	57.0	-	-	-	-	-	-	-	-	-	-	57.0
Demand Side Management	NA	76.5	81.9	88.3	95.1	96.9	100.8	104.9	109.2	113.6	118.2	1 789.2
Generating Station Improvements & Upgrades	NA	36.4	45.0	32.2	21.1	9.4	14.4	15.2	25.8	79.3	56.6	509.8
Single Cycle Gas Turbines & Thermal Transmission	NA	-	-	-	-	-	-	-	-	-	113.8	113.8
Target Adjustment (Cost Flow)	NA	(0.0)	(1.0)	1.6	1.3	1.3	(0.4)	(0.1)	(1.1)	(5.5)	(9.7)	(17.9)
MAJOR NEW GENERATION & TRANSMISSION TOTAL		**114.9**	**129.7**	**122.1**	**117.5**	**107.6**	**114.9**	**120.0**	**133.9**	**187.5**	**279.0**	**12 073.9**

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	20 Year Total
Major & Base Capital												
Electric												
Generation Operations	**NA**											
Pine Falls Units 1-4 Major Overhauls	90.0	-	-	-	-	-	-	-	-	-	-	59.2
Jenpeg Overhaul Program	115.9	19.2	19.4	20.6	0.7	38.2	12.3	0.5	-	-	-	115.9
Slave Falls Major Overhauls	126.1	21.4	16.9	0.9	-	-	-	-	-	-	-	126.1
Pointe du Bois GS Safety Upgrades	50.0	-	-	-	-	-	-	-	-	-	-	46.0
Pointe du Bois Unit & Accessories Replacement	138.4	-	-	-	-	-	-	-	-	-	-	119.8
Great Falls Unit 4 Overhaul	48.8	-	-	-	-	-	-	-	-	-	-	10.8
Brandon Units 6 & 7 "C" Overhaul Program	50.6	-	-	-	-	-	-	-	-	-	-	50.6
Base Capital	NA	105.1	112.3	130.1	154.0	119.6	148.6	163.6	167.4	170.8	174.2	2 392.3
Generation Operations Total	**NA**	**145.7**	**148.7**	**151.6**	**154.7**	**157.8**	**160.9**	**164.1**	**167.4**	**170.8**	**174.2**	**2 920.7**
Transmission	**NA**											
Rockwood East 230/115kV Station	53.2	-	-	-	-	-	-	-	-	-	-	15.8
Lake Winnipeg East System Improvements	64.6	-	-	-	-	-	-	-	-	-	-	49.6
Letellier - St. Vital 230kV Transmission	59.0	-	-	-	-	-	-	-	-	-	-	56.1
Transmission Line Upgrades for NERC Alert	152.9	-	-	-	-	-	-	-	-	-	-	151.6
Steinbach Area 230-66kV Capacity Enhance	84.5	-	-	-	-	-	-	-	-	-	-	84.5
HVDC Dorsey Synchronous Condenser Refurbishment	73.1	-	-	-	-	-	-	-	-	-	-	26.1
Bipole 2 Thyristor Valve Replacement	235.8	-	-	-	-	-	-	-	-	-	-	235.8
Base Capital	NA	156.1	159.2	162.4	165.6	168.9	172.3	175.7	179.3	182.8	186.5	2 504.1
Transmission Total	**NA**	**156.1**	**159.2**	**162.4**	**165.6**	**168.9**	**172.3**	**175.7**	**179.3**	**182.8**	**186.5**	**3 123.7**

CAPITAL EXPENDITURE FORECAST (CEF15)

(in millions of dollars)

	Total Project Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	20 Year Total
Major & Base Capital												
Customer Service & Distribution	**NA**											
New Madison Station - 115/24kV Station	87.1	-	-	-	-	-	-	-	-	-	-	52.0
St. Vital Station 115/24kV Station	51.3	-	-	-	-	-	-	-	-	-	-	51.0
Dawson Road Station - 66/24kV	51.8	-	-	-	-	-	-	-	-	-	-	51.8
Burrows New 66/12kV Station	54.8	-	-	-	-	-	-	-	-	-	-	(0.0)
New Adelaide Station - 66/12kV	62.1	-	-	-	-	-	-	-	-	-	-	60.8
Base Capital	NA	257.8	263.3	267.2	285.6	268.1	298.7	297.6	302.6	305.3	371.4	4 964.8
Customer Service & Distribution Total	**NA**	**257.8**	**263.3**	**267.2**	**285.6**	**268.1**	**298.7**	**297.6**	**302.6**	**305.3**	**371.4**	**5 180.4**
Customer Care & Energy Conservation	**NA**	**3.9**	**4.0**	**4.1**	**4.1**	**4.2**	**4.3**	**4.4**	**4.5**	**4.6**	**4.7**	**82.5**
Human Resources & Corporate Services	**NA**	**60.7**	**61.9**	**63.2**	**64.4**	**65.7**	**67.0**	**68.4**	**69.8**	**71.1**	**72.6**	**1 256.2**
Finance & Regulatory	**NA**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**4.8**
		624.5	**637.3**	**648.6**	**674.7**	**665.0**	**703.5**	**710.5**	**723.8**	**734.9**	**809.6**	**12 568.4**
Gas												
Customer Service & Distribution	**NA**	**33.5**	**34.0**	**34.7**	**36.6**	**34.1**	**38.2**	**39.3**	**40.2**	**41.0**	**49.4**	**708.9**
Customer Care & Energy Conservation	**NA**	**5.5**	**5.6**	**5.7**	**5.8**	**5.9**	**6.0**	**6.2**	**6.3**	**6.4**	**6.5**	**109.9**
Gas Demand Side Management	**NA**	**9.0**	**8.9**	**7.9**	**7.4**	**4.3**	**4.5**	**4.7**	**4.9**	**5.1**	**5.3**	**158.6**
		48.0	**48.5**	**48.3**	**49.7**	**44.3**	**48.7**	**50.1**	**51.3**	**52.5**	**61.2**	**977.4**
Major & Base Capital Target Adjustment	NA	-	-	-	-	-	-	-	-	-	-	75.0
MAJOR & BASE CAPITAL TOTAL		**672.4**	**685.8**	**696.9**	**724.5**	**709.3**	**752.2**	**760.7**	**775.1**	**787.4**	**870.8**	**13 620.9**
CONSOLIDATED CEF15 TOTAL		**787.4**	**815.4**	**819.0**	**841.9**	**816.9**	**867.1**	**880.7**	**909.0**	**974.9**	**1 149.8**	**25 694.8**
ELECTRIC CAPITAL TOTAL		**739.4**	**767.0**	**770.8**	**792.2**	**772.6**	**818.4**	**830.6**	**857.7**	**922.4**	**1 088.6**	**24 717.3**
GAS CAPITAL TOTAL		**48.0**	**48.5**	**48.3**	**49.7**	**44.3**	**48.7**	**50.1**	**51.3**	**52.5**	**61.2**	**977.4**

Section 2

Project Summaries

ELECTRIC OPERATIONS:

MAJOR NEW GENERATION & TRANSMISSION:

Wuskwatim - Generation

Description:
Design and build the new Wuskwatim generating station with three generators and installed capacity of approximately 200MW on the Burntwood River upstream of Thompson.

Justification:
This project increases generation for both export power purposes and domestic load requirements.

In-Service Date:
First power June 2012

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 1 448.6	$ 12.9	$ 14.7	$ -	$ -	$ -	$ -
Increase (Decrease)	-	(6.1)	3.0	13.1	-	-	-
Revised Forecast	$ 1 448.6	$ 6.8	$ 17.7	$ 13.1	$ -	$ -	$ -

Keeyask - Generation

Description:
Design and build the Keeyask generating station with seven generators and nominal capacity of 695MW on the Nelson River downstream of the Kelsey generating station. Project costs also include activities necessary to obtain approval and community support to proceed with the construction of the future generating station. These costs are comprised of extensive First Nations and other community consultations, pre-project training, joint venture business developments, environmental studies, impact statement preparations, submissions, regulatory review processes, detailed pre-engineering requirements, acquiring all necessary licensing, the design and construction of associated transmission facilities, and improvements to access roadways.

Justification:
This project increases generation for export power purposes and ultimately domestic load requirements.

In-Service Date:
First power November 2019

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 6 496.1	$ 676.3	$ 962.2	$ 1 351.3	$ 927.9	$ 616.5	$ 268.3
Increase (Decrease)	-	142.4	149.8	(125.1)	(92.1)	(63.8)	65.1
Revised Forecast	$ 6 496.1	$ 818.7	$ 1 112.0	$ 1 226.2	$ 835.8	$ 552.6	$ 333.4

Grand Rapids Hatchery Upgrade and Expansion

Description:
Expand the capacity of the existing facility through tank replacement/reconfiguration and upgrade of supporting water treatment infrastructure. Modifications to the Research Centre (a separate facility on the Grand Rapids hatchery site), including well and potable water supply, to serve as a temporary production facility during hatchery upgrade and expansion, and the purchase of portable satellite facilities to allow for fish rearing during hatchery construction. Install electrical service from Grand Rapids generating station service to the hatchery.

Justification:
Upgrades to the Grand Rapids hatchery are a requirement of the Keeyask Environment Act licence as well as recently introduced national and provincial regulatory requirements for water quality and biosecurity.

In-Service Date:

April 2019.

Revision:
Cost flow revision and in-service date deferred thirteen months from March 2018.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 23.5	$ 4.7	$ 9.3	$ 6.8	$ -	$ -	$ -
Increase (Decrease)	-	(3.5)	(5.3)	0.6	7.9	1.9	-
Revised Forecast	$ 23.5	$ 1.2	$ 4.0	$ 7.4	$ 7.9	$ 1.9	$ -

Conawapa - Generation

Description:
The current estimate includes a wrap up of the preliminary engineering studies and limited environmental and aboriginal studies through to August 2016.

Justification:
Manitoba Hydro has suspended development work on the Conawapa Project pending additional committed firm export sales and further evaluation. Manitoba Hydro suspended the majority of planning and licencing activities on Conawapa, however the remaining engineering, environmental and aboriginal studies activities are necessary to preserve the knowledge gained to date through extensive field work and will assist in shaping local community development and resource management plans.

In-Service Date:

August 2017.

Revision:
Estimate reflects an increase in capitalized interest to align with the revised timing of the review of the project business case and anticipated additional First Nation costs.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 397.0	$ 31.4	$ 21.0	$ -	$ -	$ -	$ -
Increase (Decrease)	7.7	(4.1)	9.5	9.1	-	-	-
Revised Forecast	$ 404.7	$ 27.4	$ 30.5	$ 9.1	$ -	$ -	$ -

Kelsey Improvements & Upgrades

Description:
Overhaul and uprate all seven Kelsey generating station units including the replacement of turbine runners, bottom rings, discharge rings or weld overlays, transformers, generator windings and exciters. Perform model testing to refine runner design, perform extensive intake gate rehabilitation, perform draft tube modifications, perform an 8 000 hour inspection, and upgrade rail spur and overhead crane. Upgrade transmission facilities necessary to integrate the additional Kelsey generation into the Manitoba Hydro system network.

Justification:
Rerunnering presents the best economic solution for increasing efficiency at the Kelsey generating station and for adding system capacity without flooding or requiring a new water power license. Overhauling the units will improve the unit output by up to 11MW per unit. The transmission upgrade of a portion of the Kelsey 138 and 230kV buses and the revisions to the Northern AC Cross Trip scheme are required to accommodate the 77MW of additional Kelsey output.

In-Service Date:
November 2016

Revision:
Project decrease reflects a revised schedule, refined construction contracts and updated interest, escalation, activity and overhead rates.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 340.4	$ 9.1	$ 12.9	$ 1.3	$ -	$ -	$ -
Increase (Decrease)	(1.5)	(3.6)	(0.3)	5.2	0.2	-	-
Revised Forecast	$ 338.8	$ 5.5	$ 12.6	$ 6.5	$ 0.2	$ -	$ -

Kettle Improvements & Upgrades

Description:
Rewind stator for units 5-12 and install a new stator frame, core and winding for units 1-4. Perform rotor refurbishment, thrust runner replacement, new excitation transformers, rebabbitting of bearings, excitation upgrade replacements, control and protection system replacements, mechanical systems replacements, and intake gate and wicket gate work for units 1-4.

Justification:
The stator windings at Kettle are polyester bonded mica which is prone to internal degradation as a result of thermal and electrical stresses. There has been a much higher failure rate for stator coils at Kettle than in any of our other generators installed since 1960. Analysis of the internal conditions of the insulation system is ongoing. Re-wedging units at Kettle is an opportunity to repair isolated cases of severe slot discharge, necessary to avoid deterioration. Unit 4 requires repairs due to an incident that occurred in August 2006, where a top clamping finger on the unit broke off and fell into the air gap causing extensive damage to the windings and core.

In-Service Date:
March 2020

Revision:
Project decrease reflects a revised schedule, finalization of construction contracts and updated interest, escalation, activity and overhead rates.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 191.6	$ 23.5	$ 24.6	$ 22.0	$ 31.7	$ 29.5	$ -
Increase (Decrease)	(0.6)	(0.4)	1.2	(1.3)	(0.8)	0.9	-
Revised Forecast	$ 190.9	$ 23.1	$ 25.8	$ 20.7	$ 30.8	$ 30.4	$ -

Pointe du Bois Spillway Replacement

Description:
Design and build a new spillway and new concrete and earth fill dams to replace the existing spillway structures. Includes engineering and environmental studies, community consultation, obtaining regulatory approval, and de-commissioning the existing spillway.

Justification:
Pointe du Bois does not currently meet dam safety guidelines with respect to spillway capacity. A new spillway is required to meet these guidelines.

In-Service Date:
October 2015

Revision:
The project control budget increase is the result of schedule delays in execution of work in late 2014, projected contractor performance in 2015 and resolution of claims, potential increase to the future re-vegetation work and site restoration in 2016. The budget also includes higher interest costs as a result of the schedule delay and cost increases.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 574.8	$ 51.6	$ 3.8	$ -	$ -	$ -	$ -
Increase (Decrease)	20.0	8.8	6.6	-	-	-	-
Revised Forecast	$ 594.8	$ 60.5	$ 10.4	$ -	$ -	$ -	$ -

Pointe du Bois - Transmission

Description:
Redevelop Stafford terminal station (formerly Scotland station), replace Bank 7 at Pointe du Bois switchyard station, salvage 66kV P lines between Pointe du Bois and Rover stations, install a 115kV transmission line between Pointe du Bois and Whiteshell stations, add Bank 8 to Pointe du Bois switchyard, install a 66kV line between Ridgeway and Rover stations, and upgrade protection at Slave Falls switchyard station.

Justification:
The 66kV lines P1, P2, P3, and P4 between Pointe du Bois and Rover stations have exceeded their expected serviceable life and pose threats to public and employee safety. The reliability of the transmission system in the Winnipeg Central area has been degraded due to the poor physical condition of these lines. In order to successfully operate the power system and continuously deliver high quality power to our customers and protect the public, the P Lines should be removed. The rebuild of Stafford station is required to address due diligence concerns, including Manitoba Hydro grounding and switching standards and public safety, and to increase Winnipeg Central capacity. This work involves converting the 138kV system to 115kV, so work at Pointe du Bois is also required.

In-Service Date:
March 2020.

Revision:
Increase in civil construction costs for higher contractor pricing on transformer deluge system and fence replacement as well as increased labour costs on the Stafford station rebuild, offset by decreased station design, distribution engineering and construction and haulage services costs. In-service date deferred twenty seven months from December 2017.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 114.3	$ 17.1	$ 13.8	$ 4.3	$ -	$ -	$ -
Increase (Decrease)	3.8	(12.1)	(9.3)	8.3	12.3	8.2	-
Revised Forecast	$ 118.1	$ 5.0	$ 4.5	$ 12.5	$ 12.3	$ 8.2	$ -

Gillam Redevelopment and Expansion Program (GREP)

Description:
Redevelop and expand the Town of Gillam infrastructure in Phases 1B, 2 and 3. Phases 2 & 3 will require further definition based on conceptual design and the requirement of Manitoba Hydro's construction of new facilities in the North.

Justification:
Redevelopment of the Town of Gillam is required to address existing operational needs and to prepare for the growth associated with new generation facilities. The GREP will improve the overall quality of infrastructure in Gillam, which will positively affect attraction and retention for existing and new generation facilities. The GREP supports Corporate initiatives to develop the hydroelectric potential of the Lower Nelson River.

In-Service Date:
March 2027

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 266.5	$ 22.4	$ 22.8	$ 21.8	$ 20.2	$ 18.6	$ 140.7
Increase (Decrease)	-	5.3	14.9	18.3	7.4	7.7	(45.4)
Revised Forecast	$ 266.5	$ 27.7	$ 37.7	$ 40.1	$ 27.6	$ 26.2	$ 95.4

Bipole III - Transmission Line

Description:
Design and build a +/- 500kV HVdc transmission line of approximately 1 341km (west of Lakes Winnipegosis & Manitoba) from Riel converter station to Keewatinohk converter station. Conduct environmental impact assessment, acquire property, and obtain licensing necessary for a +/- 500kV DC transmission line and converter stations at Riel and Keewatinohk.

Justification:
Provides increased reliability to the Manitoba Hydro system due to the critical risk to the Province and the Corporation of not mitigating an Interlake (Bipole 1 and 2) corridor outage or a Dorsey station common mode outage. In normal steady state operation, it will also provide an increase in southern power, due to decreased line losses (approximately 76MW under full existing generation). The rating for Bipole III was increased from 2000MW to 2300MW to ensure adequate spare HVdc transmission on the northern collector system. The increased rating ensures future generation can be transmitted via Bipole I, Bipole II and Bipole III in the event of a single valve group outage.

In-Service Date:
July 2018

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 1 655.4	$ 360.5	$ 381.0	$ 493.8	$ 75.3	$ -	$ -
Increase (Decrease)	-	86.7	114.0	(134.0)	11.2	-	-
Revised Forecast	$ 1 655.4	$ 447.1	$ 495.0	$ 359.8	$ 86.5	$ -	$ -

Bipole III - Converter Stations

Description:
Design and build an HVdc converter station with a rating of 2300MW at the proposed Keewatinohk site, including property acquisition costs and the Keewatinohk 230kV AC switch yard. Design and build an HVdc converter station with 2300MW of converters at Riel, including four LCC HVdc synchronous condensers, property acquisition costs and expansion of the Riel 230kV AC switch yard.

Justification:
Provides increased reliability to the Manitoba Hydro system due to the critical risk to the Province and the Corporation of not mitigating an Interlake (Bipole I and II) corridor outage or a Dorsey station common mode outage. The rating for Bipole III was increased from 2000MW to 2300MW to ensure adequate spare HVdc transmission on the northern collector system. The increased rating ensures future generation can be transmitted via Bipole I, Bipole II and Bipole III in the event of a single valve group outage.

In-Service Date:
July 2018

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 2 675.1	$ 580.8	$ 828.7	$ 507.7	$ 195.1	$ 18.4	$ 4.5
Increase (Decrease)	-	66.6	114.6	(134.8)	(14.8)	(6.2)	(2.7)
Revised Forecast	$ 2 675.1	$ 647.4	$ 943.4	$ 372.9	$ 180.3	$ 12.2	$ 1.8

Bipole III - Collector Lines

Description:
Design and construct three permanent and two temporary 230kV collector lines for the Keewatinohk Converter station. Construct power substation for the Keewatinohk converter station, 138 kV line, microwave tower, and distribution feeders for the Keewatinohk converter station. Design and construct the Riel and Keewatinohk electrode lines, sectionalize the 230kV transmission line R49R at Riel. Includes the property acquisition and/or easements for the collector lines and the electrode lines. Design and construct a new bay and modify existing Long Spruce 230 KY AC switchyard for the new collector line to Keewatinohk converter station. Design and construction of a new bay and modifications at existing Henday 230 KY AC switchyard for the four new collector lines to Keewatinohk converter station. Design and construction of breaker replacements at existing stations (Ridgeway, Rosser, and McPhillips) for Bipole III.

Justification:
Provides increased reliability to the Manitoba Hydro system due to the critical risk to the Province and the Corporation of not mitigating an Interlake (Bipole 1 and 2) corridor outage or a Dorsey station common mode outage.

In-Service Date:
July 2018

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 260.2	$ 75.5	$ 51.7	$ 36.7	$ 4.7	$ -	$ -
Increase (Decrease)	-	5.7	4.4	7.4	6.7	-	-
Revised Forecast	$ 260.2	$ 81.2	$ 56.1	$ 44.1	$ 11.3	$ -	$ -

Bipole III - Community Development Initiative

Description:
Establishment of an obligation for a Community Development Initiative to provide benefits to First Nations, Community Councils, rural Municipalities and incorporated Towns and Villages within the vicinity of the Bipole III Project.

Justification:
Manitoba Hydro is responding to community feedback seeking longer term benefits for communities in proximity to high voltage transmission facilities. These funds will be available for community development projects that benefit a broad segment of eligible communities.

In-Service Date:
July 2018

Revision:
Timing of payments shifts accretion.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 62.0	$ 2.0	$ 1.8	$ 1.6	$ 0.5	$ -	$ -
Increase (Decrease)	-	0.1	-	-	0.2	-	-
Revised Forecast	$ 62.0	$ 2.1	$ 1.8	$ 1.5	$ 0.6	$ -	$ -

Riel 230/500kV Station

Description:
Conduct environmental impact assessment and obtain licensing necessary for the Riel 230/500kV station. Design and construct a 230/500kV station at the Riel site including the installation of a 230kV bus with a maximum of five Bays, the installation of a 500kV ring bus, the installation of a 230/500kV 1200MVA transformer bank using two 230kV and one 500kV breaker, and the installation of 500kV line reactors with relocating of a reactor phase from Dorsey. Install a second reactor phase from Dorsey as a spare at Riel after the Riel reactors are in-service and salvage the third reactor phase at Dorsey. Sectionalize two 230kV transmission lines R32V and R33V into Riel station using eight 230kV breakers and associated equipment resulting in two Riel-Ridgeway and two Riel-St. Vital transmission lines. Sectionalize 500kV transmission line D602F into Riel station using two 500kV breakers and associated equipment resulting in Dorsey-Riel and Riel-Forbes 500kV circuits.

Justification:
The sectionalization of the 500kV line allows power to be imported during a catastrophic Dorsey outage, as well as an alternate path for power export during a Dorsey transformer outage.

In-Service Date:
May 2015

Revision:
Reflects the project being placed fully in-service with a reduction in the estimate for unused contingency, removal of escalation and lower capitalized interest. Final in-service date deferred seven months from October 2014.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 329.9	$ 5.6	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	(10.0)	(2.8)	-	-	-	-	-
Revised Forecast	$ 319.9	$ 2.8	$ -	$ -	$ -	$ -	$ -

Manitoba-Minnesota New 500kV Transmission Line

Description:
Design, construct and commission a 235km 500kV AC single-circuit transmission line from Dorsey station to the US border. Design and install one 500kV breaker, one 150MVAr 500kV shunt reactor, one double-wye ungrounded 46kV 73.4MVAr shunt capacitor bank and associated communications and protection at Dorsey. Design and install two 500kV breakers, one 230kV breaker, two double-wye ungrounded 46kV 73.4MVAr shunt capacitor banks, a 1 200MVA 230/500kV autotransformer and associated communications and protection at Riel. Acquire property for right-of-way, conduct environmental impact assessment, conduct community consultations, obtain licensing and perform environmental monitoring for all new facilities. Design, procure and install a new 300MVA phase shifter at Glenboro station and re-align the transmission lines at the Glenboro station to accommodate the new transformer.

Justification:
Power sale term sheets have been negotiated with Minnesota Power (250MW) and Wisconsin Public Service (300MW). The existing tie line capacity is insufficient to accommodate the additional sales and therefore a new export line is needed. The proposed transmission facilities will increase the Manitoba to U.S. transfer capability for both export and import purposes.

In-Service Date:
May 2020

Revision:
Increase primarily due to a refinement of estimates for licensing and environmental approvals.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 350.3	$ 32.7	$ 99.6	$ 59.5	$ 65.7	$ 48.1	$ 35.4
Increase (Decrease)	3.3	(22.6)	(83.2)	54.6	3.4	41.4	9.7
Revised Forecast	$ 353.6	$ 10.0	$ 16.5	$ 114.0	$ 69.1	$ 89.5	$ 45.2

Manitoba-Saskatchewan Transmission Project

Description:
Design and construct the transmission enhancements required to supply the SaskPower 100 MW System Power Sale. Based upon Transmission Facilities study the following network upgrades are required in Manitoba: add a new 44 km 230 kV transmission line between Birtle South (Manitoba) to the Manitoba-Saskatchewan border; terminate at Birtle South station; re- tension the MH section of the P52E line to 100°C design rating; and 230 kV line 869R current transformer (CT) ratio change at Birtle South station.

Justification:
This transmission project will allow for a twenty year 100 MW system power sale which will provide MH with a fixed revenue stream from 2020 to 2040 and a potential to extend the sale beyond the twenty years. There is also the potential for additional surplus sales in the off peak. In addition to the sale, the new interconnection to Saskatchewan will also expand and diversify MH's market access and customer base.

In-Service Date:
June 2021

Revision:
New item.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	57.0	0.7	2.4	3.8	2.2	18.9	29.0
Revised Forecast	$ 57.0	$ 0.7	$ 2.4	$ 3.8	$ 2.2	$ 18.9	$ 29.0

Demand Side Management

Description:
Design, implement and deliver incentive based PowerSmart conservation programs to reduce electricity consumption in Manitoba.

Justification:
The electric Demand Side Management plan is cost effective as a resource option and is included in Manitoba Hydro's Power Resource Plan (PRP). The DSM plan provides customers with exceptional value through the implementation of cost-effective energy conservation programs that are designed to minimize the total cost of energy services to customers, position the Corporation as a national leader in implementing cost-effective energy conservation and alternative energy programs, protect the environment and promote sustainable energy supply and service.

In-Service Date:
Ongoing.

Revision:
Revisions to energy saving and expenditures for a number of programs to reflect current market information and designed to aggressively pursue cost-effective market-achievable savings. With the adoption of IFRS in 2015/16, the demand side management programs continue to be deferred, under the interim standard that continues to permit rate-regulated accounting.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 59.2	$ 76.6	$ 83.9	$ 93.7	$ 78.2	$ 803.7
Increase (Decrease)	-	3.1	(18.6)	14.9	0.9	11.9	581.7
Revised Forecast	NA	$ 62.3	$ 58.0	$ 98.8	$ 94.6	$ 90.2	$ 1 385.4

MAJOR CAPITAL:

GENERATION OPERATIONS:

Pine Falls Units 1-4 Major Overhauls

Description:
Rehabilitation, replacement of and addition to various equipment such as generator re-wind, stator radial keys, breakers, cooling radiators, instrument transformers, unit control & monitoring systems, excitation system upgrades, governor upgrades, meter upgrades, and powerhouse crane refurbishment. Replace unit 1-4 turbine runners with more efficient new design runners, rebuild existing servomotors for increased wicket gate opening allowing more discharge, and rewind the generator stators utilizing modern insulating materials. Conduct a model test and up-rate study.

Justification:
Assessment of the mechanical systems has identified concerns in terms of obsolete equipment, safety, fire risk and adaptability to present day operating conditions and standards. Upgrading is necessary to ensure reliable safe and economical operation. Pine Falls consistently spills more water than the other Winnipeg River plants. Additional generation can be obtained (approximately 17%) with increased discharge capability. Tests have confirmed that the two stator windings are in danger of failure at any time.

In-Service Date:
December 2018

Revision:
Reflects the removal of turbine re-runnering from the scope of Units 1 and 2, completed stator rewind work on Unit 2 and refined scope of work for remaining Units 1, 3 and 4. Final in-service date advanced nine months from September 2019.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 142.2	$ 0.7	$ 14.0	$ 26.4	$ 29.6	$ 40.9	$ -
Increase (Decrease)	(52.1)	7.7	4.2	(4.4)	(19.0)	(40.9)	-
Revised Forecast	$ 90.0	$ 8.4	$ 18.2	$ 22.0	$ 10.6	$ -	$ -

Jenpeg Overhaul Program

Description:
Major overhaul of all six generating units to inspect, repair, modify, and replace components of the turbine/ generator. Areas of concern include journal bearings, thrust bearings, turbine seals, servo motors, wicket gate seals and bushings, waterhead and oil head, stator and rotor, and auxiliary systems.

Justification:
A complete overhaul is required to ensure reliable operation of the units when maximum power requirements on the system are essential.

In-Service Date:
December 2031.

Revision:
No change.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 115.9	$ -	$ -	$ -	$ -	$ -	$ 115.9
Increase (Decrease)	-	-	-	-	-	-	-
Revised Forecast	$ 115.9	$ -	$ -	$ -	$ -	$ -	$ 115.9

Slave Falls Major Overhauls

Description:
Perform major overhaul for all eight units at Slave Falls generating station, including spillway improvements/ replacements, excitation upgrades, the addition of a Unit Control and Monitoring System (UCMS) Framework, access road upgrades, and a new walkway across the spillway.

Justification:
Many safety, reliability, environmental, efficiency, operational & dam safety issues have been identified relating to the Slave Falls infrastructure. Extensive repairs, modifications and/or replacements will be required to ensure the serviceability of the plant and spillway infrastructure. Economics of this work may suggest that a new spillway be constructed to replace existing spill infrastructure. Current operating procedures include ice load reduction activites at the spilling structures to ensure structural stability. A dam safety concern has been identified with respect to the minimal remote spilling capability at Slave Falls.

In-Service Date:
September 2027.

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 126.1	$ -	$ -	$ -	$ -	$ 2.5	$ 123.6
Increase (Decrease)	-	-	-	-	-	(0.1)	0.1
Revised Forecast	$ 126.1	$ -	$ -	$ -	$ -	$ 2.5	$ 123.6

Pointe du Bois GS Safety Upgrades

Description:
Implement safety upgrades for the Pointe du Bois generating station including fire protection, mechanical hazards, electrical hazards, operational hazards, trips and fall hazards, and various other safety upgrades.

Justification:
To provide a high level of health and safety upgrades, along with a reduction in potential environmental impacts from catastrophic events such as fire or flooding.

In-Service Date:
June 2020

Revision:
This project previously included rehabilitation work which has been moved to a separate capital item to efficiently manage the project costs on their own merit. Cost flow revision only on the safety upgrades. Final in-service date is advanced nine months from March 2021.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 50.0	$ 6.0	$ 12.8	$ 7.6	$ 3.9	$ 3.6	$ 10.8
Increase (Decrease)	-	(2.6)	0.6	3.7	0.8	(3.1)	1.9
Revised Forecast	$ 50.0	$ 3.4	$ 13.4	$ 11.3	$ 4.8	$ 0.5	$ 12.7

Pointe du Bois Unit & Accessories Replacement

Description:
Replace generating units and accessory equipment at the Pointe du Bois generating station.

Justification:
A Life Extension Review was conducted in March 2015 for the Pointe du Bois generating station. It was determined that the Powerhouse life could be extended to 2050 and possibly beyond that. With the extended life, replacing units provides a better economic return than unit refurbishment.

In-Service Date:
April 2022.

Revision:
This project previously included with the Pointe du Bois Safety Upgrades has been moved to a separate capital item to efficiently manage the project costs on their own merit. The increase in estimate is mainly attributable to added auxiliary systems replacement and for added accessory equipment scope associated with unit replacements. Final in-service date is advanced two years from April 2024.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 132.9	$ 9.4	$ 34.3	$ 42.4	$ 21.3	$ 6.2	$ 0.4
Increase (Decrease)	5.5	(6.2)	(23.4)	(10.4)	8.7	25.2	11.9
Revised Forecast	$ 138.4	$ 3.2	$ 10.9	$ 32.1	$ 30.0	$ 31.4	$ 12.3

Great Falls Unit 4 Overhaul

Description:
Major overhaul to generating Unit 4 including generator rewind, turbine re-runnering, new water passage embedded components, one 3-phase unit transformer, and modernization of components.

Justification:
The re-runnering and major overhaul will provide an opportunity to upgrade/modernize the unit while taking advantage of an already planned outage for the intake gates. The re-runnering will add both capacity and efficiency. The existing transformer is in poor condition and water passage components are starting to fail. The overhaul will increase reliability and extend the asset life by 40 to 50 years.

In-Service Date:
September 2015.

Revision:
Decrease in estimate to reflect lower than expected mechanical services and site labour costs, in addition to reduced contingency due to avoided and unrealized risks. In service date deferred one month from August 2015 due to the discovery of upper bracket cracks requiring extensive welding.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 53.6	$ 14.2	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	(4.9)	(5.0)	1.6	-	-	-	-
Revised Forecast	$ 48.8	$ 9.2	$ 1.6	$ -	$ -	$ -	$ -

Brandon Units 6 & 7 "C" Overhaul Program

Description:
Perform C inspections/overhauls of the Brandon gas turbines Unit 6 & 7 when each of them acquires 24,000 Equivalent Operating Hours (EOH).

Justification:
The reliability of the hot gas path components cannot be predicted after 24,000 EOH. Failure of hot gas path parts could lead to significant collateral damage and an extended forced outage of the units.

In-Service Date:
November 2024.

Revision:
Deferred in-service date eight months from March 2024, based upon current operating hours.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 50.4	$ -	$ -	$ -	$ -	$ 6.0	$ 44.4
Increase (Decrease)	0.1	-	-	-	-	(6.0)	6.1
Revised Forecast	$ 50.6	$ -	$ -	$ -	$ -	$ -	$ 50.6

TRANSMISSION:

Rockwood East 230/115kV Station

Description:
Design and construct a new 230/115kV Rockwood East station adjacent to 230kV circuits A3R (Ashern-Rosser) and S65R (Silver-Rosser) including associated equipment, protection, control and communication systems. Sectionalize and extend 230kV and 115kV transmission lines as required and provide communication and protection upgrades.

Justification:
Construction of the Rockwood East station with three 115kV line terminations would alleviate the overload scenarios for Rosser 230/115kV Banks 2 and 4 and for 115kV circuits CR4 or CR2 between Rosser and Parkdale stations. It would also increase the 115kV capacity in the Rosser/Parkdale/Selkirk area. The existing Parkdale 115/66kV station switchyard has very limited opportunity for adding new capacity due to the station's poor condition and limited space.

In-Service Date:
November 2015.

Revision:
Cost flow revision only. Contract and material procurement delays due to internal resource constraints and contractor scheduling revisions.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 53.3	$ 11.1	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	(0.1)	4.5	0.2	-	-	-	-
Revised Forecast	$ 53.2	$ 15.6	$ 0.2	$ -	$ -	$ -	$ -

Lake Winnipeg East System Improvements

Description:
Build a new 115/66kV Manigotagan Corner station complete with two 6OMVA transformers, a new 65km, 115kV transmission line from the Pine Falls station to the Manigotagan Corner station and the associated terminations and communications.

Justification:
The Pine Falls station currently operates over firm transformation during winter peak. The absence of firm transformation would cause customer outages in the Lake Winnipeg East area during a Pine Falls transformer outage. The outage would last greater than a week until a spare transformer could be brought in from Winnipeg and connected. A transformer outage would affect more than 1,300 permanent customers and more than 13,000 seasonal (summer) customers. Deferral will place customers at risk of no supply. The new 115/66kV Manigotagan Corner station and Pine Falls – Manigotagan Corner 115kV transmission line will provide firm capacity for area load for the next 20 years, as well as enable the Bloodvein SVC to control effectively the voltage at Bloodvein, Little Grand Rapids, Beren's River and Poplar River for the next 20 years. It also reduces the loading on the Pine Falls 115/66kV station, thereby accommodating load growth in the Victoria Beach, Grand Beach and Bissett areas.

In-Service Date:
June 2017

Revision:
Cost flow revision and in-service date deferred eight months from October 2016. Delays in acquiring environmental licences have postponed all station and transmission line clearing and construction activities.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 64.6	$ 35.8	$ 8.2	$ -	$ -	$ -	$ -
Increase (Decrease)	-	(23.0)	18.4	10.3	-	-	-
Revised Forecast	$ 64.6	$ 12.8	$ 26.6	$ 10.3	$ -	$ -	$ -

Letellier - St. Vital 230kV Transmission

Description:
Design and construct a new 230kV line from the Letellier station to the St. Vital station including associated terminations and communications. Includes environmental licensing and monitoring, and property rights acquisition.

Justification:
The supply to Letellier station must be improved in order to overcome the contingency loading and low voltage problems in the south central area of Manitoba caused by load growth, as well as to maintain export levels on the 230kV Tie Line L20D (Letellier to Drayton) at these increased loads.

In-Service Date:
July 2019

Revision:
Cost flow revision and a two year deferral from July 2017.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 59.0	$ 3.7	$ 37.0	$ 13.9	$ 1.6	$ -	$ -
Increase (Decrease)	-	(1.3)	(35.7)	(12.1)	32.9	16.1	-
Revised Forecast	$ 59.0	$ 2.4	$ 1.3	$ 1.8	$ 34.5	$ 16.1	$ -

Transmission Line Upgrades for NERC Alert

Description:
This project consists of a nine year program to upgrade over 1000 transmission line spans to meet CSA Standards for line clearance. A priority listing of the transmission lines and spans requiring mitigation will be developed based on assessment work considering operational and safety risks specific to each line/span.

Justification:
This program addresses discrepancies between the design ratings and actual field ratings of transmission lines thereby ensuring continued reliability and operation of the electrical system as well as mitigating risks to public safety due to insufficient line clearance.

In-Service Date:
March 2023.

Revision:
Increase in estimate reflects revisions to cost flow, activity, overhead, escalation and interest rates.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 151.3	$ 8.6	$ 8.8	$ 8.9	$ 23.3	$ 23.7	$ 76.9
Increase (Decrease)	1.6	(4.5)	0.2	0.2	1.8	1.8	1.8
Revised Forecast	$ 152.9	$ 4.2	$ 9.0	$ 9.1	$ 25.0	$ 25.5	$ 78.7

HVDC Dorsey Synchronous Condenser Refurbishment

Description:
For all nine (9) Synchronous Condensers at Dorsey, project includes major mechanical refurbishment consisting of re-wedging the stator, refurishment of bearings, rotor, and poles, and replacement of protection and control cubicles, Motor Control Center (MCC), excitation system and cables. Other work includes replacing the H2/CO2 ventilation and detection systems (except SC9Y), vibration monitoring, pony motor brushgear, and liquid mixing valves.

Justification:
Synchronous condensers are required for proper operation of the HVDC system, voltage regulation of the southern AC system and to provide reactive power for power export to the United States. A major inspection and overhaul of each machine is necessary to prevent catastrophic failure, involving the rotors and rotor bolts as indicated by the failures of SC12Y in 1987 and SC11Y in 1988. The cost of repairing a failure when combined with the inability to export power will well exceed the cost of major inspection and overhaul.

In-Service Date:
October 2021.

Revision:
Cost flow revision due to internal resource constraints.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 73.3	$ 8.5	$ 2.7	$ 5.2	$ 2.2	$ 2.3	$ 5.1
Increase (Decrease)	(0.2)	(5.3)	4.4	2.0	0.1	0.1	(1.2)
Revised Forecast	$ 73.1	$ 3.2	$ 7.2	$ 7.2	$ 2.3	$ 2.4	$ 3.9

Steinbach Area 230-66kV Capacity Enhancement

Description:
Construct a new 230-66kv station in the Grunthal area, complete with two 230-66kv, 140 MVA transformers with On-Load Tap Changer (OLTC), two grounding transformers, a four 230kv circuit breaker ring, a 66kV ring and install communication facilities. Sectionalize 230kV line V95L (St. Vital — Letellier) into the new station, creating two new 230kV Line segments G79L (Grunthal to Letellier) and V78G (St. Vital to Grunthal). Modify protection settings at St. Vital and Letellier stations. Construct 150 km of 66kV line to tie the new Grunthal station into the existing 66kV system. Decommission the 115-66kv Hanover station. Remove 11km of 115kV transmission line VJ5O (St. Vital to Hanover), between the Hanover and Randolph stations.

Justification:
The capacity enhancement will address reliability, voltage, and loading issues resulting from above-average load growth in south Winnipeg and southeastern Manitoba including the Steinbach, Richer, and south St. Vital areas. Currently, during severe winter conditions, an equipment outage could result in lengthy customer restoration times. Future restoration efforts are expected to become even more difficult as area loading continues to grow at an accelerated rate, with the potential for an estimated 5,000 customers to experience rolling blackouts during cold winter peak conditions and lasting for an extended period of time. Deferral of this project will place customers at risk of no supply.

In-Service Date:
October 2020

Revision:
New item.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	84.5	1.0	2.1	7.5	27.9	22.4	23.7
Revised Forecast	$ 84.5	$ 1.0	$ 2.1	$ 7.5	$ 27.9	$ 22.4	$ 23.7

Bipole 2 Thyristor Valve Replacement

Description:
Removal of the existing eight (8) thyristor valve groups and their controls, and replace them with eight new de-ionized water cooled HVDC thyristor valve groups and controls.

Justification:
The Bipole 2 thyristor valves and controls are nearing the end of their useful life and require replacement. Replacing the existing thyristor valve groups and controls with new ones will result in reducing the probability of forced outages. This will result in a significant decrease in failures, reduce maintenance requirements, and generally improved reliability for Bipole 2.

In-Service Date:
October 2023

Revision:
Increase in estimate reflects revisions to cost flow, activity, overhead, escalation and interest rates.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 233.7	$ -	$ -	$ 2.1	$ 13.2	$ 22.9	$ 195.6
Increase (Decrease)	2.1	-	-	0.1	0.2	0.3	1.4
Revised Forecast	$ 235.8	$ -	$ -	$ 2.2	$ 13.4	$ 23.2	$ 197.0

CUSTOMER SERVICE & DISTRIBUTION:

New Madison Station - 115/24kV

Description:
Build a new 115/24kV St. James station, new and upgraded feeders, and conversion of St. James, Ness, Berry and King Edward station feeders from 4kV to 24kV. Install 1.5km of new 115kV cable from St. James station and protection upgrades required at Rosser, Inkster Sherbrook, Mohawk and La Verendrye stations.

Justification:
This project is required to ensure firm supply and a reliable system in the St. James area.

In-Service Date:
March 2017.

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 87.1	$ 33.6	$ 12.8	$ -	$ -	$ -	$ -
Increase (Decrease)	-	8.7	(3.0)	-	-	-	-
Revised Forecast	$ 87.1	$ 42.3	$ 9.7	$ -	$ -	$ -	$ -

St. Vital Station - 115/24kV

Description:
Install a 3-bank 115/24kV station complete with nine feeder positions and protection to replace the existing 24kV distribution at the St. Vital station.

Justification:
The project addresses the equipment rating concerns currently mitigated by station operating restrictions and customer-driven demand for electricity in the area, as well as restoring reliable station contingency plans.

In-Service Date:
March 2018.

Revision:
In-service date advanced nine months from December 2018.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 51.3	$ 3.0	$ 20.0	$ 20.0	$ 7.9	$ -	$ -
Increase (Decrease)	-	0.7	5.1	2.2	(7.9)	-	-
Revised Forecast	$ 51.3	$ 3.7	$ 25.1	$ 22.2	$ -	$ -	$ -

Dawson Road Station - 66/24kV

Description:
Install a 2-bank 66kV/24kV station complete with six feeder positions and two capacitor banks to replace existing 24kV distribution equipment at the Dawson Road station.

Justification:
Justification is based on fulfilling customer-driven demand for electricity in the area as well as providing a reliable supply to customers in contingency situations.

In-Service Date:
March 2020.

Revision:
Revise project scope to supply the station from the 66kV system; originally planned from the 115kV system, and delay the in-service date by three months from December 2019.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 51.8	$ 0.5	$ 3.0	$ 16.5	$ 20.0	$ 9.3	$ -
Increase (Decrease)	-	(0.3)	1.2	1.3	-	0.3	-
Revised Forecast	$ 51.8	$ 0.2	$ 4.2	$ 17.8	$ 20.0	$ 9.6	$ -

Burrows New 66/12kV Station

Description:
Build a new two bank 66kV/12kV indoor station, complete with 12 feeder positions and protection to replace the Alfred and Charles stations.

Justification:
Most of the equipment in this part of Winnipeg has been in service for 77 years. The Alfred station (which supplies the Charles station) lacks access to a satisfactory alternate supply in the event of a 12kV interruption out of the Rover station. Remedial action was recommended for both stations in the Due Diligence Report. It indicated the 4kV switchgear lineups at the Alfred and Charles stations lack arc-resistance and at the Alfred station are sometimes underrated for the available fault current during normal operating conditions. It also had concerns that neither station has an appropriate battery room, all station transformers have patched leaks, they contain asbestos materials, and that spare parts are in short supply.

In-Service Date:
March 2015.

Revision:
Reflects costs to completion.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 54.7	$ -	$ -	$ -	$ -	$ -	$ -
Increase (Decrease)	0.1	-	-	-	-	-	-
Revised Forecast	$ 54.8	$ -	$ -	$ -	$ -	$ -	$ -

New Adelaide Station 66/12kV

Description:
Construct a new Adelaide station with 3 x 66-12kV, 30 MVA transformers and three line-ups of switchgear for twenty-three feeder positions. Install a control building for 12kV switchgear, communication, control and protection equipment. Install a 66kV GIS building/equipment for station supply terminations. Install 2 x 3km lengths of 66kV cable through new ductline to extend 66 kV line W6 to terminate at new station. Install new distribution ductline egresses from new station to connect to existing ductline system in downtown area.

Justification:
Constructing the new Adelaide station will allow for the decommissioning of the King station, addressing all concerns with safety and aging infrastructure at the King station. The Adelaide station also provides sufficient area capacity to allow the proposed William station project to be deferred. Five feeders from the new Adelaide station will be expressed through new ductline towards the Health Science Centre (HSC) to aid the Sherbrook station in supplying that area. The Sherbrook station does not have capacity to continue to handle load growth around the HSC complex by itself.

In-Service Date:
March 2020

Revision:
Cost flow revision only.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ 62.1	$ 21.2	$ 22.9	$ 8.8	$ 5.0	$ 3.4	$ -
Increase (Decrease)	-	1.3	4.4	(1.9)	(1.6)	(2.7)	-
Revised Forecast	$ 62.1	$ 22.5	$ 27.3	$ 6.9	$ 3.4	$ 0.7	$ -

BASE CAPITAL:

ELECTRIC OPERATIONS:

Generation Operations

Description:
These projects are required to provide safe, reliable, efficient supply of power, and to replace plant facilities which are at the end of their useful life. This is comprised of:

GENERATION - Projects relating to upgrading or replacing infrastructure, controls, transformers, breakers, and other equipment at existing generating stations.

WATER LICENCES & RENEWALS - Projects which address Manitoba Hydro's requirement for the finalization or renewal of 13 Water Power Act licences.

SECURITY – Projects relating to the installation, upgrade and enhancement of security systems at all generating stations to ensure compliance with NERC security standards.

WATER AND WASTE WATER – Projects for the upgrade or replacement of water and waste water systems to ensure compliance with legislation and meet safety requirements.

OTHER CAPITAL - Projects related to upgrading, replacing or maintaining facilities, plant and field equipment, communications, and tools and test equipment.

Justification:
The generation availability of the older assets has been declining over the last ten years. As Generation Operation's assets age, there is an increase in risk to their availability, which could result in months or years of unit outages and significantly impact the ability to produce power to the transmission system. Enhancements or rehabilitation to the power supply facilities will ensure a safe, reliable and efficient source of energy.

Revision:
Business Unit capital plans were extensively reviewed resulting in reprioritization of projects and reallocation of target funding for 2015/16 and 2016/17 as follows:

- reallocated $12 million in target funding for 2015/16 to Transmission to address critical capacity and voltage issues in the near term.
- reallocated $10 million in 2016/17 to Human Resources and Corporate Facilities to complete committed projects.

Combined Major and Base Targets remain unchanged from the previous forecast from 2018 through 2035.

The tables below show the changes in Base Targets and Major & Base Targets.

Generation Operations Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 101.6	$ 71.0	$ 55.7	$ 77.2	$ 72.7	$ 1 987.6
Increase (Decrease)		(5.8)	7.0	11.1	9.5	24.9	(20.0)
Revised Forecast	NA	$ 95.8	$ 78.0	$ 66.7	$ 86.7	$ 97.6	$ 1 967.6

Generation Operations Major & Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ -	$ 132.0	$ 132.0	$ 132.0	$ 132.0	$ 132.0	$ 2 282.7
Increase (Decrease)	-	(12.0)	(10.0)	-	-	-	0.0
Revised Forecast	$ -	$ 120.0	$ 122.0	$ 132.0	$ 132.0	$ 132.0	$ 2 282.7

Transmission

Description:
The majority of projects consist of additions, improvements and replacement of transmission lines; replacement, development and upgrades to HVDC facilities; replacement, development and upgrades to communication systems; additions and replacement of field maintenance equipment; and station upgrades. This is comprised of:

SYSTEM RELIABILITY - OUTAGE RELATED - Projects that address outage-related reliability of the HVDC, transmission and communication systems including system emergencies and regulatory compliance.

SYSTEM RELIABILITY - LOAD RELATED - Projects related to additions and modifications to the existing electric transmission network and communications systems to address load or capacity issues as a result of load growth and aging infrastructure .

SYSTEM RELIABILITY - IMPORT/EXPORT RELATED - Projects that address the reliability or capacity of the transmission and communication systems that directly impact our ability to import or export power.

SAFETY - Projects that address risk to public or employee safety or emergency preparedness.

OTHER CAPITAL - Includes projects that address service to a customer or customer driven requests, enhance or restore the environment as well as tools and equipment supporting the operation and maintenance of the transmission and communication systems.

Justification:
This program ensures the reliability of transmission with respect to load, outages, and import/export requirements; as well as addresses safety issues and provides the necessary support for the operation of the HVDC, transmission and communication systems.

Revision:
Business Unit capital plans were extensively reviewed resulting in reprioritization of projects and reallocation of target funding for 2015/16 and 2016/17 to address critical capacity and voltage issues in the near term as follows:

- increased $12 million in target funding for 2015/16 from Generation Operations
- increased $24.9 million in 2016/17 allocated from CEF14 Major and Base Capital Target Adjustment

Combined Major and Base Targets remain unchanged from the previous forecast from 2018 through 2035.

The tables below show the changes in Base Targets and Major & Base Targets.

Transmission Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 57.3	$ 68.3	$ 94.8	$ 84.8	$ 76.1	$ 2 184.3
Increase (Decrease)		40.5	35.3	(7.9)	(62.9)	(40.8)	(25.7)
Revised Forecast	NA	$ 97.8	$ 103.6	$ 86.9	$ 21.9	$ 35.4	$ 2 158.5

Transmission Major & Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ -	$ 125.0	$ 125.0	$ 125.0	$ 125.0	$ 125.0	$ 2 461.8
Increase (Decrease)	-	12.0	24.9	-	-	-	-
Revised Forecast	$ -	$ 137.0	$ 149.9	$ 125.0	$ 125.0	$ 125.0	$ 2 461.8

Customer Service & Distribution

Description:
These projects are required to extend sub-transmission, distribution, and transformation facilities to supply service to residential, farm, commercial and industrial customers, and to replace plant facilities whose useful life has been exceeded. Specific types of expenditures include station and line additions, modifications and rebuilds, bank additions, breaker replacements, defective cable replacement, highway changes, field maintenance equipment, woodpole replacements and ice melting requirements. These costs are spread over many facility locations throughout the Province and are comprised of:

SYSTEM IMPROVEMENTS - Projects related to additions and modifications to the existing electric distribution network to maintain system reliability and standards of safety, as a result of customer load growth, aging infrastructure and operational standards of performance. Assets and facilities include distribution stations, poles, conductors, transformers, streetlights, cables, duct lines and manholes.

CUSTOMER SERVICE - Projects relating to new or existing service extensions to commercial and residential customers .

NEW STATIONS - Projects related to station development requirements in both Winnipeg and rural Manitoba to address capacity limitations.

OTHER CAPITAL - Projects relating to VHF radio replacements and field maintenance equipment.

Justification:
The residential, farm, commercial and industrial loads are expected to grow at an average rate in excess of 1.5% per annum and will require a program of additions to the system to accommodate these anticipated loads. As the distribution assets are approaching the end of their designated lifespan a program has been established to replace critical infrastructure.

Revision:
Business Unit capital plans were extensively reviewed resulting in reprioritization of projects and reallocation of target funding of $25M for 2017/18 to address:

- Critical capacity and voltage issues primarily related to urban station development in Winnipeg and rural station and feeder development, and
- The impacts of aging infrastructure requirements.

Combined Major and Base Targets remain unchanged from the previous forecast from 2019 through 2035.

The tables below show the changes in Base Targets and Major & Base Targets.

Customer Service and Distribution Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 182.6	$ 209.6	$ 160.7	$ 173.0	$ 193.3	$ 4 028.3
Increase (Decrease)		(10.4)	(7.7)	23.4	9.5	2.4	-
Revised Forecast	NA	$ 172.2	$ 201.9	$ 184.1	$ 182.6	$ 195.7	$ 4 028.3

Customer Service and Distribution Major & Base Target

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	$ -	$ 240.9	$ 268.3	$ 206.0	$ 206.0	$ 206.0	$ 4 028.3
Increase (Decrease)	-	-	-	25.0	-	-	-
Revised Forecast	$ -	$ 240.9	$ 268.3	$ 231.0	$ 206.0	$ 206.0	$ 4 028.3

Customer Care & Energy Conservation

Description:
This program covers the additions and replacements of meters, transformers and related equipment and is comprised of:

CUSTOMER SERVICE – Projects that address service to a customer or customer-driven requests, including costs associated with new and replacement metering equipment, metering transformers and associated equipment.

OTHER– Projects to acquire tools and equipment that support operation and maintenance of the electric system.

Justification:
As required for the connection of new customers to the system, as well as replacement of existing time expired or faulty meters.

Revision:
None.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 4.0	$ 4.1	$ 4.1	$ 4.2	$ 4.3	$ 61.9
Increase (Decrease)	-	-	-	-	-	-	-
Revised Forecast	NA	$ 4.0	$ 4.1	$ 4.1	$ 4.2	$ 4.3	$ 61.9

Finance & Regulatory

Description:
This program is primarily for meter purchases (for load research monitoring), and handheld devices associated with the load research function. Other items include the purchase of additional servers and other information technology related equipment and specialized software.

Justification:
The load research program supports the development of customer rates and also supports Power Smart initiatives in terms of planning and support.

Revision:
None.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 3.9
Increase (Decrease)		-	-	-	-	-	-
Revised Forecast	NA	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 0.2	$ 3.7

Human Resources & Corporate Services

Description:
The program consists of information technology hardware and software upgrades and application development, corporate building refurbishments and new building programs, fleet vehicle refurbishment and replacement as well as projects associated with property easements, and acquisition of equipment for the training centre, print shop, fleet, materials management, and facilities.

CORPORATE BUILDINGS - Projects associated with the cyclical acquisition, and/or replacement of corporate administrative facilities throughout the Province.

FLEET ACQUISITIONS - Projects associated with the cyclical procurement, refurbishment and/or replacement of corporate fleet vehicles and equipment.

INFORMATION TECHNOLOGY HARDWARE / SOFTWARE - Projects associated with the purchase and installation of hardware and software upgrades, personal computers, networks and cabling.

INFORMATION APPLICATION DEVELOPMENT - Projects associated with installing, developing or upgrading computer applications for the corporation.

OTHER CAPITAL – Projects associated primarily with property easements and equipment for the training centre, print shop, fleet, materials management and facilities.

Justification:
To provide safe, efficient and productive; corporate buildings, fleet vehicles and equipment. Also to enhance computer systems throughout the corporation to achieve ongoing improvement in productivity and reliability.

Revision:
Business Unit capital plans were extensively reviewed resulting in reprioritization of projects and reallocation of target funding for 2016/17 to address requirements in the near term as follows:

- increased $10.1 million in target funding through reallocation of $10 million from Generation Operations and $0.1 million reallocated from CEF14 Major and Base Capital Target Adjustment

The increase is required for the rural office relocation project and the purchase of a transformer trailer.

Combined Major and Base Targets remain unchanged from the previous forecast from 2018 through 2035.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 75.0	$ 55.0	$ 55.0	$ 55.0	$ 55.0	$ 951.1
Increase (Decrease)		-	10.1	-	-	-	-
Revised Forecast	NA	$ 75.0	$ 65.1	$ 55.0	$ 55.0	$ 55.0	$ 951.1

GAS OPERATIONS:

Customer Service & Distribution

Description:
This program consists of projects required to extend, rebuild or upgrade: transmission pipelines, distribution pipelines, regulating stations, and customer service lines. This is comprised of:

SYSTEM IMPROVEMENTS – Projects relating to system modifications and betterment. Significant work includes capacity upgrades, system integrity upgrades, regulator station upgrades and cathodic protection upgrades.

NEW BUSINESS - Projects for installing new services and distribution mains for both commercial and residential customers.

Justification:
Required to provide ongoing safe and reliable supply of natural gas to customers.

Revision:
Increase in the first three years reflects emerging issues with respect to pipeline integrity, including changes in the gas supply moisture content, insufficient cover, encroachment on pipelines, corrosion control in-line inspections, system reliability as well as load growth.

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 49.0	$ 34.9	$ 22.3	$ 21.2	$ 24.4	$ 526.7
Increase (Decrease)		(0.4)	21.4	9.4	-	-	-
Revised Forecast	NA	$ 48.6	$ 56.3	$ 31.6	$ 21.2	$ 24.4	$ 526.7

Customer Care & Energy Conservation

Description:
This program consists primarily of costs to design, implement and deliver incentive based PowerSmart conservation programs to reduce gas consumption and greenhouse gas emissions in Manitoba, as well as meters, transformers and related equipment. This is comprised of:

GAS DEMAND SIDE MANAGEMENT – Projects to design, implement and deliver incentive based PowerSmart conservation programs to reduce gas consumption and greenhouse gas emissions in Manitoba.

CUSTOMER SERVICE – Projects that address service to a customer or customer-driven requests, including costs associated with new and replacement metering equipment, metering transformers and associated equipment.

Justification:
The natural gas Demand Side Management plan provides customers with exceptional value through the implementation of cost-effective energy conservation programs that are designed to minimize the total cost of energy services to customers, position the Corporation as a national leader in implementing cost-effective energy conservation and alternative energy programs, protect the environment and promote sustainable energy supply and service. Also required for the connection of new customers to the system, as well as replacement of existing time expired or faulty meters.

Revision:
Revisions to energy saving and expenditures for a number of programs to reflect current market information and designed to aggressively pursue cost-effective market-achievable savings. With the adoption of IFRS in 2015/16, the demand side management programs continue to be deferred, under the interim standard that permits rate-regulated accounting.

Customer Care and Energy Conservation

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 5.4	$ 4.6	$ 4.7	$ 4.8	$ 4.9	$ 85.6
Increase (Decrease)		-	-	-	-	-	-
Revised Forecast	NA	$ 5.4	$ 4.6	$ 4.7	$ 4.8	$ 4.9	$ 85.6

Gas Demand Side Management

	Total	2016	2017	2018	2019	2020	2021-35
Previously Approved	NA	$ 10.4	$ 11.0	$ 9.4	$ 8.7	$ 8.9	$ 114.0
Increase (Decrease)		(0.2)	1.6	1.2	0.6	0.5	(7.3)
Revised Forecast	NA	$ 10.2	$ 12.6	$ 10.5	$ 9.3	$ 9.3	$ 106.7