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Electrical Transient Analyzer Program

Load Flow Analysis

Loading Category (1): Design
Generation Category (1): Design
Load Diversity Factor: None

	<u>Swing</u>	<u>V-Control</u>	<u>Load</u>	<u>Total</u>
Number of Buses:	1	0	58	59

	<u>XEMR2</u>	<u>XEMR3</u>	<u>Reactor</u>	<u>Line/Cable</u>	<u>Impedance</u>	<u>Tie PD</u>	<u>Total</u>
Number of Branches:	8	0	0	62	0	16	86

Method of Solution:	Newton-Raphson Method
Maximum No. of Iteration:	99
Precision of Solution:	0.0001000
System Frequency:	50.00 Hz
Unit System:	Metric
Project Filename:	ali
Output Filename:	C:\Users\Ali\Desktop\project-etap\ali\Untitled.lfr

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Adjustments

<u>Tolerance</u>	<u>Apply Adjustments</u>	<u>Individual /Global</u>	<u>Percent</u>
Transformer Impedance:	Yes	Individual	
Reactor Impedance:	Yes	Individual	
Overload Heater Resistance:	No		
Transmission Line Length:	No		
Cable Length:	No		

<u>Temperature Correction</u>	<u>Apply Adjustments</u>	<u>Individual /Global</u>	<u>Degree C</u>
Transmission Line Resistance:	Yes	Individual	
Cable Resistance:	Yes	Individual	

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Bus Input Data

Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus 1	161.000	1	100.0	0.0								
Bus 2	161.000	1	100.0	0.0								
Bus 3	161.000	1	100.0	0.0								
Bus4	33.000	1	100.0	0.0								
Bus5	33.000	1	100.0	0.0								
Bus6	33.000	1	100.0	0.0								
Bus7	33.000	1	100.0	0.0								
Bus8	33.000	1	100.0	0.0								
Bus 9	33.000	1	100.0	0.0	1.775	0.807	7.101	3.228				
Bus 10	33.000	1	100.0	0.0	1.350	0.563	7.650	3.188				
Bus 11	33.000	1	100.0	0.0	1.800	0.750	7.200	3.000				
Bus 12	33.000	1	100.0	0.0	7.200	3.000	1.800	0.750				
Bus 13	33.000	1	100.0	0.0	1.800	0.750	7.200	3.000				
Bus 14	33.000	1	100.0	0.0	5.326	2.421	3.550	1.614				
Bus 15	33.000	1	100.0	0.0	1.775	0.807	7.101	3.228				
Bus 16	33.000	1	100.0	0.0	7.101	3.228	1.775	0.807				
Bus17	161.000	1	100.0	0.0								
Bus18	161.000	1	100.0	0.0								
Bus19	33.000	1	100.0	0.0								
Bus20	33.000	1	100.0	0.0								
Bus21	33.000	1	100.0	0.0								
Bus22	33.000	1	100.0	0.0								
Bus 23	33.000	1	100.0	0.0								
Bus 24	33.000	1	100.0	0.0	4.076	1.698	16.305	6.794				
Bus 25	33.000	1	100.0	0.0	16.579	6.095	4.145	1.524				
Bus 26	33.000	1	100.0	0.0	3.057	1.274	17.324	7.218				
Bus 27	33.000	1	100.0	0.0	16.305	6.794	4.076	1.698				
Bus 28	33.000	1	100.0	0.0	4.076	1.698	16.305	6.794				
Bus 29	33.000	1	100.0	0.0	16.305	6.794	4.076	1.698				
Bus 30	33.000	1	100.0	0.0	4.076	1.698	16.305	6.794				
Bus 31	33.000	1	100.0	0.0	16.305	6.794	4.076	1.698				
Bus 32	33.000	1	100.0	0.0	4.076	1.698	16.305	6.794				
Bus 33	161.000	1	100.0	0.0								

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Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus 34	161.000	1	100.0	0.0								
Bus 35	33.000	1	100.0	0.0								
Bus 36	33.000	1	100.0	0.0								
Bus 37	33.000	1	100.0	0.0								
Bus 38	33.000	1	100.0	0.0								
Bus 39	33.000	1	100.0	0.0								
Bus 40	33.000	1	100.0	0.0	3.242	1.372	12.967	5.486				
Bus 41	33.000	1	100.0	0.0	12.967	5.486	3.242	1.372				
Bus 42	33.000	1	100.0	0.0	3.260	1.328	13.039	5.312				
Bus 43	33.000	1	100.0	0.0	13.039	5.312	3.260	1.328				
Bus 44	33.000	1	100.0	0.0	3.260	1.328	13.039	5.312				
Bus 45	33.000	1	100.0	0.0	13.039	5.312	3.260	1.328				
Bus 46	33.000	1	100.0	0.0	3.242	1.372	12.967	5.486				
Bus 47	33.000	1	100.0	0.0	12.967	5.486	3.242	1.372				
Bus 48	33.000	1	100.0	0.0	3.242	1.372	12.967	5.486				
Bus 49	33.000	1	100.0	0.0	9.725	4.115	6.484	2.743				
Bus 50	161.000	1	100.0	0.0								
Bus 51	161.000	1	100.0	0.0								
Bus 52	33.000	1	100.0	0.0								
Bus 53	33.000	1	100.0	0.0								
Bus 54	33.000	1	100.0	0.0								
Bus 55	33.000	1	100.0	0.0								
Bus56	33.000	1	100.0	0.0								
Bus 57	33.000	1	100.0	0.0	1.800	0.872	7.200	3.487				
Bus 58	33.000	1	100.0	0.0	5.400	2.615	3.600	1.744				
Bus 59	33.000	1	100.0	0.0	7.120	3.648	1.780	0.912				
Total Number of Buses: 59					205.288	86.486	239.344	101.195	0.000	0.000	0.000	0.000

Generation Bus				Voltage		Generation			Mvar Limits	
ID	kV	Type	Sub-sys	% Mag.	Angle	MW	Mvar	% PF	Max	Min
Bus 1	161.000	Swing	1	100.0	0.0					
						0.000	0.000			

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Line/Cable Input Data

Line/Cable		Ohms or Siemens/1000 m per Conductor (Cable) or per Phase (Line)								
		Library	Size	Length		#/Phase	T (°C)	R	X	Y
				Adj. (m)	% Tol.					
ID										
Cable1	138NCUS1	1000	600.0	0.0	1	75	0.068842	0.191382		
Cable3	138NCUS1	1000	600.0	0.0	1	75	0.068842	0.191382		
Cable7	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Cable8	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Cable11	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Cable12	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Cable13	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Cable14	138NCUS1	500	600.0	0.0	1	75	0.109521	0.213255		
Line1		262	2000.0	0.0	1	75	0.102982	0.314194	0.0000028	
Line3		262	1000.0	0.0	1	75	0.102982	0.314194	0.0000028	
Line4		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line5		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line6		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line7		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line14		262	1609.3	0.0	1	75	0.106978	0.236662	0.0000032	
Line15		262	10500.0	0.0	1	75	0.107004	0.304271	0.0000028	
Line16		262	10500.0	0.0	1	75	0.107004	0.304271	0.0000028	
Line17		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line18		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line19		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line26		262	1609.3	0.0	1	75	0.106978	0.242657	0.0000032	
Line27		262	15000.0	0.0	1	75	0.106981	0.314194	0.0000028	
Line28		262	15000.0	0.0	1	75	0.106981	0.304206	0.0000028	
Line29		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line30		262	1609.3	0.0	1	75	0.106978	0.242657	0.0000032	
Line31		262	1609.3	0.0	1	75	0.106978	0.242657	0.0000032	
Line32		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line33		262	13000.0	0.0	1	75	0.106981	0.314194	0.0000028	
Line34		262	13000.0	0.0	1	75	0.106981	0.314194	0.0000028	
Line35		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line36		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line37		262	1609.3	0.0	1	75	0.106978	0.256651	0.0000032	
Line44		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030	
Line45		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030	

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Ohms or Siemens/1000 m per Conductor (Cable) or per Phase (Line)									
Line/Cable	Library	Size	Length		#/Phase	T (°C)	R	X	Y
ID			Adj. (m)	% Tol.					
Line46		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line47		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line48		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line49		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line56		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line57		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line58		120	1609.3	0.0	1	75	0.102979	0.348257	0.0000030
Line59		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line60		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line61		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line62		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line63		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line64		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line65		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line66		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line67		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line74		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line75		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line76		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line91		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line92		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line94		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line95		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line96		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line98		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line99		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line100		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030
Line101		120	1609.3	0.0	1	75	0.102979	0.288653	0.0000030

Line / Cable resistances are listed at the specified temperatures.

2-Winding Transformer Input Data

Transformer		Rating					Z Variation			% Tap Setting		Adjusted	Phase Shift	
ID	Phase	MVA	Prim. kV	Sec. kV	% Z1	X1/R1	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z	Type	Angle
T1	3-Phase	75.000	161.000	33.000	3.00	20.00	0	0	0	0	0	3.0000	Dyn	0.000
T2	3-Phase	75.000	161.000	33.000	3.00	20.00	0	0	0	0	0	3.0000	Dyn	0.000
T5	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T6	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T9	3-Phase	150.000	161.000	33.000	2.00	20.00	0	0	0	0	0	2.0000	Dyn	0.000
T10	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T11	3-Phase	25.000	161.000	33.000	4.00	20.00	0	0	0	-2.500	0	4.0000	Dyn	0.000
T12	3-Phase	50.000	161.000	33.000	3.50	20.00	0	0	0	-2.500	0	3.5000	Dyn	0.000

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Branch Connections

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
T1	2W XFMR	Bus 2	Bus5	0.20	4.00	4.00	
T2	2W XFMR	Bus 3	Bus4	0.20	4.00	4.00	
T5	2W XFMR	Bus18	Bus20	0.04	0.75	0.75	
T6	2W XFMR	Bus17	Bus19	0.04	0.75	0.75	
T9	2W XFMR	Bus 34	Bus 35	0.07	1.33	1.33	
T10	2W XFMR	Bus 33	Bus 36	0.04	0.75	0.75	
T11	2W XFMR	Bus 51	Bus 53	0.78	15.58	15.60	
T12	2W XFMR	Bus 50	Bus 52	0.34	6.82	6.83	
Cable1	Cable	Bus 2	Bus 3	0.02	0.04	0.05	
Cable3	Cable	Bus 2	Bus 3	0.02	0.04	0.05	
Cable7	Cable	Bus17	Bus18	0.03	0.05	0.06	
Cable8	Cable	Bus17	Bus18	0.03	0.05	0.06	
Cable11	Cable	Bus 33	Bus 34	0.03	0.05	0.06	
Cable12	Cable	Bus 33	Bus 34	0.03	0.05	0.06	
Cable13	Cable	Bus 50	Bus 51	0.03	0.05	0.06	
Cable14	Cable	Bus 50	Bus 51	0.03	0.05	0.06	
Line1	Line	Bus 2	Bus 1	0.08	0.24	0.26	0.1426855
Line3	Line	Bus 2	Bus 1	0.04	0.12	0.13	0.0713428
Line4	Line	Bus4	Bus8	1.58	3.79	4.11	0.0056364
Line5	Line	Bus5	Bus8	1.58	3.79	4.11	0.0056364
Line6	Line	Bus7	Bus8	1.58	3.79	4.11	0.0056364
Line7	Line	Bus6	Bus8	1.58	3.79	4.11	0.0056364
Line14	Line	Bus22	Bus 23	1.58	3.50	3.84	0.0056364
Line15	Line	Bus17	Bus 3	0.43	1.23	1.31	0.7492593
Line16	Line	Bus17	Bus 3	0.43	1.23	1.31	0.7492593
Line17	Line	Bus19	Bus 23	1.58	3.79	4.11	0.0056364
Line18	Line	Bus20	Bus 23	1.58	3.79	4.11	0.0056364
Line19	Line	Bus21	Bus 23	1.58	3.79	4.11	0.0056364
Line26	Line	Bus 37	Bus 39	1.58	3.59	3.92	0.0056364
Line27	Line	Bus 33	Bus18	0.62	1.82	1.92	1.0704490
Line28	Line	Bus 33	Bus18	0.62	1.76	1.87	1.0704490
Line29	Line	Bus 36	Bus 39	1.58	3.79	4.11	0.0056364
Line30	Line	Bus 35	Bus 39	1.58	3.59	3.92	0.0056364
Line31	Line	Bus 38	Bus 39	1.58	3.59	3.92	0.0056364
Line32	Line	Bus 54	Bus56	1.58	3.79	4.11	0.0056364
Line33	Line	Bus 50	Bus 34	0.54	1.58	1.66	0.9277222
Line34	Line	Bus 50	Bus 34	0.54	1.58	1.66	0.9277222

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CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
Line35	Line	Bus 52	Bus56	1.58	3.79	4.11	0.0056364
Line36	Line	Bus 53	Bus56	1.58	3.79	4.11	0.0056364
Line37	Line	Bus 55	Bus56	1.58	3.79	4.11	0.0056364
Line44	Line	Bus8	Bus 10	1.52	4.27	4.53	0.0052615
Line45	Line	Bus8	Bus 11	1.52	4.27	4.53	0.0052615
Line46	Line	Bus8	Bus 12	1.52	4.27	4.53	0.0052615
Line47	Line	Bus8	Bus 13	1.52	4.27	4.53	0.0052615
Line48	Line	Bus8	Bus 14	1.52	4.27	4.53	0.0052615
Line49	Line	Bus8	Bus 15	1.52	4.27	4.53	0.0052615
Line56	Line	Bus 23	Bus 30	1.52	4.27	4.53	0.0052615
Line57	Line	Bus 23	Bus 29	1.52	4.27	4.53	0.0052615
Line58	Line	Bus 23	Bus 28	1.52	5.15	5.37	0.0052615
Line59	Line	Bus 23	Bus 27	1.52	4.27	4.53	0.0052615
Line60	Line	Bus 23	Bus 26	1.52	4.27	4.53	0.0052615
Line61	Line	Bus 23	Bus 25	1.52	4.27	4.53	0.0052615
Line62	Line	Bus 39	Bus 47	1.52	4.27	4.53	0.0052615
Line63	Line	Bus 39	Bus 46	1.52	4.27	4.53	0.0052615
Line64	Line	Bus 39	Bus 45	1.52	4.27	4.53	0.0052615
Line65	Line	Bus 39	Bus 44	1.52	4.27	4.53	0.0052615
Line66	Line	Bus 39	Bus 43	1.52	4.27	4.53	0.0052615
Line67	Line	Bus 39	Bus 42	1.52	4.27	4.53	0.0052615
Line74	Line	Bus56	Bus 57	1.52	4.27	4.53	0.0052615
Line75	Line	Bus56	Bus 58	1.52	4.27	4.53	0.0052615
Line76	Line	Bus56	Bus 59	1.52	4.27	4.53	0.0052615
Line91	Line	Bus8	Bus 9	1.52	4.27	4.53	0.0052615
Line92	Line	Bus8	Bus 16	1.52	4.27	4.53	0.0052615
Line94	Line	Bus 23	Bus 24	1.52	4.27	4.53	0.0052615
Line95	Line	Bus 23	Bus 31	1.52	4.27	4.53	0.0052615
Line96	Line	Bus 23	Bus 32	1.52	4.27	4.53	0.0052615
Line98	Line	Bus 39	Bus 41	1.52	4.27	4.53	0.0052615
Line99	Line	Bus 39	Bus 48	1.52	4.27	4.53	0.0052615
Line100	Line	Bus 39	Bus 49	1.52	4.27	4.53	0.0052615
Line101	Line	Bus 39	Bus 40	1.52	4.27	4.53	0.0052615
CB7	Tie Breakr	Bus4	Bus5				
CB8	Tie Breakr	Bus6	Bus4				
CB10	Tie Breakr	Bus5	Bus7				
CB11	Tie Breakr	Bus6	Bus7				
CB29	Tie Breakr	Bus21	Bus22				
CB30	Tie Breakr	Bus19	Bus22				

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CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
CB39	Tie Breakr	Bus20	Bus19				
CB40	Tie Breakr	Bus21	Bus20				
CB53	Tie Breakr	Bus 38	Bus 37				
CB54	Tie Breakr	Bus 36	Bus 37				
CB63	Tie Breakr	Bus 35	Bus 36				
CB64	Tie Breakr	Bus 38	Bus 35				
CB65	Tie Breakr	Bus 55	Bus 54				
CB66	Tie Breakr	Bus 52	Bus 54				
CB75	Tie Breakr	Bus 53	Bus 52				
CB76	Tie Breakr	Bus 55	Bus 53				

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LOAD FLOW REPORT

Bus		Voltage		Generation		Load		Load Flow					XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
* Bus 1	161.000	100.000	0.0	434.175	205.109	0	0	Bus 2	144.725	68.334	573.9	90.4		
								Bus 2	289.450	136.775	1148.0	90.4		
Bus 2	161.000	99.720	-0.2	0	0	0	0	Bus 3	198.729	93.171	789.3	90.5		
								Bus 3	198.729	93.171	789.3	90.5		
								Bus 1	-144.521	-67.855	574.1	90.5		
								Bus 1	-289.043	-135.604	1148.1	90.5		
								Bus5	36.106	17.116	143.7	90.4		
Bus 3	161.000	99.646	-0.2	0	0	0	0	Bus 2	-198.652	-92.957	789.3	90.6		
								Bus 2	-198.652	-92.957	789.3	90.6		
								Bus17	181.565	85.282	721.9	90.5		
								Bus17	181.565	85.282	721.9	90.5		
								Bus4	34.174	15.349	134.8	91.2		
Bus4	33.000	98.972	-1.0	0	0	0	0	Bus8	17.555	7.815	339.7	91.4		
								Bus 3	-34.146	-14.785	657.8	91.8		
								Bus5	8.295	3.485	159.1	92.2		
								Bus6	8.295	3.485	159.1	92.2		
Bus5	33.000	98.972	-1.0	0	0	0	0	Bus8	17.555	7.815	339.7	91.4		
								Bus 2	-36.074	-16.474	701.0	91.0		
								Bus4	-8.295	-3.485	159.1	92.2		
								Bus7	26.814	12.145	520.4	91.1		
Bus6	33.000	98.972	-1.0	0	0	0	0	Bus8	17.555	7.815	339.7	91.4		
								Bus4	-8.295	-3.485	159.1	92.2		
								Bus7	-9.260	-4.330	180.7	90.6		
Bus7	33.000	98.972	-1.0	0	0	0	0	Bus8	17.555	7.815	339.7	91.4		
								Bus5	-26.814	-12.145	520.4	91.1		
								Bus6	9.260	4.330	180.7	90.6		
Bus8	33.000	98.393	-1.3	0	0	0	0	Bus4	-17.495	-7.677	339.7	91.6		
								Bus5	-17.495	-7.677	339.7	91.6		
								Bus7	-17.495	-7.677	339.7	91.6		
								Bus6	-17.495	-7.677	339.7	91.6		
								Bus 10	8.726	3.664	168.3	92.2		
								Bus 11	8.743	3.672	168.6	92.2		
								Bus 12	8.947	3.758	172.5	92.2		
								Bus 13	8.743	3.672	168.6	92.2		
								Bus 14	8.756	4.009	171.2	90.9		
								Bus 15	8.621	3.947	168.6	90.9		

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ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
								Bus 9	8.621	3.947	168.6	90.9	
								Bus 16	8.823	4.040	172.6	90.9	
Bus 9	33.000	98.089	-1.5	0	0	8.607	3.912	Bus8	-8.607	-3.912	168.6	91.0	
Bus 10	33.000	98.100	-1.5	0	0	8.712	3.630	Bus8	-8.712	-3.630	168.3	92.3	
Bus 11	33.000	98.099	-1.5	0	0	8.729	3.637	Bus8	-8.729	-3.637	168.6	92.3	
Bus 12	33.000	98.092	-1.5	0	0	8.932	3.722	Bus8	-8.932	-3.722	172.6	92.3	
Bus 13	33.000	98.099	-1.5	0	0	8.729	3.637	Bus8	-8.729	-3.637	168.6	92.3	
Bus 14	33.000	98.084	-1.5	0	0	8.741	3.973	Bus8	-8.741	-3.973	171.3	91.0	
Bus 15	33.000	98.089	-1.5	0	0	8.607	3.912	Bus8	-8.607	-3.912	168.6	91.0	
Bus 16	33.000	98.082	-1.5	0	0	8.809	4.004	Bus8	-8.809	-4.004	172.6	91.0	
Bus17	161.000	97.815	-1.3	0	0	0	0	Bus18	133.732	59.280	536.3	91.4	
								Bus18	133.732	59.280	536.3	91.4	
								Bus 3	-179.805	-81.010	723.0	91.2	
								Bus 3	-179.805	-81.010	723.0	91.2	
								Bus19	92.147	43.460	373.5	90.4	
Bus18	161.000	97.751	-1.3	0	0	0	0	Bus17	-133.675	-59.169	536.3	91.4	
								Bus17	-133.675	-59.169	536.3	91.4	
								Bus 33	89.700	41.359	362.4	90.8	
								Bus 33	92.751	41.660	373.0	91.2	
								Bus20	84.900	35.320	337.3	92.3	
Bus19	33.000	97.450	-1.7	0	0	0	0	Bus 23	43.330	19.331	851.8	91.3	
								Bus17	-92.106	-42.648	1822.3	90.7	
								Bus22	24.388	11.659	485.3	90.2	
								Bus20	24.388	11.659	485.3	90.2	
								Bus 23	43.330	19.331	851.8	91.3	
Bus20	33.000	97.450	-1.7	0	0	0	0	Bus18	-84.867	-34.657	1645.8	92.6	
								Bus19	-24.388	-11.659	485.3	90.2	
								Bus21	65.924	26.985	1278.9	92.5	
Bus21	33.000	97.450	-1.7	0	0	0	0	Bus 23	43.330	19.331	851.8	91.3	
								Bus22	22.594	7.654	428.3	94.7	
								Bus20	-65.924	-26.985	1278.9	92.5	
Bus22	33.000	97.450	-1.7	0	0	0	0	Bus 23	46.982	19.313	912.0	92.5	
								Bus21	-22.594	-7.654	428.3	94.7	
								Bus19	-24.388	-11.659	485.3	90.2	
Bus 23	33.000	96.004	-2.5	0	0	0	0	Bus22	-46.552	-18.368	912.0	93.0	
								Bus19	-42.956	-18.437	851.9	91.9	
								Bus20	-42.956	-18.437	851.9	91.9	
								Bus21	-42.956	-18.437	851.9	91.9	
								Bus 30	18.970	8.067	375.7	92.0	

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ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
								Bus 29	20.087	8.552	397.9	92.0	
								Bus 28	18.947	8.098	375.5	92.0	
								Bus 27	20.087	8.552	397.9	92.0	
								Bus 26	18.878	8.027	373.8	92.0	
								Bus 25	20.425	7.696	397.8	93.6	
								Bus 24	18.970	8.067	375.7	92.0	
								Bus 31	20.087	8.552	397.9	92.0	
								Bus 32	18.970	8.067	375.7	92.0	
								Bus 24	33.000	95.347	-3.0	0	
Bus 25	33.000	95.341	-3.0	0	0	20.347	7.480	Bus 23	-20.347	-7.480	397.8	93.9	
Bus 26	33.000	95.351	-3.0	0	0	18.808	7.837	Bus 23	-18.808	-7.837	373.9	92.3	
Bus 27	33.000	95.308	-3.0	0	0	20.008	8.337	Bus 23	-20.008	-8.337	397.9	92.3	
Bus 28	33.000	95.273	-3.1	0	0	18.877	7.865	Bus 23	-18.877	-7.865	375.5	92.3	
Bus 29	33.000	95.308	-3.0	0	0	20.008	8.337	Bus 23	-20.008	-8.337	397.9	92.3	
Bus 30	33.000	95.347	-3.0	0	0	18.900	7.875	Bus 23	-18.900	-7.875	375.7	92.3	
Bus 31	33.000	95.308	-3.0	0	0	20.008	8.337	Bus 23	-20.008	-8.337	397.9	92.3	
Bus 32	33.000	95.347	-3.0	0	0	18.900	7.875	Bus 23	-18.900	-7.875	375.7	92.3	
Bus 33	161.000	96.414	-2.2	0	0	0	0	Bus 34	40.655	18.005	165.4	91.4	
								Bus 34	40.655	18.005	165.4	91.4	
								Bus18	-89.065	-40.503	363.9	91.0	
								Bus18	-92.078	-40.757	374.5	91.4	
								Bus 36	99.834	45.249	407.7	91.1	
								Bus 33	-40.649	-17.995	165.4	91.4	
								Bus 33	-40.649	-17.995	165.4	91.4	
								Bus 50	13.191	5.966	53.9	91.1	
								Bus 50	13.191	5.966	53.9	91.1	
								Bus 35	54.916	24.059	223.0	91.6	
Bus 35	33.000	96.027	-2.6	0	0	0	0	Bus 39	39.206	16.963	778.3	91.8	
								Bus 34	-54.890	-23.543	1088.2	91.9	
								Bus 36	7.842	3.290	154.9	92.2	
								Bus 38	7.842	3.290	154.9	92.2	
								Bus 39	37.057	16.934	742.3	91.0	
								Bus 33	-99.785	-44.281	1989.0	91.4	
								Bus 37	70.571	30.636	1401.7	91.7	
								Bus 35	-7.842	-3.290	154.9	92.2	
								Bus 39	39.206	16.963	778.3	91.8	
								Bus 38	31.364	13.673	623.4	91.7	
Bus 36	-70.571	-30.636	1401.7	91.7									
Bus 38	33.000	96.027	-2.6	0	0	0	0	Bus 39	39.206	16.963	778.3	91.8	

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Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
Bus 39	33.000	94.755	-3.3	0	0	0	0	Bus 37	-31.364	-13.673	623.4	91.7	
								Bus 35	-7.842	-3.290	154.9	92.2	
								Bus 37	-38.893	-16.259	778.3	92.3	
								Bus 36	-36.772	-16.257	742.3	91.5	
								Bus 35	-38.893	-16.259	778.3	92.3	
								Bus 38	-38.893	-16.259	778.3	92.3	
								Bus 47	15.894	6.841	319.5	91.9	
								Bus 46	14.800	6.362	297.4	91.9	
								Bus 45	15.983	6.628	319.5	92.4	
								Bus 44	14.884	6.165	297.5	92.4	
								Bus 43	15.983	6.628	319.5	92.4	
								Bus 42	14.884	6.165	297.5	92.4	
								Bus 41	15.894	6.841	319.5	91.9	
								Bus 48	14.800	6.362	297.4	91.9	
Bus 40	33.000	94.232	-3.7	0	0	14.756	6.243	Bus 49	15.528	6.680	312.1	91.9	
								Bus 40	14.800	6.362	297.4	91.9	
								Bus 39	-14.756	-6.243	297.5	92.1	
								Bus 39	-15.843	-6.703	319.5	92.1	
								Bus 39	-14.840	-6.046	297.5	92.6	
								Bus 39	-15.932	-6.491	319.5	92.6	
								Bus 39	-14.840	-6.046	297.5	92.6	
								Bus 39	-15.932	-6.491	319.5	92.6	
								Bus 39	-14.756	-6.243	297.5	92.1	
								Bus 39	-15.843	-6.703	319.5	92.1	
								Bus 39	-14.756	-6.243	297.5	92.1	
								Bus 39	-15.480	-6.549	312.1	92.1	
								Bus 51	4.007	2.062	16.8	88.9	
								Bus 51	4.007	2.062	16.8	88.9	
Bus 51	161.000	96.214	-2.3	0	0	0	0	Bus 34	-13.179	-6.790	55.3	88.9	
								Bus 34	-13.179	-6.790	55.3	88.9	
								Bus 52	18.343	9.455	76.9	88.9	-2.500
								Bus 50	-4.007	-2.062	16.8	88.9	
								Bus 50	-4.007	-2.062	16.8	88.9	
								Bus 53	8.015	4.124	33.6	88.9	-2.500
Bus 52	33.000	97.957	-3.0	0	0	0	0	Bus56	6.584	3.285	131.4	89.5	
								Bus 50	-18.328	-9.149	365.9	89.5	
								Bus 54	5.872	2.932	117.2	89.5	
								Bus 53	5.872	2.932	117.2	89.5	
Bus 53	33.000	97.957	-3.0	0	0	0	0	Bus56	6.584	3.285	131.4	89.5	

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Bus		Voltage		Generation		Load		Load Flow				XFMR									
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap								
Bus 54	33.000	97.957	-3.0	0	0	0	0	Bus 51	-8.008	-3.990	159.8	89.5									
								Bus 52	-5.872	-2.932	117.2	89.5									
								Bus 55	7.296	3.638	145.6	89.5									
								Bus56	6.584	3.285	131.4	89.5									
								Bus 55	-0.712	-0.353	14.2	89.6									
Bus 55	33.000	97.957	-3.0	0	0	0	0	Bus 52	-5.872	-2.932	117.2	89.5									
								Bus56	6.584	3.285	131.4	89.5									
								Bus 54	0.712	0.353	14.2	89.6									
Bus56	33.000	97.723	-3.2	0	0	0	0	Bus 53	-7.296	-3.638	145.6	89.5									
								Bus 54	-6.575	-3.269	131.5	89.5									
								Bus 52	-6.575	-3.269	131.5	89.5									
								Bus 53	-6.575	-3.269	131.5	89.5									
								Bus 55	-6.575	-3.269	131.5	89.5									
								Bus 57	8.646	4.217	172.2	89.9									
								Bus 58	8.830	4.307	175.9	89.9									
Bus 57	33.000	97.405	-3.3	0	0	8.631	4.180	Bus 59	8.824	4.552	177.8	88.9									
								Bus56	-8.631	-4.180	172.3	90.0									
								Bus 58	33.000	97.398	-3.3	0	0	8.815	4.269	Bus56	-8.815	-4.269	175.9	90.0	
								Bus 59	33.000	97.388	-3.3	0	0	8.808	4.513	Bus56	-8.808	-4.513	177.8	89.0	

* Indicates a voltage regulated bus (voltage controlled or swing type machine connected to it)

Indicates a bus with a load mismatch of more than 0.1 MVA

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Bus Loading Summary Report

Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus 1	161.000		0	0	0	0	0	0	0	0	480.184	90.4	1722.0	
Bus 2	161.000		0	0	0	0	0	0	0	0	478.929	90.5	1722.3	
Bus 3	161.000		0	0	0	0	0	0	0	0	438.650	90.6	1578.6	
Bus4	33.000		0	0	0	0	0	0	0	0	37.209	91.8	657.8	
Bus5	33.000		0	0	0	0	0	0	0	0	48.652	91.2	860.0	
Bus6	33.000		0	0	0	0	0	0	0	0	19.216	91.4	339.7	
Bus7	33.000		0	0	0	0	0	0	0	0	29.436	91.1	520.4	
Bus8	33.000		0	0	0	0	0	0	0	0	76.423	91.6	1358.9	
Bus 9	33.000		1.775	0.807	6.832	3.105	0	0	0	0	9.455	91.0	168.6	
Bus 10	33.000		1.350	0.563	7.362	3.068	0	0	0	0	9.438	92.3	168.3	
Bus 11	33.000		1.800	0.750	6.929	2.887	0	0	0	0	9.456	92.3	168.6	
Bus 12	33.000		7.200	3.000	1.732	0.722	0	0	0	0	9.676	92.3	172.6	
Bus 13	33.000		1.800	0.750	6.929	2.887	0	0	0	0	9.456	92.3	168.6	
Bus 14	33.000		5.326	2.421	3.416	1.553	0	0	0	0	9.602	91.0	171.3	
Bus 15	33.000		1.775	0.807	6.832	3.105	0	0	0	0	9.455	91.0	168.6	
Bus 16	33.000		7.101	3.228	1.708	0.776	0	0	0	0	9.676	91.0	172.6	
Bus17	161.000		0	0	0	0	0	0	0	0	394.424	91.2	1446.0	
Bus18	161.000		0	0	0	0	0	0	0	0	292.370	91.4	1072.6	
Bus19	33.000		0	0	0	0	0	0	0	0	101.501	90.7	1822.3	
Bus20	33.000		0	0	0	0	0	0	0	0	118.666	92.1	2130.5	
Bus21	33.000		0	0	0	0	0	0	0	0	71.233	92.5	1278.9	
Bus22	33.000		0	0	0	0	0	0	0	0	50.797	92.5	912.0	
Bus 23	33.000		0	0	0	0	0	0	0	0	190.264	92.2	3467.3	
Bus 24	33.000		4.076	1.698	14.823	6.176	0	0	0	0	20.475	92.3	375.7	
Bus 25	33.000		16.579	6.095	3.768	1.385	0	0	0	0	21.678	93.9	397.8	
Bus 26	33.000		3.057	1.274	15.751	6.563	0	0	0	0	20.375	92.3	373.9	
Bus 27	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.675	92.3	397.9	
Bus 28	33.000		4.076	1.698	14.800	6.167	0	0	0	0	20.450	92.3	375.5	
Bus 29	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.675	92.3	397.9	
Bus 30	33.000		4.076	1.698	14.823	6.176	0	0	0	0	20.475	92.3	375.7	
Bus 31	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.675	92.3	397.9	
Bus 32	33.000		4.076	1.698	14.823	6.176	0	0	0	0	20.475	92.3	375.7	
Bus 33	161.000		0	0	0	0	0	0	0	0	198.535	91.2	738.4	
Bus 34	161.000		0	0	0	0	0	0	0	0	88.909	91.4	330.8	
Bus 35	33.000		0	0	0	0	0	0	0	0	59.726	91.9	1088.2	
Bus 36	33.000		0	0	0	0	0	0	0	0	117.671	91.5	2143.9	

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Bus			Directly Connected Load								Total Bus Load			
			Constant kVA		Constant Z		Constant I		Generic		MVA	% PF	Amp	Percent Loading
ID	kV	Rated Amp	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar				
Bus 37	33.000		0	0	0	0	0	0	0	0	76.934	91.7	1401.7	
Bus 38	33.000		0	0	0	0	0	0	0	0	42.719	91.8	778.3	
Bus 39	33.000		0	0	0	0	0	0	0	0	166.664	92.1	3077.3	
Bus 40	33.000		3.242	1.372	11.515	4.872	0	0	0	0	16.023	92.1	297.5	
Bus 41	33.000		12.967	5.486	2.876	1.217	0	0	0	0	17.203	92.1	319.5	
Bus 42	33.000		3.260	1.328	11.581	4.718	0	0	0	0	16.025	92.6	297.5	
Bus 43	33.000		13.039	5.312	2.893	1.179	0	0	0	0	17.204	92.6	319.5	
Bus 44	33.000		3.260	1.328	11.581	4.718	0	0	0	0	16.025	92.6	297.5	
Bus 45	33.000		13.039	5.312	2.893	1.179	0	0	0	0	17.204	92.6	319.5	
Bus 46	33.000		3.242	1.372	11.515	4.872	0	0	0	0	16.023	92.1	297.5	
Bus 47	33.000		12.967	5.486	2.876	1.217	0	0	0	0	17.203	92.1	319.5	
Bus 48	33.000		3.242	1.372	11.515	4.872	0	0	0	0	16.023	92.1	297.5	
Bus 49	33.000		9.725	4.115	5.754	2.434	0	0	0	0	16.808	92.1	312.1	
Bus 50	161.000		0	0	0	0	0	0	0	0	29.650	88.9	110.5	
Bus 51	161.000		0	0	0	0	0	0	0	0	9.013	88.9	33.6	
Bus 52	33.000		0	0	0	0	0	0	0	0	20.485	89.5	365.9	
Bus 53	33.000		0	0	0	0	0	0	0	0	15.511	89.5	277.0	
Bus 54	33.000		0	0	0	0	0	0	0	0	7.358	89.5	131.4	
Bus 55	33.000		0	0	0	0	0	0	0	0	8.153	89.5	145.6	
Bus56	33.000		0	0	0	0	0	0	0	0	29.371	89.5	525.8	
Bus 57	33.000		1.800	0.872	6.831	3.308	0	0	0	0	9.590	90.0	172.3	
Bus 58	33.000		5.400	2.615	3.415	1.654	0	0	0	0	9.795	90.0	175.9	
Bus 59	33.000		7.120	3.648	1.688	0.865	0	0	0	0	9.897	89.0	177.8	

* Indicates operating load of a bus exceeds the bus critical limit (100.0% of the Continuous Ampere rating).

Indicates operating load of a bus exceeds the bus marginal limit (95.0% of the Continuous Ampere rating).

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Branch Loading Summary Report

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
Cable1	Cable	829.53	789.30	95.15					
Cable3	Cable	829.53	789.30	95.15					
Cable7	Cable	626.50	536.29	85.60					
Cable8	Cable	626.50	536.29	85.60					
Cable11	Cable	626.50	165.38	26.40					
Cable12	Cable	626.50	165.38	26.40					
Cable13	Cable	626.50	16.80	2.68					
Cable14	Cable	626.50	16.80	2.68					
T1	Transformer				75.000	39.957	53.3	39.658	52.9
T2	Transformer				75.000	37.463	50.0	37.209	49.6
T5	Transformer				200.000	91.953	46.0	91.670	45.8
T6	Transformer				200.000	101.882	50.9	101.501	50.8
T9	Transformer				150.000	59.955	40.0	59.726	39.8
T10	Transformer				200.000	109.609	54.8	109.169	54.6
T11	Transformer				25.000	9.013	36.1	8.947	35.8
T12	Transformer				50.000	20.637	41.3	20.485	41.0

* Indicates a branch with operating load exceeding the branch capability.

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Branch Losses Summary Report

CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
Line1	144.725	68.334	-144.521	-67.855	203.6	478.9	100.0	99.7	0.28
Line3	289.450	136.775	-289.043	-135.604	407.2	1171.3	100.0	99.7	0.28
Cable1	198.729	93.171	-198.652	-92.957	77.2	214.6	99.7	99.6	0.07
Cable3	198.729	93.171	-198.652	-92.957	77.2	214.6	99.7	99.6	0.07
T1	36.106	17.116	-36.074	-16.474	32.1	641.4	99.7	99.0	0.75
Line15	181.565	85.282	-179.805	-81.010	1759.3	4272.3	99.6	97.8	1.83
Line16	181.565	85.282	-179.805	-81.010	1759.3	4272.3	99.6	97.8	1.83
T2	34.174	15.349	-34.146	-14.785	28.2	564.7	99.6	99.0	0.67
Line4	17.555	7.815	-17.495	-7.677	59.6	137.5	99.0	98.4	0.58
Line5	17.555	7.815	-17.495	-7.677	59.6	137.5	99.0	98.4	0.58
Line7	17.555	7.815	-17.495	-7.677	59.6	137.5	99.0	98.4	0.58
Line6	17.555	7.815	-17.495	-7.677	59.6	137.5	99.0	98.4	0.58
Line44	8.726	3.664	-8.712	-3.630	14.1	34.4	98.4	98.1	0.29
Line45	8.743	3.672	-8.729	-3.637	14.1	34.6	98.4	98.1	0.29
Line46	8.947	3.758	-8.932	-3.722	14.8	36.4	98.4	98.1	0.30
Line47	8.743	3.672	-8.729	-3.637	14.1	34.6	98.4	98.1	0.29
Line48	8.756	4.009	-8.741	-3.973	14.6	35.8	98.4	98.1	0.31
Line49	8.621	3.947	-8.607	-3.912	14.1	34.5	98.4	98.1	0.30
Line91	8.621	3.947	-8.607	-3.912	14.1	34.5	98.4	98.1	0.30
Line92	8.823	4.040	-8.809	-4.004	14.8	36.4	98.4	98.1	0.31
Cable7	133.732	59.280	-133.675	-59.169	56.7	110.4	97.8	97.8	0.06
Cable8	133.732	59.280	-133.675	-59.169	56.7	110.4	97.8	97.8	0.06
T6	92.147	43.460	-92.106	-42.648	40.6	812.6	97.8	97.4	0.37
Line27	89.700	41.359	-89.065	-40.503	634.9	855.7	97.8	96.4	1.34
Line28	92.751	41.660	-92.078	-40.757	672.6	903.6	97.8	96.4	1.34
T5	84.900	35.320	-84.867	-34.657	33.1	662.9	97.8	97.4	0.30
Line17	43.330	19.331	-42.956	-18.437	374.8	893.9	97.4	96.0	1.45
Line18	43.330	19.331	-42.956	-18.437	374.8	893.9	97.4	96.0	1.45
Line19	43.330	19.331	-42.956	-18.437	374.8	893.9	97.4	96.0	1.45
Line14	46.982	19.313	-46.552	-18.368	429.6	945.1	97.4	96.0	1.45
Line56	18.970	8.067	-18.900	-7.875	70.2	191.9	96.0	95.3	0.66
Line57	20.087	8.552	-20.008	-8.337	78.7	215.8	96.0	95.3	0.70
Line58	18.947	8.098	-18.877	-7.865	70.1	232.3	96.0	95.3	0.73
Line59	20.087	8.552	-20.008	-8.337	78.7	215.8	96.0	95.3	0.70
Line60	18.878	8.027	-18.808	-7.837	69.5	190.0	96.0	95.4	0.65

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CKT / Branch ID	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd % Drop in Vmag
	MW	Mvar	MW	Mvar	kW	kvar	From	To	
Line61	20.425	7.696	-20.347	-7.480	78.7	215.7	96.0	95.3	0.66
Line94	18.970	8.067	-18.900	-7.875	70.2	191.9	96.0	95.3	0.66
Line95	20.087	8.552	-20.008	-8.337	78.7	215.8	96.0	95.3	0.70
Line96	18.970	8.067	-18.900	-7.875	70.2	191.9	96.0	95.3	0.66
Cable11	40.655	18.005	-40.649	-17.995	5.4	10.5	96.4	96.4	0.02
Cable12	40.655	18.005	-40.649	-17.995	5.4	10.5	96.4	96.4	0.02
T10	99.834	45.249	-99.785	-44.281	48.4	968.1	96.4	96.0	0.39
Line33	13.191	5.966	-13.179	-6.790	12.4	-824.0	96.4	96.2	0.18
Line34	13.191	5.966	-13.179	-6.790	12.4	-824.0	96.4	96.2	0.18
T9	54.916	24.059	-54.890	-23.543	25.8	515.2	96.4	96.0	0.37
Line30	39.206	16.963	-38.893	-16.259	312.9	704.6	96.0	94.8	1.27
Line29	37.057	16.934	-36.772	-16.257	284.6	677.7	96.0	94.8	1.27
Line26	39.206	16.963	-38.893	-16.259	312.9	704.6	96.0	94.8	1.27
Line31	39.206	16.963	-38.893	-16.259	312.9	704.6	96.0	94.8	1.27
Line62	15.894	6.841	-15.843	-6.703	50.8	137.6	94.8	94.2	0.56
Line63	14.800	6.362	-14.756	-6.243	44.0	118.6	94.8	94.2	0.52
Line64	15.983	6.628	-15.932	-6.491	50.8	137.6	94.8	94.2	0.55
Line65	14.884	6.165	-14.840	-6.046	44.0	118.6	94.8	94.2	0.51
Line66	15.983	6.628	-15.932	-6.491	50.8	137.6	94.8	94.2	0.55
Line67	14.884	6.165	-14.840	-6.046	44.0	118.6	94.8	94.2	0.51
Line98	15.894	6.841	-15.843	-6.703	50.8	137.6	94.8	94.2	0.56
Line99	14.800	6.362	-14.756	-6.243	44.0	118.6	94.8	94.2	0.52
Line100	15.528	6.680	-15.480	-6.549	48.4	131.1	94.8	94.2	0.55
Line101	14.800	6.362	-14.756	-6.243	44.0	118.6	94.8	94.2	0.52
Cable13	4.007	2.062	-4.007	-2.062	0.1	0.1	96.2	96.2	0.00
Cable14	4.007	2.062	-4.007	-2.062	0.1	0.1	96.2	96.2	0.00
T12	18.343	9.455	-18.328	-9.149	15.3	305.7	96.2	98.0	1.74
T11	8.015	4.124	-8.008	-3.990	6.7	133.3	96.2	98.0	1.74
Line35	6.584	3.285	-6.575	-3.269	8.9	16.0	98.0	97.7	0.23
Line36	6.584	3.285	-6.575	-3.269	8.9	16.0	98.0	97.7	0.23
Line32	6.584	3.285	-6.575	-3.269	8.9	16.0	98.0	97.7	0.23
Line37	6.584	3.285	-6.575	-3.269	8.9	16.0	98.0	97.7	0.23
Line74	8.646	4.217	-8.631	-4.180	14.7	36.3	97.7	97.4	0.32
Line75	8.830	4.307	-8.815	-4.269	15.4	38.1	97.7	97.4	0.33
Line76	8.824	4.552	-8.808	-4.513	15.7	39.0	97.7	97.4	0.34
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Alert Summary Report

% Alert Settings

	<u>Critical</u>	<u>Marginal</u>
<u>Loading</u>		
Bus	100.0	95.0
Cable	100.0	95.0
Reactor	100.0	95.0
Line	100.0	95.0
Transformer	100.0	95.0
Panel	100.0	95.0
Protective Device	100.0	95.0
Generator	100.0	95.0
Inverter/Charger	100.0	95.0
<u>Bus Voltage</u>		
OverVoltage	105.0	102.0
UnderVoltage	95.0	98.0
<u>Generator Excitation</u>		
OverExcited (Q Max.)	100.0	95.0
UnderExcited (Q Min.)	100.0	

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Bus 39	Bus	Under Voltage	33.00	kV	31.27	94.8	3-Phase
Bus 40	Bus	Under Voltage	33.00	kV	31.10	94.2	3-Phase
Bus 41	Bus	Under Voltage	33.00	kV	31.08	94.2	3-Phase
Bus 42	Bus	Under Voltage	33.00	kV	31.10	94.2	3-Phase
Bus 43	Bus	Under Voltage	33.00	kV	31.09	94.2	3-Phase
Bus 44	Bus	Under Voltage	33.00	kV	31.10	94.2	3-Phase
Bus 45	Bus	Under Voltage	33.00	kV	31.09	94.2	3-Phase
Bus 46	Bus	Under Voltage	33.00	kV	31.10	94.2	3-Phase
Bus 47	Bus	Under Voltage	33.00	kV	31.08	94.2	3-Phase
Bus 48	Bus	Under Voltage	33.00	kV	31.10	94.2	3-Phase
Bus 49	Bus	Under Voltage	33.00	kV	31.09	94.2	3-Phase

Marginal Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Bus 23	Bus	Under Voltage	33.00	kV	31.68	96.0	3-Phase

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Marginal Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Bus 24	Bus	Under Voltage	33.00	kV	31.46	95.3	3-Phase
Bus 25	Bus	Under Voltage	33.00	kV	31.46	95.3	3-Phase
Bus 26	Bus	Under Voltage	33.00	kV	31.47	95.4	3-Phase
Bus 27	Bus	Under Voltage	33.00	kV	31.45	95.3	3-Phase
Bus 28	Bus	Under Voltage	33.00	kV	31.44	95.3	3-Phase
Bus 29	Bus	Under Voltage	33.00	kV	31.45	95.3	3-Phase
Bus 30	Bus	Under Voltage	33.00	kV	31.46	95.3	3-Phase
Bus 31	Bus	Under Voltage	33.00	kV	31.45	95.3	3-Phase
Bus 32	Bus	Under Voltage	33.00	kV	31.46	95.3	3-Phase
Bus 33	Bus	Under Voltage	161.00	kV	155.23	96.4	3-Phase
Bus 34	Bus	Under Voltage	161.00	kV	155.19	96.4	3-Phase
Bus 35	Bus	Under Voltage	33.00	kV	31.69	96.0	3-Phase
Bus 36	Bus	Under Voltage	33.00	kV	31.69	96.0	3-Phase
Bus 37	Bus	Under Voltage	33.00	kV	31.69	96.0	3-Phase
Bus 38	Bus	Under Voltage	33.00	kV	31.69	96.0	3-Phase
Bus 50	Bus	Under Voltage	161.00	kV	154.91	96.2	3-Phase
Bus 51	Bus	Under Voltage	161.00	kV	154.90	96.2	3-Phase
Bus 52	Bus	Under Voltage	33.00	kV	32.33	98.0	3-Phase
Bus 53	Bus	Under Voltage	33.00	kV	32.33	98.0	3-Phase
Bus 54	Bus	Under Voltage	33.00	kV	32.33	98.0	3-Phase
Bus 55	Bus	Under Voltage	33.00	kV	32.33	98.0	3-Phase
Bus 57	Bus	Under Voltage	33.00	kV	32.14	97.4	3-Phase
Bus 58	Bus	Under Voltage	33.00	kV	32.14	97.4	3-Phase
Bus 59	Bus	Under Voltage	33.00	kV	32.14	97.4	3-Phase
Bus17	Bus	Under Voltage	161.00	kV	157.48	97.8	3-Phase
Bus18	Bus	Under Voltage	161.00	kV	157.38	97.8	3-Phase
Bus19	Bus	Under Voltage	33.00	kV	32.16	97.4	3-Phase
Bus20	Bus	Under Voltage	33.00	kV	32.16	97.4	3-Phase
Bus21	Bus	Under Voltage	33.00	kV	32.16	97.4	3-Phase
Bus22	Bus	Under Voltage	33.00	kV	32.16	97.4	3-Phase
Bus56	Bus	Under Voltage	33.00	kV	32.25	97.7	3-Phase
Cable1	Cable	Overload	829.53	Amp	789.30	95.1	3-Phase
Cable3	Cable	Overload	829.53	Amp	789.30	95.1	3-Phase

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SUMMARY OF TOTAL GENERATION, LOADING & DEMAND

	MW	Mvar	MVA	% PF
Source (Swing Buses):	434.175	205.109	480.184	90.42 Lagging
Source (Non-Swing Buses):	0.000	0.000	0.000	
Total Demand:	434.175	205.109	480.184	90.42 Lagging
Total Motor Load:	205.288	86.486	222.762	92.16 Lagging
Total Static Load:	218.568	92.479	237.327	92.10 Lagging
Total Constant I Load:	0.000	0.000	0.000	
Total Generic Load:	0.000	0.000	0.000	
Apparent Losses:	10.319	26.144		
System Mismatch:	0.000	0.000		

Number of Iterations: 4