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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	1500	600.0	0.0	1	75	0.056325	0.180446		
Cable3	138NCUS1	1500	600.0	0.0	1	75	0.056325	0.180446		
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
T 1	3-Phase	75.000	161.000	33.000	3.00	20.00	0	0	0	0	0	3.0000	Dyn	0.000
T 2	3-Phase	75.000	161.000	33.000	3.00	20.00	0	0	0	0	0	3.0000	Dyn	0.000
T 3	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T 4	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T 5	3-Phase	200.000	161.000	33.000	1.50	20.00	0	0	0	0	0	1.5000	Dyn	0.000
T 6	3-Phase	150.000	161.000	33.000	2.00	20.00	0	0	0	0	0	2.0000	Dyn	0.000
T 7	3-Phase	50.000	161.000	33.000	3.50	20.00	0	0	0	-2.500	0	3.5000	Dyn	0.000
T 8	3-Phase	25.000	161.000	33.000	4.00	20.00	0	0	0	-2.500	0	4.0000	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
T 1	2W XFMR	Bus 2	Bus5	0.20	4.00	4.00	
T 2	2W XFMR	Bus 3	Bus4	0.20	4.00	4.00	
T 3	2W XFMR	Bus17	Bus19	0.04	0.75	0.75	
T 4	2W XFMR	Bus18	Bus20	0.04	0.75	0.75	
T 5	2W XFMR	Bus 33	Bus 36	0.04	0.75	0.75	
T 6	2W XFMR	Bus 34	Bus 35	0.07	1.33	1.33	
T 7	2W XFMR	Bus 50	Bus 52	0.34	6.82	6.83	
T 8	2W XFMR	Bus 51	Bus 53	0.78	15.58	15.60	
Cable1	Cable	Bus 2	Bus 3	0.01	0.04	0.04	
Cable3	Cable	Bus 2	Bus 3	0.01	0.04	0.04	
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	434.180	205.097	0	0	Bus 2	144.727	68.330	573.9	90.4		
								Bus 2	289.453	136.767	1148.0	90.4		
Bus 2	161.000	99.720	-0.2	0	0	0	0	Bus 3	198.748	93.216	789.4	90.5		
								Bus 3	198.748	93.216	789.4	90.5		
								Bus 1	-144.523	-67.851	574.1	90.5		
								Bus 1	-289.046	-135.596	1148.1	90.5		
								Bus5	36.072	17.016	143.4	90.4		
Bus 3	161.000	99.655	-0.2	0	0	0	0	Bus 2	-198.685	-93.013	789.4	90.6		
								Bus 2	-198.685	-93.013	789.4	90.6		
								Bus17	181.580	85.288	721.9	90.5		
								Bus17	181.580	85.288	721.9	90.5		
								Bus4	34.211	15.451	135.1	91.1		
Bus4	33.000	98.976	-1.0	0	0	0	0	Bus8	17.556	7.815	339.7	91.4		
								Bus 3	-34.183	-14.884	659.0	91.7		
								Bus5	8.313	3.534	159.7	92.0		
								Bus6	8.313	3.534	159.7	92.0		
Bus5	33.000	98.976	-1.0	0	0	0	0	Bus8	17.556	7.815	339.7	91.4		
								Bus 2	-36.040	-16.377	699.8	91.0		
								Bus4	-8.313	-3.534	159.7	92.0		
								Bus7	26.798	12.096	519.7	91.1		
Bus6	33.000	98.976	-1.0	0	0	0	0	Bus8	17.556	7.815	339.7	91.4		
								Bus4	-8.313	-3.534	159.7	92.0		
								Bus7	-9.242	-4.281	180.0	90.7		
Bus7	33.000	98.976	-1.0	0	0	0	0	Bus8	17.556	7.815	339.7	91.4		
								Bus5	-26.798	-12.096	519.7	91.1		
								Bus6	9.242	4.281	180.0	90.7		
Bus8	33.000	98.397	-1.3	0	0	0	0	Bus4	-17.496	-7.678	339.7	91.6		
								Bus5	-17.496	-7.678	339.7	91.6		
								Bus7	-17.496	-7.678	339.7	91.6		
								Bus6	-17.496	-7.678	339.7	91.6		
								Bus 10	8.727	3.665	168.3	92.2		
								Bus 11	8.744	3.672	168.6	92.2		
								Bus 12	8.947	3.758	172.5	92.2		
								Bus 13	8.744	3.672	168.6	92.2		
								Bus 14	8.756	4.009	171.2	90.9		
								Bus 15	8.622	3.947	168.6	90.9		

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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 9	8.622	3.947	168.6	90.9	
								Bus 16	8.824	4.040	172.6	90.9	
Bus 9	33.000	98.093	-1.5	0	0	8.608	3.913	Bus8	-8.608	-3.913	168.6	91.0	
Bus 10	33.000	98.104	-1.5	0	0	8.713	3.630	Bus8	-8.713	-3.630	168.3	92.3	
Bus 11	33.000	98.103	-1.5	0	0	8.729	3.637	Bus8	-8.729	-3.637	168.7	92.3	
Bus 12	33.000	98.096	-1.5	0	0	8.932	3.722	Bus8	-8.932	-3.722	172.6	92.3	
Bus 13	33.000	98.103	-1.5	0	0	8.729	3.637	Bus8	-8.729	-3.637	168.7	92.3	
Bus 14	33.000	98.088	-1.5	0	0	8.742	3.973	Bus8	-8.742	-3.973	171.3	91.0	
Bus 15	33.000	98.093	-1.5	0	0	8.608	3.913	Bus8	-8.608	-3.913	168.6	91.0	
Bus 16	33.000	98.086	-1.5	0	0	8.809	4.004	Bus8	-8.809	-4.004	172.6	91.0	
Bus17	161.000	97.823	-1.3	0	0	0	0	Bus18	133.743	59.284	536.3	91.4	
								Bus18	133.743	59.284	536.3	91.4	
								Bus 3	-179.821	-81.016	723.0	91.2	
								Bus 3	-179.821	-81.016	723.0	91.2	
								Bus19	92.155	43.464	373.5	90.4	
Bus18	161.000	97.759	-1.3	0	0	0	0	Bus17	-133.686	-59.173	536.3	91.4	
								Bus17	-133.686	-59.173	536.3	91.4	
								Bus 33	89.707	41.361	362.4	90.8	
								Bus 33	92.759	41.663	373.0	91.2	
								Bus20	84.907	35.323	337.3	92.3	
Bus19	33.000	97.458	-1.7	0	0	0	0	Bus 23	43.334	19.332	851.8	91.3	
								Bus17	-92.114	-42.651	1822.3	90.7	
								Bus22	24.390	11.659	485.3	90.2	
								Bus20	24.390	11.659	485.3	90.2	
								Bus 23	43.334	19.332	851.8	91.3	
Bus20	33.000	97.458	-1.7	0	0	0	0	Bus18	-84.874	-34.660	1645.8	92.6	
								Bus19	-24.390	-11.659	485.3	90.2	
								Bus21	65.930	26.987	1278.9	92.5	
Bus21	33.000	97.458	-1.7	0	0	0	0	Bus 23	43.334	19.332	851.8	91.3	
								Bus22	22.596	7.655	428.3	94.7	
								Bus20	-65.930	-26.987	1278.9	92.5	
Bus22	33.000	97.458	-1.7	0	0	0	0	Bus 23	46.986	19.314	912.0	92.5	
								Bus21	-22.596	-7.655	428.3	94.7	
								Bus19	-24.390	-11.659	485.3	90.2	
Bus 23	33.000	96.012	-2.5	0	0	0	0	Bus22	-46.557	-18.369	912.0	93.0	
								Bus19	-42.959	-18.438	851.9	91.9	
								Bus20	-42.959	-18.438	851.9	91.9	
								Bus21	-42.959	-18.438	851.9	91.9	
								Bus 30	18.972	8.068	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	8.553	397.8	92.0	
								Bus 28	18.949	8.099	375.5	92.0	
								Bus 27	20.087	8.553	397.8	92.0	
								Bus 26	18.880	8.028	373.8	92.0	
								Bus 25	20.426	7.696	397.7	93.6	
								Bus 24	18.972	8.068	375.7	92.0	
								Bus 31	20.087	8.553	397.8	92.0	
								Bus 32	18.972	8.068	375.7	92.0	
Bus 24	33.000	95.355	-3.0	0	0	18.902	7.876	Bus 23	-18.902	-7.876	375.7	92.3	
Bus 25	33.000	95.349	-3.0	0	0	20.347	7.481	Bus 23	-20.347	-7.481	397.8	93.9	
Bus 26	33.000	95.359	-3.0	0	0	18.811	7.838	Bus 23	-18.811	-7.838	373.9	92.3	
Bus 27	33.000	95.317	-3.0	0	0	20.009	8.337	Bus 23	-20.009	-8.337	397.9	92.3	
Bus 28	33.000	95.282	-3.1	0	0	18.879	7.866	Bus 23	-18.879	-7.866	375.5	92.3	
Bus 29	33.000	95.317	-3.0	0	0	20.009	8.337	Bus 23	-20.009	-8.337	397.9	92.3	
Bus 30	33.000	95.355	-3.0	0	0	18.902	7.876	Bus 23	-18.902	-7.876	375.7	92.3	
Bus 31	33.000	95.317	-3.0	0	0	20.009	8.337	Bus 23	-20.009	-8.337	397.9	92.3	
Bus 32	33.000	95.355	-3.0	0	0	18.902	7.876	Bus 23	-18.902	-7.876	375.7	92.3	
Bus 33	161.000	96.422	-2.2	0	0	0	0	Bus 34	40.658	18.007	165.4	91.4	
								Bus 34	40.658	18.007	165.4	91.4	
								Bus18	-89.072	-40.506	363.9	91.0	
								Bus18	-92.086	-40.760	374.5	91.4	
								Bus 36	99.842	45.252	407.7	91.1	
Bus 34	161.000	96.402	-2.2	0	0	0	0	Bus 33	-40.653	-17.996	165.4	91.4	
								Bus 33	-40.653	-17.996	165.4	91.4	
								Bus 50	13.192	5.966	53.9	91.1	
								Bus 50	13.192	5.966	53.9	91.1	
								Bus 35	54.920	24.060	223.0	91.6	
Bus 35	33.000	96.035	-2.6	0	0	0	0	Bus 39	39.210	16.965	778.3	91.8	
								Bus 34	-54.895	-23.545	1088.2	91.9	
								Bus 36	7.843	3.290	154.9	92.2	
								Bus 38	7.843	3.290	154.9	92.2	
Bus 36	33.000	96.035	-2.6	0	0	0	0	Bus 39	37.060	16.936	742.3	91.0	
								Bus 33	-99.794	-44.284	1989.0	91.4	
								Bus 37	70.577	30.639	1401.7	91.7	
								Bus 35	-7.843	-3.290	154.9	92.2	
Bus 37	33.000	96.035	-2.6	0	0	0	0	Bus 39	39.210	16.965	778.3	91.8	
								Bus 38	31.367	13.674	623.4	91.7	
								Bus 36	-70.577	-30.639	1401.7	91.7	
Bus 38	33.000	96.035	-2.6	0	0	0	0	Bus 39	39.210	16.965	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	94.763	-3.3	0	0	0	0	Bus 37	-31.367	-13.674	623.4	91.7	
								Bus 35	-7.843	-3.290	154.9	92.2	
								Bus 37	-38.897	-16.260	778.3	92.3	
								Bus 36	-36.775	-16.258	742.3	91.5	
								Bus 35	-38.897	-16.260	778.3	92.3	
								Bus 38	-38.897	-16.260	778.3	92.3	
								Bus 47	15.895	6.841	319.5	91.9	
								Bus 46	14.802	6.363	297.5	91.9	
								Bus 45	15.983	6.629	319.5	92.4	
								Bus 44	14.886	6.166	297.5	92.4	
								Bus 43	15.983	6.629	319.5	92.4	
								Bus 42	14.886	6.166	297.5	92.4	
								Bus 41	15.895	6.841	319.5	91.9	
								Bus 48	14.802	6.363	297.5	91.9	
Bus 40	33.000	94.241	-3.7	0	0	14.758	6.244	Bus 49	15.529	6.681	312.1	91.9	
								Bus 40	14.802	6.363	297.5	91.9	
								Bus 39	-14.758	-6.244	297.5	92.1	
								Bus 39	-15.844	-6.703	319.5	92.1	
								Bus 39	-14.842	-6.047	297.5	92.6	
								Bus 39	-15.933	-6.491	319.5	92.6	
								Bus 39	-14.842	-6.047	297.5	92.6	
								Bus 39	-15.933	-6.491	319.5	92.6	
								Bus 39	-14.758	-6.244	297.5	92.1	
								Bus 39	-15.844	-6.703	319.5	92.1	
								Bus 39	-14.758	-6.244	297.5	92.1	
								Bus 39	-15.481	-6.549	312.1	92.1	
								Bus 51	4.008	2.062	16.8	88.9	
								Bus 51	4.008	2.062	16.8	88.9	
Bus 51	161.000	96.222	-2.3	0	0	0	0	Bus 34	-13.180	-6.790	55.3	88.9	
								Bus 34	-13.180	-6.790	55.3	88.9	
								Bus 52	18.345	9.456	76.9	88.9	-2.500
								Bus 50	-4.008	-2.062	16.8	88.9	
								Bus 50	-4.008	-2.062	16.8	88.9	
								Bus 53	8.015	4.124	33.6	88.9	-2.500
								Bus56	6.585	3.285	131.4	89.5	
								Bus 50	-18.329	-9.150	365.9	89.5	
								Bus 54	5.872	2.932	117.2	89.5	
								Bus 53	5.872	2.932	117.2	89.5	
								Bus56	6.585	3.285	131.4	89.5	
Bus 52	33.000	97.965	-3.0	0	0	0	0						
Bus 53	33.000	97.965	-3.0	0	0	0	0						

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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	97.965	-3.0	0	0	0	0	Bus 51	-8.009	-3.991	159.8	89.5									
								Bus 52	-5.872	-2.932	117.2	89.5									
								Bus 55	7.297	3.638	145.6	89.5									
								Bus56	6.585	3.285	131.4	89.5									
								Bus 55	-0.712	-0.353	14.2	89.6									
Bus 55	33.000	97.965	-3.0	0	0	0	0	Bus 52	-5.872	-2.932	117.2	89.5									
								Bus56	6.585	3.285	131.4	89.5									
								Bus 54	0.712	0.353	14.2	89.6									
Bus56	33.000	97.732	-3.1	0	0	0	0	Bus 53	-7.297	-3.638	145.6	89.5									
								Bus 54	-6.576	-3.269	131.5	89.5									
								Bus 52	-6.576	-3.269	131.5	89.5									
								Bus 53	-6.576	-3.269	131.5	89.5									
								Bus 55	-6.576	-3.269	131.5	89.5									
								Bus 57	8.647	4.217	172.2	89.9									
								Bus 58	8.831	4.308	175.9	89.9									
Bus 57	33.000	97.413	-3.3	0	0	8.632	4.181	Bus 59	8.824	4.552	177.7	88.9									
								Bus56	-8.632	-4.181	172.3	90.0									
								Bus 58	33.000	97.407	-3.3	0	0	8.816	4.270	Bus56	-8.816	-4.270	175.9	90.0	
								Bus 59	33.000	97.396	-3.3	0	0	8.809	4.513	Bus56	-8.809	-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	480.185	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	438.759	90.6	1578.9	
Bus4	33.000		0	0	0	0	0	0	0	0	37.282	91.7	659.0	
Bus5	33.000		0	0	0	0	0	0	0	0	48.618	91.2	859.4	
Bus6	33.000		0	0	0	0	0	0	0	0	19.217	91.4	339.7	
Bus7	33.000		0	0	0	0	0	0	0	0	29.402	91.1	519.7	
Bus8	33.000		0	0	0	0	0	0	0	0	76.426	91.6	1358.9	
Bus 9	33.000		1.775	0.807	6.833	3.106	0	0	0	0	9.455	91.0	168.6	
Bus 10	33.000		1.350	0.563	7.363	3.068	0	0	0	0	9.439	92.3	168.3	
Bus 11	33.000		1.800	0.750	6.929	2.887	0	0	0	0	9.457	92.3	168.7	
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	9.457	92.3	168.7	
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	6.833	3.106	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	394.457	91.2	1446.0	
Bus18	161.000		0	0	0	0	0	0	0	0	292.394	91.4	1072.6	
Bus19	33.000		0	0	0	0	0	0	0	0	101.510	90.7	1822.3	
Bus20	33.000		0	0	0	0	0	0	0	0	118.676	92.1	2130.5	
Bus21	33.000		0	0	0	0	0	0	0	0	71.239	92.5	1278.9	
Bus22	33.000		0	0	0	0	0	0	0	0	50.801	92.5	912.0	
Bus 23	33.000		0	0	0	0	0	0	0	0	190.280	92.2	3467.3	
Bus 24	33.000		4.076	1.698	14.826	6.177	0	0	0	0	20.477	92.3	375.7	
Bus 25	33.000		16.579	6.095	3.768	1.385	0	0	0	0	21.679	93.9	397.8	
Bus 26	33.000		3.057	1.274	15.753	6.564	0	0	0	0	20.378	92.3	373.9	
Bus 27	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.676	92.3	397.9	
Bus 28	33.000		4.076	1.698	14.803	6.168	0	0	0	0	20.452	92.3	375.5	
Bus 29	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.676	92.3	397.9	
Bus 30	33.000		4.076	1.698	14.826	6.177	0	0	0	0	20.477	92.3	375.7	
Bus 31	33.000		16.305	6.794	3.703	1.543	0	0	0	0	21.676	92.3	397.9	
Bus 32	33.000		4.076	1.698	14.826	6.177	0	0	0	0	20.477	92.3	375.7	
Bus 33	161.000		0	0	0	0	0	0	0	0	198.551	91.2	738.4	
Bus 34	161.000		0	0	0	0	0	0	0	0	88.916	91.4	330.8	
Bus 35	33.000		0	0	0	0	0	0	0	0	59.731	91.9	1088.2	
Bus 36	33.000		0	0	0	0	0	0	0	0	117.681	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	76.940	91.7	1401.7	
Bus 38	33.000		0	0	0	0	0	0	0	0	42.722	91.8	778.3	
Bus 39	33.000		0	0	0	0	0	0	0	0	166.678	92.1	3077.3	
Bus 40	33.000		3.242	1.372	11.517	4.872	0	0	0	0	16.025	92.1	297.5	
Bus 41	33.000		12.967	5.486	2.877	1.217	0	0	0	0	17.204	92.1	319.5	
Bus 42	33.000		3.260	1.328	11.583	4.719	0	0	0	0	16.027	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	11.583	4.719	0	0	0	0	16.027	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	11.517	4.872	0	0	0	0	16.025	92.1	297.5	
Bus 47	33.000		12.967	5.486	2.877	1.217	0	0	0	0	17.204	92.1	319.5	
Bus 48	33.000		3.242	1.372	11.517	4.872	0	0	0	0	16.025	92.1	297.5	
Bus 49	33.000		9.725	4.115	5.755	2.435	0	0	0	0	16.809	92.1	312.1	
Bus 50	161.000		0	0	0	0	0	0	0	0	29.653	88.9	110.5	
Bus 51	161.000		0	0	0	0	0	0	0	0	9.014	88.9	33.6	
Bus 52	33.000		0	0	0	0	0	0	0	0	20.486	89.5	365.9	
Bus 53	33.000		0	0	0	0	0	0	0	0	15.512	89.5	277.0	
Bus 54	33.000		0	0	0	0	0	0	0	0	7.359	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	29.374	89.5	525.8	
Bus 57	33.000		1.800	0.872	6.832	3.309	0	0	0	0	9.591	90.0	172.3	
Bus 58	33.000		5.400	2.615	3.416	1.654	0	0	0	0	9.795	90.0	175.9	
Bus 59	33.000		7.120	3.648	1.689	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	935.49	789.43	84.39					
Cable3	Cable	935.49	789.43	84.39					
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					
T 1	Transformer				75.000	39.884	53.2	39.587	52.8
T 2	Transformer				75.000	37.538	50.1	37.282	49.7
T 3	Transformer				200.000	101.890	50.9	101.510	50.8
T 4	Transformer				200.000	91.961	46.0	91.678	45.8
T 5	Transformer				200.000	109.618	54.8	109.178	54.6
T 6	Transformer				150.000	59.960	40.0	59.731	39.8
T 7	Transformer				50.000	20.638	41.3	20.486	41.0
T 8	Transformer				25.000	9.014	36.1	8.948	35.8

* 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	144.727	68.330	-144.523	-67.851	203.6	478.9	100.0	99.7	0.28
Line3	289.453	136.767	-289.046	-135.596	407.2	1171.3	100.0	99.7	0.28
Cable1	198.748	93.216	-198.685	-93.013	63.2	202.4	99.7	99.7	0.07
Cable3	198.748	93.216	-198.685	-93.013	63.2	202.4	99.7	99.7	0.07
T 1	36.072	17.016	-36.040	-16.377	32.0	639.1	99.7	99.0	0.74
Line15	181.580	85.288	-179.821	-81.016	1759.3	4272.2	99.7	97.8	1.83
Line16	181.580	85.288	-179.821	-81.016	1759.3	4272.2	99.7	97.8	1.83
T 2	34.211	15.451	-34.183	-14.884	28.3	566.8	99.7	99.0	0.68
Line4	17.556	7.815	-17.496	-7.678	59.6	137.5	99.0	98.4	0.58
Line5	17.556	7.815	-17.496	-7.678	59.6	137.5	99.0	98.4	0.58
Line7	17.556	7.815	-17.496	-7.678	59.6	137.5	99.0	98.4	0.58
Line6	17.556	7.815	-17.496	-7.678	59.6	137.5	99.0	98.4	0.58
Line44	8.727	3.665	-8.713	-3.630	14.1	34.4	98.4	98.1	0.29
Line45	8.744	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	8.744	3.672	-8.729	-3.637	14.1	34.6	98.4	98.1	0.29
Line48	8.756	4.009	-8.742	-3.973	14.6	35.8	98.4	98.1	0.31
Line49	8.622	3.947	-8.608	-3.913	14.1	34.5	98.4	98.1	0.30
Line91	8.622	3.947	-8.608	-3.913	14.1	34.5	98.4	98.1	0.30
Line92	8.824	4.040	-8.809	-4.004	14.8	36.4	98.4	98.1	0.31
Cable7	133.743	59.284	-133.686	-59.173	56.7	110.4	97.8	97.8	0.06
Cable8	133.743	59.284	-133.686	-59.173	56.7	110.4	97.8	97.8	0.06
T 3	92.155	43.464	-92.114	-42.651	40.6	812.6	97.8	97.5	0.37
Line27	89.707	41.361	-89.072	-40.506	634.9	855.5	97.8	96.4	1.34
Line28	92.759	41.663	-92.086	-40.760	672.6	903.4	97.8	96.4	1.34
T 4	84.907	35.323	-84.874	-34.660	33.1	662.9	97.8	97.5	0.30
Line17	43.334	19.332	-42.959	-18.438	374.8	893.9	97.5	96.0	1.45
Line18	43.334	19.332	-42.959	-18.438	374.8	893.9	97.5	96.0	1.45
Line19	43.334	19.332	-42.959	-18.438	374.8	893.9	97.5	96.0	1.45
Line14	46.986	19.314	-46.557	-18.369	429.6	945.1	97.5	96.0	1.45
Line56	18.972	8.068	-18.902	-7.876	70.2	191.9	96.0	95.4	0.66
Line57	20.087	8.553	-20.009	-8.337	78.7	215.8	96.0	95.3	0.70
Line58	18.949	8.099	-18.879	-7.866	70.1	232.3	96.0	95.3	0.73
Line59	20.087	8.553	-20.009	-8.337	78.7	215.8	96.0	95.3	0.70
Line60	18.880	8.028	-18.811	-7.838	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	20.426	7.696	-20.347	-7.481	78.7	215.7	96.0	95.3	0.66
Line94	18.972	8.068	-18.902	-7.876	70.2	191.9	96.0	95.4	0.66
Line95	20.087	8.553	-20.009	-8.337	78.7	215.8	96.0	95.3	0.70
Line96	18.972	8.068	-18.902	-7.876	70.2	191.9	96.0	95.4	0.66
Cable11	40.658	18.007	-40.653	-17.996	5.4	10.5	96.4	96.4	0.02
Cable12	40.658	18.007	-40.653	-17.996	5.4	10.5	96.4	96.4	0.02
T 5	99.842	45.252	-99.794	-44.284	48.4	968.1	96.4	96.0	0.39
Line33	13.192	5.966	-13.180	-6.790	12.4	-824.1	96.4	96.2	0.18
Line34	13.192	5.966	-13.180	-6.790	12.4	-824.1	96.4	96.2	0.18
T 6	54.920	24.060	-54.895	-23.545	25.8	515.2	96.4	96.0	0.37
Line30	39.210	16.965	-38.897	-16.260	312.9	704.6	96.0	94.8	1.27
Line29	37.060	16.936	-36.775	-16.258	284.6	677.7	96.0	94.8	1.27
Line26	39.210	16.965	-38.897	-16.260	312.9	704.6	96.0	94.8	1.27
Line31	39.210	16.965	-38.897	-16.260	312.9	704.6	96.0	94.8	1.27
Line62	15.895	6.841	-15.844	-6.703	50.8	137.6	94.8	94.2	0.56
Line63	14.802	6.363	-14.758	-6.244	44.0	118.6	94.8	94.2	0.52
Line64	15.983	6.629	-15.933	-6.491	50.7	137.5	94.8	94.2	0.55
Line65	14.886	6.166	-14.842	-6.047	44.0	118.6	94.8	94.2	0.51
Line66	15.983	6.629	-15.933	-6.491	50.7	137.5	94.8	94.2	0.55
Line67	14.886	6.166	-14.842	-6.047	44.0	118.6	94.8	94.2	0.51
Line98	15.895	6.841	-15.844	-6.703	50.8	137.6	94.8	94.2	0.56
Line99	14.802	6.363	-14.758	-6.244	44.0	118.6	94.8	94.2	0.52
Line100	15.529	6.681	-15.481	-6.549	48.4	131.1	94.8	94.2	0.55
Line101	14.802	6.363	-14.758	-6.244	44.0	118.6	94.8	94.2	0.52
Cable13	4.008	2.062	-4.008	-2.062	0.1	0.1	96.2	96.2	0.00
Cable14	4.008	2.062	-4.008	-2.062	0.1	0.1	96.2	96.2	0.00
T 7	18.345	9.456	-18.329	-9.150	15.3	305.7	96.2	98.0	1.74
T 8	8.015	4.124	-8.009	-3.991	6.7	133.3	96.2	98.0	1.74
Line35	6.585	3.285	-6.576	-3.269	8.9	16.0	98.0	97.7	0.23
Line36	6.585	3.285	-6.576	-3.269	8.9	16.0	98.0	97.7	0.23
Line32	6.585	3.285	-6.576	-3.269	8.9	16.0	98.0	97.7	0.23
Line37	6.585	3.285	-6.576	-3.269	8.9	16.0	98.0	97.7	0.23
Line74	8.647	4.217	-8.632	-4.181	14.8	36.3	97.7	97.4	0.32
Line75	8.831	4.308	-8.816	-4.270	15.4	38.1	97.7	97.4	0.33
Line76	8.824	4.552	-8.809	-4.513	15.7	39.0	97.7	97.4	0.34
					10290.9	26118.1			

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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	31.09	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	31.09	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	31.47	95.4	3-Phase
Bus 25	Bus	Under Voltage	33.00	kV	31.47	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	31.47	95.4	3-Phase
Bus 31	Bus	Under Voltage	33.00	kV	31.45	95.3	3-Phase
Bus 32	Bus	Under Voltage	33.00	kV	31.47	95.4	3-Phase
Bus 33	Bus	Under Voltage	161.00	kV	155.24	96.4	3-Phase
Bus 34	Bus	Under Voltage	161.00	kV	155.21	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	154.92	96.2	3-Phase
Bus 51	Bus	Under Voltage	161.00	kV	154.92	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	32.15	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	157.50	97.8	3-Phase
Bus18	Bus	Under Voltage	161.00	kV	157.39	97.8	3-Phase
Bus19	Bus	Under Voltage	33.00	kV	32.16	97.5	3-Phase
Bus20	Bus	Under Voltage	33.00	kV	32.16	97.5	3-Phase
Bus21	Bus	Under Voltage	33.00	kV	32.16	97.5	3-Phase
Bus22	Bus	Under Voltage	33.00	kV	32.16	97.5	3-Phase
Bus56	Bus	Under Voltage	33.00	kV	32.25	97.7	3-Phase

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SUMMARY OF TOTAL GENERATION , LOADING & DEMAND

	<u>MW</u>	<u>Mvar</u>	<u>MVA</u>	<u>% PF</u>
Source (Swing Buses):	434.180	205.097	480.185	90.42 Lagging
Source (Non-Swing Buses):	0.000	0.000	0.000	
Total Demand:	434.180	205.097	480.185	90.42 Lagging
Total Motor Load:	205.288	86.486	222.762	92.16 Lagging
Total Static Load:	218.602	92.493	237.364	92.10 Lagging
Total Constant I Load:	0.000	0.000	0.000	
Total Generic Load:	0.000	0.000	0.000	
Apparent Losses:	10.291	26.118		
System Mismatch:	0.000	0.000		

Number of Iterations: 4