

Project:  
Location:  
Contract:  
Engineer:  
Filename: unbalance

**ETAP**  
**12.6.0H**  
  
Study Case: LF

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**Bus Input Data**

Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus1	33.000	1	100.0	0.0								
Bus2	33.000	1	100.0	0.0								
Bus3	33.000	1	100.0	0.0								
Bus4	33.000	1	100.0	0.0								
Bus5	0.400	1	100.0	0.0	0.032	0.016	0.008	0.004				
Bus6	33.000	1	100.0	0.0								
Bus7	33.000	1	100.0	0.0								
Bus8	0.400	1	100.0	0.0	0.099	0.055	0.025	0.014				
Bus9	33.000	1	100.0	0.0								
Bus10	33.000	1	100.0	0.0								
Bus11	33.000	1	100.0	0.0								
Bus12	0.400	1	100.0	0.0	0.042	0.021	0.011	0.005				
Bus13	33.000	1	100.0	0.0								
Bus14	0.400	1	100.0	0.0	0.025	0.009	0.006	0.002				
Bus15	33.000	1	100.0	0.0								
Bus17	33.000	1	100.0	0.0								
Bus18	33.000	1	100.0	0.0								
Bus19	0.400	1	100.0	0.0	0.018	0.010	0.005	0.002				
Bus20	0.400	1	100.0	0.0	0.077	0.034	0.019	0.009				
Bus21	33.000	1	100.0	0.0								
Bus22	0.400	1	100.0	0.0	0.058	0.018	0.014	0.004				
Bus24	33.000	1	100.0	0.0								
Bus25	0.400	1	100.0	0.0	0.022	0.010	0.005	0.003				
Bus26	33.000	1	100.0	0.0								
Bus27	0.400	1	100.0	0.0	0.022	0.010	0.005	0.003				
Bus28	33.000	1	100.0	0.0								
Bus30	0.400	1	100.0	0.0	0.045	0.012	0.011	0.003				
Bus31	33.000	1	100.0	0.0								
Bus32	33.000	1	100.0	0.0								
Bus34	0.400	1	100.0	0.0	0.093	0.028	0.023	0.007				
Bus35	33.000	1	100.0	0.0								
Bus37	0.400	1	100.0	0.0	0.018	0.011	0.004	0.003				
Bus38	33.000	1	100.0	0.0								

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Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus41	0.400	1	100.0	0.0	0.144	0.050	0.036	0.013				
Bus42	33.000	1	100.0	0.0								
Bus43	33.000	1	100.0	0.0								
Bus44	33.000	1	100.0	0.0								
Bus46	0.400	1	100.0	0.0	0.044	0.011	0.011	0.003				
Bus47	33.000	1	100.0	0.0								
Bus51	33.000	1	100.0	0.0								
Bus52	0.400	1	100.0	0.0	0.011	0.005	0.003	0.001				
Bus53	33.000	1	100.0	0.0								
Bus54	33.000	1	100.0	0.0								
Bus56	0.400	1	100.0	0.0	0.013	0.004	0.003	0.001				
Bus57	33.000	1	100.0	0.0								
Bus59	0.400	1	100.0	0.0	0.144	0.050	0.036	0.013				
Bus60	33.000	1	100.0	0.0								
Bus62	0.400	1	100.0	0.0	0.058	0.028	0.014	0.007				
Bus63	33.000	1	100.0	0.0								
Bus64	33.000	1	100.0	0.0								
Bus66	0.400	1	100.0	0.0	0.091	0.040	0.023	0.010				
Bus68	0.400	1	100.0	0.0	0.055	0.016	0.014	0.004				
Bus69	33.000	1	100.0	0.0								
Bus70	33.000	1	100.0	0.0								
Bus72	0.400	1	100.0	0.0	0.093	0.028	0.023	0.007				
Bus73	33.000	1	100.0	0.0								
Bus75	0.400	1	100.0	0.0	0.038	0.015	0.009	0.004				
Bus76	33.000	1	100.0	0.0								
Bus78	0.400	1	100.0	0.0	0.013	0.010	0.003	0.002				
Bus79	33.000	1	100.0	0.0								
Bus81	0.400	1	100.0	0.0	0.042	0.010	0.010	0.003				
Bus82	33.000	1	100.0	0.0								
Bus83	33.000	1	100.0	0.0								
Bus85	0.400	1	100.0	0.0	0.044	0.011	0.011	0.003				
Bus86	33.000	1	100.0	0.0								
Bus87	33.000	1	100.0	0.0								
Bus89	0.400	1	100.0	0.0	0.037	0.013	0.009	0.003				
Bus90	33.000	1	100.0	0.0								

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					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus92	0.400	1	100.0	0.0	0.069	0.026	0.017	0.006				
Bus93	33.000	1	100.0	0.0								
Bus95	0.400	1	100.0	0.0	0.018	0.011	0.004	0.003				
Bus96	33.000	1	100.0	0.0								
Bus98	0.400	1	100.0	0.0	0.045	0.012	0.011	0.003				
Bus99	33.000	1	100.0	0.0								
Bus101	0.400	1	100.0	0.0	0.055	0.060	0.014	0.015				
Bus102	33.000	1	100.0	0.0								
Bus103	33.000	1	100.0	0.0								
Bus105	0.400	1	100.0	0.0	0.038	0.015	0.009	0.004				
Bus106	33.000	1	100.0	0.0								
Bus108	0.400	1	100.0	0.0	0.054	0.017	0.014	0.004				
Bus113	33.000	1	100.0	0.0								
Bus114	33.000	1	100.0	0.0								
Bus116	0.400	1	100.0	0.0	0.026	0.010	0.006	0.003				
Bus119	0.400	1	100.0	0.0	0.019	0.006	0.005	0.002				
Bus120	33.000	1	100.0	0.0								
Bus121	33.000	1	100.0	0.0								
Bus124	33.000	1	100.0	0.0								
Bus125	0.400	1	100.0	0.0	0.068	0.022	0.017	0.006				
Bus126	33.000	1	100.0	0.0								
Bus127	33.000	1	100.0	0.0								
Bus129	0.400	1	100.0	0.0	0.022	0.010	0.005	0.003				
Bus132	33.000	1	100.0	0.0								
Bus133	0.400	1	100.0	0.0	0.031	0.010	0.008	0.003				
Bus134	33.000	1	100.0	0.0								
Bus135	33.000	1	100.0	0.0								
Bus138	33.000	1	100.0	0.0								
Bus139	0.400	1	100.0	0.0	0.053	0.028	0.013	0.007				
Bus142	33.000	1	100.0	0.0								
Bus143	0.400	1	100.0	0.0	0.058	0.018	0.014	0.004				
Bus145	33.000	1	100.0	0.0								
Bus146	33.000	1	100.0	0.0								
Bus148	0.400	1	100.0	0.0	0.045	0.024	0.011	0.006				
Bus150	0.400	1	100.0	0.0	0.013	0.004	0.003	0.001				

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Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus151	33.000	1	100.0	0.0								
Bus152	33.000	1	100.0	0.0								
Bus154	0.400	1	100.0	0.0	0.005	0.002	0.001	0.000				
Bus155	33.000	1	100.0	0.0								
Bus157	0.400	1	100.0	0.0	0.013	0.004	0.003	0.001				
Bus158	33.000	1	100.0	0.0								
Bus159	33.000	1	100.0	0.0								
Bus160	33.000	1	100.0	0.0								
Bus162	0.400	1	100.0	0.0	0.018	0.010	0.005	0.002				
Bus163	33.000	1	100.0	0.0								
Bus165	0.400	1	100.0	0.0	0.025	0.009	0.006	0.002				
Bus166	33.000	1	100.0	0.0								
Bus167	33.000	1	100.0	0.0								
Bus168	33.000	1	100.0	0.0								
Bus170	0.400	1	100.0	0.0	0.011	0.005	0.003	0.001				
Bus171	33.000	1	100.0	0.0								
Bus172	33.000	1	100.0	0.0								
Bus173	33.000	1	100.0	0.0								
Bus175	0.400	1	100.0	0.0	0.043	0.014	0.011	0.004				
Bus176	33.000	1	100.0	0.0								
Bus178	0.400	1	100.0	0.0	0.032	0.011	0.008	0.003				
Bus179	33.000	1	100.0	0.0								
Bus180	33.000	1	100.0	0.0								
Bus181	33.000	1	100.0	0.0								
Bus183	0.400	1	100.0	0.0	0.111	0.054	0.028	0.013				
Bus184	33.000	1	100.0	0.0								
Bus185	33.000	1	100.0	0.0								
Bus188	0.400	1	100.0	0.0	0.013	0.004	0.003	0.001				
Bus189	33.000	1	100.0	0.0								
Bus191	0.400	1	100.0	0.0	0.009	0.004	0.002	0.001				
Bus192	33.000	1	100.0	0.0								
Bus193	33.000	1	100.0	0.0								
Bus194	33.000	1	100.0	0.0								
Bus195	33.000	1	100.0	0.0								
Bus196	33.000	1	100.0	0.0								

Bus			Initial Voltage		Load							
					Constant kVA		Constant Z		Constant I		Generic	
ID	kV	Sub-sys	% Mag.	Ang.	MW	Mvar	MW	Mvar	MW	Mvar	MW	Mvar
Bus197	33.000	1	100.0	0.0								
Bus198	33.000	1	100.0	0.0								
Bus200	0.400	1	100.0	0.0	0.091	0.040	0.023	0.010				
Bus201	33.000	1	100.0	0.0								
Bus203	0.400	1	100.0	0.0	0.011	0.005	0.003	0.001				
Bus204	33.000	1	100.0	0.0								
Bus205	33.000	1	100.0	0.0								
Bus206	33.000	1	100.0	0.0								
Bus208	0.400	1	100.0	0.0	0.045	0.014	0.011	0.004				
Bus209	33.000	1	100.0	0.0								
Bus211	0.400	1	100.0	0.0	0.074	0.022	0.019	0.005				
Bus212	0.400	1	100.0	0.0								
Bus213	33.000	1	100.0	0.0								
Total Number of Buses: 151					2.494	0.996	0.623	0.249	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
Bus1	33.000	Swing	1	100.0	0.0					
Bus212	0.400	Voltage Control	1	100.0	0.0	0.380			0.000	0.000
						0.380	0.000			