



2011 Loss Factors

NOVEMBER 04, 2010

	Name	Signature	Date
Prepared by:	Ryan Fehr		2010/04/11
Reviewed by:	Ashikur Bhuiya, P.Eng.		Nov 04, 2010
Approved by:	John Esaiw		Nov 4/2010

APEGGA Permit to Practice P-08200



TABLE OF CONTENTS

1.0 PURPOSE 3

2.0 INTRODUCTION 3

3.0 2011 LOSS FACTORS..... 3

4.0 2011 AND 2010 LOSS FACTORS CALCULATION 6

5.0 2011 OVERALL LOSS FACTOR RESULTS 8

6.0 LOSS FACTOR MAP 9

7.0 CONCLUSION..... 9

APPENDIX I. CASE COMPARISON - AIL 11

APPENDIX II. LOAD DURATION CURVES 12

1.0 Purpose

The purpose of this document is to present the 2011 loss factors along with a brief explanation of the results or changes compared to 2010. A loss factor map is included. The loss factors published in this document will be effective from January 01, 2011 to December 31, 2011.

2.0 Introduction

The AESO has completed the final analysis of 2011 loss factors and the results are attached. The analysis includes the application of the 2011 Generic Stacking Order (GSO) results published earlier this summer and the 2011 Base Cases published on the AESO web site. Both the GSO and the Base Cases have been updated based on stakeholder input or more current information during the course of the final calculations and reposted. The requirements of the 2007 Transmission Regulation are included.

The loss factor calculation uses four key inputs; –

1. 2011 Generic Stacking Order (GSO)
2. New project data
3. Loss factor base cases based on 2011 GSO, load forecast and topology
4. Annual energy and loss volume forecast

The Rule governing the determination of the loss factors is located at www.aeso.ca > Rules & Procedures > ISO Rules > Current Rules. To summarize, loss factors for generators are calculated using the “50% Area Load Methodology Using Corrected Loss Matrix” methodology developed in 2005 with stakeholders and originally based on the 2004 Transmission Regulation and has been refined to include the requirements of the 2007 Transmission Regulation. Loss factors for opportunity services (demand and tie line) are based on their total impact on losses.

3.0 2011 Loss Factors

Table 1 shows the 2011 loss factors and Table 2 shows settlement loss

2011 Loss Factors

factors of the tie lines, respectively.

Table 1 – 2011 Final Loss Factors



2011 Alberta Loss Factors - 2010-11-01, Final

MP-ID*	Facility Name	PSS/E Bus	Normalized and Compressed Loss Factor (%)	Loss Factor Asset	Difference % in Loss Factor to System Average
0000034911	ALTAGAS PARKLAND	4235	-1.06	Gen	-5.19
NX01	BALZAC	290	-0.21	Gen	-4.34
BAR	BARRIER	216	-1.65	Gen	-5.78
BR3	BATTLE RIVER #3	1491	4.92	Gen	0.80
BR4	BATTLE RIVER #4	1491	4.92	Gen	0.80
BR5	BATTLE RIVER #5	1469	4.15	Gen	0.02
BCRK	BEAR CREEK G1	10142	-1.76	Gen	-5.88
BCR2	BEAR CREEK G2	10142	-1.76	Gen	-5.88
BPW	BEARSPAW	183	-1.13	Gen	-5.25
BLYR	BELLY RIVER IPP	447	0.46	Gen	-3.67
BIG	BIGHORN	103	1.60	Gen	-2.53
BTR1	BLUE TRAIL WIND FARM	328	1.06	Gen	-3.06
BRA	BRAZEAU	56153	1.57	Gen	-2.55
GOC1	BRIDGE CREEK	19145	0.00	Gen	-4.13
0000045411	BUCK LAKE	80	3.16	Gen	-0.96
TC01	CARSELAND	5251	-0.19	Gen	-4.32
CAS	CASCADE	175	-2.08	Gen	-6.21
CR1	CASTLE RIVER	234	0.59	Gen	-3.54
EC01	CAVAILIER	247	0.09	Gen	-4.04
CHIN	CHIN CHUTE	406	0.00	Gen	-4.13
CMH1	CITY OF MEDICINE HAT	680	-0.66	Gen	-4.79
ENC1	CLOVER BAR 1	516	4.09	Gen	-0.04
ENC2	CLOVER BAR 2	516	4.09	Gen	-0.04
ENC3	CLOVER BAR 3	516	4.09	Gen	-0.04
CNR5	CNRL HORIZON	1263	4.86	Gen	0.73
CRE1	COWLEY EXPANSION 1	264	2.42	Gen	-1.71
CRE2	COWLEY EXPANSION 2	264	2.42	Gen	-1.71
CRE3	COWLEY NORTH	264	2.42	Gen	-1.71
PKNE	COWLEY RIDGE WIND POWER PHASE1	264	2.42	Gen	-1.71
CRWD	COWLEY RIDGE WIND POWER PHASE2	264	2.42	Gen	-1.71
DAI1	DIASHOWA	1088	-0.54	Gen	-4.67
DKSN	DICKSON DAM 1	4006	3.91	Gen	-0.22
DOWGEN15M	DOW GTG	61	4.06	Gen	-0.06
DV1	DRAYTON VALLEY PL IPP	4332	0.00	Gen	-4.13
DRW1	DRYWOOD 1	4226	0.40	Gen	-3.73
Project462_1_SUP	ENEL ALBERTA CASTLE ROCK WIND FARM	221	0.82	Gen	-3.31
CES1	ENMAX CALGARY ENERGY CENTRE CTG	187	-0.07	Gen	-4.20
CES2	ENMAX CALGARY ENERGY CENTRE STG	187	-0.07	Gen	-4.20
FNG1	FORT NELSON	1016	4.15	Gen	0.02
Project837_1_GEN	FORTISALBERTA AL-PAC PULP MILL	2392	-3.48	Gen	-7.61
EC04	FOSTER CREEK G1	1301	4.98	Gen	0.85
0000001511	FT MACLEOD	4237	0.30	Gen	-3.83
GN1	GENESEE 1	525	5.80	Gen	1.67
GN2	GENESEE 2	525	5.80	Gen	1.67
GN3	GENESEE 3	525	5.80	Gen	1.67
GHO	GHOST	180	-1.69	Gen	-5.82
Project518_1_SUP	GHOST PINE WIND FARM	603	2.42	Gen	-1.71
0000022911	GLENWOOD	4245	0.23	Gen	-3.90
GPEC	GRANDE PRAIRIE ECOPOWER CENTRE	1101	-2.09	Gen	-6.21
Project723_1_SUP	GREENGATE HALKIRK WIND PROJECT	1435	4.92	Gen	0.79
HSH	HORSESHOE	171	-1.67	Gen	-5.80
HRM	HR MILNER	1147	1.92	Gen	-2.21
INT	INTERLAKES	376	-0.34	Gen	-4.46
KAN	KANANASKIS	193	-1.63	Gen	-5.76
KH1	KEEPHILLS #1	420	6.39	Gen	2.26
KH2	KEEPHILLS #2	420	6.39	Gen	2.26
Project_500_1	KEEPHILLS #3	610	5.73	Gen	1.61
KHW1	KETTLES HILL WIND ENERGY PHASE 2	402	0.84	Gen	-3.29
IOR1	MAHKESES COLD LAKE	56789	6.08	Gen	1.95
AKE1	McBRIDE	901	0.61	Gen	-3.51
MKRC	McKAY RIVER	1274	5.05	Gen	0.92
MEG1	MEG ENERGY	405	5.12	Gen	0.99
MKR1	MUSKEG	1236	5.14	Gen	1.01

2011 Loss Factors

MP-ID*	Facility Name	PSS/E Bus	Normalized and Compressed Loss Factor (%)	Loss Factor Asset	Difference % in Loss Factor to System Average
NX02	NEXEN OPTI	1241	5.96	Gen	1.83
NPP1	NORTHERN PRAIRIE POWER PROJECT	1120	-4.57	Gen	-8.70
NPC1	NORTHSTONE ELMWORTH	19134	-4.38	Gen	-8.51
NOVAGEN15M	NOVA JOFFRE	383	1.47	Gen	-2.66
OMRH	OLDMAN	230	0.83	Gen	-3.29
WEY1	P&G WEYERHAUSER	1141	-1.91	Gen	-6.04
0000039611	PINCHER CREEK	4224	0.72	Gen	-3.41
POC	POCATERRA	214	-1.03	Gen	-5.16
PH1	POPLAR HILL	1118	-4.51	Gen	-8.63
PR1	PRIMROSE	1302	3.81	Gen	-0.32
RB1	RAINBOW 1	1031	0.85	Gen	-3.28
RB2	RAINBOW 2	1032	0.26	Gen	-3.87
RB3	RAINBOW 3	1033	1.05	Gen	-3.07
RL1	RAINBOW 4	1035	1.43	Gen	-2.70
RB5	RAINBOW 5	1037	1.04	Gen	-3.09
RYMD	RAYMOND RESERVOIR	413	0.00	Gen	-4.13
TC02	REDWATER	50	3.80	Gen	-0.33
RUN	RUNDLE	56197	-1.72	Gen	-5.85
SH1	SHEERNESS #1	1484	3.07	Gen	-1.06
SH2	SHEERNESS #2	1484	3.07	Gen	-1.06
SHCG	SHELL CAROLINE	3370	-0.91	Gen	-5.04
SCTG	SHELL SCOTFORD	43	3.69	Gen	-0.44
GWW1	SODERGLÉN	358	1.27	Gen	-2.86
SPR	SPRAY	310	-1.76	Gen	-5.89
0000038511	SPRING COULEE	4246	-1.45	Gen	-5.58
STMY	ST MARY IPP	3448	0.00	Gen	-4.13
0000006711	STIRLING	4280	-0.31	Gen	-4.43
ST1	STURGEON 1	1166	-0.26	Gen	-4.38
ST2	STURGEON 2	1166	-0.26	Gen	-4.38
IEW1	SUMMERVIEW 1	336	1.20	Gen	-2.92
IEW2	SUMMERVIEW 2	336	1.20	Gen	-2.92
CRS1	SUMMIT CROSSFIELD ENERGY CENTRE	503	0.08	Gen	-4.04
CRS2	SUMMIT CROSSFIELD ENERGY CENTRE	503	0.08	Gen	-4.04
CRS3	SUMMIT CROSSFIELD ENERGY CENTRE	503	0.08	Gen	-4.04
SCR3	SUNCOR HILLRIDGE WIND FARM	389	-0.21	Gen	-4.34
SCR2	SUNCOR MAGRATH	251	0.53	Gen	-3.59
SCR1	SUNCOR MILLENIUM	1208	5.25	Gen	1.12
SD1	SUNDANCE #1	135	5.22	Gen	1.10
SD2	SUNDANCE #2	135	5.22	Gen	1.10
SD3	SUNDANCE #3	135	5.22	Gen	1.10
SD4	SUNDANCE #4	135	5.22	Gen	1.10
SD5	SUNDANCE #5	135	5.22	Gen	1.10
SD6	SUNDANCE #6	135	5.22	Gen	1.10
SCL1	SYNCRUDE	1205	5.03	Gen	0.90
TAB1	TABER WIND	343	-0.81	Gen	-4.93
TAY1	TAYLOR HYDRO	670	0.82	Gen	-3.31
TAY2	TAYLOR WIND PLANT	670	0.82	Gen	-3.31
THS	THREE SISTERS	379	-1.76	Gen	-5.88
ARD1	TRANSALTA ARDENVILLE WIND FARM	739	1.29	Gen	-2.84
VVW1	VALLEYVIEW 1	1171	0.60	Gen	-3.53
VVW2	VALLEYVIEW 2	1172	0.45	Gen	-3.68
WTRN	WATER IPP	3449	0.00	Gen	-4.13
0000040511	WAUPISOO	2417	-1.72	Gen	-5.85
WST1	WESGEN	14	0.00	Gen	-4.13
EAGL	WHITE COURT	410	0.00	Gen	-4.13
0000016301	Amoco Empress (163S)	262	0.75	DOS	-3.37
0000079301	ANG Cochrane (793S)	191	3.67	DOS	-0.46
341S025	Syncrude Standby (848S)	1200	-4.40	DOS	-8.53

Notes:

* MP-ID - point where loss factors assessed

For loss factors, "-" means credit, "+" means charge

Loss factors effective from January 01, 2011 to December 31 2011.

System Average Losses, %: **4.13**

For more information, please visit www.aeso.ca

Table 2 – 2011 Tie Loss Factors

Tie	Transaction Type	Loss Factor (%)	Average Loss Charge (%)	Settlement LF (%)
BC	Import	-0.45	0.98	0.53
	Export	-	1.02	1.02
SK	Import	0.91	2.50	3.41
	Export	-	2.30	2.30

4.0 2011 and 2010 Loss Factors Calculation

The following items illustrate the similarities and major differences between the 2011 and 2010 loss factors:

1. Load Treatment in the Loss Factor Software – Again in the 2011 loss factor calculation, only transmission loads were unassigned and were not included in the calculation to be consistent with our methodology. This refinement continues to represent the most appropriate load assignment process. The loss factors are based on generation less the behind the fence load levels at all relevant Generation Buses while maintaining the appropriate GSO level at the MPID bus.
2. Generation & Load Levels – The 2010 Generic Stacking Order was used to populate the loss factor base cases for the 2010 loss factor calculation. The 2011 GSO has been utilized in the same way for the 2011 Cases. The 2011 and 2010 loss factors use actual average generation levels to determine loss factors based on the AESO Rule. Please refer to Appendix-I for a sample comparison. In general, the total gross generation level is higher in the 2011 cases as behind-the-fence loads are added. The addition of behind-the-fence loads has no impact on the loss factor calculation. The load is scaled down in all twelve 2011 cases to meet the total GSO capacity. The seasonal load duration curves are included in Appendix II.
3. Additions and Decommissioning of Generation – Changes in the existing

generators' net to grid (NTG) output include an overall reduction in output for the province's coal units. The reduction in generation is in part due to scheduled outages, forced outages, and overall flattening of Alberta demand due mainly to the recent recession. There are a number of new generators in the new 2011 loss factor base cases. The most significant addition is Keephills 3 (KH3), added in all cases, but due to its commissioning it will not be at its maximum capacity for few months in 2011 for some time. Other additions include south wind generation projects added according to their in-service-date. The only major generator decommissioning is Wabamum 4 which is out of service in all cases.

4. Small Power Research and Development (SPR&D) Generators – The SPR&D Act exempted a number of generators from paying transmission losses based on a SPR&D contract. These contracts were valid for 20 years and starting in 2011, some of the SPR&D contracts will expire. Accordingly, former SPR&D contract holders Belly River and Dickson Dam are included in the 2011 loss factor calculation.
5. ISD Equivalents – The Industrial System Designations (ISD's) are modeled in the same way as they were modeled in the 2010 cases. The total ISD load and generations are modeled at the ISD interface bus with the rest of the AIES.
6. Inter Tie Flows –The 2007 Transmission Regulation directs the use of same loss factor calculation methodology (average impact on system losses) for all loss factor customers. The Regulation now includes using the historical average net flow on the tie lines in the 2011 base cases. The 2011 import loss factors are lower primarily because of lower import from BC compared to 2010.
7. Topology – In the 2011 cases, additions during 2010 and expected additions in 2011 have been added. The major 2011 transmission projects are the large staged reinforcement projects including the North West, South, Hanna, Fort McMurry along with the staged Edmonton/Wabamum

2011 Loss Factors

congestion reduction project. All other 2011 system additions (such as the Substation 6 addition, et al) have been modeled in the 2011 cases.

8. Average System Losses and Shift Factor – the annual loss forecast for 2011 is 2.53 TWH or 4.13%. Please refer to Table 3 to see the effects of the change in average losses.

Table 3 – 2011 vs. 2010 Final Loss Factors

	2011	2011
System average loss	4.42%	4.13%
Shift Factor	1.05%	0.76%
Loss recovered by Raw Loss Factor	3.37%	3.37%

9. Weighting Factor – In a continuing effort to enhance accuracy, the AESO has applied unequal weighting factors to the raw loss factors based on historical load levels. Please see Table 4 for the 2011 weighting factors used in the loss factor calculation.

Table 4 – 2011 Weighting Factors

	Winter		Spring		Summer		Fall	
	Duraion	Weight	Duraion	Weight	Duraion	Weight	Duraion	Weight
High	125	5.8%	50	2.3%	100	4.5%	75	3.4%
Medium	1100	50.9%	1350	61.2%	1225	55.5%	1300	59.5%
Low	935	43.3%	807	36.6%	883	40.0%	810	37.1%

5.0 2011 Overall Loss Factor Results

The 2011 loss factors are similar to the 2010 loss factors with some minor changes reflecting the results of load scaling, dispatched generation, load and transmission projects. The high level results are summarized below:

1. The Rainbow area has less charges or more credit than in the 2010 Loss Factors. The flow out of the Rainbow area has decreased considerably and it is reflected in the loss factors. The Rainbow area loss factors are

historically sensitive to load and generation changes. A small deviation in the Rainbow Area net flow can result in a swing in the loss factors on the generators. The loss factor sensitivity in the area is consistent with previous years' findings.

2. The South area receives less charges/more credit compared to 2010. Lower import from BC drove these changes to loss factors in 2011. The South area also benefited from transmission infrastructure as part of the Brooks Area Transmission Development project.
3. The Sundance generators in Lake Wabamun benefit from congestion reduction project and lower generation output as a result their loss factors are lower relative to the 2010 loss factors. The Keephills and Genesee generators loss factors went up primarily due to intermediate stage of the congestion reduction project and higher generation. Their loss factor will decrease once the full congestion reduction project is implemented.
4. Sheerness loss factors are lower in 2011 due to lower generation in the area.
5. The Fort McMurray area loss factors are lower in 2011 due to the combination of greater transmission load and lower generation in the area.

6.0 Loss Factor Map

The AESO has provided a loss factor map (Figure #1) showing the maximum and minimum loss factors in each area. The tie lines and DOS loss factors are also shown. Each facility with a loss factor is shown in the designated area. Average historical flows (January 01, 2010 – September 30, 2010), in response to stakeholder requests, are included.

7.0 Conclusion

The AESO has published the 2011 loss factors as per the Loss Factor Rule, and has made the calculation and provided results using the best information available. The data process includes gathering data from the billing system, new customer facilities, and system load and topology features. The loss

2011 Loss Factors

factor software was updated to reflect the 2007 Transmission Regulation changes. The AESO performs the loss factor calculation process initially and has the results independently run for comparison purposes. Again, the independent test for 2011 has yielded the same final results.

The AESO published the draft values on October 22, 2010 for stakeholders' review. The AESO has made some changes in the base cases and the base cases have been updated on the AESO web site. The 2011 loss factors will be applicable from January 01 to December 31 2011.

2011 Loss Factors

APPENDIX I. Case Comparison - AIL

Winter Peak Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		9493.6	133.6	9627.2	21.3	313.0	398.5	-
2010		9253.1	246.0	9499.1	21.4	308.5	459.9	-
2011 - 2010		240.6	-112.4	128.2	-0.1	4.5		

Winter Medium Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		8828.6	149.7	8978.3	21.4	293.3	187	-
2010		8888.3	227.3	9115.6	21.5	276.9	209.1	-
2011 - 2010		-59.7	-77.6	-137.3	-0.1	16.4		

Winter Low Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		8052.8	199.0	8251.8	21.3	273.4	-	90.8
2010		7811.4	357.6	8169.0	21.5	265.8	-	155.3
2011 - 2010		241.4	-158.6	82.8	-0.2	7.6		

Spring Peak Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2010		8805.9	155.3	8961.2	21.6	252.1	371.7	-
2010		8688.5	230.3	8918.8	21.5	258.4	402.8	-
2011 - 2010		117.4	-75.0	42.4	0.1	-6.3		

Spring Medium Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		8593.8	155.1	8748.9	21.3	240.7	246.2	-
2010		8132.6	215.7	8348.3	21.5	232.5	173.3	-
2011 - 2010		461.2	-60.6	400.6	-0.2	8.2		

Spring Low Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		7413.5	167.0	7580.5	21.5	208.9	-	52.1
2010		7368.2	214.4	7582.6	21.3	201.8	-	20.2
2011 - 2010		45.3	-47.4	-2.1	0.2	7.1		

Summer Peak Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		9381.1	161.6	9542.7	21.4	293.8	385.4	-
2010		9010.3	227.6	9237.9	21.5	273.8	408.4	-
2011 - 2010		370.8	-66.0	304.8	-0.1	20.0		

Summer Medium Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		8329.4	159.8	8489.2	21.5	247.6	96.4	-
2010		8256.3	251.7	8508.0	21.5	229.7	147.6	-
2011 - 2010		73.1	-91.9	-18.8	0.0	17.9		

Summer Low Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		7184.5	258.0	7442.5	21.7	218.5	-	141.7
2010		7227.4	242.4	7469.8	21.7	174.9	185.4	-
2011 - 2010		-42.9	15.6	-27.3	0.0	43.6		

Fall Peak Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		9249.5	164.7	9414.2	21.7	277.7	229.9	-
2010		9249.1	266.4	9515.5	21.7	295.7	359	-
2011 - 2010		0.4	-101.7	-101.3	0.0	-18.0		

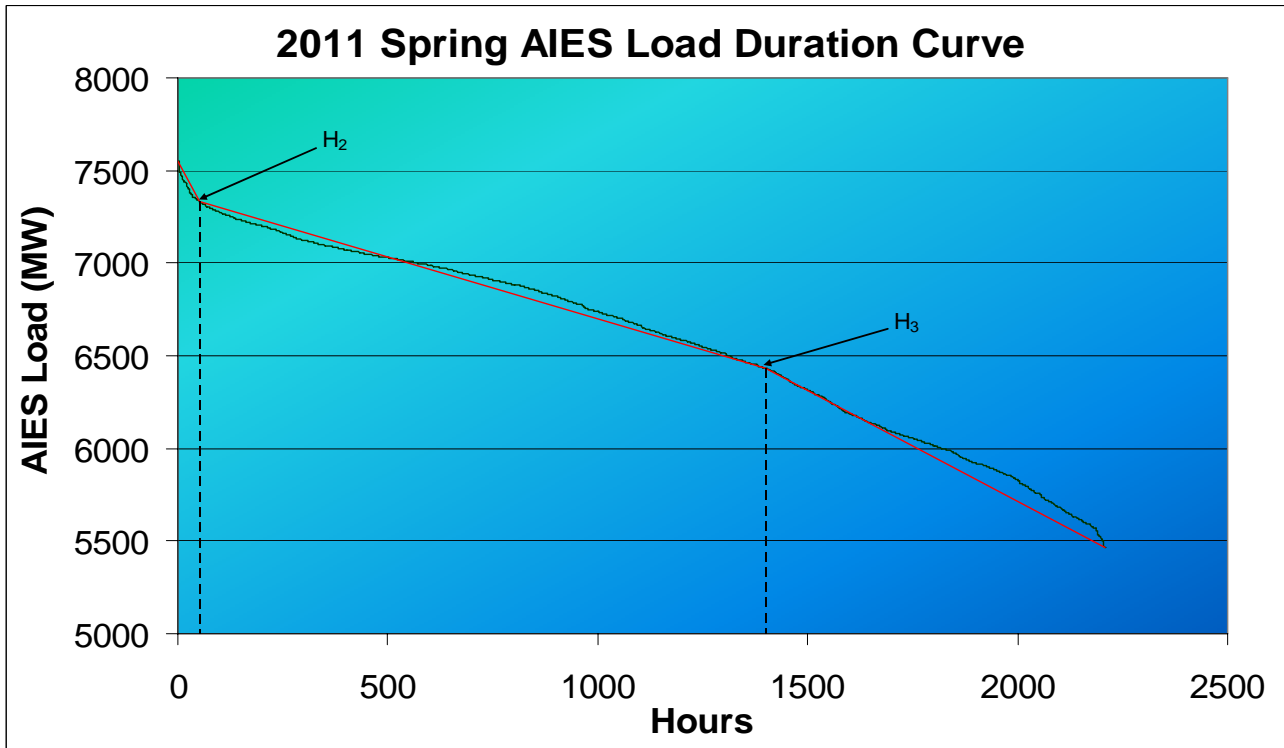
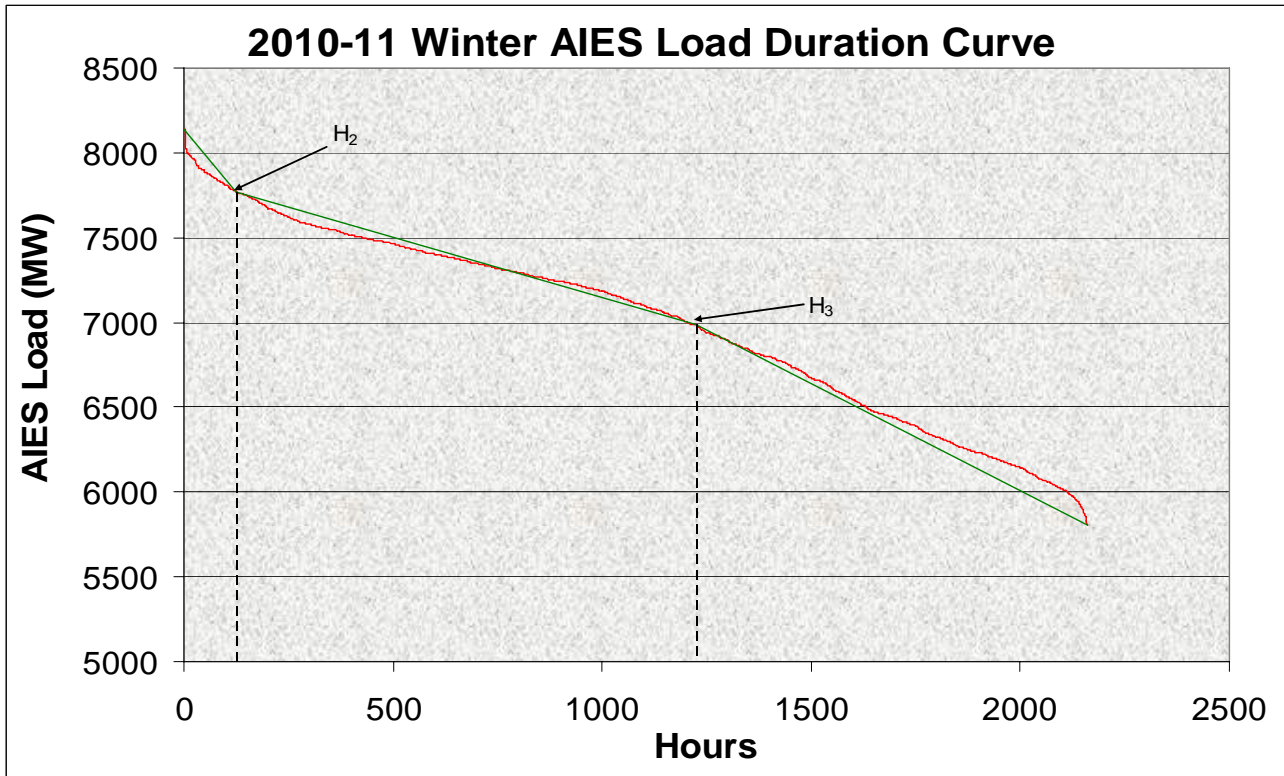
Fall Medium Case

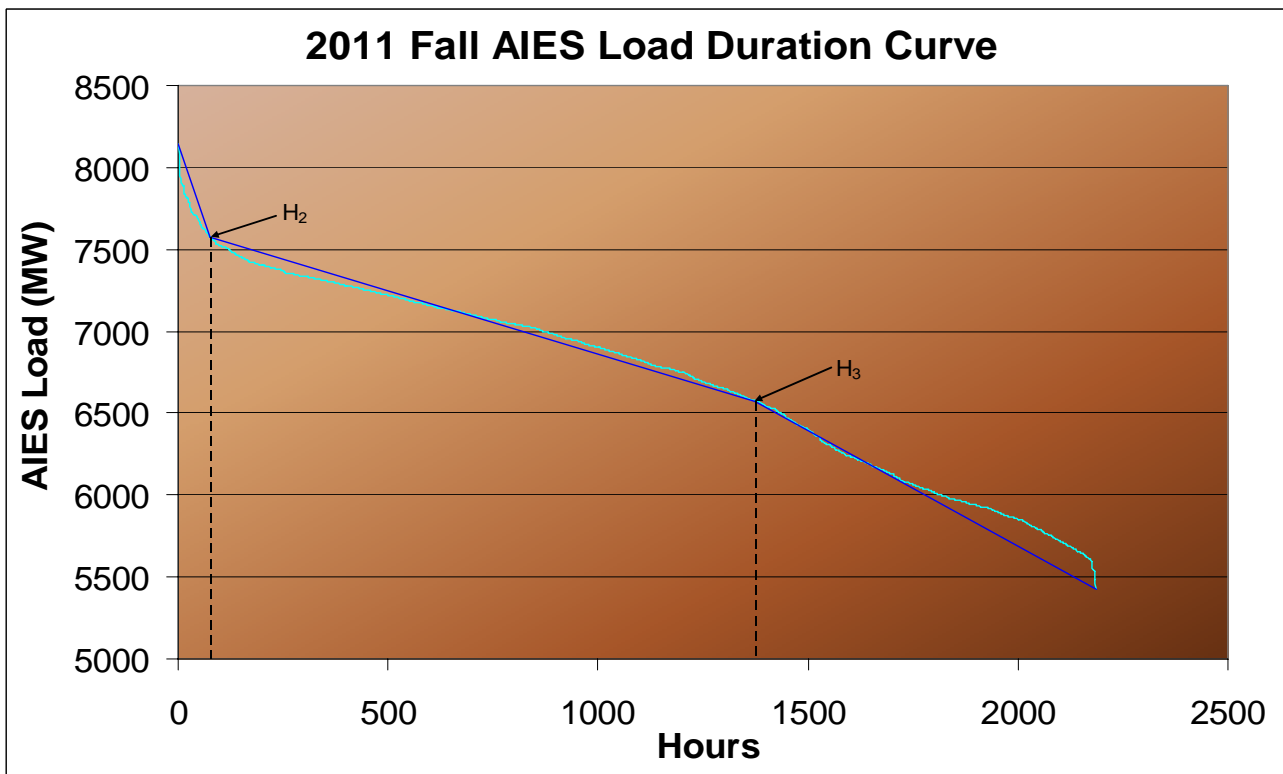
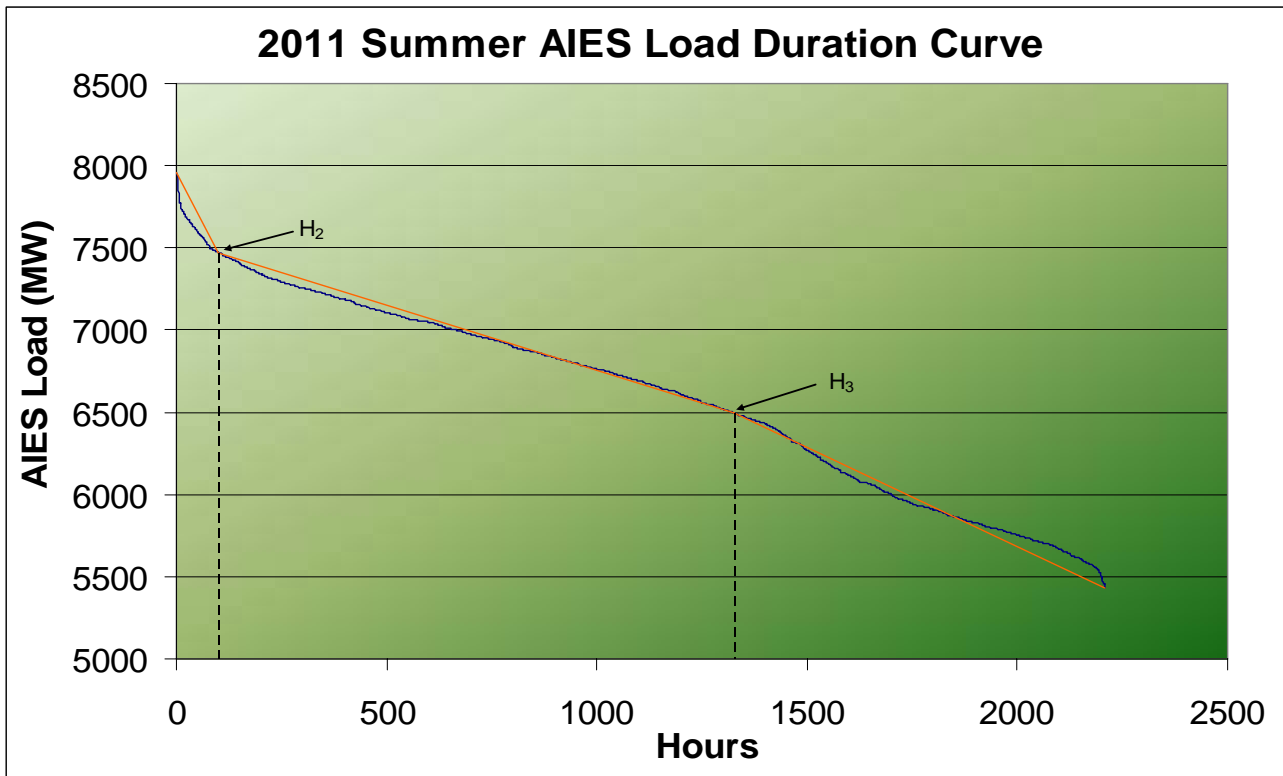
	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		8429.1	156.6	8585.7	21.7	258.8	105.5	-
2010		8529.7	252.8	8782.5	21.7	262.2	267.4	-
2011 - 2010		-100.7	-96.2	-196.9	0.0	-3.4		

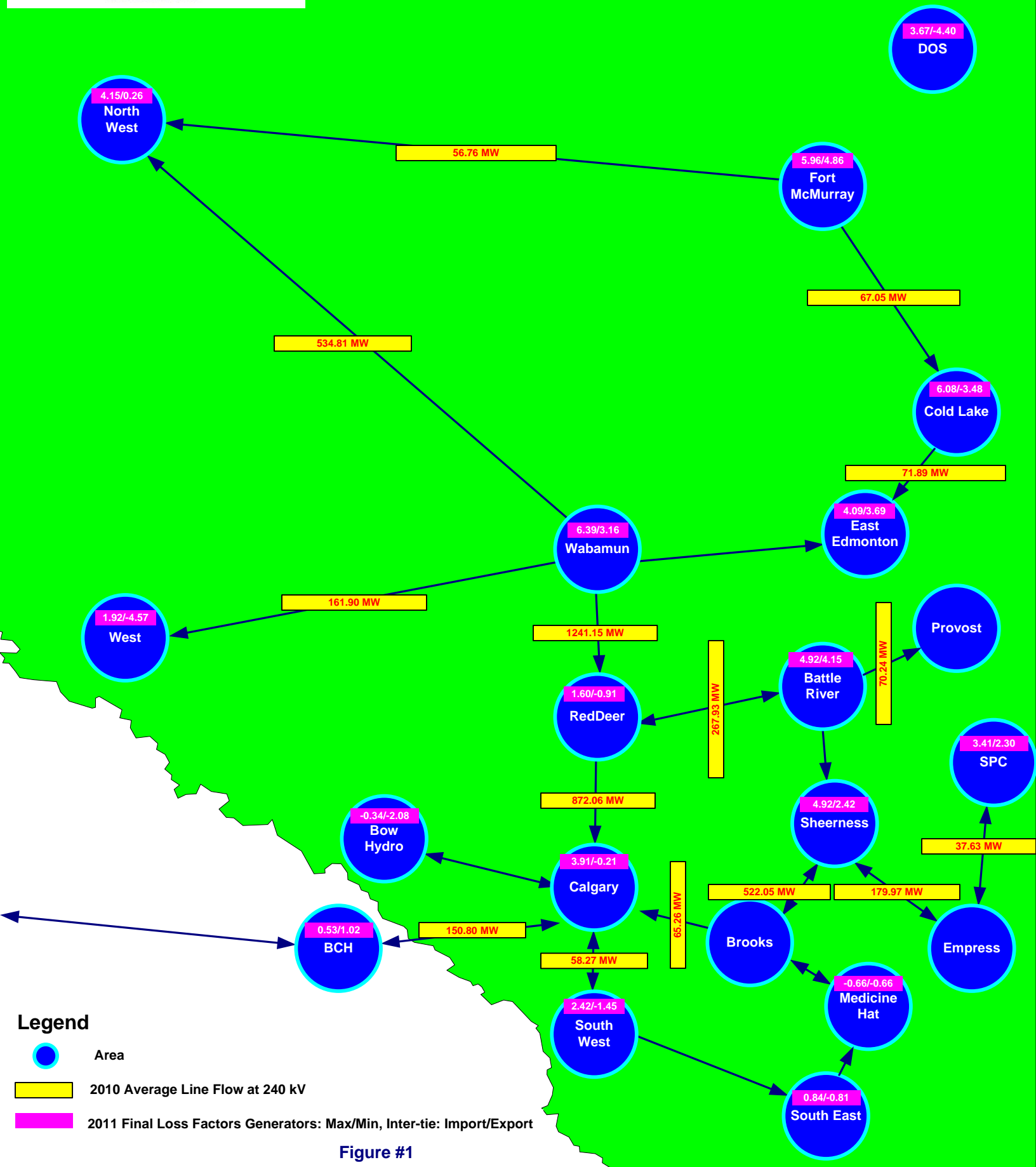
Fall Low Case

	Generation (MW)	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
		Static	Motor	Total	Shunt	Transmission		
2011		7783.4	303.8	8087.2	21.7	238.3	-	136.8
2010		7500.0	274.7	7774.7	21.9	220.1	-	67.7
2011 - 2010		283.4	29.1	312.5	-0.2	18.2		

APPENDIX II. Load Duration Curves







Legend

- Area
- 2010 Average Line Flow at 240 kV
- 2011 Final Loss Factors Generators: Max/Min, Inter-tie: Import/Export

Figure #1

Location	MPID	Loss Factor(%)	Gen Name
North West	RB1	0.85	RAINBOW 1
	RB2	0.26	RAINBOW 2
	RB3	1.05	RAINBOW 3
	RL1	1.43	RAINBOW 4
	RB5	1.04	RAINBOW 5
	FNG1	4.15	FORT NELSON
West	HRM	1.92	HR MILNER
	PH1	-4.51	POPLAR HILL
	NPC1	-4.38	NORTHSTONE ELMWORTH
	DAI1	-0.54	DIASHOWA
	BCR2	-1.76	BEAR CREEK G2
	BCRK	-1.76	BEAR CREEK G1
	GPEC	-2.09	GRANDE PRAIRIE ECOPOWER CENTRE
	ST1	-0.26	STURGEON 1
	ST2	-0.26	STURGEON 2
	VVW1	0.60	VALLEYVIEW 1
	VVW2	0.45	VALLEYVIEW 2
	WEY1	-1.91	P&G WEYERHAUSER
	NPP1	-4.57	NORTHERN PRAIRIE POWER PROJECT
Fort McMurray	MKR1	5.14	MUSKEG
	MKRC	5.05	McKAY RIVER
	SCL1	5.03	SYNCRUDE
	SCR1	5.25	SUNCOR MILLENIUM
	NX02	5.96	NEXEN OPTI
	MEG1	5.12	MEG ENERGY
	CNR5	4.86	CNRL HORIZON
Wabamun	GN1	5.80	GENESEE 1
	GN2	5.80	GENESEE 2
	GN3	5.80	GENESEE 3
	KH1	6.39	KEEPHILLS #1
	KH2	6.39	KEEPHILLS #2
	Project_500_1	5.73	KEEPHILLS #3
	SD1	5.22	SUNDANCE #1
	SD2	5.22	SUNDANCE #2
	SD3	5.22	SUNDANCE #3
	SD4	5.22	SUNDANCE #4
	SD5	5.22	SUNDANCE #5
	SD6	5.22	SUNDANCE #6
	0000045411	3.16	BUCK LAKE
	IOR1	6.08	MAHKESES COLD LAKE
	PR1	3.81	PRIMROSE

Cold Lake	EC04	4.98	FOSTER CREEK G1
	0000040511	-1.72	WAUPISOO
	Project837_1_GEN	-3.48	FORTISALBERTA AL-PAC PULP MILL
East Edmonton	SCTG	3.69	SHELL SCOTFORD
	TC02	3.80	REDWATER
	ENC1	4.09	CLOVER BAR 1
	ENC2	4.09	CLOVER BAR 2
	ENC3	4.09	CLOVER BAR 3
	DOWGEN15M	4.06	DOW GTG
Red Deer	NOVAGEN15M	1.47	NOVA JOFFRE
	BIG	1.60	BIGHORN
	BRA	1.57	BRAZEAU
	SHCG	-0.91	SHELL CAROLINE
Calgary	CES1	-0.07	ENMAX CALGARY ENERGY CENTRE CTG
	CES2	-0.07	ENMAX CALGARY ENERGY CENTRE STG
	TC01	-0.19	CARSELAND
	EC01	0.09	CAVAILIER
	NX01	-0.21	BALZAC
	DKSN	3.91	DICKSON DAM 1
	CRS1	0.08	SUMMIT CROSSFIELD ENERGY CENTRE
	CRS2	0.08	SUMMIT CROSSFIELD ENERGY CENTRE
	CRS3	0.08	SUMMIT CROSSFIELD ENERGY CENTRE
Bow Hydro	BAR	-1.65	BARRIER
	BPW	-1.13	BEARSPAW
	CAS	-2.08	CASCADE
	GHO	-1.69	GHOST
	HSR	-1.67	HORSESHOE
	KAN	-1.63	KANANASKIS
	POC	-1.03	POCATERRA
	INT	-0.34	INTERLAKES
	RUN	-1.72	RUNDLE
	THS	-1.76	THREE SISTERS
	SPR	-1.76	SPRAY
South East	SCR2	0.53	SUNCOR MAGRATH
	TAY1	0.82	TAYLOR HYDRO
	TAY2	0.82	TAYLOR WIND PLANT
	0000006711	-0.31	STIRLING
	SCR3	-0.21	SUNCOR HILLRIDGE WIND FARM
	TAB1	-0.81	TABER WIND
	BLYR	0.46	BELLY RIVER IPP
	KHW1	0.84	KETTLES HILL WIND ENERGY PHASE 2
BR3	4.92	BATTLE RIVER #3	

Battle River	BR4	4.92	BATTLE RIVER #4
	BR5	4.15	BATTLE RIVER #5
Medicine Hat	CMH1	-0.66	CITY OF MEDICINE HAT
Sheerness	SH1	3.07	SHEERNESS #1
	SH2	3.07	SHEERNESS #2
	Project518_1_SUP	2.42	GHOST PINE WIND FARM
	Project723_1_SUP	4.92	GREENGATE HALKIRK WIND PROJECT
South West	AKE1	0.61	McBRIDE
	DRW1	0.40	DRYWOOD 1
	IEW1	1.20	SUMMERVIEW 1
	IEW2	1.20	SUMMERVIEW 2
	CR1	0.59	CASTLE RIVER
	OMRH	0.83	OLDMAN
	0000022911	0.23	GLENWOOD
	0000039611	0.72	PINCHER CREEK
	0000038511	-1.45	SPRING COULEE
	CRE1	2.42	COWLEY EXPANSION 1
	CRE2	2.42	COWLEY EXPANSION 2
	CRE3	2.42	COWLEY NORTH
	CRWD	2.42	COWLEY RIDGE WIND POWER PHASE2
	0000001511	0.30	FT MACLEOD
	PKNE	2.42	COWLEY RIDGE WIND POWER PHASE1
	GWW1	1.27	SODERGLEN
	0000034911	-1.06	ALTAGAS PARKLAND
	BTR1	1.06	BLUE TRAIL WIND FARM
	ARD1	1.29	TRANSALTA ARDENVILLE WIND FARM
	Project462_1_SUP	0.82	ENEL ALBERTA CASTLE ROCK WIND FARM
BCH	BCHIMP	0.53	BCH - Export
	BCHEXP	1.02	BCH - Import
SPC	SPCIMP	3.41	SPC - Export
	SPCEXP	2.30	SPC - Import
DOS	0000016301	0.75	Amoco Empress (163S)
	0000079301	3.67	ANG Cochrane (793S)
	341S025	-4.40	Syncrude Standby (848S)