

Export & Domestic Revenues MFR 2**File latest Power Resource Plans based on No New Resources:**

- **system power demand (MW) and dependable energy resources (GWh)/average energy resources at generation**
- **system firm winter peak demand and capacity resources (MW) at generation**
- **new system firm summer peak demand and capacity resources (MW) at generation**

Please find attached Manitoba Hydro's Resource Planning Assumptions & Analysis for 2015/16 Corporate Planning dated September 18, 2015. The name change from "Power Resource Plan" to "Resource Planning Assumptions & Analysis for 2015/16 Corporate Planning" is reflective of the content of the document, which is the assumptions and development plan that supports the IFF and not an evaluation of alternative development plans.

A summary system firm winter peak demand and capacity resources (MW) for the years 2014/15 to 2033/34 is provided in Figure 1 below.

A summary of system firm energy demand and dependable resources (GWh) for the years 2015/16 to 2034/35 is provided in Figure 2 below.

A summary of System Firm Energy Demand and Resources (GWh) @ generation including 2015/16 at expected water flow conditions, 2017/18 at median water flow conditions and 2018/19 to 2034/34 at the average of all water flow conditions is provided in Figure 3 below.

Manitoba Hydro does not have summer peak demand and capacity tables as requested for the 20 year forecast. As previously agreed to between Manitoba Hydro and advisors to the PUB, Manitoba Hydro has provided a summary of peak demand and capacity resources (MW) for the months of July 2016 and July 2017 in Figure 4 below. Surplus capacity in Figure 4 was evaluated consistent with MISO practices.

Figure 1: System Firm Winter Peak Demand and Capacity Resources (MW) @ generation

Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35
Power Resources																				
New Power Resources																				
New NUG PPA																				
Contracted																				
Proposed																				
Total New NUG PPA	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
1 Total New Power Resources	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Base Supply Power Resources																				
Existing Hydro																				
Existing Thermal																				
Brandon Coal - Unit 5																				
Selkirk Gas																				
Brandon Units 6-7 SCGT																				
Contracted Imports																				
Market Purchases																				
Additional Market Resources																				
Bipole III Reduced Losses																				
2 Total Base Supply Power Resources	6 162	6 303	6 371	6 466	6 476	6 908	6 899	6 894	6 894	6 894	6 509	6 509	6 509	6 509	6 509	6 289	6 289	6 289	6 289	6 289
3 Total Power Resources	1+2	6 162	6 312	6 380	6 475	6 485	6 917	6 908	6 903	6 903	6 903	6 518	6 518	6 518	6 518	6 298	6 298	6 298	6 298	6 298
Peak Demand																				
2015 Base Load Forecast																				
Less: 2015 DSM Forecast																				
4 Manitoba Net Load	4 783	4 847	4 805	4 783	4 717	4 754	4 725	4 752	4 785	4 822	4 862	4 900	4 939	4 977	5 016	5 084	5 175	5 269	5 371	5 487
Contracted Exports																				
Proposed Exports																				
5 Total Exports	572	789	789	614	614	889	1 018	990	990	990	495	495	385	385	385	385	385	385	385	385
6 Total Peak Demand	4+5	5 355	5 636	5 594	5 397	5 331	5 643	5 743	5 742	5 775	5 812	5 357	5 395	5 324	5 362	5 401	5 469	5 560	5 654	5 756
7 Reserves		574	582	577	574	566	571	567	570	574	579	583	588	593	597	602	610	621	632	645
System Surplus	3-6-7	233	94	209	504	588	703	598	591	554	512	578	535	601	559	515	219	117	12	- 103

Figure 2: System Firm Energy Demand and Dependable Resources (GWh) @ generation

Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	
Power Resources																					
New Power Resources																					
New Nug PPA																					
Contracted																					
Proposed	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
Total New Nug PPA	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
1 Total New Power Resources	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
Base Supply Power Resources																					
Existing Hydro	21 924	21 892	21 878	21 880	22 356	24 790	24 778	24 746	24 746	24 736	24 726	24 726	24 716	24 706	24 706	24 696	24 696	24 686	24 676	24 676	
Existing Thermal																					
Brandon Coal - Unit 5	811	811	811	811	592																
Selkirk Gas	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	
Brandon Units 6-7 SCGT	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	
Contracted Imports	2 485	2 809	2 809	2 809	2 809	3 502	3 688	3 688	3 688	3 688	2 321	2 050	2 050	2 050	2 050	1 268	1 113	1 113	1 113	1 113	
Proposed Imports																					
Hydro Adjustment	784	903	903	903	903	844	844	844	844	406	307	307	307	307	307	70					
Market Purchases	582	258	258	258	258	957	1 050	1 050	1 050	1 050	2 417	2 688	2 688	2 688	2 688	3 440	3 624	3 624	3 625	3 625	
Additional Market Resources																					
Existing Wind	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	
Bipole III Reduced Losses				101	101	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	
2 Total Base Supply Power Resources	30 664	30 751	30 737	30 840	31 097	34 348	34 615	34 583	34 583	34 573	34 125	34 026	34 016	34 006	34 006	33 729	33 688	33 678	33 669	33 669	
3 Total Power Resources	1+2	30 664	30 799	30 834	30 937	31 194	34 445	34 712	34 680	34 680	34 670	34 221	34 122	34 112	34 102	34 102	33 826	33 785	33 775	33 766	
Manitoba Domestic Load																					
2015 Base Load Forecast	26 145	26 792	27 126	27 486	27 600	28 449	28 786	29 197	29 590	29 999	30 408	30 823	31 243	31 664	32 094	32 531	33 101	33 684	34 317	35 011	
Non-Committed Construction Power	110	110	110	110	110	83															
Less: 2015 DSM Forecast	- 217	- 412	- 852	- 1 231	- 1 652	- 1 940	- 2 231	- 2 399	- 2 557	- 2 704	- 2 844	- 2 995	- 3 156	- 3 325	- 3 498	- 3 534	- 3 566	- 3 598	- 3 628	- 3 655	
4 Manitoba Net Load	26 038	26 490	26 384	26 365	26 058	26 592	26 555	26 798	27 033	27 295	27 564	27 828	28 087	28 339	28 596	28 997	29 535	30 086	30 689	31 356	
Contracted Exports	2 739	3 388	3 502	3 289	3 246	3 964	4 604	4 503	4 476	4 476	2 193	2 049	1 634	1 551	1 551	1 389	1 389	1 389	1 389	1 389	
Proposed Exports																					
Less: Adverse Water	- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 512	- 512	- 512	- 85										
5 Total Net Exports	2 430	3 018	3 132	2 919	2 876	4 053	4 666	4 542	4 515	4 515	2 659	2 600	2 185	2 102	2 102	1 940	1 940	1 940	1 940	1 940	
6 Total Energy Demand	4+5	28 468	29 508	29 516	29 284	28 934	30 645	31 221	31 340	31 548	31 810	30 223	30 428	30 272	30 441	30 698	30 937	31 475	32 026	32 629	
System Surplus	3-6	2 197	1 291	1 318	1 653	2 260	3 800	3 491	3 340	3 132	2 860	3 998	3 694	3 840	3 661	3 404	2 889	2 310	1 749	1 137	

Figure 3: System Firm Energy Demand and Resources (GWh) @ generation
2015/16 Expected Water Flow Conditions
2016/17 Median Water Flow Conditions
2017/18 – 2034/35 Average of All Flow Conditions

Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35
Manitoba Hydro Power Resources																				
Hydro Generation	34 915	31 858	31 194	31 098	31 648	34 555	35 344	35 308	35 305	35 201	35 139	35 360	35 265	35 258	35 254	35 322	35 224	35 222	35 296	35 314
Bipole III Reduced Losses				324	324	352	352	352	352	352	352	352	352	352	352	352	352	352	352	352
Thermal Generation	58	63	408	382	318	169	173	174	164	174	174	175	148	151	153	135	129	126	124	118
New NUG Purchase		48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
Wind	920	922	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907
Imports			1 306	1 202	1 072	1 624	1 844	1 881	1 850	1 945	1 693	1 733	1 638	1 700	1 746	1 571	1 628	1 654	1 712	2 243
1 Total Power Resources	35 893	32 891	33 911	34 010	34 365	37 705	38 718	38 719	38 674	38 675	38 361	38 624	38 407	38 465	38 509	38 384	38 337	38 358	38 488	39 030
Demand																				
2015 Base Load Forecast	25 999	26 832	27 126	27 486	27 600	28 449	28 786	29 197	29 590	29 999	30 408	30 823	31 243	31 664	32 094	32 531	33 101	33 684	34 317	35 011
Non-Committed Construction Power			110	110	110	83														
Demand Side Management	- 318	- 412	- 852	-1 231	-1 652	-1 940	-2 231	-2 399	-2 557	-2 704	-2 844	-2 995	-3 156	-3 325	-3 498	-3 534	-3 566	-3 598	-3 628	-3 655
2 Net Load	25 681	26 420	26 385	26 366	26 058	26 593	26 555	26 797	27 033	27 294	27 564	27 828	28 086	28 339	28 596	28 997	29 536	30 086	30 690	31 356
Imports and Exports																				
Contracted Exports	3 453	3 464	3 534	3 316	3 273	4 488	5 801	5 829	5 802	5 802	3 520	3 376	2 837	2 718	2 718	2 556	2 556	2 556	2 556	2 556
3 Total Demand ²⁺³	29 134	29 884	29 918	29 682	29 331	31 081	32 356	32 626	32 835	33 097	31 084	31 204	30 923	31 057	31 314	31 553	32 092	32 642	33 246	33 912
4 System Surplus ¹⁻⁴	6 759	3 007	3 992	4 328	5 034	6 624	6 362	6 092	5 840	5 578	7 277	7 420	7 483	7 408	7 195	6 831	6 245	5 716	5 242	5 215

Figure 4: July Peak Demand and Capacity Resources (MW) @ generation (based on MISO surplus capacity calculations)

Month	Jul-2016	Jul-2017
Supply		
Total Generation Capacity	5474	5474
Capacity Imports	0	0
Total Supply	5474	5474
Peak Demand		
2015 Base Load Forecast	3372	3414
Less: 2015 Base DSM Forecast	25	46
Less: Curtailable Load, Station Service	166	166
Plus: 10% Export Losses	137	139
Manitoba Net Load	3318	3341
Capacity Exports	1371	1392
Total Peak Demand (3 + 4)	4689	4733
MISO Planning Reserves	236	237
Surplus (2 - 5 - 6)	549	504

Notes:

1. MISO capacity surplus based on generation unforced capacity (i.e. net of forced outage rate). Figure includes all MH supplies however, not all MH generation is necessarily offered to capacity market (e.g., Brandon 5 generation excluded)
6. MISO planning reserve (7.1%)

Manitoba Hydro - Resource Planning Assumptions & Analysis for 2015/16 Corporate Planning
September 18, 2015

EXECUTIVE SUMMARY

The purpose of the Resource Planning Assumptions and Analysis for 2015/16 Corporate Planning is to document key assumptions, and provide a development plan to support the 2015 Integrated Financial Forecast (IFF).

The development plan recommended for use in the IFF is as follows:

Committed Resources:

- Keyask G.S. (695 MW) with a 2019/20 ISD,
- Bipole III completed by 2018/19.

Resources in Regulatory Approval Process:

- A new 500 kV US interconnection with a June 2020 ISD.

Proposed Resources:

- Market Resources to meet capacity deficits from 2033/34 to 2035/36
- New Simple Cycle Gas Turbines to meet capacity and dependable energy deficits starting in 2036/37

Related Sales

- The MH–MP 250 MW Sale Agreements dated May 2011,
- The WPS 100 MW Sale Agreement dated May 2011,
- The WPS 108 MW Sale Agreement dated Feb 26, 2014,
- The NSP 125 MW Sale Agreement dated May 2010,
- The NSP 75 MW Sale Agreement dated December 2014,
- The Sask Power 25 MW Sale Agreement dated June 2014,
- The Sask Power 100 MW Term Sheet dated June 2015.

With the increases to forecasted Manitoba load, new generation resources are required to meet persistent capacity and energy shortfalls in Manitoba load in 2036/37 which is one year earlier than the need date forecasted in the 2014/15 Power Resource Plan. In 2033/34-2035/36 there are short-term capacity deficits which could be filled with short term capacity purchases or advancing natural gas-fired generation.

TABLE OF CONTENTS

Executive Summary i
 Table of Contents ii
 1 Introduction..... 1
 1.1 Resource Planning Criteria..... 1
 2 Demand for Power 2
 2.1 Electric Load Forecast..... 2
 2.2 Demand Side Management 3
 2.3 Long-Term Export Contracts 5
 3 Supply of Power..... 6
 3.1 Manitoba Hydro Operated Facilities – Hydroelectric and Thermal Generation..... 6
 3.2 Committed Resources 7
 3.3 Resources in Regulatory Approval Process 8
 3.4 Power Purchases from Manitoba Generators 8
 3.5 Imports from Adjacent Regions 8
 4 Need for New Resources to Meet Existing Obligations 10
 5 Conclusions..... 11
 Appendix A: Dependable Supply & Demand..... 12

1 INTRODUCTION

The Resource Planning Assumptions and Analysis for 2015/16 Corporate Planning document is the annual update to the long-term resource development plan to ensure that adequate resources are available to meet the electricity needs of the province of Manitoba. It supports the annual Integrated Financial Forecast (IFF) process as well as other long-term planning and corporate initiatives.

1.1 Resource Planning Criteria

Resource planning is an essential activity that supports Manitoba Hydro's mission as stated in the Corporate Strategic Plan:

“To provide for the continuance of a supply of energy to meet the needs of the province and to promote economy and efficiency in the development, generation, transmission, distribution, supply, and end-use of energy.”

Resource planning is governed by Manitoba Hydro Policy P195, Generation Planning, which includes the following Capacity and Energy criteria:

1. Capacity Criterion

Manitoba Hydro will plan to carry a minimum reserve against breakdown of plant and increase in demand above forecast of 12% of the Manitoba forecast peak demand each year plus the reserve required by any export contract in effect at the time.

2. Energy Criterion

The Corporation will plan to have adequate energy resources to supply the firm energy demand in the event that the lowest recorded coincident water supply conditions are repeated. Imports may be considered as dependable energy resources provided they utilize Firm Transmission Service and are sourced from either an Organized Power Market or a bilateral contract. The total quantity of energy considered as dependable energy from imports shall be limited to that which can be imported during the Off Peak Period, and shall not exceed the quantity of export contracts in effect at the time plus 10% of the Manitoba load.

These planning criteria provide the basis for determining when new resources are required to ensure an adequate supply of capacity and energy for Manitoba.

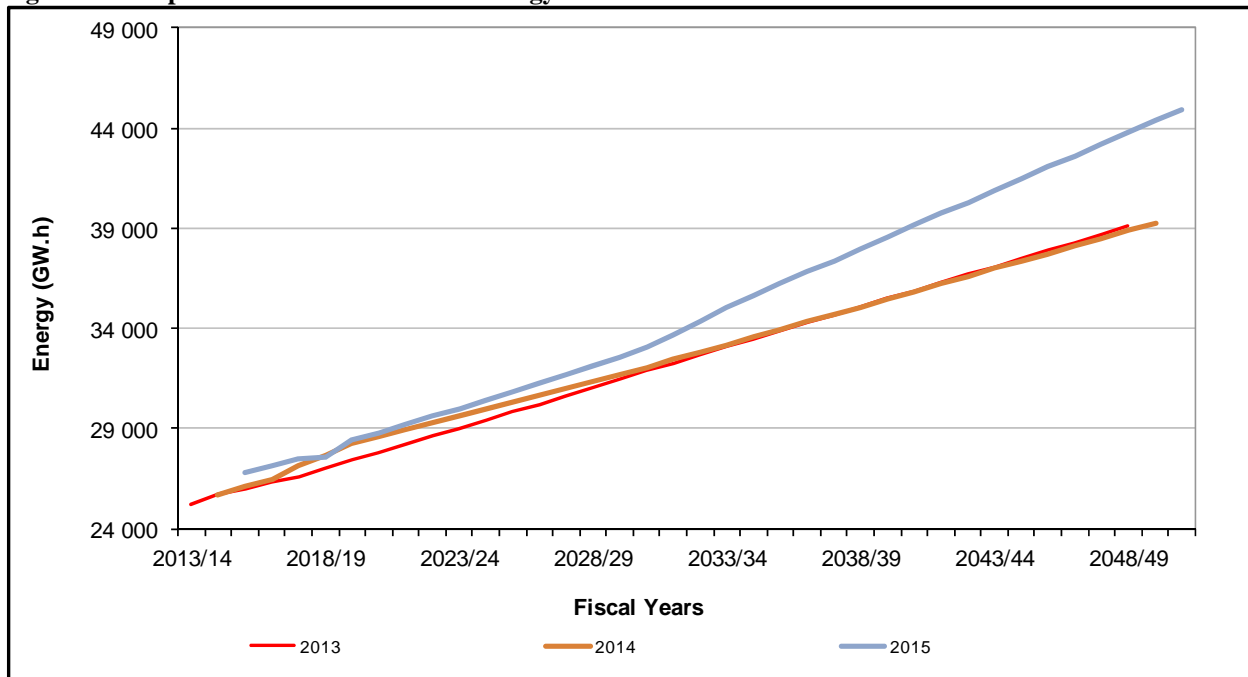
2 DEMAND FOR POWER

Demand for power consists of forecast Manitoba domestic load, which includes residential, commercial and industrial sectors, and requirements from export contracts. Demand Side Management (DSM) plays a significant role in reducing overall demand. The following sections provide a summary of the 2015 energy and capacity forecasts and contract provisions and a discussion of the changes from 2014.

2.1 Electric Load Forecast

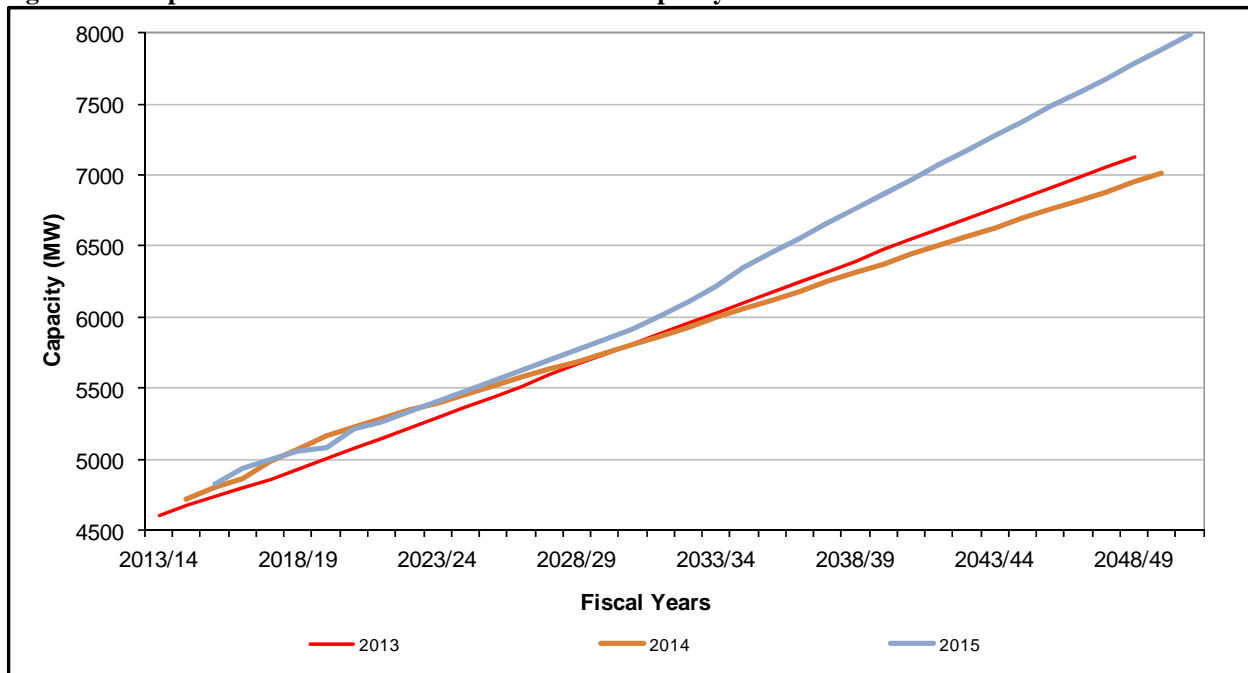
The 2015 Electric Load Forecast, prepared by the Market Forecast Department, provides Manitoba Hydro’s forecast of the Manitoba domestic load. As shown in Figure 1, after 2024/25 the difference between the 2014 forecast and the 2015 forecast begin to increase and from 2030/31, grow 470 GW.h to 7,417 GW.h higher by 2053/54. The increase is primarily due to a higher Residential customer forecast from the 2014 forecast, an increase in the average use of the General Service Mass Market sector and an increase due to lower expected domestic electric prices. By 2033/34, the increase in the 2015 forecast is 1,141 GW.h which equates to a 3.4% increase in the forecast of 2033/34, which represents a gain of just over two years of load growth (1 year = approximately 475 GW.h).

Figure 1: Comparison of Manitoba Load Energy Forecasts



As shown in Figure 2, the 2015 Gross Total Peak demand forecast for 2033/34 is up 225 MW compared to the 2014 demand forecast, almost three years of load growth. (1 year = approximately 80 MW). The increase in the Gross Total Peak demand is similar to the Energy where an increase in the Residential customer forecast and a higher average use in the General Service Mass Market along with a small decrease in the expected peak load factor which, by 2033/34, is forecast to be 63.0% compared to 63.2% from the 2014 forecast in 2033/34.

Figure 2: Comparison of Manitoba Load Winter Peak Capacity Forecast



2.2 Demand Side Management

Incremental demand side management (DSM) included in the Resource Planning Assumptions and Analysis for 2015/16 Corporate Planning is 824 MW and 3498 GW.h achieved by 2029/30. Incremental DSM excludes savings already achieved to date, savings achieved through codes and standards which are included in the Load Forecast, and savings from curtailable rates programming that do not qualify as winter peak capacity or dependable energy as these are short-term resources.

Figures 3 and 4 show the changes in DSM assumptions for energy and capacity between the 2013/14 Power Resource Plan, the 2014/15 Power Resource Plan, and the Resource Planning Assumptions and Analysis for 2015/16 Corporate Planning.

Figure 3: Comparison of DSM Energy Savings Forecasts

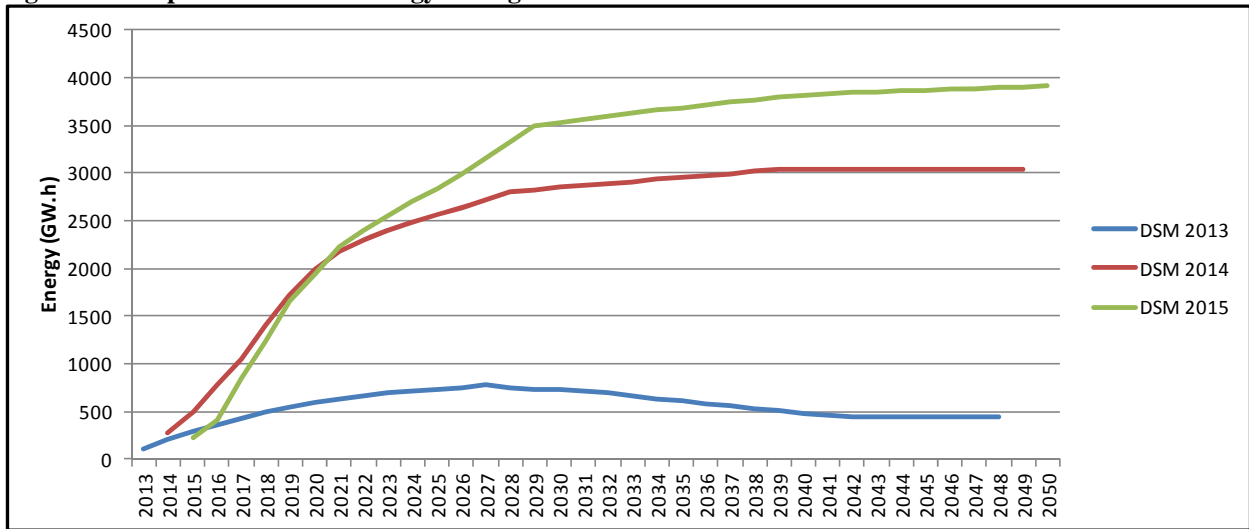
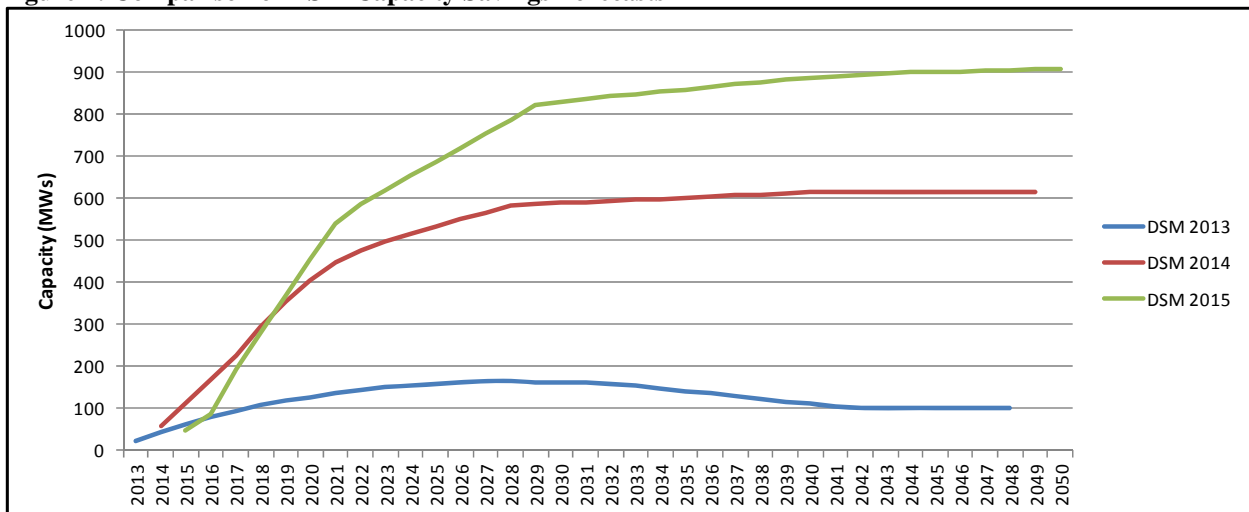


Figure 4: Comparison of DSM Capacity Savings Forecasts



2.3 Long-Term Export Contracts

Long-term dependable export obligations refer to sales that are sourced from dependable energy and must be served under all historic water supply conditions including the lowest recorded coincident water supply conditions. Long-term export obligations under dependable flow conditions may be less than the obligation under higher flow conditions and are governed by the terms of each individual contract.

3 SUPPLY OF POWER

This section describes resources that form the base supply of power available to meet Manitoba load requirements and identifies when new base supply resources are required.

Base supply of power is comprised of the following system resources that are common to all development plans being evaluated:

- generating resources owned/operated by Manitoba Hydro including any planned upgrades and committed new resources,
- power purchases from non utility generators in Manitoba,
- imports from adjacent regions,
- projects to replace existing generating resources where plans are in place, and
- reduced losses due to increased HVDC system capacity.

3.1 Manitoba Hydro Operated Facilities – Hydroelectric and Thermal Generation

The following provides a summary of notable assumptions and/or current status updates for specific resources.

Brandon Generating Station Unit 5 – Coal-Fired Generation

Availability Assumptions

Brandon Unit 5, Manitoba Hydro's sole remaining coal-fired generating unit, is assumed to remain available until December 31, 2019.

The Climate Change and Emissions Reductions Act

Brandon Unit 5 is governed by the provincial *Climate Change and Emissions Reductions Act* and its subsequent *MR 186/2009*, the *Coal-Fired Emergency Operations Regulation* which restricted coal-fired operation to “...support emergency operations”.

Operation of Brandon Unit 5 will occur for two main purposes as defined in *MR 186/2009*, the *Coal-Fired Emergency Operations Regulation*: to mitigate adverse water conditions commonly referred to as “drought”, and to provide system reliability support.

Under these conditions, it can continue to operate up to its maximum capability of 811 GW.h/year (northern equivalent). Unit 5 generation is assumed to be available to meet all commitments existing prior to the introduction of the Act. In the future however, Brandon Unit 5 energy shall not be considered available to supply new sales including future long-term dependable export sales.

Currently, periodic operation of Brandon Unit 5 is necessary to ensure effective emergency power generation capability. It is estimated that operation for this purpose will generate approximately 100 GW.h/year. An additional 25 GW.h/year may be required for emergency service resulting in estimated Unit 5 generation to be in the order of 125 GW.h/year.

Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations

Environment Canada's *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations* establishes the allowable duration of long-term operation of Brandon Generating Station Unit 5. The federal regulation does not affect operation of Brandon Unit 5 until January 1, 2020. Until that time Brandon will continue to operate as restricted under provincial regulation. Commencing January 1, 2020, the unit can be utilized as a "standby" unit until December 31, 2029. A "standby" unit is permitted to operate to a maximum annual net capacity factor of 9 percent for non-emergency purposes. However starting January 1, 2020, after-the-fact approval of emergency operations is required from the federal Minister of the Environment. Medium term emergencies are limited to a 90 day period but can be extended for another 90 day term. Prolonged, unrestricted operation during a long term, "shortage of fuel" emergency (i.e. drought) after January 1, 2020 is permitted, but requires a declaration by the provincial Minister responsible for the Emergency Measures Act.

Brandon Generating Station Units 6 and 7 – Natural Gas-Fired Simple Cycle Generation

The annual firm energy assumption for Brandon Units 6 and 7 is 2354 GW.h . The firm capacity (Winter Peak) remains at 280 MW reflecting the results of Generation Verification Test Capacity (GVTC) testing. Brandon Units 6 and 7 are assumed to remain in service throughout the planning horizon assuming only routine capital investment.

Selkirk Generating Station Units 1 and 2 – Natural Gas-Fired Steam Generation

Selkirk is assumed to remain in operation to the end of the planning horizon assuming only routine capital investment.

Pointe du Bois Generating Station

The 120 MW Pointe du Bois powerhouse rebuild is no longer included as an option for the 2015/16 planning assumptions based on a review of the life extension of the existing Pointe du Bois powerhouse. The recommendation going forward from this review is to proceed with ongoing civil and safety remediation work in the existing powerhouse and begin successive replacement of failed generating units with new units where they are justified.

After 2021/22 to end of planning horizon, the plant capacity is assumed to decrease to 33MW and approximately 233 GWh of annual dependable energy, reflecting the output from Unit 1 and the four replaced units.

3.2 Committed Resources**Keeyask Generating Station**

The Keeyask G.S. will be located upstream of the Kettle G.S. on the lower Nelson River with 7 units having a maximum rated total power capacity of 695 MW, which occurs when Stephens Lake is drawn down. There will be a net addition of 630 MW to Manitoba Hydro's Integrated Power System once the Keeyask G.S. is added.

Construction of the Keeyask Generation Project began in July 2014, following receipt of all required provincial and federal licenses, authorizations and permits. The first unit is planned to be in-service in late 2019 and with the last unit in-service in 2020.

Loss Reduction due to Bipole III

Bipole III is under construction with a planned in service date of 2018/19. Bipole III does not provide any new generation, but is expected to reduce the transmission losses which currently occur on the HVDC system. By using all three bipoles to transmit the generation from the lower Nelson River plants, rather than just the existing two bipoles, the losses are reduced and result in 80 MW and 177 GW.h/year of reduced losses under drought conditions. This benefit has been included and is adjusted downward as new northern hydroelectric generation increases the loading.

3.3 Resources in Regulatory Approval Process

US Interconnection

The new 500 kV US interconnection is assumed to be capable of 698 MW for import and 883 MW for export. The new interconnection has a planned in-service date of June 1, 2020 which is coincident with the start of the MH–MP250 MW Sale Agreements. The new interconnection requires several Canadian and US regulatory approvals which are expected to be received by mid 2017.

3.4 Power Purchases from Manitoba Generators

Wind Generation

Manitoba Hydro has power purchase agreements (PPAs) with three wind producers, St. Leon Energy LP, Algonquin Power, and Pattern Energy Group. These PPA's provide Manitoba Hydro with 771 GW.h of dependable energy on an annual basis. Wind generation is not assigned a capacity value for the purposes of meeting winter peak load as it is not assured to be available at the time of system peak. For planning purposes, existing wind generation is expected to extend through to the end of the study period.

Non-Utility Generation

Manitoba Hydro and Kineticor Resource Corp. executed a Term Sheet for the purchase of 11.65 MW of flare gas generated electricity over a 20 year term. This agreement is assumed to add 97 GW.h of dependable energy to Manitoba Hydro's system.

3.5 Imports from Adjacent Regions

Manitoba Hydro has long-term seasonal diversity contracts with Northern States Power (NSP) and Great River Energy (GRE) which provide for capacity and dependable energy imports during the winter season in exchange for exports of capacity and energy during the summer season.

The diversity agreements combined provide for an exchange of capacity of 550 MW in 2015/16, increases to 625 MW in 2016/17, returning to 550 MW from 2020/21 until 2024/25, then reducing to 200 MW until it expires in 2029/30. In addition to the diversity agreements, Manitoba Hydro has a 500 MW import agreement with NSP which provides access to energy throughout the year but as the contract does not have a capacity component it is not guaranteed for any particular hour.

Manitoba Hydro's firm northbound scheduling limit from the US Midwest Independent System Operator (MISO) market is currently 700 MW. In 2020, this limit increases to 1398 MW with the addition of the new 500kV interconnection.

4 NEED FOR NEW RESOURCES TO MEET EXISTING OBLIGATIONS

The need for new resources to meet the expected load requirements is assessed using supply assumptions which include the base supply of power resources including committed resources, and the Manitoba base load forecast net of demand side management (DSM) and export sales requirements. Using the planning criteria, the supply-demand surplus or deficit is determined for each year for 35 years into the future. The year in which significant persistent deficits begin for either dependable energy or peak capacity is the year that new resources are required.

Table 1 shows the changes in the dates that new resources are needed for both dependable energy and capacity compared to the 2014/15 Power Resource Plan. The variation in the date new resources are needed is due to changes in the load forecast, DSM, and base resource assumptions such as the deferral of the Pointe du Bois powerhouse rebuild, and allowable import quantities.

For the 2015/16 planning assumptions, the need for new resources is driven by a sustained capacity shortfall beginning in 2033/34. Resources are not required to meet sustained dependable energy deficits until 2036/37.

Table 1: Changes to Supply-Demand Balances

Changes to Dependable Energy (GW.h)									
Fiscal Year	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41
Dependable Energy (GW.h)									
System Surplus (Deficit) 2014, No New Resources	1995	1658	1333	996	559	232	(111)	(269)	(528)
System Surplus (Deficit) 2015, No New Resources	1749	1137	470	69	(589)	(1236)	(1845)	(2442)	(3063)

Changes to Winter Peak Capacity (MWs)									
Fiscal Year	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41
Planning Capacity (MW)									
System Surplus (Deficit) 2014, No New Resources	49	(21)	(89)	117	38	(30)	(98)	(79)	(149)
System Surplus (Deficit) 2015, No New Resources	12	(103)	(232)	(86)	(224)	(353)	(482)	(609)	(630)

5 CONCLUSIONS

With proposed DSM and the increases to forecasted Manitoba load, new generation resources are required to meet capacity deficits starting in 2033/34 and persistent capacity and energy shortfalls starting in 2036/37. The proposed plan for use in the 2015 Integrated Financial Forecast includes market resources for capacity starting in 2033/34 until Simple Cycle Gas Turbine Generation is required for both energy and capacity in 2036/37.

APPENDIX A: DEPENDABLE SUPPLY & DEMAND

System Firm Winter Peak Demand and Capacity Resources (MW) @ generation																			
2015 Planning Assumptions																			
No New Resources																			
Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Power Resources																			
New Power Resources																			
New Hydro																			
1 Total New Hydro																			
New Thermal																			
SCGT																			
CCGT																			
2 Total New Thermal																			
New NUG PPA																			
Contracted																			
Proposed		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
3 Total New NUG PPA		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
4 Total New Power Resources	1+2+3	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
Base Supply Power Resources																			
Existing Hydro	5 172	5 164	5 166	5 171	5 286	5 811	5 802	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	
Existing Thermal																			
Brandon Coal - Unit 5	105	105	105	105															
Selkirk Gas	66	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	
Brandon Units 6-7 SCGT	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	
Contracted Imports	605	688	688	688	688	605	605	605	605	605	220	220	220	220	220				
Market Purchases																			
Additional Market Resources																			
Bipole III Reduced Losses				90	90	80	80	80	80	80	80	80	80	80	80	80	80	80	
5 Total Base Supply Power Resources	6 162	6 303	6 371	6 466	6 476	6 908	6 899	6 894	6 894	6 894	6 509	6 509	6 509	6 509	6 509	6 289	6 289	6 289	
6 Total Power Resources	4+5	6 162	6 312	6 380	6 475	6 485	6 917	6 908	6 903	6 903	6 903	6 518	6 518	6 518	6 518	6 518	6 298	6 298	
Peak Demand																			
2015 Base Load Forecast	4 829	4 936	5 000	5 063	5 086	5 210	5 267	5 337	5 406	5 476	5 547	5 619	5 692	5 765	5 840	5 915	6 012	6 112	
Less: 2015 DSM Forecast	- 46	- 89	- 195	- 280	- 369	- 456	- 542	- 585	- 621	- 654	- 685	- 719	- 753	- 788	- 824	- 831	- 837	- 843	
7 Manitoba Net Load	4 783	4 847	4 805	4 783	4 717	4 754	4 725	4 752	4 785	4 822	4 862	4 900	4 939	4 977	5 016	5 084	5 175	5 269	
Contracted Exports	572	789	789	614	614	779	908	880	880	880	385	385	275	275	275	275	275	275	
Proposed Exports						110	110	110	110	110	110	110	110	110	110	110	110	110	
8 Total Exports	572	789	789	614	614	889	1 018	990	990	990	495	495	385	385	385	385	385	385	
9 Total Peak Demand	7+8	5 355	5 636	5 594	5 397	5 331	5 643	5 743	5 742	5 775	5 812	5 357	5 395	5 324	5 362	5 401	5 469	5 560	
10 Reserves	574	582	577	574	566	571	567	570	574	579	583	588	593	597	602	610	621	632	
11 System Surplus	6-9-10	233	94	209	504	588	703	598	591	554	512	578	535	601	559	515	219	117	

System Firm Winter Peak Demand and Capacity Resources (MW) @ generation																		
2015 Planning Assumptions																		
No New Resources																		
Fiscal Year	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Power Resources																		
New Power Resources																		
New Hydro																		
1 Total New Hydro																		
New Thermal																		
SCGT																		
CCGT																		
2 Total New Thermal																		
New NUG PPA																		
Contracted																		
Proposed	9	9	9															
3 Total New NUG PPA	9	9	9															
4 Total New Power Resources 1+2+3	9	9	9															
Base Supply Power Resources																		
Existing Hydro	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797	5 797
Existing Thermal																		
Brandon Coal - Unit 5																		
Selkirk Gas	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
Brandon Units 6-7 SCGT	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280	280
Contracted Imports																		
Market Purchases																		
Additional Market Resources																		
Bipole III Reduced Losses	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
5 Total Base Supply Power Resources	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289
6 Total Power Resources 4+5	6 298	6 298	6 298	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289	6 289
Peak Demand																		
2015 Base Load Forecast	6 220	6 341	6 462	6 582	6 703	6 824	6 944	7 065	7 185	7 306	7 427	7 547	7 668	7 788	7 909	8 030	8 150	8 271
Less: 2015 DSM Forecast	- 849	- 854	- 860	- 865	- 871	- 877	- 883	- 887	- 890	- 894	- 897	- 900	- 901	- 903	- 904	- 906	- 908	- 910
7 Manitoba Net Load	5 371	5 487	5 602	5 717	5 832	5 947	6 061	6 178	6 295	6 412	6 530	6 647	6 767	6 885	7 005	7 124	7 242	7 361
Contracted Exports	275	275																
Proposed Exports	110	110	110	110	110	110	110											
8 Total Exports	385	385	110	110	110	110	110											
9 Total Peak Demand 7+8	5 756	5 872	5 712	5 827	5 942	6 057	6 171	6 178	6 295	6 412	6 530	6 647	6 767	6 885	7 005	7 124	7 242	7 361
10 Reserves	645	658	672	686	700	714	727	741	755	769	784	798	812	826	841	855	869	883
11 System Surplus 6-9-10	- 103	- 232	- 86	- 224	- 353	- 482	- 609	- 630	- 761	- 892	- 1 025	- 1 156	- 1 290	- 1 422	- 1 557	- 1 690	- 1 822	- 1 955

System Firm Energy Demand and Dependable Resources (GWh) @ generation																			
2015 Planning Assumptions																			
No New Resources																			
Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Power Resources																			
New Power Resources																			
New Hydro																			
1 Total New Hydro																			
New Thermal																			
SCGT																			
CCGT																			
2 Total New Thermal																			
New Nug PPA																			
Contracted																			
Proposed	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
3 Total New Nug PPA	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
4 New Wind																			
5 Total New Power Resources <small>1+2+3+4</small>	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
Base Supply Power Resources																			
Existing Hydro	21 924	21 892	21 878	21 880	22 356	24 790	24 778	24 746	24 746	24 736	24 726	24 726	24 716	24 706	24 706	24 696	24 696	24 686	
Existing Thermal																			
Brandon Coal - Unit 5	811	811	811	811	592														
Selkirk Gas	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	
Brandon Units 6-7 SCGT	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	
Contracted Imports	2 485	2 809	2 809	2 809	2 809	3 502	3 688	3 688	3 688	3 688	2 321	2 050	2 050	2 050	2 050	1 268	1 113	1 113	
Proposed Imports																			
Hydro Adjustment	784	903	903	903	903	844	844	844	844	844	406	307	307	307	307	70			
Market Purchases	582	258	258	258	258	957	1 050	1 050	1 050	1 050	2 417	2 688	2 688	2 688	2 688	3 440	3 624	3 624	
Additional Market Resources																			
Existing Wind	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	
Bipole III Reduced Losses				101	101	177	177	177	177	177	177	177	177	177	177	177	177	177	
6 Total Base Supply Power Resources	30 664	30 751	30 737	30 840	31 097	34 348	34 615	34 583	34 583	34 573	34 125	34 026	34 016	34 006	34 006	33 729	33 688	33 678	
7 Total Power Resources <small>5+6</small>	30 664	30 799	30 834	30 937	31 194	34 445	34 712	34 680	34 680	34 670	34 221	34 122	34 112	34 102	34 102	33 826	33 785	33 775	
Manitoba Domestic Load																			
2015 Base Load Forecast	26 145	26 792	27 126	27 486	27 600	28 449	28 786	29 197	29 590	29 999	30 408	30 823	31 243	31 664	32 094	32 531	33 101	33 684	
Non-Committed Construction Power	110	110	110	110	110	83													
Less: 2015 DSM Forecast	- 217	- 412	- 852	- 1 231	- 1 652	- 1 940	- 2 231	- 2 399	- 2 557	- 2 704	- 2 844	- 2 995	- 3 156	- 3 325	- 3 498	- 3 534	- 3 566	- 3 598	
8 Manitoba Net Load	26 038	26 490	26 384	26 365	26 058	26 592	26 555	26 798	27 033	27 295	27 564	27 828	28 087	28 339	28 596	28 997	29 535	30 086	
Contracted Exports	2 739	3 388	3 502	3 289	3 246	3 964	4 604	4 503	4 476	4 476	2 193	2 049	1 634	1 551	1 551	1 389	1 389	1 389	
Proposed Exports																			
Less: Adverse Water	- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 512	- 512	- 512	- 85								
9 Total Net Exports	2 430	3 018	3 132	2 919	2 876	4 053	4 666	4 542	4 515	4 515	2 659	2 600	2 185	2 102	2 102	1 940	1 940	1 940	
10 Total Energy Demand <small>8+9</small>	28 468	29 508	29 516	29 284	28 934	30 645	31 221	31 340	31 548	31 810	30 223	30 428	30 272	30 441	30 698	30 937	31 475	32 026	
11 System Surplus <small>7-10</small>	2 197	1 291	1 318	1 653	2 260	3 800	3 491	3 340	3 132	2 860	3 998	3 694	3 840	3 661	3 404	2 889	2 310	1 749	

System Firm Energy Demand and Dependable Resources (GWh) @ generation																			
2015 Planning Assumptions																			
No New Resources																			
Fiscal Year	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51	
Power Resources																			
New Power Resources																			
New Hydro																			
1	Total New Hydro																		
New Thermal																			
SCGT																			
CCGT																			
2	Total New Thermal																		
New Nug PPA																			
Contracted																			
Proposed																			
3	97	97	97	48															
3	Total New Nug PPA																		
4	New Wind																		
5	Total New Power Resources 1+2+3+4																		
	97	97	97	48															
Base Supply Power Resources																			
Existing Hydro																			
	24 676	24 676	24 666	24 656	24 656	24 646	24 646	24 636	24 626	24 626	24 616	24 606	24 606	24 596	24 586	24 586	24 576	24 576	
Existing Thermal																			
Brandon Coal - Unit 5																			
	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	
Brandon Units 6-7 SCGT																			
	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	
Contracted Imports																			
	1 113	1 113	186																
Proposed Imports																			
Hydro Adjustment																			
Market Purchases																			
	3 625	3 625	3 790	3 834	3 901	3 967	4 033	3 643	3 619	3 687	3 755	3 824	3 893	3 961	4 030	4 098	4 167	4 236	
Additional Market Resources																			
Existing Wind																			
	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	
Bipole III Reduced Losses																			
	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	
6	Total Base Supply Power Resources																		
	33 669	33 669	32 897	32 745	32 812	32 868	32 934	32 534	32 500	32 568	32 626	32 685	32 754	32 812	32 871	32 939	32 998	33 067	
7	Total Power Resources 5+6																		
	33 766	33 766	32 993	32 793	32 812	32 868	32 934	32 534	32 500	32 568	32 626	32 685	32 754	32 812	32 871	32 939	32 998	33 067	
Manitoba Domestic Load																			
2015 Base Load Forecast																			
	34 317	35 011	35 705	36 400	37 094	37 788	38 482	39 176	39 870	40 564	41 259	41 953	42 647	43 341	44 035	44 729	45 424	46 118	
Non-Committed Construction Power																			
Less: 2015 DSM Forecast																			
	-3 628	-3 655	-3 684	-3 713	-3 742	-3 771	-3 802	-3 816	-3 828	-3 840	-3 849	-3 860	-3 866	-3 874	-3 882	-3 890	-3 899	-3 907	
8	Manitoba Net Load																		
	30 689	31 356	32 021	32 687	33 352	34 017	34 680	35 360	36 042	36 724	37 410	38 093	38 781	39 467	40 153	40 839	41 525	42 211	
Contracted Exports																			
	1 389	1 389	353	145	145	145	145	145	145	145	145	145	145	145	145	145	145	146	
Proposed Exports																			
	551	551	551	551	551	551	551	92											
Less: Adverse Water																			
9	Total Net Exports																		
	1 940	1 940	904	696	696	696	696	237	145	145	145	145	145	145	145	145	145	146	
10	Total Energy Demand 8+9																		
	32 629	33 296	32 925	33 383	34 048	34 713	35 376	35 597	36 187	36 869	37 555	38 238	38 926	39 612	40 298	40 984	41 670	42 357	
11	System Surplus 7-10																		
	1 137	470	69	- 590	-1 236	-1 845	-2 442	-3 063	-3 687	-4 301	-4 929	-5 553	-6 172	-6 800	-7 427	-8 045	-8 672	-9 290	

System Firm Winter Peak Demand and Capacity Resources (MW) @ generation 2015 Planning Assumptions Market Resources for Capacity and Simple Cycle Gas Turbine Generation																		
Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Power Resources																		
New Power Resources																		
New Hydro																		
1	Total New Hydro																	
New Thermal																		
SCGT																		
CCGT																		
2	Total New Thermal																	
New NUG PPA																		
Contracted																		
Proposed																		
3	Total New NUG PPA																	
4	Total New Power Resources 1+2+3																	
Base Supply Power Resources																		
Existing Hydro																		
Existing Thermal																		
Brandon Coal - Unit 5																		
Selkirk Gas																		
Brandon Units 6-7 SCGT																		
Contracted Imports																		
Market Purchases																		
Additional Market Resources																		
Bipole III Reduced Losses																		
5	Total Base Supply Power Resources																	
6	Total Power Resources 4+5																	
Peak Demand																		
2015 Base Load Forecast																		
Less: 2015 DSM Forecast																		
7	Manitoba Net Load																	
Contracted Exports																		
Proposed Exports																		
8	Total Exports																	
9	Total Peak Demand 7+8																	
10	Reserves																	
11	System Surplus 6-9-10																	

System Firm Winter Peak Demand and Capacity Resources (MW) @ generation 2015 Planning Assumptions Market Resources for Capacity and Simple Cycle Gas Turbine Generation																		
Fiscal Year	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Power Resources																		
New Power Resources																		
New Hydro																		
1	Total New Hydro																	
New Thermal																		
SCGT																		
CCGT																		
2	Total New Thermal																	
New NUG PPA																		
Contracted																		
Proposed																		
3	9	9	9															
3	9	9	9															
4	9	9	9	245	490	490	735	735	980	980	1225	1225	1470	1470	1715	1715	1960	1960
Base Supply Power Resources																		
Existing Hydro																		
Existing Thermal																		
Brandon Coal - Unit 5																		
Selkirk Gas																		
Brandon Units 6-7 SCGT																		
Contracted Imports																		
Market Purchases																		
Additional Market Resources																		
Bipole III Reduced Losses																		
5	6392	6521	6375	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289	6289
6	6401	6530	6384	6534	6779	6779	7024	7024	7269	7269	7514	7514	7759	7759	8004	8004	8249	8249
Peak Demand																		
2015 Base Load Forecast																		
Less: 2015 DSM Forecast																		
7	5371	5487	5602	5717	5832	5947	6061	6178	6295	6412	6530	6647	6767	6885	7005	7124	7242	7361
Contracted Exports																		
Proposed Exports																		
8	385	385	110	110	110	110	110											
8	385	385	110	110	110	110												
9	5756	5872	5712	5827	5942	6057	6171	6178	6295	6412	6530	6647	6767	6885	7005	7124	7242	7361
10	645	658	672	686	700	714	727	741	755	769	784	798	812	826	841	855	869	883
11				21	137	8	126	105	219	88	200	69	180	48	158	25	138	5

System Firm Energy Demand and Dependable Resources (GWh) @ generation																			
2015 Planning Assumptions																			
Market Resources for Capacity and Simple Cycle Gas Turbine Generation																			
Fiscal Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Power Resources																			
New Power Resources																			
New Hydro																			
1 Total New Hydro																			
New Thermal																			
SCGT																			
CCGT																			
2 Total New Thermal																			
New Nug PPA																			
Contracted																			
Proposed	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
3 Total New Nug PPA	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
4 New Wind																			
5 Total New Power Resources <small>1+2+3+4</small>	48	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	
Base Supply Power Resources																			
Existing Hydro	21 924	21 892	21 878	21 880	22 356	24 790	24 778	24 746	24 746	24 736	24 726	24 726	24 716	24 706	24 706	24 696	24 696	24 686	
Existing Thermal																			
Brandon Coal - Unit 5	811	811	811	811	592														
Selkirk Gas	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	
Brandon Units 6-7 SCGT	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	
Contracted Imports	2 485	2 809	2 809	2 809	2 809	3 502	3 688	3 688	3 688	3 688	2 321	2 050	2 050	2 050	2 050	1 268	1 113	1 113	
Proposed Imports																			
Hydro Adjustment	784	903	903	903	903	844	844	844	844	844	406	307	307	307	307	70			
Market Purchases	582	258	258	258	258	957	1 050	1 050	1 050	1 050	2 417	2 688	2 688	2 688	2 688	3 440	3 624	3 624	
Additional Market Resources																			
Existing Wind	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	
Bipole III Reduced Losses				101	101	177	177	177	177	177	177	177	177	177	177	177	177	177	
6 Total Base Supply Power Resources	30 664	30 751	30 737	30 840	31 097	34 348	34 615	34 583	34 583	34 573	34 125	34 026	34 016	34 006	34 006	33 729	33 688	33 678	
7 Total Power Resources <small>5+6</small>	30 664	30 799	30 834	30 937	31 194	34 445	34 712	34 680	34 680	34 670	34 221	34 122	34 112	34 102	34 102	33 826	33 785	33 775	
Manitoba Domestic Load																			
2015 Base Load Forecast	26 145	26 792	27 126	27 486	27 600	28 449	28 786	29 197	29 590	29 999	30 408	30 823	31 243	31 664	32 094	32 531	33 101	33 684	
Non-Committed Construction Power	110	110	110	110	110	83													
Less: 2015 DSM Forecast	- 217	- 412	- 852	- 1 231	- 1 652	- 1 940	- 2 231	- 2 399	- 2 557	- 2 704	- 2 844	- 2 995	- 3 156	- 3 325	- 3 498	- 3 534	- 3 566	- 3 598	
8 Manitoba Net Load	26 038	26 490	26 384	26 365	26 058	26 592	26 555	26 798	27 033	27 295	27 564	27 828	28 087	28 339	28 596	28 997	29 535	30 086	
Contracted Exports	2 739	3 388	3 502	3 289	3 246	3 964	4 604	4 503	4 476	4 476	2 193	2 049	1 634	1 551	1 551	1 389	1 389	1 389	
Proposed Exports																			
Less: Adverse Water	- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 512	- 512	- 512	- 85								
9 Total Net Exports	2 430	3 018	3 132	2 919	2 876	4 053	4 666	4 542	4 515	4 515	2 659	2 600	2 185	2 102	2 102	1 940	1 940	1 940	
10 Total Energy Demand <small>8+9</small>	28 468	29 508	29 516	29 284	28 934	30 645	31 221	31 340	31 548	31 810	30 223	30 428	30 272	30 441	30 698	30 937	31 475	32 026	
11 System Surplus <small>7-10</small>	2 197	1 291	1 318	1 653	2 260	3 800	3 491	3 340	3 132	2 860	3 998	3 694	3 840	3 661	3 404	2 889	2 310	1 749	

System Firm Energy Demand and Dependable Resources (GWh) @ generation																		
2015 Planning Assumptions																		
Market Resources for Capacity and Simple Cycle Gas Turbine Generation																		
Fiscal Year	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Power Resources																		
New Power Resources																		
New Hydro																		
1	Total New Hydro																	
New Thermal																		
SCGT																		
CCGT																		
2	Total New Thermal																	
New Nug PPA																		
Contracted																		
Proposed																		
3	Total New Nug PPA																	
4	New Wind																	
5	Total New Power Resources 1+2+3+4																	
Base Supply Power Resources																		
Existing Hydro																		
Existing Thermal																		
Brandon Coal - Unit 5																		
Selkirk Gas																		
Brandon Units 6-7 SCGT																		
Contracted Imports																		
Proposed Imports																		
Hydro Adjustment																		
Market Purchases																		
Additional Market Resources																		
Existing Wind																		
Bipole III Reduced Losses																		
6	Total Base Supply Power Resources																	
7	Total Power Resources 5+6																	
Manitoba Domestic Load																		
2015 Base Load Forecast																		
Non-Committed Construction Power																		
Less: 2015 DSM Forecast																		
8	Manitoba Net Load																	
Contracted Exports																		
Proposed Exports																		
Less: Adverse Water																		
9	Total Net Exports																	
10	Total Energy Demand 8+9																	
11	System Surplus 7-10																	