

Supply and Demand Tables
DSM Analysis
Plan 4 K19/Gas40/250MW (Hypothetical) – DSM Level 2

Note: Plan 4 is considered hypothetical from a business perspective as a 250 MW interconnection would require renegotiation of a contract with Minnesota Power which would not be expected to result in the same level of benefits given that the entire economic analysis is now in the public forum. MP has taken the position in its Certificate of Need filing on October 21, 2013 (Section 7.4.2.1 page 77) that “such a project would not meet the long-term needs of the region and would not prove to be cost-effective for customers or environmentally preferable over the long-term.” The 250MW interconnection is not likely to be approved by US authorities and proceed.

Date: April, 2014

**System Firm Winter Peak Demand and Capacity Resources (MW) @ generation
NFAT 2013 Update
(Hypothetical) K19/Gas40/250MW/ DSM Level 2**

Fiscal Year	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	2030/31							
Power Resources																									
New Power Resources																									
New Hydro																									
Conawapa																									
Keeyask																									
1							90	630	630	630	630	630	630	630	630	630	630	630	630						
Total New Hydro																									
New Thermal																									
SCGT																									
CCGT																									
2	Total New Thermal																								
New Imports																									
Contracted																									
Proposed																									
3	Total New Imports																								
4	Total New Power Resources						90	630	630	630	630	630	630	630	630	630	630	630	630						
Base Supply Power Resources																									
Existing Hydro																									
Existing Thermal																									
Brandon Coal - Unit 5																									
Selkirk Gas																									
Brandon Units 6-7 SCGT																									
Contracted Imports																									
Proposed Imports																									
Pointe du Bois Rebuild																									
Bipole III Reduced Losses																									
5	Total Base Supply Power Resources						6 059	6 183	6 286	6 289	6 402	6 405	6 303	6 295	6 298	6 301	6 301	6 301	5 916	5 916	5 916	5 916	5 916	5 916	5 741
6	Total Power Resources						6 059	6 183	6 286	6 289	6 402	6 405	6 393	6 925	6 928	6 931	6 931	6 931	6 546	6 546	6 546	6 546	6 546	6 546	6 371
Peak Demand																									
2013 Base Load Forecast																									
Less: Level 2 DSM Forecast																									
7	Manitoba Net Load						4 572	4 592	4 591	4 559	4 556	4 560	4 595	4 638	4 689	4 731	4 778	4 824	4 872	4 918	4 964	5 020	5 076	5 131	
Contracted Exports																									
Proposed Exports																									
8	Total Exports						605	605	413	413	413	413	413	633	880	880	880	880	385	385	275	275	275	275	275
9	Total Peak Demand						5 177	5 197	5 004	4 972	4 969	4 973	5 008	5 271	5 569	5 611	5 658	5 704	5 257	5 303	5 239	5 295	5 351	5 406	
10	Reserves						483	505	551	547	547	547	551	556	563	568	573	579	585	590	596	602	609	616	
11	System Surplus						399	481	731	770	886	885	834	1 098	796	752	700	648	704	653	711	649	586	349	
12	Less: Brandon Unit 5						- 105	- 105	- 105	- 105	- 105	- 105													
Exportable Surplus						294	376	626	665	781	780	834	1 098	796	752	700	648	704	653	711	649	586	349		

Date: April, 2014

**System Firm Winter Peak Demand and Capacity Resources (MW) @ generation
NFAT 2013 Update
(Hypothetical) K19/Gas40/250MW/ DSM Level 2**

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	2048/49	
Power Resources																			
New Power Resources																			
New Hydro																			
Conawapa																			
Keeyask																			
1	Total New Hydro	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
New Thermal																			
SCGT																			
CCGT																			
2	Total New Thermal									245	245	245	245	490	490	490	735	735	
New Imports																			
Contracted																			
Proposed																			
3	Total New Imports																		
4	Total New Power Resources 1+2+3	630	630	630	630	630	630	630	630	630	875	875	875	875	1 120	1 120	1 120	1 365	1 365
Base Supply Power Resources																			
Existing Hydro																			
Existing Thermal																			
Brandon Coal - Unit 5																			
Selkirk Gas																			
Brandon Units 6-7 SCGT																			
Contracted Imports																			
Proposed Imports																			
Pointe du Bois Rebuild																			
Bipole III Reduced Losses																			
5	Total Base Supply Power Resources	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741	5 741
6	Total Power Resources 4+5	6 371	6 371	6 371	6 371	6 371	6 371	6 371	6 371	6 616	6 616	6 616	6 616	6 861	6 861	6 861	7 106	7 106	
Peak Demand																			
2013 Base Load Forecast																			
Less: Level 2 DSM Forecast																			
7	Manitoba Net Load	5 886	5 959	6 032	6 105	6 178	6 251	6 324	6 396	6 469	6 542	6 615	6 688	6 761	6 834	6 907	6 979	7 052	7 125
Contracted Exports																			
Proposed Exports																			
8	Total Exports	275	275	275	275														
9	Total Peak Demand 7+8	5 460	5 514	5 569	5 623	5 402	5 457	5 514	5 571	5 630	5 690	5 749	5 809	5 882	5 955	6 028	6 100	6 173	6 246
10	Reserves	622	629	635	642	648	655	662	669	676	683	690	697	706	715	723	732	741	750
11	System Surplus 6-9-10	289	228	167	106	321	259	195	131	65	243	177	110	28	191	110	29	192	110
12	Less: Brandon Unit 5																		
	Exportable Surplus 11+12	289	228	167	106	321	259	195	131	65	243	177	110	28	191	110	29	192	110

Date: April, 2014

System Firm Energy Demand and Dependable Resources (GWh) @ generation
NFAT 2013 Update
(Hypothetical) K19/Gas40/250MW/ DSM Level 2

Fiscal Year	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	2030/31	
Power Resources																			
New Power Resources																			
New Hydro																			
Conawapa																			
Keeyask																			
1 Total New Hydro							493	2 974	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003	3 003
New Thermal																			
SCGT																			
CCGT																			
2 Total New Thermal																			
New Imports																			
Contracted																			
Proposed																			
3 Total New Imports							186	223	223	223	223	223	223	223	223	223	223	223	223
4 New Wind																			
5 Total New Power Resources 1+2+3+4							493	3 160	3 226	3 226	3 226	3 226	3 226	3 226	3 226	3 226	3 226	3 226	3 226
Base Supply Power Resources																			
Existing Hydro	21 914	21 912	21 911	21 899	21 888	21 880	21 862	21 854	21 846	21 838	21 838	21 828	21 818	21 818	21 808	21 798	21 798	21 788	
Existing Thermal																			
Brandon Coal - Unit 5	811	811	811	811	811	811	592												
Selkirk Gas	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953
Brandon Units 6-7 SCGT	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354	2 354
Contracted Imports	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	936	936	936	936	936	936	155
Hydro Adjustment	340	373	784	844	844	844	844	844	844	844	844	844	406	307	307	307	307	307	70
Market Purchases	363	338	583	493	493	493	493	493	493	493	493	493	1 860	2 131	2 131	2 131	2 131	2 131	2 913
Existing Wind	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771
Pointe du Bois Rebuild																			60
Bipole III Reduced Losses					190	190	190	202	202	202	202	202	202	202	202	202	202	202	202
6 Total Base Supply Power Resources	30 211	30 242	30 652	30 700	30 879	30 871	30 634	30 046	30 038	30 030	30 030	30 020	29 571	29 472	29 462	29 452	29 452	29 266	
7 Total Power Resources 5+6	30 211	30 242	30 652	30 700	30 879	30 871	31 127	33 206	33 264	33 256	33 256	33 246	32 797	32 698	32 688	32 678	32 678	32 492	
Manitoba Domestic Load																			
2013 Base Load Forecast	25 239	25 676	26 013	26 322	26 606	27 003	27 398	27 789	28 197	28 605	29 013	29 418	29 822	30 225	30 625	31 041	31 453	31 863	
Construction Power - Hydro	22	22	40	50	70	80	60	25						4	12	16	28	8	
Less: Level 2 DSM Forecast	- 138	- 382	- 637	- 1 196	- 1 475	- 1 840	- 2 062	- 2 217	- 2 325	- 2 459	- 2 552	- 2 653	- 2 751	- 2 858	- 2 961	- 3 032	- 3 099	- 3 166	
8 Manitoba Net Load	25 123	25 316	25 416	25 176	25 201	25 243	25 396	25 597	25 872	26 146	26 461	26 765	27 071	27 371	27 676	28 025	28 382	28 705	
Contracted Exports	3 156	3 156	2 115	2 012	2 012	2 012	2 012	3 048	4 191	4 314	4 314	4 314	2 031	1 887	1 472	1 389	1 389	1 389	
Proposed Exports			394	414	414	414	414	204	162	162	162	162	162	162	162	162	162	162	
Less: Adverse Water			- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 513	- 513	- 513	- 85						
9 Total Net Exports	3 156	3 156	2 200	2 056	2 056	2 056	2 056	2 882	3 864	3 963	3 963	3 963	2 108	2 049	1 634	1 551	1 551	1 389	
10 Total Energy Demand 8+9	28 279	28 472	27 616	27 232	27 257	27 299	27 452	28 479	29 736	30 109	30 424	30 728	29 179	29 420	29 310	29 576	29 933	30 094	
11 System Surplus 7-10	1 932	1 770	3 036	3 468	3 622	3 572	3 675	4 727	3 528	3 147	2 832	2 518	3 618	3 278	3 378	3 102	2 745	2 398	
12 Less : Brandon Unit 5	- 811	- 811	- 811	- 811	- 811	- 811	- 592												
13 Adverse Water			- 309	- 370	- 370	- 370	- 370	- 370	- 489	- 513	- 513	- 513	- 85						
Exportable Surplus 11+12+13	1 121	959	1 916	2 287	2 441	2 391	2 713	4 357	3 039	2 634	2 319	2 005	3 533	3 278	3 378	3 102	2 745	2 398	

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System Firm Energy Demand and Dependable Resources (GWh) @ generation
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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	2048/49
Power Resources																			
New Power Resources																			
	New Hydro																		
	Conawapa																		
	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
1	Total New Hydro	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
	New Thermal																		
	SCGT										1 857	1 857	1 857	1 857	3 714	3 714	3 714	5 571	5 571
	CCGT																		
2	Total New Thermal										1 857	1 857	1 857	1 857	3 714	3 714	3 714	5 571	5 571
	New Imports																		
	Contracted	223	223	223	223	37													
	Proposed																		
3	Total New Imports	223	223	223	223	37													
4	New Wind																		
5	Total New Power Resources	3 226	3 226	3 226	3 226	3 040	3 003	3 003	3 003	3 003	4 860	4 860	4 860	4 860	6 717	6 717	6 717	8 574	8 574
Base Supply Power Resources																			
	Existing Hydro	21 788	21 778	21 768	21 768	21 758	21 748	21 748	21 738	21 738	21 728	21 718	21 718	21 708	21 698	21 698	21 688	21 678	21 678
	Existing Thermal																		
	Brandon Coal - 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
	Contracted Imports																		
	Proposed Imports																		
	Hydro Adjustment																		
	Market Purchases	3 068	3 068	3 068	3 068	3 225	3 088	3 123	3 159	3 196	3 233	3 270	3 290	3 290	3 290	3 290	3 290	3 290	3 290
	Existing Wind	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771	771
	Pointe du Bois Rebuild	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
	Bipole III Reduced Losses	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202	202
6	Total Base Supply Power Resources	29 286	29 276	29 266	29 266	29 413	29 266	29 301	29 327	29 364	29 391	29 418	29 438	29 428	29 418	29 418	29 408	29 398	29 398
7	Total Power Resources	32 512	32 502	32 492	32 492	32 453	32 269	32 304	32 330	32 367	34 251	34 278	34 298	34 288	36 135	36 135	36 125	37 972	37 972
Manitoba Domestic Load																			
	2013 Base Load Forecast	32 265	32 667	33 069	33 471	33 873	34 274	34 676	35 078	35 480	35 882	36 283	36 685	37 087	37 489	37 890	38 292	38 694	39 096
	Construction Power - Hydro	8	4																
	Less: Level 2 DSM Forecast	-3 230	-3 292	-3 352	-3 412	-3 472	-3 534	-3 582	-3 631	-3 661	-3 691	-3 722	-3 752	-3 752	-3 752	-3 752	-3 752	-3 752	-3 752
8	Manitoba Net Load	29 043	29 379	29 717	30 059	30 401	30 740	31 094	31 447	31 819	32 191	32 561	32 933	33 335	33 737	34 138	34 540	34 942	35 344
	Contracted Exports	1 389	1 389	1 389	1 389	353	145	145	145	145	145	145	145	145	145	145	145	145	145
	Proposed Exports																		
	Less: Adverse Water																		
9	Total Net Exports	1 389	1 389	1 389	1 389	353	145	145	145	145	145	145	145	145	145	145	145	145	145
10	Total Energy Demand	30 432	30 768	31 106	31 448	30 754	30 885	31 239	31 592	31 964	32 336	32 706	33 078	33 480	33 882	34 283	34 685	35 087	35 489
11	System Surplus	2 080	1 734	1 386	1 044	1 699	1 384	1 065	738	403	1 915	1 572	1 220	808	2 253	1 852	1 440	2 885	2 483
12	Less : Brandon Unit 5																		
13	Adverse Water																		
	Exportable Surplus	2 080	1 734	1 386	1 044	1 699	1 384	1 065	738	403	1 915	1 572	1 220	808	2 253	1 852	1 440	2 885	2 483