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ALBERTA ELECTRIC SYSTEM OPERATOR

2008 Loss Factors

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1.0 Purpose

The purpose of this document is to present the 2008 loss factors complete with a brief explanation of changes. A loss factor map is included.

2.0 Introduction

The AESO has completed the final calculation and analysis of 2008 loss factors and the results are attached. The analysis includes the application of the 2008 Generic Stacking Order (GSO) results published earlier this summer and the 2008 Base Cases published in September on the AESO web site. Both the GSO and the Base Cases have been updated during the course of the final calculations and reposted.

The loss factor calculation uses four key inputs; –

1. 2008 Generic Stacking Order (GSO)
2. New project data
3. Loss factor base cases based on 2008 GSO, load forecast and topology
4. Annual energy and loss volume forecast

Starting in 2006, the Rule governing the determination of the loss factors can be located at **www.aeso.ca** > Rules & Procedures > ISO Rules > Current Rules. In summary, loss factor for generators are calculated based using "50% Area Load Methodology Using Corrected Loss Matrix" methodology and loss factors for opportunity services (demand and tie) are based on their total impact on losses.

3.0 2008 Loss Factors

Table 1 shows the 2008 loss factors.

Table 1 – 2008 Final Loss Factors

2008 Alberta Loss Factors. 2007-12-04, Final

MP-ID*	Facility Name	PSS/E Bus	Normalized and Compressed Loss Factor (%)	Loss Factor Asset	Difference % in Loss Factor to System Average
0000016301	Amoco Empress (163S)	262	**4.95**	DOS	0.14
0000079301	ANG Cochrane (793S)	191	**8.49**	DOS	3.68
NX01	BALZAC	290	**-0.38**	Gen	-5.19
BAR	BARRIER	216	**-1.99**	Gen	-6.80
BR3	BATTLE RIVER #3	1491	**4.83**	Gen	0.02
BR4	BATTLE RIVER #4	1491	**4.83**	Gen	0.02
BR5	BATTLE RIVER #5	1469	**4.01**	Gen	-0.80
BCHEXP	BCH - Export	56765	**5.60**	Exp	0.79
BCHIMP	BCH - Import	56765	**-1.73**	Imp	-6.54
BCRK	BEAR CREEK G1	10142	**-0.24**	Gen	-5.05
BCR2	BEAR CREEK G2	10142	**-0.24**	Gen	-5.05
BPW	BEARSPAW	183	**-1.43**	Gen	-6.24
BIG	BIGHORN	103	**2.35**	Gen	-2.46
BRA	BRAZEAU	153	**2.64**	Gen	-2.17
0000045411	BUCK LAKE	80	**3.63**	Gen	-1.18
CES1	CALPINE CTG	187	**-0.33**	Gen	-5.14
CES2	CALPINE STG	187	**-0.33**	Gen	-5.14
TC01	CARSELAND	5251	**-0.41**	Gen	-5.22
CAS	CASCADE	175	**-2.54**	Gen	-7.35
CR1	CASTLE RIVER	234	**1.24**	Gen	-3.57
EC01	CAVAILIER	247	**0.14**	Gen	-4.67
CMH1	CITY OF MEDICINE HAT	680	**-0.38**	Gen	-5.19
ENC1	CLOVER BAR PEAKER (STAGE 1 - LM6000)	516	**4.80**	Gen	-0.01
CRE1	COWLEY EXPANSION 1	264	**3.17**	Gen	-1.64
CRE2	COWLEY EXPANSION 2	264	**3.17**	Gen	-1.64
CRE3	COWLEY NORTH	264	**3.17**	Gen	-1.64
PKNE	COWLEY RIDGE WIND POWER PHASE1	264	**3.17**	Gen	-1.64
CRWD	COWLEY RIDGE WIND POWER PHASE2	264	**3.17**	Gen	-1.64
DAI1	DIASHOWA	1088	**-1.40**	Gen	-6.21
DOWLOD15M	DOW Ft Saskatchewan ISD	9961	**-3.97**	DOS	-8.78
DOWGEN15M	DOW GTG	61	**4.62**	Gen	-0.19
DRW1	DRYWOOD 1	4226	**0.71**	Gen	-4.10
FNG1	FORT NELSON	1016	**1.19**	Gen	-3.62
EC04	FOSTER CREEK G1	1301	**6.16**	Gen	1.35
0000001511	FT MACLEOD	4237	**-0.41**	Gen	-5.22
GN1	GENESEE 1	525	**6.39**	Gen	1.58
GN2	GENESEE 2	525	**6.39**	Gen	1.58
GN3	GENESEE 3	525	**6.39**	Gen	1.58
GHO	GHOST	180	**-1.80**	Gen	-6.61
0000022911	GLENWOOD	4245	**0.68**	Gen	-4.13
GPEC	GRANDE PRAIRIE ECOPOWER CENTRE	1101	**-0.75**	Gen	-5.56
HSH	HORSESHOE	171	**-1.98**	Gen	-6.79
HRM	HR MILNER	1147	**3.19**	Gen	-1.62
INT	INTERLAKES	376	**-1.51**	Gen	-6.32
KAN	KANANASKIS	193	**-1.89**	Gen	-6.70
KH1	KEEPHILLS #1	420	**6.35**	Gen	1.54
KH2	KEEPHILLS #2	420	**6.35**	Gen	1.54
KHW1	KETTLES HILL WIND ENERGY PHASE 2	402	**1.43**	Gen	-3.38
IOR1	MAHKESES, COLD LAKE	56789	**6.76**	Gen	1.95
MATL_EXP	MATL - Export	451	**4.69**	Exp	-0.12
MATL_IMP	MATL - Import	451	**-1.87**	Imp	-6.68
AKE1	McBRIDE	901	**0.83**	Gen	-3.98
MKRC	McKAY RIVER	1274	**5.97**	Gen	1.16
Project_444_2	MEG ENERGY	405	**5.93**	Gen	1.12
MKR1	MUSKEG	1236	**6.13**	Gen	1.32
NX02	NEXEN OPTI	1241	**5.21**	Gen	0.40
Project672_1_SUP	Northern Prairie Power Project	1120	**1.01**	Gen	-3.80
NPC1	NORTHSTONE ELMWORTH	19134	**-1.92**	Gen	-6.73
NOVAGEN15M	NOVA_JOFFRE	383	**1.52**	Gen	-3.29
OMRH	OLDMAN	230	**1.71**	Gen	-3.10
WEY1	P&G WEYERHAUSER	1141	**1.18**	Gen	-3.63
Project513_1_SUP	PEACE BUTTE WIND FARM	294	**1.02**	Gen	-3.79
0000039611	PINCHER CREEK	4224	**1.42**	Gen	-3.39

MP-ID*	Facility Name	PSS/E Bus	Normalized and Compressed Loss Factor (%)	Loss Factor Asset	Difference % in Loss Factor to System Average
0000035311	PLAMONDON	4304	**0.03**	Gen	-4.78
POC	POCATERRA	214	**-2.08**	Gen	-6.89
0000004813	POCATERRA DG	375	**-1.91**	Gen	-6.72
PH1	POPLAR HILL	1118	**-4.13**	Gen	-8.94
PR1	PRIMROSE	1302	**5.28**	Gen	0.47
RB1	RAINBOW 1	1031	**1.02**	Gen	-3.79
RB2	RAINBOW 2	1032	**0.46**	Gen	-4.35
RB3	RAINBOW 3	1033	**-0.72**	Gen	-5.53
RL1	RAINBOW 4, RL1	1035	**-0.57**	Gen	-5.38
RB5	RAINBOW 5	1037	**-0.59**	Gen	-5.40
TC02	REDWATER	50	**4.49**	Gen	-0.32
RG10	ROSSDALE 10	507	**4.67**	Gen	-0.14
RG8	ROSSDALE 8	507	**4.67**	Gen	-0.14
RG9	ROSSDALE 9	507	**4.67**	Gen	-0.14
RUN	RUNDLE	197	**-1.96**	Gen	-6.77
SH1	SHEERNESS #1	1484	**2.89**	Gen	-1.92
SH2	SHEERNESS #2	1484	**2.89**	Gen	-1.92
Project532	SHELL CAROLINE 378S	3370	**-0.49**	Gen	-5.30
SCTG	SHELL SCOTFORD	43	**4.84**	Gen	0.03
GWW1	SODERGLEN	358	**1.04**	Gen	-3.77
SPCEXP	SPC - Export	1473	**6.47**	Exp	1.66
SPCIMP	SPC - Import	1473	**-2.76**	Imp	-7.57
SPR	SPRAY	310	**-1.97**	Gen	-6.78
0000038511	SPRING COULEE	4246	**-0.09**	Gen	-4.90
0000006711	STIRLING	4280	**-0.68**	Gen	-5.49
ST1	STURGEON 1	1166	**1.45**	Gen	-3.36
ST2	STURGEON 2	1166	**1.45**	Gen	-3.36
IEW1	SUMMERVIEW 1	336	**1.84**	Gen	-2.97
SCR1	SUNCOR	1208	**5.90**	Gen	1.09
SCR3	SUNCOR HILLRIDGE WIND FARM	389	**-1.38**	Gen	-6.19
SCR2	SUNCOR MAGRATH	251	**-0.17**	Gen	-4.98
SD1	SUNDANCE #1	135	**6.72**	Gen	1.91
SD2	SUNDANCE #2	135	**6.72**	Gen	1.91
SD3	SUNDANCE #3	135	**6.72**	Gen	1.91
SD4	SUNDANCE #4	135	**6.72**	Gen	1.91
SD5	SUNDANCE #5	135	**6.72**	Gen	1.91
SD6	SUNDANCE #6	135	**6.72**	Gen	1.91
SCL1	SYNCRUDE	1205	**6.08**	Gen	1.27
341S025	Syncrude Standby (848S)	1200	**-4.81**	DOS	-9.62
TAB1	TABER WIND	343	**-1.38**	Gen	-6.19
TAY1	TAYLOR HYDRO	670	**0.90**	Gen	-3.91
TAY2	TAYLOR WIND PLANT	670	**0.90**	Gen	-3.91
THS	THREE SISTERS	379	**-1.56**	Gen	-6.37
VVW1	VALLEYVIEW	1171	**1.44**	Gen	-3.37
Project667_1_SUP	VALLEYVIEW # 2	1172	**1.93**	Gen	-2.88
WB4	WABAMUN #4	133	**6.33**	Gen	1.52

Notes:
* MP-ID - point where loss factors assessed
For loss factors, "-" means credit, "+" means charge
Loss factors effective from January 1 to December 31 2008.
System Average Losses, %: 4.81
For more information, please visit www.aeso.ca

4.0 2008 and 2007 Loss Factors Calculation

The following items are examples meant to illustrate the similarities and differences between the 2007 and 2008 loss factors

1. Load Treatment in the Loss Factor Software – Again in the 2008 loss factor calculation, only transmission loads were unassigned and were not included in the calculation as was done in the 2007 loss factor calculation. This refinement represents a more 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 2007 Generic Stacking Order was used to populate the loss factor base cases for the 2007 loss factor calculation. The 2008 GSO has been utilized in the same way for the 2008 Cases. The 2007 and 2008 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 lower in the 2008 cases (10 out of 12 cases). The load scaling used in the 2007 cases to meet the total GSO capacity is mainly responsible for the lower 2008 gross generation.

3. Additions and Decommissioning of Generation – There are no large changes in the existing generators' net to grid (NTG) output except for few generators where scheduled outages forced the NTG to a lower value such as Sundance (SD) 3, SD 5 and the Sheerness units in summer and fall scenarios. There are a number of new generators considered in the new 2008 loss factor base cases depending on their in-service-date. The total new generation for six new projects is 439.4 MW, including two new projects in the northwest, and the SD4 upgrade. The output level of the two northwest generators and Clover Bar unit used in the cases are determined by the average output of similar units (Balzac and Cavalier).

4. ISD Equivalents – The Industrial System Designations (ISD's) are

modeled in the same way as they were modeled in the 2007 cases. The total ISD load and generations are modeled at the ISD interface bus with the rest of the AIES.

5. Topology – In the 2007 cases, information up to late 2006 was used in the determination of loss factors. In the 2008 cases, additions during 2007 and expected additions in 2008 have been added. The major addition is the 500 kV KEG loop and the addition reduces system losses. Other system additions have been modeled in the 2008 cases; however they are not significant regarding loss savings.
6. Average System Losses and Shift Factor – In the 2008 GTA, the annual loss forecast is 2.91 TWH or 4.81% while average system loss forecast was 5.20% for 2007. The AESO expects the 2.91 TWH is in line with the actual losses. The change in the load treatment and the more accurate annual loss forecast result in a lower shift factor. Please refer to Table 2 to see the effects of the change in average losses and load treatment.

Table 2 – 2007 vs. 2008 Final Loss Factors

	2007	2008
System average loss	**5.20%**	**4.81%**
Shift Factor	**1.34%**	**0.97%**
Loss recovered by RLF	**3.86%**	**3.84%**

7. Weighting Factor – In a continuing effort to enhance accuracy, the AESO is applying unequal weighting factor to the raw loss factors based on historical load levels. In 2007, the AESO applied equal weighting for all 12 scenarios. Please see Table 3 for the 2008 weighting factors used in the loss factor calculation.

Table 3 – 2008 Weighting Factors

	Winter		Spring		Summer		Fall	
	Duration (Hr)	Weight	Duration (Hr)	Weight	Duration (Hr)	Weight	Duration (Hr)	Weight
High	150	6.9%	75	3.4%	50	2.3%	125	5.7%
Medium	1150	52.7%	1450	65.7%	2075	94.0%	1300	59.5%
Low	884	40.5%	682	30.9%	83	3.8%	760	34.8%

5.0 2008 Overall Loss Factor Results

The 2008 loss factors are similar to the 2007 loss factors with some minor changes reflecting the results of load scaling, dispatched generation and transmission projects. The high level results are summarized below:

1. The Northwest area has less credit than in the 2007 posted Loss Factors. In general, higher generation (new generation accounts for 146 MW) and lower loads in the Rainbow and NW area drive loss factors towards more charges or less credit.

2. The South West area (including the majority of existing and proposed wind generation) receives more credits and less charge due to the lower generation and higher loads in the area.

3. The Lake Wabamun area loss factors are lower for Genesee and Keep Hills units than 2007 loss factors due to the inclusion of 500 kV KEG loop in the base cases. However, SD units and WAB4 are still connected through the existing facilities and do not receive much benefit of the 500 kV conversion. The base cases were prepared on the latest project data available at time of base case preparation. The 500 kV KEG project was considered in the base cases as per the AESO loss factor rules.

4. Sheerness and Battle River generation are lower in most of the 2008 base cases than in the 2007 cases resulting in lower loss factors.

5. The Fort McMurray area loss factors are higher in 2008 due to higher generation dispatches in the cases.

6. Import and export loss factors on both Alberta and Saskatchewan inter-ties reflect the South scenario where load growth is higher than generation growth. As a result, 2008 import loss factors are lower than 2007 import loss factors, following the generator loss factor trend. On the other hand, export loss factors are higher than 2007 loss factors because they increase the area load and subsequently, the losses.

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 flows, in response to stakeholder requests, are included.

7.0 Conclusion

The AESO has published the 2008 loss factors as per the Loss Factor Rule and Appendix 7, and has made the calculation by using the best information available. The loss factor calculation takes about eight months to complete. The data process includes gathering large amounts of data from the billing system, new customer facilities, and system load and topology features. The loss factor software prepared during the 2006 loss factor reconstruction initiative is used for the actual calculation. The AESO runs the loss factor calculation process independently through Teshmont to help ensure the results are authentic.

The AESO published the draft numbers on September 19, 2007 for the stakeholders' review. The AESO has made some minor changes in the base cases and the GSO, and this information has been updated on the AESO web site.

APPENDIX I. Case Comparison

Winter Peak Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7916.0	401.2	8317.2	19.1	326.1	-	0.2
2008	7757.9	381.5	8139.4	19.3	344.1	-	0.4
2008 - 2007	**-158.1**	**-19.7**	**-177.8**	**0.2**	**18.0**		

Winter Medium Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7881.3	408.2	8289.5	19.2	324.6	0.9	-
2008	7331.6	382.1	7713.7	19.5	323.4	0.7	-
2008 - 2007	**-549.7**	**-26.1**	**-575.8**	**0.3**	**-1.2**		

Winter Low Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7004.8	422.0	7426.8	19.3	285.5	-	0.3
2008	6843.9	389.1	7233.0	19.5	299.5	-	1.7
2008 - 2007	**-161.0**	**-32.9**	**-193.8**	**0.2**	**14.0**		

Spring Peak Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7770.7	430.3	8201.0	19.2	317.8	0.5	-
2008	7267.7	391.6	7659.3	19.5	327.4	0.3	-
2008 - 2007	**-503.0**	**-38.7**	**-541.7**	**0.3**	**9.6**		

Spring Medium Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7288.5	402.1	7690.6	19.1	282.1	-	0.2
2008	6817.6	338.3	7155.9	19.4	290.0	-	-
2008 - 2007	**-470.9**	**-63.8**	**-534.7**	**0.3**	**7.9**		

Spring Low Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	6613.6	415.5	7029.1	19.2	246.8	-	1.0
2008	6229.2	382.4	6611.6	19.5	257.3	-	0.2
2008 - 2007	**-384.4**	**-33.1**	**-417.4**	**0.3**	**10.5**		

Summer Peak Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7646.9	420.2	8067.1	19.5	282.8	0.4	-
2008	7368.3	385.1	7753.4	19.6	278.3	-	0.2
2008 - 2007	**-278.6**	**-35.1**	**-313.7**	**0.1**	**-4.5**		

Summer Medium Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	6953.2	469.5	7422.7	19.2	244.1	1	-
2008	6718.5	398.7	7117.2	19.5	250.4	-	0.8
2008 - 2007	**-234.7**	**-70.8**	**-305.5**	**0.3**	**6.3**		

Summer Low Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	6393.9	475.8	6869.7	19.4	205.8	-	0.7
2008	5931.7	377.2	6308.9	19.4	229.3	-	0.7
2008 - 2007	**-462.2**	**-98.6**	**-560.9**	0.0	**23.5**		

Fall Peak Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7596.2	426.0	8022.2	19.3	288.7	-	0.2
2008	7914.4	304.4	8218.8	19.6	307.8	0.1	-
2008 - 2007	**318.2**	**-121.6**	**196.6**	**0.3**	**19.1**		

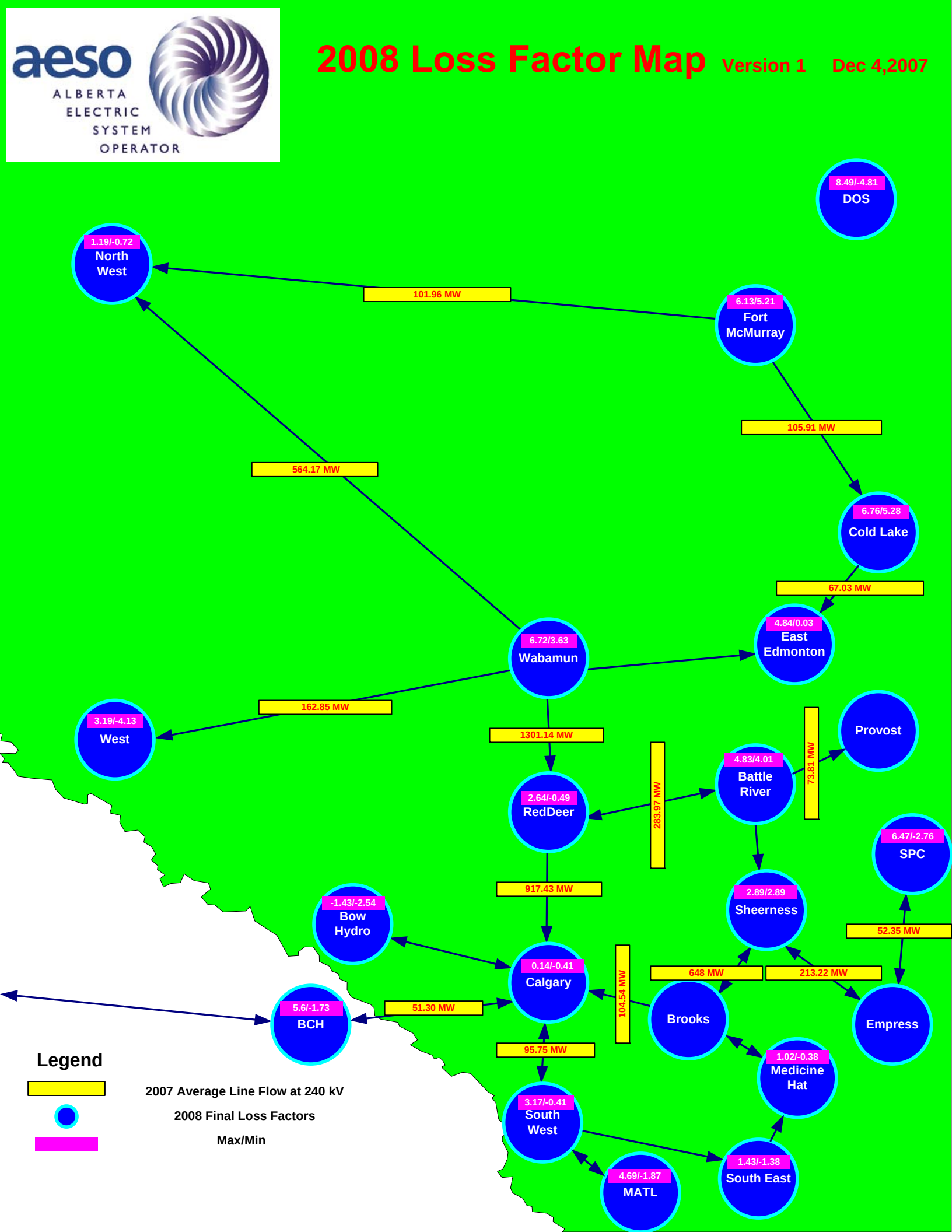
Fall Medium Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	7188.5	460.4	7648.9	19.4	262.5	0.9	-
2008	7231.0	379.4	7610.4	19.5	269.4	0.5	-
2008 - 2007	**42.5**	**-81.0**	**-38.5**	**0.1**	**6.9**		

Fall Low Case

	Load (MW)			Loss (MW)		Import (MW)	Export (MW)
	Static	Motor	Total	Shunt	Transmission		
2007	6616.6	443.1	7059.7	19.5	242.0	-	0.0
2008	6639.1	375.8	7014.9	19.6	230.6	-	0.6
2008 - 2007	**22.5**	**-67.3**	**-44.8**	**0.1**	**-11.4**		

Figure #1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ALBERTA ELECTRIC SYSTEM OPERATOR
2008 Loss Factor Map
Version 1
Dec 4,2007
8.49/-4.81
DOS
1.19/-0.72
North West
101.96 MW
6.13/5.21
Fort McMurray
105.91 MW
564.17 MW
6.76/5.28
Cold Lake
67.03 MW
4.84/0.03
East Edmonton
6.72/3.63
Wabamun
162.85 MW
3.19/-4.13
West
1301.14 MW
Provost
73.81 MW
4.83/4.01
Battle River
283.97 MW
2.64/-0.49
RedDeer
6.47/-2.76
SPC
917.43 MW
2.89/2.89
Sheerness
-1.43/-2.54
Bow Hydro
52.35 MW
0.14/-0.41
Calgary
104.54 MW
648 MW
213.22 MW
5.6/-1.73
BCH
51.30 MW
Brooks
Empress
95.75 MW
1.02/-0.38
Medicine Hat
3.17/-0.41
South West
1.43/-1.38
South East
4.69/-1.87
MATL
Legend
2007 Average Line Flow at 240 kV
2008 Final Loss Factors
Max/Min

Location	MPID	Loss Factor(%)	Gen Name
North West	RB1	1.02	RAINBOW 1
	RB2	0.46	RAINBOW 2
	RB3	-0.72	RAINBOW 3
	RL1	-0.57	RAINBOW 4, RL1
	RB5	-0.59	RAINBOW 5
	FNG1	1.19	FORT NELSON
West	HRM	3.19	HR MILNER
	PH1	-4.13	POPLAR HILL
	NPC1	-1.92	NORTHSTONE ELMWORTH
	DAI1	-1.40	DIASHOWA
	BCR2	-0.24	BEAR CREEK G2
	BCRK	-0.24	BEAR CREEK G1
	GPEC	-0.75	GRANDE PRAIRIE ECOPOWER CENTRE
	ST1	1.45	STURGEON 1
	ST2	1.45	STURGEON 2
	VVW1	1.44	VALLEYVIEW
	WEY1	1.18	P&G WEYERHAUSER
	Project667_1_SUP	1.93	VALLEYVIEW # 2
	Project672_1_SUP	1.01	Northern Prairie Power Project
Fort McMurray	MKR1	6.13	MUSKEG
	MKRC	5.97	McKAY RIVER
	SCL1	6.08	SYNCRUDE
	SCR1	5.90	SUNCOR
	NX02	5.21	NEXEN OPTI
	Project_444_2	5.93	MEG ENERGY
Wabamun	GN1	6.39	GENESEE 1
	GN2	6.39	GENESEE 2
	GN3	6.39	GENESEE 3
	KH1	6.35	KEEPHILLS #1
	KH2	6.35	KEEPHILLS #2
	SD1	6.72	SUNDANCE #1
	SD2	6.72	SUNDANCE #2
	SD3	6.72	SUNDANCE #3
	SD4	6.72	SUNDANCE #4
	SD5	6.72	SUNDANCE #5
	SD6	6.72	SUNDANCE #6
	WB4	6.33	WABAMUN #4
	0000045411	3.63	BUCK LAKE
Cold Lake	IOR1	6.76	MAHKESES, COLD LAKE
	PR1	5.28	PRIMROSE
	EC04	6.16	FOSTER CREEK G1
East Edmonton	0000035311	0.03	PLAMONDON
	RG8	4.67	ROSSDALE 8
	RG9	4.67	ROSSDALE 9
	RG10	4.67	ROSSDALE 10
	SCTG	4.84	SHELL SCOTFORD
	TC02	4.49	REDWATER
	ENC1	4.80	CLOVER BAR PEAKER (STAGE 1 - LM6000)
Red Deer	NOVAGEN15M	1.52	NOVA JOFFRE
	BIG	2.35	BIGHORN
	BRA	2.64	BRAZEAU
	Project532	-0.49	SHELL CAROLINE 378S
Calgary	CES1	-0.33	CALPINE CTG
	CES2	-0.33	CALPINE STG
	TC01	-0.41	CARSELAND
	EC01	0.14	CAVAILIER
	NX01	-0.38	BALZAC

Bow Hydro	BAR	-1.99	BARRIER
	BPW	-1.43	BEARSPAW
	CAS	-2.54	CASCADE
	GHO	-1.80	GHOST
	HSH	-1.98	HORSESHOE
	KAN	-1.89	KANANASKIS
	POC	-2.08	POCATERRA
	0000004813	-1.91	POCATERRA DG
	INT	-1.51	INTERLAKES
	RUN	-1.96	RUNDLE
	THS	-1.56	THREE SISTERS
	SPR	-1.97	SPRAY
South East	SCR2	-0.17	SUNCOR MAGRATH
	TAY1	0.90	TAYLOR HYDRO
	TAY2	0.90	TAYLOR WIND PLANT
	0000006711	-0.68	STIRLING
	SCR3	-1.38	SUNCOR HILLRIDGE WIND FARM
	TAB1	-1.38	TABER WIND
	KHW1	1.43	KETTLES HILL WIND ENERGY PHASE 2
Battle River	BR3	4.83	BATTLE RIVER #3
	BR4	4.83	BATTLE RIVER #4
	BR5	4.01	BATTLE RIVER #5
Medicine Hat	CMH1	-0.38	CITY OF MEDICINE HAT
	Project513_1_SUP	1.02	PEACE BUTTE WIND FARM
Sheerness	SH1	2.89	SHEERNESS #1
	SH2	2.89	SHEERNESS #2
South West	AKE1	0.83	McBRIDE
	DRW1	0.71	DRYWOOD 1
	IEW1	1.84	SUMMERVIEW 1
	CR1	1.24	CASTLE RIVER
	OMRH	1.71	OLDMAN
	0000022911	0.68	GLENWOOD
	0000039611	1.42	PINCHER CREEK
	0000038511	-0.09	SPRING COULEE
	CRE1	3.17	COWLEY EXPANSION 1
	CRE2	3.17	COWLEY EXPANSION 2
	CRE3	3.17	COWLEY NORTH
	CRWD	3.17	COWLEY RIDGE WIND POWER PHASE2
	0000001511	-0.41	FT MACLEOD
	PKNE	3.17	COWLEY RIDGE WIND POWER PHASE1
	GWW1	1.04	SODERGLEN
BCH	BCHEXP	5.60	BCH - Export
	BCHIMP	-1.73	BCH - Import
SPC	SPCEXP	6.47	SPC - Export
	SPCIMP	-2.76	SPC - Import
MATL	MATL_EXP	4.69	MATL - Export
	MATL_IMP	-1.87	MATL - Import
DOS	0000016301	4.95	Amoco Empress (163S)
	DOWGEN15M	4.62	DOW GTG
	DOWLOD15M	-3.97	DOW Ft Saskatchewan ISD
	0000079301	8.49	ANG Cochrane (793S)
	341S025	-4.81	Syncrude Standby (848S)