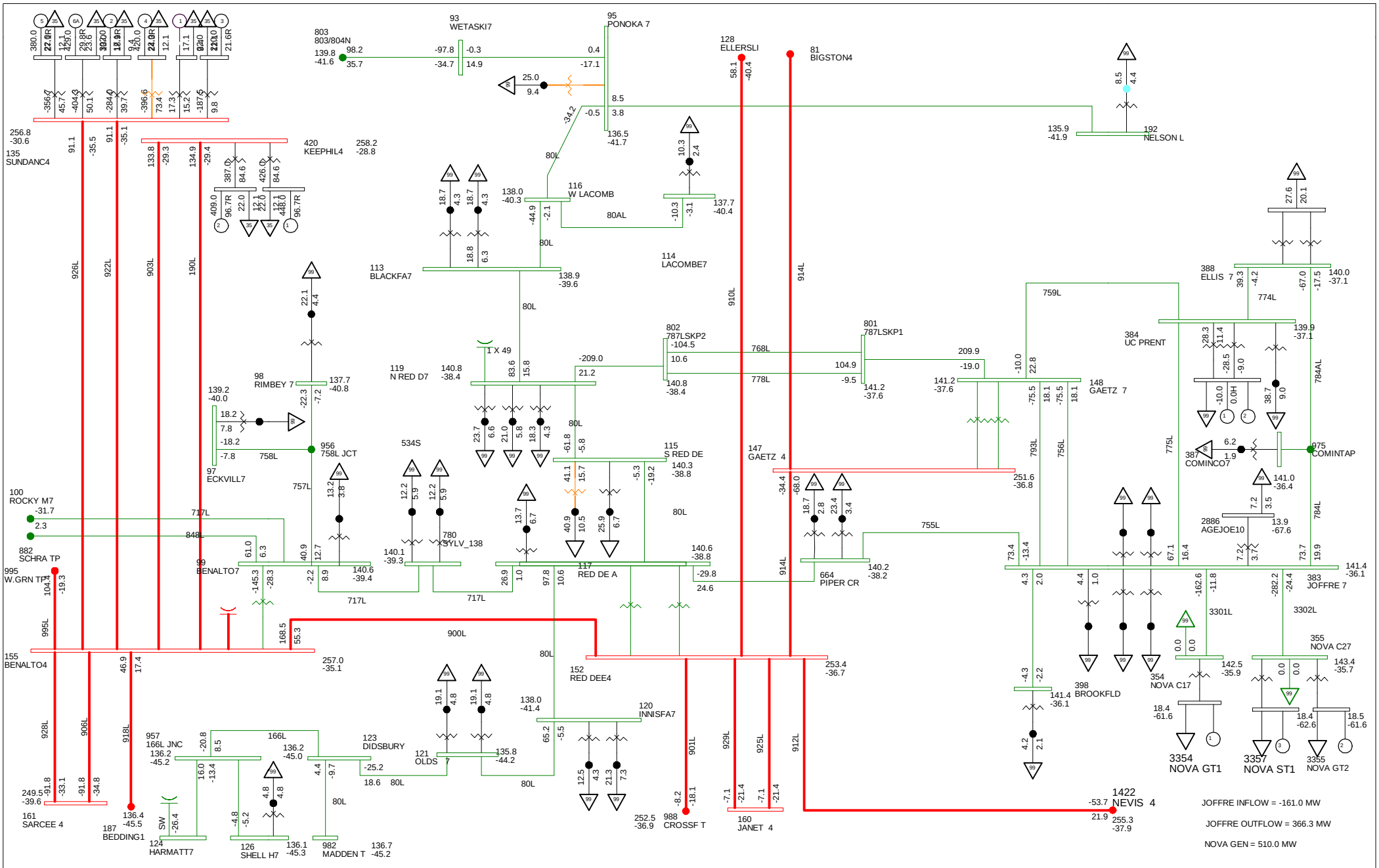
ATTACHMENT F

SENSITIVETY ANALYSIS

Table F-1: Summary of 2012 Sensitivity Analysis

Figure No.	Contingency	Overloaded Element	Percent Overload	Other System Performance Concerns
Winter Peak				
Fig 2012-Sensitivity Study-1	All Elements in Service	None	N/A	None
Fig 2012-Sensitivity Study-2	80L (Blackfalds 198S to N. Red Deer 217S)	None	N/A	Voltage Range Violation (138 kV) at Nelson Lake 429S Ponoka 331S Blackfalds 198S N.E .Lacombe 212S W. Lacombe 958S
Fig 2012-Sensitivity Study-3	80L (Red Deer 63S to Innisfail 214S)	None	N/A	Voltage Range Violation (138 kV): Didsbury 152S, Olds 55S, and Innisfail 214S
Winter Peak +Nova OFF				
Fig 2012-Sensitivity Study-4	All elements in Service	Transformer (T2) at Benalto 17S	105%	Voltage Range Violation (138 kV): Joffre and Red Deer areas
Fig 2012-Sensitivity Study-5	80L (S. Red Deer 194S to Red Deer 63S)	755L(Red Deer 63S to Piper Creek 247S)	96%	Voltage Range Violation (138 kV): Joffre and Red Deer areas
Fig 2012-Sensitivity Study-6	914L (Red Deer 63S to Gaetz 87S)	80L(N. Red Deer 217S to S. Red Deer 194S to Red Deer 63S)	104% -106%	Voltage Range Violation (138 kV): Joffre and Red Deer areas
Summer Peak + High SOK				
Fig 2012-Sensitivity Study-7	Transformer (T2) at Benalto 17S	80L(N. Red Deer 217S to S. Red Deer 194S)	126%	None
		717S (Red Deer 63S to Sylva Lake 580S)	103%	
Fig 2012-Sensitivity Study-8	80L (S. Red Deer 194S to Red Deer 63S)	755L(Joffre 535S to Piper Creek 247S)	100%	None
Fig 2012-Sensitivity Study-9	755L (Red Deer 63S to Piper Creek 247S)	80L(N. Red Deer 217S to S. Red Deer 194S)	126%	None
Fig 2012-Sensitivity Study-10	914L (Red Deer 63S to Gaetz 87S)	80L(N. Red Deer 217S to S. Red Deer 194S to Red Deer 63S) and 755L(Joffre 535S to Piper Creek 247S)	189% 114% 101%	None
Fig 2012-Sensitivity Study-11	755L(Piper Creek 247S to Joffre 535S)	80L(N. Red Deer 217S to S. Red Deer 194S)	126%	None

Figure No.	Contingency	Overloaded Element	Percent Overload	Other System Performance Concerns
Fig 2012-Sensitivity Study-12	719L(Sundre 575S to Shell C. 378S)	80L(Innisfail 214S to Olds 55S)	105%	Voltage violation at Didsbury area
		80L(N. Red Deer 217S to S. Red Deer 194S)	98%	
Fig 2012-Sensitivity Study-13	914L (Bigstone 81S to Gaetz 87S)	804L(Wetaskiwin 40S to 803/804N)	103%	None
Fig 2012-Sensitivity Study-14	910L (Ellerslie 89S to Red Deer 63S)	80L(N. Red Deer 217S to S. Red Deer 194S)	104%	None
Fig 2012-Sensitivity Study-15	900L(Benalto 17S to Red Deer 63S)	Transformer (T2) at Benalto 17S	98%	None
Fig 2012-Sensitivity Study-16	918L(Benalto 17S to Beddington 162S)	900L(Benalto 17S to Red Deer 63S)	97%	None
Fig 2012-Sensitivity Study-17	901L(Red Deer 63S to Cross field 64S)	80L(N. Red Deer 217S to S. Red Deer 194S)	99%	None

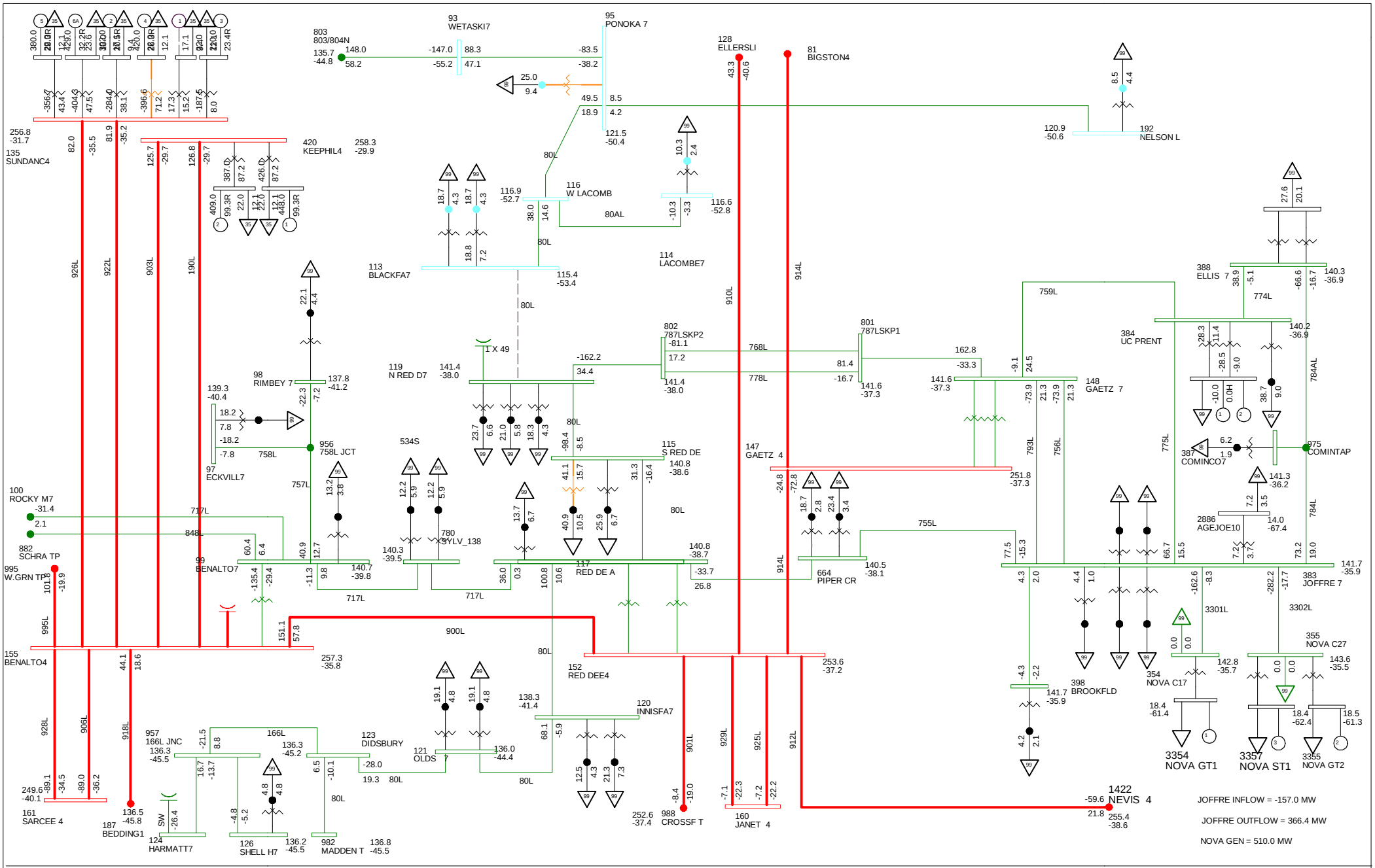


RED DEER REGION STUDY
2012 WINTER PEAK BASE CASE REVISION 6.5

FIG 2012-SENSITIVITY STUDY-1
ALL ELEMENTS IN SERVICE
THU, MAR 10 2011 11:16

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000



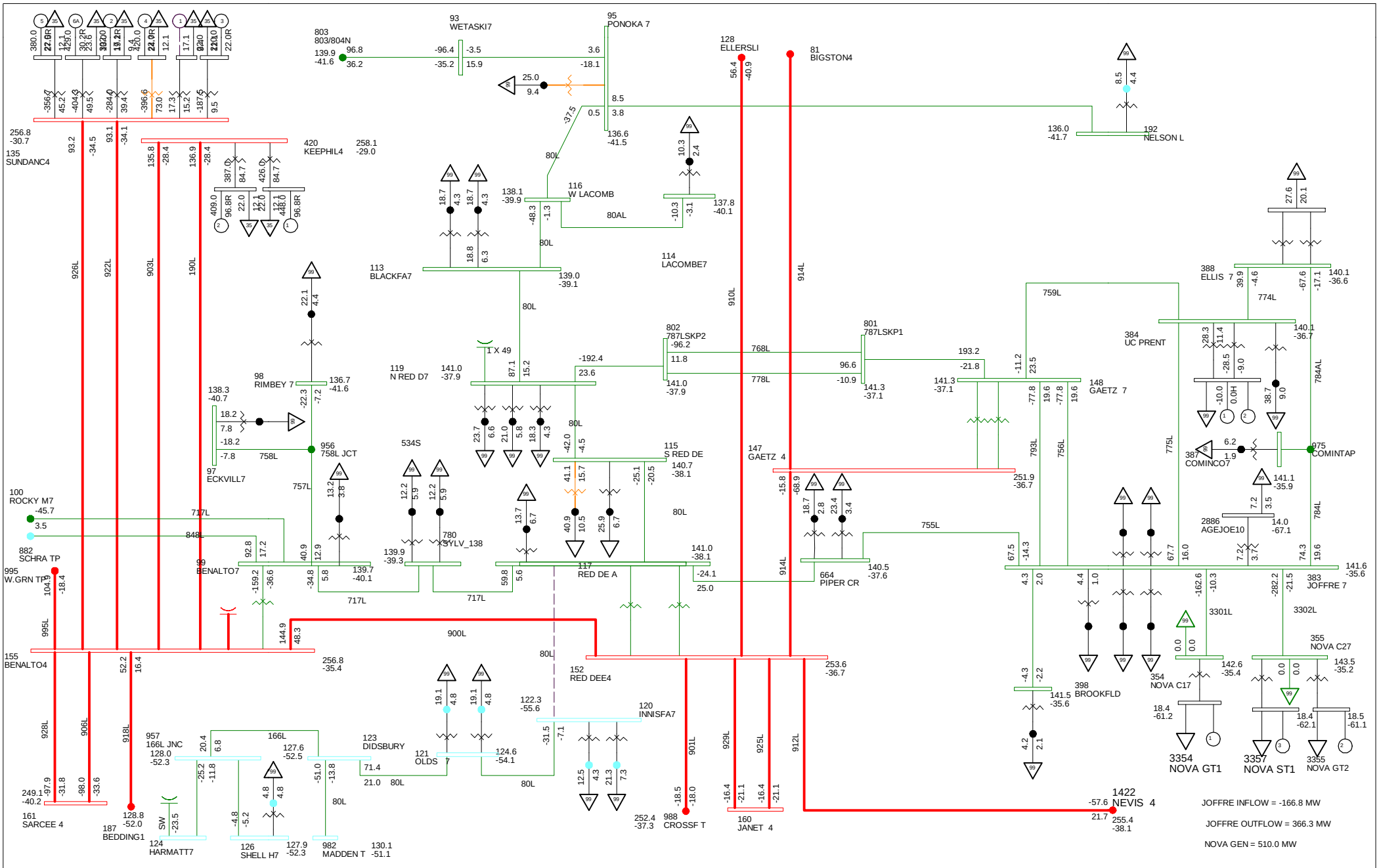
RED DEER REGION STUDY

2012 WINTER PEAK BASE CASE REVISION 6.5

FIG 2012-SENSITIVITY STUDY-2
80L (BLACKFALDS 198S TO N. RED DEER 217S) OUTAGE
THU, MAR 10 2011 11:16

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000



RED DEER REGION STUDY
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FIG 2012-SENSITIVITY STUDY-3
80L (RED DEER 63S TO INNISFAIL 214S) OUTAGE
THU, MAR 10 2011 11:17

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

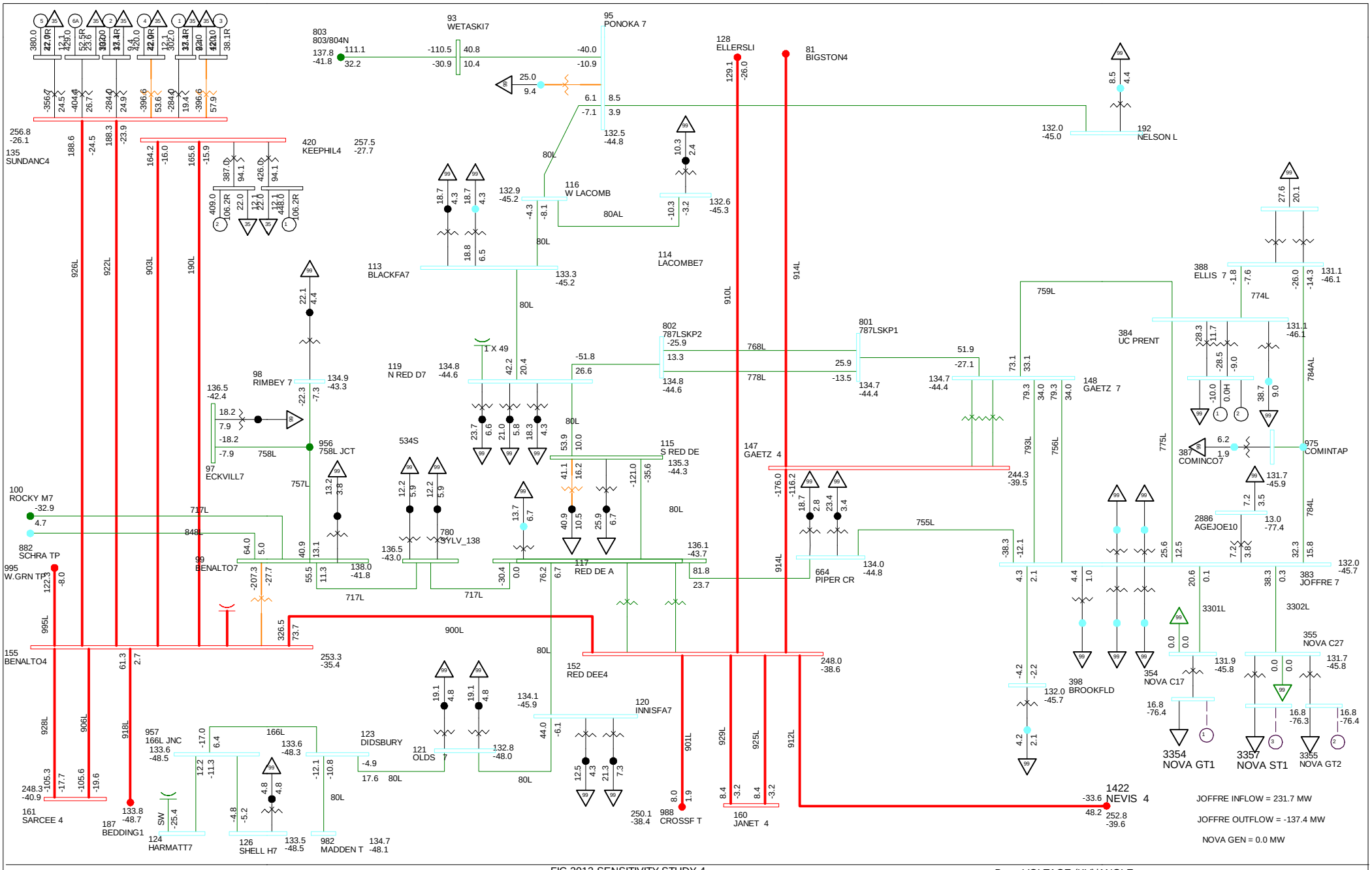

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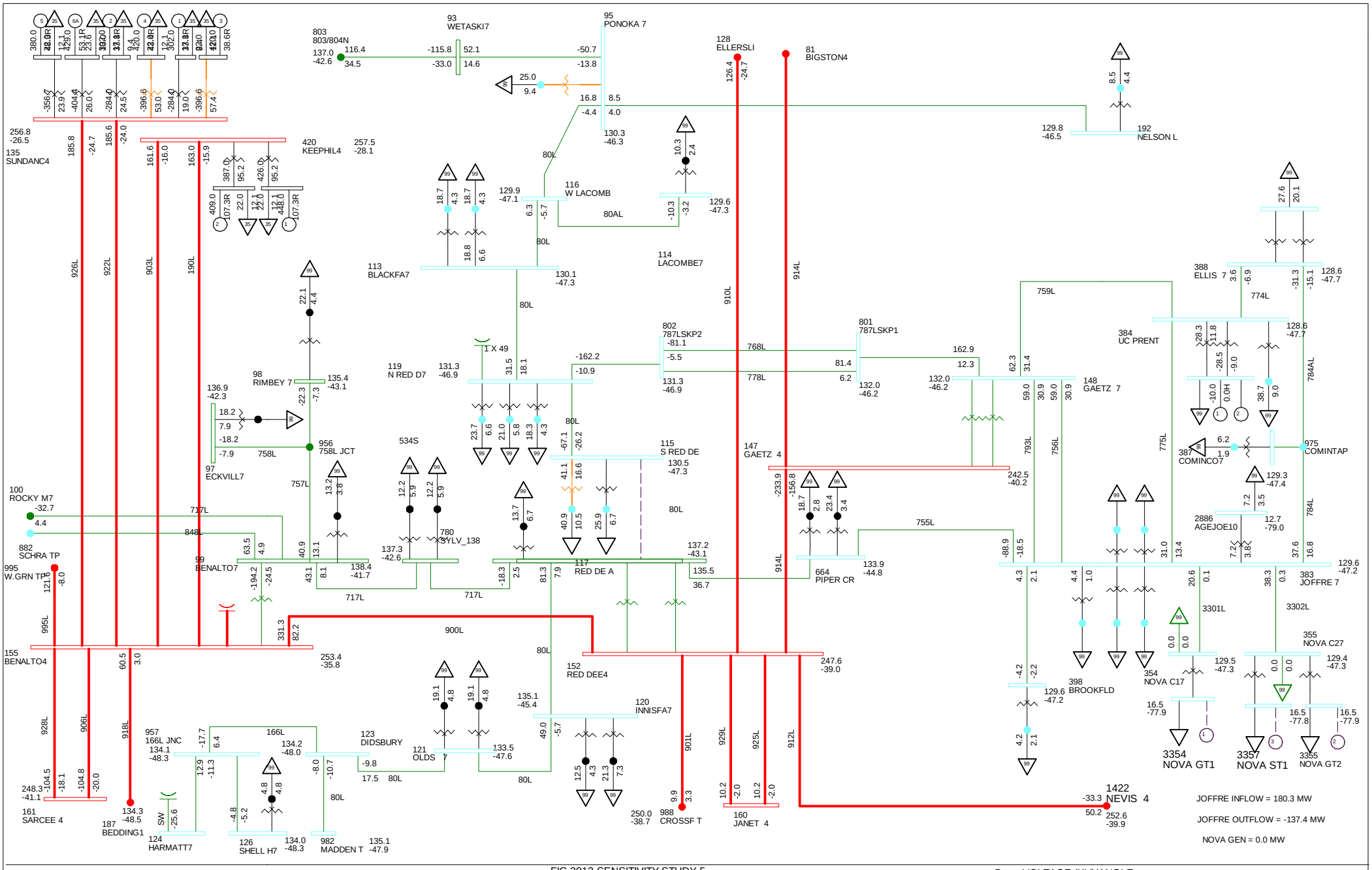
FIG 2012-SENSITIVITY STUDY-4
ALL ELEMENTS IN SERVICE(NOVA OFF)
THU, MAR 10 2011 11:17

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000



RED DEER REGION STUDY

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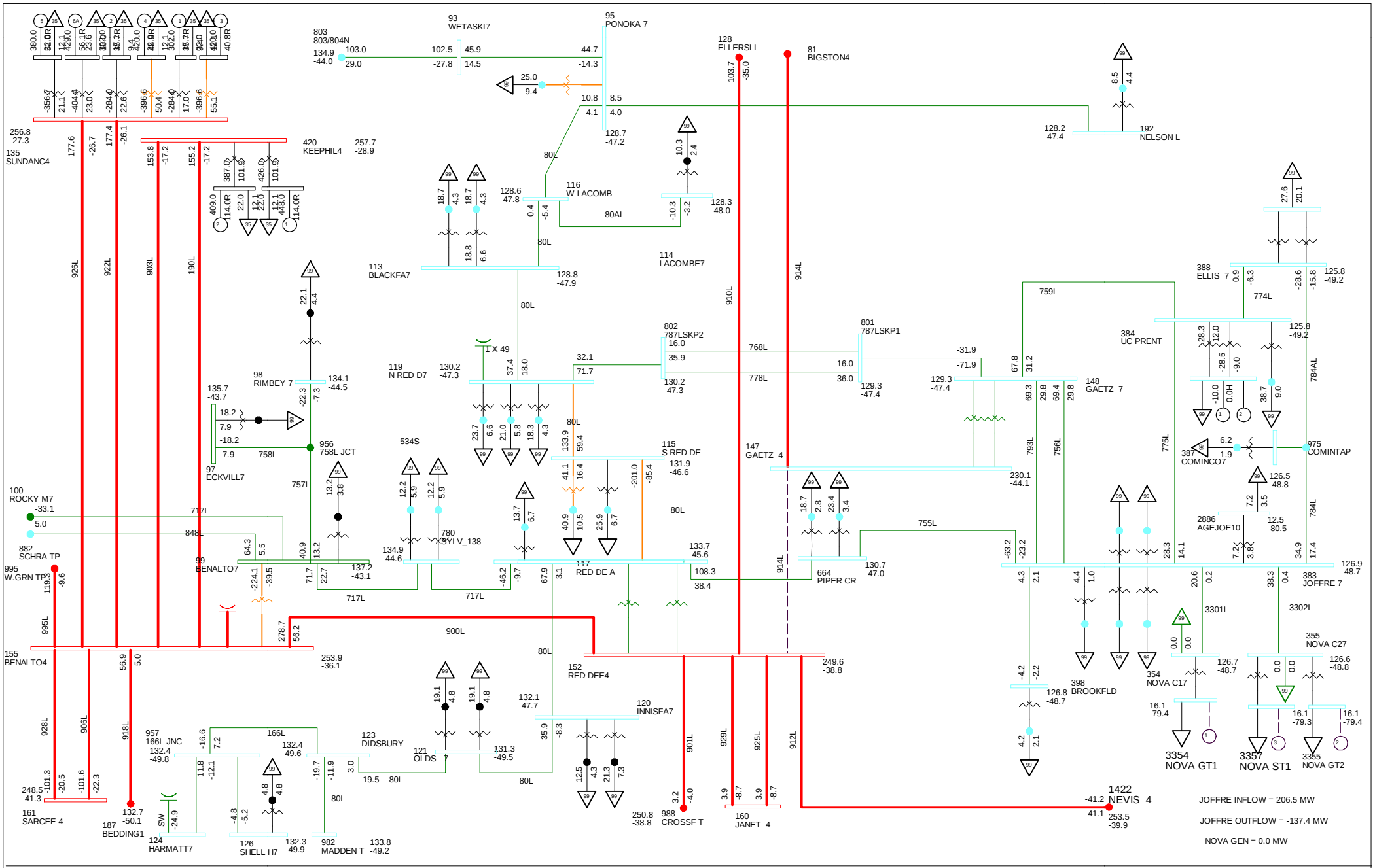
FIG 2012-SENSITIVITY STUDY-5
80L (S. RED DEER 194S TO RED DEER 63S) (NOVA OFF) OUTAGE
THU, MAR 10 2011 11:17

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

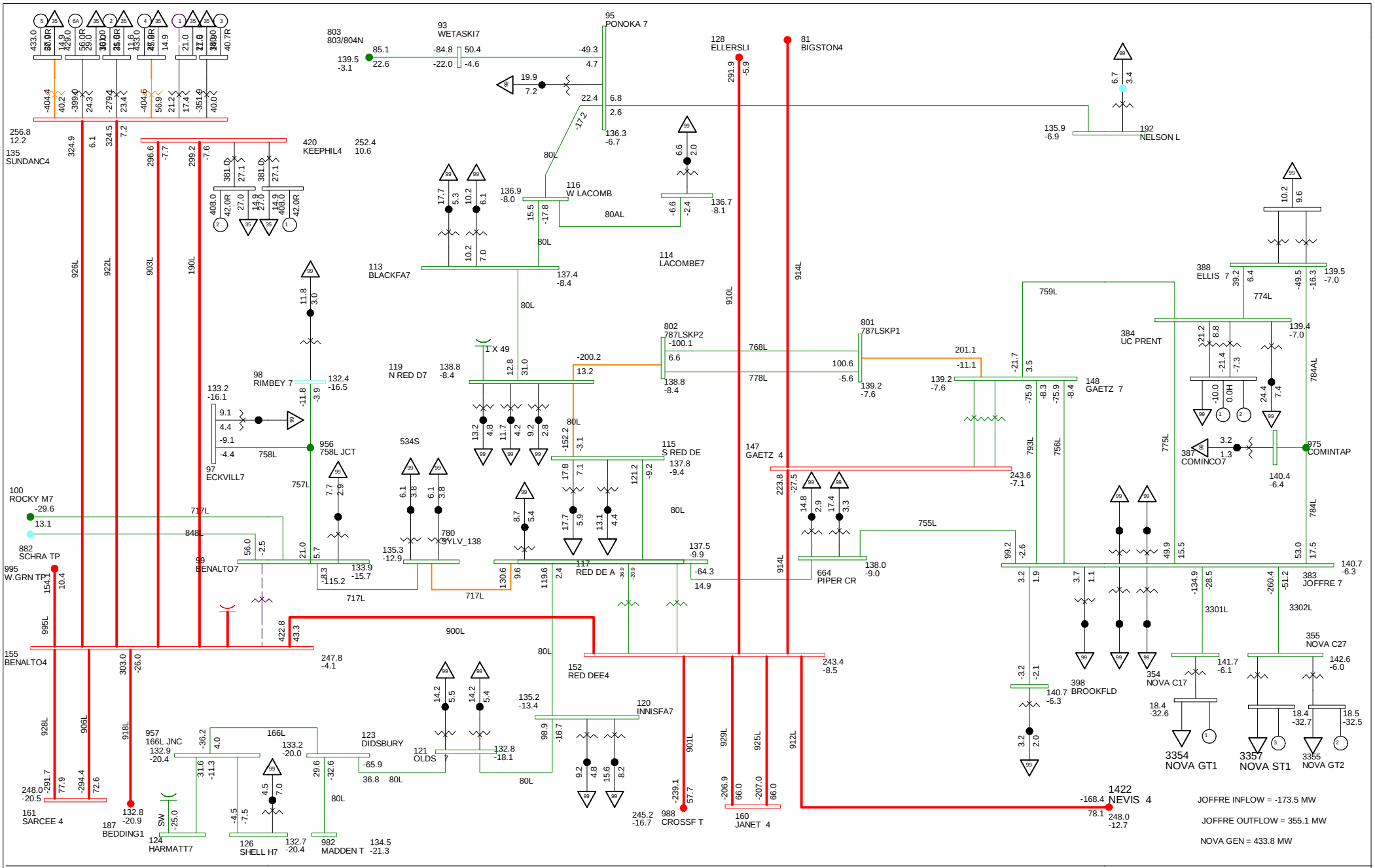


RED DEER REGION STUDY
2012 WINTER PEAK BASE CASE REVISION 6.5

FIG 2012-SENSITIVITY STUDY-6
914L (RED DEER 63S TO GAETZ 87S) (NOVAOFF) OUTAGE
THU, MAR 10 2011 11:18

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

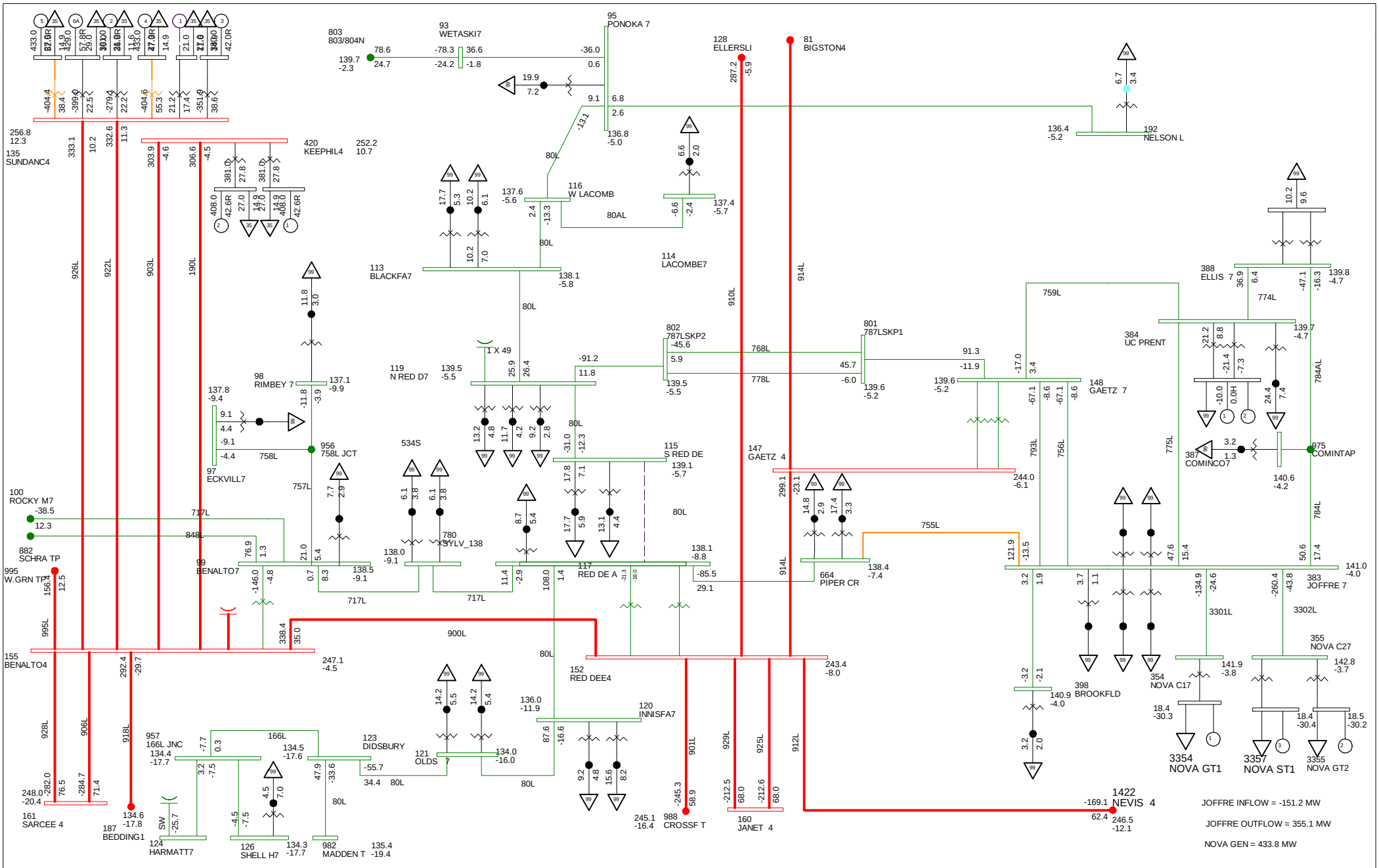


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-7
TRANSFORMER (T2) AT BENALTO 17S)(SOK) OUTAGE
THU, MAR 10 2011 10:45

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

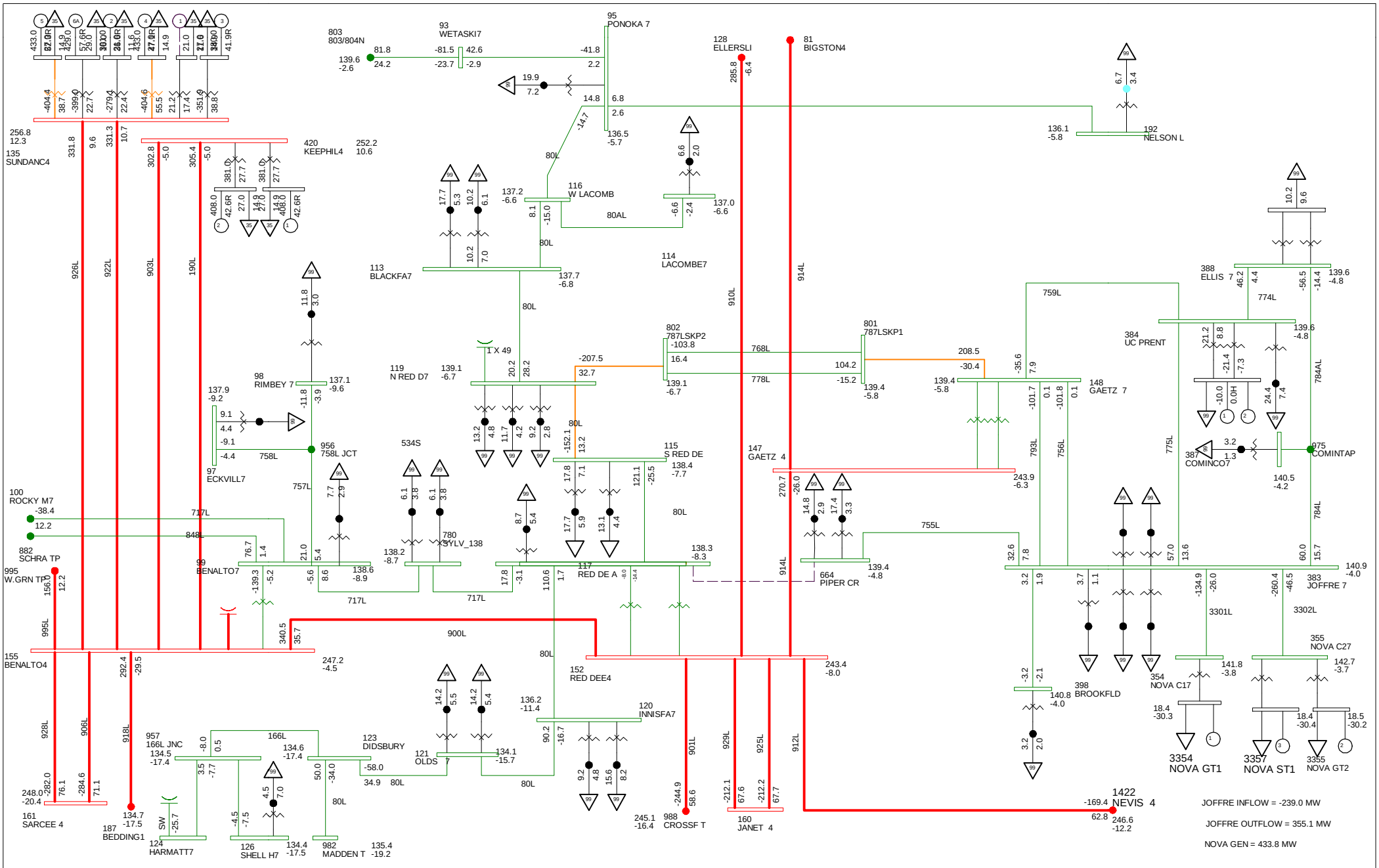


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-8
80L (S. RED DEER 194S TO RED DEER 63S)(SOK) OUTAGE
THU, MAR 10 2011 10:45

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

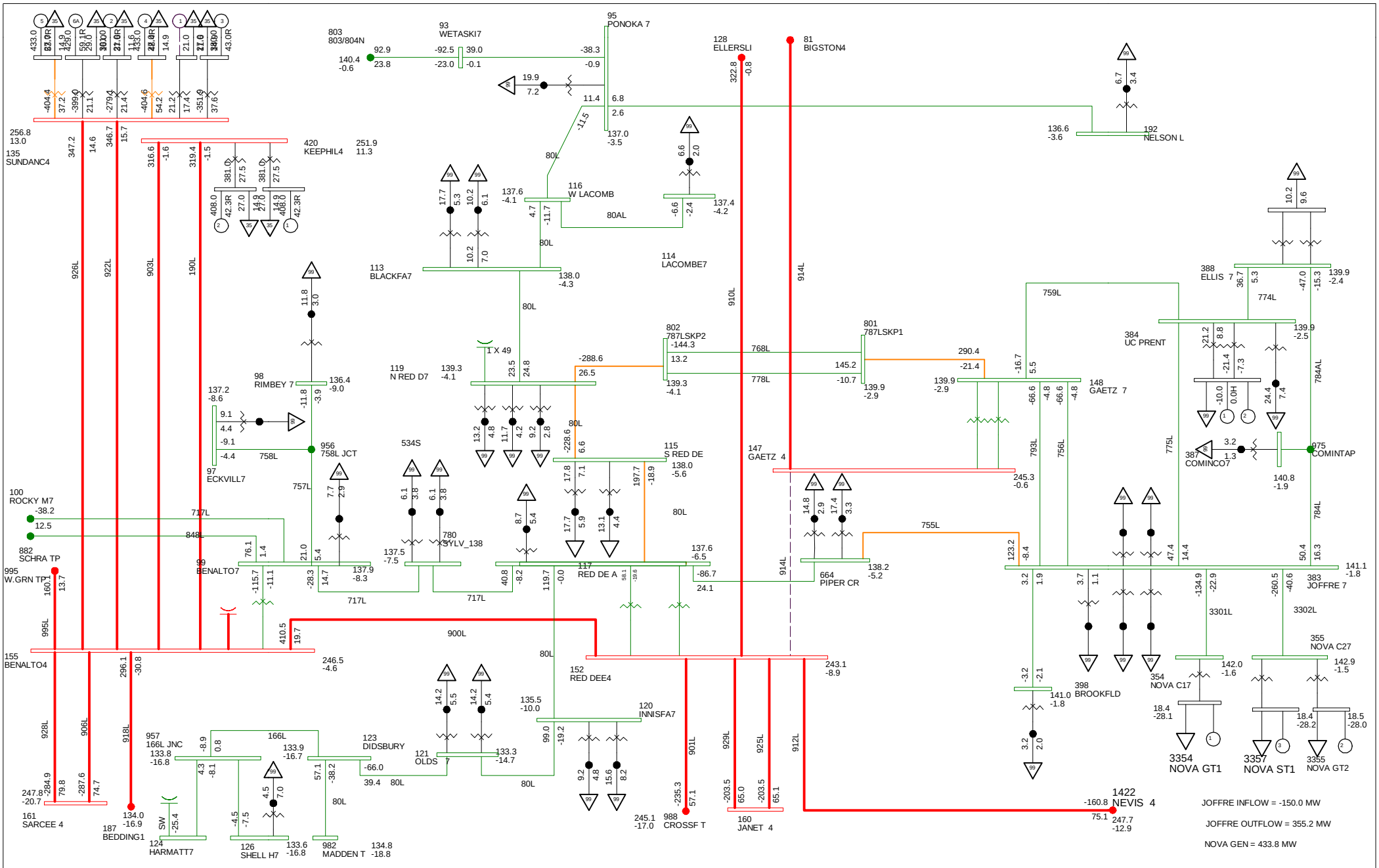


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-9
755L (RED DEER 63S TO PIPER CREEK 247S)(SOK) OUTAGE
THU, MAR 10 2011 10:44

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

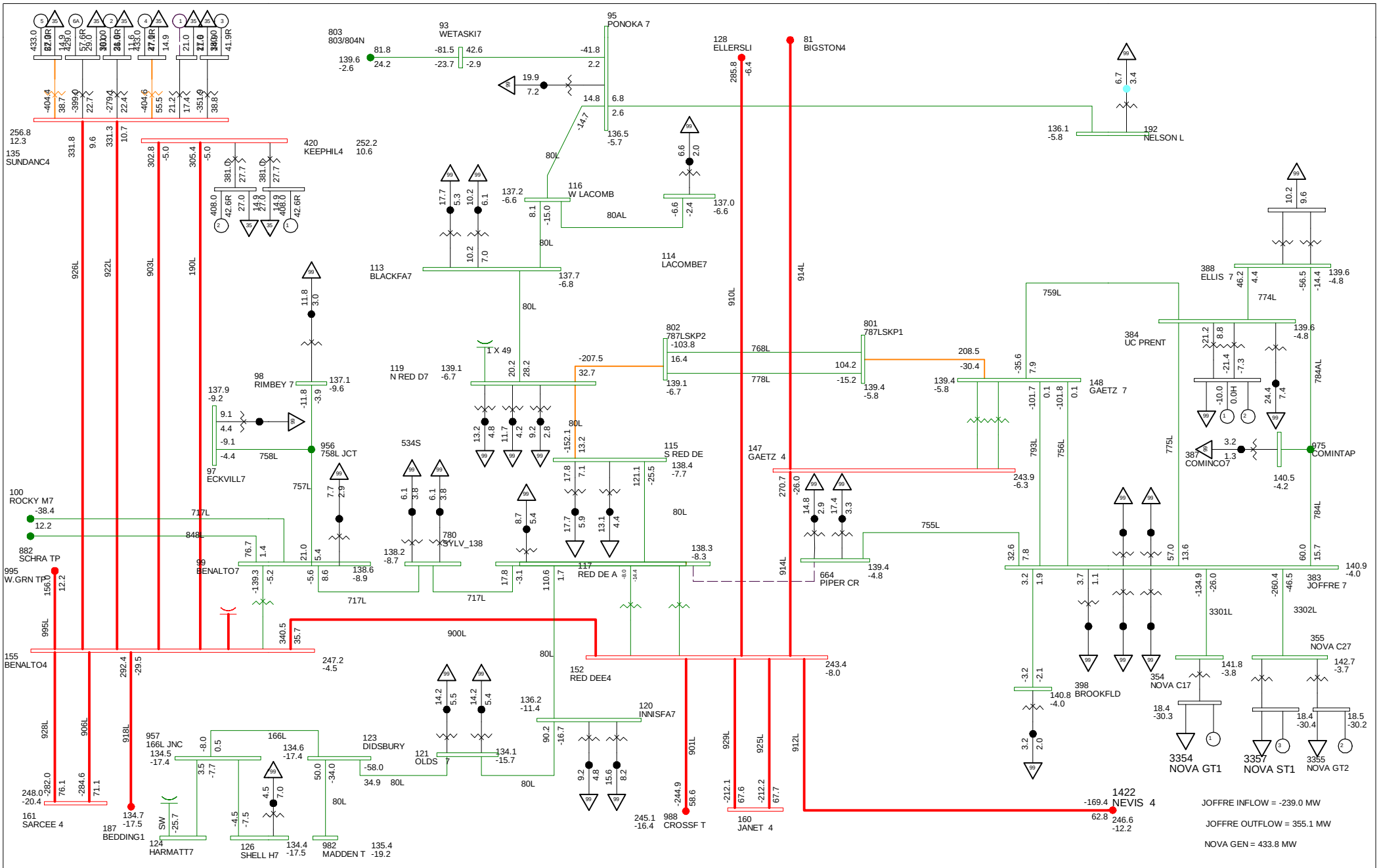


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-10
914L (RED DEER 63S TO GAETZ 87S)(SOK) OUTAGE
THU, MAR 10 2011 10:43

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

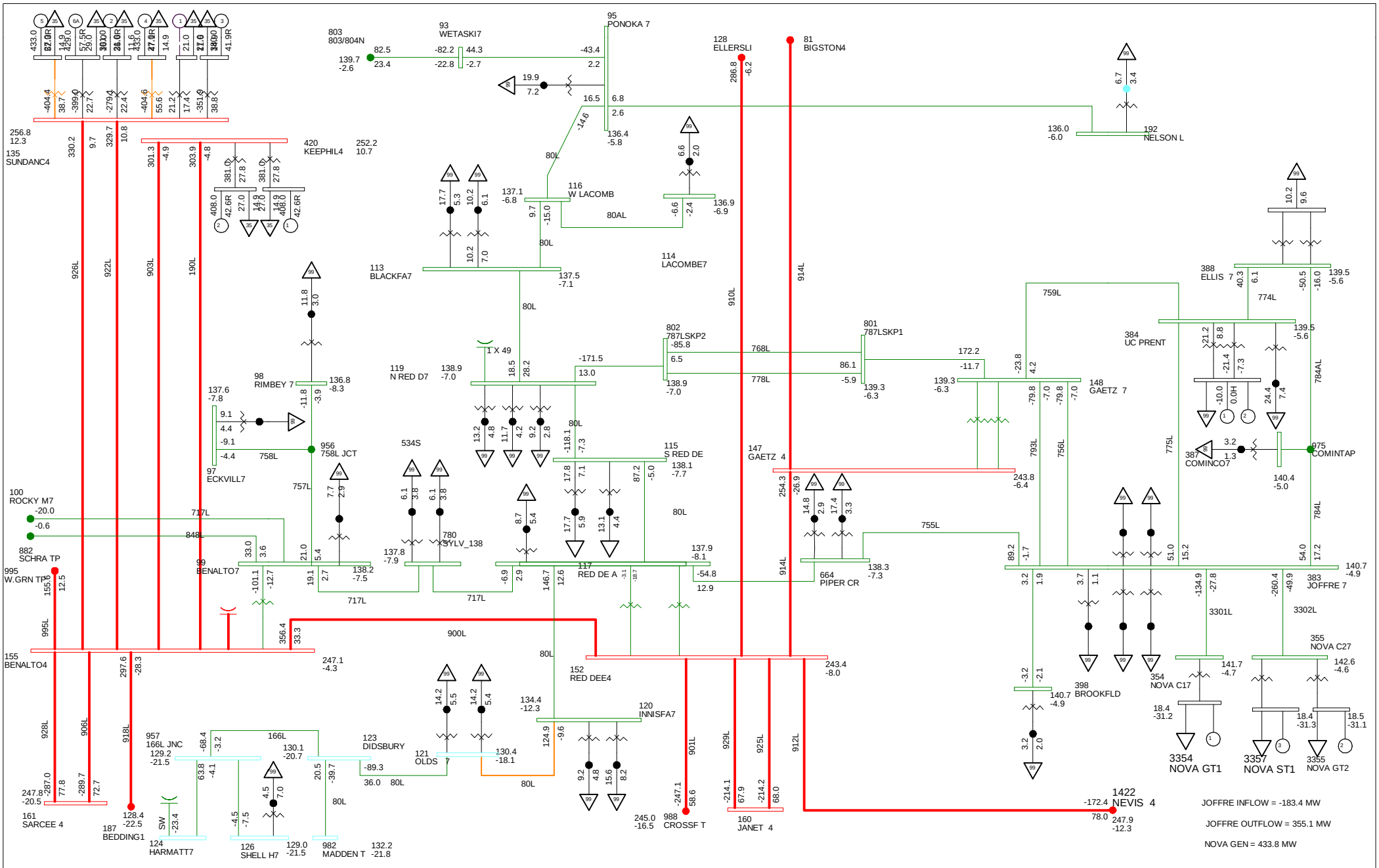


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-11
755L(PIPER CREEK 247S TO JOFFRE 535S)(SOK) OUTAGE
THU, MAR 10 2011 10:43

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

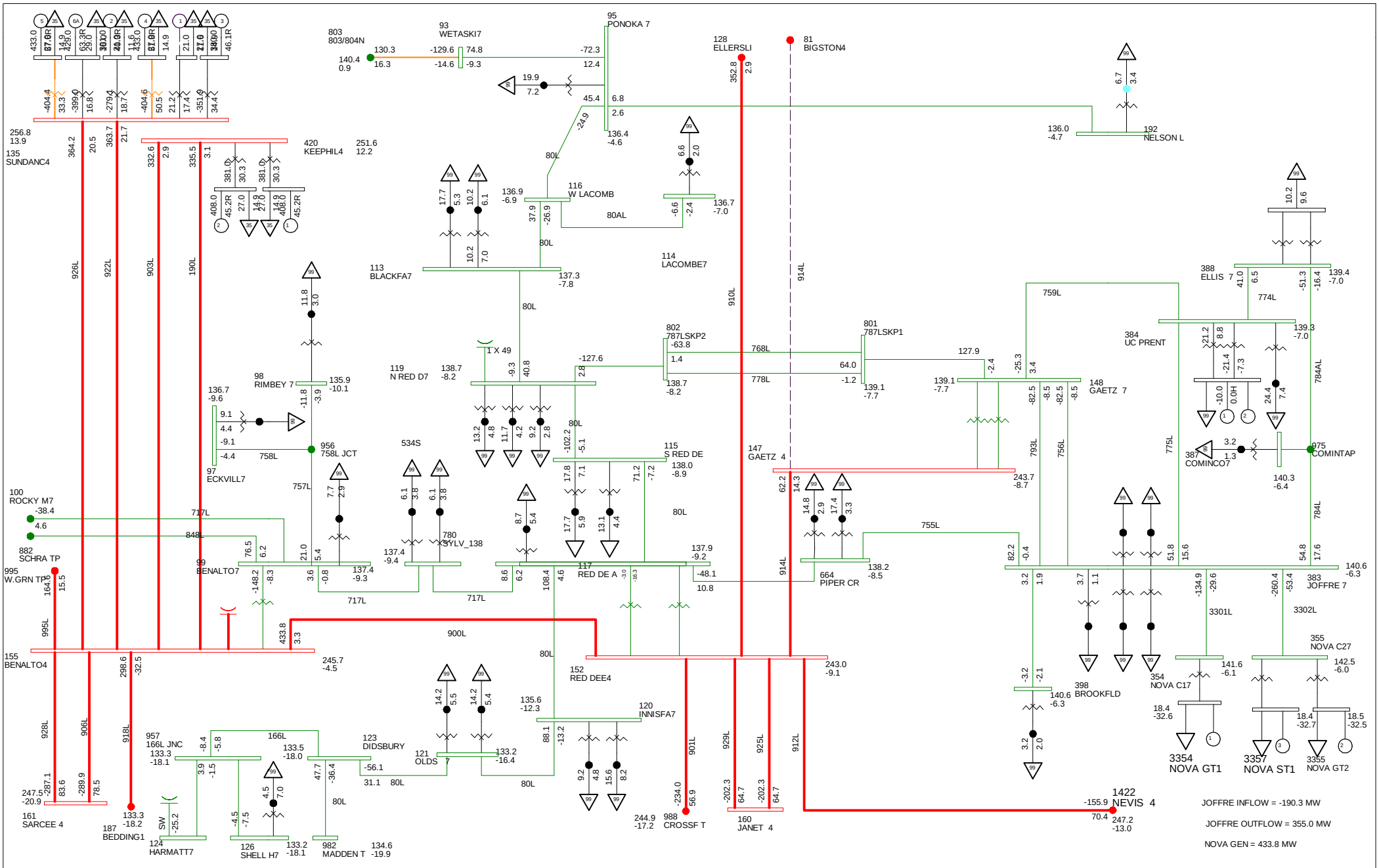


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-12
719L(SUNDRE 575S TO SHELL C. 378S)(SOK) OUTAGE
THU, MAR 10 2011 11:12

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

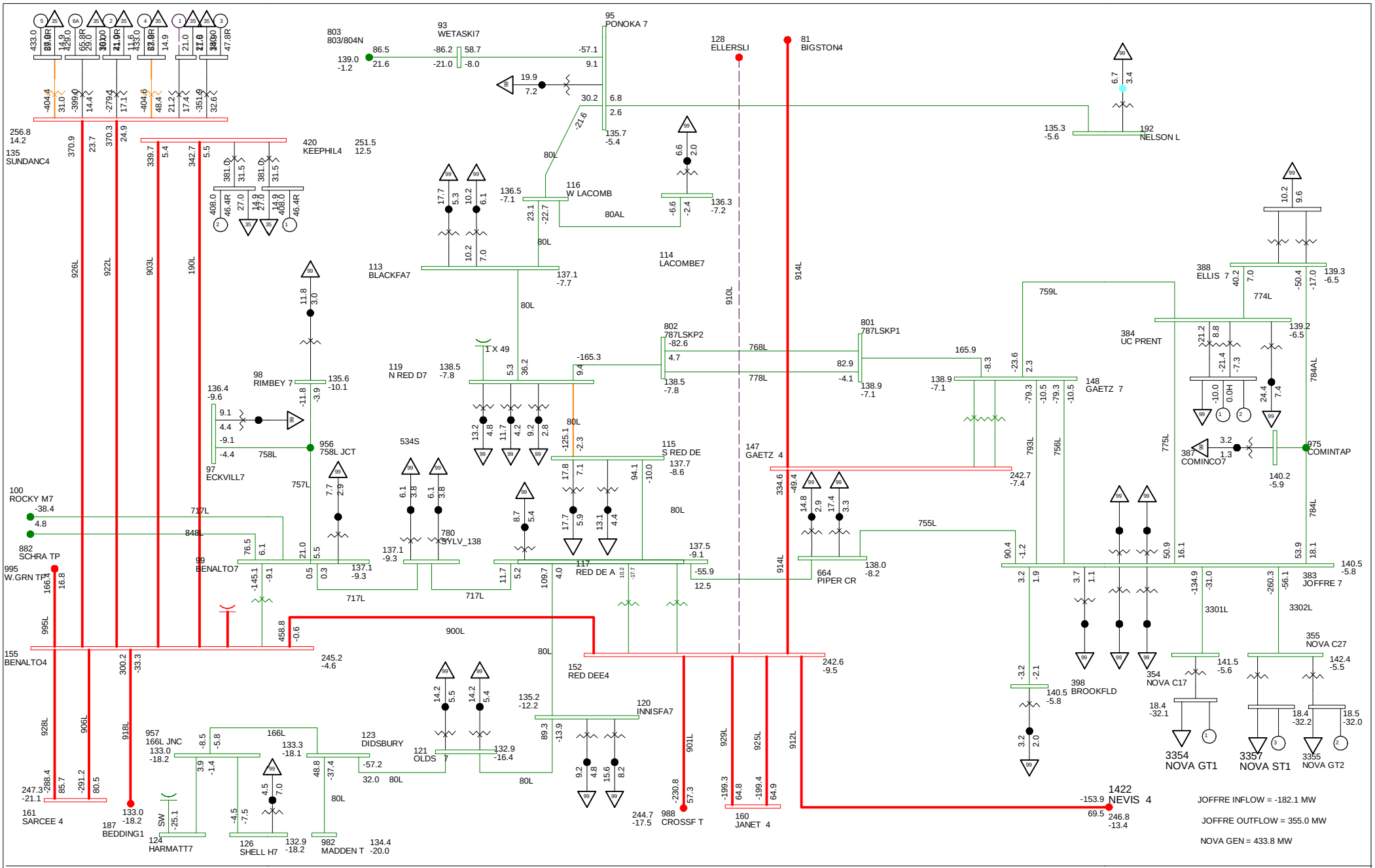


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-13
914L (BIGSTONE 81S TO GAETZ 87S)(SOK) OUTAGE
THU, MAR 10 2011 10:39

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

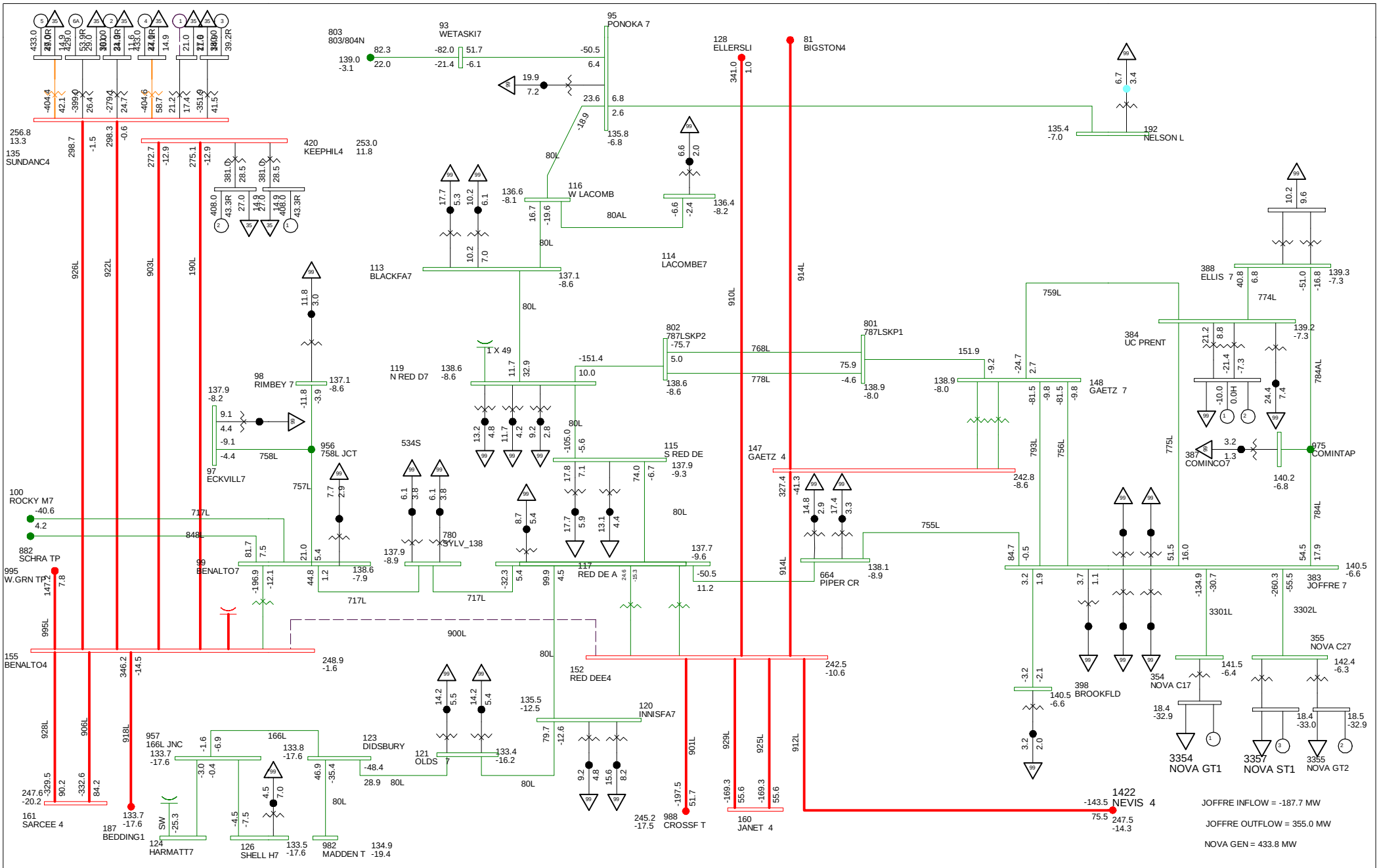


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-14
910L (ELLERSLIE 89S TO RED DEER 63S) (SOK) OUTAGE
THU, MAR 10 2011 10:42

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000

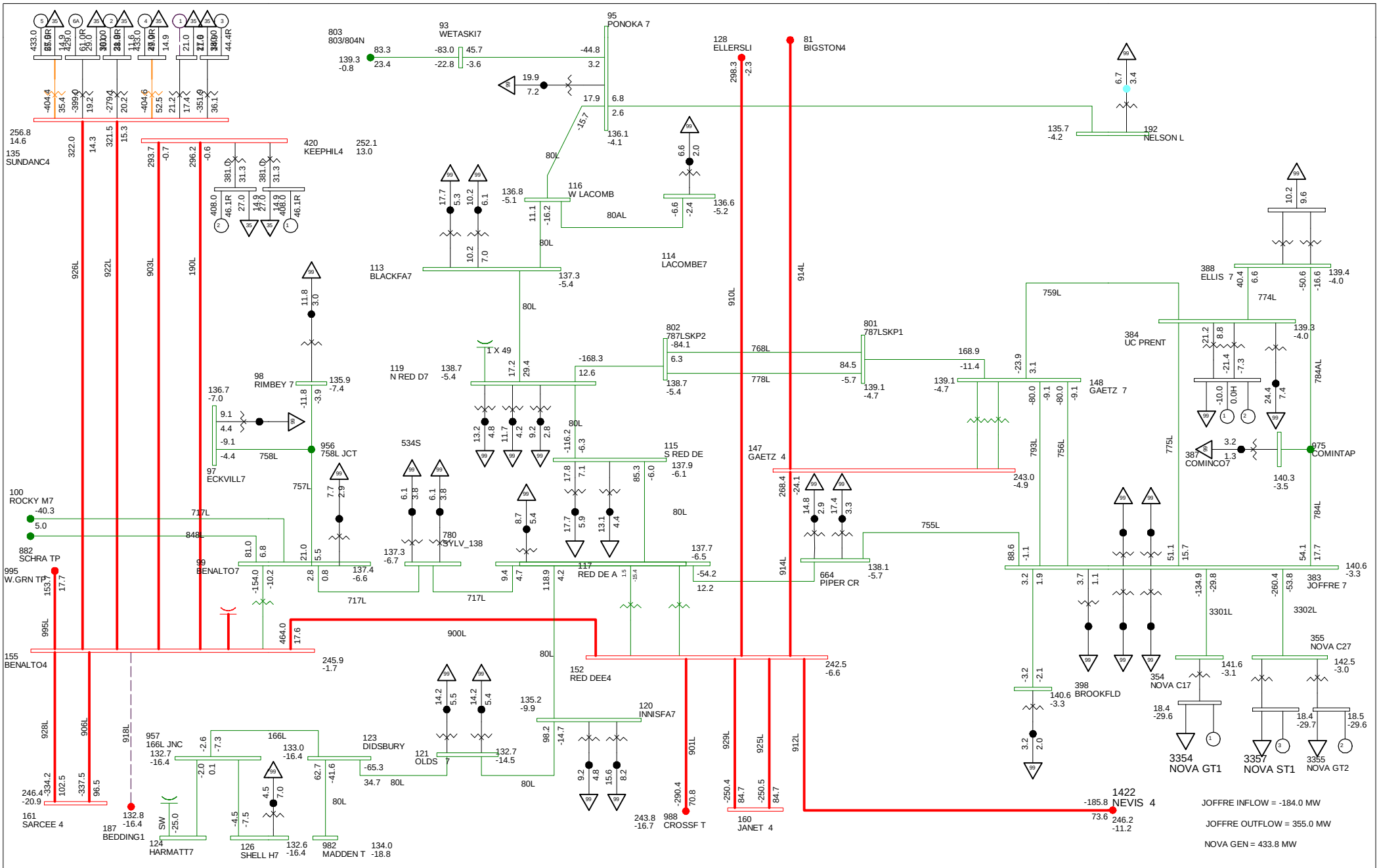


RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-15
900L(BENALTO 17S TO RED DEER 63S)(SOK) OUTAGE
THU, MAR 10 2011 10:49

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000



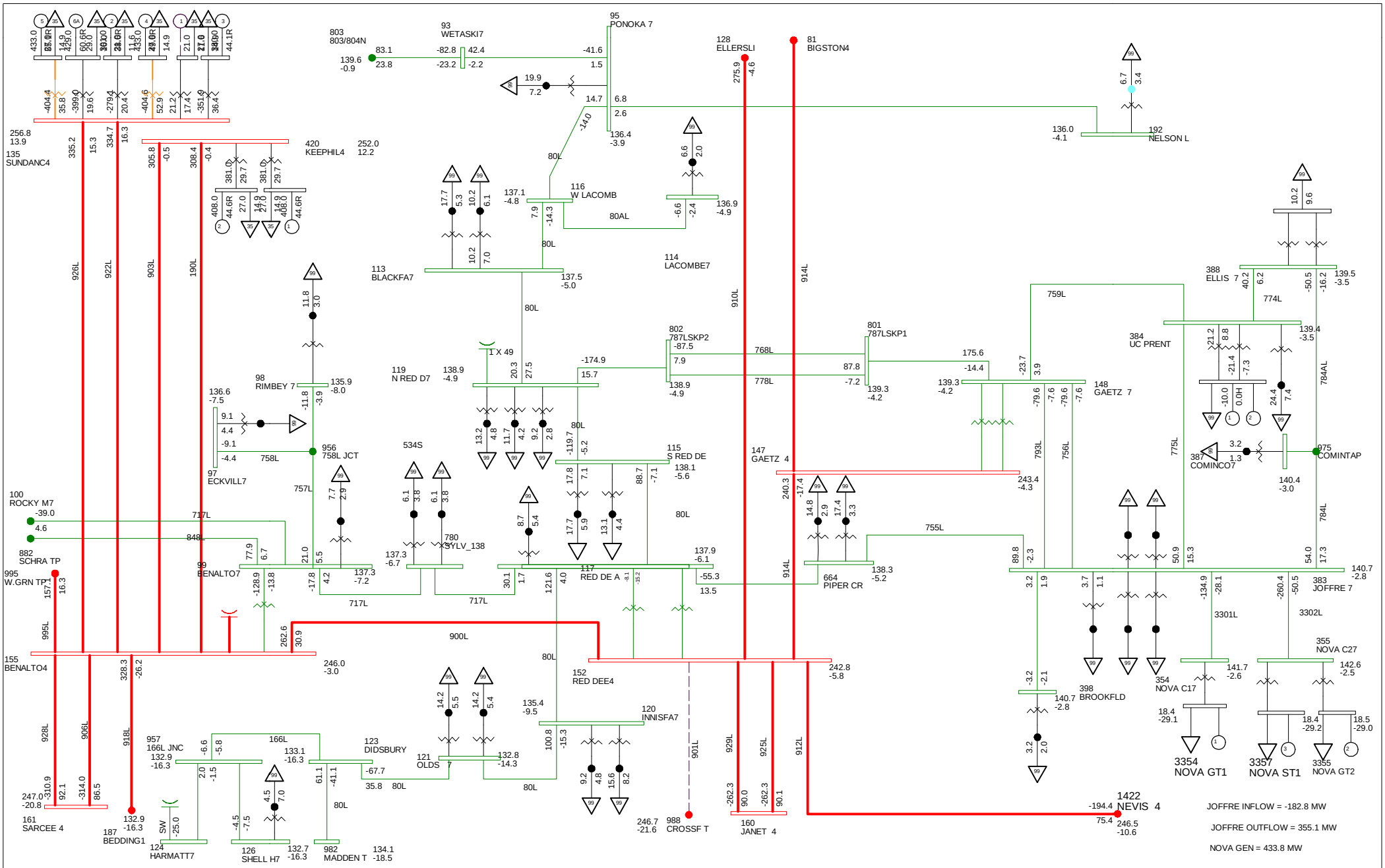
RED DEER REGION STUDY

2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-16
918L(BENALTO 17S TO BEDDINGTON 162S)(SOK)OUTAGE
THU, MAR 10 2011 10:54

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000



RED DEER REGION STUDY
2012 SUMMER PEAK SOK BASE CASE

FIG 2012-SENSITIVITY STUDY-17
901L(RED DEER 63S TO CROSSFIELD 64S)(SOK) OUTAGE
THU, MAR 10 2011 11:01

Bus - VOLTAGE (KV)/ANGLE
Branch - MW/MVAR
Equipment - MW/MVAR

<=34.500 <=72.000 <=138.000 <=240.000 <=500.000 >500.000