

Project:	ETAP	Page:	1
Location:	12.6.0H	Date:	12-06-2017
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:	2	0	300	302

	<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:	137	0	0	162	0	1	300

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:	F:\citra\Untitled.lfr

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 2
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 3
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 4
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	2	100.0	0.0								
Bus97	0.400	2	100.0	0.0	0.012	0.008	0.003	0.002				
Bus121	20.000	2	100.0	0.0								
Bus122	150.000	2	100.0	0.0								
Bus123	20.000	2	100.0	0.0								
Bus124	20.000	2	100.0	0.0								
Bus125	20.000	2	100.0	0.0								
Bus126	20.000	2	100.0	0.0								
Bus128	20.000	2	100.0	0.0								
Bus129	20.000	2	100.0	0.0								
Bus130	20.000	2	100.0	0.0								
Bus131	20.000	2	100.0	0.0								
Bus134	20.000	2	100.0	0.0								
Bus135	20.000	2	100.0	0.0								
Bus136	20.000	2	100.0	0.0								
Bus137	20.000	2	100.0	0.0								
Bus138	20.000	2	100.0	0.0								
Bus139	20.000	2	100.0	0.0								
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								

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 5
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
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				
P23	20.000	2	100.0	0.0								
P24	0.400	2	100.0	0.0	0.010	0.007	0.016	0.010				
P25	20.000	2	100.0	0.0								
P26	0.400	2	100.0	0.0	0.012	0.007	0.018	0.011				
P27	20.000	2	100.0	0.0								
P28	0.400	2	100.0	0.0	0.012	0.008	0.018	0.011				
P29	20.000	2	100.0	0.0								
P30	0.400	2	100.0	0.0	0.019	0.012	0.013	0.008				
P31	20.000	2	100.0	0.0								
P32	0.400	2	100.0	0.0	0.019	0.011	0.028	0.017				
P33	20.000	2	100.0	0.0								
P34	20.000	2	100.0	0.0								
P35	0.400	2	100.0	0.0	0.002	0.002	0.002	0.001				
P36	20.000	2	100.0	0.0								
P37	0.400	2	100.0	0.0	0.036	0.022	0.054	0.034				
P38	20.000	2	100.0	0.0								
P39	0.400	2	100.0	0.0	0.013	0.008	0.008	0.005				
P40	20.000	2	100.0	0.0								
P41	0.400	2	100.0	0.0	0.018	0.011	0.004	0.003				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 6
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
P42	20.000	2	100.0	0.0								
P43	0.400	2	100.0	0.0	0.015	0.009	0.010	0.006				
P44	20.000	2	100.0	0.0								
P45	20.000	2	100.0	0.0								
P46	0.400	2	100.0	0.0	0.010	0.006	0.003	0.002				
P47	0.400	2	100.0	0.0	0.006	0.003	0.008	0.005				
P48	20.000	2	100.0	0.0								
P49	20.000	2	100.0	0.0								
P50	0.400	2	100.0	0.0	0.003	0.002	0.004	0.003				
P51	20.000	2	100.0	0.0								
P52	20.000	2	100.0	0.0								
P53	0.400	2	100.0	0.0	0.012	0.007	0.008	0.005				
P54	20.000	2	100.0	0.0								
P55	0.400	2	100.0	0.0	0.004	0.003	0.006	0.004				
P56	20.000	2	100.0	0.0								
P57	0.400	2	100.0	0.0	0.019	0.012	0.029	0.018				
P58	20.000	2	100.0	0.0								
P59	0.400	2	100.0	0.0	0.012	0.007	0.018	0.011				
P60	20.000	2	100.0	0.0								
P61	0.400	2	100.0	0.0	0.007	0.004	0.002	0.001				
P62	20.000	2	100.0	0.0								
P63	0.400	2	100.0	0.0	0.018	0.011	0.012	0.008				
P64	20.000	2	100.0	0.0								
P65	0.400	2	100.0	0.0	0.007	0.004	0.010	0.006				
P66	20.000	2	100.0	0.0								
P67	20.000	2	100.0	0.0								
P68	0.400	2	100.0	0.0	0.011	0.007	0.007	0.005				
P69	20.000	2	100.0	0.0								
P70	0.400	2	100.0	0.0	0.005	0.003	0.007	0.004				
P71	20.000	2	100.0	0.0								
P72	0.400	2	100.0	0.0	0.003	0.002	0.004	0.003				
P73	20.000	2	100.0	0.0								
P74	0.400	2	100.0	0.0	0.004	0.003	0.007	0.004				
P76	20.000	2	100.0	0.0								
P77	0.400	2	100.0	0.0	0.007	0.004	0.010	0.006				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 7
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
P80	20.000	2	100.0	0.0								
P81	0.400	2	100.0	0.0	0.015	0.009	0.023	0.014				
P82	20.000	2	100.0	0.0								
P83	0.400	2	100.0	0.0	0.004	0.003	0.006	0.004				
P84	20.000	2	100.0	0.0								
P85	0.400	2	100.0	0.0	0.004	0.002	0.006	0.004				
P86	20.000	2	100.0	0.0								
P87	0.400	2	100.0	0.0	0.003	0.002	0.004	0.003				
P88	20.000	2	100.0	0.0								
P89	0.400	2	100.0	0.0	0.003	0.002	0.005	0.003				
P90	20.000	2	100.0	0.0								
P91	0.400	2	100.0	0.0	0.003	0.002	0.005	0.003				
P92	20.000	2	100.0	0.0								
P93	0.400	2	100.0	0.0	0.004	0.003	0.006	0.004				
P94	20.000	2	100.0	0.0								
P95	0.400	2	100.0	0.0	0.003	0.002	0.004	0.002				
P96	20.000	2	100.0	0.0								
P97	0.400	2	100.0	0.0	0.007	0.004	0.011	0.007				
P98	20.000	2	100.0	0.0								
P99	0.400	2	100.0	0.0	0.006	0.004	0.009	0.005				
P102	0.400	2	100.0	0.0	0.016	0.010	0.010	0.007				
P103	20.000	2	100.0	0.0								
P106	0.400	2	100.0	0.0	0.004	0.003	0.003	0.002				
P107	20.000	2	100.0	0.0								
P108	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P109	20.000	2	100.0	0.0								
P114	0.400	2	100.0	0.0	0.009	0.006	0.006	0.004				
P115	20.000	2	100.0	0.0								
P116	0.400	2	100.0	0.0	0.008	0.005	0.006	0.003				
P117	20.000	2	100.0	0.0								
P118	0.400	2	100.0	0.0	0.068	0.042	0.045	0.028				
P119	20.000	2	100.0	0.0								
P120	0.400	2	100.0	0.0	0.042	0.026	0.028	0.017				
P121	20.000	2	100.0	0.0								
P122	0.400	2	100.0	0.0	0.009	0.006	0.006	0.004				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 8
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

					Load							
Bus			Initial Voltage		Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
P123	20.000	2	100.0	0.0								
P126	20.000	2	100.0	0.0								
P127	0.400	2	100.0	0.0	0.004	0.002	0.006	0.003				
P128	20.000	2	100.0	0.0								
P129	0.400	2	100.0	0.0	0.003	0.002	0.005	0.003				
P130	20.000	2	100.0	0.0								
P131	0.400	2	100.0	0.0	0.006	0.004	0.010	0.006				
P132	20.000	2	100.0	0.0								
P133	0.400	2	100.0	0.0	0.005	0.003	0.008	0.005				
P134	20.000	2	100.0	0.0								
P135	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P136	20.000	2	100.0	0.0								
P137	0.400	2	100.0	0.0	0.007	0.004	0.010	0.006				
P138	20.000	2	100.0	0.0								
P139	0.400	2	100.0	0.0	0.004	0.002	0.006	0.004				
P140	0.400	2	100.0	0.0			0.024	0.015				
P141	20.000	2	100.0	0.0								
P142	20.000	2	100.0	0.0								
P143	0.400	2	100.0	0.0	0.006	0.004	0.009	0.006				
P146	0.400	2	100.0	0.0	0.006	0.004	0.004	0.002				
P147	20.000	2	100.0	0.0								
P148	0.400	2	100.0	0.0	0.010	0.006	0.007	0.004				
P149	20.000	2	100.0	0.0								
P150	0.400	2	100.0	0.0	0.004	0.002	0.003	0.002				
P151	20.000	2	100.0	0.0								
P152	0.400	2	100.0	0.0	0.006	0.004	0.004	0.003				
P153	20.000	2	100.0	0.0								
P154	0.400	2	100.0	0.0	0.007	0.004	0.005	0.003				
P155	20.000	2	100.0	0.0								
P156	0.400	2	100.0	0.0	0.009	0.006	0.006	0.004				
P157	20.000	2	100.0	0.0								
P158	0.400	2	100.0	0.0	0.009	0.006	0.006	0.004				
P159	20.000	2	100.0	0.0								
P162	0.400	2	100.0	0.0	0.056	0.034	0.037	0.023				
P163	20.000	2	100.0	0.0								

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 9
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
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								
P187	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P188	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P189	0.400	2	100.0	0.0	0.010	0.006	0.007	0.004				
P190	20.000	1	100.0	0.0								
P191	0.400	1	100.0	0.0	0.015	0.009	0.023	0.014				
P192	0.400	2	100.0	0.0	0.010	0.006	0.006	0.004				
P193	0.400	2	100.0	0.0	0.004	0.002	0.002	0.001				
P194	20.000	2	100.0	0.0								
P195	20.000	2	100.0	0.0								
P196	20.000	2	100.0	0.0								
P197	20.000	2	100.0	0.0								
P200	0.400	2	100.0	0.0	0.022	0.013	0.014	0.009				
P201	20.000	2	100.0	0.0								
P202	0.400	2	100.0	0.0	0.015	0.009	0.010	0.006				
P203	20.000	2	100.0	0.0								
P208	0.400	2	100.0	0.0	0.007	0.004	0.004	0.003				
P209	0.400	2	100.0	0.0	0.008	0.005	0.006	0.003				
P210	20.000	2	100.0	0.0								
P211	20.000	2	100.0	0.0								
P214	0.400	2	100.0	0.0	0.040	0.025	0.027	0.017				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 10
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
P215	20.000	2	100.0	0.0								
P220	0.400	2	100.0	0.0	0.010	0.006	0.007	0.004				
P221	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P222	20.000	2	100.0	0.0								
P223	20.000	2	100.0	0.0								
P226	0.400	2	100.0	0.0	0.055	0.034	0.037	0.023				
P227	20.000	2	100.0	0.0								
P232	0.400	2	100.0	0.0	0.010	0.006	0.007	0.004				
P233	20.000	2	100.0	0.0								
P234	20.000	2	100.0	0.0								
P235	0.400	2	100.0	0.0	0.007	0.004	0.005	0.003				
P238	0.400	2	100.0	0.0	0.045	0.028	0.030	0.019				
P239	20.000	2	100.0	0.0								
P242	0.400	2	100.0	0.0	0.015	0.009	0.010	0.006				
P243	20.000	2	100.0	0.0								
P246	0.400	2	100.0	0.0	0.011	0.007	0.007	0.005				
P247	20.000	2	100.0	0.0								
P250	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P251	20.000	2	100.0	0.0								
P252	0.400	2	100.0	0.0	0.009	0.006	0.006	0.004				
P253	20.000	2	100.0	0.0								
P254	0.400	2	100.0	0.0	0.011	0.007	0.008	0.005				
P255	20.000	2	100.0	0.0								
P260	0.400	2	100.0	0.0	0.007	0.004	0.005	0.003				
P261	0.400	2	100.0	0.0	0.005	0.003	0.003	0.002				
P262	20.000	2	100.0	0.0								
P263	20.000	2	100.0	0.0								
P266	0.400	2	100.0	0.0	0.005	0.003	0.004	0.002				
P267	20.000	2	100.0	0.0								
P268	0.400	2	100.0	0.0	0.004	0.003	0.003	0.002				
P269	20.000	2	100.0	0.0								
P272	0.400	2	100.0	0.0	0.007	0.004	0.004	0.003				
P273	20.000	2	100.0	0.0								
P277	20.000	2	100.0	0.0								
P282	0.400	2	100.0	0.0	0.015	0.009	0.010	0.006				

Project:

Location:

Contract:

Engineer:

Filename: citra fix

ETAP

12.6.0H

Page: 11

Date: 12-06-2017

SN:

Revision: Base

Config.: Normal

Study Case: LF

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
P283	20.000	2	100.0	0.0								
P286	20.000	2	100.0	0.0								
P288	20.000	2	100.0	0.0								
P292	20.000	2	100.0	0.0								
P293	0.400	2	100.0	0.0	0.010	0.006	0.007	0.004				
P296	20.000	2	100.0	0.0								
P297	0.400	2	100.0	0.0	0.008	0.005	0.005	0.003				
P298	20.000	2	100.0	0.0								
P299	0.400	2	100.0	0.0	0.010	0.006	0.006	0.004				
P304	0.400	2	100.0	0.0	0.026	0.016	0.017	0.011				
P305	20.000	2	100.0	0.0								
P312	20.000	2	100.0	0.0								
P313	0.400	2	100.0	0.0	0.014	0.009	0.009	0.006				
P314	20.000	2	100.0	0.0								
P315	0.400	2	100.0	0.0	0.012	0.007	0.008	0.005				
P316	20.000	2	100.0	0.0								
P317	0.400	2	100.0	0.0	0.008	0.005	0.006	0.003				
P324	0.400	2	100.0	0.0	0.012	0.007	0.008	0.005				
P325	0.400	2	100.0	0.0	0.006	0.004	0.004	0.002				
P326	20.000	2	100.0	0.0								
P327	20.000	2	100.0	0.0								
P328	20.000	2	100.0	0.0								
P329	0.400	2	100.0	0.0	0.010	0.006	0.006	0.004				
TL1	21.000	1	100.0	0.0								
Total Number of Buses: 302					2.706	1.677	2.482	1.538	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					
Bus122	150.000	Swing	2	100.0	0.0					
						0.000	0.000			

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 12
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
				Adj. (m)	% Tol.				
ID									Y
Cable13				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		30NCUS3	400	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.	800.0	0.0	1	75	0.198368	0.330500
Line1			157.	18000.0	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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 13
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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.					
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	
Line17-2		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	
Line32		147.	436.0	0.0	1	75	0.269600	0.382242	0.0000036
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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 14
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
Line61		147,	205.0	0.0	1	75	0.269600	0.382242	0.0000036
Line62		75.6	600.0	0.0	1	75	0.198368	0.330500	
Line63		147,	213.0	0.0	1	75	0.269600	0.382242	0.0000036
Line64		147,	700.0	0.0	1	75	0.269600	0.382242	0.0000036
Line65		147,	166.0	0.0	1	75	0.269600	0.382242	0.0000036
Line66		147,	147.0	0.0	1	75	0.269600	0.382242	0.0000036
Line67		75,6	650.0	0.0	1	75	0.524700	0.382242	0.0000034
Line68		147,	375.0	0.0	1	75	0.269600	0.382242	0.0000036
Line70		147,	550.0	0.0	1	75	0.269600	0.382242	0.0000036
Line71		75,6	500.0	0.0	1	75	0.524700	0.382242	0.0000034
Line72		147,	495.0	0.0	1	75	0.269600	0.382242	0.0000036
Line73		147,	600.0	0.0	1	75	0.269600	0.382242	0.0000036
Line74		147,	2100.0	0.0	1	75	0.269600	0.382242	0.0000036
Line75		147,	800.0	0.0	1	75	0.269600	0.382242	0.0000036
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	
Line80		147,	3850.0	0.0	1	75	0.269600	0.382242	0.0000036
Line81		147,	850.0	0.0	1	75	0.269600	0.382242	0.0000036
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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 15
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Ohms or Siemens/1000 m per Conductor (Cable) or per Phase (Line)

Line/Cable		Library	Size	Length		#/Phase	T (°C)	R	X	Y
				Adj. (m)	% Tol.					
Line160			75,6	12900.0	0.0	1	75	0.198368	0.330500	
Line161			75,6	600.0	0.0	1	75	0.524700	0.382242	0.0000034
Line162			75,6	900.0	0.0	1	75	0.524700	0.382242	0.0000034
Line164			75,6	384.0	0.0	1	75	0.524700	0.382242	0.0000034
Line166			75,6	960.0	0.0	1	75	0.524700	0.382242	0.0000034
Line168			75,6	295.0	0.0	1	75	0.524700	0.382242	0.0000034
Line170			75,6	1050.0	0.0	1	75	0.524700	0.382242	0.0000034
Line171			75,6	700.0	0.0	1	75	0.524700	0.382242	0.0000034
Line172			75,6	368.0	0.0	1	75	0.524700	0.382242	0.0000034
Line174			75,6	151.0	0.0	1	75	0.524700	0.382242	0.0000034
Line175			75,6	72.0	0.0	1	75	0.524700	0.382242	0.0000034
Line176			75,6	1600.0	0.0	1	75	0.524700	0.382242	0.0000034
Line177			75,6	660.0	0.0	1	75	0.524700	0.382242	0.0000034
Line178			75,6	165.0	0.0	1	75	0.524700	0.382242	0.0000034
Line179			75,6	325.0	0.0	1	75	0.524700	0.382242	0.0000034
Line181			147,	172.0	0.0	1	75	0.269600	0.382242	0.0000036
Line183			147,	375.0	0.0	1	75	0.269600	0.382242	0.0000036
Line184			147,	140.0	0.0	1	75	0.269600	0.382242	0.0000036
Line185			147,	1550.0	0.0	1	75	0.269600	0.382242	0.0000036
Line187			147,	250.0	0.0	1	75	0.269600	0.382242	0.0000036
Line190			147,	500.0	0.0	1	75	0.269600	0.382242	0.0000036
Line191			147,	750.0	0.0	1	75	0.269600	0.382242	0.0000036
Line193			147,	123.0	0.0	1	75	0.269600	0.382242	0.0000036
Line196			147,	325.0	0.0	1	75	0.269600	0.382242	0.0000036
Line198			147,	403.0	0.0	1	75	0.269600	0.382242	0.0000036
Line200			147,	325.0	0.0	1	75	0.269600	0.382242	0.0000036
Line202			147,	700.0	0.0	1	75	0.269600	0.382242	0.0000036
Line204			147,	700.0	0.0	1	75	0.269600	0.382242	0.0000036
Line206			147,	475.0	0.0	1	75	0.269600	0.382242	0.0000036
Line208			147,	128.0	0.0	1	75	0.269600	0.382242	0.0000036
Line210			147,	650.0	0.0	1	75	0.269600	0.382242	0.0000036
Line212			147,	1050.0	0.0	1	75	0.269600	0.382242	0.0000036
Line214			147,	1800.0	0.0	1	75	0.269600	0.382242	0.0000036
Line216			75,6	250.0	0.0	1	75	0.524700	0.382242	0.0000034
Line218			75,6	236.0	0.0	1	75	0.524700	0.382242	0.0000034
Line219			75,6	1000.0	0.0	1	75	0.524700	0.382242	0.0000034

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 16
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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.					
Line221		75,6	136.0	0.0	1	75	0.524700	0.382242	0.0000034
Line223		75,6	281.0	0.0	1	75	0.524700	0.382242	0.0000034
Line225		75,6	418.0	0.0	1	75	0.524700	0.382242	0.0000034
Line227		75,6	1700.0	0.0	1	75	0.524700	0.382242	0.0000034
Line229		75,6	432.0	0.0	1	75	0.524700	0.382242	0.0000034
Line231		75,6	1000.0	0.0	1	75	0.524700	0.382242	0.0000034
Line233		75,6	446.0	0.0	1	75	0.524700	0.382242	0.0000034
Line235		75,6	446.0	0.0	1	75	0.524700	0.382242	0.0000034
Line237		75,6	235.0	0.0	1	75	0.524700	0.382242	0.0000034
Line239		75,6	12570.0	0.0	1	75	0.524700	0.382242	0.0000034
Line241		75,6	900.0	0.0	1	75	0.524700	0.382242	0.0000034
Line243		75,6	408.0	0.0	1	75	0.524700	0.382242	0.0000034
Line245		75,6	306.0	0.0	1	75	0.524700	0.382242	0.0000034
Line247		75,6	163.0	0.0	1	75	0.524700	0.382242	0.0000034
Line249		75,6	1700.0	0.0	1	75	0.524700	0.382242	0.0000034
Line251		75,6	376.0	0.0	1	75	0.524700	0.382242	0.0000034
Line254		75,6	1250.0	0.0	1	75	0.524700	0.382242	0.0000034
Line255		75,6	234.0	0.0	1	75	0.524700	0.382242	0.0000034
Line257		75,6	700.0	0.0	1	75	0.524700	0.382242	0.0000034
P_Cuaca		157.	104.0	0.0	1	75	0.198368	0.330500	

Line / Cable resistances are listed at the specified temperatures.

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 17
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 18
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 19
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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
T-KA 008	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 09	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 010	3-Phase	0.200	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 11	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 38	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 40	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 45	3-Phase	0.250	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 49	3-Phase	0.025	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 61	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 62	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 75	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-KA 94	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 01	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 02	3-Phase	0.200	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 03	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 04	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 05	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 06	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 07	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 08	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 10	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 12	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 13	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 14	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 014	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 16	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 17	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 18	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 20
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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-PA 19	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 20	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 021	3-Phase	0.200	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 022	3-Phase	0.200	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PA 23	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 01	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 02	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 03	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 04	3-Phase	0.100	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 05	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 06	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 07	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 08	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 12	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 13	3-Phase	0.100	20.000	0.400	4.00	2.47	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 14	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 16	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 17	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 18	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 19	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 020	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 21	3-Phase	0.025	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 22	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 23	3-Phase	0.050	20.000	0.400	4.00	1.50	0	0	0	0	0	4.0000	Dyn	0.000
T-PD 024	3-Phase	0.200	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
T56	3-Phase	30.000	150.000	20.000	12.50	45.00	0	0	0	0	0	12.5000	Dyn	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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 21
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 22
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 23
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
T-KA 008	2W XFMR	P103	P102	1501.08	3707.66	4000.00	
T-KA 09	2W XFMR	P115	P114	4437.60	6656.40	8000.00	
T-KA 010	2W XFMR	P121	P120	1109.40	1664.10	2000.00	
T-KA 11	2W XFMR	P141	P140	1501.08	3707.66	4000.00	
T-KA 38	2W XFMR	P117	P116	4437.60	6656.40	8000.00	
T-KA 40	2W XFMR	P123	P122	4437.60	6656.40	8000.00	
T-KA 45	2W XFMR	P119	P118	887.52	1331.28	1600.00	
T-KA 49	2W XFMR	P107	P106	8875.20	13312.80	16000.00	
T-KA 61	2W XFMR	P147	P146	4437.60	6656.40	8000.00	
T-KA 62	2W XFMR	P149	P148	4437.60	6656.40	8000.00	
T-KA 75	2W XFMR	P151	P150	4437.60	6656.40	8000.00	
T-KA 94	2W XFMR	P109	P108	4437.60	6656.40	8000.00	
T-PA 01	2W XFMR	P159	P158	4437.60	6656.40	8000.00	
T-PA 02	2W XFMR	P163	P162	1109.40	1664.10	2000.00	
T-PA 03	2W XFMR	P234	P235	4437.60	6656.40	8000.00	
T-PA 04	2W XFMR	P196	P189	4437.60	6656.40	8000.00	
T-PA 05	2W XFMR	P262	P261	4437.60	6656.40	8000.00	
T-PA 06	2W XFMR	P194	P193	4437.60	6656.40	8000.00	
T-PA 07	2W XFMR	P201	P200	1501.08	3707.66	4000.00	
T-PA 08	2W XFMR	P211	P208	4437.60	6656.40	8000.00	
T-PA 10	2W XFMR	P210	P209	4437.60	6656.40	8000.00	
T-PA 12	2W XFMR	P222	P221	4437.60	6656.40	8000.00	
T-PA 13	2W XFMR	P197	P188	4437.60	6656.40	8000.00	
T-PA 14	2W XFMR	P203	P202	1501.08	3707.66	4000.00	
T-PA 014	2W XFMR	P233	P232	4437.60	6656.40	8000.00	
T-PA 16	2W XFMR	P157	P156	4437.60	6656.40	8000.00	
T-PA 17	2W XFMR	P155	P154	4437.60	6656.40	8000.00	
T-PA 18	2W XFMR	P153	P152	4437.60	6656.40	8000.00	
T-PA 19	2W XFMR	P195	P192	4437.60	6656.40	8000.00	
T-PA 20	2W XFMR	P223	P220	4437.60	6656.40	8000.00	
T-PA 021	2W XFMR	P215	P214	1109.40	1664.10	2000.00	
T-PA 022	2W XFMR	P227	P226	1109.40	1664.10	2000.00	
T-PA 23	2W XFMR	P263	P260	4437.60	6656.40	8000.00	
T-PD 01	2W XFMR	P255	P254	4437.60	6656.40	8000.00	
T-PD 02	2W XFMR	P269	P268	4437.60	6656.40	8000.00	
T-PD 03	2W XFMR	P292	P293	4437.60	6656.40	8000.00	
T-PD 04	2W XFMR	P312	P313	2218.80	3328.20	4000.00	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 24
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
T-PD 05	2W XFMR	P316	P317	4437.60	6656.40	8000.00	
T-PD 06	2W XFMR	P251	P250	4437.60	6656.40	8000.00	
T-PD 07	2W XFMR	P298	P299	4437.60	6656.40	8000.00	
T-PD 08	2W XFMR	P243	P242	4437.60	6656.40	8000.00	
T-PD 12	2W XFMR	P253	P252	4437.60	6656.40	8000.00	
T-PD 13	2W XFMR	P305	P304	1501.08	3707.66	4000.00	
T-PD 14	2W XFMR	P328	P329	4437.60	6656.40	8000.00	
T-PD 16	2W XFMR	P326	P325	4437.60	6656.40	8000.00	
T-PD 17	2W XFMR	P273	P272	4437.60	6656.40	8000.00	
T-PD 18	2W XFMR	P283	P282	4437.60	6656.40	8000.00	
T-PD 19	2W XFMR	P267	P266	4437.60	6656.40	8000.00	
T-PD 020	2W XFMR	P314	P315	4437.60	6656.40	8000.00	
T-PD 21	2W XFMR	P247	P246	8875.20	13312.80	16000.00	
T-PD 22	2W XFMR	P296	P297	4437.60	6656.40	8000.00	
T-PD 23	2W XFMR	P327	P324	4437.60	6656.40	8000.00	
T-PD 024	2W XFMR	P239	P238	1109.40	1664.10	2000.00	
T51	2W XFMR	Bus97	Bus37	4437.60	6656.40	8000.00	
T56	2W XFMR	Bus122	Bus121	0.93	41.66	41.67	
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	P42	P38	3.97	6.61	7.71	
Line1	Line	Bus1	Bus2	89.27	148.73	173.46	
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	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 25
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
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	
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	
Line17-2	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	
Line32	Line	P103	Bus121	2.94	4.17	5.10	0.0006345

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 26
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
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	
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	
Line61	Line	P107	P109	1.38	1.96	2.40	0.0002983
Line62	Line	P136	P142	2.98	4.96	5.78	
Line63	Line	P109	P115	1.44	2.04	2.49	0.0003100
Line64	Line	P115	P117	4.72	6.69	8.19	0.0010187
Line65	Line	P117	Bus123	1.12	1.59	1.94	0.0002416
Line66	Line	Bus123	P121	0.99	1.40	1.72	0.0002139
Line67	Line	Bus123	P119	8.53	6.21	10.55	0.0008835
Line68	Line	P121	Bus124	2.53	3.58	4.39	0.0005457
Line70	Line	Bus124	Bus126	3.71	5.26	6.43	0.0008004
Line71	Line	Bus126	P141	6.56	4.78	8.11	0.0006796
Line72	Line	P141	P147	3.34	4.73	5.79	0.0007203
Line73	Line	P147	P149	4.04	5.73	7.02	0.0008732

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 27
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
Line74	Line	P151	P153	14.15	20.07	24.56	0.0030560
Line75	Line	P153	P155	5.39	7.64	9.36	0.0011642
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	
Line80	Line	P155	P157	25.95	36.79	45.02	0.0056027
Line81	Line	P157	P159	5.73	8.12	9.94	0.0012370
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	
Line161	Line	Bus128	Bus129	7.87	5.73	9.74	0.0008155
Line162	Line	Bus129	P215	11.81	8.60	14.61	0.0012232
Line164	Line	P223	P222	5.04	3.67	6.23	0.0005219
Line166	Line	P222	Bus130	12.59	9.17	15.58	0.0013048
Line168	Line	Bus130	P227	3.87	2.82	4.79	0.0004010
Line170	Line	P234	P233	13.77	10.03	17.04	0.0014271
Line171	Line	Bus130	P234	9.18	6.69	11.36	0.0009514
Line172	Line	P233	Bus137	4.83	3.52	5.97	0.0005002
Line174	Line	Bus131	P239	1.98	1.44	2.45	0.0002052
Line175	Line	Bus131	P243	0.94	0.69	1.17	0.0000979
Line176	Line	P243	P247	20.99	15.29	25.97	0.0021747
Line177	Line	P247	P251	8.66	6.31	10.71	0.0008970
Line178	Line	P251	P253	2.16	1.58	2.68	0.0002243
Line179	Line	P253	P255	4.26	3.11	5.27	0.0004417
Line181	Line	P103	P107	1.16	1.64	2.01	0.0002503
Line183	Line	Bus124	P123	2.53	3.58	4.39	0.0005457
Line184	Line	P149	Bus134	0.94	1.34	1.64	0.0002037
Line185	Line	Bus134	P151	10.45	14.81	18.13	0.0022556
Line187	Line	P159	Bus128	1.69	2.39	2.92	0.0003638
Line190	Line	Bus128	P163	3.37	4.78	5.85	0.0007276
Line191	Line	P163	P197	5.06	7.17	8.77	0.0010914
Line193	Line	P197	P196	0.83	1.18	1.44	0.0001790
Line196	Line	P196	Bus135	2.19	3.11	3.80	0.0004730
Line198	Line	P263	P262	2.72	3.85	4.71	0.0005865
Line200	Line	Bus135	P263	2.19	3.11	3.80	0.0004730
Line202	Line	P262	P195	4.72	6.69	8.19	0.0010187
Line204	Line	P195	P194	4.72	6.69	8.19	0.0010187

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 28
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVA Base			
ID	Type	From Bus	To Bus	R	X	Z	Y
Line206	Line	P194	P201	3.20	4.54	5.55	0.0006912
Line208	Line	P201	P203	0.86	1.22	1.50	0.0001863
Line210	Line	P203	P211	4.38	6.21	7.60	0.0009459
Line212	Line	P211	P210	7.08	10.03	12.28	0.0015280
Line214	Line	P210	Bus136	12.13	17.20	21.05	0.0026195
Line216	Line	Bus129	P223	3.28	2.39	4.06	0.0003398
Line218	Line	Bus137	Bus131	3.10	2.26	3.83	0.0003208
Line219	Line	Bus139	P255	13.12	9.56	16.23	0.0013592
Line221	Line	P255	P267	1.78	1.30	2.21	0.0001848
Line223	Line	P267	P269	3.69	2.69	4.56	0.0003819
Line225	Line	P269	Bus138	5.48	3.99	6.78	0.0005681
Line227	Line	Bus138	P273	22.30	16.25	27.59	0.0023106
Line229	Line	P273	P277	5.67	4.13	7.01	0.0005872
Line231	Line	P292	Bus139	13.12	9.56	16.23	0.0013592
Line233	Line	P277	P286	5.85	4.26	7.24	0.0006062
Line235	Line	P286	P288	5.85	4.26	7.24	0.0006062
Line237	Line	P288	P283	3.08	2.25	3.81	0.0003194
Line239	Line	P283	P138	164.89	120.12	204.00	0.0170847
Line241	Line	P292	P296	11.81	8.60	14.61	0.0012232
Line243	Line	P296	P298	5.35	3.90	6.62	0.0005545
Line245	Line	P298	P305	4.01	2.92	4.97	0.0004159
Line247	Line	P305	P312	2.14	1.56	2.65	0.0002215
Line249	Line	P312	P314	22.30	16.25	27.59	0.0023106
Line251	Line	P314	P316	4.93	3.59	6.10	0.0005110
Line254	Line	P327	P326	16.40	11.95	20.29	0.0016990
Line255	Line	P328	P327	3.07	2.24	3.80	0.0003180
Line257	Line	P316	P328	9.18	6.69	11.36	0.0009514
P_Cuaca	Line	Bus1	TL1	0.52	0.86	1.00	
LBS KAMPUNG BARU	Tie Switch	P123	Bus125				

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 29
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	91.640	-2.5	0	0	0	0	AL3	2.541	1.696	96.2	83.2	
								P10	-2.551	-1.702	96.6	83.2	
								AL2	0.010	0.006	0.4	84.7	
AL2	0.400	90.830	-2.9	0	0	0.010	0.006	AL1	-0.010	-0.006	18.0	85.0	
AL3	20.000	91.639	-2.5	0	0	0	0	AL1	-2.541	-1.696	96.2	83.2	
								P173	2.069	1.394	78.6	82.9	
								AL4	0.472	0.303	17.7	84.2	
AL4	0.400	90.454	-3.4	0	0	0.470	0.291	AL3	-0.470	-0.291	882.8	85.0	
AL5	20.000	91.535	-2.5	0	0	0	0	P181	-1.999	-1.347	76.0	82.9	
								P186	1.973	1.331	75.1	82.9	
								AL6	0.026	0.017	1.0	84.5	
AL6	0.400	90.441	-3.0	0	0	0.026	0.016	AL5	-0.026	-0.016	48.7	85.0	
AL7	20.000	91.331	-2.6	0	0	0	0	P186	-1.936	-1.304	73.8	82.9	
								P190	1.909	1.286	72.8	82.9	
								AL8	0.027	0.017	1.0	84.0	
AL8	0.400	89.034	-3.6	0	0	0.027	0.017	AL7	-0.027	-0.017	51.0	85.0	
AL9	20.000	90.538	-2.8	0	0	0	0	AL11	0.514	0.335	19.6	83.8	
								P177	-0.520	-0.338	19.8	83.8	
								AL10	0.006	0.004	0.2	84.8	
AL10	0.400	90.045	-3.0	0	0	0.006	0.004	AL9	-0.006	-0.004	11.0	85.0	
AL11	20.000	90.511	-2.8	0	0	0	0	AL9	-0.514	-0.335	19.6	83.8	
								AL39	0.501	0.327	19.1	83.8	
								AL38	0.012	0.008	0.5	84.8	
AL14	0.400	90.119	-3.0	0	0	0.009	0.005	AL39	-0.009	-0.005	16.4	85.0	
AL15	20.000	90.460	-2.8	0	0	0	0	AL39	-0.492	-0.321	18.8	83.8	
								AL18	0.479	0.313	18.2	83.7	
								AL16	0.014	0.009	0.5	84.8	
AL16	0.400	89.887	-3.1	0	0	0.014	0.008	AL15	-0.014	-0.008	25.6	85.0	
AL17	0.400	89.852	-3.1	0	0	0.014	0.009	AL18	-0.014	-0.009	26.0	85.0	
AL18	20.000	90.435	-2.8	0	0	0	0	AL15	-0.479	-0.312	18.2	83.7	
								AL19	0.465	0.304	17.7	83.7	
								AL17	0.014	0.009	0.5	84.8	
AL19	20.000	90.411	-2.9	0	0	0	0	AL18	-0.465	-0.304	17.7	83.7	
								AL21	0.461	0.301	17.6	83.7	
								AL20	0.004	0.002	0.1	84.9	
AL20	0.400	90.096	-3.0	0	0	0.004	0.002	AL19	-0.004	-0.002	7.0	85.0	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 30
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
AL21	20.000	90.387	-2.9	0	0	0	0	AL19	-0.461	-0.301	17.6	83.7	
								AL23	0.452	0.296	17.3	83.7	
								AL22	0.009	0.006	0.3	84.8	
AL22	0.400	90.009	-3.0	0	0	0.009	0.006	AL21	-0.009	-0.006	16.9	85.0	
AL23	20.000	90.363	-2.9	0	0	0	0	AL21	-0.452	-0.295	17.3	83.7	
								AL26	0.003	0.002	0.1	84.9	
								AL25	0.439	0.287	16.7	83.7	
								AL24	0.010	0.006	0.4	84.8	
AL24	0.400	89.933	-3.1	0	0	0.010	0.006	AL23	-0.010	-0.006	19.2	85.0	
AL25	20.000	90.340	-2.9	0	0	0	0	AL28	0.432	0.283	16.5	83.7	
								AL29	0.006	0.004	0.2	84.9	
								AL23	-0.438	-0.287	16.7	83.7	
AL26	20.000	90.363	-2.9	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	90.088	-3.0	0	0	0.003	0.002	AL26	-0.003	-0.002	6.1	85.0	
AL28	20.000	90.318	-2.9	0	0	0	0	AL25	-0.432	-0.283	16.5	83.7	
								AL32	0.422	0.276	16.1	83.6	
								AL31	0.011	0.007	0.4	84.8	
AL29	20.000	90.340	-2.9	0	0	0	0	AL25	-0.006	-0.004	0.2	84.9	
								AL30	0.006	0.004	0.2	84.9	
								AL29	-0.006	-0.004	11.5	85.0	
AL31	0.400	89.863	-3.1	0	0	0.011	0.007	AL28	-0.011	-0.007	20.3	85.0	
AL32	20.000	90.296	-2.9	0	0	0	0	Bus432	0.408	0.268	15.6	83.6	
								AL28	-0.421	-0.276	16.1	83.6	
								AL35	0.008	0.005	0.3	84.9	
								AL34	0.006	0.004	0.2	84.8	
AL34	0.400	89.769	-3.1	0	0	0.006	0.004	AL32	-0.006	-0.004	11.7	85.0	
AL35	20.000	90.295	-2.9	0	0	0	0	AL32	-0.008	-0.005	0.3	84.9	
								AL36	0.008	0.005	0.3	84.9	
AL36	0.400	89.979	-3.0	0	0	0.007	0.005	AL35	-0.007	-0.005	14.1	85.0	
AL38	0.400	89.987	-3.1	0	0	0.012	0.008	AL11	-0.012	-0.008	23.4	85.0	
AL39	20.000	90.485	-2.8	0	0	0	0	AL11	-0.501	-0.327	19.1	83.8	
								AL15	0.493	0.321	18.8	83.8	
								AL14	0.009	0.005	0.3	84.8	
Bus1	21.000	94.763	-0.4	0	0	0	0	Bus2	2.967	2.134	106.0	81.2	
								TL1	-2.967	-2.134	106.0	81.2	
Bus2	21.000	89.221	-1.9	0	0	0	0	Bus1	-2.847	-1.934	106.0	82.7	
								P2	2.847	1.934	106.0	82.7	
* Bus24-1	150.000	100.000	0.0	2.968	2.164	0	0	Bus25-1	2.968	2.164	14.1	80.8	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 31
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	99.537	-0.4	0	0	0	0	TL1	2.968	2.136	106.0	81.2	
								Bus24-1	-2.968	-2.136	106.0	81.2	
Bus37	20.000	91.614	-1.5	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	90.214	-1.9	0	0	0.015	0.009	Bus37	-0.015	-0.009	27.7	85.0	
Bus121	20.000	99.442	-0.5	0	0	0	0	P103	2.075	1.277	70.7	85.2	
								Bus122	-2.075	-1.277	70.7	85.2	
* Bus122	150.000	100.000	0.0	2.076	1.302	0	0	Bus121	2.076	1.302	9.4	84.7	
Bus123	20.000	98.954	-0.6	0	0	0	0	P117	-1.992	-1.222	68.2	85.2	
								P121	1.880	1.152	64.3	85.3	
								P119	0.112	0.070	3.9	84.8	
Bus124	20.000	98.832	-0.6	0	0	0	0	P121	-1.809	-1.106	61.9	85.3	
								Bus126	1.794	1.097	61.4	85.3	
								P123	0.015	0.009	0.5	86.0	
Bus125	20.000	98.831	-0.6	0	0	0	0	P123	0.000	0.000	0.0	0.0	
Bus126	20.000	98.706	-0.7	0	0	0	0	Bus124	-1.792	-1.096	61.4	85.3	
								P141	1.792	1.096	61.4	85.3	
Bus128	20.000	96.192	-1.3	0	0	0	0	Bus129	1.407	0.855	49.4	85.5	
								P159	-1.651	-0.998	57.9	85.6	
								P163	0.244	0.143	8.5	86.2	
Bus129	20.000	96.026	-1.3	0	0	0	0	Bus128	-1.405	-0.854	49.4	85.4	
								P215	0.065	0.040	2.3	85.3	
								P223	1.340	0.815	47.1	85.4	
Bus130	20.000	95.612	-1.3	0	0	0	0	P222	-1.305	-0.794	46.1	85.4	
								P227	0.089	0.056	3.2	84.7	
								P234	1.216	0.738	43.0	85.5	
Bus131	20.000	95.050	-1.3	0	0	0	0	P239	0.072	0.045	2.6	84.7	
								P243	1.110	0.674	39.5	85.5	
								Bus137	-1.183	-0.719	42.0	85.4	
Bus134	20.000	98.257	-0.8	0	0	0	0	P149	-1.735	-1.059	59.7	85.4	
								P151	1.735	1.059	59.7	85.4	
Bus135	20.000	96.155	-1.3	0	0	0	0	P196	-0.124	-0.070	4.3	87.2	
								P263	0.124	0.070	4.3	87.2	
Bus136	20.000	96.118	-1.3	0	0	0	0	P210	0.000	0.000	0.0	0.0	
Bus137	20.000	95.106	-1.3	0	0	0	0	P233	-1.183	-0.720	42.0	85.4	
								Bus131	1.183	0.720	42.0	85.4	
Bus138	20.000	94.308	-1.4	0	0	0	0	P269	-0.817	-0.502	29.4	85.2	
								P273	0.817	0.502	29.4	85.2	
Bus139	20.000	94.409	-1.4	0	0	0	0	P255	-0.184	-0.107	6.5	86.3	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 32
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow						XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
								P292	0.184	0.107	6.5	86.3		
Bus428	0.400	87.496	-4.3	0	0	0.131	0.081	Bus429	-0.131	-0.081	255.2	85.0		
Bus429	20.000	90.223	-2.9	0	0	0	0	Bus432	-0.133	-0.087	5.1	83.6		
								Bus428	0.133	0.087	5.1	83.6		
Bus430	0.400	87.343	-4.4	0	0	0.138	0.086	Bus431	-0.138	-0.086	269.2	85.0		
Bus431	20.000	90.222	-2.9	0	0	0	0	Bus432	-0.141	-0.092	5.4	83.6		
								Bus430	0.141	0.092	5.4	83.6		
Bus432	20.000	90.241	-2.9	0	0	0	0	AL32	-0.408	-0.267	15.6	83.6		
								Bus429	0.133	0.087	5.1	83.6		
								Bus431	0.141	0.092	5.4	83.6		
								Bus433	0.133	0.087	5.1	83.6		
Bus433	0.400	87.514	-4.3	0	0	0.132	0.082	Bus432	-0.132	-0.082	255.2	85.0		
P2	20.000	93.361	-2.0	0	0	0	0	P3	2.840	1.923	106.0	82.8		
								Bus2	-2.840	-1.923	106.0	82.8		
P3	20.000	92.559	-2.2	0	0	0	0	P2	-2.823	-1.895	106.0	83.0		
								P4	0.028	0.018	1.0	84.5		
								P6	2.795	1.877	105.0	83.0		
P4	20.000	92.553	-2.2	0	0	0	0	P3	-0.028	-0.018	1.0	84.5		
								P5	0.028	0.018	1.0	84.5		
P5	0.400	91.403	-2.7	0	0	0.028	0.017	P4	-0.028	-0.017	51.2	85.0		
P6	20.000	92.084	-2.4	0	0	0	0	P3	-2.786	-1.861	105.0	83.2		
								P8	2.746	1.836	103.6	83.1		
								P7	0.039	0.025	1.5	84.5		
P7	0.400	91.112	-2.9	0	0	0.039	0.024	P6	-0.039	-0.024	73.2	85.0		
P8	20.000	91.927	-2.4	0	0	0	0	P6	-2.743	-1.830	103.6	83.2		
								P10	2.730	1.822	103.1	83.2		
								P9	0.013	0.008	0.5	84.8		
P9	0.400	91.371	-2.7	0	0	0.013	0.008	P8	-0.013	-0.008	24.8	85.0		
P10	20.000	91.772	-2.5	0	0	0	0	AL1	2.553	1.706	96.6	83.1		
								P8	-2.726	-1.817	103.1	83.2		
								P12	0.147	0.093	5.5	84.4		
								P11	0.026	0.017	1.0	84.1		
P11	0.400	89.546	-3.5	0	0	0.026	0.016	P10	-0.026	-0.016	49.4	85.0		
P12	20.000	91.756	-2.5	0	0	0	0	P10	-0.147	-0.093	5.5	84.4		
								P14	0.097	0.062	3.6	84.4		
								P13	0.050	0.032	1.9	84.4		
P13	0.400	90.523	-3.1	0	0	0.049	0.031	P12	-0.049	-0.031	92.8	85.0		
P14	20.000	91.745	-2.5	0	0	0	0	P12	-0.097	-0.062	3.6	84.4		
								P15	0.021	0.013	0.8	84.3		

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 33
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow						XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
P15	20.000	91.743	-2.5	0	0	0	0	P19	0.023	0.015	0.9	84.8		
								P21	0.015	0.010	0.6	83.9		
								P17	0.038	0.024	1.4	84.3		
								P14	-0.021	-0.013	0.8	84.3		
								P16	0.021	0.013	0.8	84.3		
P16	0.400	89.972	-3.3	0	0	0.021	0.013	P15	-0.021	-0.013	39.4	85.0		
P17	20.000	91.736	-2.5	0	0	0	0	P14	-0.038	-0.024	1.4	84.3		
P18	0.400	90.155	-3.2	0	0	0.037	0.023	P18	0.038	0.024	1.4	84.3		
								P17	-0.037	-0.023	70.3	85.0		
								P14	-0.023	-0.015	0.9	84.8		
P19	20.000	91.740	-2.5	0	0	0	0	P20	0.023	0.015	0.9	84.8		
P20	0.400	91.059	-2.7	0	0	0.023	0.014	P19	-0.023	-0.014	43.1	85.0		
P21	20.000	91.742	-2.5	0	0	0	0	P14	-0.015	-0.010	0.6	83.9		
P22	0.400	89.223	-3.6	0	0	0.015	0.009	P22	0.015	0.010	0.6	83.9		
								P21	-0.015	-0.009	27.9	85.0		
								P25	-0.023	-0.015	0.9	84.2		
P23	20.000	91.477	-1.6	0	0	0	0	P24	0.023	0.015	0.9	84.2		
P24	0.400	89.504	-2.5	0	0	0.023	0.014	P23	-0.023	-0.014	43.8	85.0		
P25	20.000	91.480	-1.6	0	0	0	0	P23	0.023	0.015	0.9	84.2		
P26	0.400	90.354	-2.1	0	0	0.027	0.017	P27	-0.050	-0.032	1.9	84.4		
								P26	0.027	0.017	1.0	84.5		
								P25	-0.027	-0.017	50.1	85.0		
								P29	-0.077	-0.049	2.9	84.4		
								P25	0.050	0.032	1.9	84.4		
P28	0.400	90.351	-2.1	0	0	0.027	0.017	P28	0.027	0.017	1.0	84.5		
								P27	-0.027	-0.017	50.7	85.0		
								P27	0.077	0.049	2.9	84.4		
P29	20.000	91.497	-1.6	0	0	0	0	P31	-0.107	-0.068	4.0	84.4		
P30	0.400	90.246	-2.1	0	0	0.030	0.018	P30	0.030	0.019	1.1	84.5		
								P29	-0.030	-0.018	55.7	85.0		
								P29	0.107	0.068	4.0	84.4		
								P33	-0.149	-0.094	5.6	84.4		
								P32	0.041	0.026	1.5	84.3		
P32	0.400	89.769	-2.4	0	0	0.041	0.025	P31	-0.041	-0.025	77.4	85.0		
P33	20.000	91.521	-1.6	0	0	0	0	P31	0.149	0.095	5.6	84.4		
P34	20.000	91.521	-1.6	0	0	0	0	P34	0.004	0.002	0.1	84.9		
								P36	-0.152	-0.097	5.7	84.4		
								P33	-0.004	-0.002	0.1	84.9		
								P35	0.004	0.002	0.1	84.9		

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 34
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P35	0.400	91.363	-1.6	0	0	0.004	0.002	P34	-0.004	-0.002	7.0	85.0	
P36	20.000	91.534	-1.6	0	0	0	0	P76	-0.522	-0.332	19.5	84.4	
								P33	0.152	0.097	5.7	84.4	
								P60	0.096	0.060	3.6	84.7	
								P38	0.193	0.123	7.2	84.4	
								P37	0.080	0.052	3.0	84.0	
P37	0.400	89.525	-2.6	0	0	0.080	0.049	P36	-0.080	-0.049	150.8	85.0	
P38	20.000	91.521	-1.6	0	0	0	0	P42	0.152	0.097	5.7	84.3	
								P36	-0.193	-0.123	7.2	84.4	
								P40	0.022	0.014	0.8	84.6	
								P39	0.020	0.012	0.7	84.7	
P39	0.400	90.700	-1.9	0	0	0.020	0.012	P38	-0.020	-0.012	36.6	85.0	
P40	20.000	91.519	-1.6	0	0	0	0	P38	-0.022	-0.014	0.8	84.6	
								P41	0.022	0.014	0.8	84.6	
P41	0.400	90.619	-2.0	0	0	0.021	0.013	P40	-0.021	-0.013	40.1	85.0	
P42	20.000	91.507	-1.6	0	0	0	0	P38	-0.152	-0.097	5.7	84.3	
								P44	0.129	0.082	4.8	84.4	
								P43	0.023	0.015	0.9	84.2	
P43	0.400	89.578	-2.4	0	0	0.023	0.014	P42	-0.023	-0.014	42.9	85.0	
P44	20.000	91.500	-1.6	0	0	0	0	P42	-0.129	-0.082	4.8	84.4	
								P45	0.012	0.008	0.5	84.8	
								P48	0.117	0.074	4.4	84.3	
P45	20.000	91.499	-1.6	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	90.983	-1.8	0	0	0.012	0.008	P45	-0.012	-0.008	23.0	85.0	
P47	0.400	89.420	-2.5	0	0	0.012	0.008	P48	-0.012	-0.008	23.0	85.0	
P48	20.000	91.491	-1.6	0	0	0	0	P49	0.105	0.067	3.9	84.3	
								P44	-0.117	-0.074	4.4	84.3	
								P47	0.012	0.008	0.5	84.1	
P49	20.000	91.485	-1.6	0	0	0	0	P48	-0.105	-0.067	3.9	84.4	
								P58	0.027	0.017	1.0	84.0	
								P51	0.071	0.045	2.7	84.4	
								P50	0.007	0.004	0.2	84.8	
P50	0.400	90.929	-1.8	0	0	0.007	0.004	P49	-0.007	-0.004	12.4	85.0	
P51	20.000	91.480	-1.6	0	0	0	0	P52	0.018	0.011	0.7	84.7	
								P54	0.053	0.034	2.0	84.3	
								P49	-0.071	-0.045	2.7	84.4	
P52	20.000	91.477	-1.6	0	0	0	0	P51	-0.018	-0.011	0.7	84.7	
								P53	0.018	0.011	0.7	84.7	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 35
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P53	0.400	90.717	-1.9	0	0	0.018	0.011	P52	-0.018	-0.011	33.9	85.0	
P54	20.000	91.477	-1.6	0	0	0	0	P51	-0.053	-0.034	2.0	84.3	
								P56	0.043	0.028	1.6	84.2	
								P55	0.010	0.006	0.4	84.9	
P55	0.400	91.242	-1.7	0	0	0.010	0.006	P54	-0.010	-0.006	17.8	85.0	
P56	20.000	91.475	-1.6	0	0	0	0	P54	-0.043	-0.028	1.6	84.2	
								P57	0.043	0.028	1.6	84.2	
P57	0.400	89.652	-2.4	0	0	0.043	0.027	P56	-0.043	-0.027	81.0	85.0	
P58	20.000	91.481	-1.6	0	0	0	0	P49	-0.027	-0.017	1.0	84.0	
								P59	0.027	0.017	1.0	84.0	
P59	0.400	89.213	-2.6	0	0	0.026	0.016	P58	-0.026	-0.016	50.3	85.0	
P60	20.000	91.523	-1.6	0	0	0	0	P36	-0.096	-0.060	3.6	84.7	
								P62	0.088	0.055	3.3	84.7	
								P61	0.008	0.005	0.3	84.7	
P61	0.400	90.851	-1.9	0	0	0.008	0.005	P60	-0.008	-0.005	15.0	85.0	
P62	20.000	91.518	-1.6	0	0	0	0	P60	-0.088	-0.055	3.3	84.7	
								P64	0.059	0.037	2.2	84.7	
								P63	0.029	0.018	1.1	84.7	
P63	0.400	90.951	-1.9	0	0	0.029	0.018	P62	-0.029	-0.018	53.6	85.0	
P64	20.000	91.512	-1.6	0	0	0	0	P62	-0.059	-0.037	2.2	84.7	
								P66	0.044	0.027	1.6	84.7	
								P65	0.016	0.010	0.6	84.7	
P65	0.400	90.860	-1.9	0	0	0.016	0.010	P64	-0.016	-0.010	29.1	85.0	
P66	20.000	91.511	-1.6	0	0	0	0	P64	-0.044	-0.027	1.6	84.7	
								P67	0.034	0.021	1.3	84.7	
								P73	0.010	0.006	0.4	84.8	
P67	20.000	91.510	-1.6	0	0	0	0	P66	-0.034	-0.021	1.3	84.7	
								P69	0.017	0.011	0.6	84.7	
								P68	0.017	0.011	0.6	84.7	
P68	0.400	90.794	-1.9	0	0	0.017	0.011	P67	-0.017	-0.011	31.9	85.0	
P69	20.000	91.508	-1.6	0	0	0	0	P67	-0.017	-0.011	0.6	84.7	
								P71	0.006	0.004	0.2	84.8	
								P70	0.010	0.007	0.4	84.6	
P70	0.400	90.635	-2.0	0	0	0.010	0.006	P69	-0.010	-0.006	19.5	85.0	
P71	20.000	91.507	-1.6	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	90.979	-1.8	0	0	0.006	0.004	P71	-0.006	-0.004	11.8	85.0	
P73	20.000	91.510	-1.6	0	0	0	0	P66	-0.010	-0.006	0.4	84.8	
								P74	0.010	0.006	0.4	84.8	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 36
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P74	0.400	91.100	-1.8	0	0	0.010	0.006	P73	-0.010	-0.006	18.3	85.0	
P76	20.000	91.569	-1.6	0	0	0	0	P36	0.522	0.332	19.5	84.4	
								P92	-0.537	-0.342	20.1	84.4	
								P77	0.015	0.010	0.6	84.6	
P77	0.400	90.148	-2.0	0	0	0.015	0.009	P76	-0.015	-0.009	28.1	85.0	
P80	20.000	91.646	-1.5	0	0	0	0	P98	-0.034	-0.022	1.3	84.1	
								P81	0.034	0.022	1.3	84.1	
P81	0.400	88.414	-2.4	0	0	0.033	0.021	P80	-0.033	-0.021	63.8	85.0	
P82	20.000	91.644	-1.5	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	90.772	-1.8	0	0	0.009	0.006	P82	-0.009	-0.006	17.3	85.0	
P84	20.000	91.645	-1.5	0	0	0	0	P86	-0.018	-0.011	0.7	84.8	
								P82	0.009	0.006	0.3	84.8	
								P85	0.009	0.006	0.3	84.8	
P85	0.400	90.818	-1.8	0	0	0.009	0.005	P84	-0.009	-0.005	16.4	85.0	
P86	20.000	91.646	-1.5	0	0	0	0	P84	0.018	0.011	0.7	84.8	
								P98	-0.025	-0.015	0.9	84.8	
								P87	0.006	0.004	0.2	84.8	
P87	0.400	91.039	-1.7	0	0	0.006	0.004	P86	-0.006	-0.004	12.0	85.0	
P88	20.000	91.668	-1.5	0	0	0	0	P96	0.156	0.098	5.8	84.6	
								P94	-0.164	-0.103	6.1	84.6	
								P89	0.008	0.005	0.3	84.8	
P89	0.400	90.931	-1.7	0	0	0.008	0.005	P88	-0.008	-0.005	14.6	85.0	
P90	20.000	91.641	-1.5	0	0	0	0	P94	-0.555	-0.353	20.7	84.4	
								P92	0.547	0.348	20.4	84.4	
								P91	0.008	0.005	0.3	84.8	
P91	0.400	90.911	-1.7	0	0	0.008	0.005	P90	-0.008	-0.005	14.5	85.0	
P92	20.000	91.605	-1.5	0	0	0	0	P90	-0.547	-0.348	20.4	84.4	
								P76	0.538	0.342	20.1	84.4	
								P93	0.009	0.006	0.4	84.8	
P93	0.400	90.720	-1.8	0	0	0.009	0.006	P92	-0.009	-0.006	17.5	85.0	
P94	20.000	91.678	-1.5	0	0	0	0	P90	0.555	0.353	20.7	84.4	
								P88	0.164	0.103	6.1	84.6	
								P136	-0.725	-0.460	27.0	84.4	
								P95	0.006	0.004	0.2	84.9	
P95	0.400	91.123	-1.7	0	0	0.006	0.004	P94	-0.006	-0.004	11.0	85.0	
P96	20.000	91.657	-1.5	0	0	0	0	P88	-0.156	-0.098	5.8	84.6	
								P98	0.140	0.088	5.2	84.6	
								P97	0.016	0.010	0.6	84.6	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 37
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P97	0.400	90.171	-1.9	0	0	0.016	0.010	P96	-0.016	-0.010	29.4	85.0	
P98	20.000	91.648	-1.5	0	0	0	0	P80	0.034	0.022	1.3	84.1	
								P96	-0.140	-0.088	5.2	84.6	
								P134	0.068	0.043	2.5	84.7	
								P86	0.025	0.015	0.9	84.8	
								P99	0.013	0.008	0.5	84.7	
P99	0.400	90.420	-1.9	0	0	0.013	0.008	P98	-0.013	-0.008	24.3	85.0	
P102	0.400	98.324	-0.9	0	0	0.026	0.016	P103	-0.026	-0.016	44.7	85.0	
P103	20.000	99.327	-0.5	0	0	0	0	Bus121	-2.073	-1.275	70.7	85.2	
								P107	2.047	1.259	69.9	85.2	
								P102	0.026	0.016	0.9	84.6	
P106	0.400	98.018	-0.9	0	0	0.007	0.004	P107	-0.007	-0.004	12.5	85.0	
P107	20.000	99.282	-0.5	0	0	0	0	P109	2.039	1.253	69.6	85.2	
								P103	-2.047	-1.258	69.9	85.2	
								P106	0.007	0.005	0.3	84.7	
P108	0.400	98.097	-0.8	0	0	0.013	0.008	P109	-0.013	-0.008	22.4	85.0	
P109	20.000	99.229	-0.5	0	0	0	0	P107	-2.039	-1.253	69.6	85.2	
								P115	2.026	1.244	69.2	85.2	
								P108	0.013	0.008	0.4	84.7	
P114	0.400	97.824	-0.9	0	0	0.015	0.010	P115	-0.015	-0.010	26.8	85.0	
P115	20.000	99.175	-0.6	0	0	0	0	P109	-2.025	-1.244	69.2	85.2	
								P117	2.009	1.234	68.6	85.2	
								P114	0.016	0.010	0.5	84.7	
P116	0.400	97.790	-0.9	0	0	0.014	0.009	P117	-0.014	-0.009	23.9	85.0	
P117	20.000	98.996	-0.6	0	0	0	0	P115	-2.007	-1.231	68.6	85.2	
								Bus123	1.993	1.222	68.2	85.2	
								P116	0.014	0.009	0.5	84.7	
P118	0.400	96.984	-1.1	0	0	0.111	0.068	P119	-0.111	-0.068	193.5	85.0	
P119	20.000	98.940	-0.6	0	0	0	0	Bus123	-0.112	-0.071	3.9	84.5	
								P118	0.112	0.071	3.9	84.5	
P120	0.400	97.409	-1.0	0	0	0.069	0.042	P121	-0.069	-0.042	119.5	85.0	
P121	20.000	98.918	-0.6	0	0	0	0	Bus123	-1.879	-1.151	64.3	85.3	
								Bus124	1.810	1.107	61.9	85.3	
								P120	0.069	0.044	2.4	84.6	
P122	0.400	97.493	-1.0	0	0	0.015	0.009	P123	-0.015	-0.009	26.5	85.0	
P123	20.000	98.831	-0.6	0	0	0	0	Bus124	-0.015	-0.010	0.5	84.7	
								P122	0.015	0.010	0.5	84.7	
								Bus125	0.000	0.000	0.0	0.0	
P126	20.000	91.639	-1.5	0	0	0	0	P130	-0.008	-0.005	0.3	84.8	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 38
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
								P127	0.008	0.005	0.3	84.8	
P127	0.400	90.864	-1.8	0	0	0.008	0.005	P126	-0.008	-0.005	15.4	85.0	
P128	20.000	91.637	-1.5	0	0	0	0	P132	0.027	0.017	1.0	84.7	
								P130	-0.034	-0.021	1.3	84.7	
								P129	0.007	0.004	0.3	84.8	
P129	0.400	90.965	-1.7	0	0	0.007	0.004	P128	-0.007	-0.004	13.3	85.0	
P130	20.000	91.640	-1.5	0	0	0	0	P134	-0.056	-0.035	2.1	84.7	
								P126	0.008	0.005	0.3	84.8	
								P128	0.034	0.021	1.3	84.7	
								P131	0.014	0.009	0.5	84.6	
P131	0.400	90.289	-1.9	0	0	0.014	0.009	P130	-0.014	-0.009	26.7	85.0	
P132	20.000	91.636	-1.5	0	0	0	0	P128	-0.027	-0.017	1.0	84.7	
								Bus37	0.015	0.009	0.6	84.6	
								P133	0.012	0.007	0.4	84.7	
P133	0.400	90.537	-1.8	0	0	0.012	0.007	P132	-0.012	-0.007	21.8	85.0	
P134	20.000	91.643	-1.5	0	0	0	0	P130	0.056	0.035	2.1	84.7	
								P98	-0.068	-0.043	2.5	84.7	
								P135	0.012	0.008	0.4	84.7	
P135	0.400	90.514	-1.9	0	0	0.012	0.007	P134	-0.012	-0.007	22.4	85.0	
P136	20.000	91.727	-1.5	0	0	0	0	P138	-0.754	-0.479	28.1	84.4	
								P94	0.725	0.461	27.0	84.4	
								P142	0.014	0.009	0.5	84.7	
								P137	0.015	0.009	0.6	84.6	
P137	0.400	90.331	-1.9	0	0	0.015	0.009	P136	-0.015	-0.009	27.6	85.0	
P138	20.000	91.777	-1.5	0	0	0	0	P136	0.754	0.479	28.1	84.4	
								P283	-0.763	-0.485	28.4	84.4	
								P139	0.009	0.006	0.3	84.8	
P139	0.400	90.950	-1.7	0	0	0.009	0.005	P138	-0.009	-0.005	16.4	85.0	
P140	0.400	97.630	-1.1	0	0	0.023	0.014	P141	-0.023	-0.014	40.3	85.0	
P141	20.000	98.534	-0.7	0	0	0	0	Bus126	-1.789	-1.094	61.4	85.3	
								P147	1.766	1.079	60.6	85.3	
								P140	0.023	0.015	0.8	84.6	
P142	20.000	91.726	-1.5	0	0	0	0	P136	-0.014	-0.009	0.5	84.7	
								P143	0.014	0.009	0.5	84.7	
P143	0.400	90.414	-1.9	0	0	0.014	0.009	P142	-0.014	-0.009	26.0	85.0	
P146	0.400	97.599	-0.9	0	0	0.009	0.006	P147	-0.009	-0.006	16.3	85.0	
P147	20.000	98.423	-0.7	0	0	0	0	P141	-1.764	-1.078	60.6	85.3	
								P149	1.755	1.072	60.3	85.3	
								P146	0.009	0.006	0.3	84.8	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 39
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P148	0.400	96.795	-1.1	0	0	0.017	0.010	P149	-0.017	-0.010	29.6	85.0	
P149	20.000	98.288	-0.7	0	0	0	0	P147	-1.753	-1.071	60.3	85.3	
								Bus134	1.736	1.060	59.7	85.3	
								P148	0.017	0.011	0.6	84.6	
P150	0.400	97.339	-1.0	0	0	0.007	0.004	P151	-0.007	-0.004	11.4	85.0	
P151	20.000	97.913	-0.8	0	0	0	0	P153	1.724	1.051	59.5	85.4	
								Bus134	-1.731	-1.055	59.8	85.4	
								P150	0.007	0.004	0.2	84.9	
P152	0.400	96.536	-1.2	0	0	0.010	0.006	P153	-0.010	-0.006	18.1	85.0	
P153	20.000	97.448	-1.0	0	0	0	0	P151	-1.718	-1.046	59.6	85.4	
								P155	1.708	1.039	59.2	85.4	
								P152	0.010	0.006	0.4	84.8	
P154	0.400	96.274	-1.3	0	0	0.011	0.007	P155	-0.011	-0.007	19.8	85.0	
P155	20.000	97.272	-1.0	0	0	0	0	P153	-1.706	-1.037	59.2	85.4	
								P157	1.694	1.030	58.8	85.5	
								P154	0.011	0.007	0.4	84.8	
P156	0.400	95.077	-1.6	0	0	0.015	0.009	P157	-0.015	-0.009	26.8	85.0	
P157	20.000	96.430	-1.2	0	0	0	0	P155	-1.684	-1.020	58.9	85.5	
								P159	1.669	1.010	58.4	85.5	
								P156	0.015	0.010	0.5	84.7	
P158	0.400	94.958	-1.6	0	0	0.014	0.009	P159	-0.014	-0.009	25.5	85.0	
P159	20.000	96.246	-1.3	0	0	0	0	P157	-1.666	-1.008	58.4	85.6	
								Bus128	1.652	0.999	57.9	85.6	
								P158	0.014	0.009	0.5	84.7	
P162	0.400	94.163	-1.8	0	0	0.088	0.055	P163	-0.088	-0.055	159.4	85.0	
P163	20.000	96.176	-1.3	0	0	0	0	Bus128	-0.244	-0.144	8.5	86.1	
								P197	0.154	0.087	5.3	87.1	
								P162	0.090	0.057	3.2	84.5	
P164	0.400	88.408	-3.4	0	0	0.033	0.021	P181	-0.033	-0.021	63.8	85.0	
P165	0.400	87.712	-3.6	0	0	0.033	0.020	P180	-0.033	-0.020	63.8	85.0	
P166	0.400	87.588	-3.7	0	0	0.033	0.020	P179	-0.033	-0.020	63.8	85.0	
P167	0.400	87.465	-3.7	0	0	0.033	0.020	P178	-0.033	-0.020	63.8	85.0	
P168	0.400	87.167	-5.2	0	0	1.196	0.741	P177	-1.196	-0.741	2330.5	85.0	
P172	0.400	88.408	-3.4	0	0	0.033	0.021	P173	-0.033	-0.021	63.8	85.0	
P173	20.000	91.639	-2.5	0	0	0	0	AL3	-2.069	-1.394	78.6	82.9	
								P181	2.035	1.372	77.3	82.9	
								P172	0.034	0.022	1.3	84.1	
P177	20.000	90.574	-2.8	0	0	0	0	P178	-1.730	-1.160	66.4	83.0	
								AL9	0.520	0.339	19.8	83.8	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 40
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P178	20.000	90.694	-2.8	0	0	0	0	P168	1.210	0.822	46.6	82.7	
								P177	1.731	1.163	66.4	83.0	
								P179	-1.765	-1.185	67.7	83.0	
								P167	0.034	0.022	1.3	84.1	
P179	20.000	90.817	-2.7	0	0	0	0	P178	1.767	1.187	67.7	83.0	
								P180	-1.800	-1.209	68.9	83.0	
								P166	0.034	0.022	1.3	84.1	
								P179	1.802	1.212	68.9	83.0	
P180	20.000	90.942	-2.7	0	0	0	0	P182	-1.836	-1.234	70.2	83.0	
								P165	0.034	0.022	1.3	84.1	
								P173	-2.035	-1.372	77.3	82.9	
								AL5	2.001	1.350	76.0	82.9	
P181	20.000	91.639	-2.5	0	0	0	0	P164	0.034	0.022	1.3	84.1	
								P180	1.838	1.237	70.2	83.0	
								P190	-1.871	-1.258	71.5	83.0	
								P183	0.034	0.022	1.3	84.1	
P183	0.400	87.839	-3.6	0	0	0.033	0.020	P182	-0.033	-0.020	63.8	85.0	
P186	20.000	91.432	-2.6	0	0	0	0	AL5	-1.972	-1.328	75.1	82.9	
								AL7	1.938	1.306	73.8	82.9	
								P187	0.034	0.022	1.3	84.1	
								P186	-0.033	-0.021	63.8	85.0	
P187	0.400	88.201	-3.5	0	0	0.033	0.021	P197	-0.013	-0.008	22.6	85.0	
P188	0.400	95.021	-1.6	0	0	0.013	0.008	P196	-0.017	-0.010	30.0	85.0	
P189	0.400	94.645	-1.7	0	0	0.017	0.010	AL7	-1.907	-1.283	72.8	83.0	
P190	20.000	91.199	-2.6	0	0	0	0	P182	1.873	1.261	71.5	82.9	
								P191	0.034	0.022	1.3	84.1	
								P190	-0.033	-0.020	63.8	85.0	
								P195	-0.016	-0.010	27.9	85.0	
P191	0.400	87.969	-3.5	0	0	0.033	0.020	P194	-0.006	-0.004	10.4	85.0	
P192	0.400	94.727	-1.7	0	0	0.016	0.010	P195	-0.089	-0.051	3.1	86.9	
P193	0.400	95.604	-1.4	0	0	0.006	0.004	P201	0.083	0.047	2.9	87.1	
P194	20.000	96.127	-1.3	0	0	0	0	P193	0.006	0.004	0.2	84.9	
								P262	-0.105	-0.060	3.6	86.9	
								P194	0.089	0.050	3.1	87.3	
								P192	0.016	0.010	0.6	84.6	
P196	20.000	96.160	-1.3	0	0	0	0	P197	-0.141	-0.080	4.9	87.0	
								Bus135	0.124	0.069	4.3	87.3	
								P189	0.017	0.011	0.6	84.6	
								P163	-0.154	-0.088	5.3	86.8	
P197	20.000	96.162	-1.3	0	0	0	0						

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 41
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow						XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap	
P200	0.400	94.725	-1.9	0	0	0.035	0.022	P196	0.141	0.080	4.9	87.0		
								P188	0.013	0.008	0.5	84.7		
								P201	-0.035	-0.022	62.2	85.0		
								P201	20.000	96.122	-1.3	0	0	0
P202	0.400	95.166	-1.7	0	0	0.024	0.015	P203	0.048	0.026	1.6	88.4		
								P200	0.035	0.022	1.2	84.4		
								P203	-0.024	-0.015	42.6	85.0		
								P203	20.000	96.121	-1.3	0	0	0
P208	0.400	95.151	-1.6	0	0	0.011	0.007	P211	0.024	0.011	0.8	91.7		
								P202	0.024	0.015	0.9	84.6		
								P211	-0.011	-0.007	19.2	85.0		
								P209	0.400	94.903	-1.6	0	0	0.013
P210	20.000	96.117	-1.3	0	0	0	0	P211	-0.014	-0.006	0.4	91.2		
P211	20.000	96.119	-1.3	0	0	0	0	Bus136	0.000	-0.002	0.1	0.0		
								P209	0.014	0.009	0.5	84.7		
								P203	-0.024	-0.011	0.8	90.5		
								P210	0.014	0.005	0.4	94.5		
P214	0.400	94.558	-1.7	0	0	0.064	0.040	P208	0.011	0.007	0.4	84.8		
P215	20.000	96.014	-1.3	0	0	0	0	P215	-0.064	-0.040	115.4	85.0		
P220	0.400	94.451	-1.7	0	0	0.017	0.010	Bus129	-0.065	-0.041	2.3	84.6		
								P214	0.065	0.041	2.3	84.6		
								P223	-0.017	-0.010	29.9	85.0		
								P221	0.400	94.698	-1.6	0	0	0.013
P222	20.000	95.860	-1.3	0	0	0	0	P223	-1.321	-0.803	46.6	85.4		
P223	20.000	95.960	-1.3	0	0	0	0	Bus130	1.308	0.795	46.1	85.5		
								P221	0.013	0.008	0.5	84.7		
								P222	1.322	0.804	46.6	85.5		
								Bus129	-1.339	-0.814	47.2	85.4		
P226	0.400	93.607	-1.9	0	0	0.087	0.054	P220	0.017	0.011	0.6	84.6		
P227	20.000	95.607	-1.3	0	0	0	0	P227	-0.087	-0.054	158.3	85.0		
P232	0.400	93.734	-1.7	0	0	0.016	0.010	Bus130	-0.089	-0.056	3.2	84.5		
								P226	0.089	0.056	3.2	84.5		
								P233	-0.016	-0.010	28.9	85.0		
								P233	20.000	95.193	-1.3	0	0	0
P234	20.000	95.443	-1.3	0	0	0	0	Bus137	1.184	0.720	42.0	85.5		
								P232	0.016	0.010	0.6	84.6		
								P233	1.203	0.731	42.6	85.5		
								Bus130	-1.214	-0.738	43.0	85.5		
								P235	0.011	0.007	0.4	84.8		

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 42
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P235	0.400	94.460	-1.6	0	0	0.011	0.007	P234	-0.011	-0.007	19.5	85.0	
P238	0.400	93.413	-1.8	0	0	0.071	0.044	P239	-0.071	-0.044	129.5	85.0	
P239	20.000	95.048	-1.3	0	0	0	0	Bus131	-0.072	-0.045	2.6	84.6	
								P238	0.072	0.045	2.6	84.6	
P242	0.400	92.877	-1.9	0	0	0.023	0.014	P243	-0.023	-0.014	42.7	85.0	
P243	20.000	95.035	-1.3	0	0	0	0	Bus131	-1.110	-0.674	39.5	85.5	
								P247	1.087	0.659	38.6	85.5	
								P242	0.024	0.015	0.9	84.5	
P246	0.400	91.437	-2.3	0	0	0.017	0.011	P247	-0.017	-0.011	32.1	85.0	
P247	20.000	94.688	-1.4	0	0	0	0	P243	-1.083	-0.658	38.6	85.5	
								P251	1.065	0.647	38.0	85.5	
								P246	0.018	0.011	0.6	84.2	
P250	0.400	93.455	-1.7	0	0	0.012	0.007	P251	-0.012	-0.007	21.6	85.0	
P251	20.000	94.548	-1.4	0	0	0	0	P247	-1.064	-0.646	38.0	85.5	
								P253	1.052	0.639	37.6	85.5	
								P250	0.012	0.008	0.4	84.7	
P252	0.400	93.159	-1.7	0	0	0.015	0.009	P253	-0.015	-0.009	26.8	85.0	
P253	20.000	94.513	-1.4	0	0	0	0	P251	-1.051	-0.639	37.6	85.5	
								P255	1.036	0.630	37.0	85.5	
								P252	0.015	0.009	0.5	84.7	
P254	0.400	92.796	-1.8	0	0	0.018	0.011	P255	-0.018	-0.011	32.7	85.0	
P255	20.000	94.446	-1.4	0	0	0	0	P253	-1.036	-0.629	37.0	85.5	
								Bus139	0.184	0.106	6.5	86.6	
								P267	0.834	0.512	29.9	85.2	
								P254	0.018	0.011	0.7	84.6	
P260	0.400	95.108	-1.6	0	0	0.012	0.007	P263	-0.012	-0.007	20.6	85.0	
P261	0.400	95.455	-1.5	0	0	0.008	0.005	P262	-0.008	-0.005	13.7	85.0	
P262	20.000	96.144	-1.3	0	0	0	0	P263	-0.113	-0.064	3.9	87.1	
								P195	0.105	0.059	3.6	87.3	
								P261	0.008	0.005	0.3	84.8	
P263	20.000	96.149	-1.3	0	0	0	0	P262	0.113	0.063	3.9	87.3	
								Bus135	-0.124	-0.070	4.3	87.0	
								P260	0.012	0.007	0.4	84.7	
P266	0.400	93.644	-1.6	0	0	0.009	0.005	P267	-0.009	-0.005	15.4	85.0	
P267	20.000	94.423	-1.4	0	0	0	0	P255	-0.834	-0.512	29.9	85.2	
								P269	0.825	0.507	29.6	85.2	
								P266	0.009	0.005	0.3	84.8	
P268	0.400	93.758	-1.5	0	0	0.007	0.004	P269	-0.007	-0.004	12.3	85.0	
P269	20.000	94.376	-1.4	0	0	0	0	P267	-0.825	-0.507	29.6	85.2	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 43
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow				XFMR	
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P272	0.400	93.067	-1.7	0	0	0.010	0.006	Bus138	0.818	0.502	29.4	85.2	
								P268	0.007	0.004	0.2	84.8	
								P273	-0.010	-0.006	19.0	85.0	
P273	20.000	94.028	-1.4	0	0	0	0	Bus138	-0.815	-0.503	29.4	85.1	
P277	20.000	93.957	-1.4	0	0	0	0	P277	0.805	0.496	29.0	85.1	
								P272	0.011	0.007	0.4	84.8	
								P273	-0.804	-0.496	29.0	85.1	
P282	0.400	91.607	-2.0	0	0	0.023	0.014	P286	0.804	0.496	29.0	85.1	
P283	20.000	93.774	-1.4	0	0	0	0	P283	-0.023	-0.014	42.9	85.0	
P286	20.000	93.885	-1.4	0	0	0	0	P288	-0.803	-0.497	29.1	85.0	
								P138	0.779	0.482	28.2	85.1	
								P282	0.024	0.015	0.9	84.4	
P288	20.000	93.812	-1.4	0	0	0	0	P277	-0.803	-0.496	29.0	85.1	
P292	20.000	94.373	-1.4	0	0	0	0	P288	0.803	0.496	29.0	85.1	
P293	0.400	92.851	-1.8	0	0	0.016	0.010	P286	-0.803	-0.497	29.1	85.0	
								P283	0.803	0.497	29.1	85.0	
								Bus139	-0.183	-0.108	6.5	86.1	
P296	20.000	94.343	-1.4	0	0	0	0	P296	0.167	0.098	5.9	86.2	
P297	0.400	93.183	-1.7	0	0	0.013	0.008	P293	0.017	0.011	0.6	84.6	
								P292	-0.016	-0.010	30.1	85.0	
								P292	-0.167	-0.099	5.9	86.0	
P298	20.000	94.331	-1.4	0	0	0	0	P298	0.154	0.091	5.5	86.1	
P299	0.400	92.936	-1.8	0	0	0.015	0.009	P297	0.013	0.008	0.5	84.7	
								P296	-0.013	-0.008	23.0	85.0	
								P296	-0.154	-0.091	5.5	86.0	
P304	0.400	92.666	-2.1	0	0	0.040	0.025	P305	0.139	0.082	4.9	86.1	
P305	20.000	94.322	-1.4	0	0	0	0	P299	0.015	0.010	0.6	84.6	
P312	20.000	94.319	-1.4	0	0	0	0	P298	-0.015	-0.009	27.6	85.0	
								P312	0.098	0.056	3.5	86.7	
								P304	0.041	0.026	1.5	84.3	
P313	0.400	93.303	-1.7	0	0	0.022	0.014	P305	-0.040	-0.025	73.7	85.0	
P314	20.000	94.294	-1.4	0	0	0	0	P298	-0.139	-0.082	4.9	86.0	
P315	0.400	93.303	-1.7	0	0	0.022	0.014	P312	0.098	0.056	3.5	86.7	
								P304	0.041	0.026	1.5	84.3	
								P305	-0.098	-0.057	3.5	86.6	
P316	20.000	94.294	-1.4	0	0	0	0	P314	0.076	0.043	2.7	87.2	
P317	0.400	93.303	-1.7	0	0	0.022	0.014	P313	0.022	0.014	0.8	84.7	
								P312	-0.022	-0.014	40.3	85.0	
								P312	-0.076	-0.045	2.7	86.2	
P318	20.000	94.294	-1.4	0	0	0	0	P316	0.057	0.033	2.0	86.7	
P319	0.400	93.303	-1.7	0	0	0.022	0.014	P315	0.019	0.012	0.7	84.6	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 44
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Bus		Voltage		Generation		Load		Load Flow					XFMR
ID	kV	% Mag.	Ang.	MW	Mvar	MW	Mvar	ID	MW	Mvar	Amp	%PF	%Tap
P315	0.400	92.542	-1.9	0	0	0.019	0.012	P314	-0.019	-0.012	34.7	85.0	
P316	20.000	94.289	-1.4	0	0	0	0	P314	-0.057	-0.033	2.0	86.4	
								P328	0.043	0.025	1.5	86.9	
								P317	0.013	0.008	0.5	84.7	
P317	0.400	93.062	-1.7	0	0	0.013	0.008	P316	-0.013	-0.008	24.3	85.0	
P324	0.400	92.578	-1.9	0	0	0.018	0.011	P327	-0.018	-0.011	33.7	85.0	
P325	0.400	93.454	-1.6	0	0	0.009	0.006	P326	-0.009	-0.006	16.4	85.0	
P326	20.000	94.280	-1.4	0	0	0	0	P327	-0.009	-0.006	0.3	84.8	
								P325	0.009	0.006	0.3	84.8	
P327	20.000	94.282	-1.4	0	0	0	0	P326	0.009	0.004	0.3	90.9	
								P328	-0.028	-0.016	1.0	86.7	
								P324	0.019	0.012	0.7	84.6	
P328	20.000	94.283	-1.4	0	0	0	0	P327	0.028	0.016	1.0	87.1	
								P316	-0.043	-0.025	1.5	86.2	
								P329	0.015	0.010	0.6	84.6	
P329	0.400	92.868	-1.8	0	0	0.015	0.009	P328	-0.015	-0.009	28.0	85.0	
TL1	21.000	94.795	-0.4	0	0	0	0	Bus25-1	-2.968	-2.136	106.0	81.2	
								Bus1	2.968	2.136	106.0	81.2	

* 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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 45
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	3.066	83.2	96.6	
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	3.055	83.2	96.2	
AL4	0.400		0.211	0.131	0.259	0.161	0	0	0	0	0.553	85.0	882.8	
AL5	20.000		0	0	0	0	0	0	0	0	2.411	82.9	76.0	
AL6	0.400		0.012	0.007	0.014	0.009	0	0	0	0	0.031	85.0	48.7	
AL7	20.000		0	0	0	0	0	0	0	0	2.334	82.9	73.8	
AL8	0.400		0.017	0.011	0.009	0.006	0	0	0	0	0.031	85.0	51.0	
AL9	20.000		0	0	0	0	0	0	0	0	0.620	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	0.613	83.8	19.6	
AL14	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	16.4	
AL15	20.000		0	0	0	0	0	0	0	0	0.588	83.8	18.8	
AL16	0.400		0.006	0.004	0.007	0.005	0	0	0	0	0.016	85.0	25.6	
AL17	0.400		0.011	0.007	0.002	0.001	0	0	0	0	0.016	85.0	26.0	
AL18	20.000		0	0	0	0	0	0	0	0	0.572	83.7	18.2	
AL19	20.000		0	0	0	0	0	0	0	0	0.555	83.7	17.7	
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	0.551	83.7	17.6	
AL22	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	16.9	
AL23	20.000		0	0	0	0	0	0	0	0	0.540	83.7	17.3	
AL24	0.400		0.005	0.003	0.006	0.003	0	0	0	0	0.012	85.0	19.2	
AL25	20.000		0	0	0	0	0	0	0	0	0.524	83.7	16.7	
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	6.1	
AL28	20.000		0	0	0	0	0	0	0	0	0.517	83.7	16.5	
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	11.5	
AL31	0.400		0.007	0.004	0.004	0.002	0	0	0	0	0.013	85.0	20.3	
AL32	20.000		0	0	0	0	0	0	0	0	0.504	83.6	16.1	
AL34	0.400		0.004	0.003	0.002	0.001	0	0	0	0	0.007	85.0	11.7	
AL35	20.000		0	0	0	0	0	0	0	0	0.009	84.9	0.3	
AL36	0.400		0.005	0.003	0.003	0.002	0	0	0	0	0.009	85.0	14.1	
AL38	0.400		0.006	0.003	0.007	0.004	0	0	0	0	0.015	85.0	23.4	
AL39	20.000		0	0	0	0	0	0	0	0	0.598	83.8	19.1	
Bus1	21.000		0	0	0	0	0	0	0	0	3.655	81.2	106.0	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 46
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	3.441	82.7	106.0	
Bus24-1	150.000		0	0	0	0	0	0	0	0	3.673	80.8	14.1	
Bus25-1	20.000		0	0	0	0	0	0	0	0	3.656	81.2	106.0	
Bus37	20.000		0	0	0	0	0	0	0	0	0.018	84.6	0.6	
Bus97	0.400		0.012	0.008	0.002	0.002	0	0	0	0	0.017	85.0	27.7	
Bus121	20.000		0	0	0	0	0	0	0	0	2.437	85.2	70.7	
Bus122	150.000		0	0	0	0	0	0	0	0	2.450	84.7	9.4	
Bus123	20.000		0	0	0	0	0	0	0	0	2.337	85.2	68.2	
Bus124	20.000		0	0	0	0	0	0	0	0	2.120	85.3	61.9	
Bus125	20.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus126	20.000		0	0	0	0	0	0	0	0	2.100	85.3	61.4	
Bus128	20.000		0	0	0	0	0	0	0	0	1.930	85.6	57.9	
Bus129	20.000		0	0	0	0	0	0	0	0	1.644	85.4	49.4	
Bus130	20.000		0	0	0	0	0	0	0	0	1.528	85.4	46.1	
Bus131	20.000		0	0	0	0	0	0	0	0	1.384	85.4	42.0	
Bus134	20.000		0	0	0	0	0	0	0	0	2.033	85.4	59.7	
Bus135	20.000		0	0	0	0	0	0	0	0	0.143	87.2	4.3	
Bus136	20.000		0	0	0	0	0	0	0	0	0	0.0	0.0	
Bus137	20.000		0	0	0	0	0	0	0	0	1.385	85.4	42.0	
Bus138	20.000		0	0	0	0	0	0	0	0	0.960	85.2	29.4	
Bus139	20.000		0	0	0	0	0	0	0	0	0.213	86.3	6.5	
Bus428	0.400		0.061	0.038	0.070	0.044	0	0	0	0	0.155	85.0	255.2	
Bus429	20.000		0	0	0	0	0	0	0	0	0.160	83.6	5.1	
Bus430	0.400		0.092	0.057	0.047	0.029	0	0	0	0	0.163	85.0	269.2	
Bus431	20.000		0	0	0	0	0	0	0	0	0.168	83.6	5.4	
Bus432	20.000		0	0	0	0	0	0	0	0	0.487	83.6	15.6	
Bus433	0.400		0.061	0.038	0.070	0.044	0	0	0	0	0.155	85.0	255.2	
P2	20.000		0	0	0	0	0	0	0	0	3.430	82.8	106.0	
P3	20.000		0	0	0	0	0	0	0	0	3.400	83.0	106.0	
P4	20.000		0	0	0	0	0	0	0	0	0.033	84.5	1.0	
P5	0.400		0.012	0.008	0.015	0.010	0	0	0	0	0.032	85.0	51.2	
P6	20.000		0	0	0	0	0	0	0	0	3.350	83.2	105.0	
P7	0.400		0.018	0.011	0.022	0.014	0	0	0	0	0.046	85.0	73.2	
P8	20.000		0	0	0	0	0	0	0	0	3.298	83.2	103.6	
P9	0.400		0.009	0.005	0.005	0.003	0	0	0	0	0.016	85.0	24.8	
P10	20.000		0	0	0	0	0	0	0	0	3.276	83.2	103.1	
P11	0.400		0.017	0.011	0.009	0.006	0	0	0	0	0.031	85.0	49.4	
P12	20.000		0	0	0	0	0	0	0	0	0.174	84.4	5.5	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 47
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P13	0.400		0.032	0.020	0.017	0.011	0	0	0	0	0.058	85.0	92.8	
P14	20.000		0	0	0	0	0	0	0	0	0.115	84.4	3.6	
P15	20.000		0	0	0	0	0	0	0	0	0.025	84.3	0.8	
P16	0.400		0.009	0.006	0.011	0.007	0	0	0	0	0.025	85.0	39.4	
P17	20.000		0	0	0	0	0	0	0	0	0.045	84.3	1.4	
P18	0.400		0.017	0.010	0.021	0.013	0	0	0	0	0.044	85.0	70.3	
P19	20.000		0	0	0	0	0	0	0	0	0.027	84.8	0.9	
P20	0.400		0.010	0.006	0.013	0.008	0	0	0	0	0.027	85.0	43.1	
P21	20.000		0	0	0	0	0	0	0	0	0.018	83.9	0.6	
P22	0.400		0.010	0.006	0.005	0.003	0	0	0	0	0.017	85.0	27.9	
P23	20.000		0	0	0	0	0	0	0	0	0.028	84.2	0.9	
P24	0.400		0.010	0.007	0.013	0.008	0	0	0	0	0.027	85.0	43.8	
P25	20.000		0	0	0	0	0	0	0	0	0.060	84.4	1.9	
P26	0.400		0.012	0.007	0.015	0.009	0	0	0	0	0.031	85.0	50.1	
P27	20.000		0	0	0	0	0	0	0	0	0.092	84.4	2.9	
P28	0.400		0.012	0.008	0.015	0.009	0	0	0	0	0.032	85.0	50.7	
P29	20.000		0	0	0	0	0	0	0	0	0.127	84.4	4.0	
P30	0.400		0.019	0.012	0.010	0.006	0	0	0	0	0.035	85.0	55.7	
P31	20.000		0	0	0	0	0	0	0	0	0.176	84.4	5.6	
P32	0.400		0.019	0.011	0.022	0.014	0	0	0	0	0.048	85.0	77.4	
P33	20.000		0	0	0	0	0	0	0	0	0.181	84.4	5.7	
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	7.0	
P36	20.000		0	0	0	0	0	0	0	0	0.619	84.4	19.5	
P37	0.400		0.036	0.022	0.043	0.027	0	0	0	0	0.094	85.0	150.8	
P38	20.000		0	0	0	0	0	0	0	0	0.229	84.4	7.2	
P39	0.400		0.013	0.008	0.007	0.004	0	0	0	0	0.023	85.0	36.6	
P40	20.000		0	0	0	0	0	0	0	0	0.025	84.6	0.8	
P41	0.400		0.018	0.011	0.004	0.002	0	0	0	0	0.025	85.0	40.1	
P42	20.000		0	0	0	0	0	0	0	0	0.180	84.3	5.7	
P43	0.400		0.015	0.009	0.008	0.005	0	0	0	0	0.027	85.0	42.9	
P44	20.000		0	0	0	0	0	0	0	0	0.153	84.4	4.8	
P45	20.000		0	0	0	0	0	0	0	0	0.015	84.8	0.5	
P46	0.400		0.010	0.006	0.002	0.001	0	0	0	0	0.015	85.0	23.0	
P47	0.400		0.006	0.003	0.007	0.004	0	0	0	0	0.014	85.0	23.0	
P48	20.000		0	0	0	0	0	0	0	0	0.139	84.3	4.4	
P49	20.000		0	0	0	0	0	0	0	0	0.124	84.4	3.9	
P50	0.400		0.003	0.002	0.004	0.002	0	0	0	0	0.008	85.0	12.4	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 48
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P51	20.000		0	0	0	0	0	0	0	0	0.084	84.4	2.7	
P52	20.000		0	0	0	0	0	0	0	0	0.022	84.7	0.7	
P53	0.400		0.012	0.007	0.006	0.004	0	0	0	0	0.021	85.0	33.9	
P54	20.000		0	0	0	0	0	0	0	0	0.063	84.3	2.0	
P55	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.011	85.0	17.8	
P56	20.000		0	0	0	0	0	0	0	0	0.051	84.2	1.6	
P57	0.400		0.019	0.012	0.023	0.014	0	0	0	0	0.050	85.0	81.0	
P58	20.000		0	0	0	0	0	0	0	0	0.032	84.0	1.0	
P59	0.400		0.012	0.007	0.014	0.009	0	0	0	0	0.031	85.0	50.3	
P60	20.000		0	0	0	0	0	0	0	0	0.114	84.7	3.6	
P61	0.400		0.007	0.004	0.001	0.001	0	0	0	0	0.009	85.0	15.0	
P62	20.000		0	0	0	0	0	0	0	0	0.104	84.7	3.3	
P63	0.400		0.018	0.011	0.010	0.006	0	0	0	0	0.034	85.0	53.6	
P64	20.000		0	0	0	0	0	0	0	0	0.070	84.7	2.2	
P65	0.400		0.007	0.004	0.009	0.005	0	0	0	0	0.018	85.0	29.1	
P66	20.000		0	0	0	0	0	0	0	0	0.052	84.7	1.6	
P67	20.000		0	0	0	0	0	0	0	0	0.040	84.7	1.3	
P68	0.400		0.011	0.007	0.006	0.004	0	0	0	0	0.020	85.0	31.9	
P69	20.000		0	0	0	0	0	0	0	0	0.020	84.7	0.6	
P70	0.400		0.005	0.003	0.006	0.004	0	0	0	0	0.012	85.0	19.5	
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	11.8	
P73	20.000		0	0	0	0	0	0	0	0	0.012	84.8	0.4	
P74	0.400		0.004	0.003	0.005	0.003	0	0	0	0	0.012	85.0	18.3	
P76	20.000		0	0	0	0	0	0	0	0	0.637	84.4	20.1	
P77	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.018	85.0	28.1	
P80	20.000		0	0	0	0	0	0	0	0	0.041	84.1	1.3	
P81	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
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	0.011	85.0	17.3	
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	16.4	
P86	20.000		0	0	0	0	0	0	0	0	0.029	84.8	0.9	
P87	0.400		0.003	0.002	0.004	0.002	0	0	0	0	0.008	85.0	12.0	
P88	20.000		0	0	0	0	0	0	0	0	0.194	84.6	6.1	
P89	0.400		0.003	0.002	0.004	0.003	0	0	0	0	0.009	85.0	14.6	
P90	20.000		0	0	0	0	0	0	0	0	0.658	84.4	20.7	
P91	0.400		0.003	0.002	0.004	0.003	0	0	0	0	0.009	85.0	14.5	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 49
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P92	20.000		0	0	0	0	0	0	0	0	0.648	84.4	20.4	
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	0.859	84.4	27.0	
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	0.184	84.6	5.8	
P97	0.400		0.007	0.004	0.009	0.005	0	0	0	0	0.018	85.0	29.4	
P98	20.000		0	0	0	0	0	0	0	0	0.166	84.6	5.2	
P99	0.400		0.006	0.004	0.007	0.004	0	0	0	0	0.015	85.0	24.3	
P102	0.400		0.016	0.010	0.010	0.006	0	0	0	0	0.030	85.0	44.7	
P103	20.000		0	0	0	0	0	0	0	0	2.434	85.2	70.7	
P106	0.400		0.004	0.003	0.003	0.002	0	0	0	0	0.009	85.0	12.5	
P107	20.000		0	0	0	0	0	0	0	0	2.402	85.2	69.9	
P108	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.015	85.0	22.4	
P109	20.000		0	0	0	0	0	0	0	0	2.393	85.2	69.6	
P114	0.400		0.009	0.006	0.006	0.004	0	0	0	0	0.018	85.0	26.8	
P115	20.000		0	0	0	0	0	0	0	0	2.376	85.2	69.2	
P116	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.016	85.0	23.9	
P117	20.000		0	0	0	0	0	0	0	0	2.354	85.2	68.6	
P118	0.400		0.068	0.042	0.043	0.026	0	0	0	0	0.130	85.0	193.5	
P119	20.000		0	0	0	0	0	0	0	0	0.133	84.5	3.9	
P120	0.400		0.042	0.026	0.027	0.016	0	0	0	0	0.081	85.0	119.5	
P121	20.000		0	0	0	0	0	0	0	0	2.204	85.3	64.3	
P122	0.400		0.009	0.006	0.006	0.004	0	0	0	0	0.018	85.0	26.5	
P123	20.000		0	0	0	0	0	0	0	0	0.018	84.7	0.5	
P126	20.000		0	0	0	0	0	0	0	0	0.010	84.8	0.3	
P127	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	15.4	
P128	20.000		0	0	0	0	0	0	0	0	0.040	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	0.067	84.7	2.1	
P131	0.400		0.006	0.004	0.008	0.005	0	0	0	0	0.017	85.0	26.7	
P132	20.000		0	0	0	0	0	0	0	0	0.031	84.7	1.0	
P133	0.400		0.005	0.003	0.006	0.004	0	0	0	0	0.014	85.0	21.8	
P134	20.000		0	0	0	0	0	0	0	0	0.081	84.7	2.5	
P135	0.400		0.008	0.005	0.004	0.003	0	0	0	0	0.014	85.0	22.4	
P136	20.000		0	0	0	0	0	0	0	0	0.893	84.4	28.1	
P137	0.400		0.007	0.004	0.008	0.005	0	0	0	0	0.017	85.0	27.6	
P138	20.000		0	0	0	0	0	0	0	0	0.904	84.4	28.4	
P139	0.400		0.004	0.002	0.005	0.003	0	0	0	0	0.010	85.0	16.4	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 50
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P140	0.400		0	0	0.023	0.014	0	0	0	0	0.027	85.0	40.3	
P141	20.000		0	0	0	0	0	0	0	0	2.097	85.3	61.4	
P142	20.000		0	0	0	0	0	0	0	0	0.017	84.7	0.5	
P143	0.400		0.006	0.004	0.008	0.005	0	0	0	0	0.016	85.0	26.0	
P146	0.400		0.006	0.004	0.004	0.002	0	0	0	0	0.011	85.0	16.3	
P147	20.000		0	0	0	0	0	0	0	0	2.067	85.3	60.6	
P148	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.020	85.0	29.6	
P149	20.000		0	0	0	0	0	0	0	0	2.054	85.3	60.3	
P150	0.400		0.004	0.002	0.003	0.002	0	0	0	0	0.008	85.0	11.4	
P151	20.000		0	0	0	0	0	0	0	0	2.027	85.4	59.8	
P152	0.400		0.006	0.004	0.004	0.002	0	0	0	0	0.012	85.0	18.1	
P153	20.000		0	0	0	0	0	0	0	0	2.011	85.4	59.6	
P154	0.400		0.007	0.004	0.004	0.003	0	0	0	0	0.013	85.0	19.8	
P155	20.000		0	0	0	0	0	0	0	0	1.996	85.4	59.2	
P156	0.400		0.009	0.006	0.006	0.003	0	0	0	0	0.018	85.0	26.8	
P157	20.000		0	0	0	0	0	0	0	0	1.968	85.5	58.9	
P158	0.400		0.009	0.006	0.005	0.003	0	0	0	0	0.017	85.0	25.5	
P159	20.000		0	0	0	0	0	0	0	0	1.947	85.6	58.4	
P162	0.400		0.056	0.034	0.033	0.020	0	0	0	0	0.104	85.0	159.4	
P163	20.000		0	0	0	0	0	0	0	0	0.283	86.1	8.5	
P164	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P165	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P166	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P167	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P168	0.400		0.794	0.492	0.402	0.249	0	0	0	0	1.407	85.0	2330.5	
P172	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P173	20.000		0	0	0	0	0	0	0	0	2.495	82.9	78.6	
P177	20.000		0	0	0	0	0	0	0	0	2.083	83.0	66.4	
P178	20.000		0	0	0	0	0	0	0	0	2.126	83.0	67.7	
P179	20.000		0	0	0	0	0	0	0	0	2.169	83.0	68.9	
P180	20.000		0	0	0	0	0	0	0	0	2.212	83.0	70.2	
P181	20.000		0	0	0	0	0	0	0	0	2.454	82.9	77.3	
P182	20.000		0	0	0	0	0	0	0	0	2.255	83.0	71.5	
P183	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P186	20.000		0	0	0	0	0	0	0	0	2.377	82.9	75.1	
P187	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P188	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.015	85.0	22.6	
P189	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.020	85.0	30.0	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 51
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P190	20.000		0	0	0	0	0	0	0	0	2.299	83.0	72.8	
P191	0.400		0.015	0.009	0.018	0.011	0	0	0	0	0.039	85.0	63.8	
P192	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.018	85.0	27.9	
P193	0.400		0.004	0.002	0.002	0.001	0	0	0	0	0.007	85.0	10.4	
P194	20.000		0	0	0	0	0	0	0	0	0.103	86.9	3.1	
P195	20.000		0	0	0	0	0	0	0	0	0.121	86.9	3.6	
P196	20.000		0	0	0	0	0	0	0	0	0.162	87.0	4.9	
P197	20.000		0	0	0	0	0	0	0	0	0.177	86.8	5.3	
P200	0.400		0.022	0.013	0.013	0.008	0	0	0	0	0.041	85.0	62.2	
P201	20.000		0	0	0	0	0	0	0	0	0.096	86.8	2.9	
P202	0.400		0.015	0.009	0.009	0.006	0	0	0	0	0.028	85.0	42.6	
P203	20.000		0	0	0	0	0	0	0	0	0.055	88.3	1.6	
P208	0.400		0.007	0.004	0.004	0.003	0	0	0	0	0.013	85.0	19.2	
P209	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.016	85.0	24.1	
P210	20.000		0	0	0	0	0	0	0	0	0.016	84.7	0.5	
P211	20.000		0	0	0	0	0	0	0	0	0.027	90.5	0.8	
P214	0.400		0.040	0.025	0.024	0.015	0	0	0	0	0.076	85.0	115.4	
P215	20.000		0	0	0	0	0	0	0	0	0.077	84.6	2.3	
P220	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.020	85.0	29.9	
P221	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.015	85.0	23.0	
P222	20.000		0	0	0	0	0	0	0	0	1.546	85.4	46.6	
P223	20.000		0	0	0	0	0	0	0	0	1.567	85.4	47.2	
P226	0.400		0.055	0.034	0.032	0.020	0	0	0	0	0.103	85.0	158.3	
P227	20.000		0	0	0	0	0	0	0	0	0.105	84.5	3.2	
P232	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.019	85.0	28.9	
P233	20.000		0	0	0	0	0	0	0	0	1.405	85.4	42.6	
P234	20.000		0	0	0	0	0	0	0	0	1.421	85.5	43.0	
P235	0.400		0.007	0.004	0.004	0.003	0	0	0	0	0.013	85.0	19.5	
P238	0.400		0.045	0.028	0.026	0.016	0	0	0	0	0.084	85.0	129.5	
P239	20.000		0	0	0	0	0	0	0	0	0.085	84.6	2.6	
P242	0.400		0.015	0.009	0.009	0.005	0	0	0	0	0.027	85.0	42.7	
P243	20.000		0	0	0	0	0	0	0	0	1.299	85.5	39.5	
P246	0.400		0.011	0.007	0.006	0.004	0	0	0	0	0.020	85.0	32.1	
P247	20.000		0	0	0	0	0	0	0	0	1.267	85.5	38.6	
P250	0.400		0.008	0.005	0.004	0.003	0	0	0	0	0.014	85.0	21.6	
P251	20.000		0	0	0	0	0	0	0	0	1.245	85.5	38.0	
P252	0.400		0.009	0.006	0.005	0.003	0	0	0	0	0.017	85.0	26.8	
P253	20.000		0	0	0	0	0	0	0	0	1.230	85.5	37.6	

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 52
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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				
P254	0.400		0.011	0.007	0.007	0.004	0	0	0	0	0.021	85.0	32.7	
P255	20.000		0	0	0	0	0	0	0	0	1.212	85.5	37.0	
P260	0.400		0.007	0.004	0.004	0.003	0	0	0	0	0.014	85.0	20.6	
P261	0.400		0.005	0.003	0.003	0.002	0	0	0	0	0.009	85.0	13.7	
P262	20.000		0	0	0	0	0	0	0	0	0.129	87.1	3.9	
P263	20.000		0	0	0	0	0	0	0	0	0.143	87.0	4.3	
P266	0.400		0.005	0.003	0.003	0.002	0	0	0	0	0.010	85.0	15.4	
P267	20.000		0	0	0	0	0	0	0	0	0.978	85.2	29.9	
P268	0.400		0.004	0.003	0.003	0.002	0	0	0	0	0.008	85.0	12.3	
P269	20.000		0	0	0	0	0	0	0	0	0.968	85.2	29.6	
P272	0.400		0.007	0.004	0.004	0.002	0	0	0	0	0.012	85.0	19.0	
P273	20.000		0	0	0	0	0	0	0	0	0.958	85.1	29.4	
P277	20.000		0	0	0	0	0	0	0	0	0.945	85.1	29.0	
P282	0.400		0.015	0.009	0.008	0.005	0	0	0	0	0.027	85.0	42.9	
P283	20.000		0	0	0	0	0	0	0	0	0.944	85.0	29.1	
P286	20.000		0	0	0	0	0	0	0	0	0.945	85.1	29.0	
P288	20.000		0	0	0	0	0	0	0	0	0.944	85.0	29.1	
P292	20.000		0	0	0	0	0	0	0	0	0.213	86.1	6.5	
P293	0.400		0.010	0.006	0.006	0.004	0	0	0	0	0.019	85.0	30.1	
P296	20.000		0	0	0	0	0	0	0	0	0.194	86.0	5.9	
P297	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.015	85.0	23.0	
P298	20.000		0	0	0	0	0	0	0	0	0.179	86.0	5.5	
P299	0.400		0.010	0.006	0.006	0.003	0	0	0	0	0.018	85.0	27.6	
P304	0.400		0.026	0.016	0.015	0.009	0	0	0	0	0.047	85.0	73.7	
P305	20.000		0	0	0	0	0	0	0	0	0.161	86.0	4.9	
P312	20.000		0	0	0	0	0	0	0	0	0.113	86.6	3.5	
P313	0.400		0.014	0.009	0.008	0.005	0	0	0	0	0.026	85.0	40.3	
P314	20.000		0	0	0	0	0	0	0	0	0.088	86.2	2.7	
P315	0.400		0.012	0.007	0.007	0.004	0	0	0	0	0.022	85.0	34.7	
P316	20.000		0	0	0	0	0	0	0	0	0.066	86.4	2.0	
P317	0.400		0.008	0.005	0.005	0.003	0	0	0	0	0.016	85.0	24.3	
P324	0.400		0.012	0.007	0.007	0.004	0	0	0	0	0.022	85.0	33.7	
P325	0.400		0.006	0.004	0.003	0.002	0	0	0	0	0.011	85.0	16.4	
P326	20.000		0	0	0	0	0	0	0	0	0.011	84.8	0.3	
P327	20.000		0	0	0	0	0	0	0	0	0.032	86.7	1.0	
P328	20.000		0	0	0	0	0	0	0	0	0.050	86.2	1.5	
P329	0.400		0.010	0.006	0.006	0.003	0	0	0	0	0.018	85.0	28.0	
TL1	21.000		0	0	0	0	0	0	0	0	3.656	81.2	106.0	

Project:

ETAP

Page: 53

Location:

12.6.0H

Date: 12-06-2017

Contract:

SN:

Engineer:

Study Case: LF

Revision: Base

Filename: citra fix

Config.: Normal

* 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).

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 54
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	19.52	7.32					
Line10	Line	266.50	0.99	0.37					
Line12	Line	266.50	2.10	0.79					
Line18	Line	266.50	1.28	0.48					
Line22	Line	266.50	0.67	0.25					
Line26	Line	266.50	5.81	2.18					
Line30	Line	266.50	20.72	7.77					
Line36	Line	266.50	0.31	0.12					
Line37	Line	266.50	1.26	0.47					
Line44	Line	266.50	0.35	0.13					
Line45	Line	266.50	28.11	10.55					
Line47	Line	266.50	5.22	1.96					
Line48	Line	266.50	20.43	7.67					
Line55	Line	266.50	2.55	0.96					
Line56	Line	266.50	6.10	2.29					
Line57	Line	266.50	0.91	0.34					
Line58	Line	266.50	20.08	7.53					
Line60	Line	266.50	27.04	10.15					
Line62	Line	266.50	0.52	0.19					
Line76	Line	266.50	66.38	24.91					
Line77	Line	266.50	67.66	25.39					
Line78	Line	266.50	68.93	25.87					
Line79	Line	266.50	70.21	26.35					
Line82	Line	266.50	72.76	27.30					
Line84	Line	266.50	71.48	26.82					
Line86	Line	266.50	19.77	7.42					
Line160	Line	266.50	0.55	0.21					
P_Cuaca	Line	426.41	106.04	24.87					
PC1	Transformer				0.160	0.096	59.8	0.094	58.5
PC2	Transformer				0.100	0.049	49.0	0.048	48.1
PC3	Transformer				0.050	0.028	55.6	0.027	54.4
PC4	Transformer				0.160	0.059	36.9	0.058	36.4
PC5	Transformer				0.100	0.032	32.1	0.032	31.7

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 55
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
PC_06	Transformer				2.000	0.561	28.0	0.553	27.7
PC7	Transformer				0.050	0.011	22.9	0.011	22.7
PC8	Transformer				0.160	0.047	29.2	0.046	28.9
PC9	Transformer				0.100	0.033	32.9	0.032	32.4
PC10	Transformer				0.025	0.015	58.3	0.014	57.0
PC11	Transformer				0.100	0.051	51.4	0.050	50.3
PC12	Transformer				0.025	0.018	71.1	0.017	69.1
PC13	Transformer				0.050	0.031	62.8	0.031	61.3
PC14	Transformer				0.050	0.025	50.1	0.025	49.1
PC15	Transformer				0.050	0.008	15.7	0.008	15.6
PC16	Transformer				0.050	0.032	63.8	0.031	62.2
PC17	Transformer				0.160	0.027	17.1	0.027	17.0
PC18	Transformer				0.050	0.027	54.4	0.027	53.2
PC19	Transformer				0.100	0.023	23.2	0.023	23.0
PC20	Transformer				0.100	0.016	15.8	0.016	15.7
PC21	Transformer				0.100	0.045	44.7	0.044	43.9
PC22	Transformer				0.100	0.032	31.8	0.031	31.4
PC23	Transformer				0.100	0.035	35.3	0.035	34.8
PC24	Transformer				0.160	0.011	7.1	0.011	7.0
PC25	Transformer				0.050	0.010	19.0	0.009	18.9
PC26	Transformer				0.200	0.034	17.0	0.034	16.9
PC27	Transformer				0.100	0.015	14.6	0.015	14.5
PC28	Transformer				0.100	0.022	21.5	0.021	21.3
PC29	Transformer				0.100	0.025	25.4	0.025	25.2
PC30	Transformer				0.100	0.031	30.9	0.031	30.5
PC31	Transformer				0.050	0.032	64.5	0.031	62.9
PC32	Transformer				0.050	0.007	13.8	0.007	13.7
PC33	Transformer				0.100	0.015	14.7	0.015	14.6
PC34	Transformer				0.100	0.010	10.3	0.010	10.2
PC35	Transformer				0.100	0.016	16.0	0.016	15.9
PC36	Transformer				0.100	0.016	16.3	0.016	16.2
PC37	Transformer				0.050	0.004	8.8	0.004	8.8
PC38	Transformer				0.100	0.011	10.6	0.011	10.5
PC39	Transformer				0.100	0.012	12.0	0.012	12.0
PC40	Transformer				0.050	0.004	7.7	0.004	7.7

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 56
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	7.2	0.007	7.2
PC42	Transformer				0.100	0.013	12.7	0.013	12.6
PC43	Transformer				0.050	0.007	14.7	0.007	14.6
PC44	Transformer				0.100	0.009	8.8	0.009	8.8
PC45	Transformer				0.100	0.004	4.5	0.004	4.5
PC46	Transformer				0.100	0.018	18.4	0.018	18.3
PC47	Transformer				0.100	0.012	11.6	0.012	11.6
PC48	Transformer				0.100	0.020	20.2	0.020	20.1
PC49	Transformer				0.050	0.012	24.7	0.012	24.4
PC50	Transformer				0.050	0.007	14.9	0.007	14.8
* PC_56 MAJU TAMBAK SUMUR	Transformer				0.160	1.462	914.0	1.407	879.6
PC57	Transformer				0.160	0.009	5.7	0.009	5.7
PC58	Transformer				0.160	0.009	5.8	0.009	5.7
PC59	Transformer				0.160	0.007	4.4	0.007	4.3
PC60	Transformer				0.160	0.019	11.7	0.018	11.5
PC61	Transformer				0.160	0.015	9.6	0.015	9.5
PC_62	Transformer				0.160	0.008	4.8	0.008	4.7
PC_63	Transformer				0.160	0.017	10.6	0.017	10.5
PC79	Transformer				0.160	0.014	8.9	0.014	8.8
PC80	Transformer				0.160	0.018	11.2	0.018	11.0
PC81	Transformer				0.160	0.018	11.0	0.017	10.8
PC82	Transformer				0.160	0.010	6.5	0.010	6.5
PC86	Transformer				0.160	0.041	25.3	0.039	24.4
PC87	Transformer				0.160	0.010	6.1	0.010	6.0
PC88	Transformer				0.160	0.008	5.3	0.008	5.2
PC89	Transformer				0.160	0.014	8.6	0.014	8.5
PC90	Transformer				0.160	0.011	7.0	0.011	6.9
PC96	Transformer				0.160	0.041	25.3	0.039	24.4
PC97	Transformer				0.160	0.040	25.2	0.039	24.3
PC103	Transformer				0.160	0.040	25.1	0.039	24.2
PC104	Transformer				0.160	0.040	25.1	0.039	24.2
PC105	Transformer				0.160	0.040	25.1	0.039	24.2
PC153	Transformer				0.160	0.041	25.3	0.039	24.4
PC154	Transformer				0.160	0.040	25.3	0.039	24.4
PC155	Transformer				0.160	0.040	25.2	0.039	24.3

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 57
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
PC164	Transformer				0.160	0.017	10.3	0.016	10.2
PC165	Transformer				0.160	0.010	6.5	0.010	6.4
PC166	Transformer				0.160	0.011	6.9	0.011	6.8
T-KA 008	Transformer				0.100	0.031	30.8	0.030	30.5
T-KA 09	Transformer				0.050	0.018	36.8	0.018	36.3
T-KA 010	Transformer				0.200	0.082	41.0	0.081	40.3
T-KA 11	Transformer				0.100	0.028	27.5	0.027	27.3
T-KA 38	Transformer				0.050	0.016	32.8	0.016	32.4
T-KA 40	Transformer				0.031	0.018	57.8	0.018	57.0
T-KA 45	Transformer				0.250	0.133	53.1	0.130	52.0
T-KA 49	Transformer				0.016	0.009	54.9	0.009	54.2
T-KA 61	Transformer				0.031	0.011	35.4	0.011	35.1
T-KA 62	Transformer				0.031	0.020	64.1	0.020	63.1
T-KA 75	Transformer				0.031	0.008	24.6	0.008	24.4
T-KA 94	Transformer				0.050	0.015	30.8	0.015	30.5
T-PA 01	Transformer				0.031	0.017	54.1	0.017	53.4
T-PA 02	Transformer				0.200	0.106	53.1	0.104	52.0
T-PA 03	Transformer				0.031	0.013	41.0	0.013	40.6
T-PA 04	Transformer				0.031	0.020	63.6	0.020	62.6
T-PA 05	Transformer				0.031	0.009	29.0	0.009	28.7
T-PA 06	Transformer				0.031	0.007	22.0	0.007	21.9
T-PA 07	Transformer				0.100	0.041	41.4	0.041	40.8
T-PA 08	Transformer				0.031	0.013	40.7	0.013	40.3
T-PA 10	Transformer				0.031	0.016	51.0	0.016	50.4
T-PA 12	Transformer				0.031	0.015	48.7	0.015	48.1
T-PA 13	Transformer				0.031	0.015	48.0	0.015	47.4
T-PA 14	Transformer				0.100	0.028	28.3	0.028	28.1
T-PA 014	Transformer				0.031	0.019	60.7	0.019	59.7
T-PA 16	Transformer				0.031	0.018	57.0	0.018	56.2
T-PA 17	Transformer				0.031	0.013	42.4	0.013	42.0
T-PA 18	Transformer				0.031	0.012	38.8	0.012	38.5
T-PA 19	Transformer				0.031	0.019	59.1	0.018	58.3
T-PA 20	Transformer				0.031	0.020	63.3	0.020	62.3
T-PA 021	Transformer				0.200	0.077	38.4	0.076	37.8
T-PA 022	Transformer				0.200	0.105	52.4	0.103	51.3

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 58
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

CKT / Branch		Cable & Reactor			Transformer				
ID	Type	Ampacity (Amp)	Loading Amp	%	Capability (MVA)	Loading (input)		Loading (output)	
						MVA	%	MVA	%
T-PA 23	Transformer				0.031	0.014	43.8	0.014	43.3
T-PD 01	Transformer				0.050	0.021	42.7	0.021	42.0
T-PD 02	Transformer				0.050	0.008	16.0	0.008	15.9
T-PD 03	Transformer				0.050	0.020	39.4	0.019	38.8
T-PD 04	Transformer				0.050	0.026	52.6	0.026	52.1
T-PD 05	Transformer				0.050	0.016	31.8	0.016	31.3
T-PD 06	Transformer				0.050	0.014	28.4	0.014	28.0
T-PD 07	Transformer				0.050	0.018	36.1	0.018	35.6
T-PD 08	Transformer				0.050	0.028	56.2	0.027	54.9
T-PD 12	Transformer				0.050	0.018	35.1	0.017	34.6
T-PD 13	Transformer				0.100	0.048	48.1	0.047	47.3
T-PD 14	Transformer				0.050	0.018	36.6	0.018	36.1
T-PD 16	Transformer				0.050	0.011	21.4	0.011	21.2
T-PD 17	Transformer				0.050	0.012	24.8	0.012	24.5
T-PD 18	Transformer				0.050	0.028	55.7	0.027	54.4
T-PD 19	Transformer				0.050	0.010	20.2	0.010	20.0
T-PD 020	Transformer				0.050	0.023	45.3	0.022	44.5
* T-PD 21	Transformer				0.016	0.021	134.2	0.020	129.6
T-PD 22	Transformer				0.050	0.015	30.0	0.015	29.7
T-PD 23	Transformer				0.050	0.022	44.1	0.022	43.3
T-PD 024	Transformer				0.200	0.085	42.6	0.084	41.9
T51	Transformer				0.050	0.018	35.2	0.017	34.7
T56	Transformer				30.000	2.450	8.2	2.437	8.1
T187	Transformer				0.200	0.160	79.8	0.155	77.3
T188	Transformer				0.200	0.168	84.1	0.163	81.5
T189	Transformer				0.200	0.160	79.8	0.155	77.4
Trafo #2	Transformer				60.000	3.673	6.1	3.656	6.1

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

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 59
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Branch Losses Summary Report

CKT / Branch		From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd
ID		MW	Mvar	MW	Mvar	kW	kvar	From	To	% Drop in Vmag
SKTM_AL		2.541	1.696	-2.541	-1.696	0.0	0.0	91.6	91.6	0.00
Line1-2		-2.551	-1.702	2.553	1.706	2.5	4.2	91.6	91.8	0.13
PC7		0.010	0.006	-0.010	-0.006	0.0	0.1	91.6	90.8	0.81
SKTM_AL2		2.069	1.394	-2.069	-1.394	0.0	0.0	91.6	91.6	0.00
PC_06		0.472	0.303	-0.470	-0.291	1.6	11.1	91.6	90.5	1.19
Line2-2		-1.999	-1.347	2.001	1.350	1.6	2.6	91.5	91.6	0.10
Line3-2		1.973	1.331	-1.972	-1.328	1.5	2.5	91.5	91.4	0.10
PC30		0.026	0.017	-0.026	-0.016	0.2	0.4	91.5	90.4	1.09
Line4-1		-1.936	-1.304	1.938	1.306	1.5	2.5	91.3	91.4	0.10
Line82		1.909	1.286	-1.907	-1.283	1.9	3.1	91.3	91.2	0.13
PC31		0.027	0.017	-0.027	-0.017	0.4	0.9	91.3	89.0	2.30
Line5-2		0.514	0.335	-0.514	-0.335	0.1	0.2	90.5	90.5	0.03
Line86		-0.520	-0.338	0.520	0.339	0.1	0.2	90.5	90.6	0.04
PC32		0.006	0.004	-0.006	-0.004	0.0	0.0	90.5	90.0	0.49
Line6-2		0.501	0.327	-0.501	-0.327	0.1	0.2	90.5	90.5	0.03
PC33		0.012	0.008	-0.012	-0.008	0.0	0.1	90.5	90.0	0.52
PC34		-0.009	-0.005	0.009	0.005	0.0	0.0	90.1	90.5	0.37
Line7-2		-0.492	-0.321	0.493	0.321	0.1	0.2	90.5	90.5	0.03
Line8-2		0.479	0.313	-0.479	-0.312	0.1	0.1	90.5	90.4	0.02
PC35		0.014	0.009	-0.014	-0.008	0.0	0.1	90.5	89.9	0.57
PC36		-0.014	-0.009	0.014	0.009	0.0	0.1	89.9	90.4	0.58
Line9-2		0.465	0.304	-0.465	-0.304	0.1	0.1	90.4	90.4	0.02
Line10-2		0.461	0.301	-0.461	-0.301	0.1	0.1	90.4	90.4	0.02
PC37		0.004	0.002	-0.004	-0.002	0.0	0.0	90.4	90.1	0.32
Line11-2		0.452	0.296	-0.452	-0.295	0.1	0.1	90.4	90.4	0.02
PC38		0.009	0.006	-0.009	-0.006	0.0	0.1	90.4	90.0	0.38
Line12-2		0.003	0.002	-0.003	-0.002	0.0	0.0	90.4	90.4	0.00
Line15-2		0.439	0.287	-0.438	-0.287	0.1	0.1	90.4	90.3	0.02
PC39		0.010	0.006	-0.010	-0.006	0.0	0.1	90.4	89.9	0.43
Line13-2		0.432	0.283	-0.432	-0.283	0.1	0.1	90.3	90.3	0.02
Line14-2		0.006	0.004	-0.006	-0.004	0.0	0.0	90.3	90.3	0.00
PC40		0.003	0.002	-0.003	-0.002	0.0	0.0	90.4	90.1	0.27
Line16-2		0.422	0.276	-0.421	-0.276	0.1	0.1	90.3	90.3	0.02
PC42		0.011	0.007	-0.011	-0.007	0.0	0.1	90.3	89.9	0.45
PC41		0.006	0.004	-0.006	-0.004	0.0	0.0	90.3	90.1	0.26

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 60
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	0.408	0.268	-0.408	-0.267	0.2	0.2	90.3	90.2	0.05
Line17-2	0.008	0.005	-0.008	-0.005	0.0	0.0	90.3	90.3	0.00
PC43	0.006	0.004	-0.006	-0.004	0.0	0.0	90.3	89.8	0.53
PC44	0.008	0.005	-0.007	-0.005	0.0	0.0	90.3	90.0	0.32
Line1	2.967	2.134	-2.847	-1.934	120.5	200.7	94.8	89.2	5.54
P_Cuaca	-2.967	-2.134	2.968	2.136	0.7	1.2	94.8	94.8	0.03
Line21	2.847	1.934	-2.840	-1.923	6.7	11.1	89.2	93.4	0.31
Trafo #2	2.968	2.164	-2.968	-2.136	0.6	28.1	100.0	99.5	0.46
Outgoing	2.968	2.136	-2.968	-2.136	0.1	0.1	99.5	94.8	0.00
Line160	-0.015	-0.009	0.015	0.009	0.0	0.0	91.6	91.6	0.02
T51	0.015	0.009	-0.015	-0.009	0.2	0.2	91.6	90.2	1.40
Line32	2.075	1.277	-2.073	-1.275	1.8	1.9	99.4	99.3	0.11
T56	-2.075	-1.277	2.076	1.302	0.6	25.0	99.4	100.0	0.56
Line65	-1.992	-1.222	1.993	1.222	0.6	0.6	99.0	99.0	0.04
Line66	1.880	1.152	-1.879	-1.151	0.5	0.5	99.0	98.9	0.04
Line67	0.112	0.070	-0.112	-0.071	0.0	-0.9	99.0	98.9	0.01
Line68	-1.809	-1.106	1.810	1.107	1.2	1.1	98.8	98.9	0.09
Line70	1.794	1.097	-1.792	-1.096	1.7	1.6	98.8	98.7	0.13
Line183	0.015	0.009	-0.015	-0.010	0.0	-0.5	98.8	98.8	0.00
Line71	1.792	1.096	-1.789	-1.094	3.0	1.5	98.7	98.5	0.17
Line161	1.407	0.855	-1.405	-0.854	2.3	0.9	96.2	96.0	0.17
Line187	-1.651	-0.998	1.652	0.999	0.7	0.6	96.2	96.2	0.05
Line190	0.244	0.143	-0.244	-0.144	0.0	-0.6	96.2	96.2	0.02
Line162	0.065	0.040	-0.065	-0.041	0.0	-1.1	96.0	96.0	0.01
Line216	1.340	0.815	-1.339	-0.814	0.9	0.3	96.0	96.0	0.07
Line166	-1.305	-0.794	1.308	0.795	3.2	1.1	95.6	95.9	0.25
Line168	0.089	0.056	-0.089	-0.056	0.0	-0.4	95.6	95.6	0.01
Line171	1.216	0.738	-1.214	-0.738	2.0	0.6	95.6	95.4	0.17
Line174	0.072	0.045	-0.072	-0.045	0.0	-0.2	95.1	95.0	0.00
Line175	1.110	0.674	-1.110	-0.674	0.2	0.0	95.1	95.0	0.02
Line218	-1.183	-0.719	1.183	0.720	0.7	0.2	95.1	95.1	0.06
Line184	-1.735	-1.059	1.736	1.060	0.4	0.4	98.3	98.3	0.03
Line185	1.735	1.059	-1.731	-1.055	4.5	4.2	98.3	97.9	0.34
Line196	-0.124	-0.070	0.124	0.069	0.0	-0.4	96.2	96.2	0.01
Line200	0.124	0.070	-0.124	-0.070	0.0	-0.4	96.2	96.1	0.01
Line214	0.000	0.000	0.000	-0.002	0.0	-2.4	96.1	96.1	0.00
Line172	-1.183	-0.720	1.184	0.720	1.0	0.3	95.1	95.2	0.09

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 61
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
Line225	-0.817	-0.502	0.818	0.502	0.6	-0.1	94.3	94.4	0.07
Line227	0.817	0.502	-0.815	-0.503	2.3	-0.4	94.3	94.0	0.28
Line219	-0.184	-0.107	0.184	0.106	0.1	-1.2	94.4	94.4	0.04
Line231	0.184	0.107	-0.183	-0.108	0.1	-1.2	94.4	94.4	0.04
T187	-0.131	-0.081	0.133	0.087	1.9	5.9	87.5	90.2	2.73
Cable14	-0.133	-0.087	0.133	0.087	0.0	0.0	90.2	90.2	0.02
T188	-0.138	-0.086	0.141	0.092	2.1	6.6	87.3	90.2	2.88
Cable15	-0.141	-0.092	0.141	0.092	0.0	0.0	90.2	90.2	0.02
T189	0.133	0.087	-0.132	-0.082	1.9	5.9	90.2	87.5	2.73
Line1-1	2.840	1.923	-2.823	-1.895	16.7	27.9	93.4	92.6	0.80
Line2	0.028	0.018	-0.028	-0.018	0.0	0.0	92.6	92.6	0.01
Line3	2.795	1.877	-2.786	-1.861	9.8	16.4	92.6	92.1	0.48
PC9	0.028	0.018	-0.028	-0.017	0.2	0.5	92.6	91.4	1.15
Line5	2.746	1.836	-2.743	-1.830	3.2	5.3	92.1	91.9	0.16
PC8	0.039	0.025	-0.039	-0.024	0.2	0.6	92.1	91.1	0.97
Line7	2.730	1.822	-2.726	-1.817	3.2	5.3	91.9	91.8	0.16
PC20	0.013	0.008	-0.013	-0.008	0.0	0.1	91.9	91.4	0.56
Line9	0.147	0.093	-0.147	-0.093	0.0	0.0	91.8	91.8	0.02
PC13	0.026	0.017	-0.026	-0.016	0.4	0.9	91.8	89.5	2.23
Line11	0.097	0.062	-0.097	-0.062	0.0	0.0	91.8	91.7	0.01
PC4	0.050	0.032	-0.049	-0.031	0.3	1.0	91.8	90.5	1.23
Line13	0.021	0.013	-0.021	-0.013	0.0	0.0	91.7	91.7	0.00
Line14	0.023	0.015	-0.023	-0.015	0.0	0.0	91.7	91.7	0.01
Line15	0.015	0.010	-0.015	-0.010	0.0	0.0	91.7	91.7	0.00
Line16	0.038	0.024	-0.038	-0.024	0.0	0.0	91.7	91.7	0.01
PC14	0.021	0.013	-0.021	-0.013	0.2	0.6	91.7	90.0	1.77
PC21	0.038	0.024	-0.037	-0.023	0.4	0.9	91.7	90.2	1.58
PC17	0.023	0.015	-0.023	-0.014	0.1	0.2	91.7	91.1	0.68
PC12	0.015	0.010	-0.015	-0.009	0.2	0.6	91.7	89.2	2.52
Line20	-0.023	-0.015	0.023	0.015	0.0	0.0	91.5	91.5	0.00
PC3	0.023	0.015	-0.023	-0.014	0.3	0.7	91.5	89.5	1.97
Line24	-0.050	-0.032	0.050	0.032	0.0	0.0	91.5	91.5	0.01
PC22	0.027	0.017	-0.027	-0.017	0.2	0.4	91.5	90.4	1.13
Line23	-0.077	-0.049	0.077	0.049	0.0	0.0	91.5	91.5	0.01
PC5	0.027	0.017	-0.027	-0.017	0.2	0.5	91.5	90.4	1.14
Line25	-0.107	-0.068	0.107	0.068	0.0	0.0	91.5	91.5	0.01
PC23	0.030	0.019	-0.030	-0.018	0.2	0.6	91.5	90.2	1.25

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 62
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
Line27	-0.149	-0.094	0.149	0.095	0.0	0.0	91.5	91.5	0.01
PC2	0.041	0.026	-0.041	-0.025	0.4	1.1	91.5	89.8	1.74
Line28	0.004	0.002	-0.004	-0.002	0.0	0.0	91.5	91.5	0.00
Line29	-0.152	-0.097	0.152	0.097	0.0	0.0	91.5	91.5	0.01
PC45	0.004	0.002	-0.004	-0.002	0.0	0.0	91.5	91.4	0.16
Line6	-0.522	-0.332	0.522	0.332	0.1	0.2	91.5	91.6	0.03
Line31	0.096	0.060	-0.096	-0.060	0.0	0.0	91.5	91.5	0.01
Line42	0.193	0.123	-0.193	-0.123	0.0	0.0	91.5	91.5	0.01
PC1	0.080	0.052	-0.080	-0.049	0.8	2.6	91.5	89.5	2.01
line1	0.152	0.097	-0.152	-0.097	0.0	0.0	91.5	91.5	0.01
Line43	0.022	0.014	-0.022	-0.014	0.0	0.0	91.5	91.5	0.00
PC19	0.020	0.012	-0.020	-0.012	0.1	0.2	91.5	90.7	0.82
PC29	0.022	0.014	-0.021	-0.013	0.1	0.3	91.5	90.6	0.90
line2	0.129	0.082	-0.129	-0.082	0.0	0.0	91.5	91.5	0.01
PC18	0.023	0.015	-0.023	-0.014	0.3	0.7	91.5	89.6	1.93
Line46	0.012	0.008	-0.012	-0.008	0.0	0.0	91.5	91.5	0.00
Line49	0.117	0.074	-0.117	-0.074	0.0	0.0	91.5	91.5	0.01
PC27	0.012	0.008	-0.012	-0.008	0.0	0.1	91.5	91.0	0.52
PC10	-0.012	-0.008	0.012	0.008	0.2	0.4	89.4	91.5	2.07
line	0.105	0.067	-0.105	-0.067	0.0	0.0	91.5	91.5	0.01
Line50	0.027	0.017	-0.027	-0.017	0.0	0.0	91.5	91.5	0.00
Line53	0.071	0.045	-0.071	-0.045	0.0	0.0	91.5	91.5	0.00
PC15	0.007	0.004	-0.007	-0.004	0.0	0.1	91.5	90.9	0.56
Line51	0.018	0.011	-0.018	-0.011	0.0	0.0	91.5	91.5	0.00
Line52	0.053	0.034	-0.053	-0.034	0.0	0.0	91.5	91.5	0.00
PC28	0.018	0.011	-0.018	-0.011	0.1	0.2	91.5	90.7	0.76
Line54	0.043	0.028	-0.043	-0.028	0.0	0.0	91.5	91.5	0.00
PC24	0.010	0.006	-0.010	-0.006	0.0	0.0	91.5	91.2	0.24
PC11	0.043	0.028	-0.043	-0.027	0.5	1.2	91.5	89.7	1.82
PC16	0.027	0.017	-0.026	-0.016	0.4	0.9	91.5	89.2	2.27
Line33	0.088	0.055	-0.088	-0.055	0.0	0.0	91.5	91.5	0.00
PC25	0.008	0.005	-0.008	-0.005	0.0	0.1	91.5	90.9	0.67
Line34	0.059	0.037	-0.059	-0.037	0.0	0.0	91.5	91.5	0.01
PC26	0.029	0.018	-0.029	-0.018	0.1	0.3	91.5	91.0	0.57
Line35	0.044	0.027	-0.044	-0.027	0.0	0.0	91.5	91.5	0.00
PC46	0.016	0.010	-0.016	-0.010	0.1	0.2	91.5	90.9	0.65
Line38	0.034	0.021	-0.034	-0.021	0.0	0.0	91.5	91.5	0.00

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 63
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
Line39	0.010	0.006	-0.010	-0.006	0.0	0.0	91.5	91.5	0.00
Line40	0.017	0.011	-0.017	-0.011	0.0	0.0	91.5	91.5	0.00
PC48	0.017	0.011	-0.017	-0.011	0.1	0.2	91.5	90.8	0.72
Line41	0.006	0.004	-0.006	-0.004	0.0	0.0	91.5	91.5	0.00
PC49	0.010	0.007	-0.010	-0.006	0.1	0.1	91.5	90.6	0.87
PC50	0.006	0.004	-0.006	-0.004	0.0	0.0	91.5	91.0	0.53
PC47	0.010	0.006	-0.010	-0.006	0.0	0.1	91.5	91.1	0.41
Line58	-0.537	-0.342	0.538	0.342	0.1	0.2	91.6	91.6	0.04
PC80	0.015	0.010	-0.015	-0.009	0.2	0.3	91.6	90.1	1.42
Line18	-0.034	-0.022	0.034	0.022	0.0	0.0	91.6	91.6	0.00
PC86	0.034	0.022	-0.033	-0.021	0.9	1.3	91.6	88.4	3.23
Line44	-0.009	-0.006	0.009	0.006	0.0	0.0	91.6	91.6	0.00
PC166	0.009	0.006	-0.009	-0.006	0.1	0.1	91.6	90.8	0.87
Line22	-0.018	-0.011	0.018	0.011	0.0	0.0	91.6	91.6	0.00
PC165	0.009	0.006	-0.009	-0.005	0.1	0.1	91.6	90.8	0.83
Line57	-0.025	-0.015	0.025	0.015	0.0	0.0	91.6	91.6	0.00
PC_62	0.006	0.004	-0.006	-0.004	0.0	0.0	91.6	91.0	0.61
Line26	0.156	0.098	-0.156	-0.098	0.0	0.0	91.7	91.7	0.01
Line56	-0.164	-0.103	0.164	0.103	0.0	0.0	91.7	91.7	0.01
PC58	0.008	0.005	-0.008	-0.005	0.0	0.1	91.7	90.9	0.74
Line30	-0.555	-0.353	0.555	0.353	0.2	0.3	91.6	91.7	0.04
Line48	0.547	0.348	-0.547	-0.348	0.1	0.2	91.6	91.6	0.04
PC57	0.008	0.005	-0.008	-0.005	0.0	0.1	91.6	90.9	0.73
PC90	0.009	0.006	-0.009	-0.006	0.1	0.1	91.6	90.7	0.89
Line60	-0.725	-0.460	0.725	0.461	0.3	0.4	91.7	91.7	0.05
PC59	0.006	0.004	-0.006	-0.004	0.0	0.0	91.7	91.1	0.56
Line47	0.140	0.088	-0.140	-0.088	0.0	0.0	91.7	91.6	0.01
PC60	0.016	0.010	-0.016	-0.010	0.2	0.3	91.7	90.2	1.49
Line55	0.068	0.043	-0.068	-0.043	0.0	0.0	91.6	91.6	0.00
PC61	0.013	0.008	-0.013	-0.008	0.1	0.2	91.6	90.4	1.23
T-KA 008	-0.026	-0.016	0.026	0.016	0.1	0.4	98.3	99.3	1.00
Line181	2.047	1.259	-2.047	-1.258	0.7	0.7	99.3	99.3	0.04
T-KA 49	-0.007	-0.004	0.007	0.005	0.1	0.1	98.0	99.3	1.26
Line61	2.039	1.253	-2.039	-1.253	0.8	0.8	99.3	99.2	0.05
T-KA 94	-0.013	-0.008	0.013	0.008	0.1	0.2	98.1	99.2	1.13
Line63	2.026	1.244	-2.025	-1.244	0.8	0.9	99.2	99.2	0.05
T-KA 09	-0.015	-0.010	0.016	0.010	0.2	0.2	97.8	99.2	1.35

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 64
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
Line64	2.009	1.234	-2.007	-1.231	2.7	2.8	99.2	99.0	0.18
T-KA 38	-0.014	-0.009	0.014	0.009	0.1	0.2	97.8	99.0	1.21
T-KA 45	-0.111	-0.068	0.112	0.071	1.6	2.4	97.0	98.9	1.96
T-KA 010	-0.069	-0.042	0.069	0.044	0.8	1.1	97.4	98.9	1.51
T-KA 40	-0.015	-0.009	0.015	0.010	0.1	0.2	97.5	98.8	1.34
Line36	-0.008	-0.005	0.008	0.005	0.0	0.0	91.6	91.6	0.00
PC87	0.008	0.005	-0.008	-0.005	0.1	0.1	91.6	90.9	0.78
Line10	0.027	0.017	-0.027	-0.017	0.0	0.0	91.6	91.6	0.00
Line37	-0.034	-0.021	0.034	0.021	0.0	0.0	91.6	91.6	0.00
PC88	0.007	0.004	-0.007	-0.004	0.0	0.1	91.6	91.0	0.67
Line12	-0.056	-0.035	0.056	0.035	0.0	0.0	91.6	91.6	0.00
PC_63	0.014	0.009	-0.014	-0.009	0.2	0.2	91.6	90.3	1.35
PC89	0.012	0.007	-0.012	-0.007	0.1	0.2	91.6	90.5	1.10
PC79	0.012	0.008	-0.012	-0.007	0.1	0.2	91.6	90.5	1.13
Line45	-0.754	-0.479	0.754	0.479	0.3	0.5	91.7	91.8	0.05
Line62	0.014	0.009	-0.014	-0.009	0.0	0.0	91.7	91.7	0.00
PC81	0.015	0.009	-0.015	-0.009	0.2	0.2	91.7	90.3	1.40
Line239	-0.763	-0.485	0.779	0.482	15.9	-3.1	91.8	93.8	2.00
PC82	0.009	0.006	-0.009	-0.005	0.1	0.1	91.8	91.0	0.83
T-KA 11	-0.023	-0.014	0.023	0.015	0.1	0.3	97.6	98.5	0.90
Line72	1.766	1.079	-1.764	-1.078	1.5	1.4	98.5	98.4	0.11
PC164	0.014	0.009	-0.014	-0.009	0.1	0.2	91.7	90.4	1.31
T-KA 61	-0.009	-0.006	0.009	0.006	0.1	0.1	97.6	98.4	0.82
Line73	1.755	1.072	-1.753	-1.071	1.8	1.7	98.4	98.3	0.13
T-KA 62	-0.017	-0.010	0.017	0.011	0.2	0.3	96.8	98.3	1.49
T-KA 75	-0.007	-0.004	0.007	0.004	0.0	0.0	97.3	97.9	0.57
Line74	1.724	1.051	-1.718	-1.046	6.0	5.6	97.9	97.4	0.46
T-PA 18	-0.010	-0.006	0.010	0.006	0.1	0.1	96.5	97.4	0.91
Line75	1.708	1.039	-1.706	-1.037	2.3	2.1	97.4	97.3	0.18
T-PA 17	-0.011	-0.007	0.011	0.007	0.1	0.1	96.3	97.3	1.00
Line80	1.694	1.030	-1.684	-1.020	10.8	10.1	97.3	96.4	0.84
T-PA 16	-0.015	-0.009	0.015	0.010	0.2	0.2	95.1	96.4	1.35
Line81	1.669	1.010	-1.666	-1.008	2.3	2.2	96.4	96.2	0.18
T-PA 01	-0.014	-0.009	0.014	0.009	0.1	0.2	95.0	96.2	1.29
T-PA 02	-0.088	-0.055	0.090	0.057	1.4	2.0	94.2	96.2	2.01
Line191	0.154	0.087	-0.154	-0.088	0.0	-1.0	96.2	96.2	0.01
PC153	-0.033	-0.021	0.034	0.022	0.9	1.3	88.4	91.6	3.23

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 65
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
PC103	-0.033	-0.020	0.034	0.022	0.9	1.3	87.7	90.9	3.23
PC104	-0.033	-0.020	0.034	0.022	0.9	1.3	87.6	90.8	3.23
PC105	-0.033	-0.020	0.034	0.022	0.9	1.3	87.5	90.7	3.23
PC_56 MAJU TAMBAK SUMUR PC96	-1.196	-0.741	1.210	0.822	13.4	80.4	87.2	90.6	3.41
PC96	-0.033	-0.021	0.034	0.022	0.9	1.3	88.4	91.6	3.23
SKTM_AL4	2.035	1.372	-2.035	-1.372	0.0	0.0	91.6	91.6	0.00
Line76	-1.730	-1.160	1.731	1.163	1.6	2.6	90.6	90.7	0.12
Line77	-1.765	-1.185	1.767	1.187	1.6	2.7	90.7	90.8	0.12
Line78	-1.800	-1.209	1.802	1.212	1.7	2.8	90.8	90.9	0.13
Line79	-1.836	-1.234	1.838	1.237	1.8	2.9	90.9	91.1	0.13
Line84	-1.871	-1.258	1.873	1.261	1.8	3.0	91.1	91.2	0.13
PC97	0.034	0.022	-0.033	-0.020	0.9	1.3	91.1	87.8	3.23
PC154	0.034	0.022	-0.033	-0.021	0.9	1.3	91.4	88.2	3.23
T-PA 13	-0.013	-0.008	0.013	0.008	0.1	0.2	95.0	96.2	1.14
T-PA 04	-0.017	-0.010	0.017	0.011	0.2	0.3	94.6	96.2	1.51
PC155	0.034	0.022	-0.033	-0.020	0.9	1.3	91.2	88.0	3.23
T-PA 19	-0.016	-0.010	0.016	0.010	0.2	0.2	94.7	96.1	1.41
T-PA 06	-0.006	-0.004	0.006	0.004	0.0	0.0	95.6	96.1	0.52
Line204	-0.089	-0.051	0.089	0.050	0.0	-0.9	96.1	96.1	0.01
Line206	0.083	0.047	-0.083	-0.048	0.0	-0.6	96.1	96.1	0.01
Line202	-0.105	-0.060	0.105	0.059	0.0	-0.9	96.1	96.1	0.01
Line193	-0.141	-0.080	0.141	0.080	0.0	-0.2	96.2	96.2	0.00
T-PA 07	-0.035	-0.022	0.035	0.022	0.3	0.7	94.7	96.1	1.40
Line208	0.048	0.026	-0.048	-0.026	0.0	-0.2	96.1	96.1	0.00
T-PA 14	-0.024	-0.015	0.024	0.015	0.1	0.3	95.2	96.1	0.95
Line210	0.024	0.011	-0.024	-0.011	0.0	-0.9	96.1	96.1	0.00
T-PA 08	-0.011	-0.007	0.011	0.007	0.1	0.1	95.2	96.1	0.97
T-PA 10	-0.013	-0.008	0.014	0.009	0.1	0.2	94.9	96.1	1.21
Line212	-0.014	-0.006	0.014	0.005	0.0	-1.4	96.1	96.1	0.00
T-PA 021	-0.064	-0.040	0.065	0.041	0.7	1.1	94.6	96.0	1.46
T-PA 20	-0.017	-0.010	0.017	0.011	0.2	0.3	94.5	96.0	1.51
T-PA 12	-0.013	-0.008	0.013	0.008	0.1	0.2	94.7	95.9	1.16
Line164	-1.321	-0.803	1.322	0.804	1.3	0.5	95.9	96.0	0.10
T-PA 022	-0.087	-0.054	0.089	0.056	1.3	2.0	93.6	95.6	2.00
T-PA 014	-0.016	-0.010	0.016	0.010	0.2	0.3	93.7	95.2	1.46
Line170	-1.200	-0.730	1.203	0.731	3.0	0.9	95.2	95.4	0.25
T-PA 03	0.011	0.007	-0.011	-0.007	0.1	0.1	95.4	94.5	0.98

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 66
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	
T-PD 024	-0.071	-0.044	0.072	0.045	0.9	1.3	93.4	95.0	1.64
T-PD 08	-0.023	-0.014	0.024	0.015	0.4	0.6	92.9	95.0	2.16
Line176	1.087	0.659	-1.083	-0.658	3.8	0.8	95.0	94.7	0.35
T-PD 21	-0.017	-0.011	0.018	0.011	0.4	0.7	91.4	94.7	3.25
Line177	1.065	0.647	-1.064	-0.646	1.5	0.3	94.7	94.5	0.14
T-PD 06	-0.012	-0.007	0.012	0.008	0.1	0.1	93.5	94.5	1.09
Line178	1.052	0.639	-1.051	-0.639	0.4	0.1	94.5	94.5	0.03
T-PD 12	-0.015	-0.009	0.015	0.009	0.2	0.2	93.2	94.5	1.35
Line179	1.036	0.630	-1.036	-0.629	0.7	0.1	94.5	94.4	0.07
T-PD 01	-0.018	-0.011	0.018	0.011	0.2	0.3	92.8	94.4	1.65
Line221	0.834	0.512	-0.834	-0.512	0.2	0.0	94.4	94.4	0.02
T-PA 23	-0.012	-0.007	0.012	0.007	0.1	0.1	95.1	96.1	1.04
T-PA 05	-0.008	-0.005	0.008	0.005	0.0	0.1	95.5	96.1	0.69
Line198	-0.113	-0.064	0.113	0.063	0.0	-0.5	96.1	96.1	0.01
T-PD 19	-0.009	-0.005	0.009	0.005	0.1	0.1	93.6	94.4	0.78
Line223	0.825	0.507	-0.825	-0.507	0.4	-0.1	94.4	94.4	0.05
T-PD 02	-0.007	-0.004	0.007	0.004	0.0	0.0	93.8	94.4	0.62
T-PD 17	-0.010	-0.006	0.011	0.007	0.1	0.1	93.1	94.0	0.96
Line229	0.805	0.496	-0.804	-0.496	0.6	-0.1	94.0	94.0	0.07
Line233	0.804	0.496	-0.803	-0.496	0.6	-0.1	94.0	93.9	0.07
T-PD 18	-0.023	-0.014	0.024	0.015	0.4	0.6	91.6	93.8	2.17
Line237	-0.803	-0.497	0.803	0.497	0.3	-0.1	93.8	93.8	0.04
Line235	0.803	0.496	-0.803	-0.497	0.6	-0.1	93.9	93.8	0.07
Line241	0.167	0.098	-0.167	-0.099	0.0	-1.1	94.4	94.3	0.03
T-PD 03	0.017	0.011	-0.016	-0.010	0.2	0.3	94.4	92.9	1.52
Line243	0.154	0.091	-0.154	-0.091	0.0	-0.5	94.3	94.3	0.01
T-PD 22	0.013	0.008	-0.013	-0.008	0.1	0.2	94.3	93.2	1.16
Line245	0.139	0.082	-0.139	-0.082	0.0	-0.4	94.3	94.3	0.01
T-PD 07	0.015	0.010	-0.015	-0.009	0.2	0.2	94.3	92.9	1.39
T-PD 13	-0.040	-0.025	0.041	0.026	0.4	1.0	92.7	94.3	1.66
Line247	0.098	0.056	-0.098	-0.057	0.0	-0.2	94.3	94.3	0.00
Line249	0.076	0.043	-0.076	-0.045	0.0	-2.0	94.3	94.3	0.03
T-PD 04	0.022	0.014	-0.022	-0.014	0.2	0.3	94.3	93.3	1.02
Line251	0.057	0.033	-0.057	-0.033	0.0	-0.5	94.3	94.3	0.00
T-PD 020	0.019	0.012	-0.019	-0.012	0.3	0.4	94.3	92.5	1.75
Line257	0.043	0.025	-0.043	-0.025	0.0	-0.8	94.3	94.3	0.01
T-PD 05	0.013	0.008	-0.013	-0.008	0.1	0.2	94.3	93.1	1.23

CKT / Branch	From-To Bus Flow		To-From Bus Flow		Losses		% Bus Voltage		Vd
	MW	Mvar	MW	Mvar	kW	kvar	From	To	% Drop in Vmag
T-PD 23	-0.018	-0.011	0.019	0.012	0.2	0.4	92.6	94.3	1.70
T-PD 16	-0.009	-0.006	0.009	0.006	0.1	0.1	93.5	94.3	0.83
Line254	-0.009	-0.006	0.009	0.004	0.0	-1.5	94.3	94.3	0.00
Line255	-0.028	-0.016	0.028	0.016	0.0	-0.3	94.3	94.3	0.00
T-PD 14	0.015	0.010	-0.015	-0.009	0.2	0.3	94.3	92.9	1.42
					320.0	538.0			

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 68
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

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	18.33	91.6	3-Phase
AL10	Bus	Under Voltage	0.40	kV	0.36	90.0	3-Phase
AL11	Bus	Under Voltage	20.00	kV	18.10	90.5	3-Phase
AL14	Bus	Under Voltage	0.40	kV	0.36	90.1	3-Phase
AL15	Bus	Under Voltage	20.00	kV	18.09	90.5	3-Phase
AL16	Bus	Under Voltage	0.40	kV	0.36	89.9	3-Phase
AL17	Bus	Under Voltage	0.40	kV	0.36	89.9	3-Phase
AL18	Bus	Under Voltage	20.00	kV	18.09	90.4	3-Phase
AL19	Bus	Under Voltage	20.00	kV	18.08	90.4	3-Phase
AL2	Bus	Under Voltage	0.40	kV	0.36	90.8	3-Phase
AL20	Bus	Under Voltage	0.40	kV	0.36	90.1	3-Phase
AL21	Bus	Under Voltage	20.00	kV	18.08	90.4	3-Phase
AL22	Bus	Under Voltage	0.40	kV	0.36	90.0	3-Phase
AL23	Bus	Under Voltage	20.00	kV	18.07	90.4	3-Phase
AL24	Bus	Under Voltage	0.40	kV	0.36	89.9	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 69
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
AL25	Bus	Under Voltage	20.00	kV	18.07	90.3	3-Phase
AL26	Bus	Under Voltage	20.00	kV	18.07	90.4	3-Phase
AL27	Bus	Under Voltage	0.40	kV	0.36	90.1	3-Phase
AL28	Bus	Under Voltage	20.00	kV	18.06	90.3	3-Phase
AL29	Bus	Under Voltage	20.00	kV	18.07	90.3	3-Phase
AL3	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
AL30	Bus	Under Voltage	0.40	kV	0.36	90.1	3-Phase
AL31	Bus	Under Voltage	0.40	kV	0.36	89.9	3-Phase
AL32	Bus	Under Voltage	20.00	kV	18.06	90.3	3-Phase
AL34	Bus	Under Voltage	0.40	kV	0.36	89.8	3-Phase
AL35	Bus	Under Voltage	20.00	kV	18.06	90.3	3-Phase
AL36	Bus	Under Voltage	0.40	kV	0.36	90.0	3-Phase
AL38	Bus	Under Voltage	0.40	kV	0.36	90.0	3-Phase
AL39	Bus	Under Voltage	20.00	kV	18.10	90.5	3-Phase
AL4	Bus	Under Voltage	0.40	kV	0.36	90.5	3-Phase
AL5	Bus	Under Voltage	20.00	kV	18.31	91.5	3-Phase
AL6	Bus	Under Voltage	0.40	kV	0.36	90.4	3-Phase
AL7	Bus	Under Voltage	20.00	kV	18.27	91.3	3-Phase
AL8	Bus	Under Voltage	0.40	kV	0.36	89.0	3-Phase
AL9	Bus	Under Voltage	20.00	kV	18.11	90.5	3-Phase
Bus1	Bus	Under Voltage	21.00	kV	19.90	94.8	3-Phase
Bus138	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
Bus139	Bus	Under Voltage	20.00	kV	18.88	94.4	3-Phase
Bus2	Bus	Under Voltage	21.00	kV	18.74	89.2	3-Phase
Bus37	Bus	Under Voltage	20.00	kV	18.32	91.6	3-Phase
Bus428	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
Bus429	Bus	Under Voltage	20.00	kV	18.04	90.2	3-Phase
Bus430	Bus	Under Voltage	0.40	kV	0.35	87.3	3-Phase
Bus431	Bus	Under Voltage	20.00	kV	18.04	90.2	3-Phase
Bus432	Bus	Under Voltage	20.00	kV	18.05	90.2	3-Phase
Bus433	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
Bus97	Bus	Under Voltage	0.40	kV	0.36	90.2	3-Phase
P10	Bus	Under Voltage	20.00	kV	18.35	91.8	3-Phase
P11	Bus	Under Voltage	0.40	kV	0.36	89.5	3-Phase
P12	Bus	Under Voltage	20.00	kV	18.35	91.8	3-Phase
P126	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 70
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P127	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase
P128	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P129	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P13	Bus	Under Voltage	0.40	kV	0.36	90.5	3-Phase
P130	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P131	Bus	Under Voltage	0.40	kV	0.36	90.3	3-Phase
P132	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P133	Bus	Under Voltage	0.40	kV	0.36	90.5	3-Phase
P134	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P135	Bus	Under Voltage	0.40	kV	0.36	90.5	3-Phase
P136	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P137	Bus	Under Voltage	0.40	kV	0.36	90.3	3-Phase
P138	Bus	Under Voltage	20.00	kV	18.36	91.8	3-Phase
P139	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P14	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P142	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P143	Bus	Under Voltage	0.40	kV	0.36	90.4	3-Phase
P15	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P158	Bus	Under Voltage	0.40	kV	0.38	95.0	3-Phase
P16	Bus	Under Voltage	0.40	kV	0.36	90.0	3-Phase
P162	Bus	Under Voltage	0.40	kV	0.38	94.2	3-Phase
P164	Bus	Under Voltage	0.40	kV	0.35	88.4	3-Phase
P165	Bus	Under Voltage	0.40	kV	0.35	87.7	3-Phase
P166	Bus	Under Voltage	0.40	kV	0.35	87.6	3-Phase
P167	Bus	Under Voltage	0.40	kV	0.35	87.5	3-Phase
P168	Bus	Under Voltage	0.40	kV	0.35	87.2	3-Phase
P17	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P172	Bus	Under Voltage	0.40	kV	0.35	88.4	3-Phase
P173	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P177	Bus	Under Voltage	20.00	kV	18.11	90.6	3-Phase
P178	Bus	Under Voltage	20.00	kV	18.14	90.7	3-Phase
P179	Bus	Under Voltage	20.00	kV	18.16	90.8	3-Phase
P18	Bus	Under Voltage	0.40	kV	0.36	90.2	3-Phase
P180	Bus	Under Voltage	20.00	kV	18.19	90.9	3-Phase
P181	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P182	Bus	Under Voltage	20.00	kV	18.21	91.1	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 71
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P183	Bus	Under Voltage	0.40	kV	0.35	87.8	3-Phase
P186	Bus	Under Voltage	20.00	kV	18.29	91.4	3-Phase
P187	Bus	Under Voltage	0.40	kV	0.35	88.2	3-Phase
P189	Bus	Under Voltage	0.40	kV	0.38	94.6	3-Phase
P19	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P190	Bus	Under Voltage	20.00	kV	18.24	91.2	3-Phase
P191	Bus	Under Voltage	0.40	kV	0.35	88.0	3-Phase
P192	Bus	Under Voltage	0.40	kV	0.38	94.7	3-Phase
P2	Bus	Under Voltage	20.00	kV	18.67	93.4	3-Phase
P20	Bus	Under Voltage	0.40	kV	0.36	91.1	3-Phase
P200	Bus	Under Voltage	0.40	kV	0.38	94.7	3-Phase
P209	Bus	Under Voltage	0.40	kV	0.38	94.9	3-Phase
P21	Bus	Under Voltage	20.00	kV	18.35	91.7	3-Phase
P214	Bus	Under Voltage	0.40	kV	0.38	94.6	3-Phase
P22	Bus	Under Voltage	0.40	kV	0.36	89.2	3-Phase
P220	Bus	Under Voltage	0.40	kV	0.38	94.5	3-Phase
P221	Bus	Under Voltage	0.40	kV	0.38	94.7	3-Phase
P226	Bus	Under Voltage	0.40	kV	0.37	93.6	3-Phase
P23	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P232	Bus	Under Voltage	0.40	kV	0.37	93.7	3-Phase
P235	Bus	Under Voltage	0.40	kV	0.38	94.5	3-Phase
P238	Bus	Under Voltage	0.40	kV	0.37	93.4	3-Phase
P24	Bus	Under Voltage	0.40	kV	0.36	89.5	3-Phase
P242	Bus	Under Voltage	0.40	kV	0.37	92.9	3-Phase
P246	Bus	Under Voltage	0.40	kV	0.37	91.4	3-Phase
P247	Bus	Under Voltage	20.00	kV	18.94	94.7	3-Phase
P25	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P250	Bus	Under Voltage	0.40	kV	0.37	93.5	3-Phase
P251	Bus	Under Voltage	20.00	kV	18.91	94.5	3-Phase
P252	Bus	Under Voltage	0.40	kV	0.37	93.2	3-Phase
P253	Bus	Under Voltage	20.00	kV	18.90	94.5	3-Phase
P254	Bus	Under Voltage	0.40	kV	0.37	92.8	3-Phase
P255	Bus	Under Voltage	20.00	kV	18.89	94.4	3-Phase
P26	Bus	Under Voltage	0.40	kV	0.36	90.4	3-Phase
P266	Bus	Under Voltage	0.40	kV	0.37	93.6	3-Phase
P267	Bus	Under Voltage	20.00	kV	18.88	94.4	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 72
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P268	Bus	Under Voltage	0.40	kV	0.38	93.8	3-Phase
P269	Bus	Under Voltage	20.00	kV	18.88	94.4	3-Phase
P27	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P272	Bus	Under Voltage	0.40	kV	0.37	93.1	3-Phase
P273	Bus	Under Voltage	20.00	kV	18.81	94.0	3-Phase
P277	Bus	Under Voltage	20.00	kV	18.79	94.0	3-Phase
P28	Bus	Under Voltage	0.40	kV	0.36	90.4	3-Phase
P282	Bus	Under Voltage	0.40	kV	0.37	91.6	3-Phase
P283	Bus	Under Voltage	20.00	kV	18.75	93.8	3-Phase
P286	Bus	Under Voltage	20.00	kV	18.78	93.9	3-Phase
P288	Bus	Under Voltage	20.00	kV	18.76	93.8	3-Phase
P29	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P292	Bus	Under Voltage	20.00	kV	18.87	94.4	3-Phase
P293	Bus	Under Voltage	0.40	kV	0.37	92.9	3-Phase
P296	Bus	Under Voltage	20.00	kV	18.87	94.3	3-Phase
P297	Bus	Under Voltage	0.40	kV	0.37	93.2	3-Phase
P298	Bus	Under Voltage	20.00	kV	18.87	94.3	3-Phase
P299	Bus	Under Voltage	0.40	kV	0.37	92.9	3-Phase
P3	Bus	Under Voltage	20.00	kV	18.51	92.6	3-Phase
P30	Bus	Under Voltage	0.40	kV	0.36	90.2	3-Phase
P304	Bus	Under Voltage	0.40	kV	0.37	92.7	3-Phase
P305	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P31	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P312	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P313	Bus	Under Voltage	0.40	kV	0.37	93.3	3-Phase
P314	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P315	Bus	Under Voltage	0.40	kV	0.37	92.5	3-Phase
P316	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P317	Bus	Under Voltage	0.40	kV	0.37	93.1	3-Phase
P32	Bus	Under Voltage	0.40	kV	0.36	89.8	3-Phase
P324	Bus	Under Voltage	0.40	kV	0.37	92.6	3-Phase
P325	Bus	Under Voltage	0.40	kV	0.37	93.5	3-Phase
P326	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P327	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P328	Bus	Under Voltage	20.00	kV	18.86	94.3	3-Phase
P329	Bus	Under Voltage	0.40	kV	0.37	92.9	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 73
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P33	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P34	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P35	Bus	Under Voltage	0.40	kV	0.37	91.4	3-Phase
P36	Bus	Under Voltage	20.00	kV	18.31	91.5	3-Phase
P37	Bus	Under Voltage	0.40	kV	0.36	89.5	3-Phase
P38	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P39	Bus	Under Voltage	0.40	kV	0.36	90.7	3-Phase
P4	Bus	Under Voltage	20.00	kV	18.51	92.6	3-Phase
P40	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P41	Bus	Under Voltage	0.40	kV	0.36	90.6	3-Phase
P42	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P43	Bus	Under Voltage	0.40	kV	0.36	89.6	3-Phase
P44	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P45	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P46	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P47	Bus	Under Voltage	0.40	kV	0.36	89.4	3-Phase
P48	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P49	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P5	Bus	Under Voltage	0.40	kV	0.37	91.4	3-Phase
P50	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase
P51	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P52	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P53	Bus	Under Voltage	0.40	kV	0.36	90.7	3-Phase
P54	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P55	Bus	Under Voltage	0.40	kV	0.36	91.2	3-Phase
P56	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P57	Bus	Under Voltage	0.40	kV	0.36	89.7	3-Phase
P58	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P59	Bus	Under Voltage	0.40	kV	0.36	89.2	3-Phase
P6	Bus	Under Voltage	20.00	kV	18.42	92.1	3-Phase
P60	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P61	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase
P62	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P63	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P64	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P65	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 74
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P66	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P67	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P68	Bus	Under Voltage	0.40	kV	0.36	90.8	3-Phase
P69	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P7	Bus	Under Voltage	0.40	kV	0.36	91.1	3-Phase
P70	Bus	Under Voltage	0.40	kV	0.36	90.6	3-Phase
P71	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P72	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P73	Bus	Under Voltage	20.00	kV	18.30	91.5	3-Phase
P74	Bus	Under Voltage	0.40	kV	0.36	91.1	3-Phase
P76	Bus	Under Voltage	20.00	kV	18.31	91.6	3-Phase
P77	Bus	Under Voltage	0.40	kV	0.36	90.1	3-Phase
P8	Bus	Under Voltage	20.00	kV	18.39	91.9	3-Phase
P80	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P81	Bus	Under Voltage	0.40	kV	0.35	88.4	3-Phase
P82	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P83	Bus	Under Voltage	0.40	kV	0.36	90.8	3-Phase
P84	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P85	Bus	Under Voltage	0.40	kV	0.36	90.8	3-Phase
P86	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P87	Bus	Under Voltage	0.40	kV	0.36	91.0	3-Phase
P88	Bus	Under Voltage	20.00	kV	18.33	91.7	3-Phase
P89	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase
P9	Bus	Under Voltage	0.40	kV	0.37	91.4	3-Phase
P90	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P91	Bus	Under Voltage	0.40	kV	0.36	90.9	3-Phase
P92	Bus	Under Voltage	20.00	kV	18.32	91.6	3-Phase
P93	Bus	Under Voltage	0.40	kV	0.36	90.7	3-Phase
P94	Bus	Under Voltage	20.00	kV	18.34	91.7	3-Phase
P95	Bus	Under Voltage	0.40	kV	0.36	91.1	3-Phase
P96	Bus	Under Voltage	20.00	kV	18.33	91.7	3-Phase
P97	Bus	Under Voltage	0.40	kV	0.36	90.2	3-Phase
P98	Bus	Under Voltage	20.00	kV	18.33	91.6	3-Phase
P99	Bus	Under Voltage	0.40	kV	0.36	90.4	3-Phase
PC_56 MAJU TAMBAK	Transformer	Overload	0.16	MVA	1.46	914.0	3-Phase
SUMUR							
TL1	Bus	Under Voltage	21.00	kV	19.91	94.8	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 75
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Critical Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
T-PD 21	Transformer	Overload	0.02	MVA	0.02	134.2	3-Phase

Marginal Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
Bus128	Bus	Under Voltage	20.00	kV	19.24	96.2	3-Phase
Bus129	Bus	Under Voltage	20.00	kV	19.21	96.0	3-Phase
Bus130	Bus	Under Voltage	20.00	kV	19.12	95.6	3-Phase
Bus131	Bus	Under Voltage	20.00	kV	19.01	95.1	3-Phase
Bus135	Bus	Under Voltage	20.00	kV	19.23	96.2	3-Phase
Bus136	Bus	Under Voltage	20.00	kV	19.22	96.1	3-Phase
Bus137	Bus	Under Voltage	20.00	kV	19.02	95.1	3-Phase
P114	Bus	Under Voltage	0.40	kV	0.39	97.8	3-Phase
P116	Bus	Under Voltage	0.40	kV	0.39	97.8	3-Phase
P118	Bus	Under Voltage	0.40	kV	0.39	97.0	3-Phase
P120	Bus	Under Voltage	0.40	kV	0.39	97.4	3-Phase
P122	Bus	Under Voltage	0.40	kV	0.39	97.5	3-Phase
P140	Bus	Under Voltage	0.40	kV	0.39	97.6	3-Phase
P146	Bus	Under Voltage	0.40	kV	0.39	97.6	3-Phase
P148	Bus	Under Voltage	0.40	kV	0.39	96.8	3-Phase
P150	Bus	Under Voltage	0.40	kV	0.39	97.3	3-Phase
P151	Bus	Under Voltage	20.00	kV	19.58	97.9	3-Phase
P152	Bus	Under Voltage	0.40	kV	0.39	96.5	3-Phase
P153	Bus	Under Voltage	20.00	kV	19.49	97.4	3-Phase
P154	Bus	Under Voltage	0.40	kV	0.39	96.3	3-Phase
P155	Bus	Under Voltage	20.00	kV	19.45	97.3	3-Phase
P156	Bus	Under Voltage	0.40	kV	0.38	95.1	3-Phase
P157	Bus	Under Voltage	20.00	kV	19.29	96.4	3-Phase
P159	Bus	Under Voltage	20.00	kV	19.25	96.2	3-Phase
P163	Bus	Under Voltage	20.00	kV	19.24	96.2	3-Phase
P188	Bus	Under Voltage	0.40	kV	0.38	95.0	3-Phase
P193	Bus	Under Voltage	0.40	kV	0.38	95.6	3-Phase
P194	Bus	Under Voltage	20.00	kV	19.23	96.1	3-Phase
P195	Bus	Under Voltage	20.00	kV	19.23	96.1	3-Phase
P196	Bus	Under Voltage	20.00	kV	19.23	96.2	3-Phase
P197	Bus	Under Voltage	20.00	kV	19.23	96.2	3-Phase
P201	Bus	Under Voltage	20.00	kV	19.22	96.1	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 76
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

Marginal Report

Device ID	Type	Condition	Rating/Limit	Unit	Operating	% Operating	Phase Type
P202	Bus	Under Voltage	0.40	kV	0.38	95.2	3-Phase
P203	Bus	Under Voltage	20.00	kV	19.22	96.1	3-Phase
P208	Bus	Under Voltage	0.40	kV	0.38	95.2	3-Phase
P210	Bus	Under Voltage	20.00	kV	19.22	96.1	3-Phase
P211	Bus	Under Voltage	20.00	kV	19.22	96.1	3-Phase
P215	Bus	Under Voltage	20.00	kV	19.20	96.0	3-Phase
P222	Bus	Under Voltage	20.00	kV	19.17	95.9	3-Phase
P223	Bus	Under Voltage	20.00	kV	19.19	96.0	3-Phase
P227	Bus	Under Voltage	20.00	kV	19.12	95.6	3-Phase
P233	Bus	Under Voltage	20.00	kV	19.04	95.2	3-Phase
P234	Bus	Under Voltage	20.00	kV	19.09	95.4	3-Phase
P239	Bus	Under Voltage	20.00	kV	19.01	95.0	3-Phase
P243	Bus	Under Voltage	20.00	kV	19.01	95.0	3-Phase
P260	Bus	Under Voltage	0.40	kV	0.38	95.1	3-Phase
P261	Bus	Under Voltage	0.40	kV	0.38	95.5	3-Phase
P262	Bus	Under Voltage	20.00	kV	19.23	96.1	3-Phase
P263	Bus	Under Voltage	20.00	kV	19.23	96.1	3-Phase

Project:
Location:
Contract:
Engineer:
Filename: citra fix

ETAP
12.6.0H

Study Case: LF

Page: 77
Date: 12-06-2017
SN:
Revision: Base
Config.: Normal

SUMMARY OF TOTAL GENERATION, LOADING & DEMAND

	<u>MW</u>	<u>Mvar</u>	<u>MVA</u>	<u>% PF</u>
Source (Swing Buses):	5.044	3.466	6.120	82.42 Lagging
Source (Non-Swing Buses):	0.000	0.000	0.000	
Total Demand:	5.044	3.466	6.120	82.42 Lagging
Total Motor Load:	2.706	1.677	3.184	85.00 Lagging
Total Static Load:	2.018	1.251	2.374	85.00 Lagging
Total Constant I Load:	0.000	0.000	0.000	
Total Generic Load:	0.000	0.000	0.000	
Apparent Losses:	0.320	0.538		
System Mismatch:	0.000	0.000		

Number of Iterations: 4