

Project:	ETAP	Page:	1
Location:	12.6.0H	Date:	02-08-2017
Contract:		SN:	
Engineer:	Study Case: LF	Revision:	Base
Filename: citra fix~~~		Config.:	Normal

Electrical Transient Analyzer Program

Load Flow Analysis

Loading Category (3): Malam
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	176	177

	<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:	83	0	0	93	0	0	176

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:	citra fix~~~
Output Filename:	D:\SKRIPS\BACKUP\BACKUP\hujan baru.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
AL1	20.000	1	100.0	0.0								
AL2	0.400	1	100.0	0.0	0.004	0.003	0.006	0.004				
AL3	20.000	1	100.0	0.0								
AL4	0.400	1	100.0	0.0	0.211	0.131	0.317	0.196				
AL5	20.000	1	100.0	0.0								
AL6	0.400	1	100.0	0.0	0.012	0.007	0.017	0.011				
AL7	20.000	1	100.0	0.0								
AL8	0.400	1	100.0	0.0	0.017	0.011	0.012	0.007				
AL9	20.000	1	100.0	0.0								
AL10	0.400	1	100.0	0.0	0.003	0.002	0.004	0.002				
AL11	20.000	1	100.0	0.0								
AL14	0.400	1	100.0	0.0	0.004	0.002	0.006	0.004				
AL15	20.000	1	100.0	0.0								
AL16	0.400	1	100.0	0.0	0.006	0.004	0.009	0.006				
AL17	0.400	1	100.0	0.0	0.011	0.007	0.003	0.002				
AL18	20.000	1	100.0	0.0								
AL19	20.000	1	100.0	0.0								
AL20	0.400	1	100.0	0.0	0.002	0.001	0.003	0.002				
AL21	20.000	1	100.0	0.0								
AL22	0.400	1	100.0	0.0	0.004	0.003	0.006	0.004				
AL23	20.000	1	100.0	0.0								
AL24	0.400	1	100.0	0.0	0.005	0.003	0.007	0.004				
AL25	20.000	1	100.0	0.0								
AL26	20.000	1	100.0	0.0								
AL27	0.400	1	100.0	0.0	0.002	0.001	0.001	0.001				
AL28	20.000	1	100.0	0.0								
AL29	20.000	1	100.0	0.0								
AL30	0.400	1	100.0	0.0	0.004	0.002	0.003	0.002				
AL31	0.400	1	100.0	0.0	0.007	0.004	0.005	0.003				
AL32	20.000	1	100.0	0.0								
AL34	0.400	1	100.0	0.0	0.004	0.003	0.003	0.002				
AL35	20.000	1	100.0	0.0								
AL36	0.400	1	100.0	0.0	0.005	0.003	0.003	0.002				

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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
AL38	0.400	1	100.0	0.0	0.006	0.003	0.008	0.005				
AL39	20.000	1	100.0	0.0								
Bus1	21.000	1	100.0	0.0								
Bus2	21.000	1	100.0	0.0								
Bus24-1	150.000	1	100.0	0.0								
Bus25-1	20.000	1	100.0	0.0								
Bus37	20.000	1	100.0	0.0								
Bus97	0.400	1	100.0	0.0	0.012	0.008	0.003	0.002				
Bus428	0.400	1	100.0	0.0	0.061	0.038	0.092	0.057				
Bus429	20.000	1	100.0	0.0								
Bus430	0.400	1	100.0	0.0	0.092	0.057	0.061	0.038				
Bus431	20.000	1	100.0	0.0								
Bus432	20.000	1	100.0	0.0								
Bus433	0.400	1	100.0	0.0	0.061	0.038	0.092	0.057				
P2	20.000	1	100.0	0.0								
P3	20.000	1	100.0	0.0								
P4	20.000	1	100.0	0.0								
P5	0.400	1	100.0	0.0	0.012	0.008	0.018	0.011				
P6	20.000	1	100.0	0.0								
P7	0.400	1	100.0	0.0	0.018	0.011	0.026	0.016				
P8	20.000	1	100.0	0.0								
P9	0.400	1	100.0	0.0	0.009	0.005	0.006	0.004				
P10	20.000	1	100.0	0.0								
P11	0.400	1	100.0	0.0	0.017	0.011	0.011	0.007				
P12	20.000	1	100.0	0.0								
P13	0.400	1	100.0	0.0	0.032	0.020	0.021	0.013				
P14	20.000	1	100.0	0.0								
P15	20.000	1	100.0	0.0								
P16	0.400	1	100.0	0.0	0.009	0.006	0.014	0.009				
P17	20.000	1	100.0	0.0								
P18	0.400	1	100.0	0.0	0.017	0.010	0.025	0.016				
P19	20.000	1	100.0	0.0								
P20	0.400	1	100.0	0.0	0.010	0.006	0.015	0.010				
P21	20.000	1	100.0	0.0								
P22	0.400	1	100.0	0.0	0.010	0.006	0.006	0.004				

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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
P23	20.000	1	100.0	0.0								
P24	0.400	1	100.0	0.0	0.010	0.007	0.016	0.010				
P25	20.000	1	100.0	0.0								
P26	0.400	1	100.0	0.0	0.012	0.007	0.018	0.011				
P27	20.000	1	100.0	0.0								
P28	0.400	1	100.0	0.0	0.012	0.008	0.018	0.011				
P29	20.000	1	100.0	0.0								
P30	0.400	1	100.0	0.0	0.019	0.012	0.013	0.008				
P31	20.000	1	100.0	0.0								
P32	0.400	1	100.0	0.0	0.019	0.011	0.028	0.017				
P33	20.000	1	100.0	0.0								
P34	20.000	1	100.0	0.0								
P35	0.400	1	100.0	0.0	0.002	0.002	0.002	0.001				
P36	20.000	1	100.0	0.0								
P37	0.400	1	100.0	0.0	0.036	0.022	0.054	0.034				
P38	20.000	1	100.0	0.0								
P39	0.400	1	100.0	0.0	0.013	0.008	0.008	0.005				
P40	20.000	1	100.0	0.0								
P41	0.400	1	100.0	0.0	0.018	0.011	0.004	0.003				
P42	20.000	1	100.0	0.0								
P43	0.400	1	100.0	0.0	0.015	0.009	0.010	0.006				
P44	20.000	1	100.0	0.0								
P45	20.000	1	100.0	0.0								
P46	0.400	1	100.0	0.0	0.010	0.006	0.003	0.002				
P47	0.400	1	100.0	0.0	0.006	0.003	0.008	0.005				
P48	20.000	1	100.0	0.0								
P49	20.000	1	100.0	0.0								
P50	0.400	1	100.0	0.0	0.003	0.002	0.004	0.003				
P51	20.000	1	100.0	0.0								
P52	20.000	1	100.0	0.0								
P53	0.400	1	100.0	0.0	0.012	0.007	0.008	0.005				
P54	20.000	1	100.0	0.0								
P55	0.400	1	100.0	0.0	0.004	0.003	0.006	0.004				
P56	20.000	1	100.0	0.0								
P57	0.400	1	100.0	0.0	0.019	0.012	0.029	0.018				

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					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
P58	20.000	1	100.0	0.0								
P59	0.400	1	100.0	0.0	0.012	0.007	0.018	0.011				
P60	20.000	1	100.0	0.0								
P61	0.400	1	100.0	0.0	0.007	0.004	0.002	0.001				
P62	20.000	1	100.0	0.0								
P63	0.400	1	100.0	0.0	0.018	0.011	0.012	0.008				
P64	20.000	1	100.0	0.0								
P65	0.400	1	100.0	0.0	0.007	0.004	0.010	0.006				
P66	20.000	1	100.0	0.0								
P67	20.000	1	100.0	0.0								
P68	0.400	1	100.0	0.0	0.011	0.007	0.007	0.005				
P69	20.000	1	100.0	0.0								
P70	0.400	1	100.0	0.0	0.005	0.003	0.007	0.004				
P71	20.000	1	100.0	0.0								
P72	0.400	1	100.0	0.0	0.003	0.002	0.004	0.003				
P73	20.000	1	100.0	0.0								
P74	0.400	1	100.0	0.0	0.004	0.003	0.007	0.004				
P76	20.000	1	100.0	0.0								
P77	0.400	1	100.0	0.0	0.007	0.004	0.010	0.006				
P80	20.000	1	100.0	0.0								
P81	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P82	20.000	1	100.0	0.0								
P83	0.400	1	100.0	0.0	0.004	0.003	0.006	0.004				
P84	20.000	1	100.0	0.0								
P85	0.400	1	100.0	0.0	0.004	0.002	0.006	0.004				
P86	20.000	1	100.0	0.0								
P87	0.400	1	100.0	0.0	0.003	0.002	0.004	0.003				
P88	20.000	1	100.0	0.0								
P89	0.400	1	100.0	0.0	0.003	0.002	0.005	0.003				
P90	20.000	1	100.0	0.0								
P91	0.400	1	100.0	0.0	0.003	0.002	0.005	0.003				
P92	20.000	1	100.0	0.0								
P93	0.400	1	100.0	0.0	0.004	0.003	0.006	0.004				
P94	20.000	1	100.0	0.0								
P95	0.400	1	100.0	0.0	0.003	0.002	0.004	0.002				

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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
P96	20.000	1	100.0	0.0								
P97	0.400	1	100.0	0.0	0.007	0.004	0.011	0.007				
P98	20.000	1	100.0	0.0								
P99	0.400	1	100.0	0.0	0.006	0.004	0.009	0.005				
P126	20.000	1	100.0	0.0								
P127	0.400	1	100.0	0.0	0.004	0.002	0.006	0.003				
P128	20.000	1	100.0	0.0								
P129	0.400	1	100.0	0.0	0.003	0.002	0.005	0.003				
P130	20.000	1	100.0	0.0								
P131	0.400	1	100.0	0.0	0.006	0.004	0.010	0.006				
P132	20.000	1	100.0	0.0								
P133	0.400	1	100.0	0.0	0.005	0.003	0.008	0.005				
P134	20.000	1	100.0	0.0								
P135	0.400	1	100.0	0.0	0.008	0.005	0.005	0.003				
P136	20.000	1	100.0	0.0								
P137	0.400	1	100.0	0.0	0.007	0.004	0.010	0.006				
P138	20.000	1	100.0	0.0								
P139	0.400	1	100.0	0.0	0.004	0.002	0.006	0.004				
P142	20.000	1	100.0	0.0								
P143	0.400	1	100.0	0.0	0.006	0.004	0.009	0.006				
P164	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P165	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P166	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P167	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P168	0.400	1	100.0	0.0	0.794	0.492	0.529	0.328				
P172	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P173	20.000	1	100.0	0.0								
P177	20.000	1	100.0	0.0								
P178	20.000	1	100.0	0.0								
P179	20.000	1	100.0	0.0								
P180	20.000	1	100.0	0.0								
P181	20.000	1	100.0	0.0								
P182	20.000	1	100.0	0.0								
P183	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P186	20.000	1	100.0	0.0								

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
P187	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P190	20.000	1	100.0	0.0								
P191	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
TL1	21.000	1	100.0	0.0								
Total Number of Buses: 177					1.962	1.216	1.962	1.216	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
Bus24-1	150.000	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.						
Cable13	30NCUS3	400	700.0	0.0	1	75	0.460800	0.357200		
Cable14			700.0	0.0	1	75	0.460800	0.357200		
Cable15			700.0	0.0	1	75	0.460800	0.357200		
Outgoing			30.0	0.0	1	75	0.059516	0.097900		
SKTM_AL			0.8	0.0	3	75	0.206000	0.113850		
SKTM_AL2			0.8	0.0	3	75	0.206000	0.113850		
SKTM_AL4			0.8	0.0	3	75	0.206000	0.113850		
line			157.	500.0	0.0	1	75	0.198368	0.330500	
Line1			157.	18000.0	0.0	1	75	0.198368	0.330500	
line1			157.	800.0	0.0	1	75	0.198368	0.330500	
Line1-1	157.	2500.0	0.0	1	75	0.198368	0.330500			
Line1-2	157.	454.1	0.0	1	75	0.198368	0.330500			
line2	157.	500.0	0.0	1	75	0.198368	0.330500			
Line2	157.	2000.0	0.0	1	75	0.198368	0.330500			
Line2-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line3	157.	1500.0	0.0	1	75	0.198368	0.330500			
Line3-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line4-1	157.	454.1	0.0	1	75	0.198368	0.330500			
Line5	157.	500.0	0.0	1	75	0.198368	0.330500			
Line5-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line6	75.6	600.0	0.0	1	75	0.198368	0.330500			
Line6-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line7	157.	500.0	0.0	1	75	0.198368	0.330500			
Line7-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line8-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line9	157.	1000.0	0.0	1	75	0.198368	0.330500			
Line9-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line10	75.6	600.0	0.0	1	75	0.198368	0.330500			
Line10-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line11	157.	1000.0	0.0	1	75	0.198368	0.330500			
Line11-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line12	75.6	600.0	0.0	1	75	0.198368	0.330500			
Line12-2	157.	454.1	0.0	1	75	0.198368	0.330500			
Line13	157.	700.0	0.0	1	75	0.198368	0.330500			

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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									
Line13-2		157.	454.1	0.0	1	75	0.198368	0.330500	
Line14		157.	2000.0	0.0	1	75	0.198368	0.330500	
Line14-2		157.	454.1	0.0	1	75	0.198368	0.330500	
Line15		157.	1500.0	0.0	1	75	0.198368	0.330500	
Line15-2		157.	454.1	0.0	1	75	0.198368	0.330500	
Line16		157.	2000.0	0.0	1	75	0.198368	0.330500	
Line16-2		157.	454.1	0.0	1	75	0.198368	0.330500	
Line17		157.	2000.0	0.0	1	75	0.198368	0.330500	
Line17-2		157.	454.1	0.0	1	75	0.198368	0.330500	
Line18		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line20		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line21		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line22		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line23		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line24		157.	1500.0	0.0	1	75	0.198368	0.330500	
Line25		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line26		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line27		157.	750.0	0.0	1	75	0.198368	0.330500	
Line28		157.	700.0	0.0	1	75	0.198368	0.330500	
Line29		157.	750.0	0.0	1	75	0.198368	0.330500	
Line30		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line31		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line33		157.	500.0	0.0	1	75	0.198368	0.330500	
Line34		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line35		157.	250.0	0.0	1	75	0.198368	0.330500	
Line36		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line37		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line38		157.	250.0	0.0	1	75	0.198368	0.330500	
Line39		157.	500.0	0.0	1	75	0.198368	0.330500	
Line40		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line41		157.	600.0	0.0	1	75	0.198368	0.330500	
Line42		157.	600.0	0.0	1	75	0.198368	0.330500	
Line43		157.	1000.0	0.0	1	75	0.198368	0.330500	
Line44		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line45		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line46		157.	1000.0	0.0	1	75	0.198368	0.330500	

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Ohms or Siemens/1000 m per Conductor (Cable) or per Phase (Line)									
Line/Cable									
ID	Library	Size	Length		#/Phase	T (°C)	R	X	Y
			Adj. (m)	% Tol.					
Line47		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line48		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line49		157.	700.0	0.0	1	75	0.198368	0.330500	
Line50		157.	1400.0	0.0	1	75	0.198368	0.330500	
Line51		157.	1500.0	0.0	1	75	0.198368	0.330500	
Line52		157.	500.0	0.0	1	75	0.198368	0.330500	
Line53		157.	600.0	0.0	1	75	0.198368	0.330500	
Line54		157.	500.0	0.0	1	75	0.198368	0.330500	
Line55		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line56		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line57		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line58		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line60		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line62		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line76		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line77		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line78		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line79		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line82		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line84		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line86		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line160		75.6	12900.0	0.0	1	75	0.198368	0.330500	
P_Cuaca		157.	104.0	0.0	1	75	0.198368	0.330500	

Line / Cable resistances are listed at the specified temperatures.

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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
PC1	3-Phase	0.160	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
PC2	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC3	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC4	3-Phase	0.160	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
PC5	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC_06	3-Phase	2.000	20.000	0.400	6.00	7.10	0	0	0	0	0	6.0000	Dyn	0.000
PC7	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC8	3-Phase	0.160	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
PC9	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC10	3-Phase	0.025	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC11	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC12	3-Phase	0.025	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC13	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC14	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC15	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC16	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC17	3-Phase	0.160	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC18	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC19	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC20	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC21	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC22	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC23	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC24	3-Phase	0.160	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
PC25	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC26	3-Phase	0.200	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
PC27	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC28	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC29	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC30	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC31	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC32	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC33	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC34	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000

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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
PC35	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC36	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC37	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC38	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC39	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC40	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC41	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC42	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC43	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC44	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC45	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC46	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC47	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC48	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC49	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC50	3-Phase	0.050	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
PC_56 MAJU TAMBAK SUMUR	3-Phase	2.000	20.000	0.400	6.25	6.00	0	0	0	0	0	6.2500	Dyn	0.000
PC57	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC58	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC59	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC60	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC61	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC_62	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC_63	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC79	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC80	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC81	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC82	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC86	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC87	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC88	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC89	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC90	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC96	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC97	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC103	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000

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
PC104	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC105	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC153	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC154	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC155	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC164	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC165	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
PC166	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T51	3-Phase	0.050	0.400	20.000	4.00	1.50	0	0	0	0	0	4.0000	YNd	0.000
T187	3-Phase	0.200	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
T188	3-Phase	0.200	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
T189	3-Phase	0.200	20.000	0.400	4.00	3.09	0	0	0	0	0	4.0000	Dyn	0.000
Trafo #2	3-Phase	60.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	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
PC1	2W XFMR	P36	P37	769.76	2378.55	2500.00	
PC2	2W XFMR	P31	P32	1501.08	3707.66	4000.00	
PC3	2W XFMR	P23	P24	3002.16	7415.33	8000.00	
PC4	2W XFMR	P12	P13	769.76	2378.55	2500.00	
PC5	2W XFMR	P27	P28	1501.08	3707.66	4000.00	
PC_06	2W XFMR	AL3	AL4	41.85	297.07	300.00	
PC7	2W XFMR	AL1	AL2	3002.16	7415.33	8000.00	
PC8	2W XFMR	P6	P7	769.76	2378.55	2500.00	
PC9	2W XFMR	P4	P5	1501.08	3707.66	4000.00	
PC10	2W XFMR	P48	P47	6004.31	14830.65	16000.00	
PC11	2W XFMR	P56	P57	1501.08	3707.66	4000.00	
PC12	2W XFMR	P21	P22	6004.31	14830.65	16000.00	
PC13	2W XFMR	P10	P11	3002.16	7415.33	8000.00	
PC14	2W XFMR	P15	P16	3002.16	7415.33	8000.00	
PC15	2W XFMR	P49	P50	3002.16	7415.33	8000.00	
PC16	2W XFMR	P58	P59	3002.16	7415.33	8000.00	
PC17	2W XFMR	P19	P20	1386.75	2080.13	2500.00	
PC18	2W XFMR	P42	P43	3002.16	7415.33	8000.00	
PC19	2W XFMR	P38	P39	1501.08	3707.66	4000.00	
PC20	2W XFMR	P8	P9	1501.08	3707.66	4000.00	
PC21	2W XFMR	P17	P18	1501.08	3707.66	4000.00	
PC22	2W XFMR	P25	P26	1501.08	3707.66	4000.00	
PC23	2W XFMR	P29	P30	1501.08	3707.66	4000.00	
PC24	2W XFMR	P54	P55	769.76	2378.55	2500.00	
PC25	2W XFMR	P60	P61	3002.16	7415.33	8000.00	
PC26	2W XFMR	P62	P63	615.80	1902.84	2000.00	
PC27	2W XFMR	P45	P46	1501.08	3707.66	4000.00	
PC28	2W XFMR	P52	P53	1501.08	3707.66	4000.00	
PC29	2W XFMR	P40	P41	1501.08	3707.66	4000.00	
PC30	2W XFMR	AL5	AL6	1501.08	3707.66	4000.00	
PC31	2W XFMR	AL7	AL8	3002.16	7415.33	8000.00	
PC32	2W XFMR	AL9	AL10	3002.16	7415.33	8000.00	
PC33	2W XFMR	AL11	AL38	1501.08	3707.66	4000.00	
PC34	2W XFMR	AL39	AL14	1501.08	3707.66	4000.00	
PC35	2W XFMR	AL15	AL16	1501.08	3707.66	4000.00	
PC36	2W XFMR	AL18	AL17	1501.08	3707.66	4000.00	
PC37	2W XFMR	AL19	AL20	3002.16	7415.33	8000.00	

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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
PC38	2W XFMR	AL21	AL22	1501.08	3707.66	4000.00	
PC39	2W XFMR	AL23	AL24	1501.08	3707.66	4000.00	
PC40	2W XFMR	AL26	AL27	3002.16	7415.33	8000.00	
PC41	2W XFMR	AL29	AL30	1501.08	3707.66	4000.00	
PC42	2W XFMR	AL28	AL31	1501.08	3707.66	4000.00	
PC43	2W XFMR	AL32	AL34	3002.16	7415.33	8000.00	
PC44	2W XFMR	AL35	AL36	1501.08	3707.66	4000.00	
PC45	2W XFMR	P34	P35	1501.08	3707.66	4000.00	
PC46	2W XFMR	P64	P65	1501.08	3707.66	4000.00	
PC47	2W XFMR	P73	P74	1501.08	3707.66	4000.00	
PC48	2W XFMR	P67	P68	1501.08	3707.66	4000.00	
PC49	2W XFMR	P69	P70	3002.16	7415.33	8000.00	
PC50	2W XFMR	P71	P72	3002.16	7415.33	8000.00	
PC_56 MAJU TAMBAK SUMUR	2W XFMR	P177	P168	51.37	308.25	312.50	
PC57	2W XFMR	P90	P91	4437.60	6656.40	8000.00	
PC58	2W XFMR	P88	P89	4437.60	6656.40	8000.00	
PC59	2W XFMR	P94	P95	4437.60	6656.40	8000.00	
PC60	2W XFMR	P96	P97	4437.60	6656.40	8000.00	
PC61	2W XFMR	P98	P99	4437.60	6656.40	8000.00	
PC_62	2W XFMR	P86	P87	4437.60	6656.40	8000.00	
PC_63	2W XFMR	P130	P131	4437.60	6656.40	8000.00	
PC79	2W XFMR	P134	P135	4437.60	6656.40	8000.00	
PC80	2W XFMR	P76	P77	4437.60	6656.40	8000.00	
PC81	2W XFMR	P136	P137	4437.60	6656.40	8000.00	
PC82	2W XFMR	P138	P139	4437.60	6656.40	8000.00	
PC86	2W XFMR	P80	P81	4437.60	6656.40	8000.00	
PC87	2W XFMR	P126	P127	4437.60	6656.40	8000.00	
PC88	2W XFMR	P128	P129	4437.60	6656.40	8000.00	
PC89	2W XFMR	P132	P133	4437.60	6656.40	8000.00	
PC90	2W XFMR	P92	P93	4437.60	6656.40	8000.00	
PC96	2W XFMR	P173	P172	4437.60	6656.40	8000.00	
PC97	2W XFMR	P182	P183	4437.60	6656.40	8000.00	
PC103	2W XFMR	P180	P165	4437.60	6656.40	8000.00	
PC104	2W XFMR	P179	P166	4437.60	6656.40	8000.00	
PC105	2W XFMR	P178	P167	4437.60	6656.40	8000.00	
PC153	2W XFMR	P181	P164	4437.60	6656.40	8000.00	
PC154	2W XFMR	P186	P187	4437.60	6656.40	8000.00	
PC155	2W XFMR	P190	P191	4437.60	6656.40	8000.00	
PC164	2W XFMR	P142	P143	4437.60	6656.40	8000.00	

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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
PC165	2W XFMR	P84	P85	4437.60	6656.40	8000.00	
PC166	2W XFMR	P82	P83	4437.60	6656.40	8000.00	
T51	2W XFMR	Bus97	Bus37	4437.60	6656.40	8000.00	
T187	2W XFMR	Bus429	Bus428	615.80	1902.84	2000.00	
T188	2W XFMR	Bus431	Bus430	615.80	1902.84	2000.00	
T189	2W XFMR	Bus432	Bus433	615.80	1902.84	2000.00	
Trafo #2	2W XFMR	Bus24-1	Bus25-1	0.46	20.83	20.83	
Cable13	Cable	AL32	Bus432	8.06	6.25	10.20	
Cable14	Cable	Bus432	Bus429	8.06	6.25	10.20	
Cable15	Cable	Bus432	Bus431	8.06	6.25	10.20	
Outgoing	Cable	Bus25-1	TL1	0.04	0.07	0.09	
SKTM_AL	Cable	AL1	AL3	0.00	0.00	0.00	
SKTM_AL2	Cable	AL3	P173	0.00	0.00	0.00	
SKTM_AL4	Cable	P173	P181	0.00	0.00	0.00	
line	Line	P49	P48	2.48	4.13	4.82	
Line1	Line	Bus1	Bus2	89.27	148.73	173.46	
line1	Line	P42	P38	3.97	6.61	7.71	
Line1-1	Line	P2	P3	12.40	20.66	24.09	
Line1-2	Line	P10	AL1	2.25	3.75	4.38	
line2	Line	P44	P42	2.48	4.13	4.82	
Line2	Line	P3	P4	9.92	16.53	19.27	
Line2-2	Line	AL5	P181	2.25	3.75	4.38	
Line3	Line	P3	P6	7.44	12.39	14.45	
Line3-2	Line	AL5	P186	2.25	3.75	4.38	
Line4-1	Line	AL7	P186	2.25	3.75	4.38	
Line5	Line	P8	P6	2.48	4.13	4.82	
Line5-2	Line	AL9	AL11	2.25	3.75	4.38	
Line6	Line	P36	P76	2.98	4.96	5.78	
Line6-2	Line	AL39	AL11	2.25	3.75	4.38	
Line7	Line	P10	P8	2.48	4.13	4.82	
Line7-2	Line	AL15	AL39	2.25	3.75	4.38	
Line8-2	Line	AL15	AL18	2.25	3.75	4.38	
Line9	Line	P12	P10	4.96	8.26	9.64	
Line9-2	Line	AL18	AL19	2.25	3.75	4.38	
Line10	Line	P132	P128	2.98	4.96	5.78	
Line10-2	Line	AL21	AL19	2.25	3.75	4.38	
Line11	Line	P14	P12	4.96	8.26	9.64	
Line11-2	Line	AL23	AL21	2.25	3.75	4.38	
Line12	Line	P130	P134	2.98	4.96	5.78	

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ID	Type	From Bus	To Bus	R	X	Z	Y
Line12-2	Line	AL26	AL23	2.25	3.75	4.38	
Line13	Line	P14	P15	3.47	5.78	6.75	
Line13-2	Line	AL28	AL25	2.25	3.75	4.38	
Line14	Line	P14	P19	9.92	16.53	19.27	
Line14-2	Line	AL29	AL25	2.25	3.75	4.38	
Line15	Line	P21	P14	7.44	12.39	14.45	
Line15-2	Line	AL25	AL23	2.25	3.75	4.38	
Line16	Line	P17	P14	9.92	16.53	19.27	
Line16-2	Line	AL32	AL28	2.25	3.75	4.38	
Line17	Line	P23	P21	9.92	16.53	19.27	
Line17-2	Line	AL35	AL32	2.25	3.75	4.38	
Line18	Line	P98	P80	2.98	4.96	5.78	
Line20	Line	P25	P23	4.96	8.26	9.64	
Line21	Line	Bus2	P2	4.96	8.26	9.64	
Line22	Line	P86	P84	2.98	4.96	5.78	
Line23	Line	P29	P27	4.96	8.26	9.64	
Line24	Line	P27	P25	7.44	12.39	14.45	
Line25	Line	P31	P29	4.96	8.26	9.64	
Line26	Line	P88	P96	2.98	4.96	5.78	
Line27	Line	P33	P31	3.72	6.20	7.23	
Line28	Line	P33	P34	3.47	5.78	6.75	
Line29	Line	P36	P33	3.72	6.20	7.23	
Line30	Line	P90	P94	2.98	4.96	5.78	
Line31	Line	P60	P36	4.96	8.26	9.64	
Line33	Line	P60	P62	2.48	4.13	4.82	
Line34	Line	P62	P64	4.96	8.26	9.64	
Line35	Line	P64	P66	1.24	2.07	2.41	
Line36	Line	P126	P130	2.98	4.96	5.78	
Line37	Line	P128	P130	2.98	4.96	5.78	
Line38	Line	P67	P66	1.24	2.07	2.41	
Line39	Line	P66	P73	2.48	4.13	4.82	
Line40	Line	P69	P67	4.96	8.26	9.64	
Line41	Line	P71	P69	2.98	4.96	5.78	
Line42	Line	P38	P36	2.98	4.96	5.78	
Line43	Line	P38	P40	4.96	8.26	9.64	
Line44	Line	P84	P82	2.98	4.96	5.78	
Line45	Line	P136	P138	2.98	4.96	5.78	
Line46	Line	P44	P45	4.96	8.26	9.64	
Line47	Line	P96	P98	2.98	4.96	5.78	

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ID	Type	From Bus	To Bus	R	X	Z	Y
Line48	Line	P92	P90	2.98	4.96	5.78	
Line49	Line	P48	P44	3.47	5.78	6.75	
Line50	Line	P58	P49	6.94	11.57	13.49	
Line51	Line	P51	P52	7.44	12.39	14.45	
Line52	Line	P54	P51	2.48	4.13	4.82	
Line53	Line	P51	P49	2.98	4.96	5.78	
Line54	Line	P56	P54	2.48	4.13	4.82	
Line55	Line	P134	P98	2.98	4.96	5.78	
Line56	Line	P94	P88	2.98	4.96	5.78	
Line57	Line	P98	P86	2.98	4.96	5.78	
Line58	Line	P76	P92	2.98	4.96	5.78	
Line60	Line	P94	P136	2.98	4.96	5.78	
Line62	Line	P136	P142	2.98	4.96	5.78	
Line76	Line	P178	P177	2.98	4.96	5.78	
Line77	Line	P179	P178	2.98	4.96	5.78	
Line78	Line	P180	P179	2.98	4.96	5.78	
Line79	Line	P182	P180	2.98	4.96	5.78	
Line82	Line	AL7	P190	2.98	4.96	5.78	
Line84	Line	P190	P182	2.98	4.96	5.78	
Line86	Line	P177	AL9	2.98	4.96	5.78	
Line160	Line	P132	Bus37	63.97	106.59	124.31	
P_Cuaca	Line	Bus1	TL1	0.52	0.86	1.00	

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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
AL1	20.000	89.372	-3.2	0	0	0	0	AL3	2.487	1.664	96.7	83.1	
								P10	-2.496	-1.670	97.0	83.1	
								AL2	0.009	0.006	0.4	84.7	
AL2	0.400	88.564	-3.6	0	0	0.009	0.006	AL1	-0.009	-0.006	18.0	85.0	
AL3	20.000	89.372	-3.2	0	0	0	0	AL1	-2.487	-1.664	96.7	83.1	
								P173	2.028	1.370	79.0	82.9	
								AL4	0.459	0.295	17.6	84.2	
AL4	0.400	88.188	-4.1	0	0	0.457	0.284	AL3	-0.457	-0.284	880.8	85.0	
AL5	20.000	89.266	-3.2	0	0	0	0	P181	-1.960	-1.324	76.5	82.9	
								P186	1.935	1.308	75.5	82.8	
								AL6	0.025	0.016	1.0	84.5	
AL6	0.400	88.175	-3.7	0	0	0.025	0.016	AL5	-0.025	-0.016	48.6	85.0	
AL7	20.000	89.060	-3.3	0	0	0	0	P186	-1.899	-1.282	74.3	82.9	
								P190	1.872	1.265	73.2	82.9	
								AL8	0.027	0.017	1.0	84.0	
AL8	0.400	86.745	-4.4	0	0	0.026	0.016	AL7	-0.026	-0.016	51.4	85.0	
AL9	20.000	88.262	-3.5	0	0	0	0	AL11	0.502	0.327	19.6	83.8	
								P177	-0.508	-0.331	19.8	83.8	
								AL10	0.006	0.004	0.2	84.8	
AL10	0.400	87.770	-3.7	0	0	0.006	0.004	AL9	-0.006	-0.004	11.0	85.0	
AL11	20.000	88.235	-3.5	0	0	0	0	AL9	-0.502	-0.327	19.6	83.8	
								AL39	0.490	0.320	19.1	83.7	
								AL38	0.012	0.008	0.5	84.8	
AL14	0.400	87.844	-3.7	0	0	0.008	0.005	AL39	-0.008	-0.005	16.3	85.0	
AL15	20.000	88.184	-3.5	0	0	0	0	AL39	-0.481	-0.314	18.8	83.7	
								AL18	0.468	0.306	18.3	83.7	
								AL16	0.013	0.008	0.5	84.7	
AL16	0.400	87.612	-3.8	0	0	0.013	0.008	AL15	-0.013	-0.008	25.5	85.0	
AL17	0.400	87.566	-3.8	0	0	0.014	0.008	AL18	-0.014	-0.008	26.4	85.0	
AL18	20.000	88.159	-3.5	0	0	0	0	AL15	-0.468	-0.306	18.3	83.7	
								AL19	0.454	0.297	17.8	83.7	
								AL17	0.014	0.009	0.5	84.7	
AL19	20.000	88.135	-3.6	0	0	0	0	AL18	-0.454	-0.297	17.8	83.7	
								AL21	0.450	0.295	17.6	83.7	
								AL20	0.004	0.002	0.1	84.9	
AL20	0.400	87.820	-3.7	0	0	0.004	0.002	AL19	-0.004	-0.002	7.0	85.0	

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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
AL21	20.000	88.110	-3.6	0	0	0	0	AL19	-0.450	-0.295	17.6	83.7	
								AL23	0.442	0.289	17.3	83.7	
								AL22	0.009	0.005	0.3	84.8	
AL22	0.400	87.733	-3.7	0	0	0.009	0.005	AL21	-0.009	-0.005	16.8	85.0	
AL23	20.000	88.087	-3.6	0	0	0	0	AL21	-0.442	-0.289	17.3	83.7	
								AL26	0.003	0.002	0.1	84.9	
								AL25	0.428	0.281	16.8	83.6	
								AL24	0.010	0.006	0.4	84.8	
AL24	0.400	87.658	-3.8	0	0	0.010	0.006	AL23	-0.010	-0.006	19.1	85.0	
AL25	20.000	88.064	-3.6	0	0	0	0	AL28	0.422	0.277	16.6	83.6	
								AL29	0.006	0.004	0.2	84.9	
								AL23	-0.428	-0.281	16.8	83.6	
AL26	20.000	88.087	-3.6	0	0	0	0	AL23	-0.003	-0.002	0.1	84.9	
								AL27	0.003	0.002	0.1	84.9	
AL27	0.400	87.810	-3.7	0	0	0.003	0.002	AL26	-0.003	-0.002	6.2	85.0	
AL28	20.000	88.041	-3.6	0	0	0	0	AL25	-0.422	-0.277	16.6	83.6	
								AL32	0.412	0.270	16.1	83.6	
								AL31	0.011	0.007	0.4	84.8	
AL29	20.000	88.064	-3.6	0	0	0	0	AL25	-0.006	-0.004	0.2	84.9	
								AL30	0.006	0.004	0.2	84.9	
AL30	0.400	87.805	-3.7	0	0	0.006	0.004	AL29	-0.006	-0.004	11.6	85.0	
AL31	0.400	87.583	-3.8	0	0	0.011	0.007	AL28	-0.011	-0.007	20.4	85.0	
AL32	20.000	88.019	-3.6	0	0	0	0	Bus432	0.398	0.262	15.6	83.6	
								AL28	-0.412	-0.270	16.1	83.6	
								AL35	0.007	0.005	0.3	84.9	
								AL34	0.006	0.004	0.2	84.8	
AL34	0.400	87.489	-3.8	0	0	0.006	0.004	AL32	-0.006	-0.004	11.8	85.0	
AL35	20.000	88.019	-3.6	0	0	0	0	AL32	-0.007	-0.005	0.3	84.9	
								AL36	0.007	0.005	0.3	84.9	
AL36	0.400	87.700	-3.7	0	0	0.007	0.005	AL35	-0.007	-0.005	14.3	85.0	
AL38	0.400	87.712	-3.8	0	0	0.012	0.007	AL11	-0.012	-0.007	23.4	85.0	
AL39	20.000	88.209	-3.5	0	0	0	0	AL11	-0.490	-0.320	19.1	83.7	
								AL15	0.481	0.314	18.8	83.7	
								AL14	0.008	0.005	0.3	84.8	
Bus1	21.000	94.626	-0.5	0	0	0	0	Bus2	3.750	2.742	135.0	80.7	
								TL1	-3.750	-2.742	135.0	80.7	
Bus2	21.000	87.560	-2.4	0	0	0	0	Bus1	-3.555	-2.417	135.0	82.7	
								P2	3.555	2.417	135.0	82.7	
* Bus24-1	150.000	100.000	0.0	3.752	2.789	0	0	Bus25-1	3.752	2.789	18.0	80.3	

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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
Bus25-1	20.000	99.405	-0.4	0	0	0	0	TL1	3.751	2.744	135.0	80.7	
								Bus24-1	-3.751	-2.744	135.0	80.7	
Bus37	20.000	88.429	-3.5	0	0	0	0	P132	-0.015	-0.009	0.6	84.6	
								Bus97	0.015	0.009	0.6	84.6	
Bus97	0.400	86.994	-3.9	0	0	0.015	0.009	Bus37	-0.015	-0.009	28.4	85.0	
Bus428	0.400	85.223	-5.1	0	0	0.128	0.079	Bus429	-0.128	-0.079	254.8	85.0	
Bus429	20.000	87.946	-3.6	0	0	0	0	Bus432	-0.130	-0.085	5.1	83.6	
								Bus428	0.130	0.085	5.1	83.6	
Bus430	0.400	85.039	-5.2	0	0	0.136	0.084	Bus431	-0.136	-0.084	271.7	85.0	
Bus431	20.000	87.945	-3.6	0	0	0	0	Bus432	-0.138	-0.091	5.4	83.5	
								Bus430	0.138	0.091	5.4	83.5	
Bus432	20.000	87.964	-3.6	0	0	0	0	AL32	-0.398	-0.261	15.6	83.6	
								Bus429	0.130	0.085	5.1	83.6	
								Bus431	0.138	0.091	5.4	83.5	
								Bus433	0.130	0.085	5.1	83.6	
Bus433	0.400	85.241	-5.1	0	0	0.128	0.079	Bus432	-0.128	-0.079	254.8	85.0	
P2	20.000	91.530	-2.5	0	0	0	0	P3	3.544	2.399	135.0	82.8	
								Bus2	-3.544	-2.399	135.0	82.8	
P3	20.000	90.510	-2.8	0	0	0	0	P2	-3.517	-2.353	135.0	83.1	
								P4	0.027	0.017	1.0	84.5	
								P6	3.490	2.336	134.0	83.1	
P4	20.000	90.503	-2.8	0	0	0	0	P3	-0.027	-0.017	1.0	84.5	
								P5	0.027	0.017	1.0	84.5	
P5	0.400	89.356	-3.4	0	0	0.027	0.017	P4	-0.027	-0.017	51.1	85.0	
P6	20.000	89.903	-3.0	0	0	0	0	P3	-3.474	-2.310	134.0	83.3	
								P8	3.436	2.285	132.5	83.3	
								P7	0.038	0.024	1.5	84.5	
P7	0.400	88.934	-3.5	0	0	0.038	0.024	P6	-0.038	-0.024	73.1	85.0	
P8	20.000	89.704	-3.1	0	0	0	0	P6	-3.430	-2.277	132.5	83.3	
								P10	3.417	2.268	132.0	83.3	
								P9	0.013	0.008	0.5	84.8	
P9	0.400	89.143	-3.3	0	0	0.013	0.008	P8	-0.013	-0.008	25.0	85.0	
P10	20.000	89.505	-3.1	0	0	0	0	AL1	2.499	1.674	97.0	83.1	
								P8	-3.412	-2.260	132.0	83.4	
								P12	0.887	0.568	34.0	84.2	
								P11	0.026	0.017	1.0	84.0	
P11	0.400	87.260	-4.2	0	0	0.026	0.016	P10	-0.026	-0.016	49.8	85.0	
P12	20.000	89.403	-3.2	0	0	0	0	P10	-0.886	-0.567	34.0	84.2	
								P14	0.837	0.536	32.1	84.2	

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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
								P13	0.049	0.031	1.9	84.4	
P13	0.400	88.161	-3.8	0	0	0.049	0.030	P12	-0.049	-0.030	93.6	85.0	
P14	20.000	89.307	-3.2	0	0	0	0	P12	-0.837	-0.535	32.1	84.2	
								P15	0.020	0.013	0.8	84.2	
								P19	0.023	0.014	0.9	84.8	
								P21	0.757	0.485	29.1	84.2	
								P17	0.037	0.023	1.4	84.3	
P15	20.000	89.305	-3.2	0	0	0	0	P14	-0.020	-0.013	0.8	84.2	
								P16	0.020	0.013	0.8	84.2	
P16	0.400	87.538	-4.0	0	0	0.020	0.013	P15	-0.020	-0.013	39.3	85.0	
P17	20.000	89.299	-3.2	0	0	0	0	P14	-0.037	-0.023	1.4	84.3	
								P18	0.037	0.023	1.4	84.3	
P18	0.400	87.721	-3.9	0	0	0.036	0.022	P17	-0.036	-0.022	70.2	85.0	
P19	20.000	89.302	-3.2	0	0	0	0	P14	-0.023	-0.014	0.9	84.8	
								P20	0.023	0.014	0.9	84.8	
P20	0.400	88.623	-3.4	0	0	0.022	0.014	P19	-0.022	-0.014	43.0	85.0	
P21	20.000	89.177	-3.2	0	0	0	0	P14	-0.756	-0.483	29.1	84.3	
								P23	0.742	0.474	28.5	84.3	
								P22	0.015	0.009	0.6	83.9	
P22	0.400	86.633	-4.4	0	0	0.014	0.009	P21	-0.014	-0.009	28.2	85.0	
P23	20.000	89.006	-3.3	0	0	0	0	P21	-0.741	-0.472	28.5	84.3	
								P25	0.718	0.458	27.6	84.3	
								P24	0.023	0.015	0.9	84.1	
P24	0.400	87.038	-4.2	0	0	0.022	0.014	P23	-0.022	-0.014	43.7	85.0	
P25	20.000	88.924	-3.3	0	0	0	0	P23	-0.718	-0.457	27.6	84.4	
								P27	0.692	0.440	26.6	84.3	
								P26	0.026	0.016	1.0	84.5	
P26	0.400	87.801	-3.9	0	0	0.026	0.016	P25	-0.026	-0.016	50.0	85.0	
P27	20.000	88.805	-3.4	0	0	0	0	P29	0.665	0.423	25.6	84.4	
								P25	-0.691	-0.439	26.6	84.4	
								P28	0.026	0.017	1.0	84.5	
P28	0.400	87.670	-3.9	0	0	0.026	0.016	P27	-0.026	-0.016	50.5	85.0	
P29	20.000	88.728	-3.4	0	0	0	0	P27	-0.664	-0.422	25.6	84.4	
								P31	0.635	0.404	24.5	84.4	
								P30	0.029	0.019	1.1	84.4	
P30	0.400	87.465	-4.0	0	0	0.029	0.018	P29	-0.029	-0.018	56.2	85.0	
P31	20.000	88.655	-3.4	0	0	0	0	P29	-0.635	-0.403	24.5	84.4	
								P33	0.595	0.377	22.9	84.4	
								P32	0.040	0.026	1.5	84.2	

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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
P32	0.400	86.920	-4.2	0	0	0.039	0.024	P31	-0.039	-0.024	77.2	85.0	
P33	20.000	88.604	-3.4	0	0	0	0	P31	-0.595	-0.377	22.9	84.4	
								P34	0.004	0.002	0.1	84.9	
								P36	0.591	0.375	22.8	84.4	
P34	20.000	88.604	-3.4	0	0	0	0	P33	-0.004	-0.002	0.1	84.9	
								P35	0.004	0.002	0.1	84.9	
P35	0.400	88.445	-3.5	0	0	0.004	0.002	P34	-0.004	-0.002	7.1	85.0	
P36	20.000	88.553	-3.4	0	0	0	0	P76	0.231	0.146	8.9	84.6	
								P33	-0.591	-0.374	22.8	84.5	
								P60	0.094	0.059	3.6	84.7	
								P38	0.188	0.120	7.3	84.4	
								P37	0.078	0.050	3.0	84.0	
P37	0.400	86.549	-4.5	0	0	0.077	0.048	P36	-0.077	-0.048	150.4	85.0	
P38	20.000	88.540	-3.5	0	0	0	0	P42	0.148	0.094	5.7	84.3	
								P36	-0.188	-0.120	7.3	84.4	
								P40	0.021	0.013	0.8	84.6	
								P39	0.019	0.012	0.7	84.6	
P39	0.400	87.711	-3.8	0	0	0.019	0.012	P38	-0.019	-0.012	37.0	85.0	
P40	20.000	88.537	-3.5	0	0	0	0	P38	-0.021	-0.013	0.8	84.6	
								P41	0.021	0.013	0.8	84.6	
P41	0.400	87.618	-3.9	0	0	0.021	0.013	P40	-0.021	-0.013	41.0	85.0	
P42	20.000	88.526	-3.5	0	0	0	0	P38	-0.148	-0.094	5.7	84.3	
								P44	0.125	0.080	4.8	84.3	
								P43	0.022	0.014	0.9	84.1	
P43	0.400	86.576	-4.4	0	0	0.022	0.014	P42	-0.022	-0.014	43.3	85.0	
P44	20.000	88.519	-3.5	0	0	0	0	P42	-0.125	-0.080	4.8	84.3	
								P45	0.012	0.008	0.5	84.8	
								P48	0.113	0.072	4.4	84.3	
P45	20.000	88.518	-3.5	0	0	0	0	P44	-0.012	-0.008	0.5	84.8	
								P46	0.012	0.008	0.5	84.8	
P46	0.400	87.990	-3.7	0	0	0.012	0.008	P45	-0.012	-0.008	23.5	85.0	
P47	0.400	86.444	-4.4	0	0	0.012	0.007	P48	-0.012	-0.007	22.9	85.0	
P48	20.000	88.510	-3.5	0	0	0	0	P49	0.101	0.064	3.9	84.3	
								P44	-0.113	-0.072	4.4	84.3	
								P47	0.012	0.008	0.5	84.1	
P49	20.000	88.504	-3.5	0	0	0	0	P48	-0.101	-0.064	3.9	84.3	
								P58	0.026	0.017	1.0	84.0	
								P51	0.069	0.044	2.7	84.4	
								P50	0.006	0.004	0.2	84.8	

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ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P50	0.400	87.949	-3.7	0	0	0.006	0.004	P49	-0.006	-0.004	12.4	85.0	
P51	20.000	88.499	-3.5	0	0	0	0	P52	0.018	0.011	0.7	84.7	
								P54	0.051	0.032	2.0	84.3	
								P49	-0.069	-0.044	2.7	84.4	
P52	20.000	88.496	-3.5	0	0	0	0	P51	-0.018	-0.011	0.7	84.7	
								P53	0.018	0.011	0.7	84.7	
P53	0.400	87.728	-3.8	0	0	0.018	0.011	P52	-0.018	-0.011	34.3	85.0	
P54	20.000	88.496	-3.5	0	0	0	0	P51	-0.051	-0.032	2.0	84.3	
								P56	0.042	0.027	1.6	84.2	
								P55	0.009	0.006	0.4	84.9	
P55	0.400	88.262	-3.6	0	0	0.009	0.006	P54	-0.009	-0.006	17.7	85.0	
P56	20.000	88.494	-3.5	0	0	0	0	P54	-0.042	-0.027	1.6	84.2	
								P57	0.042	0.027	1.6	84.2	
P57	0.400	86.676	-4.3	0	0	0.041	0.026	P56	-0.041	-0.026	80.8	85.0	
P58	20.000	88.500	-3.5	0	0	0	0	P49	-0.026	-0.017	1.0	84.0	
								P59	0.026	0.017	1.0	84.0	
P59	0.400	86.237	-4.5	0	0	0.026	0.016	P58	-0.026	-0.016	50.2	85.0	
P60	20.000	88.542	-3.4	0	0	0	0	P36	-0.094	-0.059	3.6	84.7	
								P62	0.086	0.054	3.3	84.7	
								P61	0.008	0.005	0.3	84.7	
P61	0.400	87.855	-3.8	0	0	0.008	0.005	P60	-0.008	-0.005	15.3	85.0	
P62	20.000	88.537	-3.5	0	0	0	0	P60	-0.086	-0.054	3.3	84.7	
								P64	0.057	0.036	2.2	84.7	
								P63	0.028	0.018	1.1	84.7	
P63	0.400	87.964	-3.8	0	0	0.028	0.017	P62	-0.028	-0.017	54.1	85.0	
P64	20.000	88.531	-3.5	0	0	0	0	P62	-0.057	-0.036	2.2	84.7	
								P66	0.042	0.027	1.6	84.7	
								P65	0.015	0.009	0.6	84.7	
P65	0.400	87.881	-3.8	0	0	0.015	0.009	P64	-0.015	-0.009	29.0	85.0	
P66	20.000	88.529	-3.5	0	0	0	0	P64	-0.042	-0.027	1.6	84.7	
								P67	0.033	0.021	1.3	84.7	
								P73	0.009	0.006	0.4	84.8	
P67	20.000	88.529	-3.5	0	0	0	0	P66	-0.033	-0.021	1.3	84.7	
								P69	0.016	0.010	0.6	84.7	
								P68	0.017	0.011	0.6	84.7	
P68	0.400	87.805	-3.8	0	0	0.017	0.010	P67	-0.017	-0.010	32.3	85.0	
P69	20.000	88.527	-3.5	0	0	0	0	P67	-0.016	-0.010	0.6	84.7	
								P71	0.006	0.004	0.2	84.8	
								P70	0.010	0.006	0.4	84.6	

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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
P70	0.400	87.657	-3.9	0	0	0.010	0.006	P69	-0.010	-0.006	19.4	85.0	
P71	20.000	88.526	-3.5	0	0	0	0	P69	-0.006	-0.004	0.2	84.8	
								P72	0.006	0.004	0.2	84.8	
P72	0.400	88.000	-3.7	0	0	0.006	0.004	P71	-0.006	-0.004	11.7	85.0	
P73	20.000	88.529	-3.5	0	0	0	0	P66	-0.009	-0.006	0.4	84.8	
								P74	0.009	0.006	0.4	84.8	
P74	0.400	88.120	-3.6	0	0	0.009	0.006	P73	-0.009	-0.006	18.3	85.0	
P76	20.000	88.537	-3.5	0	0	0	0	P36	-0.231	-0.146	8.9	84.6	
								P92	0.217	0.137	8.4	84.6	
								P77	0.015	0.009	0.6	84.6	
P77	0.400	87.120	-3.9	0	0	0.014	0.009	P76	-0.014	-0.009	28.1	85.0	
P80	20.000	88.461	-3.5	0	0	0	0	P98	-0.033	-0.021	1.3	84.1	
								P81	0.033	0.021	1.3	84.1	
P81	0.400	85.237	-4.4	0	0	0.032	0.020	P80	-0.032	-0.020	63.7	85.0	
P82	20.000	88.460	-3.5	0	0	0	0	P84	-0.009	-0.006	0.3	84.8	
								P83	0.009	0.006	0.3	84.8	
P83	0.400	87.590	-3.7	0	0	0.009	0.006	P82	-0.009	-0.006	17.2	85.0	
P84	20.000	88.460	-3.5	0	0	0	0	P86	-0.017	-0.011	0.7	84.8	
								P82	0.009	0.006	0.3	84.8	
								P85	0.008	0.005	0.3	84.8	
P85	0.400	87.636	-3.7	0	0	0.008	0.005	P84	-0.008	-0.005	16.3	85.0	
P86	20.000	88.462	-3.5	0	0	0	0	P84	0.017	0.011	0.7	84.8	
								P98	-0.024	-0.015	0.9	84.8	
								P87	0.006	0.004	0.2	84.8	
P87	0.400	87.856	-3.7	0	0	0.006	0.004	P86	-0.006	-0.004	12.0	85.0	
P88	20.000	88.483	-3.5	0	0	0	0	P96	0.151	0.095	5.8	84.6	
								P94	-0.158	-0.100	6.1	84.6	
								P89	0.008	0.005	0.3	84.8	
P89	0.400	87.749	-3.7	0	0	0.008	0.005	P88	-0.008	-0.005	14.5	85.0	
P90	20.000	88.508	-3.5	0	0	0	0	P94	0.200	0.126	7.7	84.6	
								P92	-0.208	-0.131	8.0	84.6	
								P91	0.007	0.005	0.3	84.8	
P91	0.400	87.780	-3.7	0	0	0.007	0.005	P90	-0.007	-0.005	14.4	85.0	
P92	20.000	88.522	-3.5	0	0	0	0	P90	0.208	0.131	8.0	84.6	
								P76	-0.217	-0.137	8.4	84.6	
								P93	0.009	0.006	0.3	84.8	
P93	0.400	87.640	-3.7	0	0	0.009	0.006	P92	-0.009	-0.006	17.5	85.0	
P94	20.000	88.494	-3.5	0	0	0	0	P90	-0.200	-0.126	7.7	84.6	
								P88	0.158	0.100	6.1	84.6	

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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
P95	0.400	87.940	-3.6	0	0	0.006	0.004	P136	0.036	0.023	1.4	84.7	
								P95	0.006	0.004	0.2	84.8	
								P94	-0.006	-0.004	11.0	85.0	
								P88	-0.151	-0.095	5.8	84.6	
P96	20.000	88.473	-3.5	0	0	0	0	P98	0.136	0.086	5.2	84.6	
								P97	0.015	0.010	0.6	84.6	
								P96	-0.015	-0.009	29.3	85.0	
								P80	0.033	0.021	1.3	84.1	
P97	0.400	86.991	-3.9	0	0	0.015	0.009	P96	-0.135	-0.086	5.2	84.6	
								P134	0.066	0.042	2.6	84.7	
								P86	0.024	0.015	0.9	84.8	
								P99	0.013	0.008	0.5	84.7	
P99	0.400	87.239	-3.8	0	0	0.012	0.008	P98	-0.012	-0.008	24.2	85.0	
P126	20.000	88.454	-3.5	0	0	0	0	P130	-0.008	-0.005	0.3	84.8	
P127	0.400	87.681	-3.7	0	0	0.008	0.005	P127	0.008	0.005	0.3	84.8	
								P126	-0.008	-0.005	15.3	85.0	
								P132	0.026	0.016	1.0	84.6	
								P130	-0.033	-0.021	1.3	84.7	
P128	20.000	88.453	-3.5	0	0	0	0	P129	0.007	0.004	0.3	84.8	
								P128	-0.007	-0.004	13.3	85.0	
								P134	-0.055	-0.034	2.1	84.7	
								P126	0.008	0.005	0.3	84.8	
P129	0.400	87.783	-3.7	0	0	0.007	0.004	P128	0.033	0.021	1.3	84.7	
								P131	0.014	0.009	0.5	84.6	
								P130	-0.014	-0.008	26.7	85.0	
								P128	-0.026	-0.016	1.0	84.6	
P130	20.000	88.455	-3.5	0	0	0	0	Bus37	0.015	0.009	0.6	84.6	
P131	0.400	87.109	-3.9	0	0	0.014	0.008	P133	0.011	0.007	0.4	84.7	
								P132	-0.011	-0.007	21.7	85.0	
								P130	0.055	0.034	2.1	84.7	
								P98	-0.066	-0.042	2.6	84.7	
P132	20.000	88.451	-3.5	0	0	0	0	P135	0.012	0.007	0.5	84.7	
								P134	-0.012	-0.007	22.6	85.0	
								P138	0.008	0.005	0.3	84.8	
								P94	-0.036	-0.023	1.4	84.7	
P133	0.400	87.317	-3.8	0	0	0.012	0.007	P142	0.013	0.008	0.5	84.6	
								P137	0.014	0.009	0.6	84.6	
								P136	-0.014	-0.009	27.5	85.0	
								P136	-0.008	-0.005	0.3	84.8	
P134	20.000	88.491	-3.5	0	0	0	0	P136	-0.008	-0.005	0.3	84.8	

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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
								P139	0.008	0.005	0.3	84.8	
P139	0.400	87.666	-3.7	0	0	0.008	0.005	P138	-0.008	-0.005	16.3	85.0	
P142	20.000	88.490	-3.5	0	0	0	0	P136	-0.013	-0.008	0.5	84.6	
								P143	0.013	0.008	0.5	84.6	
P143	0.400	87.183	-3.9	0	0	0.013	0.008	P142	-0.013	-0.008	25.9	85.0	
P164	0.400	86.146	-4.1	0	0	0.032	0.020	P181	-0.032	-0.020	63.7	85.0	
P165	0.400	85.444	-4.3	0	0	0.032	0.020	P180	-0.032	-0.020	63.7	85.0	
P166	0.400	85.318	-4.4	0	0	0.032	0.020	P179	-0.032	-0.020	63.7	85.0	
P167	0.400	85.195	-4.4	0	0	0.032	0.020	P178	-0.032	-0.020	63.7	85.0	
P168	0.400	84.858	-6.0	0	0	1.175	0.728	P177	-1.175	-0.728	2351.8	85.0	
P172	0.400	86.146	-4.1	0	0	0.032	0.020	P173	-0.032	-0.020	63.7	85.0	
P173	20.000	89.371	-3.2	0	0	0	0	AL3	-2.028	-1.370	79.0	82.9	
								P181	1.995	1.348	77.8	82.8	
								P172	0.033	0.021	1.3	84.1	
P177	20.000	88.298	-3.5	0	0	0	0	P178	-1.697	-1.141	66.9	83.0	
								AL9	0.508	0.331	19.8	83.8	
								P168	1.189	0.810	47.0	82.6	
P178	20.000	88.419	-3.5	0	0	0	0	P177	1.698	1.144	66.9	82.9	
								P179	-1.731	-1.165	68.1	83.0	
								P167	0.033	0.021	1.3	84.1	
P179	20.000	88.543	-3.4	0	0	0	0	P178	1.733	1.168	68.1	82.9	
								P180	-1.766	-1.189	69.4	82.9	
								P166	0.033	0.021	1.3	84.1	
P180	20.000	88.669	-3.4	0	0	0	0	P179	1.767	1.192	69.4	82.9	
								P182	-1.800	-1.213	70.7	82.9	
								P165	0.033	0.021	1.3	84.1	
P181	20.000	89.371	-3.2	0	0	0	0	P173	-1.995	-1.348	77.8	82.8	
								AL5	1.962	1.327	76.5	82.8	
								P164	0.033	0.021	1.3	84.1	
P182	20.000	88.797	-3.4	0	0	0	0	P180	1.802	1.216	70.7	82.9	
								P190	-1.835	-1.237	72.0	82.9	
								P183	0.033	0.021	1.3	84.1	
P183	0.400	85.572	-4.3	0	0	0.032	0.020	P182	-0.032	-0.020	63.7	85.0	
P186	20.000	89.163	-3.2	0	0	0	0	AL5	-1.933	-1.306	75.5	82.9	
								AL7	1.900	1.284	74.3	82.8	
								P187	0.033	0.021	1.3	84.1	
P187	0.400	85.937	-4.2	0	0	0.032	0.020	P186	-0.032	-0.020	63.7	85.0	
P190	20.000	88.928	-3.3	0	0	0	0	AL7	-1.870	-1.262	73.2	82.9	
								P182	1.837	1.240	72.0	82.9	

Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
								P191	0.033	0.021	1.3	84.1	
P191	0.400	85.703	-4.3	0	0	0.032	0.020	P190	-0.032	-0.020	63.7	85.0	
TL1	21.000	94.668	-0.4	0	0	0	0	Bus25-1	-3.751	-2.744	135.0	80.7	
								Bus1	3.751	2.744	135.0	80.7	

* 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				
AL1	20.000		0	0	0	0	0	0	0	0	3.004	83.1	97.0	
AL2	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	18.0	
AL3	20.000		0	0	0	0	0	0	0	0	2.993	83.1	96.7	
AL4	0.400		0.211	0.131	0.246	0.153	0	0	0	0	0.538	85.0	880.8	
AL5	20.000		0	0	0	0	0	0	0	0	2.366	82.9	76.5	
AL6	0.400		0.012	0.007	0.014	0.008	0	0	0	0	0.030	85.0	48.6	
AL7	20.000		0	0	0	0	0	0	0	0	2.291	82.9	74.3	
AL8	0.400		0.017	0.011	0.009	0.005	0	0	0	0	0.031	85.0	51.4	
AL9	20.000		0	0	0	0	0	0	0	0	0.606	83.8	19.8	
AL10	0.400		0.003	0.002	0.003	0.002	0	0	0	0	0.007	85.0	11.0	
AL11	20.000		0	0	0	0	0	0	0	0	0.599	83.8	19.6	
AL14	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	16.3	
AL15	20.000		0	0	0	0	0	0	0	0	0.575	83.7	18.8	
AL16	0.400		0.006	0.004	0.007	0.004	0	0	0	0	0.015	85.0	25.5	
AL17	0.400		0.011	0.007	0.002	0.001	0	0	0	0	0.016	85.0	26.4	
AL18	20.000		0	0	0	0	0	0	0	0	0.559	83.7	18.3	
AL19	20.000		0	0	0	0	0	0	0	0	0.543	83.7	17.8	
AL20	0.400		0.002	0.001	0.002	0.001	0	0	0	0	0.004	85.0	7.0	
AL21	20.000		0	0	0	0	0	0	0	0	0.538	83.7	17.6	
AL22	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.010	85.0	16.8	
AL23	20.000		0	0	0	0	0	0	0	0	0.528	83.7	17.3	
AL24	0.400		0.005	0.003	0.005	0.003	0	0	0	0	0.012	85.0	19.1	
AL25	20.000		0	0	0	0	0	0	0	0	0.512	83.6	16.8	
AL26	20.000		0	0	0	0	0	0	0	0	0.004	84.9	0.1	
AL27	0.400		0.002	0.001	0.001	0.001	0	0	0	0	0.004	85.0	6.2	
AL28	20.000		0	0	0	0	0	0	0	0	0.505	83.6	16.6	
AL29	20.000		0	0	0	0	0	0	0	0	0.007	84.9	0.2	
AL30	0.400		0.004	0.002	0.002	0.001	0	0	0	0	0.007	85.0	11.6	
AL31	0.400		0.007	0.004	0.004	0.002	0	0	0	0	0.012	85.0	20.4	
AL32	20.000		0	0	0	0	0	0	0	0	0.492	83.6	16.1	
AL34	0.400		0.004	0.003	0.002	0.001	0	0	0	0	0.007	85.0	11.8	
AL35	20.000		0	0	0	0	0	0	0	0	0.009	84.9	0.3	
AL36	0.400		0.005	0.003	0.002	0.002	0	0	0	0	0.009	85.0	14.3	
AL38	0.400		0.006	0.003	0.006	0.004	0	0	0	0	0.014	85.0	23.4	
AL39	20.000		0	0	0	0	0	0	0	0	0.585	83.7	19.1	
Bus1	21.000		0	0	0	0	0	0	0	0	4.646	80.7	135.0	

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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				
Bus2	21.000		0	0	0	0	0	0	0	0	4.299	82.7	135.0	
Bus24-1	150.000		0	0	0	0	0	0	0	0	4.676	80.3	18.0	
Bus25-1	20.000		0	0	0	0	0	0	0	0	4.648	80.7	135.0	
Bus37	20.000		0	0	0	0	0	0	0	0	0.017	84.6	0.6	
Bus97	0.400		0.012	0.008	0.002	0.001	0	0	0	0	0.017	85.0	28.4	
Bus428	0.400		0.061	0.038	0.067	0.041	0	0	0	0	0.150	85.0	254.8	
Bus429	20.000		0	0	0	0	0	0	0	0	0.155	83.6	5.1	
Bus430	0.400		0.092	0.057	0.044	0.027	0	0	0	0	0.160	85.0	271.7	
Bus431	20.000		0	0	0	0	0	0	0	0	0.166	83.5	5.4	
Bus432	20.000		0	0	0	0	0	0	0	0	0.476	83.6	15.6	
Bus433	0.400		0.061	0.038	0.067	0.041	0	0	0	0	0.150	85.0	254.8	
P2	20.000		0	0	0	0	0	0	0	0	4.280	82.8	135.0	
P3	20.000		0	0	0	0	0	0	0	0	4.232	83.1	135.0	
P4	20.000		0	0	0	0	0	0	0	0	0.032	84.5	1.0	
P5	0.400		0.012	0.008	0.015	0.009	0	0	0	0	0.032	85.0	51.1	
P6	20.000		0	0	0	0	0	0	0	0	4.172	83.3	134.0	
P7	0.400		0.018	0.011	0.021	0.013	0	0	0	0	0.045	85.0	73.1	
P8	20.000		0	0	0	0	0	0	0	0	4.117	83.3	132.5	
P9	0.400		0.009	0.005	0.005	0.003	0	0	0	0	0.015	85.0	25.0	
P10	20.000		0	0	0	0	0	0	0	0	4.092	83.4	132.0	
P11	0.400		0.017	0.011	0.009	0.005	0	0	0	0	0.030	85.0	49.8	
P12	20.000		0	0	0	0	0	0	0	0	1.052	84.2	34.0	
P13	0.400		0.032	0.020	0.017	0.010	0	0	0	0	0.057	85.0	93.6	
P14	20.000		0	0	0	0	0	0	0	0	0.993	84.2	32.1	
P15	20.000		0	0	0	0	0	0	0	0	0.024	84.2	0.8	
P16	0.400		0.009	0.006	0.011	0.007	0	0	0	0	0.024	85.0	39.3	
P17	20.000		0	0	0	0	0	0	0	0	0.043	84.3	1.4	
P18	0.400		0.017	0.010	0.019	0.012	0	0	0	0	0.043	85.0	70.2	
P19	20.000		0	0	0	0	0	0	0	0	0.027	84.8	0.9	
P20	0.400		0.010	0.006	0.012	0.008	0	0	0	0	0.026	85.0	43.0	
P21	20.000		0	0	0	0	0	0	0	0	0.898	84.3	29.1	
P22	0.400		0.010	0.006	0.005	0.003	0	0	0	0	0.017	85.0	28.2	
P23	20.000		0	0	0	0	0	0	0	0	0.878	84.3	28.5	
P24	0.400		0.010	0.007	0.012	0.007	0	0	0	0	0.026	85.0	43.7	
P25	20.000		0	0	0	0	0	0	0	0	0.851	84.4	27.6	
P26	0.400		0.012	0.007	0.014	0.009	0	0	0	0	0.030	85.0	50.0	
P27	20.000		0	0	0	0	0	0	0	0	0.819	84.4	26.6	
P28	0.400		0.012	0.008	0.014	0.009	0	0	0	0	0.031	85.0	50.5	

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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				
P29	20.000		0	0	0	0	0	0	0	0	0.787	84.4	25.6	
P30	0.400		0.019	0.012	0.010	0.006	0	0	0	0	0.034	85.0	56.2	
P31	20.000		0	0	0	0	0	0	0	0	0.752	84.4	24.5	
P32	0.400		0.019	0.011	0.021	0.013	0	0	0	0	0.046	85.0	77.2	
P33	20.000		0	0	0	0	0	0	0	0	0.704	84.4	22.9	
P34	20.000		0	0	0	0	0	0	0	0	0.004	84.9	0.1	
P35	0.400		0.002	0.002	0.001	0.001	0	0	0	0	0.004	85.0	7.1	
P36	20.000		0	0	0	0	0	0	0	0	0.699	84.5	22.8	
P37	0.400		0.036	0.022	0.041	0.025	0	0	0	0	0.090	85.0	150.4	
P38	20.000		0	0	0	0	0	0	0	0	0.223	84.4	7.3	
P39	0.400		0.013	0.008	0.006	0.004	0	0	0	0	0.022	85.0	37.0	
P40	20.000		0	0	0	0	0	0	0	0	0.025	84.6	0.8	
P41	0.400		0.018	0.011	0.003	0.002	0	0	0	0	0.025	85.0	41.0	
P42	20.000		0	0	0	0	0	0	0	0	0.175	84.3	5.7	
P43	0.400		0.015	0.009	0.007	0.005	0	0	0	0	0.026	85.0	43.3	
P44	20.000		0	0	0	0	0	0	0	0	0.148	84.3	4.8	
P45	20.000		0	0	0	0	0	0	0	0	0.014	84.8	0.5	
P46	0.400		0.010	0.006	0.002	0.001	0	0	0	0	0.014	85.0	23.5	
P47	0.400		0.006	0.003	0.006	0.004	0	0	0	0	0.014	85.0	22.9	
P48	20.000		0	0	0	0	0	0	0	0	0.134	84.3	4.4	
P49	20.000		0	0	0	0	0	0	0	0	0.120	84.3	3.9	
P50	0.400		0.003	0.002	0.003	0.002	0	0	0	0	0.008	85.0	12.4	
P51	20.000		0	0	0	0	0	0	0	0	0.081	84.4	2.7	
P52	20.000		0	0	0	0	0	0	0	0	0.021	84.7	0.7	
P53	0.400		0.012	0.007	0.006	0.004	0	0	0	0	0.021	85.0	34.3	
P54	20.000		0	0	0	0	0	0	0	0	0.060	84.3	2.0	
P55	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	17.7	
P56	20.000		0	0	0	0	0	0	0	0	0.050	84.2	1.6	
P57	0.400		0.019	0.012	0.022	0.014	0	0	0	0	0.049	85.0	80.8	
P58	20.000		0	0	0	0	0	0	0	0	0.031	84.0	1.0	
P59	0.400		0.012	0.007	0.013	0.008	0	0	0	0	0.030	85.0	50.2	
P60	20.000		0	0	0	0	0	0	0	0	0.110	84.7	3.6	
P61	0.400		0.007	0.004	0.001	0.001	0	0	0	0	0.009	85.0	15.3	
P62	20.000		0	0	0	0	0	0	0	0	0.101	84.7	3.3	
P63	0.400		0.018	0.011	0.010	0.006	0	0	0	0	0.033	85.0	54.1	
P64	20.000		0	0	0	0	0	0	0	0	0.068	84.7	2.2	
P65	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.018	85.0	29.0	
P66	20.000		0	0	0	0	0	0	0	0	0.050	84.7	1.6	

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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				
P67	20.000		0	0	0	0	0	0	0	0	0.039	84.7	1.3	
P68	0.400		0.011	0.007	0.006	0.004	0	0	0	0	0.020	85.0	32.3	
P69	20.000		0	0	0	0	0	0	0	0	0.019	84.7	0.6	
P70	0.400		0.005	0.003	0.005	0.003	0	0	0	0	0.012	85.0	19.4	
P71	20.000		0	0	0	0	0	0	0	0	0.007	84.8	0.2	
P72	0.400		0.003	0.002	0.003	0.002	0	0	0	0	0.007	85.0	11.7	
P73	20.000		0	0	0	0	0	0	0	0	0.011	84.8	0.4	
P74	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	18.3	
P76	20.000		0	0	0	0	0	0	0	0	0.274	84.6	8.9	
P77	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.017	85.0	28.1	
P80	20.000		0	0	0	0	0	0	0	0	0.039	84.1	1.3	
P81	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
P82	20.000		0	0	0	0	0	0	0	0	0.011	84.8	0.3	
P83	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.010	85.0	17.2	
P84	20.000		0	0	0	0	0	0	0	0	0.021	84.8	0.7	
P85	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	16.3	
P86	20.000		0	0	0	0	0	0	0	0	0.028	84.8	0.9	
P87	0.400		0.003	0.002	0.003	0.002	0	0	0	0	0.007	85.0	12.0	
P88	20.000		0	0	0	0	0	0	0	0	0.187	84.6	6.1	
P89	0.400		0.003	0.002	0.004	0.002	0	0	0	0	0.009	85.0	14.5	
P90	20.000		0	0	0	0	0	0	0	0	0.246	84.6	8.0	
P91	0.400		0.003	0.002	0.004	0.002	0	0	0	0	0.009	85.0	14.4	
P92	20.000		0	0	0	0	0	0	0	0	0.256	84.6	8.4	
P93	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	17.5	
P94	20.000		0	0	0	0	0	0	0	0	0.237	84.6	7.7	
P95	0.400		0.003	0.002	0.003	0.002	0	0	0	0	0.007	85.0	11.0	
P96	20.000		0	0	0	0	0	0	0	0	0.178	84.6	5.8	
P97	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.018	85.0	29.3	
P98	20.000		0	0	0	0	0	0	0	0	0.160	84.6	5.2	
P99	0.400		0.006	0.004	0.007	0.004	0	0	0	0	0.015	85.0	24.2	
P126	20.000		0	0	0	0	0	0	0	0	0.009	84.8	0.3	
P127	0.400		0.004	0.002	0.004	0.003	0	0	0	0	0.009	85.0	15.3	
P128	20.000		0	0	0	0	0	0	0	0	0.039	84.7	1.3	
P129	0.400		0.003	0.002	0.004	0.002	0	0	0	0	0.008	85.0	13.3	
P130	20.000		0	0	0	0	0	0	0	0	0.065	84.7	2.1	
P131	0.400		0.006	0.004	0.007	0.005	0	0	0	0	0.016	85.0	26.7	
P132	20.000		0	0	0	0	0	0	0	0	0.031	84.6	1.0	
P133	0.400		0.005	0.003	0.006	0.004	0	0	0	0	0.013	85.0	21.7	

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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				
P134	20.000		0	0	0	0	0	0	0	0	0.078	84.7	2.6	
P135	0.400		0.008	0.005	0.004	0.002	0	0	0	0	0.014	85.0	22.6	
P136	20.000		0	0	0	0	0	0	0	0	0.043	84.7	1.4	
P137	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.017	85.0	27.5	
P138	20.000		0	0	0	0	0	0	0	0	0.010	84.8	0.3	
P139	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	16.3	
P142	20.000		0	0	0	0	0	0	0	0	0.016	84.6	0.5	
P143	0.400		0.006	0.004	0.007	0.004	0	0	0	0	0.016	85.0	25.9	
P164	0.400		0.015	0.009	0.017	0.011	0	0	0	0	0.038	85.0	63.7	
P165	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
P166	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
P167	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
P168	0.400		0.794	0.492	0.381	0.236	0	0	0	0	1.383	85.0	2351.8	
P172	0.400		0.015	0.009	0.017	0.011	0	0	0	0	0.038	85.0	63.7	
P173	20.000		0	0	0	0	0	0	0	0	2.447	82.9	79.0	
P177	20.000		0	0	0	0	0	0	0	0	2.045	83.0	66.9	
P178	20.000		0	0	0	0	0	0	0	0	2.087	83.0	68.1	
P179	20.000		0	0	0	0	0	0	0	0	2.129	82.9	69.4	
P180	20.000		0	0	0	0	0	0	0	0	2.171	82.9	70.7	
P181	20.000		0	0	0	0	0	0	0	0	2.408	82.8	77.8	
P182	20.000		0	0	0	0	0	0	0	0	2.213	82.9	72.0	
P183	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
P186	20.000		0	0	0	0	0	0	0	0	2.333	82.9	75.5	
P187	0.400		0.015	0.009	0.017	0.011	0	0	0	0	0.038	85.0	63.7	
P190	20.000		0	0	0	0	0	0	0	0	2.256	82.9	73.2	
P191	0.400		0.015	0.009	0.017	0.010	0	0	0	0	0.038	85.0	63.7	
TL1	21.000		0	0	0	0	0	0	0	0	4.648	80.7	135.0	

* 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	%
Line6	Line	266.50	8.92	3.35					
Line10	Line	266.50	1.00	0.38					
Line12	Line	266.50	2.11	0.79					
Line18	Line	266.50	1.27	0.48					
Line22	Line	266.50	0.67	0.25					
Line26	Line	266.50	5.82	2.18					
Line30	Line	266.50	7.72	2.90					
Line36	Line	266.50	0.31	0.11					
Line37	Line	266.50	1.27	0.48					
Line44	Line	266.50	0.34	0.13					
Line45	Line	266.50	0.33	0.12					
Line47	Line	266.50	5.23	1.96					
Line48	Line	266.50	8.01	3.01					
Line55	Line	266.50	2.56	0.96					
Line56	Line	266.50	6.11	2.29					
Line57	Line	266.50	0.91	0.34					
Line58	Line	266.50	8.36	3.14					
Line60	Line	266.50	1.40	0.52					
Line62	Line	266.50	0.52	0.19					
Line76	Line	266.50	66.86	25.09					
Line77	Line	266.50	68.13	25.57					
Line78	Line	266.50	69.40	26.04					
Line79	Line	266.50	70.68	26.52					
Line82	Line	266.50	73.23	27.48					
Line84	Line	266.50	71.95	27.00					
Line86	Line	266.50	19.82	7.44					
Line160	Line	266.50	0.57	0.21					
P_Cuaca	Line	426.41	134.97	31.65					
PC1	Transformer				0.160	0.092	57.7	0.090	56.4
PC2	Transformer				0.100	0.047	47.4	0.046	46.5
PC3	Transformer				0.050	0.027	54.0	0.026	52.8
PC4	Transformer				0.160	0.058	36.2	0.057	35.7
PC5	Transformer				0.100	0.031	31.1	0.031	30.7

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CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
PC_06	Transformer				2.000	0.545	27.3	0.538	26.9
PC7	Transformer				0.050	0.011	22.3	0.011	22.1
PC8	Transformer				0.160	0.046	28.4	0.045	28.1
PC9	Transformer				0.100	0.032	32.1	0.032	31.6
PC10	Transformer				0.025	0.014	56.3	0.014	55.0
PC11	Transformer				0.100	0.050	49.6	0.049	48.5
PC12	Transformer				0.025	0.017	69.7	0.017	67.7
PC13	Transformer				0.050	0.031	61.8	0.030	60.2
PC14	Transformer				0.050	0.024	48.6	0.024	47.7
PC15	Transformer				0.050	0.008	15.2	0.008	15.1
PC16	Transformer				0.050	0.031	61.6	0.030	60.0
PC17	Transformer				0.160	0.027	16.6	0.026	16.5
PC18	Transformer				0.050	0.027	53.2	0.026	52.0
PC19	Transformer				0.100	0.023	22.7	0.022	22.5
PC20	Transformer				0.100	0.016	15.5	0.015	15.4
PC21	Transformer				0.100	0.043	43.4	0.043	42.7
PC22	Transformer				0.100	0.031	30.8	0.030	30.4
PC23	Transformer				0.100	0.035	34.6	0.034	34.1
PC24	Transformer				0.160	0.011	6.8	0.011	6.8
PC25	Transformer				0.050	0.009	18.8	0.009	18.7
PC26	Transformer				0.200	0.033	16.6	0.033	16.5
PC27	Transformer				0.100	0.014	14.4	0.014	14.4
PC28	Transformer				0.100	0.021	21.0	0.021	20.8
PC29	Transformer				0.100	0.025	25.1	0.025	24.9
PC30	Transformer				0.100	0.030	30.1	0.030	29.7
PC31	Transformer				0.050	0.032	63.4	0.031	61.8
PC32	Transformer				0.050	0.007	13.4	0.007	13.3
PC33	Transformer				0.100	0.014	14.3	0.014	14.2
PC34	Transformer				0.100	0.010	10.0	0.010	9.9
PC35	Transformer				0.100	0.016	15.6	0.015	15.5
PC36	Transformer				0.100	0.016	16.2	0.016	16.0
PC37	Transformer				0.050	0.004	8.6	0.004	8.5
PC38	Transformer				0.100	0.010	10.3	0.010	10.2
PC39	Transformer				0.100	0.012	11.7	0.012	11.6
PC40	Transformer				0.050	0.004	7.5	0.004	7.5

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CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
PC41	Transformer				0.100	0.007	7.1	0.007	7.0
PC42	Transformer				0.100	0.012	12.5	0.012	12.4
PC43	Transformer				0.050	0.007	14.4	0.007	14.4
PC44	Transformer				0.100	0.009	8.7	0.009	8.7
PC45	Transformer				0.100	0.004	4.4	0.004	4.4
PC46	Transformer				0.100	0.018	17.8	0.018	17.6
PC47	Transformer				0.100	0.011	11.2	0.011	11.1
PC48	Transformer				0.100	0.020	19.8	0.020	19.6
PC49	Transformer				0.050	0.012	23.8	0.012	23.6
PC50	Transformer				0.050	0.007	14.4	0.007	14.3
* PC_56 MAJU TAMBAK SUMUR	Transformer				0.160	1.439	899.2	1.383	864.2
PC57	Transformer				0.160	0.009	5.5	0.009	5.5
PC58	Transformer				0.160	0.009	5.6	0.009	5.5
PC59	Transformer				0.160	0.007	4.2	0.007	4.2
PC60	Transformer				0.160	0.018	11.2	0.018	11.0
PC61	Transformer				0.160	0.015	9.3	0.015	9.2
PC_62	Transformer				0.160	0.007	4.6	0.007	4.6
PC_63	Transformer				0.160	0.016	10.2	0.016	10.1
PC79	Transformer				0.160	0.014	8.7	0.014	8.6
PC80	Transformer				0.160	0.017	10.8	0.017	10.6
PC81	Transformer				0.160	0.017	10.6	0.017	10.4
PC82	Transformer				0.160	0.010	6.3	0.010	6.2
PC86	Transformer				0.160	0.039	24.4	0.038	23.5
PC87	Transformer				0.160	0.009	5.9	0.009	5.8
PC88	Transformer				0.160	0.008	5.1	0.008	5.0
PC89	Transformer				0.160	0.013	8.3	0.013	8.2
PC90	Transformer				0.160	0.011	6.7	0.011	6.6
PC96	Transformer				0.160	0.039	24.7	0.038	23.8
PC97	Transformer				0.160	0.039	24.5	0.038	23.6
PC103	Transformer				0.160	0.039	24.5	0.038	23.6
PC104	Transformer				0.160	0.039	24.4	0.038	23.5
PC105	Transformer				0.160	0.039	24.4	0.038	23.5
PC153	Transformer				0.160	0.039	24.7	0.038	23.8
PC154	Transformer				0.160	0.039	24.6	0.038	23.7
PC155	Transformer				0.160	0.039	24.5	0.038	23.6

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CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
PC164	Transformer				0.160	0.016	9.9	0.016	9.8
PC165	Transformer				0.160	0.010	6.3	0.010	6.2
PC166	Transformer				0.160	0.011	6.6	0.010	6.5
T51	Transformer				0.050	0.017	34.8	0.017	34.2
T187	Transformer				0.200	0.155	77.6	0.150	75.2
T188	Transformer				0.200	0.166	82.8	0.160	80.0
T189	Transformer				0.200	0.155	77.6	0.150	75.2
Trafo #2	Transformer				60.000	4.676	7.8	4.648	7.7

* 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	
SKTM_AL	2.487	1.664	-2.487	-1.664	0.0	0.0	89.4	89.4	0.00
Line1-2	-2.496	-1.670	2.499	1.674	2.5	4.2	89.4	89.5	0.13
PC7	0.009	0.006	-0.009	-0.006	0.0	0.1	89.4	88.6	0.81
SKTM_AL2	2.028	1.370	-2.028	-1.370	0.0	0.0	89.4	89.4	0.00
PC_06	0.459	0.295	-0.457	-0.284	1.6	11.1	89.4	88.2	1.18
Line2-2	-1.960	-1.324	1.962	1.327	1.6	2.6	89.3	89.4	0.11
Line3-2	1.935	1.308	-1.933	-1.306	1.5	2.6	89.3	89.2	0.10
PC30	0.025	0.016	-0.025	-0.016	0.2	0.4	89.3	88.2	1.09
Line4-1	-1.899	-1.282	1.900	1.284	1.5	2.5	89.1	89.2	0.10
Line82	1.872	1.265	-1.870	-1.262	1.9	3.2	89.1	88.9	0.13
PC31	0.027	0.017	-0.026	-0.016	0.4	0.9	89.1	86.7	2.32
Line5-2	0.502	0.327	-0.502	-0.327	0.1	0.2	88.3	88.2	0.03
Line86	-0.508	-0.331	0.508	0.331	0.1	0.2	88.3	88.3	0.04
PC32	0.006	0.004	-0.006	-0.004	0.0	0.0	88.3	87.8	0.49
Line6-2	0.490	0.320	-0.490	-0.320	0.1	0.2	88.2	88.2	0.03
PC33	0.012	0.008	-0.012	-0.007	0.0	0.1	88.2	87.7	0.52
PC34	-0.008	-0.005	0.008	0.005	0.0	0.0	87.8	88.2	0.37
Line7-2	-0.481	-0.314	0.481	0.314	0.1	0.2	88.2	88.2	0.03
Line8-2	0.468	0.306	-0.468	-0.306	0.1	0.2	88.2	88.2	0.02
PC35	0.013	0.008	-0.013	-0.008	0.0	0.1	88.2	87.6	0.57
PC36	-0.014	-0.008	0.014	0.009	0.1	0.1	87.6	88.2	0.59
Line9-2	0.454	0.297	-0.454	-0.297	0.1	0.1	88.2	88.1	0.02
Line10-2	0.450	0.295	-0.450	-0.295	0.1	0.1	88.1	88.1	0.02
PC37	0.004	0.002	-0.004	-0.002	0.0	0.0	88.1	87.8	0.31
Line11-2	0.442	0.289	-0.442	-0.289	0.1	0.1	88.1	88.1	0.02
PC38	0.009	0.005	-0.009	-0.005	0.0	0.1	88.1	87.7	0.38
Line12-2	0.003	0.002	-0.003	-0.002	0.0	0.0	88.1	88.1	0.00
Line15-2	0.428	0.281	-0.428	-0.281	0.1	0.1	88.1	88.1	0.02
PC39	0.010	0.006	-0.010	-0.006	0.0	0.1	88.1	87.7	0.43
Line13-2	0.422	0.277	-0.422	-0.277	0.1	0.1	88.1	88.0	0.02
Line14-2	0.006	0.004	-0.006	-0.004	0.0	0.0	88.1	88.1	0.00
PC40	0.003	0.002	-0.003	-0.002	0.0	0.0	88.1	87.8	0.28
Line16-2	0.412	0.270	-0.412	-0.270	0.1	0.1	88.0	88.0	0.02
PC42	0.011	0.007	-0.011	-0.007	0.0	0.1	88.0	87.6	0.46
PC41	0.006	0.004	-0.006	-0.004	0.0	0.0	88.1	87.8	0.26

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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	
Cable13	0.398	0.262	-0.398	-0.261	0.2	0.2	88.0	88.0	0.06
Line17-2	0.007	0.005	-0.007	-0.005	0.0	0.0	88.0	88.0	0.00
PC43	0.006	0.004	-0.006	-0.004	0.0	0.0	88.0	87.5	0.53
PC44	0.007	0.005	-0.007	-0.005	0.0	0.0	88.0	87.7	0.32
Line1	3.750	2.742	-3.555	-2.417	195.1	325.1	94.6	87.6	7.07
P_Cuaca	-3.750	-2.742	3.751	2.744	1.1	1.9	94.6	94.7	0.04
Line21	3.555	2.417	-3.544	-2.399	10.8	18.1	87.6	91.5	0.39
Trafo #2	3.752	2.789	-3.751	-2.744	1.0	45.5	100.0	99.4	0.60
Outgoing	3.751	2.744	-3.751	-2.744	0.1	0.2	99.4	94.7	0.00
Line160	-0.015	-0.009	0.015	0.009	0.0	0.0	88.4	88.5	0.02
T51	0.015	0.009	-0.015	-0.009	0.2	0.3	88.4	87.0	1.44
T187	-0.128	-0.079	0.130	0.085	1.9	5.9	85.2	87.9	2.72
Cable14	-0.130	-0.085	0.130	0.085	0.0	0.0	87.9	88.0	0.02
T188	-0.136	-0.084	0.138	0.091	2.2	6.7	85.0	87.9	2.91
Cable15	-0.138	-0.091	0.138	0.091	0.0	0.0	87.9	88.0	0.02
T189	0.130	0.085	-0.128	-0.079	1.9	5.9	88.0	85.2	2.72
Line1-1	3.544	2.399	-3.517	-2.353	27.1	45.2	91.5	90.5	1.02
Line2	0.027	0.017	-0.027	-0.017	0.0	0.0	90.5	90.5	0.01
Line3	3.490	2.336	-3.474	-2.310	16.0	26.7	90.5	89.9	0.61
PC9	0.027	0.017	-0.027	-0.017	0.2	0.5	90.5	89.4	1.15
Line5	3.436	2.285	-3.430	-2.277	5.2	8.7	89.9	89.7	0.20
PC8	0.038	0.024	-0.038	-0.024	0.2	0.6	89.9	88.9	0.97
Line7	3.417	2.268	-3.412	-2.260	5.2	8.6	89.7	89.5	0.20
PC20	0.013	0.008	-0.013	-0.008	0.0	0.1	89.7	89.1	0.56
Line9	0.887	0.568	-0.886	-0.567	0.7	1.1	89.5	89.4	0.10
PC13	0.026	0.017	-0.026	-0.016	0.4	0.9	89.5	87.3	2.24
Line11	0.837	0.536	-0.837	-0.535	0.6	1.0	89.4	89.3	0.10
PC4	0.049	0.031	-0.049	-0.030	0.3	1.0	89.4	88.2	1.24
Line13	0.020	0.013	-0.020	-0.013	0.0	0.0	89.3	89.3	0.00
Line14	0.023	0.014	-0.023	-0.014	0.0	0.0	89.3	89.3	0.01
Line15	0.757	0.485	-0.756	-0.483	0.8	1.3	89.3	89.2	0.13
Line16	0.037	0.023	-0.037	-0.023	0.0	0.0	89.3	89.3	0.01
PC14	0.020	0.013	-0.020	-0.013	0.2	0.5	89.3	87.5	1.77
PC21	0.037	0.023	-0.036	-0.022	0.4	0.9	89.3	87.7	1.58
PC17	0.023	0.014	-0.022	-0.014	0.1	0.2	89.3	88.6	0.68
Line17	0.742	0.474	-0.741	-0.472	1.0	1.6	89.2	89.0	0.17
PC12	0.015	0.009	-0.014	-0.009	0.2	0.6	89.2	86.6	2.54

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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	
Line20	0.718	0.458	-0.718	-0.457	0.5	0.8	89.0	88.9	0.08
PC3	0.023	0.015	-0.022	-0.014	0.3	0.7	89.0	87.0	1.97
Line24	0.692	0.440	-0.691	-0.439	0.6	1.1	88.9	88.8	0.12
PC22	0.026	0.016	-0.026	-0.016	0.2	0.4	88.9	87.8	1.12
Line23	0.665	0.423	-0.664	-0.422	0.4	0.7	88.8	88.7	0.08
PC5	0.026	0.017	-0.026	-0.016	0.2	0.5	88.8	87.7	1.13
Line25	0.635	0.404	-0.635	-0.403	0.4	0.6	88.7	88.7	0.07
PC23	0.029	0.019	-0.029	-0.018	0.2	0.6	88.7	87.5	1.26
Line27	0.595	0.377	-0.595	-0.377	0.2	0.4	88.7	88.6	0.05
PC2	0.040	0.026	-0.039	-0.024	0.4	1.1	88.7	86.9	1.74
Line28	0.004	0.002	-0.004	-0.002	0.0	0.0	88.6	88.6	0.00
Line29	0.591	0.375	-0.591	-0.374	0.2	0.4	88.6	88.6	0.05
PC45	0.004	0.002	-0.004	-0.002	0.0	0.0	88.6	88.4	0.16
Line6	0.231	0.146	-0.231	-0.146	0.0	0.0	88.6	88.5	0.02
Line31	0.094	0.059	-0.094	-0.059	0.0	0.0	88.6	88.5	0.01
Line42	0.188	0.120	-0.188	-0.120	0.0	0.0	88.6	88.5	0.01
PC1	0.078	0.050	-0.077	-0.048	0.8	2.6	88.6	86.5	2.00
line1	0.148	0.094	-0.148	-0.094	0.0	0.0	88.5	88.5	0.01
Line43	0.021	0.013	-0.021	-0.013	0.0	0.0	88.5	88.5	0.00
PC19	0.019	0.012	-0.019	-0.012	0.1	0.2	88.5	87.7	0.83
PC29	0.021	0.013	-0.021	-0.013	0.1	0.3	88.5	87.6	0.92
line2	0.125	0.080	-0.125	-0.080	0.0	0.0	88.5	88.5	0.01
PC18	0.022	0.014	-0.022	-0.014	0.3	0.7	88.5	86.6	1.95
Line46	0.012	0.008	-0.012	-0.008	0.0	0.0	88.5	88.5	0.00
Line49	0.113	0.072	-0.113	-0.072	0.0	0.0	88.5	88.5	0.01
PC27	0.012	0.008	-0.012	-0.008	0.0	0.1	88.5	88.0	0.53
PC10	-0.012	-0.007	0.012	0.008	0.2	0.4	86.4	88.5	2.07
line	0.101	0.064	-0.101	-0.064	0.0	0.0	88.5	88.5	0.01
Line50	0.026	0.017	-0.026	-0.017	0.0	0.0	88.5	88.5	0.00
Line53	0.069	0.044	-0.069	-0.044	0.0	0.0	88.5	88.5	0.00
PC15	0.006	0.004	-0.006	-0.004	0.0	0.1	88.5	87.9	0.55
Line51	0.018	0.011	-0.018	-0.011	0.0	0.0	88.5	88.5	0.00
Line52	0.051	0.032	-0.051	-0.032	0.0	0.0	88.5	88.5	0.00
PC28	0.018	0.011	-0.018	-0.011	0.1	0.2	88.5	87.7	0.77
Line54	0.042	0.027	-0.042	-0.027	0.0	0.0	88.5	88.5	0.00
PC24	0.009	0.006	-0.009	-0.006	0.0	0.0	88.5	88.3	0.23
PC11	0.042	0.027	-0.041	-0.026	0.5	1.2	88.5	86.7	1.82

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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	
PC16	0.026	0.017	-0.026	-0.016	0.4	0.9	88.5	86.2	2.26
Line33	0.086	0.054	-0.086	-0.054	0.0	0.0	88.5	88.5	0.00
PC25	0.008	0.005	-0.008	-0.005	0.0	0.1	88.5	87.9	0.69
Line34	0.057	0.036	-0.057	-0.036	0.0	0.0	88.5	88.5	0.01
PC26	0.028	0.018	-0.028	-0.017	0.1	0.3	88.5	88.0	0.57
Line35	0.042	0.027	-0.042	-0.027	0.0	0.0	88.5	88.5	0.00
PC46	0.015	0.009	-0.015	-0.009	0.1	0.1	88.5	87.9	0.65
Line38	0.033	0.021	-0.033	-0.021	0.0	0.0	88.5	88.5	0.00
Line39	0.009	0.006	-0.009	-0.006	0.0	0.0	88.5	88.5	0.00
Line40	0.016	0.010	-0.016	-0.010	0.0	0.0	88.5	88.5	0.00
PC48	0.017	0.011	-0.017	-0.010	0.1	0.2	88.5	87.8	0.72
Line41	0.006	0.004	-0.006	-0.004	0.0	0.0	88.5	88.5	0.00
PC49	0.010	0.006	-0.010	-0.006	0.1	0.1	88.5	87.7	0.87
PC50	0.006	0.004	-0.006	-0.004	0.0	0.0	88.5	88.0	0.53
PC47	0.009	0.006	-0.009	-0.006	0.0	0.1	88.5	88.1	0.41
Line58	0.217	0.137	-0.217	-0.137	0.0	0.0	88.5	88.5	0.01
PC80	0.015	0.009	-0.014	-0.009	0.2	0.3	88.5	87.1	1.42
Line18	-0.033	-0.021	0.033	0.021	0.0	0.0	88.5	88.5	0.00
PC86	0.033	0.021	-0.032	-0.020	0.9	1.3	88.5	85.2	3.22
Line44	-0.009	-0.006	0.009	0.006	0.0	0.0	88.5	88.5	0.00
PC166	0.009	0.006	-0.009	-0.006	0.1	0.1	88.5	87.6	0.87
Line22	-0.017	-0.011	0.017	0.011	0.0	0.0	88.5	88.5	0.00
PC165	0.008	0.005	-0.008	-0.005	0.1	0.1	88.5	87.6	0.82
Line57	-0.024	-0.015	0.024	0.015	0.0	0.0	88.5	88.5	0.00
PC_62	0.006	0.004	-0.006	-0.004	0.0	0.0	88.5	87.9	0.61
Line26	0.151	0.095	-0.151	-0.095	0.0	0.0	88.5	88.5	0.01
Line56	-0.158	-0.100	0.158	0.100	0.0	0.0	88.5	88.5	0.01
PC58	0.008	0.005	-0.008	-0.005	0.0	0.1	88.5	87.7	0.73
Line30	0.200	0.126	-0.200	-0.126	0.0	0.0	88.5	88.5	0.01
Line48	-0.208	-0.131	0.208	0.131	0.0	0.0	88.5	88.5	0.01
PC57	0.007	0.005	-0.007	-0.005	0.0	0.1	88.5	87.8	0.73
PC90	0.009	0.006	-0.009	-0.006	0.1	0.1	88.5	87.6	0.88
Line60	0.036	0.023	-0.036	-0.023	0.0	0.0	88.5	88.5	0.00
PC59	0.006	0.004	-0.006	-0.004	0.0	0.0	88.5	87.9	0.55
Line47	0.136	0.086	-0.135	-0.086	0.0	0.0	88.5	88.5	0.01
PC60	0.015	0.010	-0.015	-0.009	0.2	0.3	88.5	87.0	1.48
Line55	0.066	0.042	-0.066	-0.042	0.0	0.0	88.5	88.5	0.00

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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	
PC61	0.013	0.008	-0.012	-0.008	0.1	0.2	88.5	87.2	1.22
Line36	-0.008	-0.005	0.008	0.005	0.0	0.0	88.5	88.5	0.00
PC87	0.008	0.005	-0.008	-0.005	0.0	0.1	88.5	87.7	0.77
Line10	0.026	0.016	-0.026	-0.016	0.0	0.0	88.5	88.5	0.00
Line37	-0.033	-0.021	0.033	0.021	0.0	0.0	88.5	88.5	0.00
PC88	0.007	0.004	-0.007	-0.004	0.0	0.1	88.5	87.8	0.67
Line12	-0.055	-0.034	0.055	0.034	0.0	0.0	88.5	88.5	0.00
PC_63	0.014	0.009	-0.014	-0.008	0.2	0.2	88.5	87.1	1.35
PC89	0.011	0.007	-0.011	-0.007	0.1	0.2	88.5	87.4	1.09
PC79	0.012	0.007	-0.012	-0.007	0.1	0.2	88.5	87.3	1.14
Line45	0.008	0.005	-0.008	-0.005	0.0	0.0	88.5	88.5	0.00
Line62	0.013	0.008	-0.013	-0.008	0.0	0.0	88.5	88.5	0.00
PC81	0.014	0.009	-0.014	-0.009	0.2	0.2	88.5	87.1	1.39
PC82	0.008	0.005	-0.008	-0.005	0.1	0.1	88.5	87.7	0.82
PC164	0.013	0.008	-0.013	-0.008	0.1	0.2	88.5	87.2	1.31
PC153	-0.032	-0.020	0.033	0.021	0.9	1.3	86.1	89.4	3.23
PC103	-0.032	-0.020	0.033	0.021	0.9	1.3	85.4	88.7	3.22
PC104	-0.032	-0.020	0.033	0.021	0.9	1.3	85.3	88.5	3.22
PC105	-0.032	-0.020	0.033	0.021	0.9	1.3	85.2	88.4	3.22
PC_56 MAJU TAMBAK SUMUR	-1.175	-0.728	1.189	0.810	13.6	81.8	84.9	88.3	3.44
PC96	-0.032	-0.020	0.033	0.021	0.9	1.3	86.1	89.4	3.23
SKTM_AL4	1.995	1.348	-1.995	-1.348	0.0	0.0	89.4	89.4	0.00
Line76	-1.697	-1.141	1.698	1.144	1.6	2.7	88.3	88.4	0.12
Line77	-1.731	-1.165	1.733	1.168	1.7	2.8	88.4	88.5	0.12
Line78	-1.766	-1.189	1.767	1.192	1.7	2.9	88.5	88.7	0.13
Line79	-1.800	-1.213	1.802	1.216	1.8	3.0	88.7	88.8	0.13
Line84	-1.835	-1.237	1.837	1.240	1.8	3.1	88.8	88.9	0.13
PC97	0.033	0.021	-0.032	-0.020	0.9	1.3	88.8	85.6	3.22
PC154	0.033	0.021	-0.032	-0.020	0.9	1.3	89.2	85.9	3.23
PC155	0.033	0.021	-0.032	-0.020	0.9	1.3	88.9	85.7	3.22
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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
AL1	Bus	Under Voltage	20.00	kV	17.87	89.4	3-Phase
AL10	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
AL11	Bus	Under Voltage	20.00	kV	17.65	88.2	3-Phase
AL14	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
AL15	Bus	Under Voltage	20.00	kV	17.64	88.2	3-Phase
AL16	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
AL17	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
AL18	Bus	Under Voltage	20.00	kV	17.63	88.2	3-Phase
AL19	Bus	Under Voltage	20.00	kV	17.63	88.1	3-Phase
AL2	Bus	Under Voltage	0.40	kV	0.35	88.6	3-Phase
AL20	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
AL21	Bus	Under Voltage	20.00	kV	17.62	88.1	3-Phase
AL22	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
AL23	Bus	Under Voltage	20.00	kV	17.62	88.1	3-Phase
AL24	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase

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Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
AL25	Bus	Under Voltage	20.00	kV	17.61	88.1	3-Phase
AL26	Bus	Under Voltage	20.00	kV	17.62	88.1	3-Phase
AL27	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
AL28	Bus	Under Voltage	20.00	kV	17.61	88.0	3-Phase
AL29	Bus	Under Voltage	20.00	kV	17.61	88.1	3-Phase
AL3	Bus	Under Voltage	20.00	kV	17.87	89.4	3-Phase
AL30	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
AL31	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
AL32	Bus	Under Voltage	20.00	kV	17.60	88.0	3-Phase
AL34	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
AL35	Bus	Under Voltage	20.00	kV	17.60	88.0	3-Phase
AL36	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
AL38	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
AL39	Bus	Under Voltage	20.00	kV	17.64	88.2	3-Phase
AL4	Bus	Under Voltage	0.40	kV	0.35	88.2	3-Phase
AL5	Bus	Under Voltage	20.00	kV	17.85	89.3	3-Phase
AL6	Bus	Under Voltage	0.40	kV	0.35	88.2	3-Phase
AL7	Bus	Under Voltage	20.00	kV	17.81	89.1	3-Phase
AL8	Bus	Under Voltage	0.40	kV	0.35	86.7	3-Phase
AL9	Bus	Under Voltage	20.00	kV	17.65	88.3	3-Phase
Bus1	Bus	Under Voltage	21.00	kV	19.87	94.6	3-Phase
Bus2	Bus	Under Voltage	21.00	kV	18.39	87.6	3-Phase
Bus37	Bus	Under Voltage	20.00	kV	17.69	88.4	3-Phase
Bus428	Bus	Under Voltage	0.40	kV	0.34	85.2	3-Phase
Bus429	Bus	Under Voltage	20.00	kV	17.59	87.9	3-Phase
Bus430	Bus	Under Voltage	0.40	kV	0.34	85.0	3-Phase
Bus431	Bus	Under Voltage	20.00	kV	17.59	87.9	3-Phase
Bus432	Bus	Under Voltage	20.00	kV	17.59	88.0	3-Phase
Bus433	Bus	Under Voltage	0.40	kV	0.34	85.2	3-Phase
Bus97	Bus	Under Voltage	0.40	kV	0.35	87.0	3-Phase
P10	Bus	Under Voltage	20.00	kV	17.90	89.5	3-Phase
P11	Bus	Under Voltage	0.40	kV	0.35	87.3	3-Phase
P12	Bus	Under Voltage	20.00	kV	17.88	89.4	3-Phase
P126	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P127	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P128	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase

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Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P129	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
P13	Bus	Under Voltage	0.40	kV	0.35	88.2	3-Phase
P130	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P131	Bus	Under Voltage	0.40	kV	0.35	87.1	3-Phase
P132	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P133	Bus	Under Voltage	0.40	kV	0.35	87.4	3-Phase
P134	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P135	Bus	Under Voltage	0.40	kV	0.35	87.3	3-Phase
P136	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P137	Bus	Under Voltage	0.40	kV	0.35	87.1	3-Phase
P138	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P139	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P14	Bus	Under Voltage	20.00	kV	17.86	89.3	3-Phase
P142	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P143	Bus	Under Voltage	0.40	kV	0.35	87.2	3-Phase
P15	Bus	Under Voltage	20.00	kV	17.86	89.3	3-Phase
P16	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
P164	Bus	Under Voltage	0.40	kV	0.34	86.1	3-Phase
P165	Bus	Under Voltage	0.40	kV	0.34	85.4	3-Phase
P166	Bus	Under Voltage	0.40	kV	0.34	85.3	3-Phase
P167	Bus	Under Voltage	0.40	kV	0.34	85.2	3-Phase
P168	Bus	Under Voltage	0.40	kV	0.34	84.9	3-Phase
P17	Bus	Under Voltage	20.00	kV	17.86	89.3	3-Phase
P172	Bus	Under Voltage	0.40	kV	0.34	86.1	3-Phase
P173	Bus	Under Voltage	20.00	kV	17.87	89.4	3-Phase
P177	Bus	Under Voltage	20.00	kV	17.66	88.3	3-Phase
P178	Bus	Under Voltage	20.00	kV	17.68	88.4	3-Phase
P179	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P18	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P180	Bus	Under Voltage	20.00	kV	17.73	88.7	3-Phase
P181	Bus	Under Voltage	20.00	kV	17.87	89.4	3-Phase
P182	Bus	Under Voltage	20.00	kV	17.76	88.8	3-Phase
P183	Bus	Under Voltage	0.40	kV	0.34	85.6	3-Phase
P186	Bus	Under Voltage	20.00	kV	17.83	89.2	3-Phase
P187	Bus	Under Voltage	0.40	kV	0.34	85.9	3-Phase
P19	Bus	Under Voltage	20.00	kV	17.86	89.3	3-Phase

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Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P190	Bus	Under Voltage	20.00	kV	17.79	88.9	3-Phase
P191	Bus	Under Voltage	0.40	kV	0.34	85.7	3-Phase
P2	Bus	Under Voltage	20.00	kV	18.31	91.5	3-Phase
P20	Bus	Under Voltage	0.40	kV	0.35	88.6	3-Phase
P21	Bus	Under Voltage	20.00	kV	17.84	89.2	3-Phase
P22	Bus	Under Voltage	0.40	kV	0.35	86.6	3-Phase
P23	Bus	Under Voltage	20.00	kV	17.80	89.0	3-Phase
P24	Bus	Under Voltage	0.40	kV	0.35	87.0	3-Phase
P25	Bus	Under Voltage	20.00	kV	17.78	88.9	3-Phase
P26	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
P27	Bus	Under Voltage	20.00	kV	17.76	88.8	3-Phase
P28	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P29	Bus	Under Voltage	20.00	kV	17.75	88.7	3-Phase
P3	Bus	Under Voltage	20.00	kV	18.10	90.5	3-Phase
P30	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
P31	Bus	Under Voltage	20.00	kV	17.73	88.7	3-Phase
P32	Bus	Under Voltage	0.40	kV	0.35	86.9	3-Phase
P33	Bus	Under Voltage	20.00	kV	17.72	88.6	3-Phase
P34	Bus	Under Voltage	20.00	kV	17.72	88.6	3-Phase
P35	Bus	Under Voltage	0.40	kV	0.35	88.4	3-Phase
P36	Bus	Under Voltage	20.00	kV	17.71	88.6	3-Phase
P37	Bus	Under Voltage	0.40	kV	0.35	86.5	3-Phase
P38	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P39	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P4	Bus	Under Voltage	20.00	kV	18.10	90.5	3-Phase
P40	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P41	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
P42	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P43	Bus	Under Voltage	0.40	kV	0.35	86.6	3-Phase
P44	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P45	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P46	Bus	Under Voltage	0.40	kV	0.35	88.0	3-Phase
P47	Bus	Under Voltage	0.40	kV	0.35	86.4	3-Phase
P48	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P49	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P5	Bus	Under Voltage	0.40	kV	0.36	89.4	3-Phase

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P50	Bus	Under Voltage	0.40	kV	0.35	87.9	3-Phase
P51	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P52	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P53	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P54	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P55	Bus	Under Voltage	0.40	kV	0.35	88.3	3-Phase
P56	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P57	Bus	Under Voltage	0.40	kV	0.35	86.7	3-Phase
P58	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P59	Bus	Under Voltage	0.40	kV	0.34	86.2	3-Phase
P6	Bus	Under Voltage	20.00	kV	17.98	89.9	3-Phase
P60	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P61	Bus	Under Voltage	0.40	kV	0.35	87.9	3-Phase
P62	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P63	Bus	Under Voltage	0.40	kV	0.35	88.0	3-Phase
P64	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P65	Bus	Under Voltage	0.40	kV	0.35	87.9	3-Phase
P66	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P67	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P68	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
P69	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P7	Bus	Under Voltage	0.40	kV	0.36	88.9	3-Phase
P70	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P71	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P72	Bus	Under Voltage	0.40	kV	0.35	88.0	3-Phase
P73	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P74	Bus	Under Voltage	0.40	kV	0.35	88.1	3-Phase
P76	Bus	Under Voltage	20.00	kV	17.71	88.5	3-Phase
P77	Bus	Under Voltage	0.40	kV	0.35	87.1	3-Phase
P8	Bus	Under Voltage	20.00	kV	17.94	89.7	3-Phase
P80	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P81	Bus	Under Voltage	0.40	kV	0.34	85.2	3-Phase
P82	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P83	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
P84	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P85	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase

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P86	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P87	Bus	Under Voltage	0.40	kV	0.35	87.9	3-Phase
P88	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P89	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P9	Bus	Under Voltage	0.40	kV	0.36	89.1	3-Phase
P90	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P91	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
P92	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P93	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
P94	Bus	Under Voltage	20.00	kV	17.70	88.5	3-Phase
P95	Bus	Under Voltage	0.40	kV	0.35	87.9	3-Phase
P96	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P97	Bus	Under Voltage	0.40	kV	0.35	87.0	3-Phase
P98	Bus	Under Voltage	20.00	kV	17.69	88.5	3-Phase
P99	Bus	Under Voltage	0.40	kV	0.35	87.2	3-Phase
PC_56 MAJU TAMBAK SUMUR	Transformer	Overload	0.16	MVA	1.44	899.2	3-Phase
TL1	Bus	Under Voltage	21.00	kV	19.88	94.7	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):	3.752	2.789	4.676	80.26 Lagging
Source (Non-Swing Buses):	0.000	0.000	0.000	
Total Demand:	3.752	2.789	4.676	80.26 Lagging
Total Motor Load:	1.962	1.216	2.309	85.00 Lagging
Total Static Load:	1.466	0.908	1.725	85.00 Lagging
Total Constant I Load:	0.000	0.000	0.000	
Total Generic Load:	0.000	0.000	0.000	
Apparent Losses:	0.324	0.665		
System Mismatch:	0.000	0.000		

Number of Iterations: 4