MANITOBA HYDRO 2012/13 POWER RESOURCE PLAN
Date: September 30, 2012

The purpose of the 2012/13 Power Resource Plan is to provide plans for the long-term power resource development plan for Manitoba Hydro which include:

- A recommended development plan for use in the 2012 Integrated Financial Forecast and the Capital Expenditure Forecast, and
- Alternative development plans, which recognize the uncertainties associated with the recommended plan.

2012/13 Power Resource Development Plan – The Sales Package

The recommended power resource development plan includes the major infrastructure and resources to pursue a new 500 kV US interconnection and facilitate the Wisconsin Public Service (WPS) and Manitoba Hydro–Minnesota Power (MH–MP) Sales Agreements as follows:

- Keeyask G.S. (695 MW) with a 2019/20 in-service date (ISD),
- Conawapa G.S. (1485 MW) with a 2025/26 ISD,
- A new 500 kV US interconnection capable of meeting the WPS and MH–MP Sales requirements with an ISD of June 2020,
- The MH–MP 250 MW Sale Agreements dated May 2011,
- The WPS 100 MW Sale Agreement dated May 2011,
- A proposed 300 MW Sale to WPS
- The 125 MW Northern States Power Sale Agreement dated May 2010,
- A transmission allowance for additional north–south transmission beyond a 2000 MW Bipole III, as required for the combined output of the Keeyask and Conawapa generating stations with a 2025/26 ISD.

2012/13 Alternative Power Resource Development Plans

Alternative Development Plan 1 – The 250 MW Interconnection Package

The alternative recommended power resource development plan which includes the major infrastructure and resources to pursue a new US interconnection and facilitate the Manitoba Hydro-Minnesota Power Sale Agreements as follows:

- Keeyask G.S. (695 MW) with a 2019/20 ISD,
- Conawapa G.S. (1485 MW) with a 2025/26 ISD,
- A new 230 kV US interconnection capable of 250 MW export and 50 MW import with a June 2020 ISD,
- The MH–MP 250 MW Sale Agreements dated May 2011,
- The WPS 100 MW Sale Agreement dated May 2011,
- The 125 MW Northern States Power Sale Agreement dated May 2010,
- A transmission allowance for additional north–south transmission beyond a 2000 MW Bipole III, as required for the combined output of the Keeyask and Conawapa generating stations with a 2025/26 ISD.

Alternative Development Plan 2 – No New Interconnection

In the event that a new US interconnection or the Keeyask G.S. becomes unachievable, the alternative power resource development plan for major infrastructure and resources to meet Manitoba requirements without a new interconnection is as follows:

- Simple Cycle Gas Turbines starting in 2022/23 ISD,
- Conawapa G.S. with a 2025/26 ISD.

Inherent in these plans are the base resource assumptions, which can be found in Section 3 - Supply of Power. The Supply and Demand Tables for Dependable Energy and Capacity can be found in Appendix A. The Supply and Demand Tables for Average Energy for both the recommended and alternative development plans can be found in Appendix B.

EXECUTIVE SUMMARY

The 2012/13 plan for power resources is the most recent corporately approved update of energy supply and demand for the Manitoba Hydro system and is based on information available prior to August 2012.

Under dependable energy conditions, new generation is required to meet Manitoba load requirements in 2022/23. The recommended development plan includes a new interconnection, Keeyask G.S. and Conawapa G.S. as well as the Wisconsin Public Service and Minnesota Power sales (the Sales Package).

Major supply assumptions to meet the Sales Package of the recommended development plan include:

- Keeyask G.S. in 2019/20,
- Conawapa G.S. in 2025/26,
- A new US interconnection by 2020/21
- Additional north–south transmission beyond 2000 MW Bipole III by 2026/27.

This power resource plan also includes several projects that are common to all development plans such as:

- Kelsey G.S. upgrade of 77 MW completed by 2012/13,
- Pointe du Bois powerhouse rebuild by 2030/31,
- Bipole III – 2000 MW completed by 2017/18.

The term sheet for a long-term sale with Wisconsin Public Service (WPS Term Sheet) is currently being re-negotiated to reflect current conditions and WPS requirements. It is noted that the assumption for the sale to WPS has been reduced from 500 MW to 300 MW in the 2012/13 plan.

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1 INTRODUCTION

The 2012/13 Power Resource Plan 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. This report provides a recommendation on how to meet these needs and documents the evaluation of development plans that extend thirty-five years into the future.

The power resource plan supports the annual *Integrated Financial Forecast* and the long-term *Capital Expenditure Forecast* processes as well as other long-term planning and corporate initiatives.

1.1 Resource Planning Criteria

Power resource planning is an essential activity in fulfillment of 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. A review of the Generation Planning Criteria was completed in July 2012. The review concluded that the Capacity and Energy Resource Criteria remained appropriate for Manitoba Hydro's use in resource planning with minor modifications to the wording of the Energy Resource Planning criterion. These wording changes are reflected in the following:

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 Resource Planning**
   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.

Capacity Criterion

Manitoba Hydro is a member of the North American Electric Reliability Corporation (NERC). NERC's mission is to ensure the reliability of the North American bulk power system.

According to NERC:

> "Achieving reliability in the bulk electric systems requires, among other things, that the amount of generating capacity resources exceed customer demands by some amount. That

amount (expressed as a percent of peak demand is termed a reserve margin and when expressed as a percent of generating capacity is termed capacity margin) must be sufficient to cover planned maintenance and unplanned or forced outages of generating equipment, deratings in the capability of demand-side and supply-side resources, system effects due to reasonably anticipated variations in weather, variations in customer demands or forecast demand uncertainty, delays in the construction of generating capacity, and other system operating requirements." (NERC Resource and Transmission Adequacy Recommendations, June 15, 2004)

Manitoba Hydro plans its system capacity to maintain a reserve margin of generation above its peak load, which is expressed as a percent of peak load. The reserve margin is intended to protect against capacity shortfalls resulting from breakdown of generation equipment, or increases in peak load due to unexpected load growth or extreme weather conditions. Historically, the reserve margin of 12% has been adequate for Manitoba Hydro's predominantly hydroelectric generation based system because of relatively low outage rates combined with the relatively small size of hydro generating units. In comparison, reserve margins in predominantly thermal generation based systems are typically in the 15% to 18% range. The maximum demand for capacity in Manitoba occurs in the winter season, and therefore the winter peak capacity is evaluated in supply demand tables for capacity.

Capacity available in the Manitoba Hydro system is supplied from:

- Hydroelectric generating stations,
- Thermal generating stations,
- Projected Demand Side Management (DSM) savings not already accounted for in the load forecast, and
- Imports from neighbouring utilities.

Energy Resource Planning

Also according to NERC:

"In areas where the majority of supply-side resources are energy-constrained (such as the hydro-dominated Northwest [including Manitoba]), achieving reliability may also require that the energy available to the area is, at least, equal to the customer demand and some reserve requirement during a certain critical design period for the constrained resources." (NERC Resource and Transmission Adequacy Recommendations, June 15, 2004)

Manitoba Hydro's energy criterion recognizes the energy constrained limitation of hydraulic generation during drought conditions. This criterion requires that the Manitoba Hydro system be capable of supplying sufficient dependable energy resources, as measured in gigawatt-hours (GW.h), to meet firm energy demand in the event of a repeat of the lowest historic water supply conditions. The firm energy demand is determined from the base level of forecasted Manitoba load and from existing export contracts. Historic water supply conditions are derived from the available record of river flows (1912 to 2010) which have been adjusted to represent present use conditions and to account for systemic changes due to expected future water use and withdrawals upstream of Manitoba.

The dependable energy available in the Manitoba Hydro system is the total of energy supplied from:

- Hydroelectric generating stations,
- Thermal generating stations,
- Wind generation,
- Projected DSM savings not already accounted for in the load forecast, and
- Imports from neighbouring utilities.

The energy criterion limits the extent that imports can be relied upon to supply Manitoba demand.

All development plans proposed and evaluated in this report use these planning criteria to provide the basis for determining when new resources are required to ensure an adequate supply of capacity and energy for Manitoba.

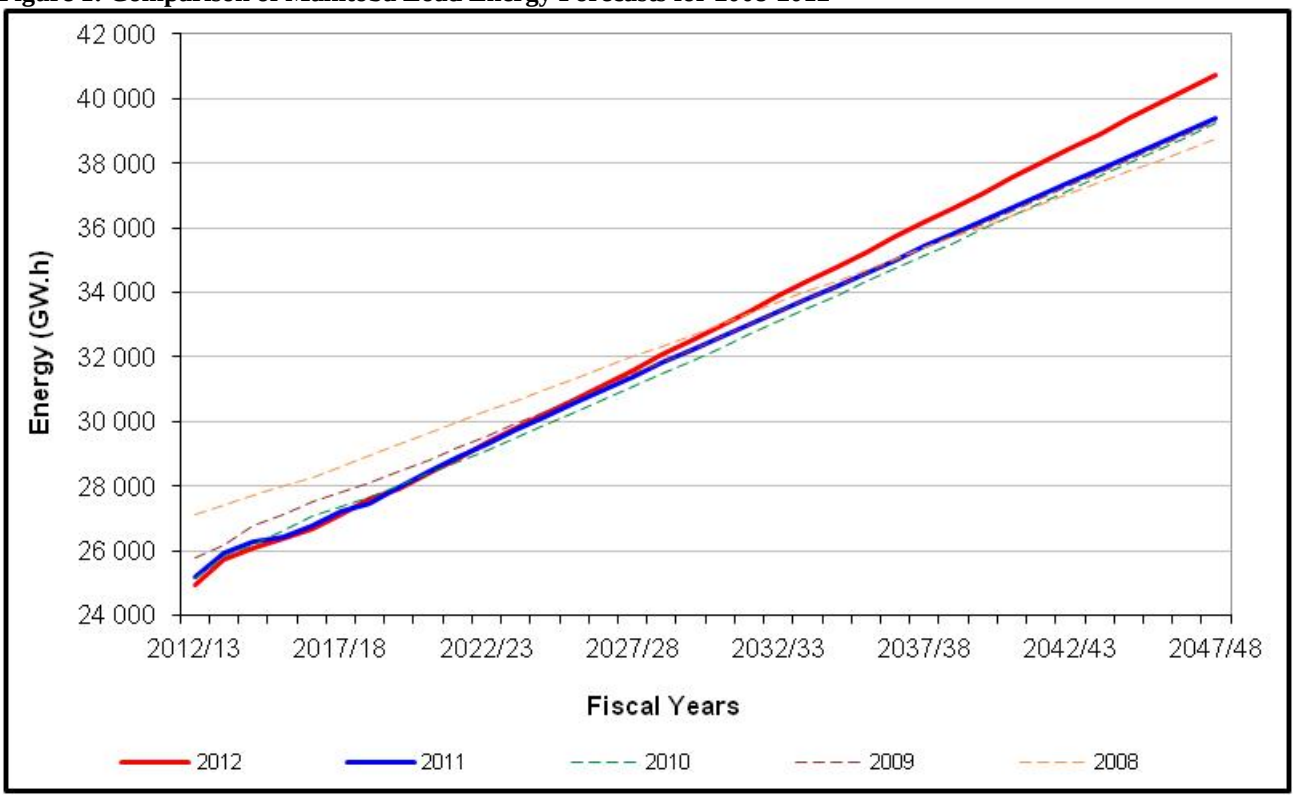
2 DEMAND FOR POWER

Demand for power consists of Manitoba domestic load, which includes residential, commercial and industrial sectors, and requirements from export contracts. The following sections provide a summary of the 2012 energy and capacity forecasts and contract provisions and a discussion of the changes from 2011.

2.1 Electric Load Forecast

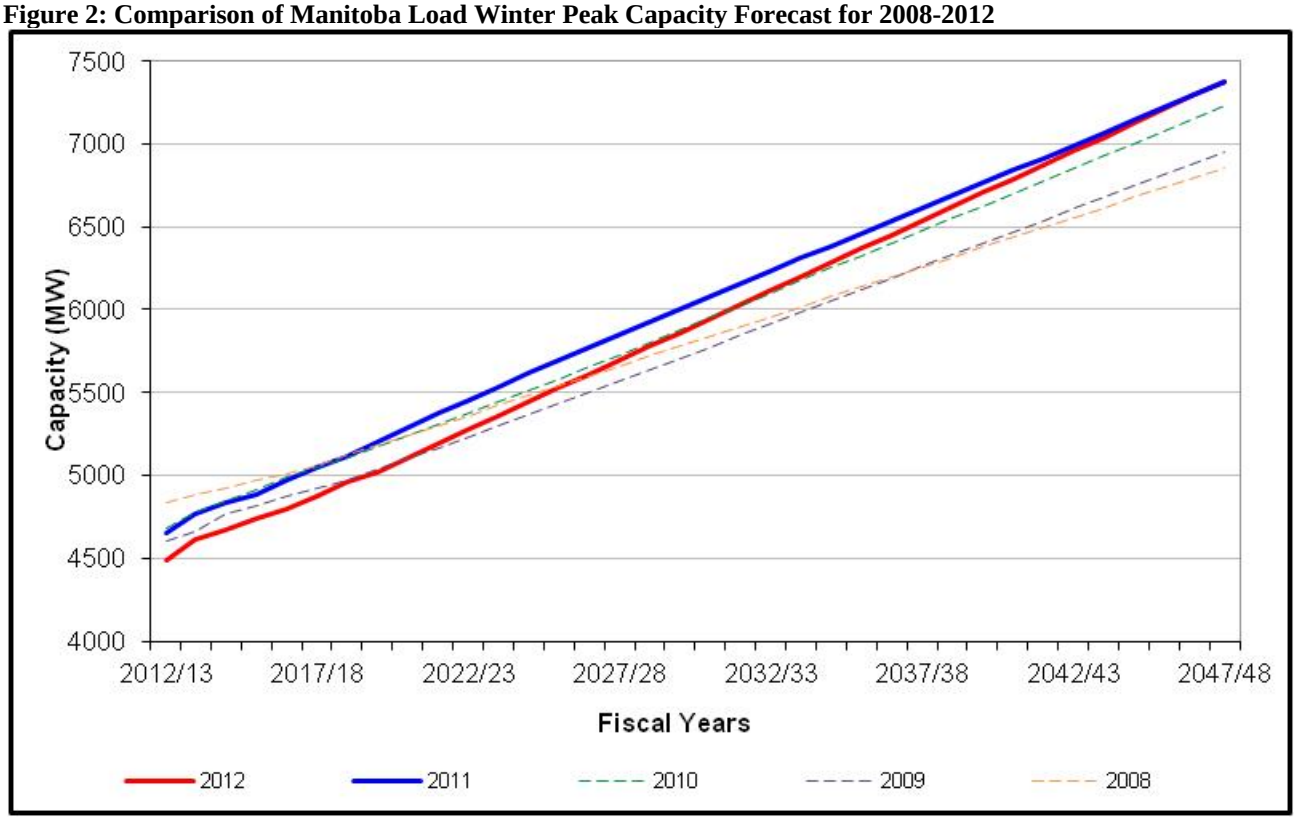
The *2012 Electric Load Forecast*, prepared by the Market Forecast Department, provides Manitoba Hydro's forecast of the Manitoba domestic load. As shown in Figure 1, the 2012 load forecast for energy is down 212 GW.h in 2012/13 due to initial-year decreases to the General Service Mass Market and General Service Top Consumer forecasts. Due to the increased forecast of customers the difference narrows and by 2030/31 the 2012 forecast is 359 GW.h (1.1%) higher than the 2011 forecast which is about ¾ of a year of load growth (1 year equals approximately 450 GW.h per year).

Figure 1: Comparison of Manitoba Load Energy Forecasts for 2008-2012



As shown in Figure 2, the 2012 forecast of peak Manitoba demand starts 158 MW lower than the 2011 forecast. The reason for the initial drop in forecast, which represents 2 years of peak growth (1 year equals approximately 80 MW per year), is primarily due to a correction in the Distribution Losses calculation. By 2030/31 the 2012 forecast is 134 MW lower than the 2011 forecast.

Figure 2: Comparison of Manitoba Load Winter Peak Capacity Forecast for 2008-2012



2.2 Long-Term Export Contracts

Long-term contracts by definition have a duration of greater than six months. Long-term dependable export obligations refer to sales that are sourced from dependable energy resources and must be served under all historic water flow conditions including the lowest flow on record. 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 available to meet Manitoba load requirements and identifies when new base supply resources are required.

Base supply is common to all development plans, and may be sourced from existing resources or from expected resources. Existing resources include generating resources currently available within Manitoba and contracted imports from external markets. Expected resources are those to which Manitoba Hydro has committed or for which there is a reasonable expectation that Manitoba Hydro will commit. Expected resources include those presently under construction, proposed Supply-side Enhancements (SSE), replacement or upgrading of existing resources, improvements due to transmission upgrades, demand side management, and non contracted imports from extra-provincial markets.

3.1 Existing Resources

Table 1 provides a listing of existing resources, including contracted imports, and the available energy and capacity from these resources. It is assumed that sufficient maintenance and investment in rehabilitation will continue to sustain the generating capability of existing resources throughout the study period. Any additional investment expected for the existing system is included in the Integrated Financial Forecast.

Dependable energy shown in Table 1 for existing hydro facilities will be slightly different than shown in the supply–demand tables in Appendix A. The supply-demand tables account for an annual reduction in dependable energy of 15 GW.h on average to reflect reduction in system inflow due to anticipated increases in irrigation and other consumptive uses of water in Saskatchewan and Alberta.

Table 1: Existing Resources

Station	Winter Peak Capacity (MW)	Energy Produced Under Flow Condition (GW.h)		
		Dependable	Average	Maximum
Hydro Total	**5,175**	**21,320**	**31,110**	**37,492**
Thermal Total	**517**	**4,118**	**31,110**	**143**
Wind Total	**0**	**777**	**914**	**914**
Contracted Imports	**550**	**2,705**	**varies**	**Minimal**
Total Available Resources	**5,965**	**28,777**	**30,337**	**36,509**

Notes:

- Average energy is the average of the annual generation from the full range of historic flows including forced outage and maintenance outages.
- Maximum energy is the generation which would occur for the maximum historic system flow (2005/06).
- Thermal resources are assumed to operate to their full potential net of forced outages and maintenance for dependable energy, and are assumed to operate at their minimum for average and maximum flow conditions.
- Wind generation is not dependant on flow conditions.

The following provides a summary of additional information, notable assumptions and/or current status updates for specific resources identified in Table 2.

Wuskwatim Generating Station
Wuskwatim G.S. is a 200 MW generating station which became commercially operational in 2012/13. Construction commenced in August 2006. The first unit was placed in service on June 22, 2012 and the remaining two units came into service on August 22, 2012 and October 6, 2012.

Kelsey Rerunnering
The major upgrade of Kelsey G.S. consists of the replacement of all seven turbine runners and generator windings resulting in increased plant capacity of 77 MW and greater utilization of Nelson River inflows. This upgrade is expected to be fully completed in the 2012/13 fiscal year.

The rerunnering project does not significantly increase dependable energy at Kelsey, however there will be an increase in average energy of about 350 GW.h/year. Both the capacity gains and energy gains will be confirmed with performance tests once the project is fully complete. Initial tests on the first four units indicated performance gains within the expected range. Incremental capacity gains shown are estimated prior to performance testing; after performance test are completed these ratings will be confirmed more accurately.

Brandon Generating Station Unit 5 – Coal-Fired Generation
Retirement Assumption
Brandon Unit 5, Manitoba Hydro's sole remaining coal-fired generating unit, is assumed to remain available until March of 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*: mitigation of adverse water conditions commonly referred to as "drought", and to provide system reliability support.

In order to maintain the effective power generation capability of Unit 5 for either of these purposes, preparation for emergency support will be necessary. 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.

Under the conditions previously described, Brandon Unit 5 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.

Environment Act License Review

As part of an on-going public license review by Manitoba conservation, Manitoba Hydro submitted an Environmental Impact Statement (EIS) in December 2006.

Progress on the license review was temporarily halted pending passage of the Manitoba *Climate Change and Emissions Reductions Act* in 2008 and its subsequent regulation, *MR 186/2009*, the *Coal-Fired Emergency Operations Regulation* in November 2009. The license review process resumed following formal adoption of the new regulation. An update to the 2006 EIS was submitted to Manitoba Conservation in early 2011, which concluded that the original 2006 EIS submission remains valid and applicable to the EALR process. Manitoba Conservation has not yet responded to the 2011 update of the EIS submission.

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

The annual firm energy assumption of 2354 GW.h for Brandon Units 6 and 7 remains unchanged from previous power resource plans. The firm capacity (Winter Peak) assumption remains unchanged from the 2011/12 Power Resource Plan at 280 MW reflecting the results of Generation Verification Test Capacity (GVTC) testing.

Brandon Units 6-7 are assumed to remain in operation to the end of the planning horizon assuming only routine capital investment.

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

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

Wind Generation – Power Purchases

For planning purposes, contracted purchases of wind generation are expected to be renewed using the same terms and conditions after the expiration of the current contracts and to extend through to the end of the study period.

Wind generation is not assigned a capacity value for the purposes of meeting winter peak loads because it is not assured to be available at the time of system peak loads.

St. Leon Wind Energy

Manitoba Hydro has a 25 year power purchase agreement (PPA), which began in 2006, with St. Leon Wind Energy LP for the output of St. Leon Wind Energy. Based on a 100 MW capability, for planning purposes, the dependable energy is 291 GW.h annually and the average annual energy is 342 GW.h.

St. Leon II Wind Energy
Manitoba Hydro has a 25 year PPA with Algonquin Power for the output of the St. Leon II Wind Energy Facility. St. Leon II Wind Energy is a 16.5 MW wind farm, owned and operated by Algonquin Power. On June 8, 2012 St. Leon II Wind Energy began generating at full power.

St. Joseph Wind Farm
Manitoba Hydro has a 27 year PPA, which began in 2011 with Pattern Energy Group LP for the output of the 138 MW St. Joseph Wind Farm. Based on the 138 MW capability the dependable energy is 421 GW.h annually and the average annual energy is 495 GW.h.

Contracted Energy and Capacity Imports
Manitoba Hydro has two long-term seasonal diversity contracts with NSP and one with GRE which provide a total of 500 MW of winter capacity and dependable energy imports during the winter season in exchange for exports of 500 MW of capacity and energy during the summer season. In addition, Manitoba Hydro has a 500 MW energy services agreement with Northern States Power which provides year-round energy but is not capacity backed.

Manitoba Hydro's firm northbound scheduling limit from the US Midwest Independent System Operator (MISO) market is 700 MW.

3.2 Expected Resources

Beyond existing resources there are resources to which Manitoba Hydro has committed or for which there is a reasonable expectation that Manitoba Hydro will commit. These resources contribute to the overall ability to meet energy and capacity requirements over the study period, but do not affect the economic evaluation as they are common to all development plans. Approval or evaluation of these resources is not the focus of this power resource plan. Table 2 provides a listing of expected resources and the available energy and capacity from these resources.

Table 2: Expected Resource Assumptions

Project	Winter Peak Capacity (MW)	Energy Produced Under Flow Condition (GW.h)		
		Dependable	Average	Maximum
Great River Energy Diversity	200	870	870	870
Pointe du Bois rebuild (incremental) 2030/31 in-service date	43	150	250	320
Bipole III Loss Reductions 2017/18 in-service date	89	243	392	Not Available
Demand Side Management by 2026/27 (incremental)	174	815	815	815
Non-Contracted Imports	700	maximum 3068	varies	minimal

Notes:

- The winter peak capacity is an estimate of the contribution of an individual plant to the system for typical winter conditions, and is not necessarily the same as the Generation Verification Test Capacity testing values.
- Average energy is the average of the annual generation from the full range of historic flows.
- Maximum energy is the generation which could occur at the site under the maximum historic inflow conditions (2005/06).
- Resources other than hydro are converted to northern equivalent.

Extension of the Great River Energy Diversity Sale

Manitoba Hydro is in the process of negotiating a 10 year 200 MW diversity contract with GRE which would follow the existing GRE contract when it expires in 2015/16.

Pointe du Bois Generating Station

For the 2012/13 Power Resource Plan the Pointe du Bois powerhouse is assumed to be rebuilt with an increase of 43 MW and 150 GW.h (existing and future capability is under review) over existing plant ratings with first power in 2030/31. Until Pointe du Bois is rebuilt, it is assumed that the existing facility will be maintained to continue to operate at or near full capacity with routine capital investment.

Supply-Side Enhancements

The Manitoba Hydro system is continuously reviewed for opportunities to upgrade infrastructure to enhance the supply of power. Supply-side Enhancement (SSE) projects go beyond routine maintenance required to maintain supply and often come about due to major maintenance upgrades. SSE projects are subject to economic evaluations, similar to other major resource

projects. A number of SSE initiatives are currently underway including the Kelsey Rerunnering Project and several projects on the Winnipeg River system.

Winnipeg River Rerunnering

There are rerunnering opportunities on the Winnipeg River, as these plants are over 50 years old and are undergoing major equipment maintenance and repairs. Winnipeg River plants were originally estimated to provide 560 MW of capacity, which has degraded somewhat over the years. Recent upgrades have, in part, restored the Winnipeg River to original ratings as opposed to increasing the nominal plant rating.

The Winnipeg River plants will need to be studied in more detail to determine what portion of the upgrades simply restores previous capability, and what portion provides new opportunity. Consistent with previous power resource plans, the potential increased plant capability is not included as an incremental addition due to the uncertainty in the increase relative to overall initial and existing Winnipeg River capability.

Loss Reduction due to Bipole III

Bipole III continues to be needed to satisfy reliability requirements within Manitoba, and also results in notable reductions in transmission losses prior to new northern generation. Bipole III, routed on the west side of lakes Manitoba and Winnipegosis, continues to be planned for a 2017/18 in-service date; the earliest date that it could be available based on anticipated planning and regulatory requirements. Engineering for the Bipole is ongoing including selection of the overall capacity.

Bipole III does not provide any new generation, but is expected to reduce the transmission losses which exist on the HVDC system. By using all three bipoles to transmit the lower Nelson River generation, rather than just the existing two, the losses are reduced, resulting in 89 MW and 243 GW.h/year of reduced losses under drought conditions. This benefit has been included and is adjusted downward as new generation increases the loading.

Demand Side Management

Incremental demand side management (DSM) included in the 2012/13 Power Resource Plan is 174 MW and 815 GW.h achieved by 2026/27. Incremental DSM included in the power resource plan excludes savings already achieved to date, savings achieved through codes and standards which are included in the Load Forecast, and portions of savings from customer self-generation and curtailable rates programs that do not qualify as winter peak capacity or dependable energy.

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 both existing and expected resources as discussed in Section 3 - Supply of Power and the Manitoba base load forecast and export sales requirements as discussed in Section 2 - Demand for Power. Using the planning criteria, the supply demand surplus or deficit is determined for each year, for 35 years into the future. The year that deficits begin for either dependable energy or peak capacity is the year that new resources are required.

Table 3 shows the changes over the last three years in the dates that new resources were needed for both energy and capacity. The variation in the date new resources are needed is due to changes in the load forecast, demand side management (DSM), and base resource assumptions such as the timing of new wind generation, allowable import quantities, and contract obligations.

Table 3: Changes to Supply-Demand Balances in the Last Three Years

Changes to Supply-Demand System Surplus in the Last Three Years 2010/11, 2011/12 and 2012/13															
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
Dependable Energy (GW.h)															
2010/11	1 888	1 350	1 252	2 213	1 910	1 897	1 637	470	125	(218)	(570)	(925)	(1 302)	(1 525)	(2 051)
2011/12	1 827	1 257	990	2 212	2 061	1 876	1 665	405	(48)	(455)	(857)	(1 251)	(1 657)	(1 867)	(2 427)
2012/13	**1 802**	**1 534**	**1 316**	**2 666**	**2 667**	**2 510**	**2 079**	**998**	**549**	**120**	**(321)**	**(756)**	**(1 213)**	**(774)**	**(1 303)**
Winter Peak Capacity (MW)															
2010/11	642	493	457	420	356	398	345	175	110	45	(21)	(89)	(160)	(287)	(371)
2011/12	625	447	395	389	327	343	291	102	17	(65)	(146)	(226)	(305)	(413)	(519)
2012/13	**751**	**582**	**566**	**719**	**675**	**694**	**614**	**450**	**364**	**281**	**195**	**105**	**13**	**(323)**	**(410)**

5 RESOURCE OPTIONS

As part of the resource planning process, Resource Planning & Market Analysis maintains information on a variety of resource supply options which are potentially available to meet future Manitoba requirements. A list of these resources is provided in Appendix C.

The following is a description of the resource options included in the 2012/13 recommended and alternative development plans.

Keeyask Generating Station

Keeyask G.S. is planned to be a seven unit plant located upstream of Kettle G.S. on the Nelson River. The current design rating for Keeyask G.S. is 695 MW, which reflects the maximum generation potential when Stephens Lake is drawn down. The nominal winter peak rating for Keeyask G.S. is 630 MW. Keeyask G.S. will not impact the capacity of any other plants and is not significantly affected by ice conditions, therefore, the nominal capacity and net system addition are both 630 MW.

The first unit is planned to be in-service in 2019 and with the last unit in-service by the fall of 2022.

In May 2009, the Keeyask Cree Nations (Tataskweyak Cree Nation and War Lake First Nation operating as the Cree Nation Partners (CNP), York Factory First Nation, and Fox Lake Cree Nation) and Manitoba Hydro signed the Joint Keeyask Development Agreement setting out the terms of the First Nations participation in the remainder of project planning, the environmental assessment process, and in construction and operation of the project. Each of the Keeyask Cree Nations (KCNs) have also signed individual Adverse Effects Agreements to address the environmental and socio-economic effects of the project on their membership. Prior to the signing of these agreements and the JKDA each of the Keeyask Cree Nations voted, through a referendum of band members, to become limited partners in the project and to accept individual Adverse Effects Agreements. The KCNs have been intensively involved in project planning and environmental assessment processes since the early 2000's.

An Environment Act License for the supporting Keeyask Infrastructure Project was issued in March 2011 to the Keeyask Hydropower Limited Partnership, which includes road work and construction camps. In June 2011, the Manitoba Hydro Electric Board authorized the Corporation to commence construction of the Keeyask Infrastructure Project in the summer of 2011 to preserve the 2010 in-service date.

Conawapa Generating Station

Conawapa G.S. is planned to be a ten unit plant located downstream of the Limestone G.S. on the Nelson River. The current design rating for Conawapa G.S. is 1485 MW during open water conditions. Initial impoundment of the forebay will reduce Limestone G.S. output by 90 MW, resulting in a net increase in system summer capacity of 1395 MW. Downstream ice conditions will reduce Conawapa G.S. output by about 55 MW and similarly ice conditions will further reduce Limestone G.S. by about 40 MW during winter peak conditions resulting in a nominal net system addition of 1300 MW.

The earliest in-service date for Conawapa is 2025/26. To achieve a 2025/26 in-service date, licenses and construction authorizations are required in mid-2016 and infrastructure construction would need to begin in late 2016/2017.

The Conawapa G.S. project will be located within the Fox Lake Resource Management Area. The provincial government and Manitoba Hydro have signed a Memorandum of Understanding with Fox Lake First Nations related to the Conawapa G.S. project.

The corporation has also entered into Process Agreements with First Nations in the vicinity of Conawapa. These agreements provide the current funding framework for First Nations' participation in planning and development activities related to the Conawapa G.S. project. Agreement participation includes the following First Nations:

- Fox Lake Cree Nation
- York Factory First Nation
- Tataskweyak Cree Nation and War Lake First Nation working together as the Cree Nations Partners (CNP)

In addition, Manitoba Hydro has signed a Letter of Agreement with the Shamattawa First Nation. While working group structures have been developed for local First Nation involvement and some working groups have been launched, a comprehensive framework for local First Nation participation in project benefits remains to be determined.

Conawapa G.S. concept engineering is ongoing. Site layout for much of the supporting infrastructure has been completed. The access road to the site is in place as it was built before the original Conawapa G.S. project was suspended in 1992.

Environmental field work for the generating station and related works has been underway for several years, building upon the environmental assessment work conducted in the late 1980s and early 1990s.

Natural Gas-Fired Generation

Natural gas-fired Simple Cycle Gas Turbines (SCGTs) and Combined Cycle Gas Turbines (CCGTs) have relatively short construction lead times from the date of project commitment (three to five years for approval, procurement and installation), and flexibility in design parameters due to the variety of available configurations. This variety allows plant capacity and energy to be more exactly matched to requirements than hydro options allow, thereby minimizing capital investment in excess of Manitoba's needs. SCGTs are available in

capacities ranging from submegawatt to 470 MW and CCGTs are available in capacities ranging from less than 10 MW to over 1000 MW.

6 POWER RESOURCE DEVELOPMENT PLANS

The following provides a description of the recommended and alternative development plans. These resource options are driven by the need for additional capacity and dependable energy resources. As shown in Section 4, resources are needed in 2022/23 to meet dependable energy requirements and in 2025/26 to meet peak capacity requirements. The development plans were prepared to ensure that energy and capacity demand is met over the entire 35 year planning period. Keeyask G.S. or natural gas-fired resources could be in service in time to meet this need, while additional resources are required to bridge to Conawapa G.S. which has an earliest in-service date of 2025/26.

2012/13 Power Resource Development Plan – The Sales Package

The recommended power resource development plan includes the major infrastructure and resources to pursue a new 500 kV US interconnection and facilitate the Wisconsin Public Service (WPS) and Manitoba Hydro–Minnesota Power (MH–MP) Sales as follows:

- Keeyask G.S. (695 MW) with a 2019/20 in-service date (ISD),
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- The MH–MP 250 MW Sale Agreements dated May 2011,
- The WPS Sale 100 MW Agreement dated May 2011,
- A proposed 300 MW Sale to WPS as described in Section 2.3,
- The 125 MW Northern States Power Sale Agreement dated May 2010,

A transmission allowance for additional north–south transmission beyond a 2000 MW Bipole III, as required for the combined output of the Keeyask and Conawapa generating stations with a 2026/27 ISD.

The recommended development plan of the 2012/13 Power Resource Plan pursues a new interconnection to the US, which is made possible by large sales to Minnesota Power and Wisconsin Public Service. These sales require a resource plan with large hydro resources. These resources are capable of serving the sales as well as Manitoba load requirements. As a virtually non-emitting resource, hydro has appeal to both domestic and export customers. The sales will facilitate a new US interconnection which will provide an outlet for the surplus capacity from building large plants and for surplus energy which results from favorable water conditions.

This new interconnection will improve energy security and reliability within Manitoba by providing greater access to the large pool of generation in MISO. The increased market access provided by the interconnection will facilitate additional higher valued export sales which increase net revenues and consequently subsidize customer rates. In addition, by facilitating the sale of a greater quantity of hydroelectric generated electricity to the MISO region, the interconnection will play a role in displacing generation and associated emissions from thermal units.

2012/13 Alternative Power Resource Development Plans

In the event that the sales package does not proceed, contractual arrangements allow for the pursuit of a new interconnection with 250 MW of export transfer capability and in-service date of 2020/21.

Alternative Development Plan 1 – The 250 MW Interconnection Package

The alternative recommended power resource development plan which includes the major infrastructure and resources to pursue a new US interconnection and facilitate the MH-MP Sale Agreements as follows:

- Keeyask G.S. (695 MW) with a 2019/20 ISD,
- Conawapa G.S. (1485 MW) with a 2025/26 ISD,
- A new 230 kV US interconnection capable of 250 MW export and 50 MW import with a June 2020 ISD,
- The MH–MP 250 MW Sale Agreements dated May 2011,
- The WPS Sale 100 MW Agreement dated May 2011,
- The 125 MW Northern States Power Sale Agreement dated May 2010,
- A transmission allowance for additional north–south transmission beyond a 2000 MW Bipole III, as required for the combined output of the Keeyask and Conawapa generating stations with a 2026/27 ISD.

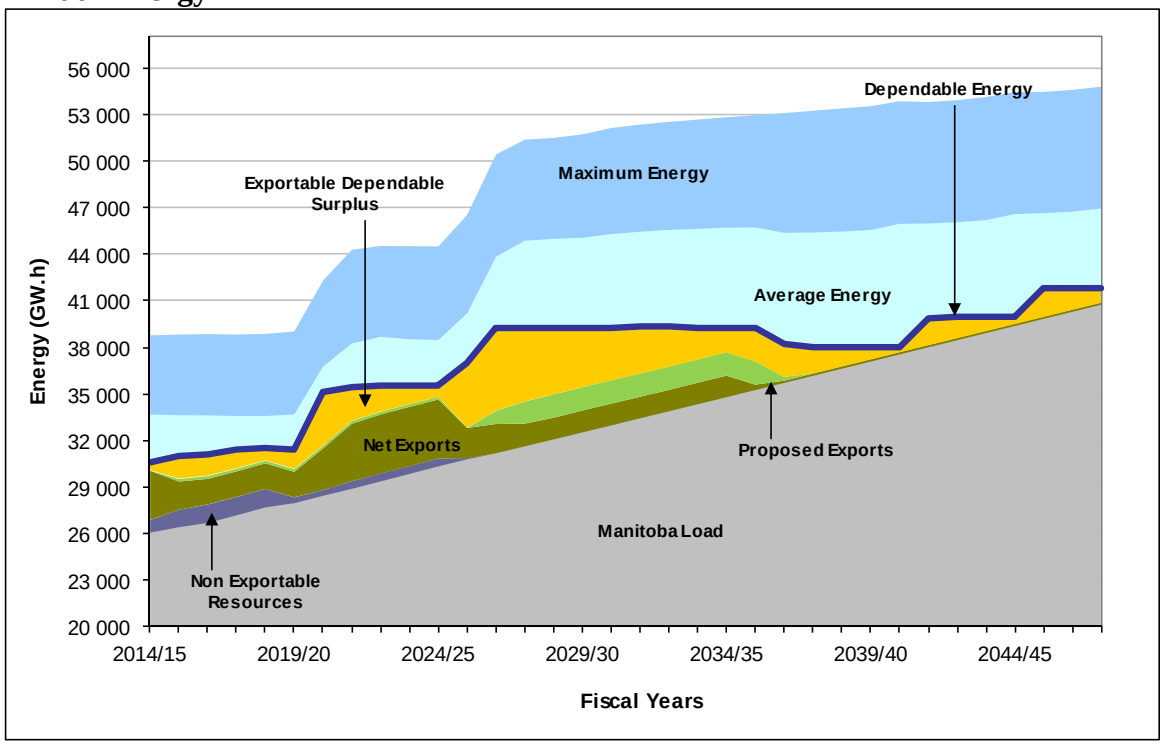
In the event that a new US interconnection or Keeyask G.S becomes unachievable, the alternative power resource development plan for major infrastructure and resources to meet Manitoba requirements without a new interconnection is has been evaluated.

Alternative Development Plan 2 – No New Interconnection

- Simple Cycle Gas Turbine with a 2022/23 ISD,
- Conawapa G.S. with a 2025/26 ISD.

Figure 3: 2012/13 Power Resource Plan – the Sales Package
The Sales Package - Keeyask G.S. in 2019/20 followed by Conawapa G.S. in 2025/26 and SCGTs afterwards as required, 500 kV interconnection in 2019/20

Annual Energy



Winter Peak Capacity

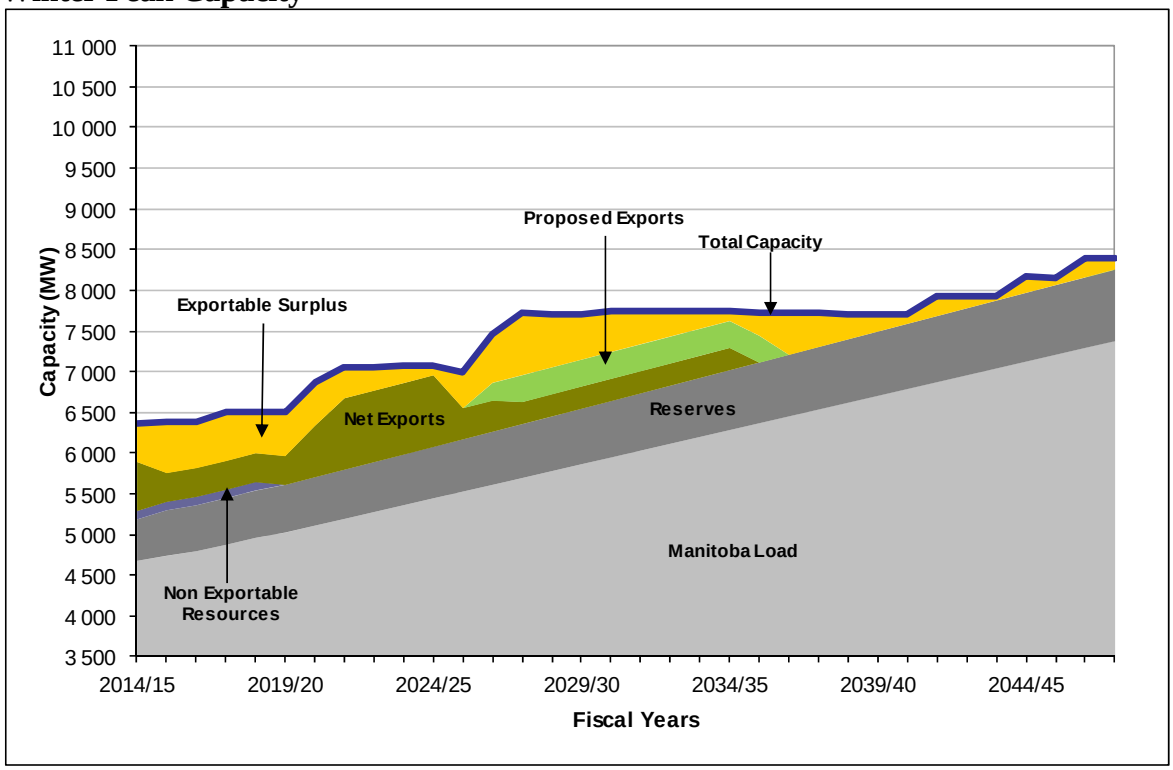
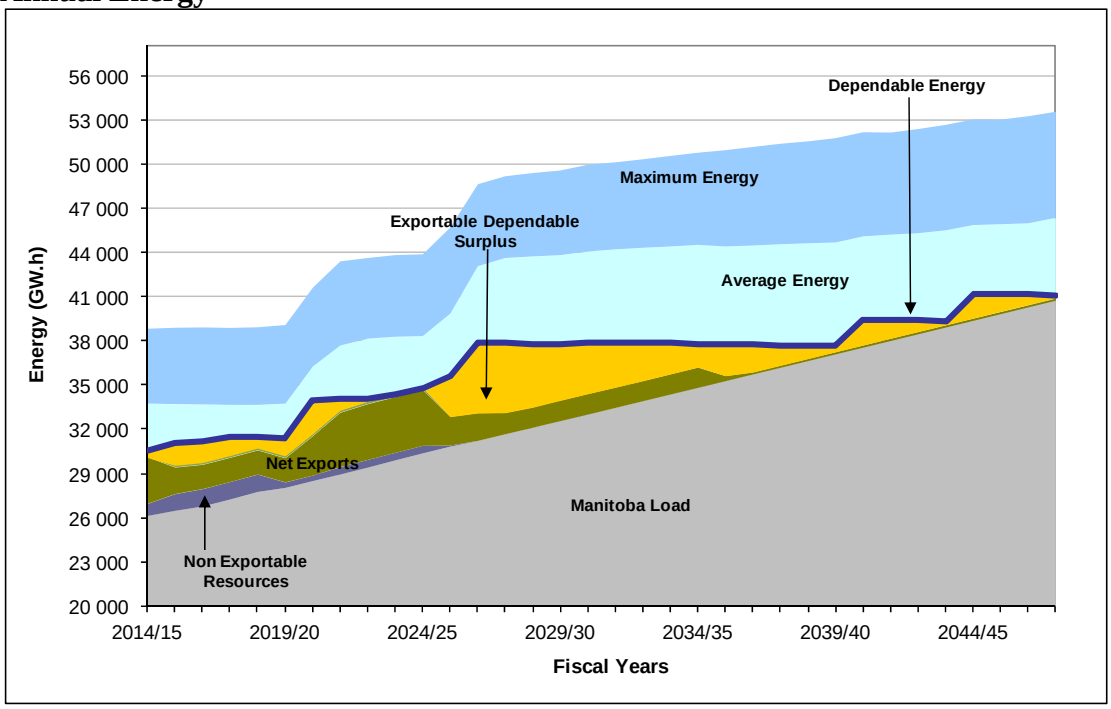


Figure 4: Alternative Development Plan 1 – the 250 MW Interconnection Package
The 250 MW Interconnection Package – Keeyask G.S in 2019/20, followed by Conawapa G.S. in 2025/26 and SCGT's as required, 250 MW interconnection 2020/21

Annual Energy



Winter Peak Capacity

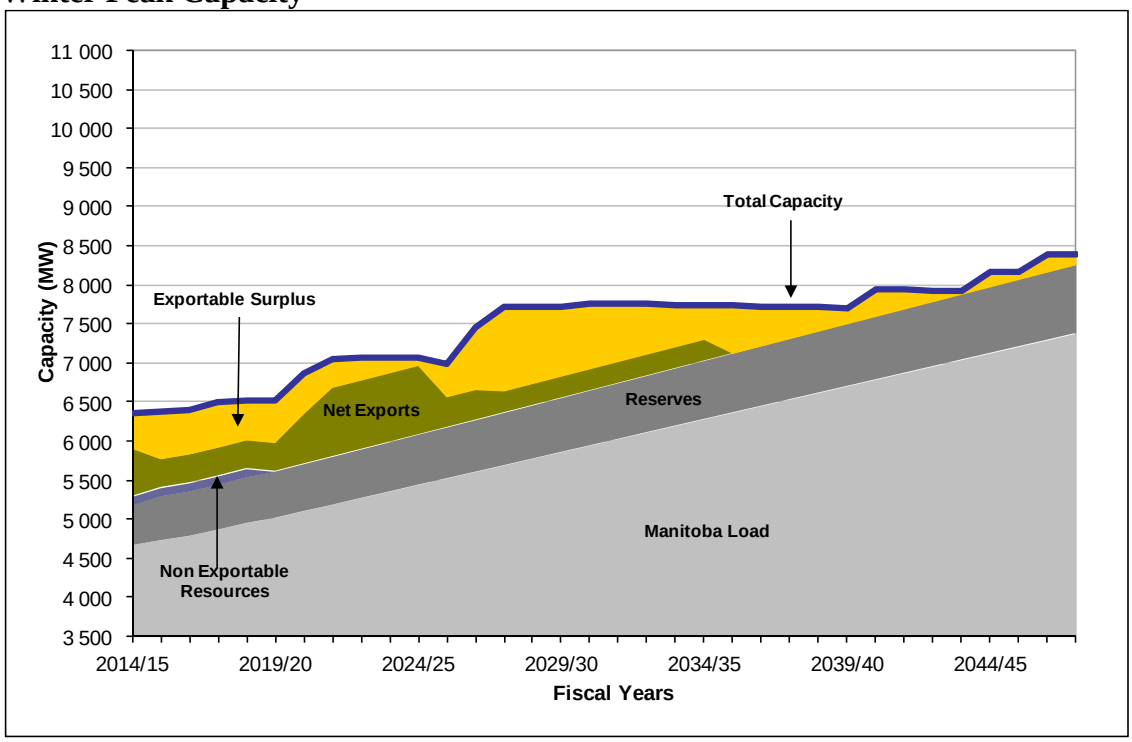
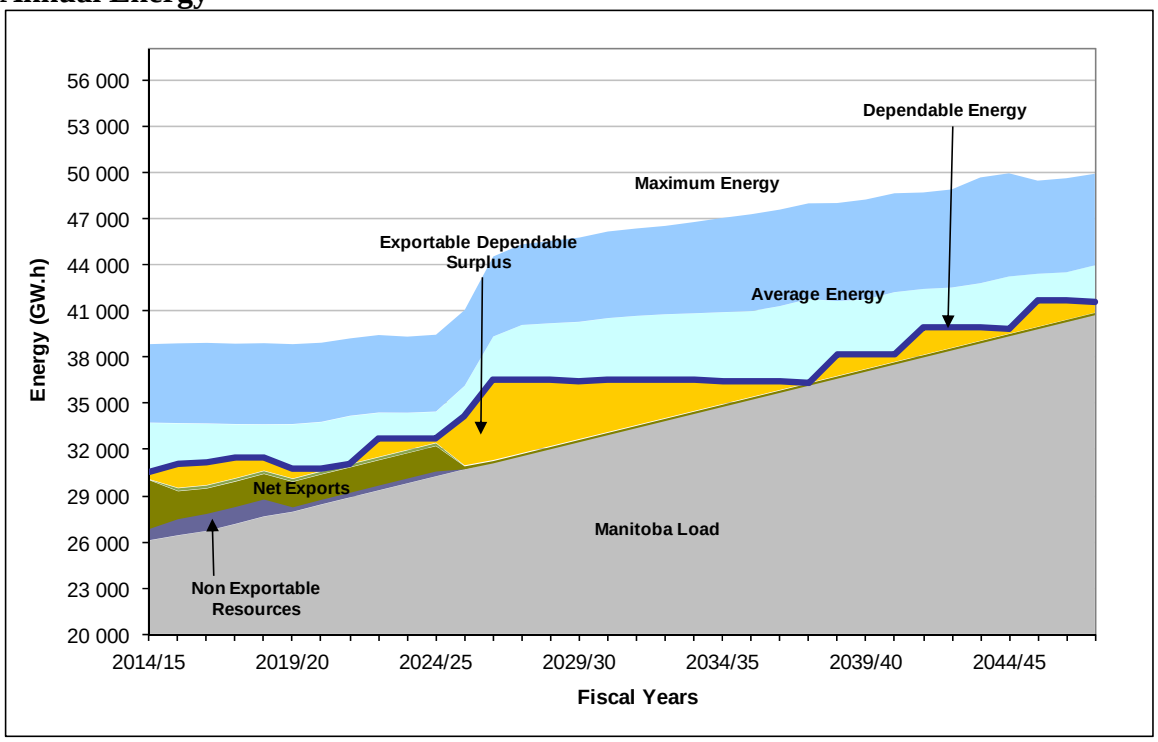
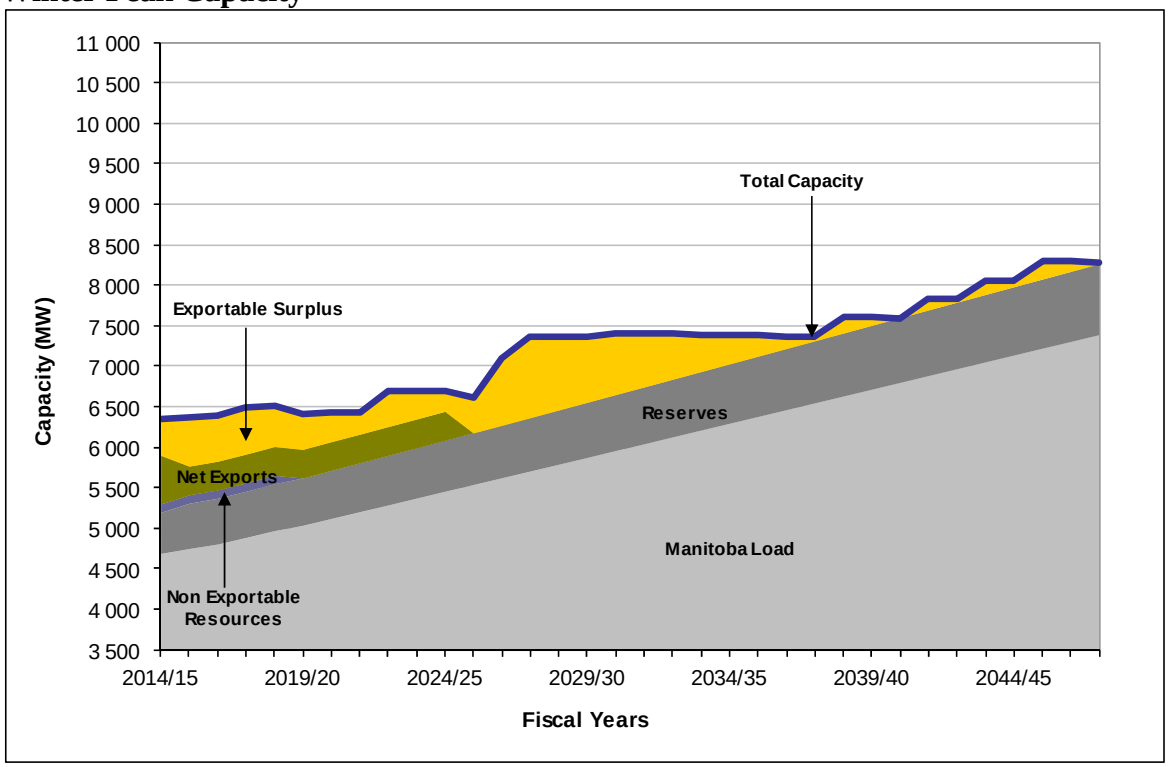


Figure 5: Alternative Development Plan 2 – No New Interconnection
No New Interconnection - SCGTs 2022/23 followed by Conawapa G.S. in 2025/26 and SCGTs after when required

Annual Energy



Winter Peak Capacity



7 CONCLUSIONS

Under dependable energy conditions, new generation is required to meet Manitoba load requirements in 2022/23 while new capacity resources are not required until 2025/26.

The recommended development plan includes the development of Keeyask and Conawapa, as well as sales to Wisconsin Public Service and Minnesota Power (the Sales Package). This recommended development plan will also facilitate the building of a new 500 kV interconnection to Wisconsin and Minnesota. A new US interconnection will provide on-going financial, reliability, energy security and environmental benefits for many years, well beyond the term of the sales agreements.

In the event that the 500 kV interconnection Sales Package becomes unachievable contractual arrangements under the 250 MW MH-MP Sale allow for the pursuit of a new 250 MW US interconnection.

In the event that a new US interconnection and/or the Keeyask Project becomes unachievable the alternative development plan to meet Manitoba requirements would include a simple cycle gas turbine followed by Conawapa.

8 APPENDICES

A. DEPENDABLE SUPPLY AND DEMAND TABLES

No New Resources

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Demand Includes: Extension of the GRE 200 Diversity

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa																		
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	66	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois																		
Bipole III Line Reduction						90	90	90	90	90	90	90	90	90	90	90	90	90
Manitoba Thermal Plants																		
Brandon Unit 5	105	105	105	105	105	105	105											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind																		
Demand Side Management	12	35	56	75	92	108	122	134	142	151	158	162	165	169	174	175	173	171
Contracted Imports	550	550	385	385	385	385	385	385	385	385	385	385	385					
Proposed Imports			220	220	220	220	220	220	220	220	220	220	220					
Total Power Resources	**6 245**	**6 279**	**6 355**	**6 374**	**6 391**	**6 497**	**6 511**	**6 418**	**6 427**	**6 435**	**6 442**	**6 446**	**6 449**	**5 849**	**5 853**	**5 854**	**5 852**	**5 850**
Peak Demand																		
2012 Base Load Forecast	4 491	4 609	4 676	4 738	4 794	4 874	4 959	5 024	5 109	5 192	5 276	5 360	5 445	5 528	5 611	5 695	5 779	5 863
Contracted Exports	605	605	605	358	358	358	358	358	358	358	358	358	358					
Proposed Exports																		
Less Adverse Water	-66																	
Peak Demand	5 030	5 214	5 281	5 096	5 152	5 231	5 317	5 381	5 467	5 549	5 634	5 718	5 803	5 528	5 611	5 695	5 779	5 863
Reserves	465	483	508	560	564	572	580	587	596	605	614	624	634	643	652	662	673	683
Total Peak Demand	**5 495**	**5 697**	**5 790**	**5 655**	**5 716**	**5 803**	**5 897**	**5 968**	**6 063**	**6 154**	**6 248**	**6 341**	**6 436**	**6 171**	**6 263**	**6 357**	**6 452**	**6 546**
System Surplus	**751**	**582**	**566**	**719**	**675**	**694**	**614**	**450**	**364**	**281**	**195**	**105**	**13**	**(323)**	**(410)**	**(503)**	**(600)**	**(696)**
Less : Brandon Unit 5	105	105	105	105	105	105	105											
Adverse Water	66																	
Exportable Surplus	**580**	**477**	**461**	**614**	**570**	**589**	**509**	**450**	**364**	**281**	**195**	**105**	**13**					

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

No New Resources

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Demand Includes: Extension of the GRE 200 Diversity

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa																		
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Bipole III Line Reduction	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Manitoba Thermal Plants																		
Brandon 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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind																		
Demand Side Management	169	168	164	158	152	146	140	134	126	119	113	107	100	93	87	81	74	67
Contracted Imports																		
Proposed Imports																		
Total Power Resources	**5 892**	**5 890**	**5 886**	**5 880**	**5 874**	**5 868**	**5 863**	**5 856**	**5 849**	**5 842**	**5 835**	**5 829**	**5 822**	**5 816**	**5 809**	**5 803**	**5 796**	**5 790**
Peak Demand																		
2012 Base Load Forecast	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Contracted Exports																		
Proposed Exports																		
Less Adverse Water																		
Peak Demand	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Reserves	693	704	714	725	736	747	757	768	779	790	801	812	823	834	845	856	866	877
Total Peak Demand	**6 641**	**6 735**	**6 830**	**6 925**	**7 020**	**7 115**	**7 210**	**7 305**	**7 400**	**7 495**	**7 590**	**7 685**	**7 780**	**7 875**	**7 970**	**8 065**	**8 161**	**8 256**
System Surplus	**(749)**	**(845)**	**(943)**	**(1 045)**	**(1 146)**	**(1 247)**	**(1 347)**	**(1 449)**	**(1 552)**	**(1 654)**	**(1 755)**	**(1 856)**	**(1 958)**	**(2 060)**	**(2 161)**	**(2 263)**	**(2 364)**	**(2 466)**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus																		

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

No New Resources

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Demand Includes: Extension of the GRE 200 Diversity

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	20 720	20 700	20 690	20 680	20 660	20 640	20 630	20 610	20 600	20 590	20 580	20 580	20 570	20 560	20 560	20 550	20 540	20 540
Hydro Adjustment	340	340	373	784	844	844	844	844	844	844	844	844	844	139				
Existing Hydro NET	21 060	21 040	21 063	21 464	21 504	21 484	21 474	21 454	21 444	21 434	21 424	21 424	21 414	20 699	20 560	20 550	20 540	20 540
New Hydro																		
Wuskwatim	890	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa																		
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois																		
Bipole III Line Reduction						243	243	243	243	243	243	243	243	243	243	243	243	243
Manitoba Thermal Plants																		
Brandon Unit 5	811	811	811	811	811	811	811											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind	766	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	62	171	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782
Contracted Imports	2 705	2 705	1 949	1 549	1 639	1 639	1 639	1 639	1 639	1 639	1 639	1 639	1 639	271				
Proposed Imports			781	936	936	936	936	936	936	936	936	936	936	155				
Non-Contracted Imports	364	364	338	583	493	493	493	493	493	493	493	493	493	2 622	3 049	3 068	3 068	3 068
Total Power Resources	**29 964**	**30 424**	**30 544**	**31 028**	**31 147**	**31 441**	**31 499**	**30 721**	**30 753**	**30 782**	**30 806**	**30 826**	**30 830**	**30 116**	**30 000**	**30 011**	**29 984**	**29 966**
Demand																		
2012 Base Load Forecast	24 961	25 734	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511
Non-Committed Construction Power														10	20	30	30	35
Contracted Exports	3 293	3 156	3 156	2 115	2 012	2 012	2 012	2 012	2 012	2 012	2 012	2 012	2 012	249	145	145	145	145
Proposed Exports				162	162	162	162	162	162	162	162	162	162					
Less Adverse Water	-91			-309	-370	-370	-370	-370	-370	-370	-370	-370	-370	-61				
Total Demand	**28 162**	**28 890**	**29 227**	**28 362**	**28 480**	**28 931**	**29 420**	**29 723**	**30 204**	**30 662**	**31 126**	**31 582**	**32 043**	**30 889**	**31 303**	**31 769**	**32 228**	**32 691**
System Surplus	**1 802**	**1 534**	**1 317**	**2 667**	**2 667**	**2 510**	**2 079**	**998**	**549**	**120**	**(320)**	**(756)**	**(1 213)**	**(773)**	**(1 303)**	**(1 758)**	**(2 243)**	**(2 725)**
Less : Brandon Unit 5	811	811	811	811	811	811	811											
Adverse Water	91			309	370	370	370	370	370	370	370	370	370	61				
Exportable Surplus	**900**	**723**	**506**	**1 547**	**1 485**	**1 328**	**898**	**628**	**179**									

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

No New Resources

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Demand Includes: Extension of the GRE 200 Diversity

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
Hydro Adjustment																		
Existing Hydro NET	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
New Hydro																		
Wuskwatim	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa																		
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois	60	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Bipole III Line Reduction	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
Manitoba Thermal Plants																		
Brandon Unit 5																		
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345	318
Contracted Imports																		
Proposed Imports																		
Non-Contracted Imports	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068
Total Power Resources	**30 000**	**30 077**	**30 043**	**29 997**	**29 966**	**29 928**	**29 892**	**29 864**	**29 825**	**29 797**	**29 761**	**29 729**	**29 702**	**29 665**	**29 630**	**29 605**	**29 569**	**29 533**
Demand																		
2012 Base Load Forecast	32 967	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	30	10																
Contracted Exports	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports																		
Less Adverse Water																		
Total Demand	**33 142**	**33 580**	**34 027**	**34 485**	**34 943**	**35 400**	**35 858**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
System Surplus	**(3 142)**	**(3 503)**	**(3 984)**	**(4 488)**	**(4 977)**	**(5 473)**	**(5 965)**	**(6 452)**	**(6 948)**	**(7 433)**	**(7 926)**	**(8 416)**	**(8 901)**	**(9 395)**	**(9 888)**	**(10 371)**	**(10 864)**	**(11 358)**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus																		

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Recommended Plan

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31 Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2041/42, 750 MW Export/Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements, WPS 300 Sale

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa														520	1 040	1 300	1 300	1 300
Keeyask								90	450	630	630	630	630	630	630	630	630	630
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	66	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois																		
Bipole III Line Reduction						90	90	90	80	80	80	80	80	80	21	21	21	21
Manitoba Thermal Plants																		
Brandon Unit 5	105	105	105	105	105	105	105											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind																		
Demand Side Management	12	35	56	75	92	108	122	134	142	151	158	162	165	169	174	175	173	171
Contracted Imports	550	550	385	385	385	385	385	385	385	385	385	385	385					
Proposed Imports			220	220	220	220	220	220	220	220	220	220	220					
Total Power Resources	**6 245**	**6 279**	**6 355**	**6 374**	**6 391**	**6 497**	**6 511**	**6 508**	**6 866**	**7 055**	**7 062**	**7 066**	**7 069**	**6 988**	**7 454**	**7 715**	**7 713**	**7 711**
Peak Demand																		
2012 Base Load Forecast	4 491	4 609	4 676	4 738	4 794	4 874	4 959	5 024	5 109	5 192	5 276	5 360	5 445	5 528	5 611	5 695	5 779	5 863
Contracted Exports	605	605	605	358	358	358	358	358	633	880	880	880	880	385	385	275	275	275
Proposed Exports															220	330	330	330
Less Adverse Water	- 66																	
Peak Demand	5 030	5 214	5 281	5 096	5 152	5 231	5 317	5 381	5 742	6 072	6 156	6 240	6 325	5 913	6 216	6 300	6 384	6 468
Reserves	465	483	508	560	564	572	580	587	596	605	614	624	634	643	652	662	673	683
Total Peak Demand	**5 495**	**5 697**	**5 790**	**5 655**	**5 716**	**5 803**	**5 897**	**5 968**	**6 338**	**6 677**	**6 770**	**6 864**	**6 959**	**6 556**	**6 868**	**6 962**	**7 057**	**7 151**
System Surplus	**751**	**582**	**566**	**719**	**675**	**694**	**614**	**540**	**529**	**378**	**292**	**202**	**111**	**432**	**586**	**753**	**656**	**560**
Less : Brandon Unit 5	105	105	105	105	105	105	105											
Adverse Water	66																	
Exportable Surplus	**580**	**477**	**461**	**614**	**570**	**589**	**509**	**540**	**529**	**378**	**292**	**202**	**111**	**432**	**586**	**753**	**656**	**560**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Recommended Plan

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31 Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2041/42, 750 MW Export/Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements, WPS 300 Sale

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300
Keeyask	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Bipole III Line Reduction	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Manitoba Thermal Plants																		
Brandon 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
New Thermal Plants																		
SCGT												246	246	246	492	492	737	737
CCGT																		
Wind																		
Demand Side Management	169	168	164	158	152	146	140	134	126	119	113	107	100	93	87	81	74	67
Contracted Imports																		
Proposed Imports																		
Total Power Resources	**7 753**	**7 752**	**7 748**	**7 741**	**7 735**	**7 729**	**7 724**	**7 717**	**7 710**	**7 703**	**7 696**	**7 936**	**7 929**	**7 923**	**8 162**	**8 156**	**8 395**	**8 389**
Peak Demand																		
2012 Base Load Forecast	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Contracted Exports	275	275	275	275	275													
Proposed Exports	330	330	330	330	330	330												
Less Adverse Water																		
Peak Demand	6 552	6 637	6 721	6 805	6 889	6 698	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Reserves	693	704	714	725	736	747	757	768	779	790	801	812	823	834	845	856	866	877
Total Peak Demand	**7 246**	**7 340**	**7 435**	**7 530**	**7 625**	**7 445**	**7 210**	**7 305**	**7 400**	**7 495**	**7 590**	**7 685**	**7 780**	**7 875**	**7 970**	**8 065**	**8 161**	**8 256**
System Surplus	**507**	**412**	**313**	**211**	**110**	**285**	**514**	**412**	**310**	**208**	**106**	**251**	**149**	**47**	**192**	**90**	**234**	**133**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**507**	**412**	**313**	**211**	**110**	**285**	**514**	**412**	**310**	**208**	**106**	**251**	**149**	**47**	**192**	**90**	**234**	**133**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Recommended Plan

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31 Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2041/42, 750 MW Export/Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements, WPS 300 Sale

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	20 720	20 700	20 690	20 680	20 660	20 640	20 630	20 610	20 600	20 590	20 580	20 580	20 570	20 560	20 560	20 550	20 540	20 540
Hydro Adjustment	340	340	373	784	844	844	844	844	844	844	844	844	844	139				
Existing Hydro NET	21 060	21 040	21 063	21 464	21 504	21 484	21 474	21 454	21 444	21 434	21 424	21 424	21 414	20 699	20 560	20 550	20 540	20 540
New Hydro																		
Wuskwatim	890	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa														2 198	4 650	4 650	4 650	4 650
Keeyask								700	2 998	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois																		
Bipole III Line Reduction						243	243	243	246	246	246	246	246	246	190	190	190	190
Manitoba Thermal Plants																		
Brandon Unit 5	811	811	811	811	811	811	811											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind	766	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	62	171	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782
Contracted Imports	2 705	2 705	1 949	1 549	1 638	1 638	1 638	1 638	2 566	2 752	2 752	2 752	2 752	1 384	1 113	1 113	1 113	1 113
Proposed Imports			781	936	936	936	936	936	936	936	936	936	936	155	742	1 262	1 336	1 336
Non-Contracted Imports	363	363	338	583	494	494	494	494	958	1 050	1 050	1 050	1 050	3 199	2 883	2 363	2 289	2 289
Total Power Resources	**29 964**	**30 425**	**30 544**	**31 029**	**31 147**	**31 441**	**31 500**	**31 421**	**35 146**	**35 459**	**35 484**	**35 503**	**35 507**	**37 011**	**39 290**	**39 281**	**39 255**	**39 237**
Demand																		
2012 Base Load Forecast	24 961	25 734	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511
Non-Committed Construction Power		10	25	50	50	80	100	70	55	50	55	80	100	100	50	35	30	35
Contracted Exports	3 293	3 156	3 156	2 115	2 012	2 012	2 012	2 012	3 048	4 192	4 314	4 314	4 314	2 031	1 887	1 471	1 389	1 389
Proposed Exports				162	162	162	162	162	162	162	162	162	162		829	1 409	1 493	1 493
Less Adverse Water	- 91			- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 512	- 512	- 512	- 85				
Total Demand	**28 162**	**28 900**	**29 252**	**28 412**	**28 530**	**29 011**	**29 520**	**29 793**	**31 295**	**32 773**	**33 341**	**33 823**	**34 303**	**32 737**	**33 905**	**34 509**	**34 965**	**35 428**
System Surplus	**1 802**	**1 524**	**1 292**	**2 617**	**2 617**	**2 430**	**1 980**	**1 629**	**3 851**	**2 686**	**2 142**	**1 681**	**1 204**	**4 274**	**5 386**	**4 772**	**4 290**	**3 809**
Less : Brandon Unit 5	811	811	811	811	811	811	811											
Adverse Water	91			309	370	370	370	370	370	489	512	512	512	85				
Exportable Surplus	**900**	**713**	**481**	**1 497**	**1 435**	**1 249**	**799**	**1 258**	**3 481**	**2 197**	**1 630**	**1 168**	**692**	**4 189**	**5 386**	**4 772**	**4 290**	**3 809**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Recommended Plan

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois Rebuild 2030/31 Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2041/42, 750 MW Export/Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements, WPS 300 Sale

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
Hydro Adjustment																		
Existing Hydro NET	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
New Hydro																		
Wuskwatim	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650
Keeyask	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois	60	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Bipole III Line Reduction	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
Manitoba Thermal Plants																		
Brandon Unit 5																		
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
New Thermal Plants																		
SCGT												1 864	1 864	1 864	1 864	3 728	3 728	3 728
CCGT																		
Wind	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345	318
Contracted Imports	1 113	1 113	1 113	1 113	1 113	186												
Proposed Imports	1 336	1 336	1 336	1 336	1 336	1 336	223											
Non-Contracted Imports	2 289	2 289	2 289	2 289	2 289	3 216	3 551	3 574	3 622	3 671	3 719	3 767	3 816	3 864	3 912	3 961	4 009	4 057
Total Power Resources	**39 271**	**39 348**	**39 314**	**39 268**	**39 236**	**39 198**	**38 199**	**37 970**	**37 979**	**38 000**	**38 013**	**39 893**	**39 914**	**39 926**	**39 939**	**41 826**	**41 838**	**41 851**
Demand																		
2012 Base Load Forecast	32 967	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	30	10																
Contracted Exports	1 389	1 389	1 389	1 389	1 389	353	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports	1 493	1 493	1 493	1 493	1 493	1 493	249											
Less Adverse Water																		
Total Demand	**35 879**	**36 317**	**36 765**	**37 222**	**37 680**	**37 101**	**36 107**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
System Surplus	**3 391**	**3 031**	**2 549**	**2 046**	**1 557**	**2 097**	**2 092**	**1 654**	**1 207**	**770**	**325**	**1 747**	**1 311**	**865**	**420**	**1 850**	**1 405**	**960**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**3 391**	**3 031**	**2 549**	**2 046**	**1 557**	**2 097**	**2 092**	**1 654**	**1 207**	**770**	**325**	**1 747**	**1 311**	**865**	**420**	**1 850**	**1 405**	**960**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 1 - 250 MW Interconnection

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2040/41, 250 MW Export, 50 MW Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa														520	1 040	1 300	1 300	1 300
Keeyask								90	450	630	630	630	630	630	630	630	630	630
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	66	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois																		
Bipole III Line Reduction						90	90	90	80	80	80	80	80	80	21	21	21	21
Manitoba Thermal Plants																		
Brandon Unit 5	105	105	105	105	105	105	105											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind																		
Demand Side Management	12	35	56	75	92	108	122	134	142	151	158	162	165	169	174	175	173	171
Contracted Imports	550	550	385	385	385	385	385	385	385	385	385	385	385					
Proposed Imports			220	220	220	220	220	220	220	220	220	220	220					
Total Power Resources	**6 245**	**6 279**	**6 355**	**6 374**	**6 391**	**6 497**	**6 511**	**6 508**	**6 866**	**7 055**	**7 062**	**7 066**	**7 069**	**6 988**	**7 454**	**7 715**	**7 713**	**7 711**
Peak Demand																		
2012 Base Load Forecast	4 491	4 609	4 676	4 738	4 794	4 874	4 959	5 024	5 109	5 192	5 276	5 360	5 445	5 528	5 611	5 695	5 779	5 863
Contracted Exports	605	605	605	358	358	358	358	358	633	880	880	880	880	385	385	275	275	275
Proposed Exports																		
Less Adverse Water	- 66																	
Peak Demand	5 030	5 214	5 281	5 096	5 152	5 231	5 317	5 381	5 742	6 072	6 156	6 240	6 325	5 913	5 996	5 970	6 054	6 138
Reserves	465	483	508	560	564	572	580	587	596	605	614	624	634	643	652	662	673	683
Total Peak Demand	**5 495**	**5 697**	**5 790**	**5 655**	**5 716**	**5 803**	**5 897**	**5 968**	**6 338**	**6 677**	**6 770**	**6 864**	**6 959**	**6 556**	**6 648**	**6 632**	**6 727**	**6 821**
System Surplus	**751**	**582**	**566**	**719**	**675**	**694**	**614**	**540**	**529**	**378**	**292**	**202**	**111**	**432**	**806**	**1 083**	**986**	**890**
Less : Brandon Unit 5	105	105	105	105	105	105	105											
Adverse Water	66																	
Exportable Surplus	**580**	**477**	**461**	**614**	**570**	**589**	**509**	**540**	**529**	**378**	**292**	**202**	**111**	**432**	**806**	**1 083**	**986**	**890**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 1 - 250 MW Interconnection

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2040/41, 250 MW Export, 50 MW Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300
Keeyask	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Bipole III Line Reduction	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Manitoba Thermal Plants																		
Brandon 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
New Thermal Plants																		
SCGT											246	246	246	246	492	492	737	737
CCGT																		
Wind																		
Demand Side Management	169	168	164	158	152	146	140	134	126	119	113	107	100	93	87	81	74	67
Contracted Imports																		
Proposed Imports																		
Total Power Resources	**7 753**	**7 752**	**7 748**	**7 741**	**7 735**	**7 729**	**7 724**	**7 717**	**7 710**	**7 703**	**7 942**	**7 936**	**7 929**	**7 923**	**8 162**	**8 156**	**8 395**	**8 389**
Peak Demand																		
2012 Base Load Forecast	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Contracted Exports	275	275	275	275	275													
Proposed Exports																		
Less Adverse Water																		
Peak Demand	6 222	6 307	6 391	6 475	6 559	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Reserves	693	704	714	725	736	747	757	768	779	790	801	812	823	834	845	856	866	877
Total Peak Demand	**6 916**	**7 010**	**7 105**	**7 200**	**7 295**	**7 115**	**7 210**	**7 305**	**7 400**	**7 495**	**7 590**	**7 685**	**7 780**	**7 875**	**7 970**	**8 065**	**8 161**	**8 256**
System Surplus	**837**	**742**	**643**	**541**	**440**	**615**	**514**	**412**	**310**	**208**	**352**	**251**	**149**	**47**	**192**	**90**	**234**	**133**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**837**	**742**	**643**	**541**	**440**	**615**	**514**	**412**	**310**	**208**	**352**	**251**	**149**	**47**	**192**	**90**	**234**	**133**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 1 - 250 MW Interconnection

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2040/41, 250 MW Export, 50 MW Import US Interconnection 2020/21

Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	20 720	20 700	20 690	20 680	20 660	20 640	20 630	20 610	20 600	20 590	20 580	20 580	20 570	20 560	20 560	20 550	20 540	20 540
Hydro Adjustment	340	340	373	784	844	844	844	844	844	844	844	844	844	139				
Existing Hydro NET	21 060	21 040	21 063	21 464	21 504	21 484	21 474	21 454	21 444	21 434	21 424	21 424	21 414	20 699	20 560	20 550	20 540	20 540
New Hydro																		
Wuskwatim	890	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa														2 198	4 650	4 650	4 650	4 650
Keeyask								700	2 998	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois																		
Bipole III Line Reduction						243	243	243	246	246	246	246	246	246	190	190	190	190
Manitoba Thermal Plants																		
Brandon Unit 5	811	811	811	811	811	811	811											
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
New Thermal Plants																		
SCGT																		
CCGT																		
Wind	766	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	62	171	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782
Contracted Imports	2 705	2 705	1 949	1 549	1 638	1 638	1 638	1 638	1 824	1 861	1 861	1 861	1 861	494	223	223	223	223
Proposed Imports			781	936	936	936	936	936	936	936	936	936	936	155				
Non-Contracted Imports	363	363	338	583	494	494	494	494	494	494	494	494	737	2 642	3 068	3 068	3 068	3 068
Total Power Resources	**29 964**	**30 425**	**30 544**	**31 029**	**31 147**	**31 441**	**31 500**	**31 421**	**33 940**	**34 012**	**34 036**	**34 056**	**34 303**	**35 563**	**37 843**	**37 834**	**37 807**	**37 789**
Demand																		
2012 Base Load Forecast	24 961	25 734	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511
Non-Committed Construction Power		10	25	50	50	80	100	70	55	50	55	80	100	100	50	35	30	35
Contracted Exports	3 293	3 156	3 156	2 115	2 012	2 012	2 012	2 012	3 048	4 192	4 314	4 314	4 314	2 031	1 887	1 471	1 389	1 389
Proposed Exports				162	162	162	162	162	162	162	162	162	162					
Less Adverse Water	- 91			- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 512	- 512	- 512	- 85				
Total Demand	**28 162**	**28 900**	**29 252**	**28 412**	**28 530**	**29 011**	**29 520**	**29 793**	**31 295**	**32 773**	**33 341**	**33 823**	**34 303**	**32 737**	**33 076**	**33 100**	**33 472**	**33 935**
System Surplus	**1 802**	**1 524**	**1 292**	**2 617**	**2 617**	**2 430**	**1 980**	**1 629**	**2 645**	**1 238**	**695**	**233**		**2 826**	**4 767**	**4 734**	**4 336**	**3 855**
Less : Brandon Unit 5	811	811	811	811	811	811	811											
Adverse Water	91			309	370	370	370	370	370	489	512	512	512	85				
Exportable Surplus	**900**	**713**	**481**	**1 497**	**1 435**	**1 249**	**799**	**1 258**	**2 275**	**749**	**182**			**2 741**	**4 767**	**4 734**	**4 336**	**3 855**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 1 - 250 MW Interconnection

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: Keeyask 2019/20, Conawapa 2025/26, SCGTs starting 2040/41, 250 MW Export, 50 MW Import US Interconnection 2020/21
Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
Hydro Adjustment																		
Existing Hydro NET	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
New Hydro																		
Wuskwatim	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650
Keeyask	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois	60	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Bipole III Line Reduction	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
Manitoba Thermal Plants																		
Brandon Unit 5																		
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
New Thermal Plants																		
SCGT											1 864	1 864	1 864	1 864	3 728	3 728	3 728	3 728
CCGT																		
Wind	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345	318
Contracted Imports	223	223	223	223	223	37												
Proposed Imports																		
Non-Contracted Imports	3 068	3 068	3 068	3 068	3 068	3 254	3 291	3 291	3 291	3 291	3 291	3 291	3 291	3 291	3 291	3 291	3 291	3 291
Total Power Resources	**37 823**	**37 901**	**37 866**	**37 820**	**37 789**	**37 751**	**37 716**	**37 687**	**37 648**	**37 620**	**39 449**	**39 417**	**39 389**	**39 353**	**41 181**	**41 156**	**41 120**	**41 084**
Demand																		
2012 Base Load Forecast	32 967	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	30	10																
Contracted Exports	1 389	1 389	1 389	1 389	1 389	353	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports																		
Less Adverse Water																		
Total Demand	**34 386**	**34 824**	**35 272**	**35 729**	**36 187**	**35 608**	**35 858**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
System Surplus	**3 437**	**3 077**	**2 595**	**2 091**	**1 602**	**2 143**	**1 858**	**1 372**	**875**	**390**	**1 761**	**1 271**	**786**	**292**	**1 663**	**1 180**	**687**	**193**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**3 437**	**3 077**	**2 595**	**2 091**	**1 602**	**2 143**	**1 858**	**1 372**	**875**	**390**	**1 761**	**1 271**	**786**	**292**	**1 663**	**1 180**	**687**	**193**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 2 - No New interconnection

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Supply Includes: SCGTs starting 2022/23, Conawapa 2025/26

Demand includes: Extension of the GRE 200 Diversity

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa														520	1 040	1 300	1 300	1 300
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	66	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois																		
Bipole III Line Reduction						90	90	90	90	90	90	90	90	90	56	56	56	56
Manitoba Thermal Plants																		
Brandon Unit 5	105	105	105	105	105	105	105											
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
New Thermal Plants																		
SCGT											246	246	246	246	246	246	246	246
CCGT																		
Wind																		
Demand Side Management	12	35	56	75	92	108	122	134	142	151	158	162	165	169	174	175	173	171
Contracted Imports	550	550	385	385	385	385	385	385	385	385	385	385	385					
Proposed Imports			220	220	220	220	220	220	220	220	220	220	220					
Total Power Resources	**6 245**	**6 279**	**6 355**	**6 374**	**6 391**	**6 497**	**6 511**	**6 418**	**6 427**	**6 435**	**6 688**	**6 692**	**6 695**	**6 614**	**7 105**	**7 366**	**7 364**	**7 362**
Peak Demand																		
2012 Base Load Forecast	4 491	4 609	4 676	4 738	4 794	4 874	4 959	5 024	5 109	5 192	5 276	5 360	5 445	5 528	5 611	5 695	5 779	5 863
Contracted Exports	605	605	605	358	358	358	358	358	358	358	358	358	358					
Proposed Exports																		
Less Adverse Water	- 66																	
Peak Demand	5 030	5 214	5 281	5 096	5 152	5 231	5 317	5 381	5 467	5 549	5 634	5 718	5 803	5 528	5 611	5 695	5 779	5 863
Reserves	465	483	508	560	564	572	580	587	596	605	614	624	634	643	652	662	673	683
Total Peak Demand	**5 495**	**5 697**	**5 790**	**5 655**	**5 716**	**5 803**	**5 897**	**5 968**	**6 063**	**6 154**	**6 248**	**6 341**	**6 436**	**6 171**	**6 263**	**6 357**	**6 452**	**6 546**
System Surplus	**751**	**582**	**566**	**719**	**675**	**694**	**614**	**450**	**364**	**281**	**440**	**351**	**259**	**443**	**841**	**1 009**	**912**	**815**
Less : Brandon Unit 5	105	105	105	105	105	105	105											
Adverse Water	66																	
Exportable Surplus	**580**	**477**	**461**	**614**	**570**	**589**	**509**	**450**	**364**	**281**	**440**	**351**	**259**	**443**	**841**	**1 009**	**912**	**815**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

System Firm Winter Peak Demand and Resources (MW) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Supply Includes: SCGTs starting 2022/23, Conawapa 2025/26

Demand includes: Extension of the GRE 200 Diversity

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
New Hydro																		
Wuskwatim	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Conawapa	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300	1 300
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
Pointe du Bois	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Bipole III Line Reduction	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Manitoba Thermal Plants																		
Brandon 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
New Thermal Plants																		
SCGT	246	246	246	246	246	246	246	246	492	492	492	737	737	983	983	1 229	1 229	1 229
CCGT																		
Wind																		
Demand Side Management	169	168	164	158	152	146	140	134	126	119	113	107	100	93	87	81	74	67
Contracted Imports																		
Proposed Imports																		
Total Power Resources	**7 403**	**7 402**	**7 398**	**7 392**	**7 386**	**7 380**	**7 374**	**7 368**	**7 606**	**7 599**	**7 593**	**7 833**	**7 826**	**8 065**	**8 058**	**8 298**	**8 291**	**8 285**
Peak Demand																		
2012 Base Load Forecast	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Contracted Exports																		
Proposed Exports																		
Less Adverse Water																		
Peak Demand	5 947	6 032	6 116	6 200	6 284	6 368	6 452	6 537	6 621	6 705	6 789	6 873	6 957	7 042	7 126	7 210	7 294	7 378
Reserves	693	704	714	725	736	747	757	768	779	790	801	812	823	834	845	856	866	877
Total Peak Demand	**6 641**	**6 735**	**6 830**	**6 925**	**7 020**	**7 115**	**7 210**	**7 305**	**7 400**	**7 495**	**7 590**	**7 685**	**7 780**	**7 875**	**7 970**	**8 065**	**8 161**	**8 256**
System Surplus	**762**	**667**	**568**	**467**	**366**	**265**	**164**	**63**	**206**	**104**	**2**	**147**	**45**	**189**	**88**	**232**	**131**	**29**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**762**	**667**	**568**	**467**	**366**	**265**	**164**	**63**	**206**	**104**	**2**	**147**	**45**	**189**	**88**	**232**	**131**	**29**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 2 - No New interconnection

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: SCGTs starting 2022/23, Conawapa 2025/26
Demand includes: Extension of the GRE 200 Diversity

Fiscal Year	2012/13	2013/14	2014/15	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
Power Resources																		
Existing Manitoba Hydro Plants	20 720	20 700	20 690	20 680	20 660	20 640	20 630	20 610	20 600	20 590	20 580	20 580	20 570	20 560	20 560	20 550	20 540	20 540
Hydro Adjustment	340	340	373	784	844	844	844	844	844	844	844	844	844	139				
Existing Hydro NET	21 060	21 040	21 063	21 464	21 504	21 484	21 474	21 454	21 444	21 434	21 424	21 424	21 414	20 699	20 560	20 550	20 540	20 540
New Hydro																		
Wuskwatim	890	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa														2 198	4 650	4 650	4 650	4 650
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois																		
Bipole III Line Reduction						243	243	243	243	243	243	243	243	243	230	230	230	230
Manitoba Thermal Plants																		
Brandon Unit 5	811	811	811	811	811	811	811											
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
New Thermal Plants																		
SCGT											1 864	1 864	1 864	1 864	1 864	1 864	1 864	1 864
CCGT																		
Wind	766	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	62	171	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782
Contracted Imports	2 705	2 705	1 949	1 549	1 638	1 638	1 638	1 638	1 638	1 638	1 638	1 638	1 638	271				
Proposed Imports			781	936	936	936	936	936	936	936	936	936	936	155				
Non-Contracted Imports	363	363	338	583	494	494	494	494	494	494	494	494	494	2 631	3 052	3 068	3 068	3 068
Total Power Resources	**29 964**	**30 425**	**30 544**	**31 029**	**31 147**	**31 441**	**31 500**	**30 721**	**30 753**	**30 783**	**32 671**	**32 691**	**32 694**	**34 187**	**36 505**	**36 512**	**36 486**	**36 468**
Demand																		
2012 Base Load Forecast	24 961	25 734	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511
Non-Committed Construction Power						10	15	20	30	50	55	80	100	100	50	35	30	35
Contracted Exports	3 293	3 156	3 156	2 115	2 012	2 012	2 012	2 012	2 012	2 012	2 012	2 012	2 012	249	145	145	145	145
Proposed Exports				162	162	162	162	162	162	162	162	162	162					
Less Adverse Water	- 91			- 309	- 370	- 370	- 370	- 370	- 370	- 370	- 370	- 370	- 370	- 61				
Total Demand	**28 162**	**28 890**	**29 227**	**28 362**	**28 480**	**28 941**	**29 435**	**29 743**	**30 234**	**30 712**	**31 181**	**31 663**	**32 143**	**30 979**	**31 333**	**31 774**	**32 228**	**32 691**
System Surplus	**1 802**	**1 534**	**1 317**	**2 667**	**2 667**	**2 500**	**2 065**	**978**	**519**	**70**	**1 490**	**1 028**	**552**	**3 208**	**5 171**	**4 738**	**4 258**	**3 777**
Less : Brandon Unit 5	811	811	811	811	811	811	811											
Adverse Water	91			309	370	370	370	370	370	370	370	370	370	61				
Exportable Surplus	**900**	**723**	**506**	**1 547**	**1 485**	**1 319**	**884**	**608**	**149**		**1 120**	**658**	**181**	**3 147**	**5 171**	**4 738**	**4 258**	**3 777**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

Alternative Development Plan 2 - No New interconnection

System Firm Energy Demand and Dependable Resources (GW.h) At Generation

2012 Base Load Forecast, 2012 DSM Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18
Supply Includes: SCGTs starting 2022/23, Conawapa 2025/26
Demand includes: Extension of the GRE 200 Diversity

Fiscal Year	2030/31	2031/32	2032/33	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
Power Resources																		
Existing Manitoba Hydro Plants	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
Hydro Adjustment																		
Existing Hydro NET	20 530	20 530	20 520	20 510	20 510	20 500	20 490	20 490	20 480	20 480	20 470	20 460	20 460	20 450	20 440	20 440	20 430	20 420
New Hydro																		
Wuskwatim	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250
Conawapa	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650	4 650
Keeyask																		
Supply Side Enhancement Projects																		
Kelsey Rerunnering (Net)																		
Pointe du Bois	60	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Bipole III Line Reduction	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
Manitoba Thermal Plants																		
Brandon Unit 5																		
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
New Thermal Plants																		
SCGT	1 864	1 864	1 864	1 864	1 864	1 864	1 864	1 864	3 728	3 728	3 728	5 592	5 592	5 592	5 592	7 456	7 456	7 456
CCGT																		
Wind	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345	318
Contracted Imports																		
Proposed Imports																		
Non-Contracted Imports	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068	3 068
Total Power Resources	**36 502**	**36 579**	**36 544**	**36 499**	**36 467**	**36 429**	**36 394**	**36 365**	**38 190**	**38 163**	**38 127**	**39 959**	**39 931**	**39 895**	**39 860**	**41 698**	**41 663**	**41 626**
Demand																		
2012 Base Load Forecast	32 967	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	30	10																
Contracted Exports	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports																		
Less Adverse Water																		
Total Demand	**33 142**	**33 580**	**34 027**	**34 485**	**34 943**	**35 400**	**35 858**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
System Surplus	**3 359**	**2 999**	**2 517**	**2 014**	**1 525**	**1 029**	**536**	**50**	**1 417**	**932**	**439**	**1 813**	**1 328**	**834**	**341**	**1 722**	**1 229**	**736**
Less : Brandon Unit 5																		
Adverse Water																		
Exportable Surplus	**3 359**	**2 999**	**2 517**	**2 014**	**1 525**	**1 029**	**536**	**50**	**1 417**	**932**	**439**	**1 813**	**1 328**	**834**	**341**	**1 722**	**1 229**	**736**

Due to rounding, the sum of individual power resources or demand items may not equal Total Power Resources or Total Demand

B. AVERAGE ENERGY SUPPLY AND DEMAND TABLES

Recommended Plan

System Supply & Demand Balance (GW.h) at Generation

Under Average of all Flow Conditions

2012 Base Load Forecast, 2012 DSM - Option 2

Kelsey Rerunnering, Pointe du Bois ISD 2030/31 Wuskwatim ISD 2012/13, Brandon Unit 5 Retirement 2018/2019, Bipole III ISD 2017/2018

Supply Includes: Keeyask ISD 2019, Conawapa 2025, 750 MW Export/Import US Interconnection

Demand Includes: extension of the GRE 200 diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements, WPS 300 Sale

Fiscal Year	2014/15	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
Power Resources																	
Hydro Generation	30 837	30 823	30 808	30 659	30 620	30 872	33 405	34 827	35 202	34 928	34 618	36 887	40 743	41 662	41 699	41 697	41 907
Bipole III				425	425	425	432	432	432	432	432	432	377	377	377	377	377
Thermal Generation	352	371	365	406	401	251	232	248	260	256	289	264	236	216	222	222	216
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782	766
Imports	1 608	1 570	1 576	1 650	1 690	1 690	2 249	2 303	2 338	2 468	2 686	2 165	1 966	2 107	2 177	2 259	2 288
Total Power Resources	**33 979**	**34 029**	**34 093**	**34 554**	**34 619**	**34 774**	**37 896**	**39 428**	**39 883**	**39 755**	**39 710**	**41 454**	**45 051**	**46 091**	**46 187**	**46 249**	**46 467**
Demand																	
2012 Base Load Forecast	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511	32 967
Non-Committed Construction Power	25	50	50	80	100	70	55	50	55	80	100	100	50	35	30	35	30
Current Exports	3 157	2 115	2 011	2 011	2 011	2 011	3 354	4 675	4 821	4 821	4 821	2 539	2 395	2 023	1 950	1 785	1 752
Proposed Exports		162	162	162	162	162	162	162	162	162	162		1 071	1 820	1 929	1 929	1 929
Total Demand	**29 253**	**28 720**	**28 900**	**29 381**	**29 889**	**30 162**	**31 971**	**33 746**	**34 361**	**34 842**	**35 322**	**33 330**	**34 655**	**35 472**	**35 961**	**36 260**	**36 678**
Exportable System Surplus	**4 726**	**5 309**	**5 193**	**5 174**	**4 730**	**4 612**	**5 925**	**5 682**	**5 522**	**4 913**	**4 387**	**8 124**	**10 397**	**10 620**	**10 226**	**9 989**	**9 788**

Fiscal Year	2031/32	2032/33	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
Power Resources																	
Hydro Generation	41 837	41 908	41 938	41 940	41 936	41 917	41 927	41 932	41 929	41 936	41 926	41 931	41 924	41 923	41 935	41 941	41 911
Bipole III	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377
Thermal Generation	218	216	213	212	207	209	207	203	201	200	433	429	426	426	725	719	716
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345
Imports	2 353	2 416	2 489	2 550	2 565	2 177	2 171	2 232	2 273	2 249	2 522	2 578	2 603	2 555	2 900	2 947	2 979
Total Power Resources	**46 463**	**46 583**	**46 658**	**46 686**	**46 660**	**46 227**	**46 203**	**46 237**	**46 243**	**46 198**	**46 669**	**46 703**	**46 691**	**46 616**	**47 247**	**47 267**	**47 241**
Demand																	
2012 Base Load Forecast	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	10																
Current Exports	1 752	1 752	1 752	1 752	409	145	145	145	145	145	145	145	145	145	145	145	145
Total Demand	**37 116**	**37 564**	**38 021**	**38 479**	**37 593**	**36 180**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
Exportable System Surplus	**9 347**	**9 019**	**8 637**	**8 207**	**9 067**	**10 047**	**9 888**	**9 464**	**9 013**	**8 510**	**8 523**	**8 100**	**7 630**	**7 097**	**7 271**	**6 834**	**6 350**

Alternative Development Plan 1 - 250 MW Interconnection

System Supply & Demand Balance (GW.h) at Generation

Under Average of all Flow Conditions

2012 Base Load Forecast, 2012 DSM - Option 2

Kelsey Rerunnering, Pointe du Bois 2030/31, Wuskwatim 2012/13, Brandon Unit 5 until 2018/19, Bipole III 2017/18

Supply Includes: Keeyask 2019/20, SCGT's starting 2024/25, Conawapa 2025/26, 250 MW Export, 50 MW Import US Interconnection 2020/21

Demand Includes: Extension of the GRE 200 Diversity, NSP 125 Sale, WPS 100 Sale, MH-MP Sale Agreements

Fiscal Year	2014/15	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
Power Resources																	
Hydro Generation	30 838	30 823	30 808	30 659	30 620	30 858	33 356	34 750	35 157	34 769	34 437	37 020	40 559	41 102	41 167	41 214	41 441
Bipole III				425	425	425	425	425	425	425	425	425	377	377	377	377	377
Thermal Generation	352	371	365	406	400	254	235	253	265	260	302	264	231	214	218	218	212
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782	766
Imports	1 438	1 300	1 308	1 357	1 402	1 407	1 474	1 499	1 533	1 452	1 548	1 485	1 221	1 224	1 259	1 310	1 325
Total Power Resources	**33 809**	**33 759**	**33 825**	**34 262**	**34 329**	**34 479**	**37 067**	**38 543**	**39 030**	**38 577**	**38 396**	**40 899**	**44 117**	**44 646**	**44 734**	**44 814**	**45 035**
Demand																	
2012 Base Load Forecast	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511	32 967
Non-Committed Construction Power				10	15	20	30	50	55	80	100	100	50	35	30	35	30
Current Exports	3 157	2 115	2 011	2 011	2 011	2 011	3 354	4 675	4 821	4 821	4 821	2 539	2 395	2 023	1 950	1 785	1 752
Proposed Exports		162	162	162	162	162	162	162	162	162	162		1 071	1 820	1 929	1 929	1 929
Total Demand	**29 228**	**28 670**	**28 850**	**29 311**	**29 804**	**30 112**	**31 946**	**33 746**	**34 361**	**34 842**	**35 322**	**33 330**	**34 655**	**35 472**	**35 961**	**36 260**	**36 678**
Exportable System Surplus	**4 582**	**5 089**	**4 975**	**4 952**	**4 525**	**4 367**	**5 121**	**4 798**	**4 670**	**3 735**	**3 074**	**7 569**	**9 462**	**9 174**	**8 773**	**8 554**	**8 356**

Fiscal Year	2031/32	2032/33	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
Power Resources																	
Hydro Generation	41 541	41 612	41 653	41 700	41 742	41 795	41 839	41 871	41 826	41 901	41 967	41 965	41 902	42 017	42 058	42 024	41 955
Bipole III	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377
Thermal Generation	214	214	211	211	208	209	206	203	203	436	431	425	428	726	721	712	712
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345
Imports	1 370	1 419	1 470	1 518	1 368	1 387	1 429	1 460	1 374	1 661	1 690	1 661	1 479	1 913	1 938	1 772	1 525
Total Power Resources	**45 181**	**45 288**	**45 352**	**45 412**	**45 269**	**45 315**	**45 372**	**45 405**	**45 243**	**45 811**	**45 876**	**45 816**	**45 546**	**46 368**	**46 403**	**46 169**	**45 827**
Demand																	
2012 Base Load Forecast	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	10																
Current Exports	1 752	1 752	1 752	1 752	409	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports	1 929	1 929	1 929	1 929	1 929	322											
Total Demand	**37 116**	**37 564**	**38 021**	**38 479**	**37 593**	**36 180**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
Exportable System Surplus	**8 065**	**7 725**	**7 331**	**6 933**	**7 676**	**9 135**	**9 057**	**8 632**	**8 013**	**8 123**	**7 731**	**7 213**	**6 485**	**6 850**	**6 427**	**5 735**	**4 936**

Alternative Development Plan 2 - No New Interconnection

System Supply & Demand Balance (GW.h) at Generation

Under Average of all Flow Conditions

2012 Base Load Forecast, 2012 DSM - Option 2

Kelsey Rerunnering, PTB rebuild 2030/31, Brandon Unit 5 Retirement 2019, Wuskwatim 2012/13, Bipole III Line ISD 2017

Supply Includes: SCGT's starting 2022/23, Conawapa ISD 2025/26

Demand includes: extension of the GRE 200 Diversity

Fiscal Year	2014/15	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
Power Resources																	
Hydro Generation	30 836	30 819	30 804	30 656	30 617	30 728	30 778	30 707	30 804	30 772	30 597	32 663	36 433	37 126	37 192	37 227	37 467
Bipole III				425	425	425	425	425	425	425	425	425	377	377	377	377	377
Thermal Generation	352	371	365	406	400	254	256	250	570	578	615	592	489	454	456	461	452
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	268	351	430	501	570	622	664	704	738	758	771	792	815	816	800	782	766
Imports	1 606	1 565	1 570	1 644	1 684	1 734	1 760	1 712	2 126	2 171	2 222	2 031	1 507	1 586	1 624	1 679	1 682
Total Power Resources	**33 975**	**34 020**	**34 083**	**34 546**	**34 609**	**34 675**	**34 796**	**34 710**	**35 577**	**35 616**	**35 544**	**37 415**	**40 535**	**41 273**	**41 362**	**41 439**	**41 657**
Demand																	
2012 Base Load Forecast	26 071	26 393	26 677	27 128	27 616	27 919	28 400	28 859	29 322	29 779	30 239	30 691	31 138	31 594	32 053	32 511	32 967
Non-Committed Construction Power				10	15	20	30	50	55	80	100	100	50	35	30	35	30
Current Exports	3 157	2 115	2 011	2 011	2 011	2 011	2 011	2 011	2 011	2 011	2 011	249	145	145	145	145	145
Proposed Exports		162	162	162	162	162	162	162	162	162	162						
Total Demand	**29 228**	**28 670**	**28 850**	**29 311**	**29 804**	**30 112**	**30 603**	**31 082**	**31 550**	**32 032**	**32 512**	**31 040**	**31 333**	**31 774**	**32 228**	**32 691**	**33 142**
Exportable System Surplus	**4 747**	**5 349**	**5 233**	**5 235**	**4 805**	**4 563**	**4 193**	**3 629**	**4 026**	**3 584**	**3 032**	**6 375**	**9 202**	**9 499**	**9 134**	**8 748**	**8 515**

Fiscal Year	2031/32	2032/33	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
Power Resources																	
Hydro Generation	37 554	37 613	37 641	37 692	37 730	37 711	37 645	37 770	37 822	37 728	37 787	37 864	37 810	37 740	37 833	37 914	37 795
Bipole III	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377	377
Thermal Generation	452	448	444	437	434	433	436	747	741	737	1 177	1 171	1 152	1 157	1 819	1 793	1 788
Wind	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914	914
Demand Side Management	766	753	728	693	661	633	608	579	550	523	497	475	447	421	396	370	345
Imports	1 726	1 762	1 799	1 833	1 871	1 871	1 852	2 170	2 182	2 156	2 504	2 520	2 510	2 490	2 801	2 797	2 780
Total Power Resources	**41 788**	**41 866**	**41 902**	**41 945**	**41 987**	**41 939**	**41 831**	**42 556**	**42 586**	**42 434**	**43 255**	**43 320**	**43 210**	**43 098**	**44 139**	**44 165**	**43 999**
Demand																	
2012 Base Load Forecast	33 425	33 882	34 340	34 798	35 255	35 713	36 170	36 628	37 085	37 543	38 001	38 458	38 916	39 373	39 831	40 288	40 746
Non-Committed Construction Power	10																
Current Exports	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Proposed Exports																	
Total Demand	**33 580**	**34 027**	**34 485**	**34 943**	**35 400**	**35 858**	**36 315**	**36 773**	**37 230**	**37 688**	**38 146**	**38 603**	**39 061**	**39 518**	**39 976**	**40 433**	**40 891**
Exportable System Surplus	**8 208**	**7 839**	**7 417**	**7 003**	**6 586**	**6 081**	**5 516**	**5 784**	**5 355**	**4 746**	**5 109**	**4 717**	**4 149**	**3 580**	**4 164**	**3 732**	**3 108**

C. RESOURCE OPTIONS SUMMARY TABLE

	Resource Option	Nominal Capacity (MW)	Flow Related Energy (GW.h)		Lead Time (years)
			Dependable	Average	
Conventional Hydro	Kepuche GS	210	900	1200	13
	Manasan GS (High Head)	270	1200	1500	14
	Manasan GS (Low Head)	70	400	500	13
	Birthday GS	320	-	2200	14
	Notigi GS	120	650	830	10
	First Rapids GS	210	1000	1300	14
	Granville GS	125	-	-	18
	Bonald GS	120	-	-	18
	Keeyask GS	695	2900	4430	7
	Conawapa GS	1485	4550	7000	13
	Gillam Island GS	1080	3800	5800	19
	Red Rock GS (Low Head)	250	800	1400	14
	Whitemud GS	310	1000	1800	14
Solar	Photovoltaic - Utility Scale	1-300	0-265	0-265	3
Wind	On-Shore Wind	70	193-209	227-245	3
Geo.	Enhanced Geothermal System Generation	10-50	85-415	85-415	5-7
Other Hydro	Small Hydro (Kinetic) Generation	1-100	8-790	8-790	-
	Small Hydro (Run-of-River) Generation	1-50	5-230	5-230	-
Gas	Heavy Duty Combined Cycle	310	2706	270-1600	3
	Heavy Duty Simple Cycle	210	1864	50-360	3
	Aeroderivative Simple Cycle	47	426	30-60	3
Coal	Integrated Gasification Combined Cycle & Carbon Capture	556	3899	-	-
	Integrated Gasification Combined Cycle	640	4490	-	-
	Subcritical Pulverized Coal Generation	400	2980	-	6
Nu.	Nuclear Power Plant	1350	10650	10650	11
Biomass	Agricultural Crop Residue-Fired Generation	30	225	225	3
	Wood Waste-Fired Generation	20	150	150	3
DSM	Additional Demand Side Management	174	815	815	-
Imp.	Imports Contractual Agreements	-	-	-	-